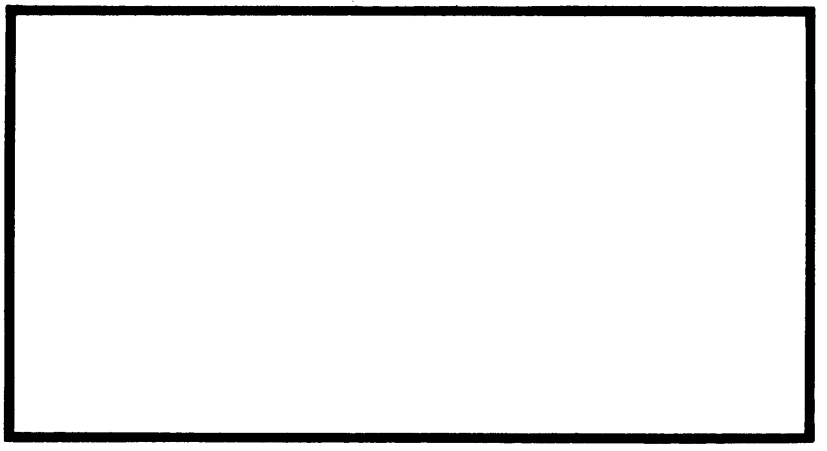
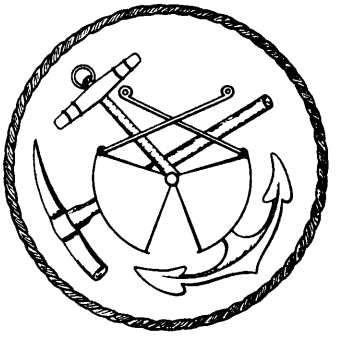
THE SEDIMENTOLOGICAL RESEARCH LABORATORY





DEPARTMENT OF GEOLOGY

FLORIDA STATE UNIVERSITY

Tallahassee, Florida

SEDIMENT DESCRIPTIONS

DEEP FREEZE 1985

DESCRIPTIONS OF SEDIMENTS RECOVERED BY THE USCGC *GLACIER*

USARP OPERATION DEEP FREEZE 1985

SOUTH ORKNEY PLATEAU, SOUTH SHETLAND SHELF, BRANSFIELD STRAIT, MARGUERITE BAY, PINE ISLAND BAY

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INTRODUCTION

This volume contains descriptions of sediments obtained during the 1984-1985 austral summer cruise of the U.S. Coastguard icebreaker *Glacier*, which surveyed the western margin of the South Orkney Plateau, portions of the Bransfield Strait and the adjacent continental shelf of the South Shetland Islands, Marguerite Bay, and Pine Island Bay (Figures 1-6). This is the sixth published volume of sediment descriptions of material collected by the *Glacier* in antarctic waters since 1968 (see Kaharoeddin et al., 1988). These volumes are designed to serve the general geologic community by providing descriptive information of shallow sediments surrounding the continent of Antarctica, and also to assist geoscientists wishing to pursue more detailed studies by serving as a guide for sediment sampling.

The sediments collected by the USCGC *Glacier* 1985 cruise are curated at the Florida State University Antarctic Marine Geology Research Facility, Tallahassee. This facility contains an extensive collection of antarctic and subantarctic sediments retrieved by coring, dredging, trawling, and grab sampling from a number of research cruises and vessels, and other research initiatives, including: forty-seven cruises of the USNS *Eltanin* (Goodell, 1964, 1965, 1968; Frakes, 1971, 1973; Cassidy et al., 1977a), five cruises of the ARA *Islas Orcadas* (Cassidy et al., 1977b; Kaharoeddin, 1978; Kaharoeddin et al., 1979, 1980, 1982), the Dry Valley Drilling Project (DVDP) (Dry Valley Drilling Project, 1974, 1975, 1976; McGinnis, 1979; Torii, 1981), the Ross Ice Shelf Project (RISP) (Clough and Hansen, 1979; Webb, 1978, 1979), the Eastern Taylor Valley Project (ETV) (Elston et al., 1981, 1983; Robinson, 1983, 1985; Robinson and Jaegers, 1984; Robinson et al., 1984), the Cenozoic Investigations in the Western Ross Sea Project (CIROS-1, CIROS-2) (Barrett, 1982, 1985, 1987; Barrett et al., 1985; Pyne et al., 1985; Robinson et al., 1987), and collections from miscellaneous vessels operating in the Southern Ocean (*Anton Brun*, *Robert Conrad*, *Hero*, and *Vema*).

Additional components of the collection at Florida State University, which are currently being described for publication, include cores and grab samples from the 1986 and 1987 cruises of the USCGC *Glacier* (Anderson et al., 1986; Kennedy and Anderson, 1986; Anderson et al., 1987), and six cruises of the R/V *Polar Duke* (Jeffers, 1987; Jeffers and Anderson, 1986; Anderson, 1988; Domack, 1988; Lawver and Villinger, 1989; Anderson and Bartek, 1990; Anderson, 1991).

This volume includes a summary of the scientific objectives of the 1984-1985 cruise of the USCGC *Glacier*; a discussion of core and grab sample recovery and processing; a table and maps of station locations; an explanation of laboratory descriptive procedures; and lithologic descriptions of piston and trigger cores, bagged samples (from piston and trigger cores), and grab samples.

ACKNOWLEDGEMENTS AND DEDICATION

All of the sediment descriptions for Deep Freeze 85 were completed by the geologists listed alphabetically on the title page. Ample credit must therefore be given to all of these authors for their careful work. Many of these individuals worked at the Antarctic Research Facility years ago. Their work has not been forgotten, and is gratefully acknowledged here. Thanks also go to John B. Anderson (Rice University) for critically reviewing an early draft of this manuscript.

Nearly all of the descriptive work for the Deep Freeze 85 volume was completed during the tenure of the Facility's previous curator, Mr. Dennis S. Cassidy. Just prior to the completion of this publication, Mr. Cassidy retired, and a new curator was hired by the FSU Department of Geology to replace Mr. Cassidy. One of the first responsibilities of the new curator was to finish some of the projects that were near completion under Mr. Cassidy's tenure. The present volume is the first result.

Mr. Cassidy served the Antarctic Research Facility for 28 years. The quality of the sediment description volumes published by the Antarctic Research Facility to date are a testimony to Mr. Cassidy's dedication to the Facility, and commitment to excellence. He has set a standard that will be difficult to follow. As new curator, I would like to dedicate the Deep Freeze 85 volume to Dennis Cassidy, in acknowledgement of his long service to the Antarctic Marine Geology Research Facility.

Jonathan R. Bryan
August 1992

USCGC GLACIER: OPERATION DEEP FREEZE 1985

Cruise Objectives

The objectives and preliminary results of the USCGC *Glacier* 1985 cruise have been summarized by Anderson (1985b). For the convenience of the those using this volume, Anderson's text is reproduced here in its entirety. Italicized portions have been added by the editor for annotation and to accommodate the figures in this volume.

> On 18 December 1984 the U.S. Coast Guard icebreaker *Glacier* departed from Punta Arenas, Chile, to begin marine geologic work on the antarctic continental margin. Four areas were surveyed as part of this cruise. These included the western margin of the South Orkney Plateau, portions of the Bransfield Strait and the adjacent continental shelf of the South Shetland Islands, Marguerite Bay, and Pine Island Bay (*Figure 1*). In all, some 761 kilometers of seismic data and approximately 5,000 kilometers of bottom profiler data were obtained. In addition, 115 piston coring stations and 15 grab sample stations were occupied (*Table 1*). The scientific party consisted of geologists from Rice University and the University of Marine at Orono. This report provides an account of samples and data obtained and a summary of preliminary findings.
>
> *South Orkney Plateau.* The first phase of the cruise was conducted on the western margin of the South Orkney Plateau. Our objectives were to investigate the possibility that an ice cap was once grounded on the plateau, to investigate the seismic stratigraphy of the western margin of the plateau using single-channel sparker data and piston cores taken in outcrops, and to investigate sedimentation at various depths on the plateau in relation to different water masses which impinge on it, and to look for sedimentologic evidence of paleoceanographic changes. The latter is the primary objective of proposed Ocean Drilling Project drill sites in the area, and our study, which focuses on the Quaternary record, is intended as an initial test of this objective.
>
> A total of 320 kilometers of single channel (sparker) seismic profiles and 36 piston cores were collected in the area (*Figure 2*). Iceberg drift tracks were also measured, using the ship's radar, to assess potential threats to drilling operations. Preliminary micropaleontologic age determinations of cores were conducted by Davida Kellogg.
>
> Previous marine geophysical work in the region includes single-channel (airgun) seismic surveys by Peter Barker (University of Birmingham, England); these data, along with a bathymetric base map for the area, were kindly made available to us by Peter Barker for planning of our cruise. Other prior studies include seismic refraction work (Harrington, Barker, and Griffiths 1972) and a single multichannel profile collected by West German scientists during a recent (1983) cruise (ANTARKTIS-II) of the research vessel Polarstern (Haase 1984). Prior to this cruise, only a few sediment samples had been collected on the plateau.
>
> The seismic reflection profiles collected during the Glacier cruise show a

relatively thick (0.7 seconds), laminated sequence resting on folded(?) strata. Large normal (down to the basin) faults occur on the slope and form modern seafloor scarps. Two piston cores (cores 11 and 16, table) penetrated outcrops on the lower slope, and preliminary micropaleontologic analyses yielded Miocene and Pliocene ages for these deposits. Piston cores from the upper laminated seismic sequence contain diatoms of Pleistocene and Recent age.

Two seismic lines were collected across the platform for the purpose of recording possible glacial erosional surfaces and/or moraines. No moraines were noted, but a trough-like feature does occur just south of the main island, and a widespread erosional surface extends across the northern portion of the platform to its edge. Thirteen piston cores were collected on the platform, and at least one of these cores penetrated an overcompacted diamicton, which could be a basal till.

South Shetland Shelf and Bransfield Basin. After completing the survey of the South Orkney Plateau, the Glacier steamed west to the continental shelf north of the South Shetland Islands. Work there was intended to establish whether an ice sheet had once been grounded on the continental shelf, as previously inferred by Sugden and John (1973) and Denton and Hughes (1981). Two seismic lines were obtained on the shelf and seven piston cores (*Figure 3*). The seismic data show northwestwardly dipping reflectors that have been truncated by a widespread erosional unconformity and probable moraines situated near the edge of the continental shelf. These features are presently situated at a water depth of 370 meters. Piston cores penetrated volcaniclastic sands, which indicates that strong bottom currents occur on the shelf, and diamictons of either glacial or glacial-marine origin.

Additional seismic data were collected in the Bransfield Strait region as part of an ongoing investigation into the Quaternary glacial history or this region. Two of these lines were acquired in fjords of King George Island, Admiralty Bay, and Maxwell Bay. In addition, three piston cores were collected in Admiralty Bay.

Seismic data from Admiralty Bay and Maxwell Bay show that both fjords are silled at their seaward terminus, and both contain relatively thick (up to 200 milliseconds) sediment layers. Large terminal moraines occur in both bays, and meltwater deltas are notably absent, which provides a striking contrast to most arctic fjords. A helicopter survey of the region was also conducted, and the glacial setting of the coast was mapped. Meltwater plumes were observed in both Admiralty Bay and Maxwell Bay.

A seismic profile across the Bransfield Strait as obtained to determine the origin of platforms and associated channel-like features there. These data indicated that the shallow platform has been eroded and that channel-like features on this platform have U-shaped, erosional profiles, and were therefore probably eroded by glacial ice rather than by streams. These data will help in the interpretation of piston cores collected from this area during austral summers 1980-1981 and 1981-1982.

After completing our seismic survey of the Bransfield Strait, the Glacier steamed west to the vicinity of Anvers Island where seismic and coring operations were conducted on the shelf and in two fjords in the area. A widespread erosional surface and possible moraines were mapped on the shelf north of Dallman Bay. Three piston cores were collected on the shelf to see if basal tills exist in the area (*Figure 4*).

Two fjords, Fournier Bay and Flanders Bay, were surveyed for purposes of investigating the Quaternary glacial history of the region and fjord sedimentation. In addition, seismic profiling and piston coring were conducted in a deep, enclosed basin situation west of Anvers Island. A 12-meter-long piston core collected within this feature will be investigated for its Quaternary glacial record.

Marguerite Bay Area. Marguerite Bay is the terminus of the George VI Ice Shelf, which drains a large segment of Palmer Land. British scientists have already done careful glacial geology studies of the region (Sugden and John 1973), and it was our intention to gather marine geologic information to complement their work. The complex morphology of the seafloor in this area provided an indication that this would be a key region in which to investigate Antarctica's Quaternary glacial record and to study glacial marine sedimentation. Rough seas prevented completion of the survey; however, most of our objectives were completed, and we gathered some 90 kilometers of seismic data and 42 geologic samples before having to leave the area (*Figure 5*).

Pine Island Bay Area. The primary objective in the Pine Island Bay survey was to examine the Quaternary glacial history of the area. Our survey took us to 75°00'S 101°30'W, the deepest recorded penetration of the bay (*Figure 6*). Two short seismic lines and 12 piston cores were obtained. Other activities included recovering a damaged weather station from Lindsey Island, taking a hydrocast near the terminus of Pine Island Glacier, sampling a raised moraine (situated approximately 300 meters above the present glacial surface) near the base of the Hudson Mountains, and geologic sampling of previously unmapped islands (Lindsey Island, Sterrett Islands, Edwards Islands, and Brownson Island). The passage out of Pine Island Bay required extensive backing and ramming, and on one occasion, progress was slowed to about 500 meters in 15 hours.

This scientific party consisted of John B. Anderson (chief scientist), Lou Bartek, Tom Griffith, Margaret Herron, Doug Kennedy, Jill Singer, and Mike Smith of Rice University, and Tom Kellogg, Davida Kellogg, and Terry Hughes of the University of Marine at Orono.

We are indebted to the men and women of the U.S. Coast Guard icebreaker Glacier for their enthusiastic support than we received. Peter Barker kindly provided seismic data from the South Orkney Plateau, which proved invaluable in the planning of our cruise. John West of the U.S. Geological Survey, Corpus Christie, assisted us in preparing for our seismic work. Steve Montgomery also helped in this regard.

This research is founded by National Science Foundation grants DPP 83-15555 (to John B. Anderson) and DPP 80-20000 (to Thomas B. Kellogg).

Since the collection of the Deep Freeze 85 material, several investigations that have utilitzed the cores have appeared in print. These research papers include Kennedy and Anderson (1989), Jeffers and Anderson (1990), Herron and Anderson (1990), Jeffers et al. (1991), and Anderson et al.(1991).

Core and Grab Sample Recovery and Processing

A total of 99 liner-encased piston cores and 29 trigger cores (totalling approximately 218 m in length), as well as 57 grab samples were recovered during the cruise. Minor amounts of sediment lodged in the core cutter, core catcher, or core liner were also collected (16 piston core samples and 7 trigger core samples) and placed in plastic bags. All of these materials were received at the Antarctic Research Facility in May of 1985 (Cassidy, 1985).

Piston and trigger cores were cut using an adjustable, track-operated, radial power saw (Cassidy and Devore, 1973). The saw is adjusted to cut only through the thickness of the plastic core liner. Two cuts are made on opposite sides of the core liner. Once the liner is cut, the core sediments are manually split by drawing a wire through the middle of the core. Each half section of core is cleaned (of sawing debris), measured, labelled, and heat-sealed within polyethylene sleeving to prevent desiccation. All cores are stored in a refrigerated store room (2°C) at the Antarctic Research Facility, Florida State University. All bagged samples (piston, trigger, grabs) are weighed (in labelled plastic bags) and also placed in refrigerated storage.

TABLE 1

STATION LOCATION DATA FOR CORES AND GRAB SAMPLES

STATION LOCATIONS, CORRESPONDING WATER DEPTH, AND SEDIMENT RECOVERY FOR PISTON CORES, TRIGGER CORES, AND GRAB SAMPLES RECOVERED DURING THE 1984-1985 AUSTRAL SUMMER CRUISE OF U.S. COAST GUARD ICEBREAKER *GLACIER*

STATION NUMBER	LATITUDE/ LONGITUDE	WATER DEPTH(m)	CORE LENGTH(cm)	TRIGGER CORE/GRAB
1	61°34.3'S/47°29.9'W	2504	135	TC
2	61°32.9'S/47°14.4'W	988	323	TC
3	61°29.7'S/47°02.5'W	576	124	GRAB
4	61°31.6'S/47°01.7'W	553	144	NONE
5	61°27.6'S/46°45.6'W	411	104	GRAB
6	61°42.2'S/47°35.9'W	2196	11	GRAB
7	61°43.9'S/47°31.1'W	1573	NR	GRAB
8	61°43.7'S/47°28.1'W	1235	116	GRAB
9	61°42.6'S/47°21.9'W	1243	156	NONE
10	61°42.3'S/47°16.3'W	1364	170	GRAB
11	61°40.1'S/47°07.6'W	1360	45	NONE
12	61°40.6'S/46°57.8'W	962	278	NONE
13	61°39.6'S/46°54.0'W	732	132	NONE
14	61°42.0'S/46°46.0'W	512	10	NONE
15	61°55.6'S/47°14.3'W	2397	101	TC
16	61°55.3'S/47°04.7'W	2004	43	TC (BAG)
17	61°54.7'S/47°05.6'W	1482	261	NONE
18	61°51.9'S/47°03.3'W	1261	146	TC
19	61°52.6'S/46°57.3'W	1151	BAGGED	TC (BAG)
20	61°45.5'S/46°50.6'W	768	40	TC (BAG)
21	60°49.5'S/45°36.2'W	256	BAGGED	TC
22	60°50.0'S/45°41.3'W	348	558	NONE
23	60°49.1'S/45°44.7'W	304	285	TC
24	60°50.6'S/45°53.9'W	133	BAGGED	GRAB
25	61°51.5'S/46°06.7'W	155	20	GRAB
26	61°00.3'S/46°18.1'W	220	40	GRAB
27	61°09.2'S/46°22.2'W	249	200	GRAB
28	61°18.9'S/46°28.3'W	295	80	GRAB
29	61°29.1'S/46°31.5'W	357	62	GRAB

30	61°38.2'S/46°21.4'W	311	22	GRAB
31	61°46.4'S/46°11.6'W	416	119	NONE
32	61°55.7'S/45°58.9'W	448	BAGGED	GRAB
33	62°20.4'S/46°29.5'W	2843	117	TC
34	62°12.1'S/46°20.8'W	1794	271	NONE
35	62°10.6'S/46°12.2'W	1054	282	NONE
36	62°11.8'S/46°19.7'W	1684	274	TC
37	61°32.2'S/58°15.0'W	408	NR	NONE
38	61°33.5'S/58°11.9'W	388	BAGGED	GRAB
39	61°37.4'S/58°08.0'W	302	NA	GRAB
40	61°40.8'S/58°05.9'W	302	NA	GRAB
41	61°44.8'S/58°01.7'W	238	NA	GRAB
42	61°54.8'S/59°54.5'W	304	26	GRAB
43	61°58.6'S/59°52.8'W	210	191	NONE
44	62°04.8'S/59°50.5'W	106	NA	GRAB
45	62°04.8'S/59°50.5'W	101	78	GRAB
46	61°47.3'S/58°00.3'W	229	NA	GRAB
47	62°07.4'S/58°25.8'W	415	BAGGED	GRAB
48	62°08.9'S/58°25.7'W	439	263	TC
49	62°08.4'S/58°26.6'W	363	414	TC
50	63°27.2'S/64°06.9'W	201	BAGGED	GRAB
51	63°35.1'S/63°48.6'W	144	93	NONE
52	63°46.6'S/63°22.9'W	522	264	TC
53	64°33.5'S/63°09.3'W	201	159	TC+GRAB
54	64°31.9'S/63°08.0'W	311	289	TC
55	64°30.3'S/63°06.6'W	462	530	TC
56	64°26.6'S/63°02.4'W	294	NA	GRAB
57	65°05.8'S/63°10.2'W	650	246	TC
58	65°04.7'S/63°10.7'W	439	175	TC
59	65°03.1'S/63°11.4'W	384	423	TC
60	65°01.4'S/63°16.4'W	448	262	NONE
61	64°57.7'S/64°17.3'W	1190	274	GRAB
62	64°58.7'S/64°19.7'W	772	291	GRAB
63	64°56.9'S/64°19.0'W	1373	1109	TC
64	67°46.6'S/68°15.1'W	399	NA	GRAB
65	67°46.1'S/68°16.1'W	358	120	TC(BAG)
66	67°48.3'S/68°06.3'W	859	597	GRAB
67	67°55.9'S/68°32.8'W	412	189	GRAB
68	67°57.6'S/68°25.1'W	576	BAGGED	GRAB
69	67°59.9'S/68°24.8'W	256	17	NONE
70	68°00.1'S/68°28.5'W	207	NA	GRAB
71	67°59.2'S/68°34.0'W	607	218	GRAB
72	67°54.9'S/68°26.9'W	808	716	TC(BAG)
73	68°06.1's/68°33.5'W	275	NA	GRAB

74	68°06.1'S/68°34.1'W	338	116	GRAB
75	68°05.5'S/68°26.6'W	366	262	NONE
76	68°05.4'S/68°07.5'W	594	583	NONE
77	68°05.1'S/67°52.5'W	316	56	GRAB
78	68°08.7'S/68°04.3'W	470	72	NONE
79	68°11.7'S/68°15.2'W	485	515	GRAB
80	68°14.3'S/68°23.0'W	275	NR	GRAB
81	68°14.6'S/67°04.2'W	421	511	GRAB
82	68°14.4'S/67°30.2'W	275	132	NONE
83	68°17.9'S/67°42.0'W	155	NA	GRAB
84	68°16.8'S/67°54.5'W	329	223	GRAB
85	68°16.3'S/68°02.1'W	406	BAGGED	NONE
86	68°15.7'S/68°11.0'W	448	274	GRAB
87	68°15.2'S/68°19.9'W	622	596	GRAB
88	68°17.5'S/68°31.5'W	220	138	NONE
89	68°17.5'S/68°54.9'W	201	NA	GRAB
90	68°19.9'S/69°32.2'W	302	13	GRAB
91	68°20.9'S/69°40.7'W	153	NA	GRAB
92	68°26.7'S/69°46.2'W	348	120	GRAB
93	72°50.6'S/105°12.4'W	550	65	GRAB
94	73°13.1'S/103°59.2'W	584	23	GRAB
95	73°18.3'S/103°38.4'W	777	270	TC
96	73°17.9'S/103°37.1'W	786	99	TC
97	73°23.1'S/103°45.7'W	728	142	TC
98	73°59.7'S/104°30.3'W	329	BAGGED	TC(BAG)
99	73°53.8'S/103°46.7'W	307	7	NONE
100	73°43.9'S/103°44.7'W	915	NR	TC
101	73°44.4'S/103°43.1'W	924	227	TC
102	73°32.0'S/103°33.6'W	329	59	TC(BAG)
103	73°56.2'S/103°07.2'W	586	182	NONE
104	74°23.5'S/102°54.9'W	316	BAGGED	TC
105	74°38.9'S/102°33.7'W	650	288	TC
106	74°45.8'S/102°25.1'W	1052	550	TC
107	74°58.1'S/101°32.9'W	933	508	NONE
108	74°39.1'S/102°57.8'W	615	277	TC
109	72°29.5'S/104°28.6'W	567	69	TC
110	71°38.5'S/101°27.8'W	463	161	GRAB
111	71°20.2'S/100°59.1'W	417	204	GRAB
112	71°14.2'S/100°51.3'W	412	230	GRAB
113	71°06.6'S/100°37.4'W	403	150	GRAB
114	68°19.9'S/70°49.5'W	713	44	NONE
115	68°26.6'S/70°45.8'W	726	210	NONE
116	68°29.0'S/70°36.0'W	650	146	NONE
117	68°29.7'S/70°12.5'W	503	184	NONE

118	68°18.9'S/70°27.5'W	489	479	NONE
119	68°20.6'S/70°22.8'W	787	288	NONE
120	68°17.6'S/69°49.4'W	933	BAGGED	NONE
121	68°14.2'S/69°49.1'W	412	BAGGED	NONE
122	68°15.9'S/69°33.2'W	676	238	NONE
123	68°15.1'S/69°21.0'W	538	254	NONE
124	68°12.7'S/69°29.0'W	215	BAGGED	NONE
125	68°13.9'S/69°40.7'W	558	143	NONE
126	68°10.3'S/69°41.0'W	860	137	TC
127	68°08.5'S/69°36.3'W	247	NA	GRAB
128	68°02.5'S/69°37.3'W	774	297	NONE
129	67°49.9'S/67°34.9'W	256	158	GRAB
130	67°54.3'S/67°39.6'W	137	NA	GRAB
131	67°50.7'S/67°32.2'W	247	BAGGED	GRAB

NR-No Recovery
NA-None Attempted

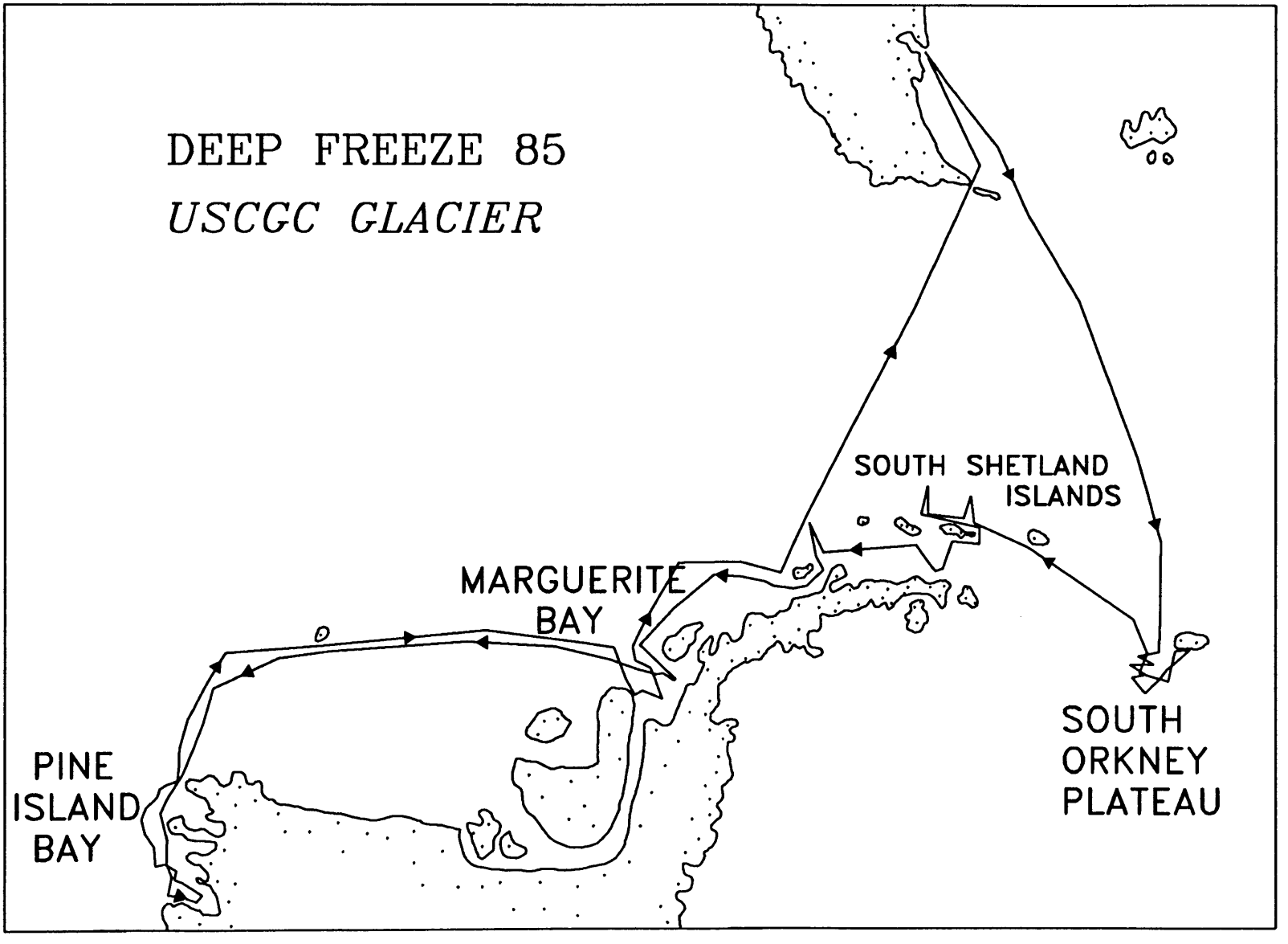


Figure 1. Cruise track for the *USCGC Glacier*, Deep Freeze 85 (after Anderson, 1985a).

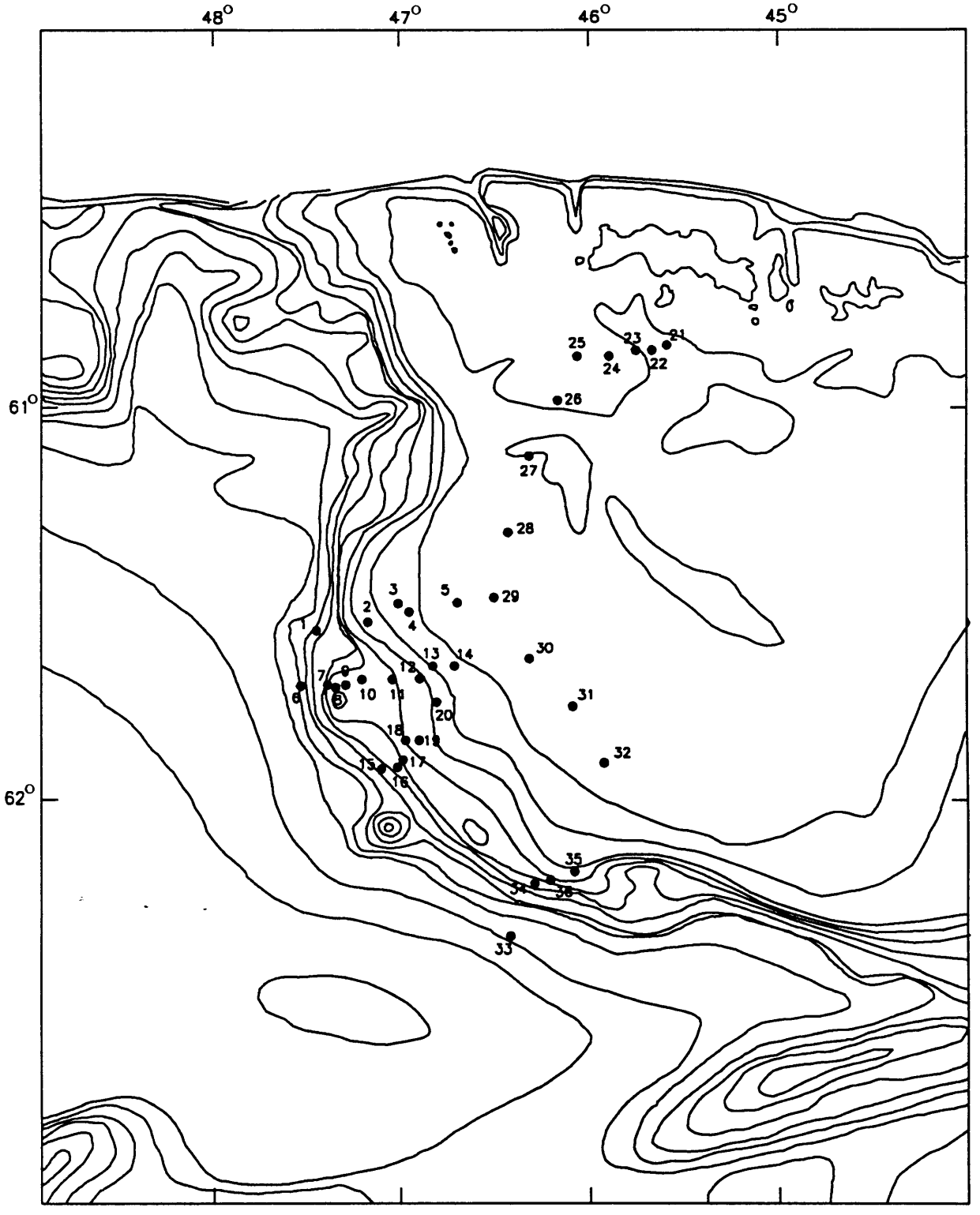


Figure 2. Sample locations on the South Orkney Plateau (after Anderson, 1985a).

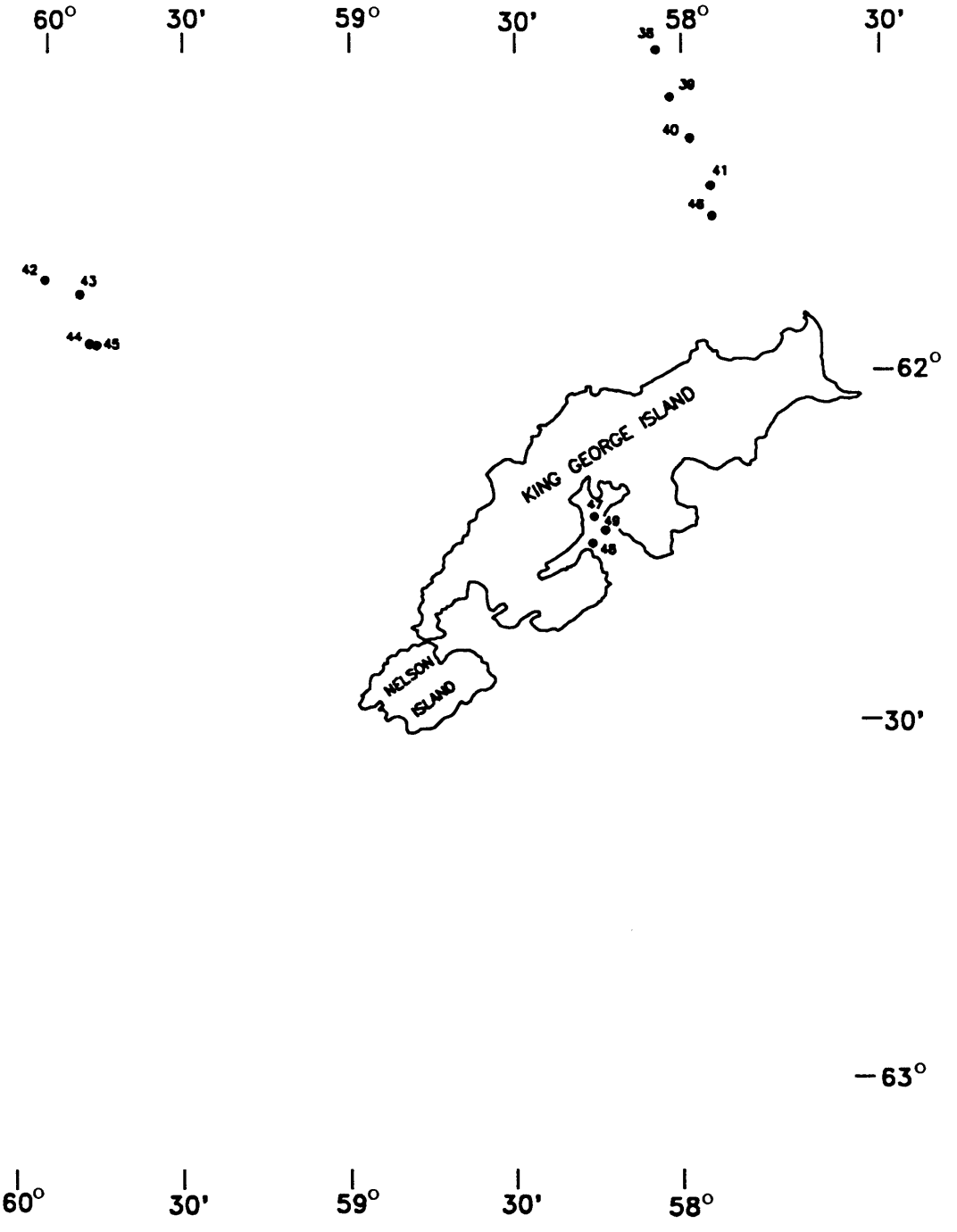


Figure 3. Sample locations in the vicinity of the South Shetland Islands (after Anderson, 1985a).

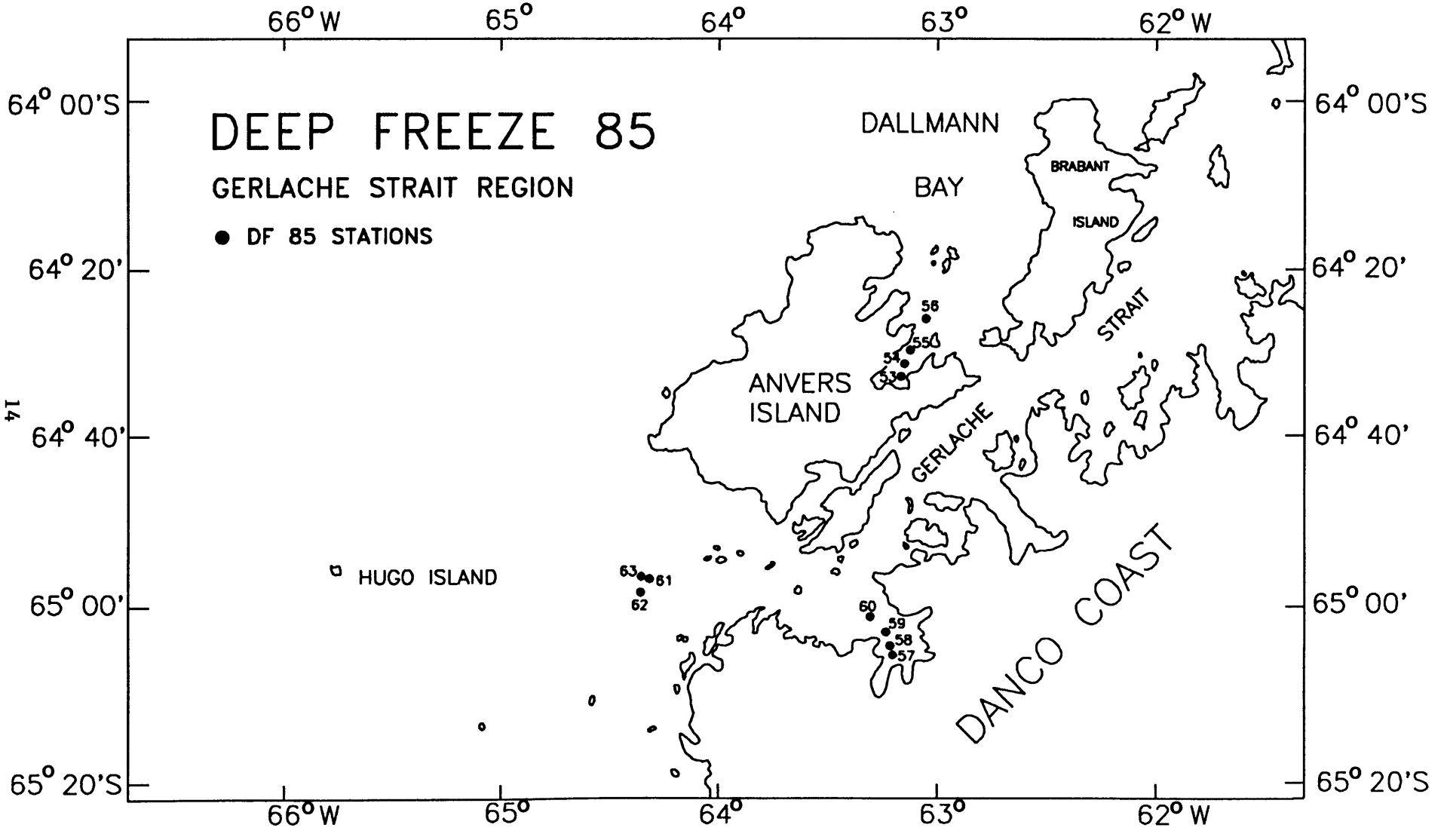


Figure 4. Sample locations in the Anvers Island Area (after Anderson, 1985a).

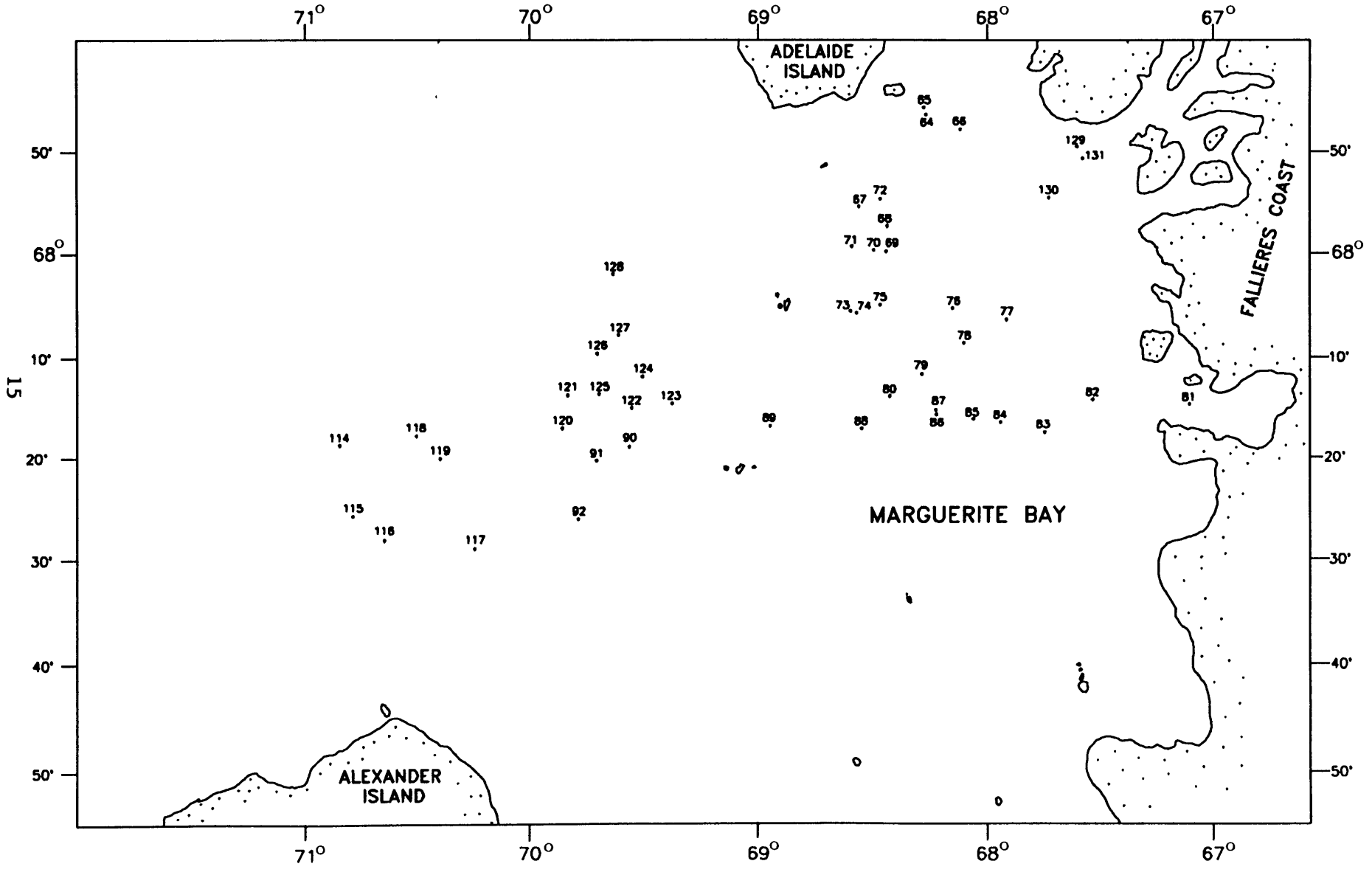


Figure 5. Sample locations in Marguerite Bay (after Anderson, 1985a).

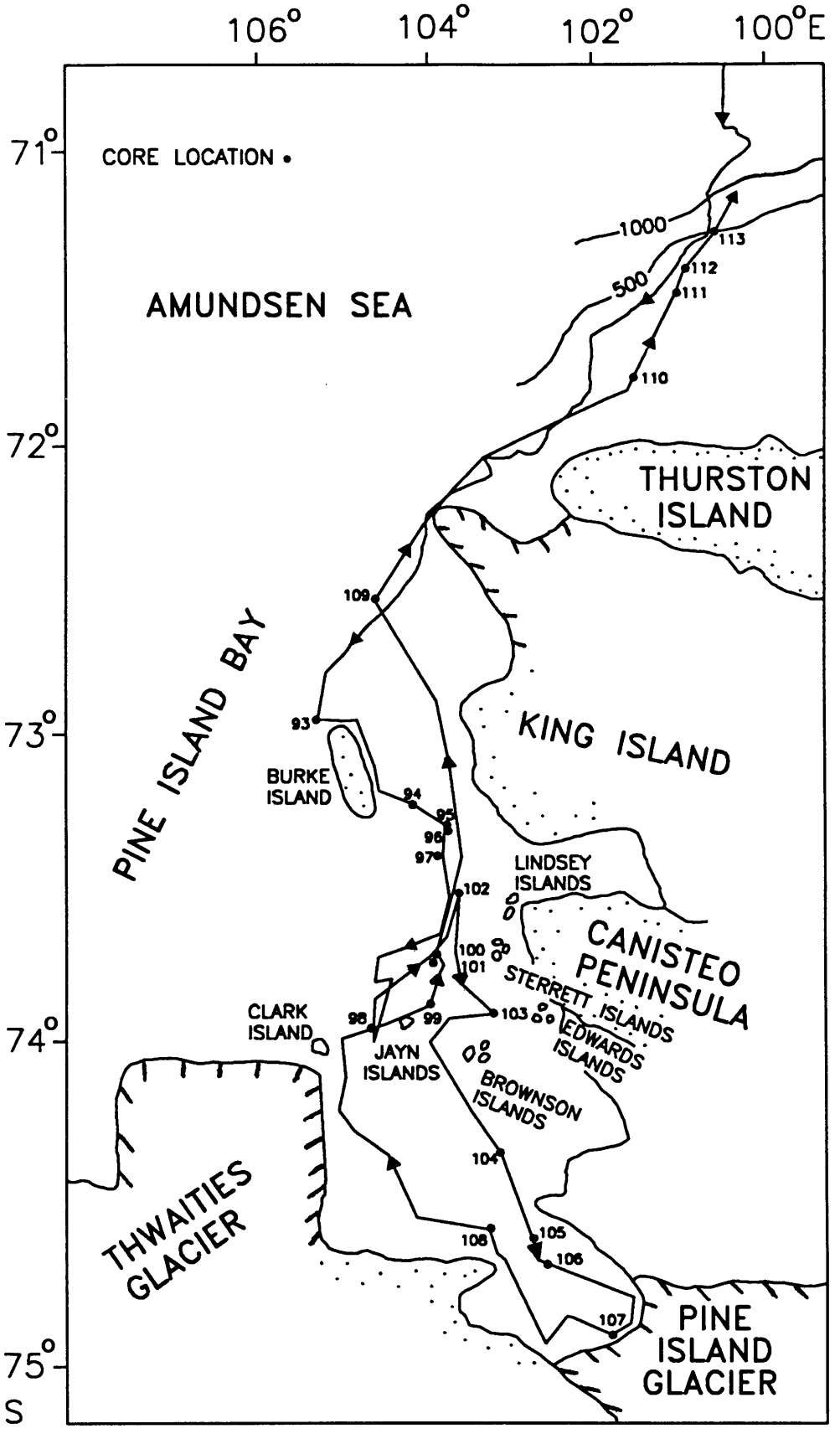


Figure 6. Sample locations in Pine Island Bay and vicinity (after Anderson, 1985a).

