Delaware Geological Survey University of Delaware, Newark, DE 19716-7501

DELAWARE OFFSHORE GEOLOGIC INVENTORY
2001 TO 2007

April 2010

Prepared for:

US Minerals Management Service
Cooperative Agreement No. 1435-Q1-01-CA-31157

Prepared by:

Kimberly K. McKenna
Project Geologist

Kelvin W. Ramsey
Geologist

Executive Summary

Episodic large storms and trends in long-term shoreline change continue to erode Delaware's beaches. To combat the erosion, beach nourishment is the preferred method for maintaining the Atlantic shoreline of Delaware for the purpose of protecting structures and infrastructure. State, local, and federal governments have contributed to the protection against coastal erosion. There were a number of government-sponsored beach fills between 1957 and 2005, and those amounted to emplacing 9,491,799 cubic yards at a cost of $23,960,001 (DNREC, 2005 spreadsheet). Most of the sand used for these projects came from upland sites and several areas offshore Delaware. As those sites become depleted, new sources of sand must be found.

Over the past 18 years, the Delaware Geological Survey (DGS) has compiled a geologic database titled the Delaware Offshore Geologic Inventory (DOGI). This database contains information on the location of potential sand resources from state and federal waters for use in beach nourishment. The DGS has worked in partnership with the US Minerals Management Service (MMS) and the Delaware Department of Natural Resources and Environmental Control (DNREC) to determine the offshore geologic framework and to identify new sources of beach-quality sand. Also included in the DOGI are vibracores (cores) that were taken from offshore Delaware. The DGS maintains the state's offshore core repository.

This report represents a compilation of data that has been collected for the DOGI from 2001 to 2007 in partnership with MMS. During this time period, a total of 61 cores were collected in the Atlantic waters offshore Delaware for the purpose of determining potential borrow areas that could be used for beach nourishment. These cores, as well as lithologic information from an additional 33 cores taken by the US Army Corps of Engineers (USACE) were added to the DOGI database. A discussion of the DOGI vibracores collected between 1971 and 1997 is included in Ramsey and McKenna (1999) and in McKenna and Ramsey (2002). With the addition of the 94 vibracores from this study, the DOGI database totals 362. This study is a continuation of the development of an offshore sand resources inventory and relates the distribution, texture and location of sand bodies to the stratigraphic framework.

Results from the evaluation of all cores show that potential borrow areas exist offshore Rehoboth Bay and Indian River Inlet in state and in federal waters, but not from Hen and Chickens Shoal. The proposed borrow locations are found 4 to 10 nautical miles (8 to 19 km) southeast of Rehoboth Beach and are assumed to contain a minimum of 5 feet (1.5m) sand thickness. A minimum volume of beach-quality sand available from the two locations is approximately 66 million cubic yards (51 million cubic meters). Other areas offshore to the northeast of Bethany Beach and east of Hen and Chickens Shoal show promise of beach-quality material and should be further investigated.

The DGS DOGI website has been redesigned for greater public access and has been updated with the lithologic descriptions and resource ratings for all vibracores collected and analyzed in this compilation period.

Table of Contents

List of Figures

List of Tables

Appendices

INTRODUCTION

Storms and trends in long-term shoreline change continue to erode Delaware's beaches. To combat the erosion, beach nourishment is the preferred method for maintaining the Atlantic shoreline of Delaware for the purpose of protecting structures and infrastructure. State, local, and federal governments have contributed to the protection against coastal erosion. There were a number of government-sponsored beach fills between 1957 and 2005, and those amounted to 9,491,799 cubic yards at a cost of $23,960,001 (DNREC, 2005 spreadsheet). Most of the sand used for these projects came from upland sites and several areas offshore Delaware. As those sites become depleted, new sources of sand must be found.

Over the past 18 years, the Delaware Geological Survey (DGS) has compiled a geologic database of potential sand resources from state and federal waters for use in beach nourishment. The DGS has worked in partnership with the US Minerals Management Service (MMS) and the Delaware Department of Natural Resources and Environmental Control (DNREC) to determine the offshore geologic framework, identify new sources of beach-quality sand, and is the state's repository of offshore cores.

The purpose of this study is to review the textural and stratigraphic properties of 94 vibracores (cores) taken from offshore Delaware in federal and state waters between 2001 and 2007, and determine potential borrow areas that could be used for beach nourishment. This study is a continuation of the development of an offshore sand resources inventory and relates the distribution, texture and location of sand bodies to the stratigraphic framework.

Acknowledgements

This research was supported by the US Minerals Management Service, Sand and Gravel Program under Cooperative Agreement No. 1435-Q1-01-CA-31157. In addition, the Division of Soil and Water Conservation, DNREC provided financial assistance under Agreement No. 1435-01-01-CA-31157 for additional cores taken in 2007. Lillian T. Wang produced the offshore geologic framework map and cross section. Stephanie Nebel and Amanda Rose Lusas assisted in describing the cores, preparing samples, and converting the information to digital form. Emily Cahoon and Curt Romanach assisted in data compilation. Sample textural analyses were completed at the Virginia Institute of Marine Science under the direction of Carol Pollard. The authors appreciate the assistance of Jim Beideman of Schnabel Engineering North, LLC and Michael Hart of the U.S. Army Corps of Engineers-Philadelphia District who provided detailed information for the USACE 2007 cores. This report was reviewed by Stefanie J. Baxter and John H. Talley.

Previous Research

Previous compilations of sand resource data have been published for offshore Delaware (Ramsey and McKenna, 1999; McKenna, 2000; McKenna and Ramsey, 2002; McKenna and Ramsey, 2003; and McKenna and Ramsey, 2009). These compilations of sediment data from the Delaware Offshore Geological Inventory (DOGI) have led to the identification of potential

borrow areas for beach nourishment as well as have enabled the development of a geologic framework.

The sediments obtained from borrow areas are expected to be consistent with the recommendations presented by Ramsey (1999a) who compiled sediment grab sample data from previous studies of Delaware Atlantic beaches. Textural characteristics were determined from sampling the beach and nearshore and represent the "native composite" for size and sorting that are stable under average wave and current activity. Samples were acquired over a period of 55 years (1929 to 1984) by the US Army Corps of Engineers (USACE), and by students from the University of Delaware, Department of Geology. These data were collected prior to any major beach nourishment projects. The recommended textural criteria that represents the average "native composite" for the entire Delaware Atlantic coast should have the following criteria: mean grain size between 1.5 to 0.5 phi (0.35mm to 1.42mm); 0.5 phi or less sorting; and a negative skewness (desired) (Ramsey, 1999a). Although there are some textural differences along the Atlantic beaches, placement of nourished sand material should be in the coarse sand or the coarse half of the medium sand range. The sediment should be well to very well sorted and skewed toward an excess of coarse material. The methods used to produce this report follow previous studies for labeling offshore litholgy and quantifying potential borrow locations.

Contract reports provided vibracore locations, penetration, and brief visual core descriptions (Alpine Ocean Seismic Survey, Inc, 2001; 2004; 2007; Schnabel Engineering, 2007). These reports were used in processing the cores at the DGS.

Geologic framework studies have been conducted for the onshore portion of the Delaware Atlantic coast (Groot, Ramsey, and Wehmiller, 1990; Ramsey, 1999b; Andres and Klingbeil, 2006; McLaughlin et al., 2008) and on a geologic map (Ramsey, 2003). These studies provide detailed characterization of the sediment units that are exposed onshore. This allows us to better correlate the units that translate offshore.

TASKS

From 2001 to 2007 (compilation time period) several proposals were submitted to MMS for the geologic framework studies offshore Delaware. The following is a list of tasks completed by the DGS in accordance with those proposals.

Purchase Vibracores

Alpine Ocean Seismic Survey, Inc. of Norwood, NJ provided vibracores from offshore Delaware in federal waters. During the period of compilation, additional vibracores were taken in state waters. To consolidate use of public state and federal funding, the cores in state waters were purchased using funds from the Delaware Department of Natural Resources and Environmental Control (DNREC) or from the US Army Corps of Engineers, Philadelphia District (USACE). The vibracore data sets gathered and evaluated for this report include:

2001 – 23 vibracores
2004 – 12 vibracores
2007 – 59 vibracores

In the 2007 study, two vibracore datasets were reviewed. The first dataset consisted of 33 vibracores extracted for the USACE by Alpine Ocean Seismic Survey, Inc. (2007). The vibracores were evaluated and processed for textural data by Schnabel Engineering North, LLC and results were reported to the USACE (Schnabel Engineering, 2007). The cores and sediment texture information were provided to the DGS for use in stack-unit analyses. This dataset was labeled *USACE 2007* cores. The second dataset included 26 vibracores extracted from the offshore area between the northern tip of Cape Henlopen to offshore Rehoboth Beach in May-June 2007. These cores were processed by the DGS, and this dataset was labeled *DGS 2007* cores (Appendix A).

Split, Describe, Sample and Add Information to DGS Core and Sample Repository

Ninety-four vibracores (including the 33 *USACE 2007* cores) were obtained during the 2001 to 2007 compilation time period. Each core was split in half lengthwise using a circular saw and one half was wrapped and archived in the DGS Core and Sample Repository. The other half of each core was described, based on a visual review of the core, for lithology, mineralogy, color, and significant features (bioorganic and sedimentary structures) and sampled at half-foot intervals for later texture analyses. In most cases, the samples contained sand. Muddy segments were not sampled as they are considered not suitable for beach nourishment sources. Isolated peats and organic materials were sampled for radiocarbon dating. Shells were obtained for amino acid racemization analysis. In addition, the depositional environment and distinct sedimentary facies were described (intertidal, lagoonal, ravinement surface, appearance of onshore units). This information was used to describe the offshore geologic framework. Lithologic descriptions were converted to digital format and are included in Appendix A.

Obtain Textural Analyses of Samples

A total of 644 sediment samples from 58 cores were sent to the Virginia Institute of Marine Science (VIMS) for processing. Vibracores that contained mud were not sampled. For each sample, statistical information provided to the DGS included mean, median, mode, skewness and kurtosis as well as the percentages of clays/silts, sand, and gravel. Textural data are presented in Appendix B.

Evaluate Area of Investigation Using Stack-Unit Methodology

The stack-unit mapping tool, as described in McKenna and Ramsey (2002), was used to determine the suitability of the geologic units within each core to native beach grain size. Each core was assigned a lithologic and resource rating potential based on its respective vertical stratigraphy and the location of beach-quality sand within the core. The lithologic and resource ratings of all 362 vibracores are provided in Appendix C and are shown by location in Plate 1.

Determine Sand Resource Potential

Based on the additional information gained from the 94 vibracores obtained during the 2001 to 2007 compilation period, potential borrow area configurations were modified from the McKenna and Ramsey (2002) proposed locations. A map and estimated volume of material is presented in the *Conclusion* section (Figure 8).

Develop Conceptual Model of the Inner Continental Shelf

Using the depositional history descriptions, a map showing the general distribution of surficial and underlying sediments was produced. In addition, age dating from specific cores was conducted to further determine the onshore-offshore relationships of the geologic units. Two 1992 analog (paper) seismic lines were scanned and included in a geographic information system to assist in the shore-parallel and shore-perpendicular assessment. A discussion of the sediment distribution and correlation with onshore geology is found in the *Geologic Framework* section of this report.

Update DGS Website

The Delaware Offshore Geologic Inventory (DOGI) database and DGS website have been updated with the lithologic descriptions and resource ratings for all vibracores collected and analyzed in this compilation period.

RESULTS

Vibracore Lithology and Sediment Textures

Ninety-four vibracores were examined for lithology and sediment texture. Sediment characteristics allowed us to determine the depositional history at each core location as well as the compatibility of the sediment for potential beach fill. The lithologic descriptions of each core are included in Appendix A.

Texture analyses were completed for 644 sediment samples from 58 vibracores. The results are included in Appendix B which provides the percentages of clay/silt, sand, and gravel as well as the graphic mean, grain size and lithologic category for each sample. Muddy cores were not sampled. A lithologic character (gravel, gravelly sand, sand, fine sand, and mud) was assigned to the sampled increments of each core and this enabled us to calculate the thicknesses of each depositional unit. Table 1 provides the criteria for the lithologic categories and resource ratings used in describing the cores.

The lithologic information from each core was logged into the DOGI database and included in a geographic information system data layer. Appendix C provides the lithologic and resource rating for all cores evaluated in this study. In general, most of the cores in this study contain sand that is considered finer than the native beach texture (52 of the 94 cores). These cores were assigned a Fair (F) or Poor (P) resource rating. When placed on the beach as fill, sediments finer than the native texture may winnow away faster than sediments coarser than the native texture. Figure 1 shows the locations of all 94 cores and their resource ratings.

The cores that show the best potential for compatibility to native beach textures are those that contain medium to coarse sand-sized sand within five to ten feet below the seafloor surface. These cores are labeled as Excellent (E) or Good (G) and comprise 42 of the 94 cores. The majority of these cores are located offshore Indian River Inlet and Bethany Beach (in federal waters) and near Cape Henlopen (Figure 1).

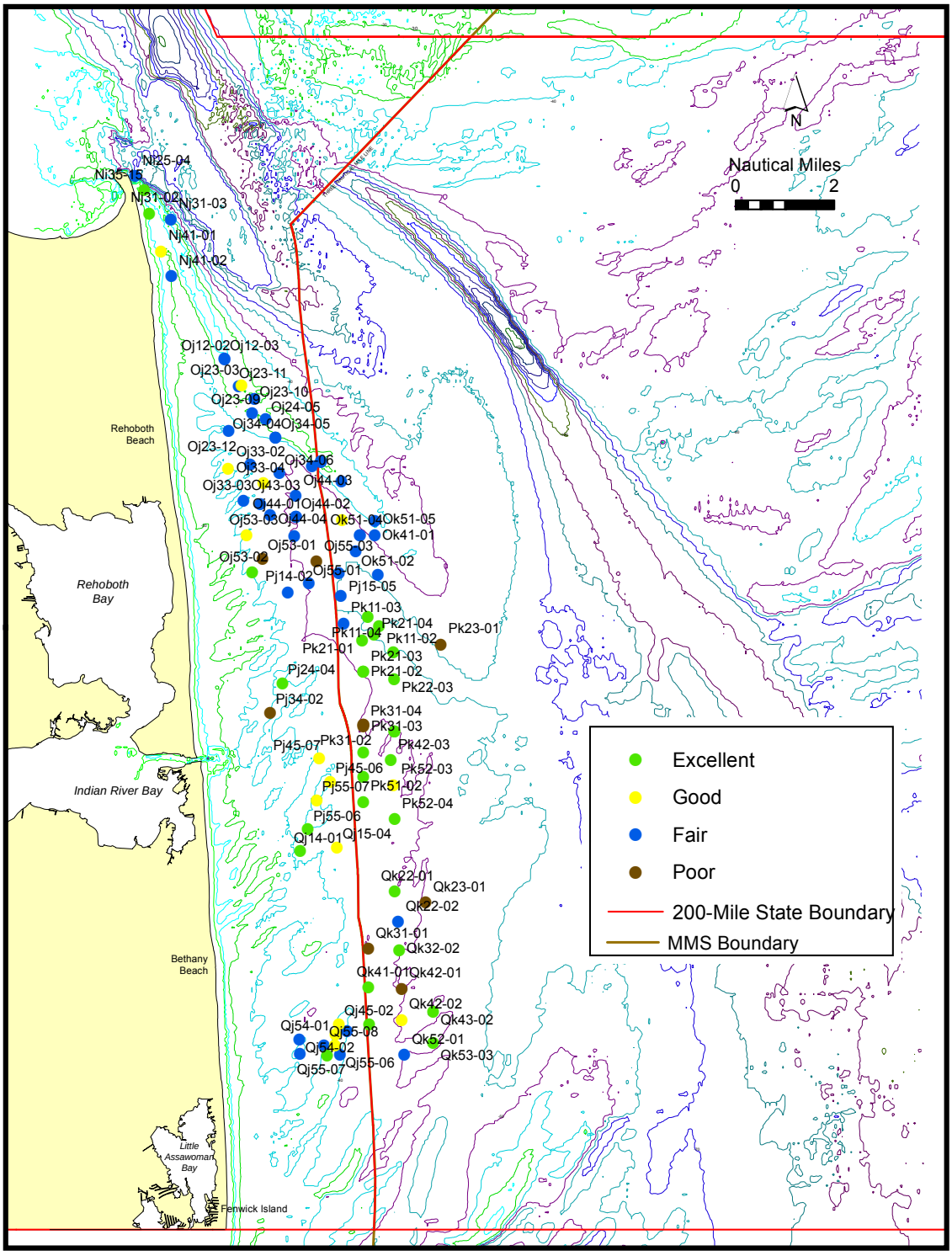


Figure 1. Map of offshore Delaware and resource ratings for vibracores taken between 2001 and 2007.

The nine cores rated Poor (P) contained predominantly muddy sediments. These cores were found in the lee of the southern tip of Hen and Chickens Shoal and in an area where a former paleovalley has been identified (Chrzastowski, 1986; Williams, 1999). Further discussion of the geologic framework follows in a later section of this report.

Table 1. Definitions of lithologic and resource rating symbols (modified from McKenna and Ramsey, 2002).

Lithologic Rating Units

Lithologic Category Symbols

G = Gravel (>2.00 mm or –1.0 to –6.0 phi) with 0 to 20% silt or sand

S = Sand (2.0 to –1.0 phi) medium to very coarse with 0 to 10% silt or gravel

L = Fine or Silty Sand (4.0 to 2.0 phi) very fine to fine with 0 to 35% silt

M = Mud (>4.0 phi) coarse silt and finer material

gS = 5 to 30% gravel in sand matrix

Thickness Category Symbols

0 to < 5 ft = lower case*	21 to 25 ft = 25
5 to 10 ft = 10	26 to 30 ft = 30
11 to 15 ft = 15	31 to 35 ft = 35
16 to 20 ft = 20	36 to 40 ft = 40

*Lithologies with a total thickness of less than 2 ft may be combined with another lithologic category. Lower case letters imply a thickness of less than 5 ft.

Resource Rating Units

EXCELLENT (E)
Cores with sediments at top: >10S; ≥10gS; ≥5S followed by ≥5gS; <5s followed by ≥10gS; ≥5gS followed by ≥5S; ≤2gS followed by ≥10S

GOOD (G)
Cores with sediments at top: between 10S and 5S; ≤5gS followed by ≥5S; ≥5gS; ≤5l followed by ≥5S

FAIR (F)
Cores with sediments at top: ≥5L; between 2s and 5s, l, or g; ≤5gS followed by l or m; <2m followed by 10S or 10L; <2s followed by >5L

POOR (P)
Cores with sediments at top: <2 feet thick; ≥2m; <2s followed by >5M; <5L followed by 10M

SUMMARY

Lithofacies

The predominant lithofacies found offshore indicate Holocene deposition, or reworking of older sands; lagoon and barrier deposits; a reworked ravinement zone which signifies an erosional surface; and sediments of the Beaverdam Formation.

Holocene Deposition

The surficial unit over the majority of the offshore is a loose (non-compacted) coarse to fine sand. The sand is pale brown to light gray in color. It commonly occurs in fining-upward sets ranging in thickness from 0.2 to 1.5 feet. At the base of these sets, the sand ranges from coarse to very coarse with abundant granules and few to common pebbles. Pebbles are quartz or chert, some of which have a reddish brown patina. Sedimentary structures are not common other than grain-size sorted laminae or rare laminae of opaque heavy minerals.

Shells range from rare to abundant in sands. The shells can be whole shells but are more commonly shell fragments that range from pebble to granule size. No articulated shells were observed. Whole shells and fragments of bivalves include *Spisula*, *Ensis*, *Mercenaria*, and *Anomia*. Gastropods include *Crepidula* and *Busycon*. The only other organic remains observed are rare echinoid spines and small corals on pebbles. In a few of the cores, burrows with a dark gray clayey silt lining are present. These burrows range from vertical to horizontal in orientation and 0.1 to 0.3 feet in diameter. The interior of the burrows contain sand, generally similar in color to the sand surrounding the burrow.

The loose, coarse to fine sand lithofacies is interpreted to have been deposited in a shallow offshore shelf environment above storm wave base. The fining-upward sets represent deposition during individual storm events. The age ranges from recent to perhaps four thousand years old (Oj53-02). The sediment source is likely the fine to very coarse compact sand lithofacies of the Beaverdam Formation.

Lagoon and Barrier Deposits

Gray to dark gray silty clay /clayey silt lagoonal deposits were found in areas of incised paleovalleys (Oj55-03). The silty clay can be (1) homogeneous mud with no discernable sedimentary structures, or (2) contain horizontal (presumably organic-rich) laminae that are darker in color (from very dark gray to black), or (3) contain thin laminae of very fine to coarse sand, organic (plant) fragments and some sand-filled burrows. This lithofacies either sharply overlies other lithofacies or, can interfinger with the interbedded gray silty clay and fine to coarse sand lithofacies.

The homogeneous variant (1) represents deeper water deposition within lagoons and corresponds to the lagoonal mud lithosome of Chrzastowski (1986). The dark banded variant (2) is interpreted to have been deposited in tidal streams adjacent to lagoons and corresponds to the tidal stream mud lithosome of Chrzastowski (1986). The thin fine to coarse variant (3) is interpreted to be sediments deposited in a setting influenced by, but not dominated by, washover. This thin laminae variant represents the distal deposition of washovers into a lagoon where sand and organic fragments were washed into the lagoon during storm events. The surface of these washovers, being somewhat shallower, was colonized by burrowing organisms that worked sand down into the burrows.

Reworked Ravinement

A distinct lithofacies indicating a ravinement surface is the muddy to sandy pebble gravels that can occur as abrupt unconformities overlying subaqueous sands of the Beaverdam Formation or lagoonal sediments. These sediment layers are generally no thicker than two feet (Oj23-12).

Beaverdam Formation

The Beaverdam Formation lithofacies consist of fine to coarse sands interbedded with fine silty sand to sandy and clayey silt. The origin of these deposits is interpreted to be fluvial and estuarine. Gravels and pebbly sand beds are common. Sediments are identified by an iron-stained, red-coated surface on sand grains, or a chalky dry coating indicating an exposure to air and wind. Burrows are generally not found in these shallow marine shelf sands (Pk11-04).

Onshore Geology

Figure 2 shows an onshore cross section of the major stratigraphic units underlying coastal Delaware. The oldest unit shown is the Beaverdam Formation (in pink) (latest Miocene to late Pliocene). This unit, which has been found to crop out on the sea floor several miles offshore, is most likely to be a source of sand. The Omar Formation (in green) is the principal unit of late Pliocene to late Pleistocene age and was deposited during several distinct transgressive events (Ramsey, 1999b). The dominant lithology is gray clayey sand to sandy silt deposited in lagoonal, tidal delta, marsh or spit environments similar to the present coastal system. Holocene sediments (in yellow) consist of fine to coarse sand, silt, silty clay, and organic rich clayey silts that were deposited over the last 10,000 years during the rise of sea level in a transgressive barrier lagoon system. The largest bodies of onshore beach-quality material can be found in the Cape Henlopen spit area (to the left) on Figure 2 and adjacent to the Indian River Inlet (about center of the map). These units have been found to project offshore, though most of the offshore area is covered with a thin veneer of recent sands and pebbles.

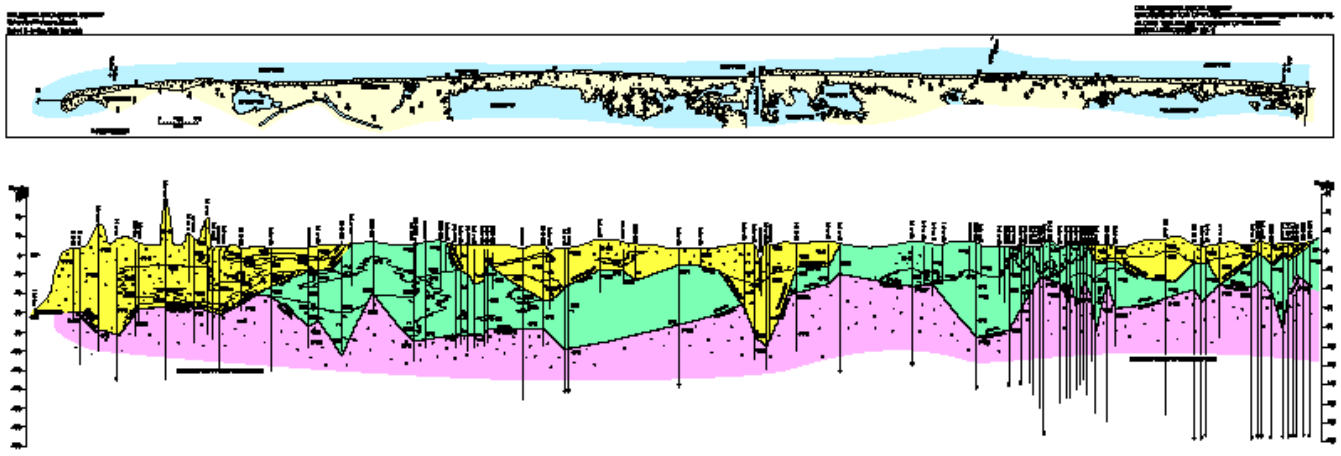


Figure 2. A cross section of Pliocene and Quaternary deposits along the Atlantic Coast of Delaware (Ramsey, 1999b). Holocene sediments (yellow), Omar Formation (green), and Beaverdam Formation (pink) are shown. For a larger version see http://www.dgs.udel.edu/publications/Pubs/MiscMaps/Misc06.pdf

Fluctuations of sea level in response to glacial and interglacial periods from the middle Pleistocene to the present are reflected in the geology of the Atlantic offshore of Delaware. Stream valleys were incised during sea level low stands during glaciations. As the glaciers melted and sea level rose, these valleys were filled with stream, swamp, marsh, and lagoon deposits and later overlain by nearshore and offshore sediment.

The geology offshore, then, is a complex of filled valleys cutting across older deposits and overlain by both recent and older offshore deposits (Figure 3). These valleys are filled primarily with fine-grained lagoonal sediments. The stratigraphic unit into which the valleys are carved is the latest Miocene to late Pliocene aged Beaverdam Formation. The Beaverdam Formation is comprised of pale yellow to yellowish brown, slightly silty to moderately silty, fine to coarse sand with pebble beds. It has a distinctive white silt matrix which distinguishes it from Pleistocene and Holocene sands. Erosion and reworking of the Beaverdam Formation is the primary source of sand and gravel found in the younger deposits. There are places in the offshore where the Beaverdam Formation (offshore Indian River Inlet) is at or very near the sea floor and overlain by only a few inches to a foot or two of recent sediment. All of the sediments comprising the Beaverdam Formation were assigned an Excellent or Good Resource Rating in the stack-unit mapping analysis.

The presence of mud-filled valleys cutting across the offshore of Delaware was recognized by Belknap and Kraft, 1985, Chrzastowski, 1986, and Williams, 1999. Dating of these sediments is based primarily on radiocarbon dating for the Holocene valley fill and aminostratigraphy of shell material for Pleistocene valley fill. The blue outline in Figure 3 shows the mud-filled valleys (in white) between the (yellow) sand areas mapped offshore from vibracore data. These filled valleys are similar in extent to those mapped offshore by Williams (1999) using both core and seismic data and onshore along the Atlantic Coast by Ramsey (1999b). The distribution of these valleys is important for mapping sand resources. Areas where the muddy valley fill is near the sea floor will generally not be an area where suitable sand resources are available.

Sandy sediments related to the most recent rise of sea level overlie most of the offshore. These sediments range from fine to coarse and in a few places consist of sandy gravel to gravel. The sands have two primary depositional origins. The first are those sands that were deposited as the shoreline transgressed leaving behind a sheet of sand deposited nearshore. These sands were subsequently reworked by storms that disturbed the sea floor and are still subject to reworking where they lie above storm wave base. These sands are generally clean, fine to coarse with granules and pebbles and usually contain abundant shell. The offshore sand ranges from a few inches to more than ten feet thick and where thick, the area is rated as good to excellent. They are found beneath the areas of little bathymetric relief (flat) offshore.

The second depositional origin is related to Hen and Chickens Shoal. The source of sediment for Hen and Chickens Shoal is carried north along the Delaware Atlantic shoreline through longshore currents to the mouth of Delaware Bay and deposited at the tip of Cape Henlopen spit. The sediments that are deposited off the spit tip are transported offshore by the ebb tidal currents out of Delaware Bay and deposited in a linear body inboard of the Delaware estuary valley that extends across the continental shelf. The shoal sands fine away from the tip of Cape Henlopen and range from clean fine to coarse near Cape Henlopen, to fine to very fine where the shoal

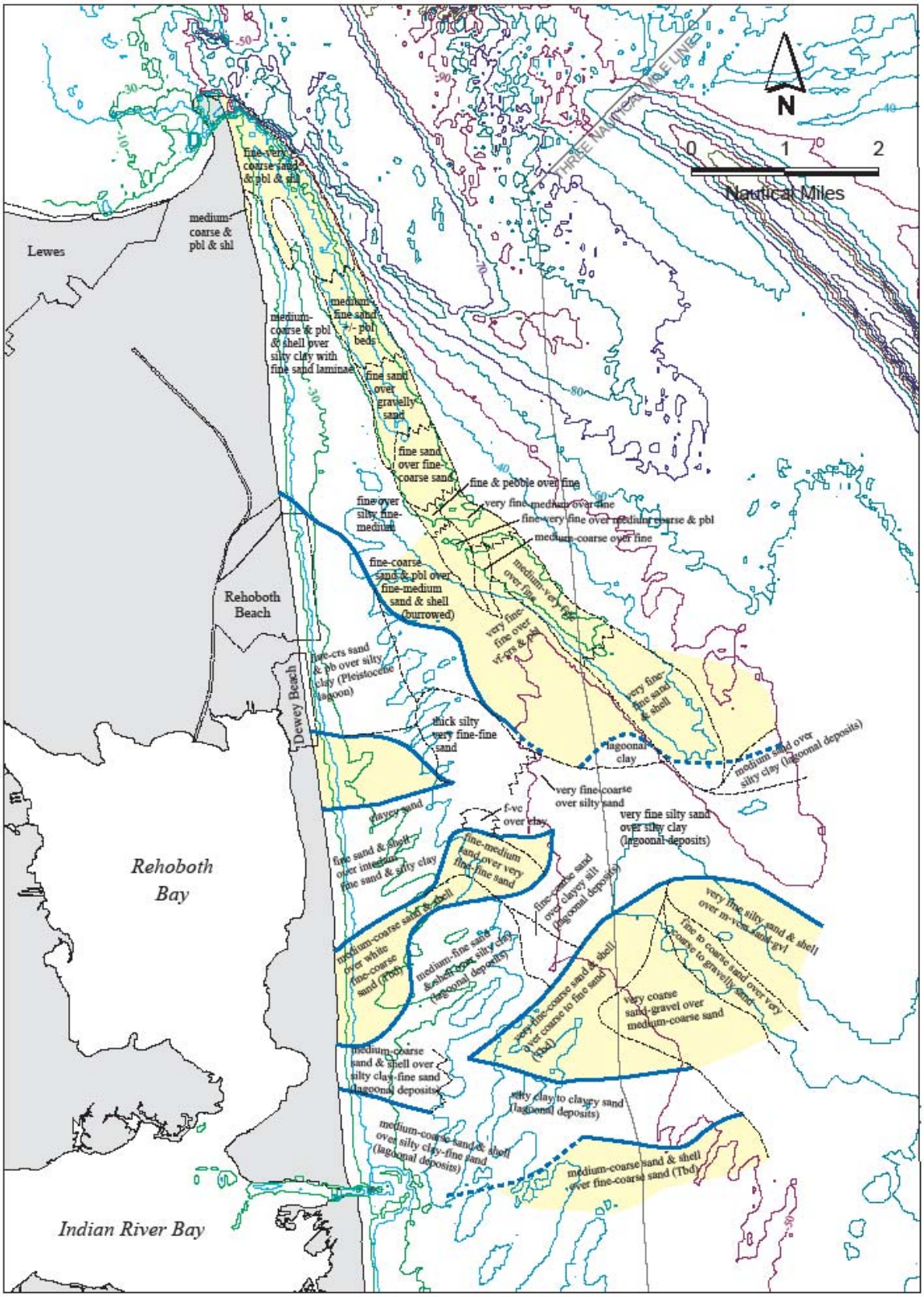


Figure 3. Offshore geologic framework for areas north of the Indian River Inlet. The yellow areas represent sandy areas, black dashed lines represent the approximate boundaries of the lithofacies, and blue lines represent the boundaries (dashed = approximate) of the paleovalleys.

grades into the flat offshore. Shell material and very coarse sand to pebbles are uncommon in these shoal deposits but are present in cores taken from the flat areas. The shoal sands rate from Excellent to Fair for sand resources.

The cross section in Figure 4 shows the relationships of the aforementioned deposits. The cross-section is constructed from interpretations of vibracores along a line roughly parallel to the present shoreline (Figure 5). On Hen and Chickens Shoal, the sediments are primarily fine to very fine sands that coarsen to fine to medium sand to the north and down in the cores. These shoal deposits contain scattered shells and zones of clay-lined burrows and cross-bedding outlined by heavy mineral laminae or contrasts in sediment texture. In places, the sediments are completely bioturbated and lack sedimentary structures. These sediments appear to be the result of high rates of relatively recent sedimentation. In core Oj23-09, a radiocarbon date of shell sampled from 14 feet in depth in the core yielded a calibrated age of 685 yrs BP. The shoal deposits overlie a platform of fine to very coarse sands of Beaverdam Formation (Figure 4).

The deposits of Hen and Chickens shoal interfinger to the south with very fine silty sands that have a common component of *Ensis* (razor clam) shells. These sediments were deposited in an area subject to lower sedimentation rates than those of the shoal where fine-grained deposits could accumulate in a lower-energy environment. These offshore deposits overlie two lagoonal bodies of differing ages (Figure 4). The northernmost body has one radiocarbon date of 44,000 years before present (ybp). Dates of this age are at the limits of the utility of radiocarbon dating and indicate that the age is beyond the limits of radiocarbon dating (older than 50,000 ybp). This lagoonal body of silty clay can be mapped onshore as the Turtle Branch Formation that has been dated by aminostratigraphy to aminozone IIc correlated with marine isotope stage 9 (approximately 320,000 ybp) (Ramsey, 2010). The lagoon deposits fill a valley incised into the Beaverdam Formation.

The two Pleistocene-aged lagoons are separated by a topographic high of the Beaverdam Formation. The southern lagoon consists of clayey silt and fills a paleovalley that is an offshore extension of Rehoboth Bay (Chrzastowski, 1986). One radiocarbon date of shell yielded a calibrated age of 11,240 ybp indicating that this lagoonal body is latest Pleistocene to Holocene in age. On the southern margin of this lagoon are organic-rich marsh deposits that rest on the Beaverdam Formation (Figure 4). A radiocarbon date from these marsh deposits yielded a calibrated age of 3,736 ybp. These lagoonal deposits appear to have been partially removed by erosion and are now overlain by silty offshore deposits with a remnant of the lagoonal sediments being preserved on the southern flank of the valley.

The southern end of the cross-section shows a deposit of clean, fine to coarse sands with scattered pebbles overlying the finer-grained sediments to the north and a topographic high of the Beaverdam Formation to the south. The Beaverdam Formation is thought to be the source of these sands where the Beaverdam was reworked by ravinement processes and storm wave activity. These clean sands are ubiquitous to the south wherever the Beaverdam Formation lies close to the present sea floor.

The stratigraphic relationships shown in the cross section are typical of the rest for offshore Delaware (Figure 4). Other lagoonal bodies were mapped off of Bethany Beach and Indian River and are similar to those off Rehoboth Beach (McKenna and Ramsey, 2006). Excellent or good potential sand resources are commonly found in the offshore areas where the source is the

Beaverdam Formation. Fine sands (fair resource potential) are found in areas that are associated with quiet water deposition or the sandier portions (overwash) of the lagoonal deposits. The areas of poor resource potential are those where lagoonal bodies are located at or near the sea floor.

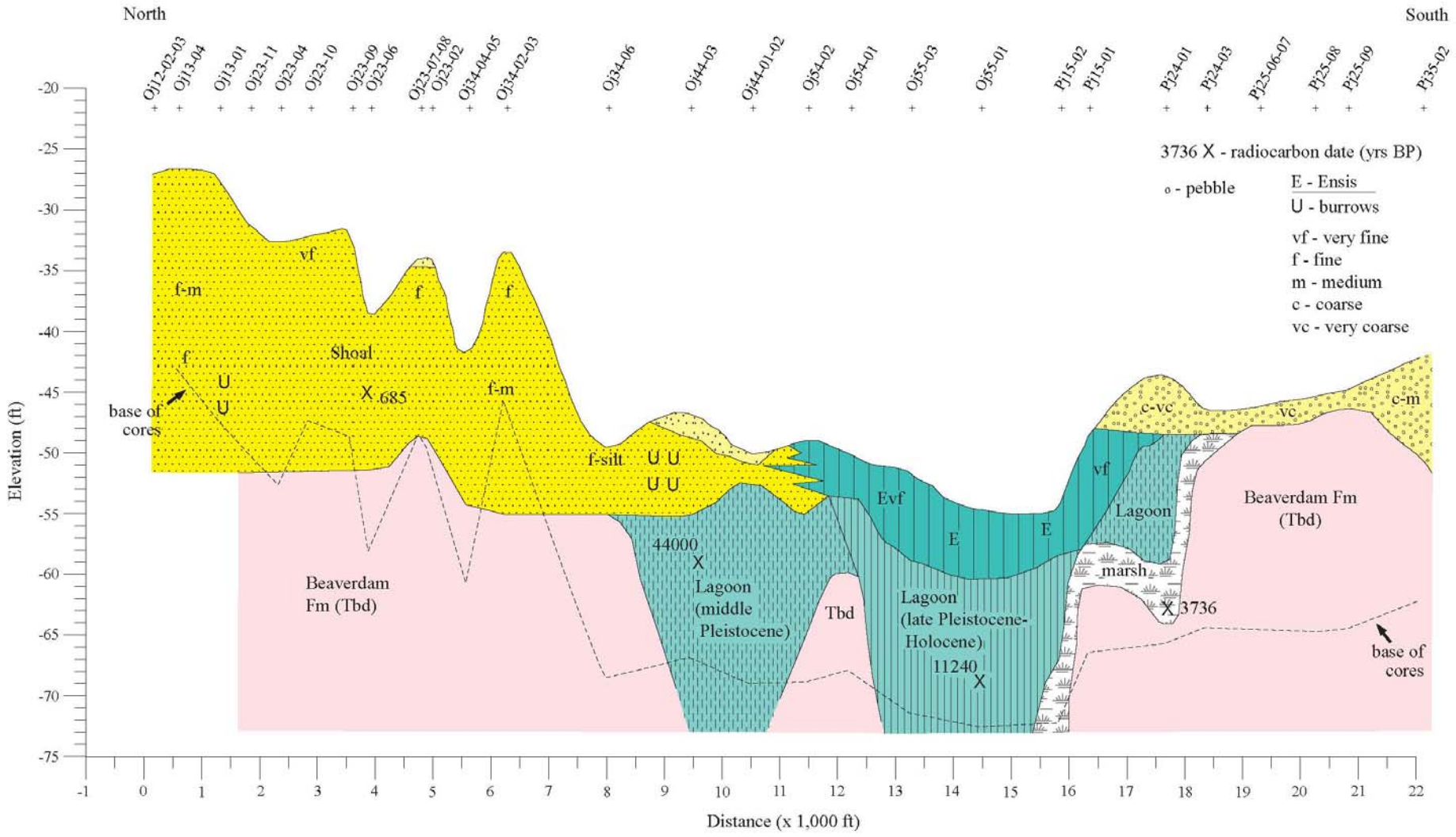


Figure 4. North-South offshore cross section showing sand deposits (yellow), lagoonal deposits (blue), marsh deposits (white) and Miocene-Pliocene-age Beaverdam deposits (pink).

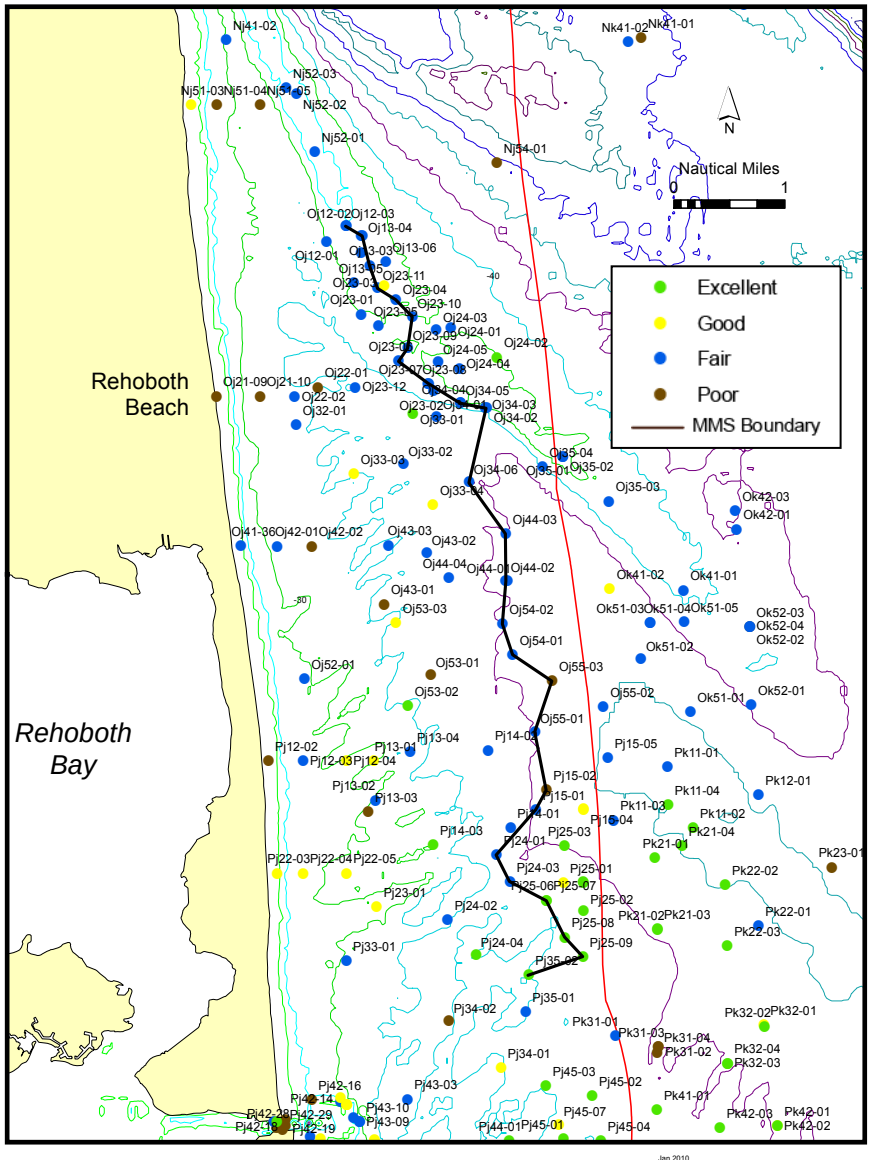


Figure 5. Location of north-south cross section (black line) and all vibracores with resource ratings in the vicinity.

Radiocarbon Dates, Sea Level, and Age of Offshore Deposits

Radiocarbon Dates

Ten radiocarbon dates were obtained (#'s 294-303 in Table 2; red locations in Figure 6). An additional 29 dates previously obtained from either offshore cores or cores taken onshore immediately adjacent to the shoreline north of Indian River Inlet and are included in Table 2 (DGS published data; Nikitina and others 2000; Ramsey and Baxter, 1996). Four dates in Table 2 that were older than 15,000 ybp were not plotted in the comparison (Figure 6). These dates represent material from Pleistocene or older deposits (dates > 44,000 ybp) or material deposited onshore during a low stand of sea level (dates between 30,000 and 15,000 ybp).

Table 2. Radiocarbon dates from sample sites offshore Atlantic and adjacent Atlantic coast of Delaware

Sample #	DGS ID	DGS RC ID	Lab ID	Surface Elev (ft)	Elev top sample (ft)	Sample Type	Conventional Age	Conv. Age +/-	Cal Age (old)	Cal Age (young)	Calibrated Age (BP)*
	Nj51-02	2	R-4104	7.38	-48.5	plant	28400	1800			
	Nj51-02	3	R-4104	7.38	-0.2	peat	190				174
	Nj51-02	4	R-4104	7.38	-20	shell	1950	200	2342	1487	1915
	Nj51-02	5	R-4104	7.38	-23	shell	3010	180	3567	1487	3168
	Ni35-03	6	R4103	5.4	-60	peat	7050	7050	8209	7511	7860
	Oj51-02	7	R4100	1.5	0.6	plant	350	350	553	127	340
	Oj51-02	8	R4100	1.5	-19.2	shell	2180	150	2505	1811	2158
	Oj51-02	9	R4100	1.5	-27.7	plant	4860	180	5951	5212	5582
	Oj51-02	10	R4100	1.5	-29	plant	5860	340	7378	5968	6683
	Oj51-01	11	R-4101	1.5	-0.7	peat	250	140	491	52	272
	Oj51-01	12	R-4101	1.5	-19.3	shell	2630	190	3215	2306	2761
	Oj51-01	13	R-4101	1.5	-36.6	wood	5470	200	6679	5885	6282
	Oj51-01	14	R-4101	1.5	-42.3	peat	6190	190	7399	6633	7016
	Pj21-03	15	R-4114	2.4	-14.6	peat & plant	3520	160	4160	3445	3803
	Pj21-03	16	R-4114	2.4	-16.8	peat & plant	3890	170	4658	3867	4263
	Pj21-03	17	R-4114	2.4	-18.4	basal peat	3870	170	4574	3688	4131
	Pj21-02	18	R-4113	2.5	-10.8	peat	3130	170	3694	2847	3284
	Pj21-01	19	R-4110	5.2	-1.8	peat & plant	510		536	516	526
	Pj22-01	20	R-4111	6.8	-19.4	peat	2870	160	3409	2716	3063
	Pj22-01	21	R-4111	6.8	-19.4	peat	2960	180	3483	2748	3116
	Pj22-02	22	R-4112	6.6	-23.3	peat	2660	530	4005	1507	2756
	Ni45-a	26	I-3964	0.5	0.5	wood	270	90	501	243	372
	Pj24-01	44	I-5204	2	-66	basal peat	7500	135	8495	7990	8243
	Mh45-01	68	I-6947	-72	-84	plant	9580	145	10996	10300	10648
	Nj31-01	193	Beta-5154	-32	-53	organic sed	6360	140	7473	6925	7199
	Nj31-01	194	Beta-5155	-32	-61	wood	11710	190	14146	13225	13686
	Nj51-05	195	Beta-5156	-30	-52	organic sed	21710	200			
	Pj12-03	196	Beta-5157	-23	-27.6	shell	3310	90	3725	3352	3539
	Pj12-04	197	Beta-5158	-30	-37.4	wood	6220	90	7268	6885	7077
104463-1	Ok51-03	294	257223	-53.1	-58.45	shell	890	40	480	260	370
104488-1	Oj23-09	295	257224	-31	-45.2	shell	1290	40	770	600	685
104507-1	Oj43-02	296	257225	-44.8	-58.5	shell	> 44000				
104520-1	Oj55-01	297	257226	-54.1	-70.7	organic sed	9840	60	11330	11180	11255
104522-1	Ok51-02	298	257227	-61.8	-68.3	shell	1170	40	670	500	560
104858-1	Ok51-05	299	257228	-38.5	-49.3	shell	930	40	500	280	390
104859-1	Ok51-05	300	257229	-38.5	-56.7	shell	1400	40	900	660	780
104866-2	Oj44-03	301	257230	-46.2	-58.9	rootlets	> 44000				
104879-1	Oj53-02	302	257231	-39.9	-50.9	shell	4210	40	4230	3890	4060
104890-1	Ni35-15	303	257232	-20.3	-25.65	peat	4110	40	4460	4450	4455

Method of calibration: Calibration Database - INTCAL04 Radiocarbon Age Calibration (Talma, A. S.and Vogel, J.C., 1993).
*midpoint of 2 Sigma Calibration Age

Figure 7 shows four groupings of dates. First (1 in Figure 7) are those that fall along the sea level curve and represent material deposited in marshes or swamps at or near sea level. Second (2 in Figure 7) are those that lie above the sea level curve (#'s 194 and 297) and were likely deposited in freshwater environments during cold climates and above sea level at the time of deposition. Third (3 in Figure 5) are a cluster of dates, mostly from shell material, ranging in age from 2,000 to 4,000 ybp, and from elevations between -15 and -30 ft below present sea level. Three dates in this cluster are from organic sediments obtained from two closely-spaced drill holes onshore at (#'s 20-22, Pj22-01 and Pj22-02) on the barrier between Rehoboth Bay and the Atlantic Ocean about 1 km north of the Old Coast Guard Station. The fourth grouping (4 in Figure 7) (#'s 294, 295, 298, 299, 300), consists of dates obtained during this investigation from shell material that is younger than 1000 ybp and range in elevation from -45 to -70 ft. One outlier of this group (#302) is from the same elevation but is much older (cal age 4,060 ybp).

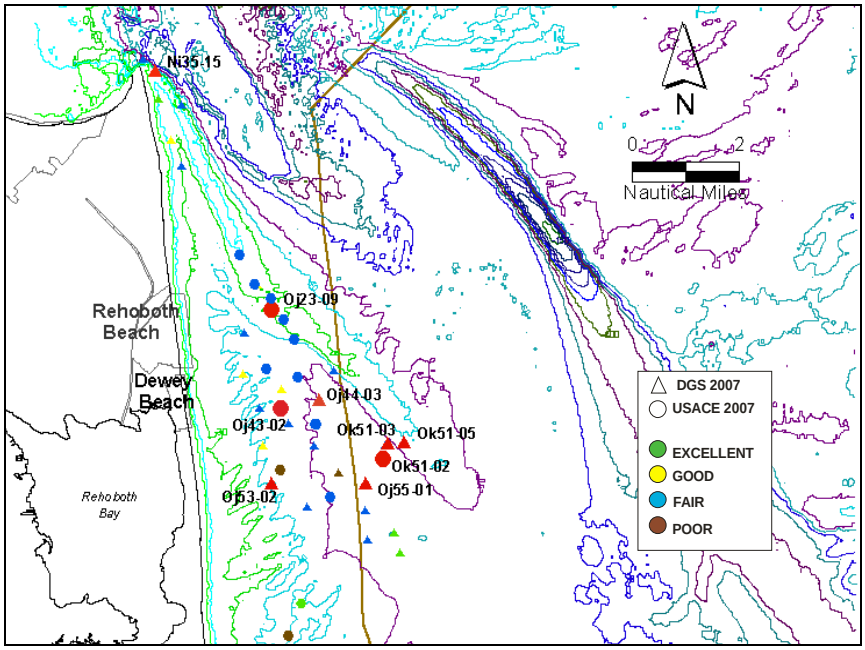


Figure 6. Locations of radiocarbon samples (in red) from eight of the 2007 cores.

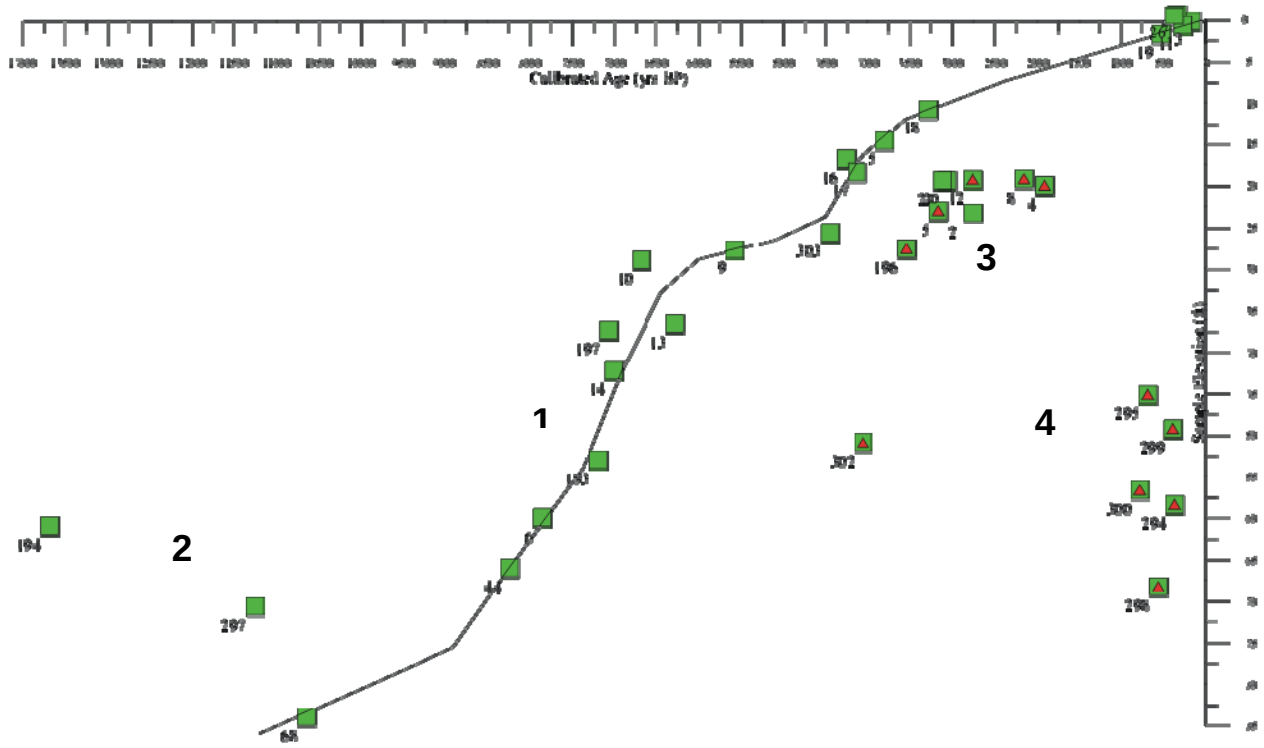


Figure 7. Calibrated radiocarbon dates (green boxes) plotted against sample elevation. Labels are DGS RC ID from Table 3 and are numbered by grouping (described in text). Red triangles in the green boxes represent radiocarbon dates from shell material. Curve is an approximate sea level curve drawn on basal peat and other organic sediments.

Sea Level

Belknap and Kraft (1977), Ramsey and Baxter (1996), and Nikitina and others (2000) published radiocarbon dates from Delaware and demonstrated their utility in producing a Holocene sea-level curve for Delaware. Miller and others (2009) published dates from cores from New Jersey's Atlantic Coast and compared their sea-level curve constructed from them to that of Delaware. A sea level curve drawn on the basal peat and organic sediments (Figure 7) is essentially the same as that previously published by Nikitina and others (2000). The curve shown in Figure 7 is approximate and is not statistically generated. We obtained a date in this study (#303) that lies along the sea-level curve. The sea-level curve shows that sea-level rose rapidly between 9,000 and 6,500 ybp, leveled off between 6,500 and 4,500 ybp, and rose rapidly again from 4,500 to 3,300 ybp. It is interesting to note that there were no basal peat dates obtained in this study that represent the time between about 3,300 ybp and 600 ybp. Nikitina and others (2000) report dates from this period, most of which come from the Great Marsh near Lewes and the Leipsic River to the northwest of Delaware Bay.

Age of Offshore Deposits

Radiocarbon dates are useful in understanding the timing of deposition offshore and the relative position of sea level during its rise during the Holocene. The dates that are dead to carbon (>44,000 ybp) indicate that there are pre-Holocene deposits offshore. Some of these deposits are of Pleistocene age and represent the offshore extension of the Lynch Heights Formation. The onshore component of the Lynch Heights Formation (found at Rehoboth Beach) is considered to be middle Pleistocene in age, based on amino acid racemization of shell material (approx. 400 ka ybp; Ramsey, 2010). The dates from samples yielding radiocarbon dates older than 10,500 ybp and from elevations above the sea level curve (group 2 in Figure 7) likely represent sedimentation in fresh-water environments during a cold climate when sea level was lower and the shoreline laid to the east of the sample sites. The dates from organic sediments that track sea-level rise were deposited as the leading edge of the Holocene transgression in swamp and marsh environments. The age of the deposit indicates that a shoreline (inland bay or back barrier) was near the sample site at that time.

The dates from the two groupings (groups 3 and 4 in Figure 7) collected from elevations below the sea level curve are the most interesting relative to this study. Because the majority of the samples are from shell material, the elevations represent deposition offshore either in lagoonal, estuarine, or marine environments. The grouping with ages between 4,000 and 2,000 ybp (group 3 in Figure 7) is from deposits of a lagoon or shallow estuary. One can approximate water depth as the elevation difference between the sea level curve and the elevation of the sample. For these samples, water depths were on the order of 15 feet or less. The samples with ages less than 1000 ybp (group 4 in Figure 7) and from elevations greater than -45 feet are from shell material from sites in the lee, or at or near the distal end of Hen and Chickens Shoal. These shells were deposited at water depths greater than the previously described group, on the order of 40 to 70 feet. These samples dated were selected from shells found at the greatest depths in the cores. They indicate that sedimentation rates of between .01 and .03 ft/yr (1-3 ft/100 yr) have existed in the area during the last 500 years. No radiocarbon dates were obtained from shells at shallower depths in the cores to better determine sedimentation rates. Two dates were obtained from two samples from one core (Ok51-05). The dates indicate a sedimentation rate of approximately .02 ft/yr (2 ft/100 yr) between approximately 780 and 390 ybp (essentially pre-European settlement).

It would be interesting to obtain additional dates to determine if sedimentation rates increased post-European settlement. These dates indicate that Hen and Chickens shoal has been the locus of sediment deposition at fairly high rates over the recent past.

DELAWARE OFFSHORE GEOLOGIC INVENTORY

The Delaware Geological Survey (DGS) has a statutory obligation to maintain records for energy, mineral, and water resources for the state and offshore. An initial database of geologic, hydrologic, geophysical, geochemical, and sample library was established with the founding of the DGS in 1951. Since 1992, this database was expanded to include the Delaware Offshore Geologic Inventory (DOGI) which consists of sediment samples, radiocarbon and amino acid racemization dates, seismic profiles, and vibracores taken from the nearshore and inner continental shelf in state and federal waters. Most of the 362 vibracores are stored at the DGS on-site core and sample repository.

The DGS has worked in partnership with the US Minerals Management Service (MMS) and the Delaware Department of Natural Resources and Environmental Control (DNREC) to determine the offshore geologic framework and to identify new sources of beach-quality sand. This report represents a compilation of data that has been collected for the DOGI from 2001 to 2007. The DOGI database has been updated to provide the location of potential sand resources from state and federal waters for use in beach nourishment. The DGS DOGI website has been redesigned for greater public access and has been updated with the lithologic descriptions and resource ratings for all vibracores collected and analyzed in this compilation period.

Using the DOGI Map

Figure 8 shows a screen capture of the DGS DOGI website which displays an interactive map. The map shows the locations of all of the cores in the DOGI database and the assigned lithologic character (gravel, gravelly sand, sand, fine and silty sand, and mud) for each core. The lithologic character was used to assign a resource rating of Excellent (green), Good (yellow), Fair (blue), or Poor (brown), which represents the compatibility of the sediment contained in the core with the "native beach composite" as determined by Ramsey (1999a). Sites with Excellent (green) or Good (yellow) resource ratings are considered to be potential sources of beach-quality sand. Those with Fair (blue) ratings are considered marginal sources either because the sand is finer than native beach sand, or contains too much silt. Sites with Poor (brown) ratings should not be considered as sand sources.

Visitors to the website and DOGI map can click on any of the vibracore locations and view the resource rating, lithologic description, and photos (http://www.dgs.udel.edu/Geology/Resources/offshore/index.aspx).

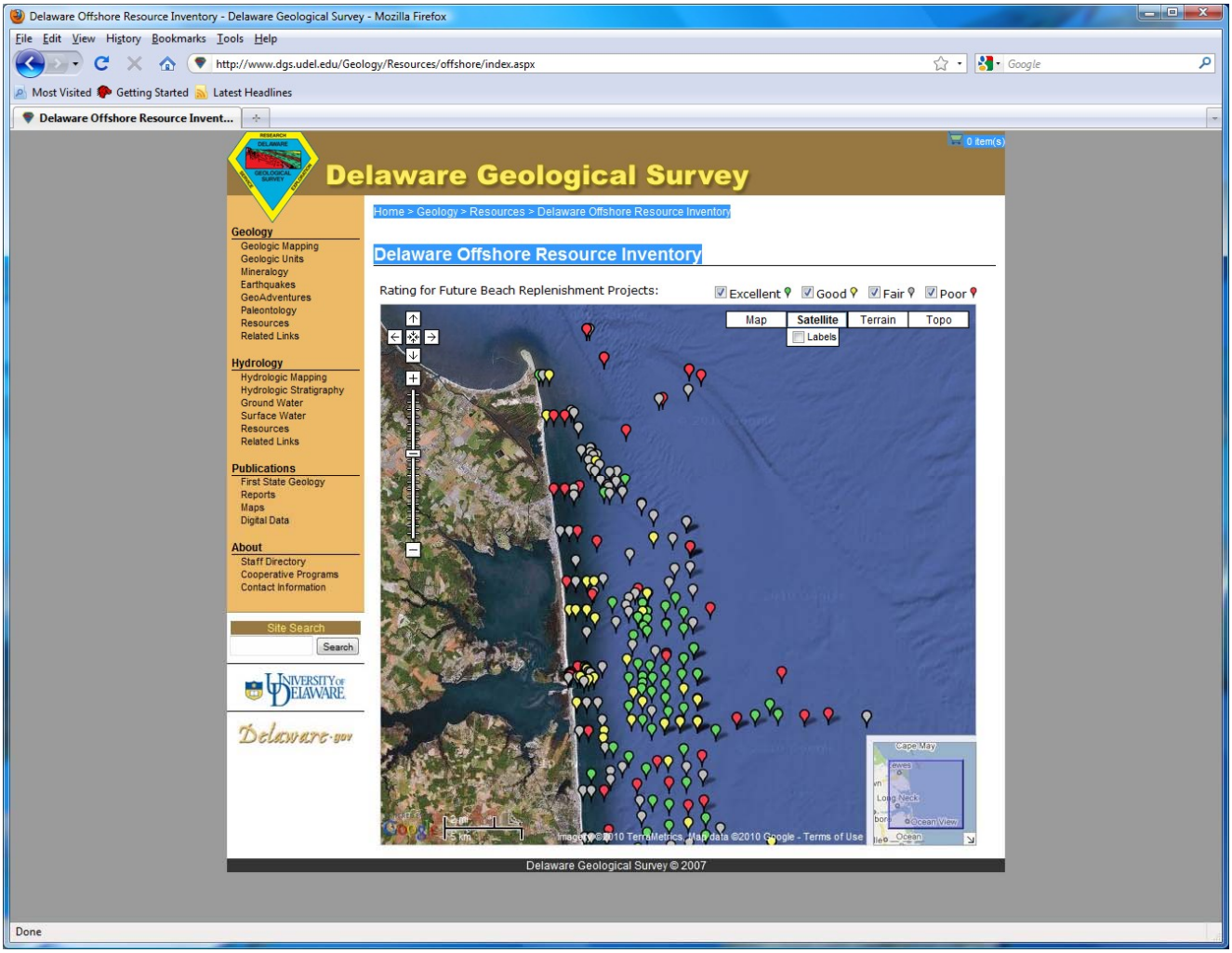


Figure 8 Screen capture of the DGS DOGI webpage (http://www.dgs.udel.edu/Geology/Resources/offshore/index.aspx).

CONCLUSIONS

Textural and stratigraphic properties of 94 vibracores collected between 2001 and 2007 and extracted offshore Delaware from Cape Henlopen to South Bethany were evaluated to determine potential sand resource areas that could be used as borrow sites for future beach fill projects. This study is a continuation of the development of an offshore sand resources inventory from cores collected between 1971 and 1997 and described in McKenna and Ramsey (2002). With the addition of the 94 vibracores from this study, the DOGI database totals 362. These new data were integrated into the existing DOGI database to produce a composite map of all potential sand resources offshore Delaware (Figure 9). Plate 1 is a larger version of Figure 9 and provides the names of the cores.

The distribution of potential sand resources was determined from the combination of stack-unit mapping and a geographic information system. These tools enabled us to target coring efforts,

identify areas that may contain beach-quality sand, and estimate the aerial extent and volume of sand resources in the Atlantic offshore Delaware.

