

Organisms of the LBHS Pond

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Introduction

- Organisms inhabit varying niches in their environment. For instance, organisms in marine environments often encrust themselves on hard surfaces. Marine sessile organisms have the ability to attach to submerged solids very easily.
- These submerged solids can include material such as plastic, rocks, and metals.
- The goal is to find out about the variety of organisms that encrust themselves onto rocks in the bay. It is also to explore the biodiversity of marine life.
- Part of the goal was to find out the different taxa that inhabited the ocean and see if there was any species that wasn't originally thought to be there.
- The hard surfaces were rocks and other objects that were found in the lake outside our school from Reynold's Channel.
- By examining the organisms living on the rocks and other hard surfaces, one is able to understand which kinds of organisms inhabit the environment.
- DNA Barcoding was used to attempt find out and confirm the exact species that were found living in Reynold's Channel
- It also allow a way to figure out how different organisms react to foreign items in their habitat and what impact it has on the species around them.



On a Rock

Organisms found in the LBHS pond



Sigambra tentacula



Nematoda Roundworm

Research Question

- How does marine invertebrate diversity differ on introduced hard substrate, compared to soft bottom surfaces in Reynold's Channel?

Materials & Methods

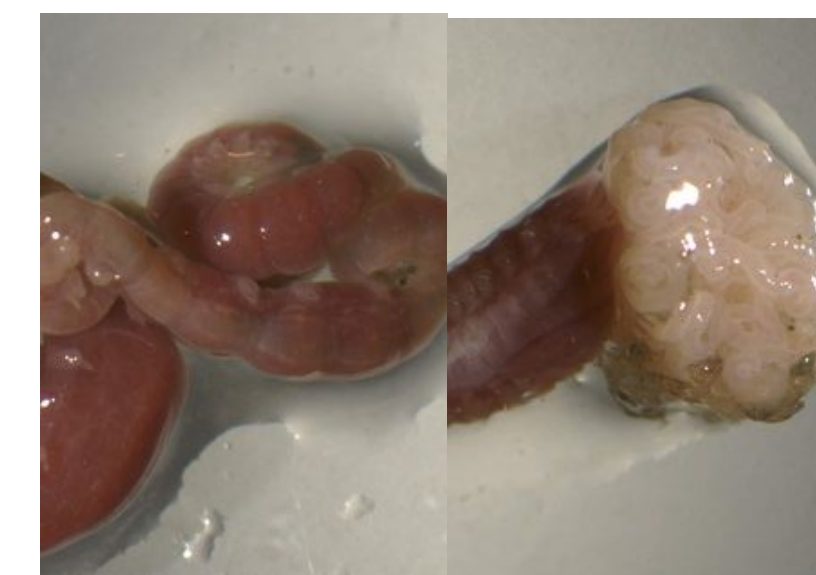
- Sharp blade to remove organisms from hard surfaces and were careful not to damage the specimens.
- Ensured that we scraped off the tissue and not just the hard outer shell on the encrustations.
- In the lab we examined the organisms found using a dissecting microscope as well as using the naked eye. By using Taxonomic/Identification keys we were able to identify majority of the organisms. Unknown organisms were DNA Barcoded. We used LI Barcoding protocol.
- For barcoding, we took a small piece of tissue (no larger than a grain of rice) using sterile scissors and tweezers.
- At the same time we made sure you don't cross contaminate any species and also keep record of where it came from. We also sure to preserve the rest of the organism.

Results

Most of the organisms found consisted of sponges, crabs, shrimp, and marine weeds.

(Genus names not confirmed due to barcoding issues). There was a lot of biodiversity encountered on and unfortunately the barcoding protocol was unsuccessful. During the first trial the organisms we were not aware that the DNA had to be stored in ethanol resulting in degrading DNA. The second trial did not work as well, and are still trying to figure out what happened.

The value of biodiversity is demonstrated throughout this ecosystem as well as many others. Without biodiversity, one would not be able to explore different taxa in depth. Humans greatly depend on biodiversity for medicine, biotechnology and other products because of the diversity. The way organisms interact with each other every day affects biodiversity and the different habitats that take place in our environment.



Annelida
Typical Opal Worm



Clathria prolifera
Red Beard Sponge



Schizoporella unicornis
Single Horn Byzoan



Clathria prolifera
Red Beard Sponge



Palaemonetes
Grass Shrimp



Porifera cliona
Sea Sponge

*All photos taken by student researchers