CORE DESCRIPTION PROCEDURES

General Information

Procedures used for describing the cores and grab samples listed in this volume are similar to those used by Kaharoeddin et al. (1988) for cores recovered by the *Glacier* during the 1979-1980 cruise to the Western Ross Sea. These procedures are reproduced here with slight modification. The description of each core consists of three types of information:

1. The primary information (latitude, longitude, water depth, core length, bottom topography);

2. The main lithologic description (megascopic description and smear slide analyses);

3. Information concerning core conditions that are not inherent to the lithologic character of the sediments.

Most of the primary information is obtained from the deck-log, or from other information provided by the chief scientist of the cruise. Core conditions not inherent to the lithologic character of the sediments are obtained from the deck log and noted in the core description.

Each piston core description is accompanied by a graphic log illustrating the main lithologies, boundaries, inclusions, sedimentary structures, and degrees of disturbances of the sedimentary units. (The same criteria and format used for describing the piston cores are used for describing the trigger cores, except that the graphic log is omitted from the trigger core description.) The positions of the core section breaks are also indicated in the log in order to inform the investigator as to where samples should not be taken, since the cutting of cores into sections produces sediment disturbance. Not all information appearing in the written portion of the lithologic description is illustrated in the graphic log. An attempt was made to place the lithologic log and the lithologic description of each sedimentary unit on the same page in order to facilitate the use of this volume, although this was not always possible. If necessary, the scale of the log was changed at appropriate depths.

In addition to the recovery of piston and trigger cores, a variety of bagged sediments were collected during this cruise. Bagged sediments are grouped into three categories, as follows:

1. Bagged sediment representing the total recovery of sediment by the coring attempt. The weights of these bagged sediments are mentioned in the description as an indication of the amount of sediment available for sampling.

2. Bagged sediment recovered by the Dietz-Lafond grab-sampler. The weights of these bagged sediments are also given in the descriptions. Smear slide analyses of grabbed sediments, however, were performed for only those samples obtained at ship stations for which the grab sample represents the sole recovery of sediment at the ship station.

3. Bagged sediment originating from somewhere within the sediment column, and which normally would be encased within the core liner. Most bagged sediments in this category are from the tops or bottom of core sections, and often result from the accidental spilling of sediment from the liner end, either during handling or cutting of the liner into shorter sections, or from difficult extrusion of the core liner from the core barrel. It is important that the length of a bagged sediment be taken into account in the determination of the true core length. Thus, an estimate of the length of a bagged amount of sediment is derived by molding this sediment into a cylinder of the same diameter as that of the core liner, and then measuring the length of the bagged sediment column to the nearest centimeter. In the core description, the position of a bagged interval is denoted by an asterisk appearing in the deformation column of the graphic log (if a piston core), and by a note to that effect at the end of the core description (e.g., piston core 85-19).

Core Preparation Procedure

The initial preparation of cores for description begins with cutting the core liners using a specially designed circular saw (see Cassidy and DeVore, 1973). After cutting, the sediment is manually split into two halves by pulling a stainless steel wire between the liner halves. The surfaces of each half are cleaned of plastic debris (which results from cutting the liners), and then scraped perpendicular to the core axis with a stainless steel spatula in order to expose fresh sediment. Various structures in the sediment may result from disturbance due to flow-in or sediment washing, although sediments disturbed in either manner can exhibit vertical striations. Since samples may be taken from a core prior to its description, flow-in and other disturbances are recorded immediately after the core is opened.

Both core halves are tagged every 20 cm, with the estimated length of existing bagged sediments being taken into account. The error in a depth tag's position below a bagged portion of core sediment is about 10% of the estimated length of the bagged sediment. For example, a bagged sample estimated to be 4 cm in length, and originating from just below 450 cm, would create a maximum error of +/-4 mm in the position of all depth tags below 450 cm.

Megascopic Examination and Description

The elements of description of each unit are presented in the following order:

1. The upper and lower boundaries of the unit in centimeters. For bagged sediments, this interval is replaced by the weight of the sediment in grams.

2. Name, color, and color code of the sediment. Gradual changes in texture or color or the unit are described accordingly. The term "graded" can be applied to the name of the unit (see the following chapter on sediment classification). Interlayering with other

types of sediment is mentioned in the same clause.

3. Observable distribution of volcanic ash and manganese and/or ferrous micronodules and staining.

4. Internal structures within the unit: zone, layer, lamina, lense, stringer.

5. Inclusions: Sedimentary clasts, pebbles, lapilli, manganese nodules.

6. Bioturbations.

7. Operational disturbances due to the coring operation and/or transportation.

8. Nature of the bottom contact of the unit.

The description is followed by a smear slide analysis of the unit, and occasionally of the structures and clasts within the unit.

The following are routine tests and examinations conducted in the study of core units:

1. A test for the presence of carbonate is conducted using dilute (1:20) hydrochloric acid. The reaction on the working slide is observed under a binocular microscope.

2. Hydroxylamine hydrochloride crystals are used to test for the presence of micronodules, or for manganese oxides and/or ferrous oxides occurring as staining material. (This test cannot be used to detect the presence of ferrous or manganese oxides in carbonate-rich sediments, since the carbonate also reacts with the crystals). Observation of this reaction also makes use of the binocular microscope and a working slide.

3. The coarse fraction, if abundant, is separated by wet-sieving (62 um sieve) and observed under the binocular microscope.

4. The determination of the position of a gradational contact sometimes requires the preparation of several working slides of sediment obtained from close intervals in the vicinity of the contact. (Working slides are not reported in the core descriptions).

5. A thorough megascopic examination is made of the core in order to determine its sedimentary structures, and the presence of dispersed inclusions or other components such as micronodules, pebbles, sedimentary clasts, or volcaniclastics.

Lithologic units were defined on the basis of compositional, textural, and other sedimentological characteristics, and have been named according to the classification system described in the next chapter. Almost all units can be classified using this system.

Glacial marine sediments generally consist of mixed-size clastics. The classification system used in this volume could not be utilized to describe the entire range of size classes found in such sediments, particularly if the dominant size is that of pebble; thus, finer matrix, if present in a pebble unit, is always mentioned, and is classified according to the rules established for the classification of fine-grained marine sediments.

Estimated values of constituent abundances obtained from smear slide analyses, wet-sieving, and megascopic examination were used in this classification. If a smear slide analysis was suspected of bias toward either the coarse or the fine fraction, a careful re-examination of the core was necessary.

The size class of a sand or pebble unit is always mentioned in the description, followed by its sorting. Size classes of sand-size fractions were determined by use of the AMSTRAT (American/ Canadian Stratigraphic) size class comparison card. On this card, each of the five size classes (very coarse, coarse, medium, fine, very fine) of sand-size particles has been divided into two subclasses (very coarse-upper, very coarse lower; coarse-upper, coarse lower; etc.). The ten subclasses (separated by 0.5phi intervals) are graphically depicted on the card for comparison with the sediment.

Determination of the mean grain size of sand is simply a matter of matching the size of the most abundant grains to one of the five size classes exhibited on the card.

The AMSTRAT card can also be used to determine the sorting of the sand, using the following procedure:

1. First, find the subclass (0.5 phi interval) of the mean particle size of the sample;

2. Next, determine the number of subclasses that are required to encompass at least 68% of the sand grains of the sample (including, of course, the subclass of step 1, above);

3. Using the following verbal classification scale for sorting, determine the degree of sorting according to the number of subclasses obtained in step 2, above.

NUMBER OF SUBCLASSES	SORTING
1	very well sorted
2	well sorted
3	moderately well sorted
4	moderately sorted
5-8	poorly sorted
>8	very poorly sorted

Note that this verbal classification is similar to that of Folk (1980).

A unit may exhibit several colors, and color changes within a unit are described as being gradational or sharp (abrupt). The color of the sediment is determined by visual comparison of fresh sediment with the Geological Society of America color chart (Goddard et al., 1970). If the color of a sediment cannot be matched exactly with the color chart, the closest color is used. *Mottling* refers to irregular spots of differing color within the sediment, and the color of mottling may be included in the description. Mottling usually occurs in diatomaceous ooze.

Any variation in the abundance of a major component in a unit, observable either megascopically or through smear slide analyses, is given in the description. Minor constituents which are scattered within a unit are generally not well-represented on smear slides. Therefore, these constituents (micro-manganese nodules, lapilli, volcanic ash, etc.) are identified on working slides, using proper chemical tests where applicable. Their abundances are determined after a thorough examination of the core, and described semi-quantitatively as sparsely scattered, common, or abundant. Manganese and ferrous oxides that occur as staining materials can be either in the form of small patches, or spread uniformly within a certain interval. These stainings are described by three qualitative terms: slightly, moderately, or highly stained.

In describing the internal structures within a sedimentary unit, the stratigraphic position of each structure is noted, and when applicable, the composition and the color are also described. In this volume, each structure is defined as follows: *Layers* have a thickness of between 1 to 10 cm, separated from the main unit by a discrete change in lithology and distinct planes of contact. *Laminae* are similar to layers, but have a thickness of less than 1 cm. *Stringers* are laminae which are discontinuous and often irregular in form.

Related to the internal structure are *zones*, defined as small intervals (less than 20 cm) in which a notable change in the abundance of some components or inclusions in the unit can be detected, either through megascopic examination or in the smear slide analysis. In the description of an unit, the following sequence is used: zones, layers, laminae, and stringers.

Inclusions within an unit are described in the following order:

1. *Sedimentary clasts* are described in detail including size, composition, color, and position in the core. If the core is not desiccated, the compactness of the clast is also mentioned. If the sedimentary clasts could not be examined individually due either to their abundance or to only half of the core being available for description, only the maximum size in millimeters is given, which gives enough information for potential sampling. (Example: sedimentary clasts up to 12 mm composed of calcareous, ash-bearing mud, diatomaceous mud, and muddy diatomaceous ooze, all olive gray (5Y 4/1), common throughout.)

2. *Manganese nodules* are described as to their size and position in the core.

3. *Volcaniclastics* as inclusions are described as to their textural class and position in the core. Sometimes the rock type (pumice, scoria) is also mentioned.

4. *Pebbles* are described as to their size, roundness, and position in the core. Occasionally, their rock type is also given. Coatings, encrustations, and cementation by manganese or ferrous oxides are common on clastics and volcaniclastics; they are mentioned when present. If the pebbles could not be examined individually due either to their abundance or to only half of the core being available for description, the size range of the pebbles is described. (Example: very fine to fine, subangular to subrounded pebbles common throughout).

Bioturbated sediments are described in terms of slightly, moderately, or highly bioturbated. The qualifiers can be approximated as follows:

Slightly:	less than 5% bioturbations
Moderately:	between 5% to 30% bioturbations
Highly:	30% or more bioturbations

Operational disturbances are disturbances in the sediment usually occurring during the coring operation, transportation, and occasionally during the splitting of the core, resulting in total or partial loss of the primary sedimentary structures and the stratigraphic integrity of the sediment. The degree of the disturbance is based on the value of the sediment for sampling, and is described in terms of slightly, moderately, or highly disturbed. *Slightly disturbed sediments* still retain most of their primary sedimentary structures, particularly along the central axis of the core. *Moderately disturbed sediments* have lost almost half of their original structures, and must be sampled carefully if they are to be stratigraphically meaningful. *Highly disturbed sediments* have lost most or all of their primary structures; it is not recommended that these be sampled for stratigraphic study because of mixing of sediment components. Highly mixed sediment that has randomly entered the core by suction during the coring operation is described as *flow-in*, and is usually characterized by vertical striations which can be traced from the base of the core.

Water entrapped in the liner, and which was not removed aboard ship, can wash the sediment along the side of the liner during transport. This disturbance is described as *slightly* or *moderately washed along the side*, and can still be sampled carefully for stratigraphic work. The term, "highly washed along the side", is not used because such sediment is almost always highly disturbed. An uncommon disturbance occurs when the overlying sediment is dragged along the side of the liner. Cores described in this manner can be sampled (carefully) for stratigraphic work. For each unit, the most severe disturbance is listed first.

Smear Slide Analysis

The method used in this volume is similar to that used in the describing of sediments recovered aboard previous cruises of *ARA Islas Orcadas* and the *USCGC Glacier*. The abundance of various sediment components on the smear slides is estimated using petrographic microscopes

capable of magnification up to 2000X and with options of using transmitted light, polarized light, phase contrast, and Nomarski differential interference contrast. For each smear slide, the following constituents were quantitatively estimated:

1. Minerals: quartz, feldspar, mica, heavy minerals, volcanic glass, glauconite, pyrite, and micromanganese nodules.

2. Biogenic constituents: foraminifera, calcareous nannofossils, unspecified carbonate, diatoms, radiolarians, sponge spicules, silicoflagellates, ebridians, brown algae, and ostracodes.

Quartz and feldspar are differentiated on the basis of the crystal habit and twinning of feldspar. Keratophyric particles generally can be distinguished, but due to their mode of formation and often weak birefringence, they are grouped with volcanic glass. Included in micromanganese nodules are ferrous and manganese oxides which occur as staining materials on biogenic particles. Clay minerals, which have refractive indices very close to that of Canada balsam, are detected and estimated by means of phase contrast microscopy.

The percentage composition chart for rock and sediments, as prepared by Shvetsov (Terry and Chilingar, 1955), was used to estimate the abundance of the constituents of the sediments on the smear slides. In all estimates, void spaces were taken into account. On smear slides with abundant coarse fragments, these void spaces often comprise as much as 50% of the total area of the slide. In these cases, estimated abundance percentages based solely on comparison to the chart of Shvetsov are usually of diminished accuracy. In order to improve the quality of the core description, another method has been devised for the analysis of smear slides with abundant coarse fragments and proportionately high void spaces. This method involves the determination of the ratios of the abundances of various smear slide constituents, from which percentage abundances can be calculated. The steps of this ratio method are as follows:

1. Estimate the ratio of the total coarse fraction* (consisting usually of quartz, feldspar, heavy minerals, glauconite, radiolarians, and foraminifera) to the total fine fraction (consisting usually of clay, diatoms, silicoflagellates, and nannofossils).

   (*The coarse fraction is defined as all particles between the lower limit of medium silt (0.016mm) and the upper limit of coarse sand (2mm). Particles less than 0.016mm are considered fine fraction).

2. List separately, and in order of abundance from the most abundant to the least abundant, the components of the coarse and fine fractions.

3. Using the comparative chart of Shvetsov, and taking into account the void spaces, estimate the *percentage* abundance of the most abundant component of the coarse fraction (usually quartz).

4. Repeat step 3 for the fine fraction.

5. For the coarse fraction, estimate the ratio of the second most abundant to the most abundant; next, the ratio of the third most abundant component to the most abundant, etc.

6. Repeat step 5 for the fine fraction.

7. Convert each of the ratios obtained in steps 5 and 6 to a percentage of the estimated percent abundance (from steps 3 and 4) of the most abundant components of the coarse and fine fractions, respectively. For example, if the most abundant component of the coarse fraction is quartz, and was estimated in step 3 to be 45%, and the ratio of the second most abundant component (say, glauconite) to quartz was estimated to be 1:3, then the percentage abundance of glauconite would be 15% (1/3 of 45%).

8. In theory, the total of the percentages of the most abundant components of both size fractions (from steps 3 and 4), when added to the total of the percentages of the less abundant components of each size fraction, should equal 100%, and the ratio of the total of all abundance percentages of the coarse fraction constituents (from steps 3 and 7) to the total of all abundance percentages of the fine fraction constituents (from steps 4 and 7) should be the same as the coarse-to-fine fraction ratio estimate in step 1. (The ratio obtained by step 1 serves merely as a reference for comparison with the ratio of the total of the percentages of the coarse fraction constituents to the total of those of the fine fraction, since the ratio obtained in step 1 is usually fairly accurate). In practice, however, the total of the percentages rarely equals 100 (although it is usually close), nor do the two ratios agree exactly. Although several variables contribute to the error involved (such as the experience of the observer), the degree of variance is primarily a function of the nature of the method itself, involving, as it does, the compounding of estimations.

9. The final step, therefore, is to adjust, if necessary, one or more of the percentage of specific components so that the total of all percentages equals 100. These minor adjustments are not made at random, but are made with reference to (1) the megascopic examination, using a binocular microscope, of coarse fraction particles separated by wet-sieving; (2) the inspections of other smear slides from the lithologic unit, and (3) the observation of macroscopically visible features and particle distributions within the unit.

The presence of certain components on the smear slide may require minor variations to the ratio determinations method of step 7. For example, if heavy minerals constitute one of the less abundant components of the coarse fraction, and quartz is the most abundant component of this size fraction, then it will be necessary to determine the ratio of the abundance of the heavy minerals to the abundance of some other coarse fraction component, such as glauconite. Quartz particles are viewed between crossed nicols, whereas heavy minerals are commonly observed

with plane-polarized light. Viewed by plane-polarized light, the nonopaque heavy minerals exhibit high relief, but quartz exhibits very low relief and often cannot be distinguished from the Canada balsam. Thus, it becomes necessary to determine the abundance ratio of the heavy minerals to the abundance of some other coarse fraction component exhibiting easily and readily definable boundaries under plane-polarized light.

Smear slides dominated entirely, or nearly so, by coarse particles may not require application of the ratio method, regardless of the presence of many void spaces. With smear slides devoid of a coarse fraction, the percentage abundances of the two most abundant components of the fine fraction (usually either diatoms and clay, or diatoms and nannofossils) are commonly determined by use of a simple ratio method. If a component can be found regularly in most traverses on a smear slide, but its abundance is less than 1% according to the percentage composition chart of Shvetsov, then the abundance of that component is recorded as <1%. If a component is rarely found on a smear slide, it is recorded as <<1%.

SEDIMENT CLASSIFICATION

The system of sediment classification used in this volume is that used by Kaharoeddin et al. (1988), is described below. The general characteristics of this classification are: (1) sediment names are those in common usage: (2) the classification is strictly descriptive, and (3) the classes and groups are based solely on abundance estimates of the constituents as determined by smear slide analyses, wet sieving, and/or megascopic examinations.

Details of Classification

The three major groups of sediment are (Figure 7):

1. *Pelagic sediments*, consisting of pelagic clay, siliceous ooze, calcareous ooze, and a mixture of siliceous and calcareous ooze;

2. *Transitional sediments* consisting of mixtures of biogenic and clastic sediments, and

3. *Terrigenous and volcanic detrital* sediments.

I. Pelagic Sediments

A. Pelagic Clay

This type of sediment accumulates at a very slow rate and generally has a brown hue. Authigenic components are common (5% or more in estimated abundance), however,

they may be present only in small quantities and distributed in such a manner that they are not found on the smear slide. Usually, a careful examination of the core, aided by the smear slide analysis, is necessary to determine whether or not a sediment is a pelagic clay. The primary components of pelagic clay are clay minerals and silt-size quartz particles, and the clay may contain less than 30% biogenic components. A qualifier cannot be added to pelagic clay; hence, pelagic clay containing 25% diatoms is not called diatomaceous pelagic clay.

B. Pelagic Biogenic Sediments

Included in this group are sediments containing at least 30% biogenic skeletons, but containing less than 30% silt and clay. They are named according to their principal fossil types: *diatomaceous ooze*, *radiolarian ooze*, *siliceous ooze*, *foraminiferal ooze*, *nannofossil ooze*, or *calcareous ooze*. A second (lesser) biogenic component may be used as a qualifier if present more than 15%. The following rules are applicable for naming the pelagic biogenic sediments:

1. If both the principal and lesser fossil types are similar in their chemical composition (i.e., calcareous or siliceous), and if the ratio of the lesser to the principal fossil type exceeds 0.75, the sediment is called siliceous ooze or calcareous ooze, depending on its chemical composition.

Examples:

Quartz	9%	Quartz	5%
Feldspar	1%	Feldspar	<1%
Volcanic glass	1%	Clay	3%
Glauconite	7%	Foraminifera	40%
Diatoms	45%	Calcareous nannos	38%
Radiolarians	35%	Diatoms	13%
Sponge spicules	2%	Radiolarians	1%

$$\frac{\text{Radiolarians}}{\text{Diatoms}} = .78$$

: hence, *siliceous ooze*

$$\frac{\text{Calcareous nannos}}{\text{Foraminifera}} = .95$$

: hence, *calcareous ooze*

Quartz	9%
Feldspar	1%
Clay	10%
Volcanic glass	2%

Glauconite	3%
Diatoms	50%
Radiolarians	25%
Silicoflagellates	<1%

Radiolarians
---------- = 0.5
Diatoms

:hence, *radiolarian, diatomaceous ooze*

2. Calcareous sediments which have unspecified carbonate more than one-third of the total carbonate are called *calcareous ooze*.

3. If the principal and lesser fossil types differ in chemical composition, and if the ratio of the lesser to the principal fossil type exceeds 0.75, then both components are used in the sediment name, joined by a hyphen.

Example:

Quartz	8%
Feldspar	<1%
Clay	7%
Volcanic glass	15%
Carbonate unspecified	7%
Foraminifera	30%
Diatoms	28%
Radiolarians	5%

Diatoms
---------- = .93
Foraminifera

:hence, *diatomaceous-foraminiferal ooze*

II. Transitional Biogenic Sediments

Included in this group are sediments containing at least 30% silt and clay. Two subdivisions are recognized: the *transitional siliceous sediments* having at least 15% diatoms but less than 30% calcareous skeletons, and *transitional calcareous sediments* having at least 30% calcareous skeletons. The following rules apply for naming the sediments in this group:

A. A transitional siliceous sediment is called *muddy, diatomaceous ooze* if diatoms are more abundant than silt and clay; otherwise, it is called *diatomaceous mud.*

B. The transitional calcareous sediments are named according to their principal fossil types: *marly, foraminiferal ooze* or *marly, nannofossil ooze.* If the ratio of the lesser to the principal fossil type exceeds 0.75, the sediment is called *marly, calcareous ooze.*

III. Terrigenous and Volcanic Detrital Sediments

A. Terrigenous Detrital Sediments

Sediments in this group are classified according to their texture as defined by the standard size classes of sediment according to Friedman and Sanders (1978)(Figures 8,9). The following rules apply for sediments which are primarily composed of mixtures of sand, silt and clay:

1. The sediments are named after their major clastic component (end-member) if that component is greater than or equal to 70%.

2. Sediments containing a mixture of silt and clay greater than or equal to 70% are called *mud.*

3. Sediment containing between 30% and 50% sand are named: *sandy silt* if the silt content is between 50% and 70%; *sandy clay* if the clay content is between 50% and 70%, or *sandy mud* if the mud content is less than 70%.

4. Sediments containing between 50% and 70% sand and between 30% and 50% mud are called *muddy sand.*

5. Sediments containing a minor component between 15% and 30% (e.g., diatoms or pebbles) should have a qualifier (e.g., diatomaceous or pebbly). In this case, the percentages of sand, silt, and clay are recomputed to 100% before applying the four rules above.

Example:

Quartz	58%
Feldspar	2%
Mica	1%
Heavy minerals	1%
Clay	10%
Volcanic glass	4%
Glauconite	1%

Diatoms	20%
Radiolarians	2%
Sponge spicules	1%

In this example, clastics (quartz, feldspar, mica, heavy minerals, clay, volcanic glass, glauconite) total 77%. If sand-size particles total 45% and silt and clay are 32%, then the recomputed values of,

$$\text{sand} = 0.45 \times \frac{100}{77} = 58\%, \text{ and}$$

$$\text{mud} = 0.32 \times \frac{100}{77} = 42\%.$$

Hence, the sediment is called *diatomaceous, muddy sand.*

Pebbles are seldom encountered as a distinct sedimentary unit in marine sediments, except in glacial marine sediments. The following rules apply to the naming of sediments which consist primarily of pebbles:

1. Sediments containing 70% or more pebbles are called *pebbles.*

2. Sediments containing between 50% and 70% pebbles and between 30% and 50% either mud or sand are called *muddy pebbles* or *sandy pebbles*, respectively.

Pebble units (as defined by rule 1, above) often contain finer matrix sediment, some or nearly all of which could be washed away during core retrieval or transportation. Removal of matrix sediment by washing is usually easily identified during core-description. In the event that matrix sediment constitutes more than 10% of a pebble unit, the composition of the matrix sediment is mentioned.

In graded sequences in which the size of the particles ranges from one textural class to another (for example, from silt to sand), the term *graded clastics* is used as the name of the unit. If the size of the particles ranges within one textural class, the unit is named according to its textural class (for example: sand, yellow gray (5Y 7/2), graded).

B. Volcaniclastics

This sediment group is classified according to the classification proposed by Fisher (1961, 1966). The nomenclature and the size limits are as follows:

Fine ash:	less than 63 micrometers
Coarse ash:	63 micrometer to 2 mm
Lapilli:	2 mm to 64 mm

As suggested by Fisher (1966), the term "volcanic" is not used as an adjective of ash or lapilli. The term "volcaniclastic" is used only for graded sequences where the particles size grades from ash to lapilli; thus, the name of the unit is *graded volcaniclastics*. In the case of graded sequences where the size of the particles ranges within one textural class, the unit is named according to its textural class (for example: coarse ash, brownish black (5YR 2/1), graded, well-sorted).

Volcaniclastics which have biogenic or terrigenous components in excess of 15% will have a qualifier with the term "bearing" added to the qualifier (example: diatom-bearing coarse ash). The same term is also added to the qualifier of other groups of sediment if the unit contains more than 15% volcaniclastics (example: ash-bearing diatomaceous ooze).

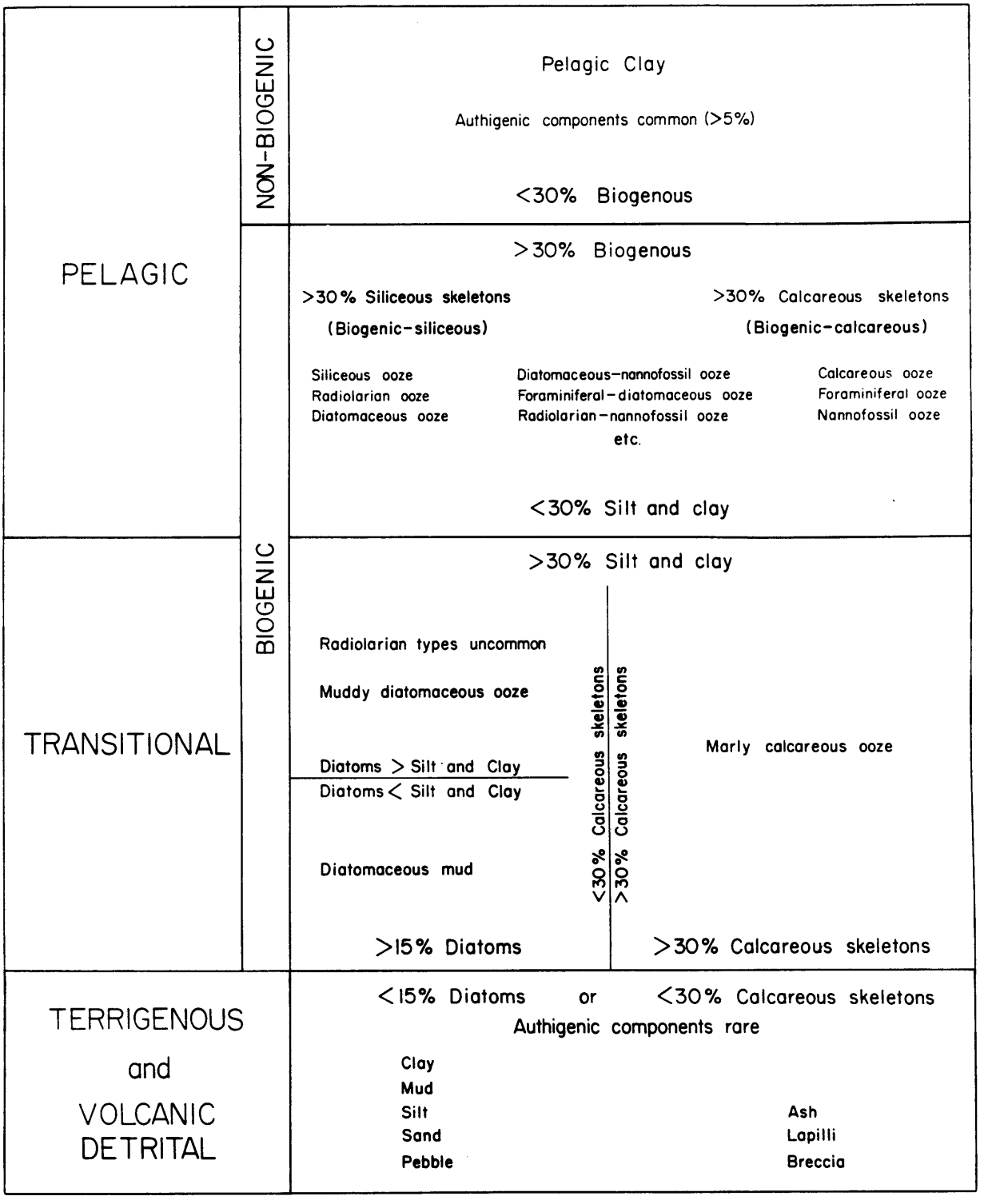


Figure 7. Classification of Marine Sediments

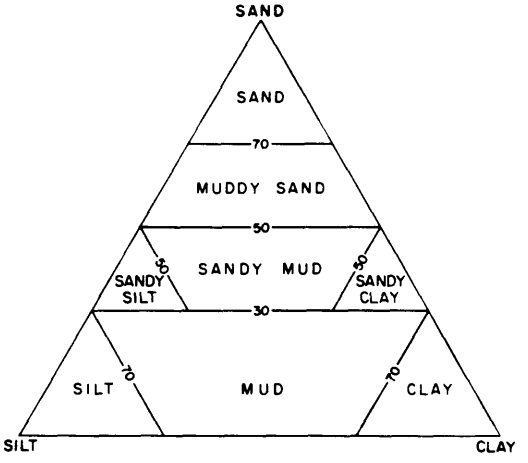


Figure 8. Classification of Clastic Sediments

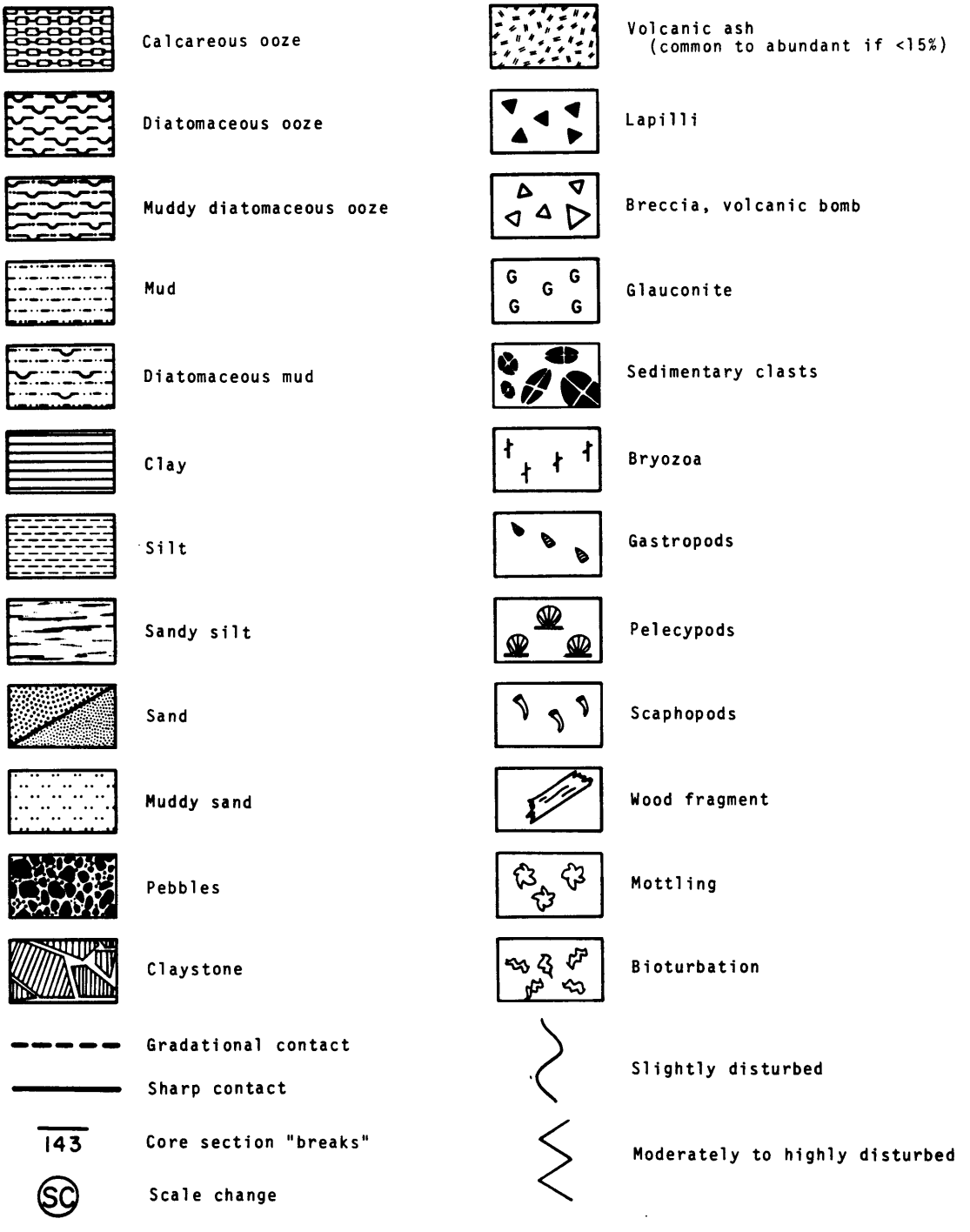
LIMITING SIZE in mm	SIZE CLASS	
64	VERY COARSE	PEBBLES
32	COARSE	
16	MEDIUM	
8	FINE	
4	VERY FINE	
2	VERY COARSE	SAND
1	COARSE	
.5	MEDIUM	
.25	FINE	
.125	VERY FINE	
.062	COARSE	SILT
.031	MEDIUM	
.016	FINE	
.008	VERY FINE	
.004	CLAY	

STANDARD SIZE CLASSES OF SEDIMENT
(MODIFIED AFTER FRIEDMAN AND SANDERS, 1978)

Figure 9. Standard Size Classes of Sediments

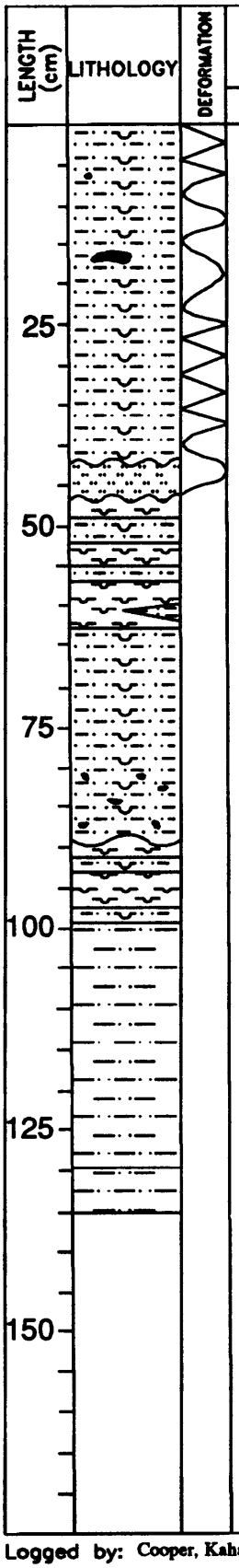
KEY

SYMBOLS USED FOR CORE DESCRIPTIONS



Key: Symbols Used in Core Descriptions

USCGC GLACIER DF 85-1



Latitude: 61°34.3' S
Longitude: 47°29.9' W

Water Depth: 2504 M
Core Length: 135 CM

LITHOLOGIC DESCRIPTION

0-46 cm: Diatomaceous mud, light olive gray (5Y 5/2); layer of muddy, very fine, well sorted sand, olive gray (5Y 3/2) between 43-46 cm, irregular upper and lower contact due to disturbance; 3mm inclined lamina of muddy sand, olive gray (5Y 3/2) between 31-33 cm; angular pebbles between 5-6 cm (3mm), and 16-17 cm (9mm, elongate); moderately disturbed (washed) between 0-7 cm and 26-37 cm; slightly disturbed (washed) between 7-26 cm and 37-46 cm; sharp, irregular contact.

Smear Slides:	11 cm	27 cm
Quartz	58	57
Feldspar	<1	<1
Mica	<1	<1
Heavy Minerals	4	5
Clay	7	8

Smear Slides (cont'd):	11 cm	27 cm
Volcanic Glass	1	1
Diatoms	27	26
Radiolarians	1	1
Sponge Spicules	1	1
Silicoflagellates	1	1

46-63 cm: Diatomaceous ooze, light olive gray (5Y 5/2); laminae and lenses of muddy diatomaceous ooze, moderate olive brown (5Y 5/2) up to 10mm abundant throughout; slightly washed along side throughout; sharp contact.

Smear Slide:	54 cm
Quartz	18
Feldspar	1
Mica	<1
Heavy Minerals	5
Clay	2

Smear Slide (cont'd):	54 cm
Volcanic Glass	1
Diatoms	71
Radiolarians	1
Sponge Spicules	<1
Silicoflagellates	1

63-89 cm: Diatomaceous mud, olive gray (5Y 4/1); zone of higher sand content between 82-89 cm; very fine to fine, angular to subangular pebbles abundant between 82-89 cm; slightly washed along side throughout; sharp irregular contact.

Smear Slide:	70 cm
Quartz	43
Feldspar	<1
Mica	<1
Heavy Minerals	4
Clay	8

Smear Slide (cont'd):	70 cm
Volcanic Glass	1
Diatoms	42
Radiolarians	1
Sponge Spicules	1

89-98 cm: Diatomaceous ooze, yellowish gray (5Y 7/2); laminae and lenses of diatomaceous mud, olive gray (5Y 4/1) up to 22 mm abundant throughout; slightly washed along the side between 89-90 cm; sharp contact.

Smear Slide:	92 cm
Quartz	22
Feldspar	<1
Heavy Minerals	2
Clay	1
Volcanic Glass	<1

Smear Slide (cont'd):	92 cm
Diatoms	74
Radiolarians	<1
Sponge Spicules	<1
Silicoflagellates	1

98-129 cm: Mud, olive gray (5Y 4/1); zone of higher sand and ash content between 124-129 cm; sharp contact.

Smear Slide:	113 cm
Quartz	60
Feldspar	1
Mica	<1
Heavy Minerals	10

Smear Slide (cont'd):	113 cm
Clay	23
Volcanic Glass	3
Diatoms	2
Sponge Spicules	1

129-135 cm: Mud, light olive gray (5Y 5/2); differs from the overlying unit by its higher clay content.

Smear Slide:	131 cm
Quartz	51
Feldspar	<1
Mica	<1
Heavy Minerals	10

Smear Slide (cont'd):	131 cm
Clay	35
Volcanic Glass	3
Diatoms	1
Sponge Spicules	<1

Bottom topography: Not recorded in deck log.

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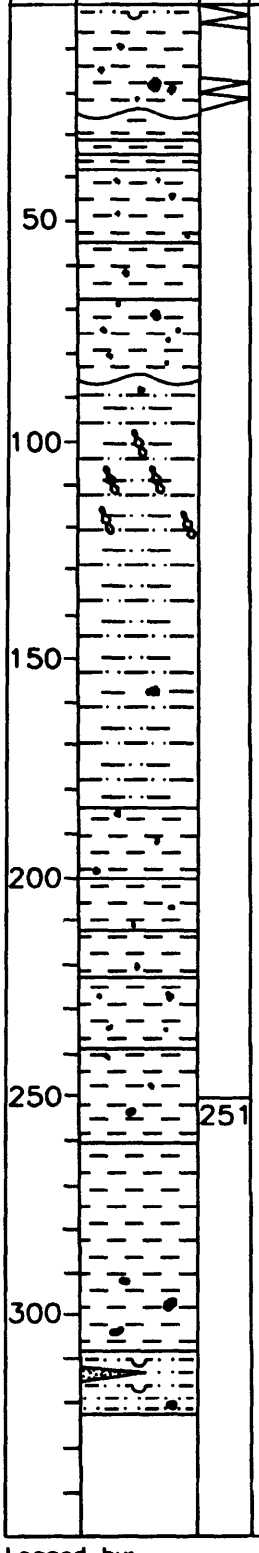
USCGC GLACIER DF 85-2



Latitude: 61°32.9' S
Longitude: 47°14.4' W

Water Depth: 988 M
Core Length: 323 CM

LITHOLOGIC DESCRIPTION

0-25 cm: Graded clastics, from diatomaceous mud, light olive gray (5Y 5/2), gradationally changing at 3 cm to medium silt, medium gray (N5), well sorted, gradationally changing at 6 cm to coarse silt, light olive gray (5Y 6/1), moderately sorted, gradationally changing at 12 cm to coarse silt, olive gray (5Y 4/1), very well sorted; very fine to fine subrounded pebbles sparsely scattered between 10-25 cm; subangular pebbles between 16-20 cm (21 mm) and 18-20 cm (16mm); highly disturbed between 16-25 cm (embedded broken core liner); moderately disturbed between 0-5 cm; sharp irregular contact.

Smear Slides:	2 cm	22 cm
Quartz	60	75
Feldspar	<1	<1
Mica	<1	<1
Heavy Minerals	7	8
Clay	5	<1

Smear Slides (cont'd):	2 cm	22 cm
Volcanic Glass	4	8
Glauconite	--	<1
Diatoms	22	5
Radiolarians	<1	3
Sponge Spicules	2	1

25-84 cm: Interbedded layers of medium silt, light olive gray (5Y 5/2), moderately well-sorted, and coarse silt, light olive gray (5Y 5/2), very well sorted, interbedded as follows: medium silt between 25-33 cm, 37-39 cm, and 55-68 cm; coarse silt between 33-37 cm, 39-55 cm, and 68-84 cm; very fine to fine, subangular to subrounded pebbles common between 34-50 cm and 68-84 cm, sparsely scattered between 50-68 cm; 22 mm subrounded pebble between 71-74 cm; slightly washed along the side between 46-84 cm; sharp irregular contact.

Smear Slides:	63 cm	74 cm
Quartz	77	70
Feldspar	<1	1
Mica	<<1	<1
Heavy Minerals	12	18
Clay	<1	--

Smear Slides (cont'd):	63 cm	74 cm
Volcanic Glass	7	6
Glauconite	<1	--
Diatoms	1	<1
Radiolarians	1	<1
Sponge Spicules	2	5

84-183 cm: Mud, yellowish gray (5Y 7/2), gradationally changing to olive gray (5Y 4/1) at 160 cm; silt content increasing with depth between 120-183 cm; moderately bioturbated between 93-120 cm; subangular pebbles between 88-89 cm (3 mm) and 157-158 cm (5 mm); sharp contact.

Smear Slide:	129 cm
Quartz	64
Feldspar	<1
Mica	<<1
Heavy Minerals	8
Clay	18

Smear Slide (cont'd):	129 cm
Volcanic Glass	2
Diatoms	5
Radiolarians	<1
Sponge Spicules	3

183-222 cm: Coarse silt, olive gray (5Y 4/1), moderately well sorted; layer of coarse silt, olive gray (5Y 4/1), well sorted, between 200-214 cm; very fine to fine, subangular to subrounded pebbles sparsely scattered throughout; sharp contact.

Smear Slide:	187 cm
Quartz	77
Feldspar	<1
Mica	<1
Heavy Minerals	16
Clay	<1

Smear Slide (cont'd):	187 cm
Volcanic Glass	5
Diatoms	<1
Radiolarians	1
Sponge Spicules	1

222-239 cm: Medium silt, olive gray (5y 4/1), well sorted; very fine subangular pebbles sparsely scattered throughout; subangular pebbles between 227-228 cm (10 mm) and 234-235 cm (9 mm); sharp contact.

Smear Slide:	225 cm
Quartz	72
Feldspar	<1
Mica	<1
Heavy Minerals	10
Clay	8

Smear Slide (cont'd):	225 cm
Volcanic Glass	2
Diatoms	2
Radiolarians	<1
Sponge Spicules	6

Continued on next page→

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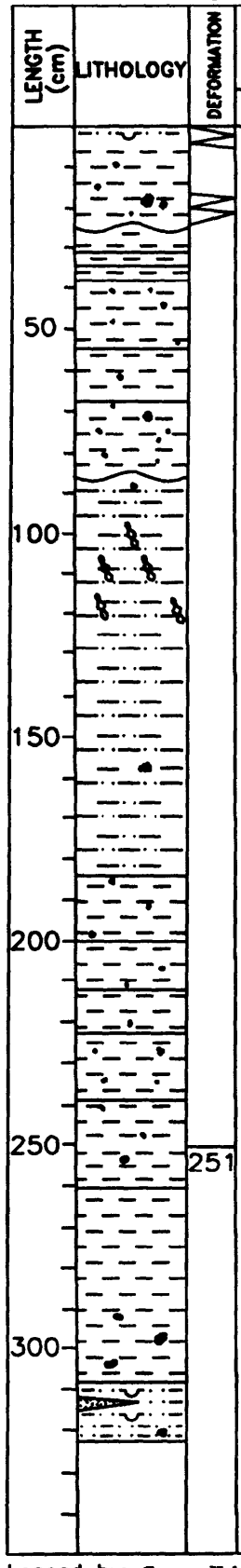
USCGC GLACIER DF 85-2 (continued)



Latitude: 61°32.9' S
Longitude: 47°14.4' W

Water Depth: 988 M
Core Length: 323 CM

LITHOLOGIC DESCRIPTION

239-261 cm: Coarse silt, olive gray (5Y 4/1), very well sorted; very fine to fine, subangular to subrounded pebbles sparsely scattered throughout; sharp contact.

Smear Slide:	252 cm	Smear Slide (cont'd):	252 cm
Quartz	69	Volcanic Glass	2
Feldspar	<1	Glauconite	<1
Mica	<1	Diatoms	<1
Heavy Minerals	25	Radiolarians	<1
Clay	2	Sponge Spicules	2

261-307 cm: Medium silt, olive gray (5Y 4/1), well sorted; zone of high diatom content between 263-266 cm; very fine to fine, subangular to subrounded pebbles sparsely scattered between 292-307 cm; sharp contact.

Smear Slide:	291 cm	Smear Slide (cont'd):	291 cm
Quartz	72	Volcanic Glass	2
Feldspar	1	Diatoms	1
Mica	<1	Radiolarians	<<1
Heavy Minerals	16	Sponge Spicules	3
Clay	5		

307-323 cm: Diatomaceous mud, light olive gray (5Y 6/1); sand content increases with depth; lense of very fine sand between 313-314 cm; 10 mm subrounded pebble between 321-322 cm.