- The cores provide information to describe the complex geologic framework offshore Delaware. In general, offshore Cape Henlopen to Dewey Beach, the area is dominated by Holocene-age sand deposits of Hen and Chickens Shoal. Further south, Pleistocene to Holocene age silts represent lagoonal deposits that have filled paleovalleys that extend offshore Rehoboth Bay. Offshore Indian River Inlet and to the south, medium to coarse sands found at or near the sea-floor surface represent in situ or reworked sands of the Beaverdam Formation.
- Figure 9 and Plate 1show the location of all of the cores in the DOGI database with their respective resource ratings (E = excellent [green]; G = good [yellow]; F = fair [blue]; P = Poor [brown]) and potential sand resource areas (tan) both in state and federal waters. Locations of vibracores obtained between 2001 and 2007 are shown in Figure 1.
- Vibracores from Hen and Chickens Shoal contained sediments ranging from well sorted fine sand and very fine sand and silt (Oj12-02 and Oj12-03) to interlaminated fine sand and silt (Nj31-03 and Nj41-02). Because the sediments are finer than the native beach composite compiled by Ramsey (1999a), this area was generally labeled a Fair resource rating (Area A).
- Two of the potential sand resource areas closest to Rehoboth Beach and Dewey Beach are located offshore Rehoboth Bay and Indian River Inlet in state and in federal waters. These potential borrow areas (areas B and C) are located four to ten nautical miles (eight to 19 km) southeast of Rehoboth Beach.
- Areas B and C in Figure 9 are estimated to contain a minimum of five feet (1.5m) sand thickness. The total volume of beach-quality sand available from the two locations is approximately 66 million cubic yards (51 million cubic meters).
- Other areas offshore to the northeast of Bethany Beach and east of Hen and Chickens Shoal in state and federal waters show promise of beach-quality material and should be further investigated. These areas are indicated by stars on Figure 10. Figure 10 shows all of the Excellent (E) [green] and Good (G) [yellow] cores from the DOGI database as well as borrow areas (outlined in black) identified by the Philadelphia District of the USACE.
- The Delaware Offshore Geologic Inventory (DOGI) database and DGS website have been updated with the lithologic descriptions, lithologic ratings, and resource ratings for all vibracores collected and analyzed in this compilation period (Figure 8; http://www.dgs.udel.edu/Geology/Resources/offshore/index.aspx).

Publications & Presentations:

2002: Delaware Geological Survey, Report of Investigations No. 63
2003: MMS Offshore Sand Workshop, *Delaware Offshore Sand Resources*, Newark, DE
2003: Coastal Sediments '03, *Stack-unit mapping and geographic information system analysis for locating sand resources offshore Delaware*, Clearwater Beach, FL
2005: MMS Sustainable Beaches Conference, *Geologic Investigations for Sand Resources Offshore Delaware, a Cooperative Effort between the Delaware Geological Survey and the US Minerals Management Service*, St. Petersburg, FL
2006: Geological Society of America Annual Meeting, *Quaternary evolution of the inner continental shelf offshore Bethany Beach, Delaware*, Philadelphia, PA

2009: Offshore Rehoboth Beach and Dewey Beach Vibracore Study, Contract Report to Delaware DNREC
2009: Presentation to University of South Florida Geology Graduate Students, Lewes, DE
2009: UD Geospatial Research Conference, Newark, DE

Meetings Attended:

2003: DGS host for MMS Offshore Sand Workshop – Newark, DE
2003: Coastal Sediments '03, Clearwater Beach, FL
2005: MMS Workshop/Sustainable Beaches Conference – St. Petersburg, FL
2006: Geological Society of America Annual Meeting, Philadelphia PA
2006: MMS Marine Minerals Program Information Transfer Meeting, Melbourne, FL
2008: MMS Mid-Atlantic OCS Sand Management Working Group Meeting – Charleston, SC
2009: MMS Mid-South Atlantic Sand Management Working Group Meeting – Charleston, SC

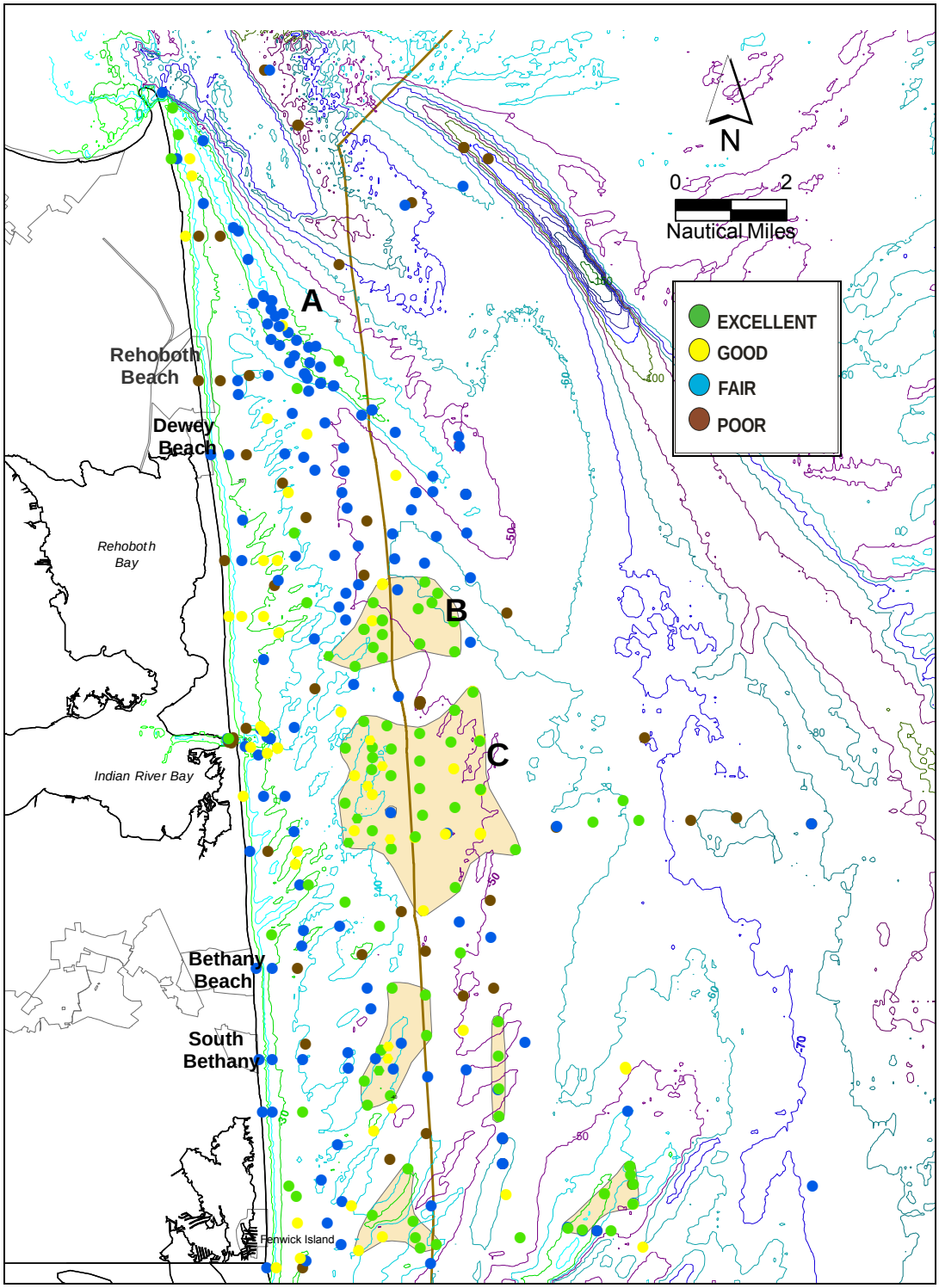


Figure 9. Locations of all cores in the DOGI database with respective resource ratings (E = excellent [green]; G = good [yellow]; F = fair [blue]; P = Poor [brown]). Site A shows cores on Hen and Chickens Shoal. Potential amounts of beach-quality sand were calculated for possible resource areas B and C (tan areas).

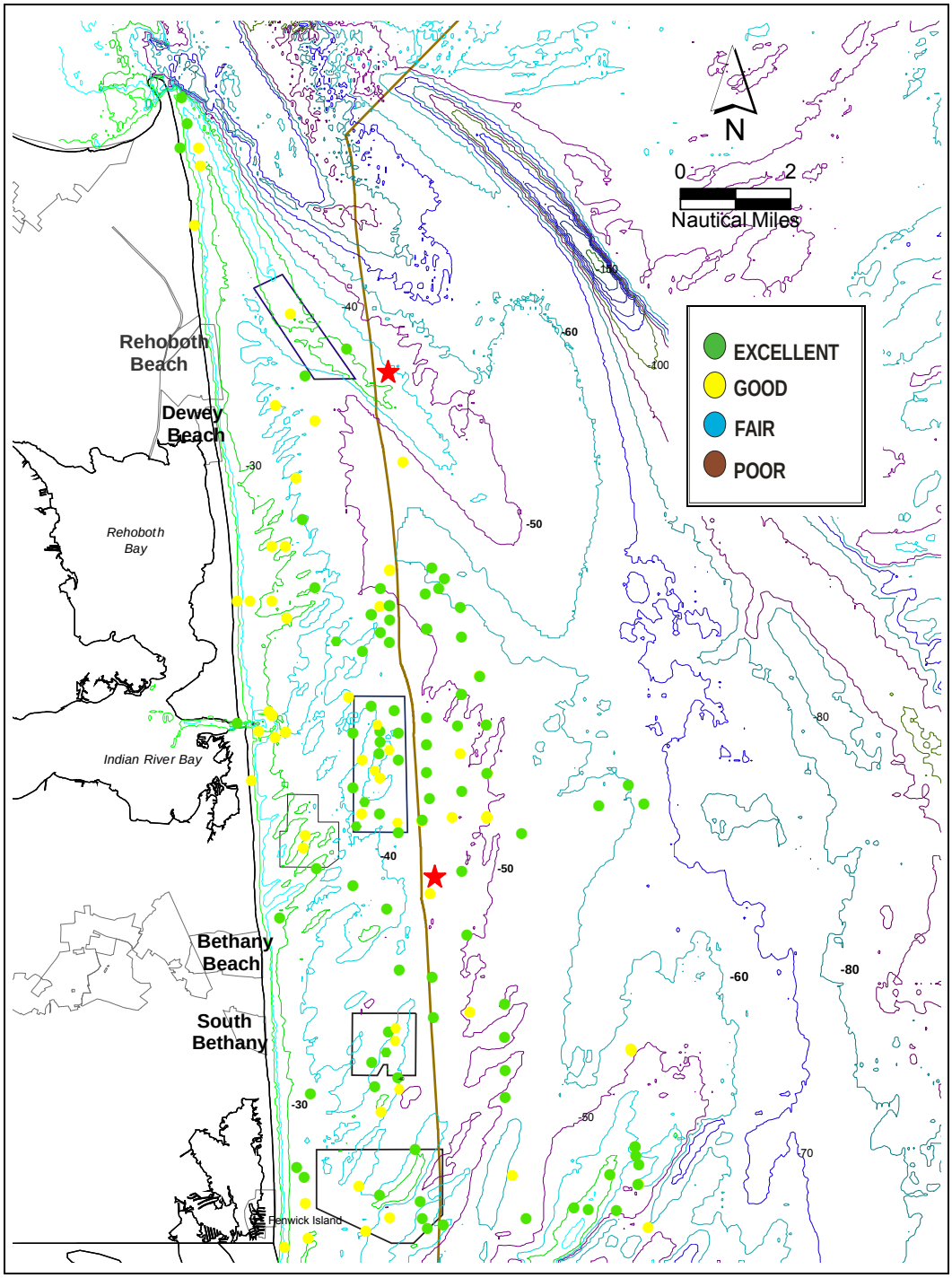


Figure 10. Excellent (E) [green] and Good (G) [yellow] cores from the DOGI database and borrow areas (outlined in black) identified by the Philadelphia District of the USACE. Future coring investigations are recommended at the starred locations.

REFERENCES

Alpine Ocean Seismic Survey, Inc., 2001, Vibracore Sample Collection Offshore Delaware for Delaware Geological Survey, Contract report to Delaware Geological Survey, Norwood, NJ, 3 pp. plus appendices.

Alpine Ocean Seismic Survey, Inc., 2004, Vibracore Sampling Offshore Delaware Rehoboth Beach to Indian River, Contract report to Delaware Geological Survey, Norwood, NJ, 4 pp. plus appendices.

Alpine Ocean Seismic Survey, Inc., 2007, Vibracore Sampling Delaware Sand Search, Contract report to Schnabel Engineering North, LLC, Norwood, NJ, 91 pp.

Andres, A.S. and Klingbeil, A.D., 2006, Thickness and Transmissivity of the Unconfined Aquifer of Eastern Sussex County, Delaware: Delaware Geological Survey Report of Investigations No. 70, 25 pp.

Belknap, D.F., and Kraft, J.C, 1977, Holocene relative sea-level changes and coastal stratigraphic units on the northwest flank of the Baltimore Canyon Trough geosyncline: Journal of Sedimentary Petrology, v. 47, p. 610-629.

Belknap, D.F., and Kraft, J.C., 1985, Influence of antecedent geology on stratigraphic preservation potential and evolution of Delaware's barrier system: Marine Geology, v. 63, p. 235-262.

Chrzastowski, M.J., 1986, Stratigraphy and geologic history of a Holocene lagoon system: Rehoboth Bay and Indian River Bay, Delaware: Ph.D. Dissertation, Dept. of Geology, Univ. of Delaware, 337 p.

Department of Natural Resources and Environmental Control, 2005, spreadsheet provided to DGS by staff from the Division of Soil and Water Conservation.

Groot, J.J., Ramsey, K.W., Wehmiller, J.F., 1990, Ages of the Bethany, Beaverdam, and Omar Formations of Southern Delaware: : Delaware Geological Survey Report of Investigations No. 47, 22 pp.

McKenna, K.K., 2000, Using the "Stack-Unit Mapping" method for evaluating Delaware's offshore sand resources, Hen and Chickens Shoal: Abstracts from the 2000 Assateague Shore and Shelf Workshop, Conway, South Carolina.

McKenna, K.K. and Ramsey, K.W., 2002, An evaluation of sand resources, Atlantic offshore, Delaware: Delaware Geological Survey Report of Investigations No. 63, 37 pp.

McKenna, K.K. and Ramsey, K.W., 2003, Stack-unit mapping and geographic information system analysis for locating sand resources offshore Delaware: Proceedings from Coastal Sediments '03, Clearwater Beach, FL, 13 pp.

McKenna, K.K. and Ramsey, K.W., 2006, Quaternary evolution of the inner continental shelf offshore Bethany Beach, Delaware: Abstracts with Programs, vol. 38, no. 7, 2006 Geological Society of America Annual Meeting, Philadelphia, PA.

McKenna, K.K. and Ramsey, K.W., 2009, Offshore Rehoboth Beach and Dewey Beach Vibracore Study: Delaware Geological Survey Contract Report to the Delaware Department of Natural Resources and Environmental Control, Division of Soil and Water Conservation Agreement No. 1435-01-01-CA-31157, 24 pp. plus appendices

McLaughlin, P.P., Miller, K.G., Browning, J.V., Ramsey, K.W., Benson, R.N., Tomlinson, J.L., Sugarman, P.J., 2008, Stratigraphy and Correlation of the Oligocene to Pleistocene Section at Bethany Beach, Delaware: Delaware Geological Survey Report of Investigations No. 75, 47 pp.

Miller, K.G., Sugarman, P.J., Browning, J.V., Horton, B.P, Stanley, A., Kahn, A., Uptegrove, J., Aucott, M., 2009, Sea-level rise in New Jersey over the past 5000 years: implications to anthropogenic changes: Global and Planetary Change v. 66, p. 10-18.

Nikitina, D.L., Pizzuto, J.E., Schwimmer, R.A., and Ramsey, K.W., 2000, An updated Holocene sea-level curve for the Delaware Coast: Marine Geology, v. 171, p. 7-20.

Ramsey, K.W., 1999a, Beach sand textures from the Atlantic coast of Delaware: Delaware Geological Survey Open File Report No. 41, 6 pp.

Ramsey, K.W., 1999b, Cross section of Pliocene and Quaternary deposits along the Atlantic Coast of Delaware: Delaware Geological Survey Miscellaneous Map No. 6.

Ramsey, K.W., 2003, Geologic map of the Lewes and Cape Henlopen Quadrangles, Delaware: Delaware Geological Survey Geologic Map Series No. 12.

Ramsey, K.W., 2010, Stratigraphy, Correlation, and Depositional Environments of the Middle to Late Pleistocene Interglacial Deposits of Southern Delaware: Delaware Geological Survey Report of Investigations No. 76, 43 pp.

Ramsey, K.W., and Baxter, S.J., 1996, Radiocarbon dates from Delaware: a compilation: Delaware Geological Survey Report of Investigations No. 54, 18 p.

Ramsey, K.W. and McKenna, K.K., 1999, Geologic framework, distribution, and quality of sand resources in the Atlantic offshore Delaware: Delaware Geological Survey Contract Report to the Minerals Management Service, Contract No. 14-35-0-001-30760, 19 p. plus appendices.

Schnabel Engineering, 2007, Geotechnical Data Report, Vibrational Coring Borrow Areas A & G, Rehoboth/Dewey Beaches, Delaware, Report to the Philadelphia District US Army Corps of Engineers, Contract No. W912BU-05-D-001, West Chester, PA, 164 pp.

Talma, A.S. and Vogel, J.C., 1993, Mathematics - A simplified approach to calibration C14 dates: Radiocarbon 35(2), pp. 317-322

Williams, C.P., 1999, Late Pleistocene and Holocene stratigraphy of the Delaware inner continental shelf: M.S. Thesis, Dept. of Geology, Univ. of Delaware, 175 p.

Appendix A

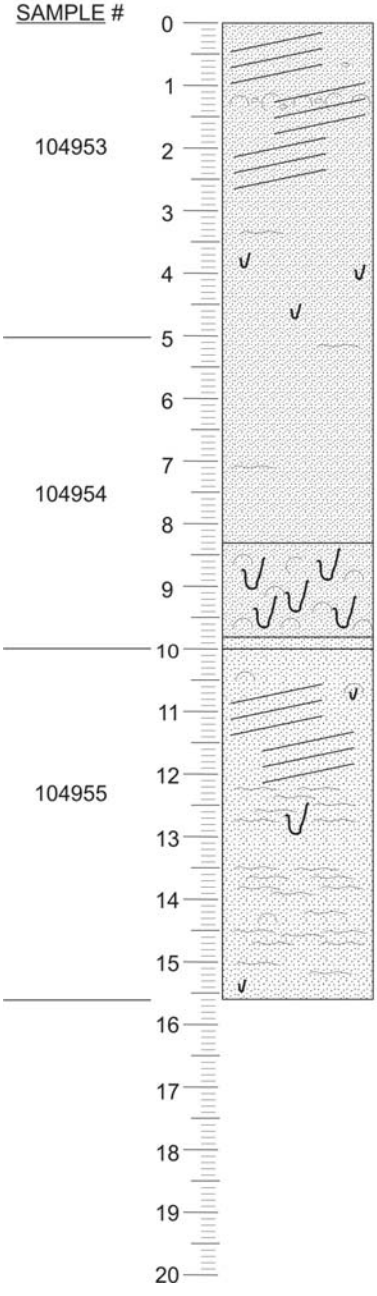
Offshore Cores – Lithologic Descriptions

2001 to 2007

(Cores are shown in order by DGSID)

DGSID **Ni25-04** DATE DESCR. **1/14/08** WATER DEPTH (FT) **19.9**

LOCAL ID. **DGS07-25** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, pl yel (2.5Y 8/2), scat hvy min, wl srtd, abd x-bd, r cht pbl (7mm) @ 0.7', abd shl hash & qtz pbl (3mm) @ 1.2-1.3', slt-cly Lam @ 3.3-3.4' v dk gry (2.5Y 3/1), slt cly Bur @ 3.8', 4.0', 4.6-4.7', Fe stained Mytilus @ 4.9', slt-cly Lam @ 5.2', 7.1', 7.6', (0.0-8.3')

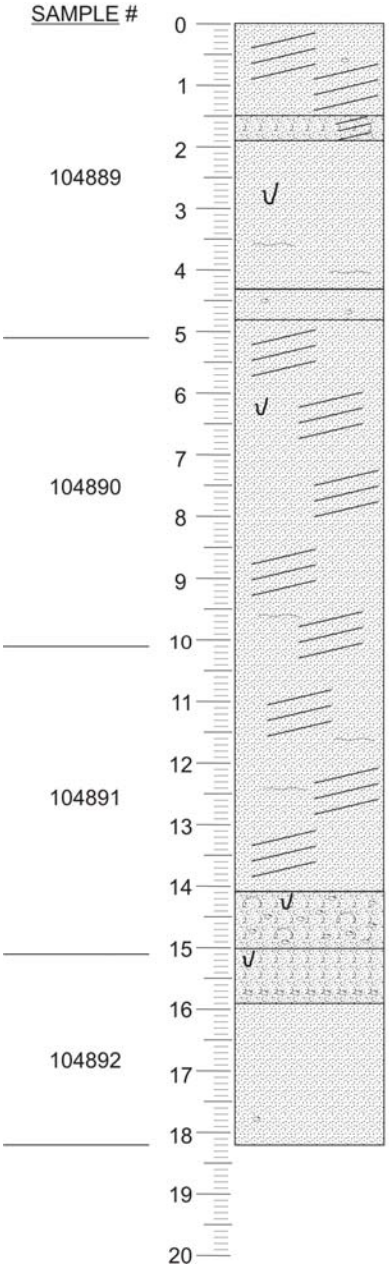
SAND: f-m, lt bl gry (2 GLEY 7/1), abd hvy min, mott w/slt-cly Bur, abd Mytilus shl hash (8.3-9.8')

SAND: f-m, lt gry (2.5Y 7/1), abd hvy min (9.8-10.0')

SAND: f-m, pl yel (2.5Y 8/2), abd hvy min, wl srtd, abd x-bd, r shl frag Mytilus @ 10.4', 10.6' & 14.3', slt-cly Lam @ 10.1', 12.2-12.9', 13.5-13.9', 14.2-14.3', 14.5-14.7', 15.0' & 15.2', slt-cly Bur v dk gry (2.5 Y 3/1) @ 10.7', 12.9-13.3' & 15.4', col chg due to moisture content to lt bl gry (2GLEY 7/1) (10.0-15.6')

DGSID **Ni35-15** DATE DESCR. **3/17/08** WATER DEPTH (FT) **20.3**

LOCAL ID. **DGS07-20** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, wht (2.5Y 8/1), abd hvy min, wl srtd, abd x-bd, r qtz pbl @ 0.6' (10mm), pol grs (0.0-1.5')

SAND: vf-crs, wht (2.5Y 8/1), abd hvy min, poorly srtd, abd x-bed (1.5-1.9')

SAND: vf-m, wht (2.5Y 8/1), abd hvy min, pol grs, slt Bur @ 2.7-2.9', slt Lam @ 3.6-4.0' (1.9-4.3')

SAND: m-crs, pl yel (2.5Y 8/2), scat hvy min, pol grs, few qtz and cht pbl (2mm-7mm) (4.3-4.8')

SAND: f-m, wht (2.5Y 8/1), abd hvy min, wl srtd, pol grs, abd x-bds

m-crs SAND Lyrs @ 5.4-5.7' & 7.4-7.6', slt Bur @ 6.1-6.2', org-sdy Lam @ 9.5-9.7' spld for RC, col chg due to moisture to lt bl gry (2GLEY 7/1)

SAND, as desc abv wht (2.5Y 8/1), scat hvy min, slt Lam @ 11.6-11.7' & 12.4-12.5', abd x-bd, crsens down (4.8-14.1')

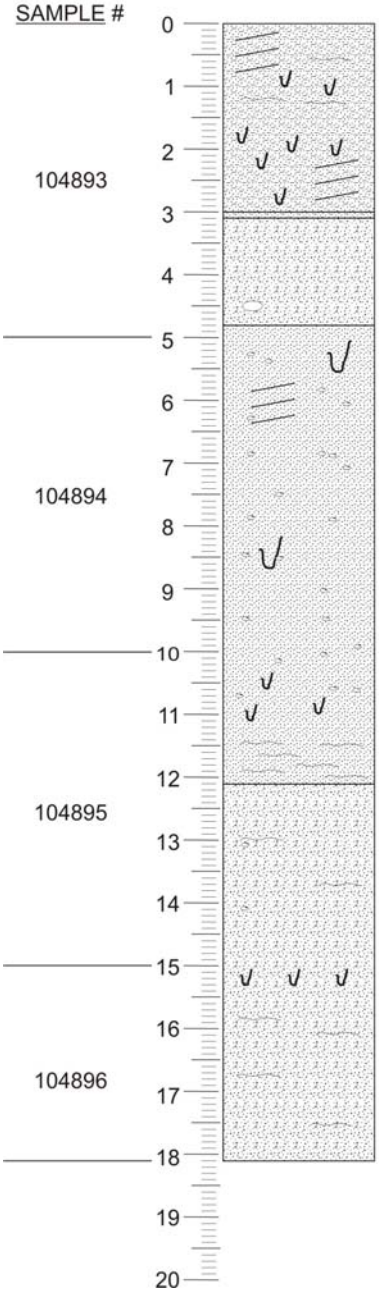
SAND: f-gran, lt gry (2.5Y 7/2), scat hvy min, slt Bur @ 14.1-14.2', abd shl hash & frags, abd qtz & cht pbl (2mm-7mm), 70mm oyster shl @ 14.9' (14.1-15.0')

SAND: f-crs, pl yel (2.5Y 8/2), scat hvy min, slt Bur @ 15.1', cht & qtz pbl Lyr (10mm-20mm) @ 15.7-15.8', slt Lam @ 15.8' (15.0-15.9')

SAND: f, wht (2.5Y 8/1), scat hvy min, col chg due to moisture to gry (1GLEY 4/1), r qtz pbl (7 mm) @ 17.8' (15.9-18.2)

DGSID **Nj31-02** DATE DESCR. **3/17/08** WATER DEPTH (FT) **23.9**

LOCAL ID. **DGS07-21** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, pl yel (5Y 8/2) few hvy min, scat qtz & cht pbl (2mm-10mm), x-beds, few hvy min, cly lam @ 0.6' 1.2-1.3', cly Bur dk gry (5Y 4/1) @ 0.9 to 1.1', 1.8', 1.9', 2.0', 2.2', 2.8-2.9' (0.0-3.0')

SILT: pbly-sdy (3.0-3.1')

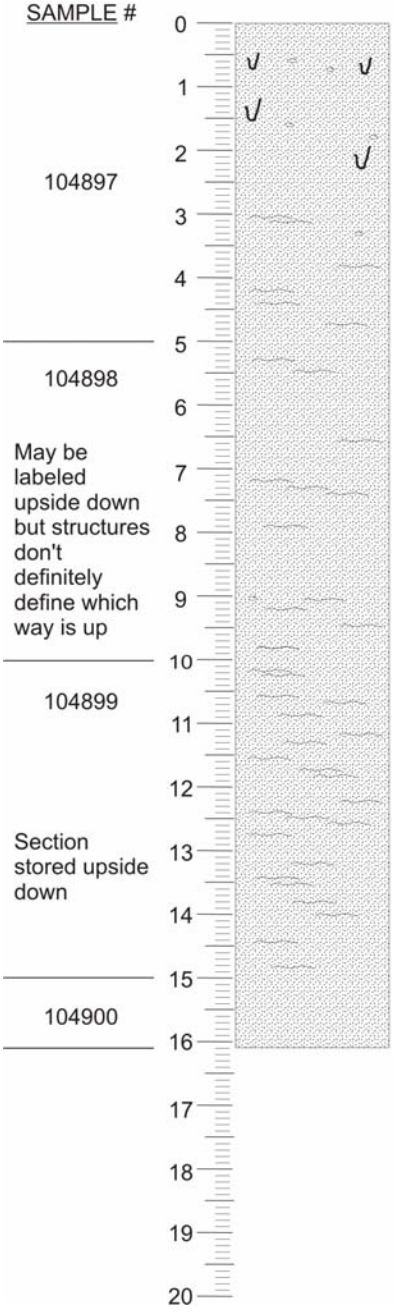
SAND: f-gran, crsens down. Col chg due to moisture to lt gry (5Y 7/1), Bry encrusted pbl (30 mm) @ 4.5' (3.1-4.8')

SAND: f-m, wh (5Y 8/1), abd hvy min, abd qtz & cht pbl (2mm-10mm), x-bed, crsens down, scat silt Bur, col chg due to moisture to lt gry (5Y 7/1) @ 9.5', slty sd Bur @ 10.5', 10.9' & 11.1', seq of clean f sd @ 11.1-11.4', abd cly Lam bet 11.4-12.1' (4.8-12.1')

SAND: f-gran, lt gry (5Y 7/2), few hvy min, cly Lam @ 13.0-13.1' & 13.7', r qtz pbl (4 mm) @ 13.1, cht @ 14.1', col chg due to moisture to lt gry (5Y 7/1) @ 15.0', abd Bur @ 15.0-15.3', cly Lam @ 15.8-15.9, 16.1', 16.7-16.8', 17.5-17.6' (12.1-18.1')

DGSID **Nj31-03** DATE DESCR. **3/19/08** WATER DEPTH (FT) **41.2**

LOCAL ID. **DGS07-22** DESCR. BY **KMcK**



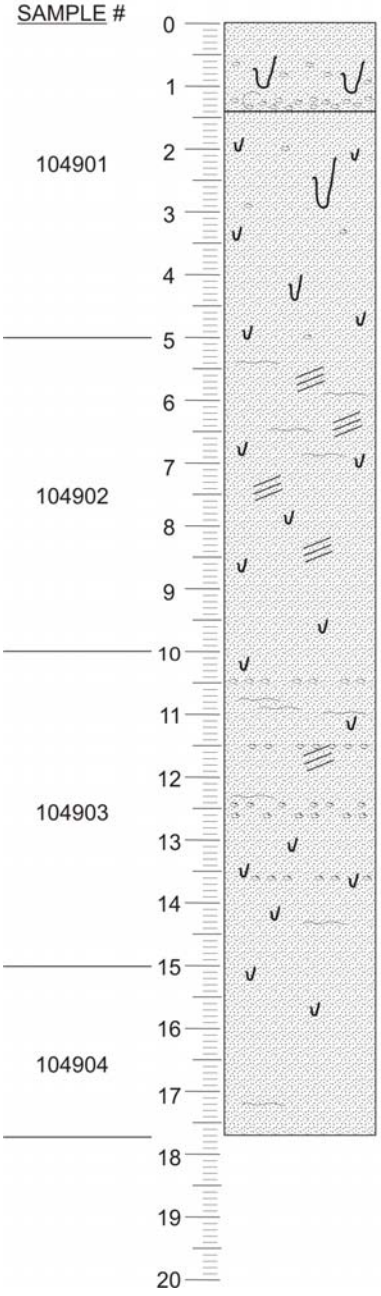
LITHOLOGIC DESCRIPTION

SAND: f-m, pl yel (2.5Y 7/3), scat hvy min, pol grs,
Cly clasts & slt-cly Bur @ 0.5-0.8'
Slt-cly Bur @ 1.3-1.5', 2.1-2.3' olv brn (2.5Y 4/3)
R qtz pbl (10 mm) @ 1.6 & 1.8'
Slt-cly Lam @ 3.0-3.2', cly clast @ 3.3' v dk gry (2.5Y 3/1)
Col chg due to moisture content @ 3.6'
Slt-cly Lam @ 3.8-3.9', 4.2-4.5', 4.7-4.8', 5.3', 5.5', 6.6', 7.2', 7.3', 7.4', 7.9', 9.1', 9.2', 9.5' & 9.8'
Col chg due to moisture content @ 8.5' lt grn gry (1GLEY 7/1)
R cht pbl (10 mm) @ 9.0'
Slt-cly Lam @ 10.2-10.3', 10.6', 10.7', 10.9', 11.2', 11.3', 11.5-11.6', 11.7-11.9', 12.2-12.3', 12.4', 12.5', 12.6', 12.7-12.8', 13.2-13.3', 13.4-13.6', 13.8-14.1', 14.4-14.5' & 14.8-14.9'
Col chg due to moisture content to pl yel (5Y 8/3) @ 12.0'

(0.0-16.1')

DGSID **Nj41-01** DATE DESCR. **3/19/08** WATER DEPTH (FT) **29.4**

LOCAL ID. **DGS07-23** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

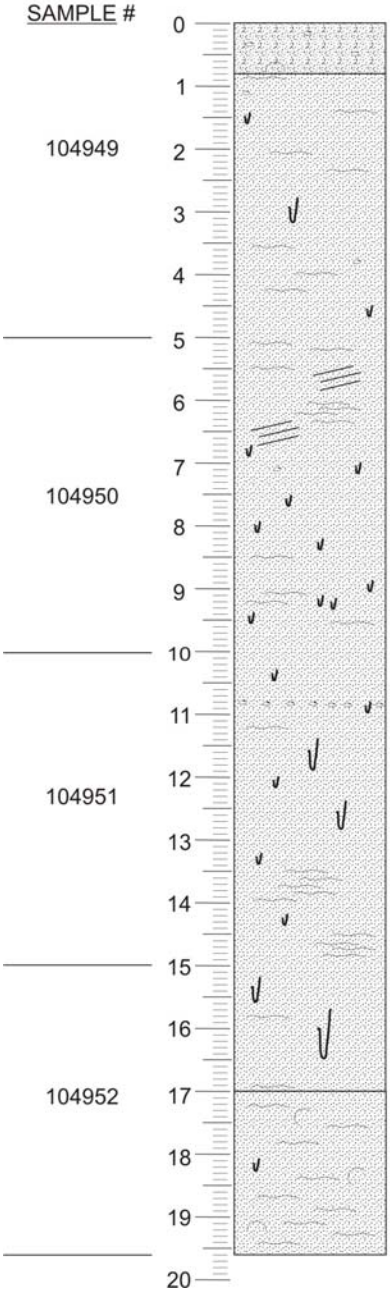
SAND: f-m, lt yel brn (10 YR 6/4), scat hvy min, slty-cly Bur @ 0.5-1.2', w/scat qtz & cht pbls (3.0-10 mm), scat shl frag, Crepidula @ 1.2', pbl Lyr @ 1.2-1.4' (0.0-1.4')

SAND: f-m, v pl brn (10YR 8/2), scat hvy min,
Fe conc Lam @ 2.0', slt-cly Bur @ 1.8, 2.0, 2.1-3.0',
r qtz pbl @ 2.9' (7mm),
Fe cotd cht (10-15 mm) @ 3.3'
Slt Bur & Lam @ 3.3-3.4', 4.0-4.4', 4.7-4.8', 4.9-5.0'
Qtz pbl @ 5.0' (7 mm)
Slt Lam @ 5.4', 5.9', 6.5', 6.9'
Slt Bur @ 6.8', 6.9-7.1', 7.9', 8.6-8.7', 9.6-9.7'
Faint x-bds @ 5.5-8.6'
Core moisture incr down
Slt Bur @ 10.1-10.3', 11.1', 13.0-13.2' 13.5', 13.7', 14.2'
Lam of qtz & cht pbl (5-20 mm) @ 10.5', 11.5', 12.4', 12.6' & 13.6'
Slt Lam @ 10.7-10.9', 11.0', 12.3', 14.3'
Faint x-bds @ 11.5'
Slt Bur @ 15.1' & 15.7'
Slt Lam @ 17.2'

(1.4-17.7')

DGSID **Nj41-02** DATE DESCR. **3/28/08** WATER DEPTH (FT) **33.8**

LOCAL ID. **DGS07-24** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-crs, pl olv (5Y 6/3), few hvy min, poor srtd, scat shl frag, Moll shl frag (40 mm) scat qtz & cht pbl (7 mm) (0.0-0.8')

SAND: f, wl srtd, pl yel (5Y 8/2) few hvy min
R cht pbl @ 1.1'
Abd cly Lam @ 0.8', 1.4', 2.0-2.1', 2.3-2.4', 3.3', 3.5-3.6', 4.0', 4.2-4.3'
Abd slt-cly Bur @ 1.4-1.6', 2.8-3.2', 4.5-4.7'
Col chg due to moisture content @ 3.2 to lt grn gry (1GLEY 8/1)
R qtz pbl (25 mm) @ 3.8' stained

R cht pbl (3 mm) @ 5.0'
Abd cly Lam @ 5.1', 5.2', 5.5', 6.1-6.4', 8.5', 9.1', 9.2', 9.6'
Faint x-bds @ 5.5-5.9'; 6.4-6.7'

Abd slt-cly Bur @ 6.7-6.9', 7.1', 7.5-7.7', 8.1', 8.3', 9.0', 9.2', 9.3', 9.5'

R qtz pbl @ 7.1'

Slty-cly Bur @ 10.3-10.5', 10.9-11.0', 11.4-11.9', 12.0-12.2', 12.4-12.8', 13.3', 14.3'
Pbl Lyr @ 10.8' (5 mm)
Cly Lam @ 11.2', 13.5-14.0', 14.5-14.9'

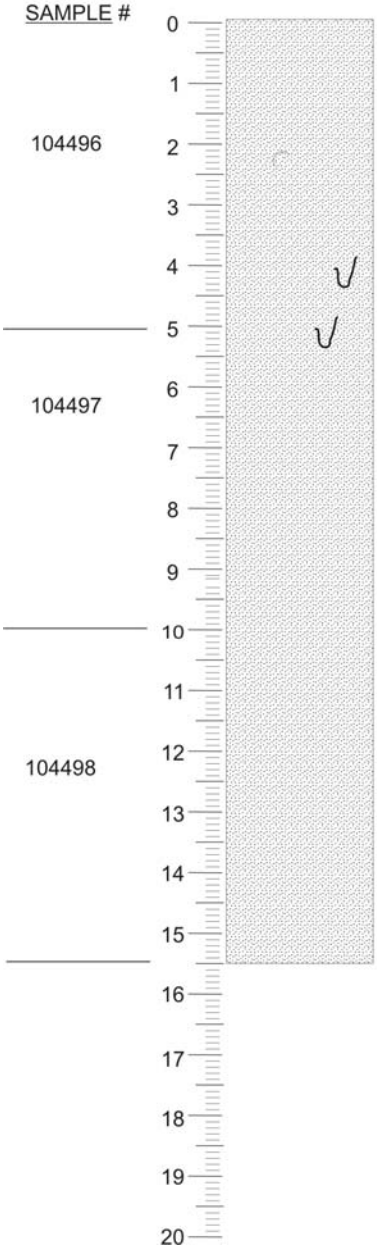
Slty-cly Bur @ 15.2-15.6', 15.7-16.5'
Cly Lam @ 15.8, 17.0'

(0.8-17.0')

INTERLAM CLAY & SAND: f to base, dk gry (1 GLEY 4/), shl-hash lined Bur @ 18.1-18.3', scat shl hash to base, incr cly lam to base (17.0-19.6')

DGSID **Oj12-02** DATE DESCR. **1/14/08** WATER DEPTH (FT) **26.6**

LOCAL ID. **KHV-137r1** DESCR. BY **KMcK**

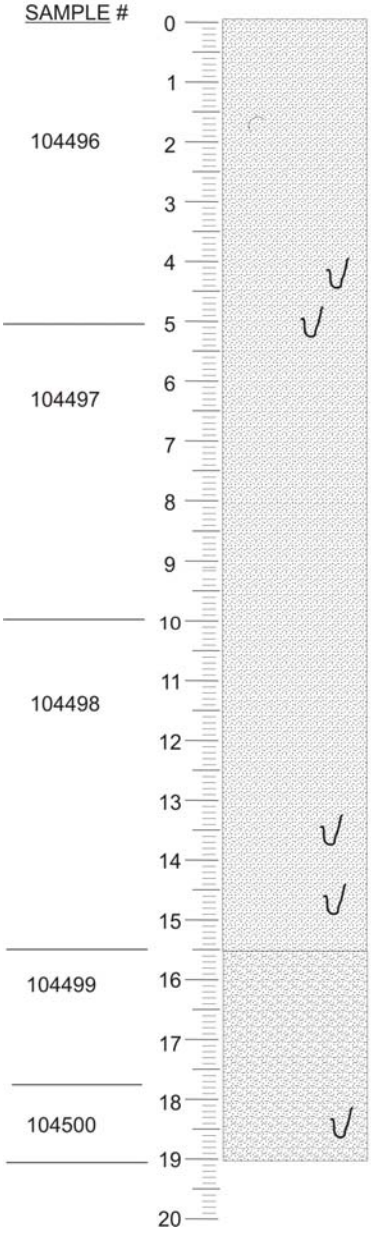


LITHOLOGIC DESCRIPTION

SAND: f-m, wl srt, pl yel (2.5Y 8/2) scat hvy min, loose, pol, r shl frag, slty-org bur @ 4.1-4.3'& 5.1' (0'-15.5')

DGSID **Oj12-02/03** DATE DESCR. **1/14/08** WATER DEPTH (FT) **26.6**

LOCAL ID. **KHV-137r1/2** DESCR. BY **KMcK**



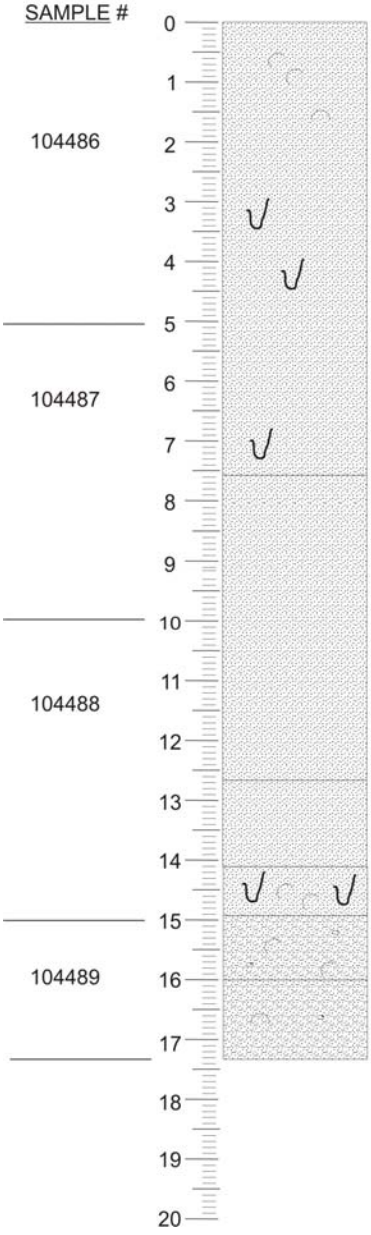
LITHOLOGIC DESCRIPTION

SAND: f-m, wl srt, pl yel (2.5Y 8/2), scat hvy min, loose, pol, r shl frag, slty-org bur @ 4.1'-4.3' & 5.1' (0'-15.5')

SAND: vf-f, slty, gry (5Y 6/1), scat hvy min, pol, md bur @ 13.4'-14.1' & 14.5'-15.5', md bur @ 18.15'-18.9' (12.65'-19.0') *run 2

DGSID **Oj23-09** DATE DESCR. **1/11/08** WATER DEPTH (FT) **31.0**

LOCAL ID. **KHV-134** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: vf-f gr, lt yellowish brn (2.5Y 6/6), shl frag (30-50mm) btw 0.4'-0.7', r shl (20mm) @ 1.6', sd & slt filled burrows @ 3.2' & 4.1'-4.4' & 7.0'-7.2', scat hvy min (0'-7.6')

SAND: vf-f gr, olv gry (5Y 5/2), scat hvy min, mott w/ mdy sds, mott incr towards Btm of section (7.6'-12.6')

SAND: vf-f gr, olv gry (5Y 5/2), mott w/ slt & mdy sd, scat hvy min (12.6'-14.1')

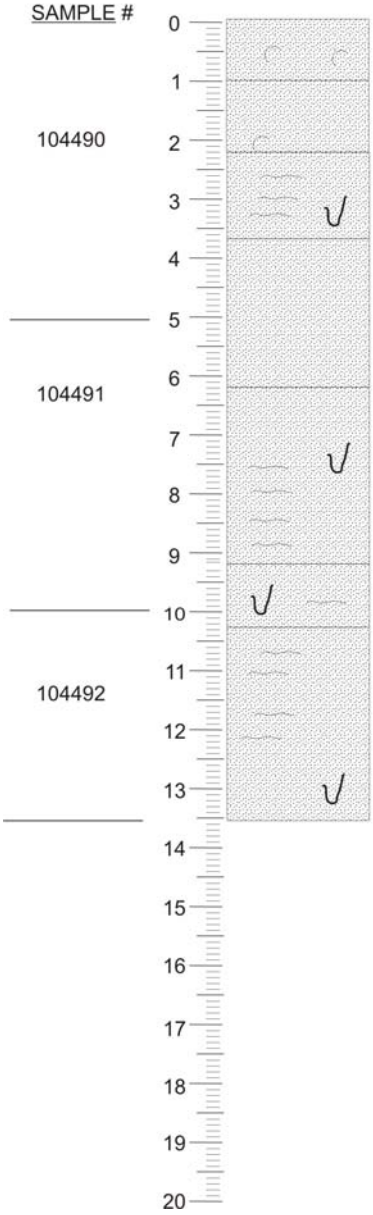
SAND: vf-m gr w/ few crs-vcrs Gr, olv gry (5Y 5/2), scat shl frag, mott w/ cly bur, scat hvy min (14.1'-14.9')

SAND & SILT: vf-vcrs, dk gry brn (2.5Y 4/1), few shl frag & hvy min, few pbl (5mm-15mm) (14.9'-16.0')

MDY SAND: vf-vcrs, lt olv brn (2.5Y 5/3), r shl @ 16.5', r pbl @ 16.5', scat hvy min (16.0'-17.3')

DGSID **Oj23-10** DATE DESCR. **1/11/08** WATER DEPTH (FT) **31.7**

LOCAL ID. **KHV-135** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, pl yel (2.5Y 8/3), scat hvy min, loose, pol Gr, few shl frag (0'-1.0')

SAND: f-m, wl srt, pl yel (5Y 7/3), scat hvy min, pol Gr, r shl frag (25mm) @ 2.1' (1.0'-2.2')

SAND: vf-f, wl srt, pl yel (5Y 7/3), abd hvy min, pol Gr, abd hvy min Lam, slty-sd bur @ 3.5' (2.2'-3.7')

SAND: vf-m, wht (5Y 8/1), scat hvy min, Strless, pol Gr (3.7'-6.7')

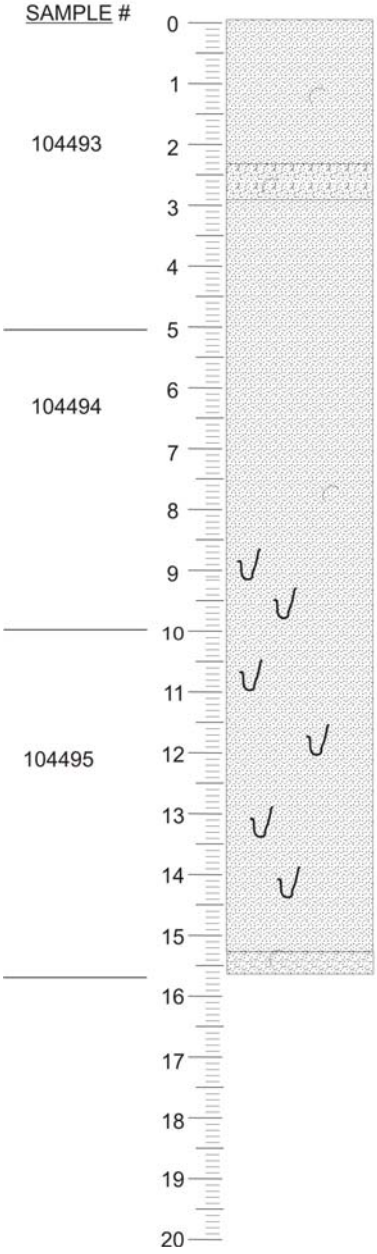
SAND: f-m, wl srt pl yel (5Y 7/3), abd hvy min, pol Gr, ox, slty-sd bur @ 7.4'-7.5', abd vf sd-slt Lam from 7.5'-9.2' (6.7'-9.2')

SAND: f-m, pl yel (2.5Y 8/3), abd hvy min, Strless, pol Gr, slty-sd bur @ 9.9' (9.2'-10.3')

SAND: vf-f, lt yel brn (2.5Y 6/3), scat hvy min, abd slty-sd Lam from 10.65'-11.1', abd slty-sd bur from 11.65'-12.1', slty-sd bur @ 13.0' (10.3'-13.5')

DGSID **Oj23-11** DATE DESCR. **1/11/08** WATER DEPTH (FT) **30.7**

LOCAL ID. **KHV-136** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, lt yel brn (2.5Y 6/4), scat hvy min, r shl frag (0'-2.3')

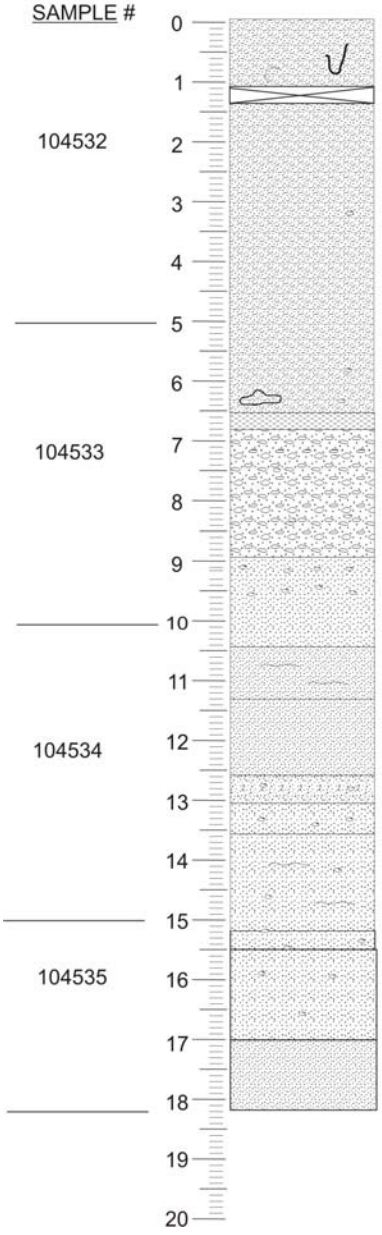
SAND: f-crs, few vcrs Gr, olv yel (2.5Y 6/6), few hvy min, r shl frag (2.3'-2.9')

SAND: f-m, lt yel brn (2.5Y 6/3), scat hvy min, r shl frag, bur of mdy sd @ 8.8'-9.0' & 9.5'-9.6' & 10.95' & 11.8'-11.9' & 13.2' & 14.3' (2.9'-15.2')

SAND & SILT: f-crs, gry brn (2.5Y 5/2), r shl frag, scat hvy min, bur @ 15.2'-15.4' (15.2'-

DGSID **Oj23-12** DATE DESCR. **1/17/08** WATER DEPTH (FT) **39.3**

LOCAL ID. **DGS07-01** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: slty-f, gn gry (1 GLEY 6/1), scat hvy min, bioturb, slty sd bur @ 0.5'-0.8', shl frag @ 0.8', Spled for RC @ 0.8' (0'-1.1')

VOID @ 1.1'-1.3'

SAND: slty-f, dk gn gry (1 GLEY 4/1), scat hvy min, completely bioturb, bcm sltier to 6.15', r qtz pbl (5mm) @ 3.0'-3.3', r qtz pbl (7mm) @ 5.8', cly clast @ 6.2'-6.4', r qtz pbl (15mm) @ 6.4' (1.3'-6.5')

CLAY: slty, gn gry (1 GLEY 6/1) (6.5'-6.7')

GRAVEL: sdy-cly Mtrx, gn gry (1 GLEY 6/1), abd qtz & cht pbl (2mm-50mm), bcm less cly @ 7.4' yel brn (10YR 5/4) (6.7'-8.9')

SAND: m-crs, yel (2.5Y 7/8), chky, few hvy min, qtz pbl Lyr (10mm-60mm) @ 9.1' & 9.5' (8.9'-10.4')

SAND: f-m, brn yel (10YR 6/8) w/ Lyrs of crs-vcrs sd & Grv & hvy min Lam, scat hvy min, chky, ox (10.4'-11.3')

SAND: f-m w/ few crs Gr, wh (2.5Y 8/1), Lyr of crs-vcrs Gr, few hvy min (11.3'-12.6')

SAND: f-vcrs, wh (2.5Y 8/1), few hvy min & pbl (5mm-8mm) (12.6'-13.1')

SAND: m-vcrs & Grv, wh (2.5Y 8/1), few hvy min & scat pbls (4mm-12mm) (13.1'-13.5')

SAND: m-vcrs, wh (2.5Y 8/1), Lyrs of vcrs sd & Grv, hvy min Lam, few hvy min, few pbls (5mm-12mm), bur @ 13.9'-14.2' (13.5'-15.2')

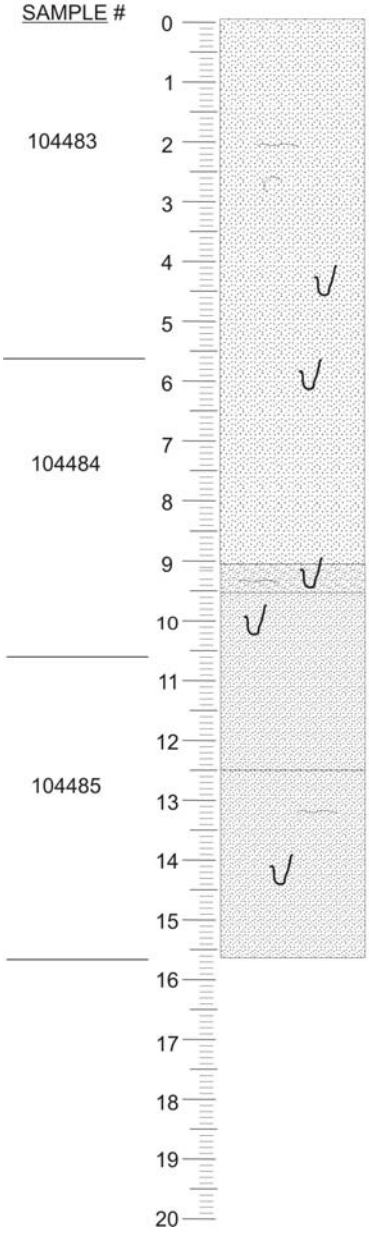
SAND: m-vcrs, gran, wh (2.5Y 8/1), few hvy min, abd pbls (4mm-8mm) (15.2'-15.4')

SAND: m-vcrs, gran, scat hvy min, scat qtz & Piedmont pbl (10mm) (15.4'-17.0')

SAND: f-m, wh (2.5Y 8/1), scat hvy min, chky, loose from 17.5' to Btm (17.0'-18.2')

DGSID **Oj24-05** DATE DESCR. **1/11/08** WATER DEPTH (FT) **30.7**

LOCAL ID. **KHV-133** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: m-c, wl srtd, lt yel brn (2.5Y 6/4), few hvy min, pol Gr, loose @ top, hvy min Lam @ 2.0', r shl frag @ 2.6', abd hvy min Lam, slty sd bur @ 4.5', slty bur @ 6.0' (0'-9.0')

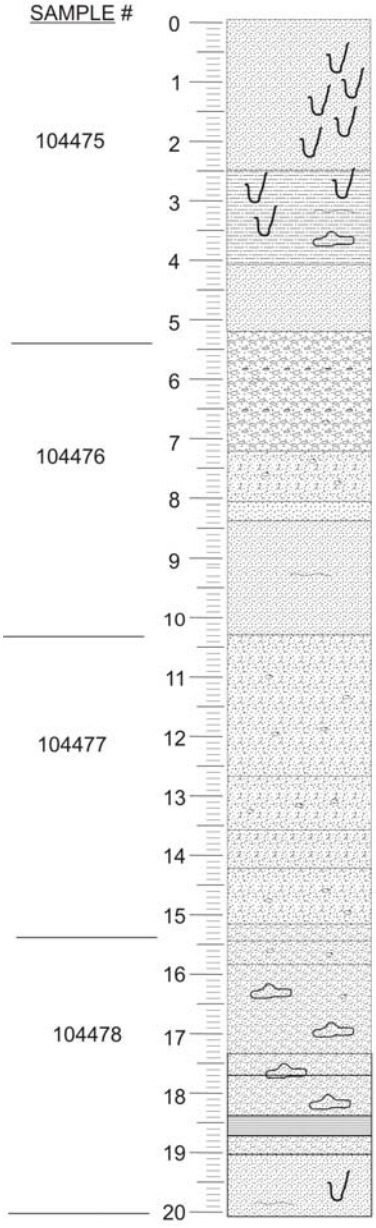
SAND: vf-f slty, lt olv brn (2.5Y 5/3), abd hvy min, mott, abd slty bur (9.0'-9.5')

SAND: vf-f, lt yel brn (2.5Y 6/4), scat hvy min, slt bur @ 9.8'-10' (9.5'-12.5')

SAND: vf-f, olv gry (5Y 5/2), abd hvy min, mott, slty bur @ 14.3', bcm more slty to base (12.5'-15.6')

DGSID **Oj33-02** DATE DESCR. **1/9/08** WATER DEPTH (FT) **44.6**

LOCAL ID. **KHV-131** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

SAND: vf-m, lt olv brn (2.5Y 5/3), few hvy min, sdy cly bur @ 0.6'-0.75' & 0.9'-1.0', mdy sd bur @ 1.3'-1.4', sd & cly bur @ 1.5'-1.6', ox sd from 1.0'-2.1' olv yel (2.5Y 6/8), sd & slt bur @ 2.1'-2.2' (0'-2.5')

SANDY CLAY: f-vf gr sd, blk (2.5Y 2.5/1), thn sd Lam, bur of sdy Mat @ 2.6'-2.65' & 2.7'-2.8' & 3.5'-3.6', sml clasts of cly (2.5'-4.1')

SAND: f-m, lt yel brn (2.5Y 6/4), v dk gry brn (10YR 3/2) few hvy min, ox sd from 4.3'-4.8', olv yel (2.5Y 6/8) (4.1'-5.3')

SAND: m-vcrs, GRAVEL, lt yel brn (2.5Y 6/3), few hvy min, abd pbl (5mm-35mm) (5.3'-7.2')

MDY SAND: f-vcrs, lt olv brn (2.5Y 5/3), few hvy min, abd pbl (5mm-32mm) (7.2'-8.0')

SAND: m-crs, lt yel brn (2.5Y 6/4), few hvy min, few vcrs Gr, few pbl (5mm-42mm) (8.0'-8.3')

SAND: f-m, lt yel brn (2.5Y 6/3), few hvy min (8.3'-10.3')

SAND: vf-vcrs, pl yel (5Y 7/3), r hvy min, abd Grv & pbl (5mm-58mm), lt rdsh brn (5YR 6/6) from 12.1'-12.7' (10.3'-12.7')

SAND: f-vcrs, lt gry (10YR 7/2), r hvy min, Grv, few pbl (5mm-20mm) (12.7'-13.7')

SAND: vf-crs, wh (2.5Y 8/1), r hvy min (13.7'-14.2')

SAND: vf-vcrs, lt brn gry (2.5Y 6/2), Grv, few hvy min, abd pbl (5mm-32mm) (14.2'-15.1')

CONSOL SAND & MUD: f-vf gr, gn gry (GLEY 1 6/10GY) (15.1'-15.4')

SAND AND CLAY: f-crs w/ few vcrs Gr, dk yel brn (10YR 3/6), few hvy min & pbl (15mm-40mm) (15.4'-15.8')

CLAY & SAND: f-m Gr, gn gry (GLAY 1 6/10Y), few hvy min, r pbl, few cly clasts (15.8'-17.3')

CLAY & SAND: f-m Gr, dk gn gry (GLAY 1 4/10Y), few hvy min, r cly clasts (17.3'-17.7)

CLAY & SAND: f-m, gry (2.5Y 6/1), few hvy min, few cly clasts (17.7'-18.4')

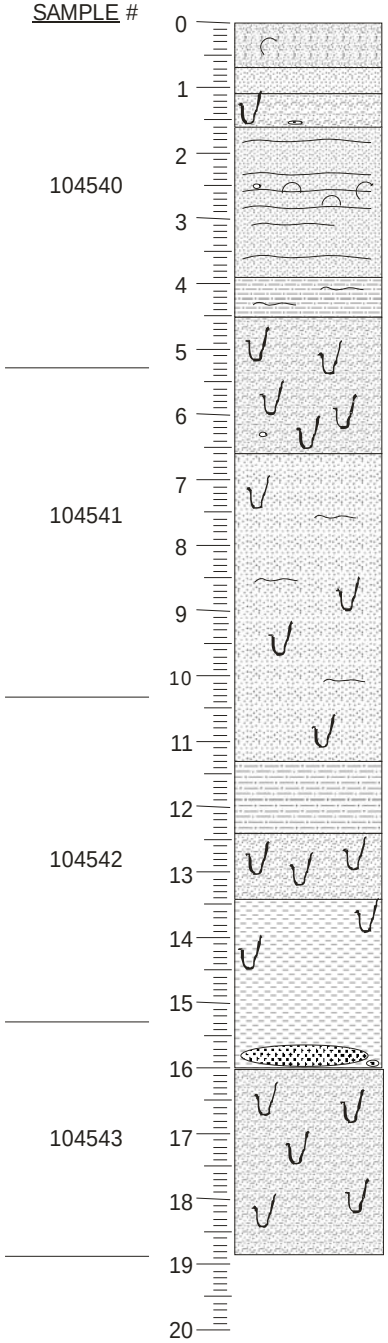
CLAY: gn gry (GLEY 1 6/5GY), few hvy min, sd Lyr @ 18.55' & 18.60' (f-m gr) (18.4'-18.7')

CLAY & SAND: f-m, gry (2.5Y 6/1), few hvy min (18.7'-19.0')

SAND: f-m, pl yel (2.5Y 7/3), few hvy min, hvy min Lam @ 19.9', cly filled bur @ 19.6'-19.9' (19.0'-20.1')

DGSID Oj33-03 DATE DESCR. 1/18/08 WATER DEPTH (FT) 36.1

LOCAL ID. DGS07-03 DESCR. BY KMcK



LITHOLOGIC DESCRIPTION

SAND: f-c, pl yel (2.5Y 7/3), scat hvy min, lse, pol, r shl frag (0.0-0.7')

SAND: vf-f, pl yel (2.5Y 7/3), scat hvy min, cpct, pol (0.7-1.1')

SAND: slty-f, gry brn (2.5Y 6/2), mott w/ slt bur, cly clast @1.5-1.6 ft (1.1-1.6')

Intrlam SAND (f-m) and SILT, sdy: Sd yel (2.5Y 7/6), Slt v dk gry (2.5Y 3/1), Shl frags @ 2.5 ft & 2.8 ft (in slt lam), sampld for RC @2.5', rndd qtz pbl (3 mm) (1.6-3.9')

SILT: sdy, v dk gry (2.5Y 3/1), scat sd lam (3.9-4.5')

SAND: f-c, slty, lt olv brn (2.5Y 5/4), mott w/ abd slt Bur, r cht pbl (10 mm) @ 6.3 ft (4.5-6.6')

SAND: vf-f, pl yel (5Y 8/4), scat hvy min, scat bur, pol, slt bur @ 7.0-7.2 ft, scat hvy min lam (6.6-11.3')

Hvy min cont incr w/ depth, col chg (wetter than sd) & orig col, lt gn gry (1GLEY 7/1) @ 8.7'

Grad ctc to SAND/SILT: intrlam, grn gry (1 GLEY 6/1) (11.3-12.4')

SAND: slty, v dk gry (7.5 YR 3/1), abd Bur, mott (12.4-13.4')

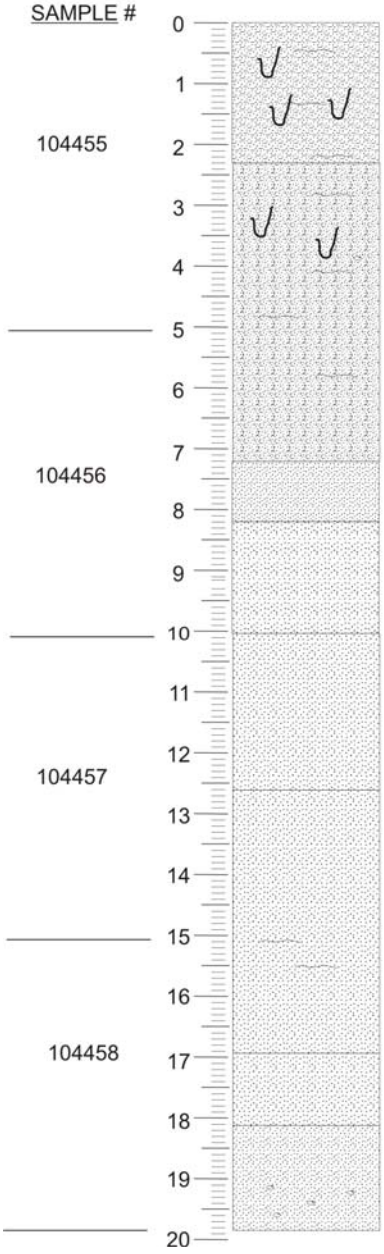
CLAY: slty, stiff, dk rd gry (2.5YR 4/1), sd filled Bur @ 13.4-13.7 ft & 14.0-14.3 ft, qtz pbl (80 mm and 15 mm) @ 15.7-15.9 ft, stned same col as cly Mtrx (13.4-16.0')

