

Acoustic Patch Types and CMECS (Coastal and Marine Ecological Classification Standard) Classifications in the Long Island Sound Cable Fund Initiative Phase II area of eastern Long Island Sound

METADATA

Dataset Originator: *University of New Haven; Roman N. Zajac*

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Dataset Title: *Acoustic patch types and CMECS classification in eastern Long Island Sound.*

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

Abstract: *This shapefile contains the acoustic patch types determined for the Long Island Sound Cable Fund Initiative Phase II area of eastern Long Island Sound, and CMECS (Coastal and Marine Ecological Classification Standard) classification for each patch type. Acoustic patch types were determined by image segmentation of the NOAA backscatter mosaic of the Phase II study area (<https://www.ncei.noaa.gov/access/metadata/landing-page/bin/iso?id=gov.noaa.nodc:167531>) using eCognition 9.2 software (<https://geospatial.trimble.com/products-and-solutions/ecognition>). Each acoustic patch type has a general sediment classification based on analyses of sediment grain-size data collected by the USGS (see Final Report, Sections 3.0 and 4.0). The acoustic patch types represent general sea floor habitat types and used as the basis for portions of the analyses and characterizations of infaunal and epifaunal ecological structure across the Phase II area.*

Dataset purpose: *This polygon shapefile and dataset provides the spatial distribution of general seafloor types in the Phase II study area which can be used to assess the relationship to the map the spatial characteristics of Infaunal and epifaunal communities to meet the Long Island Sound Cable Fund's goal of habitat and ecological characterization of the eastern Long Island Sound sea floor.*

Time period of content: *Analyses leading to the identification and characterization of the acoustic patch types were conducted during 2018 and 2019*

Dataset Status: *Complete*

Update Frequency: *None Planned*

Theme Keywords: *Sea floor habitats, acoustic patch types, Coastal and Marine Ecological Classification Standard, CMECS, Connecticut, New York, Long Island Sound, Fishers Island Sound, estuary, Long Island Sound Mapping and Research Collaborative, LISMaRC*

Access Constraints: *none*

Use Constraints:

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Data are provided with the express understanding that they will not be sold to third parties or included in commercial databases.

Users are strongly encouraged to contact the original investigators responsible for data made available on this site. Where appropriate, researchers are also encouraged to consider collaboration and/or co-authorship with original investigators.

Data should not be used for navigation purposes.

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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 infaunal communities is complete

Positional accuracy: see

<https://www.ncei.noaa.gov/access/metadata/landing-page/bin/iso?id=gov.noaa.nodc:167531> for details regarding the development the backscatter mosaic by NOAA and the positional accuracy of image features. The patch locations identified by the image segmentation are the results of the image segmentation and classification process.

Process Steps: The NOAA backscatter image was segmented using the unsupervised routines in eCognition 9.2 software. Segments were then classified and consolidated based on the image pixel attributes (pixel similarity, pixel variance, distance, and other metrics; see Final Report section 4.0) and seeding the analysis with selected segments that were identified based on general backscatter attributes (e.g. darker areas being associated with finer sediments, and lighter areas being associated with coarser sediments). The final sediment classification were based on analyses of USGS sediment data at locations where infaunal samples were collected

that fell within specific acoustic patch types. The CMECS classifications are based on the general attributes found in each acoustic patch type based on analyses of environmental data (sediment composition, depth, bed stress) and results from analyses of Infaunal and epifaunal communities, as well as other attributes in photographic images (e.g., surficial features such as shell hash).

Attributes:

FIELD_NO: Sediment sample designation

LONGITUDE: see

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

FID: ArcGIS Polygon identifier

Area: Area of Polygon

Perimeter: Perimeter of Polygon

Acoustic_Pa: Acoustic Patch Type designation

Physical_S: Physical Setting; Physical setting classifier based on CMECS

Geoform: Geomorphological classifier based on CMECS

Substrate: General acoustic patch type sediment classification plus addition of shell

Physical_1: General physical conditions in each acoustic patch type based on depth, terrain ruggedness, and seafloor bed stress

Biogenic_S: Biogenic Setting; General biogenic substrate characteristics in each of the acoustic patch types

Biotic_Set: Biotic Setting; biotic setting classifier based on CMECS modified for both infaunal and epifaunal components

Biotic_Cla: Biotic Class; biotic class designation based on CMECS modified for both infaunal and epifaunal components as well as variability among acoustic patch types

Biotic_Sub: Biotic Subclass; general biotic subclass classifier based on CMECS modified for both Infaunal and epifaunal components

Biotic_Gro: Biotic Group Epifauna; general types of epifauna found in specific acoustic patch types

Epi_and_Em: Epi- and Emergent Fauna Notes; dominant epifauna found in specific acoustic patch types and their relative abundances, with notes and seasonal occurrences as appropriate

Biotic_G_1: Biotic Group Infauna; general types of infauna found in specific acoustic patch types

Infauna_No: Infauna Notes; dominant infauna found in specific acoustic patch types with identification of rarer species that may have ecological significance

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