Smear Slide:	315 cm	Smear Slide (cont'd):	315 cm
Quartz	60	Volcanic Glass	1
Feldspar	<1	Diatoms	21
Mica	<1	Radiolarians	<1
Heavy Minerals	14	Sponge Spicules	1
Clay	3	Silicoflagellates	<1

Bottom topography: Not recorded in deck log.

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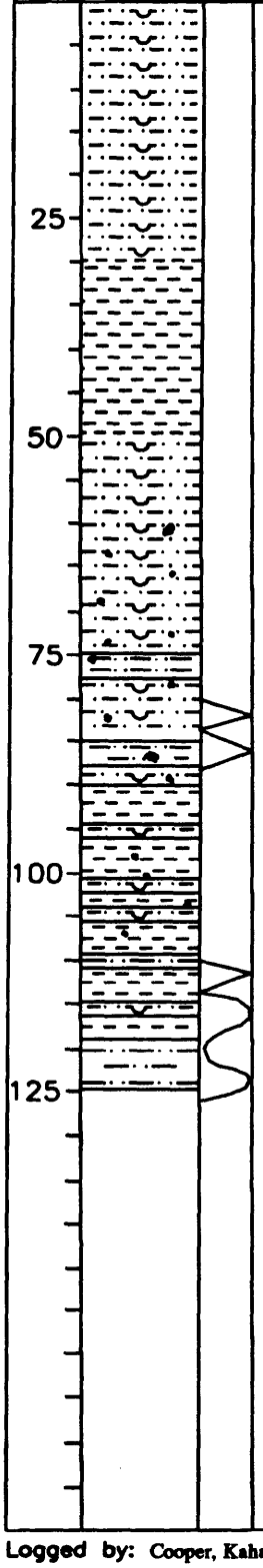
USCGC GLACIER DF 85-3



Latitude: 61°29.7' S
Longitude: 47°02.5' W

Water Depth: 576 M
Core Length: 124 CM

LITHOLOGIC DESCRIPTION

0-29 cm: Diatomaceous mud, light olive gray (5Y 5/2); silt content increasing with depth; slightly washed along the side throughout; gradational contact.

Smear Slide:	10 cm
Quartz	46
Feldspar	<1
Mica	<1
Heavy Minerals	12
Clay	1
Volcanic Glass	3
Diatoms	35
Radiolarians	1
Sponge Spicules	2
Silicoflagellates	<<1

29-49 cm: Silt, olive gray (5Y 3/2), slightly washed along the side throughout; gradational contact.

Smear Slide:	35 cm
Quartz	77
Feldspar	<1
Mica	1
Heavy Minerals	10
Clay	<1
Volcanic Glass	7
Diatoms	5
Radiolarians	<1
Sponge Spicules	<1
Silicoflagellates	<<1

49-90 cm: Diatomaceous mud, olive gray (5Y 4/1); layers of sandy silt, medium gray (N5) between 74-77 cm, with inclined contacts, and 86-87 cm, with inclined bottom contact; very fine to fine, subangular to subrounded pebbles common between 63-75 cm, sparsely scattered between 75-90 cm; 13 mm subrounded pebbles between 62-65 cm; 18 mm subangular pebble between 86-88 cm; highly disturbed between 80-88 cm; slightly washed along the side between 49-80 cm; sharp contact.

Smear Slide:	55 cm	77 cm (layer)
Quartz	60	78
Feldspar	<1	<1
Mica	<1	1
Heavy Minerals	12	10
Clay	<1	2
Volcanic Glass	5	6
Glauconite	–	<1
Diatoms	20	2
Radiolarians	1	<<1
Sponge Spicules	2	1

90-124 cm: Silt, medium gray (N5), moderately laminated with diatomaceous mud, olive gray (5Y 4/1); layer of sandy silt, medium gray (N5) between 108-110 cm and 119-124 cm; very fine to fine, subangular to subrounded pebbles sparsely scattered between 100-108 cm; 10 mm angular pebble between 97-98 cm; highly disturbed between 110-116 cm; slightly disturbed (washed) between 116-124 cm.

Smear Slides:	96 cm (silt)	115 cm (diatomaceous mud)
Quartz	68	55
Feldspar	<1	<1
Mica	<1	<<1
Heavy Minerals	16	7
Clay	4	<1
Volcanic Glass	8	3
Carbonate unspecified	<<1	–
Foraminifera	<1	–
Diatoms	3	34
Radiolarians	<1	<<1
Sponge Spicules	1	1

Bottom topography: Not recorded in deck log.

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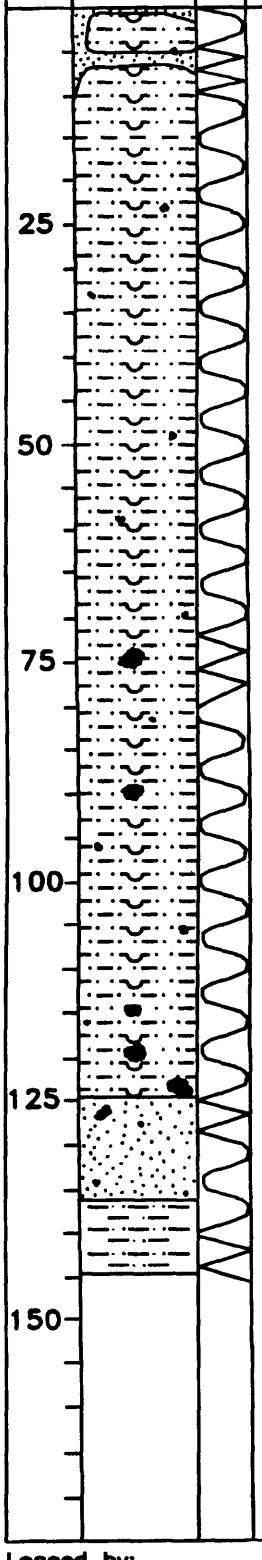
USCGC GLACIER DF 85-4



Latitude: 61°31.6' S
Longitude: 47°01.7' W
Water Depth: 553 M
Core Length: 144 CM

LITHOLOGIC DESCRIPTION

0-15 cm: Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); layer of very fine sand, olive gray (5Y 4/1), well sorted, between 0-1 cm, and washed into main unit along the side between 1-13 cm, and into the middle of the core between 5-7 cm; 3 mm angular pebble between 5-6 cm; moderately disturbed (washed) between 4-10 cm, slightly disturbed (washed) between 0-4 cm and 10-15 cm; gradational contact.

Smear Slide:	12 cm
Quartz	38
Feldspar	<1
Mica	<1
Heavy Minerals	5
Clay	2
Volcanic Glass	3
Diatoms	52
Radiolarians	<1
Sponge Spicules	<1
Silicoflagellates	<<1

15-124 cm: Diatomaceous mud, light olive gray (5Y 5/2), becoming olive gray (5Y 4/1) between 74-89 cm, coincides with increased silt content; very fine to fine, angular to subrounded pebbles sparsely scattered throughout; 20 mm angular pebble between 117-120 cm; subangular pebbles between 114-116 cm (18 mm) and 121-124 cm (26 mm); subrounded pebbles between 70-74 cm (27 mm) and 89-92 cm (25 mm); moderately disturbed (washed) between 70-78 cm, slightly disturbed (washed) between 15-70 cm and 78-124 cm; sharp contact.

Smear Slides:	50 cm	74 cm	96 cm
Quartz	52	69	52
Feldspar	<1	<1	<1
Mica	<1	<1	<1
Heavy Minerals	5	6	6
Clay	2	3	1
Volcanic Glass	5	6	5
Diatoms	35	16	34
Radiolarians	<1	<<1	<1
Sponge Spicules	1	<1	2
Silicoflagellates	<<1	–	<<1

124-137 cm: Very fine sand, olive gray (5Y 4/1); very fine to fine, angular to subrounded pebbles sparsely scattered throughout; 25 mm subrounded pebble between 125-128 cm; moderately disturbed between 124-127 cm, slightly disturbed (washed) elsewhere; sharp contact.

Smear Slide:	135 cm
Quartz	79
Feldspar	<1
Mica	<<1
Heavy Minerals	8
Clay	2
Volcanic Glass	6
Glauconite	<1
Diatoms	4
Sponge Spicules	1

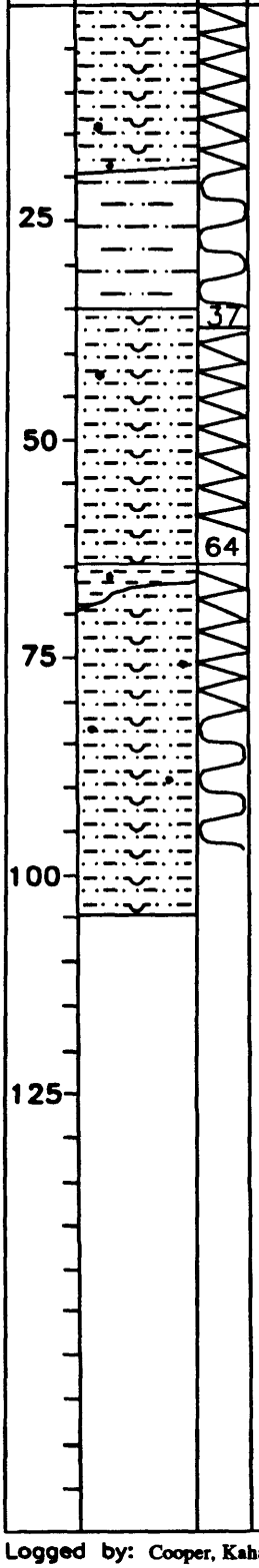
137-144 cm: Mud, olive gray (5Y 4/1); moderately disturbed (washed) between 141-144 cm, slightly disturbed (washed) between 137-141 cm.

Smear Slide:	141 cm
Quartz	74
Feldspar	<1
Mica	<1
Heavy Minerals	6
Clay	2
Volcanic Glass	5
Glauconite	<1
Diatoms	13
Radiolarians	<1
Sponge Spicules	<1

Bottom topography: Not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-5



Latitude: 61°27.6' S
Longitude: 46°45.6' W

Water Depth: 411 M
Core Length: 104 CM

LITHOLOGIC DESCRIPTION

0-19 cm: Diatomaceous mud, light olive gray (5Y 5/2); 8 mm subangular pebble between 14-15 cm; 2 mm subrounded pebble between 18-19 cm; highly disturbed throughout; sharp inclined contact.

Smear Slide:	10 cm
Quartz	43
Feldspar	<1
Mica	<1
Heavy Minerals	8
Clay	4
Volcanic Glass	4
Diatoms	40
Radiolarians	<<1
Sponge Spicules	1
Silicoflagellates	<<1

19-35 cm: Sandy silt, grayish olive (10Y 4/2); slightly disturbed (washed) throughout; sharp contact.

Smear Slide:	25 cm
Quartz	77
Feldspar	<1
Mica	<1
Heavy Minerals	14
Clay	<1
Volcanic Glass	5
Diatoms	2
Sponge Spicules	2

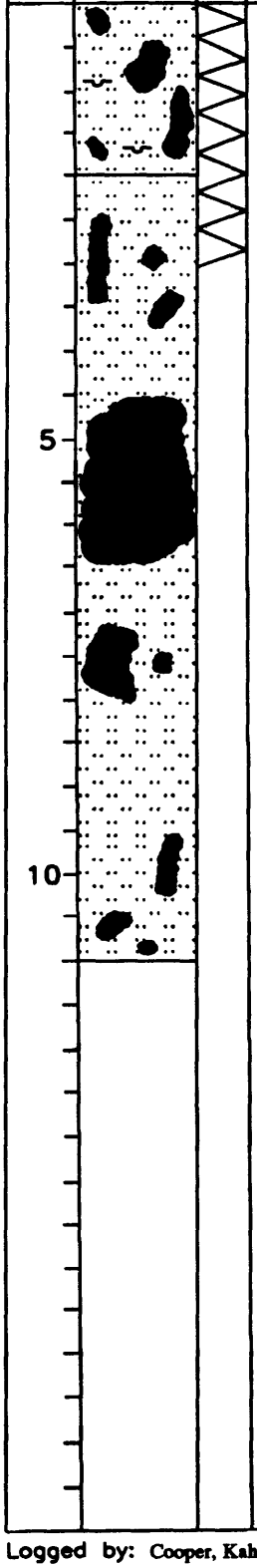
35-104 cm: Diatomaceous mud, light olive gray (5Y 5/2); layer of silt, olive gray (5Y 4/1), between 64-69 cm, inclined, disturbed bottom contact; 2 mm subangular pebble between 42-43 cm; very fine to fine, subangular to subrounded pebbles sparsely scattered between 64-90 cm; highly disturbed between 37-64 cm, moderately disturbed (washed) between 64-82 cm, slightly disturbed (washed) between 82-97 cm.

Smear Slides:	48 cm	103 cm
Quartz	52	47
Feldspar	<1	<<1
Mica	<1	<1
Heavy Minerals	2	4
Clay	2	1
Volcanic Glass	3	3
Glauconite	<1	–
Diatoms	40	45
Sponge Spicules	1	<1
Silicoflagellates	<1	<<1

Bottom topography: Not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-6



Latitude: 61°42.2' S
Longitude: 47°35.9' W

Water Depth: 2196 M
Core Length: 11 CM

LITHOLOGIC DESCRIPTION

0-11 cm: Muddy sand, light olive gray (5Y 6/1); sand content increases with depth; layer of diatomaceous muddy sand, light olive gray (5Y 5/2) between 0-2 cm; very fine to coarse, subrounded to angular pebbles abundant throughout; moderately disturbed between 1-3 cm.

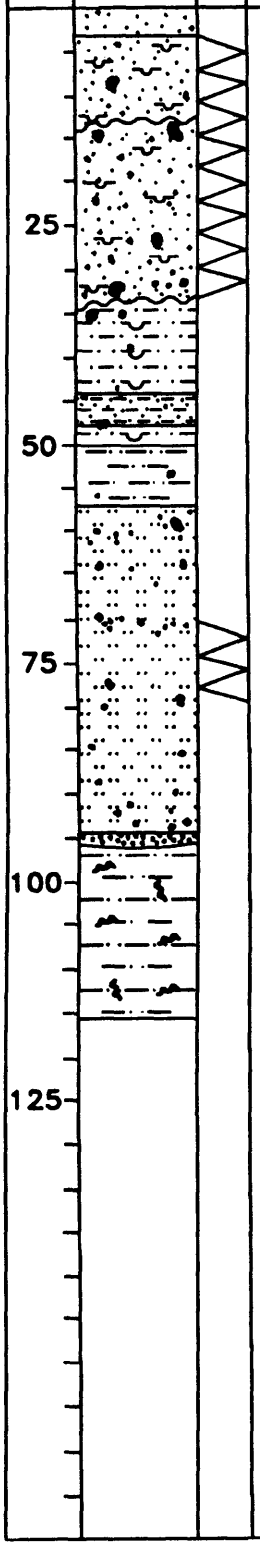
Smear Slide:	5 cm
Quartz	65
Feldspar	<1
Mica	<1
Heavy minerals	5
Clay	13
Volcanic glass	5
Rock fragments	<1
Diatoms	12
Radiolarians	<<1
Sponge spicules	1

Note: Several medium and coarse pebbles have been sampled prior to the describing of the core. Location of coarse pebbles on the log are not representative of their true location.

Bottom topography: not recorded in deck-log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-8



Latitude: 61°43.7' S
Longitude: 47°28.1' W

Water Depth: 1235 M
Core Length: 116 CM

LITHOLOGIC DESCRIPTION

0-14 cm: Diatomaceous sand, light olive gray (5Y 5/2), sand is fine, moderately-well sorted; layer of fine sand, light olive gray (5Y 5/2), between 0-3 cm; very fine to fine, angular to subrounded pebbles common throughout; 21 mm angular, flat pebble between 6-9 cm; moderately disturbed between 4-14 cm; sharp, irregular, inclined contact.

Smear Slide:	12 cm	Smear Slide (cont'd):	12 cm
Quartz	70	Volcanic glass	8
Feldspar	<1	Diatoms	16
Mica	<1	Radiolarians	1
Heavy mineral	3	Sponge spicules	<1
Clay	2		

14-34 cm: Diatomaceous pebbly sand, light olive gray (5Y 5/2), sand is fine, moderately-well sorted; pebbles are very fine to medium, subangular to rounded; 23 mm flat angular pebble between 13-17 cm; 19 mm subangular pebble between 14-16 cm; moderately disturbed throughout; sharp, irregular, inclined contact.

Smear Slide:	29 cm	Smear Slide (cont'd):	29 cm
Quartz	61	Volcanic glass	5
Feldspar	<1	Diatoms	17
Mica	<1	Radiolarians	<1
Heavy minerals	5	Sponge spicules	2
Clay	10		

34-57 cm: Diatomaceous mud, dusky yellow (5Y 6/4); layer of sandy mud, dusky yellow (5Y 6/4) between 50-57 cm; very fine, subangular pebbles sparsely scattered throughout; subangular pebbles between 34-36 cm (12 mm and 7 mm) and 47-49 cm (13 mm); sharp contact.

Smear Slide:	49 cm	Smear Slide:	49 cm
Quartz	31	Volcanic glass	4
Feldspar	<1	Diatoms	30
Mica	1	Radiolarians	<1
Heavy minerals	18	Sponge spicules	1
Clay	15		

57-97cm: Muddy sand, light olive gray (5Y 5/2), sand is fine, moderately-well sorted; some higher diatom content between 57-67 cm; layer of fine, well-sorted pebbles, angular to subangular, olive gray (5Y 3/2), between 95-97 cm; very fine to medium, angular to subangular pebbles abundant between 59-64 cm, 68-73 cm, and 91-94 cm, common elsewhere; 24mm angular pebble between 59-62 cm; moderately disturbed between 68-78 cm; charp concave contact.

Smear Slide:	88 cm
Quartz	59
Feldspar	<1
Mica	<1
Heavy minerals	8
Clay	10
Volcanic glass	10
Diatoms	7
Radiolarians	2
Sponge spicules	4

97-116 cm: Mud, yellowish gray (5Y 7/2); moderately bioturbated throughout.

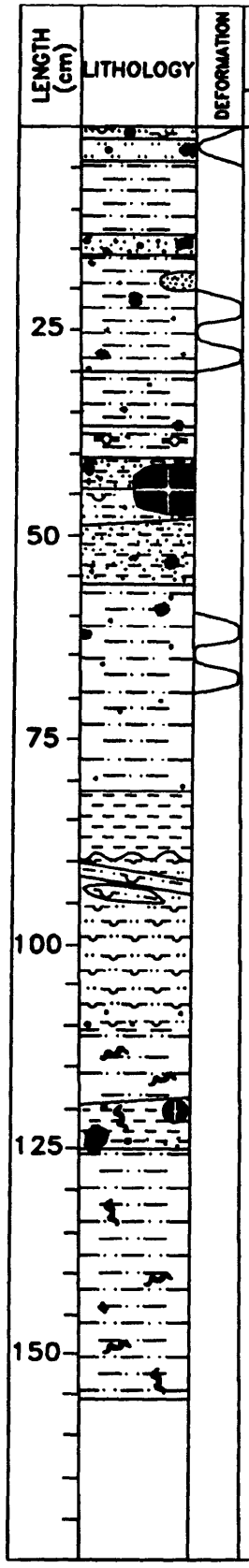
Smear Slide:	110 cm
Quartz	61
Feldspar	<1
Mica	<1
Heavy minerals	3
Clay	24
Volcanic glass	4
Diatoms	7
Radiolarians	<1
Sponge spicules	1

Bottom topography: not recorded in deck log.

Note: About 50% of sediment between 110-116 cm is bagged in core catcher bag sample.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-9



Latitude: 61°42.6' S
Longitude: 47°21.9' W

Water Depth: 1243 M
Core Length: 156 CM

LITHOLOGIC DESCRIPTION

0-30 cm: Sandy mud, medium light gray (N6); layer of diatomaceous muddy sand, light olive gray (5Y 5/2), between 0-2 cm, sand is very fine, well sorted; layer of muddy sand, light olive gray (5Y 5/2), between 2-4 cm, sand is very fine, well sorted; layer of pebbly sand, olive gray (5Y 4/1), between 13-16 cm, sand is fine, moderately well sorted, pebbles are very fine to fine, angular to subrounded; 2 cm lense of fine sand, yellowish gray (5Y 7/2), well sorted, between 17-20 cm; very fine to fine, angular to subrounded pebbles sparsely scattered between 0-13 cm and 19-30 cm; subangular pebbles between 0-2 cm (13 mm), 2-5 cm (14 mm, elongated), 13-15 cm (17 mm), 20-22 cm (14 mm) and 27-29 cm (12 mm); slightly disturbed (washed) between 0-4 cm and 20-28 cm; sharp contact.

Smear Slide:	21 cm	Smear Slide (cont'd):	21 cm
Quartz	68	Volcanic glass	8
Feldspar	1	Glauconite	<1
Mica	<1	Diatoms	11
Heavy minerals	4	Radiolarians	1
Clay	7	Sponge spicules	<1
Silicoflagellate	<<1		

30-57 cm: Sandy mud, light olive gray (5Y 5/2); layer of radiolarian-diatomaceous sandy mud, light olive gray (5Y 5/2) between 37-41 cm; layer of muddy diatomaceous ooze, light olive gray (5Y 6/1) between 44-47 cm, slightly inclined bottom contact; very fine, angular pebbles sparsely scattered throughout; subangular pebbles between 36-38 cm (11 mm), 41-43 cm (13 mm) and 52-53 cm (6 mm); 27 mm subrounded pebble between 53-56 cm; 38 mm sedimentary clast composed of mud, dusky yellow (5Y 6/4), between 41-45 cm; sharp contact.

Smear Slide:	50 cm	Smear Slide (cont'd):	50 cm
Quartz	69	Glauconite	<1
Feldspar	<1	Diatoms	1
Heavy minerals	10	Radiolarians	<1
Clay	15	Sponge spicules	<1
Volcanic glass	5	Silicoflagellate	<<1

57-89 cm: Mud, yellowish gray (5Y 7/2); layer of silt, light olive gray (5Y 5/2) between 84-89 cm; very fine, subangular to subrounded pebbles sparsely scattered between 57-84 cm; 15 mm rounded pebble between 59-61 cm; 15 mm subrounded flat pebble between 61-63 cm; slightly disturbed between 60-66 cm; sharp, irregular contact.

Smear Slide:	76 cm	Smear Slide (cont'd):	76 cm
Quartz	56	Volcanic glass	3
Feldspar	<1	Diatoms	3
Heavy minerals	10	Radiolarians	<1
Clay	27	Sponge spicules	1

89-111 cm: Muddy diatomaceous ooze, greenish gray (5 GY 6/1); zone of higher silt content between 108-111 cm; 1.5 cm inclined layer of diatomaceous mud, light olive gray (5Y 5/2) between 90-93 cm; 0.6 cm inclined lense of diatomaceous mud, light olive gray (5Y 5/2) between 92-94 cm; very fine to fine, subangular to subrounded pebbles common between 108-111 cm; 11 mm subrounded pebble between 109-111 cm; gradational contact.

Smear Slide:	98 cm	Smear Slide (cont'd):	98 cm
Quartz	28	Diatoms	58
Feldspar	<1	Radiolarians	<1
Heavy minerals	3	Sponge spicules	2
Clay	9	Silicoflagellates	<<1
Volcanic glass	<1	Ebridians	<<1

111-125 cm: Mud, light olive gray (5Y 6/1); layer of silt, light olive gray (5Y 5/2) between 118-125 cm, inclined upper contact; very fine to fine angular pebbles abundant between 123-125 cm; 35 mm angular flat pebble between 122-126 cm; sedimentary clasts composed of mud, yellowish gray (5Y 7/2), similar to that of the underlying unit, between 118-119 cm (7 mm), 119-120 cm (7 mm) and 121-124 cm (20 mm); moderately bioturbated throughout; sharp contact.

Smear Slide:	115 cm	Smear Slide (cont'd):	115 cm
Quartz	55	Clay	32
Feldspar	<1	Diatoms	4
Mica	<1	Sponge spicules	1
Heavy minerals	8		

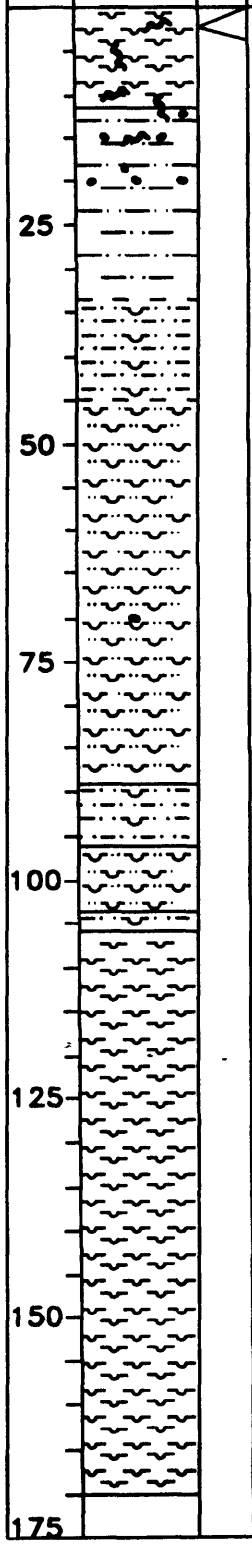
125-156 cm: Mud, yellowish gray (5Y 7/2); zone of higher silt content between 148-156 cm; 5 mm subangular pebble between 143-144 cm; slightly bioturbated between 134-156 cm.

Smear Slide:	137 cm	Smear Slide (cont'd):	137 cm
Quartz	66	Clay	24
Feldspar	<1	Diatoms	3
Mica	<1	Radiolarians	<<1
Heavy minerals	6	Sponge spicules	1

Bottom topography not recorded in deck log.

Logged by: Cooper, Pospichal, Kaharoeddin

USCGC GLACIER DF 85-10



Latitude: 61°42.3' S
Longitude: 47°16.3' W

Water Depth: 1364 M
Core Length: 170 CM

LITHOLOGIC DESCRIPTION

0-12 cm: Diatomaceous ooze, yellowish gray (5Y 8/1); highly bioturbated between 8-12 cm, moderately bioturbated between 2-8 cm; highly disturbed (washed) between 0-2 cm; slightly washed along the side between 2-12 cm; sharp, bioturbated contact.

Smear Slide:	6 cm	Smear Slide (cont'd):	6 cm
Quartz	6	Diatoms	91
Feldspar	1	Radiolarians	1
Heavy minerals	2	Sponge spicules	<1
Clay	<<1	Silicoflagellates	<1
Volcanic glass	<1		

12-33 cm: Mud, medium gray (N5); zone of high diatom content between 12-22 cm; zone of high foraminifera content between 22-30 cm; silt content increasing with depth; very fine to medium, subangular to subrounded pebbles abundant between 17-21 cm, sparsely scattered between 12-17 cm; slightly bioturbated between 12-17 cm; slightly washed along the side throughout; gradational contact.

Smear Slide:	27 cm	Smear Slide (cont'd):	27 cm
Quartz	73	Carbonate unspecified	<1
Feldspar	1	Foraminifera	8
Mica	<<1	Diatoms	2
Heavy minerals	6	Radiolarians	<1
Clay	2	Sponge spicules	<1
Volcanic glass	8	Silicoflagellates	<1

33-45 cm: Diatomaceous mud, olive gray (5Y 4/1); slightly washed along the side throughout; gradational contact.

Smear Slide:	35 cm	Smear Slide (cont'd):	35 cm
Quartz	52	Volcanic glass	4
Feldspar	1	Diatoms	38
Mica	<1	Radiolarians	<1
Heavy minerals	4	Sponge spicules	<1
Clay	1		

45-106 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); layer of diatomaceous mud, olive gray (5Y 4/1) between 89-96 cm and 104-106 cm; 5 mm subrounded pebble between 69-70 cm; slightly washed along the side throughout; sharp contact.

Smear Slide:	83 cm
Quartz	35
Feldspar	<1
Heavy minerals	3
Clay	1
Volcanic glass	2
Diatoms	59
Radiolarians	<1
Sponge Spicules	<1
Silicoflagellates	<1

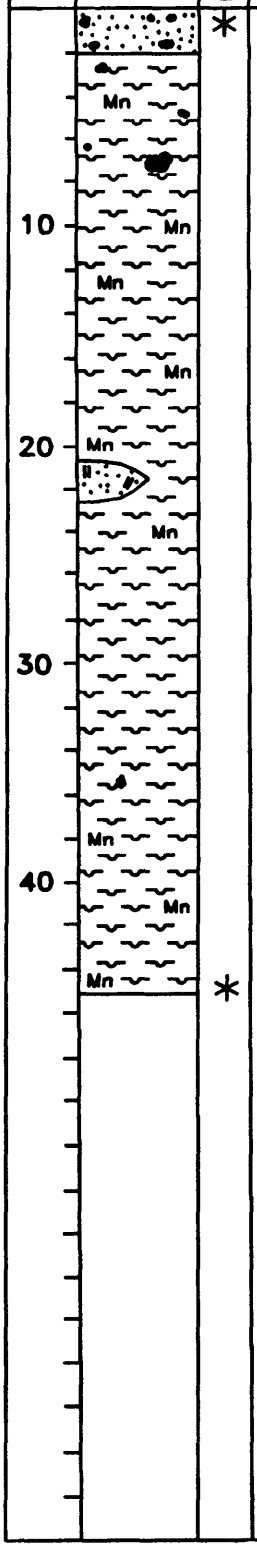
106-170 cm: Diatomaceous ooze, light olive gray (5Y 5/2); increasing silt content with depth between 158-171 cm; slightly washed along the side throughout.

Smear Slide:	133 cm
Quartz	8
Feldspar	<1
Heavy minerals	2
Clay	<1
Volcanic glass	2
Diatoms	87
Radiolarians	<1
Sponge spicules	<1
Silicoflagellates	1

Bottom topography: not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-11



Latitude: 61°40.1' S
Longitude: 47°07.6' W

Water Depth: 1360 M
Core Length: 45 CM

LITHOLOGIC DESCRIPTION

0-45 cm: Diatomaceous ooze, light olive gray (5Y 5/2); layer of poorly sorted medium sand, light olive gray (5Y 5/2), between 0-2 cm; irregular lamina of moderately sorted medium sand between 2-4 cm; lense of ash-bearing sand, olive gray (5Y 3/2), between 21-22 cm, sand is very fine, well sorted; micromanganese nodules common between 6-24 cm and 38-45 cm; very fine to fine, angular to subangular pebbles abundant between 0-2 cm, sparsely scattered between 2-7 cm; 14 mm subangular pebble between 6-8 cm; 3 mm angular pebble between 35-36 cm.

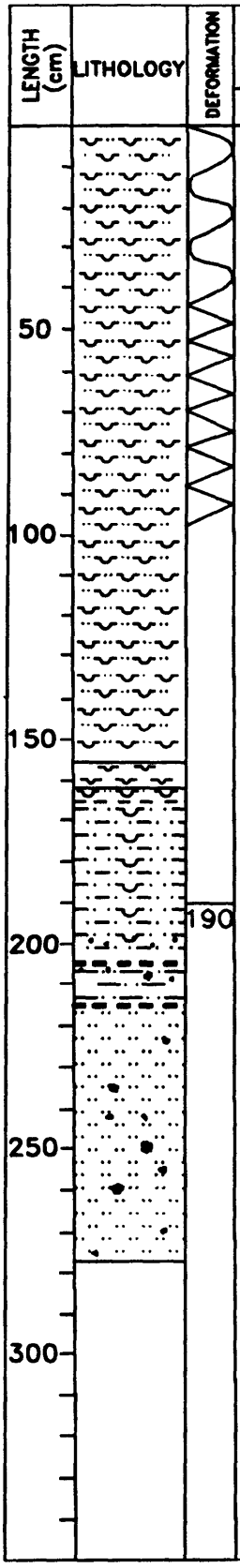
Smear Slide:	30 cm
Quartz	18
Feldspar	<<1
Heavy minerals	2
Clay	4
Volcanic glass	3
Diatoms	73
Radiolarians	<1
Sponge spicules	<1

Bottom topography: not recorded in deck log.

*Note: Sediments between 0-0.25 cm and 45-45.25 cm are bagged.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-12



Latitude: 61°40.6' S
Longitude: 46°57.8' W

Water Depth: 962 M
Core Length: 278 CM

LITHOLOGIC DESCRIPTION

0-165 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); highly laminated with diatomaceous ooze, moderate olive brown (5Y 4/4), between 156-165 cm; moderately disturbed (washed) between 46-95 cm, slightly disturbed (washed) between 0-46 cm; slightly washed along the side between 95-165 cm; gradational contact.

Smear Slides:	51 cm	145 cm
Quartz	32	38
Feldspar	<1	<1
Mica	<1	<1
Heavy minerals	4	4
Clay	1	1
Volcanic glass	<1	1
Diatoms	62	56
Radiolarians	<<1	<1
Sponge spicules	1	<1
Silcoflagellates	<1	-

165-205 cm: Diatomaceous mud, light olive gray (5Y 5/2), gradationally changing to olive gray (5Y 4/1) at 186 cm; mud content increasing with depth; very fine to medium, angular to subrounded pebbles abundant between 195-199 cm; slightly washed along the side throughout; gradational contact.

Smear Slide:	185 cm	Smear Slide (cont'd):	185 cm
Quartz	55	Diatoms	35
Feldspar	2	Radiolarians	<1
Heavy minerals	2	Sponge spicules	1
Clay	5	Silicoflagellates	<1
Volcanic glass	<1		

205-216 cm: Mud, olive gray (5Y 4/1); very fine to medium, subangular to subrounded pebbles, abundant between 205-208 cm; 17 mm subrounded pebble between 207-209 cm; slightly washed along the side throughout; gradational contact.

Smear Slide:	213 cm
Quartz	68
Feldspar	<1
Heavy minerals	4
Clay	8
Volcanic glass	5
Glauconite	<1
Carbonate unspecified	1
Foraminifera	8
Diatoms	3
Radiolarians	1
Sponge spicules	2
Silicoflagellates	<<1

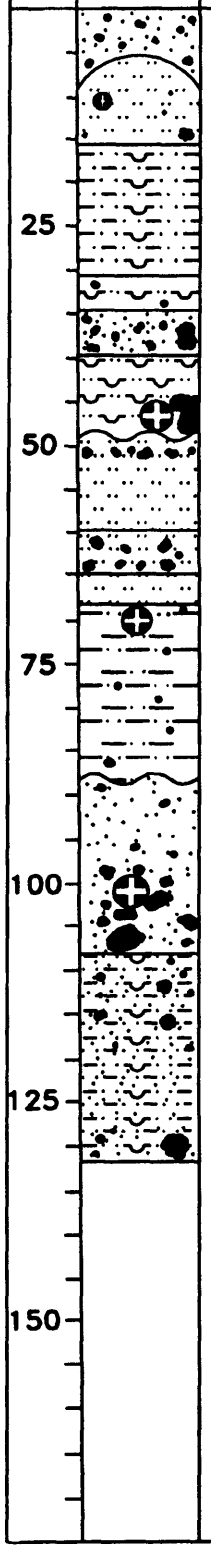
216-278 cm: Muddy sand, olive gray (5Y 4/1), sand is fine, well sorted; very fine to fine, angular to subrounded pebbles sparsely scattered between 220-278 cm; flat, angular pebbles (shale) between 234-236 cm (18 mm) and 240-243 cm (14 mm); 20 mm subangular pebble between 254-256 cm; subrounded pebble between 246-251 cm (40 mm) and 258-262 cm (40 mm); slightly washed along the side between 216-258 cm.

Smear Slides:	219 cm	271 cm
Quartz	70	78
Feldspar	2	<1
Mica	<1	-
Heavy minerals	5	7
Clay	4	3
Volcanic glass	7	6
Glauconite	<1	-
Carbon unspecified	<1	-
Foraminifera	7	-
Diatoms	1	3
Radiolarians	1	<1
Sponge spicules	3	3
Silicoflagellates	<<1	<<1

Bottom topography: not recorded in deck log.

Logged by Cooper, Kaharoeddin

USCGC GLACIER DF 85-13



Latitude: 61°39.6' S
Longitude: 46°54.0' W

Water Depth: 732 M
Core Length: 132 CM

LITHOLOGIC DESCRIPTION

0-16 cm: Muddy sand, dusky yellow (5Y 6/4), sand is very fine, well sorted; layer of fine sand, dusky yellow (5Y 6/4), very well sorted, between 0-1 cm; layer of fine sand, light olive gray (5Y 5/2), poorly sorted, between 1-6 cm, convex bottom contact; 10 mm sedimentary clast composed of mud, yellowish gray (5Y 8/1) between 10-12 cm; very fine to fine, angular to subangular pebbles abundant between 1-6 cm; very fine subangular pebbles sparsely scattered between 9-15 cm; 18 mm angular pebble between 13-16 cm; sharp contact.

Smear Slide:	8 cm
Quartz	74
Feldspar	<1
Mica	<<1
Heavy minerals	10
Clay	2

Smear Slide (cont'd):	8 cm
Volcanic glass	12
Glauconite	<1
Diatoms	<1
Radiolarians	<1
Sponge spicules	2

16-48 cm: Diatomaceous mud, light olive gray (5Y 5/2); layer of diatomaceous muddy sand, light olive gray (5Y 5/2) between 31-34 cm and 39-48 cm; layer of pebbly sand, olive gray (5 Y 4/1) between 34-39 cm, sand is fine, moderately-well sorted, pebbles are medium, subangular to subrounded, poorly sorted; 22 mm indurated sedimentary clast composed of welded tuff, light olive gray (5Y 6/1) between 44-47 cm; very fine to medium, angular to subrounded pebbles common between 39-48 cm; sparsely scattered between 31-34 cm; highly weathered pebbles, dusky yellowish brown (10YR 2/2) between 45-47 cm (17m) and 47-49 cm (15mm); 37 mm angular pebble between 34-39 cm; 40 mm subrounded pebble between 43-49 cm, sharp irregular contact.

Smear Slides:	18 cm	32 cm
Quartz	63	58
Feldspar	<1	<1
Mica	<1	-
Heavy minerals	8	5
Clay	1	1

Smear Slides (cont'd):	18 cm	32 cm
Volcanic glass	2	7
Glauconite	<1	2
Diatoms	21	24
Radiolarians	1	2
Sponge spicules	4	1

48-67 cm: Muddy sand; dusky yellow (5Y 6/4) sand is fine, moderately sorted; layers of pebbly muddy sand, dusky yellow (5Y 6/4) between 50-52 cm and 59-65 cm, sand is fine, moderately sorted, pebbles are medium, angular to subangular, poorly sorted; very fine to fine, angular to subrounded pebbles sparsely scattered between 52-58 cm; sharply contact.

Smear Slide:	56 cm
Quartz	62
Feldspar	<1
Mica	<1
Heavy minerals	12
Clay	1

Smear Slide (cont'd):	56 cm
Volcanic glass	12
Diatoms	8
Radiolarians	2
Sponge spicules	3

67-88 cm: Mud, light olive gray (5Y 5/2); 32 mm sedimentary clast composed of sandy mud, dusky yellow (5Y 6/4) between 69-73 cm; very fine subangular pebbles sparsely scattered throughout; sharp irregular contact.

Smear Slide:	77 cm
Quartz	60
Feldspar	<1
Mica	1
Heavy minerals	12
Clay	15

Smear Slide (cont'd):	77 cm
Volcanic glass	4
Diatoms	3
Radiolarians	<1
Sponge spicules	5

88-108: Sandy silt, light olive gray (5Y 5/2); layer of pebbly sandy silt' light olive gray (5Y 5/2) between 98-108 cm, pebbles are very fine to coarse, angular to subrounded; 14 mm sedimentary clast composed of diatomaceous sandy mud, dusky yellow (5Y 6/4) between 100-102 cm; very fine to fine, angular to subrounded pebbles sparsely scattered between 88-98 cm; sharp contact.

Smear Slide:	92 cm
Quartz	75
Feldspar	<1
Mica	<1
Heavy Minerals	10
Clay	1

Smear Slide (cont'd):	92 cm
Volcanic glass	8
Diatoms	4
Radiolarians	<1
Sponge spicules	2

108-132 cm: Sandy, diatomaceous mud, dusky yellow (5Y 6/4); very fine to medium, angular to subrounded pebbles common between 108-119 cm and 128-132 cm; subangular pebbles between 111-113 cm (19 mm) and 128-132 cm (24 mm).

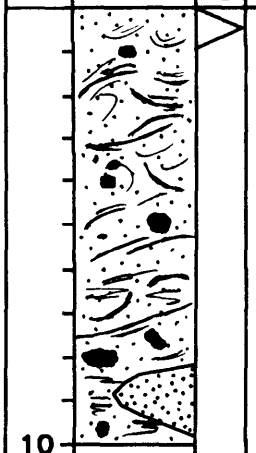
Smear Slide:	117 cm
Quartz	45
Feldspar	<1
Mica	<1
Heavy Minerals	8
Clay	7

Smear Slide:	117 cm
Volcanic glass	10
Diatoms	26
Radiolarians	3
Sponge spicules	1
Silicoflagellates	<<1

Bottom topography: Not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-14



Latitude: 61°42.0' S
Longitude: 46°46.0' W
Water Depth: 512 M
Core Length: 10 CM

LITHOLOGIC DESCRIPTION

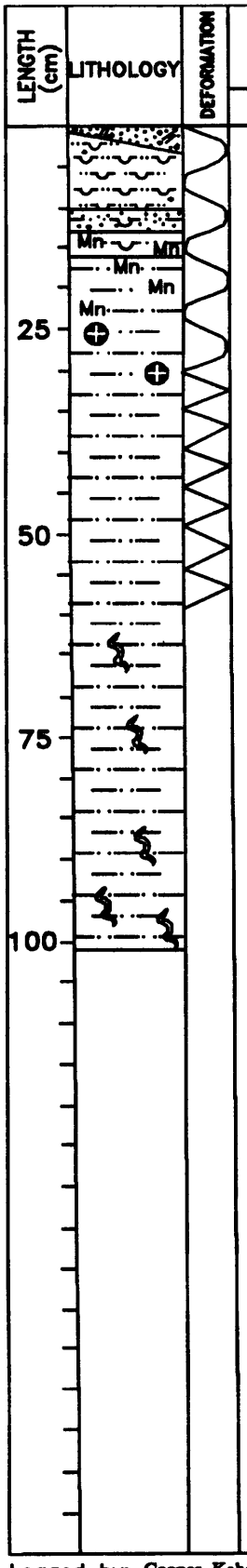
0-10 cm: Sandy silt, olive gray (5Y 4/1); lamina of very fine, well-sorted sand, light olive gray (5Y 6/1), between 0-1 cm; lense of fine, well-sorted sand,light olive gray (5Y 6/1), between 8-10 cm; very fine to medium, subangular pebbles sparsely scattered throughout; moderately disturbed (washed) between 0-1 cm.

Smear Slide:	5 cm
Quartz	73
Feldspar	<1
Heavy minerals	14
Clay	4
Volcanic glass	7
Diatoms	<1
Sponge spicules	2

Bottom topography: not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-15



Latitude: 61°55.6' S
Longitude: 47°14.3' W

Water Depth: 2397 M
Core Length: 101 CM

LITHOLOGIC DESCRIPTION

0-13 cm: Diatomaceous muddy sand, light olive gray (5Y 5/2), abruptly changing to light olive gray (5Y 6/1) at 7cm, sand is fine, moderately-well sorted; layer of ash-bearing sand, olive gray (5Y 3/2), between 0-2 cm, sand is fine, moderately-well sorted, inclined bottom contact; layer of sandy diatomaceous mud, light olive gray (5Y 6/1), between 10-13 cm; very fine to medium, angular to subrounded pebbles abundent between 0-3 cm; very fine to fine, angular to subrounded pebbles sparsely scattered between 3-13 cm; slightly disturbed throughout; sharp contact.

Smear Slide:	4 cm
Quartz	55
Feldspar	1
Mica	<<1
Heavy minerals	4
Clay	2
Volcanic glass	6
Diatoms	28
Radiolarians	4
Sponge spicules	<1
Silicoflagellates	<<1

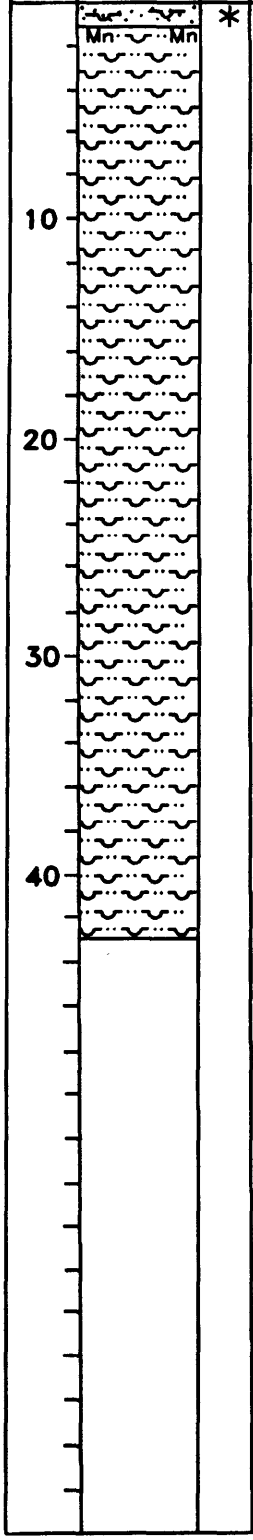
13-101 cm: Mud, light olive gray (5Y 6/1), diatom and ash content vary throughout; layer of diatomaceous mud, light olive gray (5Y 6/1), between 13-16 cm; highly stained with manganese oxide between 13-23 cm, sedimentary clasts composed of mud, light olive gray (5Y 6/1), between 25-28 cm (9 mm, elongated) and 29-32 cm (14 mm, elongated); moderately bioturbated between 86-96 cm, slight bioturbated between 64-86 cm; moderately disturbed between 35-63 cm, slightly disturbed between 13-35 cm.

Smear Slide:	43 cm
Quartz	39
Feldspar	<1
Mica	<<1
Heavy minerals	3
Clay	45
Volcanic glass	4
Carbonate unspecified	<<1
Foraminifera	<<1
Diatoms	8
Radiolarians	<1
Sponge spicules	1
Silicoflagelltes	<<1

Bottom topography: not recorded in deck log

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-16



Latitude: 61°55.3' S
Longitude: 47°04.7' W

Water Depth: 2004 M
Core Length: 43 CM

LITHOLOGIC DESCRIPTION

0-43 cm: Muddy diatomaceous ooze, dusky yellow (5Y 6/4), diatom content increasing with depth; layer of diatomaceous sand, light olive gray (5Y 6/1), between 0-1 cm, sand is fine, moderately well sorted; stringers of manganese oxide up to 4 mm in length abundant between 1-2 cm.