SAND: slty-f, rd gry (2.5 YR 5/1), abd Bur (16.0-18.85')

Bottom @ 18.85 ft

DGSID **Oj33-04** DATE DESCR. **1/22/08** WATER DEPTH (FT) **42.8**

LOCAL ID. **DGS07-05** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

SAND: f-m w/ r crs Gr, lt yel brn (2.5Y 6/4), scat hvy min, mott w/ mdy sd bur, Lyrs of sdy cly Mat (0'-2.3')

SAND: f-crs, olv yel (2.5Y 6/8), scat hvy min, hvy min Lam, mott w/ cly & sdy cly bur (2.3'-7.2')

SAND; silty: f-crs Gr, blk (2.5Y 2.5/1) (7.2'-8.2')

SILT; sdy: f-m w/ few vcrs Gr, v dk grysh brn (2.5Y 3/2) (8.2'-10.0')

SAND: vf-f Gr, lt olv brn (2.5Y 5/3), scat hvy min, Mic present (10.0'-12.6')

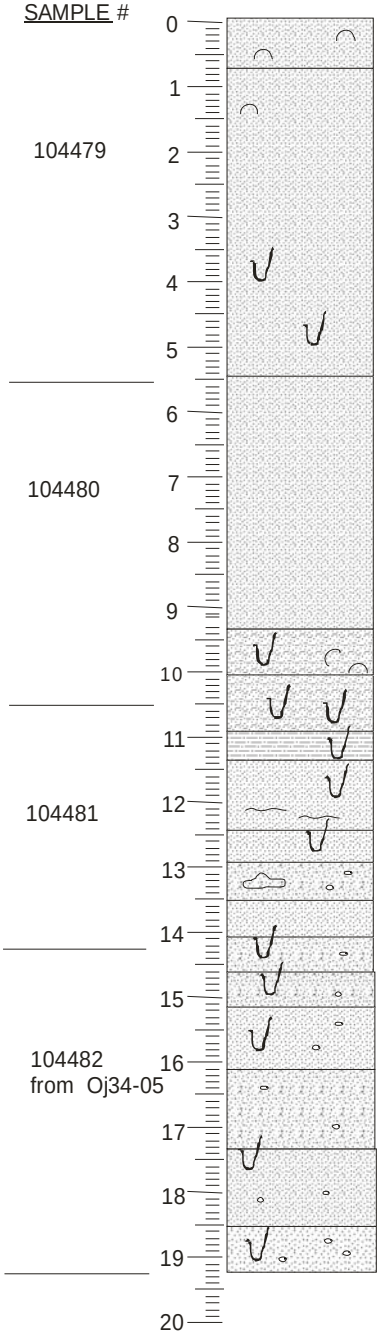
SAND: f-vcrs, olv (5Y 4/3), sequences of fining upward sd packages, few hvy min, Lam of org md Mat, Mic present (12.6'-16.9')

SAND: f-m, lt olv brn (2.5Y 5/3), scat hvy min, Mic present (16.9'-18.1')

SAND: m-vcrs & Grv, gryshbrn (2.5Y 5/2), cht Gr & few hvy min, pbl incr in amt towards btm of section (5mm-30mm), few hvy min (18.1'-19.85)

DGSID Oj34-04/05 DATE DESCR. 1/11/08 WATER DEPTH (FT) 41.2

LOCAL ID. KHV-132 DESCR. BY KMcK



SAND: vf-f, wl srt, olv gry (5Y 5/2), scat hvy min, loose, scat shl, pol Gr (0'-0.7')

SAND: vf-f, scat hvy min, pol Gr, r shl frag @ 1.2', fines down, scat slt-cly bur, bcm more abd from 3.7'-5.4, r shl frag (0.7'-5.4')

SAND: as descr ab, mott, bcm more slty down core (5.4'-9.3')

SAND: slty, olv gry (5Y 5/2), abd bur, scat shl hash (9.3'-10.0')

SAND: as descr ab, abd bur (10.0'-10.9')

SILT: sdy, olv gry (5Y 4/2), bur (10.9'-11.4')

SAND: vf-f, scat hvy min, abd slty-sd bur, pol Gr, mott, bcm more ox down core, abd hvy Lam @ 12.2'-12.4' (11.4'-12.4')

SAND: f-m, lt olv brn (2.5Y 5/6) w/ slty sd bur (12.4'-12.9')

SAND: vf-gran, lt olv brn (2.5Y 5/6), r hvy min, abd pbl qtz, cht, cly clast (2mm-15mm) (12.9'-13.5')

SAND: vf-f, lt olv brn (2.5Y 5/6), scat hvy min, chky (13.5'-14.1')

SAND: f-vcrs & Grv, pl yel (2.5Y 7/3), r hvy min, few pbl (5mm-30mm), bur @ 14.2' sd & md (13.8'-14.6') *beginning of run 2

SAND: vf-crs, few vcrs Gr, olv brn (2.5Y 7/6), few hvy min, r pbl (5mm), bur @ 14.8m sd & md (14.6'-15.1')

SAND: f-m w/ few crs-vcrs Gr, yel (2.5Y 7/6), few hvy min, bur @ 15.4'-15.5' sd & md, few pbl (5mm-10mm) (15.1'-16.1')

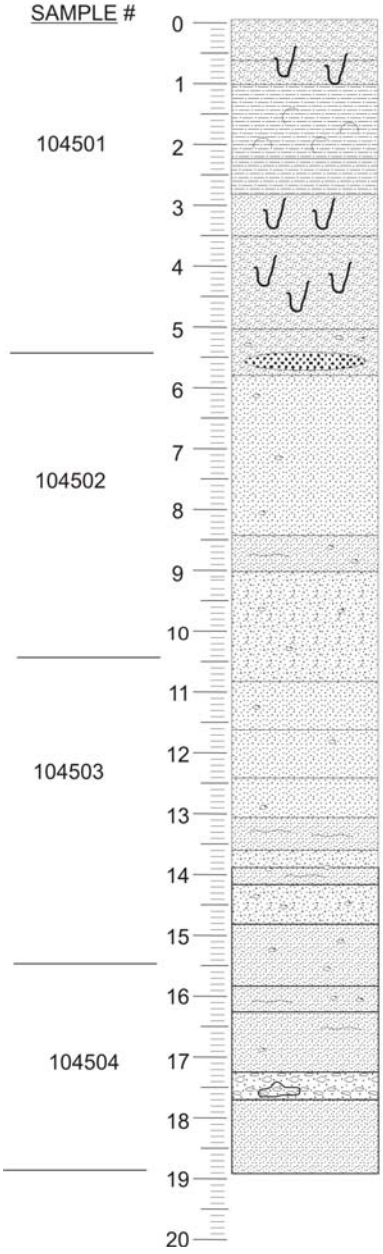
SAND: f-vcrs Grv, lt olv brn (2.5Y 5/4), few pbl (5mm-10mm), few hvy min, bur from 17.2'-18.6' sd & cly (16.1'-17.3')

SAND: f-m w/ few crs-vcrs Gr, olv yel (2.5Y 6/6), few hvy min, few smpbl (5mm-15mm) (17.3'-18.5')

SAND: m-vcrs Grv, yel (2.5Y 7/8), abd pbl (4mm-28mm), r hvy min, bur (sd & md) @18.51'-19.1' (18.5'-19.2')

DGSID **Oj34-06** DATE DESCR. **1/14/08** WATER DEPTH (FT) **49.1**

LOCAL ID. **KHV-188** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: slt-f, olv (5Y 4/4), scat hvy min, loose (0'-0.6')

SAND: slt-f, olv (5Y 4/4), scat hvy min, abd slt-sd bur, mott (0.6'-1.0')

SILT: sdy, v dk gry (2.5Y 3/1), abd shl frag, some whl shl *Mulinea* & *Crepidula* & *Ensis* (1.0'-2.2')

Mott SILT: sdy, & SAND, slt-vf, ox, brn (10YR 4/3), scat hvy min (2.2'-2.8')

SAND: vf-f, lt yel brn (2.5Y 6/3), scat hvy min, mott w/ slt-sd & slt bur (2.8'-3.5')

SAND: slty-vf, lt yel brn (2.5Y 6/3), scat hvy min, mott w/ slt-sd & slt bur (3.5'-5.0')

SAND: slt-f, brn (10YR 4/3), abd pbl qtz, rndd (3mm-15mm), 70mm qtz Cbl @ 5.5' (5.0'-5.7')

SAND: m-crs, lt olv gry (5Y 6/2), r hvy min, mky, chky, isol cht & qtz pbl (10mm-40mm) @ 6.1' & 7.6'-7.7' & 8.1', bcm crser @ 8.2'-8.4' (5.7'-8.4')

SAND: f, lt olv gry (5Y 6/2), scat hvy min, isol qtz pbl (15mm-20mm) @ 8.6' & 8.8', scat crs sd & slty Lam (8.4'-9.0')

SAND: crs-gran, lt olv gry (5Y 6/2), r hvy min, scat qtz & cht pbl (8mm-20mm) (9.0'-10.8')

SAND: m-crs, lt olv gry (5Y 6/2), r hvy min, chky, r qtz pbl @ 11.3' & 11.9', crsens to 11.6' (10.8'-11.6')

SAND: m-crs as descr ab, crsens to 12.4' (11.6'-12.4')

SAND: m-crs as descr ab, crsens to 13.1', r qtz pbl (20mm) @ 13.1' (12.4'-13.1')

SAND: f-m, abd hvy min, chky, abd hvy min Lam 13.2'-13.3' (13.1'-13.6')

SAND: crs-gran, pbly, abd qtz & cht pbl (3mm-20mm), scat hvy min, chky (13.6'-13.9')

SAND: f-m, abd hvy min, abd hvy min Lam (13.9'-14.1')

SAND: crs-gran, pbly, scat hvy min, chky, abd qtz & cht pbl (3mm-20mm) (14.1'-14.8')

SAND: f-m, yel brn (10YR 5/6), scat hvy min, chky, scat qtz & cht pbl (2mm-3mm) (14.8'-15.8')

SAND: vf-f & SAND m-crs Lam, yel brn (10YR 5/6), scat qtz & cht pbl (2mm-3mm) (15.8'-16.3')

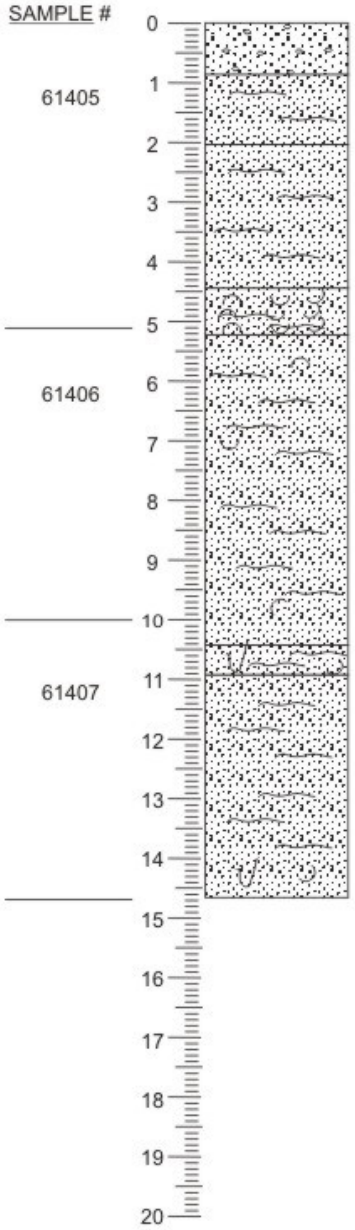
SAND: f-vf, yel brn (10YR 5/6), scat hvy min, abd hvy min, slty-sd Lam, r cht pbl (5mm-10mm) @ 16.8' (16.3'-17.3')

GRAVEL: m-crs sd Mtrx, yel brn (10YR 5/6), qtz, cht, md clast (5mm-30mm) (17.3'-17.7')

SAND: f-m, lt yel brn (2.5Y 6/3), scat hvy min, chky, fines to Btm (17.7'-18.9')

DGSID **Oj35-01** DATE DESCR. **1/10/02** WATER DEPTH (FT) **29.8**

LOCAL ID. **DGS01-01** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: m-f, mod wl srted, pale yel (2.5Y8/3), com-abd crs grs, Strless other than slily crser @ 0.2'-0.45' & 0.6'-0.7', com hvy min, mod sharp Ctc @ 0.95' (0.95')

SAND: f-vf, wl srted, pale yel (2.5Y8/3), com-abd hvy min, hvy min lam (0.02' thick) @ 1.6', otherwise Strless (1.05')

SAND: vf-f, wl srted, yel (10YR7/6) to gry (GLEY1 6/), crsens to f-vf @ 4.4', abd hvy min, Tr slt (2.4')

SAND: f-vf, wl srted, pale yel (2.5Y7/4), Shl frag lam @ 4.4', 4.8', & 5.2', com-abd hvy min, Strless (0.8')

SAND: vf-f, pale yel (2.5Y7/4) to gry (GLEY1 6/), com-abd hvy min, r Shl frag, Strless (5.05')

SAND: f-vf, wl srted, pale yel (2.5Y7/4), com-abd hvy min, 0.03' Dia blk cly-lined Bur (45 angle) @ 10.45'-10.5', Shl frag @ 10.9 (0.5')

SAND: f-vf, wl srted, pale yel (2.5Y7/3) com-abd hvy min, mott ((bioturbated?) & wet/dry zones bet 12.0'-13.1', Shl frag @ 14.45',blk cly-filled vert Bur @ 14.45'-14.6' (3.65')

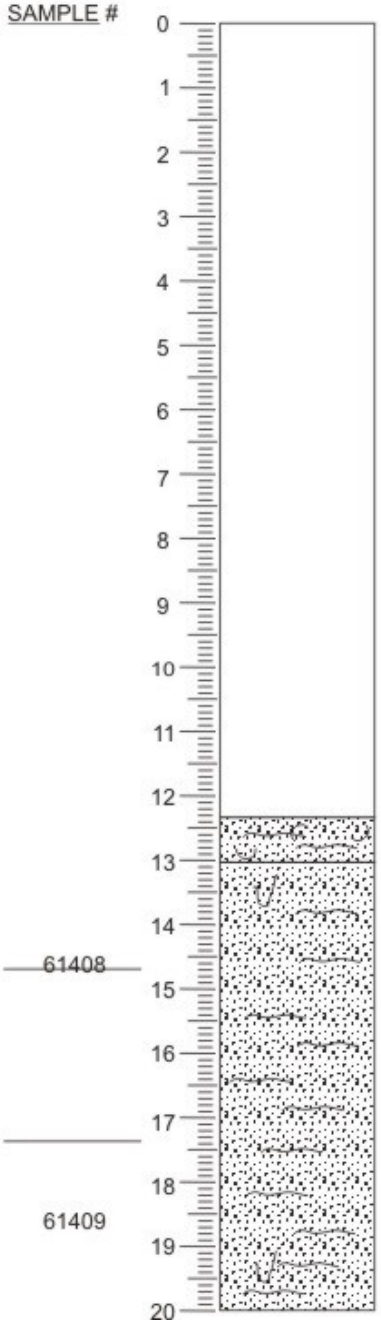
NOTE-Sampled every other foot for texture.

INTERPRETATION

None provided.

DGSID **Oj35-02** DATE DESCR. **1/10/02** WATER DEPTH (FT) **29.9**

LOCAL ID. **DGS01-01 R2** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

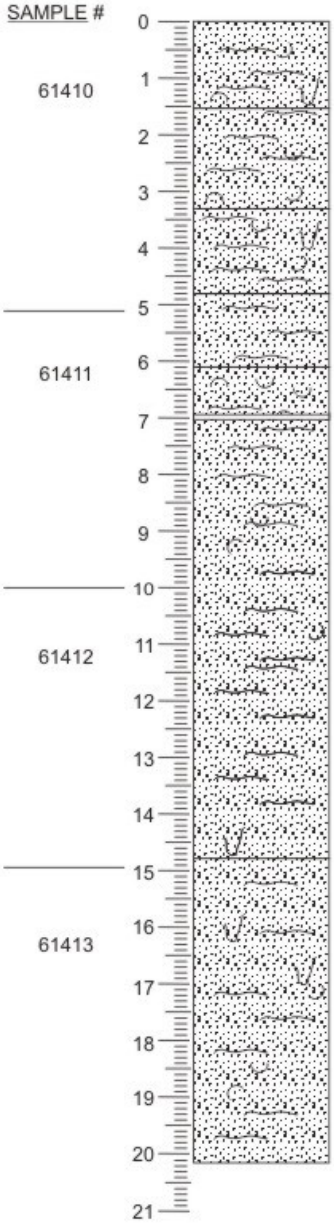
SAME SITE AS Oj35-01, JETTED to 12.3'

SAND: vf-f, wl srted, pale yel (2.5Y7/4), com-abd hvy min, com Shl frag, (disturbed by jetting?) (0.7')

SAND: vf-f, wl srted, pale yel (2.5Y7/4) to gry (GLEY1 6/), com-abd hvy min, mott (bioturbated?), cly-lined vert Bur @ 13.25'-13.4' & hor Bur @ 19.4', Strless (11.35')

DGSID **Oj35-03** DATE DESCR. **1/11/02** WATER DEPTH (FT) **34.5**

LOCAL ID. **DGS01-02** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-vf, wl srted, pale yel (2.5Y7/3), some m, r gran-size Shl frag, com-abd hvy min, Strless, may have Bur @ 1.5', grad Ctc @ 1.5' (1.5')

SAND: f-vf, wl srted, gnsh gry (GLEY1 6/1) w/ pale yel (2.5Y7/3) near core pipe, com-abd hvy min, lge Shl frag @ 2.75', vert Bur filled w/ m-crs sd & gran-size Shl frag 3.25'-3.5', otherwise Strless, few Shl frag (1.75')

SAND: vf-f, w srted, Col as ab, few crs Shl frag, cly-lined hor Bur (.05" Dia) @ 3.75'-3.8', sml Gast Shl @ 3.8', com-abd hvy min (1.55')

SAND: f-vf, Col as ab, Strless to 5.3' then mixed (bioturbated?) f-vf & m, intrlam f-vf & f-m @ 5.9'-6.05', com-abd hvy min (1.25')

SAND: vf-f, Col as ab, com Shl frag @ 8.8'-9.2', com-abd hvy min, Strless, void @ 6.9'-7.0', com Shl frag @ 9.0' & 12.1'-12.2', Col bcm pale yel @ 13.0', few Shl frag, relict dk gry blk cly lam, hor Bur & vert Bur (photo) 0.01' Dia @ 14.7'-15.2' (9.15')

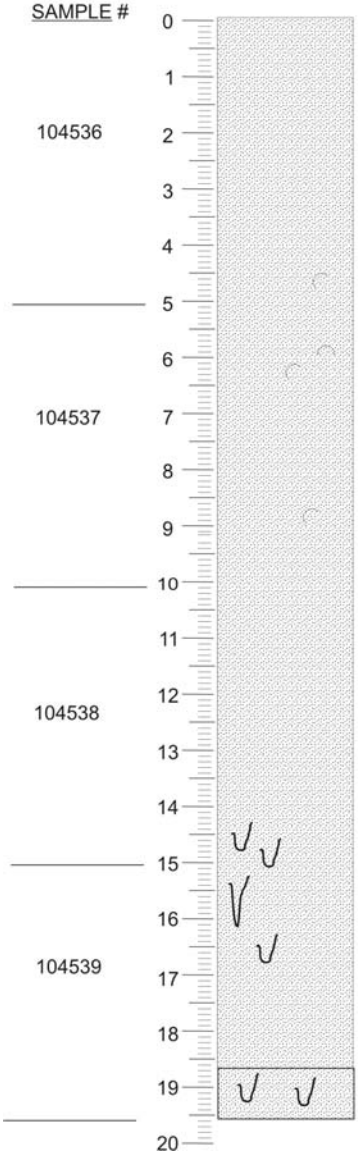
SAND: vf-f, pale yel (2.5Y7/3), com hvy min, hor 0.02" Dia Bur @ 16.2', few scat Shl frag, loose & fluffy where dry, lt & dk mott (may show Bur) @ 16.9'-17.4', r Shl frag (4.95')

INTERPRETATION

None provided.

DGSID **Oj35-04** DATE DESCR. **1/18/08** WATER DEPTH (FT) **27.0**

LOCAL ID. **DGS07-02** DESCR. BY **KMcK**



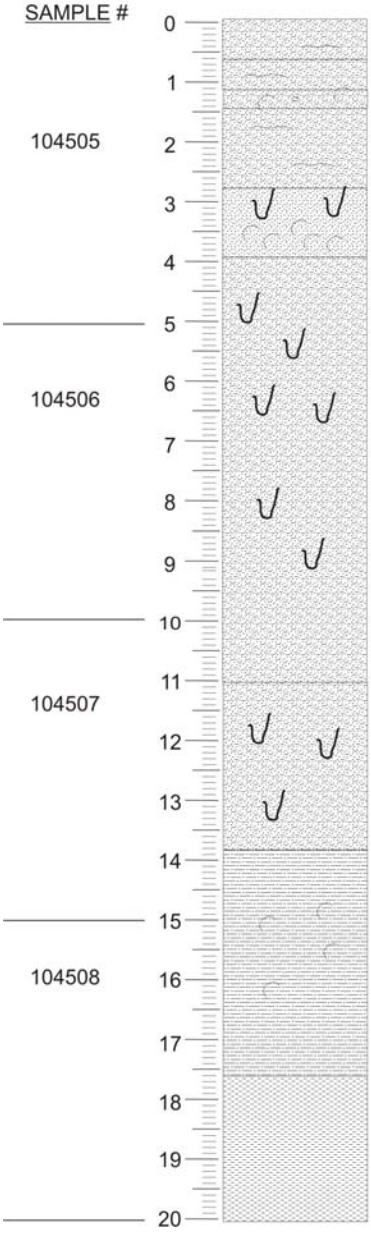
LITHOLOGIC DESCRIPTION

SAND: f-m, pl yel (2.5Y 8/3), scat hvy min, pol Gr, Strless, r shl frag (20mm) @ 4.6', r shl *Spisula* @ 5.85', shl frag @ 6.1', non-ox Zn @ 8.5'-8.75', r shl frag @ 8.75, slty bur @ 14.7' & 14.9' &15.3'-16.3', slty bur @ 16.7' (0'-18.65')

SAND: f-m, slty, pl yel (2.5Y 7/3), mott w/ abd bur (18.65'-19.6')

DGSID **Oj43-02** DATE DESCR. **1/14/08** WATER DEPTH (FT) **44.8**

LOCAL ID. **KHV-139** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: slty vf-f, lt olv brn (2.5Y 5/4), abd hvy min (0'-0.6')

SAND/SILT: Lam dk gry (2.5Y 4/1) (0.6'-1.1')

SAND: slty, dk gry (2.5Y 4/1), abd shl frag, r qtz pbl (10mm) (1.1'-1.4')

SAND/SILT: Lam, dk gry (1.4'-2.8')

SAND: vf-f, lt gn gry (1 GLEY 8/1), abd hvy min, pol, mott w/ abd slt-sd Bur, shl frag Lyr @ 3.6' (2.8'-3.9')

SAND: slty, vf-f, lt olv brn (2.5Y 5/4), mott w/ abd slt-sd bur, bcm sandier from 9.0'-11.0' (3.9'-11.0')

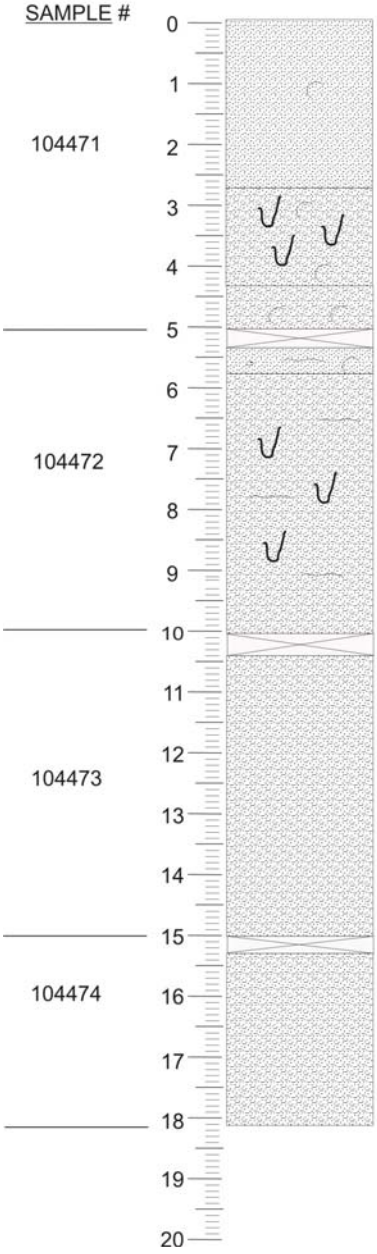
SAND: slty, vf-f, mott w/ abd slt-sd bur, rubber band (from coring?- But in center. See photos) @ 11.8' (11.0'-13.8')

SILT: sdy, dk gry (2.5Y 4/1), abd shl frag (13.8'-17.6')

CLAY: slty, dk red gry (10R 3/1), stiff, samples for Poln (17.6'-20.0')

DGSID **Oj43-03** DATE DESCR. **1/15/08** WATER DEPTH (FT) **40.5**

LOCAL ID. **DGS07-04** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

SAND: vf-m, lt olv brn (2.5Y 5/4) w/ scat crs-vcrs Gr, r hvy min & shl frag, cht sd Gr (0'-2.7')

SAND: slty, vf-m, v dk gry (2.5Y 3/1), scat hvy min, few shl frag, mott w/ sdy cly bur (2.7'-4.3')

SAND:slty, vf-f, v dk gry (5Y 3/1), few shl frag (4.3'-5.0')

VOID: 5.0'-5.3'

SAND: vf-f, few vcrs Gr, olv (5Y 4/3), scat hvy min, r pbl (20mm), cly Lam, few shl frag (5.3'-5.7')

SAND: f-vf, and mud, v dk gry (5Y 3/1), thin Lam of sd (f-crs), Lam of cly, mott w/ cly & sd bur (5.7'-10.0')

VOID: 10.0'-10.4'

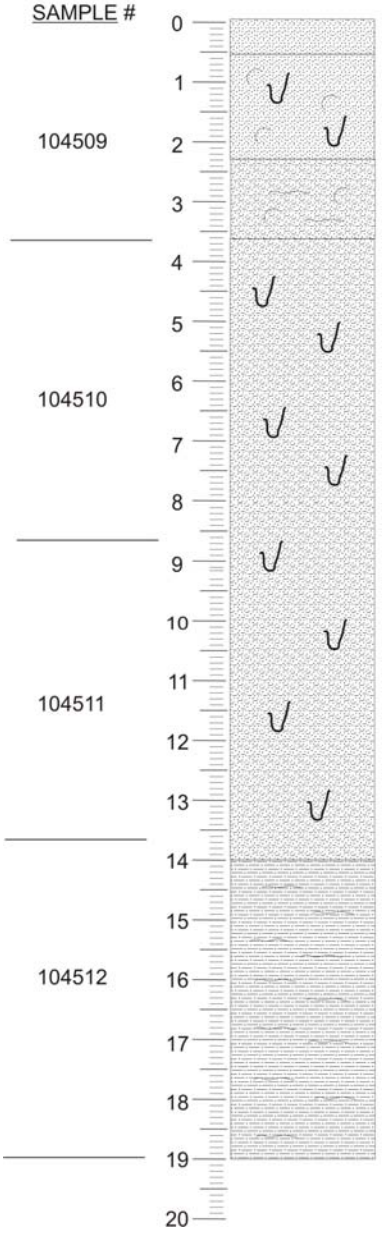
SAND: as descr ab (10.4'-18.1')

VOID: 15.0'-15.3'

End @ 18.1'

DGSID **Oj44-01/02** DATE DESCR. **1/14/08** WATER DEPTH (FT) **49.5**

LOCAL ID. **KHV-140r1/2** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, lt olv brn (2.5Y 5/3), abd hvy min, loose, pol (0'-0.5')

SAND: f-m, olv (5Y 4/3), abd hvy min, mott w/ slt-sd bur, some shl frag @ 0.9' & 1.4' & 1.9' (0.5'-2.3')

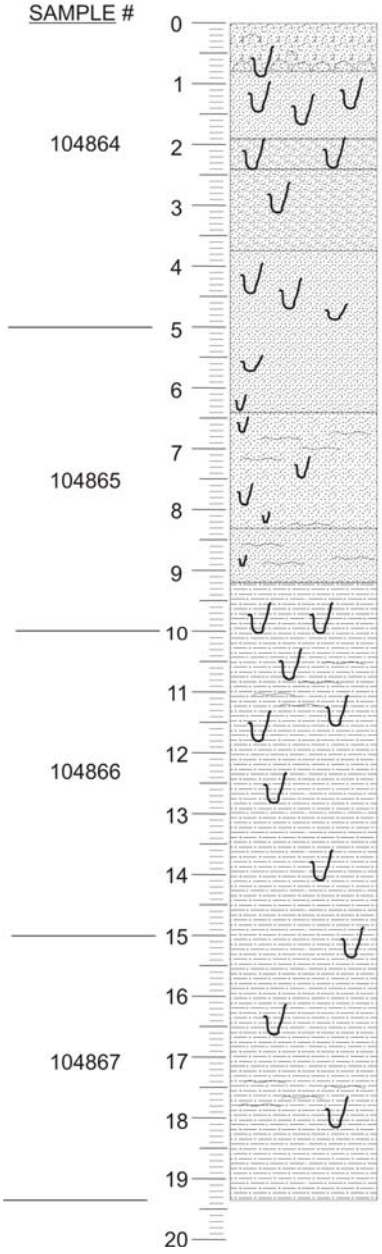
SAND: slty/ SILT LAM, dk olv gry (5Y 3/2), scat shl frag (2.3'-3.6') *Btm of run 1

SAND/SILT: olv gry (5Y 4/2), mott w/ abd slt-sd bur (3.6'-14.0')

SAND/SILT/CLAY Lam: v dk gry (2.5Y 3/1) (14.0'-19.0')

DGSID **Oj44-03** DATE DESCR. **3/3/08** WATER DEPTH (FT) **46.2**

LOCAL ID. **DGS07-15** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-crs, pl yel (2.5Y 7/3), few hvy min, ang, fros grs, Gast shl frag @ 0.2', r qtz pbl @ 0.5' (5mm), cly sd Bur @ 0.5-0.9', shl hash lyr @0.7' (0.0-0.8')

SAND: vf-m, pl yel (2.5Y 7/3), abd hvy min, fros & pol grs, abd Bur-mott (0.8-1.9')

SAND: slty, f, olv gry (5Y4/2), few hvy min, abd slty-sd Bur (1.9-2.4')

SAND: slty, f, yel rd (5YR 5/6), ox sds mixed w/cly-sd Bur (2.4-3.75')

SAND: f, brn yel (10YR 6/8), abd hvy min, pol grs, slt-sd Bur @ 3.9', 4.2', 4.6'-4.8', 5.4'-5.7', 6.1'-6.2', cly lam @ 4.3', gradual Col chg to yel (2.5Y 7/8) then back to brn yel @ top of 5-10' core (3.75'-6.4')

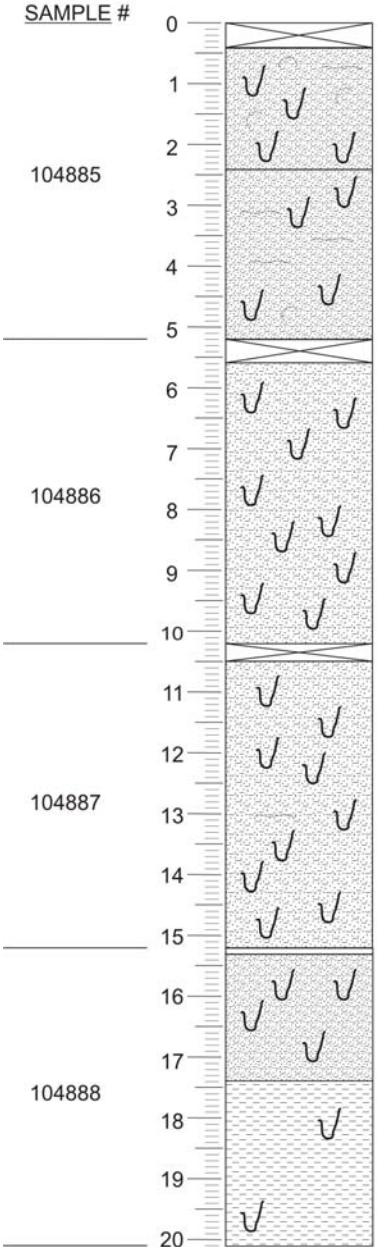
SAND: m, pl yel (2.5Y 8/4), few hvy min, cly-sd Bur @ 6.5-6.6', pol grs, lam of ox f-m sd @ 6.7-7.2', mott w/ cly-sd Bur @ 7.2-7.5', 7.6-8.0', 8.1-8.2', cly Lam 8.2-8.3' (6.4-8.3')

SAND: vf-f, lt grn gry (1 GLEY 7/1), abd hvy min, pol grs, cly lam @ 8.6', 8.8', 8.9', ox sd Bur @ 8.8' (8.3-9.2')

SILT: sdy, v dk gry (1GLEY 3/), abd sd-Bur decr w/depth, abd rootlets, sdy lam from 10.6-11.2 & 17.4-17.8', Plt Mat (Spl for RC) @ 12.2', 12.7', 17.1', 18.2', Spl for poln @ 19.0' (9.2-19.35')

DGSID **Oj44-04** DATE DESCR. **3/17/08** WATER DEPTH (FT) **46.2**

LOCAL ID. **DGS07-19** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

VOID: (0.0-0.4')

SAND: slty-vf, pl olv (5Y 6/3), mott w dk olv gry (5Y 3/2), abd hvy min, mott, abd slty-sd Bur, abd shl frag to 1.7', cht disk frag (10 mm) @ 0.8', cly Lam @ 0.7', unit b/c more slt/cly downward, Bur b/c cly-slt lined bet 1.7 & 2.4' (0.4-2.4')

SAND: slty-f, mott, abd slty-sd Bur, cly Lam @ 3.1-3.2', 3.6' & 3.9', section b/c mor slt/cly downward, r shl frag @ 4.7', col chg to dk gry (5Y 4/1) due to chg in moisture Cont (2.4-5.2')

VOID: (5.2-5.6')

SAND: slty-f, pl olv (5Y 6/7), same as abv, abd hvy min, mott, abd slty-sd bur (no shl) (5.6-10.2')

VOID: (10.2-10.5')

SAND: slty-f, pl olv (5Y 6/3), abd hvy min, mott, same as seq abv, cly Lam @ 13.0-13.1' (10.5-15.2')

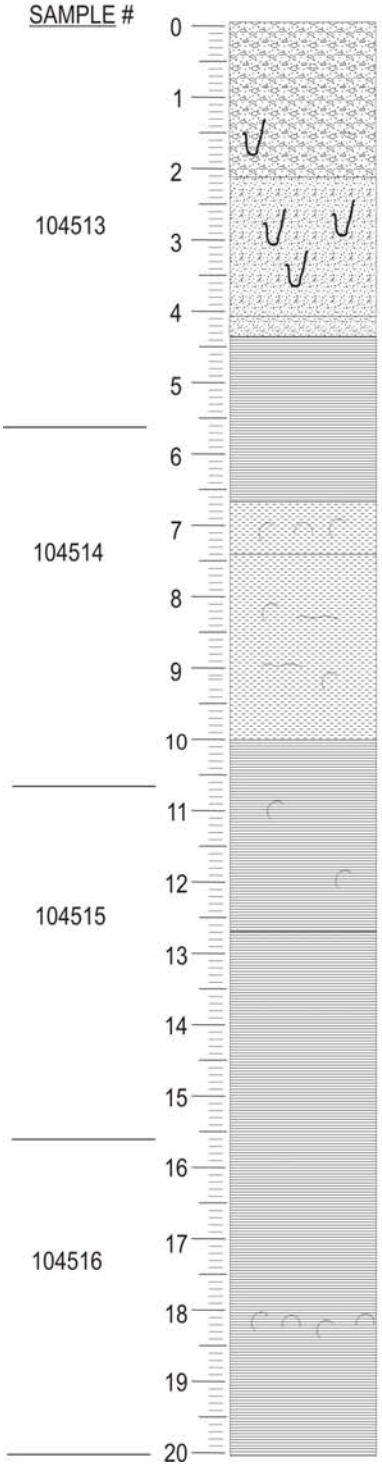
VOID: (15.2-15.3')

SAND: same as seq abv void (15.3-17.4')

CLAY: slty, dk rd gry (2.5 YR 4/1), stiff, few sdy-slt Bur, samp for pollen (17.4-20.1')

DGSID **Oj53-01** DATE DESCR. **1/15/08** WATER DEPTH (FT) **43.2**

LOCAL ID. **KHV-141** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

SAND: f-vcrs, Grv, lt gry (2.5Y 7/2), few hvy min, sd & cly bur from 1.4'-1.7', r pbls (6mm-7mm) (0'-2.1')

SAND: vf-crs, gry (2.5Y 6/1), scat hvy min, mott w/ sdy cly bur (2.1'-4.1')

MUDDY SAND: f-vcrs, v dk gry (2.5Y 3/1), few hvy min (4.1'-4.3')
CLAY: v dk gry (5Y 3/1), Mic present (4.3'-6.65')

SANDY CLAY: v dk gry (5Y 3/1), Lyrs of mdy sd (f-crs), abd shl Mat (6.65'-7.4')

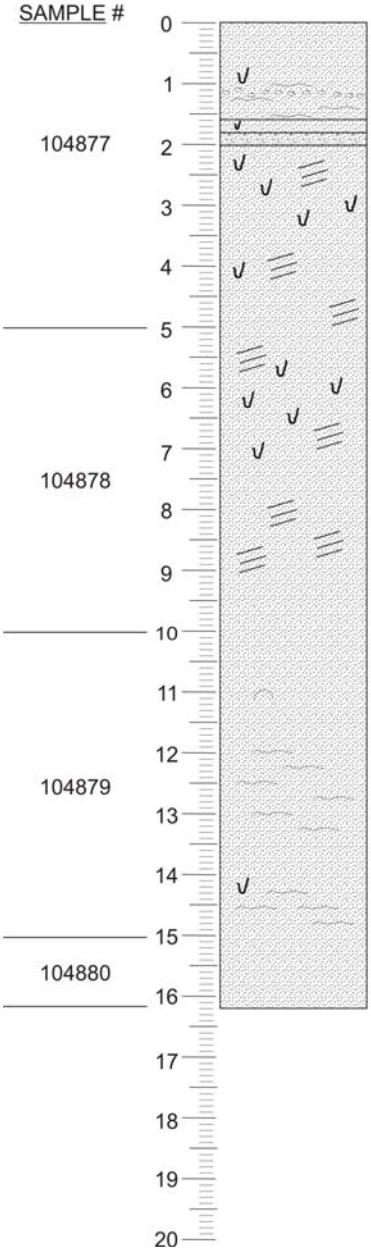
SANDY CLAY: v dk gry (5Y 3/1), few shl pieces, thn Lam of f sd, Mic present (7.4'-10.0')

CLAY: v dk gry (5Y 3/1), Mic present, few shl frag (10.0'-12.7')

CLAY: v dk gry (5Y 3/1), Mic present, r shl frag, Lyrs of org Mat starting @ 15.6' & incr down core, shl Lyr @ 18.0'-18.1' (12.7'-20.1')

DGSID **Oj53-02** DATE DESCR. **3/10/08** WATER DEPTH (FT) **39.9**

LOCAL ID. **DGS07-17** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, pl olv (5Y 6/3), few hvy min, b/c more mott to 1.0', slty-sd Bur @ 0.8', cly lam @ 1.0', pbly sd (0.5-10mm), qtz, cht, shl frag @ 1.0-1.2', interlam slty-cly & sd @ 1.2-1.6' v dk gry (5Y 3/1) (0.0-1.6')

SAND: f, yel (2.5Y 7/8) abd hvy min, pol gr, slty sd Bur @ 1.7' (1.6-1.8')

SAND: f-gran, pl yel (2.5Y 7/8), few hvy min, fros grs (1.8-2.0')

SAND: f-m, wl srt, pl yel (2.5Y 8/3), few hvy min, pol
Slty sd Bur @ 2.3', 2.7',3.0', 3.2', 4.1', 5.7', 6.0', 6.2', 6.5', 6.9'-7.2', 14.1'-14.2'
Abd x-bed

Col chg to wht (5Y 8/1) @ 4.9'

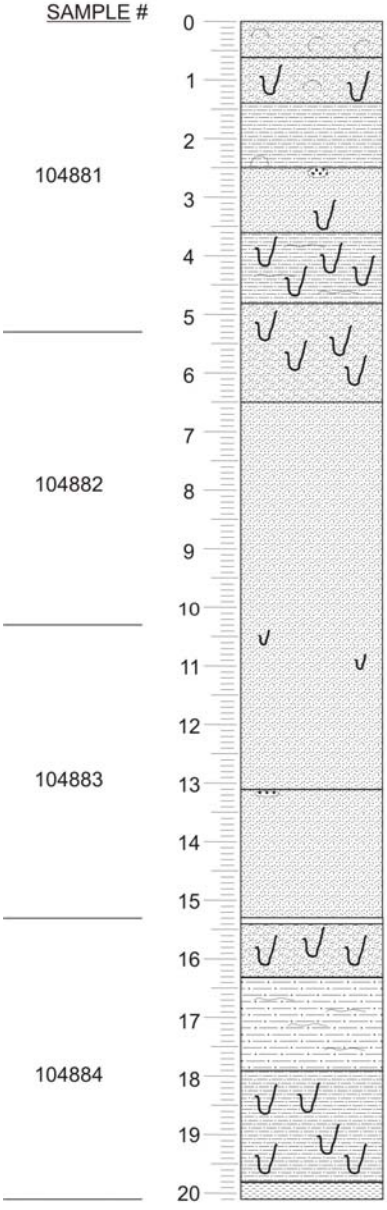
60 mm Mercenaria frag @ 11.0', sam for amino acid & RC

Interlam w/f sd bet 12.0-13.3' & 14.3-14.8'

Col chg to pl yel (2.5Y 8/3) @ 15.0'
Col chg to lt gry (5Y 7/1) @ 15.8'
(2.0-16.2')

DGSID **Oj53-03** DATE DESCR. **3/1030** WATER DEPTH (FT) **41.4**

LOCAL ID. **DGS07-18** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: slty, vf-f, lt olv brn (2.5 Y 5/3), abd hvy min, loose, abd Ensis, shl frag, Spisula (0.0-0.6')

SAND: slty, vf-f, lt olv brn (2.5Y 5/3), abd hvy min, mott w/ slty Bur, scat shl frag (0.6-1.4')

SILT: sdy, v dk gry (2.5Y 3/1), bcm sdier to ctc below, Gast frag @ 2.3' (1.4-2.5')

SAND: f-m, pl yel (2.5Y 8/2), scat hvy min, cht frag (25 mm) @ 2.5', bcm mott down to ctc, cly Bur 3.3-3.5' (2.5-3.6')

Interlam SILT & SAND: v dk gry (2.5Y 3/1), abd sd-filled Bur & cly-filled Bur (3.6-4.8')

SAND: slty, grn gry (1 GLEY 5/1) to lt brn gry (2.5Y 6/2) abd cly Bur, mott (4.8-6.5')

Gradual contact to:
SAND: f, wl srtd, wht (2.5Y 8/1), scat hvy min, crsens down to f-md sd
Slt-cly Bur @ 10.5 & 10.9' (6.5-13.1')

SAND: f-m, yel (2.5Y 7/8), abd hvy min, Fe conc (50 mm x 30 mm) @ 13.1-13.2', ox (13.1-15.3)

VOID: (15.3-15.4')

SAND: slty-f, ol yel (2.5Y 8/2), abd hvy min, mott, slty-cly Bur @ 16.2-16.3' (15.4-16.3')

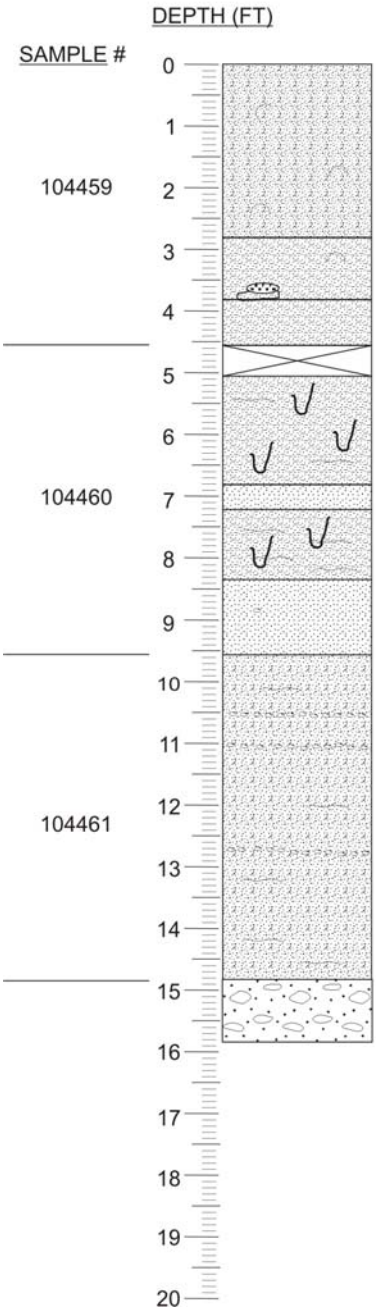
Interlam SANDY SILT and SAND: abd hvy min, lt brn gry (2.5Y 6/2) (16.3-17.9')

SILT: sdy, v dk gry (2.5Y 3/1), abd cly-filled Bur, Mott
Org Mat @ 19.1', samp for RC (17.9-19.8')

CLAY: slty, stiff, v dk gry (2.5Y 3/1) (19.8-20.1)

DGSID **Oj54-02** DATE DESCR. **1/23/08** WATER DEPTH (FT) **48.5**

LOCAL ID. **DGS07-06** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

SAND: vf-crs, olv brn (2.5Y 4/3), abd hvy min, scat shl frag, mic (0.0-2.8')

SAND: slty, vf-crs, blk (5Y2.5/2), scat hvy min, scat shl frag, cly clast @ 3.6-3.85 ft, mic (2.8-3.8')

SAND: slty, vf-m, dk gn brn (2.5Y 4/2), scat hvy min, cly lyr, mic (3.8-4.55')

VOID: 4.55-5.05 ft

SAND: slty, vf-f, lt olv brn (2.5Y 5/3), few hvy min, cly lam, sdy lyr (f-c), mott w/ sdy cly bur (5.0-6.8')

SAND: m-c, few vc grs, lt yel brn (2.5Y 6/4), few hvy min (6.8-7.2')

SAND: vf-m, olv gry (5Y 5/2), few hvy min, sd lam (m-c) intbd w/ cly lam (7.2-8.35')

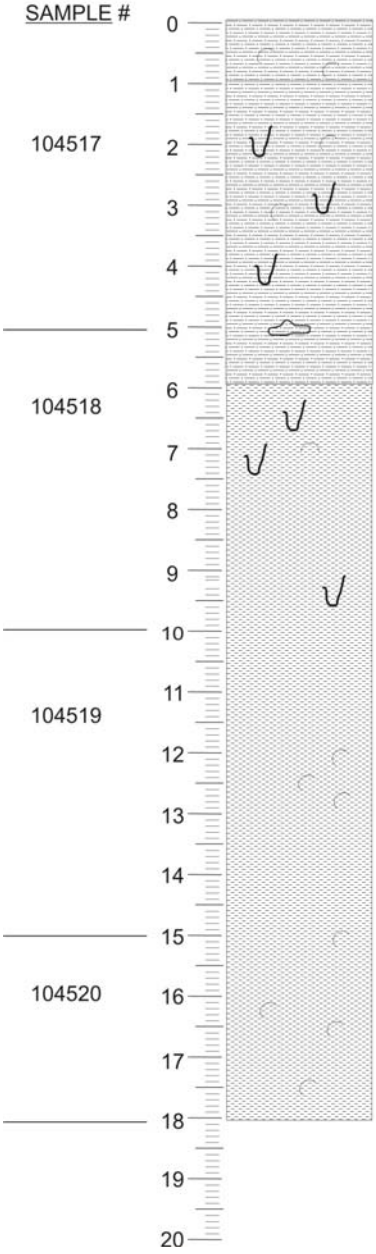
SAND: m-vcrs, olv yel (2.5Y 6/6), few hvy min, r pbl (25mm) (8.35-9.55')

SAND: f-crs, lt yelsh brn (2.5Y 6/3), few hvy min & hvy min lam, Pbl lyrs @ 10.5, 11.0 & 12.7 ft (9.55-14.85')

SAND: m-vcrs, Grv, lt olv brn (2.5 Y 5/3), abd pbl (4-40 mm), lyr of vf-f sd and sdy cly, few hvy min, hvy min lam, mic (14.85-15.75')

DGSID **Oj55-01** DATE DESCR. **1/15/08** WATER DEPTH (FT) **54.1**

LOCAL ID. **KHV-142** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

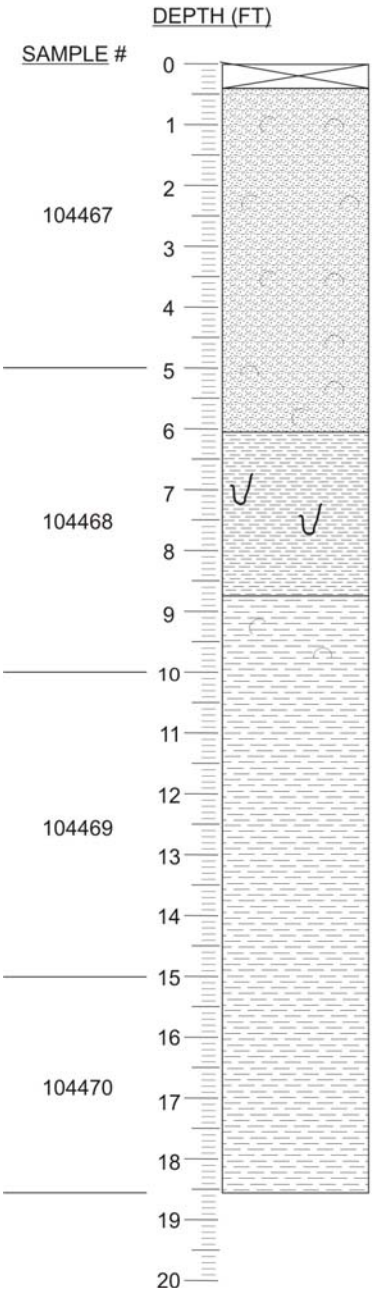
SILT: sdy, olv gry (5Y 4/2), abd shl frag, *Ensis*, *Spisula* (0'-0.9')

SILT: sdy, scat shl frag (5mm), abd cly bur, intrlam slt & slty sd, cly clast (30mm) @ 5.0' (0.9'-5.9')

CLAY: slty, stiff, dk olv gry (5Y 3/2), sdy bur @ 6.5' & 7.2'-7.3' & 9.4'-9.6',r Moll poss *Venericardia* or *Noetia* @ 7.0', r snail (fragile) frag @ 12.0', r shl frags @ 12.5'-12,6', r shl frag (*Ensis*?) @ 15.0', r shl frag (snail) @ 16.2', r shl frag (Moll) @ 16.5' & 17.5' (*Spisula*), Spled for RC (5.9'-18.0')

DGSID **Oj55-02** DATE DESCR. **1/25/08** WATER DEPTH (FT) **55.3**

LOCAL ID. **DGS07-08** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

VOID-poss cpct (0'-0.4)

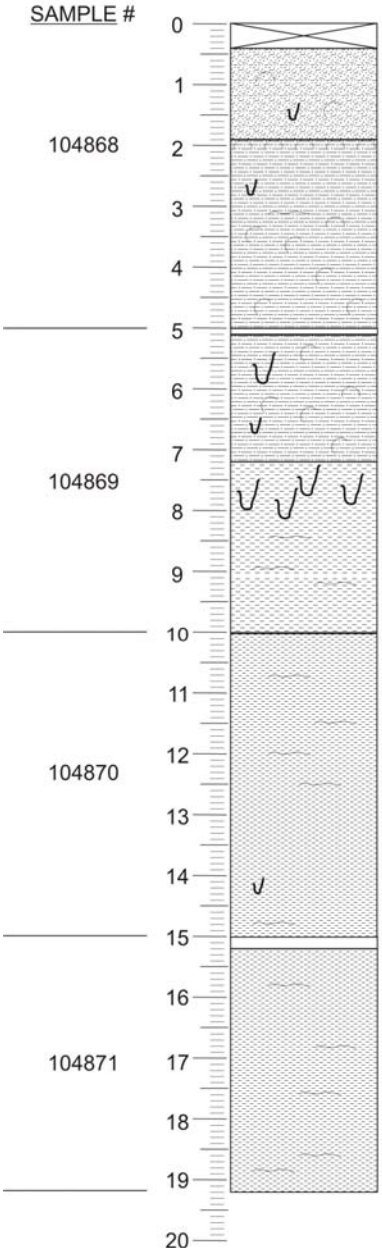
SAND: slty, vf-f, blk (5Y 2.5/2), abd shell frag (0.4'-6.0')

SILT: cly, blk (2.5Y 2.5/1), sd- filled bur @ 6.7' & 7.3-7.8' (6.0'-8.8')

SILT: blk (5Y 2.5/1), few shl frag, org mat (8.8'-18.5')

DGSID **Oj55-03** DATE DESCR. **3/3/08** WATER DEPTH (FT) **51.2**

LOCAL ID. **DGS07-16** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

VOID: (0'-0.4')

SAND: slty, vf-f, dk brn (2.5Y 4/3), abd hvy min, few shl frag, slty cly Bur @ 1.3-1.6' (0.4-1.9')

SILT: sdy-cly, v dk gry (2.5Y 3/1), shl has Lyr @ 1.9', sdy-slt Bur @ 2.6-2.7', sdy Lam @ 3.1', abd shl hash @ 3.1-7.2', predom Ensis, none sampled, slty sd Bur @ 5.4-5.9', 6.6' (1.9-5.0')

VOID: (5.0-5.1')

SAME AS ABOVE VOID: (5.1-7.2')

CLAY: sdy, v dk gry (2.5Y 3/1), abd sdy Bur 7.2-8.1', Lam thru section (7.2-10.0')

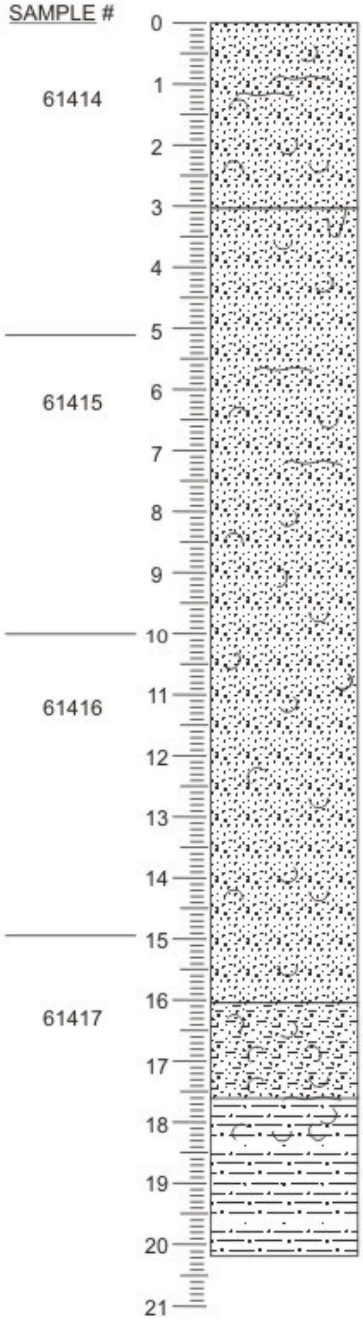
CLAY: slty, v dk gry (2.5Y 3/1); abd Lam thru section, sd Bur @ 14.2', Spl for pollen @ 19.0' (10.0-15.0')

VOID: (15.0-15.2')

SAME AS ABOVE VOID: (15.2-19.2')

DGSID **Ok41-01** DATE DESCR. **1/11/02** WATER DEPTH (FT) **42.1**

LOCAL ID. **DGS01-03** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: vf-f, wl srted, pale yel (2.5Y7/3), few-com Shl frag, com hvy min, Strless, may have fnt hvy min Lam 1.1'-1.3' (bioturb?), com Shl frag @ 3.0' (3.0')

SAND: vf-f, pale yel (2.5Y7/3) to gnsh gry (GLEY1 6/1), few-com Shl frag, com hvy min, slty sd-filled Bur (0.04" Dia) @ 3.15'-3.35', slty cly lam @ 5.8'-5.9' & 7.3'-7.5', Strless, whole sml Ensis Shl @ 6.2', Col bcm all gnsh gry (GLEY1 5/1) @ 10.0', (13.0')

SAND: vf-f, slily slty, gnsh gry (GLEY1 5/1), wl srted, com Shl frag, com hvy min, some Mic, lge Shl frag @ 16.1' (1.6')

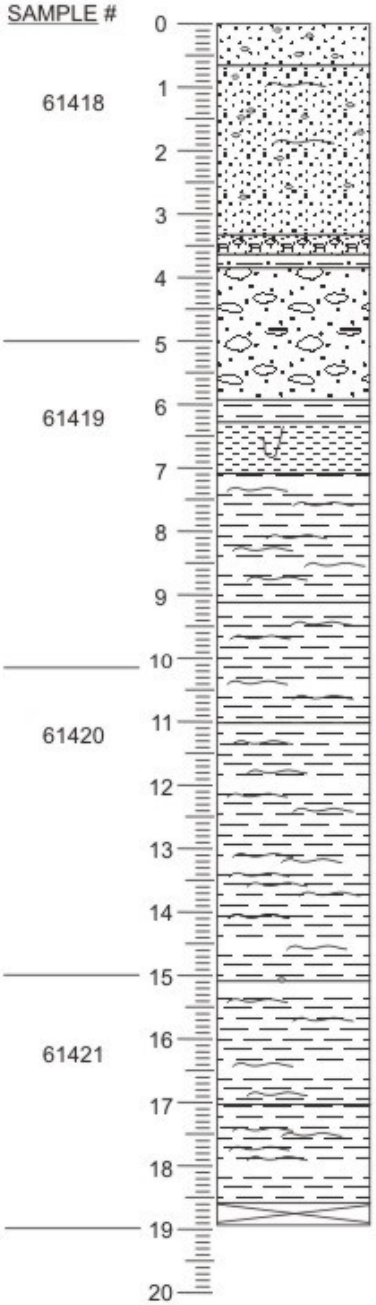
SILT: slily-mod sdy,vf, gnsh gry (GLEY1 5/1), abd Shl frag @ 17.9'-18.3', otherwise few-com sd % decr down, partly void at Btm (2.55')

INTERPRETATION

None provided.

