

Dataset Originator: *Timothy C. Kenna, Frank O. Nitsche, Cecilia McHugh*

Publication Date: 2026-09-01

Dataset Title: *LIS phase 4 sediment core physical property data*

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

Abstract: *Physical Property data of the sediment cores collected as part of the Long Island Sound mapping project Phase 4. Physical properties were measured at 1 mm intervals using a GEOTEK Multi-Sensor Core Logger. Properties measured included density, porosity and magnetic susceptibility. In order to precisely co-register information from the different sensors, each core was run in a custom sample holder equipped with density, height, and distance markers, as well as wet bulk density calibration section. In order to achieve high-resolution density measurements, the window on the NaI detector, used to measure gamma ray attenuation, was modified to a 1 mm x 20 mm slit using a custom-made lead insert. We further modified the system by reconfiguring the laser displacement sensors to make precise, non-contact core thickness deviation measurements, which are required to estimate wet bulk density from the gamma attenuation signal. Magnetic susceptibility was measured using a Bartington MS2E sensor with a probe diameter of 25mm.*

The Excel spreadsheet has one worksheet per core.

Dataset purpose: *Sediment cores provide information on changes in the sediment environments over time including periods of deposition or erosion, as well as changes in chemical composition with time. Changes in physical property along the sediment cores provide information on layering and disturbances along the core. This information is guiding the sediment environment interpretation.*

Time period of content: *2024-08-13 to 2026-08-31*

Dataset Status: complete

Update Frequency: *none planned*

Theme Keywords: *Long Island Sound, sediment core, physical property, density, magnetic susceptibility*

Access Constraints: *none*

Use Constraints: Data and metadata are licensed under a Creative Commons Attribution 4.0 (CC-BY 4.0) license. Appropriate acknowledgment with a byline/credit/link **must** be given to both the original scientists/data contributors by reference to their relevant publications and to the Marine Geoscience Data System (www.marine-geo.org). Where citation information has been provided to us by scientists it is included with the relevant database entries, and should be acknowledged when data are used. You may browse freely, but you may not circulate or publish materials you obtained from this site if you do not accept the terms of providing adequate citation.

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.

Point of Contact: *Frank Nitsche, Lamont-Doherty Earth Observatory of Columbia University, fnitsche@ldeo.columbia.edu*

Dataset Credit: *Long Island Sound Mapping Project, Timothy C. Kenna, Frank O. Nitsche, Cecilia McHugh*

Data Quality Considerations: These are final processed data

Attribute accuracy: Can vary along the core. Vertical accuracy is +/- 1 mm

Completeness: *The dataset is complete.*

Positional accuracy: This dataset does not contain positional information

Attributes:

Core ID: Text describing the Name of the core.

Corrected Core Depth (cm): depth below the surface along the core in centimeter with core top being 0 cm. The depth values have been corrected to align with the actual start of the core.

Gamma: Gamma ray count, which is used for density calculation in cps units

Mag Sus: measured magnetic susceptibility value in SI units.

Density: derived density in g/cm³.

Metadata reference: *Frank Nitsche, Lamont-Doherty Earth Observatory of Columbia University, fnitsche@ldeo.columbia.edu*