PROJECT *OCEANOLOGY*

Barrier Beach Field Study: NGSS Alignment

Overview

This 2.5-hour shore program is designed to give students the opportunity to explore some of the physical and biological characteristics of the barrier beach at Bluff Point Coastal Reserve in Groton. Your students will measure the elevation, percent cover of vegetation, and sediment type and layering along transects running across the barrier beach from a protected salt pond to Long Island Sound. Students will also get the chance to go out on the bluff while looking across both Long Island and Fishers Island Sounds. Here, they will learn about the glacial history of Long Island Sound, local island formation, and deposition and erosion dynamics.

Alignment with NGSS

Performance Expectations

HS-ESS2-1: Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features. *Students will collect data on the structure of the barrier beach and will construct a scaled model of the barrier beach based on the findings of the class using the 'ColorMe Beach!' post-program activity.*

Science and Engineering Practices

Developing and Using Models: Develop a model based on evidence to illustrate the relationships between systems or components of a system. *Students will collect data on the structure of the barrier beach, as well as make observations from the bluff on how the beach was formed.*

Crosscutting Concepts

Stability and Change: Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible. *Students will observe and identify the layers of sediment on the barrier beach. They will collect data on the thickness of each sediment layer and make observations about the potential sources of each layer of sediment (i.e. storms, seasonality, etc.).*

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Disciplinary Core Ideas

HS-ESS2-A Earth Materials and Systems: Earth's systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes. *On the trip, students will participate in a discussion about erosion and the dynamic nature of Long Island Sound. The students will use what they learned from the beach transects and modeling activity to predict what will and could happen to the barrier beach over time.*