DGSID **Ok41-02** DATE DESCR. **01/14/02** WATER DEPTH (FT) **56.1**

LOCAL ID. **DGS01-04** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: m-c, Grvly, lt gry (2.5Y7/2), some hvy min, few cly clasts, pbl granl (0.07"Dia), qtz, cht, Strless-mixed, sd% incr down (0.65')

SAND: m-f, mod wl srt, pale yel (2.5Y7/3), com crs-v sml pbl, slty sd Lam (gry (2.5Y 5/1)), Lam disrupted (bioturb) @ 0.75'-0.8', 1.4'-1.5', 1.72'-1.74', 1.87'-1.89', 2.02'-2.04', 2.1'-2.12', 2.18'-2.22', 2.35'-2.45', 2.72'-2.8', 2.9'-2.91', 3.15'-3.17' (2.65')

GRAVEL: sdy, m-gran, pale yel (2.5Y 7/3), most pbl sml (0.03"'Dia) Strless (0.3')

SILT: sdy, vf, dk gn gry (GLEY1 4/1) (0.2')

GRAVEL: sdy, crs-gran, pbl up to 0.7"Dia, pale yel (2.5Y 7/3), slty zone @ 3.8'-3.9' & 4.3'-4.4', cly slt clast @ 5.32', bcm better srted to gran-v sml pbl Grv @ 4.9', sml pbl Grv (less sd) @ 5.6', sharp Ctc @ 5.9' (2.1')

SILT: cly to CLAY, slty @ 5.9'-6.25', gn gry (GLEY1 5/ 5/1), Strless, (0.35')

CLAY: slily slty, gn gry (GLEY1 5/ 5/1) to yel brn (10YR 6/8) grvly sd-filled Bur @ 5.6'-6.75' (0.8')

SILT: cly, blk (5Y2.5/2), com thn dk blk Lam (2.05')

SILT: cly to CLAY, slty, blk (5Y2.5/2) no blk Lam, abd sml (0.02"Dia) cly-filled Bur, by 10.3' com thin slt Lam, rdsh brn Lam @ 11.0' (1.9')

SILT: cly to mod cly, blk (5Y2.5/2) grad down to dk olv gry (5Y 3/2), some zones v dk gry (10YR 3/1), com blk Lam, slt Lam (slily vf sdy) @ 12.15', 13.5', 14.25', 14.4' (4.1')

SILT: mod to slily cly, v dk gry (10YR 3/1), few f sd Lam @ 15.1'-15.5' disrupted (bioturb), abd Lam @ 15.5'-15.8', 16.4'-16.6' (1.9')

SILT: slily to mod cly, v dk gry (10YR 3/1), interlam w/ f sd, slty, less sd @ 18.2-18.45, wood frag @ 15.57 (Spled for RC) (1.55')

VOID: (0.4')

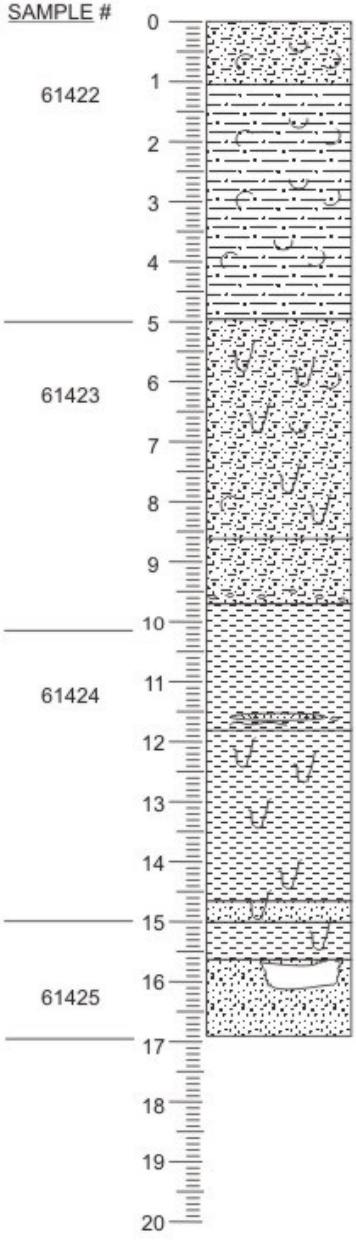
INTERPRETATION

Base Holocene or ravinement @ 5.9' below Pleistocene or Holocene

0-0.65' storm deposit
0.65'-3.3' inner-lower shoreface
3.3'-5.9' upper shoreface
5.9'-6.25 like cly bd in gvl above
6.25'-7.05' oxidized lagoonal deposit
7.05'-9.1' subtidal lagoon
9.1'-11.0' subtidal lagoon-shallower
11.0'-15.1' subtidal lagoon-shallower
15.1'-18.55' subtidal to intertidal lagoon

DGSID **Ok51-01** DATE DESCR. **01/14/02** WATER DEPTH (FT) **61.5**

LOCAL ID. **DGS01-05** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: vf, slty to SILT, sdy, vf, blk (GLEY1 2.5/), some gran-size Shl frag of same blk color to v dk gry (GLEY1 3/), Strless, lse, wet (1.0')

SILT: sdy, vf, v dk gry (GLEY 3/), some gran-size Shl frag, Strless, lse, wet, sd % incr down, gradational Ctc @ 4.9' (3.9')

SAND: vf, v slty, v dk gry (GLEY1 3/),few cly-slt-filled Bur, few-some gran size Shl frag, sd % incr down, some f sd & m sd by 6.0' (3.7')

SAND: f, mod slty, v dk gry (GLEY1 3/) grad to gry (GLEY1 5/)), slt % decr down, Strless, by 9.0' no slt, abd v sml-sml pbl @ 9.5'-9.7', sharp Ctc @ 9.7' (1.1')

CLAY, slty to SILT, cly, gn gry (GLEY1 5/1) w/ yel brn (10YR.5/6) mott, v cpct, cbl-pbl over thin Lam crs sd (dk gry) @ 11.6'-11.7' (2.0')

CLAY, slty to SILT, cly, gn gry (GLEY1 5/1) w/ yel brn (10YR.5/6) mott & Bur? or rooted zn? Zn w/some vf sd, sharp Ctc @ 14.6' (2.9')

SAND: vf-f, olv brn (2.5Y4/4), mod wl srted, some crs sd-filled Bur (0.4')

CLAY: slty to SILT, cly as in 11.7'-14.6' (0.6')

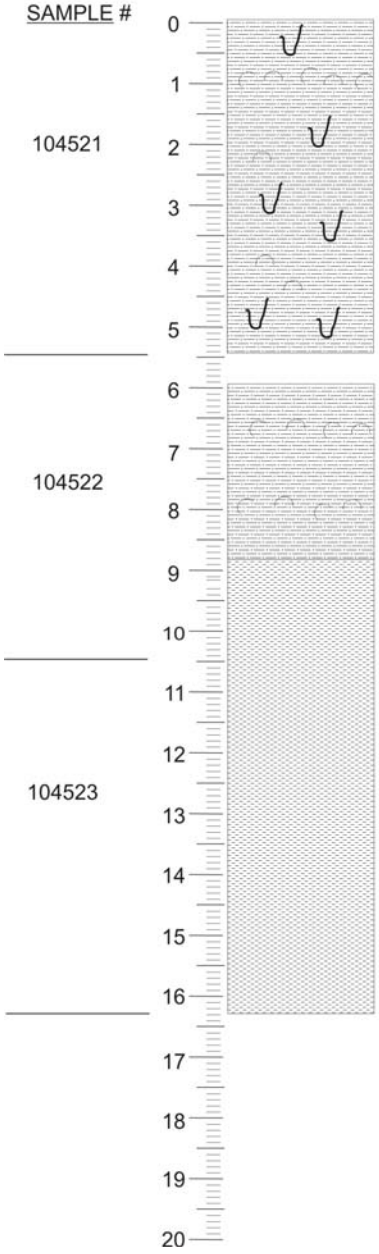
SAND: as in 14.6'-15.0', pt void @ 15.7'-16.2', some Mic, may have Fsp, some gry mott, some slily slty Zns (1.25')

INTERPRETATION

0-8.6' Holocene outer shoreface
8.6'-9.7' Holocene inner shoreface
9.7'-16.85' Beaverdam? est. Mud & sand

DGSID **Ok51-02** DATE DESCR. **1/15/08** WATER DEPTH (FT) **61.8**

LOCAL ID. **KHV-143** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SILT: vf sd, olv gry (5Y 5/2), mott w/ abd slt-cly bur, shl hash Lyr @ 0.8'-0.9' *Ensis* & *Spisula*, 2.0'-2.1' *Ensis*, 3.8'-4.5' pred *Ensis* , Spled for RC 0.8'-0.9' & 2.0'-2.1' & 3.8'-4.5' (0'-5.4')

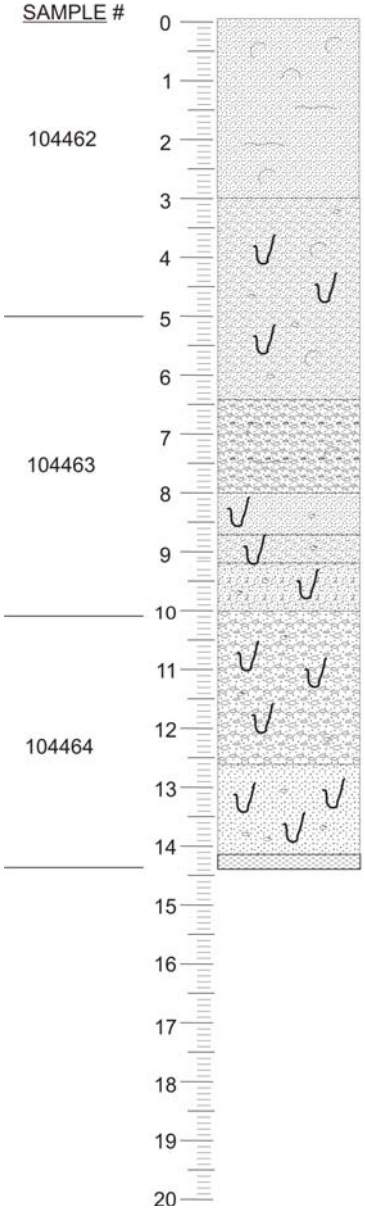
VOID 5.4'-5.9'

SILT: dk olv gry (5Y 3/2), abd shl hash pred *Ensis* thru unit, Spled for RC 6.5'-6.6' (5.9'-8.8')

CLAY: slty, stiff, dk olv gry (5Y 3/2), no shl, Spled for Poln 15.7'-15.8' (8.8'-16.3')

DGSID **Ok51-03** DATE DESCR. **1/23/08** WATER DEPTH (FT) **53.1**

LOCAL ID. **DGS07-07r2** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

SAND: vf-f, olv brn (2.5Y 4/3), scat hvy min, scat shl Mat @ top of section, r shl pieces down core, hvy min Lam, cly Lyr @ 2.15-2.25, mott w/ sdy cly, shl- *Mulinia* (0'-3.0')

MUDDY SAND: vf-f, v dk gry (5Y 3/1), few hvy min, few shl frag, mott w/ mdy sd bur, md Cont incr down section, abd pbls (4mm-11mm) (3.0'-6.4')

MUDDY SAND & GRAVEL: m-vcrs, blk (5Y 2.5/1), scat shl frag, md Cont decr down core, cly Lam (6.4'-8.0')

SAND: f-m, dk yel brn (10YR 4/4), few hvy min, bur from 8.4'-8.6', r pbl (50mm) (8.0'-8.7')

MUDDY SAND: m-crs, lt olv brn (2.5Y 5/3), bur from 9.1'-9.3' filled w/ sd, r pbl (15mm), few hvy min (8.7'-9.2')

SAND: f-crs w/ few vcrs Gr, lt yel brn (2.5Y 6/4), few hvy min, bur from ab section, scat pbls (5mm-11mm) (9.2'-10.0')

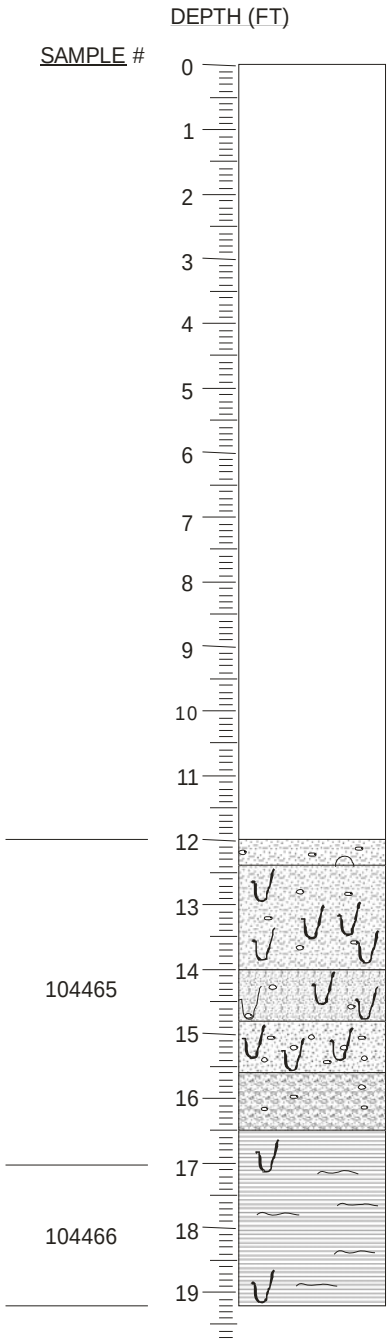
SAND: & Grv, crs-vcrs, olv yel (2.5Y 6/8), cht Gr (m-crs), scat pbls (5mm-25mm), mott w/ sdy cly bur (10.0'-12.6')

MUDDY SAND & GRAVEL: crs-vcrs, yel brn (10YR 5/8), r hvy min, abd pbls (4mm-20mm), mott w/ sdy cly bur (12.6'-14.15')

SANDY CLAY: m-crs, strong brn (7.5YR 5/6) (14.15'-14.3')

DGSID Ok51-04 DATE DESCR. 1/24/08 WATER DEPTH (FT) 52.6

LOCAL ID. DGS07-07r3 DESCR. BY SHN



LITHOLOGIC DESCRIPTION

Start @ 12.0 ft

SAND: slty, f-vcrs with few grans, v dk gry (2.5Y 3/1), few shl frag, few pbls (5-10 mm), disturbed from jet (?) (12.0-12.4')

SAND: slty f-m w/few vcrs grains, olv gry (5Y 4/2), few pbls (4-20 mm), Mott w/ cly Bur, disturbed from jet (?) (12.4-14.0')

SAND: m-crs, few grans, lt olv brn (2.5Y 5/3), few hvy min, few pbls (5-20 mm), Mott w/cly Bur(14.0-14.8')

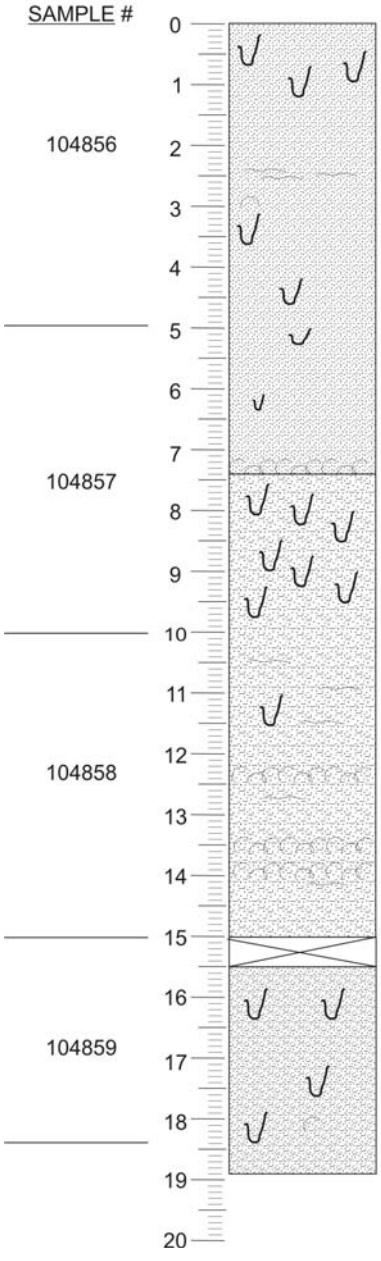
SAND: vf-vcrs, grv, lt olv brn (2.5 Y 5/3), abd pbls (4-50 mm), mott w/cly bur and sdy cly bur, scat pbls (14.8-15.6')

SAND: m-vcrs, grv, some cly, yelish brn (10YR 5/6), few hvy min, few pbls (4-20 mm) (15.6-16.5')

CLAY: brn (10YR 5/3), sd lam (f-m), sd cly Bur @ 16-6-16.8' & 18.7-18.9', some organic material @ bottom of core (16.5-19.2')

DGSID **Ok51-05** DATE DESCR. **2/25/08** WATER DEPTH (FT) **38.5**

LOCAL ID. **DGS07-14** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: vf, lt grn gry (1GLEY 7/1), abd hvy min, slt-cly, Bur @ 0.2, 0.4-0.5, 0.65', pol rndd gr, @ 1.8', grad col chg to lt gry (2.5Y 7/2), slty-cly Lam @ 2.4-2.6', Ensis @ 2.8', scat slt-cly Bur@ 3.1-3.7', 4.2-4.6', 5.0-5.2' & 6.1-6.2, shl hash @ 7.2-7.4' (0.0-7.4)

This section of core may have been stored upside down (0-5')

SAND: slt-vf, lt brn gry (2.5Y 6/2) abd hvy min, Mott w/abd slt-cly Bur (7.4-10.0)

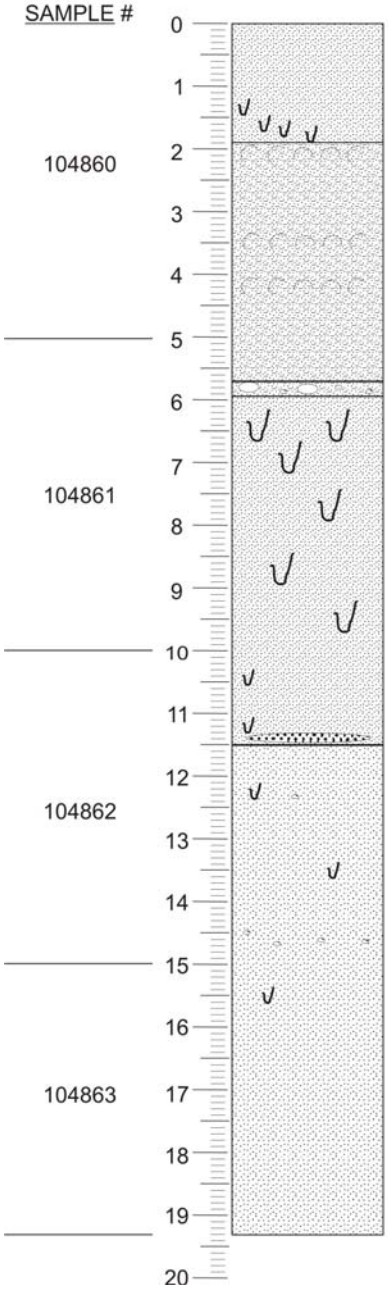
SAND: as desc abv, grn gry (1GLEY 5/1), scat shl frag, abd Lam of slt-cly & slt cly Bur, cly Lam @ 11.0', grad col chg to lt yel brn (2.5Y 6/2) @ 12.3', shl hash lyr @ 12.2-12.4', 13.3-13.4' & 13.8-13.9', Ensis sampled for RC (10.0-15.0')

VOID: (15.0-15.5)

SAND: slt-vf, lt yel brn (2.5Y 6/2), abd hvy min, Mott w/abd Bur, grad col chg to grn gry (1 GLEY 5/1), Ensis @18.2-18.4 sampled for RC (15.5-18.4')

DGSID **Pj14-02** DATE DESCR. **2/13/08** WATER DEPTH (FT) **41.5**

LOCAL ID. **DGS07-12** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, dk gry (2.5Y 4/1), ox, abd hvy min, pol grs, slty-sd Bur @ 1.3', 1.5', 1.6' & 1.9' (0.0-1.9')

SAND: vf-f, slty, lt yel brn (2.5Y 6/6), scat hvy min, shl hash lyr @ 1.9-2.1' & 3.4-3.6' & 4.1-4.2' (1.9-5.7')

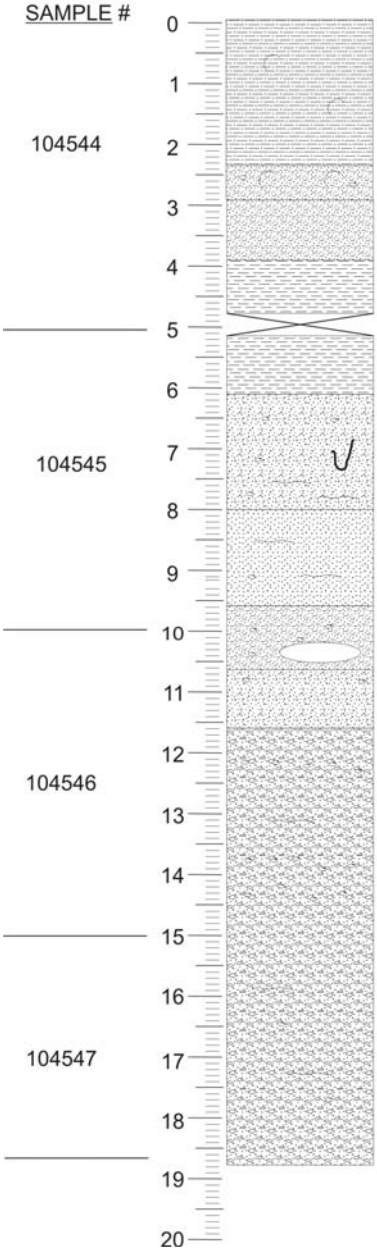
SAND: vf-f, slty, dk gry brn (2.5Y 4/2), abd qtz pbls (7-25 mm) (5.7-5.95')

SAND: f-m, pl yel (2.5Y 8/2) few hvy min, mott w/ scat slty-sd Bur, slty sd Bur at 10.3' & 11.3', cly clast? or Bur? @ 11.5' (5.95-11.5')

SAND: m-crs, wht (5Y 8/1), few hvy min, fros grs, slty-sd Bur @ 12.1-12.2', r cht pbl (25mm) @ 12.8', r slty sd Bur @ 13.5', scat qtz & cht pbl (5mm-7mm) @ 14.5-14.7', r slty-sd Bur @ 15.5', col chg from 18.1 to bot to lt gry (5Y 7/1) (11.5'-19.3')

DGSID **Pj15-05** DATE DESCR. **1/29/08** WATER DEPTH (FT) **59.0**

LOCAL ID. **DGS07-09** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

SILT: sdy, f-vf, blk (5Y 2.5/2), org Mat present (Su smell when core was opened), Gr size of sd incr towards Btm (m-crs), scat shl frag (0'-2.35')

SAND: slty, m-vcrs, olv brn (2.5Y 4/3), few shl frag, few pbls(5mm-15mm) (2.35'-2.9')

SAND: slty, vf-crs w/ few vcrs Gr, gry (5Y 5/1), few hvy min (2.9'-3.85')

SILT: cly, gry (5Y 5/1), few hvy min (3.85'-4.8')

VOID - Cpct?: 4.8'-5.1'

SILT: cly, gry (5Y 5/1), few hvy min (5.1'-6.1')

SAND: vf-vcrs, gry (5Y 5/1), abd pbls (5mm-30mm), scat hvy min incr to abd hvy min cly bur @ 7.0' (6.1'-8.0')

SAND: m-crs, lt gry (5Y 7/1), scat hvy min w/ poss hvy min Lam thru, r pbl (11mm), cly Lyrs thru (8.0'-9.6')

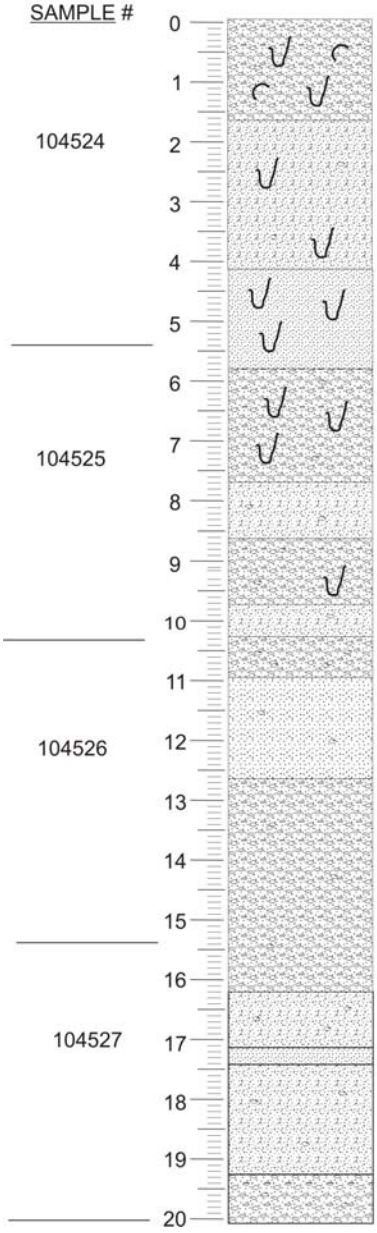
SAND: slty, m-vcrs, Grv, v dk gry (5Y 3/1), few hvy min, abd pbls (4mm-60mm), Cbl @ 10.5'-10.6' (100mm) (9.6'-10.6')

SAND: vf-crs, gry (5Y 5/1), crsens downward, f-vcrs Grv, few hvy min, scat pbls (5mm-27mm) (10.6'-11.6')

SAND: f-vcrs gry (5Y 5/1), Grv that fine downward to f-m sd, pbl Lyrs @ 12.1'-12.3' & 13.8' & 14.3', r pbls below 14.3' (10mm-12mm), hvy min Lam, few hvy min (11.6'-18.75')

DGSID **Pj24-04** DATE DESCR. **1/16/08** WATER DEPTH (FT) **45.7**

LOCAL ID. **KHV-144** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

SAND: f-vcrs, Grv, olv gry (5Y 4/2), pbls (5mm-20mm), scat shl frag- *Andara*, *Crepidula*, few hvy min, sdy cly bur @ 0.5' & 1.3' (?) (0'-1.6')

SAND: f-crs w/ r vcrs Gr, gry brn (2.5Y 5/2), r pbl (5cm-10cm), scat hvy min, sdy cly bur @ 2.5' & 3.7' (1.6'-4.1')

SAND: vf-f w/ few m-crs Gr, gry (5Y 6/1), few hvy min, sdy cly bur @ 4.1' & 4.3' & 5.7' (4.1'-5.8')

SAND: f-vcrs, Grv, lt olv brn (2.5Y 5/3), few hvy min, few pbl (5mm-20mm), mott w/ sdy cly bur, ox (5.8'-7.7')

SAND: f-vcrs, lt olv gry (5Y 6/2), few hvy min, few pbl (5mm-45mm) (7.7'-8.6')

SAND: f-vcrs, Grv, lt olv gry (5Y 6/2), scat pbl (5mm-20mm), few hvy min, sdy cly bur 8.9'-9.1' (8.6'-9.7)

SAND: f-vcrs, lt olv gry (5Y 6/2), few hvy min, r pbl (20mm) (9.7'-10.2')

SAND: f-vcrs, Grv, pl olv (5Y 6/3), abd pbl (5mm-10mm), few hvy min (10.2'-10.9')

SAND: m-vcrs, lt olv gry (5Y 6/2), few pbl (5mm-35mm), few hvy min (10.9'-12.6')

SAND: f-vcrs, Grv, gry (5Y 6/1), few pbl (5mm-50mm), few hvy min (12.6'-16.2')

SAND: f-vcrs, gry (5Y 6/1), few hvy min, scat pbl (5mm-50mm) (16.2'-17.1')

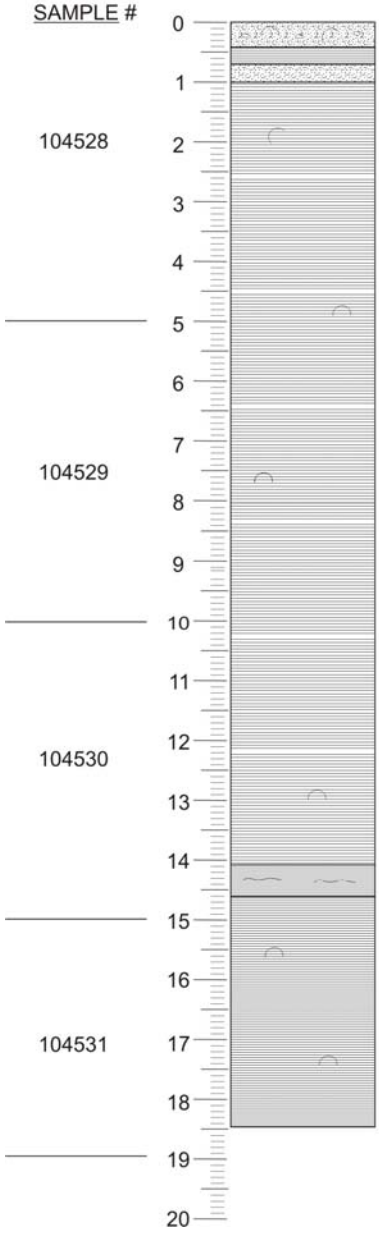
SAND: f-m, gry (5Y 6/1), scat hvy min (17.1'-17.3')

SAND: f-vcrs w/ Lyrs of vcrs-Grv, gry (5Y 6/1), few hvy min, scat pbl (5mm-55mm) (17.3'-19.3')

SAND: m-vcrs, Grv, brn yel (10YR 6/8), few pbl, few hvy min (19.3'-20.1')

DGSID **Pj34-02** DATE DESCR. **1/16/08** WATER DEPTH (FT) **38.2**

LOCAL ID. **KHV-145** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

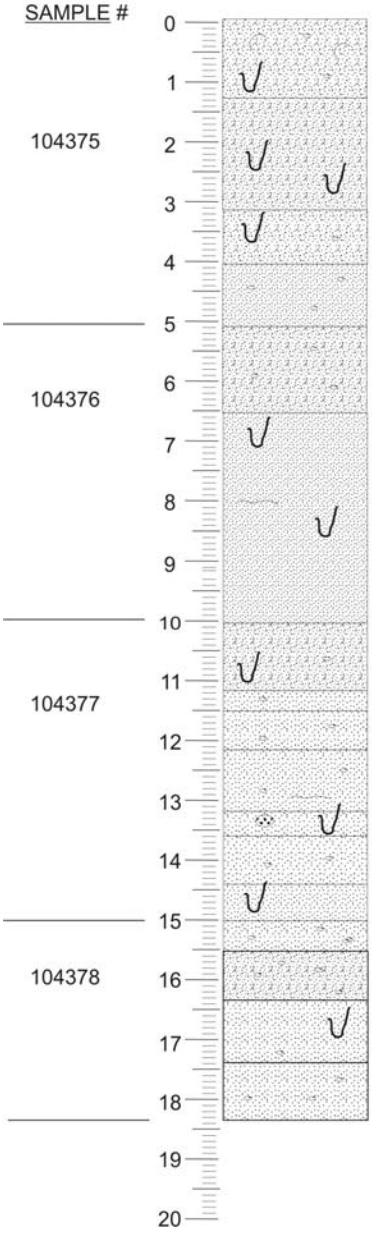
SAND: vf-vc, lt olv brn (2.5 Y 5/3), scat hvy min, few Pbls (5-12 mm), scat Shl frag (0-0.4)
CLAY: blk (5Y 2.5/2) (0.4-0.6')
MUDDY SAND: f-c, lt olv brn (2.5Y 5/3), few hvy min (0.6-1.0')
CLAY: blk (5Y 2.5/2), r hvy min, Pinna (?) & Bussacon (?) Shell @ 7.7 ft (1.0-14.1')

CLAY: w/ f-vf sd lam (14.1-14.6')
CLAY: r shl frags (14.6-18.45')

Bottom @ 18.45 ft

DGSID **Pj45-06** DATE DESCR. **1/9/08** WATER DEPTH (FT) **44.5**

LOCAL ID. **KHV-129** DESCR. BY **SN**



LITHOLOGIC DESCRIPTION

SAND: vf-vcrs, lt yel brn (2.5Y 6/3), r hvy min, scat shl frag & pbl (5mm-10mm), cly bur @ 1.1'-1.2' (0'-1.3')

SAND: f-crs, lt yel brn (2.5Y 6/3), r hvy min & vcrs sd Gr, chky, mky, cly bur @ 2.3'-2.4' v dk gry 2.5Y 3/1, cly bur @ 2.6'-2.9' v dk gry 2.5Y 3/1 (1.3'-3.1')

SAND: vf-vcrs, lt yel brn (2.5Y 6/3), r pbl (5mm-10mm), cly bur @ 3.2'-3.4' dk gry (2.5Y 3/1) (3.1'-4.0')

SAND: vf-m, scat crs Gr sd & r vcrs sd & hvy min, scat pbl (5mm-12mm) (4.0'-5.0')

SAND: vf-crs, lt gry (5Y 7/2), scat qtz & cht pbl (10mm-20mm), disturbed by Schnabel sampling (?) (5.0'-6.5')

SAND: vf-f, lt gry (5Y 7/2), scat hvy min, r crs-gr sd, cly bur @ 6.7'-6.8' v dk gry brn (2.5Y 3/2), cly bur @ 8.4'-8.6' blk (2.5Y 2.5/1) (6.5'-10.0')

SAND: vf-crs, w/ scat vcrs Gr, gry (5Y 6/1), scat hvy min, r qtz pbl (20mm), cly bur @ 10.9'-11.1', (10.0'-11.1')

SAND: m-crs w/ scat vcrs sd, olv yel (2.5Y 6/8), r hvy min, r qtz pbl (7mm-24mm) (11.1'-11.6')

SAND: m-vcrs, olv yel (2.5Y 6/6), r hvy min, few pbl (10mm-23mm) (11.6'-12.2')

SAND: m-crs w/ scat vcrs sd, lt gry (2.5Y 7/2), scat pbl qtz & cht (8mm-23mm), scat hvy min (12.2'-13.1')

SAND: m-vcrs, lt yel brn (2.5Y 6/3), r hvy min, qtz pbls (10mm-24mm), cly bur @ 13.4'-13.5', qtz Cbl @ 13.15'-13.3' (13.1'-13.6')

SAND: crs-vcrs, lt gry (2.5Y 7/2),r hvy min, qtz pbls (15mm) (13.6'-14.4')

SAND: crs, pl yel (2.5Y 8/4), r hvy min, slty-sd bur @ 14.9'-15.0' (14.4'-15.0')

SAND: m-vcrs, yel (2.5Y 8/6), r hvy min, scat qtz & cht pbl (8mm-12mm) (15.0'-15.5')

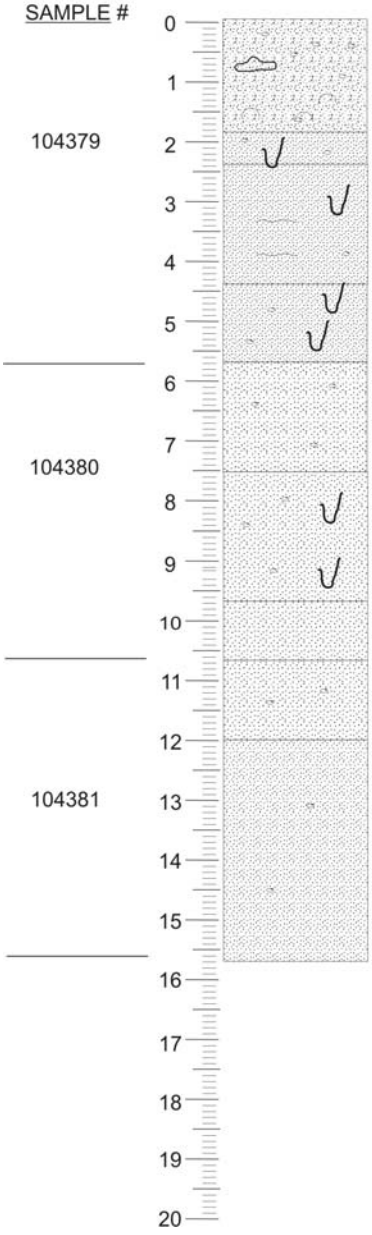
SAND: f-crs, pl yel (2.5Y 8/4), r hvy min, few pbl qtz & cht (6mm-20mm) (15.5'-16.3')

SAND: m-vcrs, pl yel (2.5Y 8/4), cly bur @ 16.3'-16.6', r pbl (5mm-7mm) (16.3'-17.4')

SAND: m-vcrs, pl yel (2.5Y 8/4), scat pbl (6mm-24mm) (17.4'-18.3')

DGSID **Pj45-07** DATE DESCR. **1/9/08** WATER DEPTH (FT) **45.1**

LOCAL ID. **KHV-130** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-vcrs, loose, pbly, lt olv brn (2.5Y 5/3), scat hvy min, abd pbl qtz, cht (2mm-9cm), qtz (9cm) from 0.4'-0.7', rip-up clast of sdy slt @ 0.7', Ech spines @ 1.4', scat shl (Spld for RC), whole *Spisula*, *Crepidula* (0'-1.8')

SAND: f-m, lt olv gry (5Y 6/2), scat hvy min, mky, chky, mott w/ slt-sd bur, scat qtz & cht pbl (2mm-20mm) (1.8'-2.4')
SAND: vf-f, lt gry (5Y 7/2), few hvy min, hvy min Lam, r pbl (9mm), sdy cly bur @ 2.8'-3.3' (2.4'-4.4')

SAND: f-m, lt gry (5Y 7/2), few hvy min, few pbl (10mm-25mm), sdy cly bur @ 4.4'-4.5', sdy cly bur @ 5.35'-5.45' (4.4'-5.7')

SAND: m-vcrs, Grv, lt yel brn (2.5Y 6/4), few hvy min, scat qtz & cht pbls (5mm-27mm) (5.7'-7.6')

SAND: m-crs, abd vcrs sd, lt gry (5Y 7/2), scat pbl (5mm-50mm), few hvy min, cly & sd bur @ 8.0'-8.3', cly & sd bur @ 9.5'-9.6' (7.6'-9.7')

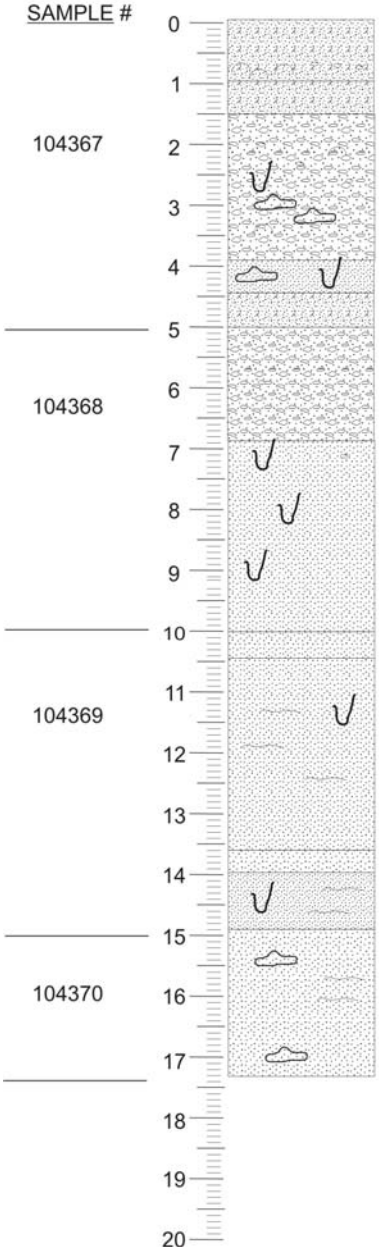
SAND: m-crs, lt gry (5Y 7/2), few hvy min (9.7'-10.7')

SAND: m-crs, lt gry (5Y 7/2), few vcrs sd, few hvy min, few pbl (5mm-15mm) (10.7'-12.0')

SAND: m, lt gry (2.5Y 7/2), few hvy min, r pbls (5mm-10mm), ox from 12.0'-12.5' brn yel (10YR 6/8) (12.0'-15.7')

DGSID **Pj55-06** DATE DESCR. **1/8/08** WATER DEPTH (FT) **41.7**

LOCAL ID. **KHV-127** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-crs, lt yel brn (2.5Y 6/4), abd hvy min, scat shl frag, shl & pbl Lyr @ 0.8'-0.9', colonial coral *Sepastrea* (?) On rndd qtz pbl (25mm) 3 colonies (photos on HP digital) *Anomia* @ 0.9' (0'-0.9')

SAND: vf-crs, lt olv brn (2.5Y 5/3) scat hvy min, bcm siltier @ base of unit (0.9'-1.5')

GRAVEL: slty-sd Mtrx, v dk gry brn (2.5Y 3/2), abd shl & qtz & cht pbl & cly clasts (3mm-50mm), unit bcm more cly-rich @ base, intbd cly bur & pbly sd v dk gry brn (2.5Y 3/2) @ 2.5' bcm sandier @ base (1.5'-3.8')

SAND: vf-f, lt gry (5Y 7/2), scat hvy min, chky, mky, mott w/ slty sd bur, reworked Seds (from below), rotted 50mm clast slty @ 4.4'-4.5' (3.8'-4.5')

SAND: f-crs, lt yel brn (2.5Y 6/3) scat hvy min, mky, chky (4.5'-5.0')

SAND: pbly, lt yel brn (2.5Y 6/3), disturbed from Schnabel sampling, qtz pbl in cly Mtrx @ 5.9'-6.1'(50mm) (5.0'-6.8')

SAND: m-crs, pl yel (2.5Y 7/3), few hvy min, slty-sd bur @ 6.8', 8.1', 8.7'-9.1', r cht pbl @ 7.0', ox cast (6.8'-10.0')

SAND: as descr ab, v dry (10.0'-10.6')

SAND: m-crs, lt gry (2.5Y 7/2), few hvy min, chky, hvy min Lam @ 11.3', bur @ 11.4', scat hvy min Lam, abd hvy min Lam @ 11.7'-12.4' (10.6'-13.6')

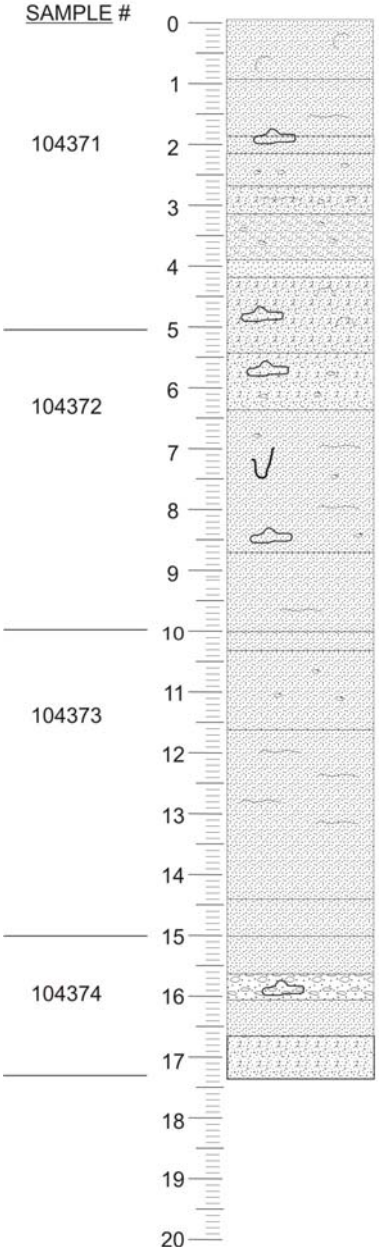
SAND: crs-vcrs, lt gry as ab, few hvy min (13.6'-13.9')

SAND: vf-f, lt gry as ab, abd hvy min, abd hvy min Lam, slty-sd bur @ 14.4'-14.5'

SAND: crs-vcrs, lt gry as ab, few hvy min, friable cly clast @ 15.3', abd hvy min @ 15.8'-16.2', cly clasts @ 17.0' in loose sd Mtrx (14.8'-17.35')

DGSID **Pj55-07** DATE DESCR. **1/8/08** WATER DEPTH (FT) **39.5**

LOCAL ID. **KHV-128** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: vf-m, yel brn (10YR 5/8), r hvy min, loose, disturbed from Schnabel sampling, scat shl frag, ox from 0'-10.0', (0'-0.8')

SAND: vf-m, yel brn (10YR 5/8), scat hvy min, loose (0.8'-1.8')

SAND: vf-f, pl olv (5Y 6/3), scat hvy min, mott, chky, mky, rip up clast (1.8'-2.1')

SAND: f-m, dk yel brn (10YR 4/6), scat hvy min, abd pbl (10mm-30mm), (2.1'-2.7')

SAND: pbly, vf-crs, dk yel brn (10YR 3/6), abd hvy min, abd qtz & cht (sbrndd) pbl (20mm-30mm), reworked storm depos (2.7'-3.1')

SAND: slty-crs, dk yel brn (10YR 4/6), scat hvy min, loose, abd qtz & cht pbl (10mm-20mm) (3.1'-3.9')

SAND: , pbly, m-vcrs, gran, dk yel brn (10YR 4/6), scat hvy min, abd qtz & cht pbl (3mm-50mm), (3.9'-4.2')

SAND: vf-vcrs, dk yel brn (10YR 4/6), few hvy min, loose, cotd gn, sdy mic clast @ 4.7', rotted *Wissahiken*? (4.2'-5.4')

SAND: pbly, vf-gran, yel brn (10YR 5/8), scat hvy min, cly rip-up clast @ 5.5' (5.4'-6.4')

SAND: f-vf, lt yel brn (2.5Y 6/4), few hvy min, chky, mky, wl scat pbl, cly bur @ 7.2'-7.4', qtz pbl (30mm) @ 7.5', abd hvy min Lam, qtz, cht, & cly clast Lyr @ 8.5'-8.6' (6.4'-8.6')

SAND: f, wl srt, pl yel (2.5Y 7/4), few hvy min, chky (8.6'-10.0')

SAND: as descr ab, loose, disturbed (10.0'-10.3')

SAND: f-m, olv yel (2.5Y 6/6), few hvy min, scat qtz & cht pbl (2mm-10mm), (10.3'-11.6')

SAND: vf-f, pl yel (2.5Y 7/3), scat hvy min, chky, mky, hvy min Lam from 11.6'-13.6', cly Lam @ 13.6' (11.6'-14.4')

SAND: vf-m, pl yel (2.5Y 7/3), scat hvy min, loose, mky, chky (14.4'-15.0')

SAND: vf-f, pl yel (2.5Y 7/3), chky, v dry from 15.0'-17.3', (15.0'-15.7')

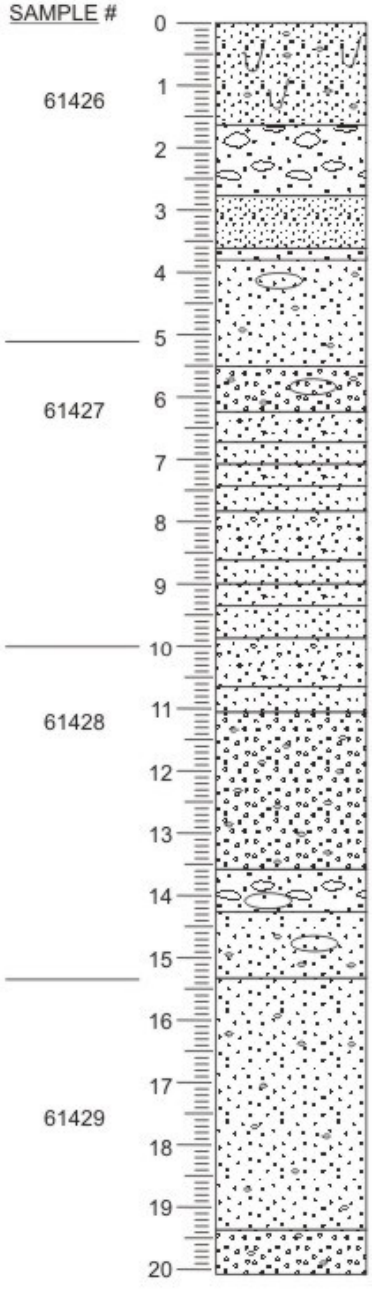
GRAVEL: slt-f sd Mtrx, pl yel (2.5Y 7/3), abd qtz, cht, cly clasts (4mm-43mm) (15.7'-16.0')

SAND: f, pl yel (2.5Y 7/3), few hvy min, chky (16.0'-16.6')

SAND: vf-gran, pl yel (2.5Y 7/3) no hvy min, chky (16.6'-17.3')

DGSID **Pk11-02** DATE DESCR. **01/15/02** WATER DEPTH (FT) **63.7**

LOCAL ID. **DGS01-06** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-m, mod wl srted, yel brn (10YR 5/6), com cly-lined (lt gry) Bur, com sml pbl, by 1.0' grad to m-crs, Strless, sharp Ctc @ 1.55' (1.55')

GRAVEL: sdy, crs-m, yel brn (10YR 5/6), gran-pbl 0.07'Dia, cht (brn), qtz, com-abd hvy min @ 1.2', Strless, sharp Ctc @ 2.75' (1.2')

SAND: f-vf, wl srted, yel (2.5Y 7/6), Strless, sharp Ctc @ 3.55' (0.8')

GRAVEL: as 1.55'-2.75', sharp Ctc @ 3.8' (0.25')

SAND: v crs-crs, yel (2.5Y 7/6), few sml pbl, com gran, Strless, cly clast @ 4.1' (0.04' Dia), sharp Ctc @ 5.5' (1.7')

SAND: v crs-gran, yel (2.5Y 7/6), com sml pbl, slty cly (dk gry) clast (0.03' Dia), Strless, sharp Ctc @ 6.35' (0.8')

SAND: intbd m-crs & crs-gran (com sml pbl), yel (2.5Y 7/6), crs-gran 6.3'-6.7', 7.1'-7.4', 7.8'-8.6', 9.0'-9.3', 9.85'-10.6' (4.7')

SAND: gran- v crs, yel (2.5Y 7/8), abd v sml pbl, slily finer v crs-gran @ 11.0'-11.4' & 14.3'-14.6', Strless (2.6')

GRAVEL: sdy v crs, lge rdsh brn slty cly clast (0.3' Dia) (0.6')

SAND: v crs-crs, abd gran, yel (2.5Y 7/8) lge rdsh brn slty cly clast (0.3' Dia), com pbl (1.1')

SAND: crs-v crs, com gran, yel (2.5Y 7/8), com pbl @ 15.3'-15.7', 17.2'-17.3', 18.7'-18.9', Strless (4.1')

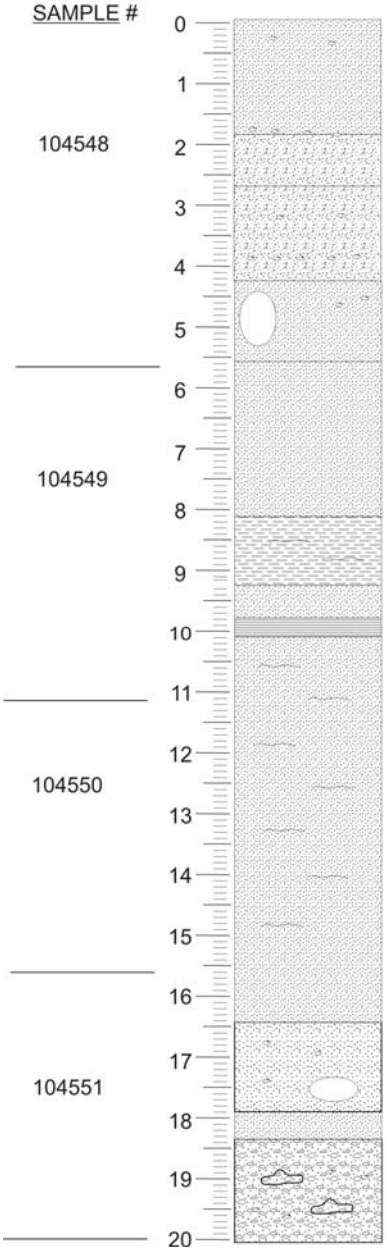
SAND: gran- v crs, yel (2.5Y 7/8) some-com pbl, Strless (0.65')

INTERPRETATION

All nearshore/shoreface deposits
Early Holocene/Late Pleistocene

DGSID **Pk11-03** DATE DESCR. **1/30/08** WATER DEPTH (FT) **56.7**

LOCAL ID. **DGS07-10** DESCR. BY **SHN**



LITHOLOGIC DESCRIPTION

SAND: vf-m, w/ few vcrs Gr, pl yel (5Y 7/4), few hvy min, few pbls @ top of section (5mm-20mm) (0'-1.8')

SAND: f-vcrs, yel (2.5Y 7/8), pbl Lyr @ 1.8' (10mm-20mm), scat hvy min (1.8'-2.6')

SAND: f-vcrs, Grv, yel (10YR 7/8), scat pbls (4mm-25mm), scat hvy min, pbl Lyr @ 3.85'-4.0' (3.6'-4.25')

SAND: vf-m w/ few crs Gr, lt yel brn (2.5Y 6/4), scat hvy min, few pbls @ top of section (4.2'-4.6') (5mm-20mm), Cbl from 4.6'-5.1' (130mm) (4.25'-5.65')

SAND: vf-m, pl yel (2.5Y 7/4), scat hvy min, cly Lyrs @ 5.85' & 7.0' (5.65'-8.1')

SILT & CLAY: intbd w/ sdy (vf-f) cly Lyrs, olv (5Y 5/4), hvy min Lam (8.1'-9.3')

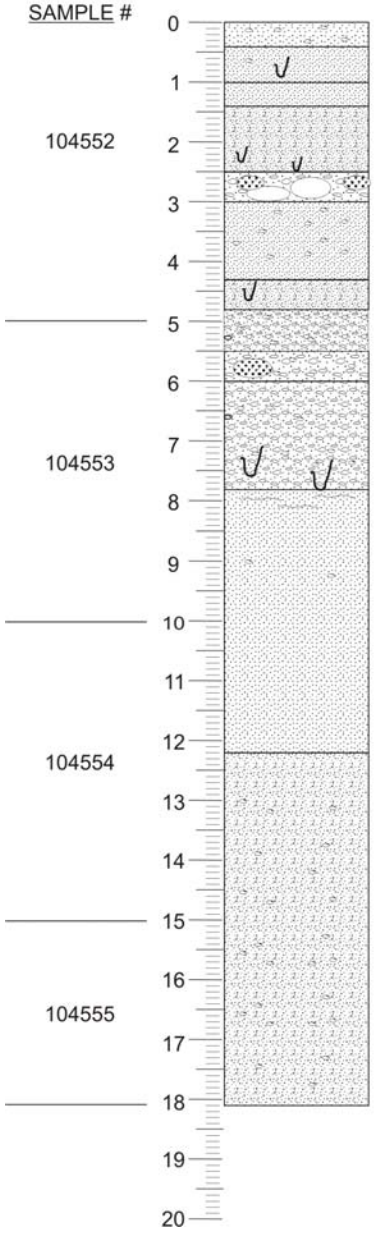
SAND: slty, vf-m, olv yel (2.5Y 6/6), abd hvy min (9.3'-9.7')
CLAY: olv (5Y 5/4), few hvy min (9.7'-10.0')
SAND: vf-f, pl yel (2.5Y 7/3), hvy min Lam thu section (10.0'-16.4')

SAND: m-vcrs w/ some Grv, brn yel (10YR 6/8), r hvy min, scat pbls (5mm-25mm), Cbl @ 17.6' (16.4'-17.9')

SAND: f-m, yel (2.5Y 8/6), scat hvy min (17.9'-18.4')
SAND: crs-vcrs, Grv, pl yel (2.5Y 8/3), r hvy min, abd pbls (4mm-30mm), cly clasts thru (18.4'-20.0')

DGSID **Pk11-04** DATE DESCR. **2/13/08** WATER DEPTH (FT) **62.1**

LOCAL ID. **DGS07-11** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: c-vcrs, pl yel (5Y 8/2), no hvy min, fros gr, abd qtz & cht pbls (2mm-10mm) (0.0'-0.4')

SAND: f-m, pl yel (5Y 8/2), few hvy min, fros gr, r cht pbl @ 0.7' (7 mm), slty-sd Bur @ 0.6' (0.4-1.0')

SAND: crs-vcrs, pl yel (5Y 8/2), few hvy min, fros gr (1.0'-1.4')

SAND: f-crs, pl yel (5Y 8/2), few hvy min,fros gr, slty-sd Bur@ 2.2' & 2.4-2.5' (1.4-2.5')

GRAVEL: sdy, pl yel (5Y 8/2), abd qtz pbls (5-10 mm), (2) 70 mm qtz pbls, sdy-slt clsts (20 mm) (2.4-3.0')

SAND: m-vcrs, yel (2.5Y 7.6), few hvy min, fros/chky gr, abd qtz pbl (7-20 mm) (3.0-4.3')

SAND: f-crs, lt gn gry (1 GLEY 8/1), few hvy min, milky, slty sd Bur @4.3-4.4' (4.3-4.8')

SAND: vf-gran, lt gn gry (1GLEY 8/1), no hvy min, slty, abd qtz pbl (2-10mm) (4.8-5.5')

GRAVEL: f-crs sd, lt gn gry (1GLEY 8/1), few hvy min, chky, abd qtz & cht pbl (7-10mm), 30mm sdy cly clast (5.5-6.0')

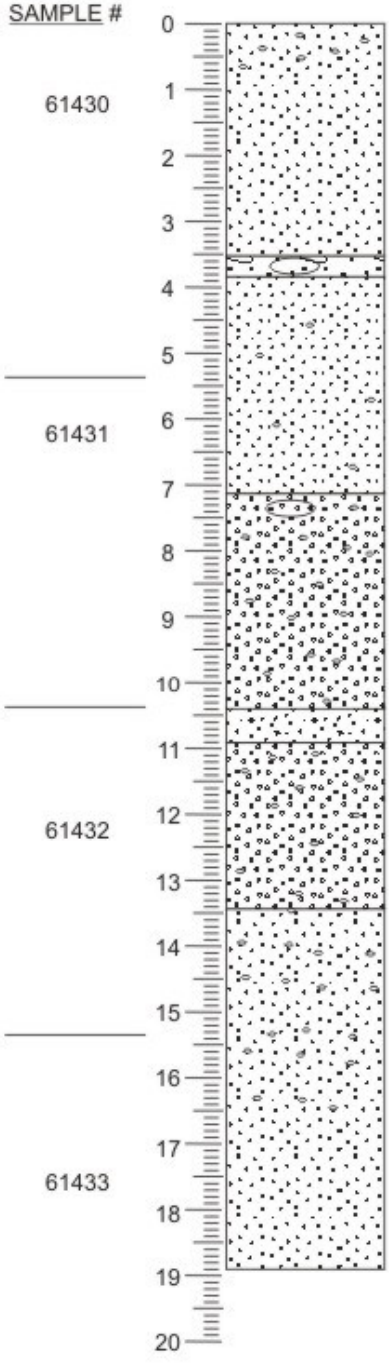
SAND: vf-gran, lt gn gry (1GLEY 8/1), few hvy min, chky, abd qtz pbl (2-7mm) slty-sd Bur@ 7.3' & 7.8' (w/3 mm qtz pbl) (6.0'-7.8')

SAND: f-m, pl yel (5Y 8/2), abd hvy min, hvy min lam @ 7.8'-8.1', chky, r cht pbl (10mm) @ 9.0', r qtz pbl (25mm) @ 9.2', crsens to f-gran @ base (7.8'-12.2')

SAND: f-c, pbly wht (5Y 8/1), few hvy min, chky, abd qtz pbl (2-20mm) no Bur, color changes to oxidized then to lt gn gry @ base (12.2'-18.1')

DGSID **Pk21-01** DATE DESCR. **01/15/02** WATER DEPTH (FT) **59.8**

LOCAL ID. **DGS01-07** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: crs-v crs, yel (10YR 7/8), com-abd pbl @ 0.0'-0.9', com otherwise, com gran, mod wl srted, Strless, sharp Ctc @ 3.5' (3.5')

GRAVEL: sdy, v crs, yel (10YR 7/8), sml pbl & one rd brn cly clast-same as in Pk11-02 @13.6'-14.6' (0.15' Dia) (0.3')

SAND: crs-m, com v crs-gran, yel (10YR 7/8), few pbl, com-abd pk gran, Strless, sharp Ctc @ 7.1' (3.3')

SAND: gran- v crs, yel (10YR 7/8) to strong brn (7.5YR 4/6), Cbl (lg pbl) (0.3' Dia) @ 7.3', com-abd sml pbl, com pbl (3.2')

SAND: crs-v crs, yel (7.5Y 4/6), com-abd gran, Strless (0.6')

SAND: gran- v crs, yel (2.5Y 7/8), strong brn (7.5YR 4/6) @ 11.0'-11.3' & 13.0'-13.4', abd pbl @ 11.0'-11.9', com otherwise, Strless (may have fning up sets aprx 0.5' thick) (2.5')

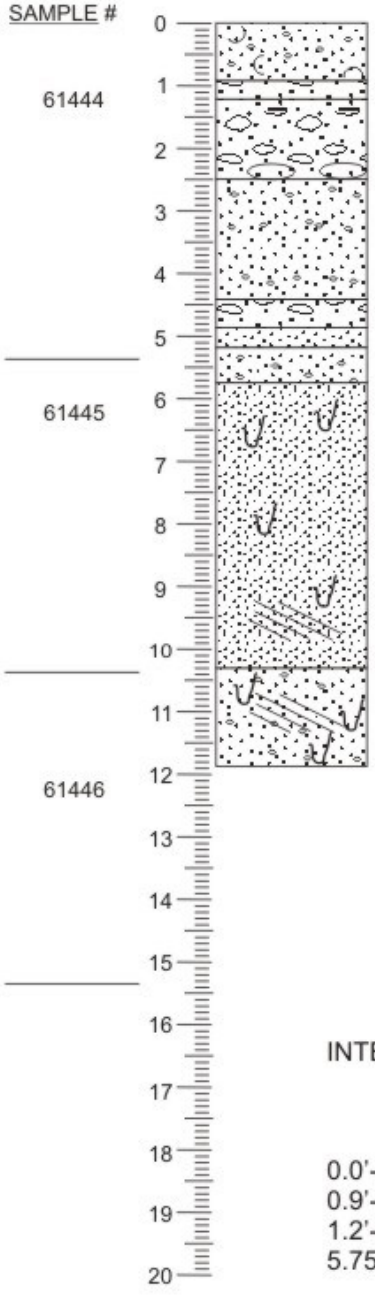
SAND: crs-v crs, intbd (in fning up sets) from gran-v crs & pbl, base of sets @ 13.9', 14.45', 15.35', 15.6', 16.3', Colr bcm lt gn gry (GLEY1 8/1), com-abd pk gr (5.5')

INTERPRETATION

0.0'-7.3' Could be Holocene/Pleistocene nearshore/shoreface
7.3'-18.9' Pleistocene or possibly Beaverdam Fm.

