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Analysis of Vibracores from the New Hampshire Continental Shelf from 1984 and 1988

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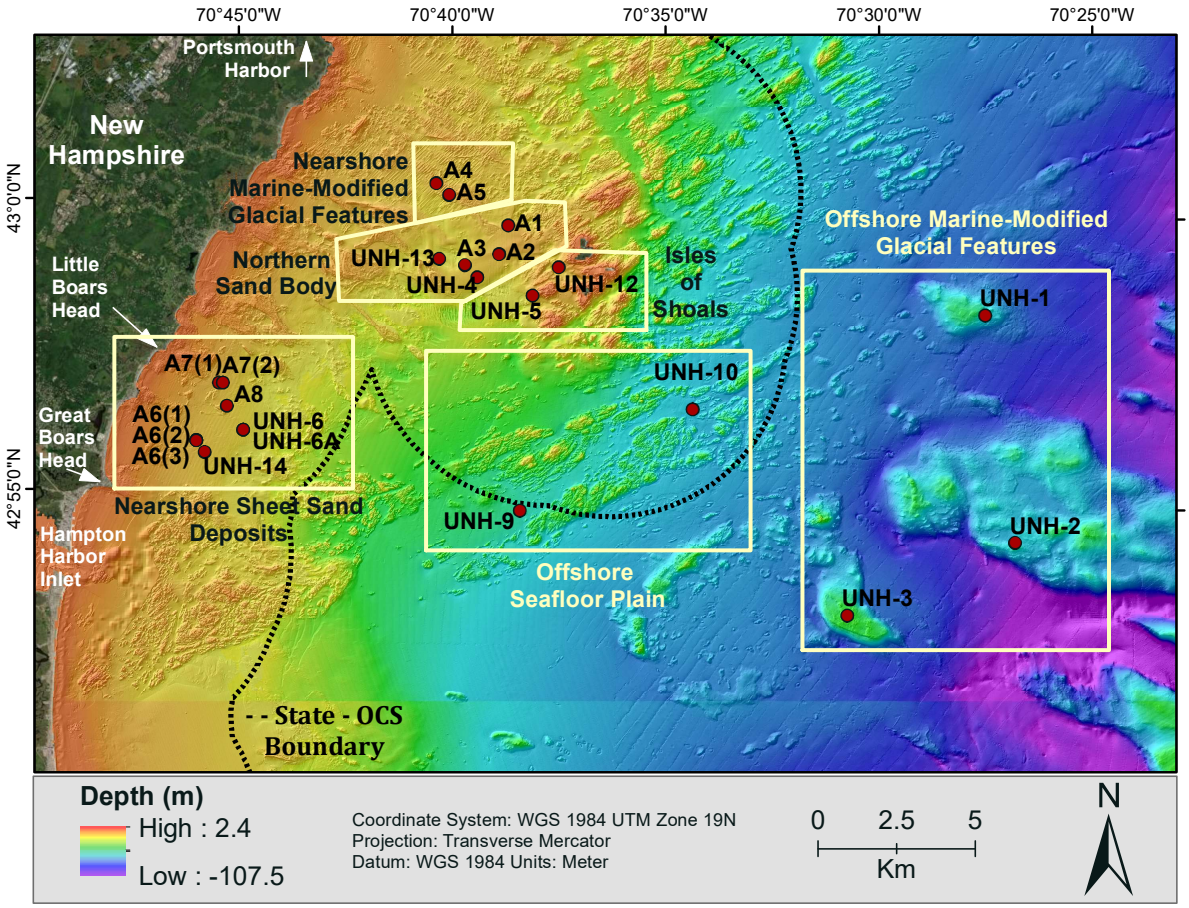

Acknowledgements

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In Memoriam

Maxlimer Coromoto Vallee-Anziani was a valued colleague and a major contributor to the description and analysis of the vibracores discussed in this report. Sadly, Maxlimer passed away on January 24, 2017. However, her original work was a significant contribution to this report and our overall research on the NH continental shelf.

Map Coordinate System, Projection and Datum

Coordinate System: WGS 1984 UTM Zone 19N

Projection: Transverse Mercator

Horizontal Datum: WGS 1984

Vertical Datum: MLLW

Recommended Citation

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Abstract

The New Hampshire (NH) continental shelf is extremely heterogeneous and has been shaped by multiple glaciations, a complex sea-level history, fluvial inputs, and marine processes. The seafloor reflects this complex history and is composed of large bedrock outcrops, marine-modified or eroded glacial deposits (e.g., drumlins, eskers, marine deltas and outwash sediments) and Holocene marine deposits. Sediments range from mud to gravel and megaclast platforms, often changing dramatically over relatively short distances (tens of meters). Of major importance to the study presented here are several potential marine sand and gravel deposits on the NH shelf. The distribution and characteristics of the deposits were first described based on subbottom reflection profiling (Birch, 1984) and vibracores taken in 1984 (Birch, 1986b) and 1988 (Ward, 1989). These vibracores are the only direct source of information available to characterize the subsurface sediments on the NH shelf.

During this study, the twenty-three vibracores taken in 1984 and 1988 were reexamined, original descriptions verified and significantly expanded, and the cores sampled to provide complete grain size data (i.e. the original sediment grain size analyses were limited). The vibracores were grouped by location with respect to major physiographic features (geoforms) or surficial sediment type including Offshore Marine-Modified Glacial Features (Drumlins and Lodgement Till Deposits), Northern Sand Body, Isles of Shoals, Nearshore Marine-Modified Glacial Features (Eskers and Drumlins), Nearshore Sheet Sand, and Offshore Seafloor Plain.

The Northern Sand Body (NSB), located near the Isles of Shoals ~10 km from shore, is relatively large measuring ~3.2km in length and ~1.3km in width, with a maximum relief of ~7m. Earlier studies estimated the NSB may contain as much as 17 million m^3 of sand and gravel, but this has not been verified. One of the vibracores taken at the northern end of the NSB has ~3.6m of medium to coarse sand with varying amounts of fine gravel overlying fine sand. Similarly, a vibracore from near the center of the NSB has ~3.1m of slightly granuley medium sand with shell fragments and scattered pebbles overlying fine sands. However, other vibracores taken at the NSB are largely fine to very fine sand of varying thickness. The NSB likely formed from deposits that were originally either a marine glacial delta, a subaqueous delta, or sandy outwash that was heavily modified by marine processes.

A vibracore taken on top of an offshore drumlin-like feature located ~24km from shore has ~4.7m of medium to coarse sand overlying fine sand and silty very fine sand to silt deposits. The upper sands likely represent a lag deposit formed by wave action during the last sea-level lowstand. However, it is not known if this lag deposit continues over the surface of the entire drumlin. Except for the NSB, and potentially the offshore drumlin, the other sand and gravel deposits examined are relatively small in aerial extent. However, several of the marine-modified glacial deposits have approximately three to five meters of sand and gravel. For example, a vibracore taken near an esker-like feature had ~5.75m of very coarse sand to gravelly sediments composing the matrix (the largest clasts were not measured due to limited sample size). The eskers were exposed during the last sea-level lowstand and were modified by shallow water

waves and nearshore process during the Holocene transgression. The esker was likely eroded, the large gravel left as a lag deposit, and the finer sediment deposited as nearby shoals. The Nearshore Sheet Sand deposits located within a few kilometers of the coast are relatively thin (less than ~2.5m), flat-lying layers of sand and gravel unconformably overlying glacial marine sandy mud which were likely formed from reworked glacial marine sediment during the last transgression, especially wave-modified marine deltas or outwash. In addition, the deposits are likely part of the nearshore sand ramp extending from the beaches in southern NH.

High-resolution subbottom seismic reflection surveys and additional vibracores are needed to map and verify the potential sand and gravel resources on the NH continental shelf.

Introduction

The physiography and geology of the New Hampshire (NH) continental shelf is extremely complex as a result of multiple glaciations, sea-level fluctuations, and marine processes (Figure 1). Consequently, the seafloor is characterized by extensive bedrock outcrops, marine-modified glacial deposits, and marine-modified-fluvial deposits. Sediments range from gravel to mud and can change greatly over short distances, often on the order of tens of meters. Part of the variability of the NH continental shelf can be attributed to a complex sea-level history. This includes a late Pleistocene transgression as the sea level followed the ice front retreat, a late Pleistocene – early Holocene regression due to isostatic rebound with a lowstand at ~12,500 yrs B.P. (years before present), and the recent transgression over the last ~12,000 years due to eustatic sea-level rise (Barnhardt et al., 2007; Kelley et al., 2010). At the sea-level lowstand, estimated at -50 to -60m, the inner NH continental shelf was exposed to subaerial erosion and shallow water processes (Figure 2).

The surficial geology of the continental shelf off NH was mapped by Ward et al. (2021b) using high-resolution bathymetry and an extensive geophysical database. The physiographic features (geoforms) (Figure 3) and surficial sediment distribution (Figure 4) were described using the Coastal and Marine Ecological Classification Standard or CMECS (FGDC, 2012). Potential sand and gravel deposits on the NH shelf were mapped most recently by Ward et al. (2021a), based largely on the synthesis of earlier work including seismic surveys (Birch, 1984; 1986a), an extensive surficial sediment database (Ward et al., 2021b), and vibracores (Birch, 1986a; 1986b; 1988; 1989; Ward, 1989; 2007). The vibracores were collected in 1984 and 1988 to provide ground truth for seismic reflection studies and to map the major sedimentary units (Birch, 1984), as well as to verify potential sand and gravel deposits. From the original work, Birch (1984) identified four major seismic stratigraphic units on the NH continental shelf including: glacial drift or lodgement tills (referred to as Unit 1); Pleistocene discontinuous glaciomarine silts and clay which drape over the lodgement tills or bedrock (Unit 2); late Pleistocene – early Holocene muddy sediments deposited in deeper water (typically greater than 40m) that fill basins and low areas (Unit 3: Deep-Water Deposits); deltaic sandy sediments from the Merrimack River deposited during the sea-level lowstand in shallow water (Unit 3: Shallow-Water Deposits); and late Holocene sands (Unit 4) which formed mounds or isolated sheets often cut into the glacial marine muds. Although these seismic stratigraphic units are somewhat general, they include the bulk of the subsurface deposits on the New Hampshire continental shelf. For the most part, the vibracores taken in 1984 verified the seismic units described by Birch (1986b; 1989). The vibracores taken in 1988 focused on the Holocene sand bodies (Ward, 1989).

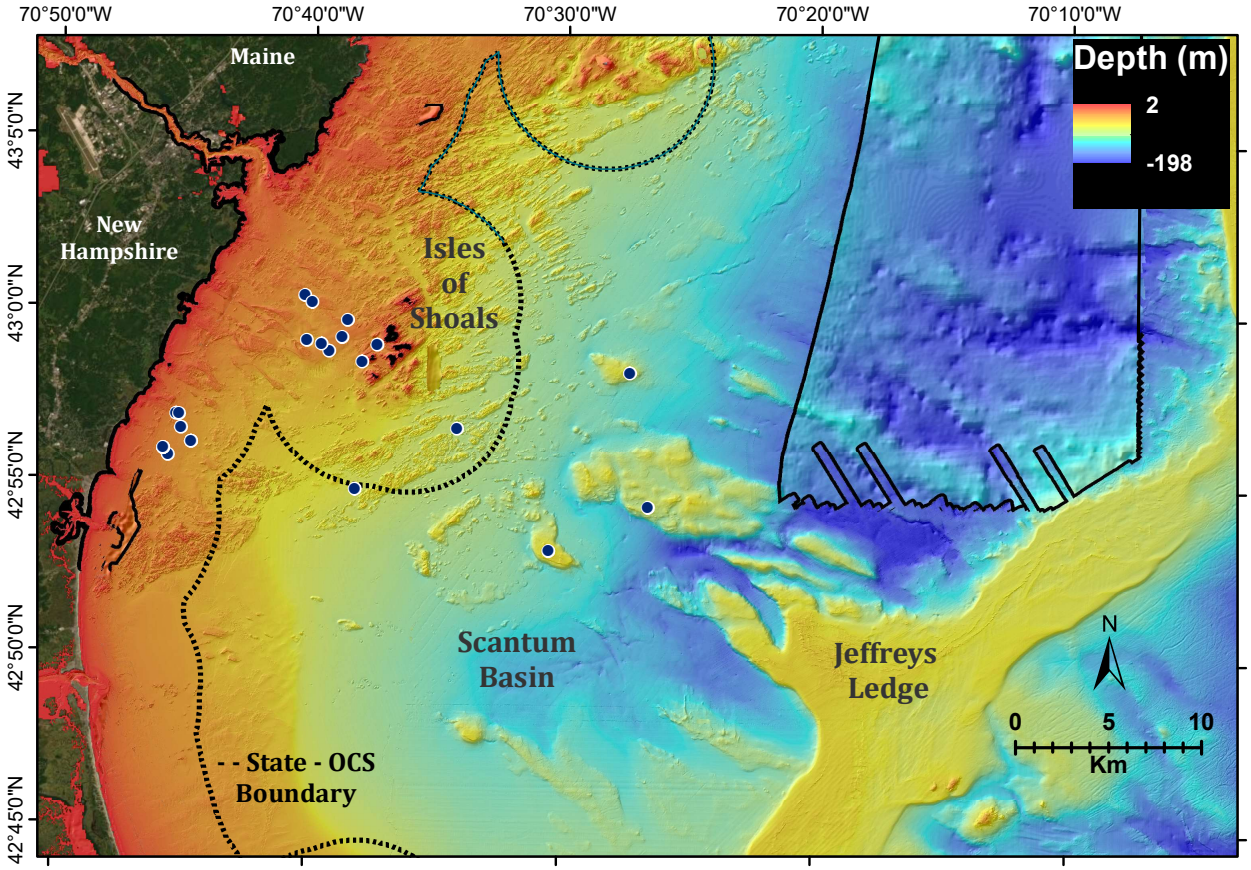

Figure 1. Bathymetry map of the continental shelf off New Hampshire to Jeffreys Ledge. Vibracore locations are shown by dark blue circles with white halos. The bathymetry was primarily developed from high-resolution multibeam surveys and lidar and is gridded at 4 m. The exception is the area outlined in black in the upper right that is based on a compilation of lower-resolution single beam surveys and regional coverages. This area is gridded at 16 m.

Although the original analyses of the vibracores were valuable, subsequent review of the database showed more detailed descriptions would be very beneficial and additional grain size information was needed in order to characterize the major sedimentary deposits. Therefore, the original vibracore descriptions were reviewed and updated as needed in 2016 and 2019. During this review, 162 new sediment samples were collected, and complete grain size analyses conducted. The results from the 1984, 1988, 2016, and 2019 analyses and descriptions are presented here in updated core logs and sediment databases. In addition, the descriptions of the vibracores include a discussion of their depositional environment or potential source of sediment where possible. The results presented here provide additional detail on the composition of the sediments found on the NH continental shelf, especially the sand and gravel deposits described in Ward et al. (2021a).

The detailed vibracore logs and sediment data are shown in Appendices A, B and C. Appendices A and B can also downloaded at Ward et al. (2021c) (https://dx.doi.org/10.34051/d/2021.4).

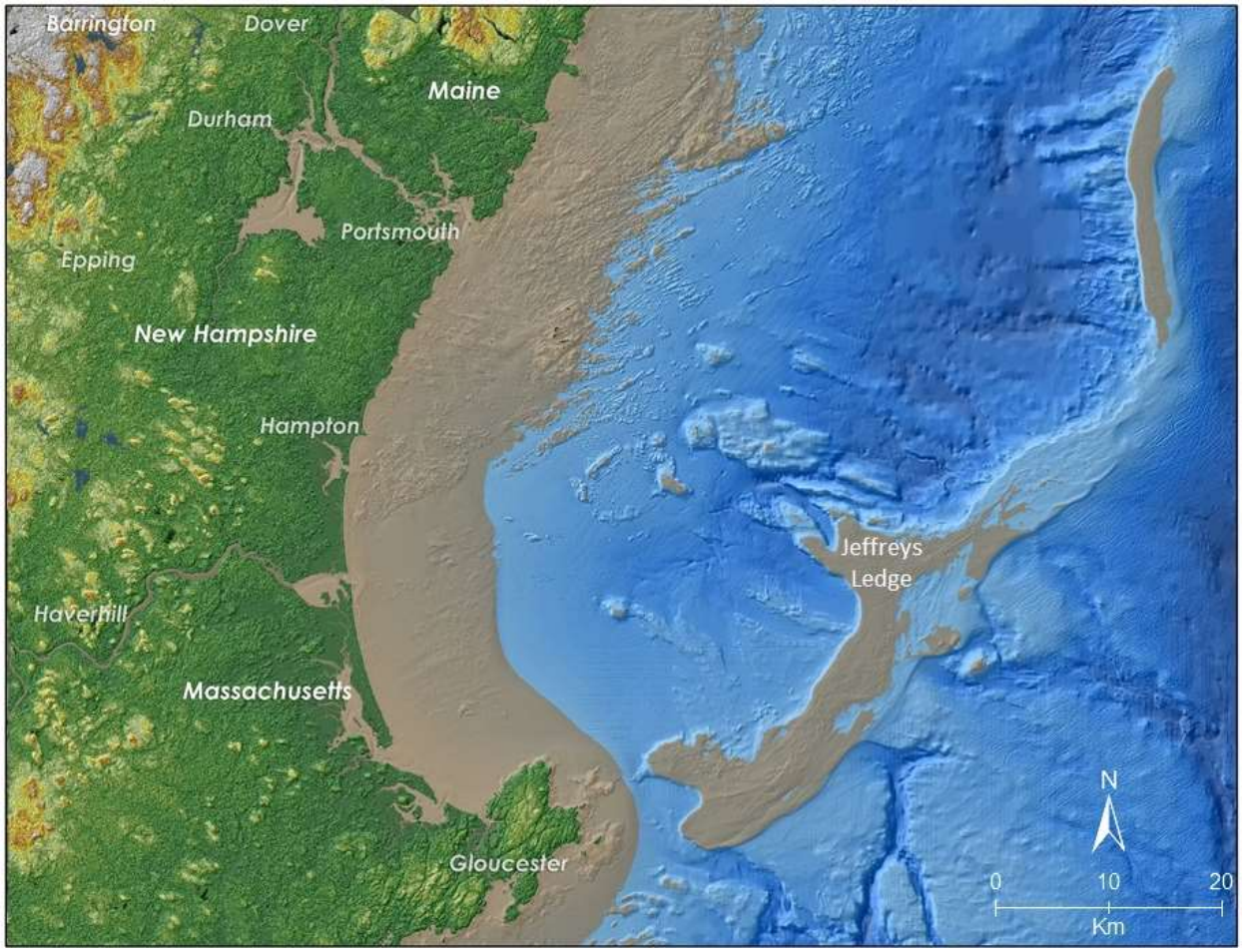

Figure 2. Aerial exposure of the NH continental shelf during the last sea-level lowstand (~12.5k yrs B.P) which reached approximately –60m (Kelley et al., 2010). The present upland is shown in green, the exposed shelf during the last lowstand is shown in brown, and the submerged shelf is shown in blue. Note the surface of Jeffreys Ledge and some of the offshore drumlins are near or above sea level.

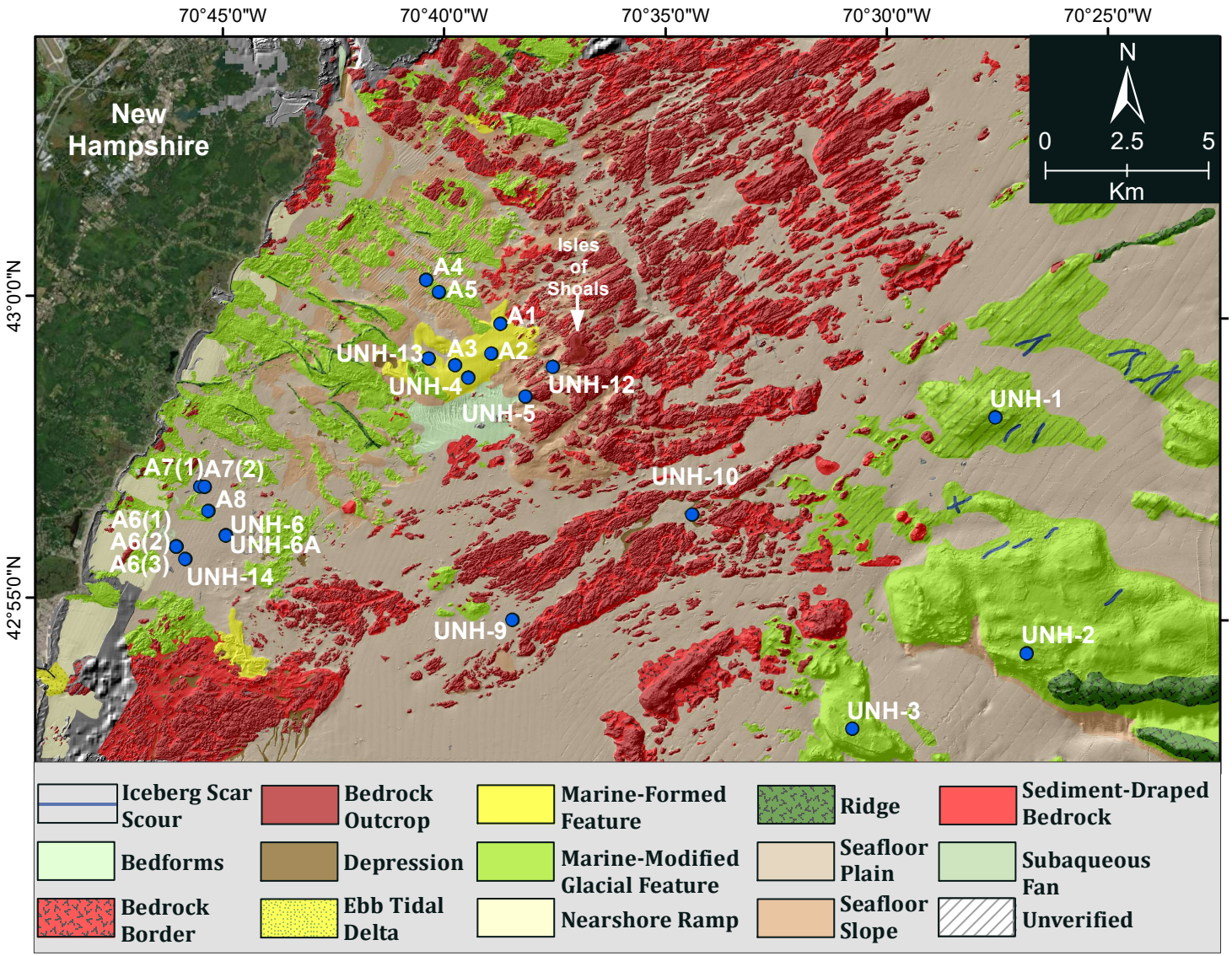

Figure 3. Major geoforms (physiographic features) found on the New Hampshire continental shelf. The geoform terminology is based on a modification of CMECS (FGDC, 2012). The geoforms map is from Ward et al. (2021b). The geoform categories have been simplified due to the scale of the map (1:150,000). Blue circles show the locations of vibracores taken in 1984 and 1988.

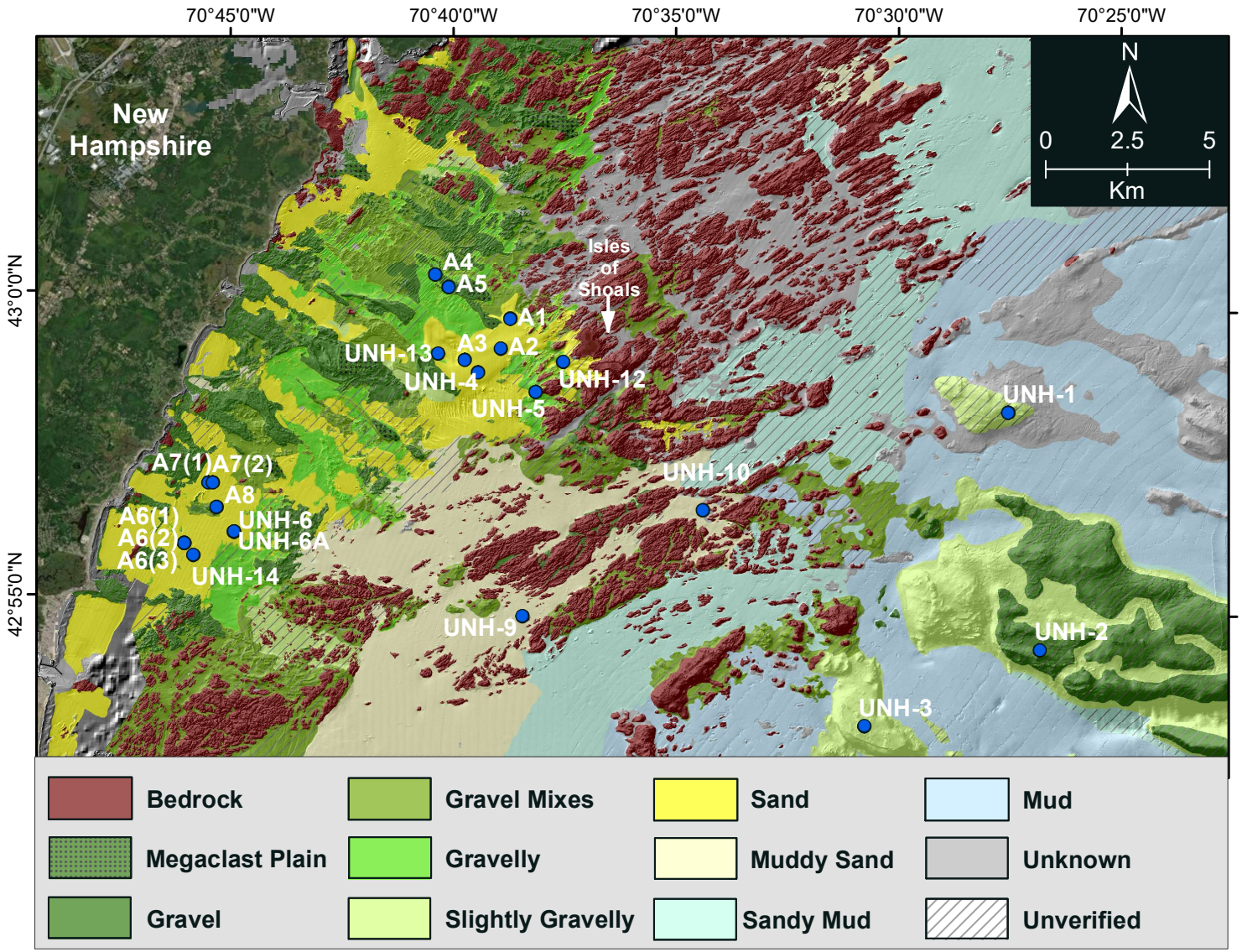

Figure 4. Surficial sediment distribution on the New Hampshire continental shelf based on the CMECS Substrate Classes (FGDC, 2012). Bedrock and megaclast plains (cobbles and boulders) are also shown. Blue circles show the locations of vibracores taken in 1984 and 1988. The map is shown at a scale of 1:150,000.

Methods

Vibracore Collection

All vibracores were collected in 1984 and in 1988 aboard the R/V *Atlantic Twin*, a twin-hull vessel run by Alpine Geophysical Associates, Inc. The coring sites were determined from analysis of subbottom seismic surveys conducted in 1981, 1982, and 1985 by Birch (1984; 1986a; 1988). The vibracorer consisted of a pneumatic, vibrating hammer-driven system. The vibrator was attached to the top of a standard 10.1cm (4") core pipe fitted with a ~9cm (3.5") diameter plastic core liner. The recovered cores ranged in length from ~1.5m to ~8.5m. Water depths ranged from ~21m to ~76m (Table 1). Once recovered, the plastic core liners were cut into ~1.0 - 1.5m sections on board the R/V *Atlantic Twin* to facilitate transportation to the United States Geological Survey (USGS) Woods Hole Coastal and Marine Science Center Samples Repository in Massachusetts. At the USGS the cores were split lengthwise in their liners, half for archiving and half for sampling, photography, and description. The initial sampling and descriptions occurred in the same time period that the vibracores were collected. The additional sampling for this study occurred in 2016 and 2019.

Table 1. Vibracore location, water depth (MLLW), and recovered core length. The vibracore locations are given in decimal degrees to four places which provides positions to within 8 to 11m. However, the accuracy is the Loran C navigation used during the collection of the vibracores in 1984 and 1988 and is estimated at ~250m.

Core ID	Latitude (NAD83)	Longitude (NAD83)	Water Depth (m)	Total Length of Core Recovered (m)	Vibracore Collected
UNH-1	42.9717	-70.4567	57.0	3.42	10/11/1984
UNH-2	42.9067	-70.4433	76.0	1.56	10/11/1984
UNH-3	42.8850	-70.5083	57.0	7.09	10/11/1984
UNH-4	42.9800	-70.6550	25.0	6.46	10/11/1984
UNH-5	42.9750	-70.6333	22.0	7.13	10/11/1984
UNH-6	42.9350	-70.7450	30.0	8.50	10/11/1984
UNH-6A	42.9350	-70.7450	30.0	8.32	10/11/1984
UNH-9	42.9133	-70.6367	61.0	8.39	10/11/1984
UNH-10	42.9433	-70.5700	70.0	7.40	10/11/1984
UNH-12	42.9833	-70.6233	28.0	2.44	10/12/1984
UNH-13	42.9850	-70.6700	28.0	6.41	10/12/1984
UNH-14	42.9283	-70.7600	23.0	7.87	10/12/1984
A1	42.9950	-70.6433	21.0	4.39	09/22-25/1988
A2	42.9867	-70.6467	22.3	7.13	09/22-25/1988
A3	42.9833	-70.6600	25.0	5.81	09/22-25/1988
A4	43.0067	-70.6717	20.0*	5.81	09/22-25/1988
A5	43.0033	-70.6667	19.0*	3.36	09/22-25/1988
A6 (1)	42.9317	-70.7633	22.1	2.27	09/22-25/1988
A6 (2)	42.9317	-70.7633	22.9	1.62	09/22-25/1988
A6 (3)	42.9317	-70.7633	22.9	5.92	09/22-25/1988
A7 (1)	42.9483	-70.7533	24.4	1.32	09/22-25/1988
A7 (2)	42.9483	-70.7533	25.0	2.05	09/22-25/1988
A8	42.9417	-70.7517	24.7	4.04	09/22-25/1988

*Estimated from high-resolution bathymetry map

Positioning and Uncertainty

Loran C was used for ship positioning during the collection of the vibracores. Loran C inherently has an error in absolute position between ~185m (0.1 nautical miles) and ~463m (0.25 nautical miles) depending on obstructions, conditions, and location. Here, an uncertainty of ~250m was used for locating the vibracores, realizing that the uncertainty could be larger, but likely was less as the vibracores were collected during favorable weather conditions and without obstructions.

For reference see the United States Coast Guard Navigation Center web site and report (http://www.navcen.uscg.gov/pdf/loran/handbook/CHAPTER3.pdf ; accessed March 2020).

Vibracore Analysis and Description

Original Description

The cores were originally described by Birch (1986a; 1986b; 1988) and Ward (1989). The vibracores collected in 1984 were sectioned and photographed in black and white at the USGS at Woods Hole. The vibracores collected in 1988 were also sectioned at the USGS, but were not photographed. Following sectioning, the working half of each core was transported to the University of New Hampshire where they were described and subsampled for grain size analysis. Analysis of the vibracores by different investigators at different times resulted in inconsistencies in the core logs and sediment grain size analyses. This problem was partially addressed with MMS funding in 2007 during which the working halves of both the 1984 and 1988 vibracores were described using the same methodologies (Ward, 2007).

2016 and 2019 Review

The purpose of the present program was to create a more consistent and complete record of the archived vibracores through verifying descriptions, re-photographing, resampling, and running additional grain size analyses. The archived halves of the vibracores stored at the USGS were reviewed in 2016 (vibracores A1, A2, A4, A6(3), UNH-3, and UNH-4), and in 2019 (vibracores A3, A5, A6(1), A6(2), A7(1), A7(2), A8, UNH-1, UNH-2, UNH-5, UNH-6, UNH-6a, UNH-9, UNH-10, UNH-12, UNH-13, and UNH-14). The previous core descriptions from the 1980s and 2007 were verified, corrected where necessary, or expanded. The cores were also photographed at a higher resolution (photos were taken approximately every 0.30m along each core) and in color. Although the vibracores had desiccated and changed color, photography was still useful as the 1984 cores were originally photographed in black and white and not at a high-resolution and the 1988 vibracores had no associated photographs. During the 2016 and 2019 reviews, subsamples were taken for grain size analysis from all archived cores except one (UNH-12) at depths where sediment composition changed or where an interesting feature was found (for example above and below a contact). All information was synthesized, and comprehensive and updated core logs were developed for all vibracores (Appendix A). The archived halves of the vibracores remain at the USGS Woods Hole Coastal and Marine Science Center Samples Repository: https://www.usgs.gov/centers/whcmsc/labs/samples-repository?qt-science_support_page_related_con=0#qt-science_support_page_related_con ; accessed March 2020). Metadata for the 1984 cores can be found at the USGS Coastal and Marine Geology Program (http://cmgds.marine.usgs.gov/fan_info.php?fa=1984-016-FA ; accessed March 2020).

Sediment Grain Size Analysis

The vibracore sediment samples collected in 2016 and 2019 were analyzed for grain size using standard sieve and pipette techniques after Folk (1980), including digestion to remove organics and full pipette analysis for samples with a mud fraction greater than or equal to 5 percent. Statistics and sediment classifications were determined in Gradistat (Blot and Pye, 2001). The Gradistat classification scheme is

based on mean grain size and is largely the same as the commonly used Wentworth classification (Wentworth, 1922), but with more detail in gravel sizes and a shift of the silt-clay boundary to 9.0ϕ (phi) or 0.002mm (Table 2). Gradistat also provides very useful sediment classifications based on percentages of gravel, sand, and mud (textural group), as well as mode (represented in the sediment name). The textural group is very similar to the Folk (1980) classification. The sediment samples were also classified utilizing the CMECS classifications (FGDC, 2012) (Table 3). The CMECS geologic substrate classification is built on a simplification of the Wentworth (1922) and Folk (1954; 1980) classification schemes. Complete grain size results are reported in Appendix B.

Table 2. Sediment grain size classifications based on mean phi size (including unit conversions) shown for the Wentworth (1922) and Gradistat (Blott and Pye, 2001) size classifications.

Phi Size	Millimeters (mm)	Microns (μ or μm)	Wentworth Size Class	Gradistat Modified Class
> -10.0 ϕ	> 1024 mm	--------	Boulder Gravel	Very Large Boulder
-9.0 to -10.0 ϕ	512 to 1024 mm	--------	Boulder Gravel	Large Boulder
-8.0 to -9.0 ϕ	256 to 512 mm	--------	Boulder Gravel	Medium Boulder
-7.0 to -8.0 ϕ	128 to 256 mm	--------	Cobble Gravel	Small Boulder
-6.0 to -7.0 ϕ	64 to 128 mm	--------	Cobble Gravel	Very Small Boulder
-5.0 to -6.0 ϕ	32 to 64 mm	--------	Pebble Gravel	Very Coarse Gravel
-4.0 to -5.0 ϕ	16 to 32 mm	--------	Pebble Gravel	Coarse Gravel
-3.0 to -4.0 ϕ	8.0 to 16 mm	--------	Pebble Gravel	Medium Gravel
-2.0 to -3.0 ϕ	4.0 to 8.0 mm	--------	Pebble Gravel	Fine Gravel
-1.0 to -2.0 ϕ	2.0 to 4.0 mm	--------	Granule Gravel	Very Fine Gravel
0.0 to -1.0 ϕ	1.0 to 2.0 mm	---------	Very Coarse Sand	Very Coarse Sand
1.0 to 0.0 ϕ	0.5 to 1.0 mm	--------	Coarse Sand	Coarse Sand
2.0 to 1.0 ϕ	0.25 to 0.5 mm	500 μ	Medium Sand	Medium Sand
3.0 to 2.0 ϕ	0.125 to 0.25 mm	250 μ	Fine Sand	Fine Sand
4.0 to 3.0 ϕ	0.0625 to 0.125 mm	125 μ	Very Fine Sand	Very Fine Sand
5.0 to 4.0 ϕ	0.031 to 0.0625 mm	63 μ	Coarse Silt	Very Coarse Silt
6.0 to 5.0 ϕ	0.0156 to 0.031 mm	31 μ	Medium Silt	Coarse Silt
7.0 to 6.0 ϕ	0.0078 to 0.0156 mm	15.6 μ	Fine Silt	Medium Silt
8.0 to 7.0 ϕ	0.0039 to 0.0078 mm	7.8 μ	Very Fine Silt	Fine Silt
9.0 to 8.0 ϕ	0.0002 to 0.0039 mm	3.9 μ	Clay	Very Fine Silt
< 9.0 ϕ	< 0.0002 mm	2.0 μ	Clay	Clay
14.0 ϕ	0.00006 mm	0.06 μ	Clay	Clay

Table 3. CMECS Substrate Classification (FGDC, 2012).

Substrate Origin	Substrate Class	Substrate Subclass	Substrate Group	Substrate Subgroup
Geologic Substrate	Rock Substrate	Bedrock		
	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravel	Boulder
				Cobble
				Pebble
				Granule
			Gravel Mixes	Sandy Gravel
				Muddy Sandy Gravel
				Muddy Gravel
			Gravelly	Gravelly Sand
				Gravelly Muddy Sand
				Gravelly Mud
		Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
				Slightly Gravelly Muddy Sand
				Slightly Gravelly Sandy Mud
				Slightly Gravelly Mud
			Sand	Very Coarse Sand
				Coarse Sand
				Medium Sand
				Fine Sand
				Very Fine Sand
			Muddy Sand	Silty Sand
				Silty-Clayey Sand
				Clayey Sand
			Sandy Mud	Sandy Silt
				Sandy Silt-Clay
				Sandy Clay
			Mud	Silt
				Silt-Clay
				Clay

The grain size analysis methods used during earlier studies of the vibracores had some slight variations compared to those used for the comprehensive sampling and analyses conducted in 2016 and 2019. The sediment samples from 1988 (described in Ward, 1989) used very similar laboratory methods as the more recent analysis for the preparation and determination of the percent gravel (%G), sand (%S), and mud (%M); however, full grain size analysis was only run on the sand fraction. Therefore, the analyses from Ward (1989) are presented in this report as %G, %S, %M, graphic mean grain size, and graphic sorting for the sand fraction only (shown in Appendix C). The sediment samples from the vibracores collected and analyzed in 1984 (described in Birch, 1986b) also used very similar laboratory methods as the samples analyzed in 2016 and 2019 except for the size of the sieve (0.0ϕ, or 1.00mm) used for separating the gravel fraction from the sand fraction. All other grain size analyses of the vibracore samples used a -1ϕ (2mm) sieve for separating sand and gravel as prescribed in Folk (1980) and is more standardly used in

sedimentology. Therefore, only the results of samples reported in Birch (1986b) that contained no gravel or only trace amounts (<0.9%) were included in this report, making the results for the %G, %S, and %M comparable among all of the studies (shown in Appendix C). Birch (1986b) did not include mean size and sorting values.

Vibracore Logs

The vibracore logs are presented in two manners in this report. Within the **Results and Discussion** section, the core logs include photographs and a schematic showing the lithology (template and symbology shown in Figure 5a and 5b, respectively). A more comprehensive vibracore log is given in Appendix A that includes the original (and verified) descriptions, Munsell colors, grain size data from both the earlier studies and the more recent analyses, and photographs (where available). Color were assigned during the original description of the cores using a combination of the Munsell Soil-Color Chart and the Geological Society of America (GSA) Rock-Color Chart. In order to make color names, hues, values, and chromas consistent and comparable, all Soil-Colors were converted to the Rock-Color Chart (Geological Society of America and Munsell Color, 2009) for this report. The closest equivalent colors were chosen where necessary (template shown in Appendix A).

All the vibracore logs were made in CorelDraw 7x (64 bit). The color photographs of the vibracores taken in 2016 and 2019 were stitched together using Microsoft PowerPoint by overlapping each picture to create a complete and higher-resolution photograph of the whole core. The photographs taken in 2019 had improved lighting compared to 2016 which produced a more uniform appearance. The original black and white photos taken for the 1984 vibracore series are included in addition to the newer photos on the logs where available. Lithology and interesting features are presented along with core descriptions and grain size statistics from all analyses.

Note: The detailed vibracore logs shown in Appendix A are best viewed digitally at a higher magnification. The vibracore logs can also be downloaded at Ward et al. (2021c) (https://dx.doi.org/10.34051/d/2021.4).

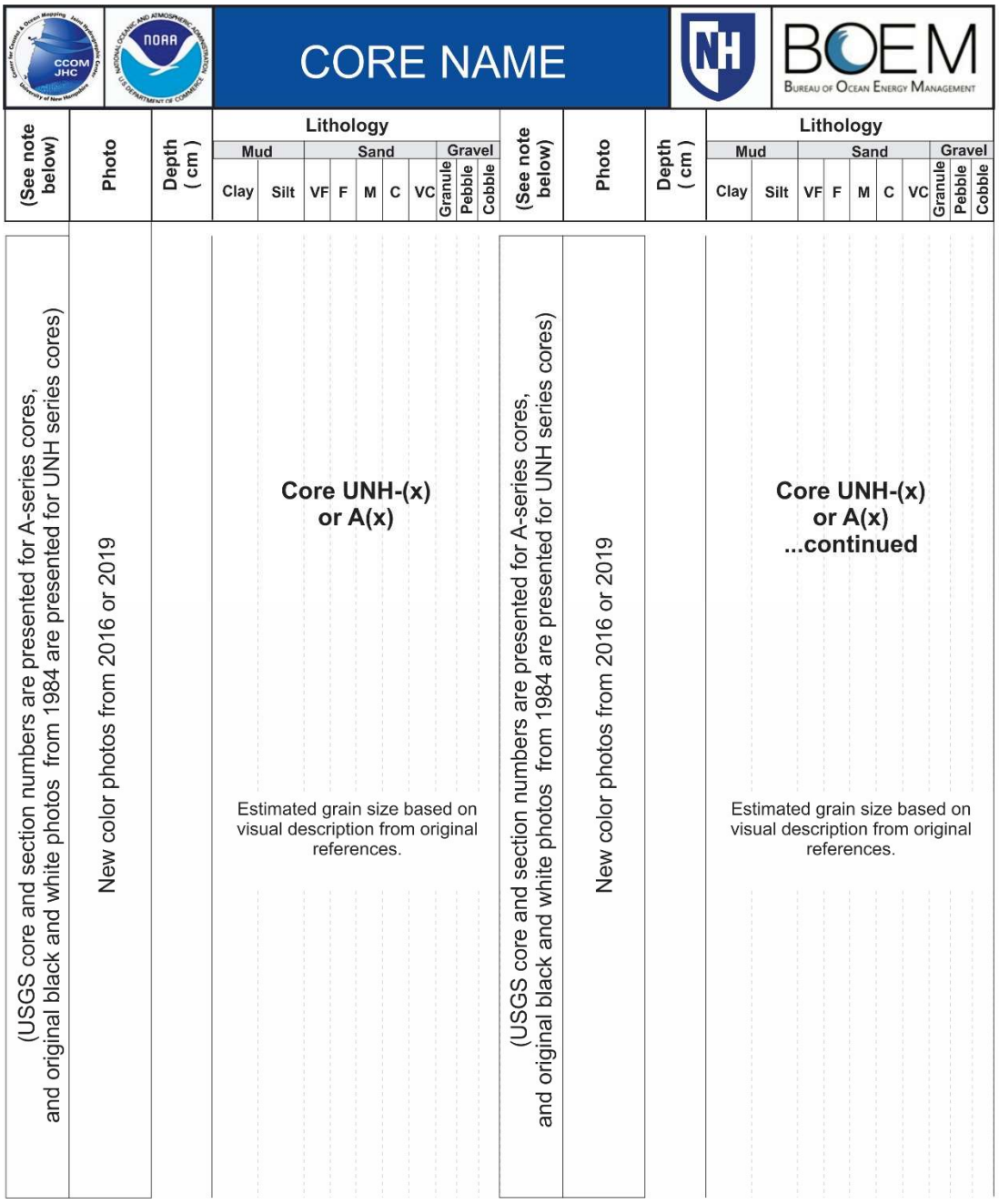

*Figure 5a. Template used for the abbreviated vibracore logs presented in the **Results and Discussion** section.*

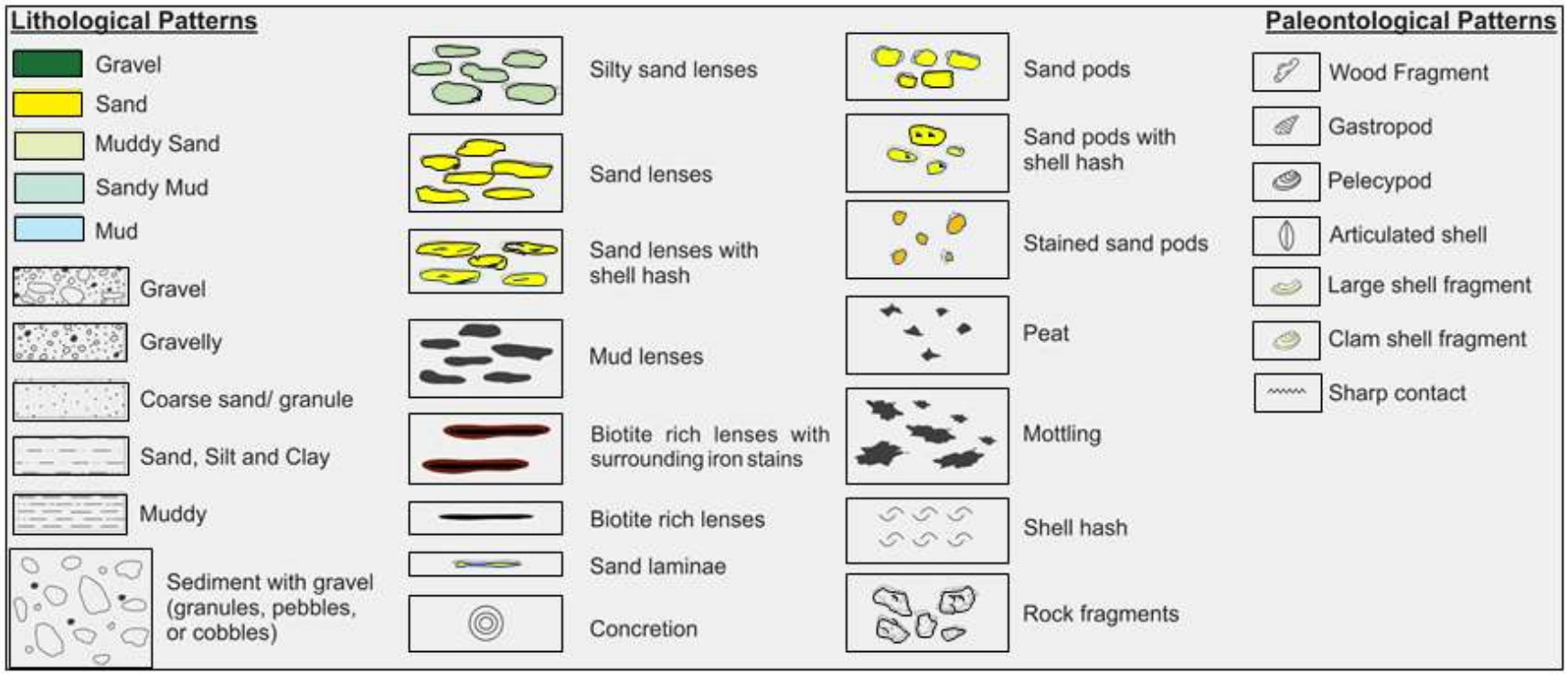

*Figure 5b. Symbology used for the abbreviated vibracore logs presented in the **Results and Discussion** section.*

Results and Discussion

Descriptions of the vibracores collected in 1984 and 1988 from the NH continental shelf are presented in this section. The vibracores are grouped by location with respect to major physiographic features or geoforms (Figure 3) and surficial sediment type (Figure 4), including Offshore Marine-Modified Glacial Features (Drumlins and Lodgement Till Deposits), Northern Sand Body, Isles of Shoals, Nearshore Marine-Modified Glacial Features (Eskers and Drumlins), Nearshore Sheet Sand, and Offshore Seafloor Plain. These areas are outlined in Figure 6. The general depositional setting is presented for each grouping along with potential sources of sediments. Each vibracore is described in detail and includes a core log (abbreviated in this section) with general sediment classifications based on visual inspection and grain size data, shell remains and dropstones if present, a table with grain size data and classifications (abbreviated in this section) and a composite photograph. The complete core logs are shown in Appendix A and include grain size data from all studies, core descriptions based on visual inspections, depositional units based on Birch (1986b) and Ward (2007), and seismic units based on Birch (1984). Complete grain size data and sediment classifications for the sediment samples analyzed during the present study are given in Appendix B. Archived grain size data from earlier studies that were reviewed and vetted for compatibility with this study are given in Appendix C.

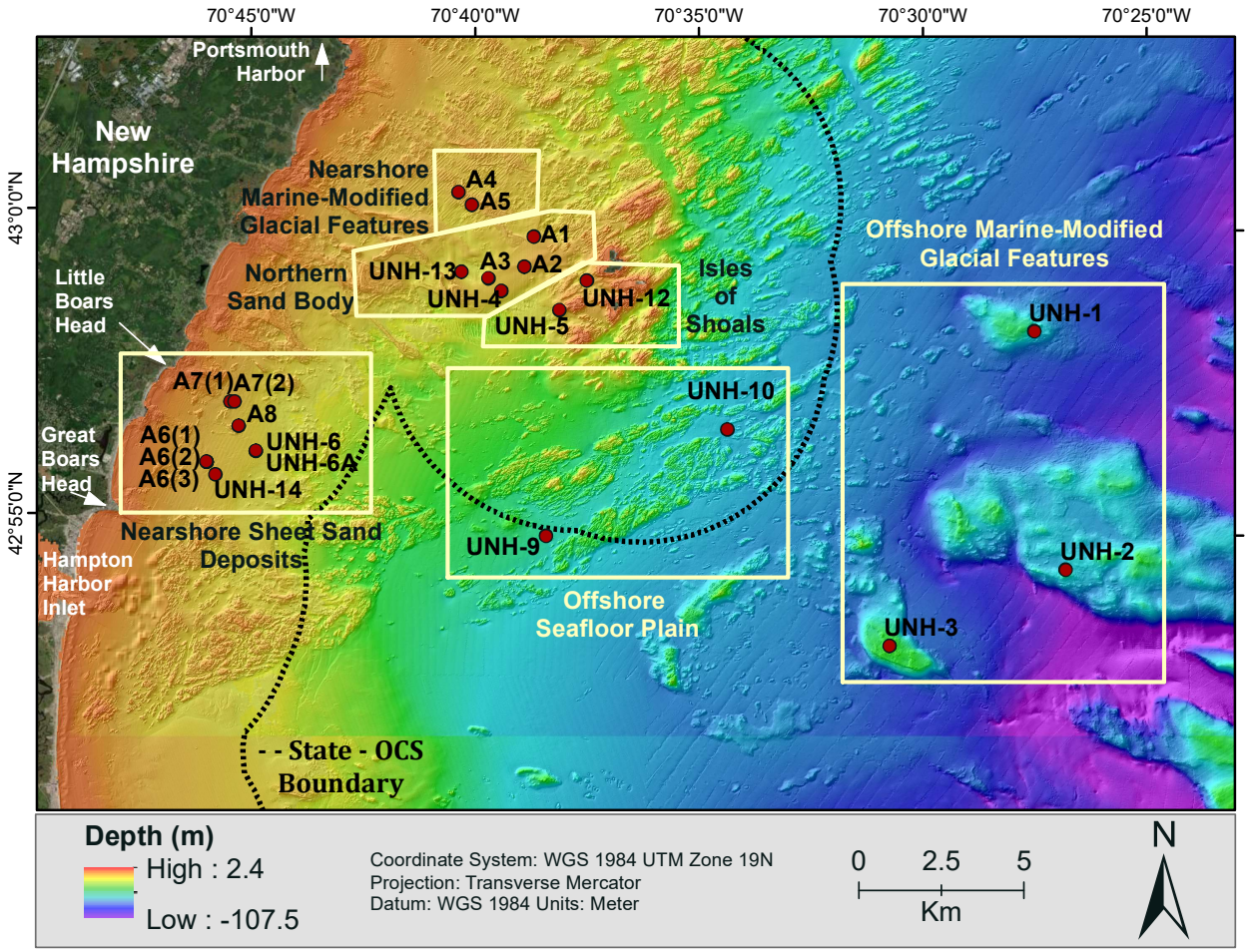

Figure 6. Bathymetric map (1:150,000) of the New Hampshire continental shelf with locations of vibracores taken in 1984 (UNH series) and 1988 (A series). The vibracores are grouped (yellow outlines) and discussed by their depositional environments (labels near groupings).

Offshore Marine-Modified Glacial Features (Drumlins and Lodgement Till Deposits)

Note: this area was referred to as the Offshore Drumlins in earlier reports on sand bodies on the NH continental shelf (see Ward et al., 2021a).

Three vibracores (UNH-1, UNH-2, and UNH-3) were collected on three drumlin-like features found ~23 to 27km offshore on the NH shelf (Figure 6). All three drumlins are oriented in a northwest-southeast direction but vary greatly in size. According to Birch (1984; 1989) the drumlins are composed of a coarse diamicton and likely contain equal amounts of sand, silt, and clay with large cobble clasts. However, the offshore drumlins have not been well sampled overall and the composition is speculative. The drumlins have been modified by the marine environment and the shallower areas were likely subaerial or very near intertidal during the last sea-level lowstand (Figure 2). As a result, the surfaces of the drumlins were likely exposed to wave action resulting in winnowing and a redistribution of the surficial sediments.

Vibracore UNH-1

UNH-1 is ~3.42m in length and was taken from the northernmost drumlin in the study area located ~22km from shore in ~57m water depth (Figures 6, 7, and 8). The drumlin is ~2.5km in length and ~1.3km in width at its widest point. Birch (1984) described the sediment at this site as a lodgement till. The vibracore location was likely exposed or close to the surface during the last sea-level lowstand (Figure 2) which allowed the surface to be eroded. The upper ~0.10m of the vibracore contains a sandy pebble matrix with very large pebbles and cobbles in size overlying a thin (0.04m) medium sand layer containing shell fragments (Figures 9 and 10). The pebble and sand layer is interpreted as a lag deposit winnowed by wave action during the lowstand. The surficial sediment map in Figure 8 shows this feature as being slightly gravelly, which is inconsistent with the gravel lag deposit shown at the top of the vibracore but is consistent with the remainder of the core below the lag deposit (Table 4).

Sediment grain size follows expected trends from the top to the bottom of the core with a steady decrease in sand content from ~84 to 25% with depth accompanied by an increase in mud content from ~13 to 74% (Table 4). Rock fragments are found throughout the core. Sediment composition transitions from slightly granuley silty clayey fine sand in the upper meter to slightly granuley very fine sandy silt-clay in the lower half of the core. The overall composition is consistent with Birch's (1984) description as a lodgement till. The apparent lag deposit at the surface reflects the winnowing by wave action at the sea-level lowstand.

Vibracore UNH-2

UNH-2 is 1.56m in length and was taken in ~76m of water from a marine-modified glacial deposit, most likely a drumlin, described by Birch (1984) as a lodgement till (Figures 6, 7, and 8). The drumlin is large, measuring ~11.5km along its longest axis and ~4.5km at its widest point. The feature likely includes multiple drumlins based on its ridges and size. The vibracore location was too deep to be exposed during the presumed sea-level lowstand (Figure 2) but would have been affected by storm waves. Examination of the photograph of the core top shows a lag deposit composed of pebbles with shell fragments (Figure 11). This agrees with the surficial sediment map (Figure 8).

Below the lag deposit, the core coarsens downward from a clayey silt to a poorly sorted fine sand at ~1.20m (Figure 12). Grain size analysis of a sediment sample taken from 0.33-0.35m was a granuley silt-clay with ~6% gravel, 45% sand, and 49% mud and a mean grain size of 4.05ϕ (0.06mm) (Table 4). However, a sample from 1.43-1.45m was a slightly granuley silty very fine sand with ~4% gravel, 49% sand, and 47% mud, but with a mean grain size of 2.87ϕ (0.137mm). Similar to vibracore UNH-1, the overall sediment composition is consistent with Birch's (1984) description as a lodgement till. Also similar to vibracore UNH-1, the apparent lag deposit at the surface reflects the winnowing at the sea-level lowstand.

Vibracore UNH-3

UNH-3 was taken on top of what appears to be a marine-modified drumlin located ~24.2km from shore in ~57m of water (Figures 1, 6, 7, and 8). The drumlin is ~2.5km in length and 1.2km at its widest point. The core is 7.09m in length. It is very likely UNH-3 was exposed or very close to sea level during the last lowstand and subjected to wave-induced erosion or winnowing (Figure 2). In general, the upper ~5.28m of the core is composed of medium to coarse sand which fines downward (separated by distinct contacts) into fine sand and ultimately overlies silty very fine sand to silt deposits (Figures 13 and 14). The thick sequence of sand indicates the likely erosion of the drumlin surface and the formation of a beach or shallow water shoal deposit during the early Holocene sea-level lowstand and transgression.

The upper ~2.56m of the core is comprised of medium to coarse sand with shell fragments and small pebbles (Figure 14). However, unlike the surfaces of UNH-1 and UNH-2, which are located nearby and also appear to be winnowed, no coarse pebble lag deposit occurs at the surface. Three sediment samples taken in the upper core (0.23-0.25m, 0.71-0.73m, and 135-137m) were slightly granuley medium sand with ~96% sand and mean grain sizes from 1.48ϕ to 1.16ϕ (0.358 to 0.448mm) (Table 4). From ~1.9 to 2.84m the sediments are granuley coarse sand to medium sand with lenses of coarse sand and gravel with pebbles. From ~2.84 to 3.04m, fine sands dominate ending in sandy mud. The sediments coarsen again from ~3.12 to 4.22m ending with granuley coarse sand to a slightly pebbly medium sand. Below ~4.22m the sediments continue to fine, becoming siltier to a slightly granuley very fine sandy silt. Below an unconformity at ~6.07m the sediments change to a very fine sandy silt, extending to the base at ~7.09m. A sediment sample taken at 6.64-6.66m shows the highest mud (primarily silt) content of any samples taken in this core (~82% mud).

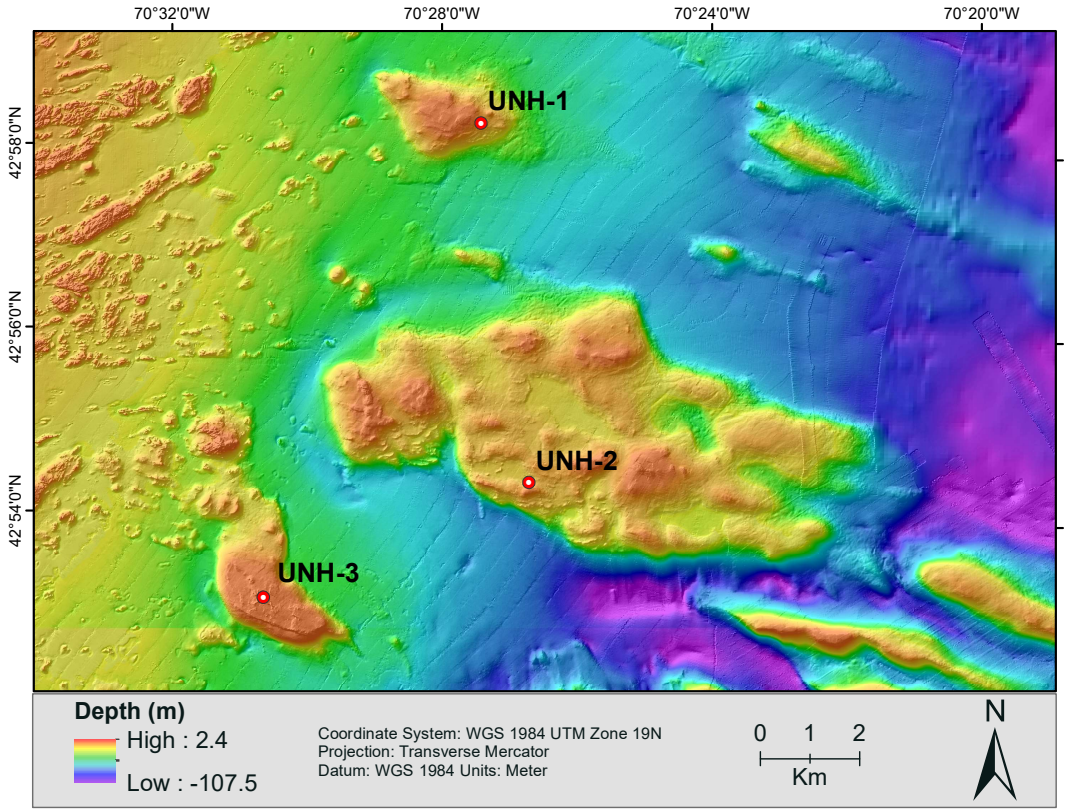

Figure 7. Bathymetric map of the vibracores taken in the Offshore Marine-Modified Glacial Features (Drumlins and Lodgement Till Deposits). Map is shown at a scale of 1:85,000.

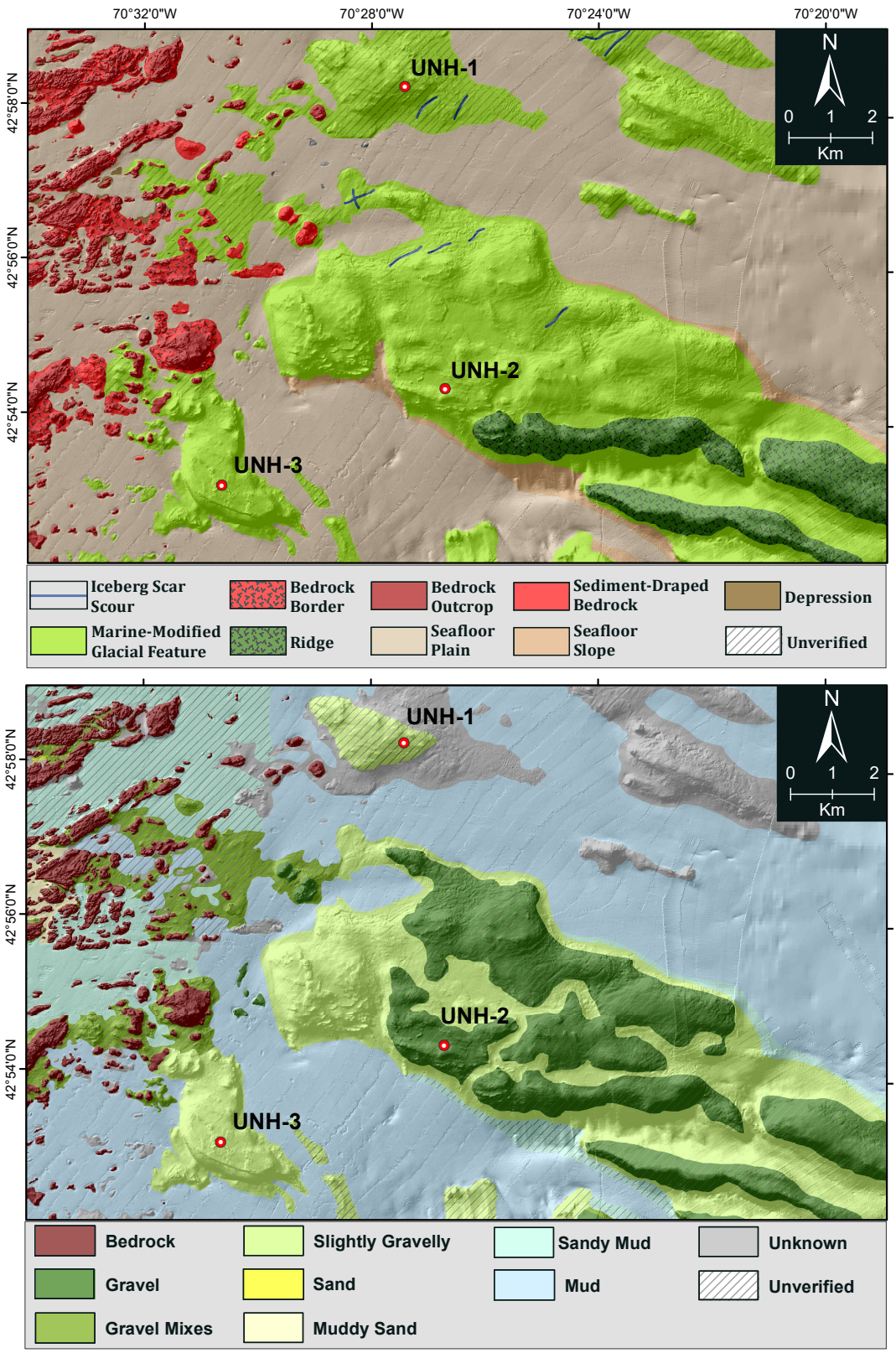

Figure 8. Major geoforms (physiographic features; top) and surficial sediment map (substrate classes; bottom) of the Offshore Marine-Modified Glacial Features (Drumlins and Lodgement Till Deposits). Shown at a scale of 1:85,000.

Table 4. Grain size data for the vibracores from the Offshore Marine-Modified Glacial Features (Drumlins and Lodgement Till Deposits) including UNH-1, UNH-2, and UNH-3 (Figures 6 and 7). Complete grain size classifications and statistics are given in Appendix B.

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)	CMECS (FGDC 2012) Substrate Component Subgroup (Specific)
UNH-1_0-1cm	3.65	1.56	2.09	83.67	12.68	6.67	6.01	1.90	2.25	Slightly Granuley Silty-Clayey Medium Sand
UNH-1_8-10cm	1.81	0.32	1.49	53.71	44.48	21.96	22.52	4.98	3.94	Slightly Granuley Silty-Clayey Fine Sand
UNH-1_88-90cm	1.15	0.00	1.15	50.54	48.31	24.23	24.08	5.24	3.85	Slightly Granuley Silty-Clayey Fine Sand
UNH-1_141-143cm	0.74	0.00	0.74	40.83	58.43	27.22	31.21	5.92	4.10	Slightly Granuley Very Fine Sandy Silt-Clay
UNH-1_156-158cm	0.97	0.68	0.30	27.02	72.01	33.04	38.97	7.01	3.91	Slightly Granuley Very Fine Sandy Silt-Clay
UNH-1_178-180cm	0.80	0.00	0.80	18.42	80.78	36.39	44.39	7.63	3.82	Slightly Granuley Very Fine Sandy Silt-Clay
UNH-1_292-294cm	0.48	0.00	0.48	25.47	74.05	33.67	40.38	7.07	3.83	Slightly Granuley Very Fine Sandy Silt-Clay
UNH-2_33-35cm	5.83	2.77	3.06	44.93	49.24	29.09	20.15	4.62	4.05	Granuley Silt-Clay
UNH-2_143-145cm	4.33	1.78	2.55	48.57	47.10	39.10	8.00	3.80	2.87	Slightly Granuley Silty Very Fine Sand
UNH-3_23-25cm	2.32	0.39	1.93	96.22	1.46	NA	NA	1.48	1.06	Slightly Granuley Medium Sand
UNH-3_71-73cm	2.60	0.66	1.94	96.89	0.51	NA	NA	1.27	1.04	Slightly Granuley Medium Sand
UNH-3_135-137cm	3.62	0.30	3.32	96.29	0.09	NA	NA	1.16	0.98	Slightly Granuley Medium Sand
UNH-3_225-227cm	11.97	5.80	6.18	85.47	2.56	NA	NA	0.65	1.50	Granuley Coarse Sand
UNH-3_278-281cm	5.30	4.03	1.27	93.57	1.13	NA	NA	1.73	1.13	Pebbly Medium Sand
UNH-3_324-326cm	0.00	0.00	0.00	98.19	1.81	NA	NA	2.57	0.54	Fine Sand
UNH-3_384-386cm	20.87	11.46	9.41	79.13	0.00	NA	NA	0.18	1.56	Granuley Coarse Sand
UNH-3_428-430cm	2.96	1.83	1.13	96.64	0.40	NA	NA	1.18	0.89	Slightly Pebbly Medium Sand
UNH-3_478-480cm	3.95	3.67	0.28	85.78	10.27	10.25	0.02	2.59	1.18	Slightly Pebbly Silty Fine Sand
UNH-3_538-540cm	0.20	0.00	0.20	37.72	62.08	61.21	0.87	4.11	0.90	Slightly Granuley Very Fine Sandy Silt
UNH-3_592-594cm	0.02	0.00	0.02	42.31	57.67	42.51	15.16	5.05	2.58	Slightly Granuley Very Fine Sandy Silt
UNH-3_664-666cm	0.00	0.00	0.00	17.97	82.03	68.14	13.89	5.30	2.11	Very Fine Sandy Silt

Figure 9. Photograph of the surface of vibracore UNH-1. Note lag deposit with cobble at surface of vibracore (above scale). Top of the core is to the right.

