

GLOBE 21 Field Experiences – what to expect.

Outer Island (Student field experience):



Outer Island is the “outer-most” of three Thimble Islands offshore Branford, CT in Long Island Sound. Much of what follows is taken from the www.outerisland.org website. On this website, there is a lot of information on the variety of habitats.

Outer Island was shaped tens of thousands of years ago by glacial erosion and deposition. As the Wisconsin glacier retreated about 15,000 years ago, it exposed the granite bedrock and deposited large erratic boulders along with a thin veneer of gravel, sand, silt and clay (glacial till) on the surface. These large rocks are still easy to identify, perched at and above the water level on the island.

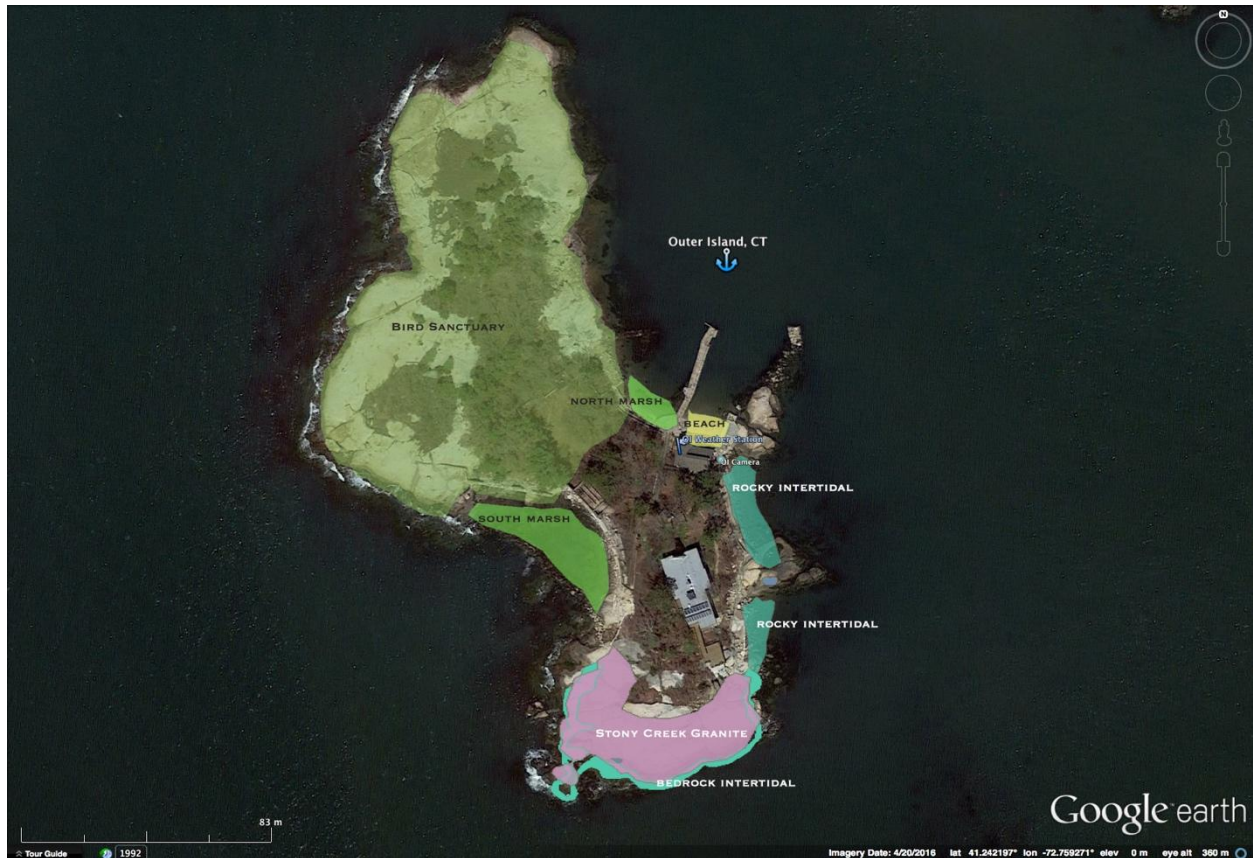
The Mattabesic Native Americans who lived in Stony Creek occupied the Thimble Islands during the pre-colonial summers when fishing was easy. They called Outer Island "Two Tree Island" after the two towering pine trees that were visible landmarks. Now the trees are gone, but the tall chimney rising from the main house serves as a landmark on nautical charts for mariners.