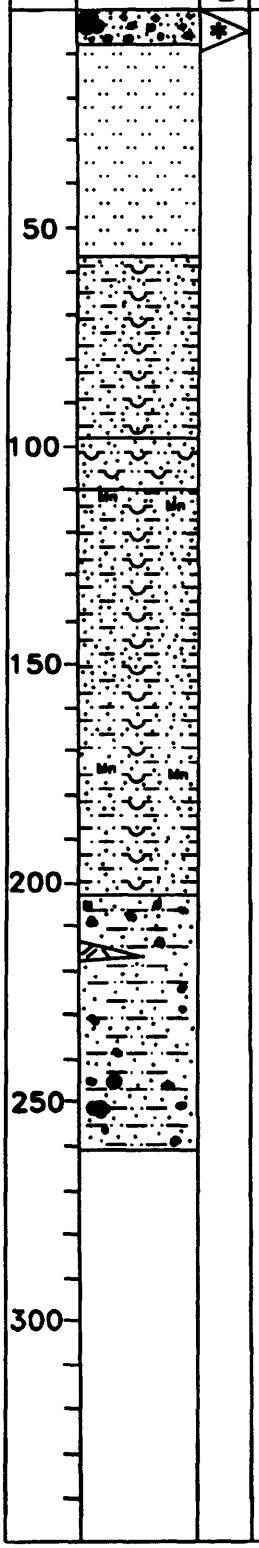
Smear Slides:	1 cm (layer)	14 cm
Quartz	57	31
Feldspar	-	<1
Mica	-	<<1
Heavy minerals	5	3
Clay	<<1	2
Volcanic glass	8	2
Diatoms	27	62
Radiolarians	2	<1
Sponge spicules	1	<1
Silicoflagellate	<<1	-

Bottom topography: not recorded

*Note: Sediment between 0-0.5 cm is bagged.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-17



Latitude: 61°54.69' S
Longitude: 47°05.55' W

Water Depth: 1482 M
Core Length: 261 CM

LITHOLOGIC DESCRIPTION

0-56 cm: Muddy sand, light olive gray (5Y 5/2), sand is fine, moderately-well sorted; layer of sandy pebbles, olive gray (5Y 3/2), between 0-8 cm, pebbles are very fine to medium, subangular to subrounded; layer of sandy mud, yellowish gray (5Y 7/2), between 13-17 cm (inclined upper contact) and 22-23 cm; layer of mud, yellowish gray (5Y 7/2), between 34-40 cm (inclined upper contact); layer of diatomaceous muddy sand, light olive gray (5Y 5/2), between 45-49 cm, sand is very fine, moderately-well sorted; medium, angular to subangular pebbles abundant between 31-35 cm, common between 17-22 cm and 50-55 cm, and sparsely scattered between 23-25 cm; fine, angular to subrounded pebbles abundant between 23-25 cm, 31-35 cm, and 40-44 cm, common between 17-22 and 50-55 cm; very fine, angular to subrounded pebbles abundant between 23-25 cm, 31-35 cm and 40-44 cm, sparsely scattered between 8-23 cm, 25-31 cm, 35-40 cm and 44-56 cm; 50 mm subangular pebble between 0-6 cm; highly disturbed between 1-5 cm; sharp contact.

Smear Slides:	28 cm	46 cm
Quartz	75	67
Feldspar	<1	<1
Mica	1	1
Heavy minerals	5	4
Clay	10	7
Volcanic glass	5	3
Rock fragments	2	-
Diatoms	<1	16
Radiolarians	<1	<1
Sponge spicules	2	2

56-203 cm: Sandy diatomaceous mud, yellowish gray (5Y 7/2), ash content varies throughout; moderately stained with manganese oxide between 112-114 cm, 170-173 cm, 174-179 cm and 187-191 cm, slightly stained between 71-72 cm, 83-85 cm, 95-96 cm and 102-110 cm; layers of muddy sand, light olive gray (5Y 5/2), between 63-65cm and 77-83 cm, sand is fine, moderately well sorted; layers of diatomaceous muddy sand. light olive gray (5Y 5/2), between 97-110 cm, 141-145 cm and 198-203 cm, sand is fine, well sorted; 9 mm lens of fine sand, moderately well sorted, light olive gray (5Y 5/2), between 67-69 cm; lenses of diatom-bearing fine and coarse ash, olive gray (5Y 3/2) up to 6 mm, common between 156-163 cm; very fine to fine, angular to subrounded pebbles common between 122-127 cm, sparsely scattered elsewhere; 26 mm subangular pebble between 112-115 cm; 32 mm angular, elongated, flat pebble between 121-127 cm; 38 mm subangular pebble between 122-126 cm; sharp contact.

Smear Slides:	93 cm	106 cm (layer)	167 cm
Quartz	50	60	43
Feldspar	<1	<1	<1
Mica	<1	<1	<1
Heavy minerals	2	4	2
Clay	12	10	17
Volcanic glass	2	4	3
Diatoms	30	20	33
Radiolarians	3	1	1
Sponge spicules	1	1	1
Silicoflagellates	<1	<1	<1

203-261 cm: Sandy mud, dusky yellow (5Y 6/4), ash and sand content vary throughout; irregular lense of fine ash, dusky brown (5YR 2/2), between 215-217 cm; very fine to fine, angular to subrounded pebbles common throughout; medium, angular to subrounded pebbles abundant between 203-206 cm and 244-255 cm, sparsely scattered elsewhere; subangular pebbles between 243-248 cm (43 mm) and 251-255 cm (36 mm).

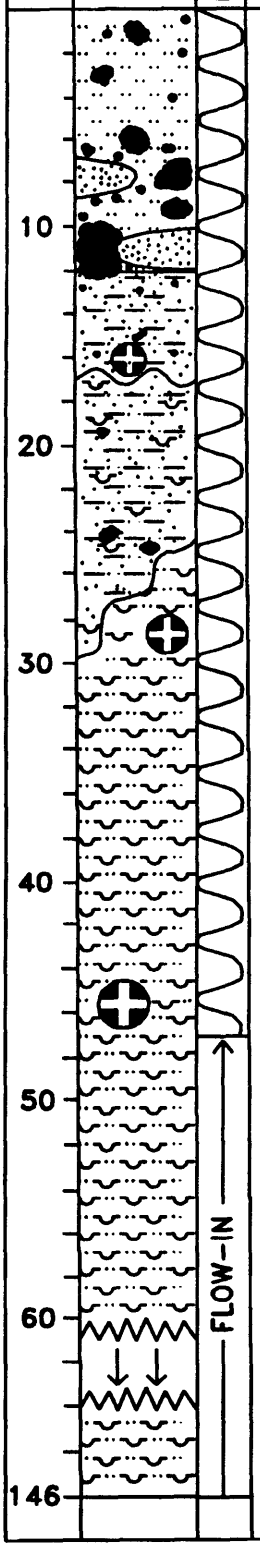
Smear Slide:	232 cm
Quartz	59
Feldspar	<1
Mica	1
Heavy minerals	5
Clay	27
Volcanic glass	8

Bottom topography: not recorded in deck log

*Note: Two pebbles between 0-5 cm bagged.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-18



Latitude: 61°51.9' S
Longitude: 47°03.3' W
Water Depth: 1261 M
Core Length: 146 CM

LITHOLOGIC DESCRIPTION

0-17 cm: Muddy sand, light olive gray (5Y 6/1), sand is fine, moderately well-sorted; zone of higher diatom content between 2-12 cm; layer of sandy mud, yellowish gray (5Y 7/2), between 12-17 cm; lens of coarse, moderately sorted sand between 7-9 cm (11 mm) and 10-12 cm (16 mm); 7 mm sedimentary clast composed of muddy diatomaceous ooze, dusky yellow (5Y 6/4), between 15-17 cm; very fine to fine, subangular to subrounded pebbles abundant between 6-9 cm, common elsewhere; medium, angular to subangular pebbles common between 5-9 cm; 9 mm subangular, flat pebble between 0-2 cm; 29 mm subrounded pebble between 9-13 cm; slightly disturbed throughout; sharp, irregular contact.

Smear Slide:	4 cm
Quartz	72
Feldspar	<1
Mica	<1
Heavy minerals	10
Clay	1
Volcanic glass	3
Rock fragments	1
Diatoms	8
Radiolarians	2
Sponge spicules	3
Silicoflagellates	<<1

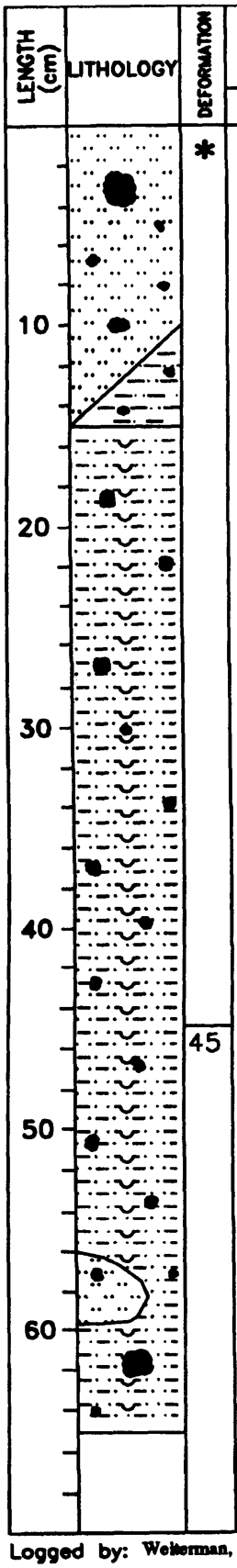
17-146 cm: Muddy diatomaceous ooze, yellowish gray (5Y 7/2); layer of sandy diatomaceous mud, light olive gray (5Y 5/2), between 17-27 cm (irregular, inclined bottom contact between 25-30 cm); sedimentary clasts between 27-30 cm (25 mm) and 43-46 cm (24 mm) composed of diatomaceous muddy sand, light olive gray (5Y 5/2), sand is fine, moderately well sorted, with laminae of muddy diatomaceous ooze, dusky yellow (5Y 6/4); fine, sugbangular pebbles between 19-20 sm (3 mm) and 25-26 cm (6 mm); 9 mm subrounded pebble between 23-25 cm; slightly disturbed between 17-47 cm; gradational change to flow-in at 47 cm.

Smear Slides:	22 cm (layer)	37 cm
Quartz	55	38
Feldspar	1	<1
Mica	-	<1
Heavy minerals	4	3
Clay	6	3
Volcanic glass	8	<1
Diatoms	24	54
Radiolarians	2	1
Sponge spicules	<1	1

Bottom topography: not recorded in deck-log.

Logged by: Cooper, Kaharoeddin

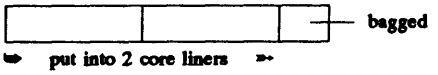
USCGC GLACIER DF 85-19



Latitude: 61°52.56' S Water Depth: 1151 M
Longitude: 46°57.29' W Core Length: 65 CM

LITHOLOGIC DESCRIPTION

NOTE: According to the decklog, the core was "extruded" on the deck and was put into two core liners and one bag, was sketched as follows:



It was also noted that there is no order of the core that was preserved, i.e., there is no mark on the core liner signifying top or bottom. The sequence of the core and the bag in this description is based on the lithology and diatom assemblage of the sediment. The bagged sediment is composed of muddy sand of Late Pleistocene age (*Thalassiosira lentiginosa* diatom zone), similar to one end of the longer core section, while the other end of this section is diatomaceous mud of early Pleistocene age (*Coscinodiscus elliptopora/Actinocyclus ingens* diatom zone). The other core section is also of early Pleistocene age. Its top and bottom are determined by comparing their diatom content to that of the bottom of the other core, thus smear slide at 41 cm resembles smear slide at 47 cm, instead of 64 cm.

0-15 cm: Muddy sand, grayish olive (10Y 4/2), sand is fine, moderately well sorted; lense of sandy mud, light olive brown (5Y 5/6) between 10-15 cm; very fine to medium, angular to subangular pebbles common throughout; 30 mm angular basaltic pebble in bag; sharp contact.

Smear Slide:	9 cm	Smear Slide:	9 cm
Quartz	76	Volcanic glass	4
Feldspar	<1	Glauconite	<1
Mica	<1	Diatoms	6
Heavy minerals	8	Radiolarians	<1
Clay	3	Sponge spicules	3

15-65 cm: Diatomaceous mud, light olive gray (5Y 5/2); lens of muddy sand olive gray (5Y 4/1) between 55-60 cm, sand is fine, moderately sorted; fine, angular to subangular pebbles common throughout; subangular basaltic pebbles between 17-18 cm (10 mm) and 60-62 (20 mm).

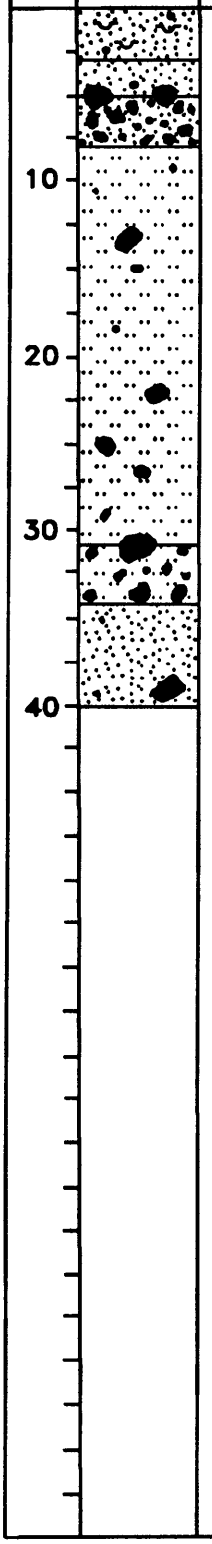
Smear Slides:	41 cm	47 cm	64 cm
Quartz	57	58	52
Feldspar	<1	<1	<1
Mica	<<1	<<1	<<1
Heavy minerals	2	2	2
Clay	6	7	5
Volcanic glass	1	1	1
Diatoms	32	31	40
Radiolarians	1	<1	<1
Sponge spicules	1	1	<1
Silicoflagellates	<1	<<1	<<1

Bottom topography: not recorded in deck-log.

*NOTE: Sediment between 0-5 cm is bagged.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-20



Latitude: 61°45.5' S
Longitude: 46°50.6' W
Water Depth: 768 M
Core Length: 40 CM

LITHOLOGIC DESCRIPTION

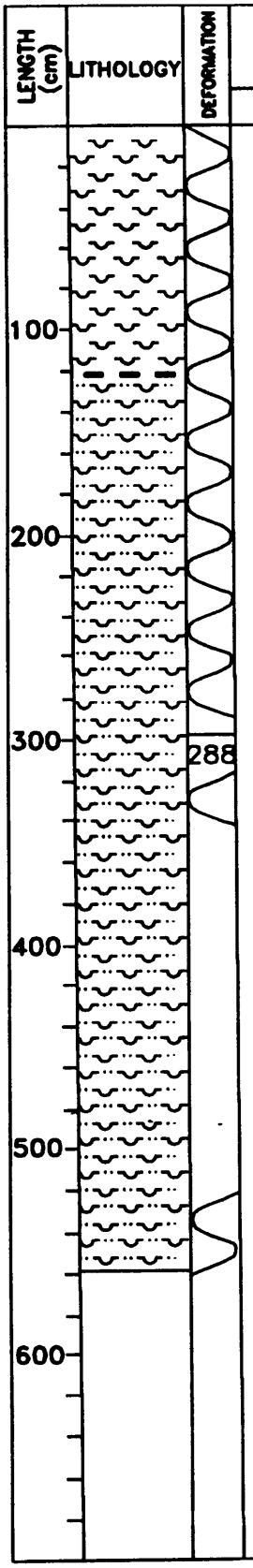
0-40 cm: Muddy sand, light olive gray (5Y 5/2), changing abruptly to dusky yellow (5Y 6/4) between 14-18 cm, sand is fine, moderately well sorted; zone of higher diatom content between 8-13 cm; zone of higher ash content between 14-18 cm; layer of diatomaceous sand, light olive gray (5Y 5/2), between 0-3 cm; sand is very fine, moderately well sorted; layer of fine sand, medium light gray (N6), moderately well sorted, between 3-5 cm; layer of sandy pebbles, olive gray (5Y 3/2), between 5-8 cm, pebbles are fine, well-sorted, angular to subrounded; layer of pebbly muddy sand, light olive gray (5Y 5/2), between 31-34 cm; sand is fine, moderately well sorted, pebbles are very fine to medium angular to subrounded; layer of medium sand, light olive gray (5Y 5/2), well sorted, between 34-40 cm; medium, angular to subangular pebbles common between 22-27 cm; very fine to fine, angular to subrounded pebbles sparsely scattered throughout; angular pebbles between 4-6 cm (15 mm, flat) and 30-32 cm (20 mm); subrounded pebbles between 4-6 cm (15 mm), 12-14 cm (17 mm) and 37-39 cm (12 mm).

Smear Slide:	10 cm
Quartz	66
Feldspar	<1
Heavy minerals	13
Clay	4
Volcanic glass	9
Glauconite	<1
Diatoms	8
Radiolarians	<1
Sponge spicules	<1

Bottom topography: not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-22



Latitude: 60°50.0' S
Longitude: 45°41.3' W
Water Depth: 348 M
Core Length: 558 CM

LITHOLOGIC DESCRIPTION

0-120: Diatomaceous ooze, moderate olive brown (5Y 4/4); moderately disturbed (washed) between 0-2 cm; slightly disturbed (washed) between 2-120 cm; gradational contact.

Smear Slide:	70 cm
Quartz	12
Feldspar	<<1
Mica	<<1
Heavy minerals	<1
Volcanic glass	1
Diatoms	86
Radiolarians	<1
Sponge spicules	1
Silicoflagellates	<<1

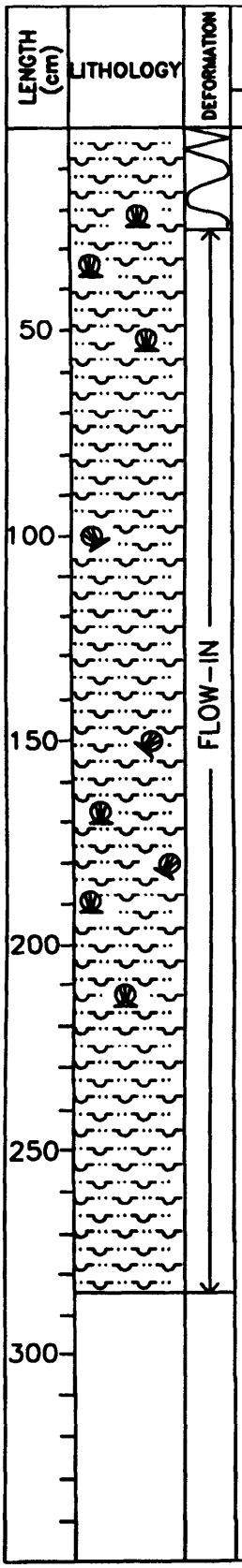
120-558 cm: Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); highly laminated with diatomaceous ooze, light olive brown (5Y 5/6), between 159-178 cm, slightly laminated between 132-159 cm and 178-192 cm; stringers up to 6 mm composed of muddy diatomaceous ooze, grayish yellow (5Y 8/4), sparsely scattered between 292-358 cm; 22 mm soft, sheath-like tube between 132-134 cm; slightly disturbed (washed) between 120-330 cm and 539-548 cm.

Smear Slides:	125 cm	310 cm
Quartz	37	32
Feldspar	<1	<<1
Mica	<<1	-
Heavy minerals	2	2
Clay	<1	<<1
Volcanic glass	<1	1
Diatoms	61	65
Radiolarians	<1	<1
Sponge spicules	<1	<1
Silicoflagellates	<1	<1

Bottom topography: not recorded in deck-log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-23



Latitude: 60°49.1' S
Longitude: 45°44.7' W

Water Depth: 304 M
Core Length: 285 CM

LITHOLOGIC DESCRIPTION

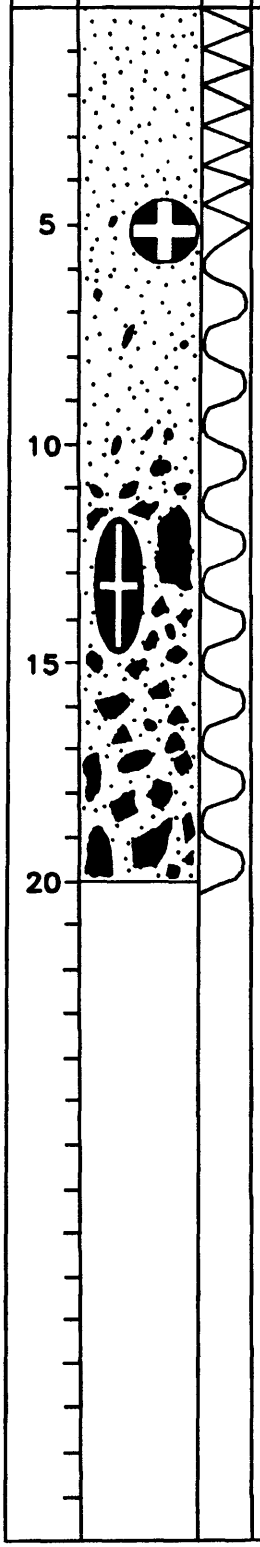
0-285 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); zone of higher sand content between 16-21 cm; bivalve fragments up to 28 mm common throughout flow-in portion of core; moderately disturbed (washed) between 0-7 cm; slightly disturbed (washed) between 7-21 cm; gradationally changing to flow-in at 21 cm.

Smear Slide:	8 cm
Quartz	40
Feldspar	<1
Heavy minerals	2
Clay	2
Volcanic glass	2
Diatoms	54
Sponge spicules	<1
Silicoflagellates	<<1

Bottom topography: not recorded in deck-log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-25



Latitude: 60°51.5' S
Longitude: 46°06.7' W
Water Depth: 155 M
Core Length: 20 CM

LITHOLOGIC DESCRIPTION

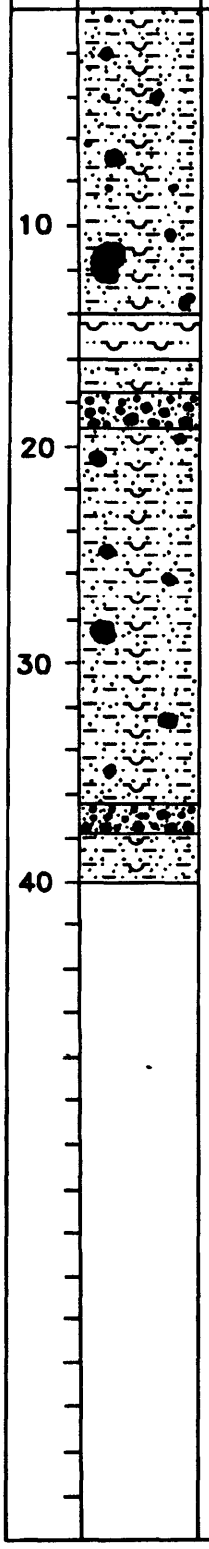
0-20 cm: Graded clastics, olive gray (5Y 4/1), gradationally changing to medium dark gray (N4) at 11 cm, grading from fine sand, well sorted, to pebbles at 11 cm; pebbles grading up to medium at the bottom, pebbles are subrounded; 20 mm sedimentary clast composed of muddy sand, moderate olive brown (5Y 4/4), between 4-7 cm, sand is fine, moderately well sorted; 21 mm elongated sedimentary clast composed of muddy sand, olive gray (5Y 4/1), between 12-16 cm; 16 mm subangular pebble between 11-14 cm; highly disturbed (washed) between 0-5 cm; slightly disturbed (washed) between 5-20 cm.

Smear slides:	3 cm	6 cm (clast)
Quartz	90	72
Feldspar	<1	1
Mica	-	<1
Heavy minerals	4	9
Clay	-	2
Volcanic glass	6	7
Rock fragments	-	<1
Diatoms	<1	8
Sponge spicules	<1	1
Silicoflagellates	-	<<1

Bottom topography: not recorded in deck-log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-26



Latitude: 61°00.3' S
Longitude: 46°18.1' W

Water Depth: 220 M
Core Length: 40 CM

LITHOLOGIC DESCRIPTION

0-40 cm: Sandy diatomaceous mud, light olive gray (5Y 5/2), sand content varies throughout; zone of higher diatom content between 8-11 cm; layer of muddy diatomaceous ooze, light olive gray (5Y 5/2) between 14-16 cm; layer of sandy pebbles between 17-19 cm (1.5 cm) and 36-38 cm (1.5 cm), pebbles are fine, moderately well sorted; very fine to medium subrounded pebbles common between 0-14 cm, sparsely scattered between 19-36 cm; 18 mm subangular pebble between 4-13 cm.

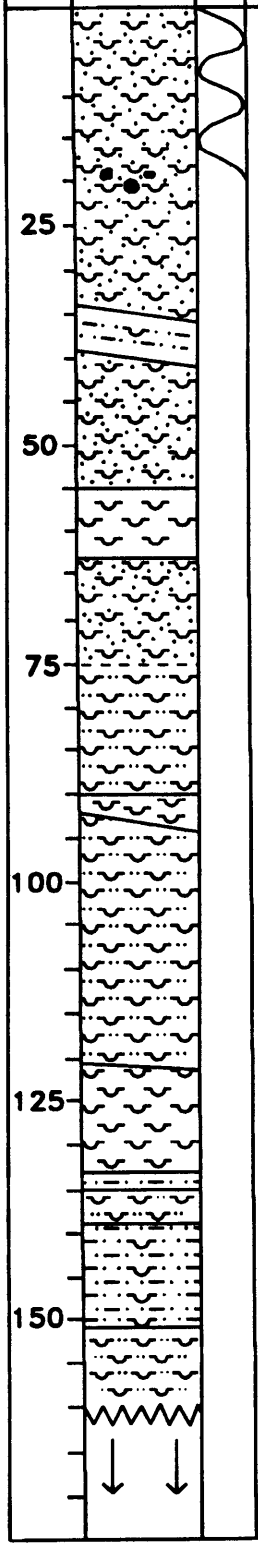
Smear Slides:

	13 cm	25 cm
Quartz	55	52
Feldspar	<1	<1
Mica	<1	<1
Heavy minerals	5	5
Clay	1	<1
Volcanic glass	4	3
Diatoms	34	39
Sponge spicules	1	1

Bottom topography: not recorded in deck-log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-27



Latitude: 61°09.2' S
Longitude: 46°22.2' W
Water Depth: 249 M
Core Length: 200 CM

LITHOLOGIC DESCRIPTION

0-75 cm: Sandy diatomaceous ooze, moderate olive brown (5Y 4/4); zone of lower sand content, but higher silt content between 0-8 cm; inclined layers of sandy diatomaceous mud, grayish olive (10Y 4/2) between 34-36 cm and 37-39 cm; layers of diatomaceous ooze, moderate olive brown (5Y 4/4) between 36-37 cm and 55-63 cm; subangular pebbles between 19-20 cm (7 mm, flat) and 20-21 cm (7 mm); 10 mm subrounded pebble between 21-24 cm; 9 mm matted sponge spicules between 65-66 cm; slightly disturbed (washed) between 0-23 cm; slightly washed along the side between 23-57 cm; gradational contant.

Smear Slide:	45 cm
Quartz	32
Feldspar	<1
Heavy minerals	2
Clay	<1
Volcanic glass	2
Diatoms	64
Sponge spicules	<1

75-133 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2), moderately laminated with diatomaceous ooze, moderate olive brown (5Y 4/4) between 95-118 cm; layers of diatomaceous ooze, moderate olive brown (5Y 4/4) between 89-92 cm with inclined bottom contact, between 121-127 cm with inclined upper contact, and between 128-133 cm; inclined layer of diatomaceous sand, olive gray (5Y 4/1) between 97-99 cm; sharp contact.

Smear Slide:	106 cm
Quartz	36
Feldspar	<1
Heavy minerals	2
Clay	1
Volcanic glass	2
Diatoms	59
Sponge spicules	1

133-151 cm: Diatomaceous mud, light olive gray (5Y 5/2); layer of diatomaceous muddy sand, light olive gray (5Y 5/2) between 134-138 cm, sand is very fine, well-sorted; sharp contact.

Smear Slide:	149 cm
Quartz	51
Feldspar	<1
Mica	<1
Heavy minerals	3
Clay	1
Volcanic glass	3
Diatoms	41
Radiolarians	<<1
Sponge spicules	1
Silicoflagellates	<<1

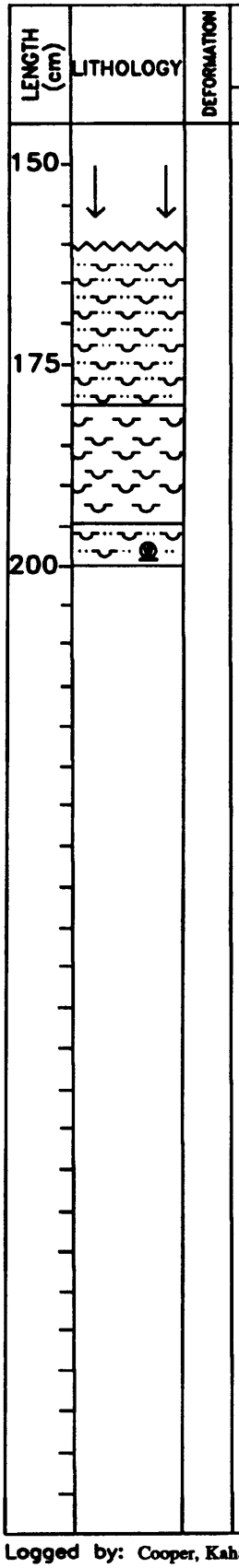
151-180 cm: Diatomaceous muddy sand, light olive gray (5Y 5/2), sand is very fine, well sorted; sharp contact.

Smear Slide:	165 cm
Quartz	63
Feldspar	<1
Heavy minerals	3
Clay	1
Volcanic glass	5
Diatoms	26
Radiolarians	<<1
Sponge spicules	2
Silicoflagellates	<<1

Continued on next page →

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-27 (continued)



Latitude: 61°09.2' S
Longitude: 46°22.2' W
Water Depth: 249 M
Core Length: 200 CM

LITHOLOGIC DESCRIPTION

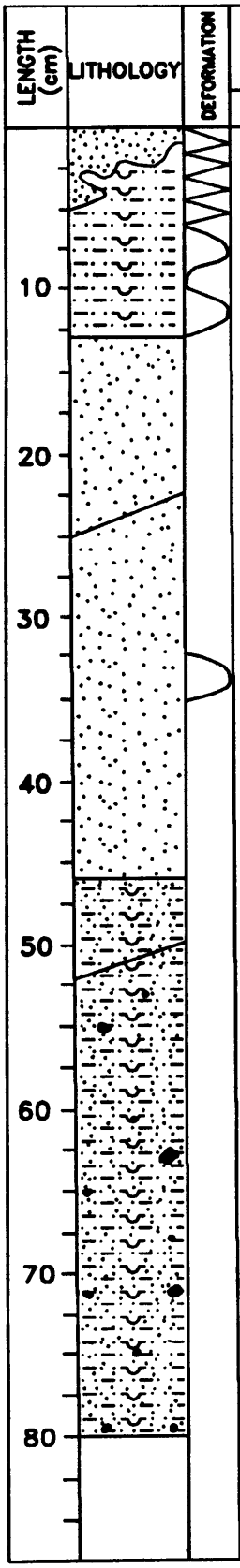
180-200 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4); zone of higher silt and sand content between 180-185 cm; layer of muddy diatomaceous ooze, light olive gray (5Y 5/2) between 194-200 cm; 5 mm bivalve between 199-200 cm.

Smear Slide:	188 cm
Quartz	12
Feldspar	<1
Heavy minerals	<1
Clay	<<1
Volcanic glass	1
Diatoms	87
Sponge spicules	<<1
Silicoflagellates	<<1

Bottom topography: not recorded in deck-log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-28



Latitude: 61°18.9' S
Longitude: 46°28.3' W

Water Depth: 295 M
Core Length: 80 CM

LITHOLOGIC DESCRIPTION

0-13 cm: Sandy diatomaceous mud, moderate olive brown (5Y 4/4); layer of very fine sand, olive gray (5Y 4/1), well-sorted, between 0-3 cm; inclined, disturbed contact; a part of a sand layer has been washed into the main unit between 5-6 cm; highly disturbed (washed) between 0-6 cm; slightly disturbed (washed) between 6-13 cm; sharp contact.

Smear Slide:	7 cm
Quartz	54
Feldspar	<1
Heavy minerals	12
Clay	1
Volcanic glass	<1
Diatoms	33
Sponge spicules	<1
Silicoflagellates	<<1

13-46 cm: Very fine sand, light olive gray (5Y 5/2), moderately well-sorted; layer of fine sand, olive gray (5Y 4/1), moderately well-sorted, between 13-23 cm, inclined bottom contact; 2 mm inclined lamina composed of sandy diatomaceous mud, moderate olive brown (5Y 4/4), between 36-41 cm; moderately disturbed between 34-35 cm (due to broken core liner), slightly washed along the side elsewhere; sharp contact.

Smear Slides:	19 cm (layer)	27 cm
Quartz	80	84
Feldspar	<1	<1
Heavy minerals	13	11
Clay	<<1	<<1
Volcanic glass	5	3
Diatoms	<1	1
Sponge Spicules	2	1

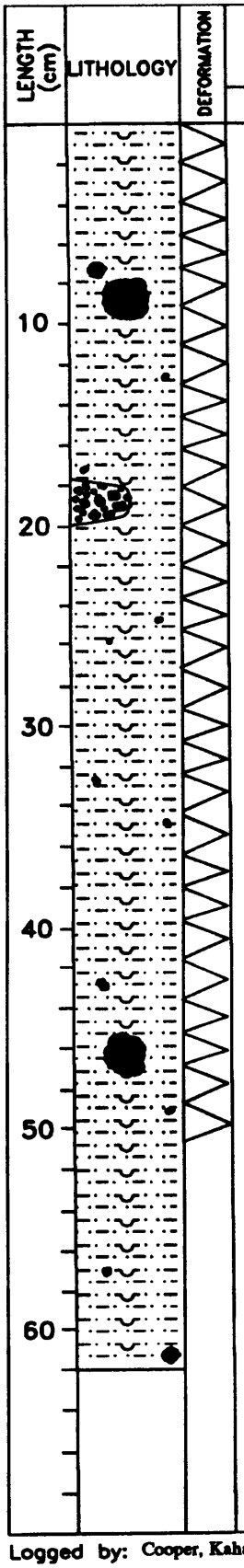
46-80 cm: Sandy diatomaceous mud, light olive gray (5Y 5/2); layer of sandy diatomaceous mud, moderate olive brown (5Y 4/4), between 46-52 cm with inclined bottom contact, differing from main unit in having a higher diatom content; inclined lamina of diatomaceous ooze, dusky yellow (5Y 6/4), between 52-54 cm; medium pebbles, angular to subangular, sparsely scattered between 55-72 cm; fine pebbles, subangular to subrounded, sparsely scattered between 71-80 cm, very fine pebbles, subangular to subrounded, sparsely scattered between 53-80 cm; slightly washed along the side between 46-53 cm.

Smear Slide:	58 cm
Quartz	61
Feldspar	<1
Heavy minerals	5
Clay	<1
Volcanic glass	2
Diatoms	31
Sponge spicules	1
Silicoflagellates	<<1

Bottom topography: not recorded in deck-log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-29



Latitude: 61°29.1' S
Longitude: 46°31.5' W

Water Depth: 357 M
Core Length: 62 CM

LITHOLOGIC DESCRIPTION

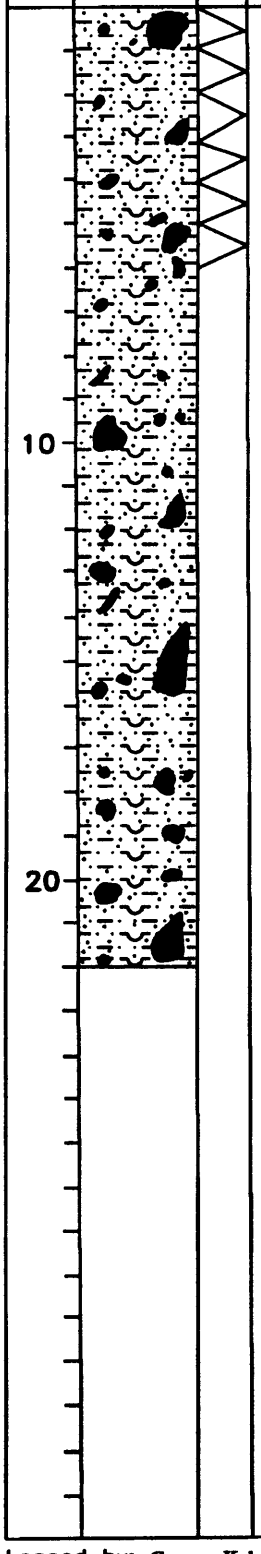
0-62 cm: Diatomaceous mud, light olive gray (5Y 5/2); 22 mm lense of fine pebbles, subangular, between 17-20 cm; very fine to fine, angular to subangular pebbles sparsely scattered between 6-62 cm; angular pebbles between 7-10 cm (32 mm) and 45-47 cm (14 mm); moderately disturbed (washed) between 0-49 cm; slightly washed along the side between 49-62 cm.

Smear Slide:	14 cm
Quartz	66
Feldspar	<1
Heavy minerals	5
Clay	1
Volcanic glass	1
Diatoms	26
Radiolarians	<<1
Sponge spicules	1
Silicoflagellates	<<1

Bottom topography: not recorded in deck-log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-30



Latitude: 61°38.2' S
Longitude: 46°21.4' W

Water Depth: 311 M
Core Length: 22 CM

LITHOLOGIC DESCRIPTION

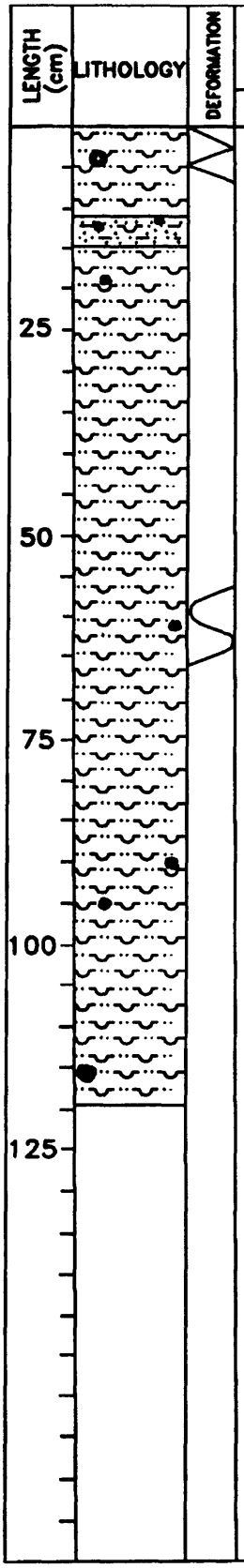
0-22cm: Diatomaceous sandy mud, light olive gray (5Y 5/2); very fine to fine, angular to subrounded pebbles abundant throughout; medium, subangular to subrounded pebbles common between 5-22 cm; 17mm subrounded pebbles between 0-2 cm; moderately disturbed (washed) between 0-6 cm; slightly washed along the side between 6-22 cm.

Smear Slide:	6 cm
Quartz	72
Feldspar	<1
Mica	<1
Heavy minerals	3
Clay	2
Volcanic glass	5
Diatoms	17
Radiolarians	<<1
Sponge spicules	1
Silicoflagellates	<<1

Bottom topography: not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-31



Latitude: 61°46.4' S
Longitude: 46°11.6' W

Water Depth: 416 M
Core Length: 119 CM

LITHOLOGIC DESCRIPTION

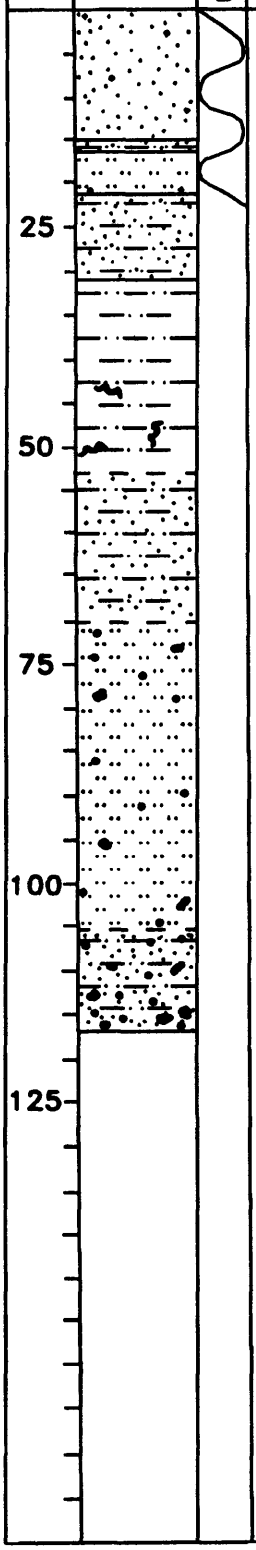
0-119 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); zone of higher silt content between 67-73 cm; layer of diatomaceous sandy mud, light olive gray (5Y 5/2), between 12-14 cm; 9 mm sedimentary clast composed of welded tuff, dusky yellowish brown (10YR 2/2), between 4-6 cm; angular pebbles between 94-95 cm (4 mm) and 113-116 cm (18 mm); subangular pebbles between 12-13 cm (4 mm) and 89-90 cm (10 mm); subrounded pebbles between 12-13 cm (7 mm), 18-19cm (6 mm) and 61-63 cm (10 mm); moderately disturbed (washed) between 0-5 cm; slightly disturbed between 60-62 cm; slightly washed along the side between 5-25 cm.

Smear Slide:	45 cm
Quartz	38
Feldspar	<1
Heavy minerals	2
Clay	2
Volcanic glass	2
Diatoms	56
Sponge spicules	<<1
Silicoflagellates	<1

Bottom topography: not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-33



Latitude: 62°20.38' S
Longitude: 46°29.51' W
Water Depth: 2843 M
Core Length: 117 CM

LITHOLOGIC DESCRIPTION

0-22 cm: Sand, light olive gray (5Y 5/2), fine, moderately well sorted; layer of sandy mud, light olive gray (5Y 6/1), between 15-17 cm; layer of muddy sand, light olive gray (5Y 6/1), between 17-22 cm; 3 mm lens of sandy diatomaceous ooze, yellowish gray (5Y 7/2), between 1-2 cm; very fine to fine, angular to subangular pebbles sparsely scattered between 2-12 cm and 20-22 cm; slightly disturbed (washed) throughout; sharp contact.

Smear Slide:	13 cm
Quartz	77
Feldspar	1
Mica	<<1
Heavy minerals	6
Clay	4
Volcanic glass	10
Diatoms	<1
Radiolarians	1
Sponge spicules	1

22-53 cm: Mud, light olive gray (5Y 6/1); layer of sandy mud, light olive gray (5Y 6/1), between 22-32 cm; slightly bioturbated between 43-53 cm; slightly washed along the side throughout; gradational contact.

Smear Slide:	30 cm
Quartz	58
Feldspar	<1
Mica	<<1
Heavy minerals	2
Clay	38
Volcanic glass	2
Diatoms	<1
Sponge spicules	<1

53-70 cm: Foraminiferal sandy mud, light olive gray (5Y 6/1), sand content increases between 64-70 cm; gradational contact.

Smear Slide:	59 cm
Quartz	55
Feldspar	<1
Mica	<<1
Heavy minerals	2
Clay	22
Volcanic glass	1
Carbonate unspecified	4
Foraminifera	16
Sponge spicules	<1

70-106 cm: Muddy sand, light olive gray (5Y 6/1), sand is fine, well sorted; very fine to medium, angular to subrounded pebbles common between 70-80 cm and 87-106 cm; gradational contact.

Smear Slide:	90 cm
Quartz	56
Feldspar	<1
Mica	<1
Heavy minerals	3
Clay	34
Volcanic glass	5
Glauconite	<<1
Diatoms	1
Radiolarians	<1
Sponge spicules	1

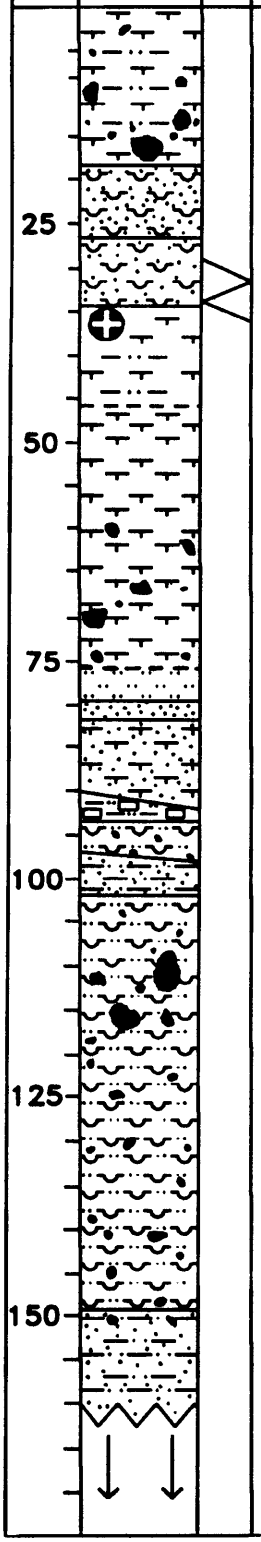
106-117 cm: Sandy mud, light olive gray (5Y 6/1); coarse angular pebbles abundant between 112-117 cm; very fine to medium, angular to subrounded pebbles common throughout.

Smear Slide:	111 cm	Smear Slide (cont'd)	111 cm
Quartz	40	Clay	49
Feldspar	<1	Volcanic glass	8
Mica	<1	Diatoms	<<1
Heavy minerals	3	Sponge spicules	<1

Bottom topography: not recorded.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-34



Latitude: 62°12.1' S
Longitude: 46°20.8' W

Water Depth: 1794 M
Core Length: 271 CM

LITHOLOGIC DESCRIPTION

0-46 cm: Marly foraminiferal ooze, light olive gray (5Y 6/1), abruptly changing to yellowish gray (5Y 7/2) at 32 cm; zone of lower forminifera content between 14-18 cm; layer of diatomaceous sand, light olive gray (5Y 6/1), between 18-27 cm; sand is fine, moderately well sorted; layer of sandy diatomaceous ooze, light olive gray (5Y 6/1), between 27-34 cm, disturbed bottom contact; 43 mm sedimentary clast composed of medium sand, olive gray (5Y 4/1), moderately well sorted, between 33-39 cm; very fine to fine, angular to subrounded pebbles abundant between 13-16 cm, sparsely scattered elsewhere; subangular pebbles between 11-13 cm (13 mm) and 13-15 cm (12 mm); 21 mm subrounded pebble between 15-18 cm; moderately disturbed (washed) between 30-35 cm; slightly washed along the side between 12-30 cm; gradational contact.

Smear Slides:	8 cm	24 cm (layer)
Quartz	35	58
Feldspar	<1	<1
Mica	<1	<1
Heavy minerals	1	2
Clay	8	<<1
Volcanic glass	1	2

Smear Slides (cont'd):	8 cm	24 cm (layer)
Glauconite	-	<<1
Carbonate unspecified	1	-
Foraminifera	50	-
Diatoms	2	38
Radiolarians	<1	<1
Sponge spicules	2	-

46-76 cm: Foraminiferal ooze, yellowish gray (5Y 7/2), mud content varies throughout; very fine, angular pebbles sparsely scattered between 61-76 cm; subangular pebbles between 60-61 cm (7 mm), 60-62 cm (12 mm), 64-66 cm (13 mm) and 75-76 cm (8 mm); 27 mm angular pebble between 69-72 cm; gradational contact.