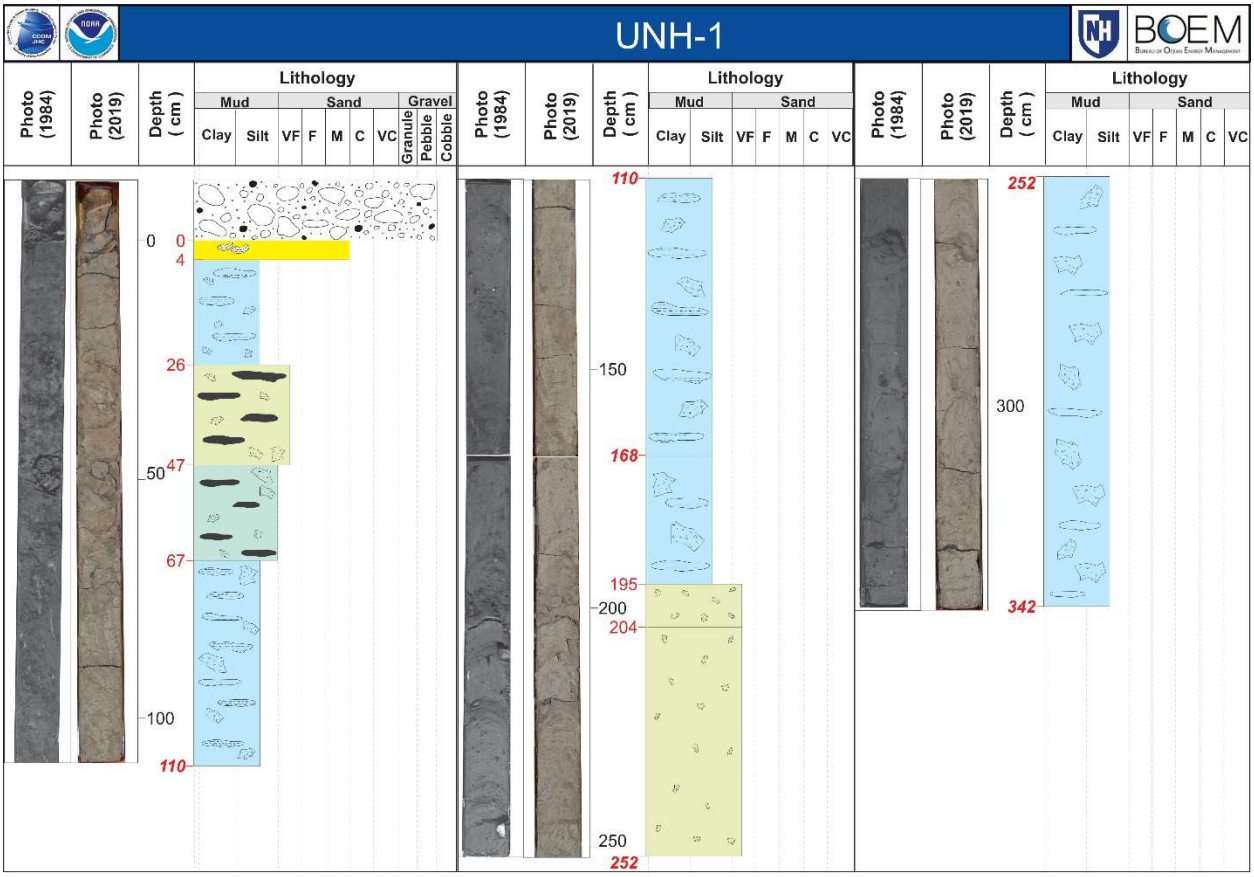

Figure 10. UNH-1 core log. The location of the vibracore is shown in Figures 6, 7, and 8. The full core log with greater detail is given in Appendix A. Note the measurement of the core depth starts ~10cm below the surface of the core case (see photograph in Figure 9). This was done because it is not clear where the actual surface starts due to the presence of a cobble. Therefore, the depth below surface starts where the sediment is continuous.

Figure 11. Photograph of vibracore UNH-2 from the surface to ~0.26m. Note pebble lag deposit at the surface of the core. The sediment below the pebbles is broken up due to desiccation.

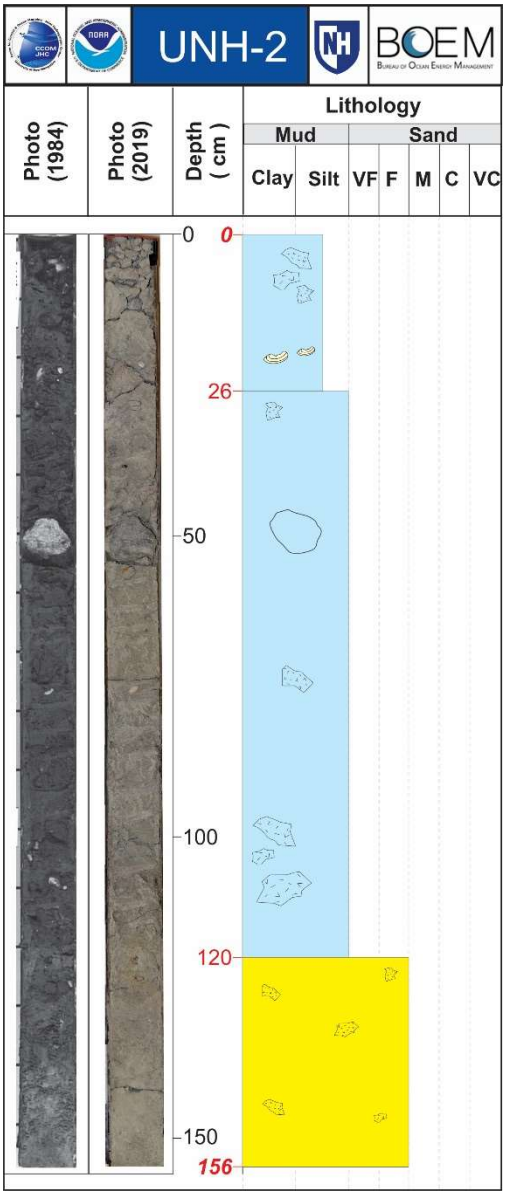

Figure 12. UNH-2 core log. The location of the vibracore is shown in Figures 6, 7, and 8. A photograph of the top of the core is shown in Figure 11. The full core log with greater detail is given in Appendix A.

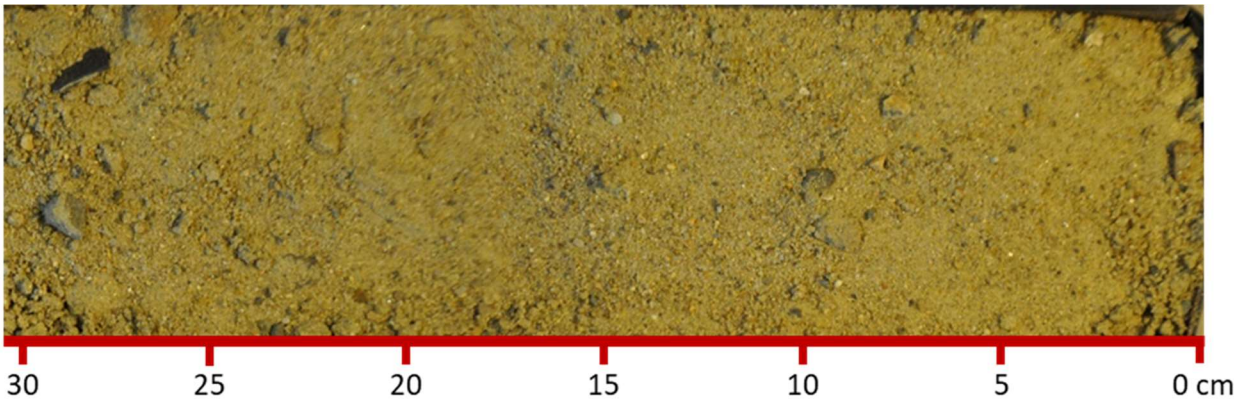

Figure 13. Photograph of the top of vibracore UNH-3 from the surface to ~0.30m.

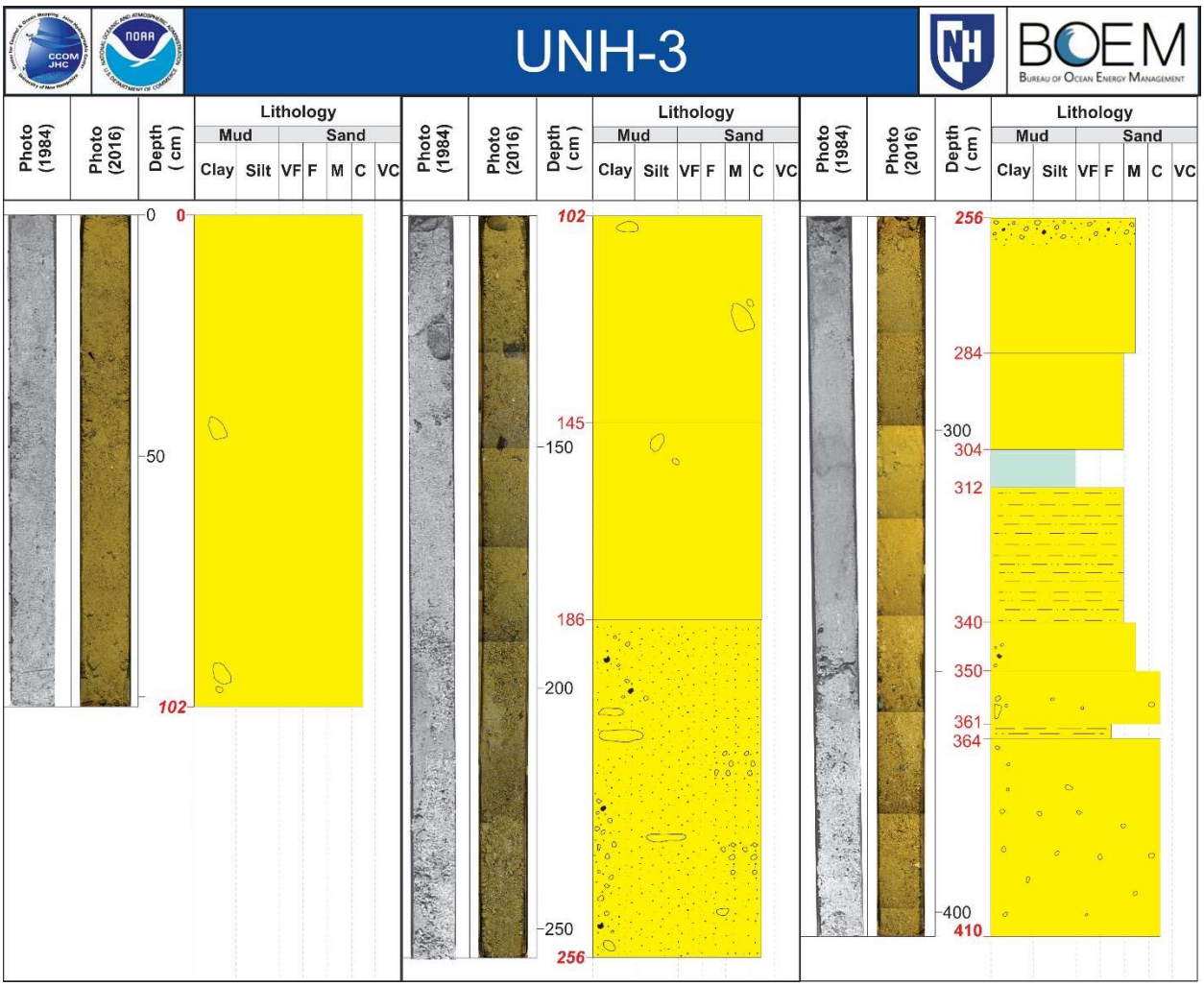

Figure 14a. Upper 4.10m of the core log for UNH-3. The core log from 4.10 to 7.99m in shown Figure 14b. The location of the vibracore is shown in Figures 6 and 7. A photograph of the top of the vibracore is shown in Figure 13. The full core log with greater detail is given in Appendix A.

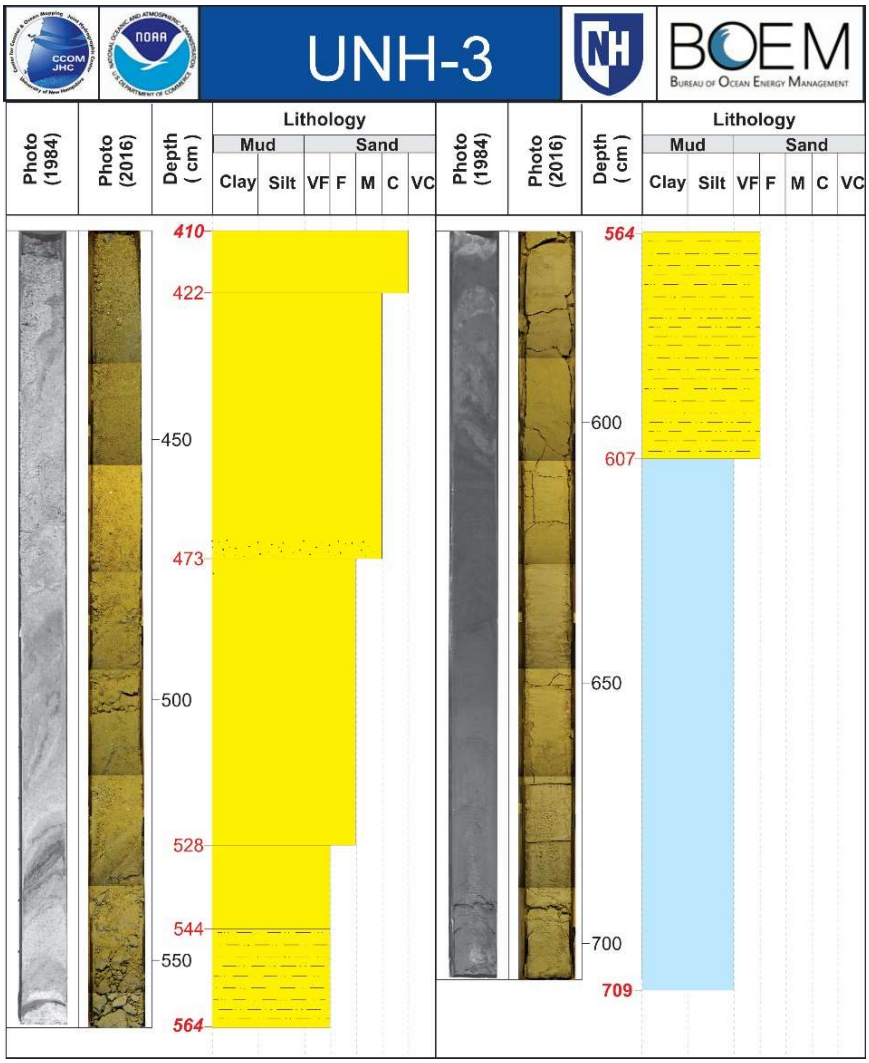

Figure 14b. Core log for 4.10 to 7.99m of UNH-3 (the upper 4.10m is shown in Figure 14a).

Northern Sand Body

The Northern Sand Body (NSB), which is located ~10km offshore near the Isles of Shoals, is ~3.2km in length, ~1.3km in width, and has a maximum relief of ~7m in comparison to the surrounding seafloor (Figures 6 and 15). The NSB extends between what appears to be the roots of two eroded drumlins (Figure 16). The NSB was first described by Birch (1986a; 1988) and later in more detail by Ward et al. (2021a), and has an estimated volume of sand of ~17 million m^3, but this remains to be verified. The origin of the NSB is not clear. Birch (1984) speculated that some of the sand deposits on the NH continental shelf originated from the erosion and winnowing of the glacial marine sediments deposited during the last major glaciation (Wisconsin). The NSB area was certainly supratidal during the last sea-level lowstand (Figure 2), exposing the seafloor to nearshore processes (e.g., waves, longshore currents, etc.); however, this would not account for the mounding of the sand body. Ward et al (2021a) hypothesized that the NSB may have formed from sediments eroded from glacial features, specifically drumlins, as described by Carter and Orford (1988) in similar paraglacial environments in Canada. However, it is not clear whether this would provide the needed sand volume. A simpler explanation is that the NSB originated from deposits that were originally either a marine glacial delta, a subaqueous delta, or a sandy outwash that have been heavily modified by marine processes. The origin of the NSB remains to be determined, but a glacial deposit laid down near the ice front and subsequently modified by marine processes is reasonable.

Five vibracores were taken in and around the NSB area to better describe the main sand body and the adjacent deposits (A1, A2, A3, UNH-4, and UNH-13).

Vibracore A1

A1 was taken from the northern end of the NSB in at a water depth of ~21m where the sand body appears to become significantly thinner (Figures 6, 15, and 16). The core is 4.39m in length. The upper ~3.5m of the core is composed of medium to coarse sand with varying amounts of gravel (Figures 17 and 18). For example, the core from the surface to 1.92m is largely slightly granuley medium sand. Sediment samples from 0.35-0.37m, 1.00-1.02m, and 1.62-1.64m are ~98% sand with mean grain sizes varying between 1.04 and 1.14ϕ (0.486 to 0.454mm) (Table 5). From 1.92 to 3.50m the core is largely a granuley coarse sand. Sediment samples from 2.47-2.49m and 3.08-3.10m are ~88% sand, but the gravel content increases to ~9-11% with most of the gravel being granule. The mean grain size is 0.56ϕ (0.678mm) and 0.59ϕ (0.664mm), respectively. Below 3.5m to the base of the core the sediment fines. Samples taken at 3.65-3.67m and 4.23-4.25m are a slightly granuley fine sand and fine sand, respectively. A small mud ball was also found at the base of A1 in the lower 0.1m of the core, suggesting that the sand sequence unconformably overlies fine grained deposits, most likely the glacial marine muds of the Presumpscot Formation.

Vibracore A2

A2 is located near the center of the NSB in a water depth of ~22m (Figures 6, 15, and 16). It is the longest of the vibracores taken on the NSB with a length of 7.13m. The upper ~3.1m of the sediment column is composed of primarily slightly granuley medium sand with shell fragments and scattered pebbles with a mean grain size between 1.00 and 1.20ϕ (0.500 to 0.435mm) (Figures 19 and 20). All sediment samples from this section have >97% sand and less than 1% mud (Table 5). From ~3.1 to 4.1m the sediment is slightly granuley fine sand with a mean grain size between 2.56 and 3.12ϕ (0.170 to 0.115mm). Mud content increases to between ~6 and 9%. From ~4.1 to 5.6m the core is slightly granuley silty fine sand with shell fragments and increasing mud content (~10 to 14%). Below ~5.6m to the base of the core at ~7.1m the sediments are still slightly granuley silty fine sand, but mud content increases to ~30 to 35%. Mean grain size reduces to ~3.6ϕ (0.082mm). This bottom section contains shell fragments and mica suggesting lower energy conditions.

Vibracore A3

A3 is located close to the southwestern end of the axis of the NSB (Figures 6, 15, and 16) at a water depth of ~25m. It is a relatively long core penetrating 5.81m. The entire length of A3 is dominated by fine to very fine sand, with scattered shell fragments, occasional pebbles, and sand pods (Figures 21 and 22). The first ~3.0m of the core is a fine sand with sand fractions greater than 97% and mean phi sizes between 2.40 and 2.48ϕ (0.189 to 0.179mm) (Table 5). Below ~3.0m the sediment is a silty very fine sand or a slightly granuley silty very fine sand with mean grain size increasing to ~3.8ϕ (0.072mm) near the bottom. Mud content increases to between ~32 and 35%.

Vibracore UNH-4

UNH-4 was collected from the southeastern side of the NSB at a depth of ~25m (Figures 6, 15, and 16). The recovered core is 6.46m in length. The upper 0.14m of the vibracore is a surface lag deposit that was likely winnowed at lower sea levels and as a result is coarser than the underlying sands (Figures 23 and 24). The surface layer (top 0.04m) is comprised of a slightly granuley medium sand with rock fragments that is >99% sand (excluding the scattered rock fragments) and has a mean grain size of 1.57ϕ (0.337mm). A sample from 0.10-0.12m is a slightly granuley fine sand with a mean grain size of 2.24ϕ (0.212mm) (Table 6). From 0.14 to 1.45m the sand becomes finer transitioning from a slightly granuley fine sand (>99% sand) to fine sand with a higher mud content. A sediment sample taken at 1.43-1.45m has 92% sand and ~8% mud. The mud content continues to increase with depth to the base of the core. A sample from 1.92-1.94m is a silty very fine sand with ~75% sand, 25% mud, and a mean grain size of 3.62ϕ (0.081mm). A sample from 4.66-4.68m is a slightly granuley silty very fine sand with ~53% sand, 47% mud, with a mean grain size of 4.04ϕ (0.061mm). Below this, sediments are slightly granuley very fine sandy silt. At 5.69m a relatively distinct contact represents the transition to a sandy silt and appears to be fine grained glacial marine sediments associated with the Presumpscot Formation. A sample from near the bottom of the core at 5.87-5.89m is ~34% sand, 65% mud, and has a mean grain size of 6.41ϕ (0.012mm).

Clearly the NSB was eroded into the underlying glacial marine muds as indicated by the unconformity between the sand and the mud. The stratigraphic relationship argues that the sand body is younger than the glaciomarine mud but does not preclude that the origin of the sand was glacial deltaic or outwash.

Vibracore UNH-13

UNH-13 was taken in a water depth of ~28m on the southwestern side of the NSB near where the sand body becomes very thin (Figures 6, 15, and 16). The core is 6.41m in length. The upper 1.58m of the core is mostly comprised of fine sand, with shell and rock fragments and an increasing presence of small clay lenses towards the bottom of the sandy section (Figures 25 and 26). The remainder of the core below 1.58m is glacial marine mud. An apparent lag deposit caps the core. A sediment sample taken near the surface (0.25-0.27m) is a slightly granuley fine sand with ~92% sand and a mean grain size of 2.48ϕ (0.179mm) (Table 6). However, the slightly granuley fine sand fines downward into a fine sand. Samples from 0.65-0.67m and 0.93-0.95m are fine sand with ~91 to 94% sand. The mean grain size of the lower sample is 4.00ϕ (0.063mm). A distinct contact at the base of the sandy sediments signals the transition to the glacial marine muds (Figure 26), again likely that of the Presumpscot Formation. A series of sediment samples throughout the mud shows a fining down sequence from a very fine sandy silt-clay at 1.61-1.63m with a mud content of ~79% and a mean grain size of 7.44ϕ (0.006mm) to a silt-clay at 5.73-5.75m with the mud content increasing to ~90% and mean grain size decreasing to 8.60ϕ (0.003mm). However, the sediment between these two samples vary due to sand pods. For example, a sand pod at 2.86-2.88m is a slightly pebbly silty clayey fine sand with a sand content of ~76% and a mean grain size of 3.74ϕ (0.075mm). The sharp contact and what appear to be rip-up clasts argue that the glacial marine mud was eroded at the sea-level lowstand and the fine sand is a Holocene deposit (Birch, 1984).

Table 5. Grain size data for the vibracores from the Northern Sand Body including A1, A2, and A3 (Figure 16). Complete grain size classifications and statistics are given in Appendix B.

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)	CMECS (FGDC 2012) Substrate Component Subgroup (Specific)
A1_35-37cm	2.04	0.49	1.55	97.92	0.04	NA	NA	1.04	0.62	Slightly Granuley Medium Sand
A1_100-102cm	2.15	1.69	0.45	97.85	0.00	NA	NA	1.14	0.56	Slightly Pebbly Medium Sand
A1_162-164cm	1.82	1.31	0.52	97.78	0.40	NA	NA	1.09	0.53	Slightly Pebbly Medium Sand
A1_247-249cm	11.21	2.71	8.50	88.56	0.23	NA	NA	0.56	1.08	Granuley Coarse Sand
A1_308-310cm	8.59	0.93	7.66	90.08	1.33	NA	NA	0.59	1.01	Granuley Coarse Sand
A1_365-367cm	3.27	0.50	2.77	89.94	6.79	NA	NA	1.53	1.51	Slightly Granuley Fine Sand
A1_423-425cm	0.00	0.00	0.00	96.32	3.68	NA	NA	2.61	0.55	Fine Sand
A2_40-42cm	1.98	0.88	1.10	97.46	0.56	NA	NA	1.22	0.65	Slightly Granuley Medium Sand
A2_78-80cm	0.52	0.00	0.52	99.21	0.27	NA	NA	1.20	0.62	Slightly Granuley Medium Sand
A2_141-143cm	0.46	0.00	0.46	98.99	0.55	NA	NA	1.03	0.60	Slightly Granuley Medium Sand
A2_223-225cm	0.50	0.12	0.39	98.95	0.55	NA	NA	1.17	0.69	Slightly Granuley Medium Sand
A2_273-275cm	0.05	0.00	0.05	99.94	0.01	NA	NA	1.17	0.60	Slightly Granuley Medium Sand
A2_313-315cm	0.33	0.00	0.33	92.93	6.74	4.61	2.13	2.56	0.86	Slightly Granuley Fine Sand
A2_383-385cm	0.21	0.00	0.21	90.70	9.09	6.39	2.70	3.12	0.67	Slightly Granuley Very Fine Sand
A2_439-441cm	0.03	0.00	0.03	89.45	10.52	8.30	2.22	3.27	0.62	Slightly Granuley Silty Very Fine Sand
A2_519-521cm	0.00	0.00	0.00	85.46	14.54	13.16	1.38	3.44	0.59	Silty Very Fine Sand
A2_599-601cm	0.46	0.00	0.46	68.82	30.72	26.22	4.50	3.67	1.34	Slightly Granuley Silty Very Fine Sand
A2_669-671cm	0.23	0.00	0.23	64.45	35.32	31.88	3.44	3.74	1.10	Slightly Granuley Silty Very Fine Sand
A3_20-22cm	0.00	0.00	0.00	97.59	2.41	NA	NA	2.40	0.57	Fine Sand
A3_100-102cm	0.00	0.00	0.00	97.66	2.34	NA	NA	2.42	0.55	Fine Sand
A3_145-147cm	0.00	0.00	0.00	97.50	2.50	NA	NA	2.45	0.55	Fine Sand
A3_265-267cm	0.00	0.00	0.00	98.22	1.78	NA	NA	2.48	0.58	Fine Sand
A3_302-304cm	0.00	0.00	0.00	93.53	6.47	4.22	2.25	2.78	0.69	Fine Sand
A3_422-424cm	0.00	0.00	0.00	86.67	13.33	9.24	4.09	3.26	1.04	Silty Very Fine Sand
A3_464-466cm	0.11	0.00	0.11	67.95	31.94	27.07	4.87	3.77	1.30	Slightly Granuley Silty Very Fine Sand
A3_564-566cm	0.06	0.00	0.06	64.90	35.04	29.83	5.21	3.82	1.38	Slightly Granuley Silty Very Fine Sand

Table 6. Grain size data for the vibracores taken at the Northern Sand Body including UNH-4 and UNH-13 (Figure 16). Complete grain size classifications and statistics are given in Appendix B.

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)	CMECS (FGDC 2012) Substrate Component Subgroup (Specific)
UNH-4_0-4cm	0.30	0.00	0.30	99.70	0.00	NA	NA	1.57	0.83	Slightly Granuley Medium Sand
UNH-4_10-12cm	0.02	0.00	0.02	99.94	0.04	NA	NA	2.24	0.56	Slightly Granuley Fine Sand
UNH-4_40-42cm	0.05	0.01	0.05	99.95	0.00	NA	NA	2.44	0.45	Slightly Granuley Fine Sand
UNH-4_68-70cm	0.00	0.00	0.00	98.39	1.61	NA	NA	2.53	0.48	Fine Sand
UNH-4_98-100cm	0.00	0.00	0.00	96.48	3.52	NA	NA	2.52	0.55	Fine Sand
UNH-4_143-145cm	0.00	0.00	0.00	92.00	8.00	6.22	1.78	2.95	0.63	Fine Sand
UNH-4_192-194cm	0.00	0.00	0.00	75.37	24.63	19.33	5.30	3.62	1.44	Silty Very Fine Sand
UNH-4_242-244cm	0.00	0.00	0.00	73.42	26.58	22.82	3.76	3.59	1.15	Silty Very Fine Sand
UNH-4_267-269cm	0.05	0.00	0.05	69.10	30.85	26.33	4.52	3.70	1.29	Slightly Granuley Silty Very Fine Sand
UNH-4_317-319cm	0.00	0.00	0.00	67.78	32.22	26.39	5.83	3.72	1.51	Silty Very Fine Sand
UNH-4_376-378cm	0.00	0.00	0.00	58.44	41.56	36.60	4.96	3.94	1.28	Silty Very Fine Sand
UNH-4_466-468cm	0.01	0.01	0.00	52.75	47.24	41.83	5.41	4.04	1.36	Slightly Granuley Silty Very Fine Sand
UNH-4_527-529cm	0.48	0.42	0.06	30.37	69.15	62.42	6.73	4.56	1.52	Slightly Granuley Very Fine Sandy Silt
UNH-4_587-589cm	0.06	0.01	0.06	34.45	65.49	33.25	32.24	6.41	3.54	Slightly Granuley Very Fine Sandy Silt-Clay
UNH-13_25-27cm	0.02	0.00	0.02	92.44	7.54	5.06	2.48	2.87	0.76	Slightly Granuley Fine Sand
UNH-13_65-67cm	0.00	0.00	0.00	93.90	6.10	3.08	3.02	2.86	0.63	Fine Sand
UNH-13_93-95cm	0.00	0.00	0.00	90.95	9.05	5.05	4.00	2.94	0.95	Fine Sand
UNH-13_139-141cm	0.12	0.12	0.00	87.05	12.83	6.79	6.04	2.95	1.36	Slightly Pebbly Silty-Clayey Fine Sand
UNH-13_161-163cm	0.00	0.00	0.00	20.74	79.26	36.30	42.96	7.44	3.61	Very Fine Sandy Silt-Clay
UNH-13_182-184cm	0.25	0.00	0.25	43.47	56.28	32.91	23.37	5.74	3.32	Slightly Granuley Very Fine Sandy Silt-Clay
UNH-13_252-254cm	0.59	0.00	0.59	11.41	88.00	40.78	47.22	8.03	3.47	Slightly Granuley Very Fine Sandy Silt-Clay
UNH-13_286-288cm	1.05	0.90	0.15	75.75	23.20	12.84	10.36	3.74	2.25	Slightly Pebbly Silty-Clayey Fine Sand
UNH-13_316-318cm	0.00	0.00	0.00	25.33	74.67	36.67	38.00	7.08	3.66	Very Fine Sandy Silt-Clay
UNH-13_423-425cm	0.00	0.00	0.00	7.30	92.70	41.16	51.54	8.37	3.23	Silt-Clay
UNH-13_573-575cm	0.00	0.00	0.00	9.60	90.40	35.57	54.83	8.60	3.36	Silt-Clay

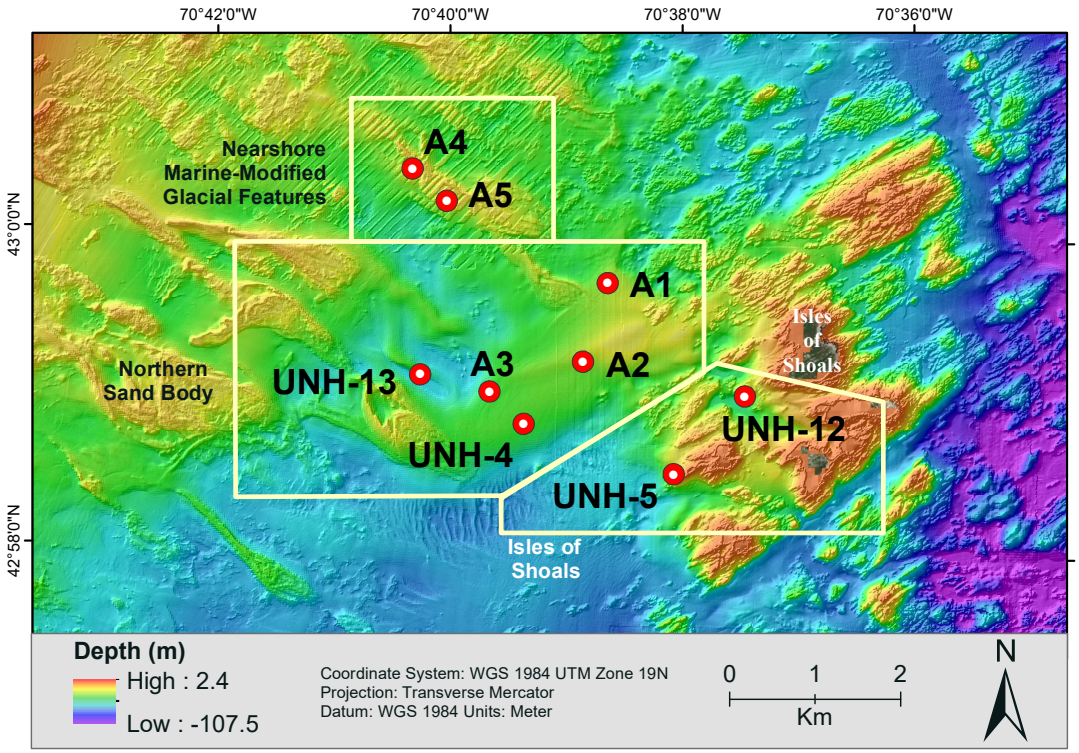

Figure 15. Bathymetric map and location of the vibracores taken in and around the Northern Sand Body (UNH-4, UNH-13, A1, A2, and A3). Vibracores taken in the Nearshore Marine-Modified Glacial Features (Eskers and Drumlins) (A4 and A5) and around the Isles of Shoals (UNH-5 and UNH-12), discussed below, are also shown. Map is shown at a scale of 1:50,000.

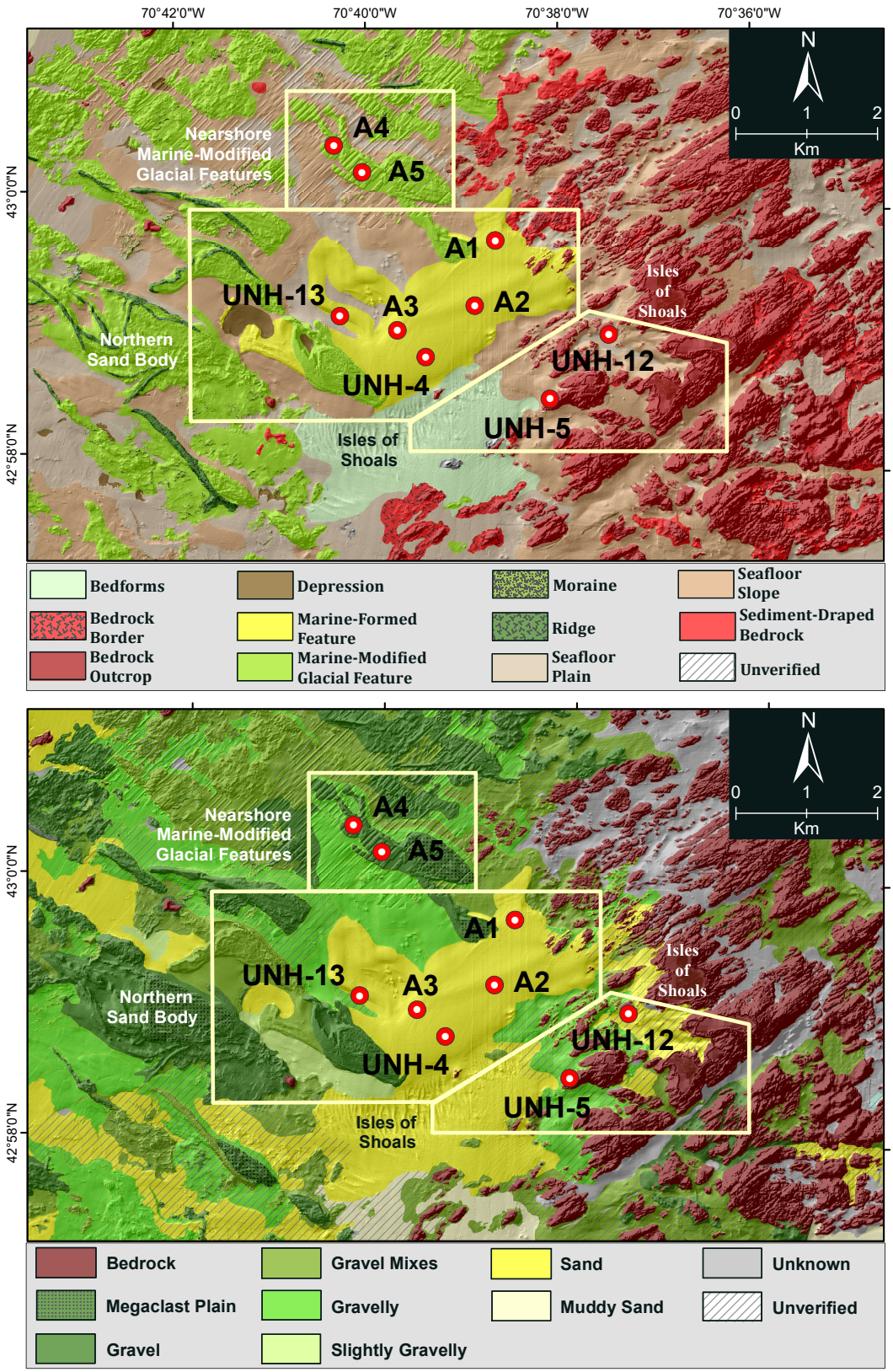

Figure 16. Major geoforms (physiographic features; top) and surficial sediment map (substrate classes; bottom) of the vibracores taken in and around the Northern Sand Body (outlined). Vibracores taken in the Nearshore Marine-Modified Glacial Features (Eskers and Drumlins) and around the Isles of Shoals, discussed in the next section.

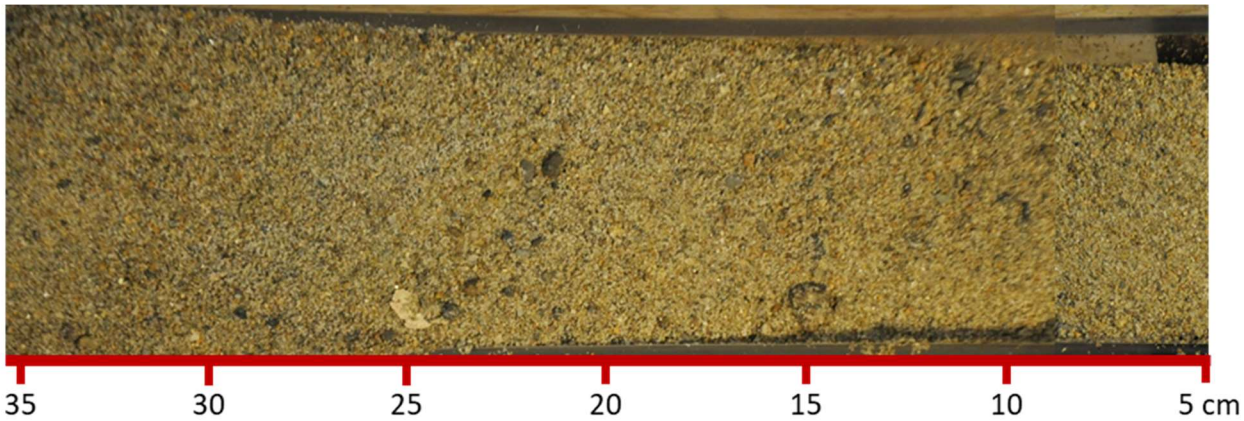

Figure 17. Photograph of vibracore A1 from ~0.05 to 0.35m. The top of core is to the right.

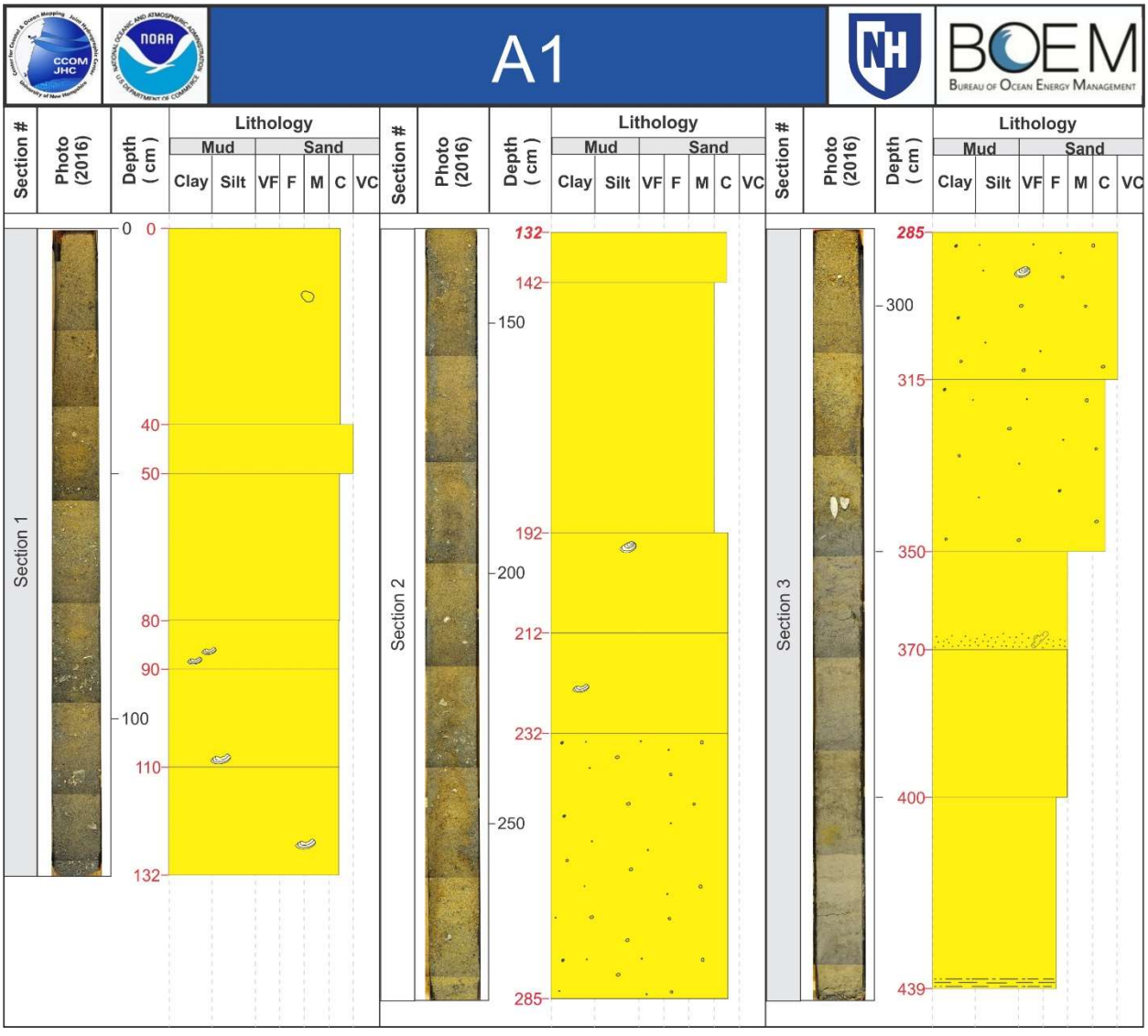

Figure 18. Log for vibracore A1. The location of the core is given in Figures 6, 15, and 16. A photograph of the surface is shown in Figure 17. A full description of the core is given in Appendix A.

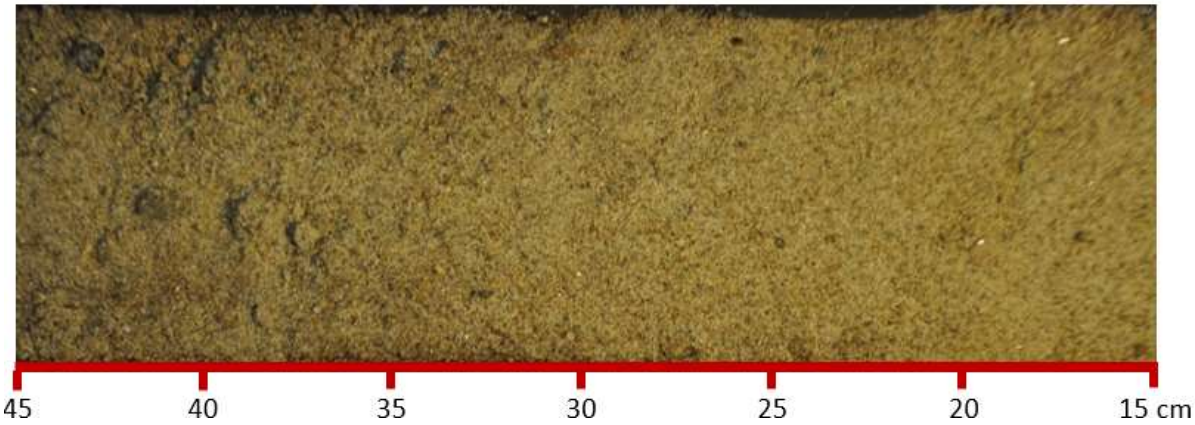

Figure 19. Photograph of vibracore A2 from ~0.15 to 0.45m.

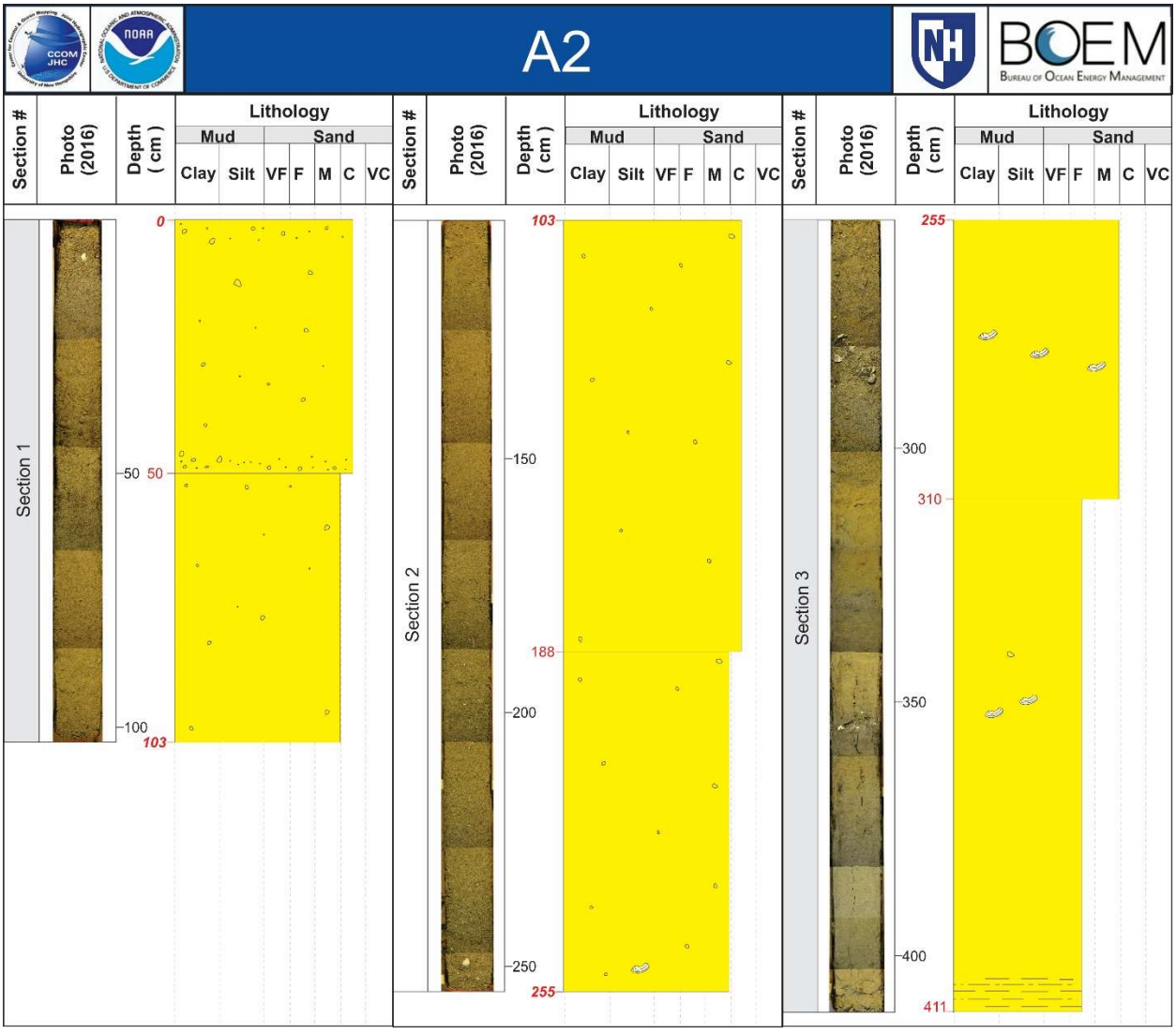

Figure 20a. Core log for A2 for the upper 4.11m (the core from 4.11 to 7.13m is shown in Figure 20b). The location of the vibracore is shown in Figures 6, 15, and 16. A photograph of the top of the vibracore is shown in Figure 19. The full core log with greater detail is given in Appendix A.

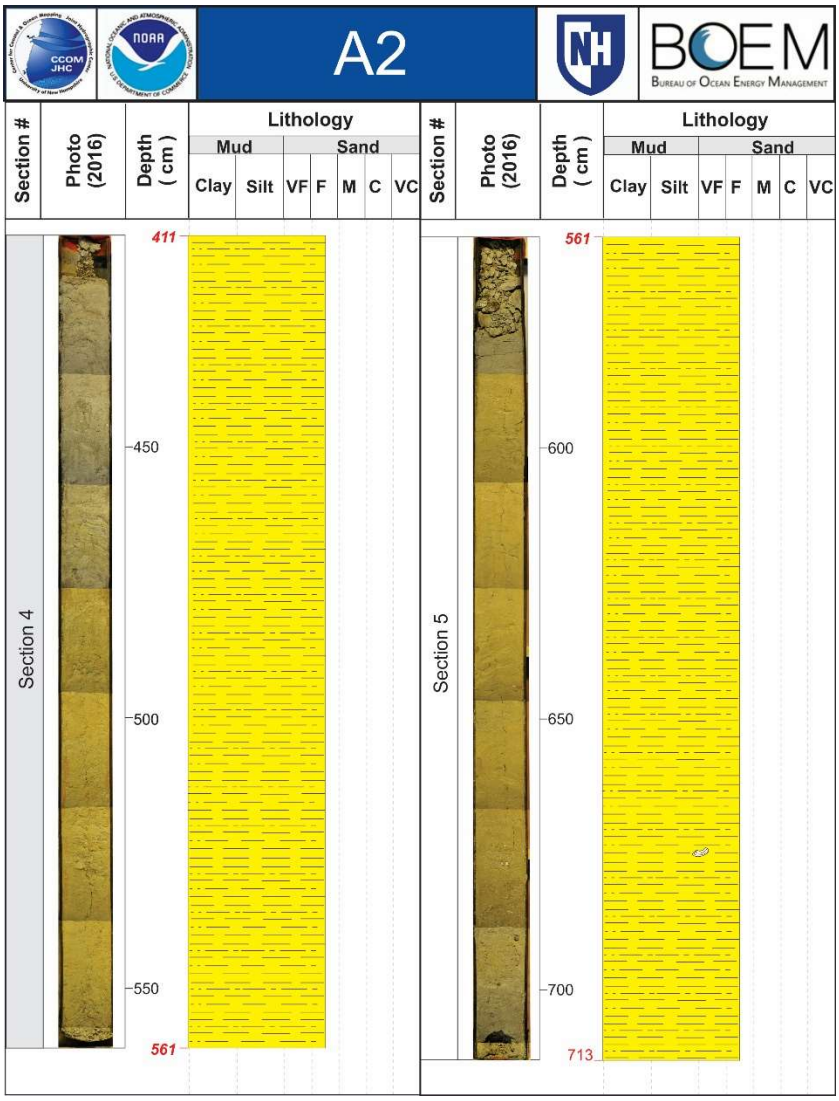

Figure 20b. Log for the lower portion of vibracore A2 from 4.11 to 7.13m. The location of the vibracore is shown in Figures 6, 15, and 16. The upper 4.11m is shown in Figure 20a above.

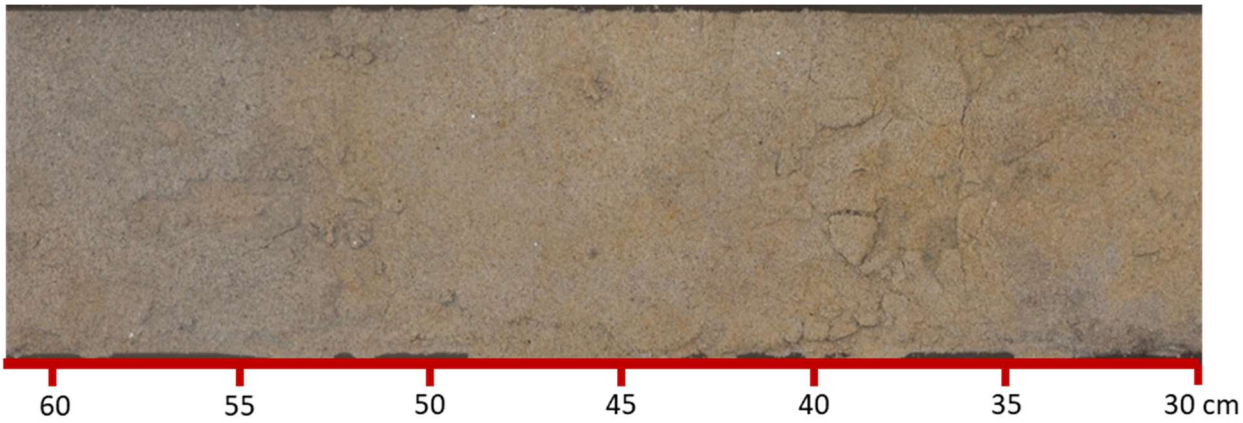

Figure 21. Photograph of vibracore A3 from ~0.30 to 0.61m. Core log for vibracore A3 is shown in Figure 22 (below).

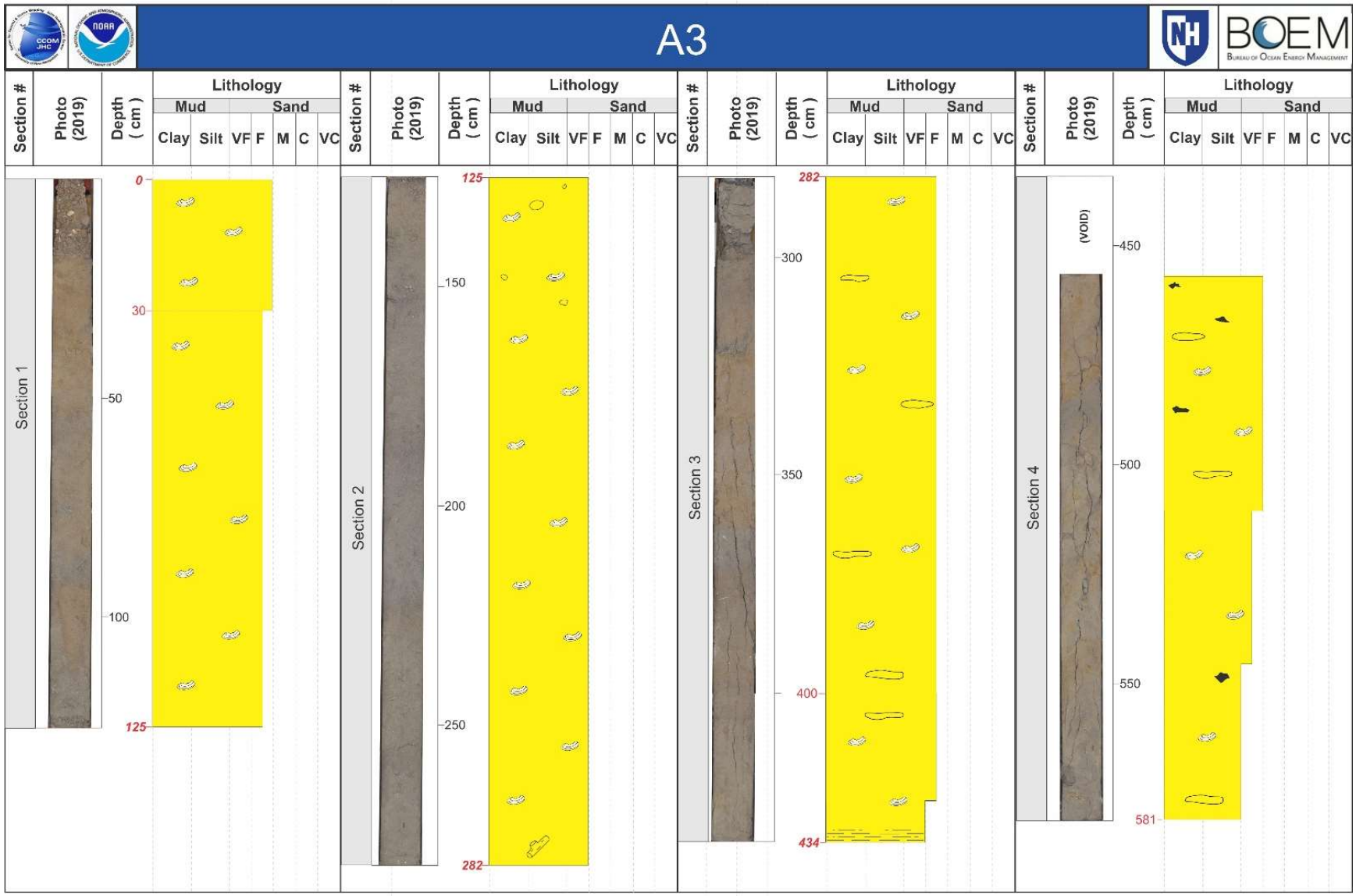

Figure 22. Core log for A3. The location of the core is given in Figures 6, 15, and 16. A photograph of the surface is shown in Figure 21 (above). A full description of the core is given in Appendix A.

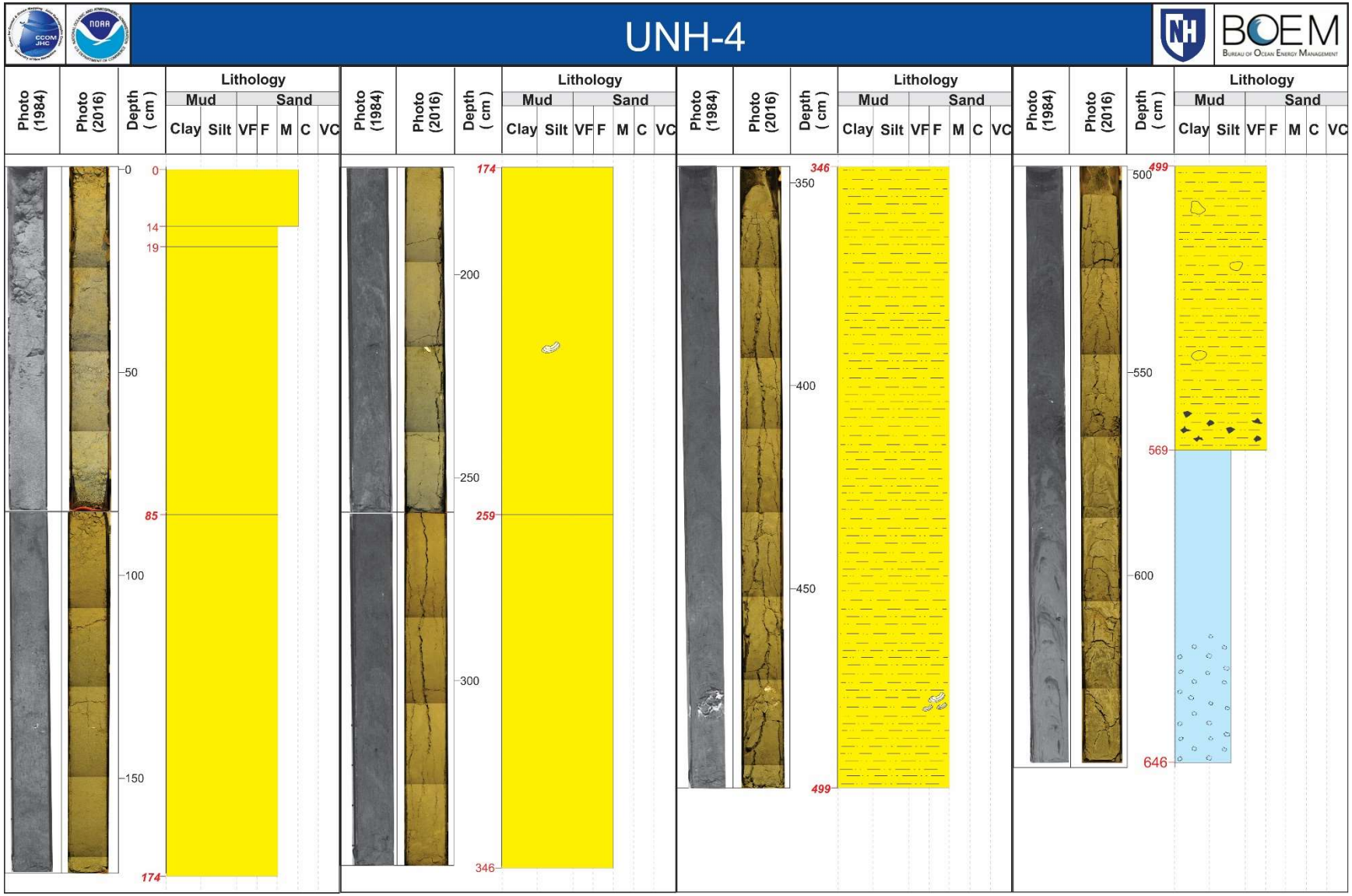

Figure 23. Log for vibracore UNH-4. The location of the core is given in Figures 6, 15, and 16. A photograph of the surface is shown in Figure 24 (below). A full description of the core is given in Appendix A.

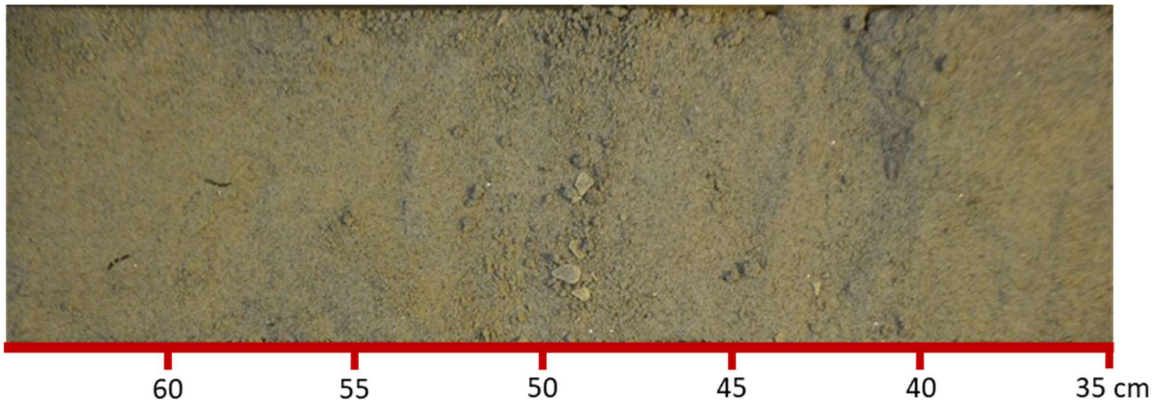

Figure 24. Photograph of vibracore UNH-4 from 0.35 to 0.64m. Core log for UNH-4 is shown above in Figure 23.

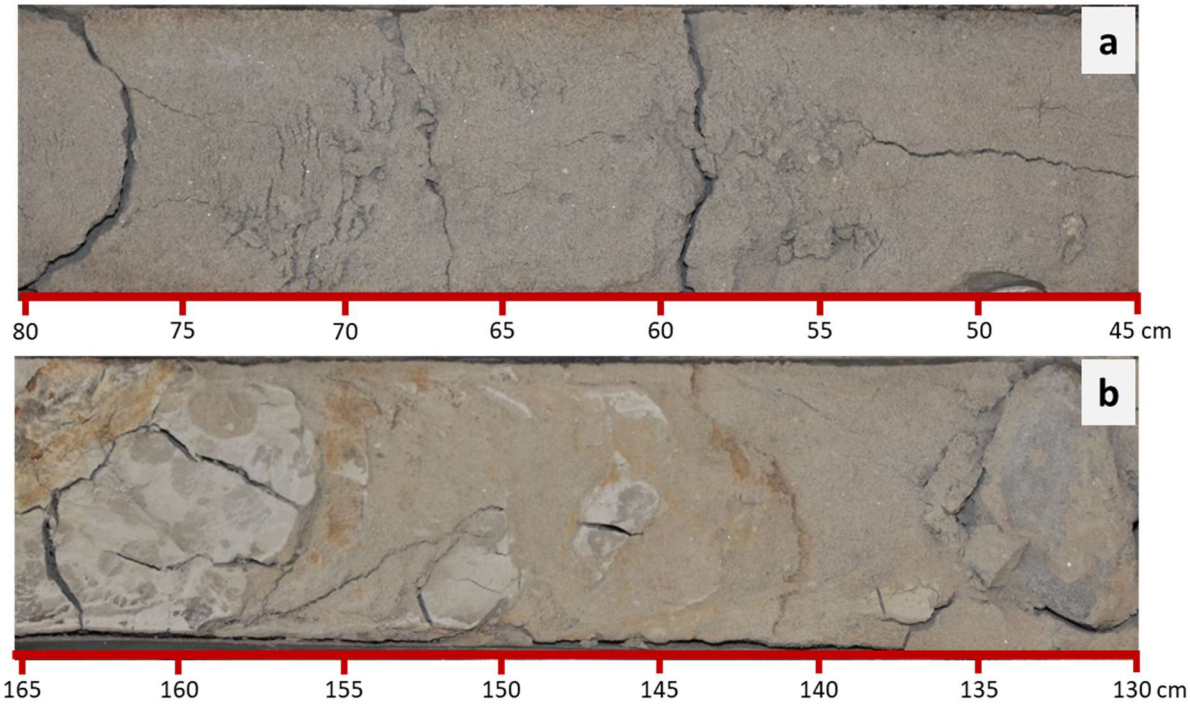

Figure 25. Photographs of vibracore UNH-13. Top photo (a) is from the upper core from 0.45 to ~0.80m; bottom photo (b) is from 1.30 to 1.65m. In bottom photo (b) note rip up clasts and large dropstone. Core log for UNH-13 is shown below in Figure 26.

