

Grace Taylor

Class of 2021

Marine Biology

Academic field guide of the algae, invertebrates, and vertebrates found in the New Haven Harbor

Mentors: Dr. Jean-Paul Simjouw and Dr. Gail Hartnett

Department of Biology and Environmental science

The objective of this research project was to create an academic field guide for the Introduction to Marine Biology course. It will be used to help the incoming freshman who may be unfamiliar with the species in the area. By using this field guide, future students who enroll in marine biology focused courses will acquire more knowledge of the organisms they might encounter while in the field. Four sites were chosen to locate and collect species: Lighthouse Point Park, Bradley Point, Sandy Point and Banca saltmarsh. Each site was visited two to three days a week, depending on the time of low tide. Additional trips were taken to return species that had been collected. Prior to going to each location, a site-specific materials list was made. When a species was found, detailed photos were taken with a Nikon 3500 camera. The original project plan was to photograph the specimen in the field; however, due to the outdoor lighting, algal and invertebrate species were brought back to the lab to be later photographed. The lab provided better lighting which allowed for the specimens to be viewed in detail and exaggerate their unique qualities. Due to state regulations, vertebrate species were not legally allowed to be brought to the lab. Therefore, they had to be photographed in the field in the best possible lighting locations and in their respective shore environments. The holding tank for the algal and invertebrate species composed of lab-made saltwater with a salinity of 27 parts per thousands and a flowing filtration system. Using pictures and the organisms in lab themselves four dichotomous keys were used to identify the organisms found.

Overall 30 species were found, including 11 algae, 16 invertebrates, and three vertebrates. The guide is separated into three main categories, which are subdivided by phyla and classes. Each species page contains its' scientific name/common name, identifying features, habitats they reside in, and photos of the species. A dichotomous key was made specifically for the guide. The key is put first in the guide to direct the students to where they need to go. Meaning, this allows each student to look at the main phyla which then can condense their search of a certain organism while also providing a general idea of the phyla in which the species resides. This format allows species to be identified quickly and easily while the students are out in the field. Meaning, students would be able to identify creatures without too much disturbance to the creature itself and the general environment around it. In the future I would like to go to each site more during this upcoming semester and locate more species that were not located initially. As well as, confirming the species that I have seen and seeing if any present with new changes in their features and environment.

Citations

- Weiss HM, Bennett DV, May P, Churchill L, Venti C. Marine animals of southern New England and New York: identification keys to common nearshore and shallow water macrofauna. Hartford, CT: State Geological and Natural History Survey of Connecticut, Dept. of Environmental Protection; 1995.
- Thomson KS, Thomson KS. Saltwater fishes of Connecticut. Hartford: State Geological and Natural History Survey of Connecticut, Dept. of Environmental Protection; 1978.
- Stewart VPM, Yarish C. Seaweeds of Long Island Sound. Groton CT: Connecticut Sea Grant College Program; 2009.
- Villalard-Bohnsack M. Illustrated key to the seaweeds of New England. Kingston, RI: Rhode Island Natural History Survey; 2003.
- WoRMS - World Register of Marine Species. WoRMS - World Register of Marine Species. [accessed 2019 Sep 30]. <http://marinespecies.org/>