Smear Slide:	52 cm
Quartz	14
Feldspar	<<1
Heavy minerals	1
Clay	5
Volcanic glass	<1

Smear Slide (cont'd):	52 cm
Carbonate unspecified	2
Foraminifera	76
Diatoms	<1
Sponge spicules	2

76-93 cm: Sandy foraminiferal ooze, yellowish gray (5Y 7/2); layer of muddy sand, light olive gray (5Y 5/2), sand is fine, moderately well sorted, between 76-79 cm; layer of fine sand, moderately sorted, olive gray (5Y 4/1), between 79-82 cm; layer of sandy marly calcareous ooze, light olive gray (5Y 5/2), between 91-93 cm, inclined upper contact; sharp contact.

Smear Slides:	78 cm (layer)	87 cm
Quartz	62	22
Feldspar	<1	<1
Heavy minerals	2	1
Clay	18	5
Volcanic glass	4	8

Smear Slides (cont'd):	78 cm (layer)	87 cm
Carbonate unspecified	1	3
Foraminifera	6	61
Diatoms	2	<<1
Sponge spicules	5	<1

93-149 cm: Diatomaceous muddy sand, light olive gray (5Y 5/2), sand is fine, moderately sorted; zone of lower diatom content between 120-140 cm; layer of sandy mud, yellowish gray (5Y 7/2) between 98-102 cm, inclined upper contact; medium, angular pebbles abundant between 110-118 cm, common between 125-140 cm; fine subrounded pebbles sparsely scattered between 105-118 cm and 130-149 cm; very fine subangular pebbles common between 93-98 cm and 101-149 cm; 22 mm angular flat pebble between 109-112 cm; 23 mm angular pebble between 112-115 cm; slightly washed along the side between 141-149 cm; sharp contact.

Smear Slides:	100 cm (layer)	114 cm
Quartz	63	65
Feldspar	<1	<1
Mica	2	-
Heavy minerals	4	2
Clay	17	1

Smear Slides (cont'd):	100 cm (layer)	114 cm
Volcanic glass	4	5
Rock fragments	-	2
Diatoms	7	24
Radiolarians	1	<1
Sponge spicules	2	1

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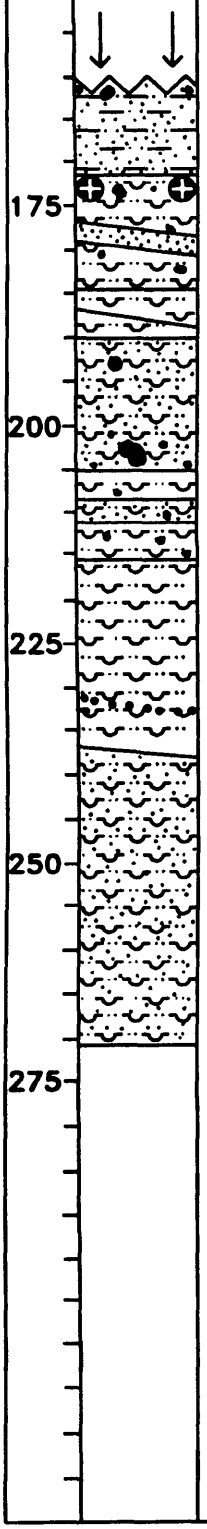
Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-34 (continued)



Latitude: 62°12.1' S
Longitude: 46°20.8' W
Water Depth: 1794 M
Core Length: 271 CM

LITHOLOGIC DESCRIPTION

149-172 cm: Sandy mud, light olive gray (5Y 5/2); fine subrounded pebbles common between 149-150 cm and 159-161 cm; 21 mm angular flat pebble between 159-161 cm; sharp contact.

Smear Slide:	154 cm	Smear Slide (cont'd):	154 cm
Quartz	51	Rock fragments	<1
Feldspar	<1	Diatoms	7
Mica	<1	Radiolarians	<1
Heavy minerals	2	Sponge spicules	1
Clay	33	Silicoflagellates	<<1
Volcanic glass	6		

172-190 cm: Diatomaceous muddy sand, light olive gray (5Y 5/2), sand is fine, moderately well sorted; inclined layer of fine sand, light olive gray (5Y 5/2), well- sorted, between 178-180 cm; layer of muddy diatomaceous ooze, yellowish gray (5Y 7/2) between 185-188 cm, inclined lower contact; sedimentary clast composed of welded tuff, pale brown (5YR 5/2) between 172-174 cm (10 mm) and 174-175 cm (8 mm); fine subrounded pebble common between 172-184 cm; 17 mm subrounded pebble between 172-174 cm; sharp contact.

Smear Slide:	175 cm	Smear Slide (cont'd):	175 cm
Quartz	58	Volcanic glass	11
Feldspar	<1	Rock fragments	1
Mica	<1	Diatoms	16
Heavy minerals	1	Radiolarians	<1
Clay	12	Sponge spicules	1

190-216 cm: Sandy muddy diatomaceous ooze, light olive gray (5Y 5/2); layer of diatomaceous muddy sand, light olive gray (5Y 5/2), sand is fine, well sorted, between 205-208 cm and 211-216 cm; very fine subangular pebbles common between 200-216 cm; subrounded pebble between 191-192 cm (10 mm) and 200-203 cm (20 mm); sharp contact.

Smear Slide:	199 cm	Smear Slide (con't):	199 cm
Quartz	39	Diatoms	41
Feldspar	<1	Radiolarians	2
Heavy minerals	1	Sponge spicules	2
Clay	7	Silicoflagellates	<1
Volcanic glass	8		

216-237 cm: Muddy diatomaceous ooze, yellowish gray (5Y 7/2); inclined lamina of very fine subangular pebbles between 231-232 cm; 5 mm subrounded pebble between 232-233 cm; sharp inclined contact.

Smear Slide:	218 cm	Smear Slide (cont'd):	218 cm
Quartz	32	Volcanic glass	2
Feldspar	<1	Diatoms	62
Mica	<<1	Radiolarians	<1
Heavy minerals	2	Sponge spicules	<1
Clay	2	Silicoflagellates	<1

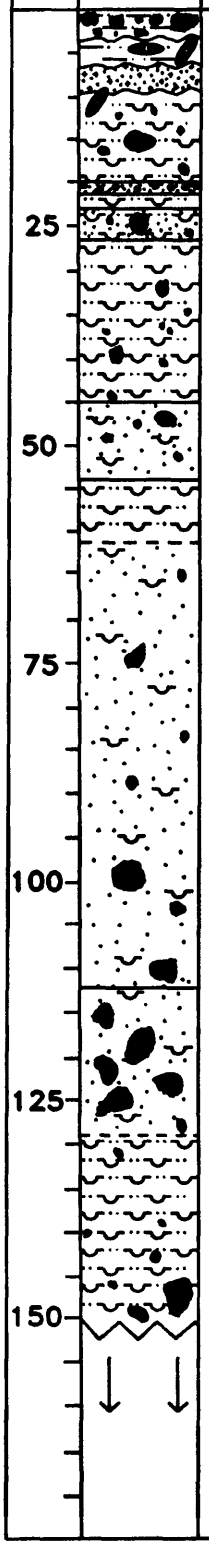
237-271 cm: Sandy muddy diatomaceous ooze, dusky yellow (5Y 6/4), sand content varies throughout; slightly stained with manganese oxide between 237-245 cm; 6 mm lamina of muddy diatomaceous ooze, light olive gray (5Y 6/1) between 267-268 cm; lense of sandy diatomaceous ooze between 257-258 cm.

Smear Slide:	248 cm
Quartz	38
Feldspar	<1
Mica	<<1
Heavy minerals	1
Clay	7
Volcanic glass	1
Diatoms	52
Radiolarians	<1
Sponge spicules	1
Silicoflagellates	<<1

Bottom topography: not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-35



Latitude: 62°10.6' S
Longitude: 46°12.2' W

Water Depth: 1054 M
Core Length: 282 CM

LITHOLOGIC DESCRIPTION

0-23 cm: Diatomaceous muddy sand, dusky yellow (5Y 6/4), sand is fine (3.0-2.5 phi), well sorted; layer of medium pebbles, olive gray (5Y 3/2), moderately well sorted, subangular to subrounded, between 0-4 cm, with minor sandy mud matrix; layer of sandy mud, light olive brown (5Y 5/6) between 4-7 cm, irregular bottom contact; layers of sandy pebbles, light olive brown (5Y 5/6) between 7-9 cm (irregular bottom contact) and 20-22 cm, pebbles are fine, well sorted, subangular; indurated sedimentary clasts up to 6 mm, composed of sandy mud, moderate olive brown (5Y 4/4) common between 4-9 cm; very fine to medium subangular pebbles common between 5-7 cm and 10-20 cm; subrounded pebbles between 0-3 cm (30 mm), 5-7 cm (19 mm) and 14-18 cm (36 mm); sharp contact. Note: Smear slide is biased toward fine fraction.

Smear Slide:	16 cm
Quartz	55
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	2
Volcanic glass	10
Rock fragments	1
Diatoms	25
Radiolarians	3
Sponge spicules	2

23-62 cm: Diatomaceous muddy sand, light olive gray (5Y 6/1), sand is fine (2.5-2.0 phi), well sorted; layer of sandy muddy diatomaceous ooze, light olive gray (5Y 6/1) between 23-29 cm; layer of diatomaceous sand, yellowish gray (5Y 7/2) between 45-54 cm; medium angular to subangular pebbles sparsely scattered between 25-50 cm; very fine to fine, subangular pebbles abundant between 36-39 cm, common between 39-52 cm, sparsely scattered 23-29 cm; gradational contact.

Smear Slides:	34 cm	52 cm (layer)
Quartz	71	79
Feldspar	<<1	<1
Heavy minerals	1	2
Clay	4	<<1
Volcanic glass	4	1
Diatoms	17	16
Radiolarians	2	1
Sponge spicules	1	1
Silicoflagellates	_	<<1

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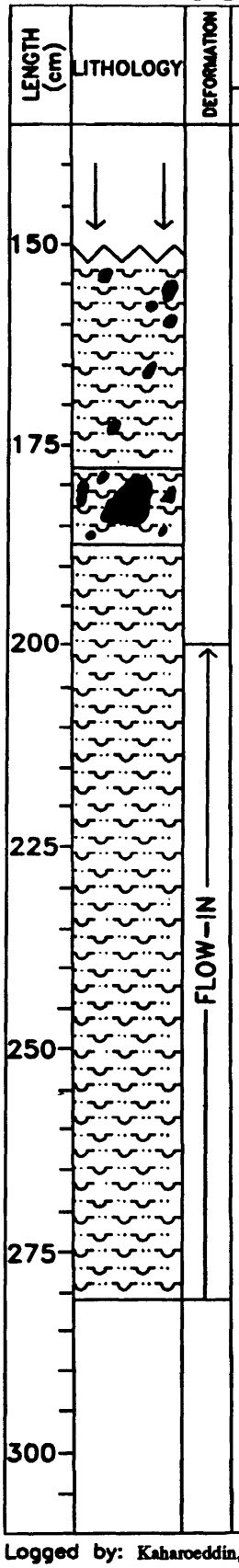
Logged by: Kaharoeddin, Cooper

USCGC GLACIER DF 85-35 (continued)



Latitude: 62°10.6' S
Longitude: 46°12.2' W
Water Depth: 1054 M
Core Length: 282 CM

LITHOLOGIC DESCRIPTION

62-129 cm: Diatomaceous sand, light olive gray (5Y 6/1), sand is fine, well sorted; layer of diatomaceous sand, light olive gray (5Y 6/1), between 112-129 cm, sand is medium, moderately well sorted; coarse angular to subrounded pebbles abundant between 99-129 cm; very fine to medium, angular pebbles sparsely scattered throughout; gradational contact.

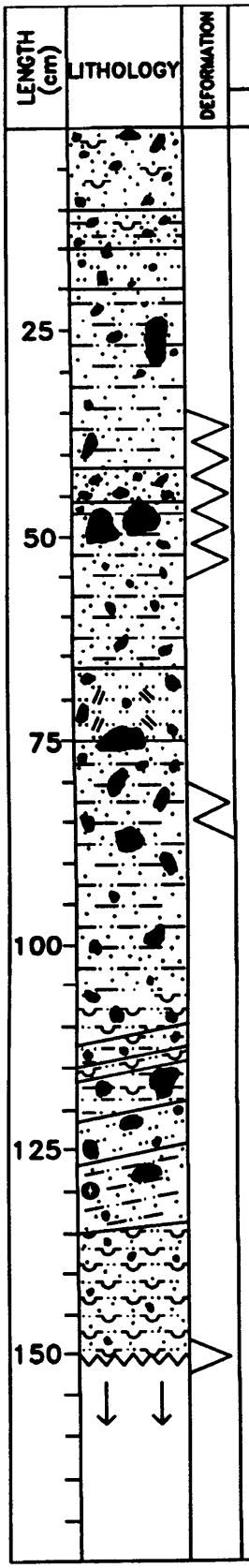
Smear Slide:	75 cm
Quartz	78
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	<<1
Volcanic glass	2
Glauconite	<1
Diatoms	17
Radiolarians	1
Sponge spicules	<1
Silicoflagellates	<<1

129-282 cm: Diatomaceous muddy sand, light olive gray (5Y 6/1), sand is fine, well sorted; zone of high diatom content between 146-155 cm; zone of high mud content between 173-187 cm; layer of diatomaceous muddy sand, light olive gray (5Y 6/1) between 178-187 cm, sand is medium, moderately well sorted; coarse, angular to subrounded pebbles common between 145-160 cm; very fine to medium, subangular pebbles abundant between 178-185 cm, common between 142-151 cm, sparsely scattered between 129-142 cm, 151-178 cm and 185-199 cm; angular pebble between 146-150 cm (35 mm) and 179-183 cm (30 mm); gradational change to flow in at 199 cm.

Smear Slides:	145 cm	192 cm
Quartz	59	53
Feldspar	<1	<1
Heavy minerals	2	1
Clay	4	1
Volcanic glass	8	12
Glauconite	<1	-
Diatoms	26	32
Radiolarians	1	1
Sponge spicules	<1	<1
Silicoflagellate	<1	<1

Logged by: Kaharoeddin, Cooper

USCGC GLACIER DF 85-36



Latitude: 62°11.8' S
Longitude: 46°19.7' W

Water Depth: 1684 M
Core Length: 274 CM

LITHOLOGIC DESCRIPTION

0-10 cm: Diatomaceous sand, light olive gray (5Y 5/2), gradationally changing to olive gray (5Y 4/1) at 5 cm, sand is fine, moderately well sorted, decreasing sand content with depth; very fine to fine, angular to subrounded pebbles abundant throughout; 24 mm flat, subrounded pebble between 0-1 cm; 18 mm flat, subangular pebble between 0-3 cm; slightly washed along the side throughout; sharp contact.

Smear Slide:	2 cm
Quartz	71
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	2
Volcanic glass	8
Glauconite	<<1
Diatoms	17
Radiolarians	<1
Sponge spicules	<1
Silicoflagellates	<<1

10-107 cm: Sandy mud, yellowish gray (5Y 7/2); layer of sandy diatomaceous mud. light gray (N7), between 10-15 cm; layer of muddy sand, olive gray (5Y 4/1), between 15-20 cm, sand is fine, moderately well sorted; layer of pebbly sand, light olive brown (5Y 5/6), between 41-43 cm, sand is medium, poorly sorted, pebbles are very fine to fine, subangular to subrounded; layer of ash-bearing muddy sand, light olive gray (5Y 6/1), between 67-75 cm,sand is fine, moderately well sorted; coarse, angular to rounded pebbles common between 67-91 cm; medium, angular to rounded pebbles sparsely scattered throughout; very fine to fine, angular to subrounded pebbles abundant between 10-16 cm, 43-66 cm, 76-82 cm and 91-107 cm, common elsewhere; angular pebbles between 24-31 cm (32 mm) and 42-46 cm (30 mm); subangular pebbles between 46-51 cm (38 mm) and 72-76 cm (37 mm); highly disturbed (washed) between 81-86 cm; moderately disturbed (washed) between 36-55 cm; slightly washed along the side elsewhere; sharp, inclined contact.

Smear Slides:	28 cm	65 cm
Quartz	63	65
Feldspar	<1	<1
Mica	<<1	<1
Heavy minerals	4	6
Clay	19	17
Volcanic glass	5	3
Glauconite	–	<1
Diatoms	8	7
Radiolarians	<1	<1
Sponge spicules	1	2

107-122 cm: Diatomaceous mud, light olive gray (5Y 6/1); inclined layers of diatomaceous muddy sand, light olive gray (5Y 5/2), between 107-110 cm, and 114-115 cm, sand is fine, moderately well sorted; very fine to fine, subangular to subrounded pebbles common between 107-110 cm and 119-122 cm, sparsely scattered elsewhere; 27 mm angular, flat pebble between 109-112 cm; subrounded pebbles between 111-113 cm (15 mm) and 119-122 cm (16 mm); sharp, inclined contact.

Smear Slide:	116 cm
Quartz	53
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	22
Volcanic glass	4
Diatoms	17
Radiolarians	<1
Sponge spicules	2

122-157 cm: Diatomaceous muddy sand, yellowish gray (5Y 7/2), sand is fine, moderately-well sorted; layer of muddy sand, yellowish gray (5Y 7/2) between 122-126 cm; layer of sandy mud, yellowish gray (5Y 7/2) between 126-134 cm; 6 mm indurated sedimentary clast composed of volcanic tuff, grayish brown (5YR 3/2), between 128-129 cm; very fine to fine, subangular to subrounded pebbles abundant between 134-157 cm, sparsely scattered elsewhere; 21 mm subrounded pebble between 123-125 cm; 19 mm subangular pebble between 156-159 cm; moderately disturbed between 150-157 cm; sharp, inclined contact.

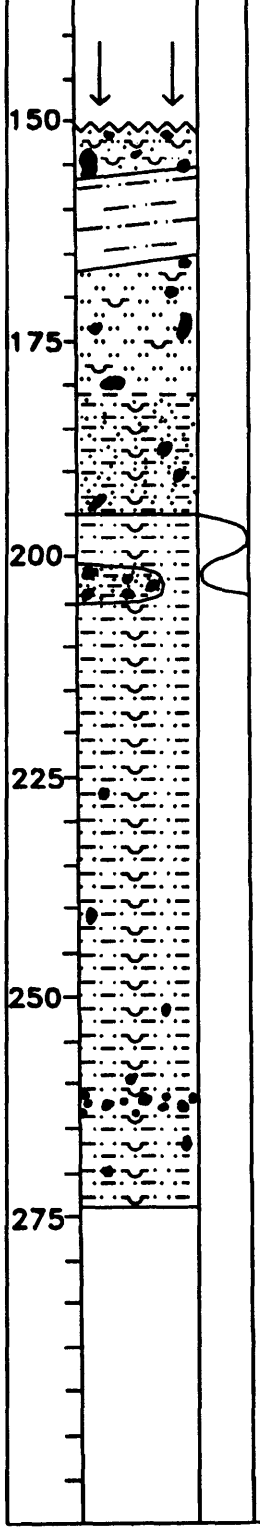
Smear Slide:	144 cm
Quartz	46
Feldspar	<1
Mica	–
Heavy minerals	2
Clay	12
Volcanic glass	6

Smear Slide (cont'd):	144 cm
Rock fragments	<1
Diatoms	28
Radiolarians	4
Sponge Spicules	2
Silicoflagellates	<1

Continued on next page→

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-36 (continued)



Latitude: 62°11.8' S
Longitude: 46°19.7' W
Water Depth: 1684 M
Core Length: 274 CM

LITHOLOGIC DESCRIPTION

157-181 cm: Diatomaceous muddy sand, yellowish gray (5Y 7/2); inclined layer of mud, yellowish gray (5Y 7/2) between 157-166 cm, disturbed bottom contact; fine subangular pebbles common between 166-173 cm, sparsely scattered elsewhere; subrounded pebbles between 155-157 cm (11 mm), 171-172 cm (9 mm) and 179-181 cm (13 mm); 16 mm angular, elongated pebble between 172-174 cm; gradational contact.

Smear Slide:	176 cm
Quartz	42
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	18
Volcanic glass	10
Rock fragments	1
Diatoms	23
Radiolarians	3
Sponge spicules	1
Silicoflagellates	<<1

181-195 cm: Sandy diatomaceous mud, yellowish gray (5Y 7/2); very fine, angular to subangular pebbles sparsely scattered between 189-195 cm; sharp contact.

Smear Slide:	188 cm
Quartz	36
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	28
Volcanic glass	4
Diatoms	26
Radiolarians	2
Sponge spicules	2
Silicoflagellates	<1

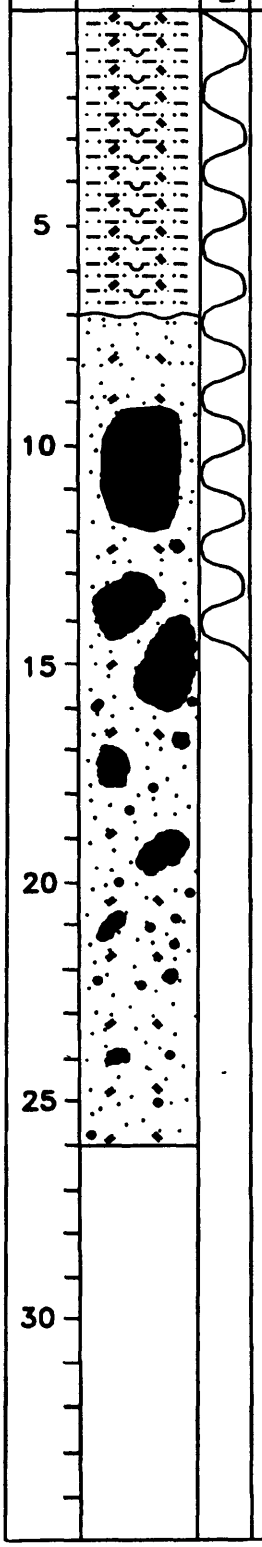
195-274 cm: Diatomaceous mud, yellowish gray (5Y 7/2), sand content varies throughout; lamina of pebbly sand, yellowish gray (5Y 7/2), between 261-263 cm, sand is coarse, poorly sorted, pebbles are very fine, angular to subangular; 2.5 cm lens of pebbly sandy mud, dusky yellow (5Y 6/4), between 201-204 cm, pebbles are very fine to medium, subangular to subrounded; very fine to fine, angular pebbles sparsely scattered between 226-270 cm; slightly disturbed (washed) between 195-205 cm and 210-115 cm.

Smear Slides:	217 cm	253 cm
Quartz	53	60
Feldspar	<1	<1
Mica	<<1	<1
Heavy minerals	1	3
Clay	15	10
Volcanic glass	2	2
Diatoms	28	22
Radiolarians	<1	1
Sponge spicules	1	2
Silicoflagellates	<1	<1

Bottom topography: not recorded in deck log.

Logged by: Cooper, Kaharoeddin

USCGC GLACIER DF 85-42



Latitude: 61°54.8' S
Longitude: 59°54.5' W

Water Depth: 304 M
Core Length: 26 CM

LITHOLOGIC DESCRIPTION

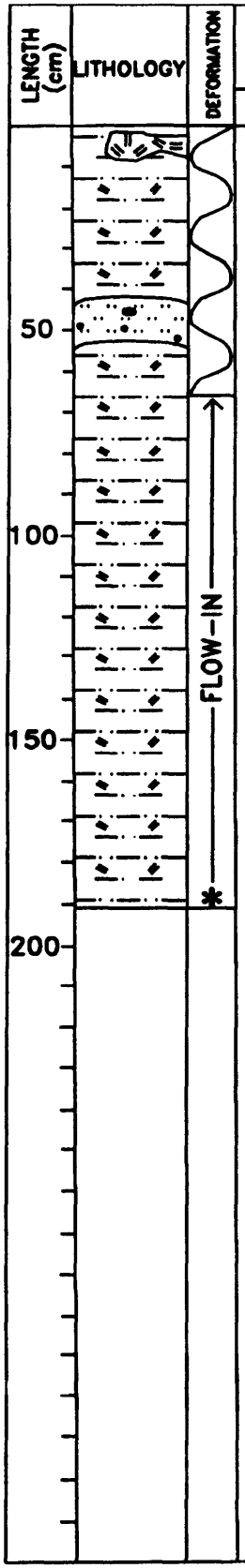
0-26 cm: Ash-bearing, pebbly sand, light olive black (5Y 2/1); sand is fine, moderately sorted, pebbles are very fine to coarse, subrounded to subangular; layer of ash-bearing diatomaceous mud, light olive gray (5Y 5/2), between 0-7 cm; slightly disturbed between 0-15 cm; sharp contact.

Smear Slides:	1 cm (layer)	20 cm
Quartz	45	41
Feldspar	<1	1
Mica	<1	<1
Heavy minerals	4	6
Clay	12	17
Volcanic glass	18	35
Diatoms	20	<<1
Sponge spicules	1	<1
Silicoflagellates	<1	-

Bottom topography: not recorded in deck log.

Logged by: Knüttel, Kaharoeddin

USCGC GLACIER DF 85-43



Latitude: 61°58.6' S
Longitude: 59°52.8' W

Water Depth: 210 M
Core Length: 191 CM

LITHOLOGIC DESCRIPTION

0-191 cm: Ash-bearing mud, olive black (5Y 2/1), silt content varies throughout; layer of coarse ash, grayish black (N2), moderately well sorted between 1-5 cm; irregular disturbed contacts; layer of ash-bearing muddy sand, olive black (5Y 2/1) between 42-52 cm; very fine pebbles common between 42-52 cm; 14 mm subangular basaltic pebble between 44-46 cm; slightly disturbed between 0-67 cm; gradational change to flow-in at 67 cm.

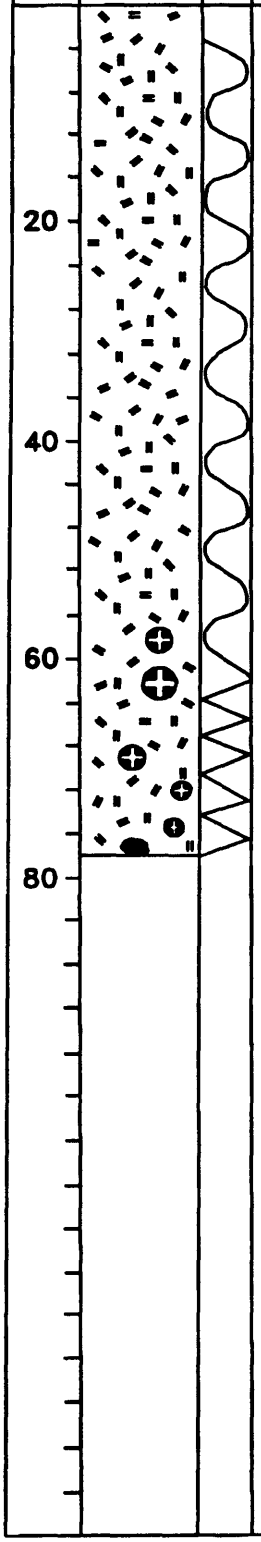
Smear Slides:	19 cm	40 cm
Quartz	34	31
Feldspar	<1	<1
Mica	<1	<1
Heavy minerals	4	5
Clay	30	26
Volcanic glass	24	28
Diatoms	7	8
Sponge spicules	1	2
Silicoflagellates	<1	<1

Bottom topography: not recorded in deck log.

Note: Sediment between 189-191 cm is bagged.

Logged by: Knüttel, Kaharoeddin

USCGC GLACIER DF 85-45



Latitude: 62°04.8' S
Longitude: 59°50.5' W

Water Depth: 101 M
Core Length: 78 CM

LITHOLOGIC DESCRIPTION

0-78 cm: Graded coarse ash, grayish black (N2), well sorted; sedimentary clasts composed of ash-bearing muddy sand, olive black (5Y 2/1), between 56-60 cm (27 mm, elongate), 60-65 cm (37 mm), 69-72 cm (23 mm), 72-74 cm (18 mm) and 75-77 cm (18 mm); very fine pebbles common between 65-78 cm; 7 mm subangular pebble between 77-78 cm; moderately disturbed (washed) between 60-78 cm; slightly disturbed (washed) between 1-60 cm.

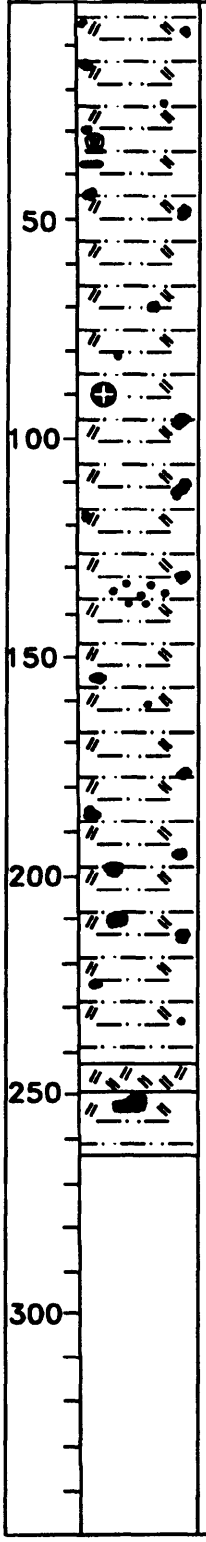
Smear Slides:	3 cm	50 cm
Quartz	25	21
Feldspar	1	1
Heavy minerals	12	10
Volcanic glass	62	67
Diatoms	<<1	<<1
Sponge spicules	<<1	1

Bottom topography: not recorded in deck log.

*Note: Sediment between 0-1 cm is bagged.

Logged by: Knüttel, Kaharoeddin

USCGC GLACIER DF 85-48



Latitude: 62°08.9' S
Longitude: 58°25.7' W

Water Depth: 439 M
Core Length: 263 CM

LITHOLOGIC DESCRIPTION

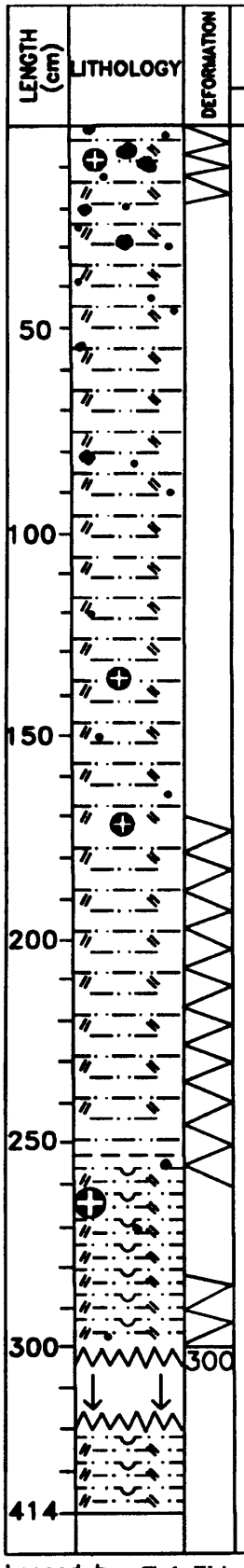
0-263 cm: Ash-bearing mud, olive gray (5Y 4/1), layer of coarse ash, grayish purple (5 P 4/2) between 246-248 cm; mollusk shell fragments between 34-37 cm; sedimentary clast composed of coarse ash with carbonate and pyrite crystals, light bluish gray (5B 7/1), between 93-96 cm; fine to medium pebbles abundant between 130-137 cm; medium, angular to subangular pebbles of various compositions common throughout; 25 mm, angular pebble between 248-251 cm.

Smear Slides:	50 cm	170 cm	258 cm
Quartz	59	62	47
Feldspar	<1	<1	<1
Mica	<<1	<<1	<<1
Heavy minerals	12	10	10
Clay	4	4	5
Volcanic glass	21	20	35
Diatoms	4	4	2
Sponge spicules	<1	<1	1
Silicoflagellates	<<1	<<1	<<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-49



Latitude: 62°08.4' S
Longitude: 58°26.6' W
Water Depth: 363 M
Core Length: 414 CM

LITHOLOGIC DESCRIPTION

0-253 cm: Ash-bearing mud, olive gray (5Y 4/1); zone of higher diatom content between 69-78 cm; highly laminated with laminae of ash-bearing mud, light olive gray (5Y 6/1) between 170-253 cm, laminae are contorted due to disturbance; strainger of coarse ash, brownish black (5YR 4/1) between 56-60 cm; soft, sedimentary clasts composed of ash-bearing mud, light olive gray (5Y 6/1) between 7-9 cm (12 mm) and 134-136 cm (11 mm); 12 mm soft, sedimentary clast composed of mud with abundant ash, light olive gray (5Y 6/1) between 169-172 cm; very fine to medium angular pebbles of various compositions common between 0-136 cm, gradually becoming sparsely scattered between 136-170 cm; angular pebbles between 1-3 cm (20 mm), 18-21 cm (21 mm) and 78-81 cm (17 mm); subangular pebbles between 8-12 cm (29 mm), 27-30 cm (24 mm) and 29-31 cm (17 mm); subrounded pebble between 3-8 cm (40 mm); highly disturbed between 0-17 cm and 170-253 cm; gradational contact.

Smear Slides:	55 cm	72 cm (zone)	150 cm
Quartz	49	46	45
Feldspar	<1	<1	<1
Mica	<1	<1	-
Heavy minerals	10	10	12
Clay	7	4	6
Volcanic glass	28	27	31
Diatoms	5	12	4
Sponge spicules	1	1	2
Silicoflagellates	<1	<1	<1

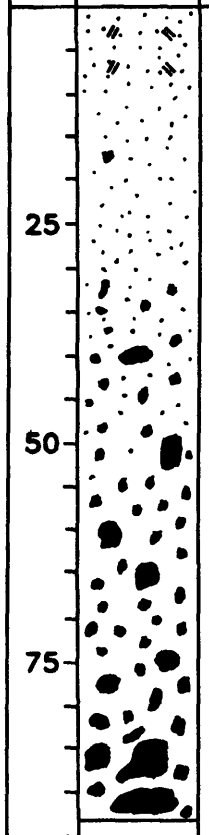
253-414 cm: Ash-bearing diatomaceous mud, olive gray (5Y 4/1); highly laminated with laminae of ash-bearing mud, light olive gray (5Y 6/1) between 253-260 cm, laminae are contorted due to disturbance; 21 mm semi-indurated sedimentary clast composed of ash-bearing muddy sand, olive gray (5Y 4/1) between 261-264 cm; very fine to fine, angular to subrounded pebbles common throughout; highly disturbed between 253-260 cm and imploded, broken core linear between 285-295 cm and 400-414 cm.

Smear Slide:	336 cm
Quartz	34
Feldspar	<1
Heavy minerals	12
Clay	5
Volcanic glass	31
Diatoms	18
Sponge spicules	<1
Silicoflagellates	<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Weiterman, Kaharoeddin

USCGC GLACIER DF 85-51



Latitude: 63°35.1' S
Longitude: 63°48.6' W

Water Depth: 144 M
Core Length: 93 CM

LITHOLOGIC DESCRIPTION

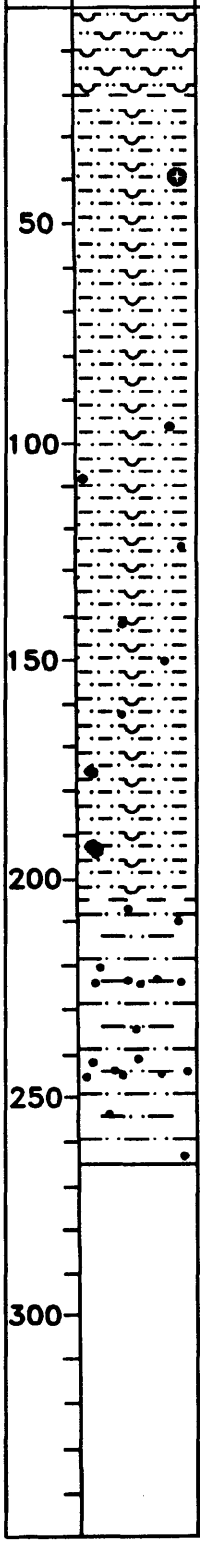
0-93 cm: Graded clastics, grayish black (N2), grading from very well sorted, ash-bearing fine sand to very fine pebbles at 33 cm, pebbles are well sorted, subangular to subrounded, grading to coarse pebbles at 85 cm, moderately sorted; slightly washed along the side between 0-7 cm.

Smear Slide:	2 cm
Quartz	48
Feldspar	<1
Heavy minerals	18
Clay	<<1
Volcanic glass	34
Diatoms	<<1
Sponge spicules	<<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-52



Latitude: 63°46.6' S
Longitude: 63°22.9' W
Water Depth: 522 M
Core Length: 264 CM

LITHOLOGIC DESCRIPTION

0-20 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); gradational contact.

Smear Slide:	13 cm
Quartz	28
Feldspar	<1
Mica	<<1
Heavy minerals	4
Clay	6
Volcanic glass	1
Diatoms	61
Sponge spicules	<<1
Silicoflagellates	<<1

20-205 cm: Diatomaceous mud, light olive gray (5Y 5/2); 1 cm lense of sandy pebbles, olive gray (5Y 3/2) between 118-120 cm, pebbles are very fine, well-sorted; lense of pebbly sand, olive gray (5Y 3/2) between 169-171 cm, sand is coarse, well sorted; 12 mm soft sedimentary clast composed of fine and coarse ash, dusky yellowish brown (10YR 2/2) between 39-41 cm; fine to coarse, angular to subrounded pebbles of granitic composition sparsely scattered between 90-197 cm; gradational contact.

Smear Slides:	68 cm	185 cm
Quartz	38	37
Feldspar	<1	<1
Mica	<1	<1
Heavy minerals	8	14
Clay	12	8
Volcanic glass	1	1
Diatoms	41	40
Radiolarians	<<1	<<1
Sponge spicules	<<1	<<1
Silicoflagellates	<<1	<<1

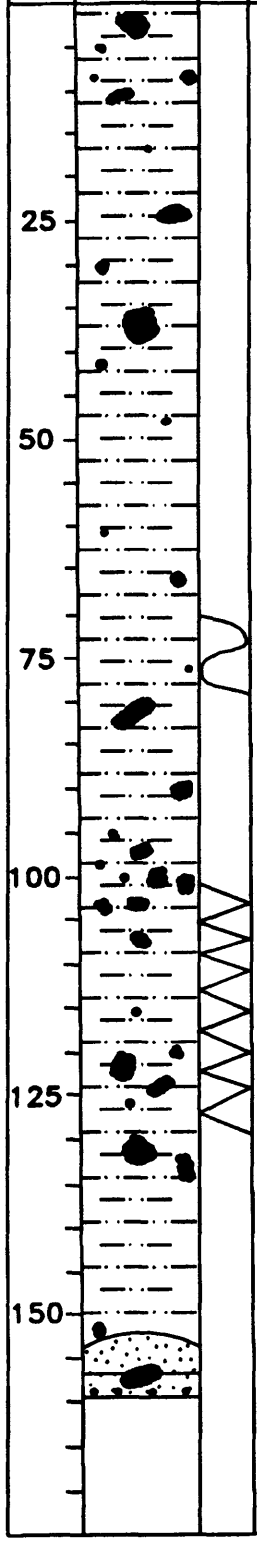
205-264 cm Mud, olive gray (5Y 3/2); lense of pebbly sand, olive gray (5Y 3/2) between 208-210 cm, sand is coarse, well sorted; medium subangular pebbles common between 224-228 cm and 244-248 cm; very fine, subangular pebbles common throughout,

Smear Slide:	222 cm
Quartz	55
Feldspar	<1
Mica	<<1
Heavy minerals	14
Clay	29
Volcanic glass	<1
Diatoms	2
Sponge spicules	<<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-53



Latitude: 64°33.5' S
Longitude: 63°09.3' W

Water Depth: 201 M
Core Length: 159 CM

LITHOLOGIC DESCRIPTION

0-153 cm: Mud, olive gray (5Y 4/1); zone of higher silt sand content between 30-65 cm; 0.9 cm lamina of muddy sand, olive black (5Y 2/1), between 147-148 cm, sand is medium, well sorted; medium to coarse, angular to subrounded pebbles abundant between 94-104 cm, common between 4-34 cm, 80-94 cm and 104-153 cm, sparsely scattered between 45-80 cm; very fine to fine, angular to subangular pebbles sparsely scattered between 42-128 cm; angular pebbles between 0-5 cm (42 mm) and 35-42 cm (53 mm); moderately disturbed (imploded core liner) between 103-130 cm; slightly disturbed between 70-8- cm; sharp convex contact.

Smear Slides:	6 cm	87 cm	139 cm
Quartz	53	56	61
Feldspar	1	1	1
Mica	<1	<1	<1
Heavy minerals	12	15	10
Clay	23	19	17
Volcanic glass	6	4	7
Foraminifera	-	-	<<1
Diatoms	5	5	4
Sponge spicules	<1	<<1	<1

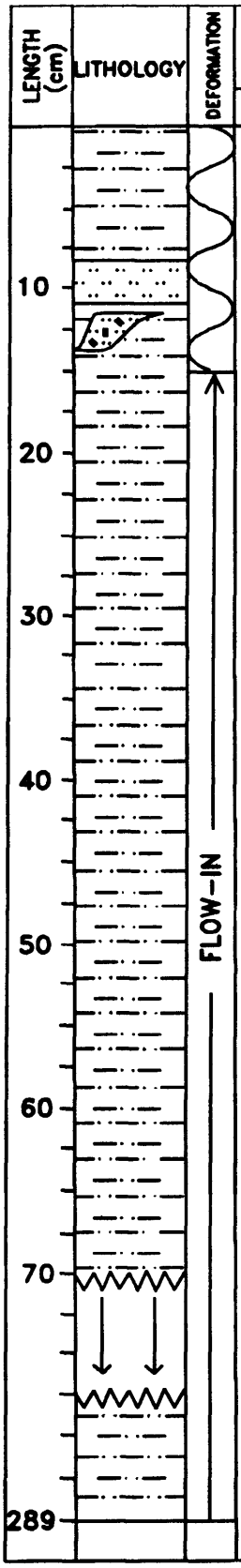
153-159 cm: Medium sand, dark gray (N3), well sorted; layer of pebbly sand, dark gray (N3) between 157-159 cm, sand is medium, well sorted, pebbles are very fine to medium, subangular to subrounded; very fine to fine, subangular to subrounded pebbles sparsely scattered between 153-157 cm; 25 mm subangular elongated pebbles between 155-158 cm.

Smear Slide:	155 cm
Quartz	71
Feldspar	2
Mica	<1
Heavy minerals	12
Clay	<1
Volcanic glass	11
Rock fragments	4
Diatoms	<<1

Bottom topography: not recorded in deck log.

Logged by: Kaharoeddin, Clark

USCGC GLACIER DF 85-54



Latitude: 64°31.9' S
Longitude: 63°08.0' W
Water Depth: 311 M
Core Length: 289 CM

LITHOLOGIC DESCRIPTION

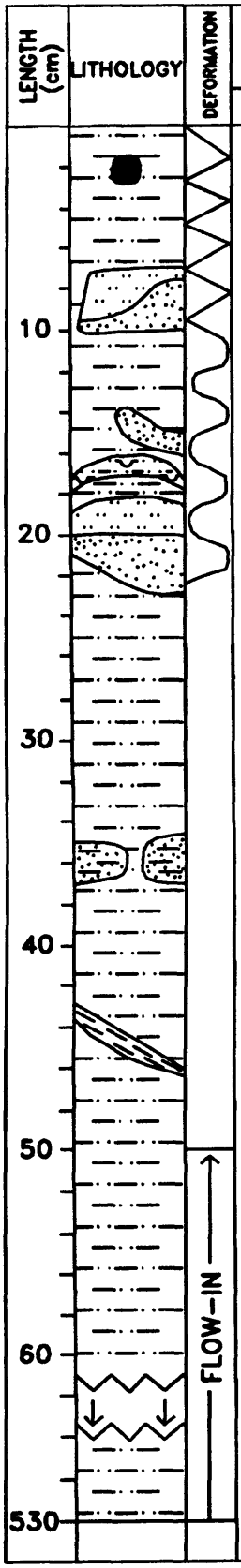
0-289 cm: Mud, light olive gray (5Y 5/2), 1.8 cm layer of muddy sand between 9-11 cm, sand is fine, moderately well sorted; 1.5 cm lense of ash bearing muddy sand between 11-13 cm, sand is fine, well sorted; slightly disturbed (washed) between 0-15 cm; gradational change to flow-in at 15 cm.

Smear Slides:	3 cm	10 cm (layer)
Quartz	63	70
Feldspar	<<1	<1
Mica	<1	<<1
Heavy minerals	12	10
Clay	15	6
Volcanic glass	4	12
Rock fragments	-	2
Diatoms	5	<<1
Sponge spicules	1	<<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-55



Latitude: 64°30.3' S
Longitude: 63°06.6' W
Water Depth: 462 M
Core Length: 530 CM

LITHOLOGIC DESCRIPTION

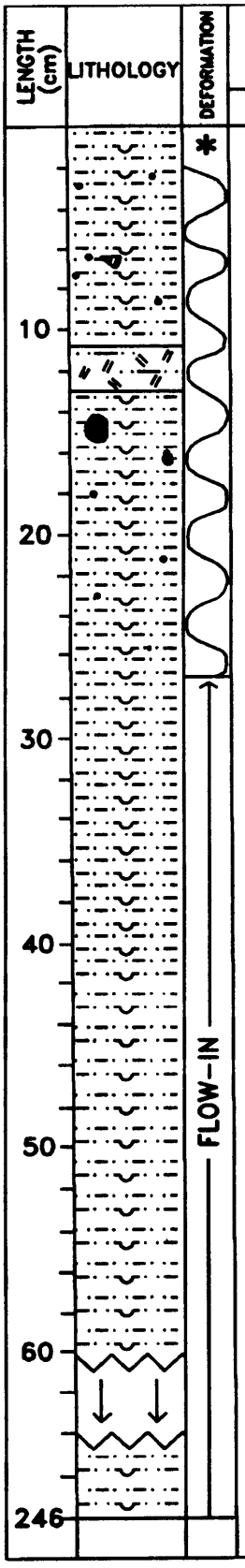
0-530 cm: Mud, light olive gray (5Y 5/2); layer of muddy sand, olive gray (5Y 3/2), between 6-10 cm, deformed into trapezoidal-shape layer, and between 18-20 cm, deformed into disk-shape layer by disturbance, sand is very fine, well sorted; layer of ash-bearing sand, grayish black (N2), between 7-10 cm, deformed into trapezoidal-shape layer, sand is medium, well sorted; layer of sand, medium gray (N5), between 20-23 cm, sand is medium, well sorted, inclined curved bottom contact; 0.8 cm lamina of diatomaceous sandy mud, olive gray (5Y 3/2), between 16-18 cm, convex upward; 0.7 cm inclined lamina of silt, light olive gray (5Y 5/2), between 43-46 cm; 1.3 cm inclined lense of sand, medium gray (N5) between 14-17 cm, sand is fine, well sorted; lenses of sandy mud, light olive gray (5Y 5/2) between 35-37 cm (1.5 cm) and 36-37 cm (0.8 cm); 15 mm subrounded pebble between 1-3 cm; moderately disturbed (washed) between 0-11 cm, slightly disturbed (washed) between 11-22 cm; gradational change to flow-in at 50 cm.