Elizabeth Hird with her husband, Basil Rauch, Professor of History at Columbia University, purchased the island in 1964 as a summer retreat. Then in 1995, Elizabeth donated the island in her deceased husband's memory to the US Fish and Wildlife Service (Stewart B. McKinney National Wildlife Refuge) to ensure that the island's natural resources would be protected and that access for educational and research would be continued. Outer Island remained her summer home until she died in 2002 at the age of 87. Today the Refuge and the Connecticut State University System work in partnership to conduct education and research programs, fulfilling Elizabeth Hird's desires for Outer Island.

Since the island's dedication as a wildlife preserve in 1995, the US Fish & Wildlife Service along with the Connecticut State University System, and the Friends of Outer Island have conducted research and education programs for the public. Guided tours of the island are especially valuable for educators who wish to connect their teaching to the wonders of the natural world, and the uniqueness of Long Island Sound.

The educational facilities on Outer Island have been renovated over the years with funds obtained by the Friends of Outer Island and funds from the Community Foundation of Greater New Haven, Inc. The newly constructed pavilion provides a covered outdoor space with picnic tables for visitors and students. The renovated laboratory space provides an area for students to examine organisms and test water quality in a comfortable, flexible teaching environment. Basic laboratory and field monitoring supplies and equipment are stored on the island and are available for use during scheduled group visits.

Outer Island Field Experience – setting and sampling locations:



While on Outer Island, GLOBE students will explore a variety of habitats including: beach and salt marsh, tide pools, rocky intertidal, and bedrock intertidal areas. Students will use digital probeware to gather data on water quality (temperature, dissolved oxygen, pH, salinity and conductivity, as well as transparency). Students will collect these samples from tidepools as well as in the nearshore Long Island Sound waters. At the small beach, students can investigate the tidal and storm debris washed up as well as drag a seine net to collect small fish and other nearshore organisms. Students will conduct Intertidal Profiles using measuring tape and small pvc quadrats. They will use these to investigate what organisms live in the variety of subtidal, intertidal and supratidal environments. Typical creatures found include all manner of seaweed/algae as well as crabs, including the native rock crab, the naturalized green crab and the still invasive Asian shore crab. Counts of these organisms may help us understand the vulnerability of native species to invading creatures – all of which were brought here by humans. There are marsh habitats to explore and learn their native species, as well as bedrock intertidal zones and finally the upland flora and fauna which includes prickly pear cactus of all things. Finally, there is ample opportunity for bird watching. After all this site is a part of the Stewart B. McKinney National Wildlife Refuge and Bird Sanctuary. There are a number of endangered sea birds that use the site for their annual nesting and chick rearing.

Field Equipment:

Hydrosphere – 3 sets of the following: buckets, water quality testing (probeware) for temperature, dissolved oxygen, pH, conductivity, salinity, nitrates. Also Intertidal transects using 50m field tapes and 1/2m square quadrats for investigating species living in the intertidal zone.

Atmosphere – cloud charts, Kestrel weather meters, the Outer Island Automated Weather Station

(Earth Networks/Weatherbug). This system includes live web cameras viewing the beach and dock area as well as the south side salt marsh.

Biosphere – In addition to the intertidal transects (tidal creatures – use seaweed guides), students will use the MUC guide to identify the landform classification, and tree finder guides and flower guides to identify upland flora. Clinometers and densimeters to work with tree heights and canopy. Students may also take time to view the visiting sea birds (binoculars).

Pedosphere – although the soils on Outer Island are very thin, we may take time to dig a small ditch or auger up a soil core and then use GLOBE protocols to characterize the soils.

The big picture questions/ideas students may consider include:

- The history of storm impacts on small low lying islands.
- The vulnerability of this Island to future hurricane events.
- The vulnerability and resilience of this site to future sea level rise, and more hurricanes hitting at higher levels on the island.
- The resilience of the island habitats, including the endangered nesting birds.
- What about the sustainability and resilience of the human infrastructure on the island?