The Invasive species of the Asian Shore Crab

Abstract:

Our project is a cooperative research project with our class and the Cold Spring Harbor DNA Labs. The objective of our project is to use our research and DNA Barcoding to determine how the invasive species of the Asian Shore Crab is affecting the biodiversity of Cold Spring Harbor. Our class took a trip and started our research there. The location of our collection was north of the spit in Cold Spring Harbor, New York right behind James Watson's house. At the location of our collection, we collected different organisms all over the beach and in the water. We then took the organisms we collected and documented them. We then used the Davenport Project to compare the information from it with the information we collect. A species that we found was very abundant was the Asian Shore Crab. The Asian Shore Crab is an invasive species to Cold Spring Harbor and is affecting biodiversity. We aim to find out the effects through DNA barcoding.

Conclusion:

Finally, it may be concluded that since the Asian Shore Crabs have arrived in Cold Spring Harbor, NY, the population of native species has decreased. The Asian Shore Crab is not a picky eater and eats a wide variety of different foods. Due to this, it outcompetes with native species such as other crabs and fish. The Asian Shore Crab was not mentioned in the Davenport study, and only arrived at Cold Spring Harbor in 1994. While collecting data in the Spit this year, our group found the Asian Shore crabs to be very abundant. We found over twenty crabs while collecting in one area. The Asian Shore Crab feeds on macroalgae, salt marsh grass, larval and juvenile fish, and small invertebrates. From looking at the Davenport Project and our own research we can conclude that the abundance of these animals have decreased in Cold Spring Harbor, since the arrival of the Asian Shore Crab.

Methodology:

We collected our samples on the north of the spit right behind James Watson's house. Our collection location was filled with mostly wet sand and rocks. There was most of the beach exposed, giving us plenty of room for collection. The beach was moist and the sand was densely compacted creating ideal conditions for Asian Shore Crabs to thrive. Our collection techniques will vary during our collection. We will physically lift rocks on the beach and dig in the sand to look for different species. We will use buckets to gather organisms in order to protect them during collection. Using plastic tweezers, we will place organisms in collection tubes and label them with sample numbers and latitude and longitude coordinates. We will use a shovel to place sand in a sifter to carefully separate organisms from the sand and other debris. We will place all organisms in collection tubes and label them. For each species collected, we will carefully label each tube and take notes on its environment and any notable observations that we make. Once we collected our samples we took them back to the DNA Labs. We took pictures and measurements of all of the organisms we had collected. We then stored the organism in test tubes or dishes and covered them in ethanol to preserve them until we DNA barcode them. All of the organisms our whole class collect were documented and put into an excel spreadsheet to be shared with all the groups to allow for a better look at organisms that are present in the harbor.