

**LISMaRC Phase II Epifauna Sample Image Locations, Environmental Characteristics, Taxa and Biogenic Feature Cover, and Diversity Measures in the Long Island Sound Cable Fund Initiative Phase II area of eastern Long Island Sound Collected during SEABOSS Operations (2017)**

**METADATA**

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**Dataset Title:** LISMaRC Phase II Epifauna Sample Image Locations, Environmental Characteristics, Taxa and Biogenic Feature Cover, and Diversity Measures in the Long Island Sound Cable Fund Initiative Phase II area of eastern Long Island Sound Collected during SEABOSS Operations (2017)

Filename: *LISMaRC\_BenthicEcology\_2017\_EpifaunaSeaBossImages\_EcolCharacterization.xlsx*

**Online Linkage:** <http://www.marine-geo.org/portals/lis/>

**Abstract:** The XLS file includes record of analyzed images collected during USGS SEABed Observation and Sampling System (SEABOSS) operations in November and December 2017. Data includes image file names, sample location, date and time, habitat characteristics, identified taxa and biogenic features, taxon and biogenic feature abundance, and measures of diversity. These are the complete records of each sample image.

**Dataset purpose:** This dataset provides detailed information on the epifaunal communities in the Phase II study area which can be used to map the spatial characteristics of these communities relative to several environmental features to meet the Long Island Sound Cable Fund's goal of ecological characterization of the Long Island Sound sea floor in conjunction with habitat mapping efforts.

**Time period of content:** These data were collected during November and December 2018.

**Dataset Status:** Complete

**Update Frequency:** None Planned

**Theme Keywords:** Benthic ecology, Epifauna, diversity, habitat, seafloor imaging, SEABOSS, Connecticut, New York, Long Island Sound, Fishers Island Sound, estuary, Long Island Sound Mapping and Research Collaborative, LISMaRC

**Access Constraints:** none

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Data should not be used for navigation purposes.

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**Dataset Credit:** The Long Island Sound Mapping and Research Collaborative (LISMaRC). LISMaRC is the University of Connecticut, the University of New Haven and the US Geological Survey. Funding provided by the Long Island Sound Seafloor Mapping Fund administered cooperatively by the EPA Long Island Sound Study and the Connecticut Department of Energy and Environmental Protection (DEEP).

**Data Quality Considerations:** see below

**Attribute accuracy:** All attributes were evaluated during data processing and analysis as standard quality control to ensure attributes contain accurate and relevant information and values.

**Completeness:** The information provided on epifaunal communities is complete

**Positional accuracy:**

**Horizontal Positional Accuracy:** Navigation during both the 2017 and 2018 sample collection periods used Wide Area Augmentation System (WAAS)-enabled GPS. The GPS was set to receive fixes at a 2-second interval in geographic coordinates (World Geodetic System of 1984 [WGS 84]). The recorded position of each sediment sample is the position of the GPS antenna on the survey vessel, located on the aft port side of the R/V Connecticut, not the location of the SEABOSS. The antenna was located approximately 5 meters from the SEABOSS deployment location in fall 2017 and 3 meters in spring 2018. No layback or offset was applied to the recorded position. In addition, the SEABOSS may drift away from the survey vessel when deployed to the sea floor. Based on the various sources of horizontal offsets, a conservative estimate of the horizontal accuracy of the sediment sample locations is 10 meters.

**Vertical Positional Accuracy:** The depths recorded for each sample are approximate and were derived from an unpublished composite bathymetry dataset used by the Long Island Sound Mapping and Research Collaborative project.

**Process Steps:** Images used for ecological characterization (n=602) were using the United States Geological Survey's (USGS) Seabed Observation and Sampling System (SEABOSS);

Valentine et al. 2000) collected between November 28 and December 3, 2017 on the RV Connecticut.

SEABOSS captured orthogonal images of the seafloor. These images were analyzed for percent cover of all living seafloor species (excluding fish) and biogenic features. Percent cover was quantified using a grid of square cells overlaid on each image (n=216 grid cells). Within each grid square, organisms and biogenic features were identified to lowest possible taxonomic level. The sum of these grid cells for each image and organism or biogenic feature is reported in this dataset. Within-image measures of diversity and richness of taxa and biogenic features were determined per image.