Smear Slides:	25 cm	38 cm
Quartz	57	56
Feldspar	<1	<1
Mica	<1	<1
Heavy minerals	18	17
Clay	11	12
Volcanic glass	5	3
Diatoms	9	12
Sponge spicules	<1	<<1
Silicoflagellates	<<1	<<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-57



Latitude: 65°05.8' S
Longitude: 63°10.2' W
Water Depth: 650 M
Core Length: 246 CM

LITHOLOGIC DESCRIPTION

0-246 cm: Diatomaceous mud, light olive gray (5Y 5/2); 1.3 cm layer of mud-bearing coarse ash, light olive gray (5Y 5/2) between 11-13 cm; very fine to fine angular to subangular pebbles common throughout; 14 mm angular pebble between 14-16 cm; matted sponge spicules between 2-6 cm (18 mm) and 12-15 cm (12 mm); 4 mm fragmented gastropod between 6-7 cm; slightly disturbed (washed) between 2-27 cm; gradational change to flow-in at 27 cm.

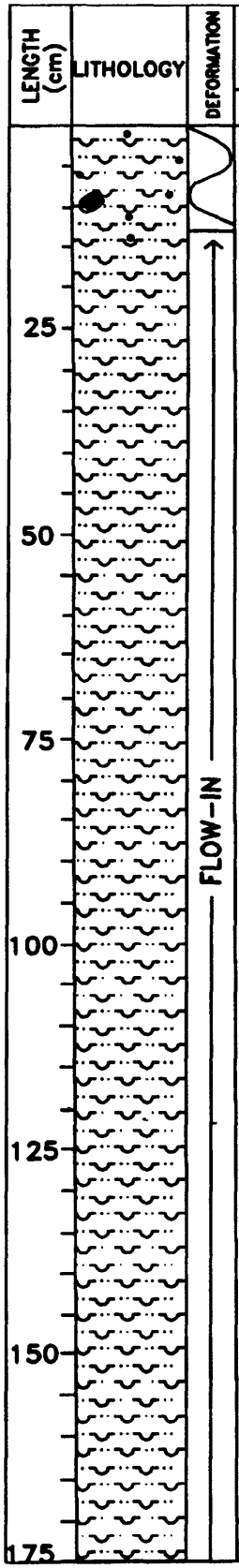
Smear Slides:	10 cm	12 cm (layer)
Quartz	64	29
Feldspar	<<1	<<1
Mica	1	-
Heavy minerals	3	5
Clay	12	5
Volcanic glass	1	53
Rock fragments	-	3
Carbonate unspecified	<<1	-
Foraminifera	<1	-
Diatoms	18	5
Sponge spicules	1	<1
Silicoflagellates	<<1	<<1

Bottom topography: not recorded.

*Note: Sediment between 0-2 cm is bagged.

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-58



Latitude: 65°04.7' S
Longitude: 63°10.7' W
Water Depth: 439 M
Core Length: 175 CM

LITHOLOGIC DESCRIPTION

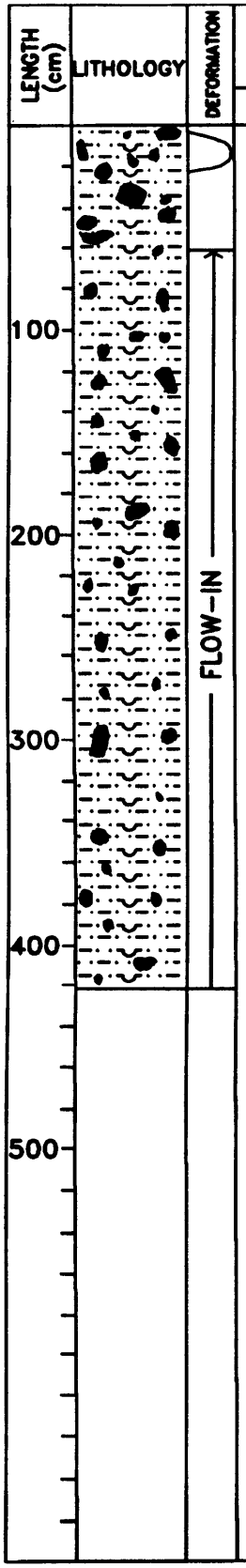
0-175 cm: Diatomaceous mud, light olive gray (5Y 5/2), very fine to fine angular to subangular pebbles common throughout; 16 mm subangular pebble between 8-10 cm; slightly disturbed 0-13 cm; gradational change to flow-in at 13 cm.

Smear Slide:	8 cm
Quartz	43
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	12
Volcanic glass	5
Diatoms	38
Sponge spicules	<1
Silicoflagellates	<<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-59



Latitude: 65°03.1' S
Longitude: 63°11.4' W
Water Depth: 384 M
Core Length: 423 CM

LITHOLOGIC DESCRIPTION

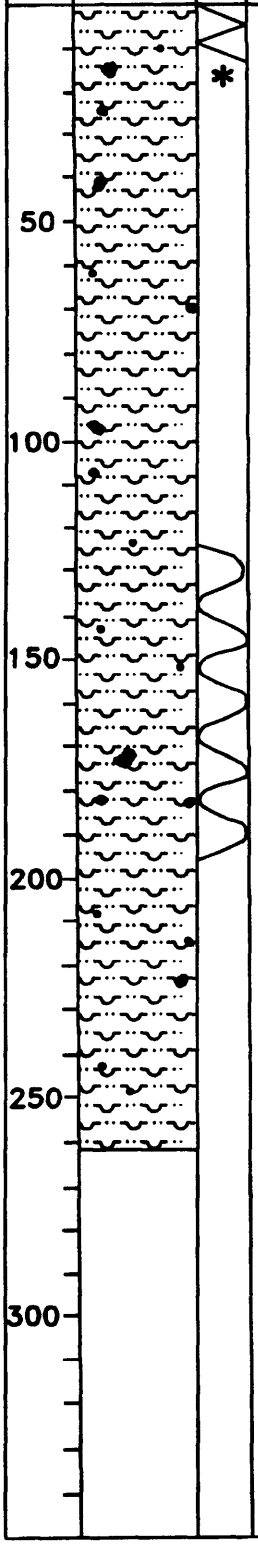
0-423 cm: Diatomaceous mud, light olive gray (5Y 5/2); very fine to medium pebbles angular to subrounded, common throughout; angular pebbles between 11-14 cm (16 mm, flat), 23-25 cm (17 mm) and 51-54 cm (16 mm); subangular pebbles between 37-40 cm (22 mm) and 54-56 cm (17 mm); slightly disturbed between 11-19 cm; gradational change to flow-in at 62 cm.

Smear Slides:	3 cm	62 cm
Quartz	54	58
Feldspar	<1	1
Mica	<<1	<1
Heavy minerals	2	3
Clay	10	10
Volcanic glass	3	2
Diatoms	30	25
Sponge spicules	1	1

Bottom topography: not recorded in deck log.

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-60



Latitude: 65°01.4' S
Longitude: 63°16.4' W

Water Depth: 448 M
Core Length: 262 CM

LITHOLOGIC DESCRIPTION

0-262 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); very fine to medium, angular to subangular pebbles common throughout; angular pebbles between 15-19 cm (35 mm), 41-45 cm (18 mm), and 93-97 cm (25 mm); subangular pebbles between 106-109 cm (20 mm), 170-175 cm (25 mm) and 223-226 cm (18 mm); 3 mm scaphopod fragment between 70-71 cm; moderately disturbed (washed) between 1-17 cm; slightly disturbed between 130-197 cm.

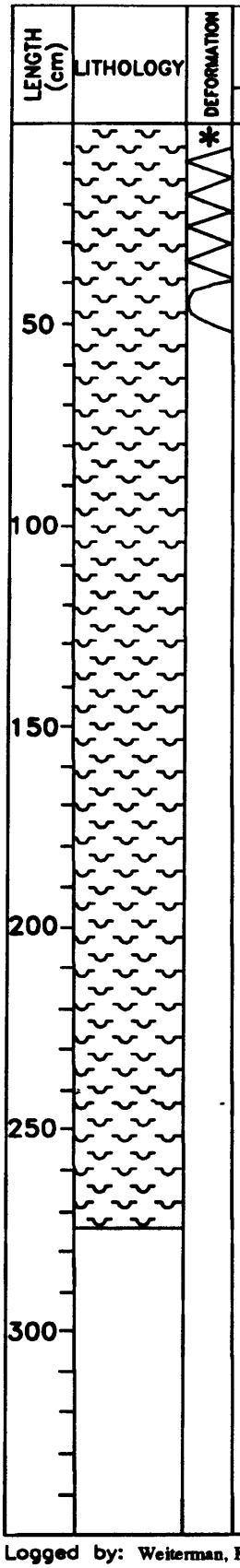
Smear Slides:	25 cm	125 cm	210 cm
Quartz	37	40	33
Feldspar	<1	<1	<<1
Mica	<1	<1	<<1
Heavy minerals	4	3	4
Clay	5	2	3
Volcanic glass	2	1	1
Carbonate unspecified	-	-	<1
Foraminifera	<<1	-	-
Diatoms	50	52	57
Radiolarians	<<1	<<1	<<1
Sponge spicules	2	2	2
Silicoflagellates	<<1	<<1	<<1

Bottom topography: not recorded in deck log.

* Note: Sediment between 0-1 cm is bagged.

Logged by: Clark, Weiterman, Kaharoeddin

USCGC GLACIER DF 85-61



Latitude: 64°57.7' S
Longitude: 64°17.3' W

Water Depth: 1190 M
Core Length: 274 CM

LITHOLOGIC DESCRIPTION

0-274 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4); highly disturbed between 0-36 cm; slightly disturbed (washed) between 36-48 cm.

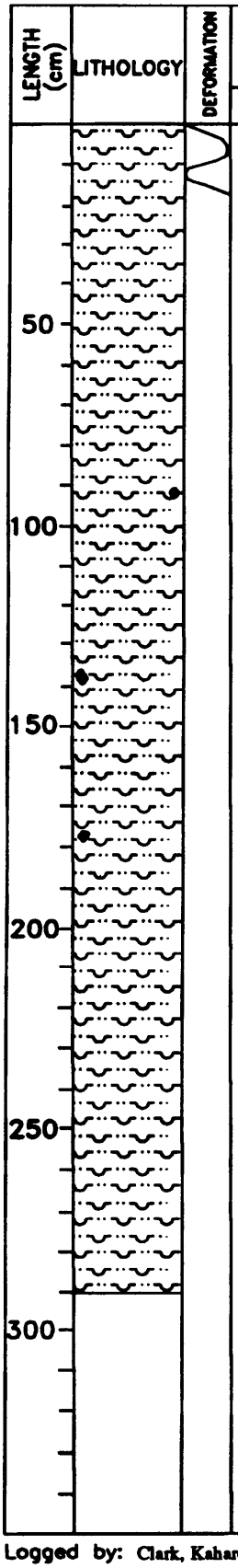
Smear Slide:	103 cm
Quartz	20
Feldspar	<<1
Heavy minerals	1
Clay	3
Volcanic glass	1
Carbonate unspecified	<1
Foraminifera	<1
Ostracodes	<1
Diatoms	75
Sponge spicules	<1
Silicoflagellates	<1

Bottom topography: not recorded in deck log.

* Note: Sediment between 0-2 cm is bagged.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-62



Latitude: 64°58.7' S
Longitude: 64°19.7' W
Water Depth: 772 M
Core Length: 291 CM

LITHOLOGIC DESCRIPTION

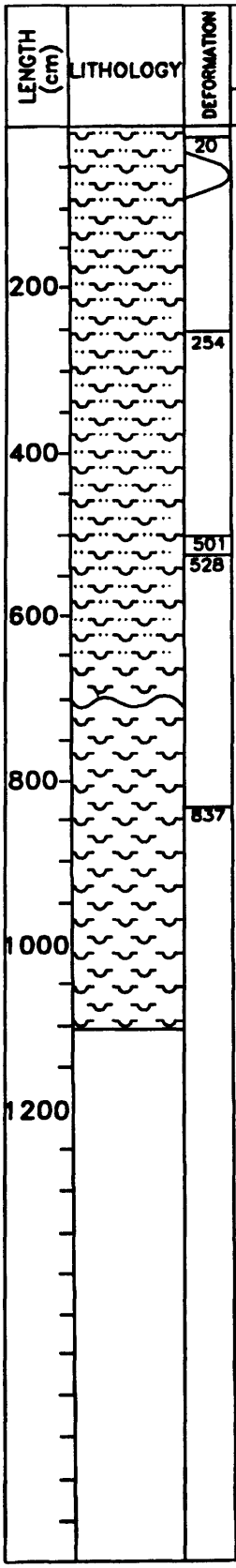
0-291 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); stringers up to 2 mm of powdery hematite aggregates, common between 224-291 cm, sparsely scattered between 13-224 cm; 6 mm angular pebbles between 91-92 cm (6 mm), 135-140 cm (22 mm, flat, elongated), and 177-179 cm (12 mm); slightly disturbed (washed) between 0-15 cm.

Smear Slides:	5 cm	170 cm
Quartz	32	33
Feldspar	<1	<<1
Mica	<1	<1
Heavy minerals	3	4
Clay	2	4
Volcanic glass	1	1
Foraminifera	<1	<<1
Diatoms	60	56
Radiolarians	<1	<<1
Sponge spicules	2	2
Silicoflagellates	<<1	<<1

Bottom topography: not recorded in deck log

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-63



Latitude: 64°56.9' S
Longitude: 64°19.0' W

Water Depth: 1373 M
Core Length: 1109 CM

LITHOLOGIC DESCRIPTION

0-698 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2), layers of diatomaceous ooze between 322-325 cm and 534-536 cm, yellowish gray (5Y 7/2), irregular upper contacts, and between 528-531 cm, moderate olive brown (5Y 4/4); laminae of diatomaceous ooze, light olive brown (5Y 5/6) between 109-110 cm (0.3 cm), 210-211 cm (0.5 cm), 250-251 cm (0.6 cm); laminae of foraminiferal ash-bearing sand, olive gray (5Y 3/2), sand is fine, well sorted, between 75-76 cm (0.9 cm), 88-89 cm (0.2 cm), 180-182 cm (inclined, irregular, 0.2 cm), 184-186 cm (inclined, irregular, 0.2 cm), 422-423 cm (0.2 cm), 650-651 cm (0.9 cm); 0.2 cm lamina of silt, olive gray (5Y 3/2) between 490-491 cm; 3 mm angular pebble between 78-79 cm; slightly disturbed (washed) between 0-66 cm; sharp, irregular contact.

Smear Slides:	25 cm	290 cm	495 cm	609 cm
Quartz	38	38	35	42
Feldspar	<<1	<<1	<1	1
Mica	<1	<<1	<<1	<1
Heavy minerals	4	3	2	2
Clay	6	5	2	2
Volcanic glass	-	2	<1	1
Foraminifera	<<1	-	-	<<1
Diatoms	51	51	59	50
Radiolarians	<<1	<1	<1	<1
Sponge spicules	1	1	2	2
Silicoflagellates	<1	<1	<1	<1

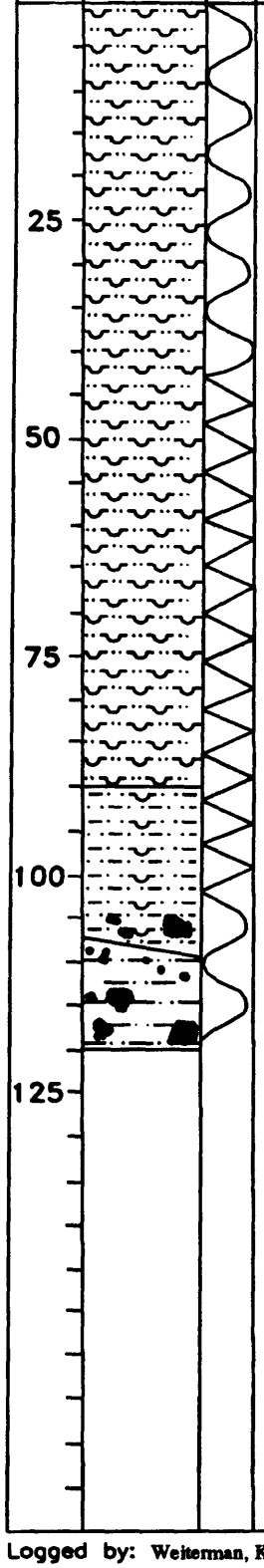
698-1109 cm: Diatomaceous ooze, light olive gray (5Y 5/2), layer of diatomaceous ooze, yellowish gray (5Y 7/2) between 698-700 cm, with diatom content higher than that of main unit; 0.2 cm lamina of foraminiferal ash-bearing sand, olive gray (5Y 3/2), sand is very fine, well sorted, between 825-826 cm; 3 mm angular pebble between 894-895 cm, 4 mm angular pebble between 1070-1071 cm.

Smear Slides:	710 cm	910 cm	1037 cm
Quartz	20	25	21
Feldspar	<1	<<1	<1
Mica	-	<<1	<1
Heavy minerals	2	<1	3
Clay	<<1	-	<1
Volcanic glass	1	<1	1
Carbonate unspecified	-	-	2
Foraminifera	-	-	<1
Diatoms	76	75	73
Radiolarians	-	<1	-
Sponge spicules	1	<1	<1
Silicoflagellates	<1	<<1	<1

Bottom topography: not recorded in deck-log.

Logged by: Clark, Kaharoeddin

USCGC GLACIER DF 85-65



Latitude: 67°46.1' S
Longitude: 68°16.1' W

Water Depth: 358 M
Core Length: 120 CM

LITHOLOGIC DESCRIPTION

0-90 cm: Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); highly disturbed (washed) between 66-90 cm; moderately disturbed (washed) between 40-66 cm; slightly disturbed between 0-40 cm; sharp contact.

Smear Slide:	40 cm
Quartz	30
Feldspar	1
Mica	<1
Heavy minerals	4
Clay	8
Volcanic glass	2
Diatoms	53
Sponge spicules	2
Silicoflagellates	<<1

90-108 cm: Diatomaceous mud, olive gray (5Y 4/1); very fine to medium, subangular to subrounded pebbles common between 105-108 cm; 33 mm, subangular basaltic pebble between 104-108 cm; highly disturbed (washed) between 90-102 cm; slightly disturbed between 102-108 cm; sharp, inclined contact.

Smear Slide:	92 cm
Quartz	50
Feldspar	1
Mica	<1
Heavy minerals	4
Clay	21
Volcanic glass	1
Diatoms	22
Sponge spicules	1
Silicoflagellates	<<1

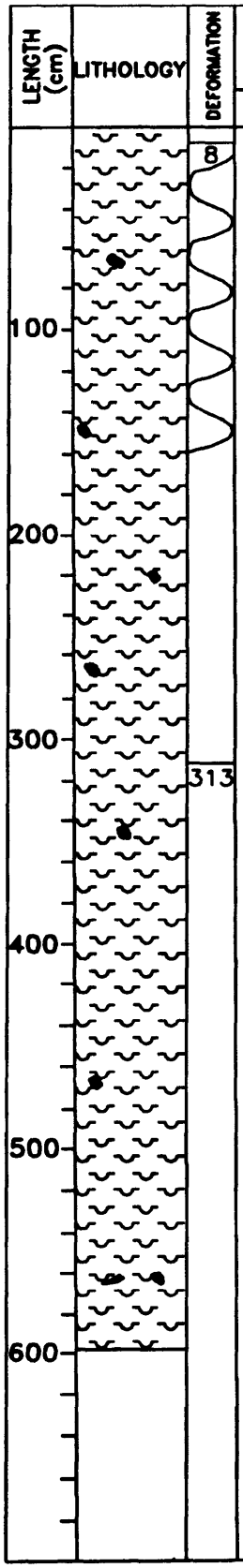
108-120 cm: Mud, medium gray (N5); very fine to medium, angular to subrounded pebbles abundant throughout; 23 mm subangular pebble between 116-120 cm; 20 mm subrounded pebble between 113-116; slightly disturbed (washed) throughout.

Smear Slide:	113 cm
Quartz	43
Feldspar	2
Mica	<1
Heavy minerals	9
Clay	42
Volcanic glass	4
Carbonate unspecified	<<1
Diatoms	<<1
Sponge spicules	<<1

Bottom topography: not recorded in deck-log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-66



Latitude: 67°48.3' S
Longitude: 68°06.3' W

Water Depth: 859 M
Core Length: 597 CM

LITHOLOGIC DESCRIPTION

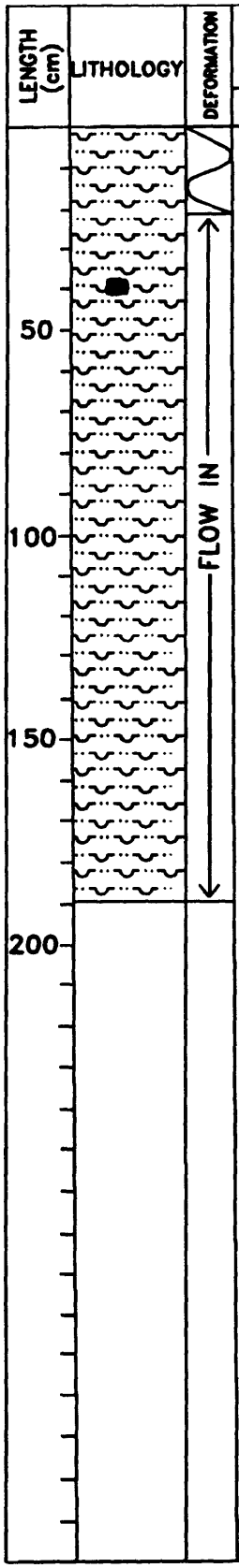
0-597 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4); 16 mm scaphopod between 573-574 cm; very fine, angular pebbles sparsely scattered throughout; 17 mm, angular, andesitic pebble between 68-70 cm; moderately disturbed (washed) between 8-20 cm; slightly disturbed (washed) between 0-8 cm and 20-170 cm.

Smear Slides:	4 cm	371 cm	589 cm
Quartz	10	11	24
Feldspar	<1	<1	<<1
Mica	-	-	<1
Heavy minerals	2	1	2
Clay	2	<1	2
Volcanic glass	<1	-	-
Carbonate unspecified	<<1	-	<<1
Foraminifera	-	-	<1
Diatoms	85	86	72
Sponge spicules	<1	2	<1
Silicoflagellates	1	<<1	<<1

Bottom topography: not recorded in deck-log.

Logged by: Weiterman, Breza, Kaharoeddin

USCGC GLACIER DF 85-67



Latitude: 67°55.9' S
Longitude: 68°32.8' W

Water Depth: 412 M
Core Length: 189 CM

LITHOLOGIC DESCRIPTION

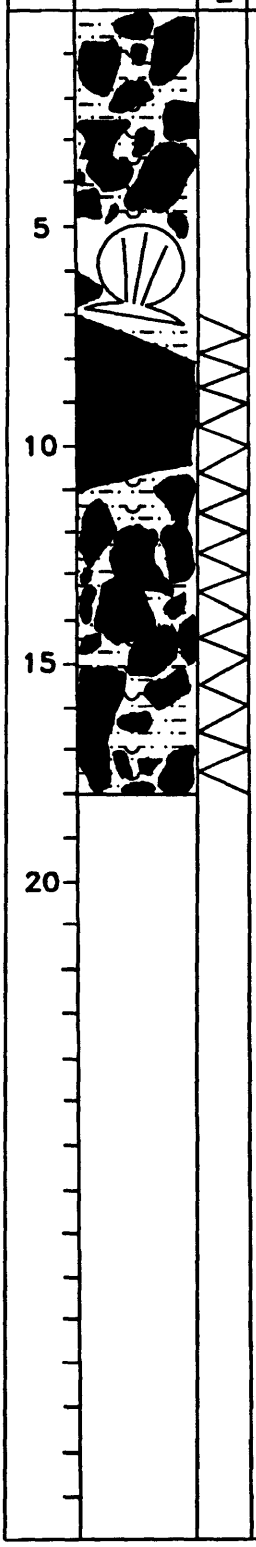
0-189 cm: Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); slightly disturbed (washed) between 0-21 cm; gradational change to flow-in at 21 cm.

Smear Slide:	5 cm
Quartz	28
Feldspar	<1
Mica	<<1
Heavy minerals	2
Clay	8
Volcanic glass	4
Diatoms	55
Sponge spicules	3
Silicoflagellates	<1

Bottom topography: not recorded in deck-log.

Logged by: Weiterman, Breza, Kaharoeddin

USCGC GLACIER DF 85-69



Latitude: 67°59.9' S
Longitude: 68°24.8' W

Water Depth: 256 M
Core Length: 17 CM

LITHOLOGIC DESCRIPTION

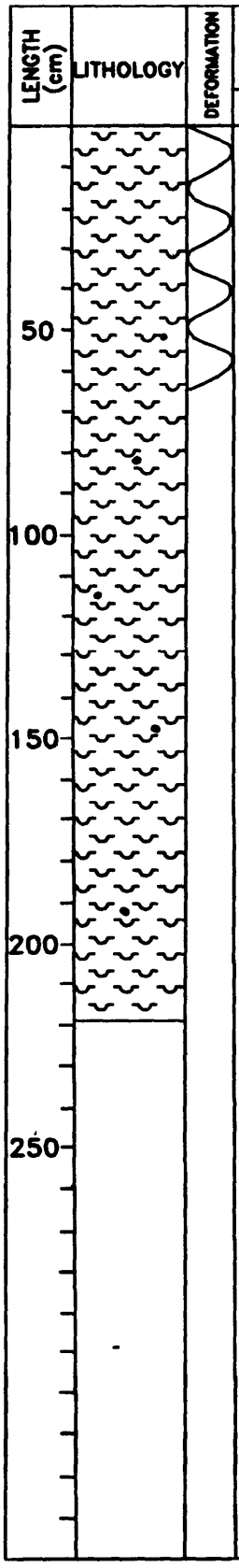
0-17 cm: Pebbles, with minor matrix composed of diatomaceous sandy mud, light olive gray (5Y 5/2); pebbles are medium, poorly sorted, angular to subrounded, composed primarily of basalt and granite; 52 mm angular, flat, chert between 7-11 cm; 14 mm worm tube between 3-4 cm; 43 mm articulated pelecypod shell between 5-7 cm; highly disturbed (matrix washed out) between 7-17 cm.

Smear Slide:	2 cm (matrix)
Quartz	56
Feldspar	<<1
Heavy minerals	4
Clay	12
Volcanic glass	6
Diatoms	18
Sponge spicules	4

Bottom topography: not recorded in deck-log.

Logged by: Breza, Kaharoeddin

USCGC GLACIER DF 85-71



Latitude: 67°59.2' S
Longitude: 68°34.0' W
Water Depth: 607 M
Core Length: 218 CM

LITHOLOGIC DESCRIPTION

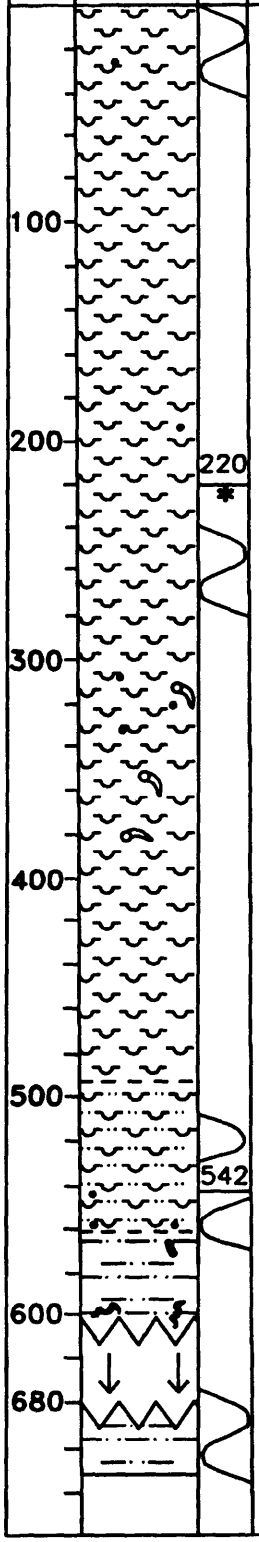
0-218 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4); very fine to fine, angular to subangular basaltic pebbles sparsely scattered between 50-200 cm; slightly disturbed (washed) between 0-65 cm, and 216-218 cm.

Smear Slides:	5 cm	130 cm	210 cm
Quartz	12	8	10
Feldspar	<<1	<<1	<<1
Mica	<<1	<<1	<<1
Heavy minerals	2	2	2
Clay	5	3	2
Volcanic glass	<1	-	-
Carbonate unspecified	-	-	1
Diatoms	80	86	84
Sponge spicules	1	1	1
Silicoflagellates	<1	<<1	<<1

Bottom topography: not recorded in deck-log.

Logged by: Breza, Weiterman, Kaharoeddin

USCGC GLACIER DF 85-72



Latitude: 67°54.9' S
Longitude: 68°26.9' W

Water Depth: 808 M
Core Length: 716 CM

LITHOLOGIC DESCRIPTION

0-493 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4) gradually changing to light olive gray (5Y 2/2) at 443 cm; silt content increases between 443-493 cm; 78 mm scaphopod between 351-357 cm; 26 mm scaphopod between 382-383 cm (scaphopod is horizontal with respect to original position of the core); scaphopod fragments common between 328-329 cm; fine, angular to subangular basaltic pebbles sparsely scattered between 304-336 cm; 12 mm subrounded, granitic pebble between 192-194 cm; slightly disturbed (washed) between 0-50 cm and 250-273 cm; gradational contact.

Smear Slides:	115 cm	294 cm	472 cm
Quartz	14	16	20
Feldspar	<1	<1	-
Mica	<1	<1	<1
Heavy minerals	2	2	2
Clay	2	3	4
Volcanic glass	1	<1	1
Carbonate unspecified	<1	<1	<1
Foraminifera	<1	<<1	<<1
Ostracods	<1	<1	<1
Diatoms	81	79	73
Radiolarians	<<1	<<1	<<1
Sponge spicules	<1	<1	<1
Silicoflagellates	<1	<<1	<1

493-561 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); stringers of fine ash sparsely scattered between 542-561 cm; fine, subangular, basaltic pebbles sparsely scattered between 557-560; 11 mm subangular pebble between 547-549 cm; slightly disturbed between 553-561 cm; gradational contact.

Smear Slide:	548 cm
Quartz	22
Feldspar	<1
Mica	<<1
Heavy minerals	5
Clay	18
Volcanic glass	4
Carbonate unspecified	<1
Foraminifera	<<1
Ostracods	<1
Diatoms	51
Radiolarians	<<1
Sponge spicules	<1
Silicoflagellates	<<1

516-716 cm: Mud, olive gray (5Y 4/1), highly laminated with muddy sand, medium gray (N5) between 598-659 cm, moderately laminated between 592-598 cm and 644-669 cm; 2 cm layer of ash-bearing fine sand, medium gray (N5), moderately sorted between 686-688 cm; 2 cm layer of ash-bearing medium sand, medium gray (N5), poorly sorted between 689-691 cm; fine, angular basaltic pebbles sparsely scattered between 610-637 cm; 50 mm elongate angular, basaltic pebble between 564-569 cm; 6 mm subangular, basaltic pebble between 571-572 cm; slightly bioturbated between 590-603 cm; slightly disturbed between 673-716 cm.

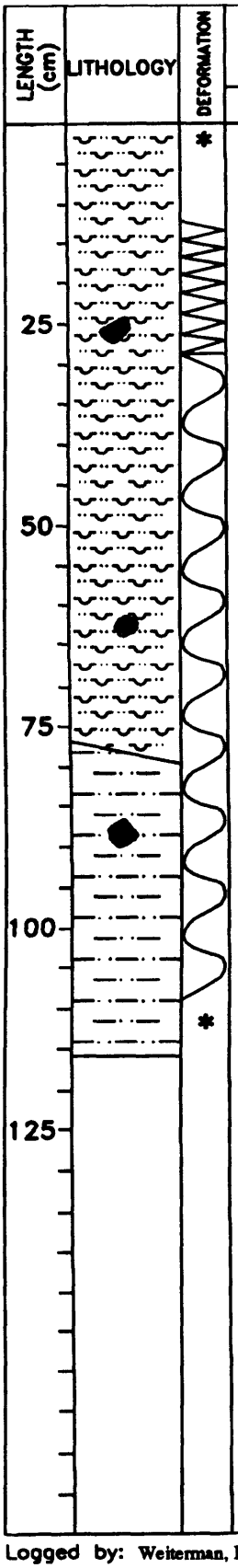
Smear Slides:	675 cm	687 cm (layer)
Quartz	60	75
Feldspar	<1	1
Mica	<<1	-
Heavy minerals	12	5
Clay	28	12
Volcanic glass	<1	6
Rock fragments	-	1
Carbonate unspecified	<1	-
Sponge spicules	<<1	-

Bottom topography: not recorded in deck-log.

*NOTE: Sediment between 220-250 cm was lost during coring operation.

Logged by: Weiterman, Breza, Kaharoeddin

USCGC GLACIER DF 85-74



Latitude: 68°06.1' S
Longitude: 68°34.1' W

Water Depth: 338 M
Core Length: 116 CM

LITHOLOGIC DESCRIPTION

0-79 cm: Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); 44 mm, angular, basaltic pebble between 24-29 cm; 8 mm, angular, granitic pebble between 62-63 cm; highly disturbed (broken core liner) between 12-28 cm; slightly disturbed (washed) elsewhere; sharp, inclined contact.

Smear Slide:	18 cm
Quartz	32
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	3
Volcanic glass	2
Foraminifera	<<1
Diatoms	59
Radiolarians	<1
Sponge spicules	2
Silicoflagellates	<1

79-116 cm: Mud, olive gray (5Y 4/1); sand content increases with depth between 102-116 cm; 16 mm, angular, basaltic pebble between 88-90 cm; slightly disturbed (washed) throughout.

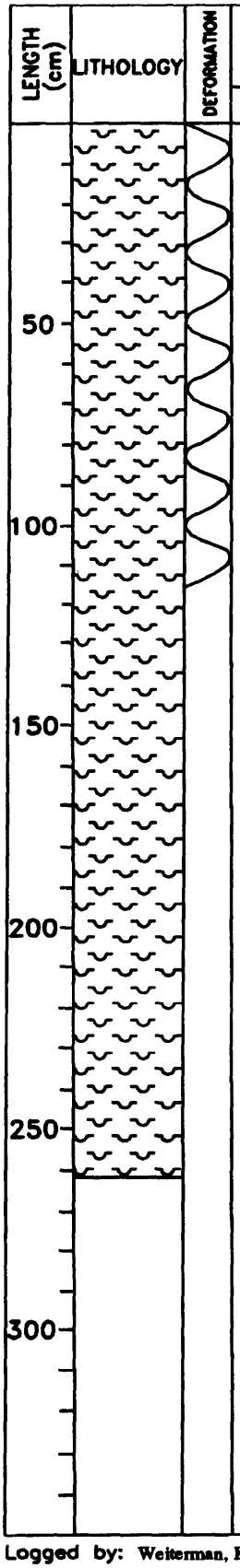
Smear Slides:	95 cm	104 cm
Quartz	60	61
Feldspar	<<1	<1
Mica	<<1	<1
Heavy minerals	10	8
Clay	20	20
Volcanic glass	3	8
Rock fragments	-	1
Carbonate unspecified	<<1	-
Foraminifera	<<1	-
Diatoms	7	2
Sponge spicules	<1	-
Silicoflagellates	<<1	-

*NOTE: Sediments between 0-12 cm and 106-116 cm are bagged.

Bottom topography: not recorded in deck-log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-75



Latitude: 68°05.5' S
Longitude: 68°26.6' W

Water Depth: 366 M
Core Length: 262 CM

LITHOLOGIC DESCRIPTION

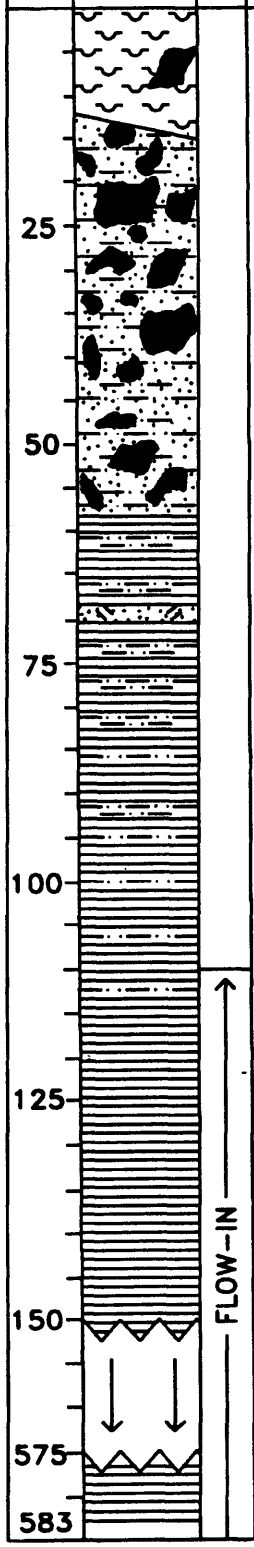
0-262 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4); silt content increases with depth; slightly disturbed (washed) between 0-117 cm.

Smear Slides:	6 cm	104 cm	258 cm
Quartz	17	19	21
Feldspar	<<1	<<1	<<1
Mica	<1	<1	<<1
Heavy minerals	2	2	1
Clay	4	6	5
Volcanic glass	-	-	1
Diatoms	75	72	70
Radiolarians	<<1	<<1	<<1
Sponge spicules	2	1	2
Silicoflagellates	<<1	<<1	<<1

Bottom topography: not recorded in deck-log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-76



Latitude: 68°05.4' S
Longitude: 68°07.5' W
Water Depth: 594 M
Core Length: 583 CM

LITHOLOGIC DESCRIPTION

0-13 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4); 24 mm, flat, angular, granitic pebble between 7-10 cm; sharp, inclined contact.

Smear Slide:	9 cm
Quartz	17
Feldspar	<<1
Heavy minerals	2
Clay	3
Volcanic glass	<1
Foraminifera	<<1
Diatoms	77
Radiolarians	<1
Sponge spicules	1
Silicoflagellates	<<1

13-58 cm: Pebbly sandy mud, brownsih gray (5YR 4/1); sharp contact.

Smear Slide:	24 cm
Quartz	60
Feldspar	<1
Mica	<<1
Heavy minerals	5
Clay	28
Volcanic glass	3
Rock fragments	4
Silicoflagellates	<<1

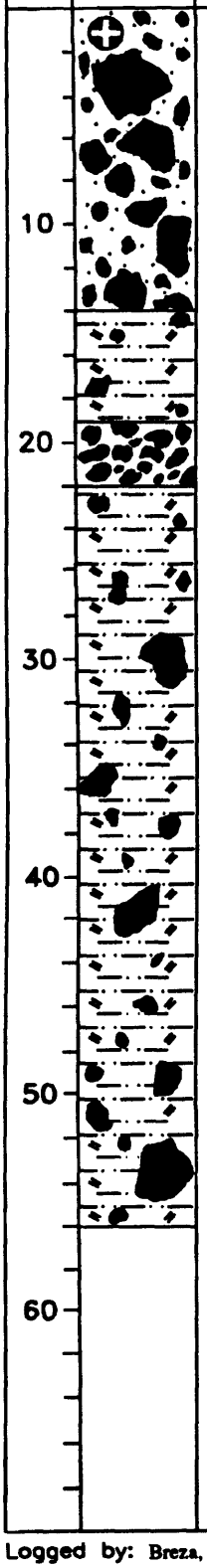
58-110 cm: Clay (with very fine ash), grayish red (10R 4/2) highly laminated with mud, brownish gray (5YR 4/1); 1 cm laminae of ash-bearing sand, olive black (5Y 2/1) between 69-70 cm; sharp change to flow-in at 110 cm.

Smear Slides:	75 cm (mud)	96 cm (clay)
Quartz	56	14
Feldspar	<<1	<<1
Heavy minerals	10	1
Clay	31	73
Volcanic glass	3	12
Diatoms	-	<1

Bottom topography: not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-77



Latitude: 68°05.1' S
Longitude: 67°52.5' W

Water Depth: 316 M
Core Length: 56 CM

LITHOLOGIC DESCRIPTION

0-14 cm: Sandy pebbles, dusky brown (5YR 2/2); pebbles are medium, poorly sorted, angular to subrounded, primarily of basaltic composition; sand is medium, moderately sorted, angular to subrounded composed primarily of rock fragments; 28 mm sedimentary clast between 0-2 cm composed of diatomaceous sandy mud, moderate olive brown (5Y 4/4); sharp contact.

Smear Slide:	2 cm (clast)
Quartz	47
Feldspar	<1
Heavy minerals	4
Clay	16
Volcanic glass	6
Rock fragments	1
Diatoms	24
Radiolarians	<<1
Sponge spicules	2
Silicoflagellates	<<1

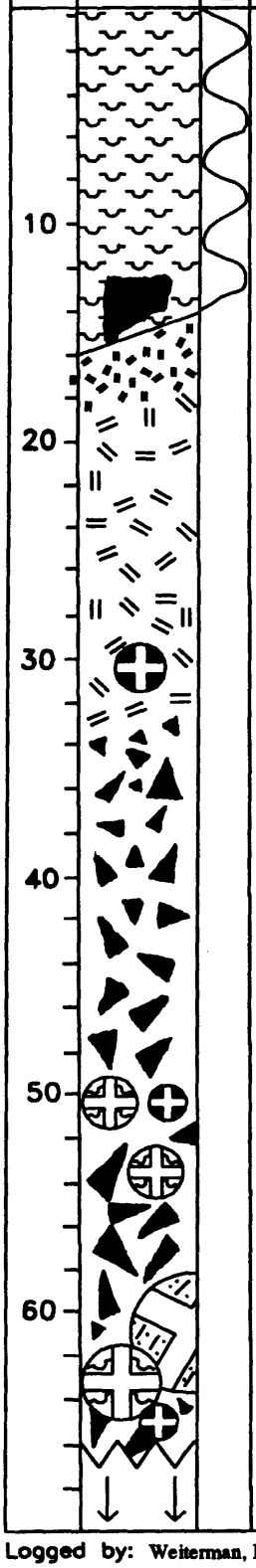
14-56 cm: Ash-bearing mud, grayish red (5R 4/2); layer of medium basaltic pebbles, dusky brown (5YR 2/2), moderately sorted, between 19-22 cm; fine to coarse, subangular basaltic pebbles abundant between 22-56 cm; fine to medium, subangular basaltic pebbles common between 14-19 cm.

Smear Slides:	17 cm	54 cm
Quartz	49	58
Feldspar	<1	<1
Mica	-	<<1
Heavy minerals	4	5
Clay	29	17
Volcanic glass	17	20
Carbonate unspecified	1	<1
Diatoms	<<1	<1
Sponge spicules	-	<<1

Bottom topography: not recorded in deck-log.

Logged by: Breza, Kaharoeddin

USCGC GLACIER DF 85-78



Latitude: 68°08.7' S
Longitude: 68°04.3' W

Water Depth: 470 M
Core Length: 72 CM

LITHOLOGIC DESCRIPTION

0-15 cm: Diatomaceous ooze; moderate olive brown (5Y 4/4); 15 mm flat, angular pebble between 13-16 cm; slightly disturbed (washed along the sides) throughout; sharp, inclined contact.

Smear Slide:	4 cm
Quartz	18
Feldspar	<<1
Mica	<1
Heavy minerals	2
Clay	3
Volcanic glass	1
Diatoms	75
Radiolarians	<1
Sponge spicules	1
Silicoflagellates	<1

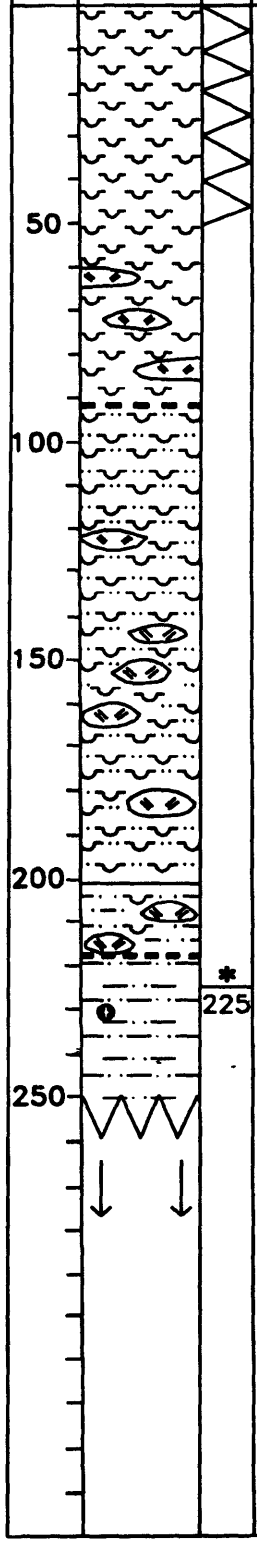
15-72 cm: Graded volcaniclastics, olive gray (5Y 4/1), gradationally changing to olive black (5Y 2/1) at 20 cm, grading from very well sorted fine ash to coarse ash at 16 cm, grading to lapilli at 33 cm, soft, sedimentary clasts between 30-32 cm (12 mm), 49-52 cm (22 mm), 50-52 cm (15 mm), 53-56 cm (28 mm), and 61-66 cm (48 mm) composed of diatomaceous ooze, moderate olive brown (5Y 4/4); soft sedimentary clasts between 59-64 cm (37 mm) and 64-66 cm (12 mm) composed of mud, olive gray (5Y 4/1).

Smear Slides:	17 cm	54 cm (clast)	63 cm (clast)
Quartz	17	20	54
Feldspar	1	<<1	2
Mica	-	<<1	-
Heavy minerals	5	2	10
Clay	4	2	24
Volcanic glass	73	<1	8
Rock fragments	-	-	2
Carbonate unspecified	-	<<1	<<1
Ostracods	-	<<1	-
Diatoms	<<1	76	<<1
Radiolarians	-	<<1	-
Sponge spicules	<<1	<1	<<1
Silicoflagellates	-	<<1	-

Bottom topography: not recorded in deck-log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-79



Latitude: 68°11.67' S
Longitude: 68°15.18' W

Water Depth: 485 M
Core Length: 515 CM

LITHOLOGIC DESCRIPTION

0-92 cm: Diatomaceous ooze, moderate olive brown (5Y 4/4); stringers of coarse ash, black (N1), up to 3 mm common between 59-92 cm; 19 mm, angular basaltic pebble between 59-61 cm; highly disturbed (imploded core liner) between 0-40 cm; moderately disturbed between 40-55 cm; gradational contact.

Smear Slide:	62 cm
Quartz	16
Feldspar	<<1
Mica	<<1
Heavy minerals	2
Clay	<1
Volcanic glass	<1
Diatoms	80
Sponge spicules	2
Silicoflagellates	<<1

92-201 cm: Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); stringers of coarse ash, black (N1) up to 3 mm common between 123-151 cm, sparsely scattered between 151-201 cm; fine, subangular pebbles sparsely scattered throughout; sharp contact.