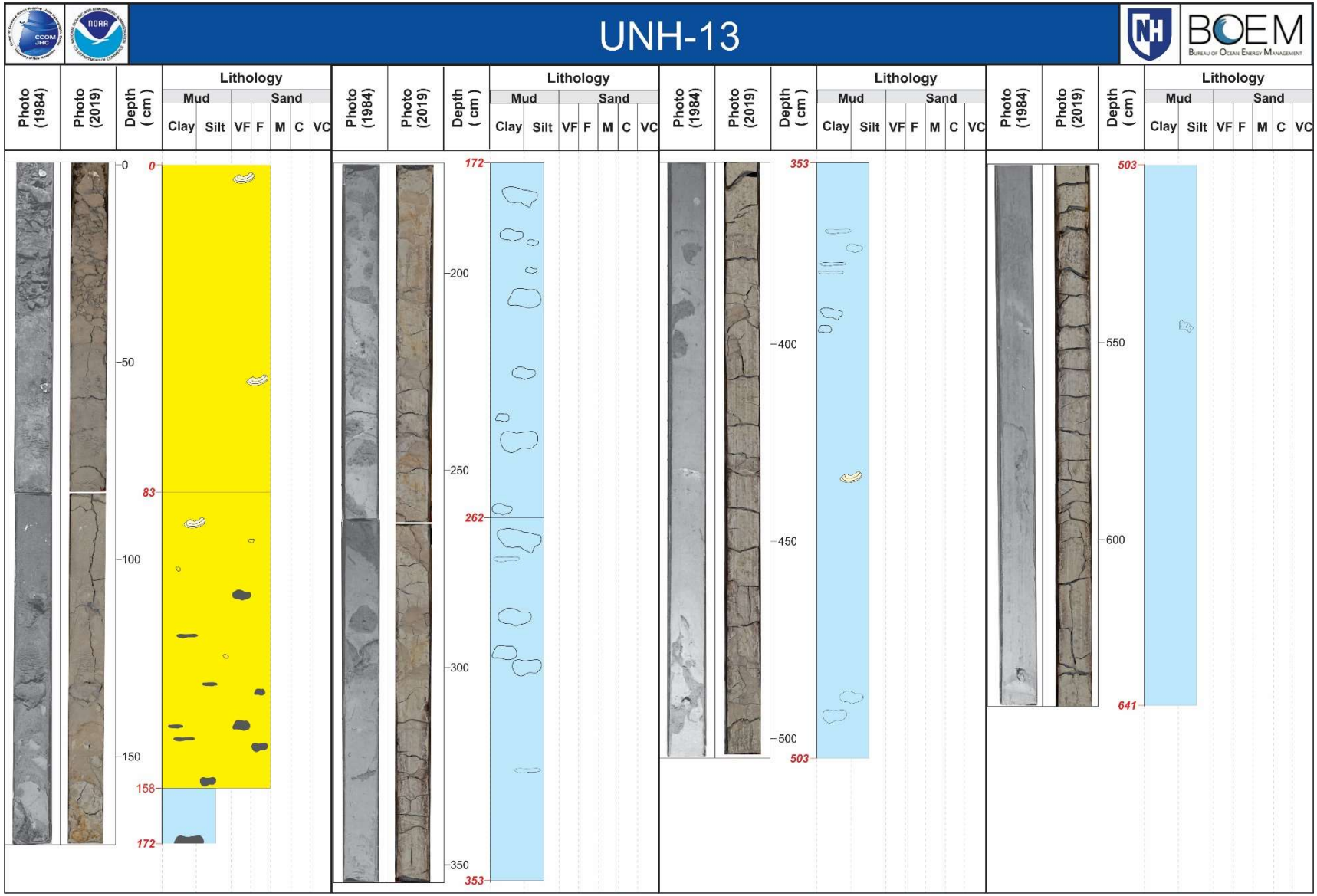

Figure 26. Core log for UNH-13. The location of the core is given in Figures 6, 15, and 16. Two photographs of the core are shown above in Figure 25 (above). A full description of the core is given in Appendix A.

Isles of Shoals

Two vibracores were taken seaward of the Northern Sand Body close to the Isles of Shoals in relatively shallow water (UNH-5 and UNH-12) (Figures 6, 15, and 16). These vibracores represent nearshore deposits that were subaerially exposed during the early Holocene sea-level lowstand ~12,000 yrs B.P. (Figure 2). As a result, the seafloor and the vibracores were subjected to shallow water and intertidal wave and current processes during the late Pleistocene regression and ensuing transgression (reviewed in Ward et al., 2021b). This is apparent when examining core UNH-5 which has a 3.2m shell hash layer at the surface.

Vibracore UNH-5

UNH-5 is a long core (7.13m) recovered near the Isles of Shoals in ~22m water depth and close to bedrock outcrops. The first ~3.2m of the core is completely composed of shell hash with scattered shell and rock fragments (Figures 27 and 28). The shell hash fines downward, beginning with coarse shell hash for the first ~1m and progressively becoming finer with depth. No grain size analyses were performed on this section of the core. Below the shell hash, the core is predominantly a pebbly silty fine sand from 3.22m to the base at 7.64m (Table 7). The exception is a small shell hash layer from ~3.67 to 3.78m depth. A sediment sample from 4.05-4.07m is ~9% gravel (shells), 68% sand, and 23% mud with a mean grain size of 2.58ϕ (0.167mm). A sample taken near the base at 7.00-7.02m is ~8% gravel (shells), 62% sand, and 31% mud with a mean grain size of 3.04ϕ (0.122mm).

The thick shell hash layer in the upper 3.2m of the vibracore is believed to have formed during the late Pleistocene regression and early Holocene transgression. Waves and shallow water currents likely eroded calcareous bivalves and other encrusting organisms that grew on the nearby bedrock outcrops and megaclast platforms by the Isles of Shoals and deposited them in deeper depressions. Once deposited in deeper water, the shell hash was preserved.

Vibracore UNH-12

UNH-12 was taken close to the Isles of Shoals (~0.5km) in ~28m of water. The location is in the middle of bedrock outcrops. The core is 2.44m in length. The upper 0.33m is comprised of fine to medium sand with some rock fragments (Figure 29). The sand fines downward transitioning into clayey silt with numerous sand lenses and shell hash pods which extends down to ~1.9m. This section is likely the glacial marine clay of the Presumpscot Formation. The core ends in a fine to medium sand from ~1.9m to the base at ~2.4m, with numerous rock fragments.

The upper sand layer is likely a shallow water deposit eroded into the underlying glacial marine muds (Presumpscot Formation). The lower sand layer was interpreted as lodgement till by Birch (1984). However, the lack of fines indicates it must have been winnowed at the sea-level lowstand. No subsamples were taken for grain size analysis.

Table 7. Grain size data for vibracore UNH-5 taken near the Isles of Shoals (Figure 15). The top three meters of core is shell hash. Complete grain size classifications and statistics are given in Appendix B.

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)	CMECS (FGDC 2012) Substrate Component Subgroup (Specific)
UNH-5_331-333cm	14.23	8.59	5.64	77.79	7.98	5.45	2.53	1.81	2.25	Granuley Very Fine Sand
UNH-5_405-407cm	9.19	4.94	4.26	67.48	23.33	17.74	5.59	2.58	2.73	Pebbly Silty Very Fine Sand
UNH-5_446-448cm	7.79	5.55	2.24	70.11	22.10	16.73	5.37	2.61	2.64	Pebbly Silty Very Fine Sand
UNH-5_556-558cm	7.17	4.62	2.54	73.02	19.81	16.06	3.75	2.60	2.29	Pebbly Silty Very Fine Sand
UNH-5_588-590cm	22.53	18.96	3.56	49.93	27.54	21.77	5.77	1.49	3.98	Pebbly Silty Very Fine Sand
UNH-5_700-702cm	7.64	4.18	3.46	61.91	30.45	21.56	8.89	3.04	3.23	Pebbly Silty Fine Sand

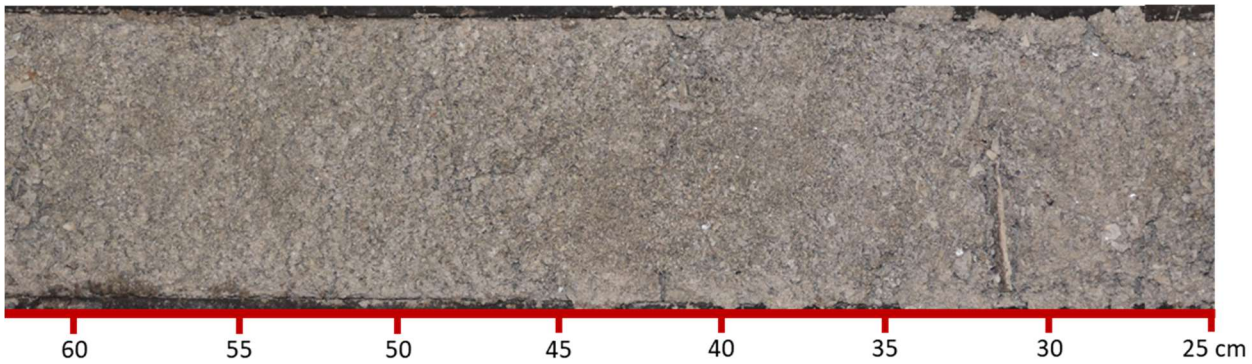

Figure 27. Photograph of vibracore UNH-5 from 0.25 to 0.62m. The upper 3.22m of the vibracore is almost entirely composed of shell hash. The top of the core is to the right.

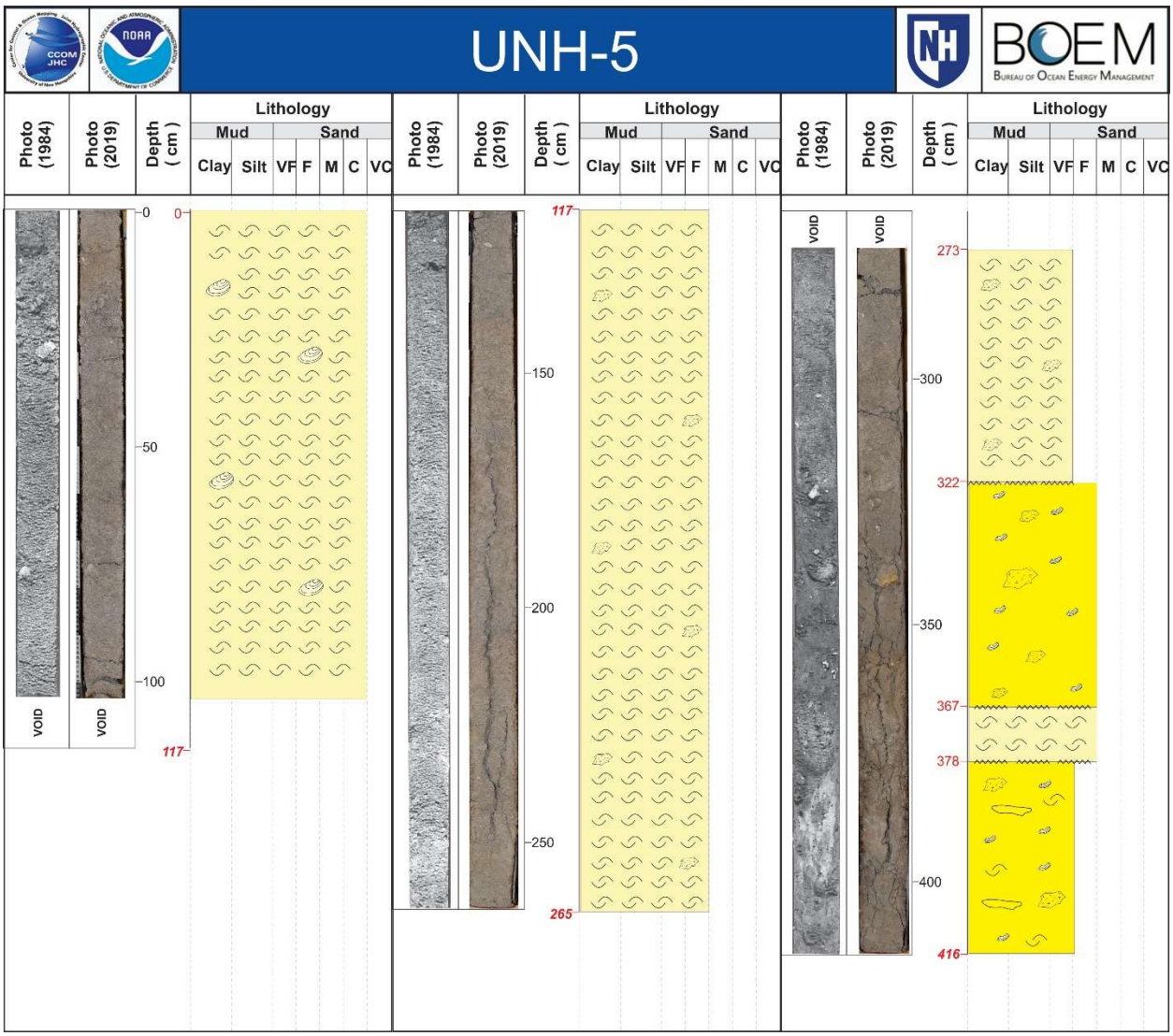

Figure 28a. Core log of the upper 4.15m of A2. The lower core log (4.26 to 7.13m; 4.11 to 4.26m is missing) is shown in Figure 28b. The location of the vibracore is shown in Figures 6, 15, and 16. A photograph of the top of the vibracore is shown in Figure 27. The full core log with greater detail is given in Appendix A.

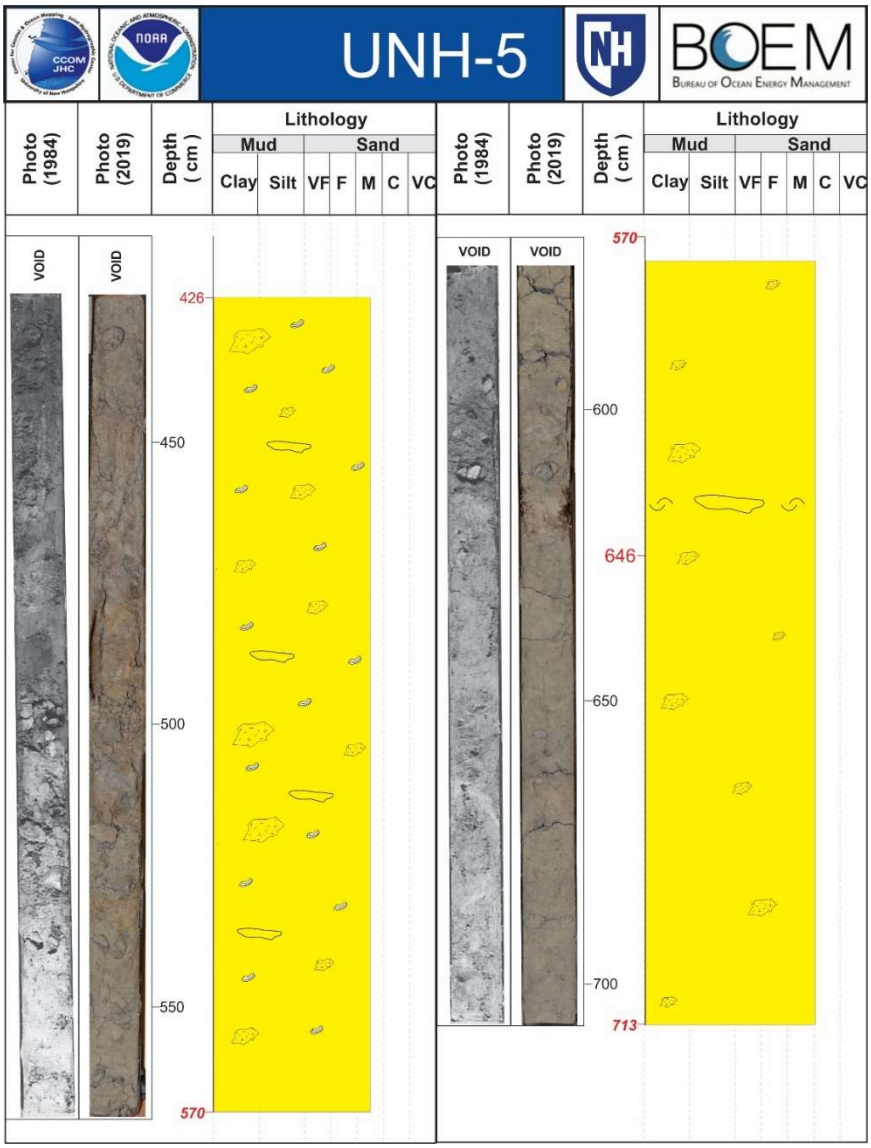

Figure 28b. UNH-5 core log for the lower section (4.26 to 7.13m). The upper 4.15m is shown in Figure 28a.

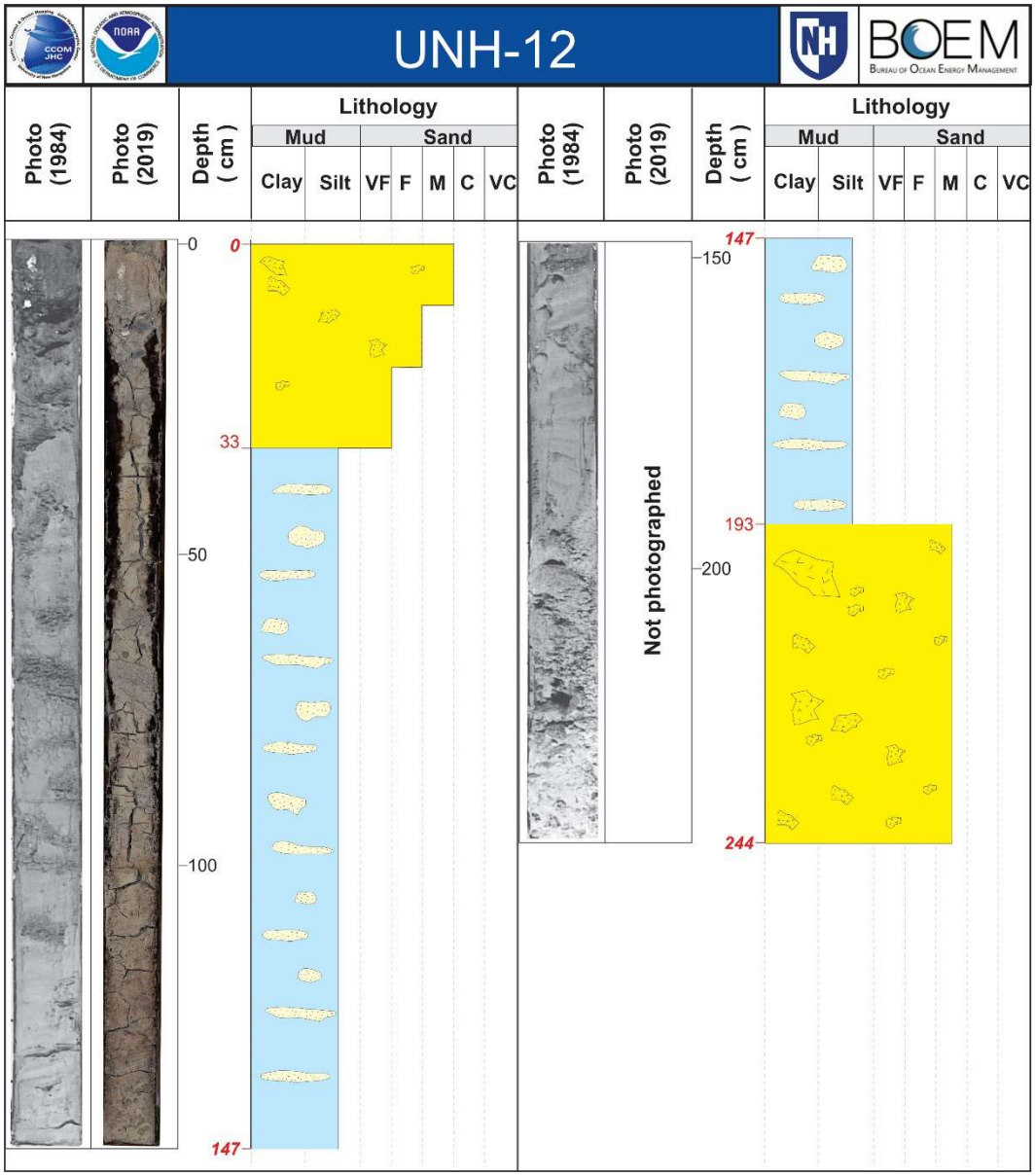

Figure 29. Core log UNH-12. The location of the core is given in Figures 6, 15, 16. A full description of the core is given in Appendix A.

Nearshore Marine-Modified Glacial Features (Eskers and Drumlins)

Note: These features were referred to in earlier reports as the Northern Sand Body Extended (NSBE) (see Ward et al., 2021a).

Many of the depositional features found landward of the Isles of Shoals and south of Portsmouth Harbor appear to be glacial in origin, which have been significantly modified by marine processes as sea level fluctuated since the end of the last major glaciation (Figure 2). Included are megaclast platforms that appear to be the base of eroded drumlins (Figures 6, 15, and 16). Associated shoals are hypothesized to be sediment-derived from the eroded drumlin, transported by wave action as sea level rose and transgressed as discussed in Carter and Orford (1988). Several linear ridges hundreds of meters in length, many oriented northeast-southwest or relatively perpendicular to the NH shoreline, also occur landward of the Isles of Shoals. These features have been hypothesized by Ward et al. (2021a) to be glacial in origin, most likely eskers, that have been modified by marine processes. The esker-like feature where vibracores A4 and A5 were taken was exposed during the last sea-level lowstand, subjecting the glacial feature to waves and nearshore process during the Holocene transgression (Figure 2). Seafloor photographs show the surficial sediments are pebble and megaclast deposits that appear to overlay sand and gravel (Ward et al., 2021b). However, the feature has a broad megaclast platform on the seaward side that appears to be the base of an eroded drumlin. Presently, the origin of this esker-like feature is not clear.

Vibracores A4 and A5 were taken on one of the presumably modified eskers (Figure 6 and 16). The linear ridge is ~1.6km in length and ~0.2km in width. However, it appears to extend from a megaclast platform measuring ~1.0 by 0.6km.

Vibracore A4

A4 was taken at a depth of ~20m (estimated from a high-resolution bathymetry map) ~100m from the crest of the ridge of a marine-modified glacial deposit (Figures 6, 15, and 16). It is hypothesized here that the area where the vibracore was collected is a shoal which was eroded from the adjacent esker during the last transgression. A4 is 5.75m in length and is primarily composed of very coarse sand to gravelly sediments with shell fragments, pebbles, and cobbles in the upper ~2.5m (Figures 30 and 31).

Grain size analysis of subsamples from the upper ~2.0m of the core show high gravel content ranging from ~22% at 0.08-0.12m up to ~66% at 0.90-0.95m (Table 8). However, the largest clasts are not sampled, so the analyses represent the matrix. The matrix samples range from granuley coarse sand to sandy granule gravel. From ~2.00 to 2.54m the large pebble and cobble content decreases and the sediment becomes sandier. Below ~2.54m down to 4.28m the sediments range from slightly granuley medium sand to slightly granuley coarse sand with scattered small pebbles. Sand content varies from ~90 to 96%. Mean grain sizes range from 0.95ϕ (0.518mm) at 2.48-2.53m down to 1.61ϕ (0.328mm) at 4.08-4.10m.

The section below 4.28m to the base of the core at 5.75m is somewhat confusing as an unexpected mud layer occurs from 4.28 to 4.73m that appears to be a glacial marine mud associated with the Presumpscot Formation. A subsample taken from this muddy layer at 4.44-4.46m is a very fine sandy silt, with a mud content of ~84% and a mean grain size of 6.11ϕ (0.014mm), which is consistent with the Presumpscot Formation distal facies. Also, the upper part of the sandy mud has shell hash and a wood fragment suggesting that the contact is an erosional unconformity developed during the last sea-level transgression. However, what is unexpected is the transition to a muddy sand below the mud layer beginning at 4.73m, which coarsens downward to a very coarse sand to a gravelly layer at the base of the core at 5.75m. It is possible that the coarser sediment at the base of the vibracore is a proximal deposit of the receding ice front that was then draped by the more distal glacial muds as the ice front moved further inland. An alternative is that the sediment is lodgement till that has been winnowed.

Vibracore A5

Vibracore A5 was taken at a water depth of ~19m (estimated from a high-resolution bathymetry map) ~175m away from the crest of the linear feature or marine-modified glacial deposit (Figures 6, 15, and 16). At present, it is hypothesized here that the ridge is the remnant of an eroded esker and that the area where the vibracore was collected is a shoal that was eroded from the adjacent ridge during the last transgression.

Although core A5 is shorter than A4 at 3.36m, it shows similar stratigraphy. The upper 1.52m is comprised of a coarse to very coarse sand matrix or granule gravel with pebbles and cobbles (Figures 32 and 33). Three samples taken for grain size analysis in this upper part of the core are sandy pebble gravels with gravel contents ranging from ~59 to 71% (Table 8). Mean grain size ranges from -1.58ϕ (2.99mm) to -2.84ϕ (7.16mm). From ~1.52 to 1.67m the composition changes but is still a sandy pebble gravel. From ~1.67 to 2.31m the sediment becomes significantly finer. A sample from 2.05-2.07m is a slightly pebbly very fine sandy silt with ~34% sand and 65% mud and a mean grain size of 4.47ϕ (0.045mm). A sample from 2.21-2.23m is a very fine sandy silt with ~43% sand and 57% mud and a mean grain size of 4.60ϕ (0.041mm). The contact between the overlying gravel and the muddy sediments is sharp suggesting an erosional contact. It is presumed the mud is a glacial marine sediment or the Presumpscot Formation distal facies which is Pleistocene in age. From ~2.3m to the base of the core, the sediments are composed of slightly granuley medium sand or pebbly medium sand. The coarse sediment underlying the glacial marine mud is similar to that in core A4 and is presumed to be either proximal glacial marine sediment or lodgement till.

Table 8. Grain size data for vibracores taken in the Nearshore Marine-Modified Glacial Features (Eskers and Drumlins): A4 and A5 (Figures 6 and 16). Complete grain size classifications and statistics are given in Appendix B.

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)	CMECS (FGDC 2012) Substrate Component Subgroup (Specific)
A4_8-12cm	22.14	5.76	16.38	74.30	3.56	NA	NA	0.32	1.68	Granuley Coarse Sand
A4_30-32cm	45.10	28.30	16.80	53.81	1.09	NA	NA	-0.94	1.70	Sandy Granule Gravel
A4_90-95cm	65.96	54.75	11.21	32.30	1.74	NA	NA	-2.02	2.39	Sandy Pebble Gravel
A4_143-153cm	48.78	35.05	13.73	48.09	3.13	NA	NA	-1.13	2.31	Sandy Granule Gravel
A4_213-216cm	3.33	0.57	2.76	91.53	5.14	3.76	1.38	1.21	1.27	Slightly Granuley Medium Sand
A4_248-253cm	4.71	1.71	3.00	91.09	4.20	NA	NA	0.95	1.09	Slightly Granuley Coarse Sand
A4_288-290cm	0.40	0.00	0.40	90.72	8.88	5.60	3.28	1.88	1.29	Slightly Granuley Medium Sand
A4_326-328cm	7.72	3.59	4.13	89.48	2.80	NA	NA	1.03	1.13	Granular Medium Sand
A4_358-360cm	1.03	0.42	0.61	95.99	2.98	NA	NA	1.37	0.69	Slightly Granuley Medium Sand
A4_408-410cm	0.08	0.00	0.08	95.59	4.33	NA	NA	1.61	0.70	Slightly Granuley Medium Sand
A4_444-446cm	0.00	0.00	0.00	15.96	84.04	63.12	20.92	6.11	2.85	Very Fine Sandy Silt
A4_491-495cm	0.00	0.00	0.00	40.06	59.94	46.82	13.12	4.84	2.25	Very Fine Sandy Silt
A4_536-539cm	1.13	0.00	1.13	97.72	1.15	NA	NA	0.99	0.68	Slightly Granuley Medium Sand
A4_575-577cm	33.65	24.52	9.13	62.48	3.87	NA	NA	-0.72	2.41	Sandy Pebble Gravel
A5_20-22cm	58.90	47.77	11.13	38.04	3.06	NA	NA	-1.58	2.33	Sandy Pebble Gravel
A5_80-82cm	66.65	54.26	12.39	30.55	2.80	NA	NA	-2.11	2.10	Sandy Pebble Gravel
A5_121-123cm	71.31	65.52	5.79	26.42	2.27	NA	NA	-2.84	2.24	Sandy Pebble Gravel
A5_163-167cm	32.91	31.91	1.00	61.88	5.21	4.43	0.78	-0.23	2.86	Sandy Pebble Gravel
A5_171-173cm	0.00	0.00	0.00	61.68	38.32	31.21	7.11	3.65	2.18	Silty Very Fine Sand
A5_205-207cm	1.03	1.03	0.00	33.93	65.04	56.91	8.13	4.47	1.98	Slightly Pebbly Very Fine Sandy Silt
A5_221-223cm	0.00	0.00	0.00	42.81	57.19	45.68	11.51	4.60	2.43	Very Fine Sandy Silt
A5_271-273cm	1.79	0.00	1.79	93.00	5.21	4.84	0.37	1.66	1.14	Slightly Granuley Medium Sand
A5_331-333cm	6.01	4.20	1.81	88.67	5.32	4.48	0.84	1.58	1.34	Pebbly Medium Sand

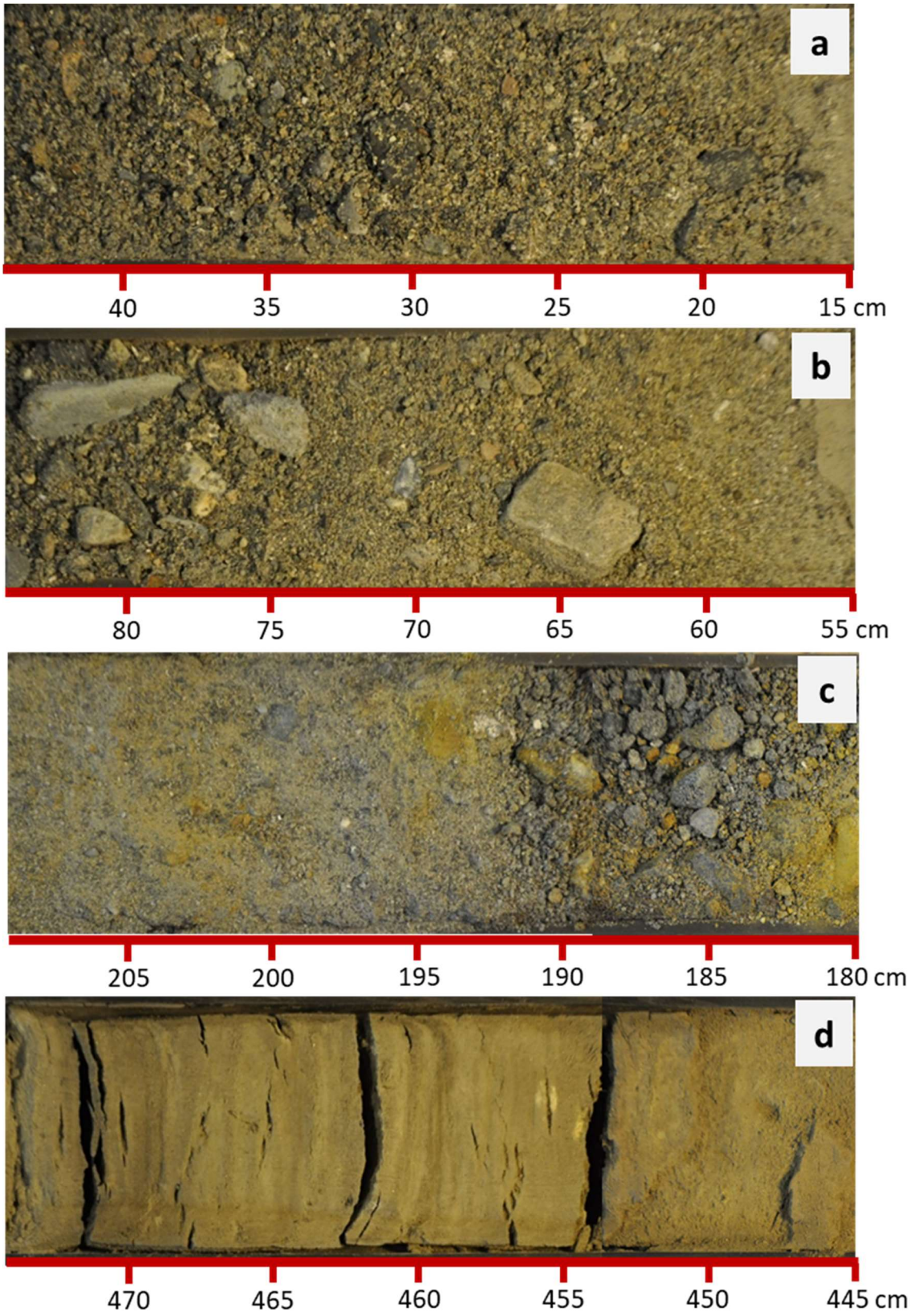

Figure 30 (a, b, c, d). Photographs of vibracore A4 from ~0.15 to 0.44m (a), from ~0.5m to 0.84m (b), from ~1.80 to 2.09m (c), and from ~4.45 to 4.75m (d).

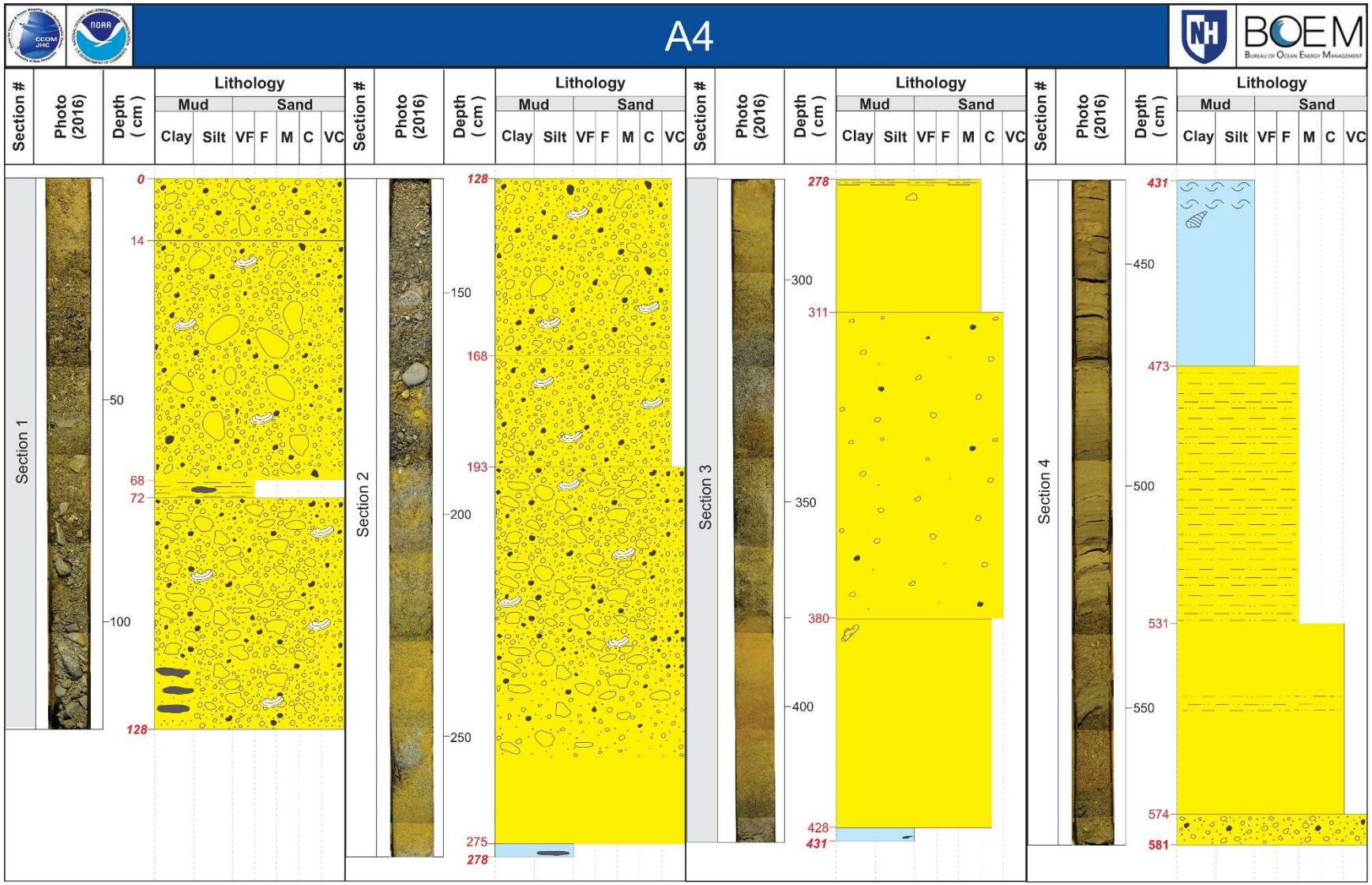

Figure 31. Log for vibracore A4. The location of the core is given in Figures 6, 15, and 16. Photographs of the core are shown in Figure 30. A full description of the core is given in Appendix A.

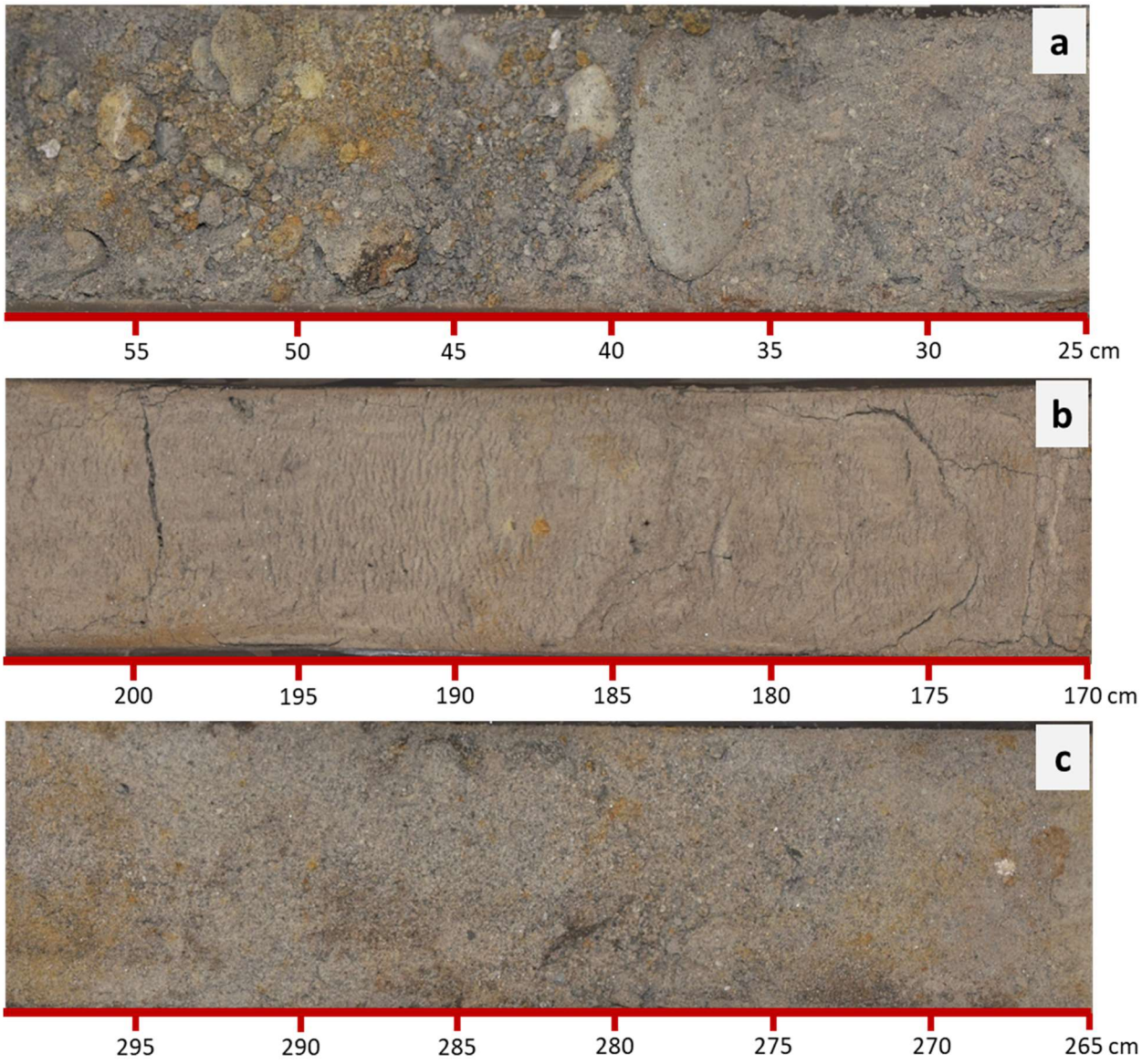

Figure 32 (a, b, c). Photographs of vibracore A5 from ~0.25 to 0.59m (a), from ~1.70 to 2.04m (b), and from ~2.65 to 2.99m (c).

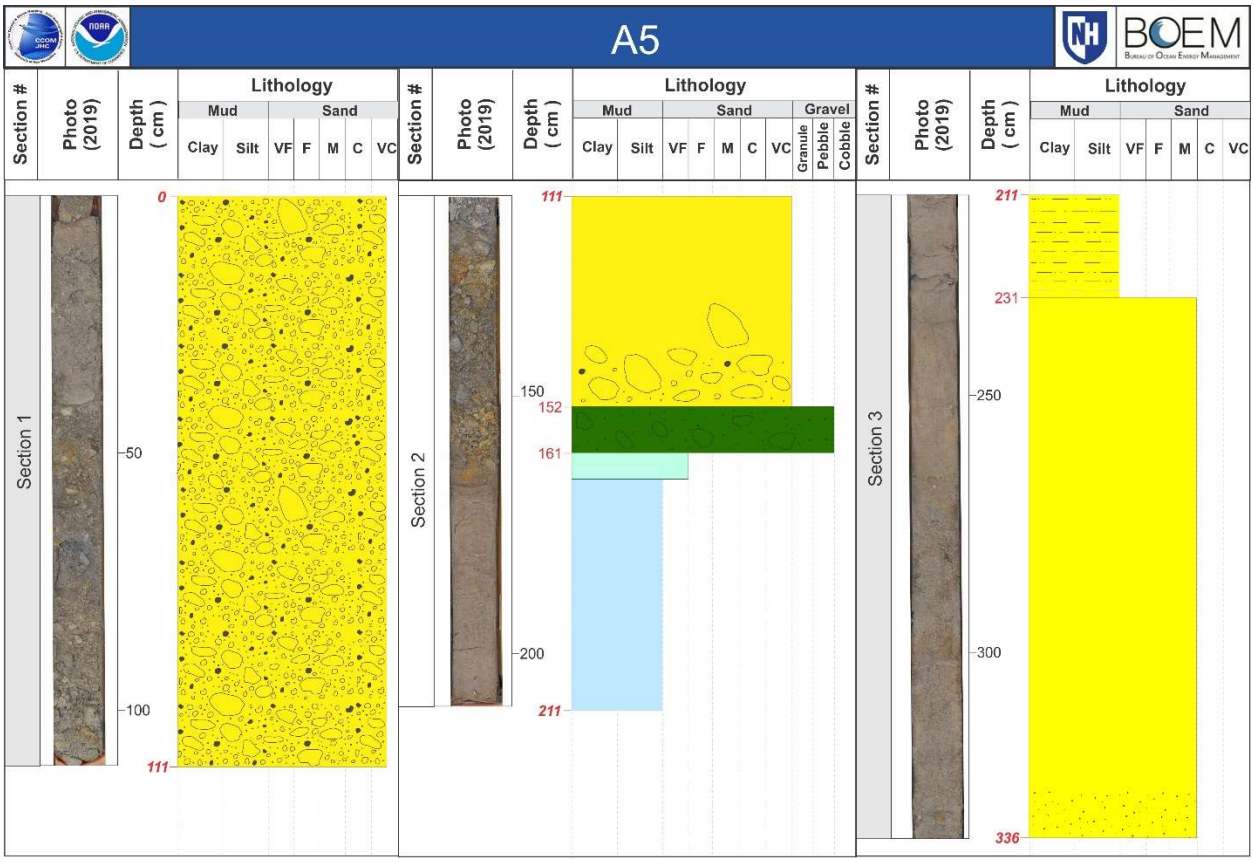

Figure 33. Log for vibracore A5. The location of the core is given in Figures 6, 15, and 16. Photographs of the core are shown in Figure 32. A full description of the core is given in Appendix A.

Nearshore Sheet Sand

Note: the Nearshore Sheet Sand deposits were formerly referred to as the Southern Sand Body in earlier reports (Ward et al., 2021a).

The NH continental shelf landward of the Isles of Shoals is dominated by bedrock outcrops and marine-modified glacial deposits. One of the major physiographic features appear to be eroded drumlins and eskers that left behind megaclast platforms and gravel ridges (Figures 6 and 34) (Ward et al., 2021b). The surficial sediment map indicates that the bottom sediment in this region ranges from gravel to megaclasts (cobbles and boulders), gravel mixes, and sand (Figure 35). However, an area of continuous sand and gravel is found ~2 to 4km offshore from Little Boars Head and southward to Great Boars Head in water depths between ~20 and 35m (Figures 34 and 35). Based on subbottom seismic surveys, Birch (1984; 1986b) mapped this area, which he referred to as the Southern Sand Body, and estimated 16.4 million m^3 of sand and gravel was present (summarized in Ward et al., 2021a). Here, we refer to this area previously mapped by Birch as the Nearshore Sheet Sand.

The origin and source of the Nearshore Sheet Sand deposits are not clear. Unlike the Northern Sand Body located further offshore just landward of the Isles of Shoals (described previously), which has significant positive relief, the Nearshore Sheet Sand deposits are relatively flat-lying layers of sand and gravel. They frequently overlie (often unconformably) glacial marine sandy mud associated with the Presumpscot Formation distal facies. Examination of the surficial geology of the upland adjacent to the coast provides important insights into the possible origin of the sediment for the sheet sand (Birch, 1984).

Common to the NH seacoast are glacial marine sediments including wave-modified marine deltas or outwash deposits (stratified sand and gravel), the sandy facies of the Presumpscot Formation, and tills. These glacial marine deposits are primarily composed of or contain substantial amounts of sand and gravel. It is reasonable to assume that the deposits common to the upland along the NH seacoast are also present on the nearby inner NH continental shelf. However, the inner shelf deposits were highly modified and redistributed by wave action during the last sea-level transgression (Figure 2), creating sheet sands as well as filling in shallow basins. Therefore, it is hypothesized that the Nearshore Sheet Sand deposits were formed from reworked glacial marine sediment during the last transgression, especially wave-modified marine deltas or outwash. In addition, the deposits are likely part of the nearshore sand ramp extending from the beaches in southern NH. The nearshore ramps are a seaward extension of the beaches and likely exchange sediment with the nearshore.

To characterize the Nearshore Sheet Sand Deposits, nine vibracores (UNH-6, UNH-6a, UNH-14, A6(1), A6(2), A6(3), A7(1), A7(2), and A8) from 5 different locations (3 sites were cored multiple times) were taken in the area in 1984 and 1988 under the direction of Birch (1986a; 1986b; 1988) (Figures 6 and 35). Vibracore A8 was taken in an area mapped as a marine-modified glacial deposit with surficial sediments composed of gravel mixes. The remaining vibracores are from areas mapped as a seafloor plain with sand being the dominant surficial sediment. Grain size data (Tables 9 and 10) and abbreviated cores are presented here and in more detail in Appendices A and B.

Vibracores A6(1), A6(2), and A6(3)

Cores A6(1), A6(2), and A6(3) are located at the southern extent of the Nearshore Sheet Sand deposits in ~21 to 22m of water (Figures 6, 34, and 35). Cores A6(1) and A6(2) are short, with lengths of 2.27 and 1.62m, respectively, and are composed of fine to medium sand with scattered shell fragments (Figures 36, 37, 38, 39, and 40). Core A6(1) has an organic-rich lense at ~1.8m below the top of the core (Figure 36). The sand content measured from grain size analyses of subsamples (Table 9) from A6(1) and A6(2) are all greater than 93% (most are close to 99%) except for one sample at the top of A6(1) where a few

pebbles were present which increased the gravel content. All the sediment samples taken from A6(1) and A6(2) are fine to medium sand with some granules or pebbles. Both cores terminated in sand (Figures 36 and 38). Core A6(3) is 5.92m in length and is predominately medium sand or slightly granuley medium sand from the surface to 3.89m (Figure 40). The sand content is ~98 to 99% and mean grain size is 1.38 to 1.91ϕ (0.384 to 0.266mm) for the samples above 3.89m. Below 3.89m, the sediment rapidly transitions to slightly pebbly very fine sandy silt to very fine sandy silt-clay with mean grain sizes between 5.56 and 6.23ϕ (0.021 to 0.013mm) based on the samples below the transition. The muddy sediments below 3.89m in core A6(3) are likely the distal facies of the glacial marine deposits or the Presumpscot Formation. A6(1) and A6(2) also likely unconformably overlay the Presumpscot Formation, but the cores were not long enough to penetrate the glacial marine muds.

Vibracores A7(1) and A7(2)

The northernmost vibracores taken from the Nearshore Sheet Sand deposits are relatively short, with A7(1) measuring 1.32m and A7(2) measuring 2.05m. Cores A7(1) and A7(2) were taken in water depths of ~24 and ~25m, respectively. Both cores are largely coarse to very coarse sand or granule and contain extensive pebbles and some cobbles throughout except in the upper layer, which is a coarse sand (Figures 41, 42, and 43). The base of both cores appears to be a reworked till or glacial marine proximal facies (sandy).

In core A7(1) the upper 0.12m is a slightly granuley medium to coarse sand (Figure 42). A sample from 0.10-0.12m has ~3% gravel, 92% sand, 5% mud and a mean grain size of 1.62ϕ (0.325mm). Below this is a medium sand from ~0.12 to 0.52m. Below the sand is a pebble gravel extending to at least 1.0m depth. A sediment sample from 0.60-0.64m has ~85% gravel, 10% sand, 5% mud and a mean grain size of -3.04ϕ (8.23mm), which excludes some of the largest clasts (Table 9).

A 0.16m section of the core is missing directly under the gravels, which is undoubtedly due to sediment slipping down the core liner. Upon recovery this void had been distinct, whereas in 2019 when the core was re-evaluated this section appeared to have slumped in storage. The lower unit appears to be sand overlying a sandy mud of the Presumpscot Formation distal facies (Figure 41). A sample from 1.20-1.22m is a silty sandy pebble gravel with ~45% gravel, ~41% sand, ~14% mud, and a mean grain size of 0.02ϕ (0.99mm).

Core A7(2) apparently slipped downward 0.26m in the core lining. Therefore, the top of the core starts at 0.26m (Figure 45). Similar to A7(1), the void had been distinct during recovery, but slumped in storage. The top of the core from 0.26 to 0.45m is a slightly granular coarse sand. A sample from 0.28-0.30m is ~4% granule, 93% sand and 3% mud with a mean grain size of 0.84ϕ (0.559mm). A granular coarse sand to sandy pebble gravel extends from ~0.45 to 1.12m. A sample from 0.52-0.56m has ~68% gravel, whereas a sample from 0.90-0.94m has ~21% gravel, causing a shift between the coarse sand to the gravel. Below ~1.12m down to 1.53m the core is consistently a sandy pebble gravel. A sample from 1.34-1.38m is a pebble gravel with ~70% gravel, 28% sand, 2% mud and a mean grain size of -1.95ϕ (3.864mm). Below this gravel layer to the base of the core the sediment remains a gravel or contains gravel-sized clasts but has a higher sand and mud content. For example, a sample from 1.60-1.62m is a silty sandy pebble gravel and has ~35% gravel, 47% sand, 18% mud and a mean grain size of 0.74ϕ (0.599mm).

Vibracore A8

Core A8 was taken in a water depth of ~25m adjacent to what is mapped as a marine-modified glacial deposit (due to the coarse gravels and rough texture of the seafloor) (Ward et al., 2021b). The core is 4.04m in length. The upper part of the core (surface to 0.55m) is coarse to very coarse sand with pebbles and a cobble (Figure 44). A subsample taken at 0.20-0.22m which represents the matrix is a sandy pebble

gravel with ~40% gravel, 56% sand, and a mean grain size of -0.66ϕ (1.58mm) (Table 9). Separated from the units above and below, muddy sandy sediments with numerous pebbles and cobbles and a high mud content occurs from ~0.55 to 0.95m. A sample from 0.88-0.90m is a silty sandy pebble gravel with ~33% gravel, 35% sand, 32% mud and a mean grain size of 1.38ϕ (0.38mm). At the base of the silty sandy pebble gravel, a coarse sand layer with pebbles and cobbles occurs from ~0.95 to 1.05m. The sediment samples from 1.01m to the base of the core at 4.04m include a pebbly silty-clayey fine sand at 1.19-1.21m, a silty-clayey pebble gravel at 2.02-2.04m, and a pebbly silt at 3.84-3.86m.

The mixture of sizes indicates a reworked till deposit or a proximal glacial marine deposit overlying the distal facies of the Presumpscot Formation.

Vibracores UNH-6 and UNH-6a

UNH-6 and UNH-6a are located seaward of all the vibracores taken in the Nearshore Sheet Sand deposits, collected ~3.7km from shore and in ~30m of water (Figures 6, 34, and 35). UNH-6 (Figures 45 and 46) and UNH-6a (Figures 47 and 48) are significantly longer than the previous cores for the Nearshore Sheet Sand deposits at 8.51 and 8.32m, respectively. However, only the upper ~1.5m of UNH-6 and ~3.0m of UNH-6a is sandy (very fine to fine sand). Both these sandy sections also have a significant mud content along with biotite-rich lenses. Below the sand, both cores transition to silt and clay for the rest of length of the cores, with scattered shell fragments and multiple sand lenses. The muddy sediments are likely the distal facies of the glacial marine deposits (Presumpscot Formation). Vibracores were likely taken at the seaward extent of, or more likely seaward of, the Nearshore Sheet Sands.

UNH-6 transitions from a slightly granuley very fine sand at the surface to a very fine sand near the base of the sand layer (surface to 1.54m). The mean grain size of the four samples from the interval range from 3.03 to 3.67ϕ (0.122 to 0.079mm) (Table 10). The transition from very fine sand to mud is quite abrupt. In core UNH-6, a subsample at 1.52-1.54m is ~92% sand and 8% mud (mostly silt) with a mean grain size of 3.11ϕ (0.116mm). A sample from 1.76-1.78m is almost entirely mud (~99%) with a mean grain size of 9.57ϕ (0.001mm). UNH-6a also transitions relatively rapidly from sand to mud. The sediment from the surface to 3.02m transitions from slightly granuley fine sand to silty very fine sand with sand contents between ~93 and 98% with one exception (~81% at 2.98-3.00m). The mean grain size for the samples range from 2.69 to 3.58ϕ (0.155 to 0.089mm), with a steady increase with depth. Below 3.02m to the base at 8.32m the sediment is mud. A sample taken at 3.05-3.07m is a silt-clay with ~98% mud and a mean grain size of 9.01ϕ (0.002mm).

Vibracore UNH-14

Core UNH-14 was taken ~3.0km from shore relatively close to A6 (~0.6km seaward and to the southeast) (Figures 6, 34, and 35). UNH-14 is a long core measuring 7.87m and was taken in a water depth of ~23m. The upper 0.62m of the core is a fine sand which grades into a siltier very fine sand from 0.62 to 1.38m (Figure 49). From 1.38 to 2.36m the sediment becomes slightly coarser ranging from slightly pebbly fine sand to fine sand (Table 10). All of the samples taken from this entire interval have sand contents between ~93 and 99% with the exception of the sample taken at 0.72-0.74m which has a sand content of ~67% and a mud content of ~36%. The mean grain sizes are between 2.55 and 2.84ϕ (0.171 to 0.140mm) with the exception of the sample from 0.72-0.74m which has a mean grain size of 3.88ϕ (0.068mm). Below 2.36m to the base of the core is a mud. A sample from this interval was a very fine sandy silt-clay with a sand content of ~10%, a mud content of ~90%, and a mean grain size of 7.64ϕ (0.005mm). Once again, the mud deposit is likely fine-grained glacial marine sediment associated with the highstand, with a slightly winnowed surface.

Table 9. Grain size data for the vibracores taken in the Nearshore Sheet Sand Deposits including A6(1), A6(2), A6(3), A7(1), A7(2), and A8 (Figure 34). Complete grain size classifications and statistics are given in Appendix B.

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)	CMECS (FGDC 2012) Substrate Component Subgroup (Specific)
A6(1)_58-60cm	22.42	20.15	2.26	76.82	0.76	NA	NA	0.42	2.19	Pebbly Medium Sand
A6(1)_110-112cm	0.00	0.00	0.00	99.41	0.59	NA	NA	2.22	0.48	Fine Sand
A6(1)-2_148-150cm	0.00	0.00	0.00	99.34	0.66	NA	NA	2.48	0.43	Fine Sand
A6(1)-2_198-200cm	0.00	0.00	0.00	99.35	0.65	NA	NA	2.49	0.40	Fine Sand
A6(2)_10-12cm	0.86	0.00	0.86	97.19	1.95	NA	NA	2.18	1.11	Slightly Granuley Fine Sand
A6(2)_32-34cm	0.85	0.00	0.85	93.06	6.09	5.23	0.86	2.67	1.14	Slightly Granuley Very Fine Sand
A6(2)_48-50cm	0.00	0.00	0.00	99.56	0.44	NA	NA	1.94	0.42	Medium Sand
A6(2)_148-150cm	0.00	0.00	0.00	99.42	0.58	NA	NA	2.57	0.39	Fine Sand
A6(3)_30-32cm	0.00	0.00	0.00	99.85	0.15	NA	NA	1.64	0.40	Medium Sand
A6(3)_123-125cm	0.00	0.00	0.00	99.79	0.21	NA	NA	1.79	0.45	Medium Sand
A6(3)_183-185cm	0.00	0.00	0.00	99.78	0.22	NA	NA	1.91	0.41	Medium Sand
A6(3)_281-283cm	0.13	0.00	0.13	99.37	0.50	NA	NA	1.66	0.71	Slightly Granuley Medium Sand
A6(3)_337-339cm	1.01	0.07	0.94	97.94	1.05	NA	NA	1.38	0.87	Slightly Granuley Medium Sand
A6(3)_417-419cm	2.59	1.82	0.78	20.89	76.52	59.80	16.72	5.56	2.62	Slightly Pebbly Very Fine Sandy Silt
A6(3)_485-487cm	0.09	0.00	0.09	11.18	88.73	46.63	42.10	7.96	3.26	Slightly Granuley Medium Sandy Silt-Clay
A6(3)_560-563cm	0.00	0.00	0.00	24.49	75.51	49.88	25.63	6.23	3.06	Very Fine Sandy Silt-Clay
A7(1)_10-12cm	3.37	0.18	3.19	91.74	4.89	3.75	1.14	1.62	1.38	Slightly Granuley Medium Sand
A7(1)_60-64cm	84.80	81.02	3.78	9.98	5.22	4.75	0.47	-3.04	2.05	Pebble Gravel
A7(1)_120-122cm	45.48	28.49	16.99	40.54	13.99	11.88	2.11	0.02	3.13	Silty Sandy Granule Gravel
A7(2)_28-30cm	4.19	0.00	4.19	92.70	3.11	NA	NA	0.84	1.26	Slightly Granuley Coarse Sand
A7(2)_52-56cm	68.36	60.70	7.66	29.52	2.12	NA	NA	-2.50	2.79	Sandy Pebble Gravel
A7(2)_90-94cm	21.16	10.22	10.94	77.84	1.00	NA	NA	0.17	1.61	Granular Coarse Sand
A7(2)_134-138cm	69.54	58.68	10.86	28.23	2.23	NA	NA	-1.95	2.79	Sandy Pebble Gravel
A7(2)_160-162cm	34.60	25.16	9.43	47.40	18.00	15.24	2.76	0.74	3.41	Silty Sandy Pebble Gravel
A8_20-22cm	40.78	35.54	5.24	55.50	3.72	NA	NA	-0.66	2.35	Sandy Pebble Gravel
A8_88-90cm	32.95	30.32	2.63	35.35	31.70	22.29	9.41	1.38	4.85	Silty Sandy Pebble Gravel
A8_119-121cm	17.32	11.39	5.93	47.60	35.08	23.41	11.67	2.75	4.16	Pebbly Silty-Clayey Fine Sand
A8_202-204cm	34.22	32.05	2.17	30.30	35.48	23.37	12.11	1.69	5.17	Silty-Clayey Pebble Gravel
A8_282-284cm	34.56	30.16	4.40	37.93	27.51	18.85	8.66	1.08	4.64	Silty Sandy Pebble Gravel
A8_384-386cm	27.44	24.38	3.06	32.29	40.27	28.99	11.28	1.98	5.06	Pebbly Silt

Table 10. Grain size data for the vibracores taken in the Nearshore Sheet Sand Deposits including UNH-6, UNH-6a, and UNH-14 (Figure 34). Complete grain size classifications and statistics are given in Appendix B.

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)	CMECS (FGDC 2012) Substrate Component Subgroup (Specific)
UNH-6_16-18cm	0.53	0.00	0.53	96.80	2.67	NA	NA	3.03	0.49	Slightly Granuley Very Fine Sand
UNH-6_96-98cm	0.00	0.00	0.00	91.42	8.58	8.28	0.30	3.34	0.53	Very Fine Sand
UNH-6_124-126cm	0.00	0.00	0.00	77.24	22.76	22.25	0.51	3.67	0.62	Silty Very Fine Sand
UNH-6_152-154cm	0.00	0.00	0.00	91.66	8.34	8.12	0.22	3.11	0.84	Very Fine Sand
UNH-6_176-178cm	0.00	0.00	0.00	1.13	98.87	30.58	68.29	9.57	2.73	Clay
UNH-6A_20-22cm	0.66	0.23	0.43	98.18	1.16	NA	NA	2.69	0.62	Slightly Granuley Fine Sand
UNH-6A_80-82cm	0.00	0.00	0.00	95.29	4.71	NA	NA	2.91	0.51	Fine Sand
UNH-6A_122-124cm	0.00	0.00	0.00	94.15	5.85	4.72	1.13	2.94	0.53	Fine Sand
UNH-6A_192-194cm	0.00	0.00	0.00	93.42	6.58	6.13	0.45	3.08	0.55	Very Fine Sand
UNH-6A_235-237cm	0.00	0.00	0.00	95.37	4.63	4.32	0.31	3.18	0.49	Very Fine Sand
UNH-6A_298-300cm	0.00	0.00	0.00	80.78	19.22	18.60	0.62	3.58	0.70	Silty Very Fine Sand
UNH-6A_305-307cm	0.00	0.00	0.00	2.42	97.58	37.27	60.31	9.01	3.03	Silt-Clay
UNH-14_8-10cm	0.00	0.00	0.00	98.84	1.16	NA	NA	2.63	0.65	Fine Sand
UNH-14_54-56cm	0.00	0.00	0.00	97.20	2.80	NA	NA	2.75	0.44	Fine Sand
UNH-14_72-74cm	0.00	0.00	0.00	64.64	35.36	30.70	4.66	3.88	1.62	Silty Very Fine Sand
UNH-14_115-117cm	0.00	0.00	0.00	93.12	6.88	6.32	0.56	2.84	0.62	Fine Sand
UNH-14_183-185cm	0.44	0.44	0.00	96.41	3.15	NA	NA	2.63	0.42	Slightly Pebbly Fine Sand
UNH-14_196-198cm	0.00	0.00	0.00	98.26	1.74	NA	NA	2.51	0.47	Fine Sand
UNH-14_232-234cm	0.12	0.00	0.12	96.90	2.98	NA	NA	2.55	0.42	Slightly Granuley Fine Sand
UNH-14_248-250cm	0.00	0.00	0.00	10.02	89.98	49.32	40.66	7.64	3.21	Very Fine Sandy Silt-Clay

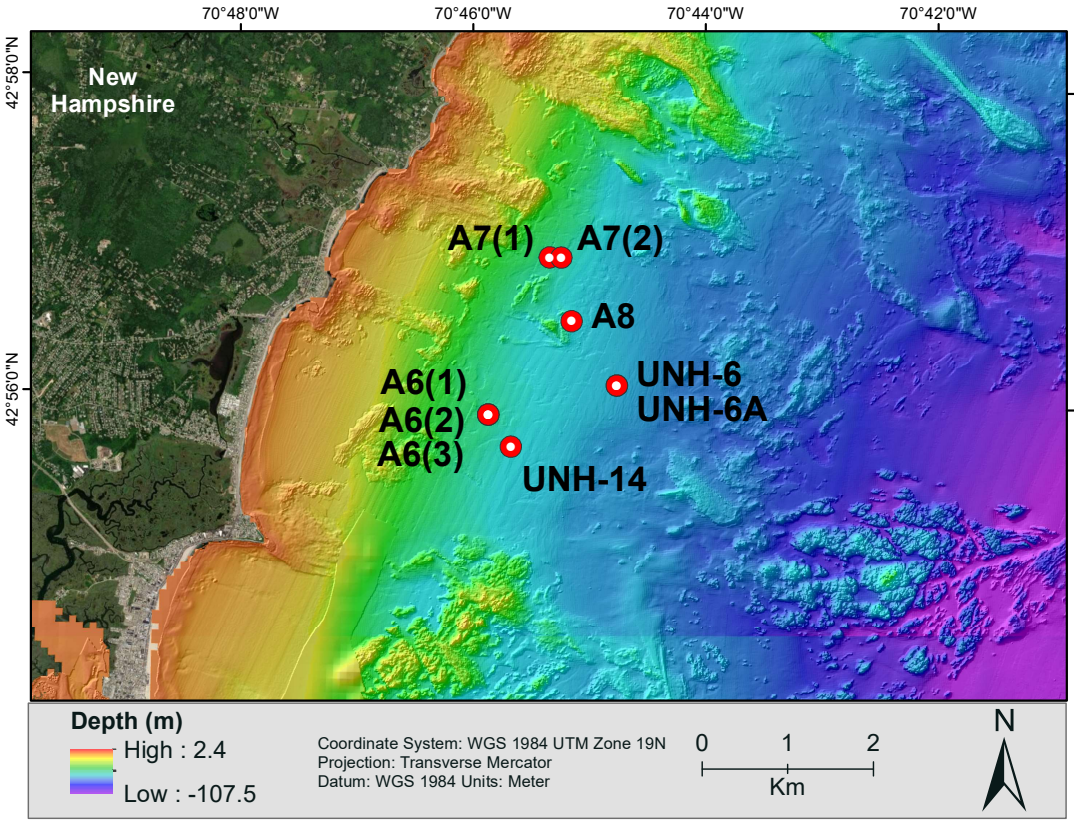

Figure 34. Bathymetric map of the vibracores taken in the Nearshore Sheet Sand Deposits. Map is shown at a scale of 1:50,000.

