1. The Problem:
Managers and researchers often do not have the necessary knowledge of seafloor habitats required to protect resources and sustain human use. In many cases, data are inadequate to make wise decisions concerning infrastructure planning, species & habitat management, and general coastal & ocean management issues.

2. The Solution:
A multi-state/multi-agency collaborative is guiding efforts to develop improved benthic data products. A settlement resolving a permitting dispute from two electrical cable crossings in the Sound created a Research and Restoration Fund focusing on benthic mapping.

In order to most effectively use the funds, regional stakeholders conducted a spatial prioritization assessment to identify areas of greatest need. Their input addressed factors including ecological value, multiple uses, and development pressure. From the priority areas, a pilot was selected to serve as an operational test-bed.

The mapping is being led by experts from NOAA, UCONN, & LDEO. Work began in Summer 2012 and will conclude in Spring 2014. Products will include spatial data on:
- Benthic Habitats & Ecological Processes
- Acoustic Intensity & Seafloor Topography
- Sediment Texture, Grain Size Distribution, & Sedimentary Environments
- Physical & Chemical Environments

3. Preliminary Results:
Some of the spatial prioritization techniques developed for the LIS effort are now being used to conduct similar assessments in the state of Washington.

• Advanced sonar processing techniques were used to increase the resolution and quality of older data and allow them to be combined with recently acquired hydrographic data.

• The benthic habitat and ecological analyses are showing areas once thought relatively stable in terms of community composition are now declining in certain populations. In other areas, organisms in similar habitats show highly variable communities and significantly greater diversity when compared to historic sampling.

4. Next Steps:
As the final pilot data are delivered and evaluated, a work-plan to guide future efforts will begin. The next phase of data collection and analysis will concentrate on the Eastern LIS priority area. While there is no official start date as yet, the work will try to leverage potential bathymetric and other data collection efforts planned by the partners and other Federal agencies.

For more information on seafloor mapping in Long Island Sound, use your smartphone or tablet to access the following:

- Seafloor mapping homepage
- 2013 “Sound Update” Issue

Figure 1: Priority mapping areas. The green shows the current pilot area, the red areas are targeted for post-pilot efforts. These resulted from a spatial decision making framework that analyzed input from a variety of stakeholders.

Figure 2: Hydrographic data indicates the depth to the seafloor. Dark red indicates a shallow area, while blue indicates a deeper area. These data were collected in 2012 & 2013 by the NOAA ship Thomas Jefferson.

Figure 3 & 4: An example of sand waves using the 2012 multi-beam bathymetry (above) and backscatter (left). The multi-beam data describes the depth and topography; the backscatter helps describe the type of materials (sand, mud, rocks, etc.) that make up the seafloor. The two are used together to help characterize seafloor environments.

Figure 5: Changes in seafloor habitat from 1991-2012. Haliclonocutula, Astrangia poculata, Mytilus edulis, and branching bryozoa were historically reef dominant. In 2012-2013, Haliclonacutula (the long, finger-like organisms) is absent from reef fauna.