

Nora Wilcox
CMIL Internship 2023

Nora Wilcox's Introduction to Marine Ecology

During my time as an intern at the Coastal Marine Institute Laboratory, I was mentored by graduate student Xavius Boone. Working alongside him was an absolute pleasure, as he went above and beyond to ensure that this program became an enriching experience for me. His initial project was to conduct a spatiotemporal survey on fish populations across various estuaries in San Diego County. But upon speaking with some of the managers of these sites, we learned that his research would be delayed to a later time. In the meantime, I had an introduction to different aspects of marine ecology which included data analysis through R-Studio, working in a research lab surveying the quantity of commensal worms found in various sea urchins, and performing vegetation surveys in San Dieguito Lagoon for the Southern California Bight Monitoring Program.

My immersion into the world of marine ecology began with an introduction to data analysis with R-studio, a programming language for statistical computing and graphics. Through this process, I gained a deeper understanding on how computer science is necessary when reviewing large data sets with many elements. Xavius walked me through how to use R-studio and created a tutorial on the software.

During the program, an exciting opportunity arose when Jessica Weidenfeld allowed me to work on her sea urchin project. Taking the lead on a comprehensive survey of sea urchins, Jessica aimed to understand the relationship between urchin size and the prevalence of commensal worms that feed on fecal matter. My role involved the extraction of these commensal worms using a pipette instrument, followed by a recording of each specimen's height, width, and weight. While working in the lab at this time, I mingled with Diego, another intern in the program. We talked about our aspirations, why we are here, and nerded out about random marine animals. Overall, this lab experience particularly interested me since she plans to explore the effects of various nutrient inputs on sea urchins and document how these alterations impact the worm populations on each individual urchin.

As the summer came to a close, I embarked on invaluable fieldwork experiences that further enriched my new skill set. Guided by the expertise of Xavius and Dr. Kat Behesti, I delved into fundamental field techniques, including the use of GPS technology, laying transects at two different stations, and navigating tidal creeks. I really enjoyed exploring San Dieguito in the mud with rain boots, sunscreen, and people with great attitudes. Working out on the field has reaffirmed the importance of precision when it comes to data collection in ecological research. What surprised me was how effortlessly invasive species can infiltrate new environments. After a day out on the field, Xavius shared a photo of his mud-covered boots covered with a few horn snails. This sparked a discussion about the importance of disinfecting footwear and other

instruments and emphasized the need for caution, revealing how insignificant actions can introduce invasive species and potentially disrupt an ecosystem.

In addition to gaining experience with graduate students, the program provided helpful workshops. These have improved my understanding of the methods used to create an experiment, navigating graduate school, communicating science to the public, along with other activities that have improved my outlook on ecology. It was reassuring to have the support and tools needed to succeed.

Overall, as a mentee, I've come to realize that research rarely unfolds according to plan; rather, it demands a great deal of patience and adaptability. I am thankful to have had the opportunity to participate in this program and for all the people who have made it possible.