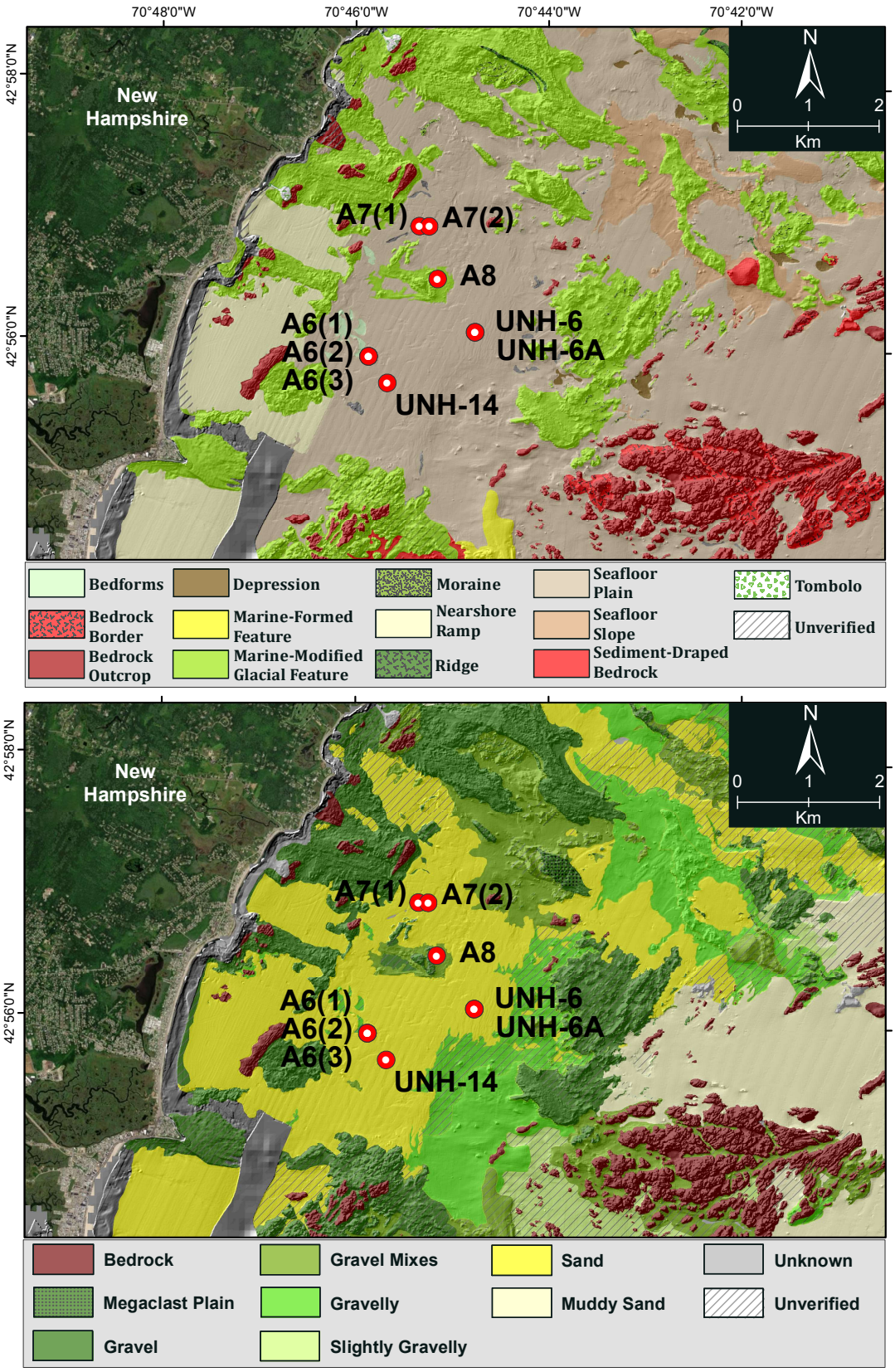

Figure 35. Major geoforms (physiographic features; top) and surficial sediment map (substrate classes; bottom) of the vibracores taken in the Nearshore Sheet Sand Deposits. Map is shown at a scale of 1:50,000.

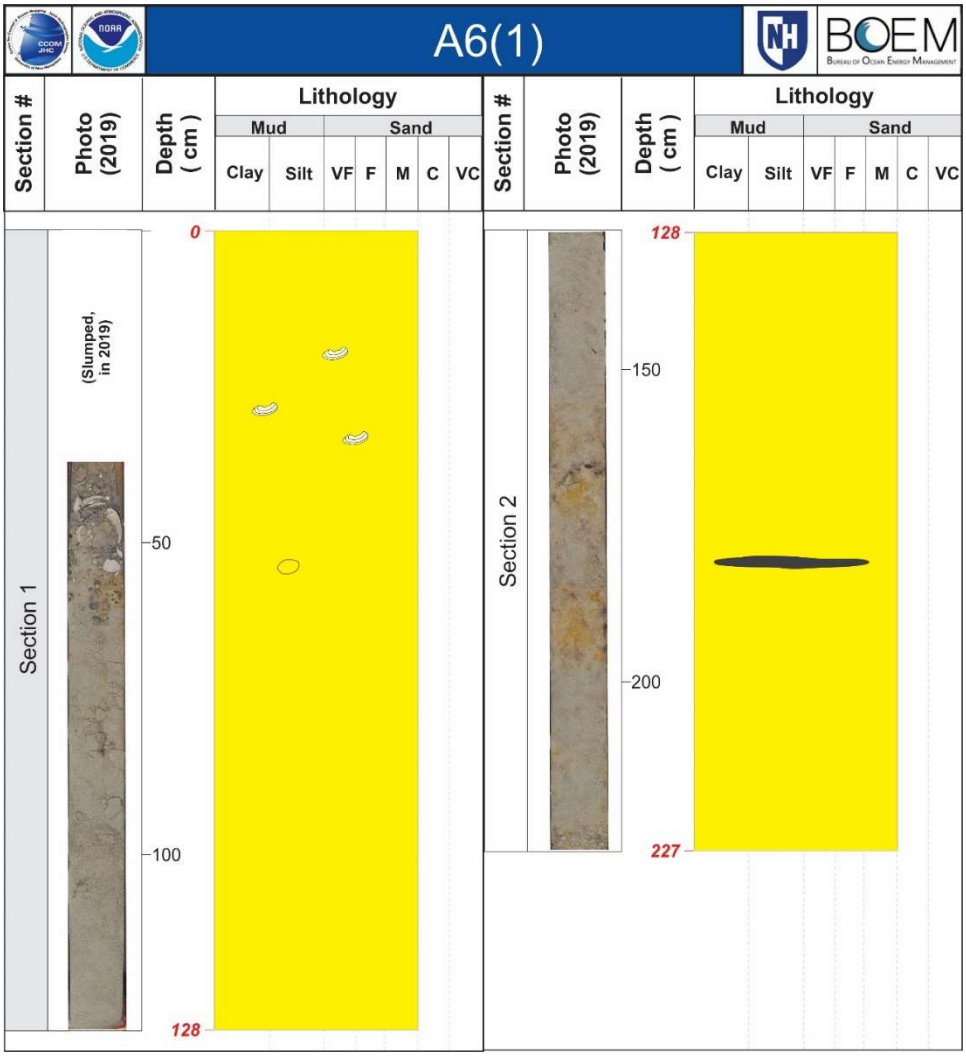

Figure 36. Core log for A6(1). The location of the core is given in Figures 6, 34, and 35. A full description of the core is given in Appendix A.

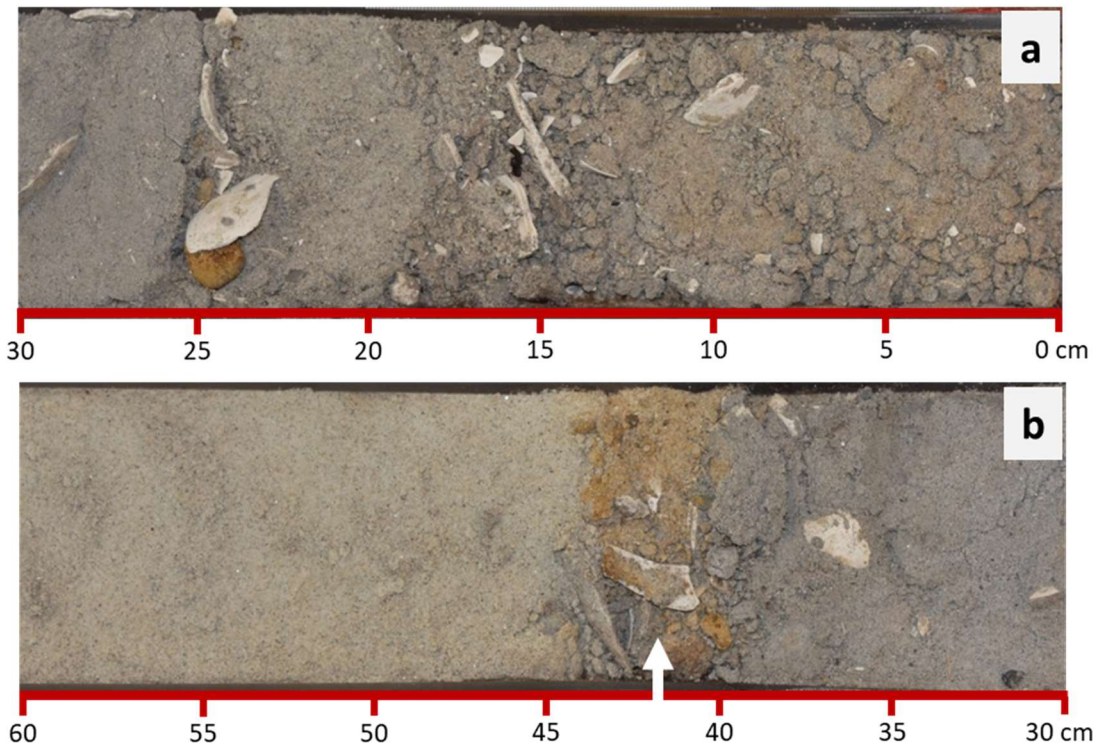

Figure 37 (a, b). Photographs of Core A6(2). The top photograph (a) shows the core from the surface to ~0.30m. The upper ~0.20m is a shell and sand lag deposit. The bottom photograph (b) shows the core from ~0.30 to 0.60m and the contact with underlying sand deposit at ~0.40 to 0.44m (white arrow). The top of the core is to the right.

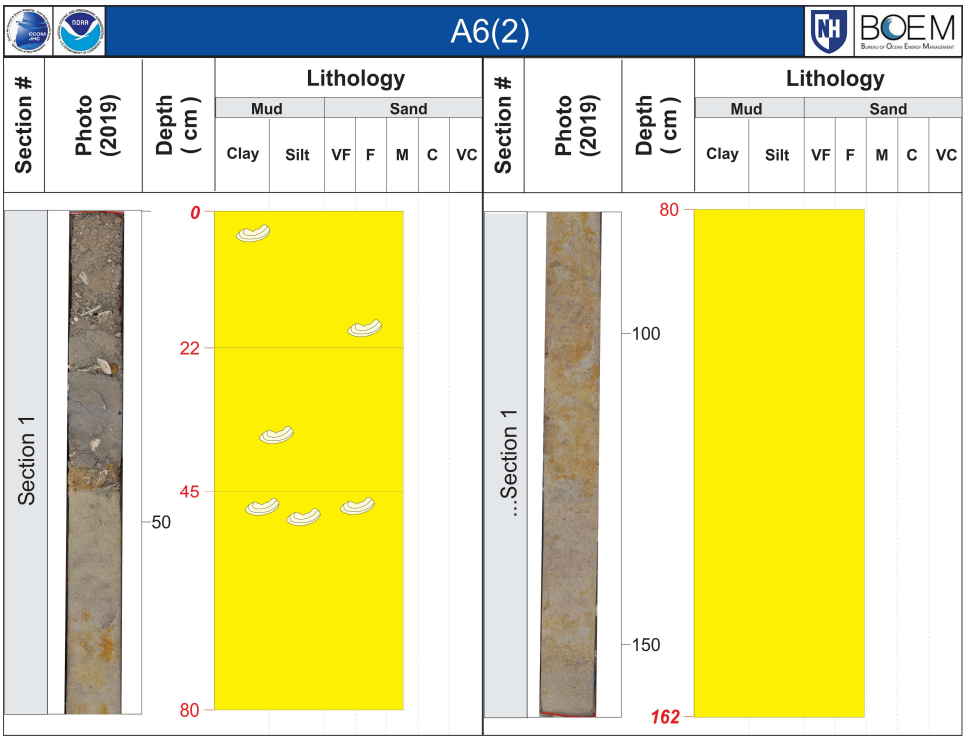

Figure 38. Log for vibracore A6(2). The location of the core is given in Figures 6, 34, and 35. Photographs of the core are shown in Figure 37. A full description of the core is given in Appendix A.

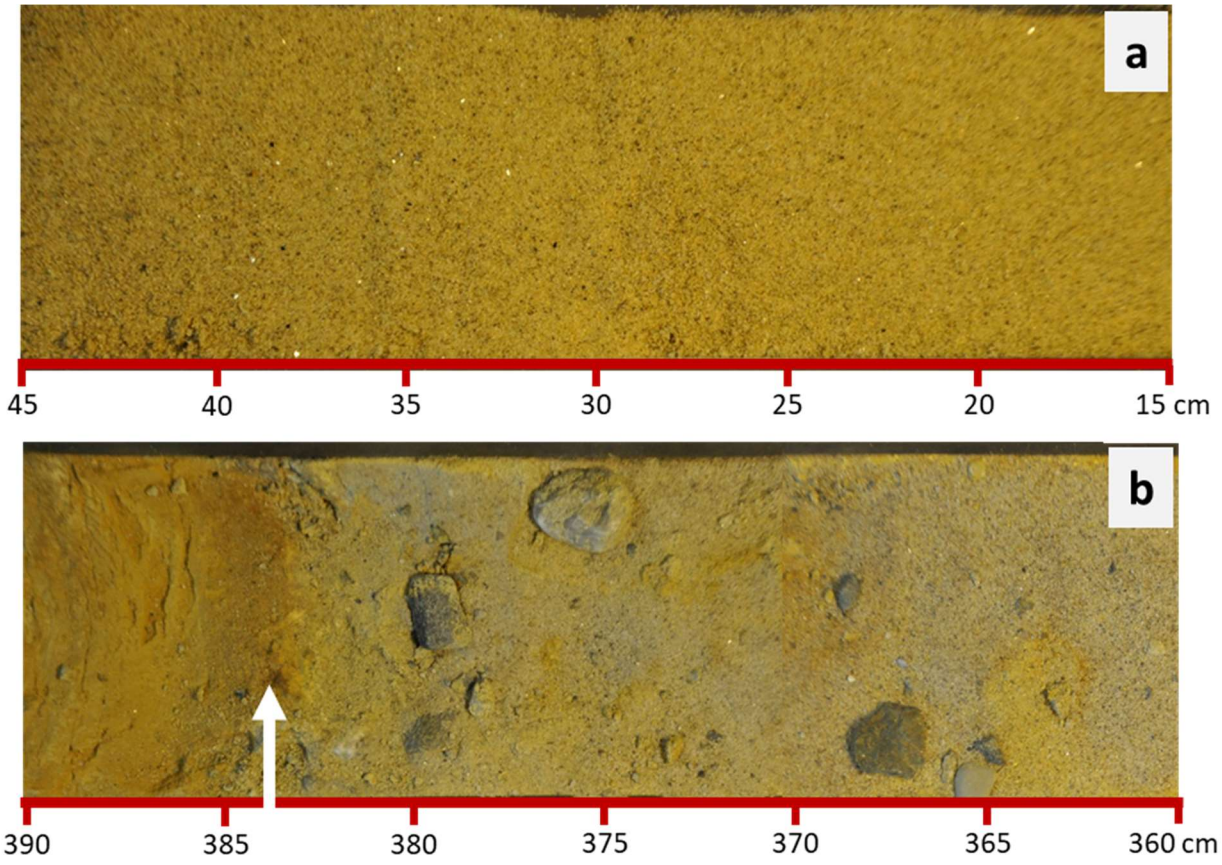

Figure 39 (a, b). Photographs of Core A6(3). The top photograph (a) shows the core from ~0.15 to 0.45m composed of medium sand. The bottom photograph (b) shows the core from ~3.60 to 3.90m and the contact with underlying glacial marine muds at ~3.84m (white arrow).

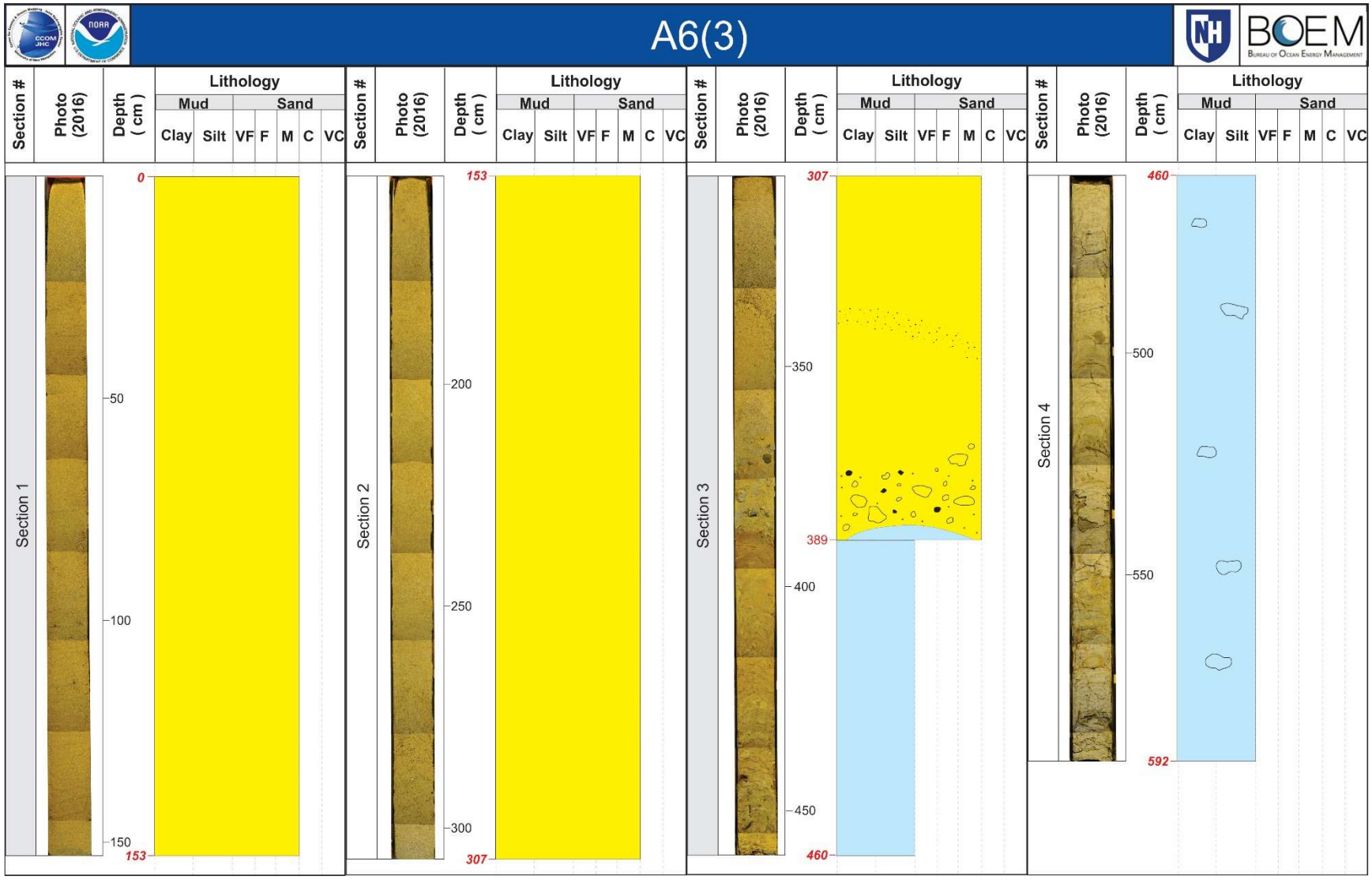

Figure 40. Core log for A6(3). The location of the core is given in Figures 6, 34, and 35. Photographs of the core are shown in Figure 39 (above). A full description of the core is given in Appendix A.

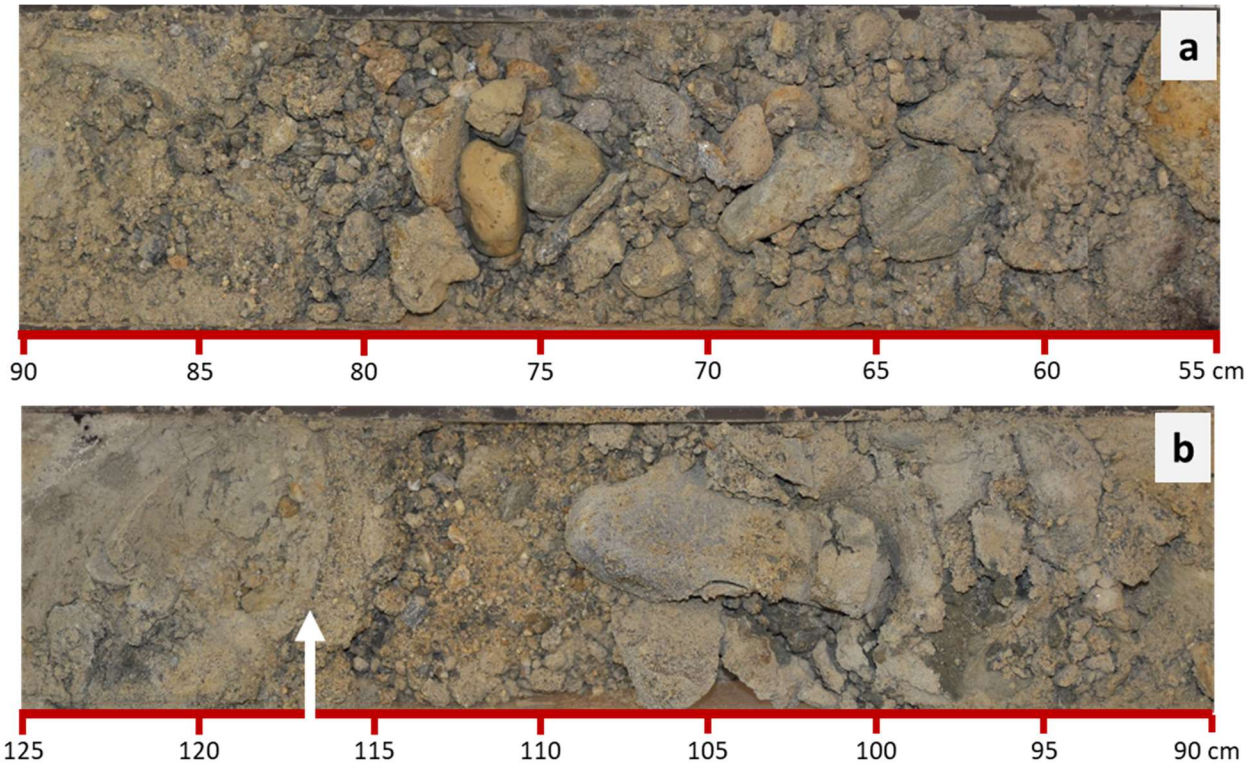

Figure 41 (a, b); Above. Photographs of Core A7(1). The top photograph (a) shows the core from ~0.55 to 0.90m and is composed of pebble gravel. The bottom photograph (b) shows the core from ~0.90 to 1.25m and the contact with the underlying very fine sand and marine muds (Presumpscot Formation distal facies) at ~1.17m (white arrow).

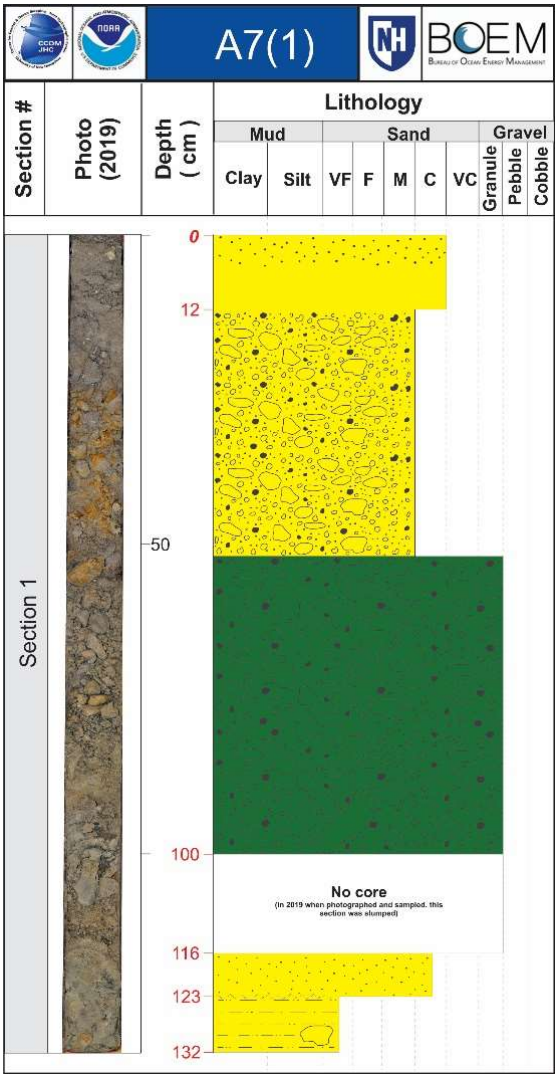

Figure 42; Left. Log for A7(1). The location of the core is given in Figures 6, 34, and 35. Photographs of the core are shown in Figure 41. A full description of the core is given in Appendix A.

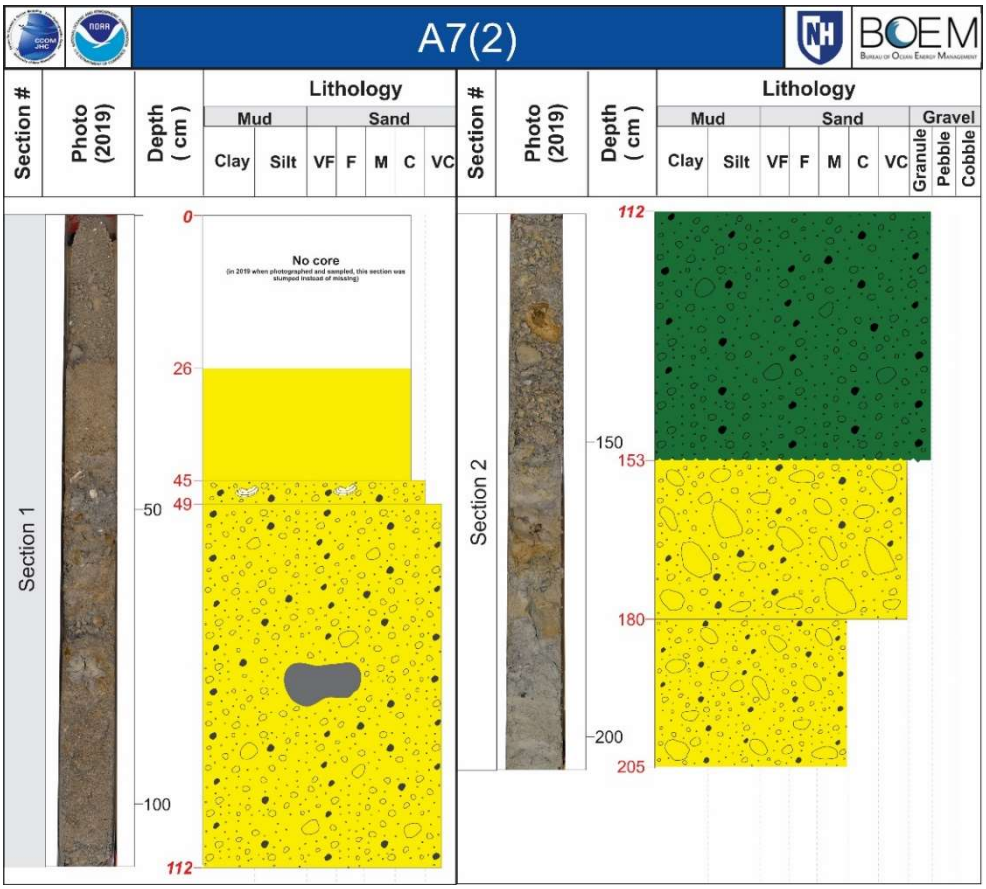

Figure 43. Log for vibracore A7(2) taken in 1988. The location of the core is given in Figures 6, 34, and 35. A full description of the core is given in Appendix A.

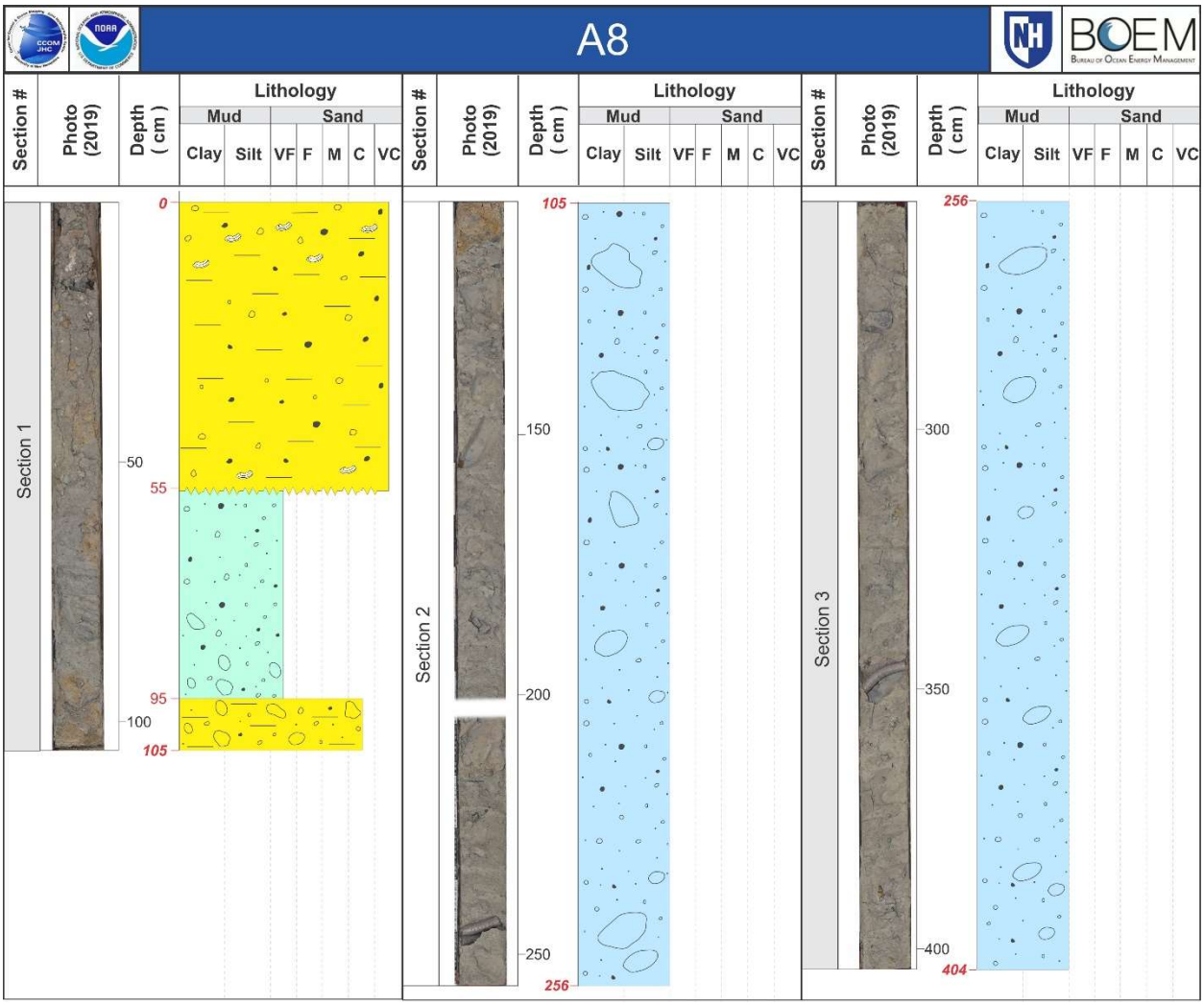

Figure 44. Log for vibracore A8. The location of the core is given in Figures 6, 34, and 35. A full description of the core is given in Appendix A.

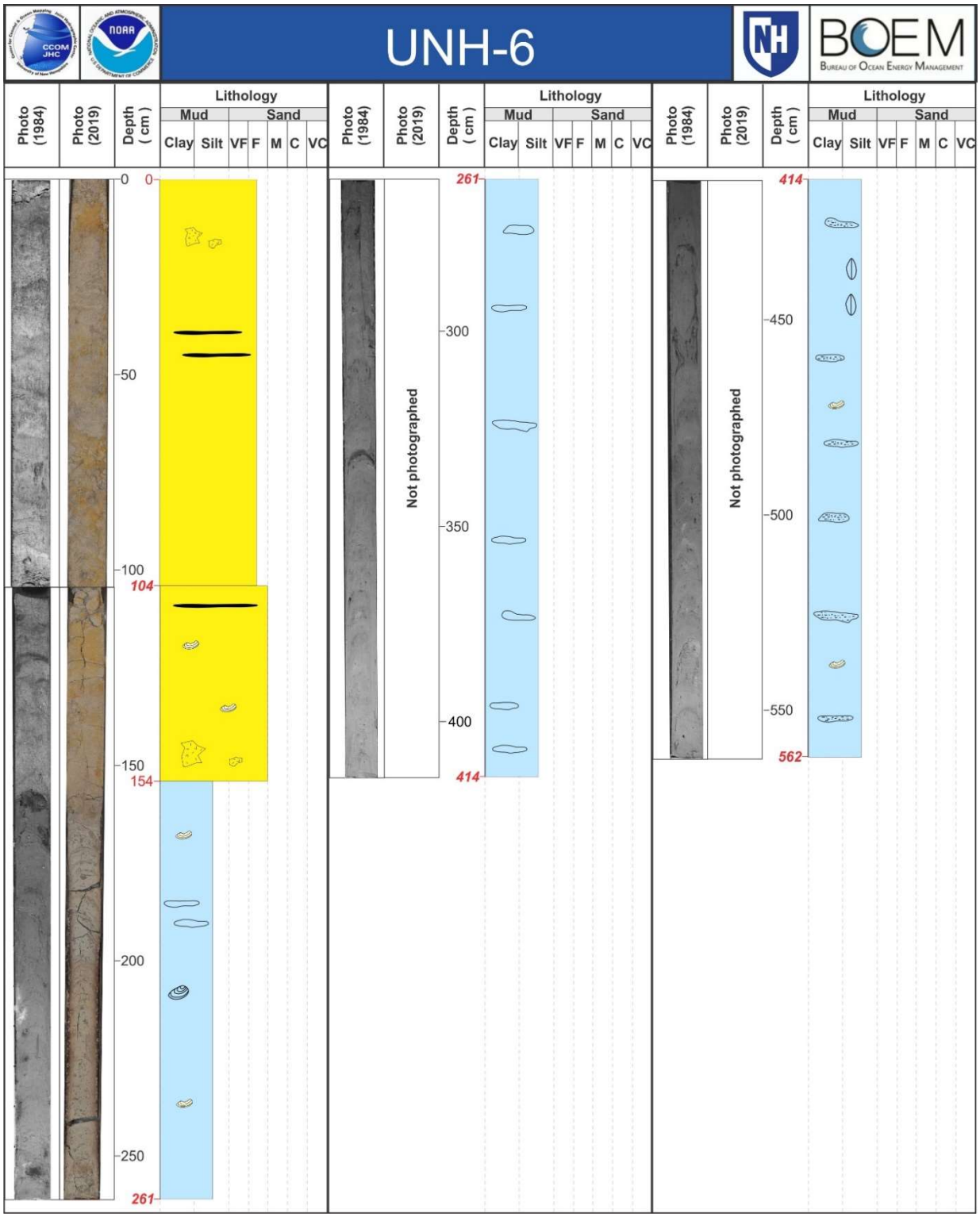

Figure 45a. Core log for the upper 5.62m of UNH-6. The lower core log (5.62 – 8.51m) is given in Figure 45b (below). The location of the core is given in Figures 6, 34, and 35. Photographs of the core are shown in Figure 46 (below). A full description of the core is given in Appendix A.

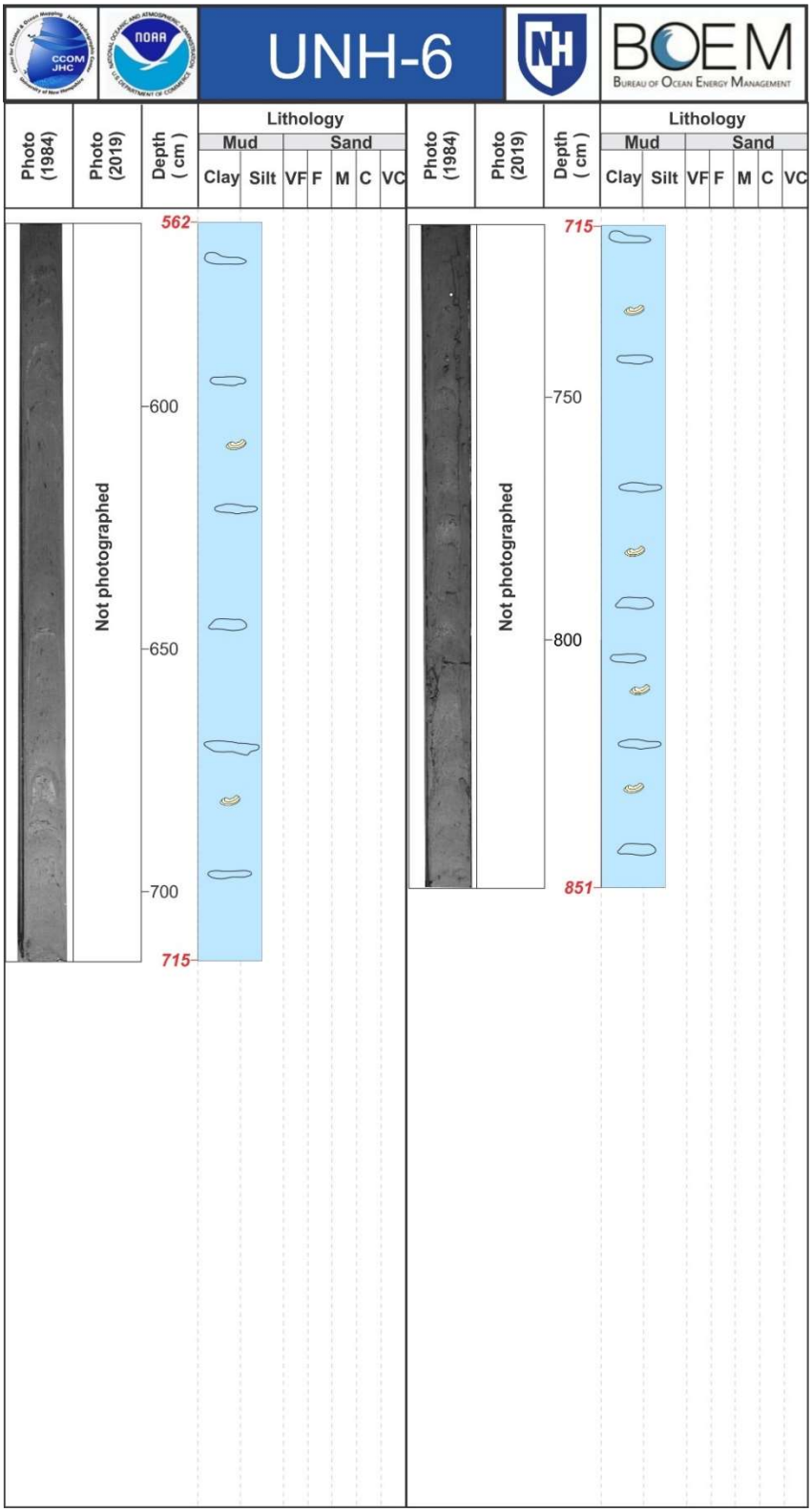

Figure 45b. Log for the lower part of UNH-6 (5.62 - 8.51m). The upper 5.62m is shown in Figure 45a (above).

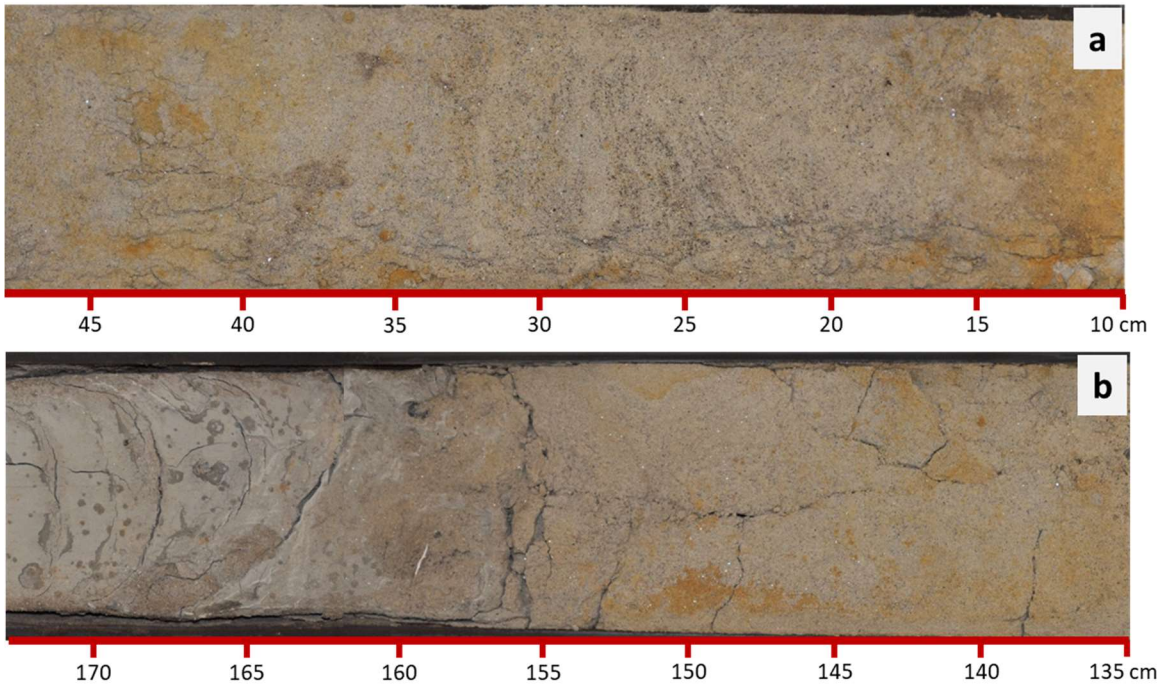

Figure 46 (a, b). Photographs of Core UNH-6. The upper core (a) from ~0.10 to 0.48m is composed of fine to medium sand. The contact between fine sand and marine muds (Presumpscot Formation distal facies) is shown in lower photograph at ~1.60m (b). The core log for UNH-6 is shown in Figure 45 (above).

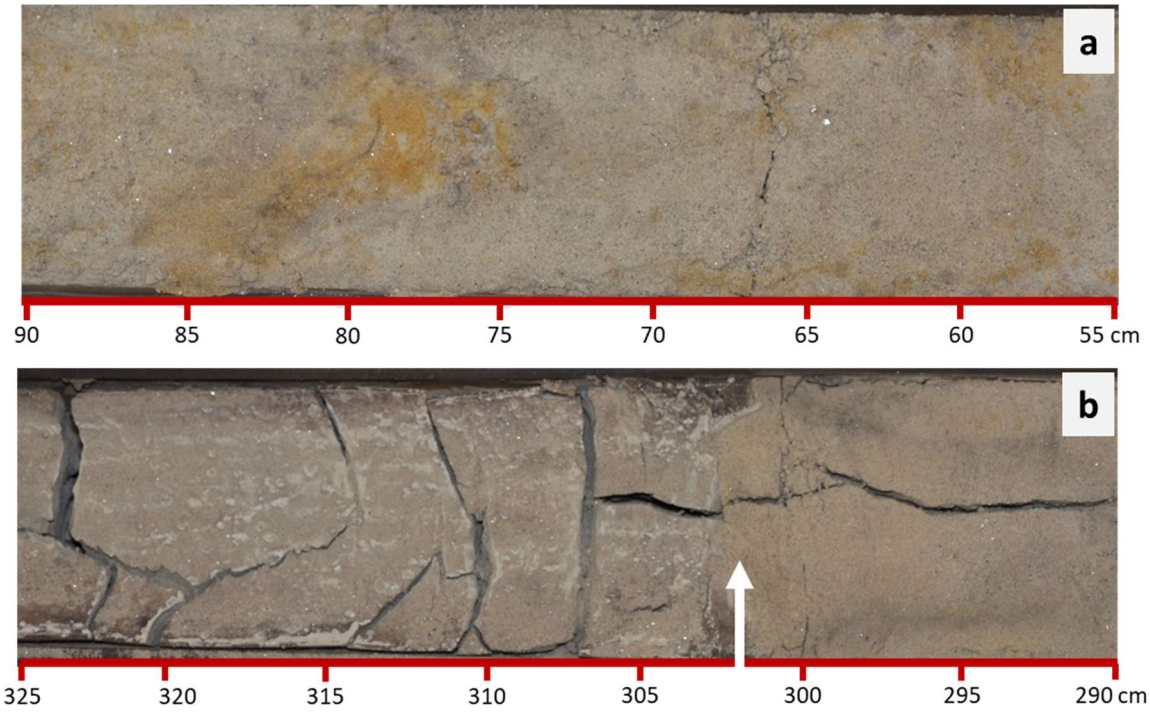

Figure 47 (a, b). Photographs of Core UNH-6a. The top photograph (a) shows the core from ~0.55 to 0.90m composed of fine sand. The bottom photograph (b) shows the core from ~2.90 to 3.25m and the contact with fine sand and marine muds (Presumpscot Formation distal facies) at ~3.02m (white arrow).

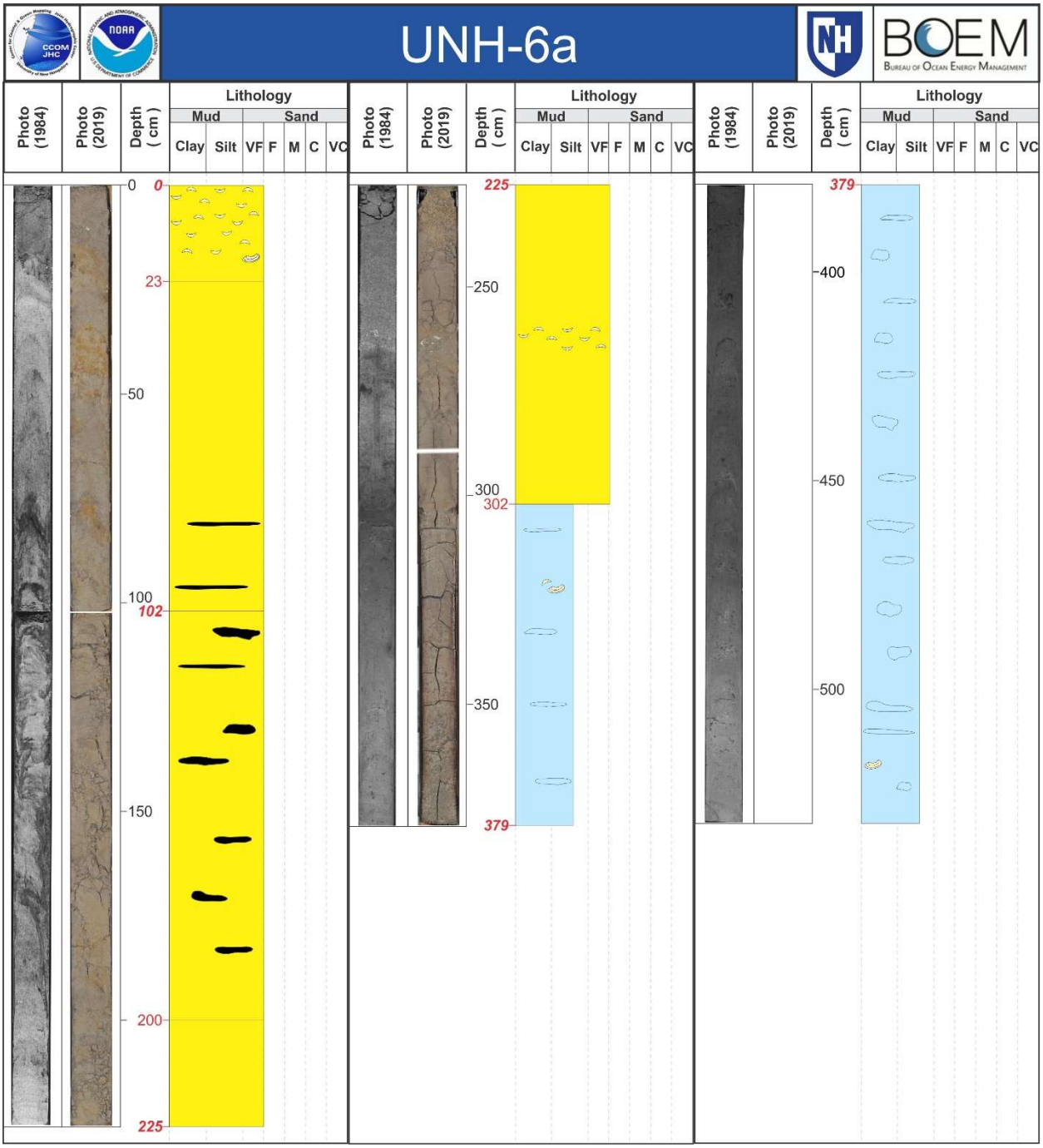

Figure 48a. Core log for the upper 5.32m of UNH-6a. The lower core log (5.32 - 8.32m) is given in Figure 48b (below). The location of the core is given in Figures 6, 34, and 35. Photographs of the core are shown in Figure 47 (above). A full description of the core is given in Appendix A.

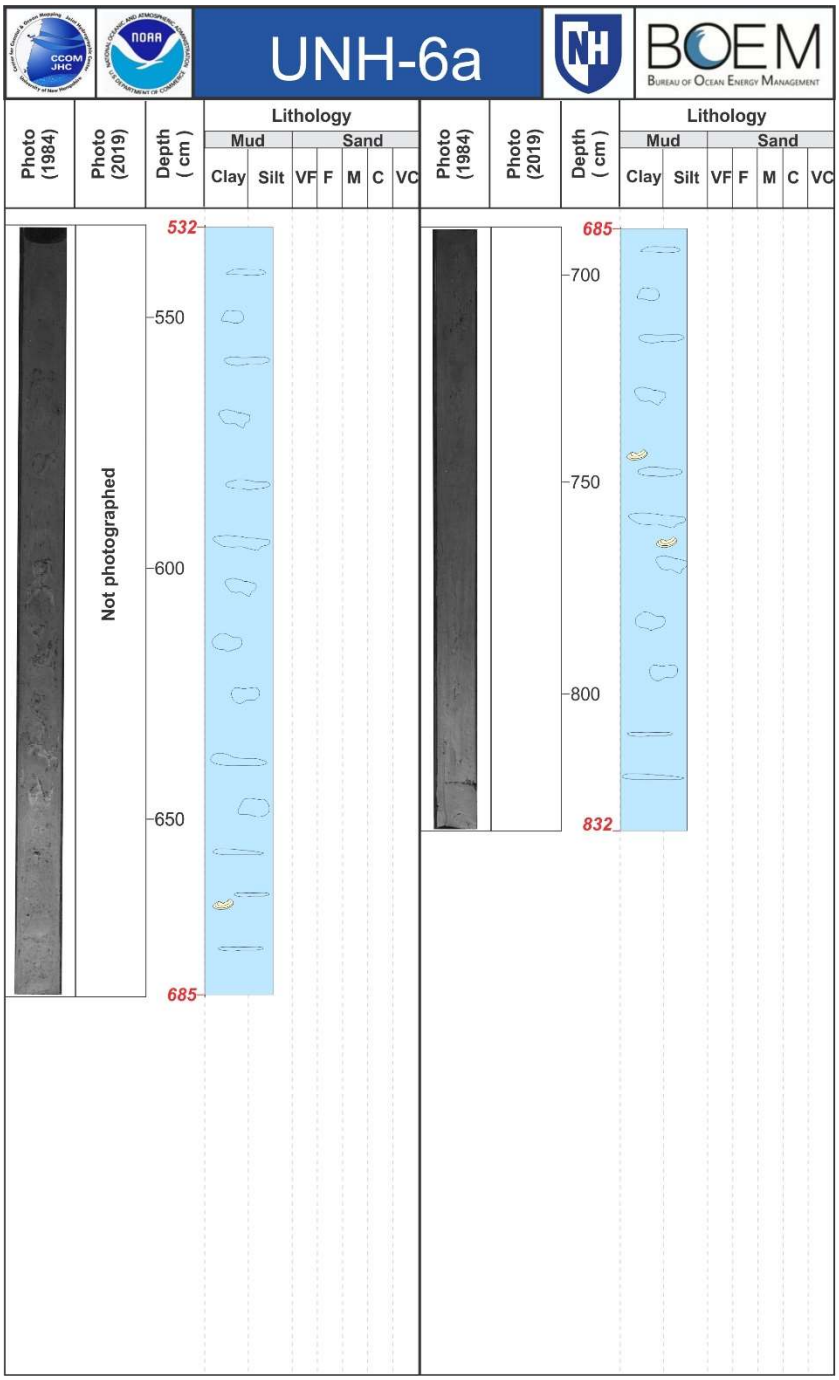

Figure 48b. Core log for the lower part of UNH-6a (5.32 - 8.32m). The upper 5.32m is shown in Figure 48a (above).

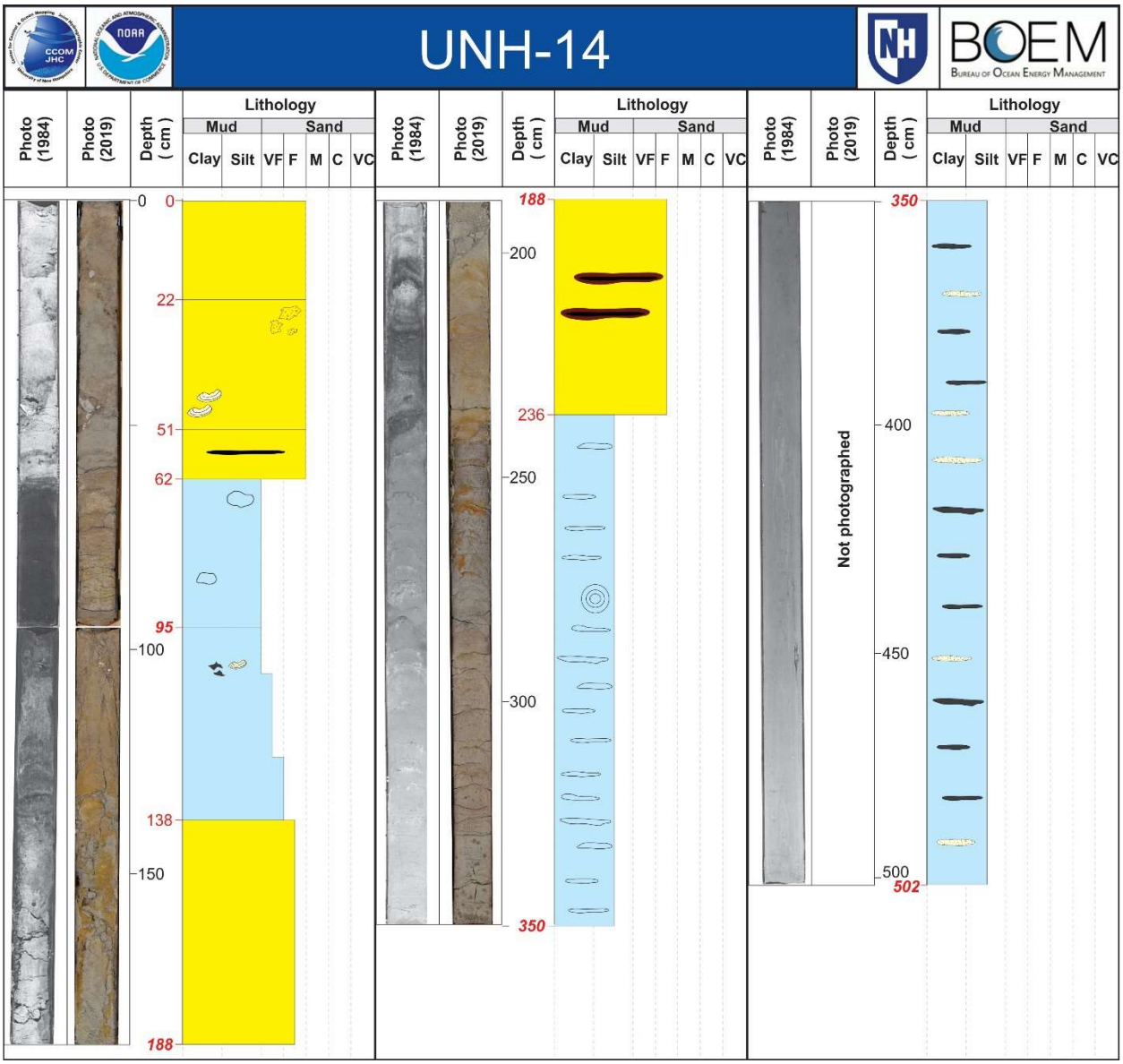

Figure 49a. Log of UNH-14 showing the upper 5.02m. The lower core log (5.02 - 7.87 m) is shown in Figure 49b (below). The location of the core is given in Figures 6, 34, and 35. A full description of the core is given in Appendix A.

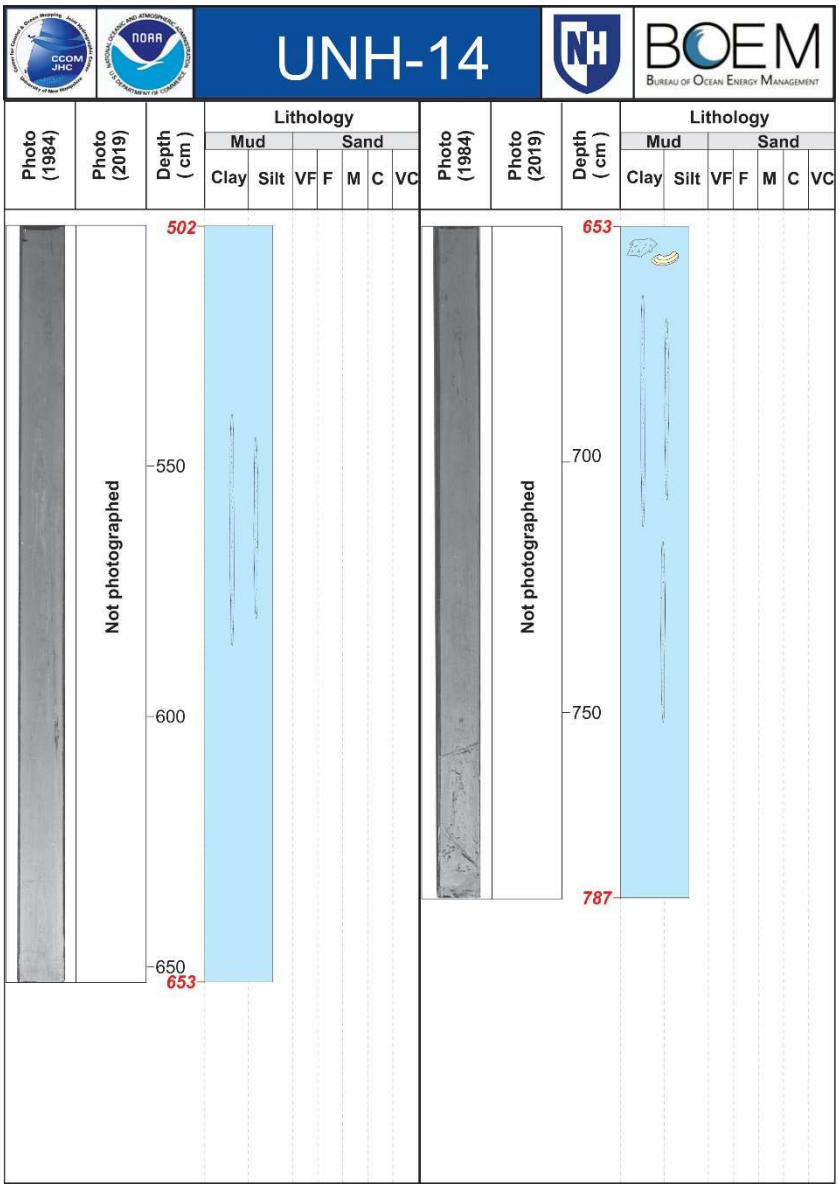

Figure 49b. Core log for the lower portion (5.02 - 7.87m) of UNH-14. The upper 5.02m is shown in Figure 49a (above).

Offshore Seafloor Plain

Two vibracores (UNH-9 and UNH-10) were located offshore in an area characterized by bedrock outcrops separated by seafloor plains (Figures 6, 50, and 51). The seafloor plain is presumably characterized by distal glacial marine sediment (Presumpscot Formation).

Vibracore UNH-9

UNH-9 was collected ~12.5km offshore in ~61m water depth. It is 8.39m in length and is composed of very fine sand to silt and clay (Figure 52). A sample from 0.06-0.08m is a slightly granuley silty-clayey very fine sand with ~52% sand, 48% mud, and a mean grain size of 5.20ϕ (0.027mm) (Table 11). A sample from 0.19-0.21m is a very fine sandy silt-clay with ~18% sand, 82% mud and a mean grain size of 7.90ϕ (0.004mm). The upper ~1.5m contain numerous centimeter-scale clayey silt lenses and pods. From ~1.5 to 3.9m there are fewer pods, but a greater number of thin laminae made up of clayey silt and sand. This sequence of sediment is typical of the distal facies of the glacial marine muds.

Vibracore UNH-10

UNH-10 is located ~15.6km offshore in ~70m of water. The core is 7.40m in length and is comprised completely of silt-clay characteristic of the distal facies of the Presumpscot Formation (Figure 53). It was taken approximately 6km to the northeast of vibracore UNH-9 in an area surrounded by bedrock (Figure 51). Frequent thin silty layers and sandy laminae were observed in the upper core along with mottling and shell fragments. Throughout the remainder of the core some clay-rich laminae and additional shell fragments were observed. Similar to UNH-9, grain size analyses (Table 11) show higher sand fractions at the top of the core (e.g. from 0.24-0.26m the sand content is ~22%), but the remainder of the core has very high mud fractions, all greater than 94%.

Table 11. Grain size data for vibracores taken in the Offshore Seafloor Plain: UNH-9 and UNH-10. Complete grain size classifications and statistics are given in Appendix B.

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)	CMECS (FGDC 2012) Substrate Component Subgroup (Specific)
UNH-9_6-8cm	0.06	0.00	0.06	51.76	48.18	31.57	16.61	5.20	2.61	Slightly Granuley Silty-Clayey Very Fine Sand
UNH-9_19-21cm	0.00	0.00	0.00	17.67	82.33	34.33	48.00	7.90	3.56	Very Fine Sandy Silt-Clay
UNH-9_37-39cm	0.00	0.00	0.00	65.99	34.01	23.19	10.82	4.27	1.91	Silty Very Fine Sand
UNH-9_48-50cm	0.00	0.00	0.00	9.01	90.99	44.28	46.71	8.06	3.33	Silt-Clay
UNH-9_88-90cm	0.00	0.00	0.00	5.66	94.34	35.85	58.49	8.87	3.27	Silt-Clay
UNH-9_181-183cm	0.14	0.00	0.14	60.67	39.19	28.22	10.97	4.37	2.04	Slightly Granuley Silty Very Fine Sand
UNH-9_198-200cm	0.00	0.00	0.00	7.98	92.02	48.11	43.91	7.81	3.32	Silt-Clay
UNH-10_24-26cm	0.00	0.00	0.00	21.86	78.14	29.97	48.17	7.89	3.61	Very Fine Sandy Silt-Clay
UNH-10_120-122cm	0.00	0.00	0.00	4.44	95.56	59.14	36.42	7.38	3.12	Silt-Clay
UNH-10_152-154cm	0.00	0.00	0.00	5.32	94.68	38.88	55.80	8.59	3.30	Silt-Clay
UNH-10_268-270cm	0.00	0.00	0.00	2.53	97.47	39.48	57.99	8.84	3.12	Silt-Clay

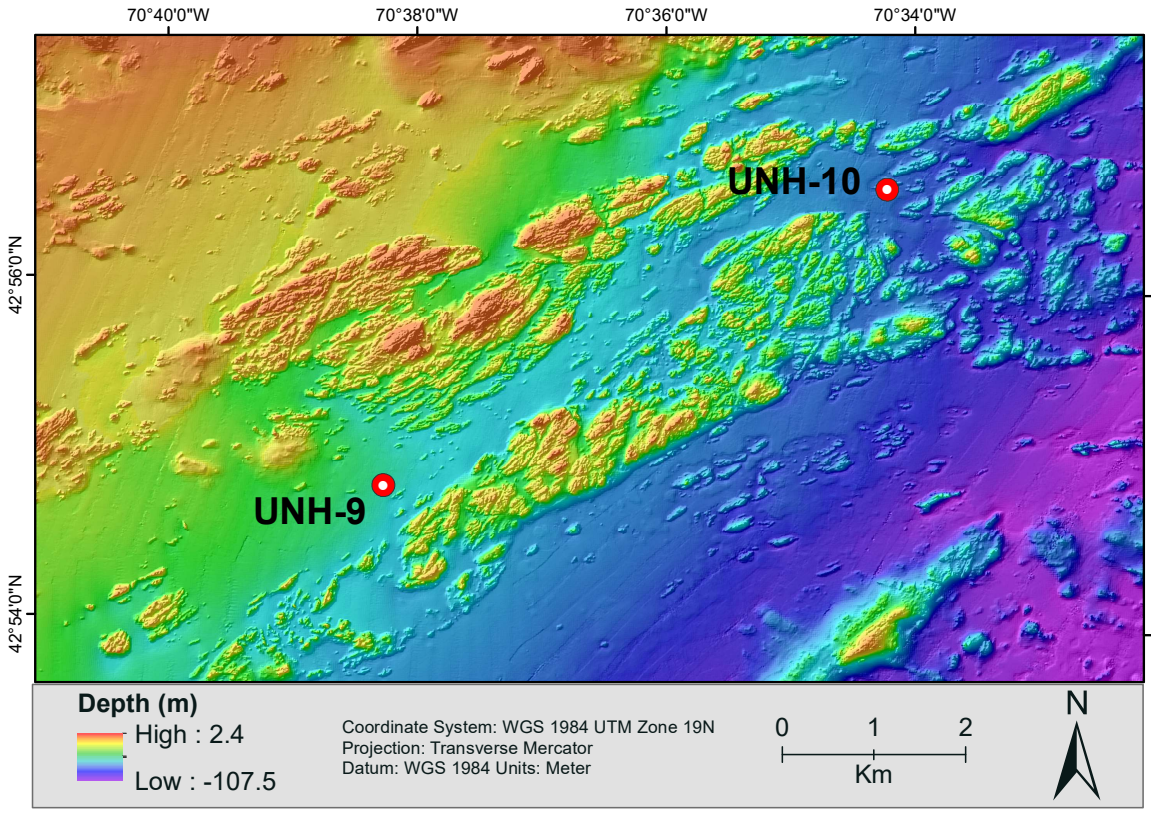

Figure 50. Bathymetric map of the vibracores taken in the Offshore Seafloor Plain. Map is shown at a scale of 1:50,000.

