Wrack Line DNA Summary Report

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Research Question

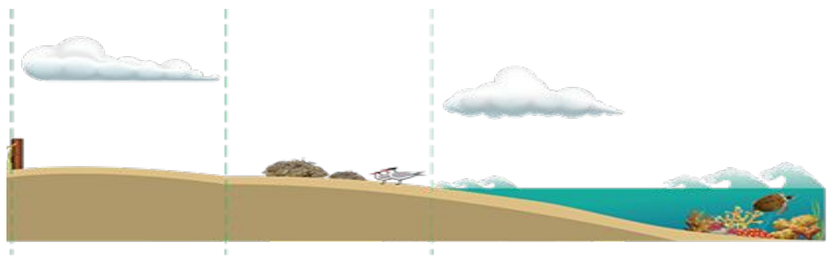
What insects inhabit the wrack line along the Atlantic shoreline of Long Beach, New York?

Introduction

The wrack line is the high-tide deposition line on the beach. These wrack lines can often contain kelp, insects, small sediment, sand, and pebbles. Insects are important because of their diversity, ecological role, and influence on agriculture, human health, and natural resources. This biodiversity performs a variety of ecological services in an ecosystem. Another important part of an ecosystem are the sandy beaches because they function as dynamic ecosystems and provide habitat for numerous species of plants and animals. Residing within the sand there is a robust community of life. Insects on the wrack line are just some of the common inhabitants of this unique environment. Many birds native to this area forage on the insect supply provided by the wrack line., this includes an endangered species known as the Piping Plover.

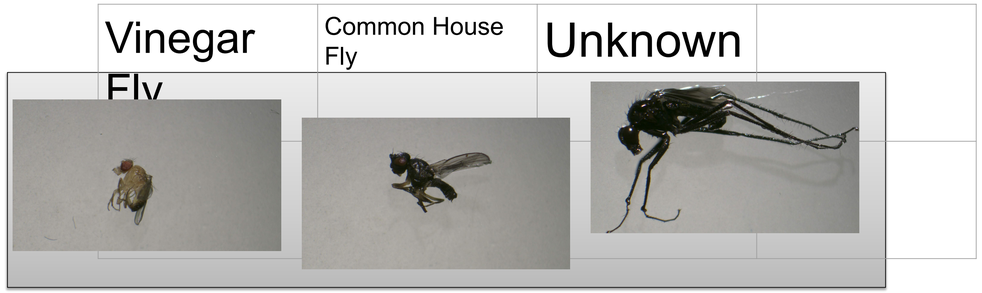
Materials & Methods

- Collect insect by the wrack line near Magnolia beach approximately between 3:30 and 4:30 P.M.
- Record the temperature, time, and wind direction.
- Catch insects with nets
- Put the insects in a petri dish
- Take them into school and take HD photos using the dissecting microscope.
- Preserve the insects in the freezer
- Identify the organism using a taxonomic key.
- If unable to identify using keys then follow DNA barcoding protocol from BarcodeLI`



Wrack Line

Figure 1: Deptiction of Wrack line
http://www.mbrisingabove.com/climate-mitigation/natural-resources/dunes/



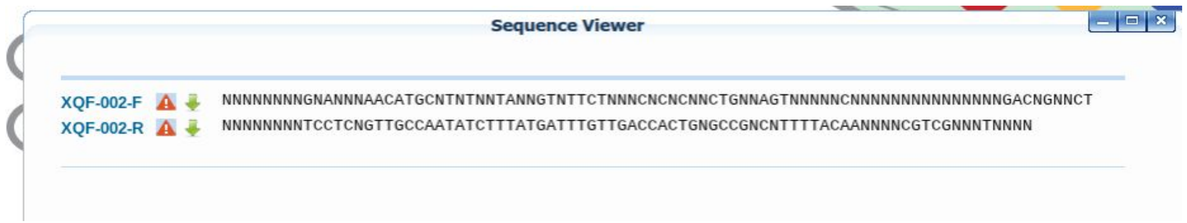


Fig 2: Shows one low quality sequence obtained.

Results

- Barcode results were poor. One sample displayed gel characteristics within parameters but yielded a poor quality sequence.
- Project is ongoing and due to weather issues in the late fall we were unable to obtain the quantity of samples desired.

Discussion

Based on what was collected, we can conclude that the Wrack Line is a diverse habitat that acts as a food source for many organisms. These findings also show that the organisms present in different seasons vary, as none of the original species collected in the fall were found in the spring. The biodiversity that was observed is valuable to human life because we are dependent on it for a stable environment. Greater species diversity ensures natural sustainability for all life forms. Each organism is part of a complex chain of natural events that help other populations and communities remain active and alive. Other values of biodiversity include potential sources of new foods, medicines, and energy which can lead to advances in science.