Smear Slide:	165 cm	Smear Slide (cont'd)	165 cm
Quartz	26	Carbonate unspecified	<<1
Feldspar	<1	Foraminifera	<1
Mica	<1	Ostracods	1
Heavy minerals	3	Diatoms	61
Clay	8	Sponge spicules	<1
Volcanic glass	1	Silicoflagellates	<1

201-217 cm: Diatomaceous mud, light olive gray (5Y 5/2); stringers of coarse ash, black (N1) up to 3 mm sparsely scattered throughout; fine, subangular pebbles sparsely scattered throughout; gradational contact.

Smear Slide:	205 cm	Smear Slide (cont'd):	205 cm
Quartz	42	Foraminifera	<1
Feldspar	<1	Ostracods	2
Mica	<1	Diatoms	40
Heavy minerals	4	Radiolarians	<<1
Clay	10	Sponge spicules	<1
Volcanic glass	2	Silicoflagellates	<<1
Carbonate unspecified	<<1		

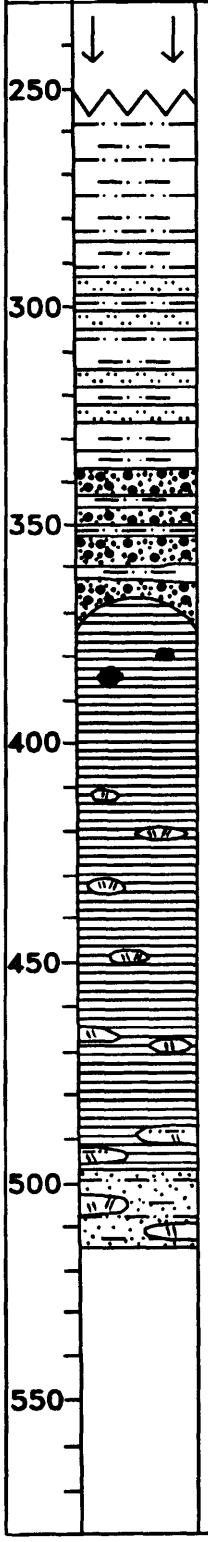
217-285 cm: Mud, light olive gray (5Y 5/2) changing to olive gray (5Y 4/1) at 225 cm; 1 cm stringers of mud, light olive gray (5Y 5/2) between 263-264 cm and 274-275 cm; 1 cm soft sedimentary clast composed of muddy sand, olive gray (5Y 4/1) between 234-235 cm; fine, subangular pebbles sparsely scattered throughout; slightly washed along the sides between 225-260 cm; sharp contact.

Smear Slide:	254 cm	Smear Slide (cont'd):	254 cm
Quartz	48	Volcanic glass	12
Feldspar	<1	Rock fragments	1
Mica	<1	Diatoms	1
Heavy minerals	5	Sponge spicules	<<1
Clay	33		

Continued on next page→

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-79 (continued)



Latitude: 68°11.67' S
Longitude: 68°15.18' W
Water Depth: 485 M
Core Length: 515 CM

LITHOLOGIC DESCRIPTION

285-333 cm: Mud, brownish gray (5YR 4/1), highly laminated with ash-bearing muddy sand, olive black (5Y 2/1), sand is fine, moderately well sorted; fine, subangular pebbles sparsely scattered throughout; sharp contact.

Smear Slides:	298 cm (lamina)	305 cm
Quartz	67	45
Feldspar	1	<1
Mica	<1	-
Heavy minerals	5	12
Clay	5	30
Volcanic glass	22	13
Diatoms	<1	<1
Sponge spicules	<1	<<1
Silicoflagellates	-	<<1

333-370 cm: Fine pebbles, olive black (5Y 2/1), highly laminated with mud, brownish gray (5YR 4/1) between 333-352 cm; pebbles are angular to subrounded, poorly sorted; 30 mm, flat, elongate, angular, granitic pebble between 359-363 cm; sharp irregular convex contact.

Smear Slide:	345 cm
Quartz	40
Feldspar	<1
Mica	<1
Heavy minerals	6
Clay	42
Volcanic glass	12
Diatoms	<<1

370-497 cm: Clay, pale brown (5YR 5/2); lens of ash-bearing sandy mud, dark gray (N3) between 487-490 cm and 492-494 cm; stringers of coarse ash, dark gray (N3) common between 408-497 cm; very fine, angular pebbles common between 409-420 cm; 40 mm flat, subangular pebble between 383-387 cm; 38 mm, angular, basaltic pebble between 377-381 cm; 20 mm, flat, angular basaltic pebble between 493-495 cm; sharp contact.

Smear Slide:	430 cm
Quartz	2
Heavy minerals	1
Clay	97
Volcanic glass	<<1

497-515 cm: Sandy mud, brownish gray (5YR 4/1); stringers of coarse ash, dark gray (N3) common throughout; fine, angular to subangular pebbles common throughout; 28 mm elongate, subangular basaltic pebble between 501-504 cm; 19 mm subangular, granitic pebble between 509-511 cm.

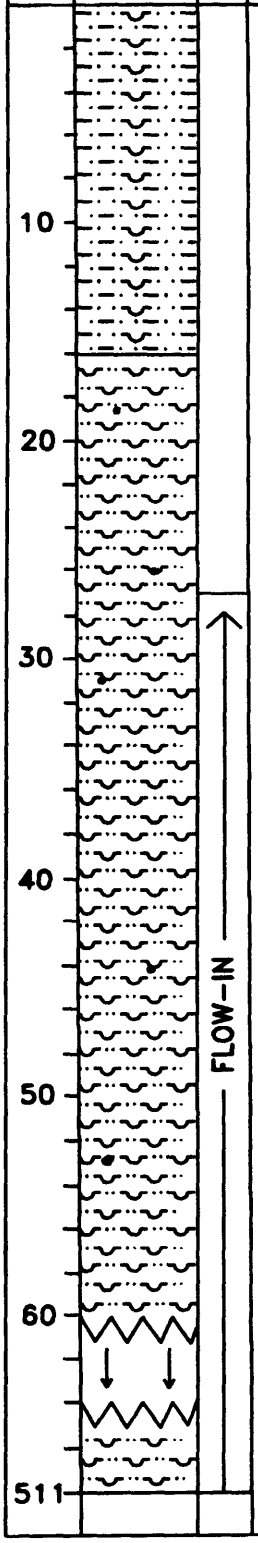
Smear Slide:	512 cm
Quartz	38
Feldspar	<1
Heavy minerals	6
Clay	46
Volcanic glass	10

Bottom topography: not recorded in deck-log.

*NOTE: Sediment between 224-225 is bagged.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-81



Latitude: 68°14.6' S
Longitude: 67°04.2' W
Water Depth: 421 M
Core Length: 511 CM

LITHOLOGIC DESCRIPTION

0-16 cm: Diatomaceous mud, grayish olive (10Y 4/2); slightly washed along the side between 0-16 cm; sharp contact.

Smear Slide:	4 cm
Quartz	49
Feldspar	<1
Mica	<<1
Heavy minerals	4
Clay	22
Diatoms	25
Sponge spicules	<1
Silicoflagellates	<<1

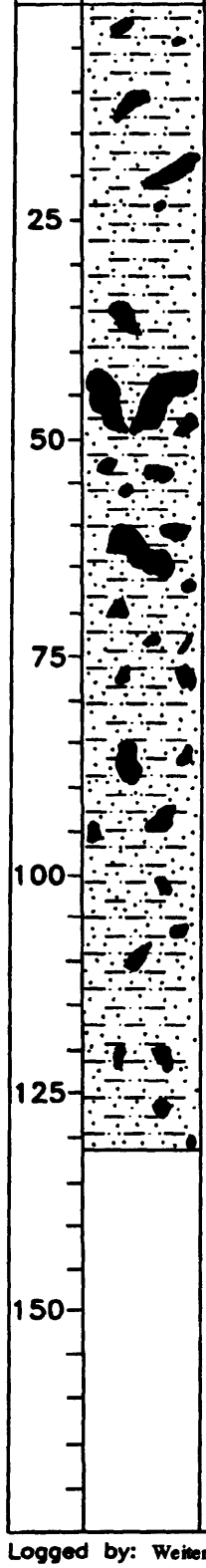
16-511 cm: Muddy, diatomaceous ooze, moderate olive brown (5Y 4/4); fine pebbles sparsely scattered throughout; slightly washed along the side between 16-27 cm; gradationally changing to flow-in at 27 cm.

Smear Slide:	18 cm
Quartz	35
Feldspar	<<1
Mica	<<1
Heavy minerals	4
Clay	8
Volcanic glass	1
Diatoms	51
Radiolarians	<<1
Sponge spicules	1
Silicoflagellates	<<1

Bottom topography: Flat "ponded sediments" region of fjord.

Logged by: Breza, Kaharoeddin

USCGC GLACIER DF 85-82



Latitude: 68°14.4' S
Longitude: 67°30.2' W

Water Depth: 275 M
Core Length: 132 CM

LITHOLOGIC DESCRIPTION

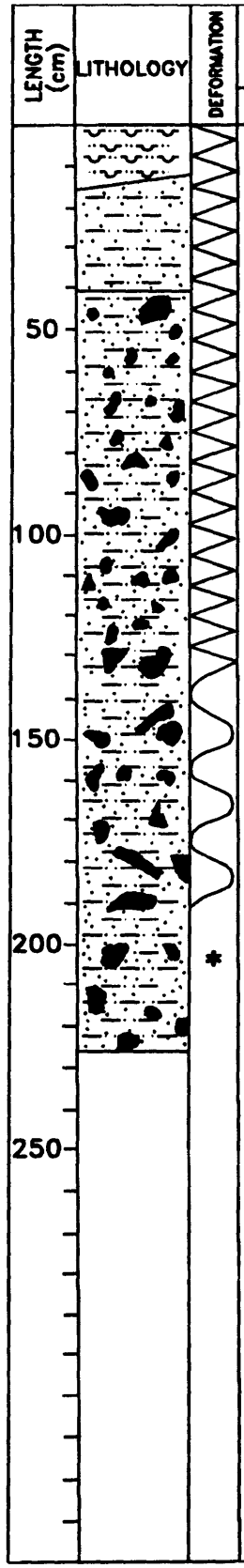
0-132 cm: Sandy mud, grayish olive (10Y 4/2); very fine to coarse, angular to subrounded, basaltic and granitic pebbles abundant between 29-110 cm and common between 110-132 cm; 59 mm, flat, elongate, angular, granitic pebble between 37-44 cm; 40 mm, flat, elongate, angular, basaltic pebble between 42-47 cm; 28 mm, flat, angular, granitic pebble between 18-21 cm; 11 mm, subrounded pebble between 2-4 cm.

Smear Slides:	4 cm	96 cm
Quartz	68	66
Feldspar	<1	<1
Mica	<<1	<<1
Heavy minerals	8	6
Clay	12	16
Volcanic glass	10	8
Rock fragments	2	4
Diatoms	<1	<1
Radiolarians	<<1	-
Sponge spicules	<<1	<<1

Bottom topography: not recorded in deck-log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-84



Latitude: 68°16.8' S
Longitude: 67°54.5' W

Water Depth: 329 M
Core Length: 223 CM

LITHOLOGIC DESCRIPTION

0-13 cm: Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); moderately disturbed (washed) throughout; sharp, inclined contact.

Smear Slide:	3 cm
Quartz	36
Feldspar	<1
Mica	<1
Heavy minerals	3
Clay	6
Volcanic glass	1
Diatoms	52
Radiolarians	<<1
Sponge spicules	2
Silicoflagellates	<1

13-41 cm: Sandy mud, olive gray (5Y 4/1); moderately disturbed (washed) throughout; sharp contact.

Smear Slide:	37 cm
Quartz	74
Feldspar	<1
Mica	<1
Heavy minerals	7
Clay	12
Volcanic glass	5
Rock fragments	1
Diatoms	1
Sponge spicules	<1

41-223 cm: Pebbly sandy mud, olive gray (5Y 4/1); pebbles are medium, poorly sorted, subangular to subrounded, primarily of basaltic composition; highly disturbed between 41-46 cm and 60-68 cm; moderately disturbed (washed) between 46-60 cm and 68-135 cm; slightly disturbed between 135-191 cm.

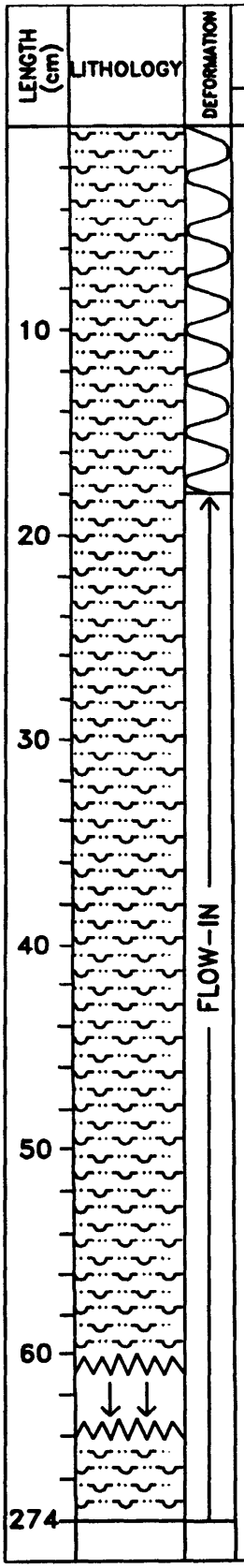
Smear Slide:	185 cm
Quartz	69
Feldspar	<1
Mica	<<1
Heavy minerals	8
Clay	18
Volcanic glass	5
Diatoms	<1
Sponge spicules	<1

*NOTE: Sediment between 191-223 cm is bagged.

Bottom topography: not recorded in deck-log.

Logged by: Weiterman, Breza, Kaharoeddin

USCGC GLACIER DF 85-86



Latitude: 68°15.7' S
Longitude: 68°11.0' W
Water Depth: 448 M
Core Length: 274 CM

LITHOLOGIC DESCRIPTION

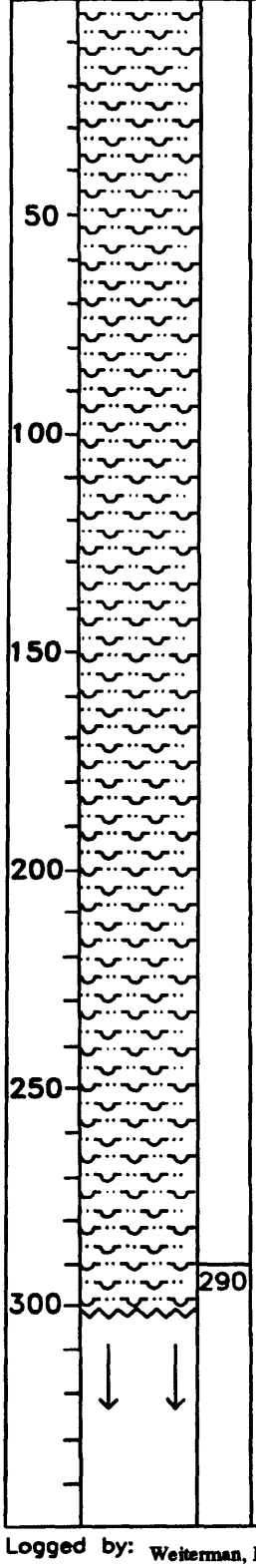
0-274 cm: Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); layer of muddy diatomaceous ooze, grayish olive (10Y 4/2) with finer silt than the main unit between 0-7 cm; slightly washed along the side between 0-18 cm, gradational changing to flow-in at 18 cm.

Smear Slides:	2 cm (layer)	14 cm
Quartz	38	39
Feldspar	<1	<1
Mica	<1	<1
Heavy minerals	3	2
Clay	6	4
Volcanic glass	3	1
Diatoms	49	53
Radiolarians	<1	-
Sponge spicules	1	1
Silicoflagellates	<<1	<<1

Bottom topography: not recorded in deck log.

Logged by: Breza, Kaharoeddin

USCGC GLACIER DF 85-87



Latitude: 68°15.2' S
Longitude: 68°19.9' W

Water Depth: 622 M
Core Length: 596 CM

LITHOLOGIC DESCRIPTION

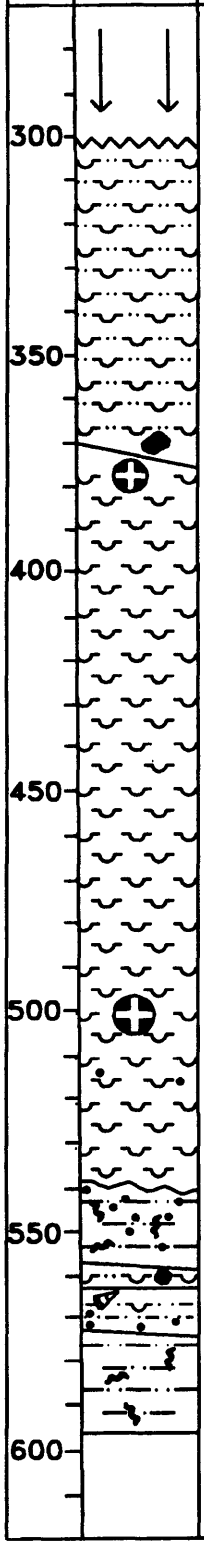
0-372 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); irregular lense of zeolitic diatomaceous mud, medium light gray (N6) between 294-297 cm; stringers of fine ash, grayish black (N2) sparsely scattered between 63-67 cm; stringers of zeolitic diatomaceous mud, medium light gray (N6) between 245-246 cm and 288-289 cm; 59 mm flat, subangular basaltic pebble between 366-371 cm, slightly washed along the side between 0-87 cm; sharp inclined contact.

Smear Slides:	95 cm	205 cm	350 cm
Quartz	30	33	32
Feldspar	<1	<1	<1
Mica	<1	<1	<<1
Heavy minerals	1	2	2
Clay	6	4	10
Volcanic glass	1	<1	1
Carbonate unspecified	-	<<1	<<1
Foraminifera	-	<<1	-
Diatoms	62	61	55
Sponge spicules	<<1	<<1	<<1
Silicoflagellates	<<1	<<1	<1

Continued on next page→

Logged by: Weiterman, Breza, Kaharoeddin

USCGC GLACIER DF 85-87 (continued)



Latitude: 68°15.2' S Water Depth: 622 M
Longitude: 68°19.9' W Core Length: 596 CM

LITHOLOGIC DESCRIPTION

372-539 cm: Diatomaceous ooze light olive gray (5Y 5/2); irregular lense of mud, medium light gray (N6) between 395-398 cm; micro ball and pillow structures of diatomaceous ooze, light olive gray (5Y 5/2) surrounded by mud, medium light gray (N6) between 372-381 cm; 70 mm, soft sedimentary clast composed of muddy diatomaceous ooze, light olive gray (5Y 5/2) with higher mud content than the main unit between 379-387 cm; 35 mm soft, sedimentary clast composed of mud, medium gray (N5) between 499-504 cm; fine subangular basaltic pebbles sparsely scattered between 514-517 cm; sharp irregular, inclined contact.

Smear Slides:	390 cm	516 cm
Quartz	16	18
Feldspar	<1	<1
Mica	<<1	<1
Heavy minerals	2	1
Clay	2	3
Volcanic glass	<1	-
Diatoms	80	78
Radiolarians	<<1	<<1
Spsonge spicules	<1	<1
Silicoflagellates	<<1	<<1

539-557 cm: Mud, olive gray (5Y 4/1); very fine, subangular pebbles common between 539-549 cm, sparsely scattered elsewhere; fine to medium, subangular pebbles common between 539-547 cm; moderately bioturbated between 539-549 cm and 556-558 cm; sharp inclined contact.

Smear slide:	552 cm
Quartz	63
Feldspar	1
Mica	<1
Heavy minerals	5
Clay	24
Volcanic glass	2
Foraminifera	<<1
Diatoms	5
Sponge spicules	<1

557-575 cm: Diatomaceous mud, light olive gray (5Y 5/2); layer of muddy diatomaceous ooze, light olive gray (5Y 5/2) between 557-562 cm; a scaphopod fragment between 567-568 cm; 25 mm subrounded, basaltic pebble between 558-560 cm; fine, subangular to subrounded pebbles sparsely scattered between 570-575 cm; sharp inclined contact.

Smear slides:	560 cm	568 cm	573 cm
Quartz	18	39	68
Feldspar	-	<<1	<1
Mica	<1	<1	<1
Heavy minerals	1	4	5
Clay	15	35	23
Volcanic glass	1	1	1
Diatoms	65	21	3
Sponge spicules	<<1	<1	<<1
Silicoflagellates	1	-	<<1

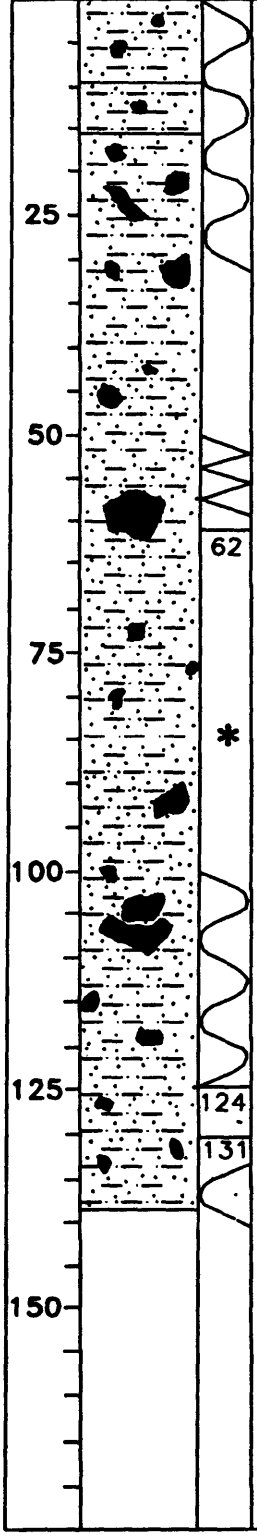
575-596 cm: Mud, olive gray (5Y 4/1); moderately bioturbated between 586-592 cm.

Smear slide:	587 cm
Quartz	57
Feldspar	<1
Mica	1
Heavy minerals	2
Clay	29
Volcanic glass	2
Carbonate unspecified	<<1
Diatoms	9
Sponge spicules	<<1

Bottom topography: not recorded in deck log.

Logged by: Weiterman, Breza, Kaharoeddin

USCGC GLACIER DF 85-88



Latitude: 68°17.5' S
Longitude: 68°31.5' W

Water Depth: 220 M
Core Length: 138 CM

LITHOLOGIC DESCRIPTION

0-138 cm: Sandy mud, brownish gray (5YR 4/1); 7 cm layer of sandy mud with higher diatom content, olive gray (5Y 4/1) between 9-16 cm; coarse, flat angular mostly elongate pebbles common between 21-60 cm and 91-119 cm; very fine to medium, angular to subangular pebbles common throughout; highly disturbed (imploded core liner) between 52-60 cm; slightly disturbed (washed along the side) between 0-31 cm and 99-138 cm.

Smear Slides:	11 cm (layer)	33 cm	136 cm
Quartz	51	56	61
Feldspar	<<1	<<1	<<1
Mica	<<1	<1	<<1
Heavy minerals	3	5	4
Clay	30	32	30
Volcanic glass	4	7	5
Carbonate unspecified	<<1	-	-
Diatoms	12	<1	<1
Sponge spicules	<<1	<<1	<<1

* Note: Sediment between 62-99 cm is bagged.

Bottom topograohy: not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-90

LENGTH (cm) | LITHOLOGY | DEFORMATION

Latitude: 68°19.9' S
Longitude: 69°32.2' W
Water Depth: 302 M
Core Length: 13 CM

LITHOLOGIC DESCRIPTION

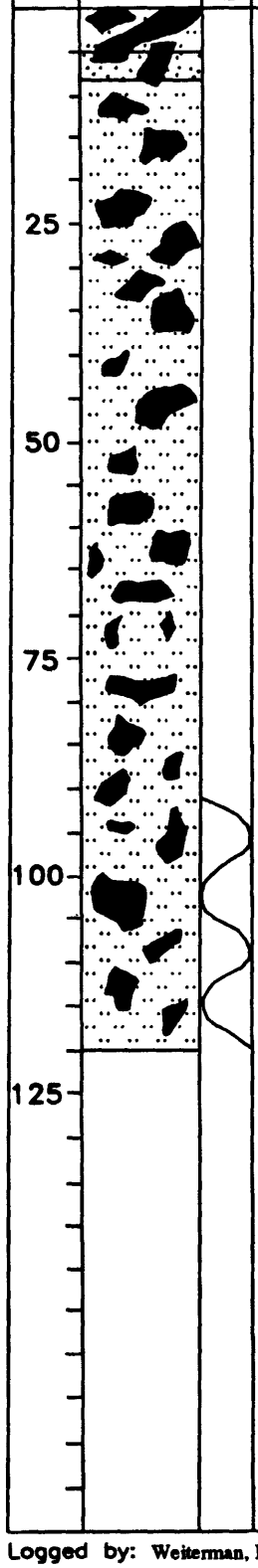
0-13 cm: Medium pebbles, greenish black (5G 2/1), very poorly sorted, angular to subangular, primarily composed of basaltic pebbles, with minor coarse sand matrix; 22 mm soft sedimentary clast composed of muddy diatomaceous ooze, moderate olive brown (5Y 4/4) between 0-2 cm; 18 mm, semi-indurated sedimentary clast composed of diatomaceous mud, light olive gray (5Y 5/2) between 4-6 cm.

Smear Slides:	1 cm (clast)	4 cm (clast)
Quartz	27	59
Feldspar	<1	1
Mica	<1	<<1
Heavy minerals	3	5
Clay	18	12
Volcanic glass	7	5
Carbonate unspecified	-	<<1
Foraminiferous	<<1	-
Diatoms	42	18
Radiolarians	<1	<<1
Sponge spicules	3	<1
Silicoflagellates	<<1	<<1

Bottom topography: not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-92



Latitude: 68°26.9' S
Longitude: 69°46.2' W

Water Depth: 348 M
Core Length: 120 CM

LITHOLOGIC DESCRIPTION

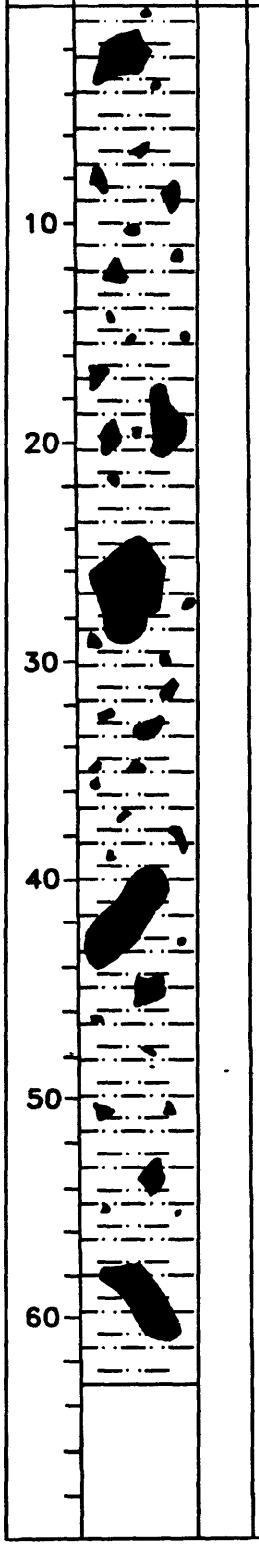
0-120 cm: Pebbly muddy sand, medium gray (N5); sand is coarse, moderately sorted, pebbles are medium, angular to subrounded, moderately sorted; 2 cm layer of coarse, moderately sorted sand between 5-7 cm; slightly disturbed (washed) between 91-120 cm.

Smear Slide:	15 cm
Quartz	72
Feldspar	1
Mica	<1
Heavy minerals	4
Clay	21
Volcanic glass	2

Bottom topography: not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-93



Latitude: 72°50.6' S
Longitude: 105°12.4' W

Water Depth: 550 M
Core Length: 65 CM

LITHOLOGIC DESCRIPTION

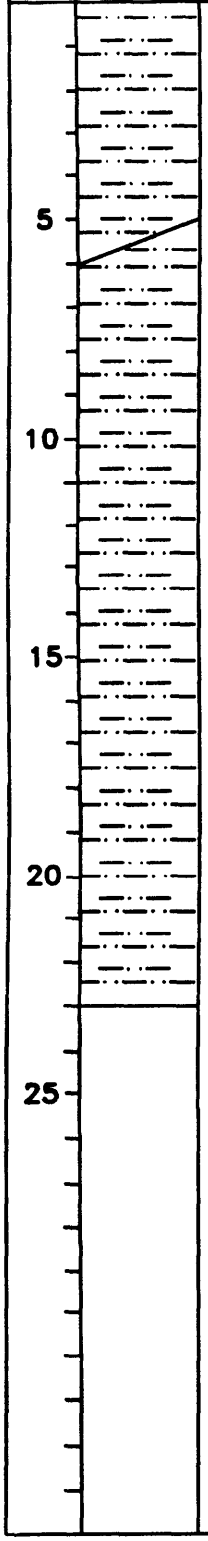
0-65 cm: Mud, olive gray (5Y 5/2), gradationally changing to olive gray (5Y 4/1) at 4 cm; angular to subangular, very fine to medium pebbles of various compositions abundant throughout; subangular pebbles between 1-4 cm (27 mm) and 24-29 cm (34 mm); flat subangular pebbles between 17-21 cm (25 mm), 40-44 cm (29 mm) and 57-61 cm (25 mm).

Smear Slides:	1 cm	31 cm
Quartz	51	55
Feldspar	<<1	<1
Mica	<1	<1
Heavy minerals	4	3
Clay	44	41
Volcanic glass	1	1
Diatoms	<<1	<1
Sponge spicules	-	<<1

Bottom topography: not recorded in deck log.

Logged by: Knüttel, Applegate, Kaharoeddin

USCGC GLACIER DF 85-94



Latitude: 73°13.1' S
Longitude: 103°59.2' W

Water Depth: 584 M
Core Length: 23 CM

LITHOLOGIC DESCRIPTION

0-6 cm: Mud, light olive gray (5Y 5/2); stringers of very fine ash, moderate yellowish brown (10YR 5/4) abundant between 5-6 cm; slightly washed along the side throughout; sharp inclined contact.

Smear Slide:	2 cm
Quartz	41
Feldspar	<1
Mica	<<1
Heavy minerals	3
Clay	55
Volcanic glass	1
Diatoms	<1
Sponge spicules	<1

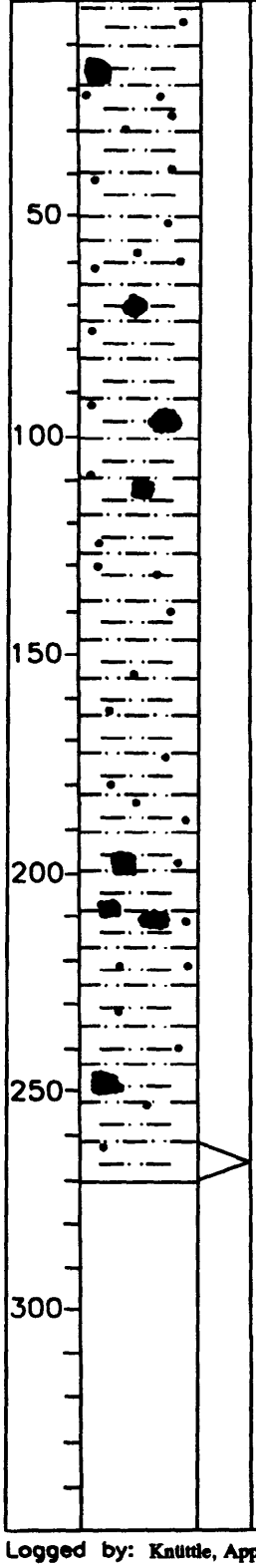
6-23 cm: Mud, olive black (5Y 2/1), highly compacted; sand content increases with depth between 13-23 cm.

Smear Slide:	15 cm
Quartz	47
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	39
Volcanic glass	12
Diatoms	<<1
Sponge spicules	<<1

Bottom topography: not recorded in deck log.

Logged by: Knittel, Applegate, Kaharoeddin

USCGC GLACIER DF 85-95



Latitude: 73°18.3' S
Longitude: 103°38.4' W

Water Depth: 777 M
Core Length: 270 CM

LITHOLOGIC DESCRIPTION

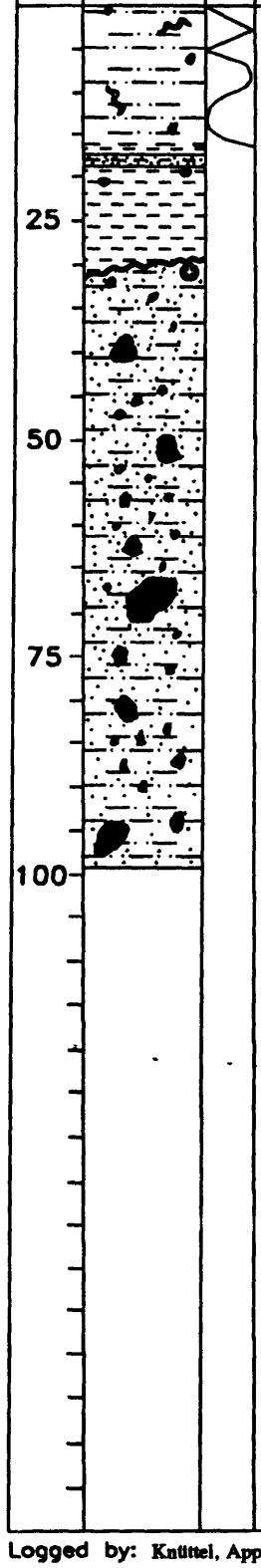
0-270 cm: Mud, olive gray (5Y 4/1); medium pebbles common throughout; fine to very fine pebbles abundant throughout; angular pebbles between 13-20 cm (50 mm), 205-210 cm (31 mm), 210-215 cm (30 mm) and 247-251 cm (31 mm); subangular pebbles between 93-98 cm (40 mm) and 111-114 cm (29 mm); subrounded pebbles between 67-73 cm (47 mm) and 194-201 cm (42 mm); moderately disturbed between 265-270 cm.

Smear Slides:	4 cm	178 cm
Quartz	57	56
Feldspar	<1	<1
Mica	-	<1
Heavy minerals	7	5
Clay	35	38
Volcanic glass	1	1

Bottom topography: not recorded in deck log.

Logged by: Knuttle, Applegate, Clark, Kaharoeddin

USCGC GLACIER DF 85-96



Latitude: 73°17.9' S
Longitude: 103°37.1' W
Water Depth: 786 M
Core Length: 99 CM

LITHOLOGIC DESCRIPTION

0-16 cm: Mud, grayish olive (10Y 4/2); very fine pebbles sparsely scattered throughout; slightly bioturbated throughout; moderately diaturbed between 0-5 cm; slightly disturbed between 5-16 cm; gradational contact.

Smear Slide:	9 cm
Quartz	58
Feldspar	<<1
Mica	<1
Heavy minerals	8
Clay	28
Volcanic glass	6
Carbonate unspecified	<<1
Foraminifera	<<1
Diatoms	<1
Sponge spicules	<<1
Silicoflagellates	<<1

16-30 cm: Silt, olive gray (5Y 4/1); layer of sandy mud, olive gray (5Y 4/1) between 17-18 cm; very fine angular pebbles common between 18-20 cm; sharp irregular inclined contact.

Smear Slide:	26 cm
Quartz	73
Feldspar	<1
Mica	<1
Heavy minerals	6
Clay	15
Volcanic glass	6
Diatoms	<<1

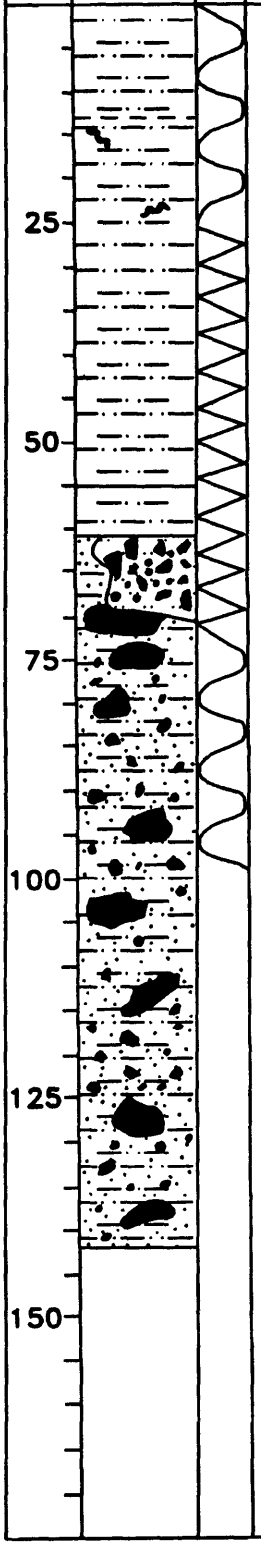
30-99 cm: Sandy mud, olive gray (5Y 4/1) gradationally changing to olive gray (5Y 3/2) at 55 cm; sand content and compactness increases with depth; very fine to coarse, subangular to subrounded pebbles abundant throughout; 5 mm sedimentary clast composed of medium sand, moderate reddish brown (10R 4/6) between 29-31 cm; 41 mm subangular pebble between 67-72 cm.

Smear Slides:	62 cm	96 cm
Quartz	64	62
Feldspar	<1	<1
Mica	<1	<<1
Heavy minerals	8	5
Clay	20	26
Volcanic glass	5	5
Rock fragments	3	2
Diatoms	<<1	<<1

Bottom topography: not recorded in deck log.

Logged by: Knittel, Applegate, Kaharoeddin

USCGC GLACIER DF 85-97



Latitude: 73°23.1' S
Longitude: 103°45.7' W

Water Depth: 728 M
Core Length: 142 CM

LITHOLOGIC DESCRIPTION

0-13 cm: Mud, light olive gray (5Y 5/2); slightly disturbed (washed) throughout; gradational contact.

Smear Slide:	7 cm
Quartz	51
Feldspar	<1
Mica	1
Heavy minerals	4
Clay	38
Volcanic glass	4
Diatoms	1
Spaonge spicules	1

13-61 cm: Mud, light olive gray (5Y 5/2), moderately laminated with mud with a higher and coarser silt content, olive gray (5Y 3/2); layer of mud with a higher and coarser silt content, olive gray (5Y 4/1) between 55-61 cm; slightly bioturbed between 13-25 cm; highly disturbed between 27-33 cm (imbedded broken core liner) and 42-55 cm; moderately disturbed between 55-61 cm, slightly disturbed elsewhere; sharp contact.

Smear Slides:	35 cm	46 cm (lamina)
Quartz	48	56
Feldspar	<1	1
Mica	<<1	<1
Heavy minerals	6	6
Clay	42	33
Volcanic glass	4	4
Carbonate unspecified	-	<<1

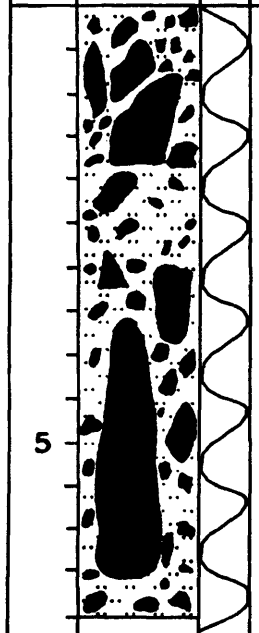
61-142 cm: Sandy mud, olive gray (5Y 4/1); medium to coarse pebbles common throughout; very fine to fine pebbles abundant throughout; layer of pebbly muddy sand, olive gray (5Y 4/1), between 61-68 cm, sand is coarse, poorly sorted, concentrated along one side of core; highly disturbed between 61-71 cm; slightly disturbed between 71-100 cm.

Smear Slides:	97 cm	125 cm
Quartz	63	62
Feldspar	<1	<1
Mica	2	<1
Heavy minerals	6	5
Clay	15	19
Volcanic glass	12	11
Carbonate unspecified	2	3

Bottom topography: Not recorded in deck log.

Logged by: Applegate, Knüttel, Clark, Kaharoeddin

USCGC GLACIER DF 85-99



Latitude: 73°53.8' S
Longitude: 103°46.7' W

Water Depth: 307 M
Core Length: 7 CM

LITHOLOGIC DESCRIPTION

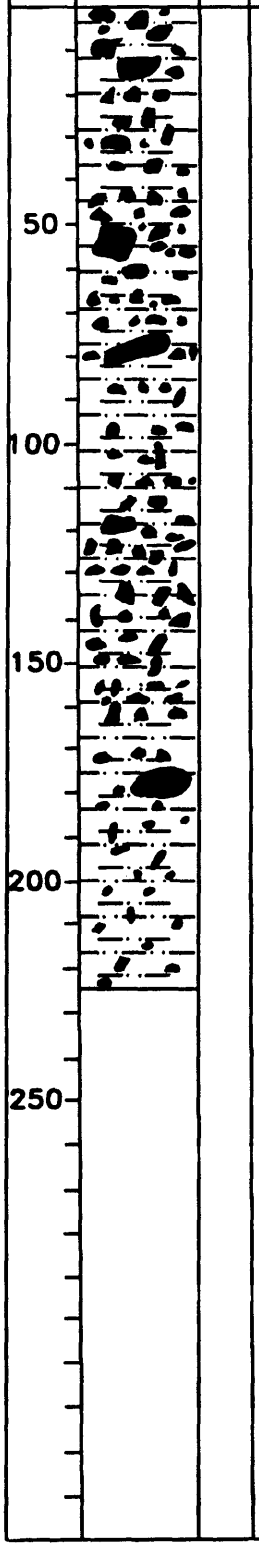
0-7 cm: Pebbly muddy sand, light olive gray (5Y 5/2), sand is medium, very poorly sorted; pebbles are very fine to coarse, varying in composition; slightly disturbed (washed) throughout.

Smear Slide:	4 cm
Quartz	66
Feldspar	<1
Mica	<1
Heavy minerals	4
Clay	12
Volcanic glass	13
Rock fragments	2
Carbonate unspecified	<<1
Foraminifera	<<1
Diatoms	<<1
Sponge spicules	3

Bottom topography: not recorded in deck log.

Logged by: Clark, Knittel, Kaharoeddin

USCGC GLACIER DF 85-101



Latitude: 73°44.4' S
Longitude: 103°43.1' W

Water Depth: 924 M
Core Length: 227 CM

LITHOLOGIC DESCRIPTION

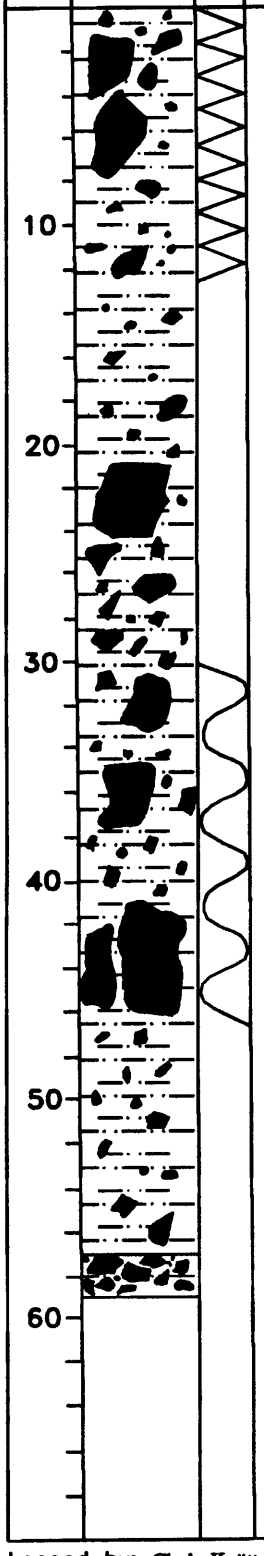
0-227 cm: Pebbly sandy mud, light olive gray (5Y 5/2); pebbles are very fine to very coarse, angular to subrounded, primarily of granitic composition; zones of higher pebble content between 0-78 cm and 118-175 cm.

Smear Slides:	95 cm	218 cm
Quartz	62	58
Feldspar	<<1	<<1
Mica	<1	<1
Heavy minerals	8	7
Clay	28	33
Volcanic glass	2	2

Bottom topography: not recorded in deck log.

Logged by: Clark, Knüttel, Kaharoeddin

USCGC GLACIER DF 85-102



Latitude: 73°32.0' S
Longitude: 103°33.6' W

Water Depth: 329 M
Core Length: 59 CM

LITHOLOGIC DESCRIPTION

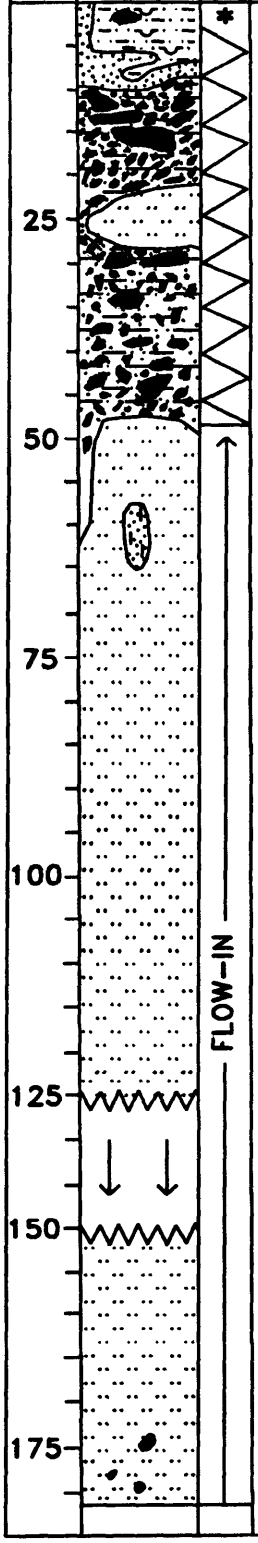
0-59 cm: Sandy mud, light olive gray (5Y 6/1); layer of muddy pebbles, light olive gray (5Y 6/1), between 57-59 cm, pebbles are medium, moderately well sorted, angular to subrounded; very fine to course, angular to subangular pebbles abundant between 0-8 cm and 20-46 cm; very fine to medium angular to subangular pebbles abundant between 8-20 cm and 46-57 cm; highly disturbed between 0-6 cm; moderately disturbed between 6-13 cm (imbedded broken core liner); slightly disturbed between 30-46 cm.

Smear Slide:	29 cm
Quartz	69
Feldspar	<1
Mica	1
Heavy minerals	4
Clay	17
Volcanic glass	8
Rock fragments	1
Sponge spicules	<<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Knüttel, Kaharoeddin

USCGC GLACIER DF 85-103



Latitude: 73°56.2' S
Longitude: 103°07.2' W
Water Depth: 586 M
Core Length: 182 CM

LITHOLOGIC DESCRIPTION

0-182 cm: Muddy sandy pebbles, light olive gray (5Y 6/1), pebbles are medium, angular to subangular, poorly sorted; layer of diatomaceous mud, grayish olive (10Y 4/2) between 0-6 cm; sharp irregular disturbed contact; layer of fine sand, light olive gray (5Y 5/2) between 6-9 cm, moderately well sorted, irregular disturbed contact; layer of muddy sand, olive gray (5Y 4/1), between 22-26 cm, sand is fine, moderately well sorted (layer is similar to flow-in); 13 mm subangular pebble between 0-2 cm; highly disturbed between 0-28 cm, most of the sandy mud matrix is lost between 9-22 cm; moderately disturbed between 28-48 cm; abruptly changing to flow-in composed of muddy sand, olive gray (5Y 4/1) at 48 cm.