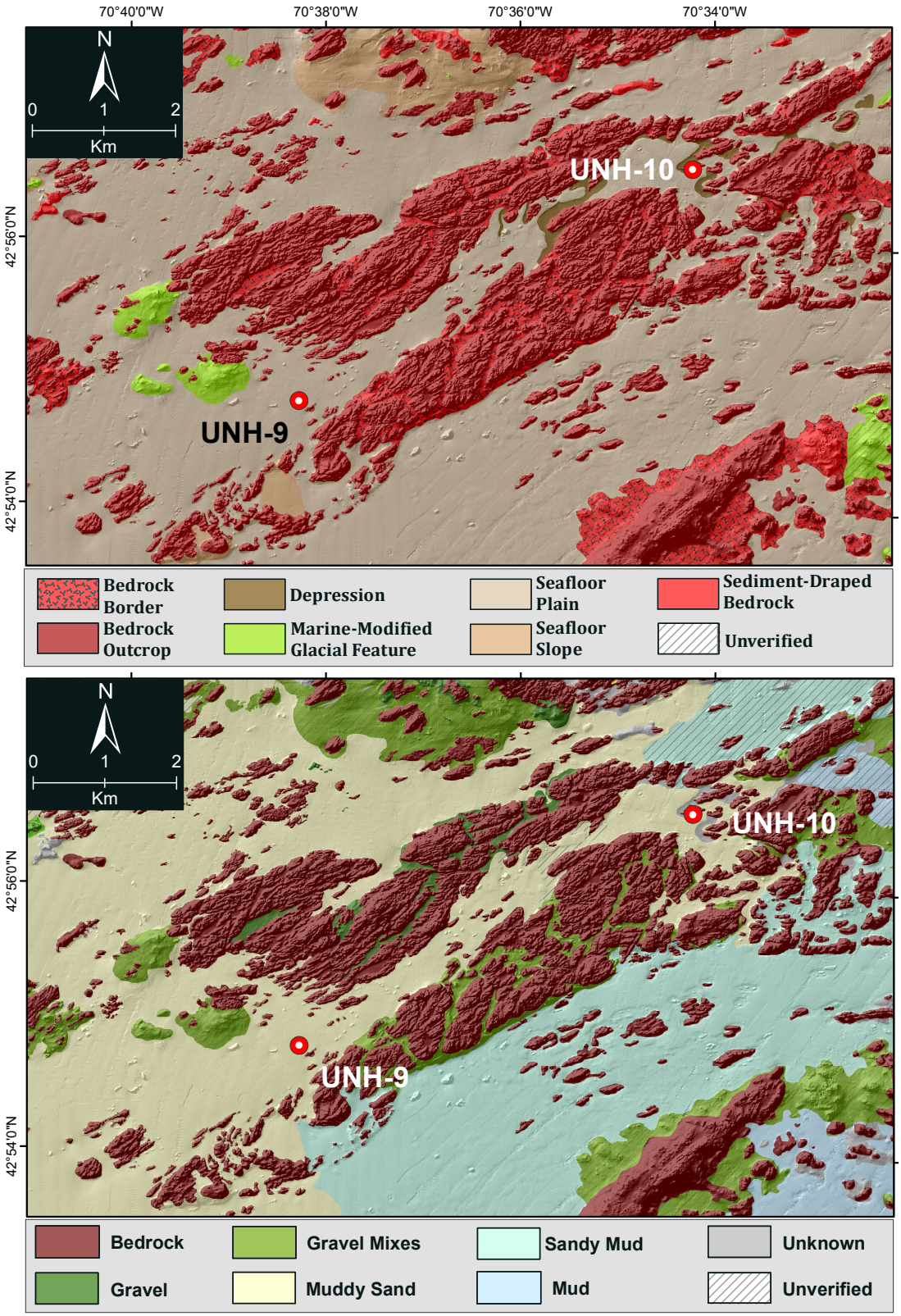

Figure 51. Major geoforms (physiographic features; top) and surficial sediment map (substrate classes; bottom) of the vibracores taken in the Offshore Seafloor Plain. Map is shown at a scale of 1:50,000.

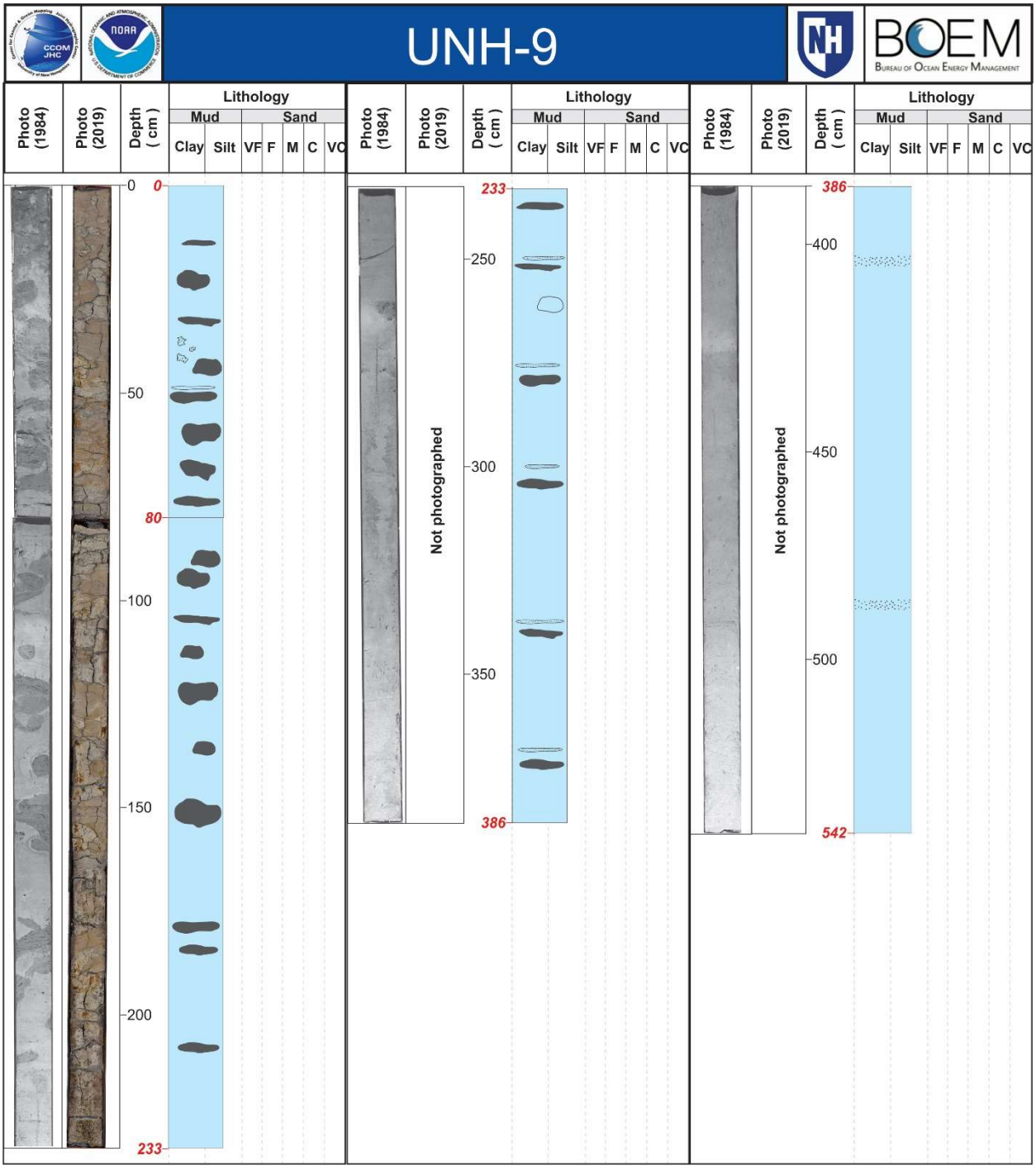

Figure 52a. Core log for upper 5.42m of UNH-9. The lower core (5.42m – 8.39m) is shown in Figure 52b (below). The location of the core is given in Figures 6, 50, and 51. A full description of the core is given in Appendix A.

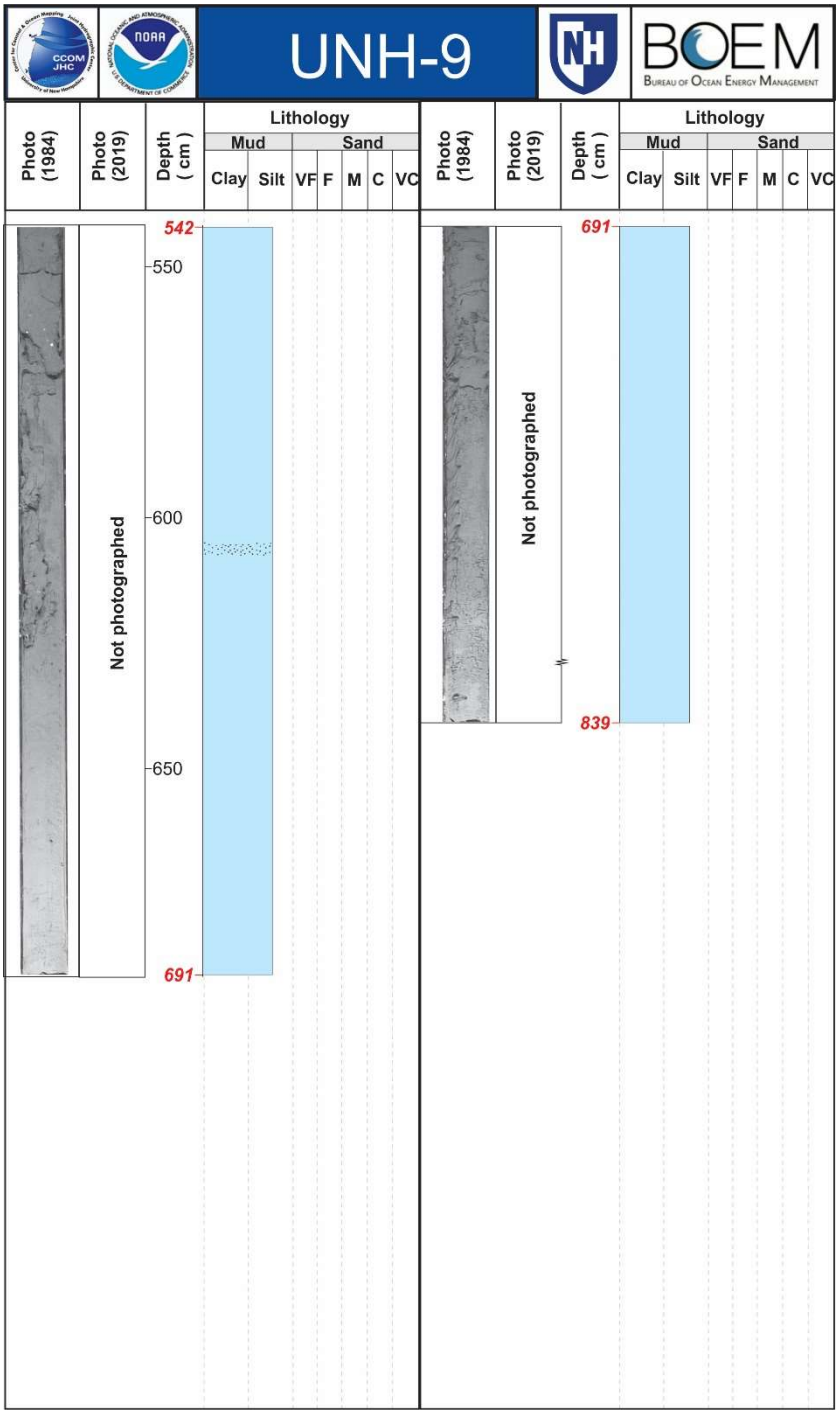

Figure 52b. Core log for the lower portion of UNH-9 (5.42 – 8.39mn). The upper 5.42m is shown in Figure 52a (above).

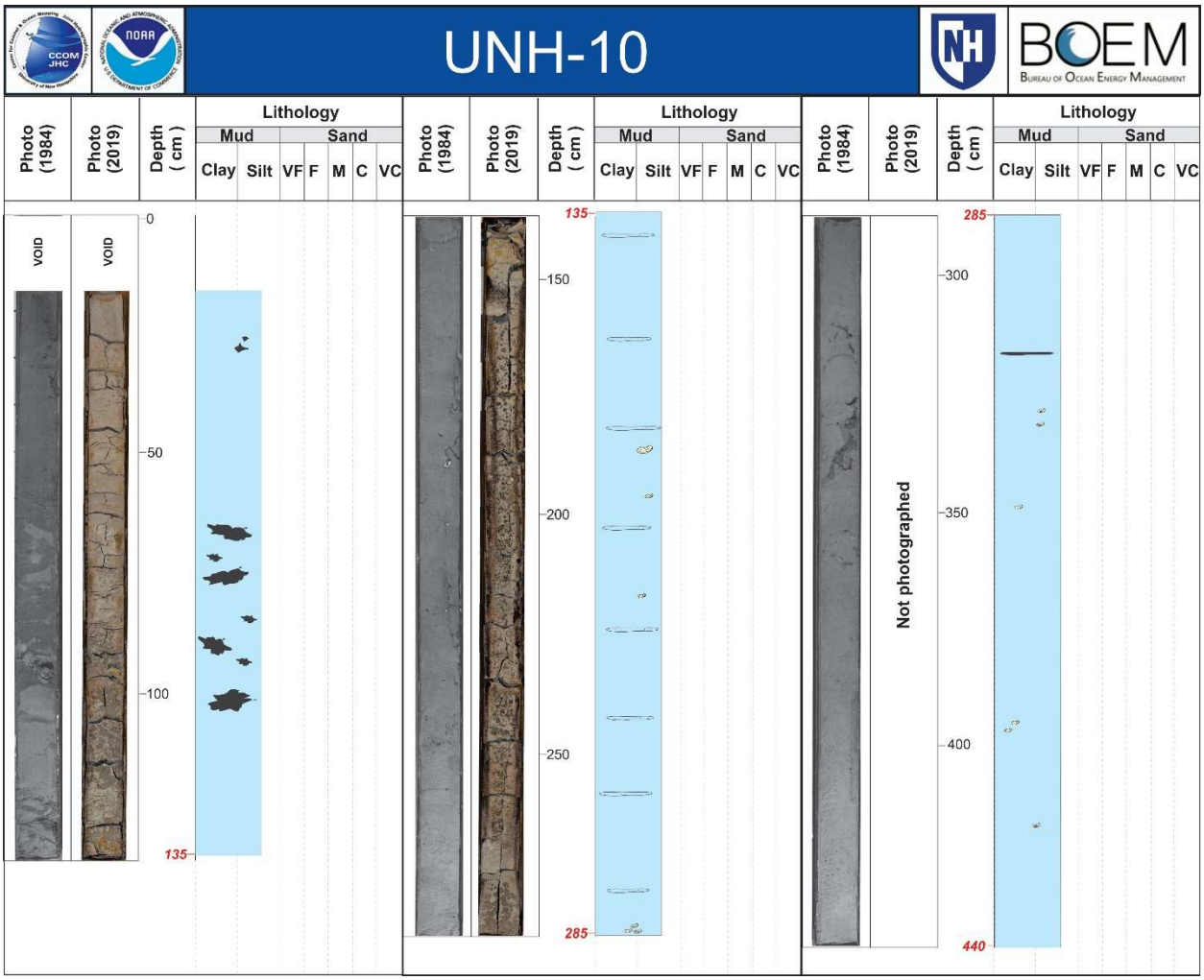

Figure 53a. Core log for the upper 4.40m of UNH-10. The lower core (4.40 – 7.40m) is shown in Figure 53b (below). The location of the core is given in Figures 6, 50, and 51. A full description of the core is given in Appendix A.

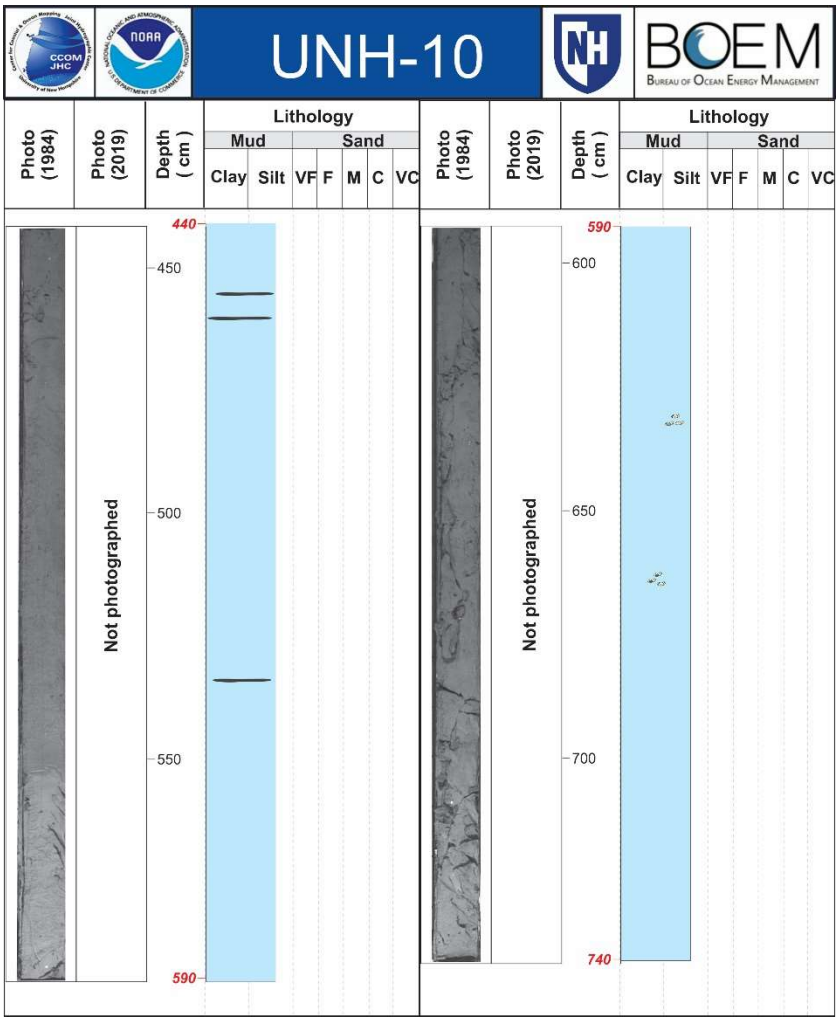

Figure 53b. Core log for the lower portion of UNH-10 (4.0 – 7.40m). The upper 4.40m is shown in Figure 53a (above).

Summary

Twenty-three vibracores were taken on the NH continental shelf in 1984 and 1988 to describe the major sedimentary units and to gain a better understanding of potential sand and gravel resources (Figures 1 and 6). During this study, the vibracores were re-examined in order to verify and expand the original descriptions and to obtain more comprehensive grain size data. The additional analyses and descriptions are important because the 1984 and 1988 vibracores are the only subsurface samples to date on the NH continental shelf (to the knowledge of the authors). The vibracores are grouped by location with respect to major physiographic features (geoforms) or surficial sediment type (Figures 7 and 8) including Offshore Marine-Modified Glacial Features (Drumlins and Lodgement Till Deposits), Northern Sand Body, Nearshore Marine-Modified Glacial Features (Eskers and Drumlins), Isles of Shoals, Nearshore Sheet Sand, and Offshore Seafloor Plain (Table 12).

Three vibracores were collected in the Offshore Marine-Modified Glacial Features (Drumlins and Lodgement Till Deposits) located ~23 to 27km offshore. The offshore drumlins have not been well sampled and the composition is unknown beyond the three vibracores described here. However, one of the vibracores has ~5.28m of medium to coarse sand at the surface overlying silty very fine sand to silt deposits (Table 12). This thick sequence of sand indicates the potential erosion of the drumlin surface and the formation of a shallow water shoal deposit during the early Holocene sea-level lowstand at ~12,500 yrs B.P. The surfaces of the drumlins were likely exposed to wave action resulting in winnowing and a redistribution of the surficial sediments. The other offshore drumlins cored do not have high concentrations of sand and gravel. Likely they were too deep to have been eroded during the sea-level lowstand.

The Northern Sand Body (NSB), which is located ~10km offshore near the Isles of Shoals, has an estimated sand volume of ~17 million m^3, but this remains to be verified. However, two of the five vibracores had up to 3.60m of medium to coarse sand (>90%); the other three cores had between 0.95 and 3.04m of fine sand (>90%). Greater than 75% fine sand extended down to 4.39m in core A1 (Table 12). The origin of the NSB is not clear, but the sand body likely formed from deposits that were originally either a marine glacial delta, a subaqueous delta, or a sandy outwash that were heavily modified by marine processes. The NSB has relatively thick sand over a large area.

The Nearshore Marine-Modified Glacial Features (Eskers and Drumlins) include several linear ridges, largely oriented northeast-southwest or relatively perpendicular the NH shoreline, that are hundreds of meters in length. These features are hypothesized here to be of glacial origin, most likely eskers, that have been modified by marine processes. The esker-like features were exposed during the last sea-level lowstand and exposed to shallow water waves and nearshore process during the Holocene transgression. Two vibracores taken near a ridge had 5.81 and 3.36m of medium to coarse sand along with pebble gravel (Table 12).

The Nearshore Sheet Sand deposits are relatively flat-lying layers of sand and gravel. They frequently overlie (often unconformably) glacial marine sandy mud associated with the Presumpscot Formation distal facies. It is hypothesized that the Nearshore Sheet Sand deposits were formed from reworked glacial marine sediment during the last transgression, especially wave-modified marine deltas or outwash. In addition, the deposits are likely part of the nearshore sand ramp extending from the beaches in southern NH. The vibracores taken in the Nearshore Sheet Sand had variable thicknesses of sand and gravel but were generally less than ~2.5m. However, one site had 3.89m of medium sand.

Except for the Northern Sandy Body and potentially the offshore drumlin, all of the features where vibracores were taken are relatively small in aerial extent. Further high-resolution subbottom seismic reflection surveys are needed and additional vibracores are required to map potential sand and gravel resources. Presently, the extent and characteristics of the sand and gravel deposits on the NH continental shelf are not clear.

Table 12. Sand and gravel thicknesses in the vibracores taken on the NH continental shelf (Figure 6) in 1984 ("UNH" series) and 1988 ("A" series). The thicknesses of the layers were determined from the vibracore logs (Appendix A) and the grain size data from new vibracore samples acquired in 2016 and 2019 (Appendix B). Small layers (less than 25 cm thick) were ignored. Thicknesses and depths are best estimates. The sediment size classification is based on the mean grain size using the Wentworth (1922) scale. The following abbreviations are used: PG – pebble gravel, CS – coarse sand, MS – medium sand, FS – fine sand, and VFS – very fine sand.

Location	Vibracore Number	Sand and Gravel >90%	Sediment Classification	Sand and Gravel >75%	Sediment Classification
Offshore Marine-Modified Glacial Deposits	UNH-1	-----	-----	-----	-----
	UNH-2	-----	-----	-----	-----
	UNH-3	0.00m - 4.73m	MS-CS	4.73m - 5.28m	FS
Northern Sand Body	A1	0.00m - 3.60m	MS-CS	3.60m - 4.39m	FS
	A2	0.00m - 3.10m	MS	3.10m - 5.21m	VFS
	A3	0.00m - 3.04m	FS	3.04m - 4.34m	VFS-FS
	UNH-4	0.00m - 1.45m	FS	1.45m - 1.94m	VFS
	UNH-13	0.00m - 0.95m	FS	0.95m - 1.58m	FS
Nearshore Marine-Modified Glacial Features	A4	0.00m - 2.50m	CS-PG	-----	-----
		2.50m - 4.28m	MS-CS	-----	-----
		5.31m - 5.81m	MS-PG	-----	-----
	A5	0.00m - 1.67m	PG	-----	-----
		2.71m - 3.36m	MS	-----	-----
Nearshore Sheet Sands	A6(1)	0.00m - 0.60m	MS	-----	-----
		0.60m - 2.27m	FS	-----	-----
	A6(2)	0.00m - 1.62m	FS	-----	-----
	A6(3)	0.00m - 3.89m	MS	-----	-----
	A7(1)	0.00m - 0.12m	MS	-----	-----
		0.12m - 1.23m	PG	-----	-----
	A7(2)	0.00m - 0.45m	CS	-----	-----
		0.45m - 1.12m	CS-PG	-----	-----
		1.12m - 1.53m	PG	-----	-----
		1.53m - 1.80m	CS	-----	-----
		1.80m - 2.05m	MS	-----	-----
	A8	0.00m - 0.55m	CS-SPG	-----	-----
	UNH-6	0.00m - 1.54m	VFS	-----	-----
	UNH-6A	0.00m - 2.37m	VFS-FS	2.37m - 3.02m	VFS-FS
	UNH-14	0.00m - 0.82m	FS	-----	-----
		1.38m - 2.36m	FS	-----	-----
Isles of Shoals	UNH-5	0.00m - 3.22m	Shell Hash	-----	-----
		3.22m - 3.67m	MS	3.67m - 5.70m	FS
	UNH-12	No Sediment Samples			
Seafloor Plain	UNH-9	-----	-----	-----	-----
	UNH-10	-----	-----	-----	-----

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Appendix A: Vibracore Logs

The logs for the vibracores taken on the New Hampshire continental shelf in 1984 (Birch, 1986b) and 1988 (Ward, 1989) are presented in this appendix. The vibracores logs are shown in numerical order with the 1984 cores ("UNH" series) presented first followed by the 1988 cores ("A" series). Abbreviated vibracore logs can be found in the Results and Discussion section of this report along with the core descriptions. Each vibracore log presented in this appendix includes the following: photographs taken during the original examinations (only available for the UNH series taken in 1984) and more recent photographs taken during this study in 2016 and 2019; the lithology and sediment descriptions of the cores based on Birch (1986a; 1986b; 1988), Ward (1989; 2007), and this study; Munsell colors; grain size data; and depositional environments and seismic units from Birch (1984; 1986b). The core log template is shown in Figure Appendix-1 and the symbology used in the core logs is shown in Figure Appendix-2. The color assignments presented here use the Munsell Rock-Color Chart (Geological Society of America and Munsell Color, 2009). The original core descriptions used a combination of the Munsell Soil-Color Chart and the Geological Society of America (GSA) Rock-Color Chart. In order to make color names, hues, values, and chromas consistent and comparable, all Soil-Colors were converted to the Rock-Color Chart for this report. The closest equivalent colors were chosen where necessary (Figure Appendix-2). The grain size data from this study are reported as %G, %S, %M and mean grain size (ϕ) and sorting (ϕ) for the entire sample. Grain size data from Ward (1989) are presented as %G, %S, %M and mean grain size (ϕ) and sorting (ϕ) for sand fraction only. Grain size data from Birch (1986b) only provide the %G, %S, and %M for the predominantly sand and mud samples (%G <0.9%) due to a difference in analytical methods. The grain size procedures are described in detail in the Methods section of this report.

Note: The full logs presented here were made in CorelDraw 7x (64 bit), and are best viewed digitally and at 125-150%.

The vibracore logs can also be downloaded at Ward et al. (2021c) (https://dx.doi.org/10.34051/d/2021.4).

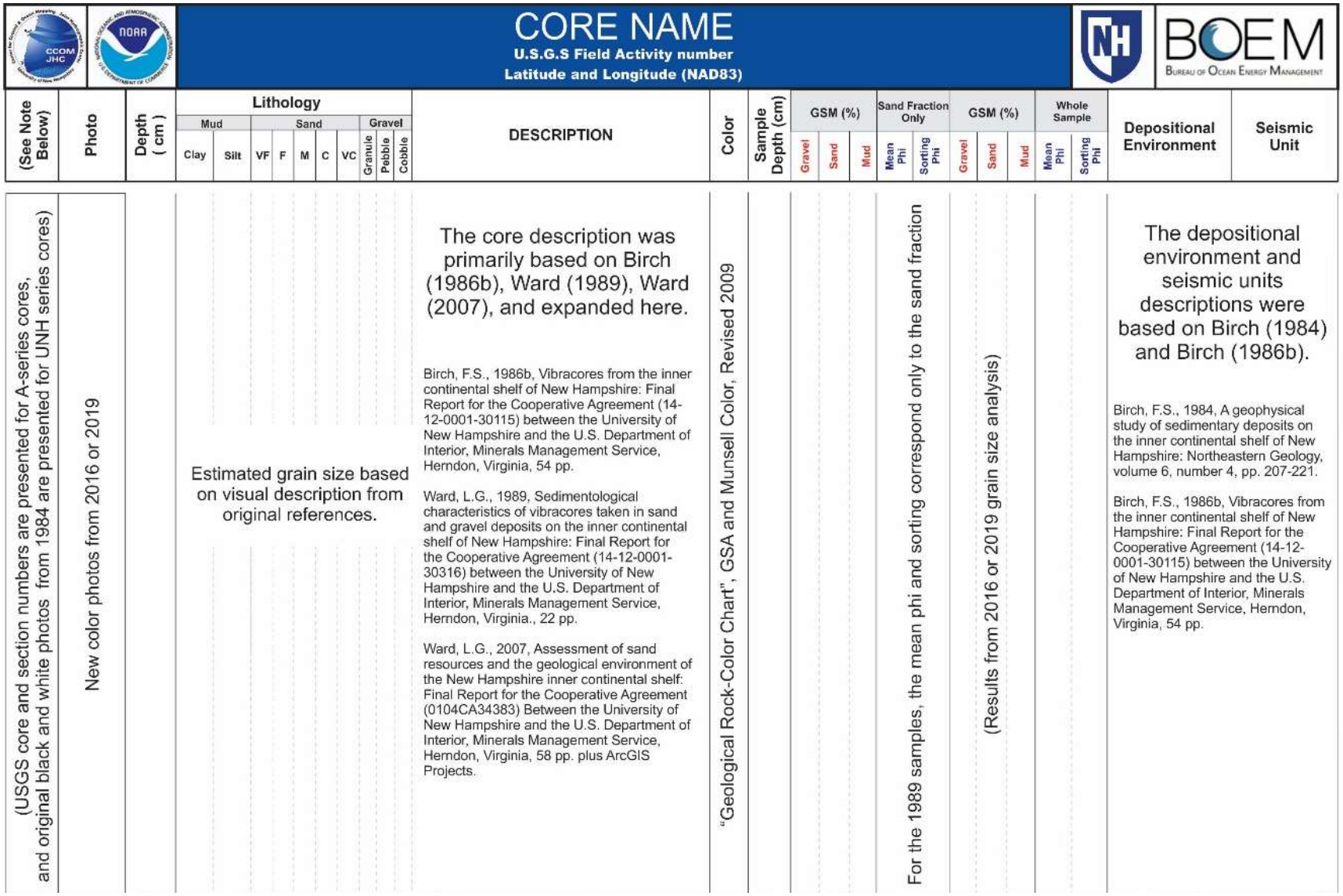


Figure Appendix-1. Complete core log description template.

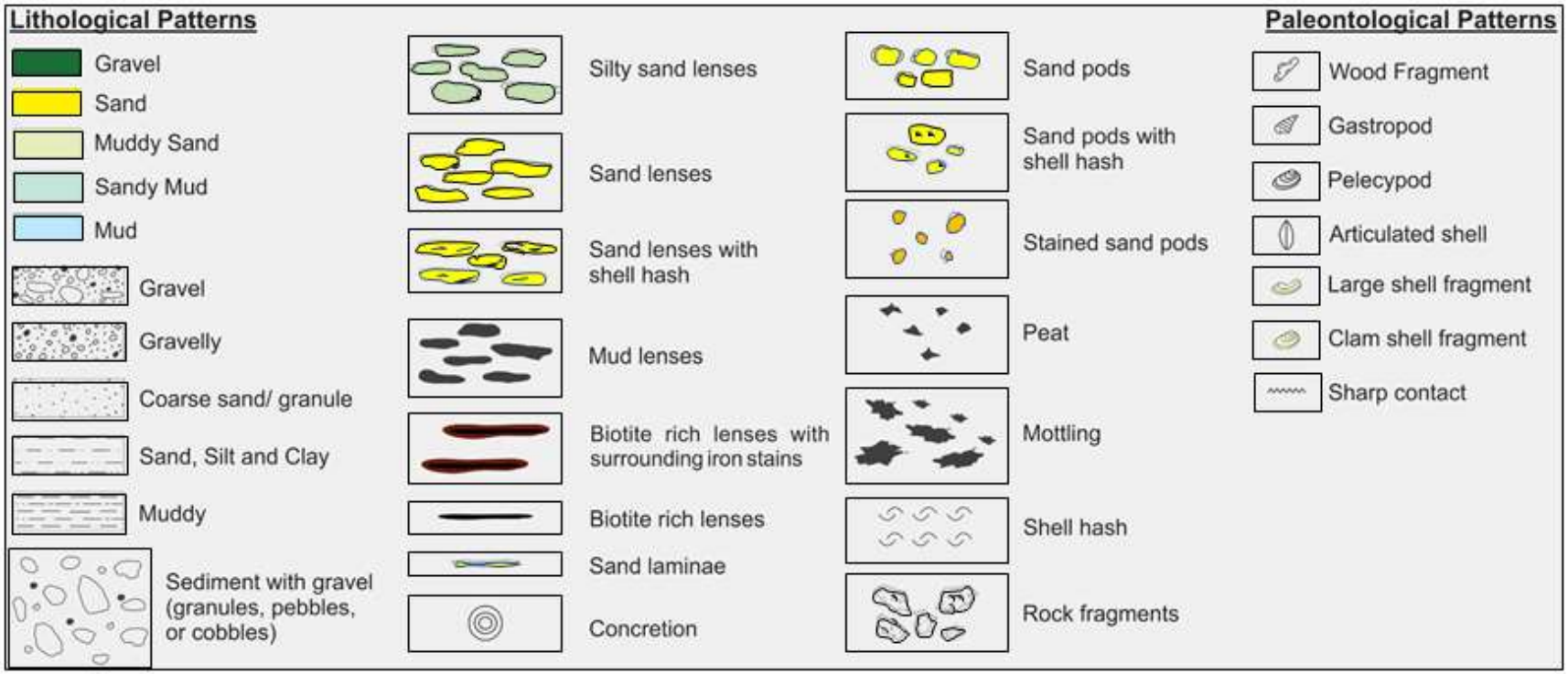


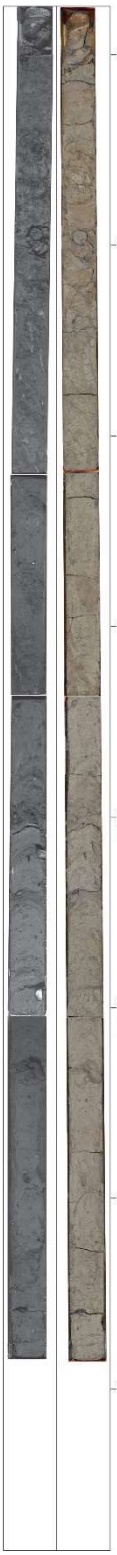
Figure Appendix-2(a). Complete core log symbol, pattern, and color key.

Figure Appendix-2(b). Complete core log Munsell color key.

Full Vibracore Logs from 1984 (UNH series)

UNH-1

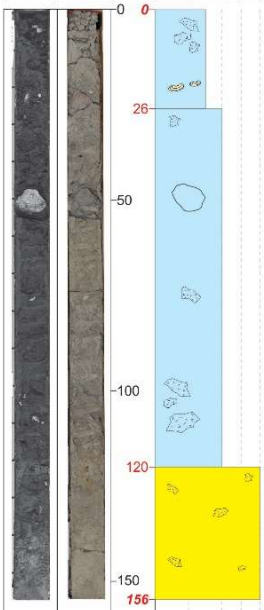
U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9717 Longitude: 70.4567



Depth (cm)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0	**Cobbles and pebbles (possible lag deposits).** Discrepancy between original photo and written description where top 10 cm of the core was omitted.		0	3.6	83.7	12.7			1.9	2.25	Lodgment till; prior 13,800 YBP while glaciers still covered the region.	**Unit 1.** Diamicton.
4	**Medium Sand**. Light olive gray (5Y5/2); two shell fragments.		8	1.8	53.7	44.5			5.0	3.94		
26	**Silty Clay**. Greenish gray (5GY6/1); sharp contact; clay and sand lenses; rock fragments to 1.6 cm.											
47	**Silty Sand**. Light olive gray (5Y5/2); indistinct contact; clay lenses; rock fragments to 1.6 cm.											
67	**Sandy Silt**. Medium gray (N5); sharp contact; clay lenses; rock fragments to 5.6 cm.											
110	**Silty Clay**. Grayish olive green (5GY3/2); indistinct contact; silty sand lenses; rock fragments to 5.6 cm.		88	1.2	50.5	48.3			5.2	3.85		
	Update 2019: This section was likely reversed in orientation when initial deck photographs were taken and the section was stored. This was revealed by new observations and grain size analysis. Original photograph records are upside down (but have been corrected here). Original descriptions were also recorded when the core section was upside down. Depths for grain size analyses from 1989 and 2019 have been adjusted accordingly.		141	0.8	40.8	58.4			5.9	4.10		
168	**Silty Clay** (32.7% Silt, 31.3% Clay). Grayish olive green (5GY3/2); indistinct contact; silty sand lenses; rock fragments to 5.6 cm.		156	1.0	27.0	72.0			7.0	3.91		
195	New Core Section. **Silty Clay**. Grayish olive green (5GY3/2); indistinct contact; silty sand lenses; rock fragments to 5.6 cm.		178	0.8	18.4	80.8			7.6	3.82		
204	**Silty Sand**. Grayish olive green (5GY3/2); distinct contact; many rock fragments to 0.6 cm.											
252	**Silty Sand**. Grayish olive green (5GY3/2); distinct contact; sand streaks; rock fragments to 0.5 cm.											
342	New Core section. **Silty Clay** (34.3% Silt, 38.4% Clay). Grayish olive green (5GY3/2); large sand lens; rock fragments to 7.5 cm.		292	0.5	25.5	74.0			7.1	3.83		

UNH-2

U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9067 Longitude: 70.4433

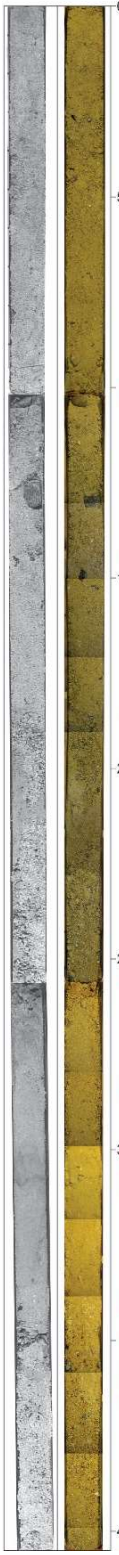


Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	Whole Sample GSM (%) Gravel	Whole Sample GSM (%) Sand	Whole Sample GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0																
0		**Clayey Silt**. Grayish olive green (5GY3/2). Shell fragments; rock fragments to 5 cm.														
26																
				33						5.8	44.9	49.3	4.6	4.05		
50															Lodgment till; deposited prior to 13,800 YBP while glaciers still covered the region.	**Unit 1.** Diamicton.
		Silt (33.1% Silt, 19.1% Clay). Dusky yellow green (5GY5/2). Indistinct contact; rock fragments up to 8 cm.														
100																
120																
		Fine Sand. Grayish Olive (10Y4/2); indistinct contact; rock fragments to 0.2 cm.														
				143						4.3	48.6	47.1	3.8	2.87		
150																
156																

UNH-3

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.8850 Longitude: 70.5083

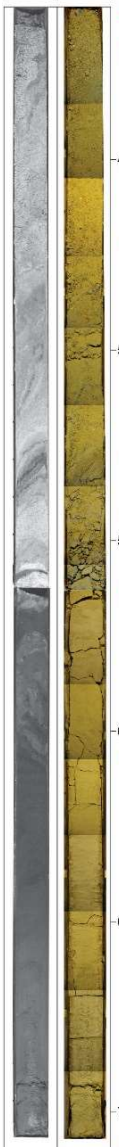


Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	Whole Sample GSM (%) Gravel	Whole Sample GSM (%) Sand	Whole Sample GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0															Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds. From top of the core up to 607 cm.
50		**Medium to Coarse Sand**. Moderate yellowish brown (10YR5/4). Moderately to poorly sorted; shell fragments; rock fragments up to 5 cm.		23						2.3	96.2	1.5	1.5	1.06		
102		New core section. **Medium to Coarse Sand**. Moderate yellowish brown (10YR5/4); shell fragments; rock fragments up to 7 cm.		71						2.6	96.9	0.5	1.3	1.04		
145				135						3.6	96.3	0.1	1.2	0.98		
150		**Medium to coarse sand**. Moderate yellowish brown (10YR5/4); with very small shell fragments; rock fragments less than 0.3 cm.														
186																
200		**Medium to coarse sand and granule**. Moderate yellowish brown (10YR5/4); scattered clasts up to 2 cm; lense of fine sand (~10cm thick).		225						12.0	85.5	2.5	0.7	1.50		
250																
256		New core section. **Fine to medium sand**. 5 cm layer of coarse sand at the top of the new section with rock fragments up to 1 cm. Indistinct contact.		278						5.3	93.6	1.1	1.7	1.13		
284		**Fine sand**. Moderate yellowish brown (10YR5/4). Indistinct contact.														
300																
304		**Sandy Silt**. Moderate brown (5YR4/4). Indistinct contact.														
312		**Fine Sand and Silt**. Moderate yellowish brown (10YR5/4). Indistinct contact; medium sand lens from 3.27 – 3.34 m (1.5 cm wide; burrow?).		324						0.0	98.2	1.8	2.6	0.54		
340		**Fine to Medium Sand**. Indistinct contact; common rock frags to 3.5 cm; rare shell frags.														
350		**Medium to Coarse Sand**. Indistinct contact; very common rock fragments up to 3.5 cm; rare shell fragments.														
361																
364		**Very Fine to Fine Sand and Silt**. Moderate brown (5YR4/4). Distinct contact; very common rock fragments to 1 cm; occasional shell fragments.														
400		**Medium to Coarse Sand**. Moderate yellowish brown (10YR5/4). Distinct contact; very common rock fragments to 1 cm; occasional shell fragments.		384						20.9	79.1	0.0	0.2	1.56		
410																

UNH-3

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.8850 Longitude: 70.5083

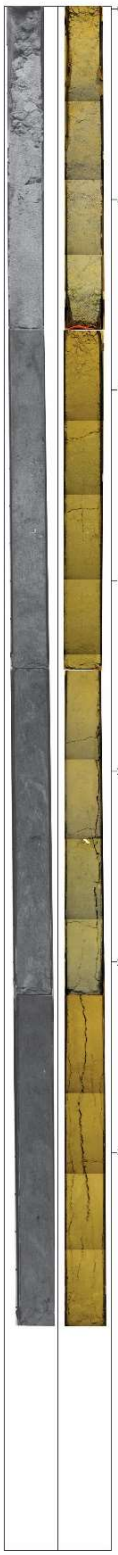


Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	Whole Sample GSM (%) Gravel	Whole Sample GSM (%) Sand	Whole Sample GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
410		New core section. **Coarse Sand**. Moderate yellowish brown (10YR5/4). One rock fragment 7 cm.													Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds. From top of the core up to 607 cm.
422				428						3.0	96.6	0.4	1.2	0.89		
450		**Medium Sand**. Moderate yellowish brown (10YR5/4). Distinct contact; shell fragments; rock fragments up to 3 cm.														
473		At 472 cm, distinct contact; Coarse Sand.														
500		**Fine Sand.** Light olive gray (5Y5/2). Distinct contact.		478						3.9	85.8	10.3	2.6	1.18		
528		**Very Fine Sand.** Olive gray (5Y3/2). Distinct contact; lenses of biotite-rich sand.		538						0.2	37.7	62.1	4.1	0.90		
544																
550		**Very Fine Sand and Silt**. Light olive gray (5Y5/2). Distinct contact.														
564																
600		New core section, **Very Fine Sand and Silt**. Light olive gray (5Y5/2). Distinct contact.		592						< 0.1	42.3	57.7	5.1	2.58		
607																
650		**Silt**. Light olive brown (5Y5/6). Some small sand pods.		664						0.0	18.0	82.0	5.3	2.11		
700																
709																

UNH-4

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.9800 Longitude: -70.6550



Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0		**Medium Sand**. Moderate Yellowish Brown (10YR5/4). Shell fragments; rock fragments to 0.5 cm.		0						0.3	99.7	0.0	1.6	0.83	Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds. From the top of the core up to 569 cm.
14				10						< 0.1	99.9	< 0.1	2.2	0.56		
19		**Fine Sand**. Yellowish Gray (5Y7/2). Distinct contact.														
				40						0.1	99.9	0.0	2.4	0.45		
		Fine Sand. Light Gray (N7). Shell fragments; stained patches; dusky yellow (5Y6/4).														
50				68						0.0	98.4	1.6	2.5	0.48		
85																
				98						0.0	96.5	3.5	2.5	0.55		
100																
		New core section. **Fine Sand**. Grayish olive (10Y4/2). Shell fragments.		115	0.3	93.0	6.7									
				143						0.0	92.0	8.0	3.0	0.63		
150																
174																
				192						0.0	75.4	24.6	3.6	1.44		
200		New core section. **Fine Sand**. Grayish olive (10Y4/2); shell fragments.														
				242						0.0	73.4	26.6	3.6	1.15		
250																
259				267						0.1	69.1	30.8	3.7	1.29		
		New core section. **Fine Sand**. Grayish olive (10Y4/2); small patches of peat near base.														
300				317						0.0	67.8	32.2	3.7	1.51		
346																

UNH-4

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.9800 Longitude: -70.6550

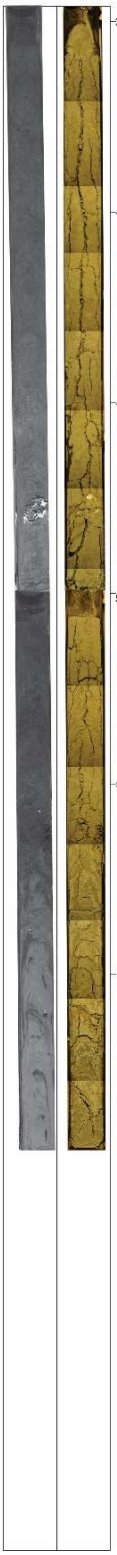
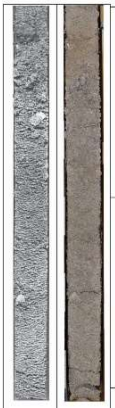


Photo (1984)	Photo (2016)	Depth (cm)	Lithology: Mud (Clay, Silt); Sand (VF, F, M, C, VC); Gravel (Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
				New core section. **Fine Sand and Silt** (31.2 % Silt, 8.9 % Clay). Grayish olive (10Y4/2). Shell fragments; peat pods to 0.5 cm; mica rich.		376						0.0	58.4	41.6	3.9	1.28	Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds. From the top of the core up to 569 cm.
						396	0	59.9	40.1									
						466						0.0	52.8	47.2	4.0	1.36		
				New core section. **Very Fine Sand and Silt**. Dark Gray (N3). Shell fragments; rock fragments up to 3 cm; abundant peat pods near base.		527						0.5	30.4	69.1	4.6	1.52		
				Silty Clay (39.8 % Silt, 44.7 % Clay). Dark Gray (N3). Shell fragments; distinct contact; stained sand pods (5YR).		587						0.1	34.4	65.5	6.4	3.54	Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2**.Glacial-Marine Mud with a significant ice rafting component. From 569 cm to the bottom of the core.
						619	0.9	15.6	84.5									

UNH-5

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.9750 Longitude: -70.6333



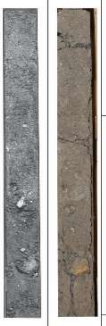
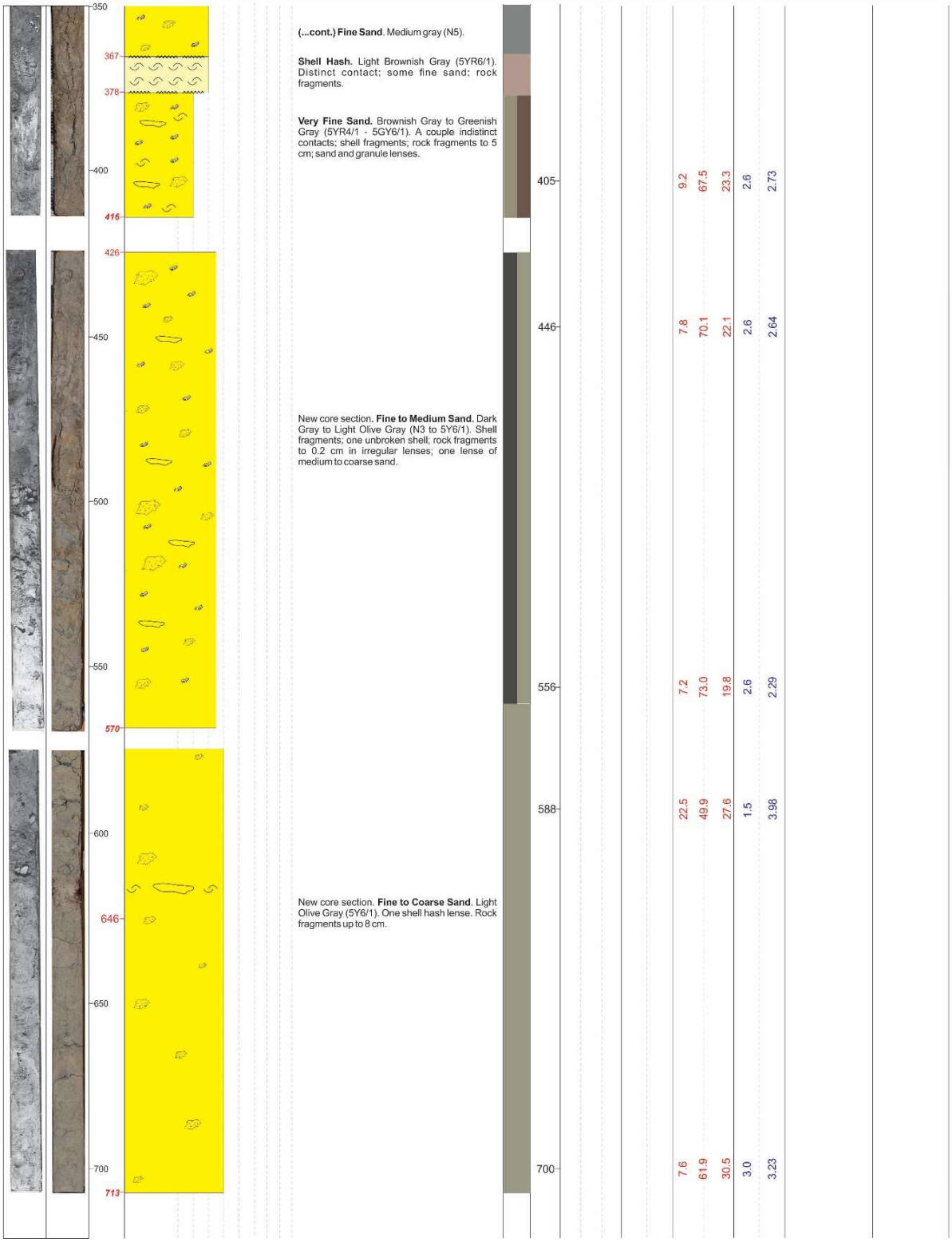


Photo (1984)	Photo (2019)	Depth (cm)	Lithology: Mud (Clay, Silt); Sand (VF, F, M, C, VC); Gravel (Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
		0		**Coarse Shell Hash.** Moderate Yellowish Brown (10YR5/4). Shell fragment sizes fine downward; include echinoderms, sand dollars, bivalves, forams, snails.														
		50																
		100																
		117																
		150		New core section. **Fine Shell Hash**. Light Brownish Gray (5YR6/1). Section includes medium to coarse sand with rock fragments to 1.5 cm; a few complete shells.														
		200																
		250																
		265																
		273		New core section. **Very Fine Shell Hash**. Light Brownish Gray (5YR6/1). Some larger shell fragments; rock fragments up to 6 cm..														
		300																
		322		**Fine Sand**. Medium gray (N5). Distinct contact; many shell fragments; rock fragments to 2.3 cm.		331						14.2	77.8	8.0	1.8	2.25		
		350																

UNH-5

U.S.G.S Field Activity #: 1984-016-FA

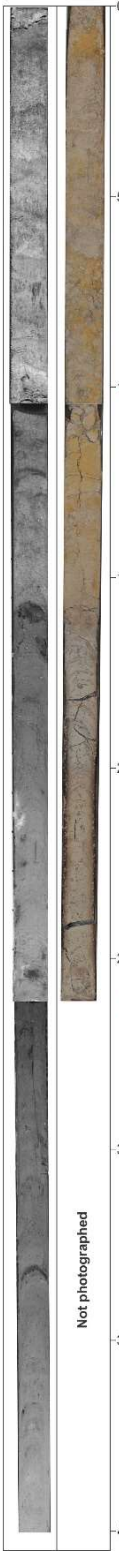
Latitude: 42.9750 Longitude: -70.6333



UNH-6

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.9350 Longitude: -70.7450



Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0		**Very Fine Sand to Fine Sand.** Moderate yellowish brown (10YR5/4).		16						0.5	96.8	2.7	3.0	0.49	Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds. From the top of the core up to 154 cm.
50		**Very Fine Sand to Fine Sand (10.1% Silt, 3% Clay).** Light olive gray (5Y5/2). Silt. Indistinct contact; rock fragments at 16 cm; mica rich from 10 to 40 cm; biotite rich layers between 35 – 43 cm.		70	0.0	86.9	13.1									
100				96						0.0	91.4	8.6	3.3	0.53		
104																
		New Core section. **Fine Sand.** Grayish olive (10Y4/2). A few shell fragments; a few rock fragments up to 5 cm at base of layer; biotite rich layer at 109 – 111 cm.		124						0.0	77.2	22.8	3.7	0.62		
150				152						0.0	91.7	8.3	3.1	0.84	Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2**.Glacial-Marine Mud with a significant ice rafting component. From 154 cm to the bottom of the core.
154				176						0.0	1.1	98.9	9.6	2.73		
200		**Mud (Clay).** Grayish olive (10Y4/2). Distinct contact; a few shell fragments; 1 articulated bivalve; 2 cm-scale sand lenses														
250																
261																
300				291	0.2	7.4	92.4									
350		New core section. **Mud (41.3% Silt, 51.1% Clay).** Grayish olive (10Y4/2); interior of core away from edges is Grayish Black (N2) (in situ color?); several sand lenses.														
400																

UNH-6

U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9350 Longitude: -70.7450

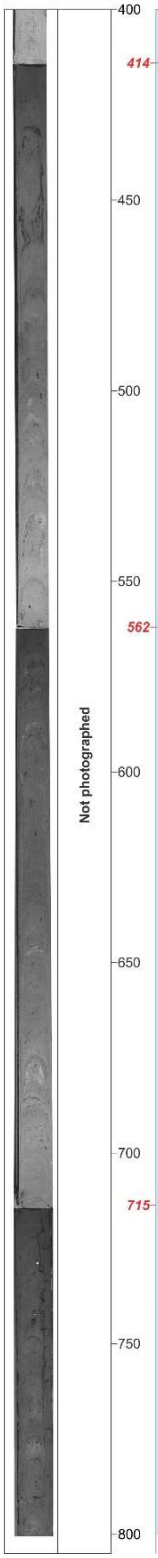


Photo (1984)	Photo (2019)	Depth (cm)	Lithology: Mud (Clay, Silt); Sand (VF, F, M, C, VC); Gravel (Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	Whole Sample GSM (%) Gravel	Whole Sample GSM (%) Sand	Whole Sample GSM (%) Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
	Not photographed	400–800		Continuation section 3. **Mud (41.3% Silt, 51.1% Clay).** Grayish olive (10Y4/2); interior of core away from edges is Grayish Black (N2) (in situ color?); several sand lenses.														
				New core section. **Mud (42.7% Silt, 53.8% Clay).** Medium gray (N5); a few shell fragments; articulated shells in vertical sand streaks; silty sand lenses throughout.		474	0.0	3.5	96.5								Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2.** Glacial-Marine Mud with a significant ice rafting component. From 154 cm to the bottom of the core.
				New core section. **Mud.** Medium gray (N5); a few shell fragments; numerous cm-scale sand lenses or pods.														

UNH-6

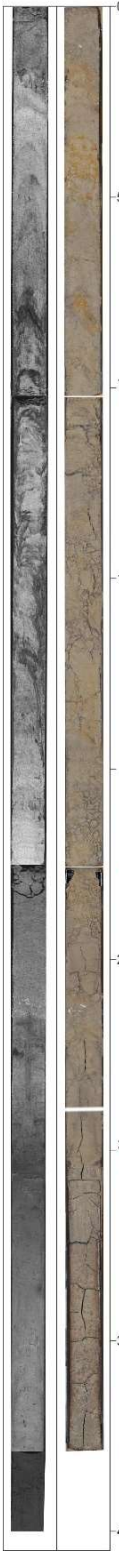
U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9350 Longitude: -70.7450

Photo (1984)	Photo (2019)	Depth (cm)	Lithology: Mud: Clay	Lithology: Mud: Silt	Lithology: Sand: VF	Lithology: Sand: F	Lithology: Sand: M	Lithology: Sand: C	Lithology: Sand: VC	Lithology: Gravel: Granule	Lithology: Gravel: Pebble	Lithology: Gravel: Cobble	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
	Not photographed	800											Continuation of section 6. **Mud.** Medium gray (N5); a few shell fragments; numerous cm-scale sand lenses or pods.													Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2**.Glacial-Marine Mud with a significant ice rafting component. From 154 cm to the bottom of the core.
		851																									

UNH-6a

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.9350 Longitude: -70.7450



Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0																
23		**Very Fine Sand.** Light olive gray (5Y5/2) to dark yellowish orange (10YR6/6); well sorted; numerous shell fragments in upper 19 cm; 1 large shell fragments at 19 cm.		20						0.6	98.2	1.2	2.7	0.62	Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds. From the top of the core up to 302 cm.
50																
		Very Fine Sand. Light olive gray (5Y6/1); well sorted; indistinct contact; biotite-rich laminae at 80 and 95 cm.		80						0.0	95.3	4.7	2.9	0.51		
100																
102				122						0.0	94.1	5.9	2.9	0.53		
				142	0.0	93.9	6.1									
150		New Core Section. **Very Fine Sand** (2.4% Silt, 3.7% Clay). Light olive gray (5Y6/1) to light gray (N7); well sorted; biotite-rich lenses														
				192						0.0	93.4	6.6	3.1	0.55		
200																
		Very Fine Sand. Light olive gray (5Y6/1); well sorted.														
225				235						0.0	95.4	4.6	3.2	0.49		
				244	0.2	92.6	7.2									
250		New Core Section. **Very Fine Sand** (3.8% Silt, 3.4% Clay). Dark Gray (N3); well sorted; Muscovite rich between 260 – 275 cm; fossil														
300				300						0.0	80.8	19.2	3.6	0.70		
302				307						2.4	97.6	9.0	3.03		Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2.** Glacial-Marine Mud with a significant ice rafting component. From 302 cm to the bottom of the core.
		Silty clay or Clayey silt. Medium gray (N5); a shell fragment and complete shell at 324 cm; sand lenses throughout; some iron-stained.														
350																
379																
400																

UNH-6a

U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9350 Longitude: -70.7450

Photo (1984)	Photo (2019)	Depth (cm)	Lithology: Mud (Clay, Silt); Sand (VF, F, M, C, VC); Gravel (Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
		400															Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2.** Glacial-Marine Mud with a significant ice rafting component. From 302 cm to the bottom of the core.
		450		Continue section 4. **Silty clay or Clayey silt.** Medium gray (N5); sand lenses and pods throughout; shell at 523 cm.														
		500																
		532																
		550				555	0.0	2.2	97.8									
		600		**Silty clay or Clayey silt** (55.1% Silt, 42.8% Clay). Medium gray (N5); sand lenses and pods throughout; shell fragments at 664 cm.														
		650																
		685																
		700																
		750		**Silty clay or Clayey silt.** Medium gray (N5); sand lenses and pods throughout; shell at 747 cm; shell at 769 cm.														
		800																
		832																

UNH-9

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.91333 Longitude: -70.6367

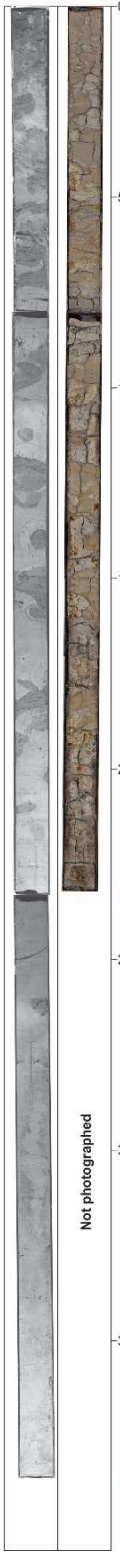


Photo (1984)	Photo (2019)	Depth (cm)	Lithology: Mud (Clay, Silt); Sand (VF, F, M, C, VC); Gravel (Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
		0				6						< 0.1	51.8	48.2	5.2	2.61	Marine formed near the time of lowest post-glacial sea-level.	**Unit 3.** Late Pleistocene to Holocene Mud. From the top of the core to 233 cm depth.
						19						0.0	17.7	82.3	7.9	3.56		
				Silty Clay. Greenish gray (5GY6/1). Cm-scale clayey silt lenses and pods; some rock fragments at 40 cm; sand laminae in lower 50 cm.		37						0.0	66.0	34.0	4.3	1.91		
		50				48						0.0	9.0	91.0	8.1	3.33		
		80																
						88						0.0	5.7	94.3	8.9	3.27		
		100				98	0.0	4.7	95.3									
		150		**Silty Clay** (43.3% Silt, 52 % Clay). Greenish gray (5GY6/1). Cm-scale clayey silt lenses and pods; shell fragments at 217 cm; shells sparsely scattered throughout lower 15 cm.														
						181						0.1	60.7	39.2	4.4	2.04		
		200				198						0.0	8.0	92.0	7.8	3.32		
		233															Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2.** Glacial-Marine Mud with a significant ice rafting component. From 233 cm to the bottom of the core.
		250																
		300		**Silty Clay**. Greenish gray (5GY6/1). Cm-scale clayey silt lenses and pods; numerous thinner sand laminae; a 4 cm sand pod at 260 cm.														
		350																
		386																

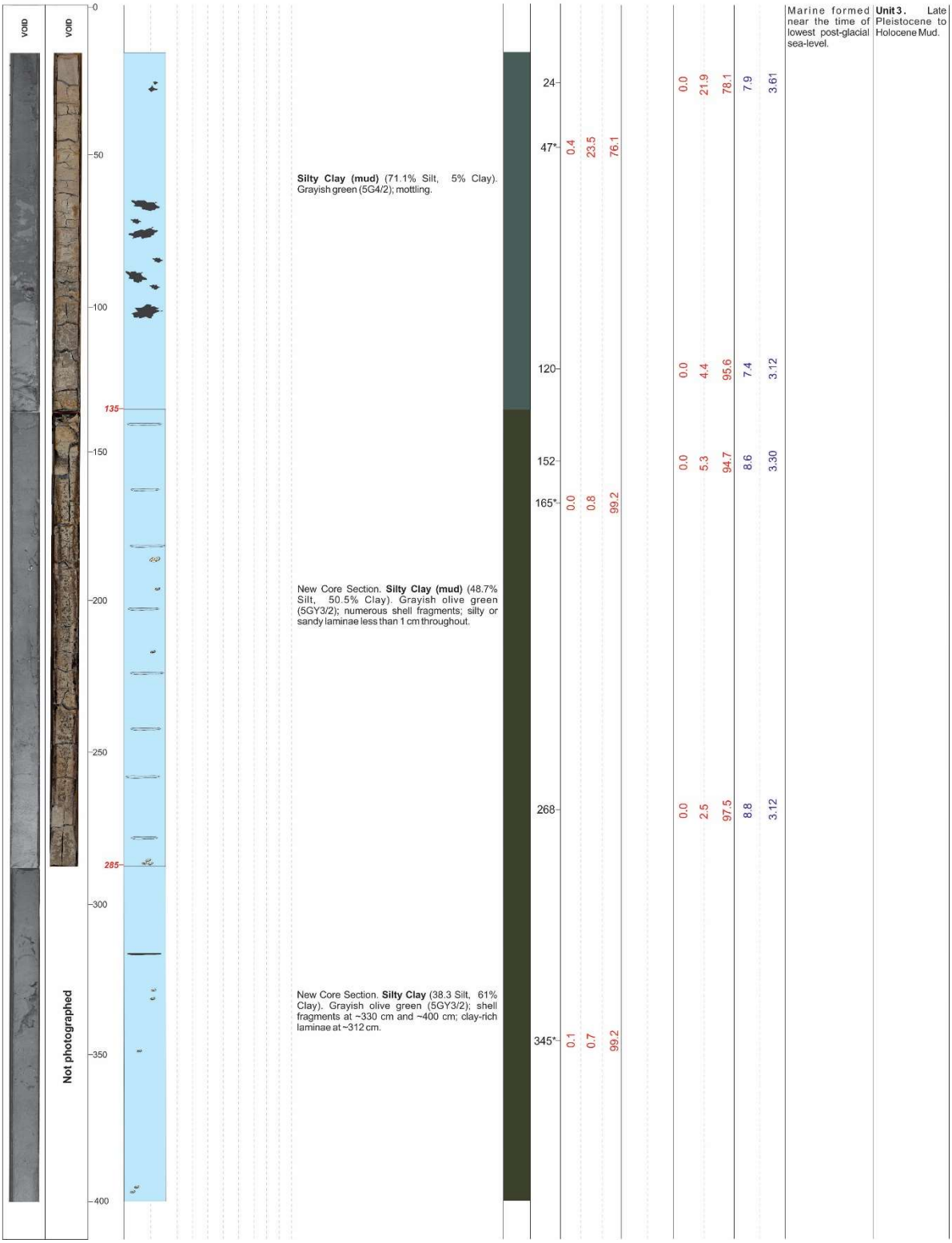
UNH-9

U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9133 Longitude: -70.6367

Photo (1984)	Photo (2019)	Depth (cm)	Lithology: Mud: Clay	Lithology: Mud: Silt	Lithology: Sand: VF	Lithology: Sand: F	Lithology: Sand: M	Lithology: Sand: C	Lithology: Sand: VC	Lithology: Gravel: Granule	Lithology: Gravel: Pebble	Lithology: Gravel: Cobble	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
	Not photographed	386											**Silty Clay** (41% Silt, 57.2%Clay). Greenish gray (5GY6/1). Clayey silt or very fine sand layers at 401 - 402 and 487-489 cm; shells scattered sparsely throughout.		424	0.9	1.8	98.3									Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2.** Glacial-Marine Mud with a significant ice rafting component. From 233 cm to the bottom of the core.
		400																									
		450																									
		500																									
		542																									
		550																									
		600											**Silty Clay**. Greenish gray (5GY6/1). Sand layers at 607 - 609; shells scattered sparsely throughout.															
		650																									
		691																									
													Silty Clay. Greenish gray (5GY6/1). Shell at 742 cm.															
		839																									

UNH-10

U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9433 Longitude: -70.5700



UNH-10

U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9433 Longitude: -70.5700

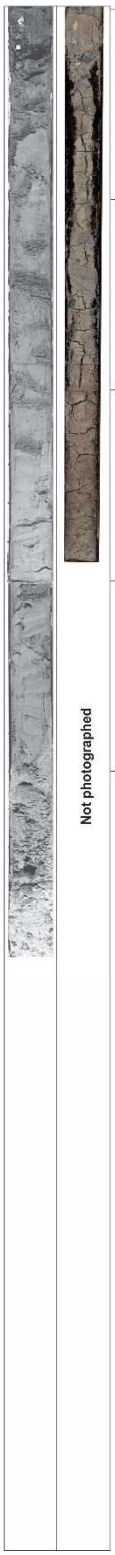
Not photographed

Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
400		Continue from Section 3. **Silty Clay** (38.3 Silt, 61% Clay). (5GY3/2).													Marine formed near the time of lowest post-glacial sea-level.	**Unit 3.** Late Pleistocene to Holocene Mud.
440																
450																
				466*	0.3	1.2	98.5									
500		New Core Section. **Silty Clay** (39.4% Silt, 59% Clay). Grayish olive green (5GY3/2); clay-rich laminae at ~455 cm, 460 cm and 535 cm.														
550																
590																
600																
				606*	0.0	0.7	99.3									
650		New Core Section. **Silty Clay** (42.8% Silt, 56.5% Clay). Grayish olive green (5GY3/2); shell fragments at ~630 cm and 660 cm.														
700																
740																

UNH-12

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.9833 Longitude: -70.6233



Not photographed

Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0		**Fine to Medium Sand**. Light olive gray (5Y5/2) to medium dark gray (N4). Fining downward to very fine sand; occasional rock fragments; shell fragments common to 13 cm; shell fragments fine downwards.													Sand mounds since the last post-glacial lowstand.	Redefined as: **Unit 4**.Holocene sand sheets and mounds. From top of the core to 33 cm depth.
33																
50		**Clayey Silt**. Dusky yellow green (5GY5/2). Numerous sand lenses and pods containing shell hash.														
100																
147															Glacial-marine deposit with a substantial ice-rafting component.	Redefined as: **Unit 2**.Glacial-Marine Mud with a significant ice rafting component. From 33 cm to 193 cm depth.
150		**Clayey Silt** (43% Silt, 39.3% Clay). Light olive gray (5Y5/2). With pods and lenses of fine to medium sand with many shell fragments.														
193															Lodgment till; prior 13,800 YBP while glaciers still covered the region.	Redefined as: **Unit 1.** Diamicton. From 193 cm to the bottom of
200																
244		**Fine to Medium Sand**. Grayish olive (10Y4/2). Numerous rock fragments up to 10 cm.														