DGSID **Pk21-02** DATE DESCR. **01/22/02** WATER DEPTH (FT) **53.8**

LOCAL ID. **DGS01-11R1** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: crs-v crs, lt olv brn (2.5Y 5/3), com-lse gran, some shl frag, some pk gr, sharp Ctc @ 0.9' (0.9')

GRAVEL: sdy, v crs-gran, mod slty, v dk gry (2.5Y 3/1), pbl cov w/Cor (sampled) sharp Ctc @ 1.2' (0.3')

GRAVEL: gran-v sml pbl, yel (2.5Y 7/6), mod cpct, qtz, cht, some pk gran pbl @ base, sharp Ctc @2.5'(1.3')

SAND: v crs-crs, abd gran, yel (2.5Y 7/6), crser Lyrs brnsh yel (10YR 6/6), Lam of gran-pbl @ 2.7'-2.8', 3.2'-3.35', 4-4.1', mod cpct, some hvy min, sharp Ctc @ 4.4' (1.9')

GRAVEL: gran-pbl, brn yel (10YR 6/6), f up, sharp Ctc @ 4.85' (0.45')

SAND: m, pale yel (2.5Y 7/4), some crs sd & grad Ctc @ 5.2' (0.35')

SAND: m-crs, brn yel (10YR 6/6), com pbl, Strless, sharp Ctc @ 5.75' (0.55')

SAND: f, some m, pale yel (2.5Y 7/3), gry cly-filled Bur @ 6.3'-6.4', 6.5'-6.6', 7.9'-8.0', 9.1'-9.4' (@ side core pipe), brn-stned Bur @ 6.5'-6.65', x-Lam, f-m sd, crs-gran lam @ 9.7'& 9.95' mod cpct, grad Ctc @ 10.25' (4.5')

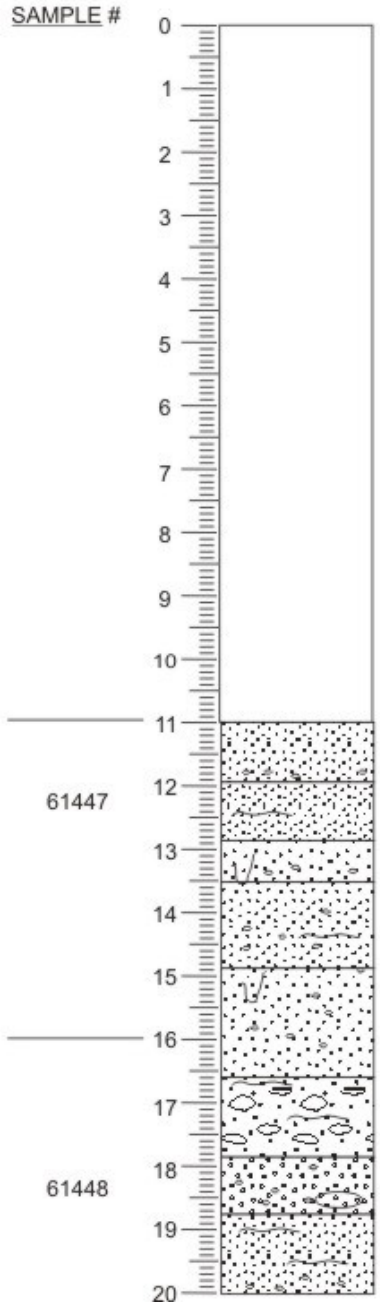
SAND: crs-v crs, pale yel (2.5Y 7/3) to yel (2.5Y 7/6), x-Lam, v crs-pbl @ 10.45', 11.1-11.25', 11.5'-11.85', dk gry-blk cly slt & sd Bur @ 10.7'-10.9', 11.3'-11.4', 11.6'-11.7' mod cpct (1.6')

INTERPRETATION

0.0'-0.9' Holocene inner/outer shoreface
0.9'-1.2' Holocene or Pleistocene outer shoreface/shallow marine
1.2'-5.75' Pleistocene inner shoreface or Beaverdam Fm fluvial-estuarine
5.75'-11.85' Pleistocene outer shoreface or Beaverdam Fm estuarine

DGSID **Pk21-03** DATE DESCR. **01/22/02** WATER DEPTH (FT) **54.2**

LOCAL ID. **DGS01-11R2** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

JETTED to 11 feet

SAND: f-m grad dn to gran and v sml pbl, pale yel (2.5Y 7/3), cht, qtz pbl, sharp Ctc @ 11.9' (0.9')

SAND: f w/ crs Lam, olv yel (2.5Y 6/6), com-abd hvy min, sharp Ctc @ 12.35' (0.45')

SAND: crs- v crs, com gran, few sml pbl, pale yel (2.5Y 7/3), crsns down, gry slty cly-filled Bur @ 13.5', grad Ctc @ 13.5' (1.15')

SAND: gran-v crs, com sml pbl, yel (2.5Y 7/6), Lam w/crs-m sd, cht & qtz pbl, sharp Ctc @ 14.85' (1.35')

SAND: m-crs, yel (2.5Y 7/6) (0.15) grads to SAND: crs-v crs, com pbl, yel (2.5Y7/6), com gran, gry slty cly-filled Bur @ 15.0'-15.2', sharp Ctc @ 16.6' Spled Poln (1.6')

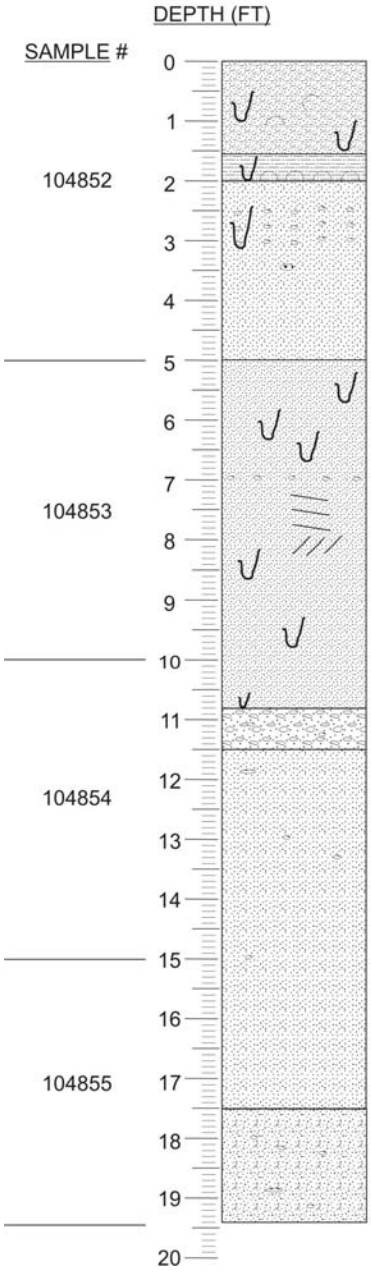
GRAVEL: pbl-gran, yel (2.5Y 7/8), some crs sd Lam, qtz & cht pbl, crsns down sharp Ctc @ 17.8' (1.2')

SAND: v crs-gran, yel brn (10YR 5/8), some crs Lam, mod cpct, lge pbl & sharp Ctc @ 18.7' (0.7')

SAND: m-f, grads dn to v crs-gran, pale yel (2.5Y 7/3), some hvy min, some crs Lam, sml pbl @ base, sharp Ctc @ 20.4' (1.0')

DGSID **Pk21-04** DATE DESCR. **2/25/08** WATER DEPTH (FT) **59.2**

LOCAL ID. **DGS07-13** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: slty, f-m, oliv gry (5Y 5/2), few hvy min, mott, abd shl, Mercenaria, Ensis, shl frag @ 0.5', SILT/CLAY lyr, Bur @ 0.6-0.8', shl frag (50 mm) @ 1.0, Mercenaria, cly Bur or clasts @ 1.0-1.2', crs sd @ 1.2-1.3', f sd @ 1.3-1.55' (0.0-1.55')

SILT: sdy, v dk gry (5Y 3/1), few hvy min, abd cly Bur, shl Lyr @ 1.8.-2.0' (1.55-2.0')

SAND: m-c, olv yel (2.5Y 3/1), few hvy min, chky, ox, slt/sd Mtrx Bur w/abd qtz&cht pbl (gran-30mm) @ 2.4-3.1', sd crsns downcore to vcrs sd, ang fros grs, abd pbls (2mm-20mm), chrt pbl@3.4' (20mm) (2.0-5.0')

SAND: f-m, yel (10YR 7/6), ox, few hvy min, chky, r slt Bur @ 5.2, 5.8, 6.2, 8.2, 9.3', qtz & cht pbl Lay (2mm-15mm)@ 6.9-7.0', abd xbed 7.1-8.4', sd crsns downcore to vc sd, few qtz pbl, b.c slty @ 10.5-10.8', slt/cly Bur@ 10.8' (5.0-10.8)

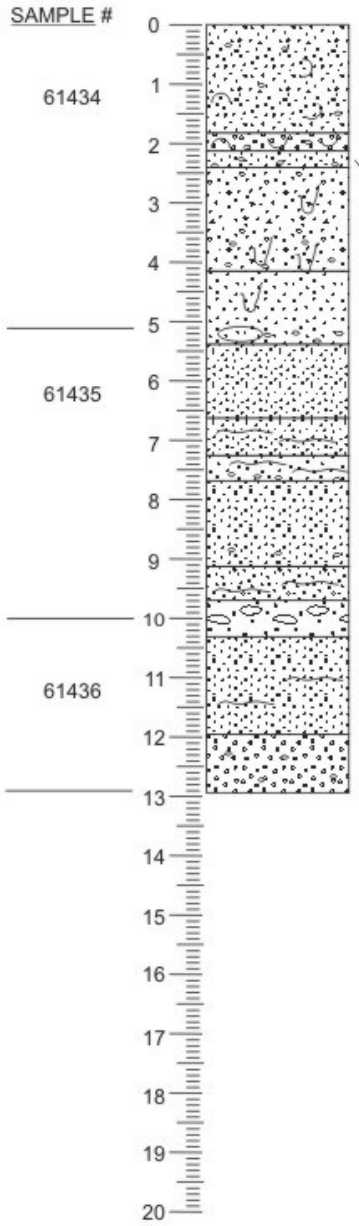
GRAVEL: crs sd Mtrx, pl yel (2.5Y 8/2), r hvy min, qtz & cht pbl (2mm-50mm) (10.8-11.5')

SAND: m-vcrs, pl yel (2.5Y 8/3), few hvy min, fros, ang grs, r pbl, qtz pbl 60 mm @ 11.8', 30mm @ 12.9', 20 mm @ 13.2', 25 mm@ 14.9' (11.5-17.5')

SAND: m-gran, pl yel (2.5Y 8/3), few hvy min, fros, ang grs, abd qtz & cht pbl (2-20mm), cht pbl encrusted w/ Bry @ 18.8' (17.5-19.4')

DGSID **Pk22-02** DATE DESCR. **1/17/02** WATER DEPTH (FT) **63.3**

LOCAL ID. **DGS01-08** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: v crs-f, slily slty, gnsh gry (GLEY1 6/1), few sml pbl, some gran, some shl frag, Strless, sharp Ctc 1.8', (1.8')

SAND: v crs-gran, gnsh gry (GLEY1 6/1), few sml pbl, com shl frag, sharp Ctc @ 2.1' (0.3')

SAND: f-m, slily slty, gnsh gry (GLEY1 6/1), Strless, pbl base, sharp Ctc @ 2.4' (1.7')

SAND: crs-v crs-gran, brnsh yel (10YR 5/8), gnsh gry cly slt-lined Bur @ 3.0' & 3.8'-3.9', grad down to gran-sml pbl by 3.5', (fining up sequence gran-v crs & crs), com sml pbl by 3.5' (1.75')

SAND: crs-m, lt gry (5Y7/2), com sml pbl & gran, slty cly-filled Bur @ 4.6',Cbl (0.3'Dia) & pbl @ 5.35', crs sd 5.0'-5.35', (1.2')

SAND: f, lt gry (5Y7/2), Strless other than grads to f-m by 6.2' @ base (0.01' thick) slty cly lyr, pale yel (5Y 7/2), some hvy min & mica (1.25')

SAND: f, as above, some hvy min Lam (0.65')

SAND: crs-v crs, lt gry (5Y7/2), com hvy min, some gran & v sml pbl (0.4')

SAND: f-m, lt gry (5Y7/2) to pale yel (5Y 8/2), by 8.0' grad to m by 8.3' m-crs, by 8.8' crs-v crs, & by 8.9' v crs-gran w/few pbl (1.45')

SAND: f-c, lt gry (5Y7/2), in fining up sets, some hvy min Lam, fining up sets define x-bd (0.55')

GRAVEL: sdy (gran-v crs), olv yel (2.5Y 7/6), com pbl up to 0.1' Dia (0.55")

SAND: f-m, yel (2.5Y7/6) some m-crs zones, hvy min Lam @ 11.1' & 11.4'-11.55', few sml pbl & pbl (1.65')

SAND: gran-v crs, yel (2.5Y 7/6), com sml pbl (0.95")

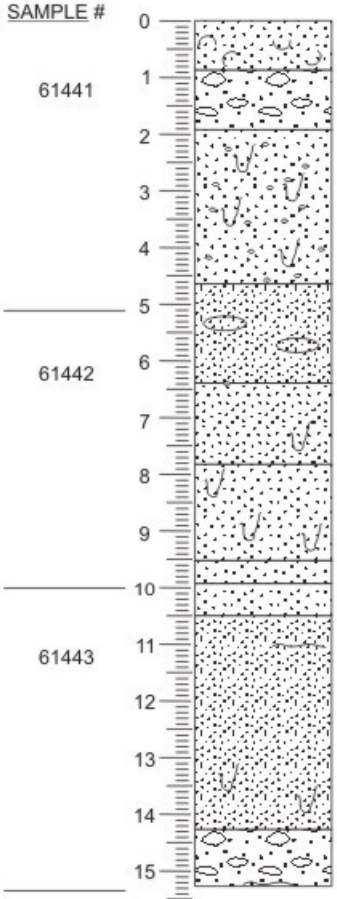
NOTE: Lithologic boundaries distorted by vibracoring (for sample section 61435).

INTERPRETATION

None provided.

DGSID **Pk22-03** DATE DESCR. **1/18/02** WATER DEPTH (FT) **57.3**

LOCAL ID. **DGS01-10** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: crs-m, mod slty, v dk gry (GLEY3/N), few-com shl frag, some gran, Rem of sea cucumber @ 0.4- 0.5', (0.8')

GRAVEL: sdy (v crs-gran), mod slty, gn gry (GLEY15/1 10Y), qtz, cht; Cbl @ 0.7'-1.1', (1.0')

SAND: c-v crs, com gran, lt gn gry (GLEY18/1) grad to yel (2.5Y7/6), com cly sd-filled Bur @ 2.7-2.8', 2.9-3.1', 3.35-3.9', 4.25-4.35', sharp Ctc @ 4.6' (2.8')

SAND: f, yel (2.5Y7/6), wl srt, gry cly clasts @ 5.4' & 5.9', sharp Ctc @ 6.35'

SAND: m, grad to v crs-gran, yel (2.5Y7/6), gry cly sd-filled Bur @ 6.8'-6.9' & 7.5'-7.6', sharp Ctc @ 7.8' (1.45')

SAND: m-crs, yel (2.5Y8/6), gry cly sd-filled Bur 8.1', 9.1' & 9.3', abd crs by 9.0', Strless, grad Ctc @ 9.5' (1.7')

SAND: v crs-c, abd gran, yel (2.5Y8/6), f up, sharp Ctc @ 9.85', (0.35')

SAND: m-crs grad to crs-v crs, pale yel (2.5Y7/4), sharp Ctc @ 10.5' (0.65')

SAND: f, pale yel (2.5Y7/4) grad to gry (2.5Y5/1), slty cly clasts (yel) @ 11.4'-11.6', gry cly sd-filled Bur @ 13.7'-13.9', some hvy min, grad Ctc @ 14.2' (3.8')

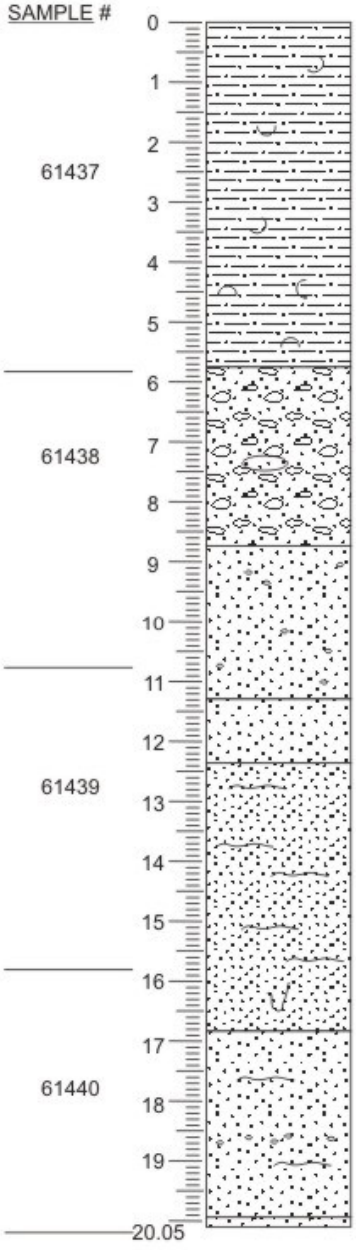
GRAVEL: sdy v crs-gran, gry (2.5Y5/N), qtz, cht, qtzt sml-lge pbl, (1.1')

INTERPRETATION

0-0.8' Outer shoreface (shallow marine, Holocene)
0.8'-1.8' Holocene transgression deposits, ravinement lag
1.8-15.3 Pleistocene inner shoreface (possibly Beaverdam (Bvd) not compact enough). Burrows are not like Bvd.

DGSID **Pk23-01** DATE DESCR. **1/18/02** WATER DEPTH (FT) **61.0**

LOCAL ID. **DGS01-09** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SILT: blk (GLEY1 2.5/N),grad by 2.0' to v dk gry (GLEY1 3/N), some vf sd, sd % incr dn to sdy, vf by 4.0', few Shl frag, Strless, 0-2.0' ptly void-post Spling cpction, whole Ensis Shl (both valves) vert (life?) position @ 3.4'-3.6', by 4.0' dk gn gry (GLEY1 4/1 10Y), sharp Ctc @ 5.7' (5.7')

GRAVEL: sdy, v crs-gran, gn gry (GLEY1 6/1 10GY), Cbl (0.35'Dia) @7.3'-7.65', cht, rd qtz, slty 5.7'-6.9', grad Ctc @ 8.7' (3.0')

SAND: v crs-crs, lt gn gry (GLEY1 7/ 10Y), some gran, Strless (2.55')

SAND: crs-v crs, lt gn gry (GLEY1 8/1 5GY), some hvy min, some pk gr (1.05')

SAND: m, some m-crs Lam, lt gn gry (GLEY1 8/1 5GY), some hvy min Lam, dk gry cly-filled Bur @ 15.4'-16.6' (4.3')

SAND: crs-v crs, com m & gran, pale yel (2.5Y 7/4), some Lam v crs-crs, some gran, few sml pbl @ 18.6'-18.7' (3.1')

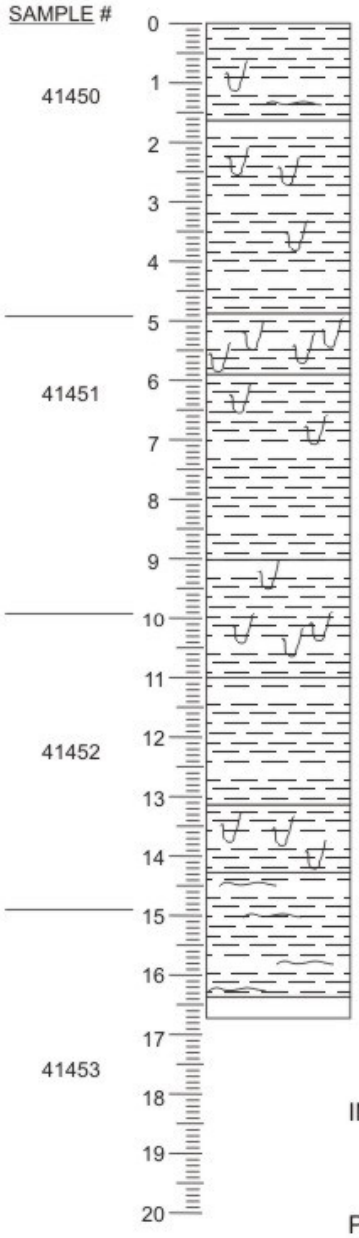
SAND: v crs-gran, pale yel (2.5Y 7/4), few pbl (0.15')

INTERPRETATION

0.0'-5.7' Holocene; outer shoreface (shallow marine)
5.7'-8.7' Holocene, transgressive lag deposits
8.7'-20.05' Pleistocene(?) Inner shoreface, could possibly be Beaverdam Fm but not as compact, no silt componet

DGSID **Pk31-03** DATE DESCR. **01/23/02** WATER DEPTH (FT) **51.0**

LOCAL ID. **DGS01-12R2** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SILT: mod cly, dk gn gry (GLEY1 4/1 10GY), com vf-crs sd-filled Bur, lge Bur @ 0.8'-0.9', sd Lam @ 1.4', grad Ctc @ 1.6' (1.6')

SILT: mod cly, dk gn gry (GLEY1 4/1 10GY), few f sd-filled Bur @ 2.3', 2.75', 3.65', grad Ctc @ 4.9' (3.3')

SILT: mod cly, dk gn gry (GLEY1 4/1 10GY), com vf sd-filled Bur (have slily rd brn stain), lge Bur @ 5.55'-5.6' & 5.65'-5.75') grad Ctc @ 5.8' (0.9')

SILT: mod cly, dk gn gry (GLEY1 4/1 10GY), sml Bur (vf sd) @ 6.35' & 6.8', otherwise mass, grad Ctc @ 9.0' (3.2')

SILT: mod cly, dk gn gry (GLEY1 4/1 10GY), com vf-slty sd Bur (some w/blk stain) @ 10.5'-10.6' & elsewhere, grad Ctc @ 11.0' (2.0')

SILT: mod cly, dk gn gry (GLEY1 4/1 10GY), lt gn gry mott @ 11.95'-12.15' (GLEY1 7/1 10GY), otherwise mass, grad Ctc @ 13.1' (2.1')

SILT: mod cly, dk gn gry (GLEY1 4/1 10GY), com slt-vf sd-filled Bur, grad Ctc @ 14.25' (1.15')

SILT: mod cly, dk gn gry (GLEY1 4/1 10GY), some subtle sd Lam (1-2 gr thick) dk gry stain (15.3'-15.7') (2.1')

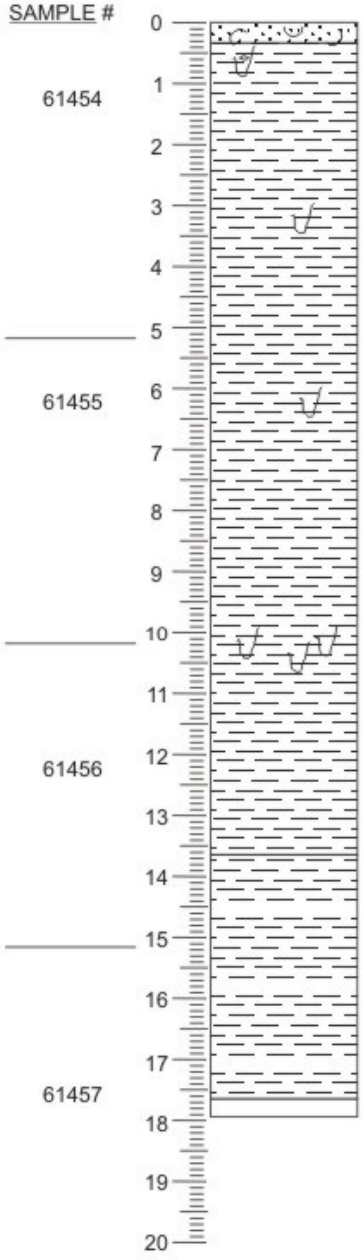
VOID 16.35'-16.7'

INTERPRETATION

Probably all Pleistocene lagoon or shallow marine- could be Holocene but very compact.

DGSID **Pk31-04** DATE DESCR. **01/23/02** WATER DEPTH (FT) **52.9**

LOCAL ID. **DGS01-13** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: m-crs, pale yel (2.5Y 7/4), lse, some shl-Spisula, sharp Ctc @ 0.3'(0.3')
SILT: cly-mod cly, cpct, dk gn gry (GLEY1 4/1 10GY), Bur w/ sd & sml pbl @ 0.5', Bur (vert, gn blk, less cly) @ 3.0'-3.3' & 5.9'-6.45', otherwise mass & sticky, com sml slt-filled Bur @10.2'-10.55', grad Ctc @ 13.6' (13.3')

SILT: mod cly, Col grades to dk gn gry (GLEY1 3/1 10Y), some blk stains @ 13.9'-14.0' (4.3')

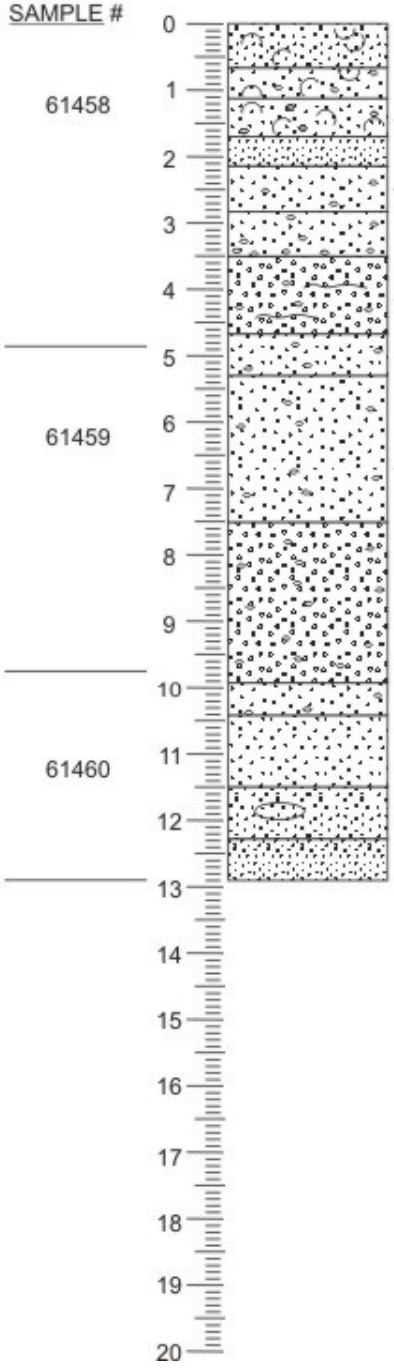
VOID 17.6'-17.9"

INTERPRETATION

0-0.3' Holocene-outer shoreface
0.3'-17.6' Pleistocene-open water lagoon or shallow marine

DGSID **Pk32-03** DATE DESCR. **1/29/02** WATER DEPTH (FT) **53.9**

LOCAL ID. **DGS01-14R1** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: m-f, some crs, gry (2.5Y 6/1), few shl frag, mod wl srt, lse strles, few slty cly clasts, sharp Ctc @ 0.65' (0.65')

SAND: crs-v crs, dk gry brn (2.5Y 4/2), some pbl, some shl frag, com-abd hvy min, sharp Ctc @ 1.1' (0.45"')

SAND: m-crs, dk gry brn (2.5Y 4/2),abd hvy min, com-abd shl frag, abd pbl & sharp Ctc @1.7' (0.6')

SAND: vf-f, gn gry (GLEY1 6/1 10Y), cpct, abd hvy min, some Mic, sharp Ctc @ 2.15' (0.45')

SAND: crs-v crs, grad to gran-v crs, lt yel brn (2.5Y 6/3), few pbl, sharp Ctc @ 2.8' (0.65')

SAND: crs-v crs, lt yel brn (2.5Y 6/3),some gran, few pbl, abd pbl & sharp Ctc @ 3.5' (0.7')

SAND: v crs-gran, lt yel brn to gry (2.5Y 6/1), some f up Lam, some hvy min, few-some pbl (1.15')

SAND: m-crs grad dn to gran, gry (2.5Y 6/1), some pbl (cht, qtz) @ 5.3' (0.65')

SAND: intbd v crs-crs & gran & m-crs, pale yel (2.5Y 7/3); m-crs @ 5.3'-5.7', 6.1'-6.4', 7.2'-7.5', com-abd hvy min, few pbl in v crs-gran bd (2.2')

SAND: gran-v crs, pale yel(2.5Y 7/3) to lt gry (2.5Y 7/1), abd sml pbl, few pbl (2.4')

SAND: crs-v crs, gry(GLEY1 6/N), some pbl @ 10.1' (0.5')

SAND: m-crs, gry (GLEY1 6/N), com-abd hvy min, f up, some gran @ 11.5'

SAND: m-f, gry (GLEY1 6/N),com hvy min, mod cpct, slty cly clast @ 11.9'

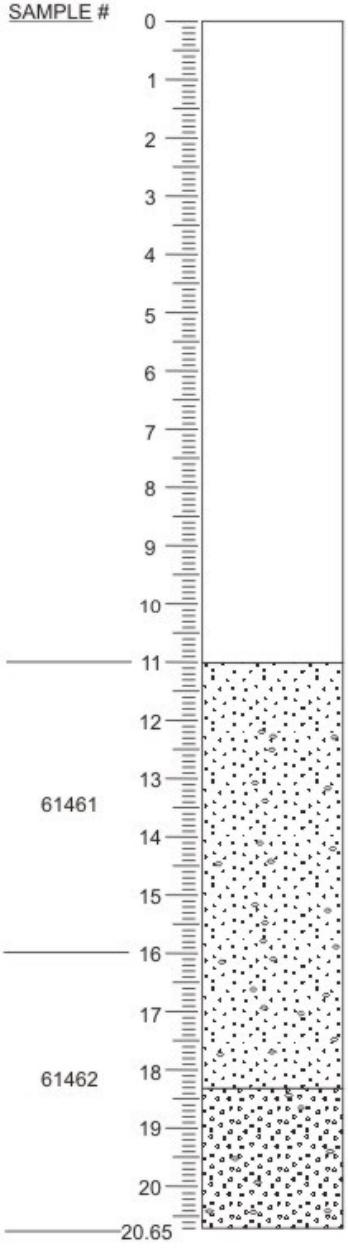
SAND: f-vf, mod slty, dk gry @ top grad dn to gry by 12.3', some hvy min, mod cpct (0.65')

INTERPRETATION

0-1.7' Holocene-inner, outer shoreface
1.7'-2.15' Pleistocene?, outer, outer shoreface
2.15'-9.9' Pleistocene?, inner shoreface
9.9'-12.9' Pleistocene?, outer, outer shoreface

DGSID **Pk32-04** DATE DESCR. **1/29/02** WATER DEPTH (FT) **53.4**

LOCAL ID. **DGS01-14R2** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

JETTED to 11.0'

SAND: crs-v crs, lt gn gry (GLEY1 7/1 10Y), com sml pbl-pbl, abd gran, no discernable Str, may be disturbed, sharp Ctc @ 18.3' (7.3')

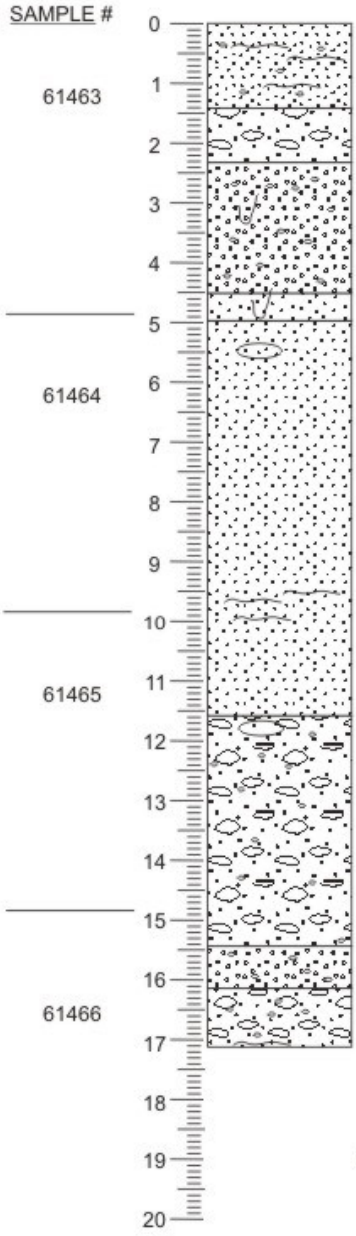
SAND: gran, some v crs, lt gn gry (GLEY1 7/1 10Y) few pbl, some sml pbl, Strless (2.35')

INTERPRETATION

All Pleistocene, inner shoreface
Could be Tertiary (Beaverdam) but not very compact

DGSID **Pk41-01** DATE DESCR. **1/29/02** WATER DEPTH (FT) **51.0**

LOCAL ID. **DGS01-15** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: m, lt olv brn (2.5Y 5/3), some pbl, vf Lam @ 0.8', 1.0', slty sd @ 1.15'-1.25', grad dn to crs, sharp Ctc @ 1.4' (1.4')

GRAVEL: pbl up to 0.2'Dia, qtz, cht, lt olv brn (2.5Y 5/3), sharp Ctc @ 2.3' (0.9')

SAND: v crs-gran, yel brn (10YR 5/8) to pale yel (2.5Y 7/4), abd sml pbl to Grv, slty f sd-filled Bur (gry) @ 3.0'-3.2', sharp Ctc @ 4.5' (2.2')

SAND: c- v crs, pale yel (2.5Y 7/4),mod wl srted, slty cly-lined Bur @ 4.6'-4.8', sharp Ctc @ 4.95' (0.45')

SAND: m-crs, pale yel (2.5Y 7/4) w/yel brn patches, slty cly clasts @ 5.4'-5.5', com hvy min, hvy min Lam @ 9.45'-9.9' (6.6')

GRAVEL: pbl-sml pbl, sdy, v crs-gran, yel (2.5Y 7/6), pbl up to 0.1'Dia, gry slty cly clast @ 11.9', cht, qtz (3.85')

SAND: v crs-gran, pale yel (2.5Y 7/3), abd sml pbl (0.75')

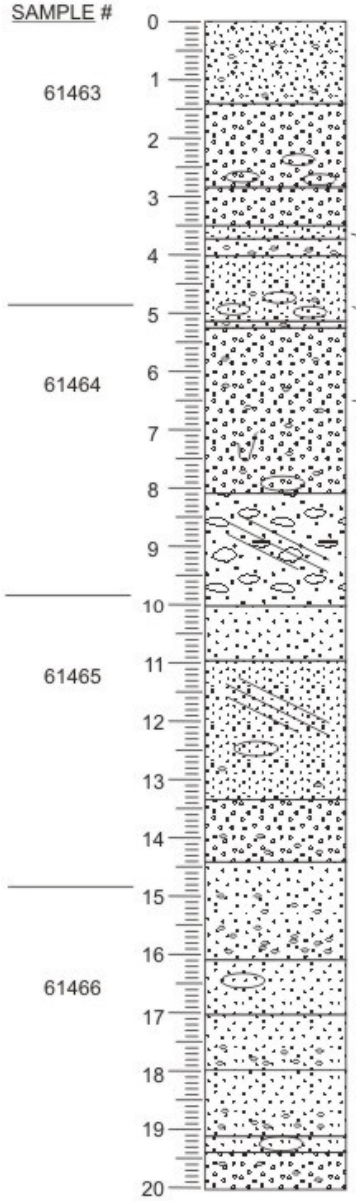
SAND: gran-v crs to Grv, yel (2.5Y 7/6), pbl-gran, pbl up to 0.15'Dia, vf sd Lam @ 17.1' (0.95')

INTERPRETATION

0-2.3' Holocene, inner-outer shoreface
2.3'-17.1' Pleistocene, inner shoreface (could be Tertiary Beaverdam)

DGSID **Pk41-02** DATE DESCR. **2/12/02** WATER DEPTH (FT) **49.7**

LOCAL ID. **DGS01-18** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: crs-f, lt gry (2.5Y 7/1), com v crs-gran, few pbl, lse-mod cpct, com hvy min, grad Ctc @ 1.4' (1.4')

SAND: v crs grad by 1.95' to GRAVEL, pbl, sdy, v crs-gran, sml pbl up to 0.05' Dia, lt gry (2.5Y 7/1), mod cpct, com hvy min, cht, qtz pbl, sharp Ctc @ 2.75' (1.35')

SAND: crs-v crs, grad dn to gran by 3.3', lt gry (2.5Y 7/1),com hvy min, sharp Ctc @ 3.5' (0.75')

SAND: m-f, lt gry (2.5Y 7/1), com hvy min, sharp Ctc @ 3.7' (0.2')

SAND: crs-v crs, lt gry (2.5Y 7/1), com sml pbl & hvy min, blk pbl/tooth? @ 3.8', sharp Ctc @ 4.0' (0.3')

SAND: m-f, grad dn to v crs-gran by 4.45' & GRAVEL by 4.7', sdy, sml pbl, v crs-gran, com hvy min abd in Grv, lt gry (2.5Y 7/1), some pk gran, sharp Ctc @ 5.1' (1.1')

SAND: crs-v crs, lt gry (2.5Y 7/1), com sml pbl & hvy min, sharp Ctc @ 5.2' (0.1')

SAND: v crs-gran, com sml pbl, lt gry (2.5Y 7/1), com-abd hvy min, com pk gr, cly sd-filled Bur @ 7.4'-7.5', 0.15'Dia brn cly clast @ 8.0' (2.9')

GRAVEL: sml pbl, sdy, v crs-gran, lt gry (2.5Y 7/1),com hvy min, cht, qtz, some x-Lam, pbl & gran sd (1.9')

SAND: crs-v crs, grad dn to pbly SAND by 10.4', v crs, sml pbl, com hvy min, com pk gran (0.95')

SAND: m-f, x-Lam w/crs-gran, lt gry (2.5Y 7/1), com-abd hvy min, few sml pbl, blk slty cly clast @12.5' (2.4')

SAND: gran-v crs, lt gry (2.5Y 7/1), com-abd sml pbl by 14.0', fines up, com-abd hvy min (1.05')

SAND: v crs-crs grad dn to gran & sml pbl by 14.9', lt gry (2.5Y 7/1), com-abd hvy min (1.7')

SAND: m-crs grad dn to v crs by 16.8', lt gry (2.5Y 7/1), abd hvy min, lge pbl @ 16.3', sharp Ctc @ 17.0' (0.9')

SAND: m-crs grad dn to v crs& gran & sml pbl, lt gry (2.5Y 7/1), abd hvy min, sharp Ctc @ 18.0' (1.0')

SAND: m-crs grad dn to v crs& gran & sml pbl, lt gry (2.5Y 7/1), abd hvy min, sharp Ctc @ 19.1' (1.1')

SAND: m-crs, lt gry (2.5Y 7/1), com hvy min, lge pbl & sharp Ctc @ 19.4' (0.3')

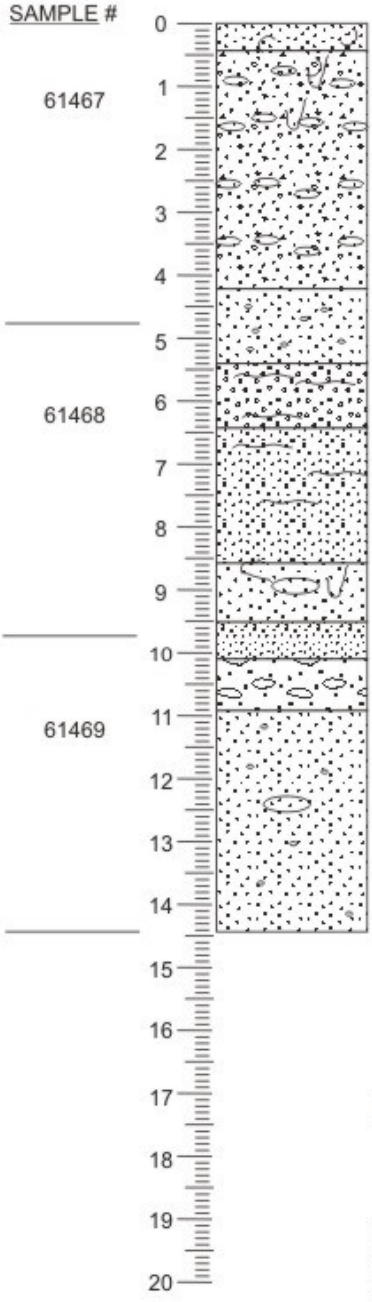
SAND: gran-v crs, lt gry (2.5Y 7/1), some hvy min, com sml pbl (0.6')

INTERPRETATION

All Pleistocene, nearshore/ inner shoreface or could be Tertiary Beaverdam/fluvial (less likely)

DGSID **Pk42-03** DATE DESCR. **1/31/02** WATER DEPTH (FT) **49.5**

LOCAL ID. **DGS01-16** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: m, lt olv brn (2.5Y 4/3), few to r Shl frag, lse, sharp Ctc @ 0.4' (0.4')

SAND: crs-gran & sml pbl, intbd w/Grv, pbl up to 0.15'Dia, olv brn (2.5Y 4/3), sd @ 1.0'-1.5', 2.0'-2.3', 2.8'-3.3', slty crs sd-filled Bur (v dk gry 2.5Y 3/1) & Shl frag @ 0.8'-0.95' & 1.5'-1.6', cht-qtz pbl, rd or slty cly @ 2.7'-2.8', col grades to lt yel brn (2.5Y 6/4), sharp Ctc @ 4.2' (3.8')

SAND: crs-m, lt yel brn (2.5Y 6/4), com v crs-sml pbl, some lt gry slty zones, prob Bur (1.2')

SAND: v crs-gran, Lam w/m-crs, yel (2.5Y 7/6) slty Lam @ 5.6', 5.7' & 6.4' (1.0')

SAND: m-f, yel (2.5Y 7/8), crs Lam @ 6.6', crsns dn to m-crs by 7.6' (2.2')

SAND: crs-v crs, grad dn to gran, yel (2.5Y 7/8), v slty slily cly pbl (dk gry) @ 8.6'-8.7' (hor Bur) & 8.8'-9.1' (vert Bur), sharp Ctc @ 9.5' (0.9')

SAND: f-vf, yel brn (10YR 5/8), wl srted, cpct, grads to gran @10.0'-10.1', sharp Ctc @ 10.1' (0.6')

GRAVEL: sdy, m-crs, gn gry (GLEY1 6/1 5GY), com hvy min, grad Ctc @ 10.9' (0.8')

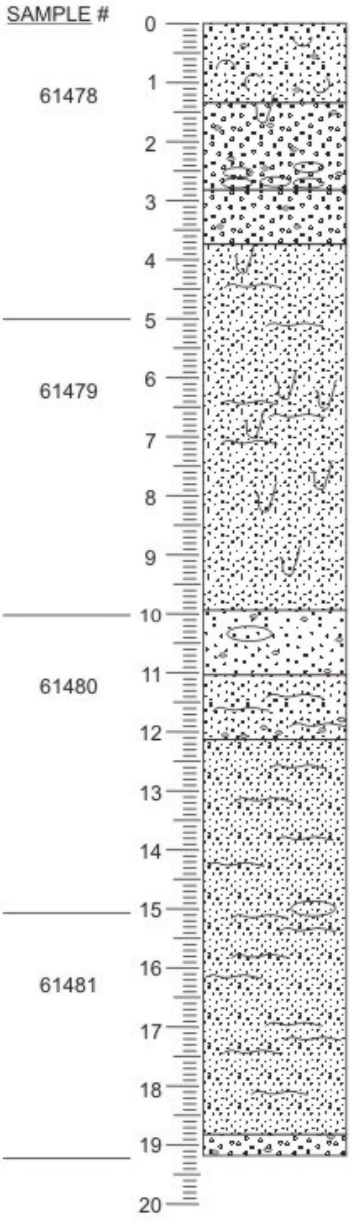
SAND: crs-m, gn gry (GLEY1 6/1 5GY), pbl @ 12.4'-12.5', gran Lam @ 12.8', few sml pbl, com gran, grads to crs-v crs by 13.0', com hvy min, core catcher sample @ 13.9'-14.4' sample disturbed during removal (3.5')

INTERPRETATION

0-0.4' Holocene
0.4'-2.8' Pleistocene? Burrow by Holocene
2.8'-14.1' Pleistocene? Inner shoreface or Tertiary Beaverdam Fm

DGSID **Pk51-02** DATE DESCR. **2/12/02** WATER DEPTH (FT) **48.2**

LOCAL ID. **DGS01-19** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-m, blk (2.5Y 2.5/1), <5% shl, few pbl, lse,sharp Ctc @ 1.3' (1.3')

SAND: v crs-gran, com f-crs, lt yel brn (2.5Y 6/4), some sdy shl-filled Bur from ab, com hvy min, abd-com pbl, GRAVEL @ 2.6'-2.8', lse, sharp Ctc @ 2.8' (1.5')

SAND: v crs-gran, com f-crs, slily slty, lt gry (2.5Y 7/2), few sml pbl, cpct, sharp Ctc @ 3.7' (0.9')

SAND: f, some m, lt gn gry (GLEY1 7/1 10Y),cpct, Lam of crs-v crs & some gran @ 4.4'-4.5', 5.0'-5.1', 6.4'-7.2', abd slty sd (crs)-filled Bur (6.2')

SAND: crs-v crs grad dn to gran, pale yel(2.5Y 7/4), some pbl, 1 lg Meta (amphibolite?) Clast 0.2'Dia @ 10.2'-10.5'(1.1')

SAND: m-f bcm crs by 11.6' & pbl @ 11.9', pale yel (2.5Y 7/3), some hvy min Lam, bcm blk @ 12.1 (1.1')

SAND: vf-f, lt gn gry (GLEY1 10/1 5GY), mod slty, abd f Lam, com-abd hvy min Lam, slty cly Lam (olv yel 2.5Y 6/6) @ 15.0'-15.2', cpct, clast sim to Pk41-02 (Spl #61451, 8.0') @ 15.0', grad Ctc @ 18.8' (6.7')

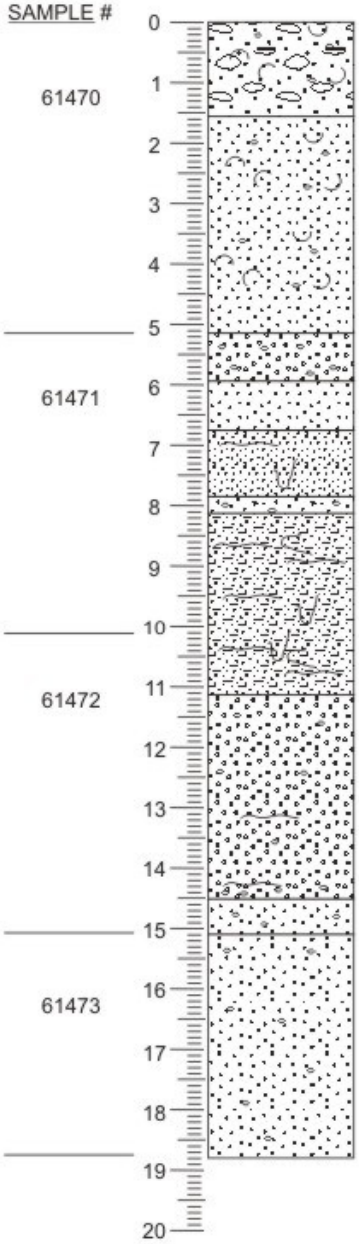
SAND: v crs-gran, lt gry (2.5 7/2), v abd hvy min, few sml pbl (0.35')

INTERPRETATION

0-1.3' Holocene, outer shoreface
1.3'-2.8' Holocene, inner shoreface
2.8'-12.1' Pleistocene, shallow subtidal/tidal channel
12.1'-19.15' shallow subtidal
(2.8'-19.15' could be Tertiary Beaverdam)

DGSID **Pk52-03** DATE DESCR. **1/31/02** WATER DEPTH (FT) **47.9**

LOCAL ID. **DGS01-17** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

GRAVEL: pbl, sdy, v crs-gran, lt olv brn (2.5Y 5/4), com shl frag, cht, qtz pbl (up to 0.1'Dia), lse, sharp Ctc @ 1.55' (1.55')

SAND: m-crs, lt olv brn (2.5Y 5/4), com-abd shl frag, some pbl, r urchin spine, abd hvy min, whole Spisula valve @ 2.0', grad dn to crs-m, grad Ctc @ 5.1' (3.45')

SAND: gran-v crs, lt olv brn (2.5Y 5/4), com sml pbl, sharp Ctc @ 5.9' (0.8')

SAND: m-crs, grad dn to crs-v crs, pale yel (2.5Y 7/3),slily slty & sharp Ctc @ 6.7' (0.8')

SAND: f-vf, pale yel(2.5Y 7/4), com hvy min, slty Lam @ 6.8', slty sd-filled Bur @ 7.6' (0.9')

SAND: crs-gran, v dk gry (2.5 3/1), some pbl, slily slty (0.3')

SAND: vf, slty, slty cly Lam @ 8.55'-8.65', 8.95'-9.05', 9.6'-9.75', 10.4'-10.8', crs sd-filled Bur @ 8.6'-8.7' (hor), 9.8'-10.0' (vert), 10.3'-10.5' (vert then hor) (3.0')

SAND: gran-v crs, pale yel (2.5Y 7/3)-yel (2.5Y 7/8) from 11.1'-11.3', some pbl, slty cly Lam @ 13.1'-13.2', 14.35'-14.4', pbl @ 14.5' (3.4')

SAND: crs-v crs, pale yel (2.5 7/3), com hvy min, few sml pbl, lse (0.6')

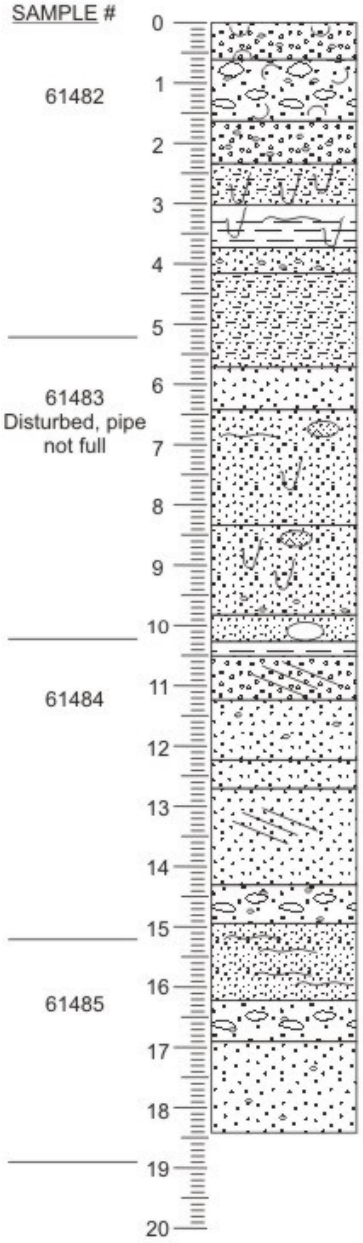
SAND: crs-v crs, some m, pale yel (2.5 7/3), com hvy min, some sml pbl, lse (3.7')

INTERPRETATION

0-5.9' Holocene, inner shoreface
5.9'-11.1' Pleistocene, outer shoreface or subtidal tidal flat
11.1'-18.8' Pleistocene, subtidal channel

DGSID **Pk52-04** DATE DESCR. **2/13/02** WATER DEPTH (FT) **49.3**

LOCAL ID. **DGS01-20** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: vcrs-gran, blk (2.5Y 2.5Y/1), com-abd pbl, some shl frag, grad Ctc @ 0.6' (0.6')

GRAVEL: sdy, v crs-gran, lt olv brn (2.5Y 5/3), com shl frag, cht, qtz pbl (up to 0.1'Dia), grad Ctc @ 1.6' (1.0')

SAND: v crs-gran, gry (2.5Y 5/1) to lt olv brn (2.5Y 5/6) abd pbl, no shl, slily slty, sharp Ctc @ 2.3' (0.7')

SAND: vf-f, mod slty, gn gry (GLEY1 6/1 10GY), abd sd & slty cly-filled Bur (0.2'Dia), sharp Ctc @ 3.0' (0.7')

SILT: cly, olv (5Y 5/3), crs sd-filled Bur or Lam @ 2.25'-2.3', 2.55'-2.6', v cpct,sharp Ctc @ 3.7' (0.7')

SAND: f-m to crs-v crs, dk gry (5Y 4/1), abd pbl by 3.9', sharp Ctc @ 4.15' (0.45')

SAND: vf, mod slty, gn gry (GLEY1 6/1 10Y), Strless, sharp Ctc @ 5.7' (1.55')

SAND: crs-v crs, gn gry (GLEY1 6/1 10Y), slily-mod slty (0.7')

SAND: f-m, abd vf, gn gry (GLEY1 6/1 10Y), crs Lam @ 6.8'-6.9', slily-mod slty, slty cly clast or Bur @ 6.6', 7.7'-7.8', com hvy min, grad to sharp Ctc @ 8.3' (1.9')

SAND: f-m, abd vf, olv yel (2.5 6/6), cly clst or filled Bur @ 8.5', 8.8', 9.5'-9.7', com hvy min, slily slty, sharp Ctc & some crs-gran & sml pbl @ 9.8' (1.5')

SAND: f-vf, pale olv (5Y 6/3), com hvy min, lge pbl @ 10.3' (0.5')

SILT: cly, lt olv brn (2.5Y 5/4) (0.15')

SAND: gran-vcrs, yel (2.5Y 8/8), some hvy min, some x-Lam, grad Ctc @ 11.2' (0.75')

SAND: m-crs, grad dn to gran-v crs, yel brn (10YR 5/8), few sml pbl & sharp Ctc @ 12.25' (1.05')

SAND: m-crs, grad dn to v crs, yel (10YR 7/8), sharp Ctc @ 12.65' (0.4')

SAND: m-crs, grad dn to v crs @ 14.0' & v crs-gran @ 14.2', yel (10YR 7/8), some faint x-Lam (1.35')

GRAVEL: sdy, f, lt gry (2.5Y 7/1), abd hvy min, pbl (up to 0.12'Dia), sharp Ctc @ 14.9' (0.6')

SAND: f-vf & m, lt gry (2.5Y 7/1) to yel (2.5Y 7/8), com hvy min Lam @ 15.3'-16.1', slty cly Lam @ 16.1' (1.3')

GRAVEL: sdy, v crs-gran, yel (2.5Y 7/6), abd hvy min, cht, qtz pbl (1 rd cht), grad Ctc @ 16.9' (0.7')

SAND: v crs, some gran grad dn to m-f by 17.3', pale yel (2.5Y 8/4), may be partly disturbed, few pbl @ 18.3'-18.4' (1.5')

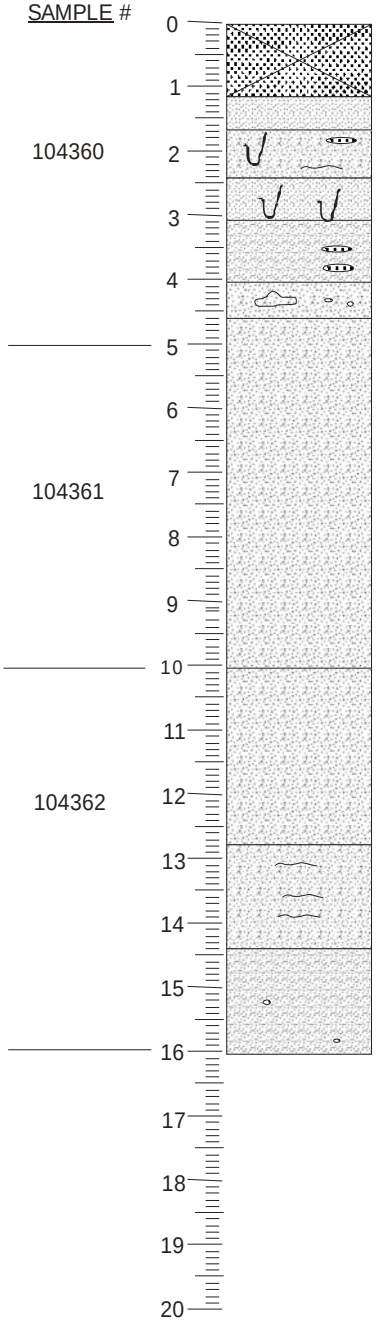
INTERPRETATION

0-2.3' Holocene, inner-inner/outer shoreface

2.3'-18.4' Pleistocene or Tertiary Beaverdam, subtidal flat-channel

DGSID Qj14-01 DATE DESCR. 1/7/08 WATER DEPTH (FT) 45.9

LOCAL ID. KHV-125 DESCR. BY KMcK



LITHOLOGIC DESCRIPTION

VOID 0.0'-1.2'

SAND: vf-f, lt gry (5Y 7/2), abd hvy min (1.2'-1.6')

SAND: f-gran olv gry (5Y 5/2), abd qtz pbl (2mm-15mm), cly lens @ 1.55'-1.75', abd cly bur/Lam (1.6'-2.4')

SAND: f, lt yel brn (2.5Y 6/4), scat hvy min, mlky, chky, abd bur (2.4'-3.1')

SAND: slty-f, pl olv (5Y 6/3), cly lens @ 3.5' & 3.9' (3.1'-4.0')

SAND: crs-vcrs-gran, pl olv (5Y 6/3), r hvy min, cly clasts, abd qtz & cht pbl (3mm-30mm) (4.0'-4.6')

SAND: crs-gran, lt yel brn (2.5Y 6/3), r hvy min, Str-less, loose, pches of ox sd thru section, lt olv brn (2.5Y 5/3) (4.6'-10.0')

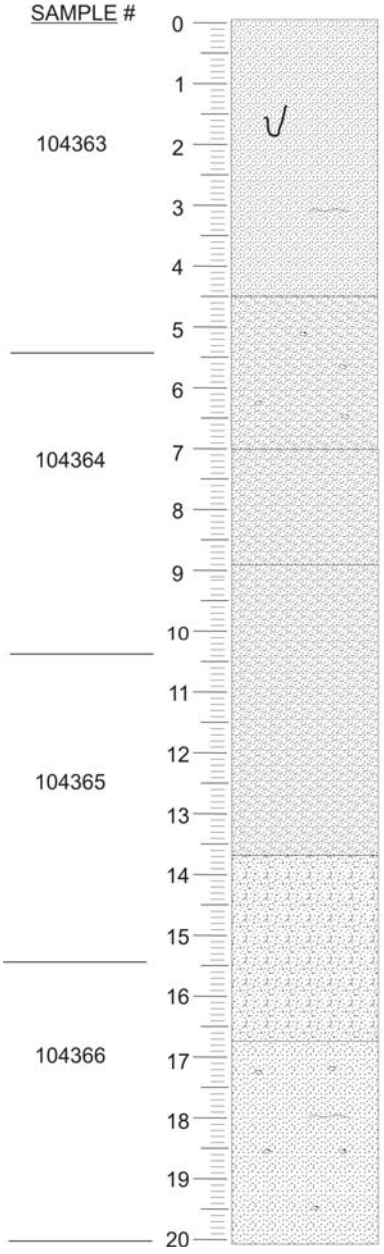
SAND: a.a. Lt yel brn (2.5Y 6/3) (10.0'-12.8')

SAND: slt-gran, gry (10YR 5/1), abd cly Lam (12.8'-14.5')

SAND: slt-m, lt yel brn, nylon core catcher @ 15.3'-15.5', r cht pbl (10mm) @ 15.3', r qtz pbl (30mm) @ 15.9' (14.5'-16.0')

DGSID **Qj15-04** DATE DESCR. **1/7/08** WATER DEPTH (FT) **45.8**

LOCAL ID. **KHV-126** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: vf-f, wh (5Y 8/1), r hvy min, chky, slty bur @ 1.6', mott (0'-4.5')

SAND: slt-m, wh (5Y 8/1), scat pbl (3mm-6mm), chky, loose, isol cht @ 6.3' (4.5'-7.0')

SAND: slt-f, wh as ab, cpct, no hvy min (7.0'-8.8')

SAND: slt-crs, wh as ab, loose, no hvy min (8.8'-13.7')

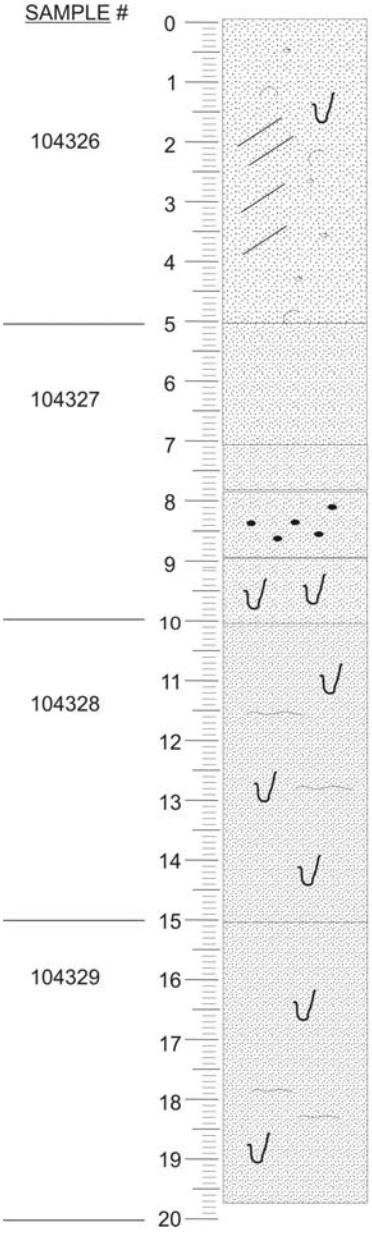
SAND: m-gran, wh as ab, no hvy min, structureless (13.7'-16.7')

SAND: m-crs, wh as ab, structureless, abd pbl (3mm-10mm), hvy min, r cht pbl (20mm) @ 18.5' (16.7'-20.1')

*Note- core is very dry.