Additional abiotic factors included in the dataset are depth (from multibeam bathymetry), topographic roughness index (TRI; derived from variation in bathymetry based on a moving window of surrounding each cell), tau max (value from the model of seafloor stress), and longitude and the corresponding quartiles for each of these factors.

**Attributes:**

IMAGE: Unique identifier of orthogonal image; formatted as *LISMaRC\_Fall2017\_DSC\_IrfColCor\_[Image File Name Assigned by Camera]*.

YEAR: Year of image capture; formatted as integer value [2017].

DATE\_ISO8601: Date of image capture; formatted in ISO 8601 standard.

TIME\_ISO8601: Time of image capture; formatted in ISO 8601 standard.

DATE\_TIME\_ISO8601: Date and time of image capture; formatted in ISO 8601 standard.

LONGITUDE: see:

[https://www.sciencebase.gov/catalog/file/get/5de9be03e4b02caea0eeda45?f=\\_\\_disk\\_b1%2Fe4%2F74%2Fb1e47494caa95e6a54c32f270518094926f78286&transform=1&allowOpen=true](https://www.sciencebase.gov/catalog/file/get/5de9be03e4b02caea0eeda45?f=__disk_b1%2Fe4%2F74%2Fb1e47494caa95e6a54c32f270518094926f78286&transform=1&allowOpen=true)

LATITUDE: see:

[https://www.sciencebase.gov/catalog/file/get/5de9be03e4b02caea0eeda45?f=\\_\\_disk\\_b1%2Fe4%2F74%2Fb1e47494caa95e6a54c32f270518094926f78286&transform=1&allowOpen=true](https://www.sciencebase.gov/catalog/file/get/5de9be03e4b02caea0eeda45?f=__disk_b1%2Fe4%2F74%2Fb1e47494caa95e6a54c32f270518094926f78286&transform=1&allowOpen=true)

SAMPLE\_AREA: Sample block or site of image capture location.

ECOG\_PATCH: ECognition patch at location of image capture.

DEPTH\_m: Approximate depth of water in meters at the location of image capture derived from an unpublished composite bathymetry dataset used by the Long Island Sound Mapping and Research Collaborative project; measured in m.

DEPTH\_Q4: Depth quartile at the location of image capture; depth increases with increasing quartile.

TRI\_4m: Topographic roughness index (TRI) derived from depth.

TRI4m\_Q4: TRI quartile at the location of image capture; TRI increases with increasing quartile.

TAU\_MX: Maximum tidal shear stress at sediment surface in pascals (a pressure of one newton per square meter, or, in SI base units, one kilogram per meter per second squared).

TAUMX\_Q4: Maximum tau quartile at the location of image capture; maximum tau increases with increasing quartile.

LONG\_Q4: Longitude quartile at the location of image capture; longitude decreases with increasing quartile.

BACKSCATTER: Backscatter intensity at the location of image capture derived from an unpublished composite backscatter dataset used by the Long Island Sound Mapping and Research Collaborative project.

BACKSCAT\_FOCALMN: Mean backscatter intensity of a 9-pixel square centered at the location of image capture.

BACKSCAT\_FOCALCV: Coefficient of variation (CV) of backscatter intensity of a 9-pixel square centered at the location of image capture.

S\_TAXA\_FEAT: Combined taxa and biogenic feature richness (S).

J\_TAXA\_FEAT: Combined taxa and biogenic feature evenness (J').

Hlog10\_TAXA\_FEAT: Combined taxa and biogenic feature Shannon-Weiner diversity index ( $H' \log_{10}$ ).

S\_TAXA: Taxa richness (S).

J\_TAXA: Taxa evenness (J').

Hlog10\_TAXA: Taxa Shannon-Weiner diversity index ( $H' \log_{10}$ ).

S\_FEAT: Biogenic feature richness (S).

Identified Taxa and Biogenic Features (individually listed in dataset): Organisms identified to lowest possible taxonomic level and biogenic features; grid cells containing each taxa and features in each SEABOSS image were summed and reported as number of grid cells [0-216] formatted as integer values.

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