No samples taken

NOTE:
Based on recent reassessment, BOEM Project 2016, seismic units were redefined for this core, as shown in the core description.

Birch, 1986 Interpreted the depositional environment as:

Sand mounds since the last post-glacial lowstand.

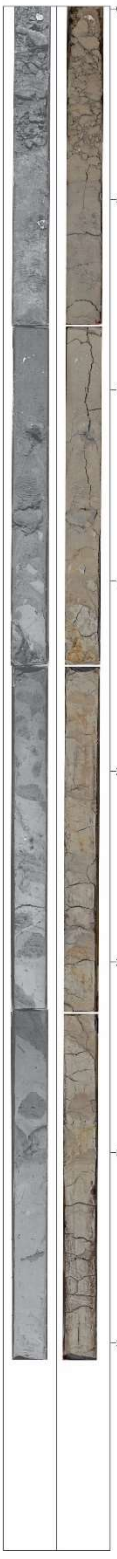
Birch, 1986 Interpreted the entire core as:

Unit 4
Holocene sand sheets and mounds.

UNH-13

U.S.G.S Field Activity #: 1984-016-FA

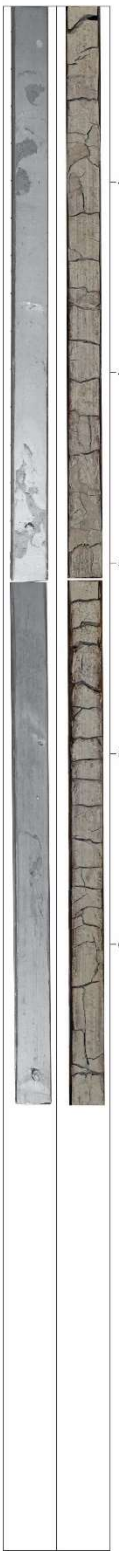
Latitude: 42.9850 Longitude: -70.6700



Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0															Sand mounds since the last post-glacial lowstand.	**Unit 4**. Holocene sand sheets and mounds. From the top of the core up to 158 cm.
83		**Fine Sand**. Dusky yellow green (5GY4/2). ~90% Quartz, sub-angular, massive with faint mottling through out; large shell fragments.		20	0.2	90.1	9.7									
				25						0.0	92.5	7.5	2.9	0.76		
				65						0.0	93.9	6.1	2.9	0.63		
93										0.0	91.0	9.0	2.9	0.95		
		New core section. **Fine Sand**. Dusky yellow green (5GY4/2). Numerous shell fragments; cm-scale clay lenses and compacted pods; rock fragments up to 3 cm.														
139										0.1	87.1	12.8	3.0	1.36		
158		**Clayey Silt or Silty Clay** . Dusky yellow green (5GY4/2). Distinct contact; very compact 10-cm clay or silt pod at base with iron staining.		161						0.0	20.7	79.3	7.4	3.61	Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2**. Glacial-Marine Mud with a significant ice rafting component. From 158 cm to the bottom of the core.
172																
				182						0.2	43.5	56.3	5.7	3.32		
		New Core Section. **Clayey Silt or Silty Clay**. Dusky yellow green (5GY4/2). Very compact zone at 208 cm; Fine sand pods or lenses irregularly spaced throughout core; decreasing in occurrence towards base of section; iron staining in compact zones.														
250				250	0.0	21.7	78.3									
262				252						0.6	11.4	88.0	8.0	3.47		
				286						1.1	75.7	23.2	3.7	2.25		
		New Core Section. **Clayey Silt or Silty Clay**. Dusky yellow green (5GY4/2). Fine sand lenses and pods at top and 284 cm.														
316										0.0	25.3	74.7	7.1	3.66		
350																
353																

UNH-13

U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9850 Longitude: -70.6700



Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	Gravel	Sand	Mud	Mean Phi	Sorting Phi	Gravel	Sand	Mud	Mean Phi	Sorting Phi	Depositional Environment	Seismic Unit
353															Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2**.Glacial-Marine Mud with a significant ice rafting component. From 158 cm to the bottom of the core.
400																
				413	0.0	8.2	91.8									
		New Core Section. **Clayey Silt or Silty Clay**. Dusky yellow green (5GY4/2). Fine sand lenses and pods at 400 cm, 410 cm, 490 cm, 505 cm. Shell fragment at 445 cm; compact clays with iron staining.		423						0.0	7.3	92.7	8.4	3.23		
450																
500																
503																
550																
		New Core Section. **Clayey Silt or Silty Clay**. Dusky yellow green (5GY4/2). Rock fragment (angular& basaltic) in sand lense with very fine to fine sand, shell fragment at 530 cm.		573						0.0	9.6	90.4	8.6	3.36		
600																
641																

UNH-14

U.S.G.S Field Activity #: 1984-016-FA

Latitude: 42.9283 Longitude: -70.7600

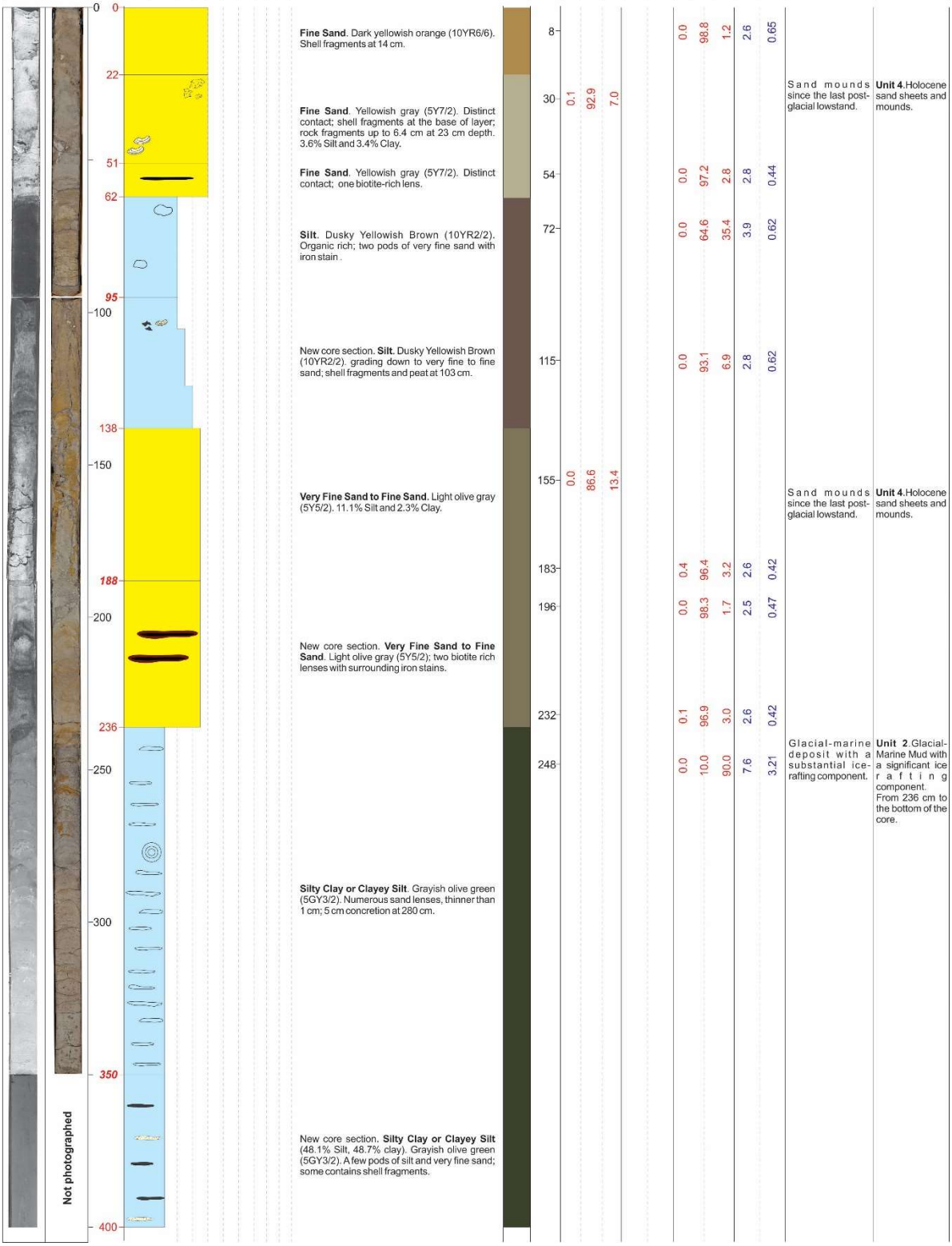


Photo (1984)	Photo (2019)	Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
		0		**Fine Sand**. Dark yellowish orange (10YR6/6). Shell fragments at 14 cm.		8						0.0	98.8	1.2	2.6	0.65		
		22		**Fine Sand**. Yellowish gray (5Y7/2). Distinct contact; shell fragments at the base of layer; rock fragments up to 6.4 cm at 23 cm depth. 3.6% Silt and 3.4% Clay.		30	0.1	92.9	7.0								Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds.
		51		**Fine Sand**. Yellowish gray (5Y7/2). Distinct contact; one biotite-rich lens.		54						0.0	97.2	2.8	2.8	0.44		
		62		**Silt**. Dusky Yellowish Brown (10YR2/2). Organic rich; two pods of very fine sand with iron stain .		72						0.0	64.6	35.4	3.9	0.62		
		95		New core section. **Silt.** Dusky Yellowish Brown (10YR2/2). grading down to very fine to fine sand; shell fragments and peat at 103 cm.		115						0.0	93.1	6.9	2.8	0.62		
		138		**Very Fine Sand to Fine Sand.** Light olive gray (5Y5/2). 11.1% Silt and 2.3% Clay.		155	0.0	86.6	13.4								Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds.
		188		New core section. **Very Fine Sand to Fine Sand**. Light olive gray (5Y5/2); two biotite rich lenses with surrounding iron stains.		183						0.4	96.4	3.2	2.6	0.42		
		200				196						0.0	98.3	1.7	2.5	0.47		
		236		**Silty Clay or Clayey Silt**. Grayish olive green (5GY3/2). Numerous sand lenses, thinner than 1 cm; 5 cm concretion at 280 cm.		232						0.1	96.9	3.0	2.6	0.42		
		250				248						0.0	10.0	90.0	7.6	3.21	Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2**.Glacial-Marine Mud with a significant ice rafting component. From 236 cm to the bottom of the core.
		300																
		350		New core section. **Silty Clay or Clayey Silt** (48.1% Silt, 48.7% clay). Grayish olive green (5GY3/2). A few pods of silt and very fine sand; some contains shell fragments.														
		400																

UNH-14

U.S.G.S Field Activity #: 1984-016-FA
Latitude: 42.9283 Longitude: -70.7600

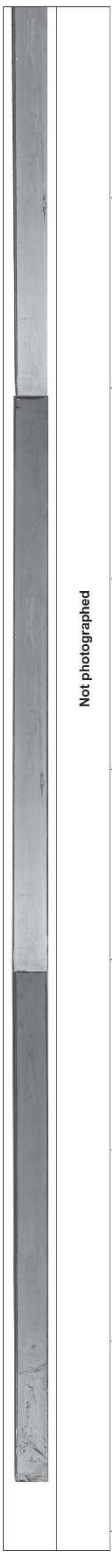


Photo (1984)	Photo (2019)	Depth (cm)	Lithology: Mud: Clay	Lithology: Mud: Silt	Lithology: Sand: VF	Lithology: Sand: F	Lithology: Sand: M	Lithology: Sand: C	Lithology: Sand: VC	Lithology: Gravel: Granule	Lithology: Gravel: Pebble	Lithology: Gravel: Cobble	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
		400																									
		450											Continue from section 3. **Silty Clay or Clayey Silt** (48.1% Silt, 48.7% clay). Grayish olive green (5GY3/2). A few pods of silt and very fine sand; some contains shell fragments.													
		500																									
		502																									
		550											New Core Section. **Silty Clay or Clayey Silt** (45.4% Silt, 52.9% clay). Grayish olive green (5GY3/2). Vertical streak of very fine sand from 555 cm to 592 cm.													
		600																									
		650																									
		653																									
		700																									
		750											New Core Section. **Silty Clay or Clayey Silt** (39.3% Silt, 54.9% clay). Grayish olive green (5GY3/2). Shell fragments at 660 cm; rock fragment at 660 cm (1.5 cm); few vertical sand streaks.													
		787																									
		800																									
															410	0.0	3.2	96.8								Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2**.Glacial-Marine Mud with a significant ice rafting component. From 236 cm to the bottom of the core.
															531	0.0	1.7	98.3									
															733	0.0	5.7	94.3									

Full Vibracore Logs from 1988 (A series)

A1

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9950 Longitude: -70.6433

AT1-88-A1

Section 1

Section 2

Depth (cm)	Lithology	DESCRIPTION	Color
0		**Medium to Coarse Sand.** Moderate brown (5YR4/4) to moderate yellow brown color; coarse sand (0.5-1 mm) in top 10 cm; poorly sorted; occasional shell fragments; 1 rock fragment, pebble (2.5 cm) at ~15 cm; coarsening upward; mainly quartz.	
40		**Medium to Very Coarse Sand.** Darker color than layer above; poorly sorted; shell fragments.	
50		**Medium Sand.** Light olive gray (5Y5/2); small amount of coarse sand; moderately to poorly sorted; mainly quartz.	
80		**Medium to Coarse Sand.** Light olive gray (5Y5/2); grain sizes range from 0.25 to 1.00 mm; shell fragments in upper part; mainly quartz.	
90		**Medium to Coarse Sand.** Light olive gray (5Y5/2); grain sizes range from 0.25 to 1 mm; sand dollar fragments at ~90 cm; mainly quartz.	
100		**Medium to Coarse Sand.** Light olive gray to olive gray (5Y5/2 to 5Y3/2); moderately to poorly sorted in upper part; poorly sorted lower part; shell fragments in upper part; sand dollar fragment at ~130 cm; mainly quartz.	
110			
132		New core section. **Medium to Coarse Sand.** Light olive gray to olive gray (5Y5/2 to 5Y3/2); shell fragments at base; sand dollar fragments mainly quartz with dark mineral grains; small amount of coarse sand.	
142			
150			
192		**Medium Sand.** Olive gray (5Y3/2); shell fragments common throughout; grains range from 0.25-0.5 mm; small amount of coarse sand (0.5 to1.0 mm).	
200		**Medium to Coarse Sand.** Olive gray (5Y3/2); poorly sorted quartz sand; shell fragments common; large clam shell at ~195 cm.	
212		**Medium to Coarse Sand.** Olive gray (5Y3/2); poorly sorted; shell fragments common; spiral shell fragments; sand dollar fragments.	
232			
250		**Medium to Coarse Sand.** Light olive gray (5Y5/2) to grayish olive (10Y4/2); poorly sorted; shell fragments common, few pebbles.	
285			

Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
5	3.0	97.0	1.0	1.0	0.54						Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds. From the top of the core to the bottom.
35						2.0	97.9	0.1	1.0	0.62		
70	1.0	98.0	1.0	1.3	0.47							
100						2.1	97.9	0.0	1.1	0.56		
162						1.8	97.8	0.4	1.1	0.53		
200	1.0	98.0	1.0	1.1	0.5							
247						11.2	88.6	0.2	0.6	1.08		

A1

U.S.G.S Field Activity #: 1988-017-FA
Latitude: 42.9950 Longitude: -70.6433

AT1-88-A1 Section 3

Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
285	Sand	New core section. **Medium to Very Coarse Sand.** Light olive gray to olive gray (5Y5/2 to 5Y3/2); very poorly sorted, grains range from 0.25-1 mm; few pebbles up to 5 mm in size; occasional shell fragments in lower half; clam shell fragments.		308	6.0	93.0	1.0	0.9	0.77	8.6	90.1	1.3	0.6	1.01	Sand mounds since the last post-glacial low-stand.	**Unit 4**.Holocene sand sheets and mounds. From the top of the core to the bottom.
300				310												
315		**Fine to Very Coarse Sand.** Slightly darker olive gray than layer above (5Y3/2); occasional pebbles up to 9 mm; shell fragments in lower part.														
350		**Fine Sand.** Light olive gray (5Y6/1); some coarse grains 1- 2 mm, poorly sorted; mica flakes up to 4 mm; coarse sand layer near bottom; contains woody stems.		365						3.3	89.9	6.8	1.5	1.51		
370		**Fine Sand.** Olive gray to medium light gray (5Y 4/1 to N6); moderate sorted towards top and moderate to well-sorted towards bottom, fine quartz sand ranging from 0.12-0.25 mm; mica content very high in places, some thin light and dark layers in basal part, mottled at base.		390	0.0	95.0	5.0	2.2	0.52							
400		**Fine to Very Fine Sand.** Olive gray to medium gray (5Y4/1 to N5); moderate sorted; thin dark layers between 415 to 420 cm; coarse to very coarse mica rich olive gray layer; at 420 cm; mottled below the mica layer; lower 10 cm shows some mud content; mud ball at base.		423						0.0	96.3	3.7	2.6	0.55		
439																

A2

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9867 Longitude: -70.6467

BOEM Bureau of Ocean Energy Management

USGS Core # AT1-88-A2

Section # Section 1 / Section 2 / Section 3

Photo (2016)

Depth (cm)

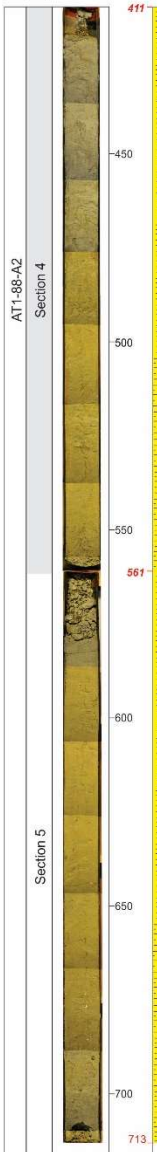
Lithology: Mud (Clay, Silt); Sand (VF, F, M, C, VC); Gravel (Granule, Pebble, Cobble)

Depth (cm)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0	**Medium to Coarse Sand.** Grayish orange (10YR7/4), moderate yellow brown to dark yellowish brown (10YR4/2) towards base; poorly sorted medium to coarse quartz sand with occasional pebbles (4-8 mm); some fine and very coarse sand also present.		5	1.0	98.0	1.0	1.4	0.48						Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds. From top of the bottom.
50			40						2.0	97.5	0.5	1.2	0.65		
50	**Fine to Coarse Sand.** Dark yellowish brown (10YR4/2); poorly sorted quartz sand, some very coarse sand; occasional pebbles (2-5 mm), occasional mica flecks; few shell fragments.		50	3.0	96.0	1.0	1.2	0.53							
100			78						0.5	99.2	0.3	1.2	0.62		
103															
150	New core section. **Medium to Coarse Sand.** Light olive gray (5Y5/2) to olive gray (5Y3/2); poorly sorted; occasional pebbles (~ 2 to 7 mm), very small shell fragments; mica flecks at 180 cm; some fine sand.		141						0.5	99.0	0.5	1.0	0.60		
188			170	1.0	98.0	1.0	1.3	0.53							
200															
250	**Fine to Coarse Sand.** Light olive gray (5Y5/2) to grayish olive (10Y4/2) in upper part and olive gray (5Y3/2) to dark gray (N3) in lower part; poorly sorted quartz sand; scattered mica flecks decreasing downward; occasional pebbles to 5 mm; occasional shell fragments.		223						0.5	99.0	0.5	1.2	0.69		
255															
300	New core section. **Fine to Coarse Sand.** Olive gray (5Y4/1) to dark gray in upper part, olive gray to olive black (5Y2/1) in lower part; medium to coarse grained towards top and fine to coarse grained towards base; poorly sorted quartz sand; shell fragments common; mica flecks up to 3 mm common throughout.		273						0.1	99.9	0.0	1.2	0.60		
310			310	0	92.0	8.0	2.6	0.61							
			313						0.3	92.9	6.8	2.6	0.86		
350	**Very Fine to Fine Sand.** Olive gray (5Y4/1) to olive black (5Y2/1); moderate to well sorted; organic matter with shell debris common, scattered mica flecks and biotite grains; fine grained towards base with some mud, one pebble at 340 cm.														
			383						0.2	90.7	9.1	3.1	0.67		
400			390	0	89.0	11.0	3.0	0.36							
411															

A2

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9867 Longitude: -70.6467

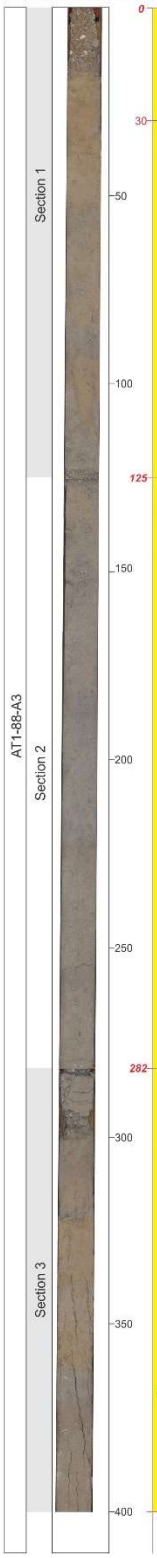


USGS Core #	Section #	Photo (2016)	Depth (cm)	Lithology: Mud (Clay, Silt) / Sand (VF, F, M, C, VC) / Gravel (Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
AT1-88-A2	Section 4		411		New core section. **Very Fine to Fine Sand, with Mud.** Light olive gray (5Y6/1) to olive gray (5Y4/1); moderately well sorted, dark patches in upper 40 cm , moderately stained, dark thin line may be mud or peat at ~520 cm, shell fragments common.		439						0.0	89.5	10.5	3.3	0.62	Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds. From top of the bottom.
			450																
			500				500	0	76.0	24.0	3.2	0.34							
			519				519						0.0	85.5	14.5	3.4	0.59		
	Section 5		550																
			561																
			600		**New core section. Very Fine to Fine Sand, with Mud.** Olive gray (5Y4/1) to olive black (5Y2/1) in lower part; moderately well sorted; shell fragments, mica flecks with few biotite flecks common throughout.		599						0.5	68.8	30.7	3.7	1.34		
			650																
			669				669						0.2	64.5	35.3	3.7	1.10		
			700				700	3.0	35.0	62.0	3.0	0.78							
			713																

A3

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9833 Longitude: -70.6600



USGS Core #	Section #	Photo (2019)	Depth (cm)	Lithology (Mud: Clay, Silt; Sand: VF, F, M, C, VC; Gravel: Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
AT1-88-A3	Section 1		0–30	Sand	**Fine sand**. Light olive gray (5Y6/1) to yellowish gray (5Y7/2) at top; olive gray (5Y4/1) to medium dark gray (N4) in lower part; poorly sorted; common mica flecks; common shell fragments.		5	0.0	99.0	1.0	1.7	0.72						Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds. From top of the core to the bottom.
							20						0.0	97.6	2.4	2.4	0.57		
			30–125	Sand	**Very Fine to Fine Sand**. Largely light olive gray (5Y6/1) to olive gray (5Y4/1); moderately poorly sorted; common mica flecks; common shell fragments.		100						0.0	97.7	2.3	2.4	0.55		
	Section 2		125–282	Sand	New core section. **Very Fine Sand**. Light olive gray (5Y6/1) to olive gray (5Y4/1); poorly sorted quartz sand; occasional pebbles (1.5 -1.7 cm) from 125 to 155 cm; common shell fragments; rare mica flecks; wood or peat in basal part		120	0.0	98.0	2.0	2.5	0.48								
							145						0.0	97.5	2.5	2.5	0.55		
							225	0.0	97.0	3.0	2.4	0.57							
							265						0.0	98.2	1.8	2.5	0.58		
	Section 3		282–400	Sand	New core section. **Very Fine to Fine sand**. Light olive gray (5Y6/1) to olive gray (5Y4/1); moderate to well sorted, common shell fragments; mica flecks; poorly sorted, finer with higher mud content in lower part.		302						0.0	93.5	6.5	2.8	0.69		
							370	0.0	85.0	15.0	2.7	0.58							

A3

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9833 Longitude: -70.6600

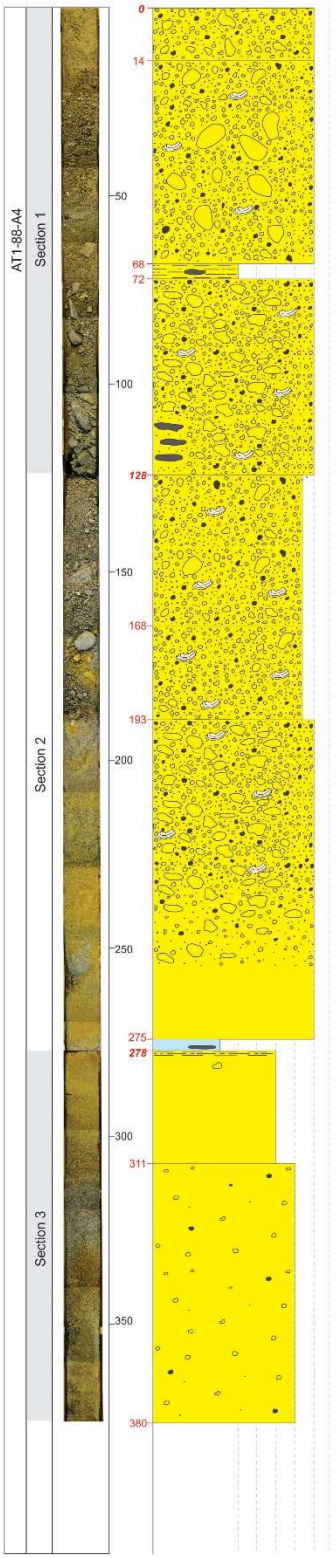
BOEM Bureau of Ocean Energy Management

USGS Core #	Section #	Photo (2019)	Depth (cm)	Lithology: Mud (Clay, Silt); Sand (VF, F, M, C, VC); Gravel (Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	Whole Sample GSM (%): Gravel	Whole Sample GSM (%): Sand	Whole Sample GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
	Section 3		400		Continuation of section 3. **Very Fine to Fine sand**. light olive gray (5Y6/1) to olive gray (5Y4/1); moderate to well sorted, common shell fragments; mica flecks; poorly sorted, finer with higher mud content in lower part.		422						0.0	86.7	13.3	3.3	1.04	Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds. From top of the core to the bottom.
			434																
			450																
	Section 4		464				464						0.1	70.0	31.9	3.8	1.30		
			500		New core section. **Very fine sand**. Olive gray (5Y3/2) to medium dark gray (N4); mostly moderately well sorted; common shell fragments, mica flecks; small bits of wood or peat; becoming muddier with depth.														
			550																
			564				564	0.0	51.0	49.0	3.2	0.55	0.1	64.9	35.0	3.8	1.38		
			581				570												

A4

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 43.0067 Longitude: -70.6717

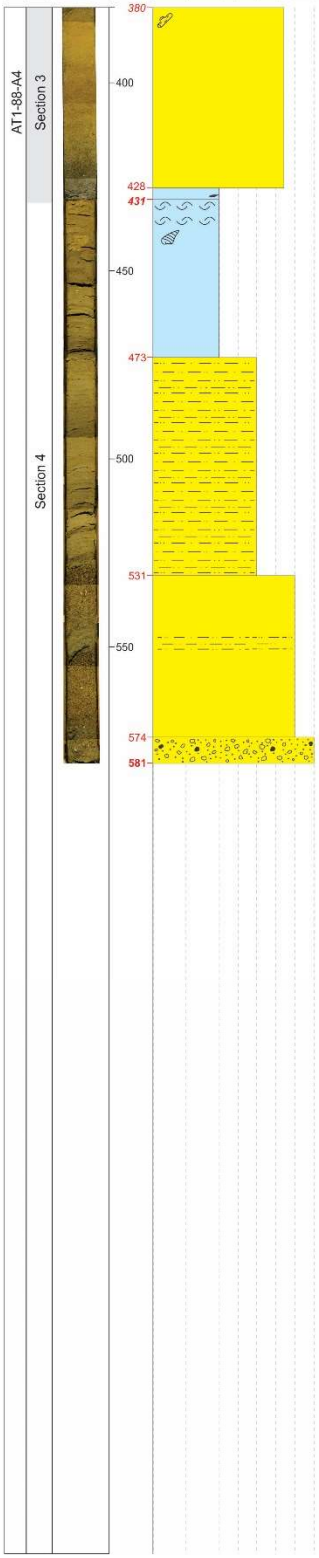


USGS Core #	Section #	Photo (2016)	Depth (cm)	Lithology (Mud: Clay, Silt; Sand: VF, F, M, C, VC; Gravel: Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
AT1-88-A4	Section 1		0		**Fine to Very Coarse Sand - Gravelly.** Light olive gray (5Y6/1) to olive black (5Y2/1); poorly sorted; scattered pebbles (up to 1 cm) in upper half; pebbles and cobbles (4.3 cm) in lower half; large cobble at surface (8 cm).		8						22.1	74.3	3.6	0.3	1.68	Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds. From top of the core to the bottom.
			14																
			50		**Medium to Very Coarse Sand - Gravelly.** Olive gray (5Y4/1) to light olive gray (5Y6/1); very-poorly sorted; pebbles and cobbles (6.5 cm); dropstones (up to 9.5 cm) at 30 - 40 cm, occasional shell fragments.		30	28.0	70.0	2.0	0.7	0.79	45.1	53.8	1.1	-0.9	1.70		
			68																
			72		**Very Fine Sand and Mud** Olive gray (5Y4/1); mud lense.														
			100		**Medium to Very Coarse Sand - Gravel.** Olive gray (5Y4/1) to light olive gray (5Y6/1); very poorly sorted; coarse to very coarse grains with fine sand matrix along; very common pebbles and cobbles to ~4 cm; shell fragments; mud lense from ~110 to 125 cm.		90						66.0	32.3	1.7	-2.0	2.39		
			128																
	Section 2		150		New core section. **Very Coarse Sand.** Olive gray (5Y4/1) to light olive gray (5Y6/1); very poorly sorted; pebbles and cobbles common (2-8 cm); shell fragments common.		143						48.8	48.1	3.1	-1.1	2.31		
			168		**Coarse to Very Coarse Sand - Gravelly.** Olive black (5Y2/1) to medium dark gray (N4); very poorly sorted; scattered shell fragments; common pebbles (up to 3.5 cm); some cobbles; mud lense with fine sand at base with sharp contact.														
			193																
			200				213						3.3	91.5	5.2	1.2	1.27		
							220	6.0	91.0	3.0	1.2	0.97							
			250		**Very Coarse Sand - Gravelly.** Olive black (5Y2/1) to medium dark gray (N4); very poorly sorted; scattered shell fragments; common pebbles (up to 3.5 cm); some cobbles; mud lense with fine sand at base with sharp contact.		248						4.7	91.1	4.2	1.0	1.09		
			275																
			278		**Mud.** Olive gray (5Y4/1); mud lense at the base.														
			300		New core section. **Medium Sand.** Olive gray (5Y4/1); top 1cm olive black (5Y2/1); upper 1 cm has muddy sand; poorly sorted; 1 pebble (2 cm).		288						0.4	90.7	8.9	1.9	1.29		
			311																
	Section 3		350		**Coarse Sand.** Olive gray (5Y4/1); scattered small pebbles.		326						7.7	89.5	2.8	1.0	1.13		
							350	2.0	96.0	2.0	1.2	0.7							
			380				358						1.0	96.0	3.0	1.4	0.69		

A4

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 43.0067 Longitude: -70.6717



USGS Core #	Section #	Photo (2016)	Depth (cm)	Lithology: Mud (Clay, Silt); Sand (VF, F, M, C, VC); Gravel (Granule, Pebble, Cobble)	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
AT1-88-A4	Section 3		380		**Continuation of section 3. Medium to Coarse Sand**. Olive gray (5Y4/1); one wood fragment; mud lense at ~430 cm (~4 cm thick) to end of section.		408						0.1	95.6	4.3	1.6	0.70	Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds. From top of the core to the bottom.
			428																
			431		**Mud**. Mud lense with sand pods inside one.														
			450		New core section. **Mud**. Olive gray (5Y4/1) to olive black (5Y2/1); shell hash in upper part; occasional organic (dark) spots; gastropod at~440 cm.		444						0.0	16.0	84.0	6.1	2.85		
			473				470	0.0	17.0	83.0	3.0	0.76							
	Section 4		500		**Fine Sand with Mud.** Olive gray (5Y4/1); common mica flecks, muddy lense in bottom part; sharp unconformity at base.		491						0.0	40.1	59.9	4.8	2.25		
			531				536						1.1	97.7	1.2	1.0	0.68		
			550		**Coarse Sand.** Medium dark gray (N4) to dark gray (N3); gradational contact with muddy lense (2.5 cm thick) at ~550 cm depth; coarse sand below lense.														
			574		**Very Coarse Sand - Gravelly.** Grayish Black (N2); very coarse to gravelly sand; common pebbles		575						33.6	62.5	3.9	-0.7	2.41		
			581																

A5

U.S.G.S Field Activity #: 1988-017-FA

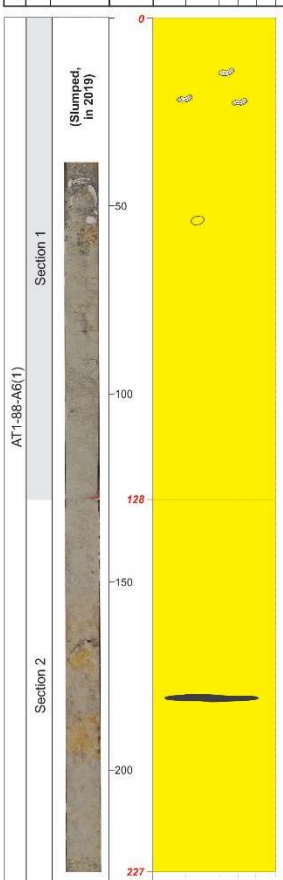
Latitude: 43.0033 Longitude: -70.6667

USGS Core #	Section #	Photo (2019)	Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
AT1-88-A5	Section 1		0–111	Mud: Clay, Silt; Sand: VF, F, M, C, VC; Gravel: Granule, Pebble, Cobble	**Coarse to Very Coarse Sand Matrix with Pebbles and Cobbles - Gravel**. Upper 40 cm dark yellowish brown (10YR 4/2), medium dark gray (N4) to dark gray (N3) in lower part; pebbles and cobbles common (up to 60 mm); gravels compose ~50% of sample.		20						58.9	38.0	3.1	-1.6	2.33	Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds. From top of the core to the bottom.
							50	39.0	56.0	5.0	0.6	0.9							
							80						66.6	30.6	2.8	-2.1	2.10		
	Section 2		111–152		New core section. **Very Coarse Sand**. Medium gray (N5) to medium dark gray (N4); very coarse sand with pebbles (up to 50 mm).		121						71.3	26.4	2.3	-2.8	2.24		
			152–161		**Granule - Gravelly**. Medium gray (N5) to medium dark gray (N4); pebbles (up to 40 mm) common; sharp contact with underlying mud.		163						32.9			-0.2			
			161–211		**Mud**. Olive gray (5Y4/1) to olive black (5Y2/1); top 5 cm sandy mud.		171						0.0	61.7	38.3	3.7	2.86		
							200	0.0	33.0	67.0	2.9	0.88							
							205						1.0	33.9	65.1	4.5	1.98		
	Section 3		211–231		New core section. **Muddy Sand or Sandy Mud**. Olive gray (5Y4/1); organic spot, large shell fragments.		221						0.0	42.8	57.2	4.6	2.43		
			231–336		**Fine to Coarse Sand**. Medium gray (N5) to medium dark gray (N4); some coarse sand in lower part; coarsening downwards.		271						1.8	93.0	5.2	1.7	1.14		
							300	2.0	90.0	8.0	1.8	1.03							
							331						6.0	88.7	5.3	1.6	1.34		

A6(1)

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9317 Longitude: -70.7633



USGS Core #	Section #	Photo (2019)	Depth (cm)	Lithology: Mud: Clay	Lithology: Mud: Silt	Lithology: Sand: VF	Lithology: Sand: F	Lithology: Sand: M	Lithology: Sand: C	Lithology: Sand: VC	Lithology: Gravel: Granule	Lithology: Gravel: Pebble	Lithology: Gravel: Cobble	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
AT-1-88-A6(1)	Section 1	(Stumped, in 2019)	0																								Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds.
			50											**Medium Sand.** Light olive gray (5Y6/1); well sorted; shell fragments at 20 to 40 cm; one pebble at 55 cm depth; clean sand.		30	0.0	97.0	3.0	2.4	0.91							
																58						22.4	76.8	0.8	0.4	2.19		
			100													90	0.0	99.0	1.0	2.2	0.41							
			128													110						0.0	99.4	0.6	2.2	0.48		
	Section 2		150											New core section. **Medium Sand.** Light olive gray (5Y6/1); well sorted; black organic rich lense at ~179 cm depth.		148												
																150	<1.0	99.0	<1.0	2.5	0.4	0.0	99.3	0.7	2.5	0.43		
			200													198						0.0	99.3	0.7	2.5	0.40		
			227													210	0.0	99.0	1.0	2.5	0.35							

A6(2)

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9317 Longitude: -70.7633

BOEM Bureau of Ocean Energy Management

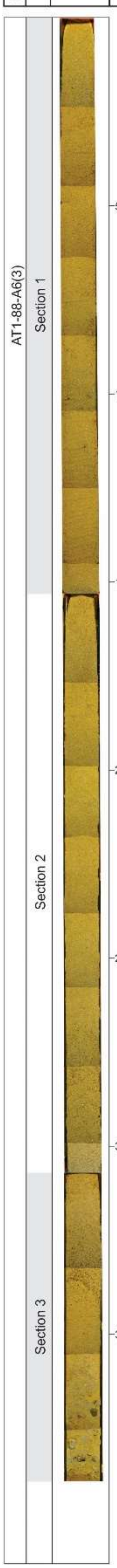
AT1-88-A6(2) Section 1

Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0		**Fine to Medium Sand.** Light olive gray (5Y6/1); well sorted; occasional shell fragments; clean sand.		10	3.0	95.0	2.0	2.3	0.93	0.9	97.2	1.9	2.2	1.11	Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds.
22																
		Fine to Medium Sand. Olive gray (5Y4/1); poorly sorted; occasional shell fragments.		30	0.0	93.0	7.0	2.6	0.89	0.8	93.1	6.1	2.7	1.14		
45				32												
50				48						0.0	99.6	0.4	1.9	0.42		
		Fine to Medium Sand. Olive gray (5Y4/1); well sorted; occasional shell fragments at 45 to 50 cm.		60	0.0	99.0	1.0	1.9	0.3							
80																
100																
		Fine Sand. Light olive gray (5Y6/1); poorly sorted; mottled.														
				140	0.0	99.0	1.0	2.7	0.26							
150				148						0.0	99.4	0.6	2.6	0.39		
162																

A6(3)

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9317 Longitude: -70.7633

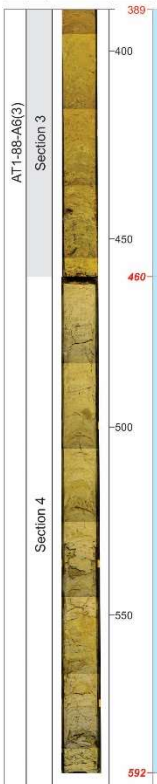


USGS Core #	Section #	Photo (2016)	Depth (cm)	Lithology: Mud: Clay, Silt; Sand: VF, F, M, C, VC; Gravel: Granule, Pebble, Cobble	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
AT1-88-A6(3)	Section 1		0–153	Mud: Clay, Silt; Sand: VF, F, M, C, VC; Gravel: Granule, Pebble, Cobble	**Medium Sand.** Dark yellowish orange (10YR6/6); well sorted; medium with some coarse sand; very homogeneous; organic debris at ~150 cm (speck).		30	0.0	99.0	1.0	1.7	0.39	0.0	99.9	0.1	1.6	0.40	Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds. From top of the core to 389 cm.
							120	0.0	99.0	1.0	1.8	0.46	0.0	99.8	0.2	1.8	0.45		
							123												
	Section 2				New core section. **Medium Sand.** Dark yellowish orange (10YR 6/6); almost coarse sand; some bedding between ~260 to 290 cm.		183						0.0	99.8	0.2	1.9	0.41		
							220	0.0	99.0	1.0	2.0	0.42							
							281						0.1	99.4	0.5	1.7	0.71		
	Section 3		307–389		New core section. **Medium Sand.** Light olive gray (5Y6/1); upper 25 cm medium sand; well sorted; coarse sand lense at ~340 cm; pebbles (up to 4 cm) in lower part, sharp lower contact with mud.		337						1.0	97.9	1.1	1.4	0.87		
							350	<1.0	99.0	<1.0	1.7	0.57							

A6(3)

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9317 Longitude: -70.7633



USGS Core #	Section #	Photo (2016)	Depth (cm)	Lithology: Mud: Clay	Lithology: Mud: Silt	Lithology: Sand: VF	Lithology: Sand: F	Lithology: Sand: M	Lithology: Sand: C	Lithology: Sand: VC	Lithology: Gravel: Granule	Lithology: Gravel: Pebble	Lithology: Gravel: Cobble	DESCRIPTION	Color	Sample Depth (cm)	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Sand Fraction Only: Mean Phi	Sand Fraction Only: Sorting Phi	GSM (%): Gravel	GSM (%): Sand	GSM (%): Mud	Whole Sample: Mean Phi	Whole Sample: Sorting Phi	Depositional Environment	Seismic Unit
AT1-88-A6(3)	Section 3		389											**Continuation of section 3. Mud.** Light olive gray (5Y6/1) to olive gray (5Y4/1); light brown (10YR6/4) near top.		417						2.6	20.9	76.5	5.6	2.62	Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2.** Glacial-Marine Mud with a significant ice rafting component. From 389 cm to the bottom of the core.
			400																									
			450													470	0.0	4.0	96.0									
			460													485						0.1	11.2	88.7	8.0	3.26		
	Section 4		500											**Mud.** Light olive gray (5Y6/1) to olive gray (5Y4/1); common very fine sand pods; shell fragments at 535 cm.																
			550													560						0.0	24.5	75.5	6.2	3.06		
			592													580	0.0	2.0	98.0									

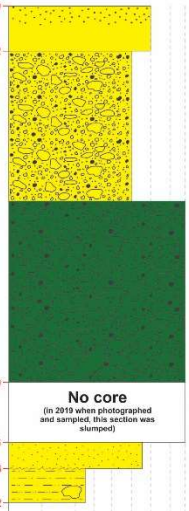
A7(1)

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9483 Longitude: -70.7533

AT1-88-A7(1)

Section 1



Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	Whole Sample GSM (%) Gravel	Whole Sample GSM (%) Sand	Whole Sample GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0–12	Mud / Sand	**Medium to Coarse Sand.** Light olive gray (5Y6/1); upper 8 cm coarse grained and poorly sorted, lower medium sand and moderately sorted.		10	3.0	92.0	5.0	1.7	1.10	3.4	91.7	4.9	1.6	1.38	Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds.
				30	9.0	83.0	8.0	1.7	1.05							
50–100	Gravel	**Gravel.** Olive gray (5Y4/1) in upper part, dark yellowish brown (10YR4/2) in middle and lower part; poorly sorted; fine to medium sand matrix in upper 40 cm; gravel matrix below; pebbles and cobbles up to 7 cm.		64						84.8	10.0	5.2	-3.0	2.05		
100–116	No core (in 2019 when photographed and sampled, this section was slumped)															
116–123	Mud / Sand	**Medium to Coarse Sand.** Dark yellowish brown (10YR4/2); sharp contact with layer below.		120						45.5	40.5	14.0	0.0	3.13		
123–132	Mud / Sand	**Mud and Very Fine Sand.** Olive gray (5Y6/1); poorly sorted; cobble (7 cm).														

A7(2)

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42. 9483 Longitude: -70.7533

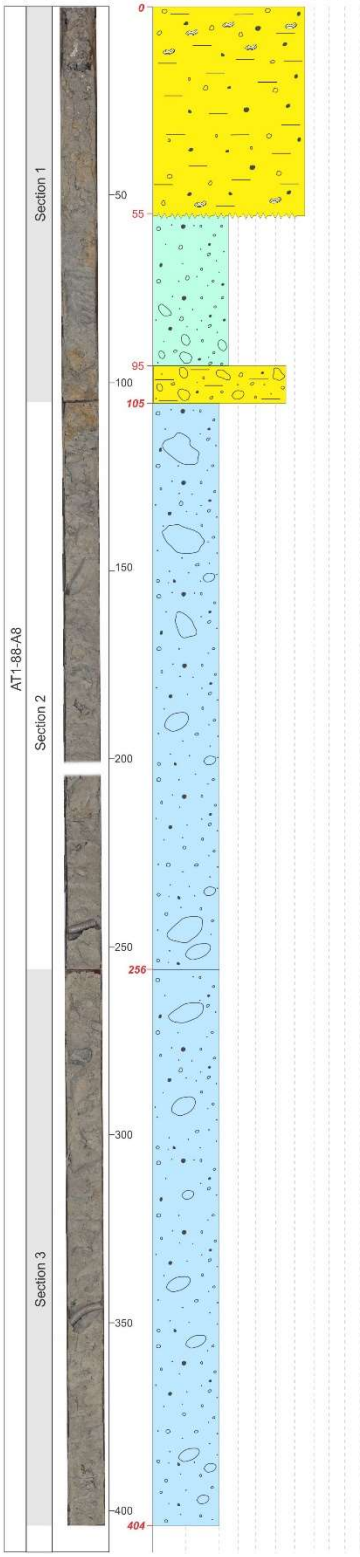
USGS Core #	Section #	Photo (2019)	Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
AT1-88-A7(2)	Section 1		0	No core (in 2019 when photographed and sampled, this section was slumped instead of missing)															
			26		**Medium to Coarse Sand.** Olive black (5Y2/1); poorly sorted.		28	2.0	93.0	5.0	0.9	0.98	4.2	92.7	3.1	0.8	1.26	Sand mounds since the last post-glacial lowstand.	**Unit 4**.Holocene sand sheets and mounds.
			45				30												
			49		**Coarse Sand and Granule.** Light olive gray (5Y6/1); pocket of coarse sediments with pebbles; large shell fragments.		52						68.4	29.5	2.1	-2.5	2.79		
			50																
					Coarse Sand to Very Coarse. Olive black (5Y2/1) at top to light olive gray (5Y6/1) at base; some granule and pebbles (up to 3.5 cm); mud pod at ~75 cm.		90	27.0	71.0	2.0	0.6	0.95	21.2	77.8	1.0	0.2	1.61		
			100																
			112		New Core Section. **Gravel.** Olive gray (5Y4/1); poorly sorted; sharp lower contact; coarse sand and gravel; pebbles common; sharp contact with underlying unit.		134						69.6	28.2	2.2	-2.0	2.79		
Section 2			150																
			153		**Medium to Coarse Sand.** Light olive gray (5Y6/1) to olive gray (5Y4/1); poorly sorted; pebbles and cobbles common (up to 8 cm).		160						34.6	47.4	18.0	0.7	3.41		
			180																
					Fine to Medium Sand. Light olive gray (5Y6/1); poorly sorted; occasional pebbles (up to 5 cm).		195	16.0	72.0	12.0	2.0	1.18							
			200																
			205																

A8

U.S.G.S Field Activity #: 1988-017-FA

Latitude: 42.9417 Longitude: -70.7517

AT1-88-A8



Depth (cm)	Lithology	DESCRIPTION	Color	Sample Depth (cm)	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Sand Fraction Only Mean Phi	Sand Fraction Only Sorting Phi	GSM (%) Gravel	GSM (%) Sand	GSM (%) Mud	Whole Sample Mean Phi	Whole Sample Sorting Phi	Depositional Environment	Seismic Unit
0–55	Gravel (Granule, Pebble, Cobble)	**Coarse to Very Coarse Sand.** Light olive gray (5Y6/1) to olive gray (5Y4/1); poorly sorted; shell fragments in upper 12 cm and in basal part; common pebbles (mostly less than 1 cm, one 4 cm cobble); sharp contact with underlying muds.		20	16.0	72.0	12.0	1.2	1.1	40.8	55.5	3.7	-0.7	2.35	Sand mounds since the last post-glacial lowstand.	**Unit 4.** Holocene sand sheets and mounds. From top of the core to the bottom.
				30												
55–95	Sand (Granule, Pebble, Cobble)	**Sandy Mud.** Light olive gray (5Y6/1); poorly sorted; sandy mud or muddy sand with granules, pebbles, and cobbles (to 5 cm).		60	6.0	49.0	45.0	1.9	1.34							
				88						33.0	35.3	31.7	1.4	4.85		
95–105	Sand (Granule, Pebble, Cobble)	**Medium to Coarse Sand.** Light olive gray (5Y6/1); poorly sorted; with granules, pebbles, and cobbles (to 5 cm).														
105–256	Mud (Clay, Silt)	New core section. **Mud to Fine Sand.** Light olive gray (5Y6/1); moderately sorted; pebbles (up to 5 cm) and cobbles (up to 12 cm) very common.		119						17.3	47.6	35.1	2.8	4.16	Glacial-marine deposit with a substantial ice-rafting component.	**Unit 2.** Glacial-Marine Mud with a significant ice rafting component. From 389 cm to the bottom of the core.
				175	14.0	45.0	41.0	1.9	1.37							
				202						34.2	30.3	35.5	1.7	5.17		
256–404	Mud (Clay, Silt)	**Mud to Fine Sand.** Light olive gray (5Y6/1) to olive gray (5Y4/1); moderately sorted; pebbles (up to 50 cm) and cobbles (up to 8 cm) common.		282						34.6	37.9	27.5	1.1	4.64		
				384						27.4	32.3	40.3	2.0	5.06		
				395	8.0	46.0	46.0	1.9	1.35							

Appendix B: Complete Grain Size Data for Vibracore Sediment Samples

Each vibracore collected on the New Hampshire continental shelf in 1984 and 1988 was subsampled in 2016 and 2019 during this study. In total, 162 sediment samples were taken from the archived cores and grain size analysis conducted. This appendix provides complete descriptions for each sample including identification (UNH and BOEM numbering), core characteristics, sample characteristics, sediment classifications, grain size statistics, and grain size distribution. The methods used for extracting the samples and grain size analyses are given in this report in the Methods section. The sediment grain size classifications used here include: CMECS (Coastal and Marine Ecological Classification Standard; FGDC, 2012); Gradistat (Blot and Pye, 2001); and Wentworth (Wentworth, 1922; described in Folk, 1954, 1980). Statistics are based on the phi scale and include the graphic mean, sorting, skewness, and kurtosis (Folk, 1980). Grain size data for the vibracores are grouped with the results for two to four vibracores presented in each section. This was done to simplify the appendix. Data for each sample is spread across four pages, with each sample identified in the first column by the University of New Hampshire label. The results of the grain size analyses for the vibracores collected in 1984 (UNH series) are presented in Sections 1 through 4 and the results for the vibracores collected in 1988 (A series) are in Sections 5 through 8.

The vibracore sediment data can also be downloaded at Ward et al. (2021c): https://dx.doi.org/10.34051/d/2021.4).

Section 1: Vibracores UNH-1, UNH-2, and UNH-3

Vibracores UNH-1, UNH-2, and UNH-3: Identification, Location, and Description

UNH Sample ID	Global Core Link ID	BOEM Global Sample ID	Latitude NAD83	Longitude NAD83	Position Uncertainty	Water Depth (m)	Diameter (cm)	Core Length (m)	Vibracore Collected	Sample Depth (cm)	Total Wt (gm)	Munsell Hue	Munsell Value	Munsell Chroma
UNH-1_0-1cm	ATTW84-UNH-1	ATTW84-UNH-1_0-1cm_D19841011	42.9717	-70.4567	250m	57.0	8.9	3.42	10/11/1984	0-1	49.53	5Y	5	2
UNH-1_8-10cm	ATTW84-UNH-1	ATTW84-UNH-1_8-10cm_D19841011	42.9717	-70.4567	250m	57.0	8.9	3.42	10/11/1984	8-10	77.79	5GY	6	1
UNH-1_88-90cm	ATTW84-UNH-1	ATTW84-UNH-1_88-90cm_D19841011	42.9717	-70.4567	250m	57.0	8.9	3.42	10/11/1984	88-90	19.42	5GY	3	2
UNH-1_141-143cm	ATTW84-UNH-1	ATTW84-UNH-1_141-143cm_D19841011	42.9717	-70.4567	250m	57.0	8.9	3.42	10/11/1984	141-143	41.51	5GY	3	2
UNH-1_156-158cm	ATTW84-UNH-1	ATTW84-UNH-1_156-158cm_D19841011	42.9717	-70.4567	250m	57.0	8.9	3.42	10/11/1984	156-158	43.77	5GY	3	2
UNH-1_178-180cm	ATTW84-UNH-1	ATTW84-UNH-1_178-180cm_D19841011	42.9717	-70.4567	250m	57.0	8.9	3.42	10/11/1984	178-180	36.30	5GY	3	2
UNH-1_292-294cm	ATTW84-UNH-1	ATTW84-UNH-1_292-294cm_D19841011	42.9717	-70.4567	250m	57.0	8.9	3.42	10/11/1984	292-294	3.36	5GY	3	2
UNH-2_33-35cm	ATTW84-UNH-2	ATTW84-UNH-2_33-35cm_D19841011	42.9067	-70.4433	250m	76.0	8.9	1.56	10/11/1984	33-35	59.12	5GY	5	2
UNH-2_143-145cm	ATTW84-UNH-2	ATTW84-UNH-2_143-145cm_D19841011	42.9067	-70.4433	250m	76.0	8.9	1.56	10/11/1984	143-145	52.04	10Y	4	2
UNH-3_23-25cm	ATTW84-UNH-3	ATTW84-UNH-3_23-25cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	23-25	51.95	10Y	5	4
UNH-3_71-73cm	ATTW84-UNH-3	ATTW84-UNH-3_71-73cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	71-73	40.52	10Y	5	4
UNH-3_135-137cm	ATTW84-UNH-3	ATTW84-UNH-3_135-137cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	135-137	50.58	10Y	5	4
UNH-3_225-227cm	ATTW84-UNH-3	ATTW84-UNH-3_225-227cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	225-227	52.42	10Y	5	4
UNH-3_278-281cm	ATTW84-UNH-3	ATTW84-UNH-3_278-281cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	278-281	52.87	10Y	5	4
UNH-3_324-326cm	ATTW84-UNH-3	ATTW84-UNH-3_324-326cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	324-326	34.46	10Y	5	4
UNH-3_384-386cm	ATTW84-UNH-3	ATTW84-UNH-3_384-386cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	384-386	40.49	10Y	5	4
UNH-3_428-430cm	ATTW84-UNH-3	ATTW84-UNH-3_428-430cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	428-430	50.60	10Y	5	4
UNH-3_478-480cm	ATTW84-UNH-3	ATTW84-UNH-3_478-480cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	478-480	44.65	5Y	5	2
UNH-3_538-540cm	ATTW84-UNH-3	ATTW84-UNH-3_538-540cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	538-540	37.35	5Y	3	2
UNH-3_592-594cm	ATTW84-UNH-3	ATTW84-UNH-3_592-594cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	592-594	81.13	5Y	5	2
UNH-3_664-666cm	ATTW84-UNH-3	ATTW84-UNH-3_664-666cm_D19841011	42.8850	-70.5083	250m	57.0	8.9	7.09	10/11/1984	664-666	31.22	5Y	5	6

Vibracores UNH-1, UNH-2, and UNH-3: Sediment Classifications

UNH Sample ID	CMECS Substrate Component Group (Specific)	CMECS Substrate Component Subgroup (Specific)	Textural Group from %GSM (Gradistat)	Textural Group from %SZC (Gradistat) Ignores Gravel	Sediment Name from %GSM and Mode (Gradistat)	Sediment Name from %GSM and Mode (Wentworth Scale)	Sediment Classification from Mean Phi (Gradistat)	Sediment Classification from Mean Phi (Wentworth)	Sorting (Gradistat)
UNH-1_0-1cm	Slightly Granuley	Slightly Granuley Silty-Clayey Medium Sand	Slightly Gravelly Muddy Sand	Muddy Sand	Slightly Very Fine Gravelly Muddy Medium Sand	Slightly Granular Muddy Medium Sand	Medium Sand	Medium Sand	Very Poorly Sorted
UNH-1_8-10cm	Slightly Granuley	Slightly Granuley Silty-Clayey Fine Sand	Slightly Gravelly Muddy Sand	Muddy Sand	Slightly Very Fine Gravelly Muddy Fine Sand	Slightly Granular Muddy Fine Sand	Very Coarse Silt	Very Coarse Silt	Very Poorly Sorted
UNH-1_88-90cm	Slightly Granuley	Slightly Granuley Silty-Clayey Fine Sand	Slightly Gravelly Muddy Sand	Muddy Sand	Slightly Very Fine Gravelly Muddy Fine Sand	Slightly Granular Muddy Fine Sand	Coarse Silt	Coarse Silt	Very Poorly Sorted
UNH-1_141-143cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt-Clay	Slightly Gravelly Sandy Mud	Sandy Mud	Slightly Very Fine Gravelly Very Fine Sandy Mud	Slightly Granular Very Fine Sandy Mud	Coarse Silt	Coarse Silt	Extremely Poorly Sorted
UNH-1_156-158cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt-Clay	Slightly Gravelly Sandy Mud	Sandy Mud	Slightly Very Fine Gravelly Very Fine Sandy Mud	Slightly Granular Very Fine Sandy Mud	Fine Silt	Fine Silt	Very Poorly Sorted
UNH-1_178-180cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt-Clay	Slightly Gravelly Sandy Mud	Sandy Mud	Slightly Very Fine Gravelly Very Fine Sandy Mud	Slightly Granular Very Fine Sandy Mud	Fine Silt	Fine Silt	Very Poorly Sorted
UNH-1_292-294cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt-Clay	Slightly Gravelly Sandy Mud	Sandy Mud	Slightly Very Fine Gravelly Very Fine Sandy Mud	Slightly Granular Very Fine Sandy Mud	Fine Silt	Fine Silt	Very Poorly Sorted
UNH-2_33-35cm	Granuley	Granuley Silt-Clay	Gravelly Mud	Sandy Silt	Very Fine Gravelly Coarse Silt	Granular Coarse Silt	Very Coarse Silt	Very Coarse Silt	Extremely Poorly Sorted
UNH-2_143-145cm	Slightly Granuley	Slightly Granuley Silty Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Very Poorly Sorted
UNH-3_23-25cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Poorly Sorted
UNH-3_71-73cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Poorly Sorted
UNH-3_135-137cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Sorted
UNH-3_225-227cm	Granuley	Granuley Coarse Sand	Gravelly Sand	Sand	Very Fine Gravelly Coarse Sand	Granular Coarse Sand	Coarse Sand	Coarse Sand	Poorly Sorted
UNH-3_278-281cm	Pebbly	Pebbly Medium Sand	Gravelly Sand	Sand	Medium Gravelly Medium Sand	Pebbly Medium Sand	Medium Sand	Medium Sand	Poorly Sorted
UNH-3_324-326cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-3_384-386cm	Granuley	Granuley Coarse Sand	Gravelly Sand	Sand	Very Fine Gravelly Coarse Sand	Granular Coarse Sand	Coarse Sand	Coarse Sand	Poorly Sorted
UNH-3_428-430cm	Slightly Pebbly	Slightly Pebbly Medium Sand	Slightly Gravelly Sand	Sand	Slightly Fine Gravelly Medium Sand	Slightly Pebbly Medium Sand	Medium Sand	Medium Sand	Moderately Sorted
UNH-3_478-480cm	Slightly Pebbly	Slightly Pebbly Silty Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Medium Gravelly Very Coarse Silty Fine Sand	Slightly Pebbly Very Coarse Silty Fine Sand	Fine Sand	Fine Sand	Poorly Sorted
UNH-3_538-540cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt	Slightly Gravelly Sandy Mud	Sandy Silt	Slightly Very Fine Gravelly Very Fine Sandy Very Coarse Silt	Slightly Granular Very Fine Sandy Very Coarse Silt	Very Coarse Silt	Very Coarse Silt	Moderately Sorted
UNH-3_592-594cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt	Slightly Gravelly Sandy Mud	Sandy Silt	Slightly Very Fine Gravelly Very Fine Sandy Very Coarse Silt	Slightly Granular Very Fine Sandy Very Coarse Silt	Coarse Silt	Coarse Silt	Very Poorly Sorted
UNH-3_664-666cm	Sandy Mud	Very Fine Sandy Silt	Sandy Mud	Sandy Silt	Very Fine Sandy Very Coarse Silt	Very Fine Sandy Very Coarse Silt	Coarse Silt	Coarse Silt	Very Poorly Sorted

Vibracores UNH-1, UNH-2, and UNH-3: Grain Size Statistics

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Modes	Mode 1 (phi)	Mode 2 (phi)	Mode 3 (phi)	D_{10} (phi)	D_{10} (mm)	D_{50} (phi)	D_{50} (mm)	Mean Size (phi)	Mean Size (mm)	Sorting (phi)	Skewness	Kurtosis
UNH-1_0-1cm	3.65	1.56	2.09	83.67	12.68	6.67	6.01	U	1.75	NA	NA	-0.17	1.12	1.87	0.27	1.90	0.27	2.25	0.24	1.99
UNH-1_8-10cm	1.81	0.32	1.49	53.71	44.48	21.96	22.52	U	2.74	NA	NA	1.07	0.48	3.57	0.08	4.98	0.03	3.94	0.49	0.97
UNH-1_88-90cm	1.15	0.00	1.15	50.54	48.31	24.23	24.08	U	2.74	NA	NA	1.43	0.37	3.87	0.07	5.24	0.03	3.85	0.49	0.92
UNH-1_141-143cm	0.74	0.00	0.74	40.83	58.43	27.22	31.21	U	3.24	NA	NA	1.49	0.36	4.79	0.04	5.92	0.02	4.10	0.36	0.79
UNH-1_156-158cm	0.97	0.68	0.30	27.02	72.01	33.04	38.97	U	3.73	NA	NA	2.45	0.18	6.31	0.01	7.01	0.01	3.91	0.22	0.74
UNH-1_178-180cm	0.80	0.00	0.80	18.42	80.78	36.39	44.39	U	4.50	NA	NA	3.00	0.12	7.27	0.01	7.63	0.01	3.82	0.09	0.76
UNH-1_292-294cm	0.48	0.00	0.48	25.47	74.05	33.67	40.38	U	3.73	NA	NA	2.53	0.17	6.53	0.01	7.07	0.01	3.83	0.18	0.78
UNH-2_33-35cm	5.83	2.77	3.06	44.93	49.24	29.09	20.15	B	2.74	5.51	NA	0.10	0.93	3.92	0.07	4.62	0.04	4.05	0.25	1.09
UNH-2_143-145cm	4.33	1.78	2.55	48.57	47.10	39.10	8.00	U	4.50	NA	NA	0.33	0.80	3.81	0.07	3.80	0.07	2.87	0.05	1.24
UNH-3_23-25cm	2.32	0.39	1.93	96.22	1.46	NA	NA	U	1.75	NA	NA	0.08	0.95	1.56	0.34	1.48	0.36	1.06	-0.10	1.03
UNH-3_71-73cm	2.60	0.66	1.94	96.89	0.51	NA	NA	U	1.75	NA	NA	-0.20	1.15	1.39	0.38	1.27	0.42	1.04	-0.18	1.10
UNH-3_135-137cm	3.62	0.30	3.32	96.29	0.09	NA	NA	U	1.75	NA	NA	-0.29	1.22	1.30	0.41	1.16	0.45	0.98	-0.25	1.09
UNH-3_225-227cm	11.97	5.80	6.18	85.47	2.56	NA	NA	U	0.75	NA	NA	-1.28	2.43	0.70	0.61	0.65	0.64	1.50	-0.06	1.21
UNH-3_278-281cm	5.30	4.03	1.27	93.57	1.13	NA	NA	U	1.75	NA	NA	0.13	0.91	1.86	0.28	1.73	0.30	1.13	-0.30	1.58
UNH-3_324-326cm	0.00	0.00	0.00	98.19	1.81	NA	NA	U	2.74	NA	NA	1.96	0.26	2.57	0.17	2.57	0.17	0.54	0.05	1.11
UNH-3_384-386cm	20.87	11.46	9.41	79.13	0.00	NA	NA	B	0.75	-3.24	NA	-2.24	4.73	0.50	0.70	0.18	0.89	1.56	-0.35	1.10
UNH-3_428-430cm	2.96	1.83	1.13	96.64	0.40	NA	NA	U	1.25	NA	NA	0.02	0.99	1.25	0.42	1.18	0.44	0.89	-0.11	1.21
UNH-3_478-480cm	3.95	3.67	0.28	85.78	10.27	10.25	0.02	B	2.24	-3.24	NA	1.23	0.43	2.53	0.17	2.59	0.17	1.18	0.01	1.45
UNH-3_538-540cm	0.20	0.00	0.20	37.72	62.08	61.21	0.87	U	4.50	NA	NA	2.86	0.14	4.22	0.05	4.11	0.06	0.90	-0.16	1.20
UNH-3_592-594cm	0.02	0.00	0.02	42.31	57.67	42.51	15.16	U	3.73	NA	NA	2.84	0.14	4.29	0.05	5.05	0.03	2.58	0.56	1.71
UNH-3_664-666cm	0.00	0.00	0.00	17.97	82.03	68.14	13.89	U	4.50	NA	NA	3.68	0.08	4.62	0.04	5.30	0.03	2.11	0.66	2.32