DGSID **Qj45-02** DATE DESCR. **1/2/08** WATER DEPTH (FT) **34.1**

LOCAL ID. **KHV-116** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: crs-vcrs, wl srt, few hvy min, olv yel (2.5Y 6/6), single *Spisula* @ 1.0', poss bur @ 1.2', hvy min x-bd scat @ 1.2- 4.2', single shl frag @ 2.3', scat cht and qtz pbls (1mm) (0'-5.0')

SAND: crs, yel (2.5Y 7/6), shl frag @ 5.0', col chg to lt olv brn (2.5Y 5/4) @ 6.2' (5.0'-7.1')

SAND: slty, m, olv gry (5Y 4/2) (7.1'-7.8')

SAND: slt-m, abd pbl up to 2 cm, olv gry (5Y 4/2), qtz & cht pbls (7.8'-8.9')

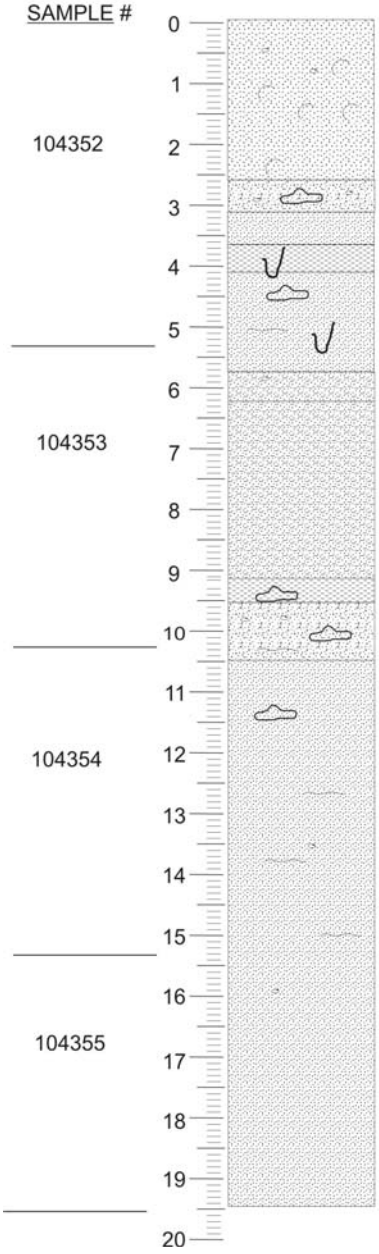
SAND: slt-m, lt gn gry (1 GLEY 8/1), mott, abd bur (8.9'-10.0')

SAND: f-m, lt gn gry (1 GLEY 8/1), scat hvy min, wl srt, scat bur- cly, blk (2.5Y 2.5/1), crs sd (10.0'-15.0')

SAND: m-f, lt gn gry (1 GLEY 8/1), scat pbl (2-3 mm), few hvy min, sbang gr, bur @ 16.5' to btm, slty, cly, hvy min Lam @ 17.8'-19.35', cly-filled bur also contains 1 cm pbl (qtz) (15.0'-19.8')

DGSID **Qj54-01** DATE DESCR. **1/7/08** WATER DEPTH (FT) **40.2**

LOCAL ID. **KHV-123** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: m-crs, lt olv brn (2.5Y 5/3), loose, r cht pbl 3cm @ 0.5', r shl frag @ 0.7', 1.1', 1.5', 1.6', r rndd qtz pbl @ 0.8', abd hvy min, 50mm shl frag @ 2.7' (0'-2.7')

SAND: f-vcrs, lt olv brn (2.5Y 5/3), abd qtz & cht pbl (5mm-30mm), abd mdclasts (50mm), rndd, sm (2.7'-3.1')
SAND: f, lt gry (10YR 7/1), mott, scat hvy min, mky, chky, abd slty sd bur (3.1'-3.6')
CLAY: slty, gn gry (2 GLEY 6/1) & CLAY, sdy gn gry (1 GLEY 6/1), slty sd bur @ 4.1' (3.6'-4.1')
SAND: f, lt gry (10YR 7/1), mott, scat hvy min, mky, chky, abd bur, slty sd, 40mm cly clast from ab section @ 4.3'-4.35' (4.1'-5.7')

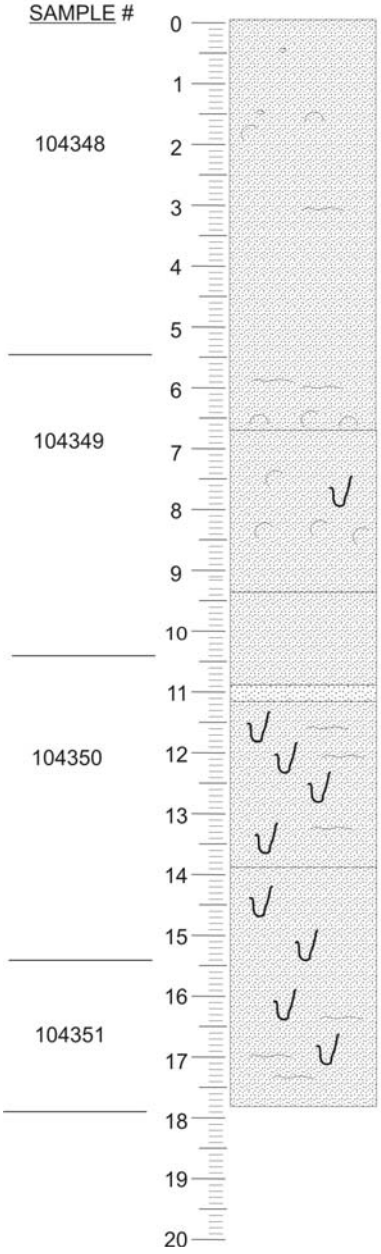
SAND: slty-f, olv (5Y 5/4), r hvy min, r qtz pbl @ 5.7', ox (5.7'-6.2')
SAND: slty-f, lt olv gry (5Y 6/2), md-sd packages, extensively bioturbated (6.2'-9.1')

CLAY: slty-vfsd, mdclasts @ 9.3' (9.1'-9.5')
SAND: vf-gran, lt gry (5Y 7/2), loose, scat hvy min, abd qtz pbl and mdclasts, hvy min Lam @ 10.6' (9.5'-10.6')

SAND: vf-f, lt gn gry (1 GLEY 8/1), few hvy min, abd hvy min Lam, mky, chky, r qtz pbl (3mm), r cly clast @ 11.4' (10.6'-19.4')

DGSID **Qj54-02** DATE DESCR. **1/4/08** WATER DEPTH (FT) **37.9**

LOCAL ID. **KHV-122** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, pl yel (2.5Y 7/4), few hvy min, loose, r cht pbl (1cm) @ 0.5', hvy min Cont incr to Btm of c section, cht pbl (1cm) and *Busycon* @ 1.5', 5cm shl frag @ 1.7'-1.8', shl Lyr @ 6.6'-6.7', snail @ 6.6' (0'-6.7')

SAND: vf-f, pl yel (2.5Y 7/4), few hvy min, r shl frag, sd-slt bur @ 7.8', shl hash Lyr @ 8.2', slt Cont incr to base of Lyr (6.7'-9.4')

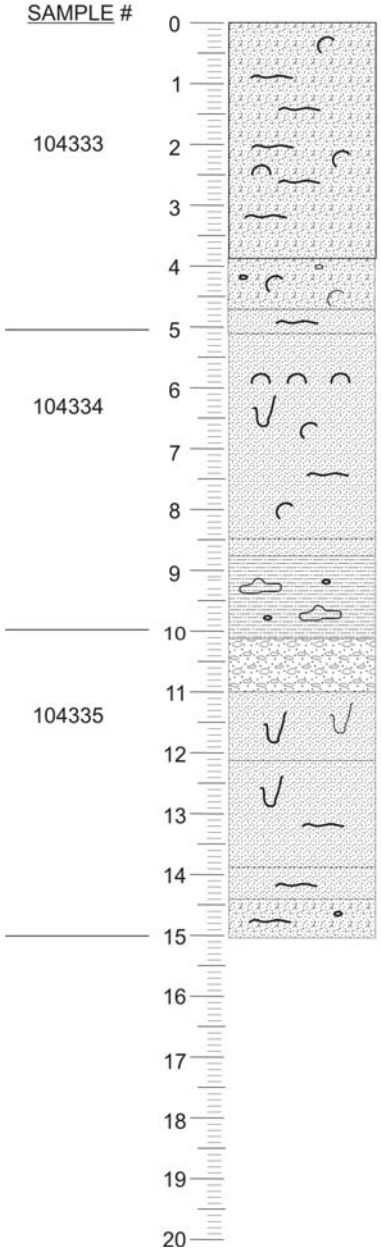
SAND: f-m, lt gn gry (1 GLEY 8/1), chky, mky, few hvy min, strucless (9.4'-10.8')

SAND: m-crs, lt gn gry (1 GLEY 8/1), chky, mky, few hvy min (10.8'-11.1')
SAND: f-m, lt gn gry (1 GLEY 8/1), chky, mky, abd hvy min Lam 11.1'-13.9', slt-sd bur @ 11.3', 12.1', 12.5'-12.7', 13.5'-13.6' (11.1'-13.9')

SAND: vf-f, lt gn gry (1 GLEY 8/1), chky, mky, few hvy min, slt-sd bur @ 14.5'-14.6' & 15.2', 16.3', & 17', hvy min Lam com from 16.5 to Btm (13.9'-17.8')

DGSID **Qj55-04** DATE DESCR. **1/3/08** WATER DEPTH (FT) **35.0**

LOCAL ID. **KHV-118** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-crs, olv yel (2.5Y 6/6), abd hvy min, shl frag @ 0.4'-0.5', abd hvy min Lam @ 0.7'-3.5', shl Lyr- frag and whole @ 2.2'-2.5', whole *Spisula*? Or *Mulinea*? @ 2.5', scat shl frag to 3.5' (0'-3.5')

SAND: f-crs, olv yel (2.5Y 6/6), abd hvy min, abd pbl (2mm-5mm) @3.6'-3.7', scat shl frag 4.4'-4.6', cly pbl (4cm) @ 4.2' (3.5'-4.6')

SAND: f-m, olv yel (2.5Y 6/6), few hvy min, wl srt (4.6'-5.0')

SAND: f, lt yel brn (2.5Y 6/4), few hvy min, wl srt, whole *Crepidula, Spisula*, and *Nassarius* @ 5.8'-5.9', cly bur @ 6.1'-6.6', whl shl *Spisula* and shl frag @ 6.8'-7.1', whl shl *Spisula* and shl frag Lyr @ 8.3' (5.0'-8.4')

SAND: slty, f, dk gry brn (2.5Y 4/2), few hvy min (8.4'-8.6')
SILT: sdy blk (2.5Y 2.5/1), abd slt, qtz, cht pbl 2mm-30mm, few cly clasts (8.6'-10.0')

GRAVEL: base of above unit, slt-sd Mtrx (10.0'-11.1')

SAND: f, lt olv gry (5Y 6/2), chky, abd cly bur, few ox Pchs (11.1'-12.2')

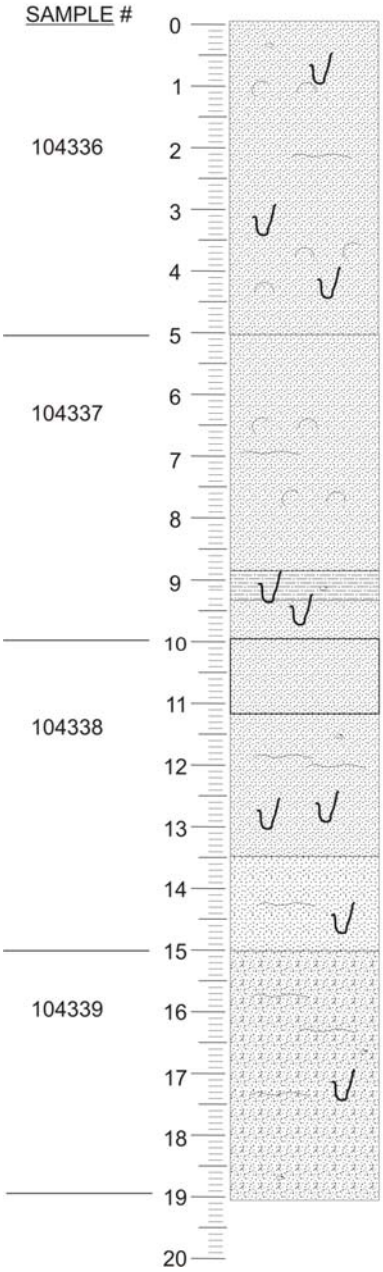
SAND: f, rd yel (7.5YR 6/8), abd hvy min, ox, cly bur @ 12.3'-12.9' (12.2'-13.8')

SAND: f, olv yel (2.5Y 6/8), few hvy min, hvy min Lam @ 14.1' (13.8'-14.5')

SAND: f-crs, olv yel (2.5Y 6/8), abd hvy min, few pbl qtz 20mm (14.5'-15.0')

DGSID **Qj55-05** DATE DESCR. **1/3/07** WATER DEPTH (FT) **35.8**

LOCAL ID. **KHV-119** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: m-crs, pale yel (2.5Y 7/4), abd hvy min, scat shl whl & frag, isol cht pbl @ 0.3', cly bur & shl hash Lyr @ 0.9', whl *Crepidula* @ 1.5 ', shl Lyr @ 1.5'-1.7', shl Lyr @ 2.5-2.7', cly bur @ 3.0'-3.6', shl Lyr @ 3.7'-3.8', whl *Crepidula* @ 4.2', cly bur @ 4.0'-4.3' (0'-5.0')

SAND: as descr ab, shl hash Lyr @ 6.4'-6.6', slty Lam @ 6.8', abd shl hash to Ctc @ 8.8' (5.0'-8.8')

SILT: sdy, pbly, dk bl gry (2 GLEY 4/1), abd bur, pbl 10mm-30mm (8.8'-9.3')
SAND: slt-f, lt gn gry (1 GLEY 8/1), mott w/ cly-slt bur (9.3'-10.0')

SAND: f-m, wh (5Y 8/1), slty bur @ 10.3'-10.5' and 10.9'-11.1', cly bur @ 11.0' (10.0'-11.1')

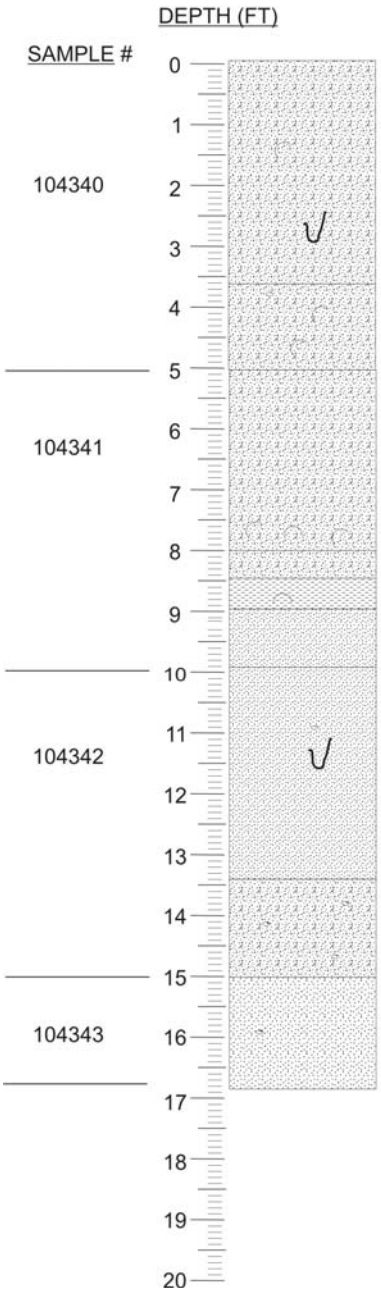
SAND: f, lt gn gry (1 GLEY 8/1), abd hvy min, chky, mky, abd bur, few qtz pbl, hvy min Lam @ 12.4' (11.1'-13.4')

SAND: crs, lt gn gry (1 GLEY 8/1), abd hvy min, chky, mky, abd bur (cly lined), hvy min Lam @ 14.1' (13.4'-15.0')

SAND: f-c as descr ab, fewer bur, abd hvy min Lam from 15.7'-17.8', isol 20 mm qtz pbl @ 16.8', cly-lined bur @ 17.2'-17.4' contains scat qtz pbl 3mm-5mm (15.0'-19.0')

DGSID **Qj55-06** DATE DESCR. **1/3/07** WATER DEPTH (FT) **40.4**

LOCAL ID. **KHV-120** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-crs, yel (2.5Y 7/6), isol shl frag, cly-lined bur @ 2.7' (0'-3.6')

SAND: f-crs, a.a., Abd shl frag, isol chrt frag @ 3.7' (3.6'-5.0')

SAND: f-crs, a.a., Scat, shl hash Lyr @ 7.8' (5.0'-8.1')

SAND: f-crs, a.a. (8.1'-8.4')
SILT: sdy, blk (2.5Y 2.5/1), isol *Crepidula* @ 8.7' (8.4'-8.9')
SAND: f, lt gry (5Y 7/2), hvy mott (8.9'-10.0')

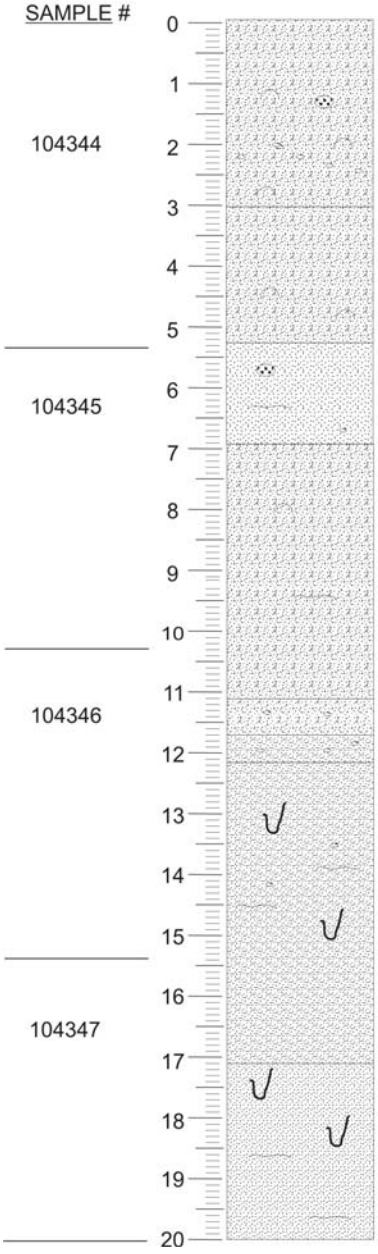
SAND: f, as descr ab, isol pbl or shl in cly bur, mky, chky (10.0'-13.4')

SAND: f-crs, yel (2.5Y 7/6), scat pbl 2mm-10mm, few hvy min (13.4'-15.0')

SAND: crs, wh (10YR 8/1), loose, isol cht pbl (15.0'-16.8')

DGSID **Qj55-07** DATE DESCR. **1/4/08** WATER DEPTH (FT) **32.2**

LOCAL ID. **KHV-121** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-crs, brn yel (10YR 6/8), loose, scat shl frag 30% for section, few pbl- cht (10mm), few hvy min, *Nassarius* @ 1.1', qtz pbl w/ encrustation (worm or Moll) @ 1.3', Sst pbl @ 2.0' (3.5 cm) & *Spisula* @ 2.0', cht & qtz pbl Lyr @ 2.3' (3.0mm-6.0mm), 6 cm shl @ 2.9' (0'-3.0')

SAND: as descr ab but w/ isol shl, *Spisula* @ 4.4' & 4.85' (3.0'-5.3')

SAND: crs, wl srt, olv yel (2.5Y 6/8), hvy min, Sst concretion (2 cm) @ 5.7', Sst pbl @ 6.8' (5.3'-6.9')

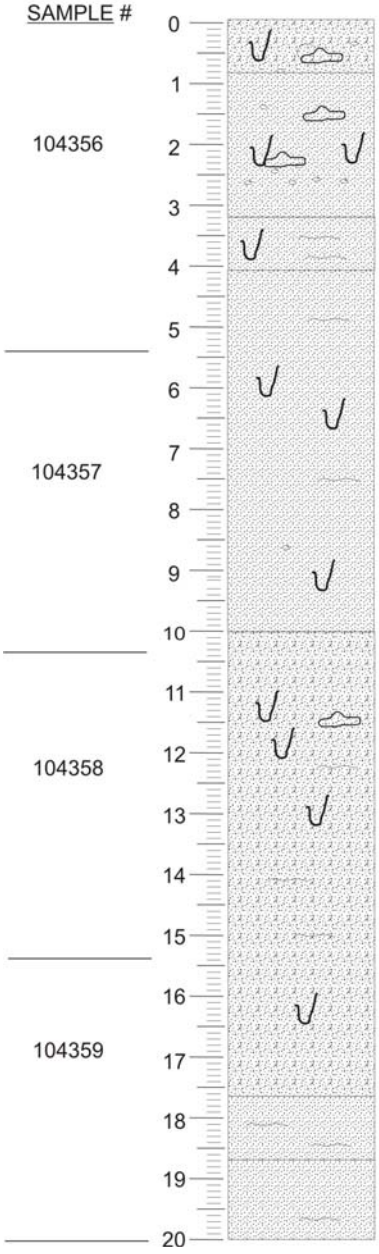
SAND: f-crs, olv yel (2.5Y 6/8) few hvy min, rare *Anomia* @ 8.0' (6.9'-11.1')

SAND: f-gran, olv brn (2.5Y 4/3), few hvy min, incr pbl qtz & cht (3mm-10mm) (11.1'-11.7')
SAND: slty-vcrs, blk (2.5Y 2.5/1), abd pbl qtz & cht (3mm-10mm) (11.7'-12.1')
SAND: slt-vf, gry (5Y 5/1), few hvy min, abd slt-filled bur, sd-filled bur @ 12.8'-13.2', also contains cht & qtz pbl from ab (2mm-5mm), cly Lam @ 13.7'-13.9' and 14.3'-14.5', less bur below cly (12.1'-17.1')

SAND: f, lt olv gry (5Y 6/2), few hvy min, abd bur- slty-sd filled, bur @ 17.1'-17.3' contains sd from ab Lyr, mky, chky, slty-sd @ 18.3-18.5, hvy min Lam from 18.5'-19.2', slty-sd Lam @ 19.5'-19.6' (17.1'-20.1')

DGSID **Qj55-08** DATE DESCR. **1/7/08** WATER DEPTH (FT) **39.5**

LOCAL ID. **KHV-124** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: cly-crs, olv brn (2.5Y 4/4), abd bur, few hvy min, abd pbl (qtz 5mm-30mm), r shl frag, ox, abd cly clasts, mott (0'-0.7')

SAND: cly-f, olv gry (5Y 5/2) few hvy min, abd bur, r qtz pbl @ 1.4' (sbrndd), abd cly clasts, abd cht & qtz pbl Lyr (sbang) @ 2.6-2.7' (0.7'-3.2')

SAND: cly-f, pl olv (5Y 6/4) abd hvy min Lam, sdy-slt bur @ 3.5'-3.9' (3.2'-4.0')

SAND: vf-m, lt yel brn (2.5Y 6/3), abd hvy min, abd slt-sd bur, coarsens down @ 5.0', slty-sd bur @ 5.8'-6.2', r qtz pbl @ 8.6' (10mm) (4.0'-10.0')

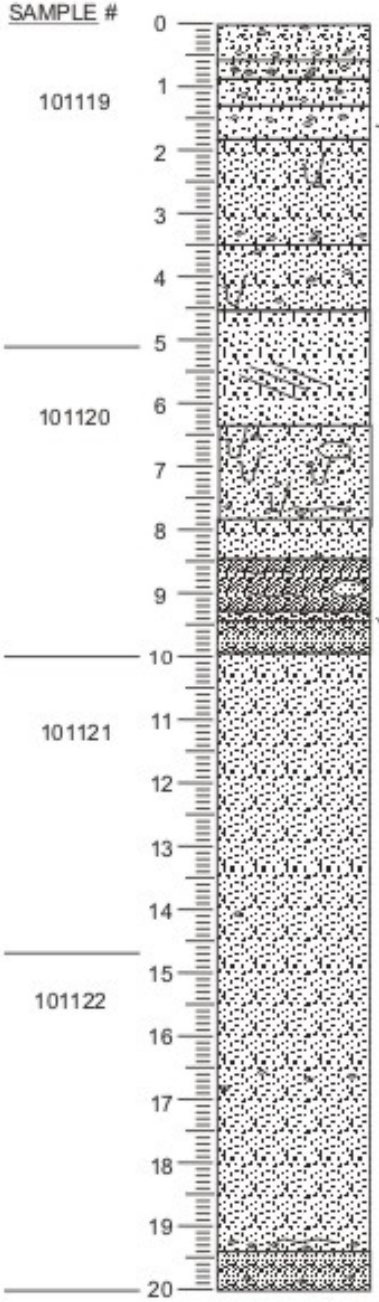
SAND: as descr ab, vf-crs,lt yel brn (2.5Y 6/3), scat hvy min, abd hvy min Lam, bur @ 11.2'-11.3', sdy-cly clast @ 11.3', slty bur @ 11.7'-11.8' & 13.0', bur @ 16.1' (10.0'-17.6')

SAND: slty-m, lt yel brn (2.5Y 6/3), abd hvy min Lam (17.6'-18.6')

SAND: f-m, gran, lt yel brn (2.5Y 6/3), r hvy min (18.6'-20.1')

DGSID **Qk22-01** DATE DESCR. **7/25/05** WATER DEPTH (FT) **47.8** MLLW

LOCAL ID. **DGS04-01** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-v crs, loose, lt gry (5Y7/1), com gran, few v sml pbl, Strless (0-0.6')

SAND: as ab w/ abd gran & v sml pb, Strless (0.6-0.9')

SAND: f-v crs, more cpct, lt gry (5Y7/1), few sm pbl (0.9-1.3')

SAND: crs-v crs, gry (5Y6/1), abd gran & v sml pbl com, forms distinct bd (1.3-

SAND: m-f, lt gry (5Y7/1), w/gry (5Y6/1) bioturb Zn starting @ 2.3', Bur crs-vcrs filled w/Tr slt, bcm crser @3' m-crs-v crs, few sml pbl @ Btm (1.8-3.5')

SAND: m-f, lt gry (5Y7/1), crs-v crs com, bcm c-vc @ 4.2', gry bioturb Zn @ 4.4-4.5', sml pbl com, gran com (5.3-4.5')

SAND: m-crs, vc-gran, lt gry (5Y7/1), few sml pbl; abd sml pbl @ 6.1-6.2',hint of some x-Lam f & crs (4.5-6.3')

SAND: m-crs, com vc-gran, lt gry (5Y7/1) w/olv yel (2.5Y6/6), slty cly rip ups & slty vc sd-filled gry Bur, sml pbl lt yel brn (2.5Y6/3), hvy min Lam @ 7.9', com sml pbl (6.3-7.9')

SAND: m-crs, uni, lt gry (5Y7/1), com vc-gran & sharp Ctc @ 8.45', 1 v sml pbl, (7.9-8.45')

SAND: f-vf, cpct, uni, lt grn gry (GLEY1 10GY7/1), com hvy min,1 dk gry cly rip up @ 8.9' (8.45-9.2')

SAND: v crs-gran, lt grn gry (GLEY1 10GY7/1), (9.2-9.4')

SAND: f-vf as 8.45-9.2', @ 9.8' blk cly Slt rip up, few gran @ 9.9' (9.4-9.9')

SAND: intbd, m-v crs & gran-crs lt gry (2.5Y7/1)
m-v crs 9.9-10.1';
gran 10.1-10.35';
m-v crs 10.35-10.65';
gran 10.65-10.85';
m-v crs 10.85-11.35';
gran 11.35-11.7' (v ltl Mtrx);
m-v crs 11.7-12.1';
gran-crs 12.1-12.9' (lots f-crs Mtrx);
m-v crs 12.9-13.1';
gran-crs 13.1-14' (sml pbl @ 14');
m-v crs 14-14.5';
gran-crs 14.5-15';
m-v crs 15-15.9';
gran-crs 15.9-16.7' (abd pbl @16.6-16.7');
m-v crs 16.7-17.7';
gran-crs 17.7-17.9'; m-vc 17.9-18.2';
Gran-v crs 18.2-19.1'; 19.1-19.4' col chg to lt grnsh gry (GLEY 106Y7/1) SAND same as 18.2-19.1'; pbl Lyr @ 19.3-19.4' w/ abd hvy min

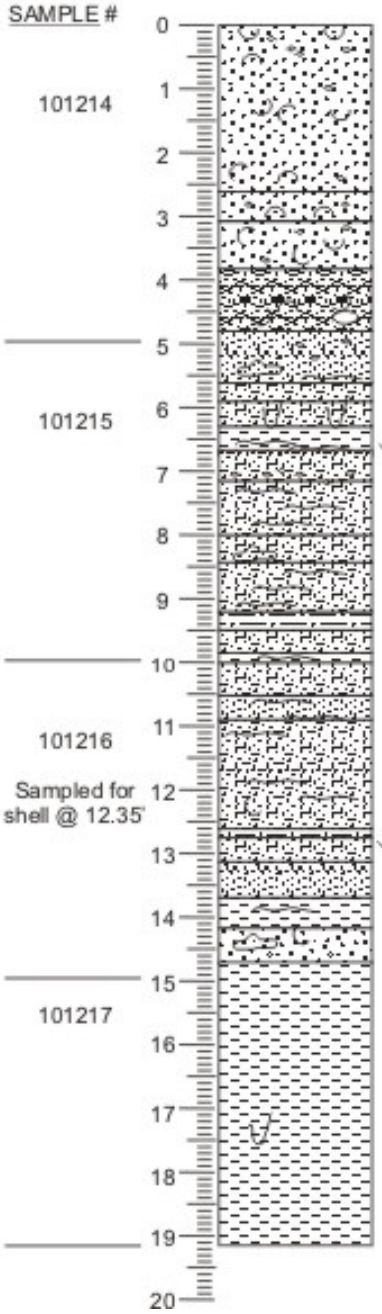
Sharp Ctc @ 19.4'

SAND: f-vf, cpct, lt grn gry (GLEY 1 10GY7/1), f-c w/few sml pbl@ 19.6-19.8'

NOTE-Sampled every other foot for texture.

DGSID **Qk22-02** DATE DESCR. **7/26/05** WATER DEPTH (FT) **39.5**$_{MLLW}$

LOCAL ID. **DGS04-03** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-crs, pale yel (2.5Y 7/3), lse, com v crs-pbl, com-abd (sml-lge) shl frag, mostly *Spisula*, *Crepidula*, Strless other than Zn w/ abd Shl (0.0-2.55')

SAND: crs-v crs, pale yel (2.5Y 7/3), v abd shl (some Ech spines), *Spisula* mostly, few *Crepidula*, shl mostly concave down, com sml pbl (2.55-3.1')

SAND: v crs-gran, lt brn gry (2.5Y 6/2), com v sml pbl, few shl, grad to (3.1-3.8')

GRAVEL: in v crs-gran sd Mat, v sml pbl, some pbl, sml Cbl (0.3'Dia) @ base, few shl, (3.8-4.9')

SAND: vf-f, wh (5Y 8/1), few sml pbl, dk gry slily silty Lam @ 5.5' otherwise strless, lge piece of charcoalized Wd @ 5.5' (4.9-5.65')

SAND: vf-f, silty, gry (5Y 5/1), Lam sd & silty sd, Tr org Frag (5.65-5.95')

SAND: f-vf, slily silty, gry (5Y 5/1), few silty Bur (5.95-6.3')

SILT: cly, dk gry (5Y 4/1), intrlam w/sd f-vf, silty (6.3-6.7')

SAND: f-vf, mod silty, dk gry (5Y 4/1) Lam of v sml pbl @ 7.15' (6.7-7.15')

SAND: f-vf, w/Lam of silty vf-f sd, slily cly, dk gry (5Y 4/1) (7.15-8.0')

SAND: vf-f, silty, w/ piece of brn Wd @ 8.32' (8.0-8.4')

SAND: f-vf, silty, few Lam, slily cly, v sml org frag @ 8.75' (8.4-9.2')

SILT: cly, slily sdy, vf, dk gry (5Y 4/1) (9.2-9.5')

SAND: f-vf, dk gry (5Y 4/1), slily silty (9.5-9.7')

SILT: cly, slily sdy, vf, dk gry (5Y 4/1), w/f sd Lam (9.7-10.0')

SAND: f-vf, slily silty, lt gry (5Y 7/1), clner than anything ab, some yel stn @ 10.5' (10.0-10.5')

SAND: vf-f, intrlam w/slt, sdy, vf, gry (5Y 5/1) may be slily Bioturb (10.5-10.9')

SAND: vf-f, gry (5Y 5/1), mod silty w/scat sdy slt Lam, mod Bioturb, mod silty, intrlam w/slt, sdy, vf, may be slily Bioturb, shl (v sml *Spisula* @ 12.35'-Spled for amino) (10.9-12.6')

SILT: sdy, vf, gry (5Y 5/1) (12.6-12.75')

SAND: vf-f, silty, gry (5Y 5/1), few gran (12.75-13.1')

SAND: f-vf, lt gry (5Y 7/1) clner than ab (13.1-13.65')

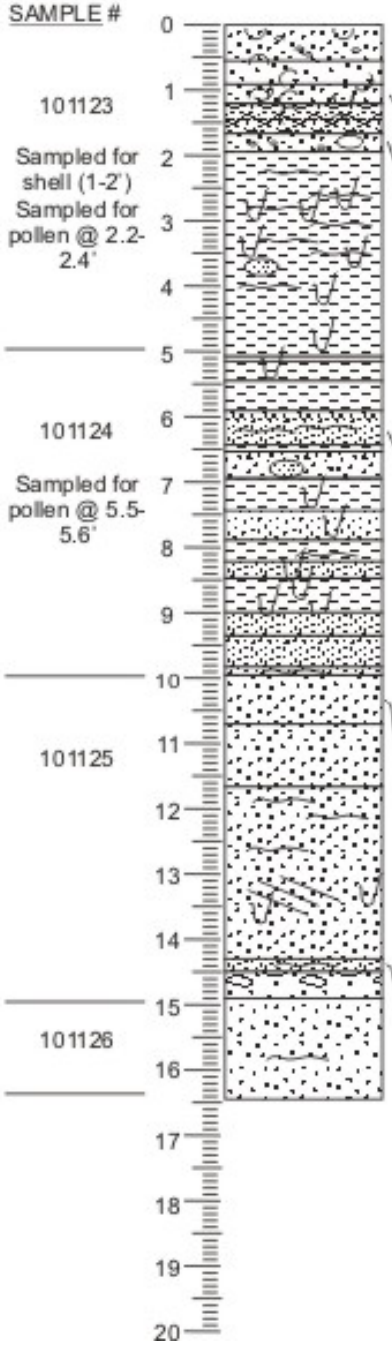
SILT: slily cly, sdy, vf, gry (5Y 5/1), intrlam w/sd. vf (13.65-14.15')

SAND: f-crs, slily mod silty, gry (5Y 5/1), com gran, 1 lge Wd & 1 shl Frag @ 14.15-14.3' (14.15-14.7')

SILT: mod cly, Bioturb, slily mott, v cpct, f sd-filled Bur @ 17.2-17.4', otherwise v uni (14.7-19.1')

DGSID **Qk23-01** DATE DESCR. **7/26/05** WATER DEPTH (FT) **50.0**$_{MLLW}$

LOCAL ID. **DGS04-02** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: crs-vcrs, abd gran, pale brown (10YR 6/3-color doesn't match anything well), lse, com v sml pbl, few-com shl frag, abd pbl @ 0.5' (0.0-0.55')

SAND: m-crs, lt brn gry (2.5Y 5/2) more cpct than ab, com shl frag, sharp Ctc marked by 0.1' thk gry cly Lam & brn yel stn in sd ab @ 0.9' (0.55-0.9')

SAND: f-m, gry (5Y 4/1), com sml-lg shl frag (0.9-1.2')

GRAVEL: in crs- v crs sd Mat, pbl up to 0.1' diam, dk gry (5Y 4/1), com shl frag, sharp Ctc @ 1.65' (1.2-1.65')

SAND: f, gry (5Y 6/1), scat v sml pbl & 1 sml Cbl 0.28' Dia (1.65-1.95')

CLAY: silty, v dk gry (5Y 3/1), w/scat vf-f sd, Lam & sd-filled Bur (1.95-5.45') sd lam @ 2.1'; 2.38-2.5' w/few gran; 2.72'; and 2.9-2.99'; gry (5Y 5/1-looks wh) sltier than surrounding cly w/some vf sd @ 3.18-3.26'; sd Len @ 3.4-3.6'; f sd Lam w/few sml (0.01' to lg wh hd cly-slt pbl/clast) @ 3.8-3.98'; v sml sd Len @ 4.05-4.09'; f-vf sd-filled Bur @ 4.32-4.45'; f sd, sd-cly Len, mod Bioturb @ 4.52-4.75'; sd-filled Bur @ 4.85-4.89'; void due to transport @ 5.0'; f sd-filled Bur @ 5.2-5.35'; sharp Ctc signif Col chg @ 5.45'.

CLAY: mod silty, Tr vf sd, gn gry (1GLEY 10GY 6/1), intrlam w/m-f sd lt yel brn (2.5Y 6/3) com crs-v crs (5.45-5.95')

SAND: m-f, lt yel brn (2.5Y 6/3) w/thn cly Lam pale olv (5Y 6/3),(5.95-6.4')

CLAY: silty, gn gry (1GLEY 10GY 6/1), (6.4-6.5')

SAND: m-f-crs, lt yel brn (2.5Y 6/3) w/lge wh cly Clast (0.25' D-hd w/outer cotg v dk gry), (6.5-6.9')

CLAY: v silty, gn gry (1GLEY 10GY 6/1), w/Len of m-f sd Bur fill, mod Bioturb (6.9-7.4')

SAND: f-m, lt olv gry (5Y 6/2), w/scat cly (as above) Len, mod Bioturb, (Bur sd & cly Lam) (7.4-7.9')

CLAY: as 6.9-7.4', sd Lam more continuous (7.9-8.2')

SAND: as 7.4-7.9' (8.2-8.4')

CLAY: silty, grn gry (1GLEY 10GY 6/1) w/abd f-m sd-filled Bur (8.4-9.0')

SAND: f-m, grn gry (1GLEY 10GY 6/1) w/cly ripups, few gran (9.0-9.3')

SAND: f-m to f, lt olv gry (5Y 6/2), w/ cly ripups, (9.3-9.75')

SAND: vf-slt, grn gry (1GLEY 10GY 6/1), finely Lam w/vf sd (9.75-9.9')

SAND: m-v crs (crs dn), wh (5Y 8/1), lse (due to core cutting) to cpct; few-com gran @ 10.6-10.7' (9.9-10.7')

SAND: f-some m, wh (5Y 8/1), some crs-gran; completely Bioturb-Bioturb zone continues into sd below dn to 12.4' (10.7-11.6')

SAND: vf-f, lt gry (5Y 7/1) to gry (5Y 6/1), abd op hvy min Lam, cut & fill x-bd (11.6-14.25'), sd wl srt (11.6-14.2'), silty sd-filled Bur, gry @ 11.45', silty sd-filled Bur, few gran @ 12.6', gry cly slt ripup @ 13.8' (11.6-14.25')

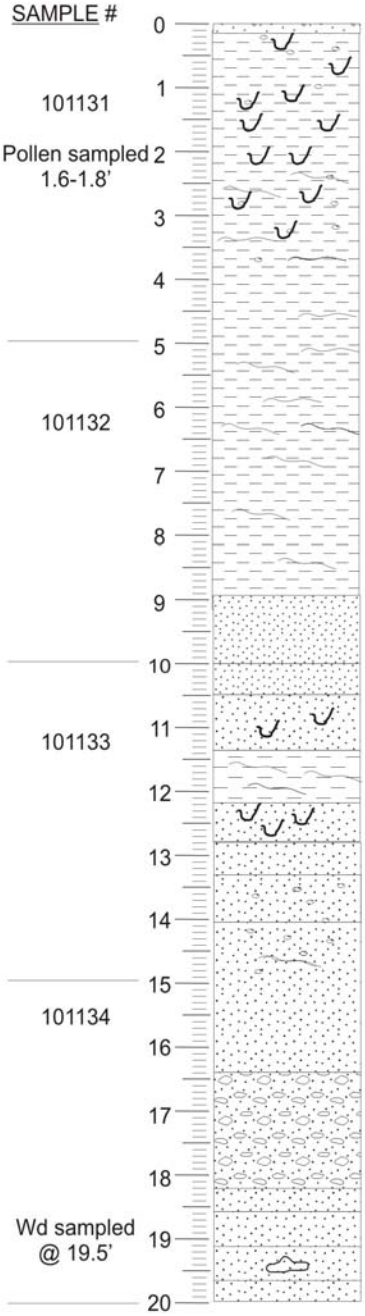
SAND: as ab w/grn gry (1GLEY 10GY 6/1), silty cly Lam @ 14.3' (14.25-14.5')

SAND: crs-v crs, gry (5Y 5/1), abd pb & Grv, larger pbl near 14.5' (14.5-14.9')

SAND: crs-v crs. gry (5Y 5/1), hvy min Lam @ 15.85-15.9', otherwise strless, disturbed below 16' (14.9-16.4')

DGSID **Qk31-01** DATE DESCR. **7/28/05** WATER DEPTH (FT) **44.8**$_{MLLW}$

LOCAL ID. **DGS04-05** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-crs, olv gry (5Y 5/2), shl com, pbl com, fills Bur dn to 0.3 with *Spisula*.(0-0.1')

SILT: cly, dk grnsh gry (1GLEY 10Y 3/1), v cpct, blk org-rich Lam com, few sd-filled Bur dn to 3.4', fnt Lam (slily dkr or ltr) thru (0.1-9.0')

Sd-filled Bur @ 2, 2.2, 2.7 & 3.4', blk Lam @ 3.4-3.5', org Frag @ 3.7', blk Lam Zn (4.45-4.6'), blk slily circ Pch@ 4.6-4.7', blk Lam @ 4.8', blk Pch @ 5.1-5.2', distinct blk Lam Zn @ 5.45-5.6' & 6.35-6.4', irreg blk Lam @ 6.9-7.1', blk pchy Zn @ 7.35-7.6', blk Lam @ 7.8-8', sml org Frag @ 8.1', scat blk Lam @ 8.15-8.6'

Sharp ctc @ 9'

SAND: m-f, abd crs, few gran, v wet (due to bottom of core sitting upright), dk grnsh gry (1GLEY 10Y 3/1), partially disturbed may crsn dn (9-10.0')

SAND: m-vcrs, dk olv gry (5Y 3/2), (prb base of unit ab), few gran (10-10.4')

SAND: f-m, lt olv gry, (5Y 6/2), mod wl srt, some lter (lt gry 5Y 7/2), circ Pchs, may be Bur (10.4-11.35')

CLAY: slty, dk grnsh gry, (1GLEY 10Y 3/1), vf sd Lam dn to 11.65', sd filled Burr hor @ 11.45', lam org Frag @11.65', blk Lam com, f sd Lam @ 12-12.5', org Frag @ base, (11.35-12.15')

SAND: f-vf, dk gry, (5Y 4/1), bioturb w/ cly-lined & cly-filled Bur (12.15-12.75')

SAND: c-vcrs, grans com, gry (5Y 5/1), Strless (12.75-13.45')

SAND: c-vcrs, gry, (5Y5/1), pbly, vsml-sml pbl v abd, (13.45-14.0')

SAND: c-vcrs, abd grans, sml pbl com, lt gry (5Y 7/1), some fnt x-bd defined by crsr & finer Lam, r v sml pbl-size mud-clasts, hm Lam (14.0-16.4')

Sharp ctc @16.4'

GRAVEL: sdy, c-vcrs, mod wsrtd, lt gry (5Y 7/1), pbl mostly qtz, some cht, ch pbl w/ silicified Cor (16.4-18.25')

SAND: c-vcrs, mod wl-srtd, lt gry, (5Y 7/1) few sml pbl (18.25-18.6')

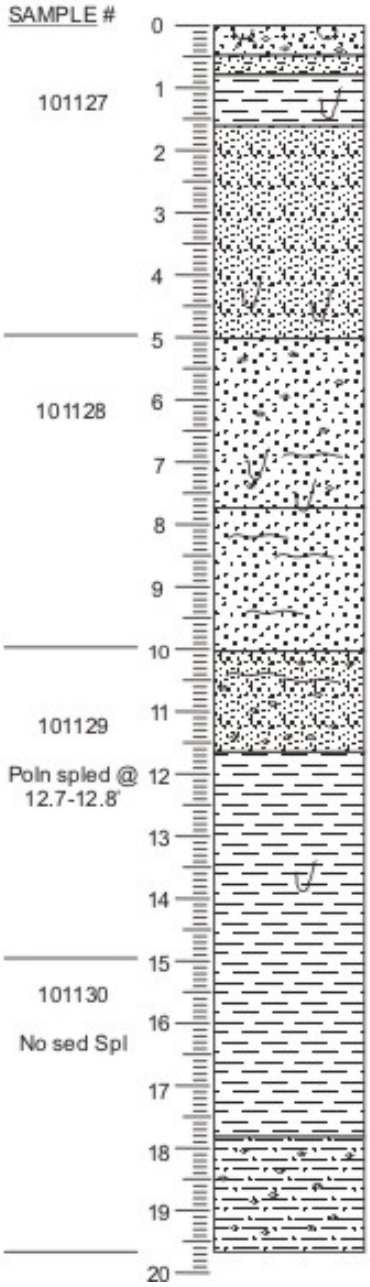
SAND: gran-vcrs, mod wl-srtd, lt gry, (5Y 7/1) mod cln (18.6-19.1')

SAND: crs-grad dn to gran, lt gry, (5Y 7/1) 1-piece Wd @ 19.5' (19.1-19.6')

SAND: f-vcrs, gran com, lt gry, ptly disturbed from coring (19.6-20')

DGSID **Qk32-02** DATE DESCR. **7/27/05** WATER DEPTH (FT) **49.4**$_{MLLW}$

LOCAL ID. **DGS04-04R2** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-crs, dk yel brn (10YR 3/4), lse, few pbl (1-4cm Dia), few shl frag, Strless (0-0.5')

SAND: silty, dk olv brn (2.5Y 3/3), (0.5-0.75')

CLAY: v dk gry (2.5Y 3/1), stiff w/ 1cm thk Lyrs of silty sd @ 0.8', 1.1', 1.3', & 1.5', sd-slt Bur @ 1.3-1.4' (0.75-1.6')

SAND: f-m, silty, v dk gry brn (2.5Y 3/2), Strless, grad to olv gry (5Y 5/2) & v dk gry (5Y 3/1), blk (5Y 2.5/1) slt/sd-filled Bur @ 4.4' & 4.7' (1.6-5.0')

SAND: m-c, lt yel brn (2.5Y 6/4), few pbl (1 cm), Strless, silty-sd Lyr @ 6.9', org Mat @ 7.2'-spled for RC, silty-cly Bur @ 7.0' & 7.6' (5.0-7.7')

SAND: m-c, olv yel (2.5Y 6/6) some silty f sd Lam, grad to olv gry (5Y 5/2) @ 8.4', org Mat @ 9.5'-spled for RC (7.7-10.0')

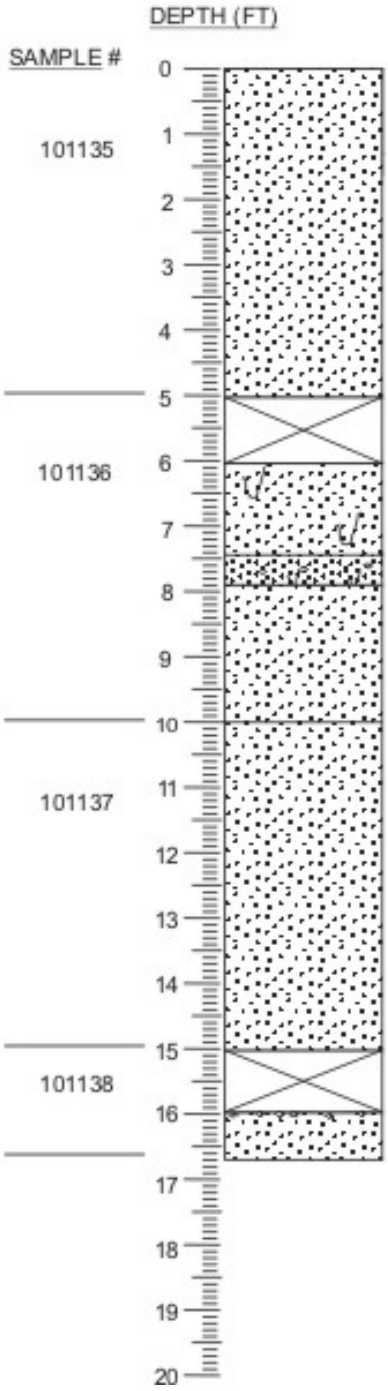
SAND: f-c, lt yel brn (2.5Y 6/4), few qtz & cht pbl (< 1cm), blk org sdy cly Lyr @ 10.35' & 10.5, grad to olv gry (5Y 5/2), com pbl (1-2 cm in sd Mtrx descr ab), pbl Lyr @ 11.4' (10.0-11.65')

CLAY: v dk gry (2.5Y 3/1), stiff, 2 cm cly Bur @ 13.65', rootlets @ 15'-16' (11.65-17.7')

CLAY: sdy, v dk gry (2.5Y 3/1), abd qtz pbl (1.0-4.0 cm Dia) (17.7-19.7')

DGSID **Qk41-01** DATE DESCR. **7/28/05** WATER DEPTH (FT) **47.1** MLLW

LOCAL ID. **DGS04-06** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-m, lt olv brn (2.5Y 5/3), abd qtz & cht pbl (1-3cm Dia), scat hvy min, slty sd 0.9-1.15' (0-1.3')

SAND: f-m, slty, dk gry brn (2.5Y 4/2), abd Bur, mott, some qtz pbl (1 cm Dia) (1.3-1.6')

SAND: f-m, lt gry (2.5Y 7/1), (mky Res), scat hvy min, slty sd Bur Zns @ 1.8-2.2' & 3.6-4.3' dk gry (2.5Y 4/1) (1.6-4.15')

SAND: f-m, lt gry (2.5Y 7/1), (mky Res), scat hvy min, scat qtz & cht pbl & cly clast (2-3 cm Dia), cly Lam @ 4.7' (4.15-5.0')

VOID: disturbed sd, f-m (5.0-6.0')

SAND: f-m, lt gry (2.5Y 7/1), (mky Res), slty sd Bur Zns @ 6-6.4' & 7-7.4' dk gry (2.5Y 4/1), isolated cht (1 cm Dia) (6.0-7.4')

SAND: v crs-gran, slty, lt gry (2.5Y 7/1), abd mott/Bur, some qtz pbl (1 cm Dia) (7.4-7.9')

SAND: f-m, lt gry (2.5Y 7/1), (mky Res), scat hvy min, Bur @ 8.4' w/ qtz pbl (1 cm Dia), Gran Lyr @ 8.8', few qtz & cht pbl (2-3 cm Dia) (7.9'-10')

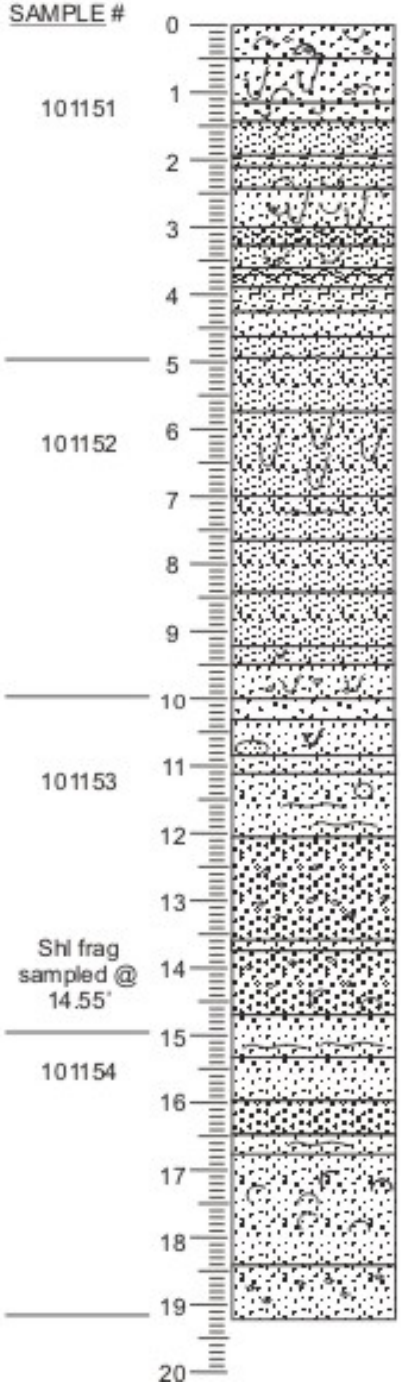
SAND: f-m, lt gry (2.5Y 7/1), fnt hvy min Lyrs @ 10.5', 11.8', 12.1', 14.1', scat qtz & cht gran, qtz & cht pbl Lyr (1 cm Dia) @ 10.9', slty Bur @ 13.5-13.6', grn-gry cly clast (2 cm Dia) @ 14.3', gran Lyr @ 14.9' (10.0-15.0')

VOID: disturbed sd, f-m (15.0-15.9')

SAND: f-m, lt gry (2.5Y 7/1), qtz & cht pbl (1-2 cm Dia) Lyr @ 15.9' scat hvy min, Strless (15.9-16.7')

DGSID **Qk41-02** DATE DESCR. **8/2/05** WATER DEPTH (FT) **44.0**$_{MLLW}$

LOCAL ID. **DGS04-10** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-m grdlng dn to v crs-gran, lt gry (2.5Y 7/2), scat com shl frag- *Spisula* (0-0.5')

SAND: m-f grdlng dn to v crs-gran, lt gry (2.5Y 7/2) & dk gry cly SILT- lined Bur @ (0.9'-1.1'), few com shl frag (0.5'-1.1')

SAND: crs -v crs, gran com-abd, lt gry, few gran-size shl frag (1.1'-1.4')

SAND: m-f, w/ lam, crs-v crs @1.7', 1.8', 1.9', lt gry (2.5Y 7/2), few shl frag, few Ecin. Spines (1.4'-1.9')

SAND: v crs-gran, lt gry (2.5Y 7/2) (1.9'-2.05')

SAND: f-m, lt gry (2.5Y 7/2), Lam of shl frag @ 2.15'-2.25' (2.05'-2.4')

SAND: m-f, lt brnsh gry (2.5Y 6/2), scat cly slt-lined Bur- not wl developed, scat few shl frag (2.4'-3.0')

SAND: v crs-gran, lt brnsh gry (2.5Y 6/2), sml pbl & pbl com, r gran size shl frag (3.0'-3.25')

SAND: m-f, lt brnsh gry (2.5Y 6/2), dk gry slty cly clast @ 3.45', few shl frag may have silt-lined Bur or Lam @ base (3.25'-3.55')

SAND: v crs grdlng dn to sml pbl Grv, Lam shl frag @ base (3.55'-3.85')

SAND: vf, slty, gry (5Y 5/1), w/ Bur from ab bed, crs sd gran-filled (3.85'-4.2')

SAND: f, gry (5Y 6/1), hvy min lined Bur, also cly-silt lined Bur that goes into Lyr below (4.2'-4.6')

SAND: crs-v crs, lt gry (5Y 7/1), w/ Bur from ab and pbl (4.6'-4.9')

SAND: f-m grd dn to m-crs, lt brnsh gry (2.5Y-6/2),few fnt slt-lined Bur, otherwise Strless (4.9'-5.7')

SAND: m-f, lt brnsh gry (2.5Y 6/2), cly slt-lined Bur (5.85-6.1' (crs-fill), 6.2, 6.4-6.6, 6.65-6.8, 6.7-7.0') (5.7'-7.0')

SAND: crs-v crs, abd gran, lt gry (2.5Y 7/2), hvy min-Lam @ 7.3', slty cly-lined Bur @ 7.5-7.6' (7.0'-7.6')

SAND: f-vf, wh (5Y 8/1), slty cly-lined Bur (collapsed 7.6-8, 8.1- 8.4') (7.6'-8.4')

SAND: crs-v crs, wh (5Y 8/1), gran f-com, some indst x-bd (8.4'-9.2')

SAND: m-crs, wh (5Y 8/1), vc-gran f-com, slty cly Bur @ 9.4-9.5', (9.2'-9.5')

SAND: crs-v crs, wh (5Y 8/1), few v sml pbl, slty cly Bur @ 9.8-10', (9.5'-10')

SAND: f, wh (5Y 8/1), Lge bioturb Zn gry mix cly slt, f-c sd & rare sml pbl (10'-10.3')

SAND: f-m, wh-lt gry (5Y 7/1), bioturb Zn gry @ 10.65-10.7' (10.3'-10.85')

SAND: f-m, wh-mix w/ gry slt (5Y 7/1), crs sd, gran-bioturb zone (10.85'-11.1')

SAND: f-m, wh, gry bioturb Zn from 11.3'-11.5' & 11.9'-12', rusty- (yel brn) circ Pch @ 11.1-11.2', f-crs Lam @11.6' & 11.8' (11.1'-12.05')

SAND: v crs-gran, lt gry, (5Y 7/1), abd v sml pbl, sml pbl- pbl com, qtz, rd stn qtz, cht gry slt bioturb Zn @12.7- 13.0; (12.05'-13.6')

SAND: crs-v crs, wh (5Y 8/1) (13.6'-13.7')

SAND: v crs-gran, lt gry (5Y 7/1), abd vsml pbl- sml pbl- pbl-com, gry slt bioturb Zn @ 13.95'-14.4', 14.55'-14.7', 1 shl frag in bioturb Zn @14.55' spled (13.7'-14.7')

SAND: crs-v crs, lt gry, (5Y 7/1), mod w-srted, odd pale gn (IGLEY 5G 6/2) cly slt Lam @ 14.9' (14.7'-15.3')

SAND: m-v crs, mixed w/ gry cly slt bioturb Zn @15.5' & 15.35'-15.8' (15.3'-15.9')

SAND: gran-v crs, v wl srtd, f up, not much Mtrx (cln) (15.9'-16.5')

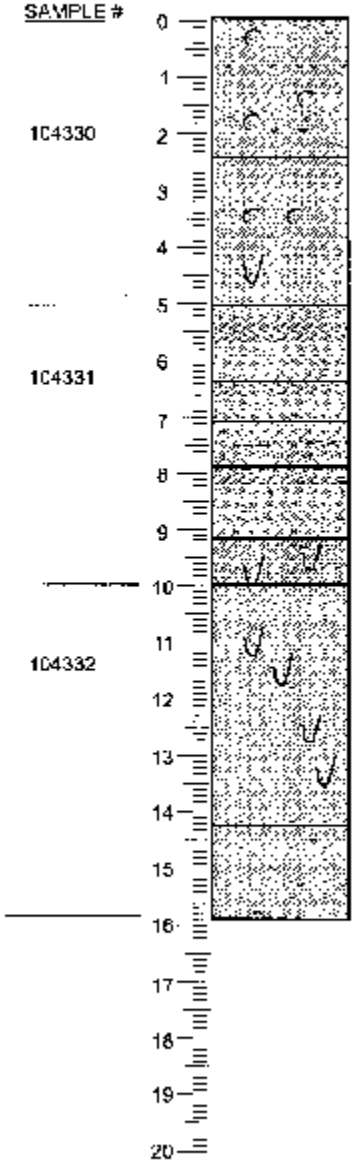
SAND: f-m, lt gry (5Y 7/1), hvy min scat, hvy min-Lam@ 16.6' (16.5'-16.8')

SAND: m-crs, lt gry (5Y 7/1), w/ clam @ 16.9', 17.05-17.15', 17.5', 17.9', 18.1-18.15' (& pbl) mod wl-srtd (16.8'-18.4')

SAND: crs-v crs, lt gry (5Y 7/1), gran-sml pbl com few pbl, gry cly clast or mud-filled Bur 18.55'-18.0' (18.4'-19.2')

DGSID **Qk41-03** DATE DESCR. **1/10/08** WATER DEPTH (FT) **43.5**

LOCAL ID. **KHV-117** DESCR. BY **KMcK**



LITHOLOGIC DESCRIPTION

SAND: f-m, yel (2.5Y 7/6), scat hvy min, scat shl frag, pbl Lyr @ 0.7' (pbl 2cm), shl hash Lyr @ 1.62'-1.65' echinoderm, abd pbl (2mm-5mm) mixed w/shl (0'-2.45')

SAND: f, lt brn gry (2.5Y 6/2), slty Bur @ 2.45'; isol *Spisula* @ 2.8', *Crepidula* @ 3.12' & 3.4', scat shl frag @3.5', slty Bur @ 4.5' (2.45'- 5.0')

SAND: f, slty olv gry (5Y 5/2) (5.0'- 6.3')

SAND: vf-f, slty blk (5Y 2.5/1), *Crepidula* w/ periostracum @ 6.4' (6.3'-7.1')

SAND: Interlam silt cly (7.1'-7.6')

SAND: slty, f-c, v dk gry brn (2.5Y 3/2), mott, scat pbl (qtz 7mm-25mm), cly Bur, cly balls (4mm) (7.6'-9.1')

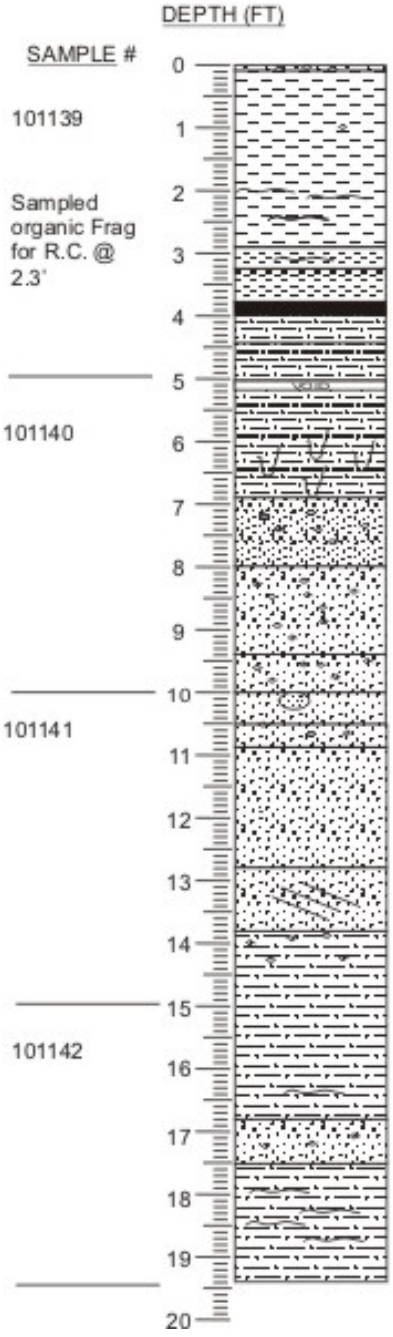
SAND: f-m, lt gry (2.5Y 7/1), isol hvy min, mott w/ cly Bur (v dk gry 10YR 3/1) (9.1'-10')

SAND: f-c, lt brn gry (2.5Y 6/2), few hvy min, slty chky Mtrx, cly Bur (2.5Y 3/1) @ 11.0'-11.2', 11.4'-11.5', 12.6-12.7', 13.2'-13.3' (10.0'-14.2')

SAND: f-c, lt brn gry (2.5Y 6/2), scat pbl (qtz 2mm), coarsens to base (14.2-15.9')

DGSID **Qk42-01** DATE DESCR. **7/29/05** WATER DEPTH (FT) **48.6MLLW**

LOCAL ID. **DGS04-07** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

CLAY: v silty; v dk gry (5Y 3/1), abd blk discont Lam (org rich), Few pbl w/ Tr of Sd at c to top 0.1', F sd Lam of Bur fill @ 0.5', thin Bur filled w/ gran @ 0.77', org Frag @ 2.3', blk Lam incr in abd @ 2.6' (0-2.9')

CLAY: as abv, w/ silt- f sd Lam, org rich Lam @ 2.93. 3.07, 3.17', Lam thkr dn core (2.9'-3.2')

CLAY: v silty, v dk gry, (5Y 3/1), abd discont Lam (org rich), org frag @ 3.37', (3.2'-3.75')

PEAT: blk, (5Y 2.5/1), cpct few indiv org frag discernable otherwise hom (3.75'- 3.95')

SAND: blk to v dk gry (5Y 3/1), f-vf silty, w/ pchs of org rich vf sand-silt (3.95'-4.45')

SAND: f-m, vf- Silt abd, dk olv brn, (2.5Y 3/3), bioturb, clnr f sd filled Bur com, few scat org frag, few clayey Zn- relict Lam left after bioturb, m-f by 6.7', Bur @4.7-4.8', cly Lam @ 4.5-4.55', org frags @ 5.2, 5.35, 5.45', VOID left by compaction @ 5-5.1', Bur that retains some internal Bur str @ 5.4-6.5' (4.45'-6.9')

SAND: m-f, c com, vc-sml pbl few-com, dk olv brn, (2.5Y 3/3), mod silty, prob bioturb (mott look), sm silty Zn, Shp ctc @ 8.0' (6.9-8.0')

SAND: crs-m grading dn to gran-vc gry, (5Y 5/1) @ 8.0-9.4', pbl com-abd @ 9.2-9.4' (8.0-9.4')

SAND: crs-v crs, gry, (5Y 5/1), gran abd, sml pbl com (9.4-10')

SAND: crs-m, dk gry, (5Y 4/1), color change to unit below, DISTURBED dn to 10.25', contain SAND & lg cly Silt clast, soft, grnsh gry (10.1-10.5')

SAND: crs-m, pbl com, gry (2.5Y 5/1) (10.5-10.8')

SAND: f, wl srtd, grysh brn, (2.5Y 5/2), thin op hm Lam com, sand Lam crsn dn c by 12.3' f-m (10.8-12.85')

SAND: Lam (x-bd), w/ crs-m fining up sets, grades dn to vc-m sets (12.85'-13.7')

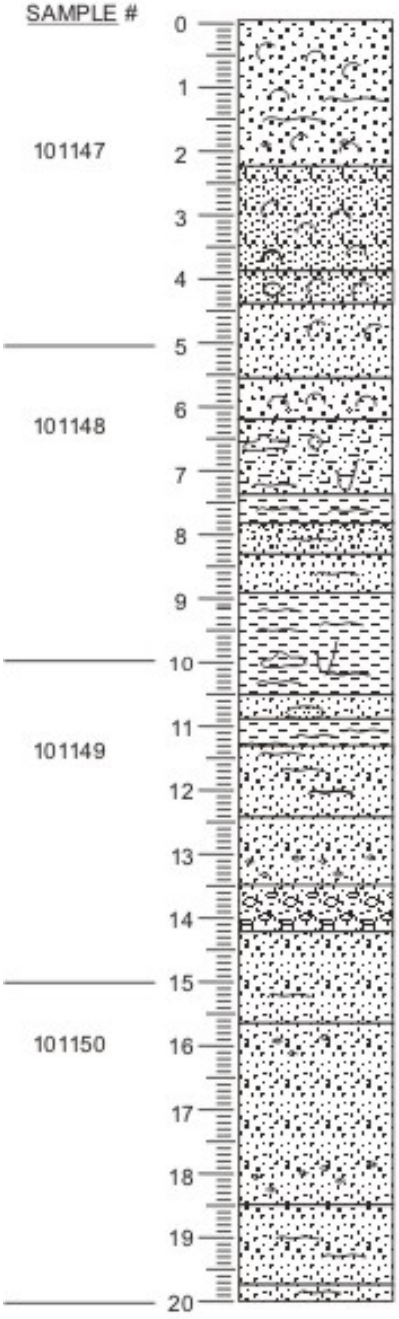
SAND: f-vf, slily silty, slily mic, lt olv gry, (5Y 6/2), faint hvy min & f-vf Lam com, crsns dn, c-vc Lam @ 16.45', back to f- vf (13.7'-16.8')

SAND: crs- v crs, gran com, few sml pbl, lt gry, (5Y 4/2), relict x-bd; could be bioturb (16.8'- 17.5')

SAND: m-f, lt olv gry, (5Y 6/2), slily silty, tr mica, some crs-v crs Lam @ 17.6, 18, 18.35, 18.7', hvy min com in finer beds (17.5'- 19.4')

DGSID **Qk42-02** DATE DESCR. **8/1/05** WATER DEPTH (FT) **50.2 MLLW**

LOCAL ID. **DGS04-09** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: m-crs, lt brnsh gry, (2.5Y 6/2), shl com- *Spisula, Crepidula, Busycon,* (juvenile) *Anomia*, gry slt Lam @ 0.95-1.0', another silty Zn @ 1.15-1.2' assoc w/ Lam shl hash, gry cly slt ripup clasts @ 2.2 & 2.15' (0-2.2')

SAND: m-f, crs com, lt brnsh gry, (2.5Y 6/2), shl com- *Spisula, Crepidula* (2.2'-3.8')

SAND: f-vf, slily silty, olv gry, (5Y 5/2), shl few-com *Crepidula*, scat gry SILT ovoid Bur fill (3.8'-4.4')

SAND: f-vf, silty, dk gry, (5Y 4/1), Bioturb, mott ltr (cln) & drkr (siltier) Sand, few-com shl Frag- sml (4.4'-5.55')

SAND: m grding dn to v crs & gran & sml pbl, dk gry, shl Frag some-abd, *Ensis*, slily-mod silty (5.55'-6.2')

SAND: f-vf, v silty, v dk gry, (5Y 3/1), few silty cly clasts, Bioturb- mix of v silty to mod silty Zn, Wd Frag and lg pbl @ 6.6', grd dn to m-f, (6.2'-7.4')

CLAY: silty, v dk gry, (5Y 3/1), scat f-crs sd Lam- discont, blk org Lam @ 7.53', silty sd Bur @ 7.7- 7.75' (7.4'-7.8')

SAND: f-crs, mod silty, iterlam w/ Clay, silty v dk gry (7.8'-8.3')

SAND: f-m, mod silty, w/ relict silty Clay Lam- Bioturb, shl Frag @ 8.7' (8.3'-8.9')

CLAY: SLTY, dk gry, (5Y 3/1), w/ Zn f sd Lam @ 9.1, 9.25, 9.4, 9.55, 9.75, 9.85, 9.95, 10.05, 10.1, 10.35, 10.43-10.47', Burr @ 10.15-10.'- hor filled w/ crs sd & gran, Wood and shl Frag, VOID @ top of pipe-c slid down pipe-top of Spl assumed @ 10' (8.9'-10.55')

SAND: crs-f, dk gry to pale yel, (5Y 7/2), lg silty cly clast w/ shl @ 10.76-10.82' (10.55'-10.85')

CLAY: silty, dk gry, (5Y 4/1), w/ f sd Lam @ 10.98, 11.03, 11.12', crs sd filled Bur @ 11.05-11.11, 11.15-11.3' (10.85'-11.35')

SAND: f-c, crsn dn, v dk gry, (5Y 3/1), to gry (5Y 5/1), w/ cly Lam @ 11.55-11.6, 11.65-11.7, 11.95-12.03, 12.4-12.45' discont Lam- Bioturb @ 11.35-11.55' (11.35'-12.45')

SAND: crs-v crs, gry, (5Y 5/1), gran com-abd, sml pbl com below 13' (12.45'-13.5')

GRAVEL: sml pbl-gran, abd crs-v crs sand, gry (13.5'-14.2')

SAND: v crs-crs, lt gry, (2.5Y 7/2), grad down to gran-sml pbl Grv, hvy min Lam @ 14.7-14.8' (14.2'- 15.6')

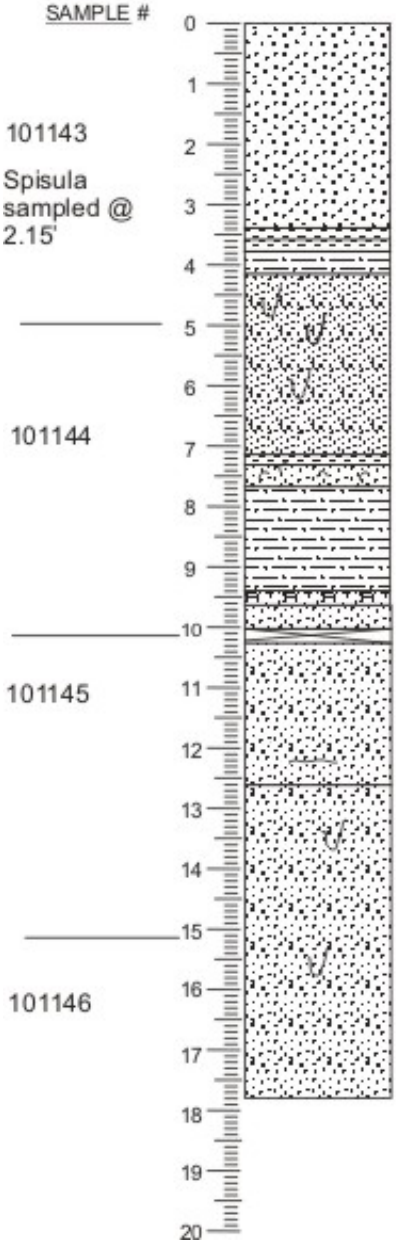
SAND: intbd crs-m, w/ gran & crs-v crs Sand to gran- sml pbl Grv, lt gry (2.5Y 7/2), crs-m sd @ 15.6-16.2', crs-v crs to gravel @ 16.2-16.9', crs-m sd @ 16.9- 17.1', crs sd @ 17.1- 17.8', m-crs sd @ 17.8-18', v crs-gran & sml pbl @ 18-18.5' (15.6'- 18.5')

SAND: v crs-crs, gran com, strless to fnt Lam sd & gran (18.5'-19.7')

SAND: f-m, lt olv gry, (5Y 6/2), hvy min Lam @ 19.8 & 19.95, mod wl srtd (19.7'-20')

