Biodiversity Attracted to Oyster Reefs on Long Island



Introduction:

An oyster reef in the tidal wetland located on the campus of Long Beach High School was created. The keystone species, oysters, altered their environment in many ways. The increasing biodiversity G_1 attracted to the oyster reef was analyzed. DNA barcoding was used to identify species that were unable to be identified using standard taxonomic keys. Studying attracted organisms will help us better understand the role of these unique organisms within the local ecosystem.

Research Question:

What organisms are found in the oyster reef at Long Beach High School?

Methods

- -The oyster reef was brought up from the bottom of the LBHS pond
- Organisms were collected and stored at cool temperatures
- DNA was isolated to get accurate results
- Polymerase chain reaction (PCR) was performed to create many copies of the DNA

- Gel electrophores is was done and the working samples were sent away so the bases could be read and matched with a species

Results

Our barcoding results were inconclusive as much of the DNA isolation didn't work, except for two organisms. Once barcoded, BLAST was used to confirm one of the species (a sponge) as Halichrondia panicea, commonly known as the Breadcrumb Sponge, It is abundant in coastal areas in the North Atlantic.





Where Organisms Were Collected

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Pictures of the Oyster Reef

Organisms found:

Graceful Red Weed	Gracilaria tikvahiae
alse Irish Moss	Mastocarpus stellatus
ea Squirt	Didemnum vexillum
lemertean Ribbon Vorm	Lineus sanguineus
lipper Shell	Crepidula fornicata
rustacean	Copepod
cale worm	Lepidonotous squama
readcrumb Sponge	*Halichondria panice

Discussion

Though the DNA barcoding results didn't prove what some the organisms were, we can still conclude that the oyster reef in the pond outside the high school is home to a range of life. When surveyed, the oyster reefs shows a large amount of sea squirts, meaning it is a preferred environment for them. Along with those, species of worm were found, along with slipper shells. Though the barcode results indicated it was a species of ant, the arthropod found was probably a crustacean which also shows how the species vary.

The oyster, a keystone species, creates a stable environment for these organisms to inhabit by filtering water and in doing so attracts biodiversity and creates an ecosystem of marine plants and animals. This is helpful because it gives each organism a role in the community and ensures stability in the reef.





*Successfully barcoded