Vibracores UNH-1, UNH-2, and UNH-3: Grain Size Distribution

UNH Sample ID	Class % phi -3.5	Class % phi -3.0	Class % phi -2.5	Class % phi -2.0	Class % phi -1.5	Class % phi -1.0	Class % phi -0.5	Class % phi 0.0	Class % phi 0.5	Class % phi 1.0	Class % phi 1.5	Class % phi 2.0	Class % phi 2.5	Class % phi 3.0	Class % phi 3.5	Class % phi 4.0	Class % phi > 4.0	Class % phi 5.0	Class % phi 6.0	Class % phi 7.0	Class % phi 8.0	Class % phi 9.0	Class % phi 10.0	Class % phi > 10.0
UNH-1_0-1cm	0.00	0.00	0.73	0.83	0.64	1.45	3.35	4.54	6.50	8.47	12.07	15.22	11.59	11.84	6.65	3.44	NA	2.67	1.53	1.29	1.17	1.14	1.10	3.77
UNH-1_8-10cm	0.00	0.00	0.00	0.32	0.82	0.67	1.00	1.19	1.93	3.29	5.52	8.29	7.93	9.77	7.96	6.82	NA	9.55	4.43	4.06	3.93	3.77	3.41	15.34
UNH-1_88-90cm	0.00	0.00	0.00	0.00	0.24	0.91	0.45	0.69	1.33	2.39	4.61	7.77	7.65	9.86	8.43	7.37	NA	9.61	5.59	4.94	4.09	4.22	3.86	15.99
UNH-1_141-143cm	0.00	0.00	0.00	0.00	0.12	0.62	0.70	0.84	1.44	2.34	3.95	5.84	5.05	6.60	6.90	7.18	NA	10.76	5.78	5.68	5.00	5.13	5.05	21.03
UNH-1_156-158cm	0.00	0.00	0.68	0.00	0.10	0.20	0.19	0.32	0.57	0.95	1.61	2.76	2.77	4.72	6.08	7.06	NA	12.28	7.71	6.55	6.50	6.60	5.63	26.73
UNH-1_178-180cm	0.00	0.00	0.00	0.00	0.74	0.06	0.32	0.28	0.49	0.78	1.30	1.86	1.56	2.58	3.72	5.51	NA	12.51	8.03	8.15	7.70	7.23	6.63	30.54
UNH-1_292-294cm	0.00	0.00	0.00	0.00	0.00	0.48	0.16	0.77	0.50	0.88	1.55	2.49	2.70	4.24	5.16	7.04	NA	12.22	8.19	6.85	6.41	7.45	7.60	25.33
UNH-2_33-35cm	0.00	0.00	0.89	1.87	1.74	1.31	1.59	2.02	2.71	3.63	4.49	5.95	5.80	7.40	5.95	5.39	NA	8.18	8.36	7.47	5.07	4.42	3.12	12.60
UNH-2_143-145cm	0.00	0.00	0.94	0.84	0.97	1.58	1.84	1.98	2.80	3.55	4.42	5.58	5.43	7.47	7.34	8.15	NA	16.93	11.36	6.84	3.97	2.27	1.44	4.30
UNH-3_23-25cm	0.00	0.00	0.00	0.39	0.78	1.14	1.74	4.45	9.04	13.51	16.32	21.41	15.08	9.78	3.49	1.39	1.46	NA	NA	NA	NA	NA	NA	NA
UNH-3_71-73cm	0.00	0.00	0.00	0.66	0.43	1.51	3.84	6.12	9.13	13.12	19.26	23.92	12.87	5.91	1.87	0.86	0.51	NA	NA	NA	NA	NA	NA	NA
UNH-3_135-137cm	0.00	0.00	0.00	0.29	1.25	2.08	4.02	5.74	9.54	14.62	20.33	25.37	11.25	3.96	0.98	0.48	0.09	NA	NA	NA	NA	NA	NA	NA
UNH-3_225-227cm	0.00	1.69	1.81	2.30	2.76	3.41	7.91	10.14	13.63	15.31	14.00	11.27	5.68	4.12	2.01	1.40	2.56	NA	NA	NA	NA	NA	NA	NA
UNH-3_278-281cm	0.00	2.47	1.11	0.45	0.62	0.64	1.67	2.05	3.66	6.82	12.40	25.35	23.63	12.96	3.63	1.41	1.13	NA	NA	NA	NA	NA	NA	NA
UNH-3_324-326cm	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.04	0.13	0.71	9.89	32.46	38.87	11.96	4.10	1.81	NA	NA	NA	NA	NA	NA	NA
UNH-3_384-386cm	0.00	6.32	2.20	2.93	5.02	4.39	6.51	9.07	13.19	16.85	16.04	11.83	3.44	1.46	0.46	0.26	0.00	NA	NA	NA	NA	NA	NA	NA
UNH-3_428-430cm	0.00	0.00	1.51	0.33	0.56	0.57	2.02	4.66	9.61	17.29	26.90	22.63	7.24	3.57	1.71	1.01	0.40	NA	NA	NA	NA	NA	NA	NA
UNH-3_478-480cm	0.00	3.67	0.00	0.00	0.00	0.28	0.42	0.40	0.92	2.08	4.85	14.12	20.82	22.77	11.32	8.09	NA	8.96	0.77	0.28	0.24	0.02	0.00	0.00
UNH-3_538-540cm	0.00	0.00	0.00	0.00	0.14	0.06	0.06	0.17	0.31	0.56	0.72	0.99	2.22	6.60	8.27	17.83	NA	52.95	6.64	1.19	0.43	0.07	0.33	0.47
UNH-3_592-594cm	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.02	0.02	0.07	1.52	3.45	6.98	12.34	17.88	NA	26.27	8.50	4.79	2.95	2.85	2.71	9.61
UNH-3_664-666cm	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.22	0.13	0.10	0.07	0.08	0.15	0.66	3.04	13.35	NA	52.03	8.73	4.04	3.35	2.95	2.34	8.60

Section 2: Vibracores UNH-4 and UNH-5

Vibracores UNH-4 and UNH-5: Identification, Location, and Description

UNH Sample ID	Global Core Link ID	BOEM Global Sample ID	Latitude NAD83	Longitude NAD83	Position Uncertainty	Water Depth (m)	Diameter (cm)	Core Length (m)	Vibracore Collected	Sample Depth (cm)	Total Wt (gm)	Munsell Hue	Munsell Value	Munsell Chroma
UNH-4_0-4cm	ATTW84-UNH-4	ATTW84-UNH-4_0-4cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	0-4	59.85	10YR	5	4
UNH-4_10-12cm	ATTW84-UNH-4	ATTW84-UNH-4_10-12cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	10-12	55.32	10YR	5	4
UNH-4_40-42cm	ATTW84-UNH-4	ATTW84-UNH-4_40-42cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	40-42	98.84	N7	NA	NA
UNH-4_68-70cm	ATTW84-UNH-4	ATTW84-UNH-4_68-70cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	68-70	42.54	N7	NA	NA
UNH-4_98-100cm	ATTW84-UNH-4	ATTW84-UNH-4_98-100cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	98-100	79.01	10Y	4	2
UNH-4_143-145cm	ATTW84-UNH-4	ATTW84-UNH-4_143-145cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	143-145	52.56	10Y	4	2
UNH-4_192-194cm	ATTW84-UNH-4	ATTW84-UNH-4_192-194cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	192-194	48.88	10Y	4	2
UNH-4_242-244cm	ATTW84-UNH-4	ATTW84-UNH-4_242-244cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	242-244	56.08	10Y	4	2
UNH-4_267-269cm	ATTW84-UNH-4	ATTW84-UNH-4_267-269cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	267-269	48.75	10Y	4	2
UNH-4_317-319cm	ATTW84-UNH-4	ATTW84-UNH-4_317-319cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	317-319	56.02	10Y	4	2
UNH-4_376-378cm	ATTW84-UNH-4	ATTW84-UNH-4_376-378cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	376-378	55.78	10Y	4	2
UNH-4_466-468cm	ATTW84-UNH-4	ATTW84-UNH-4_466-468cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	466-468	78.44	10Y	4	2
UNH-4_527-529cm	ATTW84-UNH-4	ATTW84-UNH-4_527-529cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	527-529	88.70	N3	NA	NA
UNH-4_587-589cm	ATTW84-UNH-4	ATTW84-UNH-4_587-589cm_D19841011	42.9800	-70.6550	250m	25.0	8.9	6.46	10/11/1984	587-589	33.61	N3	NA	NA
UNH-5_331-333cm	ATTW84-UNH-5	ATTW84-UNH-5_331-333cm_D19841011	42.9750	-70.6333	250m	22.0	8.9	7.13	10/11/1984	331-333	74.94	N5	NA	NA
UNH-5_405-407cm	ATTW84-UNH-5	ATTW84-UNH-5_405-407cm_D19841011	42.9750	-70.6333	250m	22.0	8.9	7.13	10/11/1984	405-407	36.48	5YR	4	1
UNH-5_446-448cm	ATTW84-UNH-5	ATTW84-UNH-5_446-448cm_D19841011	42.9750	-70.6333	250m	22.0	8.9	7.13	10/11/1984	446-448	51.65	N3	NA	NA
UNH-5_556-558cm	ATTW84-UNH-5	ATTW84-UNH-5_556-558cm_D19841011	42.9750	-70.6333	250m	22.0	8.9	7.13	10/11/1984	556-558	60.48	N3	NA	NA
UNH-5_588-590cm	ATTW84-UNH-5	ATTW84-UNH-5_588-590cm_D19841011	42.9750	-70.6333	250m	22.0	8.9	7.13	10/11/1984	588-590	33.51	5Y	6	1
UNH-5_700-702cm	ATTW84-UNH-5	ATTW84-UNH-5_700-702cm_D19841011	42.9750	-70.6333	250m	22.0	8.9	7.13	10/11/1984	700-702	56.18	5Y	6	1

Vibracores UNH-4 and UNH-5: Sediment Classifications

UNH Sample ID	CMECS Substrate Component Group (Specific)	CMECS Substrate Component Subgroup (Specific)	Textural Group from %GSM (Gradistat)	Textural Group from %SZC (Gradistat) Ignores Gravel	Sediment Name from %GSM and Mode (Gradistat)	Sediment Name from %GSM and Mode (Wentworth Scale)	Sediment Classification from Mean Phi (Gradistat)	Sediment Classification from Mean Phi (Wentworth)	Sorting (Gradistat)
UNH-4_0-4cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Sorted
UNH-4_10-12cm	Slightly Granuley	Slightly Granuley Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Granular Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-4_40-42cm	Slightly Granuley	Slightly Granuley Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Granular Fine Sand	Fine Sand	Fine Sand	Well Sorted
UNH-4_68-70cm	Sand	Fine Sand	Sand	Sand	Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Well Sorted
UNH-4_98-100cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-4_143-145cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-4_192-194cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted
UNH-4_242-244cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted
UNH-4_267-269cm	Slightly Granuley	Slightly Granuley Silty Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted
UNH-4_317-319cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted
UNH-4_376-378cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted
UNH-4_466-468cm	Slightly Granuley	Slightly Granuley Silty Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Very Coarse Silt	Very Coarse Silt	Poorly Sorted
UNH-4_527-529cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt	Slightly Gravelly Sandy Mud	Sandy Silt	Slightly Medium Gravelly Very Fine Sandy Very Coarse Silt	Slightly Granular Very Fine Sandy Very Coarse Silt	Very Coarse Silt	Very Coarse Silt	Poorly Sorted
UNH-4_587-589cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt-Clay	Slightly Gravelly Sandy Mud	Sandy Mud	Slightly Very Fine Gravelly Very Fine Sandy Mud	Slightly Granular Very Fine Sandy Mud	Medium Silt	Medium Silt	Very Poorly Sorted
UNH-5_331-333cm	Granuley	Granuley Very Fine Sand	Gravelly Sand	Sand	Very Fine Gravelly Very Fine Sand	Granular Very Fine Sand	Medium Sand	Medium Sand	Very Poorly Sorted
UNH-5_405-407cm	Pebbly	Pebbly Silty Very Fine Sand	Gravelly Muddy Sand	Silty Sand	Fine Gravelly Very Coarse Silty Very Fine Sand	Pebbly Very Coarse Silty Very Fine Sand	Fine Sand	Fine Sand	Very Poorly Sorted
UNH-5_446-448cm	Pebbly	Pebbly Silty Very Fine Sand	Gravelly Muddy Sand	Silty Sand	Medium Gravelly Very Coarse Silty Very Fine Sand	Pebbly Very Coarse Silty Very Fine Sand	Fine Sand	Fine Sand	Very Poorly Sorted
UNH-5_556-558cm	Pebbly	Pebbly Silty Very Fine Sand	Gravelly Muddy Sand	Silty Sand	Medium Gravelly Very Coarse Silty Very Fine Sand	Pebbly Very Coarse Silty Very Fine Sand	Fine Sand	Fine Sand	Very Poorly Sorted
UNH-5_588-590cm	Pebbly	Pebbly Silty Very Fine Sand	Gravelly Muddy Sand	Silty Sand	Medium Gravelly Very Coarse Silty Very Fine Sand	Pebbly Very Coarse Silty Very Fine Sand	Medium Sand	Medium Sand	Very Poorly Sorted
UNH-5_700-702cm	Pebbly	Pebbly Silty Fine Sand	Gravelly Muddy Sand	Silty Sand	Fine Gravelly Very Coarse Silty Fine Sand	Pebbly Very Coarse Silty Fine Sand	Very Fine Sand	Very Fine Sand	Very Poorly Sorted

Vibracores UNH-4 and UNH-5: Grain Size Statistics

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Modes	Mode 1 (phi)	Mode 2 (phi)	Mode 3 (phi)	D_{10} (phi)	D_{10} (mm)	D_{50} (phi)	D_{50} (mm)	Mean Size (phi)	Mean Size (mm)	Sorting (phi)	Skewness	Kurtosis
UNH-4_0-4cm	0.30	0.00	0.30	99.70	0.00	NA	NA	U	1.75	NA	NA	0.41	0.75	1.68	0.31	1.57	0.34	0.83	-0.18	0.92
UNH-4_10-12cm	0.02	0.00	0.02	99.94	0.04	NA	NA	U	2.24	NA	NA	1.54	0.34	2.26	0.21	2.24	0.21	0.56	-0.14	1.14
UNH-4_40-42cm	0.05	0.01	0.05	99.95	0.00	NA	NA	U	2.24	NA	NA	1.82	0.28	2.43	0.19	2.44	0.18	0.45	0.02	1.00
UNH-4_68-70cm	0.00	0.00	0.00	98.39	1.61	NA	NA	U	2.74	NA	NA	1.98	0.25	2.56	0.17	2.53	0.17	0.48	-0.04	1.09
UNH-4_98-100cm	0.00	0.00	0.00	96.48	3.52	NA	NA	U	2.74	NA	NA	1.82	0.28	2.56	0.17	2.52	0.17	0.55	-0.02	1.20
UNH-4_143-145cm	0.00	0.00	0.00	92.00	8.00	6.22	1.78	U	2.74	NA	NA	2.38	0.19	2.89	0.13	2.95	0.13	0.63	0.31	1.60
UNH-4_192-194cm	0.00	0.00	0.00	75.37	24.63	19.33	5.30	U	3.24	NA	NA	2.56	0.17	3.31	0.10	3.62	0.08	1.44	0.56	2.18
UNH-4_242-244cm	0.00	0.00	0.00	73.42	26.58	22.82	3.76	U	3.24	NA	NA	2.59	0.17	3.37	0.10	3.59	0.08	1.15	0.46	1.57
UNH-4_267-269cm	0.05	0.00	0.05	69.10	30.85	26.33	4.52	U	3.24	NA	NA	2.64	0.16	3.47	0.09	3.70	0.08	1.29	0.48	1.63
UNH-4_317-319cm	0.00	0.00	0.00	67.78	32.22	26.39	5.83	U	3.24	NA	NA	2.61	0.16	3.47	0.09	3.72	0.08	1.51	0.52	1.85
UNH-4_376-378cm	0.00	0.00	0.00	58.44	41.56	36.60	4.96	U	3.73	NA	NA	2.87	0.14	3.81	0.07	3.94	0.07	1.28	0.39	1.64
UNH-4_466-468cm	0.01	0.01	0.00	52.75	47.24	41.83	5.41	U	3.73	NA	NA	3.00	0.12	3.93	0.07	4.04	0.06	1.36	0.38	1.75
UNH-4_527-529cm	0.48	0.42	0.06	30.37	69.15	62.42	6.73	U	4.50	NA	NA	3.38	0.10	4.42	0.05	4.56	0.04	1.52	0.40	2.37
UNH-4_587-589cm	0.06	0.01	0.06	34.45	65.49	33.25	32.24	U	3.24	NA	NA	2.79	0.14	5.25	0.03	6.41	0.01	3.54	0.46	0.76
UNH-5_331-333cm	14.23	8.59	5.64	77.79	7.98	5.45	2.53	B	3.24	-3.24	NA	-1.79	3.45	2.57	0.17	1.81	0.29	2.25	-0.45	1.30
UNH-5_405-407cm	9.19	4.94	4.26	67.48	23.33	17.74	5.59	B	3.24	-2.74	NA	-0.83	1.78	2.77	0.15	2.58	0.17	2.73	-0.02	1.61
UNH-5_446-448cm	7.79	5.55	2.24	70.11	22.10	16.73	5.37	B	3.24	-3.24	NA	-0.52	1.43	2.72	0.15	2.61	0.16	2.64	-0.01	1.72
UNH-5_556-558cm	7.17	4.62	2.54	73.02	19.81	16.06	3.75	B	2.74	-3.24	NA	-0.27	1.21	2.78	0.15	2.60	0.16	2.29	-0.10	1.71
UNH-5_588-590cm	22.53	18.96	3.56	49.93	27.54	21.77	5.77	B	3.24	-3.74	NA	-3.64	12.42	2.63	0.16	1.49	0.36	3.98	-0.22	1.12
UNH-5_700-702cm	7.64	4.18	3.46	61.91	30.45	21.56	8.89	B	2.74	-2.24	NA	-0.54	2.83	2.83	0.14	3.04	0.12	3.23	0.18	1.45

Vibracores UNH-4 and UNH-5: Grain Size Distribution

UNH Sample ID	Class % phi -3.5	Class % phi -3.0	Class % phi -2.5	Class % phi -2.0	Class % phi -1.5	Class % phi -1.0	Class % phi -0.5	Class % phi 0.0	Class % phi 0.5	Class % phi 1.0	Class % phi 1.5	Class % phi 2.0	Class % phi 2.5	Class % phi 3.0	Class % phi 3.5	Class % phi 4.0	Class % phi > 4.0	Class % phi 5.0	Class % phi 6.0	Class % phi 7.0	Class % phi 8.0	Class % phi 9.0	Class % phi 10.0	Class % phi > 10.0
UNH-4_0-4cm	0.00	0.00	0.00	0.00	0.16	0.13	0.30	1.88	9.01	14.33	13.91	27.93	21.34	9.71	1.09	0.20	0.00	NA	NA	NA	NA	NA	NA	NA
UNH-4_10-12cm	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.32	1.51	2.45	3.71	20.16	39.93	27.22	3.95	0.63	0.04	NA	NA	NA	NA	NA	NA	NA
UNH-4_40-42cm	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01	0.03	0.12	1.02	13.56	39.18	38.71	5.94	1.39	0.00	NA	NA	NA	NA	NA	NA	NA
UNH-4_68-70cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.79	9.46	32.78	44.34	8.67	2.24	1.61	NA	NA	NA	NA	NA	NA	NA
UNH-4_98-100cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.35	1.99	11.80	29.28	41.90	8.94	2.13	3.52	NA	NA	NA	NA	NA	NA	NA
UNH-4_143-145cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.11	0.30	1.55	9.96	47.83	25.54	6.65	NA	4.09	1.01	0.59	0.53	0.25	0.28	1.26
UNH-4_192-194cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.08	0.21	0.76	4.78	25.25	28.98	15.25	NA	9.97	5.71	2.16	1.49	1.14	0.98	3.18
UNH-4_242-244cm	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.05	0.09	0.20	0.68	3.79	22.63	28.54	17.37	NA	16.06	3.67	2.15	0.95	1.01	0.50	2.26
UNH-4_267-269cm	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.02	0.05	0.09	0.19	0.63	3.03	19.25	26.93	18.89	NA	18.06	4.64	2.35	1.28	0.77	0.86	2.89
UNH-4_317-319cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.07	0.17	0.69	3.77	20.62	24.83	17.59	NA	17.72	4.95	3.32	0.40	0.92	0.93	3.98
UNH-4_376-378cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.05	0.12	0.38	1.40	10.64	21.94	23.87	NA	27.65	5.39	2.11	1.45	0.71	0.87	3.38
UNH-4_466-468cm	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.06	0.08	0.12	0.33	0.93	8.30	19.75	23.14	NA	30.96	6.80	2.50	1.57	0.79	0.95	3.67
UNH-4_527-529cm	0.00	0.42	0.00	0.00	0.00	0.06	0.07	0.13	0.10	0.11	0.18	0.37	0.69	2.19	7.03	19.50	NA	45.63	11.36	3.87	1.56	0.96	1.14	4.63
UNH-4_587-589cm	0.00	0.00	0.00	0.00	0.00	0.06	0.07	0.15	0.21	0.24	0.34	0.86	2.62	8.95	10.38	10.63	NA	13.85	6.89	6.99	5.52	5.86	5.94	20.44
UNH-5_331-333cm	0.00	3.91	2.99	1.68	3.42	2.22	2.60	2.83	3.23	3.92	5.13	7.57	7.81	15.32	20.77	8.60	NA	2.82	0.97	0.65	1.01	1.02	1.11	0.39
UNH-5_405-407cm	0.00	0.00	3.64	1.29	2.13	2.13	2.46	2.67	3.57	4.55	6.16	8.26	7.44	9.97	11.32	11.08	NA	10.22	4.02	2.26	1.23	0.92	1.00	3.67
UNH-5_446-448cm	0.00	3.39	0.55	1.61	0.62	1.63	2.35	2.86	3.33	4.50	6.16	8.80	8.51	12.07	12.24	9.31	NA	9.28	3.76	2.24	1.45	1.14	0.93	3.30
UNH-5_556-558cm	0.00	2.88	0.00	1.74	1.26	1.28	1.66	2.69	3.54	4.00	4.61	7.06	9.46	16.74	13.65	9.60	NA	9.23	3.75	1.85	1.22	0.95	0.70	2.10
UNH-5_588-590cm	14.11	4.34	0.00	0.51	2.13	1.43	1.73	2.09	2.24	2.71	3.86	5.83	6.20	9.32	8.51	7.43	NA	10.91	5.83	3.33	1.70	1.21	1.13	3.43
UNH-5_700-702cm	0.00	0.00	1.31	2.86	1.57	1.89	2.62	2.79	4.03	4.92	6.10	7.71	7.34	10.07	8.76	7.58	NA	8.39	6.48	4.21	2.47	1.86	1.53	5.50

Section 3: Vibracores UNH-6, UNH-6A and UNH-9

Vibracores UNH-6, UNH-6a, and UNH-9: Identification, Location, and Description

UNH Sample ID	Global Core Link ID	BOEM Global Sample ID	Latitude NAD83	Longitude NAD83	Position Uncertainty	Water Depth (m)	Diameter (cm)	Core Length (m)	Vibracore Collected	Sample Depth (cm)	Total Wt (gm)	Munsell Hue	Munsell Value	Munsell Chroma
UNH-6_16-18cm	ATTW84-UNH-6	ATTW84-UNH-6_16-18cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.50	10/11/1984	16-18	57.06	5Y	5	2
UNH-6_96-98cm	ATTW84-UNH-6	ATTW84-UNH-6_96-98cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.50	10/11/1984	96-98	49.61	5Y	5	2
UNH-6_124-126cm	ATTW84-UNH-6	ATTW84-UNH-6_124-126cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.50	10/11/1984	124-126	42.88	10Y	4	2
UNH-6_152-154cm	ATTW84-UNH-6	ATTW84-UNH-6_152-154cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.50	10/11/1984	152-154	47.52	10Y	4	2
UNH-6_176-178cm	ATTW84-UNH-6	ATTW84-UNH-6_176-178cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.50	10/11/1984	176-178	28.78	10Y	4	2
UNH-6A_20-22cm	ATTW84-UNH-6A	ATTW84-UNH-6A_20-22cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.32	10/11/1984	20-22	68.61	5Y	5	2
UNH-6A_80-82cm	ATTW84-UNH-6A	ATTW84-UNH-6A_80-82cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.32	10/11/1984	80-82	62.78	5Y	6	1
UNH-6A_122-124cm	ATTW84-UNH-6A	ATTW84-UNH-6A_122-124cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.32	10/11/1984	122-124	82.91	5Y	6	1
UNH-6A_192-194cm	ATTW84-UNH-6A	ATTW84-UNH-6A_192-194cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.32	10/11/1984	192-194	69.24	5Y	6	1
UNH-6A_235-237cm	ATTW84-UNH-6A	ATTW84-UNH-6A_235-237cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.32	10/11/1984	235-237	76.89	N3	NA	NA
UNH-6A_298-300cm	ATTW84-UNH-6A	ATTW84-UNH-6A_298-300cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.32	10/11/1984	298-300	51.26	N3	NA	NA
UNH-6A_305-307cm	ATTW84-UNH-6A	ATTW84-UNH-6A_305-307cm_D19841011	42.9350	-70.7450	250m	30.0	8.9	8.32	10/11/1984	305-307	36.43	N5	NA	NA
UNH-9_6-8cm	ATTW84-UNH-9	ATTW84-UNH-9_6-8cm_D19841011	42.9133	-70.6367	250m	61.0	8.9	8.39	10/11/1984	6-8	41.21	5GY	6	1
UNH-9_19-21cm	ATTW84-UNH-9	ATTW84-UNH-9_19-21cm_D19841011	42.9133	-70.6367	250m	61.0	8.9	8.39	10/11/1984	19-21	18.66	5GY	6	1
UNH-9_37-39cm	ATTW84-UNH-9	ATTW84-UNH-9_37-39cm_D19841011	42.9133	-70.6367	250m	61.0	8.9	8.39	10/11/1984	37-39	24.77	5GY	6	1
UNH-9_48-50cm	ATTW84-UNH-9	ATTW84-UNH-9_48-50cm_D19841011	42.9133	-70.6367	250m	61.0	8.9	8.39	10/11/1984	48-50	26.92	5GY	6	1
UNH-9_88-90cm	ATTW84-UNH-9	ATTW84-UNH-9_88-90cm_D19841011	42.9133	-70.6367	250m	61.0	8.9	8.39	10/11/1984	88-90	29.35	5GY	6	1
UNH-9_181-183cm	ATTW84-UNH-9	ATTW84-UNH-9_181-183cm_D19841011	42.9133	-70.6367	250m	61.0	8.9	8.39	10/11/1984	181-183	21.56	5GY	6	1
UNH-9_198-200cm	ATTW84-UNH-9	ATTW84-UNH-9_198-200cm_D19841011	42.9133	-70.6367	250m	61.0	8.9	8.39	10/11/1984	198-200	31.11	5GY	6	1

Vibracores UNH-6, UNH-6a, and UNH-9: Sediment Classifications

UNH Sample ID	CMECS Substrate Component Group (Specific)	CMECS Substrate Component Subgroup (Specific)	Textural Group from %GSM (Gradistat)	Textural Group from %SZC (Gradistat) Ignores Gravel	Sediment Name from %GSM and Mode (Gradistat)	Sediment Name from %GSM and Mode (Wentworth Scale)	Sediment Classification from Mean Phi (Gradistat)	Sediment Classification from Mean Phi (Wentworth)	Sorting (Gradistat)
UNH-6_16-18cm	Slightly Granuley	Slightly Granuley Very Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Very Fine Sand	Slightly Granular Very Fine Sand	Very Fine Sand	Very Fine Sand	Well Sorted
UNH-6_96-98cm	Sand	Very Fine Sand	Sand	Sand	Moderately Well Sorted Very Fine Sand	Very Fine Sand	Very Fine Sand	Very Fine Sand	Moderately Well Sorted
UNH-6_124-126cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Moderately Well Sorted
UNH-6_152-154cm	Sand	Very Fine Sand	Sand	Sand	Moderately Sorted Very Fine Sand	Very Fine Sand	Very Fine Sand	Very Fine Sand	Moderately Sorted
UNH-6_176-178cm	Mud	Clay	Mud	Mud	Mud	Mud	Clay	Clay	Very Poorly Sorted
UNH-6A_20-22cm	Slightly Granuley	Slightly Granuley Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Granular Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-6A_80-82cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-6A_122-124cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-6A_192-194cm	Sand	Very Fine Sand	Sand	Sand	Moderately Well Sorted Very Fine Sand	Very Fine Sand	Very Fine Sand	Very Fine Sand	Moderately Well Sorted
UNH-6A_235-237cm	Sand	Very Fine Sand	Sand	Sand	Well Sorted Very Fine Sand	Very Fine Sand	Very Fine Sand	Very Fine Sand	Well Sorted
UNH-6A_298-300cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Moderately Sorted
UNH-6A_305-307cm	Mud	Silt-Clay	Mud	Mud	Mud	Mud	Clay	Clay	Very Poorly Sorted
UNH-9_6-8cm	Slightly Granuley	Slightly Granuley Silty-Clayey Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Coarse Silt	Coarse Silt	Very Poorly Sorted
UNH-9_19-21cm	Sandy Mud	Very Fine Sandy Silt-Clay	Sandy Mud	Sandy Mud	Very Fine Sandy Mud	Very Fine Sandy Mud	Fine Silt	Fine Silt	Very Poorly Sorted
UNH-9_37-39cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silt	Very Coarse Silt	Poorly Sorted
UNH-9_48-50cm	Mud	Silt-Clay	Mud	Mud	Mud	Mud	Very Fine Silt	Very Fine Silt	Very Poorly Sorted
UNH-9_88-90cm	Mud	Silt-Clay	Mud	Mud	Mud	Mud	Very Fine Silt	Very Fine Silt	Very Poorly Sorted
UNH-9_181-183cm	Slightly Granuley	Slightly Granuley Silty Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Very Coarse Silt	Very Coarse Silt	Very Poorly Sorted
UNH-9_198-200cm	Mud	Silt-Clay	Mud	Mud	Mud	Mud	Fine Silt	Fine Silt	Very Poorly Sorted

Vibracores UNH-6, UNH-6a, and UNH-9: Grain Size Statistics

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Modes	Mode 1 (phi)	Mode 2 (phi)	Mode 3 (phi)	D_{10} (phi)	D_{10} (mm)	D_{50} (phi)	D_{50} (mm)	Mean Size (phi)	Mean Size (mm)	Sorting (phi)	Skewness	Kurtosis
UNH-6_16-18cm	0.53	0.00	0.53	96.80	2.67	NA	NA	U	3.24	NA	NA	2.49	0.18	3.08	0.12	3.03	0.12	0.49	-0.17	1.24
UNH-6_96-98cm	0.00	0.00	0.00	91.42	8.58	8.28	0.30	U	3.24	NA	NA	2.69	0.16	3.31	0.10	3.34	0.10	0.53	0.16	1.37
UNH-6_124-126cm	0.00	0.00	0.00	77.24	22.76	22.25	0.51	U	3.24	NA	NA	3.04	0.12	3.58	0.08	3.67	0.08	0.62	0.24	1.19
UNH-6_152-154cm	0.00	0.00	0.00	91.66	8.34	8.12	0.22	U	3.24	NA	NA	1.93	0.26	3.28	0.10	3.11	0.12	0.84	-0.23	1.06
UNH-6_176-178cm	0.00	0.00	0.00	1.13	98.87	30.58	68.29	U	8.48	NA	NA	6.12	0.01	9.44	0.00	9.57	0.03	2.73	0.03	0.80
UNH-6A_20-22cm	0.66	0.23	0.43	98.18	1.16	NA	NA	U	2.74	NA	NA	1.90	0.27	2.72	0.15	2.69	0.16	0.62	-0.24	1.67
UNH-6A_80-82cm	0.00	0.00	0.00	95.29	4.71	NA	NA	U	2.74	NA	NA	2.28	0.21	2.86	0.14	2.91	0.13	0.51	0.18	1.19
UNH-6A_122-124cm	0.00	0.00	0.00	94.15	5.85	4.72	1.13	U	2.74	NA	NA	2.50	0.18	2.88	0.14	2.94	0.13	0.53	0.33	1.48
UNH-6A_192-194cm	0.00	0.00	0.00	93.42	6.58	6.13	0.45	U	2.74	NA	NA	2.52	0.17	3.05	0.12	3.08	0.12	0.55	0.19	1.20
UNH-6A_235-237cm	0.00	0.00	0.00	95.37	4.63	4.32	0.31	U	3.24	NA	NA	2.56	0.17	3.19	0.11	3.18	0.11	0.49	-0.02	1.11
UNH-6A_298-300cm	0.00	0.00	0.00	80.78	19.22	18.60	0.62	U	3.73	NA	NA	2.66	0.16	3.54	0.09	3.58	0.08	0.70	0.06	1.48
UNH-6A_305-307cm	0.00	0.00	0.00	2.42	97.58	37.27	60.31	U	8.48	NA	NA	5.01	0.03	8.85	0.00	9.01	0.00	3.03	0.04	0.79
UNH-9_6-8cm	0.06	0.00	0.06	51.76	48.18	31.57	16.61	U	3.73	NA	NA	3.19	0.11	3.96	0.06	5.20	0.03	2.61	0.78	1.77
UNH-9_19-21cm	0.00	0.00	0.00	17.67	82.33	34.33	48.00	U	3.73	NA	NA	3.64	0.08	7.76	0.00	7.90	0.00	3.56	0.09	0.67
UNH-9_37-39cm	0.00	0.00	0.00	65.99	34.01	23.19	10.82	U	3.73	NA	NA	3.10	0.12	3.79	0.07	4.27	0.05	1.91	0.66	3.15
UNH-9_48-50cm	0.00	0.00	0.00	9.01	90.99	44.28	46.71	U	5.51	NA	NA	4.07	0.06	7.62	0.01	8.06	0.00	3.33	0.18	0.72
UNH-9_88-90cm	0.00	0.00	0.00	5.66	94.34	35.85	58.49	U	12.52	NA	NA	4.53	0.04	8.92	0.00	8.87	0.00	3.27	-0.03	0.73
UNH-9_181-183cm	0.14	0.00	0.14	60.67	39.19	28.22	10.97	U	3.73	NA	NA	3.07	0.12	3.85	0.07	4.37	0.05	2.04	0.61	2.97
UNH-9_198-200cm	0.00	0.00	0.00	7.98	92.02	48.11	43.91	U	4.50	NA	NA	4.10	0.06	7.16	0.01	7.81	0.00	3.32	0.27	0.69

Vibracores UNH-6, UNH-6a, and UNH-9: Grain Size Distribution

UNH Sample ID	Class % phi -3.5	Class % phi -3.0	Class % phi -2.5	Class % phi -2.0	Class % phi -1.5	Class % phi -1.0	Class % phi -0.5	Class % phi 0.0	Class % phi 0.5	Class % phi 1.0	Class % phi 1.5	Class % phi 2.0	Class % phi 2.5	Class % phi 3.0	Class % phi 3.5	Class % phi 4.0	Class % phi > 4.0	Class % phi 5.0	Class % phi 6.0	Class % phi 7.0	Class % phi 8.0	Class % phi 9.0	Class % phi 10.0	Class % phi > 10.0
UNH-6_16-18cm	0.00	0.00	0.00	0.00	0.45	0.08	0.09	0.10	0.22	0.49	1.15	2.24	4.14	32.93	46.18	9.27	NA	2.67	0.00	0.00	0.00	0.00	0.00	0.00
UNH-6_96-98cm	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.06	0.16	0.38	1.04	2.07	15.39	47.88	24.40	NA	7.69	0.34	0.19	0.06	0.02	0.04	0.24
UNH-6_124-126cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.06	0.14	0.42	0.90	5.70	35.65	34.30	NA	20.41	1.31	0.40	0.14	0.08	0.07	0.36
UNH-6_152-154cm	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.09	0.10	0.37	1.79	8.93	10.97	10.61	29.29	29.48	NA	7.23	0.67	0.14	0.08	0.05	0.03	0.14
UNH-6_176-178cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.12	0.19	0.22	0.19	0.37	NA	2.59	5.11	10.27	12.61	13.08	11.24	43.97
UNH-6A_20-22cm	0.00	0.00	0.00	0.23	0.11	0.31	0.45	0.71	1.21	1.56	1.92	4.32	16.19	48.81	20.25	2.76	1.16	NA	NA	NA	NA	NA	NA	NA
UNH-6A_80-82cm	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.07	0.25	2.00	12.83	47.44	26.16	6.52	4.71	NA	NA	NA	NA	NA	NA	NA
UNH-6A_122-124cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.07	0.20	0.81	6.34	54.76	26.78	5.15	NA	2.10	1.06	0.90	0.66	0.48	0.27	0.39
UNH-6A_192-194cm	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.02	0.05	0.18	0.87	5.73	39.75	34.08	12.71	NA	5.08	0.66	0.39	0.08	0.17	0.04	0.16
UNH-6A_235-237cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.10	0.37	1.51	3.68	25.80	45.25	18.61	NA	3.86	0.30	0.11	0.05	0.10	0.03	0.18
UNH-6A_298-300cm	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.06	0.15	0.50	2.56	4.01	7.56	30.77	35.11	NA	16.00	1.96	0.45	0.20	0.10	0.24	0.28
UNH-6A_305-307cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.16	0.20	0.40	1.58	NA	7.62	7.45	11.20	11.00	11.72	9.80	38.79
UNH-9_6-8cm	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.10	0.10	0.23	0.54	1.11	1.16	1.56	12.73	34.21	NA	18.75	6.02	4.04	2.77	2.71	2.35	11.55
UNH-9_19-21cm	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.05	0.06	0.16	0.42	0.43	0.63	4.69	11.16	NA	10.88	7.29	7.88	8.28	8.71	7.29	32.00
UNH-9_37-39cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.18	0.30	0.68	1.47	1.47	2.00	17.65	42.19	NA	15.28	3.65	2.30	1.96	1.86	1.90	7.06
UNH-9_48-50cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.13	0.20	0.31	0.23	0.44	1.92	5.70	NA	12.04	14.75	9.01	8.49	8.08	7.13	31.50
UNH-9_88-90cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.03	0.06	0.08	0.21	1.35	3.90	NA	8.26	9.71	8.79	9.08	8.91	8.21	41.37
UNH-9_181-183cm	0.00	0.00	0.00	0.00	0.00	0.14	0.07	0.05	0.13	0.37	1.05	2.20	1.94	2.09	13.53	39.24	NA	18.71	4.59	2.90	2.02	1.79	1.90	7.28
UNH-9_198-200cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.05	0.07	0.14	0.15	0.42	1.23	5.90	NA	19.25	13.32	8.28	7.25	7.67	6.56	29.69

Section 4: Vibracores UNH-10, UNH-13 and UNH-14

Vibracores UNH-10, UNH-13, and UNH-14: Identification, Location, and Description

UNH Sample ID	Global Core Link ID	BOEM Global Sample ID	Latitude NAD83	Longitude NAD83	Position Uncertainty	Water Depth (m)	Diameter (cm)	Core Length (m)	Vibracore Collected	Sample Depth (cm)	Total Wt (gm)	Munsell Hue	Munsell Value	Munsell Chroma
UNH-10_24-26cm	ATTW84-UNH-10	ATTW84-UNH-10_24-26cm_D19841011	42.9433	-70.5700	250m	70.0	8.9	7.40	10/11/1984	24-26	23.62	5G	4	2
UNH-10_120-122cm	ATTW84-UNH-10	ATTW84-UNH-10_120-122cm_D19841011	42.9433	-70.5700	250m	70.0	8.9	7.40	10/11/1984	120-122	12.81	5G	4	2
UNH-10_152-154cm	ATTW84-UNH-10	ATTW84-UNH-10_152-154cm_D19841011	42.9433	-70.5700	250m	70.0	8.9	7.40	10/11/1984	152-154	21.75	5GY	3	2
UNH-10_268-270cm	ATTW84-UNH-10	ATTW84-UNH-10_268-270cm_D19841011	42.9433	-70.5700	250m	70.0	8.9	7.40	10/11/1984	268-270	18.92	5GY	3	2
UNH-13_25-27cm	ATTW84-UNH-13	ATTW84-UNH-13_25-27cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	25-27	84.78	5GY	4	2
UNH-13_65-67cm	ATTW84-UNH-13	ATTW84-UNH-13_65-67cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	65-67	109.67	5GY	4	2
UNH-13_93-95cm	ATTW84-UNH-13	ATTW84-UNH-13_93-95cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	93-95	49.38	5GY	4	2
UNH-13_139-141cm	ATTW84-UNH-13	ATTW84-UNH-13_139-141cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	139-141	53.31	5GY	4	2
UNH-13_161-163cm	ATTW84-UNH-13	ATTW84-UNH-13_161-163cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	161-163	13.21	5GY	4	2
UNH-13_182-184cm	ATTW84-UNH-13	ATTW84-UNH-13_182-184cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	182-184	25.51	5GY	4	2
UNH-13_252-254cm	ATTW84-UNH-13	ATTW84-UNH-13_252-254cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	252-254	29.71	5GY	4	2
UNH-13_286-288cm	ATTW84-UNH-13	ATTW84-UNH-13_286-288cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	286-288	35.20	5GY	4	2
UNH-13_316-318cm	ATTW84-UNH-13	ATTW84-UNH-13_316-318cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	316-318	11.70	5GY	4	2
UNH-13_423-425cm	ATTW84-UNH-13	ATTW84-UNH-13_423-425cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	423-425	34.84	5GY	4	2
UNH-13_573-575cm	ATTW84-UNH-13	ATTW84-UNH-13_573-575cm_D19841011	42.9850	-70.6700	250m	28.0	8.9	6.41	10/12/1984	573-575	11.43	5GY	4	2
UNH-14_8-10cm	ATTW84-UNH-14	ATTW84-UNH-14_8-10cm_D19841011	42.9283	-70.7600	250m	23.0	8.9	7.87	10/12/1984	8-10	59.20	10YR	6	6
UNH-14_54-56cm	ATTW84-UNH-14	ATTW84-UNH-14_54-56cm_D19841011	42.9283	-70.7600	250m	23.0	8.9	7.87	10/12/1984	54-56	53.30	5Y	7	2
UNH-14_72-74cm	ATTW84-UNH-14	ATTW84-UNH-14_72-74cm_D19841011	42.9283	-70.7600	250m	23.0	8.9	7.87	10/12/1984	72-74	21.14	10YR	2	2
UNH-14_115-117cm	ATTW84-UNH-14	ATTW84-UNH-14_115-117cm_D19841011	42.9283	-70.7600	250m	23.0	8.9	7.87	10/12/1984	115-117	46.59	10YR	2	2
UNH-14_183-185cm	ATTW84-UNH-14	ATTW84-UNH-14_183-185cm_D19841011	42.9283	-70.7600	250m	23.0	8.9	7.87	10/12/1984	183-185	67.09	5Y	5	2
UNH-14_196-198cm	ATTW84-UNH-14	ATTW84-UNH-14_196-198cm_D19841011	42.9283	-70.7600	250m	23.0	8.9	7.87	10/12/1984	196-198	39.61	5Y	5	2
UNH-14_232-234cm	ATTW84-UNH-14	ATTW84-UNH-14_232-234cm_D19841011	42.9283	-70.7600	250m	23.0	8.9	7.87	10/12/1984	232-234	42.62	5Y	5	2
UNH-14_248-250cm	ATTW84-UNH-14	ATTW84-UNH-14_248-250cm_D19841011	42.9283	-70.7600	250m	23.0	8.9	7.87	10/12/1984	248-250	38.97	5GY	3	2

Vibracores UNH-10, UNH-13, and UNH-14: Sediment Classifications

UNH Sample ID	CMECS Substrate Component Group (Specific)	CMECS Substrate Component Subgroup (Specific)	Textural Group from %GSM (Gradistat)	Textural Group from %SZC (Gradistat) Ignores Gravel	Sediment Name from %GSM and Mode (Gradistat)	Sediment Name from %GSM and Mode (Wentworth Scale)	Sediment Classification from Mean Phi (Gradistat)	Sediment Classification from Mean Phi (Wentworth)	Sorting (Gradistat)
UNH-10_24-26cm	Sandy Mud	Very Fine Sandy Silt-Clay	Sandy Mud	Sandy Mud	Very Fine Sandy Mud	Very Fine Sandy Mud	Fine Silt	Fine Silt	Very Poorly Sorted
UNH-10_120-122cm	Mud	Silt-Clay	Mud	Silt	Very Coarse Silt	Very Coarse Silt	Fine Silt	Fine Silt	Very Poorly Sorted
UNH-10_152-154cm	Mud	Silt-Clay	Mud	Mud	Mud	Mud	Very Fine Silt	Very Fine Silt	Very Poorly Sorted
UNH-10_268-270cm	Mud	Silt-Clay	Mud	Mud	Mud	Mud	Very Fine Silt	Very Fine Silt	Very Poorly Sorted
UNH-13_25-27cm	Slightly Granuley	Slightly Granuley Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Granular Fine Sand	Fine Sand	Fine Sand	Moderately Sorted
UNH-13_65-67cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-13_93-95cm	Sand	Fine Sand	Sand	Sand	Moderately Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Sorted
UNH-13_139-141cm	Slightly Pebbly	Slightly Pebbly Silty-Clayey Fine Sand	Slightly Gravelly Muddy Sand	Muddy Sand	Slightly Fine Gravelly Muddy Fine Sand	Slightly Pebbly Muddy Fine Sand	Fine Sand	Fine Sand	Poorly Sorted
UNH-13_161-163cm	Sandy Mud	Very Fine Sandy Silt-Clay	Sandy Mud	Sandy Mud	Very Fine Sandy Mud	Very Fine Sandy Mud	Fine Silt	Fine Silt	Very Poorly Sorted
UNH-13_182-184cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt-Clay	Slightly Gravelly Sandy Mud	Sandy Mud	Slightly Very Fine Gravelly Very Fine Sandy Mud	Slightly Granular Very Fine Sandy Mud	Coarse Silt	Coarse Silt	Very Poorly Sorted
UNH-13_252-254cm	Slightly Granuley	Slightly Granuley Very Fine Sandy Silt-Clay	Slightly Gravelly Sandy Mud	Sandy Mud	Slightly Very Fine Gravelly Very Fine Sandy Mud	Slightly Granular Very Fine Sandy Mud	Very Fine Silt	Very Fine Silt	Very Poorly Sorted
UNH-13_286-288cm	Slightly Pebbly	Slightly Pebbly Silty-Clayey Fine Sand	Slightly Gravelly Muddy Sand	Muddy Sand	Slightly Fine Gravelly Muddy Fine Sand	Slightly Pebbly Muddy Fine Sand	Very Fine Sand	Very Fine Sand	Very Poorly Sorted
UNH-13_316-318cm	Sandy Mud	Very Fine Sandy Silt-Clay	Sandy Mud	Sandy Mud	Very Fine Sandy Mud	Very Fine Sandy Mud	Fine Silt	Fine Silt	Very Poorly Sorted
UNH-13_423-425cm	Mud	Silt-Clay	Mud	Mud	Mud	Mud	Very Fine Silt	Very Fine Silt	Very Poorly Sorted
UNH-13_573-575cm	Mud	Silt-Clay	Mud	Mud	Mud	Mud	Very Fine Silt	Very Fine Silt	Very Poorly Sorted
UNH-14_8-10cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-14_54-56cm	Sand	Fine Sand	Sand	Sand	Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Well Sorted
UNH-14_72-74cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted
UNH-14_115-117cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
UNH-14_183-185cm	Slightly Pebbly	Slightly Pebbly Fine Sand	Slightly Gravelly Sand	Sand	Slightly Fine Gravelly Fine Sand	Slightly Pebbly Fine Sand	Fine Sand	Fine Sand	Well Sorted
UNH-14_196-198cm	Sand	Fine Sand	Sand	Sand	Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Well Sorted
UNH-14_232-234cm	Slightly Granuley	Slightly Granuley Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Granular Fine Sand	Fine Sand	Fine Sand	Well Sorted
UNH-14_248-250cm	Sandy Mud	Very Fine Sandy Silt-Clay	Sandy Mud	Sandy Mud	Very Fine Sandy Mud	Very Fine Sandy Mud	Fine Silt	Fine Silt	Very Poorly Sorted

Vibracores UNH-10, UNH-13, and UNH-14: Grain Size Statistics

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Modes	Mode 1 (phi)	Mode 2 (phi)	Mode 3 (phi)	D_{10} (phi)	D_{10} (mm)	D_{50} (phi)	D_{50} (mm)	Mean Size (phi)	Mean Size (mm)	Sorting (phi)	Skewness	Kurtosis
UNH-10_24-26cm	0.00	0.00	0.00	21.86	78.14	29.97	48.17	U	3.73	NA	NA	3.57	0.08	7.80	0.00	7.89	0.00	3.61	0.07	0.64
UNH-10_120-122cm	0.00	0.00	0.00	4.44	95.56	59.14	36.42	U	4.50	NA	NA	4.19	0.05	6.39	0.01	7.38	0.01	3.12	0.45	0.75
UNH-10_152-154cm	0.00	0.00	0.00	5.32	94.68	38.88	55.80	U	4.50	8.48	NA	4.40	0.05	8.54	0.00	8.59	0.00	3.30	0.03	0.71
UNH-10_268-270cm	0.00	0.00	0.00	2.53	97.47	39.48	57.99	U	7.50	NA	NA	4.78	0.04	8.76	0.00	8.84	0.00	3.12	0.03	0.77
UNH-13_25-27cm	0.02	0.00	0.02	92.44	7.54	5.06	2.48	U	2.74	NA	NA	2.21	0.22	2.80	0.14	2.87	0.14	0.76	0.39	2.65
UNH-13_65-67cm	0.00	0.00	0.00	93.90	6.10	3.08	3.02	U	2.74	NA	NA	2.26	0.21	2.79	0.14	2.86	0.14	0.63	0.34	2.36
UNH-13_93-95cm	0.00	0.00	0.00	90.95	9.05	5.05	4.00	U	2.74	NA	NA	2.28	0.21	2.88	0.14	2.94	0.13	0.95	0.41	2.90
UNH-13_139-141cm	0.12	0.12	0.00	87.05	12.83	6.79	6.04	U	2.74	NA	NA	2.17	0.22	2.85	0.14	2.95	0.13	1.36	0.50	4.19
UNH-13_161-163cm	0.00	0.00	0.00	20.74	79.26	36.30	42.96	U	3.73	NA	NA	3.27	0.10	6.85	0.01	7.44	0.01	3.61	0.23	0.69
UNH-13_182-184cm	0.25	0.00	0.25	43.47	56.28	32.91	23.37	U	3.24	NA	NA	2.66	0.16	4.40	0.05	5.74	0.02	3.32	0.58	0.98
UNH-13_252-254cm	0.59	0.00	0.59	11.41	88.00	40.78	47.22	U	5.51	NA	NA	3.78	0.07	7.69	0.00	8.03	0.00	3.47	0.13	0.73
UNH-13_286-288cm	1.05	0.90	0.15	75.75	23.20	12.84	10.36	U	2.74	NA	NA	2.06	0.24	3.03	0.12	3.74	0.08	2.25	0.67	3.19
UNH-13_316-318cm	0.00	0.00	0.00	25.33	74.67	36.67	38.00	U	3.73	NA	NA	2.87	0.14	6.44	0.01	7.08	0.01	3.66	0.25	0.73
UNH-13_423-425cm	0.00	0.00	0.00	7.30	92.70	41.16	51.54	U	8.48	NA	NA	4.32	0.05	8.13	0.00	8.37	0.00	3.23	0.08	0.82
UNH-13_573-575cm	0.00	0.00	0.00	9.60	90.40	35.57	54.83	U	7.50	2.74	NA	4.08	0.06	8.44	0.00	8.60	0.00	3.36	0.00	0.88
UNH-14_8-10cm	0.00	0.00	0.00	98.84	1.16	NA	NA	U	2.74	NA	NA	1.70	0.31	2.66	0.16	2.63	0.16	0.65	-0.09	1.06
UNH-14_54-56cm	0.00	0.00	0.00	97.20	2.80	NA	NA	U	2.74	NA	NA	2.18	0.22	2.74	0.15	2.75	0.15	0.44	0.07	1.38
UNH-14_72-74cm	0.00	0.00	0.00	64.64	35.36	30.70	4.66	U	3.24	NA	NA	2.38	0.19	3.51	0.09	3.88	0.07	1.62	0.43	1.27
UNH-14_115-117cm	0.00	0.00	0.00	93.12	6.88	6.32	0.56	U	2.74	NA	NA	2.19	0.22	2.79	0.14	2.84	0.14	0.62	0.26	1.60
UNH-14_183-185cm	0.44	0.44	0.00	96.41	3.15	NA	NA	U	2.74	NA	NA	2.10	0.23	2.67	0.16	2.63	0.16	0.42	-0.04	1.12
UNH-14_196-198cm	0.00	0.00	0.00	98.26	1.74	NA	NA	U	2.74	NA	NA	1.95	0.26	2.53	0.17	2.51	0.18	0.47	-0.08	1.12
UNH-14_232-234cm	0.12	0.00	0.12	96.90	2.98	NA	NA	U	2.74	NA	NA	2.05	0.24	2.60	0.17	2.55	0.17	0.42	-0.12	1.10
UNH-14_248-250cm	0.00	0.00	0.00	10.02	89.98	49.32	40.66	U	5.51	NA	NA	3.99	0.06	7.19	0.01	7.64	0.01	3.21	0.18	0.98

Vibracores UNH-10, UNH-13, and UNH-14: Grain Size Distribution

UNH Sample ID	Class % phi -3.5	Class % phi -3.0	Class % phi -2.5	Class % phi -2.0	Class % phi -1.5	Class % phi -1.0	Class % phi -0.5	Class % phi 0.0	Class % phi 0.5	Class % phi 1.0	Class % phi 1.5	Class % phi 2.0	Class % phi 2.5	Class % phi 3.0	Class % phi 3.5	Class % phi 4.0	Class % phi > 4.0	Class % phi 5.0	Class % phi 6.0	Class % phi 7.0	Class % phi 8.0	Class % phi 9.0	Class % phi 10.0	Class % phi > 10.0
UNH-10_24-26cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.05	0.13	0.19	0.92	5.84	14.65	NA	5.99	6.98	7.96	9.04	7.87	7.09	33.21
UNH-10_120-122cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.04	0.08	0.10	0.26	0.92	2.98	NA	28.30	13.58	9.41	7.85	7.10	5.43	23.89
UNH-10_152-154cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.05	0.09	0.71	1.40	3.04	NA	11.77	9.47	7.93	9.70	10.44	7.93	37.43
UNH-10_268-270cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.14	0.42	1.89	NA	9.65	8.93	9.46	11.44	10.10	10.60	37.29
UNH-13_25-27cm	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.06	0.09	0.45	4.31	11.31	54.20	19.21	2.77	NA	0.72	3.21	0.43	0.70	1.42	0.64	0.41
UNH-13_65-67cm	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.04	0.08	0.43	3.82	10.33	58.17	18.22	2.74	NA	1.34	0.70	0.63	0.40	0.49	0.50	2.02
UNH-13_93-95cm	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.08	0.08	0.47	3.84	9.19	46.43	25.97	4.77	NA	2.17	1.15	0.98	0.75	0.81	0.60	2.59
UNH-13_139-141cm	0.00	0.00	0.00	0.12	0.00	0.00	0.15	0.16	0.23	0.30	0.87	4.80	9.67	47.21	19.93	3.73	NA	2.79	1.64	1.34	1.02	1.00	0.93	4.11
UNH-13_161-163cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.03	0.30	1.26	4.85	6.17	8.09	NA	14.04	8.59	7.83	5.83	7.30	7.04	28.61
UNH-13_182-184cm	0.00	0.00	0.00	0.00	0.00	0.25	0.10	0.14	0.25	0.29	0.58	1.72	2.50	11.85	14.23	11.79	NA	15.51	8.37	4.86	4.18	4.02	3.78	15.57
UNH-13_252-254cm	0.00	0.00	0.00	0.00	0.59	0.00	0.06	0.07	0.11	0.20	0.26	0.36	0.38	1.43	3.60	4.92	NA	11.14	11.16	9.69	8.79	7.89	6.93	32.40
UNH-13_286-288cm	0.00	0.00	0.00	0.90	0.00	0.15	0.19	0.35	0.44	0.62	1.44	4.97	7.47	32.23	22.48	5.55	NA	4.67	3.42	2.68	2.06	1.88	1.80	6.68
UNH-13_316-318cm	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.02	0.00	0.02	0.14	1.22	3.31	6.99	6.00	7.57	NA	11.33	9.79	8.08	7.48	6.75	6.16	25.09
UNH-13_423-425cm	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.03	0.07	0.28	0.55	2.11	1.90	2.35	NA	8.41	11.12	11.07	10.56	11.25	9.40	30.89
UNH-13_573-575cm	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.03	0.08	0.17	0.33	1.06	1.06	3.37	2.14	1.26	NA	4.77	9.06	9.98	11.77	10.55	9.80	34.48
UNH-14_8-10cm	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.19	0.96	4.12	11.29	20.84	36.19	19.56	5.64	1.16	NA	NA	NA	NA	NA	NA	NA
UNH-14_54-56cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.10	0.34	2.78	17.48	57.61	16.03	2.83	2.80	NA	NA	NA	NA	NA	NA	NA
UNH-14_72-74cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.06	0.31	0.95	3.32	6.69	19.46	18.04	15.78	NA	14.26	9.91	3.90	2.62	1.63	0.95	2.08
UNH-14_115-117cm	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.03	0.12	0.41	2.63	16.94	49.30	18.58	5.07	NA	4.20	1.31	0.44	0.38	0.17	0.08	0.31
UNH-14_183-185cm	0.00	0.00	0.44	0.00	0.00	0.00	0.01	0.02	0.05	0.12	0.42	3.89	24.59	54.23	11.92	1.15	3.15	NA	NA	NA	NA	NA	NA	NA
UNH-14_196-198cm	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.22	0.70	2.14	7.56	34.13	45.33	7.06	1.04	1.74	NA	NA	NA	NA	NA	NA	NA
UNH-14_232-234cm	0.00	0.00	0.00	0.00	0.12	0.00	0.10	0.13	0.16	0.33	0.88	5.26	29.98	55.90	3.63	0.52	2.98	NA	NA	NA	NA	NA	NA	NA
UNH-14_248-250cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.15	0.40	0.78	1.24	1.24	1.71	1.57	2.85	NA	10.50	13.83	13.52	11.47	10.11	8.08	22.47

Section 5: Vibracores A1 and A2

Vibracores A1 and A2: Identification, Location, and Description

UNH Sample ID	Global Core Link ID	BOEM Global Sample ID	Latitude NAD83	Longitude NAD83	Position Uncertainty	Water Depth (m)	Diameter (cm)	Core Length (m)	Vibracore Collected	Sample Depth (cm)	Total Wt (gm)	Munsell Hue	Munsell Value	Munsell Chroma
A1_35-37cm	AT1-88-A1	AT1-88-A1_35-37cm_D19880922	42.9950	-70.6433	250m	21.0	8.9	4.39	09/22-25/1988	35-37	42.12	5YR	4	4
A1_100-102cm	AT1-88-A1	AT1-88-A1_100-102cm_D19880922	42.9950	-70.6433	250m	21.0	8.9	4.39	09/22-25/1988	100-102	38.75	5Y	5	2
A1_162-164cm	AT1-88-A1	AT1-88-A1_162-164cm_D19880922	42.9950	-70.6433	250m	21.0	8.9	4.39	09/22-25/1988	162-164	44.08	5Y	3	2
A1_247-249cm	AT1-88-A1	AT1-88-A1_247-249cm_D19880922	42.9950	-70.6433	250m	21.0	8.9	4.39	09/22-25/1988	247-249	41.33	5Y	5	2
A1_308-310cm	AT1-88-A1	AT1-88-A1_308-310cm_D19880922	42.9950	-70.6433	250m	21.0	8.9	4.39	09/22-25/1988	308-310	48.09	5Y	5	2
A1_365-367cm	AT1-88-A1	AT1-88-A1_365-367cm_D19880922	42.9950	-70.6433	250m	21.0	8.9	4.39	09/22-25/1988	365-367	47.35	5Y	6	1
A1_423-425cm	AT1-88-A1	AT1-88-A1_423-425cm_D19880922	42.9950	-70.6433	250m	21.0	8.9	4.39	09/22-25/1988	423-425	43.83	5Y	4	1
A2_40-42cm	AT1-88-A2	AT1-88-A2_40-42cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	40-42	46.11	10YR	4	2
A2_78-80cm	AT1-88-A2	AT1-88-A2_78-80cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	78-80	46.62	10YR	4	2
A2_141-143cm	AT1-88-A2	AT1-88-A2_141-143cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	141-143	45.30	5Y	5	2
A2_223-225cm	AT1-88-A2	AT1-88-A2_223-225cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	223-225	48.17	N3	NA	NA
A2_273-275cm	AT1-88-A2	AT1-88-A2_273-275cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	273-275	44.98	N3	NA	NA
A2_313-315cm	AT1-88-A2	AT1-88-A2_313-315cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	313-315	37.66	5Y	4	1
A2_383-385cm	AT1-88-A2	AT1-88-A2_383-385cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	383-385	39.27	5Y	4	1
A2_439-441cm	AT1-88-A2	AT1-88-A2_439-441cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	439-441	44.93	5Y	6	1
A2_519-521cm	AT1-88-A2	AT1-88-A2_519-521cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	519-521	42.26	5Y	6	1
A2_599-601cm	AT1-88-A2	AT1-88-A2_599-601cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	599-601	43.58	5Y	4	1
A2_669-671cm	AT1-88-A2	AT1-88-A2_669-671cm_D19880922	42.9867	-70.6467	250m	22.3	8.9	7.13	09/22-25/1988	669-671	41.35	5Y	2	1

Vibracores A1 and A2: Sediment Classifications

UNH Sample ID	CMECS Substrate Component Group (Specific)	CMECS Substrate Component Subgroup (Specific)	Textural Group from %GSM (Gradistat)	Textural Group from %SZC (Gradistat) Ignores Gravel	Sediment Name from %GSM and Mode (Gradistat)	Sediment Name from %GSM and Mode (Wentworth Scale)	Sediment Classification from Mean Phi (Gradistat)	Sediment Classification from Mean Phi (Wentworth)	Sorting (Gradistat)
A1_35-37cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Well Sorted
A1_100-102cm	Slightly Pebbly	Slightly Pebbly Medium Sand	Slightly Gravelly Sand	Sand	Slightly Medium Gravelly Medium Sand	Slightly Pebbly Medium Sand	Medium Sand	Medium Sand	Moderately Well Sorted
A1_162-164cm	Slightly Pebbly	Slightly Pebbly Medium Sand	Slightly Gravelly Sand	Sand	Slightly Medium Gravelly Medium Sand	Slightly Pebbly Medium Sand	Medium Sand	Medium Sand	Moderately Well Sorted
A1_247-249cm	Granuley	Granuley Coarse Sand	Gravelly Sand	Sand	Very Fine Gravelly Coarse Sand	Granular Coarse Sand	Coarse Sand	Coarse Sand	Poorly Sorted
A1_308-310cm	Granuley	Granuley Coarse Sand	Gravelly Sand	Sand	Very Fine Gravelly Coarse Sand	Granular Coarse Sand	Coarse Sand	Coarse Sand	Poorly Sorted
A1_365-367cm	Slightly Granuley	Slightly Granuley Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Granular Fine Sand	Medium Sand	Medium Sand	Poorly Sorted
A1_423-425cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
A2_40-42cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Well Sorted
A2_78-80cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Well Sorted
A2_141-143cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Well Sorted
A2_223-225cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Well Sorted
A2_273-275cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Well Sorted
A2_313-315cm	Slightly Granuley	Slightly Granuley Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Granular Fine Sand	Fine Sand	Fine Sand	Moderately Sorted
A2_383-385cm	Slightly Granuley	Slightly Granuley Very Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Very Fine Sand	Slightly Granular Very Fine Sand	Very Fine Sand	Very Fine Sand	Moderately Well Sorted
A2_439-441cm	Slightly Granuley	Slightly Granuley Silty Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Moderately Well Sorted
A2_519-521cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Moderately Well Sorted
A2_599-601cm	Slightly Granuley	Slightly Granuley Silty Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted
A2_669-671cm	Slightly Granuley	Slightly Granuley Silty Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted

Vibracores A1 and A2: Grain Size Statistics

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Modes	Mode 1 (phi)	Mode 2 (phi)	Mode 3 (phi)	D_{10} (phi)	D_{10} (mm)	D_{50} (phi)	D_{50} (mm)	Mean Size (phi)	Mean Size (mm)	Sorting (phi)	Skewness	Kurtosis
A1_35-37cm	2.04	0.49	1.55	97.92	0.04	NA	NA	U	1.25	NA	NA	0.18	0.88	1.04	0.49	1.04	0.49	0.62	-0.07	1.11
A1_100-102cm	2.15	1.69	0.45	97.85	0.00	NA	NA	U	1.25	NA	NA	0.36	0.78	1.16	0.45	1.14	0.46	0.56	-0.11	1.07
A1_162-164cm	1.82	1.31	0.52	97.78	0.40	NA	NA	U	1.25	NA	NA	0.40	0.76	1.13	0.46	1.09	0.47	0.53	-0.13	1.12
A1_247-249cm	11.21	2.71	8.50	88.56	0.23	NA	NA	U	0.75	NA	NA	-1.14	2.20	0.65	0.64	0.56	0.68	1.08	-0.21	1.24
A1_308-310cm	8.59	0.93	7.66	90.08	1.33	NA	NA	U	0.25	NA	NA	-0.87	1.83	0.56	0.68	0.59	0.66	1.01	-0.05	1.09
A1_365-367cm	3.27	0.50	2.77	89.94	6.79	NA	NA	B	2.24	0.25	NA	-0.42	1.34	1.79	0.29	1.53	0.35	1.51	-0.15	1.04
A1_423-425cm	0.00	0.00	0.00	96.32	3.68	NA	NA	U	2.24	NA	NA	2.01	0.25	2.57	0.17	2.61	0.16	0.55	0.10	1.04
A2_40-42cm	1.98	0.88	1.10	97.46	0.56	NA	NA	U	1.75	NA	NA	0.26	0.84	1.27	0.41	1.22	0.43	0.65	-0.24	1.00
A2_78-80cm	0.52	0.00	0.52	99.21	0.27	NA	NA	U	1.75	NA	NA	0.28	0.82	1.24	0.42	1.20	0.44	0.62	-0.17	0.88
A2_141-143cm	0.46	0.00	0.46	98.99	0.55	NA	NA	U	1.75	NA	NA	0.50	0.71	1.37	0.39	1.03	0.49	0.60	-0.20	0.95
A2_223-225cm	0.50	0.12	0.39	98.95	0.55	NA	NA	U	1.75	NA	NA	0.21	0.87	1.21	0.43	1.17	0.44	0.69	-0.08	0.88
A2_273-275cm	0.05	0.00	0.05	99.94	0.01	NA	NA	U	1.25	NA	NA	0.37	0.77	1.16	0.45	1.17	0.45	0.60	-0.02	0.90
A2_313-315cm	0.33	0.00	0.33	92.93	6.74	4.61	2.13	U	2.24	NA	NA	1.65	0.32	2.50	0.18	2.56	0.17	0.86	0.24	1.15
A2_383-385cm	0.21	0.00	0.21	90.70	9.09	6.39	2.70	U	2.24	NA	NA	2.53	0.17	3.14	0.11	3.12	0.12	0.67	0.17	2.02
A2_439-441cm	0.03	0.00	0.03	89.45	10.52	8.30	2.22	U	3.24	NA	NA	2.63	0.16	3.24	0.11	3.27	0.10	0.62	0.25	2.23
A2_519-521cm	0.00	0.00	0.00	85.46	14.54	13.16	1.38	U	3.24	NA	NA	2.82	0.14	3.34	0.10	3.44	0.09	0.59	0.33	1.53
A2_599-601cm	0.46	0.00	0.46	68.82	30.72	26.22	4.50	U	3.24	NA	NA	2.36	0.20	3.49	0.09	3.67	0.08	1.34	0.36	1.86
A2_669-671cm	0.23	0.00	0.23	64.45	35.32	31.88	3.44	U	3.24	NA	NA	2.53	0.17	3.67	0.08	3.74	0.08	1.10	0.18	1.42