DGSID **Qk43-02** DATE DESCR. **7/29/05** WATER DEPTH (FT) **49.6 MLLW**

LOCAL ID. **DGS04-08** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: f-m, lt yel brn (2.5Y 6/4), abd hvy min, no Lam, scat shl frags & whole Shl (3cm), scat qtz pbl (1-2cm), whole *Spisula* @ 2.15', *Crepidula* @ 2.6', Coral @ 3.2' (0-3.45')

SILT: v sdy, blk (2.5Y 2.5/1) (3.45-3.6')

SILT: blk (2.5Y 2.5/1), org Mat @ 3.6' (3.6- 3.8')

SAND: f-m, v slty, blk (2.5Y, 2.5/1), whole *Spisula* shl @ 4.0', scat shl frag (3.8-4.1')

SAND: f-m, gry brn (2.5Y, 5/2), abd hvy min mott w/ cly lined Burr @ 4.2-4.4, 5.5-5.6, 6.1- 6.2', scat shl frag (4.1-7.1')

SILT: v sdy, blk (2.5Y 2.5/1) (7.1- 7.2')

SAND: olv brn (2.5Y 4/3), abd jingle shells mottled, chky (7.2'- 7.65')

SAND: slty, f-m, dk gry (5Y 4/1), abd hm, isolated cly clast @ 8.2', org matter @ 8.3', scat chky chl frag (7.65- 9.4')

SAND: Grv, dk gry (5Y 4/1), gvl size (1cm- 3cm), slty sand Mtrx (9.4- 9.6')

SAND: f-m, lt brn gry (2.5Y 6/2), abd hvy min, mottled w/ slt-lined Bur (9.6-10')

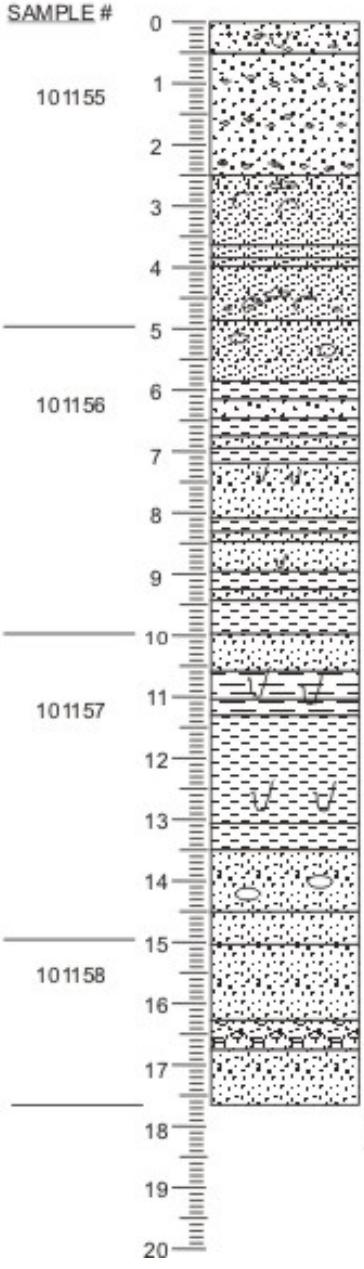
VOID @ 10- 10.2'

SAND: f-m as descr from 9.6' mottled w/ cly-lined Bur to 10.8', faint x-beds @ 10.8-11', mottled 11- 11.5', distorted cly Lam @ 12.3' (10.2-12.6')

SAND: f-c, lt brn gry (2.5Y 6/2), abd hm, slt-lined Bur @ 12.9-13', mottled w/ slty sd @ 13.5', some gran @ 13.8', Slty m-c sd Bur v dk gry (2.5Y 3/1) @ 15.4' (12.6-17.8')

DGSID **Qk52-01** DATE DESCR. **8/9/05** WATER DEPTH (FT) **48.4 MLLW**

LOCAL ID. **DGS04-11** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: crs-f, v abd pbl, v crs-gran com, lt brnsh gry (2.5Y 6/2), shl com, pbl have brnsh stain, few pbl have Bry cotg, lse (0-0.5')

SAND: v crs-crs, Lam w/ gran-v sml pbl, grysh brn (2.5Y 5/2), gran Lam @ 0.95, 1.45, 1.85, 2.35', few shl-mostly gran size; *Crepidula* (sml ribbed bivalve), *Spisula* shp ctc @ 2.5' (0.5-2.5')

SAND: f-vf, dk gry (5Y 4/1), slty zone @ 3.05-3.15', faint horiz lam, few shl frag, Wd frag @ 2.55'-could be in Bur from ab, few sml shl frag (Gast, bivalves) (2.5-3.65')

SAND: vf-f, w/ clam, slty dk gry (5Y 4/1), shl frag com, *Ensis*, others (3.65-3.85')

SAND: crs-v crs, mod slty, dk gry, sh frag com-abd (3.85-4.0')

SAND: f-crs, slty, pbl com, abd pbl@ base, some crs-f Lam, shl frag few-com, sml ribbed bivalve, dk gry, piece of Wd @ 4.65' (4.0-4.85')

SAND: f, wl srtd, gry (5Y 6/1), scat pbl-size rip-up clast of clay below 4.85-5.2', dk gry silt-filled Bur @ 5.4-5.6', bioturb & slty & gry 5.8-5.85', pchs of hm suggest sand is bioturb (4.85-5.85')

CLAY: slty, dk grnsh gry, (1GLEY 10GY 4/1) (5.85-6.1')

SAND: vf-f, wl srtd, few mic flk, grnsh gry (1GLEY 5GY 6/1), fnt hvy min Lam (6.1-6.5')

CLAY: slty, grnsh gry (1GLEY 10GY 4/1), w/ v thin vf sd Lam (6.5-6.7')

SAND: as @ 6.1-6.5' w/ gry slty f-pbl filled Bur (6.7-6.95')

CLAY: slty, same as @ 6.5'-6.7' (6.95-7.1')

SAND: f, grnsh gry (IGLEY 5GY 6/1), mica flakes com, faint hvy min Lam, gry slty hor Bur w/ 1 sml pbl, m-c filled Bur @ 7.9-8' (7.1-8.05')

CLAY: slty, grnsh gry, same as 6.95-7.1' (8.05-8.26')

SAND: Mixed zone f-m sd, sml pbl clasts of ab clay & gry Bur (8.26-8.45')

SAND: as 7.1-8.05', Bur @ 8.7-8.8' (8.45-8.95')

CLAY: slty, grnsh gry as 8.05-8.26', vf sd-filled Bur (8.95-9.25')

SAND: vf, slty, grnsh gry w/ gry Bur-tr vf shl frag in Bur (9.25'-9.45')

CLAY: slty, grnsh gry (1GLEY 10GY 5/1), vf, gry sd-filled Bur (9.45'-9.95')

SAND: vf, slily-mod mic grnsh gry, (1GLEY 10Y 6/1), abd hvy min, gry slty Bur 10.2-10.3' (9.95'-10.5')

CLAY: slty, dk grnsh gry,(1GLEY 5GY 4/1), f-c sd-filled Bur @10.7-10.75' (10.5-11')

CLAY: as above, bioturb w/ f-c sand, 1 v sml pbl (11-11.25')

CLAY: slty, dk grnsh gry,(1GLEY 5Y 4/1), brnsh Lam @ 11.25-11.3', large V-shaped hor bur @ 11.35-11.5' filled w/ f-c slty sd, blk zone- charcoal? @ 11.8', bcm slily sdy @ 12.1', f sd Lam, ylsh brn @12.3', v-shaped (spiral?) Bur filled w/ f-m sd @ 12.45-12.6', f- gran sd (gry) filled Bur @ 12.75-12.95' (11.25-13.0')

CLAY: slty, grnsh gry, (1GLEY 10Y 5/1), w/ f sd Lam, f sd-filled Bur @ 13.35-13.4' (13.0-13.52')

SAND: m-f, c com, pale ye (5Y 7/4), w/ cly clasts relict Lam of abv cly dn to 14', pbl @ 14.1' & 14.9' (13.52 -14.5')

SAND: f-vf, slily mic, gry (5Y 6/1), w/ gry slty Bur @ 14.55, 14.6-14.7', horiz abd hm @ 14.85-14.9' (14.5-15')

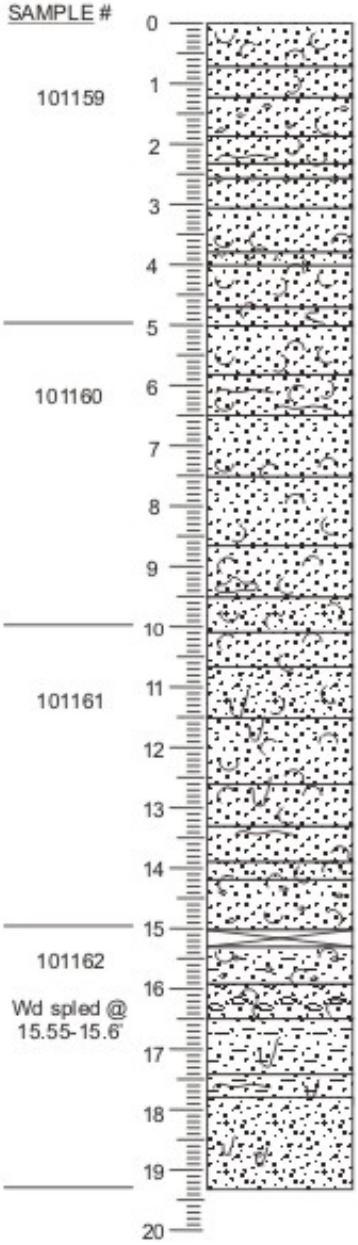
SAND: m-crs pale yel (5Y 8/2), hm @ 15.6, 15.7', pbl Lam @15.75' (15-16.35')

GRAVEL: sml pbl, abd hvy min, gry (5Y 5/1), some qtz pbl stn rd (16.35-16.75')

SAND: f, pale yel (5Y 8/2), hvy min com-abd, hvy min com @17.3-17.5' (16.75-17.6')

DGSID **Qk53-03** DATE DESCR. **8/16/05** WATER DEPTH (FT) **47.2**$_{MLLW}$

LOCAL ID. **DGS04-12** DESCR. BY **KWR**



LITHOLOGIC DESCRIPTION

SAND: m-f, grad down to crs-v crs, lse lt gry (2.5Y 7/2 to pale yel 2.5Y 7/3), com Shl frag & whole Shl *Spisula*, *Crepidula*, com gran (0-0.7')

SAND: as ab, fining up, 1 lge *Spisula* valve (0.7-1.2')

SAND: as ab, fining up, crs @ base v crs-gran, few pbl, lge shl frag @ base (1.2-1.85')

SAND: m-f, grad down to crs-v crs, lse, lt gry (2.5Y 7/2), few shl frag, com-abd hvy min, gry cly Lam @ 2.3' (1.85-2.3')

SAND: as ab, v sml pbl @ base (2.3-2.55')

SAND: as ab, no pbl (2.55-3.05')

SAND: as ab, gran size shl frag only in crs- v crs below 3.5' (3.05-3.8')

SAND: crs-f, lt gry (2.5Y 7/2), abd hvy min, few shl frag, sharp col Ctc (sat Btm of core?) @ 4.0' (3.8-4.0')

SAND: m-crs, dk gry (5Y 4/1), shl hash @ 4.0-4.1', *Anomia*, *Spisula* shl still shiny, abd hvy min, few-com shl, *Crepidula* @ 4.1' (4.0-4.7')

SAND: as ab, lge cly slt-lined Bur, hor @ 4.7-4.8', r shl frag (4.7-5.0')

SAND: m-crs, lt gry (2.5Y 7/2), lse, com shl *Spisula* -whole valves, abd hvy min (5.0-5.8')

SAND: m-f, lt gry (2.5Y 7/2), crs Lam @ 6.1', m-crs @ 6.5', lse, few gran-size shl frag & sml whole Shl (5.8-6.5')

SAND: m-f, grad to crs-v crs & gran @ 7.2', lt gry (2.5Y 7/2), few-com Shl @ 7.4' (6.5-7.5')

SAND: m-crs, abd f, lt gry (2.5Y 7/2), lse, com gran, few-com shl frag *Spisula* (7.5-8.7')

SAND: f-m, lt olv gry (5Y 6/2), mod wl srted, few shl frag, 1 gran-size piece of org (wood?) @ 9.43', abd hvy min (8.7-9.5')

SAND: f-crs, com gran, lt olv gry (5Y 6/2), com shl frag, *Ensis* (1) abd hvy min (9.5-10.1')

SAND: f, some m, lt yel brn (2.5Y 6/3), mod wl srted, abd hvy min, few sml shl (*Spisula?)* (10.1-10.7')

SAND: f-crs, lt yel brn (2.5Y 6/3), few v crs-gran abd hvy min gry cly-slt Bur w/shl infill @ 11.1' & 11.2', few-com shl frag, Bioturb Zn-mix dk olv gry (5Y 3/2), cly slt & f-crs sd & shl *Crepidula* @ 11.3-11.5' (10.7-11.5')

SAND: f-m, lt yel brn (2.5Y 6/3), few-scat-com shl frag, whole *Crepidula, Anomia, Spisula*, cly-slt lined Bur @ 12.15-12.2', col grad to olv gry (5Y 5/2) @ 12.5', com-abd hvy min (11.5-12.6')

SAND: m-crs, olv gry (5Y 5/2), abd shl frag, few whole shl @ 12.6-12.85'; SAND, f-vf, slty, slily cly, dk gry (5Y 4/1), few shl frag, prob Bur from abv @ 12.85-13'; SAND, crs-v crs, olv gry (5Y 5/2), few-com shl, *Crepidula*, sml ribbed Bivalve @ 13-13.15'; Bioturb Zn, patchy, f sd & gry slty sd, few shl frag @ 13.15-13.3' (12.6-13.3')

SAND: f, olv gry (5Y 5/2), crs & shl frag Lam @ 13.45-13.5', otherwise r shl frag (13.3-13.9')

SAND: f-crs, slily slty, olv gry (5Y 5/2), abd shl frag (13.9-14.2')

SAND: f-m, slily slty, olv gry (5Y 5/2), com-abd shl frag, com sml pbl (14.2-15.0')

SAND: f, slty, slily cly, dk gry (5Y 4/1), scat-com gran & v sml pbl, abd-com shl, *Anomia, Spisula, Busycon*, abd gran & v sml pbl, *Spisula*, @ 15.5-15.9, Wd spled @ 15.55-15.6', VOID @ 15-15.35', assume cpction(15-15.9')

GRAVEL: sdy, f-crs, dk gry (5Y 4/1), pbl up to .05', abd shl, few sml pieces Wd, slily cly, sharp Ctc @ 16.5' (15.9-16.5')

SAND: vf, slty, gry (5Y 6/1), dk gry slty cly-lined Bur, f-m sd filled @ 17-17.4' (16.5-17.4')

SAND: vf, v slty, gry (5Y 6/1), abd v thin hvy min Lam, gry cly-filled Bur @ 17.6-17.7', (17.4-17.8')

SAND: crs- v crs, com gran, lt gry (5Y 7/1) to pl yel (5Y 8/2), sd-filled slty cly-lined Bur @ 18.55-18.6', crs sd & pbl in Bur, m-f @ 18.7-18.9', (17.8-19.3')

NOTE: lots of opaque heavy minerals, more than in other cores

Appendix B

Offshore Cores – Texture Data

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
61405-1	Oj35-01	0	1	0.0	0.0	99.6	0.4	1.50	m sand	s	
61405-2	Oj35-01	2	3	0.0	0.0	100.0	0.0	2.26	f sand	l	
61405-3	Oj35-01	4	5	0.0	0.0	100.0	0.0	2.08	f sand	l	
61406-1	Oj35-01	6	7	0.1	0.0	99.9	0.0	2.29	f sand	l	
61406-2	Oj35-01	8	9	0.4	0.0	99.6	0.0	2.47	f sand	l	
61406-3	Oj35-01	10	10.4	7.7	1.0	91.3	0.0	2.21	f sand	l	
61407-1	Oj35-01	12	13	0.7	0.1	99.2	0.0	2.33	f sand	l	
61407-2	Oj35-01	14	14.65	0.6	0.2	99.1	0.0	2.33	f sand	l	
61408-1	Oj35-02	13	14	1.0	0.4	98.6	0.0	2.45	f sand	l	
61408-2	Oj35-02	16	17	0.6	0.2	99.1	0.0	2.34	f sand	l	
61408-3	Oj35-02	18	19	0.9	0.5	98.7	0.0	2.54	f sand	l	
61409-1	Oj35-02	20	21	1.1	0.5	98.4	0.0	2.51	f sand	l	
61409-2	Oj35-02	22	23	1.8	0.5	97.7	0.0	2.49	f sand	l	
61409-3	Oj35-02	24	24.4	0.9	0.5	98.6	0.0	2.65	f sand	l	
61410-1	Oj35-03	0	1	0.4	0.4	99.2	0.0	2.29	f sand	l	
61410-2	Oj35-03	2	3	0.8	0.2	99.1	0.0	2.18	f sand	l	
61410-3	Oj35-03	4	5	0.0	0.9	99.0	0.0	2.52	f sand	l	
61411-1	Oj35-03	6	7	1.0	0.2	98.3	0.6	2.41	f sand	l	
61411-2	Oj35-03	8	9	0.6	0.2	99.2	0.0	2.54	f sand	l	
61412-1	Oj35-03	10	11	0.4	0.4	99.2	0.0	2.43	f sand	l	
61412-2	Oj35-03	12	13	0.8	0.3	98.9	0.0	2.58	f sand	l	
61412-3	Oj35-03	14	15	1.0	0.4	98.6	0.0	2.62	f sand	l	
61413-1	Oj35-03	16	17	1.2	0.2	98.6	0.0	2.65	f sand	l	
61413-2	Oj35-03	18	19	0.5	0.4	99.1	0.0	2.59	f sand	l	
61414-1	Ok41-01	0.8	1.2	0.8	0.5	98.6	0.1	2.73	f sand	l	
61414-2	Ok41-01	2	3	1.3	0.4	98.3	0.0	2.67	f sand	l	
61414-3	Ok41-01	4	5	1.5	0.6	97.9	0.0	2.77	f sand	l	
61415-1	Ok41-01	6	7	1.8	1.0	97.2	0.0	2.65	f sand	l	
61415-2	Ok41-01	8	9	2.4	2.2	95.4	0.0	2.81	f sand	l	
61416-1	Ok41-01	10	11	1.3	1.3	97.3	0.2	2.73	f sand	l	
61416-2	Ok41-01	12	13	1.5	1.2	96.3	1.1	2.80	f sand	l	
61416-3	Ok41-01	14	15	2.8	1.8	95.3	0.0	2.86	f sand	l	
61417-1	Ok41-01	16	17	2.4	1.5	96.1	0.0	2.92	f sand	l	
61418-1	Ok41-02	0	1	2.0	2.6	50.5	44.9	1.44	m sand	gs	
61418-2	Ok41-02	2	3	5.5	3.9	83.7	6.8	1.54	m sand	s	
61418-3	Ok41-02	4	5	1.2	1.3	35.4	62.1	0.49	c sand	gs	
61426-1	Pk11-02	0	1	1.6	1.5	93.6	3.3	1.35	m sand	s	
61426-2	Pk11-02	2	3	0.7	0.6	36.0	62.7	1.45	m sand	gs	
61426-3	Pk11-02	4	5	1.4	0.8	87.0	10.8	0.82	c sand	gs	
61427-1	Pk11-02	6	7	0.6	0.5	88.1	10.7	0.62	c sand	gs	
61427-2	Pk11-02	8	9	0.7	0.5	88.2	10.6	0.79	c sand	gs	
61428-1	Pk11-02	10.3	11	0.4	0.5	79.4	19.7	0.29	c sand	gs	
61428-2	Pk11-02	12	13	0.3	0.5	77.2	22.0	0.14	c sand	gs	
61429-1	Pk11-02	16	17	0.2	0.5	97.7	1.6	0.46	c sand	s	
61429-2	Pk11-02	18	19	0.3	0.4	90.9	8.3	0.44	c sand	s	
61430-1	Pk21-01	0	1	1.5	0.2	92.8	5.4	0.75	c sand	s	
61430-2	Pk21-01	2	3	1.4	0.5	87.4	10.6	0.53	c sand	gs	
61430-3	Pk21-01	4	5	1.2	0.8	87.9	10.1	0.77	c sand	s	
61431-1	Pk21-01	6	7	1.7	0.7	89.8	7.8	0.77	c sand	s	
61431-2	Pk21-01	8	9	1.9	1.0	69.6	27.6	0.80	c sand	gs	
61432-1	Pk21-01	10.4	11	1.6	1.2	90.4	6.8	0.58	c sand	s	
61432-2	Pk21-01	12	13	1.2	0.7	36.7	61.5	0.35	c sand	gs	
61432-3	Pk21-01	14	15	1.9	1.2	72.5	24.4	0.64	c sand	gs	
61433-1	Pk21-01	16	17	1.2	1.0	74.8	23.1	0.63	c sand	gs	
61433-2	Pk21-01	18	18.9	1.1	0.9	59.5	38.5	0.81	c sand	gs	
61434-1	Pk22-02	0	1	2.2	0.5	95.6	1.7	1.52	m sand	s	
61434-2	Pk22-02	2	3	2.0	7.2	80.2	10.6	1.16	m sand	gs	
61434-3	Pk22-02	4	5	0.7	0.7	86.5	12.1	1.43	m sand	gs	
61435-1	Pk22-02	6	7	2.3	1.0	95.9	0.8	2.07	f sand	l	
61435-2	Pk22-02	8	9	1.0	0.3	98.7	0.1	1.69	m sand	s	
61436-1	Pk22-02	11	12	1.9	1.2	94.3	2.6	1.53	m sand	s	
61438-1	Pk23-01	6	7	2.7	1.5	16.1	79.7	1.11	m sand	g	
61438-2	Pk23-01	8	9	1.3	0.9	20.4	77.4	0.83	c sand	gs	
61438-3	Pk23-01	10	10.8	1.6	0.8	95.8	1.8	0.46	c sand	s	

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
61439-1	Pk23-01	12	13	1.6	0.7	97.6	0.1	1.26	m sand	s	
61439-2	Pk23-01	14	15	1.9	0.7	93.7	3.7	1.38	m sand	s	
61440-1	Pk23-01	16	17	2.0	1.3	95.4	1.3	1.34	m sand	s	
61440-2	Pk23-01	18	19	1.9	0.9	92.1	5.0	0.75	c sand	s	
61441-1	Pk22-03	0	1	1.7	1.4	76.2	20.7	1.11	m sand	gs	
61441-2	Pk22-03	2	3	3.4	1.5	74.1	20.9	0.59	c sand	gs	
61441-3	Pk22-03	4	5	3.7	1.7	77.1	17.6	1.27	m sand	gs	
61442-1	Pk22-03	6	7	2.4	0.9	91.1	5.6	1.33	m sand	s	
61442-2	Pk22-03	8	9	2.1	0.8	94.8	2.3	0.92	c sand	s	
61443-1	Pk22-03	12	13	0.9	1.0	93.8	4.3	1.20	m sand	s	
61443-2	Pk22-03	14	15	0.5	0.5	53.5	45.5	1.09	m sand	gs	
61444-1	Pk21-02	0	1	1.0	0.9	96.1	2.0	1.09	m sand	s	
61444-2	Pk21-02	2	3	0.5	0.3	76.1	23.0	0.17	c sand	gs	
61444-3	Pk21-02	4	5	0.6	0.3	38.9	60.2	0.44	c sand	gs	
61445-1	Pk21-02	6	7	2.0	2.5	95.4	0.1	2.02	f sand	l	
61445-2	Pk21-02	8	9	1.5	2.9	95.6	0.0	1.90	m sand	s	
61446-1	Pk21-02	10	11	0.6	1.1	43.6	54.7	1.47	m sand	gs	
61447-1	Pk21-03	11	12	0.8	1.5	64.3	33.4	0.93	c sand	gs	
61447-2	Pk21-03	13	14	0.9	1.0	87.1	11.0	0.83	c sand	gs	
61447-3	Pk21-03	15	16	0.7	0.5	57.8	41.0	0.92	c sand	gs	
61448-1	Pk21-03	17	18	0.3	0.4	22.8	76.5	0.32	c sand	gs	
61448-2	Pk21-03	19	20	0.5	1.0	72.4	26.0	0.59	c sand	gs	
61449-1	Pk21-03	21	22	0.9	0.7	46.9	51.5	0.48	c sand	gs	
61458-1	Pk32-03	0	1	1.5	1.2	83.9	13.4	1.31	m sand	gs	
61458-2	Pk32-03	2	3	1.3	0.7	87.1	10.8	0.98	c sand	gs	
61458-3	Pk32-03	4	4.75	0.9	0.5	78.5	20.1	0.12	c sand	gs	
61459-1	Pk32-03	6	7	1.2	0.5	88.3	9.9	0.82	c sand	gs	
61459-2	Pk32-03	8	9	1.2	0.4	75.7	22.7	0.35	c sand	gs	
61460-1	Pk32-03	10	11	2.1	1.1	89.8	6.9	1.23	m sand	s	
61460-2	Pk32-03	12	12.9	3.8	3.2	93.0	0.0	2.08	f sand	l	
61461-1	Pk32-04	11	12	1.0	1.1	79.9	18.0	0.60	c sand	gs	
61461-2	Pk32-04	13	14	0.7	0.6	77.4	21.4	0.48	c sand	gs	
61461-3	Pk32-04	15	16	0.7	0.5	69.7	29.1	0.66	c sand	gs	
61462-1	Pk32-04	17	18	0.7	0.5	84.4	14.4	0.30	c sand	gs	
61462-2	Pk32-04	19	20	0.3	0.3	82.0	17.4	-0.15	vc sand	gs	
61463-1	Pk41-01	0	1	0.8	0.6	82.2	16.5	1.20	m sand	gs	
61463-2	Pk41-01	2	3	1.2	0.8	34.8	63.2	0.04	c sand	gs	
61463-3	Pk41-01	4	4.85	2.2	2.1	79.5	16.2	0.41	c sand	gs	
61464-1	Pk41-01	6	7	1.5	1.3	93.7	3.5	0.69	c sand	s	
61464-2	Pk41-01	8	9	1.7	2.1	95.4	0.8	1.74	m sand	s	
61465-1	Pk41-01	10	11	1.1	1.3	93.1	4.5	1.49	m sand	s	
61465-2	Pk41-01	12	13	0.1	0.5	41.5	57.9	0.43	c sand	gs	
61465-3	Pk41-01	14	14.8	1.0	0.9	50.0	48.1	0.68	c sand	gs	
61466-1	Pk41-01	16	17	0.4	0.4	36.6	62.6	0.23	c sand	gs	
61467-1	Pk42-03	0	1	0.9	1.4	46.1	51.5	0.93	c sand	gs	
61467-2	Pk42-03	2	3	1.1	0.6	19.9	78.4	0.94	c sand	gs	
61467-3	Pk42-03	4	4.7	1.7	0.9	77.7	19.7	0.82	c sand	gs	
61468-1	Pk42-03	6	7	1.2	0.6	77.7	20.5	0.79	c sand	gs	
61468-2	Pk42-03	8	9	2.4	1.4	71.1	25.2	0.50	c sand	gs	
61469-1	Pk42-03	10	11	1.3	1.2	80.5	17.0	1.01	m sand	gs	
61469-2	Pk42-03	12	13	1.6	1.6	89.9	6.8	0.81	c sand	s	
61469-3	Pk42-03	14	14.4	3.6	2.1	89.9	4.3	1.26	m sand	s	
61470-1	Pk52-03	0	1	0.4	0.1	35.2	64.4	1.17	m sand	gs	
61470-2	Pk52-03	2	3	0.8	0.1	81.8	17.3	1.56	m sand	gs	
61470-3	Pk52-03	4	5	0.3	-0.1	76.8	23.0	0.33	c sand	gs	
61471-1	Pk52-03	6	7	1.6	1.5	91.0	5.9	1.15	m sand	s	
61471-2	Pk52-03	8	9	3.4	3.0	91.9	1.7	2.76	f sand	l	
61472-1	Pk52-03	11	11.5	2.1	2.0	66.3	29.6	0.49	c sand	gs	
61472-2	Pk52-03	12	13	2.0	0.9	84.4	12.7	0.55	c sand	gs	
61472-3	Pk52-03	14	15	2.0	1.4	85.8	10.8	0.97	c sand	gs	
61473-1	Pk52-03	16	17	0.9	0.6	93.8	4.8	0.35	c sand	s	
61473-2	Pk52-03	18	18.8	9.5	3.8	35.7	50.9	0.82	c sand	gs	
61474-1	Pk41-02	0	1	1.3	0.7	81.4	16.6	1.19	m sand	gs	
61474-2	Pk41-02	2	3	1.2	0.6	69.5	28.7	-0.31	vc sand	gs	

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
61474-3	Pk41-02	4	5	1.1	1.0	85.7	12.2	1.32	m sand	gs	
61475-1	Pk41-02	6	7	1.4	0.6	87.3	10.7	0.33	c sand	gs	
61475-2	Pk41-02	8	9	0.5	0.3	16.8	82.3	0.46	c sand	g	
61476-1	Pk41-02	10.3	11	1.1	0.9	76.4	21.7	0.50	c sand	gs	
61476-2	Pk41-02	12	13	1.7	1.9	93.4	3.1	1.18	m sand	s	
61476-3	Pk41-02	14	15	1.3	1.0	79.9	17.9	0.66	c sand	gs	
61477-1	Pk41-02	16	17	0.8	1.0	83.1	15.1	0.82	c sand	gs	
61477-2	Pk41-02	18	19	5.3	12.7	18.0	64.0	0.85	c sand	gs	
61478-1	Pk51-02	2	3	0.1	0.0	72.3	27.5	0.36	c sand	gs	
61478-2	Pk51-02	4	5	30.0	26.8	23.8	19.4	1.32	m sand	gs	
61479-1	Pk51-02	6	7	19.5	15.5	26.8	38.2	0.92	c sand	gs	
61479-2	Pk51-02	8	9	3.4	2.1	89.8	4.7	1.36	m sand	s	
61480-1	Pk51-02	10	11	2.0	2.1	50.9	45.0	0.85	c sand	gs	
61480-2	Pk51-02	12	13	3.6	3.6	91.4	1.5	2.25	f sand	l	
61480-3	Pk51-02	14	15	4.7	1.8	93.3	0.2	2.28	f sand	l	
61481-1	Pk51-02	16	17	3.1	2.1	94.8	0.0	2.24	f sand	l	
61481-2	Pk51-02	18	19	3.2	2.7	94.1	0.0	2.21	f sand	l	
61482-1	Pk52-04	1.6	2.1	2.9	1.9	72.0	23.3	0.80	c sand	gs	
61482-2	Pk52-04	4	5	3.0	4.0	77.3	15.7	1.59	m sand	gs	
61483-1	Pk52-04	6	7	4.5	5.4	82.8	7.4	2.33	f sand	l	
61483-2	Pk52-04	8	9	3.8	4.6	83.8	7.8	1.72	m sand	s	
61484-1	Pk52-04	10.5	11.2	1.5	0.2	88.5	9.8	0.41	c sand	gs	
61484-2	Pk52-04	12	13	2.1	0.3	94.8	2.8	0.91	c sand	s	
61484-3	Pk52-04	14	15	1.3	0.6	37.5	60.6	1.19	m sand	gs	
61485-1	Pk52-04	15.5	16	2.8	1.4	95.8	0.0	1.72	m sand	s	
61485-2	Pk52-04	17	18	2.2	1.1	92.1	4.7	1.30	m sand	s	
101119-1	Qk22-01	0.5	1	2.41	1.65	74.93	21.00	0.98	m sand	gs	
101119-2	Qk22-01	1	2	3.19	2.75	72.78	21.29	0.38	c sand	gs	
101119-3	Qk22-01	2	3	4.39	3.83	84.49	7.29	0.63	c sand	s	
101119-4	Qk22-01	3	4	1.88	1.42	82.92	13.78	0.91	c sand	gs	
101119-5	Qk22-01	4	5	2.43	0.82	89.05	7.70	1.13	m sand	s	
101120-1	Qk22-01	5	6	1.08	0.61	90.63	7.68	0.86	c sand	s	
101120-2	Qk22-01	6	7	3.88	1.95	71.32	22.85	1.06	m sand	gs	
101120-3	Qk22-01	7	8	5.01	2.63	81.71	10.65	0.91	c sand	gs	
101120-4	Qk22-01	8	9	2.87	4.39	91.17	1.56	2.06	f sand	s	
101120-5	Qk22-01	9	10	2.59	4.86	89.09	3.45	2.08	f sand	s	
101121-1	Qk22-01	10	11	1.31	0.55	72.67	25.47	0.27	c sand	gs	
101121-2	Qk22-01	11	12	1.56	0.79	89.18	8.47	0.63	c sand	s	
101121-3	Qk22-01	12	13	1.21	0.19	82.85	15.75	0.07	c sand	gs	
101121-4	Qk22-01	13	14	0.80	0.42	90.27	8.51	0.50	c sand	s	
101121-5	Qk22-01	14	15	1.73	0.67	91.36	6.24	0.49	c sand	s	
101122-1	Qk22-01	15..5	16	0.78	0.89	97.34	0.99	0.74	c sand	s	
101122-2	Qk22-01	16	17	0.55	1.09	71.91	26.45	0.63	c sand	gs	
101122-3	Qk22-01	17	18	0.67	0.98	96.73	1.62	0.64	c sand	s	
101122-4	Qk22-01	18	19	0.42	0.73	82.37	16.48	0.37	c sand	gs	
101122-5	Qk22-01	19	20	1.61	3.86	77.92	16.62	2.04	f sand	gs	
101123-1	Qk23-01	0	1	0.82	0.15	89.76	9.28	1.28	m sand	s	
101124-4	Qk23-01	13	14	2.06	4.51	93.40	0.03	2.57	f sand	l	
101125-1	Qk23-01	10	11	0.85	1.06	96.53	1.56	1.20	m sand	s	
101125-2	Qk23-01	11	12	1.08	1.02	97.40	0.50	1.65	m sand	s	
101125-3	Qk23-01	12	13	1.55	2.64	95.07	0.73	2.42	f sand	l	
101126-1	Qk23-01	15	16	1.75	2.42	91.10	4.72	1.48	m sand	s	
101127-1	Qk32-02	0	0.5	0.57	0.66	83.81	14.96	0.71	c sand	gs	
101127-2	Qk32-02	2	3	0.18	0.00	93.99	5.83	0.96	c sand	s	
101127-3	Qk32-02	3	4	0.29	0.17	99.06	0.49	1.42	m sand	s	
101127-4	Qk32-02	4	5	0.59	0.46	97.45	1.51	0.95	c sand	s	
101128-1	Qk32-02	5	6	0.48	0.55	86.15	12.83	0.96	c sand	gs	
101128-2	Qk32-02	6	7	0.60	1.01	88.65	9.74	1.03	m sand	s	
101128-3	Qk32-02	7	8	0.29	0.02	94.92	4.77	0.28	c sand	s	
101128-4	Qk32-02	8	9	0.30	0.00	93.16	6.54	0.85	c sand	s	
101128-5	Qk32-02	9	10	0.28	0.17	83.23	16.32	1.25	m sand	gs	
101129-1	Qk32-02	10	11	0.23	0.06	89.73	9.97	0.84	c sand	s	
101129-2	Qk32-02	11	11.5	0.52	0.19	96.69	2.60	0.64	c sand	s	
101133-1	Qk31-01	10.5	11	0.53	0.25	95.20	4.02	1.60	m sand	s	

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
101133-2	Qk31-01	12.5	13	0.94	2.18	95.52	1.36	1.76	m sand	s	
101133-3	Qk31-01	13	14	0.39	0.26	89.20	10.15	0.85	c sand	gs	
101133-4	Qk31-01	14	15	0.47	0.00	88.68	10.86	0.26	c sand	gs	
101134-1	Qk31-01	15	16	0.21	0.03	89.81	9.96	0.64	c sand	s	
101134-2	Qk31-01	16	17	0.18	0.12	83.50	16.20	0.52	c sand	gs	
101134-3	Qk31-01	17	18	0.16	0.23	39.05	60.56	0.33	c sand	sG	
101134-4	Qk31-01	18	19	0.18	0.25	63.41	36.16	0.05	c sand	sG	
101134-5	Qk31-01	19	20	0.45	1.60	77.14	20.81	0.38	c sand	gs	
101135-1	Qk41-01	1	2	2.62	4.05	90.29	3.03	1.40	m sand	s	
101135-2	Qk41-01	2	3	2.96	4.17	92.15	0.71	1.56	m sand	s	
101135-3	Qk41-01	3	4	2.02	4.71	90.46	2.82	1.00	m sand	s	
101135-4	Qk41-01	4	5	2.21	2.21	90.23	5.35	0.65	c sand	s	
101136-1	Qk41-01	6	7	3.43	4.97	85.28	6.31	1.32	m sand	s	
101136-2	Qk41-01	7	8	2.30	4.85	79.77	13.08	0.24	c sand	gs	
101136-3	Qk41-01	8	9	2.48	3.57	86.72	7.23	0.63	c sand	s	
101136-4	Qk41-01	9	10	2.69	3.17	92.36	1.77	1.04	m sand	s	
101137-1	Qk41-01	10	11	2.19	2.54	93.23	2.04	1.23	m sand	s	
101137-2	Qk41-01	11	12	2.18	2.01	94.98	0.82	0.80	c sand	s	
101137-3	Qk41-01	12	13	2.20	2.92	89.41	5.47	0.74	c sand	s	
101137-4	Qk41-01	13	14	1.30	2.57	92.07	4.05	0.87	c sand	s	
101137-5	Qk41-01	14	15	1.77	2.63	92.81	2.79	1.01	m sand	s	
101138-1	Qk41-01	16	16.7	1.39	1.96	85.76	10.89	0.93	c sand	gs	
101140-1	Qk42-01	6	7	1.18	7.09	90.38	1.35	1.44	m sand	s	
101140-2	Qk42-01	7	8	1.02	2.96	94.30	1.71	1.35	m sand	s	
101140-3	Qk42-01	8	9	0.29	0.29	88.00	11.42	0.52	c sand	gs	
101140-4	Qk42-01	9	10	0.47	0.31	85.89	13.33	0.75	c sand	gs	
101141-1	Qk42-01	10.5	11	1.14	4.58	86.96	7.32	1.93	m sand	s	
101141-2	Qk42-01	11	12	0.27	5.44	94.29	0.00	1.88	m sand	s	
101141-3	Qk42-01	12	13	2.10	3.61	94.30	0.00	1.76	m sand	s	
101141-4	Qk42-01	13	14	1.35	3.20	93.59	1.86	1.18	m sand	s	
101141-5	Qk42-01	14	15	2.05	8.70	89.12	0.13	2.33	f sand	l	
101142-1	Qk42-01	15	16	2.03	7.39	90.58	0.00	2.23	f sand	l	
101142-2	Qk42-01	16	17	1.56	5.05	90.18	3.20	1.60	m sand	s	
101142-3	Qk42-01	17	18	1.27	2.87	91.34	4.52	1.55	m sand	s	
101142-4	Qk42-01	18	19	2.80	1.66	94.35	1.19	1.65	m sand	s	
101143-1	Qk43-02	0	1	1.45	0.00	93.60	4.95	1.10	m sand	s	
101143-2	Qk43-02	1	2	0.95	0.00	96.04	3.01	1.20	m sand	s	
101143-3	Qk43-02	2	3	0.23	0.00	95.63	4.13	1.22	m sand	s	
101143-4	Qk43-02	4	5	2.19	0.17	97.40	0.24	1.76	m sand	s	
101144-1	Qk43-02	5	6	1.92	3.87	93.47	0.74	1.98	m sand	s	
101144-2	Qk43-02	6	7	1.96	1.76	95.82	0.46	2.23	f sand	l	
101144-3	Qk43-02	7.5	8	2.35	2.28	94.83	0.53	1.75	m sand	s	
101144-4	Qk43-02	8	9	2.90	3.89	92.18	1.03	2.00	f sand	l	
101144-5	Qk43-02	9	10	2.78	3.28	85.27	8.67	1.51	m sand	s	
101145-1	Qk43-02	10	11	1.40	6.68	89.58	2.33	1.52	m sand	s	
101145-2	Qk43-02	11	12	3.57	4.28	91.95	0.20	1.40	m sand	s	
101145-3	Qk43-02	12	13	2.09	2.09	95.61	0.22	0.71	c sand	s	
101145-4	Qk43-02	13	14	1.34	1.48	95.05	2.13	0.25	c sand	s	
101145-5	Qk43-02	14	15	1.76	1.70	92.37	4.17	0.15	c sand	s	
101146-1	Qk43-02	15	16	2.11	0.91	87.71	9.27	0.21	c sand	s	
101146-2	Qk43-02	16	17	1.88	1.44	83.26	13.42	0.11	c sand	gs	
101146-3	Qk43-02	17	17.8	2.10	0.77	91.77	5.37	0.33	c sand	s	
101147-1	Qk42-02	0	1	0.82	0.12	97.17	1.89	1.18	m sand	s	
101147-2	Qk42-02	1	2	0.76	0.10	98.54	0.59	1.26	m sand	s	
101147-3	Qk42-02	2	3	0.13	0.00	99.71	0.17	1.55	m sand	s	
101147-4	Qk42-02	3	4	2.62	0.72	95.10	1.56	1.79	m sand	s	
101147-5	Qk42-02	4	5	2.57	4.60	92.22	0.61	2.14	f sand	l	
101148-1	Qk42-02	5	6	2.25	4.53	91.09	2.13	1.61	m sand	s	
101148-2	Qk42-02	6	7	3.62	6.01	89.82	0.55	2.06	f sand	l	
101149-1	Qk42-02	12	13	1.00	1.96	92.64	4.41	0.71	c sand	s	
101149-2	Qk42-02	13	14	0.78	0.68	72.52	26.02	0.70	c sand	gs	
101149-3	Qk42-02	14	15	1.56	0.90	73.94	23.60	0.42	c sand	gs	
101150-1	Qk42-02	15	16	0.27	0.40	84.85	14.47	0.81	c sand	gs	
101150-2	Qk42-02	16	17	0.89	0.00	79.51	19.61	0.39	c sand	gs	

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
101150-3	Qk42-02	17	18	0.05	0.07	94.09	5.79	0.19	c sand	s	
101150-4	Qk42-02	18	19	0.49	0.24	81.73	17.53	0.50	c sand	gs	
101150-5	Qk42-02	19	20	1.00	0.00	88.59	10.41	0.58	c sand	gs	
101151-1	Qk41-02	0	1	1.31	0.00	96.36	2.32	1.24	m sand	s	
101151-2	Qk41-02	1	2	1.43	0.00	95.72	2.85	1.22	m sand	s	
101151-3	Qk41-02	2	3	1.55	0.00	95.85	2.60	1.12	m sand	s	
101151-4	Qk41-02	3	4	1.53	0.00	89.58	8.89	0.98	c sand	s	
101151-5	Qk41-02	4	5	2.32	0.79	96.14	0.75	2.02	f sand	l	
101152-1	Qk41-02	5	6	2.02	0.57	96.65	0.77	1.96	m sand	s	
101152-2	Qk41-02	6	7	2.68	0.00	93.96	3.36	1.78	m sand	s	
101152-3	Qk41-02	7	8	1.79	0.00	89.92	8.29	0.73	c sand	s	
101152-4	Qk41-02	8	9	1.24	0.00	96.78	1.98	1.22	m sand	s	
101152-5	Qk41-02	9	10	1.33	0.00	92.09	6.58	1.02	m sand	s	
101153-1	Qk41-02	10	11	2.30	1.14	92.95	3.61	1.64	m sand	s	
101153-2	Qk41-02	11	12	1.99	1.07	94.78	2.16	1.40	m sand	s	
101153-3	Qk41-02	12	13	1.34	0.54	72.65	25.47	0.48	c sand	gs	
101153-4	Qk41-02	13	14	0.72	0.48	77.68	21.11	0.12	c sand	gs	
101153-5	Qk41-02	14	15	1.40	1.90	78.30	18.40	0.48	c sand	gs	
101154-1	Qk41-02	15	16	1.76	2.08	83.98	12.18	0.77	c sand	gs	
101154-2	Qk41-02	16	17	1.18	1.08	68.88	28.86	0.24	c sand	gs	
101154-3	Qk41-02	17	18	1.53	1.60	95.80	1.07	0.99	c sand	s	
101154-4	Qk41-02	18	19	1.36	2.66	89.44	6.55	1.07	m sand	s	
101155-1	Qk52-01	0	1	0.13	0.33	64.02	35.53	0.82	c sand	sG	
101155-2	Qk52-01	1	2	0.52	0.25	87.05	12.18	0.16	c sand	gs	
101155-3	Qk52-01	2	3	1.35	0.87	83.46	14.32	1.38	m sand	gs	
101155-4	Qk52-01	3	4	2.13	2.12	94.92	0.83	1.80	m sand	s	
101155-5	Qk52-01	4	5	2.56	6.42	76.14	14.88	1.29	m sand	gs	
101156-1	Qk52-01	5	6	1.32	5.31	91.08	2.29	2.27	f sand	l	
101156-2	Qk52-01	7.3	8	3.49	4.49	91.84	0.18	2.32	f sand	l	
101157-1	Qk52-01	14	15	2.13	5.19	90.60	2.07	1.98	m sand	s	
101158-1	Qk52-01	15	16	2.06	2.56	92.43	2.94	0.89	c sand	s	
101158-2	Qk52-01	16	17	1.83	2.97	79.74	15.46	1.35	m sand	gs	
101158-3	Qk52-01	17	17.6	2.02	5.19	92.79	0.00	2.05	f sand	l	
101159-1	Qk53-03	0	1	0.20	0.61	97.90	1.30	0.93	c sand	s	
101159-2	Qk53-03	1	2	0.38	0.04	94.06	5.52	0.93	c sand	s	
101159-3	Qk53-03	2	3	0.70	0.00	98.61	0.69	1.41	m sand	s	
101159-4	Qk53-03	3	4	0.34	0.24	98.52	0.91	1.26	m sand	s	
101159-5	Qk53-03	4	5	0.88	0.17	98.05	0.91	1.47	m sand	s	
101160-1	Qk53-03	5	6	0.55	0.05	98.39	1.01	1.35	m sand	s	
101160-2	Qk53-03	6	7	0.74	0.10	98.36	0.80	1.63	m sand	s	
101160-3	Qk53-03	7	8	0.83	0.00	97.25	1.92	1.26	m sand	s	
101160-4	Qk53-03	8	9	0.94	0.17	97.30	1.59	1.45	m sand	s	
101160-5	Qk53-03	9	10	1.40	0.31	97.69	0.59	1.64	m sand	s	
101161-1	Qk53-03	10	11	0.95	0.59	98.01	0.45	1.56	m sand	s	
101161-2	Qk53-03	11	12	0.63	1.16	95.46	2.75	1.46	m sand	s	
101161-3	Qk53-03	12	13	1.46	1.79	95.95	0.80	1.69	m sand	s	
101161-4	Qk53-03	13	14	1.32	1.94	96.40	0.34	1.99	m sand	s	
101161-5	Qk53-03	14	15	1.50	4.55	85.97	7.99	1.91	m sand	s	
101162-1	Qk53-03	17	18	8.73	7.38	80.81	3.07	2.23	f sand	l	
101162-2	Qk52-02	18	19	3.06	3.43	90.13	3.38	1.42	m sand	s	
101214-1	Qk22-02	0	1	0.14	0.00	94.11	5.75	1.35	m sand	s	
101214-2	Qk22-02	1	2	0.07	0.17	98.22	1.54	1.61	m sand	s	
101214-3	Qk22-02	2	3	0.19	0.24	84.61	14.96	1.20	m sand	gs	
101214-4	Qk22-02	3	4	0.30	0.00	77.64	22.06	0.68	c sand	gs	
101214-5	Qk22-02	4	5	0.36	0.01	41.43	58.20	0.66	c sand	sG	
101215-1	Qk22-02	5	6	2.10	0.57	97.33	0.00	2.46	f sand	l	
101215-2	Qk22-02	6	7	6.79	4.97	88.24	0.00	2.82	f sand	l	
101215-3	Qk22-02	7	8	8.44	19.71	71.85	0.00	3.05	vf sand	l	
101215-4	Qk22-02	8	9	7.51	11.58	80.90	0.00	2.91	f sand	l	
101215-5	Qk22-02	9	10	4.16	9.31	86.54	0.00	2.79	f sand	l	
101216-1	Qk22-02	10	11	9.12	15.76	75.12	0.00	2.95	f sand	l	
101216-2	Qk22-02	11	12	4.79	18.53	76.68	0.00	2.98	f sand	l	
101216-3	Qk22-02	12	13	4.28	10.45	83.67	1.59	2.88	f sand	l	
101216-4	Qk22-02	13	14	4.60	1.76	93.65	0.00	2.51	f sand	l	

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
101216-5	Qk22-02	14	15	2.56	6.40	68.33	22.71	2.58	f sand	l	
104455-1	Oj33-04	0.5	0.7	8.85	6.10	84.91	0.14	2.20	f sd	L	
104455-2	Oj33-04	1.7	1.9	4.95	6.14	88.91	0.00	1.96	m sd	S	
104455-3	Oj33-04	2.7	2.9	1.85	2.37	95.32	0.47	1.93	m sd	S	
104455-4	Oj33-04	3.7	3.9	3.49	1.45	95.07	0.00	1.92	m sd	S	
104456-1	Oj33-04	5.7	5.91	1.14	0.27	98.59	0.00	2.06	f sd	L	
104456-2	Oj33-04	6.7	6.9	1.15	0.25	98.61	0.00	1.88	m sd	S	
104456-3	Oj33-04	8.7	8.9	12.04	9.42	78.54	0.00	2.11	f sd	L	
104456-4	Oj33-04	9.6	9.8	9.26	10.74	80.00	0.00	2.16	f sd	L	
104457-1	Oj33-04	10.5	10.7	2.18	4.61	93.21	0.00	2.39	f sd	L	
104457-2	Oj33-04	11.5	11.7	2.22	2.80	94.97	0.00	2.08	f sd	L	
104457-3	Oj33-04	12.5	12.7	1.49	2.16	96.36	0.00	1.64	m sd	S	
104457-4	Oj33-04	13.5	13.7	1.27	2.12	96.25	0.37	1.98	m sd	S	
104457-5	Oj33-04	14.5	14.7	1.60	1.43	96.88	0.09	1.09	m sd	S	
104458-1	Oj33-04	15.8	16	1.71	1.74	95.30	1.25	1.68	m sd	S	
104458-2	Oj33-04	16.8	17	1.10	2.71	96.19	0.00	2.27	f sd	L	
104458-3	Oj33-04	17.8	18	1.43	2.35	96.22	0.00	2.35	f sd	L	
104458-4	Oj33-04	18.8	19	1.47	1.04	96.15	1.34	1.56	m sd	S	
104459-1	Oj54-02	1.1	1.3	3.84	3.49	92.67	0.00	2.23	f sd	L	
104459-2	Oj54-02	2.1	2.3	2.43	2.02	95.54	0.00	2.16	f sd	L	
104459-3	Oj54-02	3.1	3.3	7.08	4.82	87.66	0.43	2.30	f sd	L	
104459-4	Oj54-02	4.1	4.3	8.75	21.13	70.12	0.00	2.72	f sd	L	
104460-1	Oj54-02	5.65	5.85	10.65	31.58	57.77	0.00	2.98	f sd	L	
104460-2	Oj54-02	6.95	7.15	3.32	6.67	89.17	0.84	1.88	m sd	S	
104460-3	Oj54-02	7.9	8.1	5.27	21.00	73.73	0.00	2.54	f sd	L	
104460-4	Oj54-02	8.9	9.1	3.14	4.38	91.47	1.00	1.20	m sd	S	
104461-1	Oj54-02	10.5	10.7	3.80	5.91	88.90	1.38	1.78	m sd	S	
104461-2	Oj54-02	11.5	11.7	2.26	0.74	94.35	2.65	1.89	m sd	S	
104461-3	Oj54-02	12.5	12.7	1.97	1.17	96.70	0.16	1.97	m sd	S	
104461-4	Oj54-02	13.5	13.7	1.99	2.71	95.21	0.09	1.76	m sd	S	
104462-1	Ok51-03	1.3	1.5	3.47	4.06	92.19	0.28	2.79	f sd	L	
104462-2	Ok51-03	2.7	2.9	3.90	2.80	93.09	0.21	2.79	f sd	L	
104462-3	Ok51-03	3.7	3.9	5.22	4.06	90.73	0.00	2.82	f sd	L	
104463-1	Ok51-03	5.7	5.9	2.76	6.59	88.49	2.16	2.56	f sd	L	
104463-2	Ok51-03	6.7	6.9	5.13	2.83	79.86	12.19	1.66	m sd	gS	
104463-3	Ok51-03	8.6	8.75	4.99	4.79	86.19	4.02	1.59	m sd	S	
104464-1	Ok51-03	10.7	10.9	2.28	1.45	75.12	21.16	0.68	c sd	gS	
104464-2	Ok51-03	12.1	12.3	4.12	0.46	91.71	3.72	1.21	m sd	S	
104464-3	Ok51-03	13.5	13.7	6.72	1.88	72.06	19.34	1.06	m sd	gS	
104465-1	Ok51-04	14.5	14.7	2.49	2.20	91.78	3.53	1.27	m sd	S	
104465-2	Ok51-04	15.95	16.1	2.33	3.56	90.21	3.91	1.08	m sd	S	
104467-1	Oj55-02	0.9	1.1	6.58	14.09	79.33	0.00	2.86	f sd	L	
104467-2	Oj55-02	3.2	3.4	6.96	11.74	81.30	0.00	2.94	f sd	L	
104471-1	Oj43-03	1	1.2	0.88	0.82	97.94	0.36	1.20	m sd	S	
104471-2	Oj43-03	2.1	2.3	1.01	0.22	98.76	0.00	1.67	m sd	S	
104471-3	Oj43-03	3.1	3.3	2.32	1.97	95.62	0.08	2.23	f sd	L	
104471-4	Oj43-03	4.6	4.8	4.24	4.32	90.46	0.98	2.30	f sd	L	
104472-1	Oj43-03	7.5	7.7	6.05	6.44	87.40	0.11	2.59	f sd	L	
104472-2	Oj43-03	9	9.2	8.73	12.28	78.99	0.00	2.67	f sd	L	
104473-1	Oj43-03	12.7	12.9	5.68	6.25	87.70	0.37	2.96	f sd	L	
104473-2	Oj43-03	13.1	13.3	6.80	15.43	77.77	0.00	2.95	f sd	L	
104474-1	Oj43-03	17.1	17.3	6.89	8.77	84.34	0.00	2.87	f sd	L	
104536-1	Oj35-04	1	1.2	1.10	0.97	97.93	0.00	1.83	m sd	S	
104536-2	Oj35-04	2	2.2	0.72	0.82	98.46	0.00	2.06	f sd	L	
104536-3	Oj35-04	3	3.2	0.95	0.68	98.23	0.14	2.04	f sd	L	
104536-4	Oj35-04	4	4.2	0.74	0.37	98.61	0.28	2.03	f sd	L	
104537-1	Oj35-04	6	6.25	0.82	0.62	98.55	0.00	1.98	m sd	S	
104537-2	Oj35-04	7	7.2	0.97	0.46	98.57	0.00	2.18	f sd	L	
104537-3	Oj35-04	8	8.2	0.52	0.40	99.08	0.00	2.05	f sd	L	
104537-4	Oj35-04	9	9.2	1.27	0.64	98.09	0.00	2.05	f sd	L	
104538-1	Oj35-04	10.3	10.5	1.12	0.42	98.46	0.00	2.05	f sd	L	
104538-2	Oj35-04	11.3	11.5	1.51	1.15	97.35	0.00	2.12	f sd	L	
104538-3	Oj35-04	12.3	12.5	1.07	0.89	98.04	0.00	2.01	f sd	L	
104538-4	Oj35-04	13.3	13.5	0.90	0.68	98.43	0.00	1.99	m sd	S	

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
104538-5	Oj35-04	14.3	14.5	0.96	0.18	98.86	0.00	2.13	f sd	L	
104539-1	Oj35-04	16.3	16.5	1.16	0.70	98.14	0.00	2.16	f sd	L	
104539-2	Oj35-04	17.3	17.5	1.75	0.72	97.53	0.00	2.25	f sd	L	
104539-3	Oj35-04	18.3	18.5	1.87	1.69	96.44	0.00	2.21	f sd	L	
104539-4	Oj35-04	19.3	19.5	1.78	1.15	96.88	0.19	2.19	f sd	L	
104540-1	Oj33-03	0.8	1.05	0.93	0.05	98.29	0.72	1.97	m sd	S	
104540-2	Oj33-03	3.35	3.55	2.41	2.41	95.17	0.00	1.30	m sd	S	
104540-3	Oj33-03	4.85	5.05	6.70	10.51	82.53	0.26	1.48	m sd	S	
104541-1	Oj33-03	6.05	6.25	3.26	3.42	91.71	1.62	1.13	m sd	S	
104541-2	Oj33-03	7.3	7.5	1.01	0.69	98.31	0.00	2.09	f sd	L	
104541-3	Oj33-03	8.3	8.5	1.13	0.38	98.49	0.00	2.20	f sd	L	
104541-4	Oj33-03	9.3	9.5	1.35	0.47	98.18	0.00	2.34	f sd	L	
104542-1	Oj33-03	10.8	11	0.98	0.76	98.25	0.00	2.40	f sd	L	
104542-2	Oj33-03	12	12.2	2.01	1.53	95.09	1.36	2.01	f sd	L	
104543-1	Oj33-03	18	18.2	1.47	1.85	96.53	0.15	1.80	m sd	S	
104544-1	Pj15-05	0.7	0.9	6.47	16.49	77.04	0.00	3.03	vf sd	L	
104544-2	Pj15-05	4.1	4.3	21.80	33.82	43.76	0.62	1.60	m sd	S	>10% silt
104545-1	Pj15-05	6.7	6.9	6.19	11.14	75.98	6.68	1.89	m sd	S	>10% silt
104545-2	Pj15-05	7.7	7.9	3.22	5.40	63.14	28.24	1.28	m sd	gS	
104545-3	Pj15-05	8.7	8.9	3.17	3.57	93.26	0.00	1.38	m sd	S	
104546-1	Pj15-05	10.7	10.9	2.99	3.20	80.48	13.33	1.73	m sd	gS	
104546-2	Pj15-05	11.7	11.9	1.60	1.37	93.82	3.22	1.20	m sd	S	
104546-3	Pj15-05	12.7	12.9	2.81	1.73	92.43	3.03	0.78	c sd	S	
104546-4	Pj15-05	13.7	13.9	1.54	0.85	74.16	23.45	0.76	c sd	gS	
104547-1	Pj15-05	15.7	15.9	1.84	1.38	88.53	8.25	1.31	m sd	gS	
104547-2	Pj15-05	16.7	16.9	3.11	1.86	95.03	0.00	1.30	m sd	S	
104547-3	Pj15-05	17.7	17.9	1.22	1.27	86.49	11.02	1.18	m sd	gS	
104548-1	Pk11-03	1.3	1.5	1.65	3.57	92.65	2.13	2.37	f sd	L	
104548-2	Pk11-03	2.3	2.5	1.78	2.46	94.30	1.46	1.65	m sd	S	
104548-3	Pk11-03	3.3	3.5	1.22	1.65	64.97	32.17	0.67	c sd	gS	
104548-4	Pk11-03	4.3	4.5	3.41	4.93	72.99	18.66	2.23	f sd	L	
104549-1	Pk11-03	6.3	6.5	2.25	2.81	94.93	0.00	2.39	f sd	L	
104549-2	Pk11-03	7.3	7.5	3.96	4.09	91.95	0.00	2.62	f sd	L	
104549-3	Pk11-03	10.3	10.5	6.14	7.59	86.27	0.00	2.53	f sd	L	
104550-1	Pk11-03	11.3	11.5	3.58	6.22	90.21	0.00	2.63	f sd	L	
104550-2	Pk11-03	12.3	12.5	5.00	7.12	87.88	0.00	2.73	f sd	L	
104550-3	Pk11-03	13.3	13.5	3.91	5.51	90.58	0.00	2.51	f sd	L	
104550-4	Pk11-03	14.3	14.5	7.13	10.28	82.59	0.00	2.89	f sd	L	
104551-1	Pk11-03	17.1	17.3	2.25	3.16	84.81	9.79	0.82	c sd	gS	
104551-2	Pk11-03	18.1	18.3	3.53	4.59	86.94	4.94	2.11	f sd	L	
104551-3	Pk11-03	19.1	19.3	7.72	5.15	54.10	33.03	0.16	c sd	gS	
104552-1	Pk11-04	1	1.2	1.59	0.91	86.08	11.42	0.40	c sd	gS	
104552-2	Pk11-04	2	2.2	2.03	1.33	81.88	14.76	1.30	m sd	gS	
104552-3	Pk11-04	3	3.2	2.21	1.24	80.25	16.30	0.66	c sd	gS	
104552-4	Pk11-04	4	4.2	2.87	1.21	62.21	33.72	0.59	c sd	gS	
104553-1	Pk11-04	5.2	5.4	3.62	1.40	85.34	9.64	0.77	c sd	gS	
104553-2	Pk11-04	6.2	6.4	3.09	1.19	73.81	21.90	0.55	c sd	gS	
104553-3	Pk11-04	7.2	7.4	4.20	3.27	78.63	13.90	0.74	c sd	gS	
104553-4	Pk11-04	8.2	8.4	3.72	2.04	93.93	0.32	1.36	m sd	S	
104553-5	Pk11-04	9.2	9.4	3.74	1.89	81.52	12.84	1.57	m sd	gS	
104554-1	Pk11-04	14.2	14.4	2.94	1.98	91.06	4.02	0.79	c sd	S	
104554-2	Pk11-04	13.2	13.4	2.66	2.56	80.16	14.61	0.45	c sd	gS	
104554-3	Pk11-04	12.8	12.4	2.57	4.08	71.84	21.51	0.53	c sd	gS	
104554-4	Pk11-04	11.2	11.4	2.40	4.21	69.99	23.40	0.89	c sd	gS	
104554-5	Pk11-04	10.2	10.4	2.91	5.03	72.17	19.88	1.03	m sd	gS	
104555-1	Pk11-04	15.2	15.4	2.81	4.63	83.47	9.08	0.71	c sd	gS	
104555-2	Pk11-02	16.2	16.4	3.23	6.06	78.94	11.77	0.76	c sd	gS	
104555-3	Pk11-02	17.2	17.4	3.77	5.56	77.50	13.17	1.05	m sd	gS	
104852-01	Pk21-04	0.2	0.4	2.33	1.81	95.41	0.46	1.30	m sd	S	
104852-02	Pk21-04	1.2	1.4	1.79	2.24	94.58	1.39	1.49	m sd	S	
104852-03	Pk21-04	2.2	2.4	2.20	1.49	81.42	14.88	1.23	m sd	gS	
104852-04	Pk21-04	3.2	3.4	1.48	0.70	65.47	32.35	0.70	c sd	gS	
104852-05	Pk21-04	4.2	4.4	1.67	0.88	93.08	4.37	0.87	c sd	S	
104853-01	Pk21-04	5.2	5.4	2.98	2.06	90.85	4.10	1.27	m sd	S	