Vibracores A1 and A2: Grain Size Distribution

UNH Sample ID	Class % phi -3.5	Class % phi -3.0	Class % phi -2.5	Class % phi -2.0	Class % phi -1.5	Class % phi -1.0	Class % phi -0.5	Class % phi 0.0	Class % phi 0.5	Class % phi 1.0	Class % phi 1.5	Class % phi 2.0	Class % phi 2.5	Class % phi 3.0	Class % phi 3.5	Class % phi 4.0	Class % phi > 4.0	Class % phi 5.0	Class % phi 6.0	Class % phi 7.0	Class % phi 8.0	Class % phi 9.0	Class % phi 10.0	Class % phi > 10.0
A1_35-37cm	0.00	0.00	0.49	0.00	0.78	0.77	1.07	2.98	10.90	30.19	32.51	16.27	2.97	0.57	0.41	0.07	0.04	NA	NA	NA	NA	NA	NA	NA
A1_100-102cm	0.00	1.49	0.00	0.21	0.19	0.26	0.25	1.68	8.04	25.60	38.81	20.55	2.34	0.30	0.24	0.04	0.00	NA	NA	NA	NA	NA	NA	NA
A1_162-164cm	0.00	1.00	0.00	0.30	0.34	0.17	0.26	1.70	7.75	27.25	42.89	15.91	1.34	0.27	0.36	0.07	0.40	NA	NA	NA	NA	NA	NA	NA
A1_247-249cm	0.00	0.00	0.57	2.13	4.24	4.26	5.21	7.59	18.03	25.98	14.43	13.65	2.76	0.52	0.30	0.09	0.23	NA	NA	NA	NA	NA	NA	NA
A1_308-310cm	0.00	0.00	0.00	0.93	3.08	4.58	5.54	10.27	22.91	20.61	12.73	14.90	2.13	0.46	0.35	0.16	1.33	NA	NA	NA	NA	NA	NA	NA
A1_365-367cm	0.00	0.00	0.00	0.50	1.12	1.65	5.56	8.54	8.84	6.81	6.86	17.04	19.70	9.83	5.39	1.38	6.79	NA	NA	NA	NA	NA	NA	NA
A1_423-425cm	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.11	0.19	1.00	8.27	34.04	34.56	16.45	1.66	3.68	NA	NA	NA	NA	NA	NA	NA
A2_40-42cm	0.00	0.00	0.00	0.74	0.71	0.53	1.40	2.56	7.82	19.69	30.06	31.73	3.58	0.34	0.19	0.08	0.56	NA	NA	NA	NA	NA	NA	NA
A2_78-80cm	0.00	0.00	0.00	0.00	0.19	0.33	1.04	2.92	9.69	21.64	29.06	30.65	3.54	0.38	0.22	0.07	0.27	NA	NA	NA	NA	NA	NA	NA
A2_141-143cm	0.00	0.00	0.00	0.00	0.25	0.21	0.53	1.54	7.14	19.43	27.63	36.65	5.07	0.44	0.48	0.08	0.55	NA	NA	NA	NA	NA	NA	NA
A2_223-225cm	0.00	0.00	0.00	0.11	0.09	0.30	1.09	3.10	12.56	23.17	23.02	28.57	6.28	0.73	0.33	0.10	0.55	NA	NA	NA	NA	NA	NA	NA
A2_273-275cm	0.00	0.00	0.00	0.00	0.00	0.05	0.52	1.84	10.17	28.22	28.95	24.40	5.06	0.47	0.25	0.07	0.00	NA	NA	NA	NA	NA	NA	NA
A2_313-315cm	0.00	0.00	0.00	0.00	0.00	0.33	0.05	0.06	0.17	0.73	3.14	17.89	26.72	19.57	19.87	4.73	NA	2.83	0.93	0.64	0.21	2.13	0.00	0.00
A2_383-385cm	0.00	0.00	0.00	0.00	0.12	0.10	0.03	0.05	0.29	0.22	0.33	0.80	4.77	29.14	46.68	8.39	NA	3.79	1.38	0.90	0.32	0.43	0.46	1.81
A2_439-441cm	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.07	0.09	0.26	0.63	3.07	19.19	52.82	13.25	NA	5.94	1.26	0.67	0.43	0.42	0.39	1.41
A2_519-521cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.10	0.17	0.30	0.55	1.59	11.06	50.46	21.21	NA	10.42	1.67	0.75	0.32	0.34	0.30	0.75
A2_599-601cm	0.00	0.00	0.00	0.00	0.20	0.26	0.13	0.11	0.15	0.30	0.53	3.65	6.19	8.53	29.43	19.82	NA	19.23	4.31	1.74	0.93	0.50	0.62	3.37
A2_669-671cm	0.00	0.00	0.00	0.00	0.08	0.15	0.17	0.22	0.41	0.52	0.84	1.91	4.63	9.93	22.06	23.75	NA	28.43	1.46	1.35	0.64	0.53	0.57	2.34

Section 6: Vibracores A3 and A4

Vibracores A3 and A4: Identification, Location, and Description

UNH Sample ID	Global Core Link ID	BOEM Global Sample ID	Latitude NAD83	Longitude NAD83	Position Uncertainty	Water Depth (m)	Diameter (cm)	Core Length (m)	Vibracore Collected	Sample Depth (cm)	Total Wt (gm)	Munsell Hue	Munsell Value	Munsell Chroma
A3_20-22cm	AT1-88-A3	AT1-88-A3_20-22cm_D19880922	42.9833	-70.6600	250m	25.0	8.9	5.81	09/22-25/1988	20-22	37.68	5Y	4	1
A3_100-102cm	AT1-88-A3	AT1-88-A3_100-102cm_D19880922	42.9833	-70.6600	250m	25.0	8.9	5.81	09/22-25/1988	100-102	46.71	5Y	6	1
A3_145-147cm	AT1-88-A3	AT1-88-A3_145-147cm_D19880922	42.9833	-70.6600	250m	25.0	8.9	5.81	09/22-25/1988	145-147	40.78	5Y	6	1
A3_265-267cm	AT1-88-A3	AT1-88-A3_265-267cm_D19880922	42.9833	-70.6600	250m	25.0	8.9	5.81	09/22-25/1988	265-267	48.84	5Y	6	1
A3_302-304cm	AT1-88-A3	AT1-88-A3_302-304cm_D19880922	42.9833	-70.6600	250m	25.0	8.9	5.81	09/22-25/1988	302-304	66.45	5Y	4	1
A3_422-424cm	AT1-88-A3	AT1-88-A3_422-424cm_D19880922	42.9833	-70.6600	250m	25.0	8.9	5.81	09/22-25/1988	422-424	30.32	5Y	4	1
A3_464-466cm	AT1-88-A3	AT1-88-A3_464-466cm_D19880922	42.9833	-70.6600	250m	25.0	8.9	5.81	09/22-25/1988	464-466	41.86	5Y	3	2
A3_564-566cm	AT1-88-A3	AT1-88-A3_564-566cm_D19880922	42.9833	-70.6600	250m	25.0	8.9	5.81	09/22-25/1988	564-566	34.66	5Y	3	2
A4_8-12cm	AT1-88-A4	AT1-88-A4_8-12cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	8-12	102.47	5Y	6	1
A4_30-32cm	AT1-88-A4	AT1-88-A4_30-32cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	30-32	126.72	5Y	4	1
A4_90-95cm	AT1-88-A4	AT1-88-A4_90-95cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	90-95	341.63	5Y	4	1
A4_143-153cm	AT1-88-A4	AT1-88-A4_143-153cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	143-153	375.22	5Y	4	1
A4_213-216cm	AT1-88-A4	AT1-88-A4_213-216cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	213-216	97.68	5Y	2	1
A4_248-253cm	AT1-88-A4	AT1-88-A4_248-253cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	248-253	101.32	5Y	2	1
A4_288-290cm	AT1-88-A4	AT1-88-A4_288-290cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	288-290	64.66	5Y	4	1
A4_326-328cm	AT1-88-A4	AT1-88-A4_326-328cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	326-328	96.69	5Y	4	1
A4_358-360cm	AT1-88-A4	AT1-88-A4_358-360cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	358-360	83.19	5Y	4	1
A4_408-410cm	AT1-88-A4	AT1-88-A4_408-410cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	408-410	97.19	5Y	4	1
A4_444-446cm	AT1-88-A4	AT1-88-A4_444-446cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	444-446	47.67	5Y	4	1
A4_491-495cm	AT1-88-A4	AT1-88-A4_491-495cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	491-495	55.22	5Y	4	1
A4_536-539cm	AT1-88-A4	AT1-88-A4_536-539cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	536-539	82.92	N4	NA	NA
A4_575-577cm	AT1-88-A4	AT1-88-A4_575-577cm_D19880922	43.0067	-70.6717	250m	20.0*	8.9	5.81	09/22-25/1988	575-577	107.88	N2	NA	NA

*Estimated from high-resolution bathymetry map

Vibracores A3 and A4: Sediment Classifications

UNH Sample ID	CMECS Substrate Component Group (Specific)	CMECS Substrate Component Subgroup (Specific)	Textural Group from %GSM (Gradistat)	Textural Group from %SZC (Gradistat) Ignores Gravel	Sediment Name from %GSM and Mode (Gradistat)	Sediment Name from %GSM and Mode (Wentworth Scale)	Sediment Classification from Mean Phi (Gradistat)	Sediment Classification from Mean Phi (Wentworth)	Sorting (Gradistat)
A3_20-22cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
A3_100-102cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
A3_145-147cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
A3_265-267cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
A3_302-304cm	Sand	Fine Sand	Sand	Sand	Moderately Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Moderately Well Sorted
A3_422-424cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Moderately Well Sorted
A3_464-466cm	Slightly Granuley	Slightly Granuley Silty Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted
A3_564-566cm	Slightly Granuley	Slightly Granuley Silty Very Fine Sand	Slightly Gravelly Muddy Sand	Silty Sand	Slightly Very Fine Gravelly Very Coarse Silty Very Fine Sand	Slightly Granular Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Poorly Sorted
A4_8-12cm	Granuley	Granuley Coarse Sand	Gravelly Sand	Sand	Very Fine Gravelly Coarse Sand	Granular Coarse Sand	Coarse Sand	Coarse Sand	Poorly Sorted
A4_30-32cm	Granule Mixes	Sandy Granule Gravel	Sandy Gravel	Sand	Sandy Very Fine Gravel	Sandy Granule Gravel	Very Coarse Sand	Very Coarse Sand	Poorly Sorted
A4_90-95cm	Pebble Mixes	Sandy Pebble Gravel	Sandy Gravel	Sand	Sandy Coarse Gravel	Sandy Pebble Gravel	Fine Gravel	Pebble Gravel	Very Poorly Sorted
A4_143-153cm	Granule Mixes	Sandy Granule Gravel	Sandy Gravel	Sand	Sandy Very Fine Gravel	Sandy Granule Gravel	Very Fine Gravel	Granule Gravel	Very Poorly Sorted
A4_213-216cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Poorly Sorted
A4_248-253cm	Slightly Granuley	Slightly Granuley Coarse Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Coarse Sand	Slightly Granular Coarse Sand	Coarse Sand	Coarse Sand	Poorly Sorted
A4_288-290cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Poorly Sorted
A4_326-328cm	Granuley	Granular Medium Sand	Gravelly Sand	Sand	Very Fine Gravelly Medium Sand	Granular Medium Sand	Medium Sand	Medium Sand	Poorly Sorted
A4_358-360cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Well Sorted
A4_408-410cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Sorted
A4_444-446cm	Sandy Mud	Very Fine Sandy Silt	Sandy Mud	Sandy Silt	Very Fine Sandy Very Coarse Silt	Very Fine Sandy Very Coarse Silt	Medium Silt	Fine Silt	Very Poorly Sorted
A4_491-495cm	Sandy Mud	Very Fine Sandy Silt	Sandy Mud	Sandy Silt	Very Fine Sandy Very Coarse Silt	Very Fine Sandy Very Coarse Silt	Very Coarse Silt	Coarse Silt	Very Poorly Sorted
A4_536-539cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Coarse Sand	Coarse Sand	Moderately Well Sorted
A4_575-577cm	Pebble Mixes	Sandy Pebble Gravel	Sandy Gravel	Sand	Sandy Medium Gravel	Sandy Pebble Gravel	Very Coarse Sand	Very Coarse Sand	Very Poorly Sorted

Vibracores A3 and A4: Grain Size Statistics

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Modes	Mode 1 (phi)	Mode 2 (phi)	Mode 3 (phi)	D_{10} (phi)	D_{10} (mm)	D_{50} (phi)	D_{50} (mm)	Mean Size (phi)	Mean Size (mm)	Sorting (phi)	Skewness	Kurtosis
A3_20-22cm	0.00	0.00	0.00	97.59	2.41	NA	NA	U	2.24	NA	NA	1.67	0.31	2.42	0.19	2.40	0.19	0.57	0.02	1.07
A3_100-102cm	0.00	0.00	0.00	97.66	2.34	NA	NA	U	2.24	NA	NA	1.72	0.30	2.42	0.19	2.42	0.19	0.55	0.04	1.05
A3_145-147cm	0.00	0.00	0.00	97.50	2.50	NA	NA	U	2.24	NA	NA	1.76	0.29	2.45	0.18	2.45	0.18	0.55	0.07	1.08
A3_265-267cm	0.00	0.00	0.00	98.22	1.78	NA	NA	U	2.74	NA	NA	1.72	0.30	2.51	0.18	2.48	0.18	0.58	-0.02	1.05
A3_302-304cm	0.00	0.00	0.00	93.53	6.47	4.22	2.25	U	2.74	NA	NA	2.08	0.24	2.76	0.15	2.78	0.15	0.69	0.19	1.95
A3_422-424cm	0.00	0.00	0.00	86.67	13.33	9.24	4.09	U	3.24	NA	NA	2.51	0.18	3.23	0.11	3.26	0.10	1.04	0.32	2.23
A3_464-466cm	0.11	0.00	0.11	67.95	31.94	27.07	4.87	U	3.24	NA	NA	2.70	0.15	3.54	0.09	3.77	0.07	1.30	0.49	1.74
A3_564-566cm	0.06	0.00	0.06	64.90	35.04	29.83	5.21	U	3.24	NA	NA	2.70	0.15	3.59	0.08	3.82	0.07	1.38	0.48	1.67
A4_8-12cm	22.14	5.76	16.38	74.30	3.56	NA	NA	U	0.75	NA	NA	-1.74	3.35	0.35	0.78	0.32	0.80	1.68	0.05	0.98
A4_30-32cm	45.10	28.30	16.80	53.81	1.09	NA	NA	B	0.75	-2.74	NA	-3.33	10.03	-0.74	1.67	-0.94	1.91	1.70	-0.15	0.79
A4_90-95cm	65.96	54.75	11.21	32.30	1.74	NA	NA	T	-4.73	-2.74	0.75	-4.76	27.02	-2.31	4.95	-2.02	4.04	2.39	0.20	1.69
A4_143-153cm	48.78	35.05	13.73	48.09	3.13	NA	NA	B	-0.24	-3.74	NA	-4.13	17.55	-0.93	1.90	-1.13	2.19	2.31	-0.06	0.86
A4_213-216cm	3.33	0.57	2.76	91.53	5.14	3.76	1.38	U	1.25	NA	NA	-0.23	1.18	1.20	0.44	1.21	0.43	1.27	0.11	1.47
A4_248-253cm	4.71	1.71	3.00	91.09	4.20	NA	NA	U	1.25	NA	NA	-0.32	1.25	0.96	0.51	0.95	0.52	1.09	0.05	1.73
A4_288-290cm	0.40	0.00	0.40	90.72	8.88	5.60	3.28	U	1.75	NA	NA	0.71	0.61	1.69	0.31	1.88	0.27	1.29	0.39	2.16
A4_326-328cm	7.72	3.59	4.13	89.48	2.80	NA	NA	U	1.75	NA	NA	-0.57	1.48	1.17	0.44	1.03	0.49	1.13	-0.25	1.46
A4_358-360cm	1.03	0.42	0.61	95.99	2.98	NA	NA	U	1.75	NA	NA	0.54	0.69	1.42	0.37	1.37	0.39	0.69	-0.07	1.32
A4_408-410cm	0.08	0.00	0.08	95.59	4.33	NA	NA	U	1.75	NA	NA	0.82	0.57	1.64	0.32	1.61	0.33	0.70	0.07	1.66
A4_444-446cm	0.00	0.00	0.00	15.96	84.04	63.12	20.92	B	4.50	1.75	NA	3.53	0.09	5.24	0.03	6.11	0.01	2.85	0.45	1.50
A4_491-495cm	0.00	0.00	0.00	40.06	59.94	46.82	13.12	U	3.73	NA	NA	3.14	0.11	4.34	0.05	4.84	0.03	2.25	0.55	1.93
A4_536-539cm	1.13	0.00	1.13	97.72	1.15	NA	NA	U	1.25	NA	NA	0.04	0.97	1.07	0.48	0.99	0.50	0.68	-0.21	1.12
A4_575-577cm	33.65	24.52	9.13	62.48	3.87	NA	NA	B	0.75	-3.74	NA	-3.84	14.34	0.02	0.98	-0.72	1.64	2.41	-0.26	1.06

Vibracores A3 and A4: Grain Size Distribution

UNH Sample ID	Class % phi -4.5	Class % phi -4.0	Class % phi -3.5	Class % phi -3.0	Class % phi -2.5	Class % phi -2.0	Class % phi -1.5	Class % phi -1.0	Class % phi -0.5	Class % phi 0.0	Class % phi 0.5	Class % phi 1.0	Class % phi 1.5	Class % phi 2.0	Class % phi 2.5	Class % phi 3.0	Class % phi 3.5	Class % phi 4.0	Class % phi > 4.0	Class % phi 5.0	Class % phi 6.0	Class % phi 7.0	Class % phi 8.0	Class % phi 9.0	Class % phi 10.0	Class % phi > 10.0
A3_20-22cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.30	0.77	2.95	16.87	33.14	33.42	7.72	2.29	2.41	NA	NA	NA	NA	NA	NA	NA
A3_100-102cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.13	2.01	17.65	34.07	33.96	7.61	2.17	2.34	NA	NA	NA	NA	NA	NA	NA
A3_145-147cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09	0.25	0.19	17.82	33.48	34.65	8.05	2.95	2.50	NA	NA	NA	NA	NA	NA	NA
A3_265-267cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.13	0.36	2.59	15.08	29.21	35.73	11.32	3.51	1.78	NA	NA	NA	NA	NA	NA	NA
A3_302-304cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.05	0.06	0.19	0.99	5.80	16.81	48.36	17.16	4.08	NA	2.39	0.78	0.62	0.43	0.31	0.43	1.51
A3_422-424cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.06	0.13	0.45	1.76	5.79	26.07	32.95	19.42	NA	5.48	1.73	1.20	0.82	0.63	0.54	2.92
A3_464-466cm	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.02	0.03	0.04	0.12	0.28	0.58	2.23	15.16	28.74	20.74	NA	18.74	4.93	2.33	1.06	0.88	0.68	3.31
A3_564-566cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.01	0.06	0.10	0.19	0.54	2.16	15.99	26.77	19.07	NA	19.88	6.16	2.50	1.30	0.89	0.87	3.45
A4_8-12cm	0.00	0.00	0.00	0.00	1.22	4.54	8.53	7.85	9.62	10.16	11.38	12.85	9.69	8.19	5.56	2.83	2.93	1.09	3.56	NA	NA	NA	NA	NA	NA	NA
A4_30-32cm	0.00	0.00	8.30	5.19	9.24	5.59	8.72	8.08	9.70	10.33	11.74	12.03	6.22	2.42	0.80	0.23	0.23	0.10	1.09	NA	NA	NA	NA	NA	NA	NA
A4_90-95cm	22.21	0.00	8.09	7.98	8.93	7.54	6.93	4.28	4.07	3.57	4.52	7.72	7.05	3.28	1.06	0.51	0.32	0.20	1.74	NA	NA	NA	NA	NA	NA	NA
A4_143-153cm	5.82	5.76	6.81	5.67	5.23	5.76	6.74	7.00	8.68	8.53	8.45	7.69	4.60	4.43	3.29	1.38	0.65	0.38	3.13	NA	NA	NA	NA	NA	NA	NA
A4_213-216cm	0.00	0.00	0.00	0.00	0.00	0.57	1.11	1.65	3.52	6.07	10.47	18.46	20.43	16.74	8.08	3.70	2.85	1.21	NA	1.88	1.12	0.39	0.36	0.18	0.20	1.00
A4_248-253cm	0.00	0.00	0.00	0.00	0.36	1.35	1.20	1.80	3.20	6.04	12.63	25.30	24.74	11.79	3.86	1.77	1.16	0.60	4.20	NA	NA	NA	NA	NA	NA	NA
A4_288-290cm	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.30	0.68	1.50	3.64	8.98	22.16	32.33	10.81	3.95	4.20	2.47	NA	2.96	1.38	0.85	0.41	0.36	0.71	2.21
A4_326-328cm	0.00	0.00	3.05	0.00	0.34	0.20	1.89	2.25	2.73	5.23	9.67	16.73	23.06	23.80	5.45	1.13	1.13	0.56	2.80	NA	NA	NA	NA	NA	NA	NA
A4_358-360cm	0.00	0.00	0.00	0.00	0.41	0.00	0.14	0.48	0.67	1.73	5.37	14.81	31.07	32.63	7.28	1.10	0.86	0.48	2.98	NA	NA	NA	NA	NA	NA	NA
A4_408-410cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.18	0.89	2.95	9.31	24.20	42.73	12.89	1.17	0.75	0.53	4.33	NA	NA	NA	NA	NA	NA	NA
A4_444-446cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.10	0.21	0.79	1.59	2.21	0.99	0.71	2.61	6.72	NA	29.60	19.58	9.27	4.66	4.30	4.35	12.26
A4_491-495cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.14	0.39	0.66	1.40	1.03	2.13	14.26	19.99	NA	28.94	11.36	4.37	2.15	1.53	2.13	9.46
A4_536-539cm	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.97	2.32	5.57	11.75	24.15	34.98	16.66	1.15	0.37	0.52	0.24	1.15	NA	NA	NA	NA	NA	NA	NA
A4_575-577cm	0.00	6.25	12.22	1.62	2.23	2.19	4.37	4.76	6.71	9.12	11.53	13.14	11.79	6.01	1.02	0.39	1.36	1.41	3.87	NA	NA	NA	NA	NA	NA	NA

Section 7: Vibracores A5, A6(1), A6(2) and A6(3)

Vibracores A5, A6(1), A6(2), and A6(3): Identification, Location, and Description

UNH Sample ID	Global Core Link ID	BOEM Global Sample ID	Latitude NAD83	Longitude NAD83	Position Uncertainty	Water Depth (m)	Diameter (cm)	Core Length (m)	Vibracore Collected	Sample Depth (cm)	Total Wt (gm)	Munsell Hue	Munsell Value	Munsell Chroma
A5_20-22cm	AT1-88-A5	AT1-88-A5_20-22cm_D19880922	43.0033	-70.6667	250m	19.0*	8.9	3.36	09/22-25/1988	20-22	71.60	10YR	4	2
A5_80-82cm	AT1-88-A5	AT1-88-A5_80-82cm_D19880922	43.0033	-70.6667	250m	19.0*	8.9	3.36	09/22-25/1988	80-82	66.64	N4	NA	NA
A5_121-123cm	AT1-88-A5	AT1-88-A5_121-123cm_D19880922	43.0033	-70.6667	250m	19.0*	8.9	3.36	09/22-25/1988	121-123	144.93	N5	NA	NA
A5_163-167cm	AT1-88-A5	AT1-88-A5_163-167cm_D19880922	43.0033	-70.6667	250m	19.0*	8.9	3.36	09/22-25/1988	163-167	72.61	5Y	4	1
A5_171-173cm	AT1-88-A5	AT1-88-A5_171-173cm_D19880922	43.0033	-70.6667	250m	19.0*	8.9	3.36	09/22-25/1988	171-173	23.83	5Y	4	1
A5_205-207cm	AT1-88-A5	AT1-88-A5_205-207cm_D19880922	43.0033	-70.6667	250m	19.0*	8.9	3.36	09/22-25/1988	205-207	18.88	5Y	4	1
A5_221-223cm	AT1-88-A5	AT1-88-A5_221-223cm_D19880922	43.0033	-70.6667	250m	19.0*	8.9	3.36	09/22-25/1988	221-223	14.00	5Y	4	1
A5_271-273cm	AT1-88-A5	AT1-88-A5_271-273cm_D19880922	43.0033	-70.6667	250m	19.0*	8.9	3.36	09/22-25/1988	271-273	50.01	N5	NA	NA
A5_331-333cm	AT1-88-A5	AT1-88-A5_331-333cm_D19880922	43.0033	-70.6667	250m	19.0*	8.9	3.36	09/22-25/1988	331-333	49.54	N5	NA	NA
A6(1)_58-60cm	AT1-88-A6 (1)	AT1-88-A6 (1)_58-60cm_D19880922	42.9317	-70.7633	250m	22.1	8.9	2.27	09/22-25/1988	58-60	71.96	5Y	6	1
A6(1)_110-112cm	AT1-88-A6 (1)	AT1-88-A6 (1)_110-112cm_D19880922	42.9317	-70.7633	250m	22.1	8.9	2.27	09/22-25/1988	110-112	40.87	5Y	6	1
A6(1)-2_148-150cm	AT1-88-A6 (1)-2	AT1-88-A6 (1)-2_148-150cm_D19880922	42.9317	-70.7633	250m	22.1	8.9	2.27	09/22-25/1988	148-150	38.86	5Y	6	1
A6(1)-2_198-200cm	AT1-88-A6 (1)-2	AT1-88-A6 (1)-2_198-200cm_D19880922	42.9317	-70.7633	250m	22.1	8.9	2.27	09/22-25/1988	198-200	39.47	5Y	6	1
A6(2)_10-12cm	AT1-88-A6 (2)	AT1-88-A6 (2)_10-12cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	1.62	09/22-25/1988	10-12	34.53	5Y	6	1
A6(2)_32-34cm	AT1-88-A6 (2)	AT1-88-A6 (2)_32-34cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	1.62	09/22-25/1988	32-34	40.74	5Y	4	1
A6(2)_48-50cm	AT1-88-A6 (2)	AT1-88-A6 (2)_48-50cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	1.62	09/22-25/1988	48-50	42.45	5Y	4	1
A6(2)_148-150cm	AT1-88-A6 (2)	AT1-88-A6 (2)_148-150cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	1.62	09/22-25/1988	148-150	33.62	5Y	6	1
A6(3)_30-32cm	AT1-88-A6 (3)	AT1-88-A6 (3)_30-32cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	5.92	09/22-25/1988	30-32	74.46	10YR	6	6
A6(3)_123-125cm	AT1-88-A6 (3)	AT1-88-A6 (3)_123-125cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	5.92	09/22-25/1988	123-125	74.24	10YR	6	6
A6(3)_183-185cm	AT1-88-A6 (3)	AT1-88-A6 (3)_183-185cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	5.92	09/22-25/1988	183-185	76.19	10YR	6	6
A6(3)_281-283cm	AT1-88-A6 (3)	AT1-88-A6 (3)_281-283cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	5.92	09/22-25/1988	281-283	79.79	10YR	6	6
A6(3)_337-339cm	AT1-88-A6 (3)	AT1-88-A6 (3)_337-339cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	5.92	09/22-25/1988	337-339	116.14	5Y	6	1
A6(3)_417-419cm	AT1-88-A6 (3)	AT1-88-A6 (3)_417-419cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	5.92	09/22-25/1988	417-419	56.45	5Y	6	1
A6(3)_485-487cm	AT1-88-A6 (3)	AT1-88-A6 (3)_485-487cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	5.92	09/22-25/1988	485-487	54.80	5Y	6	1
A6(3)_560-563cm	AT1-88-A6 (3)	AT1-88-A6 (3)_560-563cm_D19880922	42.9317	-70.7633	250m	22.9	8.9	5.92	09/22-25/1988	560-563	62.18	5Y	6	1

*Estimated from high-resolution bathymetry map

Vibracores A5, A6(1), A6(2), and A6(3): Sediment Classifications

UNH Sample ID	CMECS Substrate Component Group (Specific)	CMECS Substrate Component Subgroup (Specific)	Textural Group from %GSM (Gradistat)	Textural Group from %SZC (Gradistat) Ignores Gravel	Sediment Name from %GSM and Mode (Gradistat)	Sediment Name from %GSM and Mode (Wentworth Scale)	Sediment Classification from Mean Phi (Gradistat)	Sediment Classification from Mean Phi (Wentworth)	Sorting (Gradistat)
A5_20-22cm	Pebble Mixes	Sandy Pebble Gravel	Sandy Gravel	Sand	Sandy Medium Gravel	Sandy Pebble Gravel	Very Fine Gravel	Granule Gravel	Very Poorly Sorted
A5_80-82cm	Pebble Mixes	Sandy Pebble Gravel	Sandy Gravel	Sand	Sandy Coarse Gravel	Sandy Pebble Gravel	Fine Gravel	Pebble Gravel	Very Poorly Sorted
A5_121-123cm	Pebble Mixes	Sandy Pebble Gravel	Sandy Gravel	Sand	Sandy Coarse Gravel	Sandy Pebble Gravel	Fine Gravel	Pebble Gravel	Very Poorly Sorted
A5_163-167cm	Pebble Mixes	Sandy Pebble Gravel	Sandy Gravel	Sand	Sandy Coarse Gravel	Sandy Pebble Gravel	Very Coarse Sand	Very Coarse Sand	Very Poorly Sorted
A5_171-173cm	Muddy Sand	Silty Very Fine Sand	Muddy Sand	Silty Sand	Very Coarse Silty Very Fine Sand	Very Coarse Silty Very Fine Sand	Very Fine Sand	Very Fine Sand	Very Poorly Sorted
A5_205-207cm	Slightly Pebbly	Slightly Pebbly Very Fine Sandy Silt	Slightly Gravelly Sandy Mud	Sandy Silt	Slightly Fine Gravelly Very Fine Sandy Very Coarse Silt	Slightly Pebbly Very Fine Sandy Very Coarse Silt	Very Coarse Silt	Very Coarse Silt	Poorly Sorted
A5_221-223cm	Sandy Mud	Very Fine Sandy Silt	Sandy Mud	Sandy Silt	Very Fine Sandy Very Coarse Silt	Very Fine Sandy Very Coarse Silt	Very Coarse Silt	Coarse Silt	Very Poorly Sorted
A5_271-273cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Poorly Sorted
A5_331-333cm	Pebbly	Pebbly Medium Sand	Gravelly Sand	Sand	Fine Gravelly Medium Sand	Pebbly Medium Sand	Medium Sand	Medium Sand	Poorly Sorted
A6(1)_58-60cm	Pebbly	Pebbly Medium Sand	Gravelly Sand	Sand	Medium Gravelly Medium Sand	Pebbly Medium Sand	Coarse Sand	Coarse Sand	Very Poorly Sorted
A6(1)_110-112cm	Sand	Fine Sand	Sand	Sand	Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Well Sorted
A6(1)-2_148-150cm	Sand	Fine Sand	Sand	Sand	Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Well Sorted
A6(1)-2_198-200cm	Sand	Fine Sand	Sand	Sand	Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Well Sorted
A6(2)_10-12cm	Slightly Granuley	Slightly Granuley Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Fine Sand	Slightly Granular Fine Sand	Fine Sand	Fine Sand	Poorly Sorted
A6(2)_32-34cm	Slightly Granuley	Slightly Granuley Very Fine Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Very Fine Sand	Slightly Granular Very Fine Sand	Fine Sand	Fine Sand	Poorly Sorted
A6(2)_48-50cm	Sand	Medium Sand	Sand	Sand	Well Sorted Medium Sand	Medium Sand	Medium Sand	Medium Sand	Well Sorted
A6(2)_148-150cm	Sand	Fine Sand	Sand	Sand	Well Sorted Fine Sand	Fine Sand	Fine Sand	Fine Sand	Well Sorted
A6(3)_30-32cm	Sand	Medium Sand	Sand	Sand	Well Sorted Medium Sand	Medium Sand	Medium Sand	Medium Sand	Well Sorted
A6(3)_123-125cm	Sand	Medium Sand	Sand	Sand	Well Sorted Medium Sand	Medium Sand	Medium Sand	Medium Sand	Well Sorted
A6(3)_183-185cm	Sand	Medium Sand	Sand	Sand	Well Sorted Medium Sand	Medium Sand	Medium Sand	Medium Sand	Well Sorted
A6(3)_281-283cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Sorted
A6(3)_337-339cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Moderately Sorted
A6(3)_417-419cm	Slightly Pebbly	Slightly Pebbly Very Fine Sandy Silt	Slightly Gravelly Sandy Mud	Sandy Silt	Slightly Fine Gravelly Very Fine Sandy Very Coarse Silt	Slightly Pebbly Very Fine Sandy Very Coarse Silt	Coarse Silt	Medium Silt	Very Poorly Sorted
A6(3)_485-487cm	Slightly Granuley	Slightly Granuley Medium Sandy Silt-Clay	Slightly Gravelly Sandy Mud	Sandy Mud	Slightly Very Fine Gravelly Medium Sandy Mud	Slightly Granular Medium Sandy Mud	Fine Silt	Very Fine Silt	Very Poorly Sorted
A6(3)_560-563cm	Sandy Mud	Very Fine Sandy Silt-Clay	Sandy Mud	Sandy Silt	Very Fine Sandy Very Coarse Silt	Very Fine Sandy Very Coarse Silt	Medium Silt	Medium Silt	Very Poorly Sorted

Vibracores A5, A6(1), A6(2), and A6(3): Grain Size Statistics

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Modes	Mode 1 (phi)	Mode 2 (phi)	Mode 3 (phi)	D_{10} (phi)	D_{10} (mm)	D_{50} (phi)	D_{50} (mm)	Mean Size (phi)	Mean Size (mm)	Sorting (phi)	Skewness	Kurtosis
A5_80-82cm	66.65	54.26	12.39	30.55	2.80	NA	NA	B	-4.24	-1.24	NA	-4.31	19.78	-2.42	5.35	-2.11	4.30	2.10	0.30	0.72
A5_121-123cm	71.31	65.52	5.79	26.42	2.27	NA	NA	U	-4.73	NA	NA	-4.87	29.20	-4.04	16.47	-2.84	7.14	2.24	0.71	0.62
A5_163-167cm	32.91	31.91	1.00	61.88	5.21	4.43	0.78	B	-4.24	1.75	NA	-4.25	18.99	1.19	0.44	-0.23	1.17	2.86	-0.49	0.64
A5_171-173cm	0.00	0.00	0.00	61.68	38.32	31.21	7.11	U	3.24	NA	NA	1.67	0.31	3.49	0.09	3.65	0.08	2.18	0.32	1.46
A5_205-207cm	1.03	1.03	0.00	33.93	65.04	56.91	8.13	U	4.50	NA	NA	2.47	0.18	4.39	0.05	4.47	0.04	1.98	0.23	2.49
A5_221-223cm	0.00	0.00	0.00	42.81	57.19	45.68	11.51	U	3.73	NA	NA	2.17	0.22	4.32	0.05	4.60	0.04	2.43	0.32	1.80
A5_271-273cm	1.79	0.00	1.79	93.00	5.21	4.84	0.37	U	1.75	NA	NA	0.33	0.79	1.66	0.32	1.66	0.32	1.14	0.07	1.38
A5_331-333cm	6.01	4.20	1.81	88.67	5.32	4.48	0.84	B	1.75	-2.74	NA	-0.12	1.09	1.69	0.31	1.58	0.34	1.34	-0.14	1.79
A6(1)_58-60cm	22.42	20.15	2.26	76.82	0.76	NA	NA	B	1.75	-3.74	NA	-3.14	8.84	1.57	0.34	0.42	0.75	2.19	-0.66	2.05
A6(1)_110-112cm	0.00	0.00	0.00	99.41	0.59	NA	NA	U	2.24	NA	NA	1.59	0.33	2.22	0.22	2.22	0.22	0.48	0.01	0.97
A6(1)-2_148-150cm	0.00	0.00	0.00	99.34	0.66	NA	NA	U	2.24	NA	NA	2.01	0.25	2.46	0.18	2.48	0.18	0.43	0.06	1.00
A6(1)-2_198-200cm	0.00	0.00	0.00	99.35	0.65	NA	NA	U	2.24	NA	NA	2.04	0.24	2.46	0.18	2.49	0.18	0.40	0.13	0.93
A6(2)_10-12cm	0.86	0.00	0.86	97.19	1.95	NA	NA	U	2.74	NA	NA	0.49	0.71	2.35	0.20	2.18	0.22	1.11	-0.28	1.07
A6(2)_32-34cm	0.85	0.00	0.85	93.06	6.09	5.23	0.86	U	3.24	NA	NA	1.10	0.47	2.79	0.14	2.67	0.16	1.14	-0.20	0.96
A6(2)_48-50cm	0.00	0.00	0.00	99.56	0.44	NA	NA	U	1.75	NA	NA	1.52	0.35	1.88	0.27	1.94	0.26	0.42	0.22	1.09
A6(2)_148-150cm	0.00	0.00	0.00	99.42	0.58	NA	NA	U	2.74	NA	NA	2.09	0.23	2.60	0.17	2.57	0.17	0.39	0.00	0.93
A6(3)_30-32cm	0.00	0.00	0.00	99.85	0.15	NA	NA	U	1.75	NA	NA	1.11	0.46	1.68	0.31	1.64	0.32	0.40	-0.07	1.10
A6(3)_123-125cm	0.00	0.00	0.00	99.79	0.21	NA	NA	U	1.75	NA	NA	1.20	0.43	1.77	0.29	1.79	0.29	0.45	0.08	1.30
A6(3)_183-185cm	0.00	0.00	0.00	99.78	0.22	NA	NA	U	1.75	NA	NA	1.46	0.36	1.86	0.28	1.91	0.27	0.41	0.14	1.11
A6(3)_281-283cm	0.13	0.00	0.13	99.37	0.50	NA	NA	U	1.75	NA	NA	0.61	0.66	1.73	0.30	1.66	0.32	0.71	-0.21	1.10
A6(3)_337-339cm	1.01	0.07	0.94	97.94	1.05	NA	NA	U	1.75	NA	NA	0.12	0.92	1.57	0.34	1.38	0.38	0.87	-0.30	1.17
A6(3)_417-419cm	2.59	1.82	0.78	20.89	76.52	59.80	16.72	U	4.50	NA	NA	3.42	0.09	4.78	0.04	5.56	0.02	2.62	0.50	1.72
A6(3)_485-487cm	0.09	0.00	0.09	11.18	88.73	46.63	42.10	B	6.50	1.75	NA	3.40	0.09	7.48	0.01	7.96	0.00	3.26	0.12	1.17
A6(3)_560-563cm	0.00	0.00	0.00	24.49	75.51	49.88	25.63	U	3.73	NA	NA	3.51	0.09	4.90	0.03	6.23	0.01	3.06	0.63	0.97

Vibracores A5, A6(1), A6(2), and A6(3): Grain Size Distribution

UNH Sample ID	Class % phi -4.5	Class % phi -4.0	Class % phi -3.5	Class % phi -3.0	Class % phi -2.5	Class % phi -2.0	Class % phi -1.5	Class % phi -1.0	Class % phi -0.5	Class % phi 0.0	Class % phi 0.5	Class % phi 1.0	Class % phi 1.5	Class % phi 2.0	Class % phi 2.5	Class % phi 3.0	Class % phi 3.5	Class % phi 4.0	Class % phi > 4.0	Class % phi 5.0	Class % phi 6.0	Class % phi 7.0	Class % phi 8.0	Class % phi 9.0	Class % phi 10.0	Class % phi > 10.0
A5_20-22cm	0.00	19.44	16.24	4.45	4.48	3.16	5.86	5.27	6.33	4.82	4.88	6.55	8.05	4.25	1.46	0.83	0.51	0.37	3.06	NA	NA	NA	NA	NA	NA	NA
A5_80-82cm	0.00	27.05	11.50	5.01	5.77	4.94	5.69	6.70	6.81	6.73	6.29	4.50	2.54	1.46	0.75	0.65	0.44	0.38	2.80	NA	NA	NA	NA	NA	NA	NA
A5_121-123cm	45.07	5.40	5.74	4.53	2.54	2.23	2.44	3.35	4.14	4.68	5.65	6.12	3.97	1.07	0.28	0.22	0.16	0.14	2.27	NA	NA	NA	NA	NA	NA	NA
A5_163-167cm	0.00	20.37	4.91	2.92	2.79	0.91	0.63	0.37	0.49	0.91	2.31	7.04	16.86	20.06	7.21	3.61	2.01	1.37	NA	2.40	1.28	0.49	0.25	0.20	0.12	0.46
A5_171-173cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.05	0.13	0.67	4.78	11.93	9.13	10.64	12.28	11.95	NA	17.86	8.52	3.53	1.30	1.22	1.03	4.87
A5_205-207cm	0.00	0.00	0.00	0.00	0.00	1.03	0.00	0.00	0.11	0.18	0.40	0.87	1.94	3.06	2.44	2.81	6.48	15.63	NA	38.74	12.84	3.71	1.62	1.24	1.32	5.56
A5_221-223cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.44	0.65	1.15	2.35	3.98	3.83	5.27	8.07	16.98	NA	22.23	15.51	5.33	2.61	1.82	2.32	7.36
A5_271-273cm	0.00	0.00	0.00	0.00	0.00	0.00	0.78	1.02	1.38	2.70	6.13	11.96	18.48	23.24	15.58	8.65	2.82	2.07	NA	2.58	1.24	0.70	0.32	0.11	0.21	0.05
A5_331-333cm	0.00	0.00	0.00	0.00	3.71	0.50	0.54	1.27	1.82	2.89	4.91	9.20	15.88	24.06	18.44	8.13	1.91	1.44	NA	2.58	1.13	0.49	0.27	0.21	0.36	0.26
A6(1)_58-60cm	0.00	0.00	9.12	1.25	6.22	3.56	1.38	0.89	0.69	0.48	0.66	3.15	17.38	34.33	10.93	6.06	2.04	1.10	0.76	NA	NA	NA	NA	NA	NA	NA
A6(1)_110-112cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.15	0.68	4.10	25.48	42.68	22.98	3.00	0.28	0.59	NA	NA	NA	NA	NA	NA	NA
A6(1)-2_148-150cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.05	0.14	0.48	8.42	42.56	40.02	7.19	0.47	0.66	NA	NA	NA	NA	NA	NA	NA
A6(1)-2_198-200cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.22	5.95	45.26	40.30	6.85	0.70	0.65	NA	NA	NA	NA	NA	NA	NA
A6(2)_10-12cm	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.67	1.90	2.93	4.34	6.02	8.73	13.07	16.31	23.96	15.66	4.27	1.95	NA	NA	NA	NA	NA	NA	NA
A6(2)_32-34cm	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.39	0.72	1.77	2.18	2.98	7.09	14.45	13.04	11.61	20.08	19.13	NA	4.52	0.33	0.21	0.17	0.12	0.05	0.69
A6(2)_48-50cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.29	7.40	55.27	27.27	7.82	1.21	0.24	0.44	NA	NA	NA	NA	NA	NA	NA
A6(2)_148-150cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.05	0.21	3.09	34.84	51.07	9.15	0.98	0.58	NA	NA	NA	NA	NA	NA	NA
A6(3)_30-32cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.28	3.77	25.55	54.32	13.13	1.43	1.22	0.09	NA	0.15	0.00	0.00	0.00	0.00	0.00	0.00
A6(3)_123-125cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	2.25	18.67	53.21	19.99	3.06	2.35	0.17	0.21	NA	NA	NA	NA	NA	NA	NA
A6(3)_183-185cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.04	0.83	9.87	54.52	28.32	4.06	1.99	0.14	NA	0.22	0.00	0.00	0.00	0.00	0.00	0.00
A6(3)_281-283cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.69	1.83	5.32	9.17	17.04	33.61	25.76	4.33	1.52	0.08	0.50	NA	NA	NA	NA	NA	NA	NA
A6(3)_337-339cm	0.00	0.00	0.00	0.00	0.00	0.07	0.25	0.69	2.32	4.52	8.78	11.29	16.29	36.57	12.80	3.40	1.68	0.28	NA	0.28	0.16	0.60	0.00	0.00	0.00	0.00
A6(3)_417-419cm	0.00	0.00	0.00	0.00	1.57	0.25	0.61	0.17	0.04	0.07	0.10	0.18	0.38	1.22	0.77	0.79	4.36	12.98	NA	34.16	14.91	6.65	4.08	3.23	3.24	10.25
A6(3)_485-487cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.07	0.05	0.28	0.58	1.56	2.98	1.82	1.48	1.28	1.07	NA	3.73	11.83	15.87	15.20	10.84	7.58	23.68
A6(3)_560-563cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.14	0.39	0.59	0.89	0.80	1.29	4.62	15.71	NA	28.56	11.76	5.04	4.52	4.65	4.69	16.29

Section 8: Vibracores A7(1), A7(2) and A8

Vibracores A7(1), A7(2), and A8: Identification, Location, and Description

UNH Sample ID	Global Core Link ID	BOEM Global Sample ID	Latitude NAD83	Longitude NAD83	Position Uncertainty	Water Depth (m)	Diameter (cm)	Core Length (m)	Vibracore Collected	Sample Depth (cm)	Total Wt (gm)	Munsell Hue	Munsell Value	Munsell Chroma
A7(1)_10-12cm	AT1-88-A7 (1)	AT1-88-A7 (1)_10-12cm_D19880922	42.9483	-70.7533	250m	24.4	8.9	1.32	09/22-25/1988	10-12	43.81	5Y	6	1
A7(1)_60-64cm	AT1-88-A7 (1)	AT1-88-A7 (1)_60-64cm_D19880922	42.9483	-70.7533	250m	24.4	8.9	1.32	09/22-25/1988	60-64	106.75	10YR	4	2
A7(1)_120-122cm	AT1-88-A7 (1)	AT1-88-A7 (1)_120-122cm_D19880922	42.9483	-70.7533	250m	24.4	8.9	1.32	09/22-25/1988	120-122	26.85	10YR	4	2
A7(2)_28-30cm	AT1-88-A7 (2)	AT1-88-A7 (2)_28-30cm_D19880922	42.9483	-70.7533	250m	25.0	8.9	2.05	09/22-25/1988	28-30	42.45	5Y	2	1
A7(2)_52-56cm	AT1-88-A7 (2)	AT1-88-A7 (2)_52-56cm_D19880922	42.9483	-70.7533	250m	25.0	8.9	2.05	09/22-25/1988	52-56	146.67	5Y	2	1
A7(2)_90-94cm	AT1-88-A7 (2)	AT1-88-A7 (2)_90-94cm_D19880922	42.9483	-70.7533	250m	25.0	8.9	2.05	09/22-25/1988	90-94	95.26	5Y	6	1
A7(2)_134-138cm	AT1-88-A7 (2)	AT1-88-A7 (2)_134-138cm_D19880922	42.9483	-70.7533	250m	25.0	8.9	2.05	09/22-25/1988	134-138	152.52	5Y	4	1
A7(2)_160-162cm	AT1-88-A7 (2)	AT1-88-A7 (2)_160-162cm_D19880922	42.9483	-70.7533	250m	25.0	8.9	2.05	09/22-25/1988	160-162	29.92	5Y	6	1
A8_20-22cm	AT1-88-A8	AT1-88-A8_20-22cm_D19880922	42.9417	-70.7517	250m	24.7	8.9	4.04	09/22-25/1988	20-22	93.72	5Y	6	1
A8_88-90cm	AT1-88-A8	AT1-88-A8_88-90cm_D19880922	42.9417	-70.7517	250m	24.7	8.9	4.04	09/22-25/1988	88-90	74.89	5Y	6	1
A8_119-121cm	AT1-88-A8	AT1-88-A8_119-121cm_D19880922	42.9417	-70.7517	250m	24.7	8.9	4.04	09/22-25/1988	119-121	52.36	5Y	6	1
A8_202-204cm	AT1-88-A8	AT1-88-A8_202-204cm_D19880922	42.9417	-70.7517	250m	24.7	8.9	4.04	09/22-25/1988	202-204	49.23	5Y	6	1
A8_282-284cm	AT1-88-A8	AT1-88-A8_282-284cm_D19880922	42.9417	-70.7517	250m	24.7	8.9	4.04	09/22-25/1988	282-284	47.01	5Y	6	1
A8_384-386cm	AT1-88-A8	AT1-88-A8_384-386cm_D19880922	42.9417	-70.7517	250m	24.7	8.9	4.04	09/22-25/1988	384-386	46.60	5Y	6	1

Vibracores A7(1), A7(2), and A8: Sediment Classifications

UNH Sample ID	CMECS Substrate Component Group (Specific)	CMECS Substrate Component Subgroup (Specific)	Textural Group from %GSM (Gradistat)	Textural Group from %SZC (Gradistat) Ignores Gravel	Sediment Name from %GSM and Mode (Gradistat)	Sediment Name from %GSM and Mode (Wentworth Scale)	Sediment Classification from Mean Phi (Gradistat)	Sediment Classification from Mean Phi (Wentworth)	Sorting (Gradistat)
A7(1)_10-12cm	Slightly Granuley	Slightly Granuley Medium Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Medium Sand	Slightly Granular Medium Sand	Medium Sand	Medium Sand	Poorly Sorted
A7(1)_60-64cm	Pebble Gravel	Pebble Gravel	Gravel	Silty Sand	Coarse Gravel	Pebble Gravel	Medium Gravel	Pebble Gravel	Very Poorly Sorted
A7(1)_120-122cm	Pebble Mixes	Silty Sandy Pebble Gravel	Muddy Sandy Gravel	Silty Sand	Very Coarse Silty Sandy Coarse Gravel	Very Coarse Silty Sandy Pebble Gravel	Fine Gravel	Pebble Gravel	Very Poorly Sorted
A7(2)_28-30cm	Slightly Granuley	Slightly Granuley Coarse Sand	Slightly Gravelly Sand	Sand	Slightly Very Fine Gravelly Coarse Sand	Slightly Granular Coarse Sand	Coarse Sand	Coarse Sand	Poorly Sorted
A7(2)_52-56cm	Pebble Mixes	Sandy Pebble Gravel	Sandy Gravel	Sand	Sandy Very Coarse Gravel	Sandy Pebble Gravel	Fine Gravel	Pebble Gravel	Very Poorly Sorted
A7(2)_90-94cm	Granuley	Granular Coarse Sand	Gravelly Sand	Sand	Very Fine Gravelly Coarse Sand	Granular Coarse Sand	Coarse Sand	Coarse Sand	Poorly Sorted
A7(2)_134-138cm	Pebble Mixes	Sandy Pebble Gravel	Sandy Gravel	Sand	Sandy Coarse Gravel	Sandy Pebble Gravel	Very Fine Gravel	Granule Gravel	Very Poorly Sorted
A7(2)_160-162cm	Pebble Mixes	Silty Sandy Pebble Gravel	Muddy Sandy Gravel	Silty Sand	Very Coarse Silty Sandy Medium Gravel	Very Coarse Silty Sandy Pebble Gravel	Coarse Sand	Coarse Sand	Very Poorly Sorted
A8_20-22cm	Pebble Mixes	Sandy Pebble Gravel	Sandy Gravel	Sand	Sandy Medium Gravel	Sandy Pebble Gravel	Very Coarse Sand	Very Coarse Sand	Very Poorly Sorted
A8_88-90cm	Pebble Mixes	Silty Sandy Pebble Gravel	Muddy Sandy Gravel	Silty Sand	Very Coarse Silty Sandy Coarse Gravel	Very Coarse Silty Sandy Pebble Gravel	Medium Sand	Medium Sand	Extremely Poorly Sorted
A8_119-121cm	Pebbly	Pebbly Silty-Clayey Fine Sand	Gravelly Muddy Sand	Silty Sand	Medium Gravelly Very Coarse Silty Very Fine Sand	Pebbly Very Coarse Silty Fine Sand	Fine Sand	Fine Sand	Extremely Poorly Sorted
A8_202-204cm	Pebble Mixes	Silty-Clayey Pebble Gravel	Muddy Gravel	Silty Sand	Very Coarse Silty Coarse Gravel	Very Coarse Silty Pebble Gravel	Medium Sand	Medium Sand	Extremely Poorly Sorted
A8_282-284cm	Pebble Mixes	Silty Sandy Pebble Gravel	Muddy Sandy Gravel	Silty Sand	Very Coarse Silty Sandy Coarse Gravel	Very Coarse Silty Sandy Pebble Gravel	Medium Sand	Medium Sand	Extremely Poorly Sorted
A8_384-386cm	Pebbly	Pebbly Silt	Gravelly Mud	Sandy Silt	Coarse Gravelly Very Coarse Silt	Pebbly Very Coarse Silt	Medium Sand	Medium Sand	Extremely Poorly Sorted

Vibracores A7(1), A7(2), and A8: Grain Size Statistics

UNH Sample ID	Gravel %	Pebble %	Granule %	Sand %	Mud %	Silt %	Clay %	Modes	Mode 1 (phi)	Mode 2 (phi)	Mode 3 (phi)	D_{10} (phi)	D_{10} (mm)	D_{50} (phi)	D_{50} (mm)	Mean Size (phi)	Mean Size (mm)	Sorting (phi)	Skewness	Kurtosis
A7(1)_10-12cm	3.37	0.18	3.19	91.74	4.89	3.75	1.14	U	1.75	NA	NA	-0.09	1.06	1.59	0.33	1.62	0.32	1.38	0.03	1.08
A7(1)_60-64cm	84.80	81.02	3.78	9.98	5.22	4.75	0.47	U	-4.24	NA	NA	-4.35	20.45	-3.60	12.15	-3.04	8.21	2.05	0.68	2.20
A7(1)_120-122cm	74.02	65.92	8.10	19.31	6.67	5.66	1.01	U	-4.24	NA	NA	-4.39	21.01	-4.02	16.25	-2.34	5.07	2.81	0.90	1.10
A7(2)_28-30cm	4.19	0.00	4.19	92.70	3.11	NA	NA	U	1.25	NA	NA	-0.66	1.58	0.81	0.57	0.84	0.56	1.26	0.11	1.06
A7(2)_52-56cm	68.36	60.70	7.66	29.52	2.12	NA	NA	U	-5.24	NA	NA	-5.36	40.96	-3.26	9.59	-2.50	5.64	2.79	0.41	0.64
A7(2)_90-94cm	21.16	10.22	10.94	77.84	1.00	NA	NA	B	0.75	-3.24	NA	-2.04	4.10	0.32	0.80	0.17	0.89	1.61	-0.19	1.10
A7(2)_134-138cm	69.54	58.68	10.86	28.23	2.23	NA	NA	T	-4.73	-3.24	-2.24	-4.83	28.52	-2.63	6.17	-1.95	3.85	2.79	0.38	0.71
A7(2)_160-162cm	34.60	25.16	9.43	47.40	18.00	15.24	2.76	B	-3.24	1.75	NA	-3.32	9.97	0.93	0.52	0.74	0.60	3.41	0.02	0.82
A8_20-22cm	40.78	35.54	5.24	55.50	3.72	NA	NA	B	0.75	-3.24	NA	-4.02	16.17	0.03	0.98	-0.66	1.58	2.35	-0.28	0.78
A8_88-90cm	32.95	30.32	2.63	35.35	31.70	22.29	9.41	B	-4.24	2.74	NA	-4.31	19.79	1.99	0.25	1.38	0.39	4.85	-0.03	0.68
A8_119-121cm	17.32	11.39	5.93	47.60	35.08	23.41	11.67	B	2.74	-3.24	NA	-2.29	4.88	2.61	0.16	2.75	0.15	4.16	0.12	1.16
A8_202-204cm	34.22	32.05	2.17	30.30	35.48	23.37	12.11	U	-4.24	NA	NA	-4.33	20.10	2.18	0.22	1.69	0.31	5.17	0.01	0.66
A8_282-284cm	34.56	30.16	4.40	37.93	27.51	18.85	8.66	B	-4.24	3.24	NA	-4.19	18.19	1.44	0.37	1.08	0.47	4.64	0.05	0.75
A8_384-386cm	27.44	24.38	3.06	32.29	40.27	28.99	11.28	B	-4.24	3.24	NA	-4.24	18.86	3.03	0.12	1.98	0.25	5.06	-0.13	0.83

Vibracores A7(1), A7(2), and A8: Grain Size Distribution

UNH Sample ID	Class % phi -5.0	Class % phi -4.5	Class % phi -4.0	Class % phi -3.5	Class % phi -3.0	Class % phi -2.5	Class % phi -2.0	Class % phi -1.5	Class % phi -1.0	Class % phi -0.5	Class % phi 0.0	Class % phi 0.5	Class % phi 1.0	Class % phi 1.5	Class % phi 2.0	Class % phi 2.5	Class % phi 3.0	Class % phi 3.5	Class % phi 4.0	Class % phi > 4.0	Class % phi 5.0	Class % phi 6.0	Class % phi 7.0	Class % phi 8.0	Class % phi 9.0	Class % phi 10.0	Class % phi > 10.0
A7(1)_10-12cm	0.00	0.00	0.00	0.00	0.00	0.00	0.18	1.27	1.92	2.66	4.87	8.65	12.15	15.39	16.14	11.42	9.41	7.35	3.70	NA	2.61	0.57	0.43	0.14	0.27	0.17	0.70
A7(1)_60-64cm	0.00	0.00	36.83	17.08	10.87	12.27	3.98	2.12	1.66	1.18	0.85	0.77	0.85	0.88	1.07	0.94	1.07	1.03	1.34	NA	2.44	1.82	0.44	0.06	0.07	0.10	0.30
A7(1)_120-122cm	0.00	0.00	52.35	0.00	7.84	1.16	4.58	5.88	2.21	2.80	2.13	1.99	1.85	1.79	2.02	1.63	1.91	1.67	1.52	NA	2.27	1.71	1.10	0.58	0.24	0.34	0.43
A7(2)_28-30cm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05	3.14	8.81	12.11	15.30	15.32	15.19	12.00	6.35	4.04	2.30	1.28	3.11	NA	NA	NA	NA	NA	NA	NA
A7(2)_52-56cm	37.85	0.00	9.66	0.00	5.39	3.76	4.04	4.22	3.44	3.68	3.53	3.92	4.09	4.51	4.25	2.46	1.54	0.98	0.56	2.12	NA	NA	NA	NA	NA	NA	NA
A7(2)_90-94cm	0.00	0.00	0.00	0.00	6.38	0.84	3.00	5.29	5.65	9.53	10.86	13.16	13.75	12.69	9.94	4.63	2.20	0.70	0.39	1.00	NA	NA	NA	NA	NA	NA	NA
A7(2)_134-138cm	0.00	34.27	0.00	3.93	7.13	6.43	6.93	6.41	4.44	3.07	2.03	2.35	3.02	3.67	4.02	3.25	3.25	2.19	1.37	2.23	NA	NA	NA	NA	NA	NA	NA
A7(2)_160-162cm	0.00	0.00	0.00	6.51	10.15	2.96	5.55	3.86	5.58	3.82	3.53	4.11	4.56	5.31	6.30	5.30	5.75	4.73	4.00	NA	6.45	4.28	2.87	1.64	0.92	0.75	1.09
A8_20-22cm	0.00	0.00	10.31	2.89	13.21	6.72	2.41	3.07	2.17	3.33	5.14	11.83	16.03	8.92	3.62	1.95	2.22	1.54	0.92	3.72	NA	NA	NA	NA	NA	NA	NA
A8_88-90cm	0.00	0.00	27.27	0.00	0.00	2.02	1.03	1.09	1.54	1.76	1.88	2.48	3.15	3.60	4.22	4.02	5.17	4.52	4.54	NA	8.15	5.92	4.95	3.27	2.31	1.82	5.27
A8_119-121cm	0.00	0.00	0.00	0.00	6.92	2.13	2.35	2.32	3.61	2.90	3.47	4.66	5.34	5.03	5.17	4.64	5.85	5.26	5.28	NA	9.17	6.01	4.77	3.47	2.56	2.16	6.95
A8_202-204cm	0.00	0.00	31.12	0.00	0.00	0.00	0.93	0.76	1.41	1.51	1.49	2.10	2.76	3.10	3.46	3.58	4.33	4.06	3.91	NA	7.30	6.06	5.55	4.46	3.24	2.25	6.61
A8_282-284cm	0.00	0.00	16.14	11.09	0.00	1.23	1.70	2.09	2.31	2.29	2.70	3.35	3.56	4.01	4.33	3.67	5.05	4.60	4.36	NA	7.45	5.03	3.56	2.81	2.27	1.30	5.09
A8_384-386cm	0.00	0.00	19.51	0.00	2.13	1.27	1.47	1.68	1.38	1.92	1.53	1.94	2.38	2.90	3.57	3.25	4.79	4.84	5.17	NA	9.87	8.46	6.00	4.67	2.95	2.10	6.22

Appendix C: Archived Grain Size Data for Vibracores

Sediment grain size data from samples from the vibracores taken on the New Hampshire continental shelf in 1984 ("UNH" series) reported in Birch (1986b) and from the vibracores collected in 1988 ("A" series) and reported in Ward (1989) are given below. The "UNH" series includes % Gravel, % Sand, and % Mud for samples with negligible (<0.9%) or no gravel content. The "A" series includes mean grain size (phi) and sorting (phi) for the sand fraction only. Details of the anaytical procedures are given in the Methods section of this report.

Core ID	Sample Depth (cm)	Gravel %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)
UNH-4	115	0.4	93.0	6.7	3.4	3.3	NA	NA
UNH-4	396	0.0	59.9	40.1	31.2	8.9	NA	NA
UNH-4	619	0.9	15.6	84.5	39.8	44.7	NA	NA
UNH-6	70	0.0	86.9	13.1	10.1	3.0	NA	NA
UNH-6	291	0.2	7.5	92.4	41.3	51.1	NA	NA
UNH-6	474	0.0	3.6	96.5	42.7	53.8	NA	NA
UNH-6A	142	0.0	93.9	6.1	2.4	3.7	NA	NA
UNH-6A	244	0.2	92.7	7.2	3.8	3.4	NA	NA
UNH-6A	550	0.0	2.2	97.9	55.1	42.8	NA	NA
UNH-9	98	0.0	4.7	95.3	43.3	52.0	NA	NA
UNH-9	424	0.9	1.8	98.2	41.0	57.2	NA	NA
UNH-10	30	0.4	23.6	76.1	71.1	5.0	NA	NA
UNH-10	148	0.0	0.8	99.2	48.7	50.5	NA	NA
UNH-10	328	0.1	0.7	99.3	38.3	61.0	NA	NA
UNH-10	449	0.3	1.2	98.4	39.4	59.0	NA	NA
UNH-10	589	0.0	0.7	99.3	42.8	56.5	NA	NA
UNH-13	20	0.2	90.1	9.7	4.0	5.7	NA	NA
UNH-13	250	0.0	21.7	78.2	39.9	38.3	NA	NA
UNH-13	413	0.0	8.2	91.8	43.5	48.3	NA	NA
UNH-14	30	0.1	92.9	7.0	3.6	3.4	NA	NA
UNH-14	155	0.0	86.7	13.4	11.1	2.3	NA	NA
UNH-14	410	0.0	3.2	96.8	48.1	48.7	NA	NA
UNH-14	531	0.0	1.7	98.3	45.4	52.9	NA	NA
UNH-14	733	0.0	5.7	94.2	39.3	54.9	NA	NA

Core ID	Sample Depth (cm)	Gravel %	Sand %	Mud %	Silt %	Clay %	Mean Size (phi)	Sorting (phi)
A1	5	3	97	1	NA	NA	1.00	0.54
A1	70	<1	99	<1	NA	NA	1.30	0.47
A1	200	1	98	1	NA	NA	1.10	0.50
A1	310	6	93	1	NA	NA	0.90	0.77
A1	390	0	95	5	NA	NA	2.20	0.52
A2	5	1	98	1	NA	NA	1.40	0.48
A2	50	3	96	1	NA	NA	1.20	0.53
A2	170	1	98	1	NA	NA	1.30	0.53
A2	310	0	92	8	NA	NA	2.60	0.61
A2	390	0	89	11	NA	NA	3.00	0.36
A2	500	0	76	24	NA	NA	3.20	0.34
A2	700	3	35	62	NA	NA	3.00	0.78
A3	5	0	99	1	NA	NA	1.70	0.72
A3	120	0	98	2	NA	NA	2.50	0.48
A3	225	0	97	3	NA	NA	2.40	0.57
A3	370	0	85	15	NA	NA	2.70	0.58
A3	570	0	51	49	NA	NA	3.20	0.55
A4	30	28*	70	2	NA	NA	0.70	0.79
A4	220	6	91	3	NA	NA	1.20	0.97
A4	350	2	96	2	NA	NA	1.20	0.70
A4	470	0	17	83	NA	NA	3.00	0.76
A5	50	39*	56	5	NA	NA	0.60	0.90
A5	200	0	33	67	NA	NA	2.90	0.88
A5	300	2	90	8	NA	NA	1.80	1.03
A6(1)	30	0	97	3	NA	NA	2.40	0.91
A6(1)	90	0	>99	<1	NA	NA	2.20	0.41
A6(1)	150	<1	>99	<1	NA	NA	2.50	0.40
A6(1)	210	0	>99	<1	NA	NA	2.50	0.35
A6(2)	10	3	95	2	NA	NA	2.30	0.93
A6(2)	30	0	93	7	NA	NA	2.60	0.89
A6(2)	60	0	99	1	NA	NA	1.90	0.30
A6(2)	140	0	99	1	NA	NA	2.70	0.26
A6(3)	30	0	>99	<1	NA	NA	1.70	0.39
A6(3)	120	0	>99	<1	NA	NA	1.80	0.46
A6(3)	220	0	>99	<1	NA	NA	2.00	0.42
A6(3)	350	<1	>99	<1	NA	NA	1.70	0.57
A6(3)	470	0	4	96	NA	NA	NA	NA
A6(3)	580	0	2	98	NA	NA	NA	NA
A7(1)	10	3	92	5	NA	NA	1.70	1.10
A7(1)	30	9	83	8	NA	NA	1.70	1.05
A7(1)	125	12	48	40	NA	NA	1.90	1.35
A7(2)	30	2	93	5	NA	NA	0.90	0.98
A7(2)	90	27	71	2	NA	NA	0.60	0.95
A7(2)	195	16	72	12	NA	NA	2.00	1.18
A8	30	16	72	12	NA	NA	1.20	1.16
A8	60	6	49	45	NA	NA	1.90	1.34
A8	175	14	45	41	NA	NA	1.90	1.37
A8	395	8	46	46	NA	NA	1.90	1.35

*Textural information is for matrix, excluding large clasts