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
104853-02	Pk21-04	6.2	6.4	3.22	1.32	94.07	1.39	1.05	m sd	S	
104853-03	Pk21-04	7.2	7.4	1.29	0.99	94.08	3.64	0.54	c sd	S	
104853-04	Pk21-04	8.2	8.4	1.26	0.67	69.58	28.48	0.80	c sd	gS	
104853-05	Pk21-04	9.2	9.4	1.69	1.27	90.54	6.50	1.09	m sd	gS	
104854-01	Pk21-04	10.2	10.4	2.42	1.40	94.53	1.65	0.94	c sd	S	
104854-02	Pk21-04	11.2	11.4	1.51	1.57	82.16	14.76	0.68	c sd	gS	
104854-03	Pk21-04	12.2	12.4	2.25	1.71	95.57	0.47	0.92	c sd	S	
104854-04	Pk21-04	13.2	13.4	1.44	1.17	76.73	20.67	0.67	c sd	gS	
104854-05	Pk21-04	14.2	14.4	1.72	1.50	95.88	0.91	0.94	c sd	S	
104855-01	Pk21-04	15.2	15.4	1.21	1.29	84.72	12.78	0.97	c sd	gS	
104855-02	Pk21-04	16.2	16.4	1.63	1.72	83.91	12.74	1.08	m sd	gS	
104855-03	Pk21-04	17.2	17.4	1.69	1.71	91.27	5.33	0.98	c sd	gS	
104855-04	Pk21-04	18.2	18.4	1.33	0.98	77.04	20.65	0.93	c sd	gS	
104855-05	Pk21-04	19.1	19.3	2.92	1.82	93.20	2.06	1.74	m sd	S	
104856-01	Ok51-05	0.2	0.4	3.67	3.19	92.49	0.65	2.35	f sd	L	
104856-02	Ok51-05	1.2	1.4	1.43	1.43	96.81	0.34	2.50	f sd	L	
104856-03	Ok51-05	2.2	2.4	1.37	1.56	97.07	0.00	2.49	f sd	L	
104856-04	Ok51-05	3.2	3.4	1.27	1.27	97.24	0.21	2.50	f sd	L	
104856-05	Ok51-05	4.2	4.4	2.59	2.34	95.06	0.00	2.44	f sd	L	
104857-01	Ok51-05	5.2	5.4	2.59	1.43	95.98	0.00	2.49	f sd	L	
104857-02	Ok51-05	6.2	6.4	2.09	1.59	96.19	0.13	2.44	f sd	L	
104857-03	Ok51-05	7.2	7.4	2.59	2.19	95.06	0.16	2.59	f sd	L	
104857-04	Ok51-05	8.2	8.4	2.08	2.72	95.20	0.00	2.51	f sd	L	
104857-05	Ok51-05	9.2	9.4	2.68	2.84	94.20	0.29	2.59	f sd	L	
104858-01	Ok51-05	10.2	10.4	3.66	2.81	92.85	0.69	2.64	f sd	L	
104858-02	Ok51-05	11.2	11.4	3.43	2.73	93.84	0.00	2.64	f sd	L	
104858-03	Ok51-05	14.2	14.4	3.69	4.16	92.10	0.05	2.68	f sd	L	
104859-01	Ok51-05	16.4	16.6	3.92	3.72	92.36	0.00	2.73	f sd	L	
104859-02	Ok51-05	17.4	17.6	3.71	3.16	93.08	0.04	2.78	f sd	L	
104859-03	Ok51-05	18.1	18.3	5.83	5.25	88.93	0.00	2.75	f sd	L	
104860-01	Pj14-02	0.5	0.7	1.40	0.08	98.35	0.18	1.82	m sd	S	
104860-02	Pj14-02	1.5	1.7	1.95	1.71	96.34	0.00	2.29	f sd	L	
104860-03	Pj14-02	2.5	2.7	3.35	2.67	93.98	0.00	2.24	f sd	L	
104860-04	Pj14-02	3.7	3.9	3.30	3.76	92.95	0.00	2.30	f sd	L	
104860-05	Pj14-02	4.7	4.9	4.94	6.53	87.30	1.22	2.26	f sd	L	
104861-01	Pj14-02	5.4	5.6	4.66	5.40	85.12	4.83	1.91	m sd	S	
104861-02	Pj14-02	6.5	6.7	1.57	0.50	96.36	1.56	0.87	c sd	S	
104861-03	Pj14-02	7.6	7.8	0.81	0.28	98.75	0.16	1.82	m sd	S	
104861-04	Pj14-02	8.3	8.5	3.48	2.63	89.11	4.78	1.62	m sd	S	
104861-05	Pj14-02	9.2	9.4	1.23	0.39	98.38	0.00	2.17	f sd	L	
104862-01	Pj14-02	10.5	10.7	1.35	0.39	98.26	0.00	2.18	f sd	L	
104862-02	Pj14-02	11.6	11.8	1.58	0.59	94.74	3.09	1.06	m sd	S	
104862-03	Pj14-02	12.6	12.8	0.15	0.18	99.39	0.28	1.20	m sd	S	
104862-04	Pj14-02	13.6	13.8	0.49	0.19	99.22	0.11	1.61	m sd	S	
104862-05	Pj14-02	14.6	14.8	0.38	0.10	94.17	5.35	1.02	m sd	gS	
104863-01	Pj14-02	15.5	15.7	0.93	0.19	96.42	2.47	1.43	m sd	S	
104863-02	Pj14-02	16.6	16.8	0.86	0.54	86.05	12.55	1.30	m sd	gS	
104863-03	Pj14-02	17.6	17.8	0.57	0.32	94.91	4.19	1.30	m sd	S	
104863-04	Pj14-02	18.6	18.8	1.52	0.58	97.90	0.00	2.38	f sd	L	
104864-01	Oj44-03	1	1.2	3.53	2.27	94.20	0.00	2.03	f sd	L	
104864-02	Oj44-03	3	3.2	6.14	2.76	91.09	0.00	2.13	f sd	L	
104864-03	Oj44-03	4	4.2	2.12	0.33	97.55	0.00	2.36	f sd	L	
104865-01	Oj44-03	5.3	5.5	1.88	0.21	97.91	0.00	1.86	m sd	S	
104865-02	Oj44-03	6.6	6.8	1.50	0.33	98.16	0.00	1.85	m sd	S	
104865-03	Oj44-03	7.5	7.7	1.29	0.34	98.37	0.00	1.99	m sd	S	
104868-01	Oj55-03	0.5	0.7	3.14	7.17	89.70	0.00	2.91	f sd	L	
104877-01	Oj53-02	0.6	0.8	2.60	2.11	94.12	1.18	2.00	f sd	L	
104877-02	Oj53-02	0.8	1	2.54	2.67	67.31	27.48	1.34	m sd	gS	
104877-03	Oj53-02	3.2	3.4	0.84	0.18	98.98	0.00	2.03	f sd	L	
104878-01	Oj53-02	5.6	5.8	1.10	0.41	98.49	0.00	1.78	m sd	S	
104878-02	Oj53-02	7.6	7.8	0.87	0.12	99.01	0.00	1.23	m sd	S	
104878-03	Oj53-02	9.6	9.8	0.79	0.08	97.96	1.18	1.20	m sd	S	
104879-01	Oj53-02	11.6	11.8	0.62	0.00	99.22	0.16	0.41	c sd	S	
104879-02	Oj53-02	13.6	13.8	0.45	0.09	99.04	0.43	0.61	c sd	S	

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
104880-01	Oj53-02	15.7	15.9	0.96	0.43	95.97	2.65	1.20	m sd	S	
104881-01	Oj53-03	0.8	1	2.60	1.62	95.24	0.54	2.21	f sd	L	
104881-02	Oj53-03	2.8	3	3.09	1.24	94.53	1.14	2.05	f sd	L	
104881-03	Oj53-03	4.8	5	3.68	2.92	93.40	0.00	1.79	m sd	S	
104882-01	Oj53-03	5.8	6	2.22	1.28	96.50	0.00	1.58	m sd	S	
104882-02	Oj53-03	7.8	8	0.70	0.21	99.10	0.00	1.83	m sd	S	
104882-03	Oj53-03	9.8	10	0.64	0.17	99.18	0.00	1.48	m sd	S	
104883-01	Oj53-03	10.8	11	0.73	0.34	98.94	0.00	1.86	m sd	S	
104883-02	Oj53-03	13.4	13.6	2.84	2.72	94.44	0.00	1.75	m sd	S	
104883-03	Oj53-03	14.8	15	2.39	2.15	95.46	0.00	1.99	m sd	S	
104884-01	Oj53-03	15.8	16	5.28	7.61	87.11	0.00	2.47	f sd	L	
104885-01	Oj44-04	0.8	1	3.02	4.95	91.50	0.53	2.14	f sd	L	
104885-02	Oj44-04	2	3	1.83	1.64	96.53	0.00	2.07	f sd	L	
104885-03	Oj44-04	4.8	5	14.12	9.85	76.02	0.00	2.62	f sd	L	
104886-01	Oj44-04	6.8	7	12.62	9.26	78.12	0.00	2.50	f sd	L	
104886-02	Oj44-04	8.8	9	14.88	10.74	74.37	0.00	2.40	f sd	L	
104887-01	Oj44-04	10.8	11	12.71	7.42	79.87	0.00	2.34	f sd	L	
104887-02	Oj44-04	12.8	13	13.57	10.30	76.13	0.00	2.44	f sd	L	
104887-03	Oj44-04	14.8	15	14.86	13.33	71.71	0.09	2.09	f sd	L	
104888-01	Oj44-04	16.8	17	10.19	11.36	78.46	0.00	2.26	f sd	L	
104889-01	Ni35-15	0.3	0.5	0.65	1.00	98.35	0.00	1.82	m sd	S	
104889-02	Ni35-15	1.3	1.5	0.29	0.42	98.66	0.63	1.94	m sd	S	
104889-03	Ni35-15	2.3	2.5	0.47	0.29	98.21	1.03	2.14	f sd	L	
104889-04	Ni35-15	3.3	3.5	0.88	0.22	96.63	2.27	2.03	f sd	L	
104889-05	Ni35-15	4.3	4.5	0.54	0.19	98.08	1.19	1.81	m sd	S	
104890-01	Ni35-15	5.3	5.5	1.13	0.50	95.69	2.68	2.02	f sd	L	
104890-02	Ni35-15	6.3	6.5	0.07	0.19	98.28	1.45	1.73	m sd	S	
104890-03	Ni35-15	7.3	7.5	0.40	0.21	92.34	7.05	1.61	m sd	gS	
104890-04	Ni35-15	8.3	8.5	0.40	0.05	99.46	0.08	1.64	m sd	S	
104890-05	Ni35-15	9.3	9.5	1.50	0.60	97.55	0.34	1.70	m sd	S	
104891-01	Ni35-15	10.3	10.5	0.36	0.28	98.85	0.51	1.79	m sd	S	
104891-02	Ni35-15	11.3	11.5	0.39	0.28	99.33	0.00	1.78	m sd	S	
104891-03	Ni35-15	12.3	12.5	0.51	0.54	98.95	0.00	2.11	f sd	L	
104891-04	Ni35-15	13.3	13.5	0.39	0.30	99.00	0.32	1.69	m sd	S	
104891-05	Ni35-15	14.3	14.6	1.04	0.28	87.54	11.14	0.88	c sd	gS	
104892-01	Ni35-15	15.3	15.5	0.43	0.28	94.03	5.25	1.01	m sd	gS	
104892-02	Ni35-15	16.3	16.5	0.26	0.02	99.71	0.00	1.77	m sd	S	
104892-03	Ni35-15	17.3	17.5	1.27	0.08	98.54	0.10	1.72	m sd	S	
104893-01	Nj31-02	0.4	0.6	0.76	0.50	92.86	5.88	1.64	m sd	gS	
104893-02	Nj31-02	1.4	1.6	0.35	0.29	87.84	11.53	1.66	m sd	gS	
104893-03	Nj31-02	2.4	2.6	0.54	0.18	95.77	3.51	1.91	m sd	S	
104893-04	Nj31-02	3.4	3.6	0.53	0.23	97.06	2.17	1.34	m sd	S	
104893-05	Nj31-02	4.4	4.6	0.75	0.40	85.03	13.82	0.86	c sd	gS	
104894-01	Nj31-02	5.4	5.6	0.71	0.26	91.93	7.10	1.00	m sd	S	
104894-02	Nj31-02	6.4	6.6	0.31	0.24	84.18	15.28	1.27	m sd	gS	
104894-03	Nj31-02	7.4	7.6	0.49	0.17	65.09	34.24	0.84	c sd	gS	
104894-04	Nj31-02	8.4	8.6	1.03	0.32	88.99	9.67	0.85	c sd	gS	
104894-05	Nj31-02	9.4	9.6	0.41	0.22	82.48	16.89	0.99	c sd	gS	
104895-01	Nj31-02	10.4	10.6	2.16	2.45	89.17	6.22	1.19	m sd	gS	
104895-02	Nj31-02	12.4	12.6	0.75	0.79	86.10	12.36	0.91	c sd	gS	
104895-03	Nj31-02	13.4	13.6	0.75	0.21	94.52	4.52	0.97	c sd	S	
104895-04	Nj31-02	14.4	14.6	0.59	0.32	97.64	1.44	1.11	m sd	S	
104896-01	Nj31-02	15.4	15.6	0.48	0.44	89.64	9.44	0.94	c sd	gS	
104896-02	Nj31-02	16.4	16.6	0.91	0.47	91.62	7.00	1.21	m sd	gS	
104896-03	Nj31-02	17.4	17.6	0.82	0.69	97.48	1.01	1.43	m sd	S	
104897-01	Nj31-03	0.8	1	1.15	0.95	97.90	0.00	1.92	m sd	S	
104897-02	Nj31-03	1.8	2	0.65	0.15	99.00	0.20	1.83	m sd	S	
104897-03	Nj31-03	2.8	3	0.95	1.00	98.04	0.00	1.81	m sd	S	
104897-04	Nj31-03	3.9	4.1	1.31	1.04	97.64	0.00	2.31	f sd	L	
104897-05	Nj31-03	4.6	4.8	1.11	0.66	98.24	0.00	2.06	f sd	L	
104898-01	Nj31-03	5.8	6	0.88	0.85	98.27	0.00	2.27	f sd	L	
104898-02	Nj31-03	6.8	7	0.50	0.53	98.65	0.32	2.27	f sd	L	
104898-04	Nj31-03	8.6	8.8	0.76	0.21	99.03	0.00	2.20	f sd	L	
104898-05	Nj31-03	9.6	9.8	1.01	0.38	98.61	0.00	2.19	f sd	L	

Delaware Geological Survey Sediment Samples from 2001 to 2007 Offshore Cores											
Sample #	DGS ID	Start (ft)	Stop (ft)	Clay%	Silt%	Sand%	Gravel%	Mz Graphic Mean (phi)	Wentworth Size	Lithologic Category	Comments
104899-01	Nj31-03	10.4	10.6	1.99	0.00	98.01	0.00	2.19	f sd	L	
104899-02	Nj31-03	12	12.2	0.93	0.26	98.81	0.00	2.26	f sd	L	
104899-03	Nj31-03	12.9	13.1	0.58	0.32	99.10	0.00	2.29	f sd	L	
104899-04	Nj31-03	14.5	14.7	1.83	1.12	97.05	0.00	2.14	f sd	L	
104900-01	Nj31-03	15.4	15.6	0.61	0.26	99.14	0.00	2.15	f sd	L	
104901-01	Nj41-01	0.3	0.5	1.71	0.75	96.72	0.81	1.77	m sd	S	
104901-02	Nj41-01	1.4	1.6	0.33	0.65	80.60	18.42	2.13	f sd	L	
104901-03	Nj41-01	2.4	2.6	1.63	2.12	87.53	8.72	2.14	f sd	L	
104901-04	Nj41-01	3.4	3.6	0.65	0.31	98.26	0.78	2.03	f sd	L	
104901-05	Nj41-01	4.4	4.6	0.77	0.71	93.28	5.25	1.91	m sd	gS	
104902-01	Nj41-01	5.4	5.6	0.11	0.00	96.56	3.32	1.89	m sd	S	
104902-02	Nj41-01	6.4	6.6	2.71	0.00	96.16	1.13	1.94	m sd	S	
104902-03	Nj41-01	7.4	7.6	1.16	0.54	97.51	0.79	2.41	f sd	L	
104902-04	Nj41-01	8.4	8.6	0.61	0.43	98.34	0.62	2.01	f sd	L	
104902-05	Nj41-01	9.4	9.6	0.57	0.18	97.56	1.68	1.73	m sd	S	
104903-01	Nj41-01	10.4	10.6	0.37	0.10	98.35	1.18	1.79	m sd	S	
104903-02	Nj41-01	11.4	11.6	0.69	0.19	95.10	4.02	1.94	m sd	S	
104903-03	Nj41-01	12.4	12.6	0.75	0.33	95.53	3.40	1.88	m sd	S	
104903-04	Nj41-01	13.4	13.6	2.10	2.00	94.80	1.10	1.90	m sd	S	
104903-05	Nj41-01	14.4	14.6	0.87	0.73	95.67	2.73	1.79	m sd	S	
104904-01	Nj41-01	15.4	15.6	0.03	0.17	99.54	0.27	1.84	m sd	S	
104904-02	Nj41-01	16.4	16.6	0.72	0.50	98.46	0.32	1.83	m sd	S	
104904-03	Nj41-01	17.4	17.6	0.71	0.55	98.74	0.00	2.02	f sd	L	
104949-01	Nj41-02	0.4	0.6	1.85	3.08	87.90	7.16	1.85	m sd	gS	
104949-02	Nj41-02	1.6	1.8	1.44	1.10	95.35	2.10	2.14	f sd	L	
104949-03	Nj41-02	2.6	2.8	1.96	2.78	95.27	0.00	2.25	f sd	L	
104949-04	Nj41-02	3.6	3.8	3.73	3.04	92.53	0.70	2.04	f sd	L	
104949-05	Nj41-02	4.6	4.8	1.39	1.28	96.31	1.03	2.08	f sd	L	
104950-01	Nj41-02	5.6	5.8	1.04	0.26	98.36	0.34	1.97	m sd	S	
104950-02	Nj41-02	6.4	6.6	0.47	0.50	99.03	0.00	2.20	f sd	L	
104950-03	Nj41-02	7.2	7.4	1.78	0.96	95.50	1.76	2.01	f sd	L	
104950-04	Nj41-02	8.1	8.3	1.14	0.58	96.82	1.46	1.94	m sd	S	
104950-05	Nj41-02	9.3	9.5	2.31	1.32	96.00	0.37	2.00	f sd	L	
104951-01	Nj41-02	10.5	10.7	1.77	1.80	95.51	0.92	2.12	f sd	L	
104951-02	Nj41-02	13	13.2	0.55	0.91	98.17	0.37	2.06	f sd	L	
104951-03	Nj41-02	14	14.2	1.26	0.73	96.27	1.75	1.73	m sd	S	
104952-01	Nj41-02	15.5	15.7	1.85	2.14	95.25	0.75	2.31	f sd	L	
104952-02	Nj41-02	17.8	18	5.80	9.78	84.42	0.00	2.52	f sd	L	
104953-01	Ni25-04	0.5	0.7	0.90	0.27	98.69	0.13	2.23	f sd	L	
104953-02	Ni25-04	1.5	1.7	0.77	0.26	98.97	0.00	2.28	f sd	L	
104953-03	Ni25-04	2.5	2.7	0.83	0.27	98.90	0.00	2.13	f sd	L	
104953-04	Ni25-04	3.5	3.7	1.01	0.62	98.37	0.00	2.23	f sd	L	
104953-05	Ni25-04	4.3	4.5	0.83	0.34	98.76	0.07	2.15	f sd	L	
104954-01	Ni25-04	5.5	5.7	1.34	0.63	98.02	0.00	2.37	f sd	L	
104954-02	Ni25-04	6.5	6.7	0.75	0.47	98.56	0.23	2.50	f sd	L	
104954-03	Ni25-04	7.5	7.7	1.47	3.21	95.32	0.00	2.30	f sd	L	
104954-04	Ni25-04	8.5	8.7	1.63	2.97	95.31	0.08	2.22	f sd	L	
104954-05	Ni25-04	9.5	9.7	1.18	0.80	97.51	0.52	2.39	f sd	L	
104955-01	Ni25-04	10.5	10.7	0.63	0.31	98.19	0.86	2.42	f sd	L	
104955-02	Ni25-04	11.5	11.7	1.00	0.17	98.83	0.00	2.31	f sd	L	
104955-03	Ni25-04	13.5	13.7	1.23	0.70	98.07	0.00	2.29	f sd	L	
104955-04	Ni25-04	14.7	14.9	1.45	0.44	98.11	0.00	2.31	f sd	L	
104989-03	Nj31-03	7.6	7.8	0.53	0.71	98.76	0.00	2.15	f sd	L	

Appendix C

Identification, Location, Lithologic, and Resource Ratings for All Cores in the Delaware Offshore Geologic Inventory

Delaware Geological Survey Vibracore Locations, Lithologic, and Resource Ratings (pre-1992 to 2007)										
DGS ID	Local ID	LAT (Y)	LON (X)	Quad	Core Length (ft)	Altitude (ft)	Lithologic Rating	Resource Rating	Database	Photo(s)
Mj32-01	W3176	38.87178	-75.0613	CAH	5.9	-40	10L	F	pre-92	N
Mj41-01	W3070	38.85178	-75.078	CAH	11.5	-140	15S	E	pre-92	N
Mj41-02	70100	38.85011	-75.0763	CAH	0.5	-140	1s	P	pre-92	N
Mj41-03	70047	38.85234	-75.0813	CAH	0.75	-140	1l	P	pre-92	N
Mj41-04	70046	38.85234	-75.081	CAH	0.6	-142	1s	P	pre-92	N
Mj45-01	70051 70052 STA 17	38.85011	-75.0046	CAH	0.5	-30	1m	P	pre-92	N
Mj51-01	W1776	38.83345	-75.078	CAH	15.75	-90	20S	E	pre-92	N
Mk22-01	70055	38.90012	-74.9671	CAM	1.5	-28	2m	P	pre-92	N
Mk31-01	70053	38.88178	-74.9913	CAM	0.25	-32	1m	P	pre-92	N
Ni25-04	DGS07-25	38.80308	-75.0889	CAH	19.49	-19.9	15L	F	2007	Y
Ni35-12	JCK A1 81	38.78345	-75.0852	CAH	14.1	-17	15S	E	pre-92	N
Ni35-13	JCK A2 81	38.78345	-75.083	CAH	20.3	-21	3s/10M 10S	F	pre-92	N
Ni35-15	DGS07-20	38.79842	-75.085	CAH	18.1	-20.3	18S	E	2007	Y
Nj23-01	70049 STA 16	38.81012	-75.0493	CAH	0.5	-101	1s	P	pre-92	N
Nj23-02	70050	38.81012	-75.0493	CAH	0.8	-101	1s	P	pre-92	N
Nj23-03	70117	38.81012	-75.0474	CAH	3.5	-98	4s	F	pre-92	N
Nj31-01	JCK A3 81	38.78345	-75.078	CAH	29.5	-32	5S 15L 10M	G	pre-92	N
Nj31-02	DGS07-21	38.79055	-75.0828	CAH	18.65	-23.9	18gS	E	2007	Y
Nj31-03	DGS07-22	38.78867	-75.0734	CAH	17.61	-42.1	3s 13L	F	2007	Y
Nj33-01	70059	38.79345	-75.0363	CAH	0.5	-87	1s	P	pre-92	N
Nj33-03	70129	38.79345	-75.0363	CAH	0.33	-97	1s	P	pre-92	N
Nj41-01	DGS07-23	38.77798	-75.0777	CAH	16.22	-29.4	4l 14S	G	2007	Y
Nj41-02	DGS07-24	38.76973	-75.0732	CAH	15.71	-33.8	1s 18L	F	2007	Y
Nj51-03	JCK B1 81	38.76012	-75.0796	CAH	32.8	-10	5S 30M 2s	G	pre-92	N
Nj51-04	JCK B2 81	38.76012	-75.0746	CAH	26.2	-19	3l/20M 10L	P	pre-92	N
Nj51-05	JCK B3 81	38.76012	-75.0663	CAH	27.6	-30	1.5s/15M 5L 15S	P	pre-92	N
Nj52-01	KHV 11	38.75317	-75.0557	CAH	16	-16	15L 4s	F	USACE	N
Nj52-02	JCK HCS 1	38.76178	-75.0593	CAH	5.9	-12	10L	F	pre-92	N
Nj52-03	JCK HCS 2	38.76262	-75.0613	CAH	14.1	-13	3s	F	pre-92	N
Nj54-01	SDK 11	38.7515	-75.0205	CAH	28.7	-76	5L 15M 10L	P	pre-92	N
Nk32-01	70132	38.78678	-74.973	OFS	1.1	-113	1l	P	pre-92	N
Nk32-02	70061	38.78678	-74.973	OFS	1.25	-110	1m	P	pre-92	N
Nk33-01	SDK 4	38.78345	-74.9635	OFS	29	-110	25M 4s	P	pre-92	N
Nk41-01	70063	38.77012	-74.993	OFS	0.3	-74	1m	P	pre-92	N
Nk41-02	SDK 12	38.76956	-74.9955	OFS	27.5	-73	30L	F	pre-92	N
Nk42-01	SDK 5	38.77512	-74.9732	OFS	29.5	-50	30L	F	pre-92	N
Oj12-01	KHV-81	38.73984	-75.0535	REB	15.2	-27.6	15L 1g	F	USACE	N
Oj12-02	KHV-137	38.74202	-75.05	REB	15.5	-26.6	15L	F	USACE/07	N
Oj12-03	KHV-137r2	38.74209	-75.0502	REB	19	-26.6	15L	F	USACE/07	N
Oj13-01	KHV 10	38.73623	-75.0452	REB	20	-27	20L	F	USACE	N
Oj13-02	KHV-35	38.73817	-75.0468	REB	20	-24.3	20L	F	USACE	N
Oj13-03	KHV-82R1	38.74067	-75.0466	REB	4.6	-29	5l	F	USACE	N
Oj13-04	KHV-82R2	38.74067	-75.0468	REB	16.5	-26.2	20L	F	USACE	N
Oj13-05	KHV-83	38.73373	-75.0482	REB	15.8	-30.3	20L	F	USACE	N
Oj13-06	KHV-84	38.73678	-75.0421	REB	17	-32.6	20L	F	USACE	N
Oj21-09	JCK C1 81	38.71678	-75.0746	REB	32.8	-18	1s/35M	P	pre-92	N
Oj21-10	JCK C2 81	38.7165	-75.0663	REB	30	-29	30M	P	pre-92	N
Oj22-01	SDK 6	38.71817	-75.0552	REB	13.6	-38	1.5l/10M 5L	P	pre-92	N
Oj22-02	JCK C3 81	38.71678	-75.0596	REB	26.2	-36	30L	F	pre-92	N
Oj23-01	KHV 9	38.729	-75.0468	REB	16	-27	20L	F	USACE	N
Oj23-02	DGS921	38.71762	-75.033	REB	16	-33.5	1s/15L	F	1992	Y
Oj23-03	KHV-58	38.73317	-75.0582	REB	20	-39.7	5S 3l 15S	G	USACE	N
Oj23-04	KHV-85	38.73123	-75.0402	REB	20	-32.2	20L	F	USACE	N
Oj23-05	KHV-86	38.72734	-75.0435	REB	17.8	-33.4	20L	F	USACE	N

DGS ID	Local ID	LAT (Y)	LON (X)	Quad	Core Length (ft)	Altitude (ft)	Lithologic Rating	Resource Rating	Database	Photo(s)
Oj23-06	KHV-88	38.72206	-75.0396	REB	19.5	-38	20L	F	USACE	N
Oj23-07	KHV-89R1	38.71873	-75.0338	REB	11.1	-33.6	15L	F	USACE	N
Oj23-08	KHV-89R2	38.71873	-75.0341	REB	14.3	-33.5	15L 2s	F	USACE	N
Oj23-09	KHV-134	38.72395	-75.0383	REB	17.3	-31	15L	F	USACE/07	N
Oj23-10	KHV-135	38.72863	-75.0373	REB	13.5	-31.7	15L	F	USACE/07	N
Oj23-11	KHV-136	38.7328	-75.0441	REB	15.65	-30.7	15L	F	USACE/07	N
Oj23-12	DGS07-01	38.71806	-75.0484	REB	18.2	-39.3	7L 2gs 2l 6S	F	2007	Y
Oj24-01	KHV-40	38.72706	-75.0296	REB	19.7	-30.5	20L	F	USACE	N
Oj24-02	KHV-41	38.72262	-75.0207	REB	19.9	-29.9	20S 4l	E	USACE	N
Oj24-03	KHV-87	38.72678	-75.0324	REB	19.4	-37.8	20L	F	USACE	N
Oj24-04	KHV-90	38.72095	-75.028	REB	15.3	-26.5	3s/15L	F	USACE	N
Oj24-05	KHV-133	38.7219	-75.0324	REB	15.6	-30.7	15L	F	USACE/07	N
Oj32-01	KHV-32	38.71262	-75.0593	REB	8	-35.8	5L 2s	F	USACE	N
Oj33-01	KHV-37	38.71428	-75.0368	REB	18	-42.2	20S	E	USACE	N
Oj33-02	KHV-131	38.70667	-75.039	REB	20.1	-44.6	4l 3gS 8L 5M	F	USACE/07	N
Oj33-03	DGS07-03	38.70523	-75.0486	REB	18	-36.1	6S 7L 3m 3s	G	2007	Y
Oj33-04	DGS07-05	38.7006	-75.0334	REB	19.85	-42.8	7S 5L 4s 2l 2s	G	2007	Y
Oj34-01	KHV-91	38.71373	-75.0324	REB	16.2	-47.5	15L 4s	F	USACE	N
Oj34-02	KHV-92R1	38.71512	-75.0227	REB	11.6	-33	15L	F	USACE	N
Oj34-03	KHV-92R2	38.71512	-75.023	REB	11	-33	15L	F	USACE	N
Oj34-04	KHV-132r1	38.71583	-75.0281	REB	14.1	-41.2	12L 7S	F	USACE/07	N
Oj34-05	KHV-132r2	38.71583	-75.0281	REB	19.2	-41.2	12L 7S	F	USACE/07	N
Oj34-06	KHV-138	38.70397	-75.0265	REB	18.9	-49.1	5L 10S 4l	F	USACE/07	N
Oj35-01	DGS01-01	38.70778	-75.0085	REB	12.51	-29.8	15L	F	2001	Y
Oj35-02	DGS01-01R2	38.7077	-75.0084	REB	19.9	-29.9	20L	F	2001	Y
Oj35-03	DGS01-02	38.70113	-74.9996	REB	16.02	-34.5	20L	F	2001	Y
Oj35-04	DGS07-02	38.70628	-75.0124	REB	19.6	-27.9	20L	F	2007	Y
Oj41-36	JCK D1 81	38.69178	-75.0696	REB	34.8	-10	10L 5S 25M	F	pre-92	N
Oj42-01	JCK D2 81	38.69178	-75.063	REB	37.2	-20	3s/35M	F	pre-92	N
Oj42-02	JCK D3 81	38.69178	-75.0563	REB	38	-30	35M 4l	P	pre-92	N
Oj43-01	KHV-34	38.68595	-75.0424	REB	20	-41.7	2.5m/2s 20M	P	USACE	N
Oj43-02	KHV-139	38.69351	-75.0346	REB	20	-44.8	15L 5M	F	USACE/07	N
Oj43-03	DGS07-04	38.69458	-75.0419	REB	18.1	-40.5	3s 15L	F	2007	Y
Oj44-01	KHV-140	38.68933	-75.0191	REB	3.6	-49.5	14L 5M	F	USACE/07	N
Oj44-02	KHV-140r2	38.68939	-75.0194	REB	19	-49.5	14L 5M	F	USACE/07	N
Oj44-03	DGS07-15	38.69633	-75.0194	REB	20	-46.2	5L 4s 10M	F	2007	Y
Oj44-04	DGS07-19	38.6898	-75.0303	REB	19	-46.2	17L 3m	F	2007	Y
Oj52-01	KHV-31	38.67484	-75.0577	REB	20	-27.4	20L	F	USACE	N
Oj53-01	KHV-141	38.67538	-75.0338	REB	20.1	-43.2	4l 15M	P	USACE/07	N
Oj53-02	DGS07-17	38.67071	-75.0382	REB	16.5	-39.9	16S	E	2007	Y
Oj53-03	DGS07-18	38.6831	-75.0405	REB	19.73	-41.4	4l 11S 5M	G	2007	Y
Oj54-01	KHV-39	38.67845	-75.0177	REB	17.7	-49.7	10L 2m 10S	F	USACE	N
Oj54-02	DGS07-06	38.683	-75.02	REB	20	-48.5	8L 8S	F	2007	Y
Oj55-01	KHV-142	38.66693	-75.0137	REB	18	-54.1	6L 12M	F	USACE/07	N
Oj55-02	DGS07-08	38.67063	-75.0006	REB	19.82	-55.3	6L 12M	F	2007	Y
Oj55-03	DGS07-16	38.67448	-75.0105	REB	19.82	-51.2	2l 17M	P	2007	Y
Ok41-01	DGS01-03	38.68789	-74.9852	OCL	20.01	-42.1	20L	F	2001	Y
Ok41-02	DGS01-04	38.68816	-74.9994	OCL	20.02	-56.1	5gs 10M	G	2001	Y
Ok42-01	DGS97-28	38.69706	-74.9746	OCL	5.46	-20	10L	F	1997	N
Ok42-03	DGS97-54	38.69984	-74.9749	OCL	4.2	-43.61	4l	F	1997	Y
Ok51-01	DGS01-05	38.66979	-74.9839	OCL	16.75	-61.5	10L 10M	F	2001	Y
Ok51-02	KHV-143	38.67776	-74.9934	OCL	16.3	-61.8	9L 5M	F	USACE/07	N
Ok51-03	DGS07-07r2	38.6831	-74.9916	OCL	19.8	-53.1	6L 8gS	F	2007	Y
Ok51-04	DGS07-07r3	38.6831	-74.9916	OCL	20	-52.6	6L 10S 3m	F	2007	Y
Ok51-05	DGS07-14	38.68325	-74.9851	OCL	19.82	-38.5	20L	F	2007	Y

DGS ID	Local ID	LAT (Y)	LON (X)	Quad	Core Length (ft)	Altitude (ft)	Lithologic Rating	Resource Rating	Database	Photo(s)
Ok52-01	DGS97-26	38.67095	-74.9718	OCL	12.17	-51.5	15L	F	1997	N
Ok52-02	DGS97-27	38.68262	-74.9721	OCL	10.3	-48	10L 4m	F	1997	N
Ok52-03	DGS97-60.1	38.68262	-74.9721	OCL	7.7	-41.02	10M 1l	P	1997	N
Ok52-04	DGS97-60.2	38.68262	-74.9721	OCL	5	-40.6	5L	F	1997	N
Pj12-02	JCK E1 81	38.66262	-75.0646	REB	29	-10	30M	P	pre-92	N
Pj12-03	JCK E2 81	38.66262	-75.058	REB	22	-23	25L	F	pre-92	N
Pj12-04	JCK E3 81	38.66262	-75.0496	REB	20.9	-30	10S 15L	G	pre-92	N
Pj13-01	KHV-1	38.66262	-75.0443	REB	11	-29	10S 4m	G	USACE	N
Pj13-02	KHV-2	38.65678	-75.0441	REB	16	-27	10L 10M	F	USACE	N
Pj13-03	KHV-3	38.65512	-75.0455	REB	20	-31	10M 15L	P	USACE	N
Pj13-04	SDK 7	38.664	-75.0374	REB	8.9	-35	10L	F	pre-92	N
Pj14-01	KHV-95	38.65276	-75.0181	REB	14.4	-49.6	3s/10M 3s	F	USACE	N
Pj14-02	DGS07-12	38.66414	-75.0228	REB	19.27	-41.5	5l 4s 2l 8S	F	2007	Y
Pj14-02	KHV-33	38.65012	-75.033	REB	18.6	-31.6	20S	E	USACE	N
Pj15-01	KHV-38	38.65539	-75.0132	REB	17.4	-48.6	10L 10S	F	USACE	N
Pj15-02	KHV-93	38.6583	-75.0112	REB	19.7	-53.9	3l/20M	P	USACE	N
Pj15-03	KHV-94 R1	38.65547	-75.0041	REB	10.0	-57.1	5S 2l 3s	G	USACE	N
Pj15-04	KHV-94 R2	38.65559	-75.0041	REB	16.6	-58.3	5S 2l 10S	G	USACE	N
Pj15-05	DGS07-09	38.663	-74.9998	OCL	18.75	-59	7L 12gS	F	2007	Y
Pj22-03	JCK F1 81	38.64595	-75.063	REB	15.1	-15	10S 1m	G	pre-92	N
Pj22-04	JCK F2 81	38.64595	-75.058	REB	23	-22	5S 15L 4s	G	pre-92	N
Pj22-05	JCK F3 81	38.64595	-75.0496	REB	18.6	-30	10S 10M 4	G	pre-92	N
Pj23-01	KHV-4	38.64095	-75.0438	REB	16.2	-27	10S 5M 4s	G	USACE	N
Pj24-01	SDK 9	38.64873	-75.0207	REB	22.3	-43	4s/20M	F	pre-92	N
Pj24-02	KHV-36	38.639	-75.0302	REB	14	-40.4	2s/2l 10M	F	USACE	N
Pj24-03	KHV-97	38.64472	-75.0182	REB	18.2	-45.9	2s/3l 3gS 15S	F	USACE	N
Pj24-04	KHV-144	38.63377	-75.0251	REB	20.1	-45.7	20S	E	USACE/07	N
Pj25-01	SDK 8	38.64456	-75.008	REB	5.9	-46	10S	G	pre-92	N
Pj25-02	KHV-42	38.64039	-75.0041	REB	17.4	-42.8	20S	E	USACE	N
Pj25-03	KHV-96	38.64998	-75.0077	REB	17.5	-51.8	15S 10gS	E	USACE	N
Pj25-04	KHV-98 R1	38.64467	-75.0041	REB	11.0	-49.5	10S 5gS	E	USACE	N
Pj25-05	KHV-98 R2	38.64464	-75.0041	REB	17.6	-49.3	10S 10gS 5S	E	USACE	N
Pj25-06	KHV-99 R1	38.64194	-75.0112	REB	12.8	-45.6	15gS	E	USACE	N
Pj25-07	KHV-99 R2	38.64195	-75.0111	REB	18.7	-45.2	20gS	E	USACE	N
Pj25-08	KHV-100	38.63644	-75.0076	REB	19.4	-45	5gS 10S 4gS	E	USACE	N
Pj25-09	KHV-101	38.63358	-75.0042	REB	19.3	-44.4	5gS 5S 10gS	E	USACE	N
Pj33-01	KHV-56	38.63289	-75.0496	REB	19.8	-30.9	1.5m/10S 10L	F	USACE	N
Pj34-01	KHV-59	38.61706	-75.0199	BEB	20.2	-46.2	5S 15M	G	USACE	N
Pj34-02	KHV-145	38.62396	-75.0303	BEB	19.52	-38.2	20M	P	USACE/07	Y
Pj35-01	KHV-57	38.62539	-75.0152	REB	19.7	-39.9	20L	F	USACE	N
Pj35-02	KHV-102	38.63083	-75.0146	REB	19.3	-41.7	10S 10gS	E	USACE	N
Pj42-12	JCKIRI381	38.61262	-75.0507	BEB	16.4	-20	10S 10M	G	pre-92	N
Pj42-13	JCKIRI481	38.60651	-75.0546	BEB	10	-9	10S	G	pre-92	N
Pj42-14	KHV-17	38.61206	-75.0507	BEB	20	-20.4	15L 10M	F	USACE	N
Pj42-15	KHV-18	38.60428	-75.0516	BEB	20	-14.5	20L 3m	F	USACE	N
Pj42-16	KHV-19	38.61234	-75.0563	BEB	20	-23	20M	P	USACE	N
Pj42-17	KHV-20	38.60678	-75.0566	BEB	9.8	-16.6	10L	F	USACE	N
Pj42-18	KHV-22	38.60845	-75.0613	BEB	20	-48.2	20M	P	USACE	N
Pj42-19	KHV-23	38.60928	-75.0613	BEB	20	-48.8	20M	P	USACE	N
Pj42-26	B8	38.60901	-75.0635	BEB	100	-21	20L 35M 30L	F	pre-92	N
Pj42-27	B9	38.60901	-75.063	BEB	120.5	-20	20S 45M 40L	E	pre-92	N
Pj42-28	B6	38.60817	-75.063	BEB	110.3	-35.5	50M 4l 25S	P	pre-92	N
Pj42-29	B7	38.60789	-75.0618	BEB	112	-33.5	55M 10L 20S	P	pre-92	N
Pj43-01	JCKIRI281	38.60484	-75.0482	BEB	7.4	-13	10S	G	pre-92	N
Pj43-02	JCKIRI181	38.60956	-75.0482	BEB	19.7	-30	20L 2m	F	pre-92	N

DGS ID	Local ID	LAT (Y)	LON (X)	Quad	Core Length (ft)	Altitude (ft)	Lithologic Rating	Resource Rating	Database	Photo(s)
Pj43-03	KHV-46	38.61238	-75.0378	BEB	18.6	-40.7	3l/10S 10M 4l	F	USACE	N
Pj43-04	KHV-103 R1	38.6115	-75.0495	BEB	8.8	-21.2	10S	G	USACE	N
Pj43-05	KHV-103 R2	38.61151	-75.0495	BEB	13.6	-21.3	10S 10L	G	USACE	N
Pj43-06	KHV-103 R3	38.61151	-75.0495	BEB	15.8	-21.3	10S 10L	G	USACE	N
Pj43-07	KHV-104 R1	38.60625	-75.0442	BEB	14.8	-26.9	5S 10L	G	USACE	N
Pj43-08	KHV-104 R2	38.6063	-75.0442	BEB	19.1	-26.2	5S 15L	G	USACE	N
Pj43-09	KHV-105 R1	38.60901	-75.0471	BEB	7.4	-28.1	10L	F	USACE	N
Pj43-10	KHV-105 R2	38.609	-75.0471	BEB	18.8	-28.3	15L 4m	F	USACE	N
Pj44-01	KHV-107	38.60619	-75.0183	BEB	18.4	-41.7	15S 10L	E	USACE	N
Pj45-01	DGS92 2	38.60651	-75.008	BEB	18	-41.1	3s/5gS 10S 2l	E	1992	Y
Pj45-02	KHV-60	38.61289	-75.0024	BEB	18.3	-46.2	20S	E	USACE	N
Pj45-03	KHV-106	38.61434	-75.0113	BEB	19.0	-42.3	2gS/20S	E	USACE	N
Pj45-04	KHV-108	38.60614	-75.0007	BEB	16.6	-41.6	5S 5gS 10S	E	USACE	N
Pj45-05	KHV-109	38.60339	-75.0078	BEB	16.4	-44.6	2gS/3s 5gS 10S	E	USACE	N
Pj45-06	KHV-129	38.60081	-75.0045	BEB	18.3	-44.5	5S 5L 8S	G	USACE/07	N
Pj45-07	KHV-130	38.60853	-75.0092	BEB	15.7	-45.1	2s 3l 6S 3gS	G	USACE/07	N
Pj52-04	JCK G1 81	38.59178	-75.0574	BEB	21.6	-14	5S 2l 15S	G	pre-92	N
Pj52-05	JCK G2 81	38.59178	-75.0496	BEB	28.4	-25	10L 20S	F	pre-92	N
Pj53-01	JCK G3 81	38.59178	-75.0413	BEB	26.2	-32	3s/25M	F	pre-92	N
Pj54-01	KHV-113	38.58962	-75.0183	BEB	20.0	-48.1	20S	E	USACE	N
Pj55-01	KHV-52	38.59984	-75.0082	REB	20.5	-39	20S	E	USACE	N
Pj55-02	KHV-110	38.59788	-75.0148	BEB	16.8	-43	10S 10M	G	USACE	N
Pj55-03	KHV-111	38.59799	-75.0008	BEB	19.3	-45	15S 4l	E	USACE	N
Pj55-04	KHV-112	38.59243	-75.0079	BEB	19.1	-45.5	10gS 10M 4s	G	USACE	N
Pj55-05	KHV-114	38.58689	-75.0009	BEB	19.8	-43	5L 5gS 5S 5L	F	USACE	N
Pj55-06	KHV-127r2	38.58502	-75.0141	BEB	17.35	-41.7	5gS 12S	E	USACE/07	N
Pj55-07	KHV-128	38.59471	-75.0103	BEB	17.3	-39.5	3gS 4s 5l	G	USACE/07	N
Pk11-01	SDK 10	38.66178	-74.988	OCL	10	-62	3l/10S 1g	F	pre-92	N
Pk11-02	DGS01-06	38.65268	-74.9833	OCL	16.53	-63.7	15gS 5S	E	2001	Y
Pk11-03	DGS07-10	38.6537	-74.9987	OCL	20	-56.7	4l 2m 6L 4	F	2007	Y
Pk11-04	DGS07-11	38.65597	-74.9882	OCL	19.26	-62.1	18gS	E	2007	Y
Pk12-01	DGS92 8	38.65762	-74.9704	OCL	18	-60.1	15L 4s	F	1992	Y
Pk21-01	DGS01-07	38.64814	-74.9907	OCL	16.31	-59.8	5S 10gS	E	2001	Y
Pk21-02	DGS01-11	38.63748	-74.9902	OCL	13.19	-53.8	5gS 5S 2gS	E	2001	Y
Pk21-03	DGS01-11R2	38.63754	-74.9902	OCL	19.06	-54.2	5gS 5S 10gS	E	2001	Y
Pk21-04	DGS07-13	38.64992	-74.9855	OCL	17.9	-59.2	2gS 4s 11	E	2007	Y
Pk22-01	DGS97-59	38.63817	-74.9704	OCL	18.5	-55.1	3.5s/5G 10S	F	1997	Y
Pk22-02	DGS01-08	38.64414	-74.9772	OCL	16.54	-63.3	5gS 10S	E	2001	Y
Pk22-03	DGS01-10	38.6351	-74.9768	OCL	16.68	-57.3	5gs 10S	E	2001	Y
Pk23-01	DGS01-09	38.64674	-74.9567	OCL	16.48	-61	5M 3gS 10S	P	2001	Y
Pk31-01	KHV-53	38.62178	-74.998	FHN	20	-42.66	20L	F	USACE	N
Pk31-03	DGS01-12R2	38.62007	-74.9901	FHN	14.18	-51	15M	P	2001	Y
Pk31-04	DGS01-13R2	38.61927	-74.9903	FHN	13.15	-52.9	20M	P	2001	Y
Pk32-01	DGS97-25	38.62344	-74.9695	FHN	9	-60	10S	G	1997	N
Pk32-02	DGS97-53	38.62317	-74.9693	FHN	17.4	-54.78	3s/5gS 10S	E	1997	Y
Pk32-03	DGS01-14	38.61754	-74.9768	FHN	16.89	-53.9	10gS 5s	E	2001	Y
Pk32-04	DGS01-14R2	38.61761	-74.9768	FHN	18.53	-53.4	20gS	E	2001	Y
Pk41-01	DGS01-15	38.61071	-74.9903	FHN	17.55	-51	5gS 5S 10gS	E	2001	Y
Pk41-02	DGS01-18	38.60238	-74.9903	FHN	18.18	-49.7	20gS	E	2001	Y
Pk42-01	DGS97-24	38.60846	-74.9668	FHN	7.42	-56	10S	G	1997	N
Pk42-02	DGS97-52	38.60845	-74.9668	FHN	18.5	-49.11	20S	E	1997	Y
Pk42-03	DGS01-16	38.60808	-74.9783	FHN	16.07	-49.5	10gS 5s	E	2001	Y
Pk51-01	DGS92 7	38.58623	-74.9888	FHN	20	-44.5	20S	E	1992	Y
Pk51-02	DGS01-19	38.59409	-74.9903	FHN	18.33	-48.2	10gS 10L	E	2001	Y
Pk52-01	DGS97-23	38.59372	-74.9665	FHN	7.8	-59	10S	G	1997	N

DGS ID	Local ID	LAT (Y)	LON (X)	Quad	Core Length (ft)	Altitude (ft)	Lithologic Rating	Resource Rating	Database	Photo(s)
Pk52-02	DGS97-51	38.59373	-74.9666	FHN	17.1	-50.35	20S	E	1997	N
Pk52-03	DGS01-17	38.59981	-74.9772	FHN	17.51	-47.9	10gS 3l 10gS	G	2001	Y
Pk52-04	DGS01-20	38.58835	-74.9767	FHN	17.35	-49.3	5gS 15S	E	2001	Y
Pk55-01	DGS97-46	38.58401	-74.9235	FHN	20	-56.33	15S 4gS 5S	E	1997	Y
Pl41-01	DGS92 14	38.60928	-74.9038	FHN	20	-72.5	20M	P	1992	Y
Pl51-01	DGS92 13	38.58456	-74.906	FHN	14	-64.2	15S	E	1992	Y
Pl51-02	DGS97-56	38.59039	-74.9121	FHN	19.5	-60.45	20S	E	1997	N
Pl52-01	DGS97-16	38.58446	-74.8861	FHN	1.75	-86	2m	P	1997	N
Pl53-01	DGS97-17	38.58534	-74.8686	SOM	2.58	-83	3m	P	1997	N
Pl55-01	DGS92 15	38.58345	-74.8399	SOM	2.5	-82.9	3s	F	1992	Y
Pl55-02	DGS92 15A	38.58345	-74.8399	SOM	1.2	-82.9	1s	P	1992	Y
Qj12-01	JCK H1 81	38.57512	-75.0549	BEB	7.5	-13	10L	F	pre-92	N
Qj13-01	KHV-5	38.58123	-75.038	BEB	20	-27	10L 4s 10M	F	USACE	N
Qj13-02	KHV-6	38.57123	-75.0374	BEB	17.5	-22	10S 5V 10M	G	USACE	N
Qj13-03	JCK H2 81	38.57512	-75.048	BEB	21.5	-23	1s/20M 4l	P	pre-92	N
Qj13-04	JCK H3 81	38.57512	-75.0366	BEB	25.6	-32	5S 10M 15L	G	pre-92	N
Qj14-01	KHV-125	38.57766	-75.0174	BEB	16	-45.9	15S 1l	E	USACE/07	N
Qj15-01	KHV-61	38.58151	-75.0149	BEB	17.7	-46.2	5S 3l 10S	G	USACE	N
Qj15-02	KHV-62	38.57595	-75.0007	BEB	17.2	-48.8	20S	E	USACE	N
Qj15-03	KHV-115	38.5815	-75.008	BEB	18.1	-44	20S	E	USACE	N
Qj15-04	KHV-126	38.57886	-75.0015	BEB	20.1	-45.8	4l 16S	G	USACE/07	N
Qj23-01	KHV-7	38.56512	-75.0357	BEB	19	-23	10L 10M	F	USACE	N
Qj24-01	SDK 13	38.55151	-75.0343	BEB	9.8	-30	3s/10L	F	pre-92	N
Qj24-02	SDK 16	38.56512	-75.0324	BEB	20.4	-33	15S 10M	E	pre-92	N
Qj24-03	DGS92 3	38.55262	-75.0205	BEB	17	-39.8	4s/4l 10M	F	1992	Y
Qj24-04	KHV-49	38.55996	-75.0183	BEB	19.5	-35.7	20S 3l	E	USACE	N
Qj25-01	SDK 15	38.55289	-75.0052	BEB	10.7	-38	15S	E	pre-92	N
Qj32-26	JCK l1 81	38.54012	-75.0524	BEB	23.6	-8	25L	F	pre-92	N
Qj33-01	JCK l2 81	38.54012	-75.0463	BEB	18.6	-18	15L 10S	F	pre-92	N
Qj33-02	JCK l3 81	38.54012	-75.0366	BEB	28.4	-29	10M 20L	P	pre-92	N
Qj33-03	KHV-44	38.55007	-75.0465	BEB	20.2	-28.1	20S	E	USACE	N
Qj34-01	KHV-8	38.54678	-75.0321	BEB	20	-30	4s/4m 15L	F	USACE	N
Qj35-01	KHV-63	38.53428	-75.0005	BEB	17.9	-48.7	20S	E	USACE	N
Qj35-02	KHV-64	38.53428	-75.0099	BEB	19.7	-51	10L 10S	F	USACE	N
Qj35-03	KHV-50	38.54413	-75.0119	BEB	18	-23.6	2.5m/15S	P	USACE	N
Qj43-01	KHV-47	38.51732	-75.0335	BEB	18	-41.2	5M 15S	P	USACE	N
Qj45-01	KHV-65	38.52789	-75.0085	BEB	19.8	-51	10L 15S	F	USACE	N
Qj45-02	KHV-116	38.51992	-75.0007	BEB	19.9	-34.1	5S 15L	G	USACE/07	N
Qj52-18	JCK J1 81	38.51262	-75.0513	BEB	22.2	-10	20L 2.5s	F	pre-92	N
Qj53-01	JCK J2 81	38.51262	-75.0463	BEB	26.2	-20	20L 10S	F	pre-92	N
Qj53-02	JCK J3 81	38.51262	-75.0346	BEB	20.3	-29	10L 15S	F	pre-92	N
Qj54-01	KHV-123	38.51475	-75.0177	BEB	19.4	-40.2	10L 10S	F	USACE/07	N
Qj54-02	KHV-122	38.51003	-75.0175	BEB	17.8	-37.9	18L	F	USACE/07	N
Qj55-01	KHV-66	38.51539	-75.0046	BEB	17.9	-44.1	20S	E	USACE	N
Qj55-02	KHV-67	38.50623	-75.011	BEB	19.5	-47	15S 5M 2l	E	USACE	N
Qj55-03	KHV-68	38.50178	-75.001	BEB	18.9	-40.5	20S	E	USACE	N
Qj55-04	KHV-118	38.51646	-75.0022	BEB	15	-36	5S 5L 5S	G	USACE/07	N
Qj55-05	KHV-119	38.51283	-75.0024	BEB	19	-34.1	10S 9L	G	USACE/07	N
Qj55-06	KHV-120	38.50973	-75.0003	BEB	16.8	-40.4	13L 4s	F	USACE/07	N
Qj55-07	KHV-121	38.50931	-75.0058	BEB	20.1	-32.2	11S 9L	E	USACE/07	N
Qj55-08	KHV-124	38.51285	-75.0072	BEB	20.1	-39.5	10L 8S 2L	F	USACE/07	N
Qk11-01	DGS97-22	38.5794	-74.9917	FHN	9.8	-51	10S	G	1997	N
Qk11-02	DGS97-50	38.57956	-74.9916	FHN	19	-45.55	20S	E	1997	Y
Qk12-01	DGS97-21	38.58043	-74.98	FHN	8	-50	10S	G	1997	N

DGS ID	Local ID	LAT (Y)	LON (X)	Quad	Core Length (ft)	Altitude (ft)	Lithologic Rating	Resource Rating	Database	Photo(s)
Qk12-02	DGS97-49	38.58067	-74.9793	FHN	20	-45.72	5L 3s 15M	F	1997	N
Qk12-03	DGS97-48.1	38.58067	-74.9666	FHN	14	-48.8	10S 5M	G	1997	Y
Qk12-04	DGS97-48.2	38.58039	-74.9666	FHN	16	-48.52	4gS/10S 4m	G	1997	Y
Qk12-05	DGS97-20	38.58033	-74.9665	FHN	6.42	-54	10S	G	1997	N
Qk13-01	DGS92 9	38.57567	-74.9532	FHN	20	-56.8	20S	E	1992	Y
Qk14-01	DGS97-19	38.58237	-74.9376	FHN	1.75	-61	2s	P	1997	N
Qk14-02	DGS97-47	38.58262	-74.9374	FHN	19.5	-55.5	4gS/3m 15S	F	1997	N
Qk21-01	DGS92 6	38.55734	-74.9885	FHN	20	-49.6	10S 5L 10S	G	1992	Y
Qk21-02	SDK 14	38.55706	-74.9968	FHN	6.2	-47	1s/5M	P	pre-92	N
Qk22-01	DGS04-01	38.56419	-74.9767	FHN	20.0	-47.8	20S	E	2004	Y
Qk22-02	DGS04-03	38.55403	-74.9752	FHN	19.1	-39.5	5gS10L5m	F	2004	Y
Qk23-01	DGS04-02	38.5605	-74.9633	FHN	16.4	-50	2s/14M	P	2004	Y
Qk31-01	DGS04-05	38.54505	-74.9881	FHN	20.0	-44.8	10M3s7gS	P	2004	Y
Qk32-02	DGS04-04R2	38.5447	-74.9747	FHN	20.0	-49.4	11S 9M	E	2004	Y
Qk33-01	DGS97-58	38.53428	-74.9616	FHN	18.3	-52.25	20M	P	1997	N
Qk33-02	DGS97-57	38.54928	-74.9627	FHN	20	-52	10L 10M 3l	F	1997	Y
Qk41-01	DGS04-06	38.53204	-74.9881	FHN	16.7	-47.1	15S	E	2004	Y
Qk41-02	DGS04-10	38.51976	-74.9876	FHN	19.2	-44	10S5gS3s	E	2004	Y
Qk41-03	KHV-117	38.51745	-74.9972	FHN	15.9	-43.5	10L 6S	F	USACE/07	N
Qk42-01	DGS04-07	38.53167	-74.9736	FHN	19.4	-48.6	5m15S	P	2004	Y
Qk42-02	DGS04-09	38.52133	-74.9736	FHN	20.0	-50.2	5S6M9gS	G	2004	Y
Qk43-01	DGS92 10	38.51789	-74.9496	FHN	11.6	-56	5l 10M	F	1992	N
Qk43-02	DGS04-08	38.5239	-74.9602	FHN	17.8	-49.6	15S	E	1992	Y
Qk51-01	KHV-54	38.50762	-74.9868	REB	19.8	-40.3	3s/20L	F	USACE	N
Qk52-01	DGS04-11	38.50955	-74.9725	FHN	17.5	-48.4	5gS9M4s	F	2004	Y
Qk53-01	DGS97-11	38.50356	-74.9599	FHN	2.5	-54	3s	F	1997	N
Qk53-02	DGS97-39	38.50373	-74.9596	FHN	19.3	-46.78	20S 2l	E	1997	Y
Qk53-03	DGS04-12	38.51366	-74.9602	FHN	19.3	-47.2	15S4l	E	2004	Y
Ql51-01	DGS97-10	38.51034	-74.9112	FHN	6.42	-62	10S	G	1997	N
Ql51-02	DGS97-38	38.50984	-74.911	FHN	19.5	-54.23	10S 10L 5s	G	1997	Y
Rj12-01	JCK K1 81	38.49678	-75.0499	ASB	33.8	-19	2.5l/5S 25L	F	pre-92	N
Rj13-01	JCK K2 81	38.49678	-75.0463	ASB	26.1	-20	20L 10S	F	pre-92	N
Rj13-02	JCK K3 81	38.49678	-75.0346	ASB	20.3	-32.8	20S	E	pre-92	N
Rj14-01	KHV-72	38.48706	-75.0213	ASB	20.2	-42.4	5s/2l 15S	F	USACE	N
Rj15-01	KHV-69	38.49123	-75.0074	ASB	19.8	-40	10S 10L 4s	G	USACE	N
Rj15-02	KHV-51	38.49882	-75.0099	ASB	17.5	-36.3	20S	E	USACE	N
Rj23-01	KHV-70	38.47456	-75.0399	ASB	20.1	-41.6	20S	E	USACE	N
Rj23-02	KHV-45	38.47146	-75.037	ASB	16.1	-36.2	20S	E	USACE	N
Rj24-01	KHV-73	38.47651	-75.0274	ASB	19.4	-43.5	4s/4l 15S	F	USACE	N
Rj24-02	KHV-48	38.46994	-75.0196	ASB	19.5	-34.3	5g/15S	F	USACE	N
Rj25-01	KHV-76	38.46873	-75.016	ASB	20.4	-43	5S 5L 10S	G	USACE	N
Rj25-02	KHV-79	38.48262	-75.0013	ASB	19.7	-51.5	20M 4l	P	USACE	N
Rj33-01	CORE13	38.45206	-75.0332	ASB	10	-29.9	4l/2m 4l	F	pre-92	N
Rj33-02	JCK L1 81	38.45012	-75.0482	ASB	13.5	-14	2.5s/10L	F	pre-92	N
Rj33-03	JCK L2 81	38.45012	-75.0446	ASB	21.3	-19	10S 15M	G	pre-92	N
Rj33-04	JCK L3 81	38.45012	-75.0346	ASB	19.4	-30	5M 3l 15S	P	pre-92	N
Rj33-05	KHV-71	38.46345	-75.0366	ASB	20.3	-40.7	10S 10L 5S	G	USACE	N
Rj33-06	8-3	38.4529	-75.0355	ASB	16	-28	5S 15M	G	pre-92	N
Rj34-01	KHV-74	38.46345	-75.0252	ASB	19.9	-41.5	4l/3m 15S	F	USACE	N
Rj34-02	8-6	38.45706	-75.0199	ASB	20	-35	5s/5L 10S	F	pre-92	N
Rj35-01	KHV-77	38.45512	-75.0132	ASB	19.9	-38	10S 10L	G	USACE	N
Rj35-02	KHV-78	38.46595	-75.008	ASB	19.9	-41.4	15S 10L	E	USACE	N
Rj35-03	KHV-80	38.45928	-75.0041	ASB	19.5	-49.1	10S 10L 10S	G	USACE	N
Rk11-01	DGS92 5	38.49039	-74.9874	FWS	19.5	-46.4	1.5s/15M 5l	P	1992	Y

DGS ID	Local ID	LAT (Y)	LON (X)	Quad	Core Length (ft)	Altitude (ft)	Lithologic Rating	Resource Rating	Database	Photo(s)
Rk13-01	DGS97-13	38.48909	-74.9583	FWS	4.4	-64	5l	F	1997	N
Rk13-03	DGS97-41.2	38.48901	-74.9582	FWS	19	-58.7	5L 10S 10gS	F	1997	Y
Rk13-04	DGS97-40	38.49567	-74.9596	FWS	20	-52.9	20S	E	1997	Y
Rk21-01	DGS92 4	38.46873	-74.9854	FWS	15	-51	2s/15L	F	1992	Y
Rk21-02	KHV-75	38.47984	-74.9943	FWS	20.1	-38.3	20S 1.5m	E	USACE	N
Rk23-01	DGS97-14	38.48132	-74.9581	FWS	2.42	-68	1.5l/1m	P	1997	N
Rk23-02	DGS97-14.1	38.4814	-74.9582	FWS	3.42	-66	3.5l	F	1997	N
Rk23-03	DGS97-14.2	38.4814	-74.9582	FWS	4.75	-66	5l	F	1997	N
Rk23-04	DGS97-42	38.48151	-74.9582	FWS	19.9	-61.08	1m/15S 10gS	F	1997	Y
Rk23-05	DGS97-43	38.47206	-74.9568	FWS	18.9	-54.81	10S 10L 3s	G	1997	Y
Rk25-01	DGS97-55.1/55.2	38.47234	-74.9193	FWS	17	-29.51	20S	E	1997	Y
Rk25-02	DGS97-55.2	38.47234	-74.9193	FWS	8.5	-29.46	10S	G	1997	N
Rk31-01	3-12	38.45151	-74.9857	FWS	18.6	-41	3.5s/15L 2s	F	pre-92	N
Rk31-02	3-1	38.45706	-74.9835	FWS	18	-45	20S	E	pre-92	N
Rk31-03	3-2	38.45901	-74.9916	FWS	19	-33	20S	E	pre-92	N
Rk31-04	3-4	38.46401	-74.9924	FWS	20	-40	20S	E	pre-92	N
Rk31-05	3-11	38.45595	-74.9896	FWS	17.6	-40	15S 3.5l	E	pre-92	N
Rk33-01	DGS92 11	38.45901	-74.9516	FWS	10.8	-57.6	15S	E	1992	Y
Rk34-01	DGS97-4	38.4623	-74.9334	FWS	2.08	-34	2s	F	1997	N
Rk34-02	DGS97-32	38.46206	-74.9332	FWS	18.5	-29.42	20S	E	1997	N
Rk35-01	DGS97-2	38.46123	-74.9221	FWS	1.5	-46	1.5l	P	1997	N
Rk35-02	DGS97-31	38.46151	-74.9277	FWS	19.7	-23.45	20S	E	1997	Y
Rk35-03	DGS97-30	38.46123	-74.9221	FWS	20	-41.45	20L	F	1997	Y
Rk35-04	DGS97-29	38.46123	-74.9168	FWS	20.2	-42.35	20S	E	1997	Y
Rk35-05	DGS97-3	38.46123	-74.9278	FWS	3.1	-28	3s	F	1997	N
Rl11-01	DGS97-37	38.49706	-74.9104	FWS	19.4	-47.3	20L	F	1997	Y
Rl21-01	DGS97-5	38.46956	-74.9082	FWS	3.08	-43	3s	F	1997	N
Rl21-02	DGS97-6	38.47503	-74.9085	FWS	1.83	-44	2s	P	1997	N
Rl21-03	DGS97-8	38.48058	-74.9096	FWS	11.5	-46	15S	E	1997	N
Rl21-04	DGS97-36	38.48067	-74.9096	FWS	19	-38.4	20S	E	1997	Y
Rl21-05	DGS97-35	38.47789	-74.9093	FWS	20	-42.16	20S 3l	E	1997	Y
Rl21-06	DGS97-34	38.47512	-74.9082	FWS	20	-37.55	20S	E	1997	Y
Rl21-07	DGS97-33.1	38.46928	-74.9085	FWS	18	-36.48	20S	E	1997	Y
Rl21-08	DGS97-33.2	38.46928	-74.9082	FWS	5	-36.11	5S	G	1997	Y
Rl25-01	DGS92 16	38.47456	-74.8399	SOU	11.8	-75.5	15L	F	1992	Y
Rl31-01	DGS92 12	38.45623	-74.9046	FWS	16.2	-53.9	10S 10L	G	1992	Y