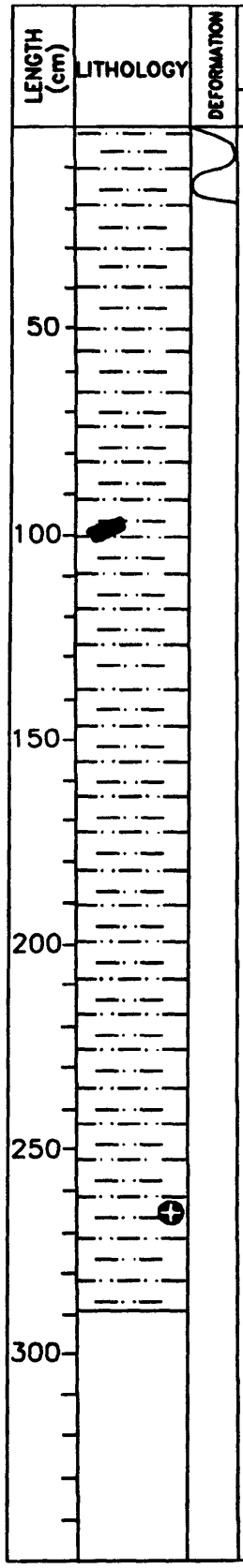
Smear Slides:	3 cm (layer)	30 cm (matrix)
Quartz	44	74
Feldspar	<1	<1
Mica	-	<<1
Heavy minerals	2	4
Clay	30	16
Volcanic glass	1	6
Diatoms	19	-
Sponge spicules	4	-

* Note: sediment between 0-2 cm is bagged.

Bottom topography: not recorded in deck log.

Logged by: Knittel, Appelgate, Kaharoeddin

USCGC GLACIER DF 85-105



Latitude: 74°38.9' S
Longitude: 102°33.7' W

Water Depth: 650 M
Core Length: 288 CM

LITHOLOGIC DESCRIPTION

0-288 cm: Mud, light olive gray (5Y 5/2); zone of higher very fine sand content between 54-58 cm; highly laminated with mud, containing coarser and higher silt content between 210-288 cm; 8 mm sedimentary clast composed of silt, light olive gray (5Y 5/2), between 263-264 cm; 20 mm elongate, subangular pebble between 96-100 cm; slightly disturbed (washed) between 0-8 cm.

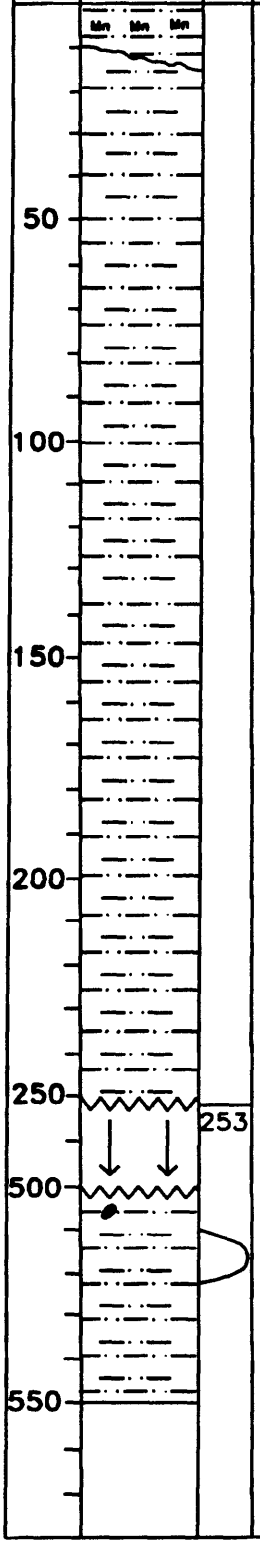
Smear Slides:	25 cm	113 cm
Quartz	64	48
Feldspar	<1	-
Mica	<1	<<1
Heavy minerals	2	1
Clay	33	50
Volcanic glass	1	1
Carbonate unspecified	<<1	<<1
Sponge spicules	-	<<1

Note: The deck log indicates that the bomb assembly was partiary buried within the sediments, therefore the "0" cm mark does not represent the actual sediment/water interface but only the top of the sediments that were recovered.

Bottom topography: not recorded in deck log.

Logged by: Knittel, Clark, Kaharoeddin

USCGC GLACIER DF 85-106



Latitude: 74°45.8' S
Longitude: 102°25.1' W
Water Depth: 1052 M
Core Length: 550 CM

LITHOLOGIC DESCRIPTION

0-12 cm: Mud, light olive gray (5Y 5/2); layer of mud, dark yellowish brown (10YR 4/2), highly stained with manganese oxide, between 4-6 cm; slightly stained with manganese oxide between 6-12 cm; sharp inclined irregular contact.

Smear Slide:	7 cm
Quartz	56
Feldspar	<1
Mica	<1
Heavy minerals	3
Clay	40
Volcanic glass	1
Sponge spicules	<<1

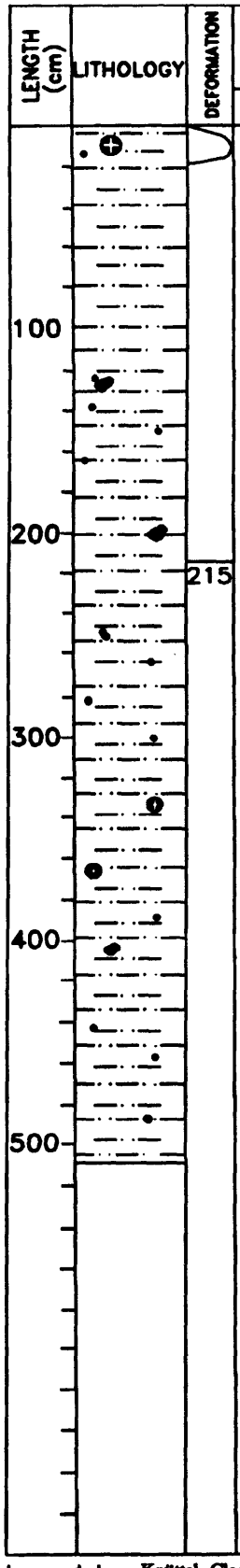
12-550 cm: Mud, olive gray (5Y 4/1); layer of sandy silt, light olive gray (5Y 5/2) between 29-31 cm and 51-53 cm, well sorted; moderately laminated with sandy silt, light olive gray (5Y 5/2) between 24-60 cm, slightly laminated between 81-108 cm; 6 mm angular pebble between 503-505 cm; 25 mm subangular granitic pebble between 291-296 cm; slightly disturbed between 356-359 cm, 429-435 cm, 449-455 cm, 472-481 cm, and 510-515 cm.

Smear Slides:	30 cm (layer)	130 cm	247 cm	390 cm	530 cm
Quartz	79	63	64	68	64
Feldspar	2	<<1	<1	<<1	<1
Mica	<1	<1	<1	<<1	<1
Heavy minerals	7	3	3	3	3
Clay	<<1	30	30	27	30
Volcanic glass	12	3	3	2	3
Carbonate unspecified	-	1	<1	<1	<<1
Foraminifera	-	<<1	-	-	-
Sponge spicules	<<1	-	-	-	-

Bottom topography: not recorded in deck log.

Logged by: Applegate, Clark, Knuttel, Kaharoeddin

USCGC GLACIER DF 85-107



Latitude: 74°58.1' S
Longitude: 101°32.9' W

Water Depth: 933 M
Core Length: 508 CM

LITHOLOGIC DESCRIPTION

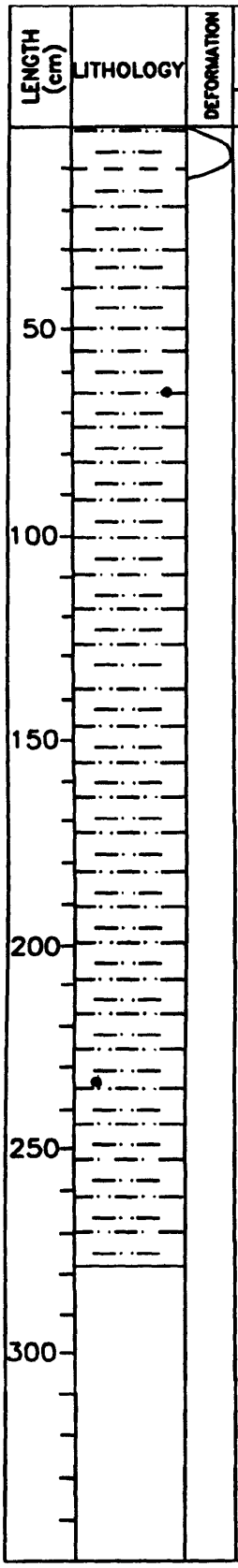
0-508 cm: Mud, light olive gray (5Y 5/2); zone of higher sand content between 0-10 cm; sedimentary clasts composed of muddy sand, olive gray (5Y 4/1) between 7-11 cm (24 mm), 336-338 cm (13 mm), and 367-368 cm (6 mm); very fine to medium pebbles sparsely scattered between 0-20 cm, 120-165 cm, and 254-508 cm; 20 mm flat, subangular pebble between 123-126 cm; 21 mm subangular pebble between 406-409 cm; 22 mm subrounded pebble between 196-199 cm; slightly disturbed (washed) between 0-8 cm.

Smear Slides:	40 cm	240 cm	459 cm
Quartz	65	66	65
Feldspar	<<1	<<1	<<1
Mica	<<1	<<1	<<1
Heavy minerals	3	3	2
Clay	31	29	31
Volcanic glass	1	2	2
Carbonate unspecified	<<1	<<1	<<1
Diatoms	<<1	-	-
Sponge spicules	-	-	<<1

Bottom topography: not recorded in deck log.

Logged by: Knittel, Clark, Applegate, Kaharoeddin

USCGC GLACIER DF 85-108



Latitude: 74°39.1' S
Longitude: 102°57.8' W

Water Depth: 615 M
Core Length: 277 CM

LITHOLOGIC DESCRIPTION

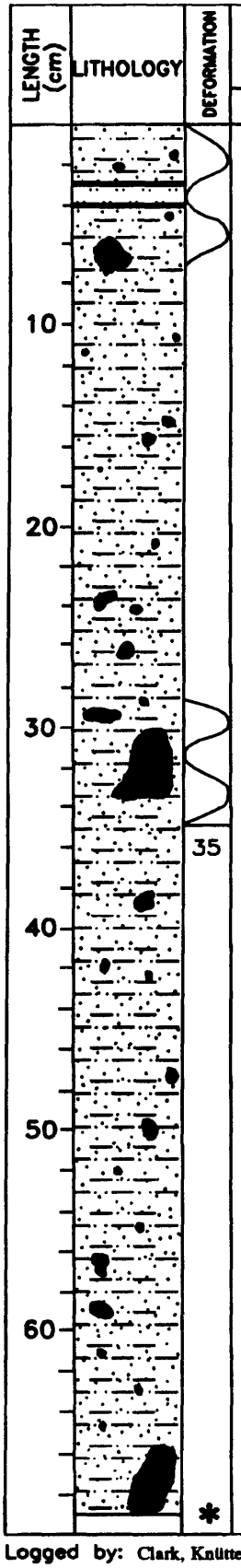
0-277 cm: Mud, olive gray (5Y 4/1) interlaminated with mud, with a coarser and higher silt content, olive gray (5Y 3/2), highly laminated between 140-248 cm, moderately laminated between 40-140 cm and 248-277 cm, slightly laminated between 8-40 cm; layer of mud with coarser silt, olive gray (5Y 4/1), between 0-3 cm, sharp irregular contact; layer of mud with finer silt, light olive gray (5Y 5/2), between 3-8 cm, gradational contact; lamina of mud containing abundant very fine to medium sand grains between 64-65 cm; subangular pebbles between 64-65 cm (3 mm) and 233-234 cm (5 mm), slightly disturbed between 0-15 cm.

Smear Slides:	14 cm	230 cm
Quartz	57	65
Feldspar	<<1	<1
Mica	<1	<<1
Heavy minerals	2	2
Clay	40	32
Volcanic glass	1	1
Carbonate unspecified	<<1	<<1

Bottom topography: Not recorded in deck log.

Logged by: Knittel, Applegate, Clark, Kaharoeddin

USCGC GLACIER DF 85-109



Latitude: 72°29.5' S
Longitude: 104°28.6' W
Water Depth: 567 M
Core Length: 69 CM

LITHOLOGIC DESCRIPTION

0-69 cm: Sandy mud, olive gray (5Y 4/1), sand content increases with depth; layer of mud with finer silt, light olive gray (5Y 5/2), between 0-3 cm; lamina of muddy sand, dark yellowish brown (10YR 4/2) between 3-4 cm, sand is medium, moderately sorted; very fine to medium pebbles common throughout; 20 mm angular pebble between 6-9 cm; subangular pebbles between 30-35 cm (42 mm, siltstone) and 66-69 cm (25 mm, granitic); slightly disturbed between 0-7 cm and 30-35 cm.

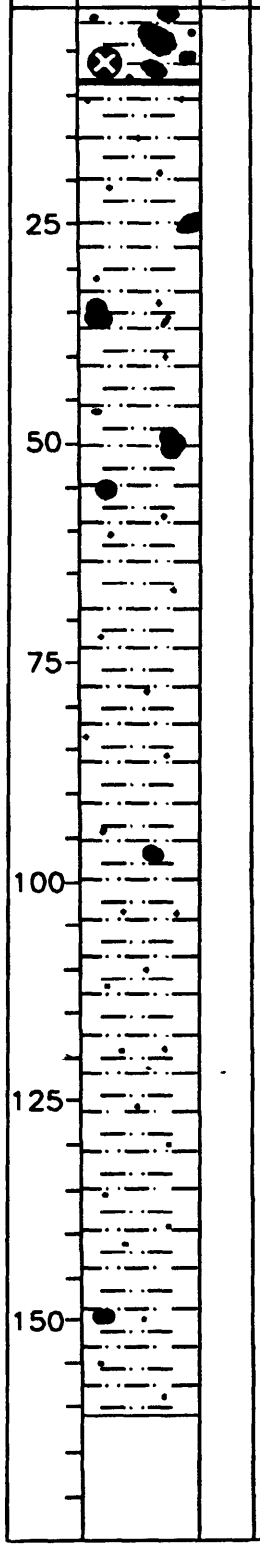
Smear Slide:	40 cm
Quartz	82
Feldspar	<<1
Mica	<<1
Heavy minerals	3
Clay	12
Volcanic glass	3
Diatoms	<<1
Sponge spicules	<1

Bottom topography: not recorded in deck log.

* Note: Sediment between 68.5 and 69 cm is bagged.

Logged by: Clark, Knüttel, Kaharoeddin

USCGC GLACIER DF 85-110



Latitude: 71°38.5' S
Longitude: 101°27.8' W

Water Depth: 463 M
Core Length: 161 CM

LITHOLOGIC DESCRIPTION

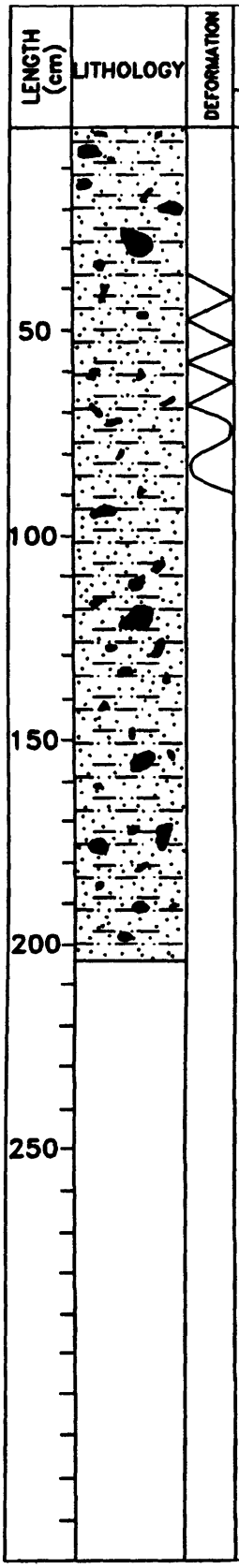
0-161 cm: Mud, olive gray (5Y 4/1); layer of mud with finer silt, light olive gray (5Y 5/2), between 0-8 cm; 8 mm sedimentary clast composed of very fine sand coated and cemented by hematite, dark reddish brown (10 R 3/4) between 5-6 cm; coarse pebbles abundant between 0-12 cm, common between 36-57 cm and sparsely scattered elsewhere; very fine to medium pebbles abundant throughout.

Smear Slides:	30 cm	130 cm
Quartz	69	56
Feldspar	<1	<1
Mica	<1	-
Heavy minerals	3	1
Clay	27	43
Volcanic glass	1	<1
Diatoms	<<1	<<1
Sponge spicules	<<1	<<1

Bottom topography: not recorded in deck log.

Logged by: Knittel, Clark, Applegate, Kaharoeddin

USCGC GLACIER DF 85-111



Latitude: 71°20.2' S
Longitude: 100°59.1' W

Water Depth: 417 M
Core Length: 204 CM

LITHOLOGIC DESCRIPTION

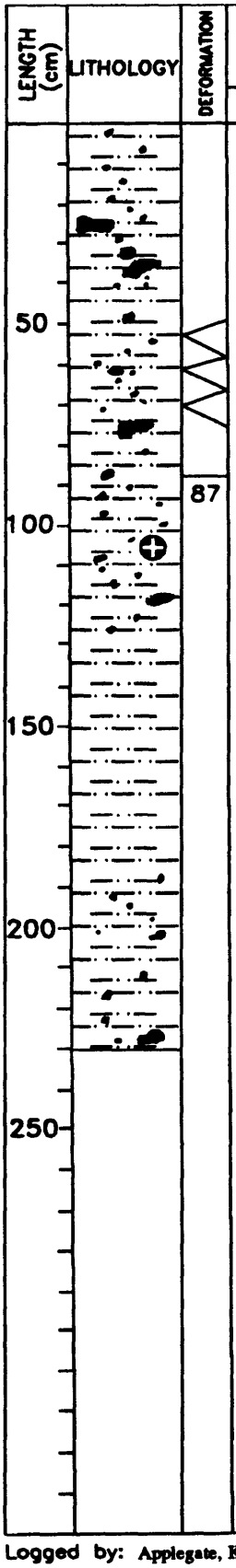
0-204 cm: Sandy mud, olive gray (5Y 3/2); layer of mud, light olive gray (5Y 5/2), between 0-6 cm with very fine to fine, angular to subangular pebbles common; very fine to fine, angular to subangular pebbles abundant between 6-204 cm; medium, subangular to subrounded pebbles common between 6-204 cm; coarse angular to subangular pebbles common between 114-204 cm; 30 mm subrounded, granitic pebble between 9-13 cm; highly disturbed (mud seeped out from coarse liner) between 38-70 cm; moderately disturbed between 70-80 cm.

Smear Slides:	3 cm (layer)	30 cm	137 cm
Quartz	65	79	73
Feldspar	<<1	<<1	<<1
Mica	<1	<1	<1
Heavy minerals	4	2	4
Clay	28	16	20
Volcanic glass	3	3	3
Diatoms	<<1	<<1	<<1
Sponge spicules	<<1	-	<<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Applegate, Knittel, Kaharoeddin

USCGC GLACIER DF 85-112



Latitude: 71°14.2' S
Longitude: 100°51.3' W

Water Depth: 412 M
Core Length: 230 CM

LITHOLOGIC DESCRIPTION

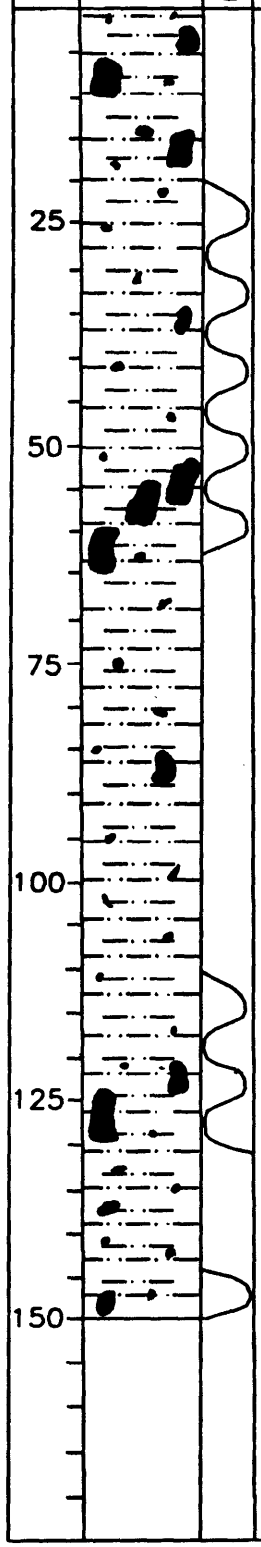
0-230 cm: Mud, olive gray (5Y 4/1); zone of higher silt content corresponding to a change in color to olive gray (5Y 3/2), between 4-7 cm and 8-12 cm; layer of mud with higher clay content, light olive gray (5Y 5/2), between 0-3 cm; laminae of mud with higher silt content, grayish olive (10Y 4/2), between 3-4 cm and 7-8 cm; lamina of sandy mud grayish olive (10Y 4/2) between 12-13 cm; 6 mm sedimentary clast composed of highly indurated mud, dark yellowish brown (10YR 4/2), between 107-108 cm; very fine to fine pebbles abundant throughout; medium angular to subangular pebbles common throughout; 16 mm angular pebble between 76-78 cm; subangular pebbles between 24-26 cm (17 mm), 36-38 cm (16 mm) and 227-229 cm (17 mm); moderately disturbed (imploded core liner) between 49-71 cm.

Smear Slides:	8 cm	158 cm
Quartz	76	71
Feldspar	<1	<1
Mica	-	<1
Heavy minerals	4	3
Clay	18	25
Volcanic glass	2	1
Diatoms	<1	<<1
Radiolarians	<<1	-
Sponge spicules	<1	<<1
Silicoflagellates	<<1	-

Bottom topography: not recorded in deck log.

Logged by: Applegate, Knüttel, Clark, Kaharoeddin

USCGC GLACIER DF 85-113



Latitude: 71°06.6' S
Longitude: 100°37.4' W

Water Depth: 403 M
Core Length: 150 CM

LITHOLOGIC DESCRIPTION

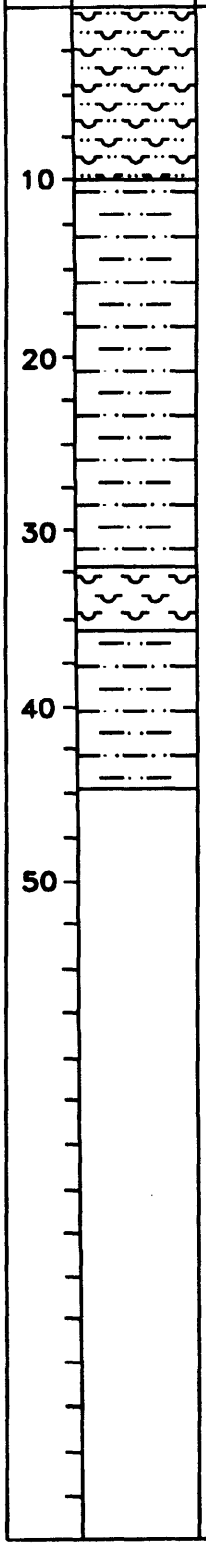
0-150 cm: Mud, olive gray (5Y 4/1), highly compacted; very fine to fine, angular to subangular pebbles abundant throughout; medium to coarse, angular to subangular pebbles common throughout; slightly disturbed between 20-65 cm, 110-130 cm and 146-150 cm.

Smear Slide:	95 cm
Quartz	77
Feldspar	<<1
Mica	<<1
Heavy minerals	3
Clay	19
Volcanic glass	1
Diatoms	<1
Sponge spicules	<1

Bottom topography: not recorded in deck log.

Logged by: Clark, Applegate, Knüttel, Kaharoeddin

USCGC GLACIER DF 85-114



Latitude: 68°19.9' S
Longitude: 70°49.5' W
Water Depth: 713 M
Core Length: 44 CM

LITHOLOGIC DESCRIPTION

0-10 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); sharp contact.

Smear Slide:	6 cm
Quartz	37
Feldspar	<<1
Mica	<1
Heavy minerals	2
Clay	7
Volcanic glass	<1
Diatoms	53
Radiolarians	<<1
Sponge spicules	1
Silicoflagellates	<<1

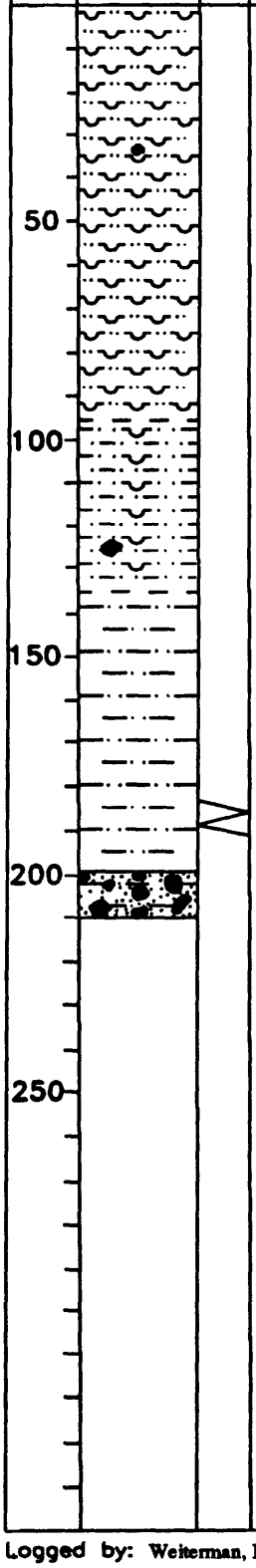
10-44 cm: Mud, light olive gray (5Y 4/1); 4 cm layer of diatomaceous ooze, light olive gray (5Y 5/2) between 32-36 cm.

Smear Slides:	24 cm	33 cm (layer)	39 cm
Quartz	65	22	68
Feldspar	<1	<1	<1
Mica	<1	<1	<<1
Heavy minerals	6	4	8
Clay	27	3	22
Volcanic glass	2	1	2
Diatoms	<<1	69	<<1
Radiolarians	-	<1	-
Sponge spicules	-	1	<<1
Silicoflagellates	-	<<1	-

Bottom topography: not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-115



Latitude: 68°26.6' S
Longitude: 70°45.8' W
Water Depth: 726 M
Core Length: 210 CM

LITHOLOGIC DESCRIPTION

0-95 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); 10 mm subrounded pebble between 33-35 cm; moderately washed along the side between 0-34 cm, slightly washed along the side between 34-95 cm; gradational contact.

Smear Slide:	30 cm
Quartz	28
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	8
Volcanic glass	2
Diatoms	60
Radiolarians	<1
Sponge spicules	<<1
Silicoflagellates	<1

95-135 cm: Diatomaceous mud, light olive gray (5Y 5/2); 15 mm elongate subangular basaltic pebble between 125-127 cm; slightly washed along the side between 95-120 cm; gradational contact.

Smear Slide:	115 cm
Quartz	38
Feldspar	<1
Heavy minerals	2
Clay	27
Volcanic glass	2
Diatoms	31
Sponge spicules	<<1
Silicoflagellates	<<1

135-199 cm: Mud, olive gray (5Y 4/1); moderately disturbed (washed) between 187-190 cm; sharp contact.

Smear Slide:	175 cm
Quartz	54
Feldspar	<1
Mica	<<1
Heavy minerals	6
Clay	38
Volcanic glass	2
Carbonate unspecified	<1
Diatoms	<<1

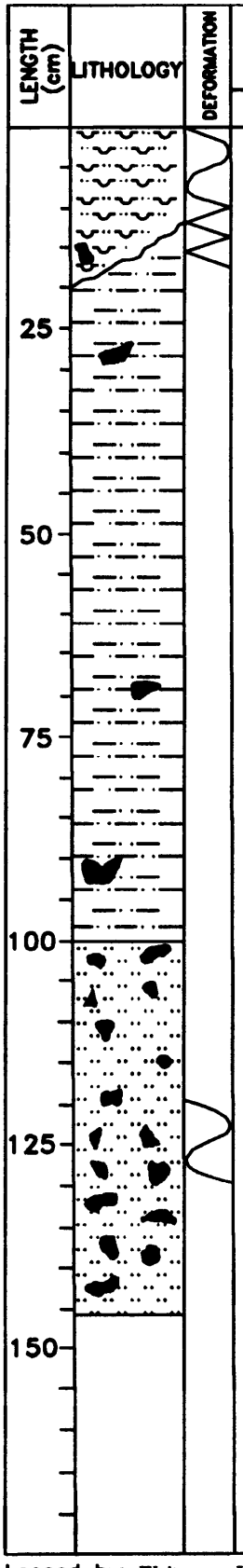
199-210 cm: Sandy mud, medium dark gray (N4); very fine to medium, subangular to subrounded basaltic pebbles abundant throughout.

Smear Slide:	206 cm
Quartz	54
Feldspar	<1
Mica	<1
Heavy minerals	10
Clay	35
Volcanic glass	1
Diatoms	<<1

Bottom topography: not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-116



Latitude: 68°29.0' S
Longitude: 70°36.0' W
Water Depth: 650 M
Core Length: 146 CM

LITHOLOGIC DESCRIPTION

0-17 cm: Muddy, diatomaceous ooze, light olive gray (5Y 5/2); 9 mm, elongate, subrounded basaltic pebble between 15-16 cm; highly disturbed between 13-17 cm, moderately disturbed between 8-13 cm; slightly disturbed (imbedded core liner) between 0-12 cm; irregular, inclined sharp contact.

Smear Slide:	6 cm
Quartz	31
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	4
Volcanic glass	1
Diatoms	61
Sponge spicules	1
Silicoflagellates	<<1
Ebridians	<<1

17-100 cm: Mud, olive gray (5Y 4/1); medium angular basaltic pebbles sparsely scattered throughout; sharp contact.

Smear Slide:	70 cm
Quartz	52
Feldspar	<<1
Mica	<<1
Heavy minerals	15
Clay	31
Volcanic glass	2

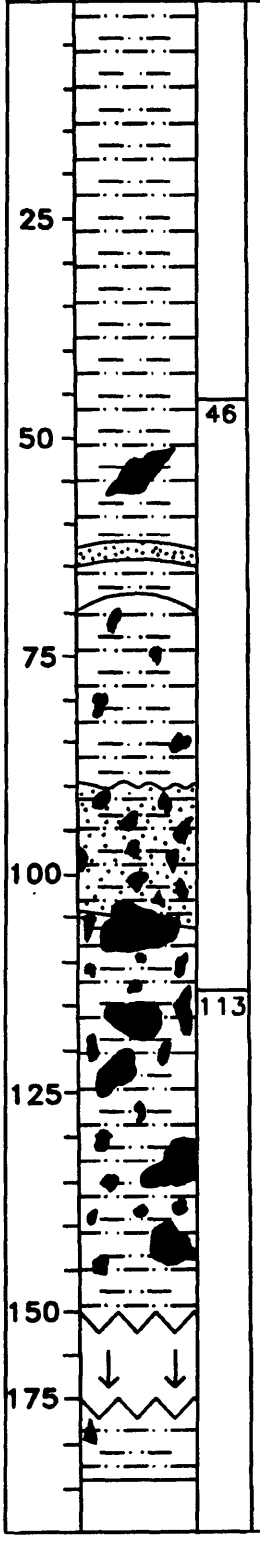
100-146 cm: Muddy sand, dark gray (N3) , sand is medium, moderately sorted; fine to medium, subangular to subrounded pebbles abundant throughout; pumice fragments between 137-143 cm; slightly disturbed (imbedded core catcher) between 120-129 cm.

Smear Slide:	112 cm
Quartz	69
Feldspar	<1
Mica	<1
Heavy minerals	10
Clay	18
Volcanic glass	3

Bottom topography: not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-117



Latitude: 68°29.7' S
Longitude: 70°12.5' W
Water Depth: 503 M
Core Length: 184 CM

LITHOLOGIC DESCRIPTION

0-68 cm: Mud, olive gray (5Y 4/1); sand content increases with depth; convex layer of very fine sand, very well sorted, olive gray (5Y 3/2) between 62-65 cm; 25 mm angular, elongate, basaltic pebble between 55-59 cm; slightly washed along the sides; sharp, convex tontact.

Smear Slide:	30 cm
Quartz	71
Feldspar	1
Mica	<<1
Heavy minerals	4
Clay	21
Volcanic glass	3

68-90 cm: Mud, olive gray (5Y 3/2); slightly compacted, contains approximately 25% sand; very fine to fine, angular to subangular pebbles common throughout; sharp irregular inclined contact.

Smear Slide:	72 cm
Quartz	71
Feldspar	<1
Mica	<1
Heavy minerals	8
Clay	17
Volcanic glass	4

90-106 cm: Sandy mud, olive black (5Y 2/1); slightly compacted; very fine to fine, angular to subangular pebbles abundant throughout; sharp inclined contact.

Smear Slide:	97 cm
Quartz	74
Feldspar	<1
Mica	<1
Heavy minerals	15
Clay	6
Volcanic glass	5

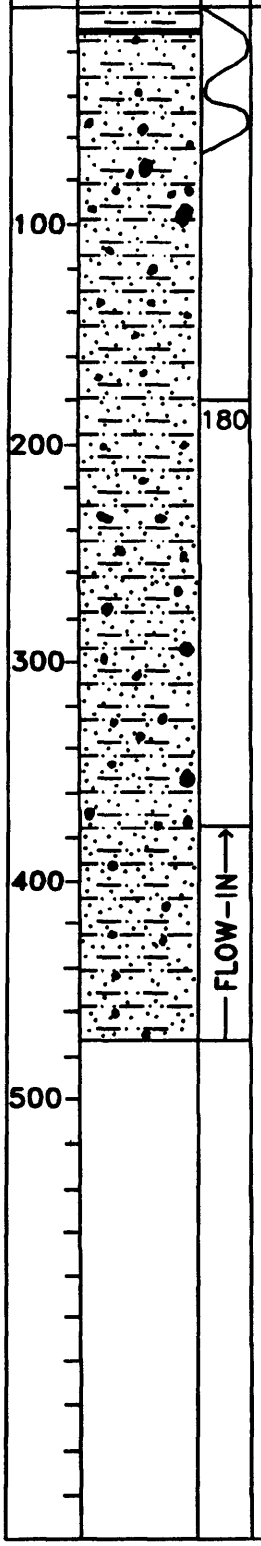
106-184 cm: Mud, olive gray (5Y 4/1); slightly compacted, contains approximately 25% sand; coarse, subangular to rounded pebbles common between 106-162 cm; fine to medium, angular to subangular pebbles abundant between 106-184 cm; 37 mm subangular, diorite pebble between 139-144 cm.

Smear Slide:	128 cm
Quartz	69
Feldspar	<<1
Mica	<<1
Heavy minerals	15
Clay	12
Volcanic glass	3
Rock fragments	1

Bottom topography: not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-118



Latitude: 68°18.9' S
Longitude: 70°27.5' W

Water Depth: 489 M
Core Length: 479 CM

LITHOLOGIC DESCRIPTION

0-11 cm: Mud, light olive gray (5Y 6/1); slightly disturbed (washed) throughout; sharp contact.

Smear Slide:	5 cm
Quartz	44
Feldspar	<1
Mica	<<1
Heavy minerals	6
Clay	48
Volcanic glass	2
Diatoms	<<1
Sponge spicules	<<1

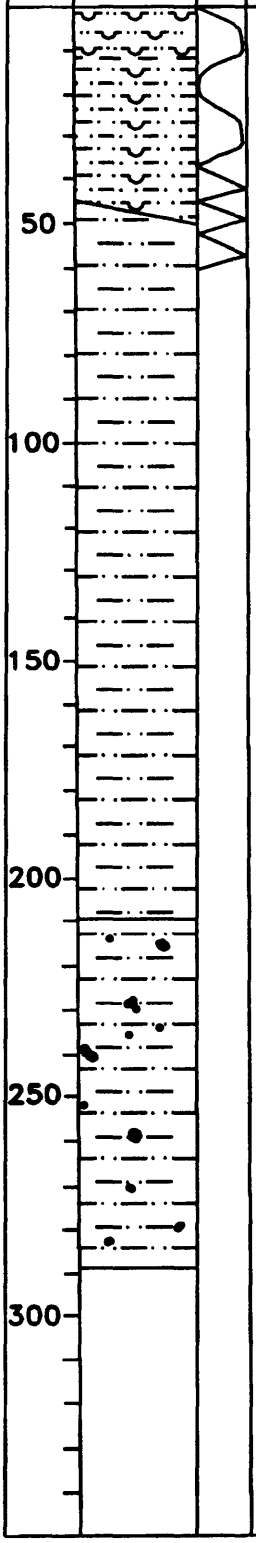
11-479 cm: Sandy mud, medium dark gray (N4); sand content varies throughout; layer of fine sand, light olive gray (5Y 5/2), well sorted, between 183-186 cm; medium subangular pebbles common between 45-105 cm and 186-479 cm; very fine to fine, subangular pebbles common between 45-479 cm, sparsely scattered between 11-45 cm; angular gneiss pebbles between 99-104 cm (39 mm) and 368-373 cm (47 mm); subangular quartzite pebbles between 73-78 cm (45 mm), 290-294 cm (35 mm) and 354-358 cm (33 mm); highly disturbed between 180-200 cm; slightly disturbed (washed) between 11-50 cm; abrupt change to flow-in at 373 cm.

Smear Slides:	18 cm	265 cm
Quartz	80	80
Feldspar	<1	<1
Mica	<<1	<1
Heavy minerals	6	8
Clay	12	10
Volcanic glass	2	2

Bottom topography: not recorded in deck log.

Logged by: Breza, Weiterman, Kaharoeddin

USCGC GLACIER DF 85-119



Latitude: 68°20.6' S
Longitude: 70°22.8' W
Water Depth: 787 M
Core Length: 288 CM

LITHOLOGIC DESCRIPTION

0-12 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); slightly disturbed throughout; gradational contact.

Smear Slide:	9 cm
Quartz	20
Feldspar	<1
Mica	1
Heavy minerals	1
Clay	15
Volcanic glass	<1
Foraminifera	<1
Diatoms	63
Radiolarians	<1
Sponge spicules	<1
Silicoflagellates	<<1

14-48 cm: Diatomaceous mud, light olive gray (5Y 5/2); moderately disturbed between 40-48 cm, slightly disturbed between 12-40 cm; sharp, inclined, disturbed contact.

Smear Slide:	30 cm
Quartz	44
Feldspar	<1
Mica	<1
Heavy minerals	3
Clay	28
Volcanic glass	3
Carbonate unspecified	<1
Foraminifera	<1
Diatoms	22
Radiolarians	<<1
Sponge spicules	<1
Silicoflagellates	<<1

48-209 cm: Mud, olive gray (5Y 4/1); moderately disturbed between 48-60 cm; sharp contact.

Smear Slide:	116 cm
Quartz	44
Feldspar	<1
Mica	<1
Heavy minerals	10
Clay	41
Volcanic glass	5
Carbonate unspecified	<1
Sponge spicules	<<1

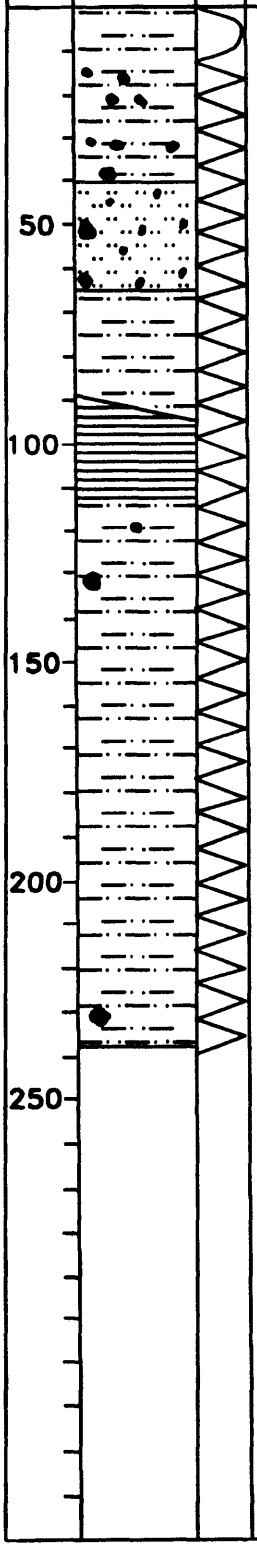
209-288 cm: Sandy mud, olive gray (5Y 4/1); very fine to medium, angular to subrounded pebbles common throughout; subangular basaltic pebbles between 227-230 cm (29 mm), 237-243 cm (18 mm) and 254-259 cm (33 mm); 24 mm subrounded basaltic pebble between 214-217 cm.

Smear Slide:	234 cm
Quartz	50
Feldspar	<1
Mica	<1
Heavy minerals	14
Clay	32
Volcanic glass	4
Carbonate unspecified	<<1
Sponge spicules	<<1

Bottom topography; not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-122



Latitude: 68°15.9' S
Longitude: 69°33.2' W

Water Depth: 676 M
Core Length: 238 CM

LITHOLOGIC DESCRIPTION

0-40 cm: Mud, brownish gray (5YR 4/1); coarse angular to subangular pebbles abundant between 16-40 cm; highly disturbed between 17-40 cm; slightly disturbed (washed) between 0-17 cm; sharp contact.

Smear Slide:	5 cm
Quartz	53
Feldspar	<1
Mica	2
Heavy minerals	8
Clay	35
Volcanic glass	2
Carbonate unspecified	<<1
Foraminifera	<<1
Diatoms	<<1

40-65 cm: Muddy sand, brownish gray (5YR 4/1), sand is fine, moderately sorted, sand content decreases with depth; medium angular to subangular pebbles abundant throughout; angular basaltic pebbles between 49-54 cm (59 mm) and 60-64 cm (42 mm); highly disturbed between 40-65 cm; sharp contact.

Smear Slide:	45 cm
Quartz	59
Feldspar	2
Mica	<1
Heavy minerals	13
Clay	16
Volcanic glass	5
Rock fragments	5
Sponge spicules	<<1

65-106 cm: Mud, brownish gray (5YR 4/1); layer of clay, light olive gray (5Y 6/1) between 94-106 cm with inclined, disturbed upper contact between 89-96 cm; highly disturbed between 65-71 cm; moderately disturbed between 71-106 cm; sharp contact.

Smear Slides:	85 cm	104 cm (layer)
Quartz	50	25
Feldspar	2	<<1
Mica	1	<1
Heavy minerals	8	2
Clay	38	73
Volcanic glass	1	<1
Diatoms	<<1	-
Sponge spicules	<<1	-

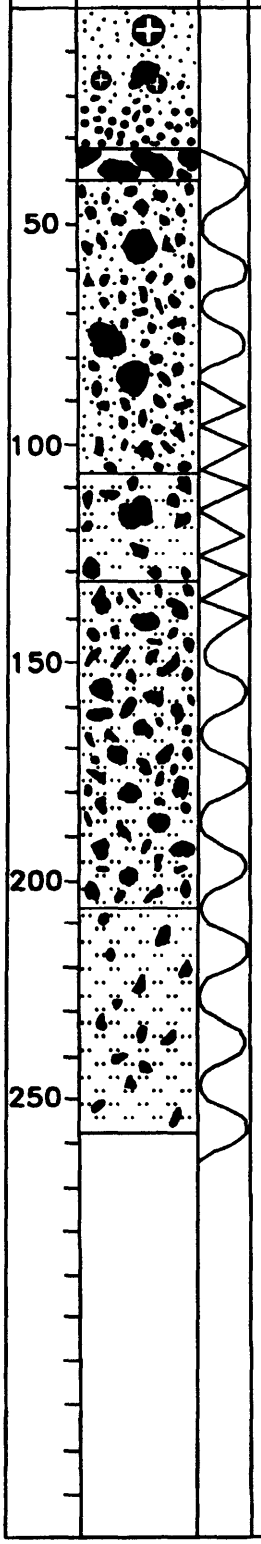
106-238 cm: Sandy mud, brownish gray (5YR 4/1); 25 mm angular pebble between 228-233 cm; rounded pebbles between 107-109 cm (16 mm) and 119-124 cm (38 mm); highly disturbed throughout (core liner imploded).

Smear Slide:	125 cm
Quartz	65
Feldspar	1
Mica	<1
Heavy minerals	12
Clay	20
Volcanic glass	2

Bottom topography: not recorded in deck log.

Logged by: Breza, Kaharoeddin

USCGC GLACIER DF 85-123



Latitude: 68°15.1' S
Longitude: 69°21.0' W
Water Depth: 538 M
Core Length: 254 CM

LITHOLOGIC DESCRIPTION

0-33 cm; Graded clastics, grading from very well sorted fine sand (5Y 3/2) to well- sorted coarse sand, dark gray (N3) and moderate brown (5YR 4/4) at 7 cm, grading to well-sorted fine pebbles at 20 cm; 35 mm soft, sedimentary clast composed of muddy diatomaceous ooze, light olive gray (5Y 5/2) between 4-9 cm; 21 mm, soft, sedimentary clast composed of mud, pale yellowish brown (10YR 6/2) between 17-19 cm; 30 mm subrounded pebble with sedimentary clast composed of diatomaceous ooze, light olive gray (5Y 6/2), attached to it between 12-17 cm; washed along the sides throughout; sharp contact.

Smear Slide:	2 cm	Smear Slide (cont'd):	2 cm
Quartz	75	Volcanic glass	8
Feldspar	3	Rock fragments	8
Mica	<1	Pyrite	1
Heavy minerals	5	Diatoms	<1
Clay	<1	Sponge spicules	<<1

33-106 cm: Sandy pebbles, olive gray (5Y 4/1), pebbles are bimodal, medium, well sorted and fine, angular to subrounded, primarily of granitic and basaltic composition, sand is coarse, poorly sorted, contains abundant rock fragments; layer of very coarse pebbles, olive gray (5Y 4/1), very well-sorted, subangular between 33-40 cm; very coarse subangular pebbles between 50-55 cm (38 mm, flat), 72-76 cm (36 mm) and 80-85 cm (46 mm); moderately disturbed (washed) between 85-106 cm; slightly disturbed (washed) between 33-85 cm; sharp contact. Note: Smear slide is biased toward fine fraction.

Smear Slide:	105 cm	Smear Slide (cont'd):	105 cm
Quartz	80	Volcanic glass	1
Feldspar	1	Rock fragments	3
Mica	<1	Pyrite	<1
Heavy minerals	12	Diatoms	<<1
Clay	3	Sponge spicules	<<1

106-133 cm: Muddy sand, olive gray (5Y 4/1); sand is coarse, poorly sorted, contains abundant rock fragments; subangular to subrounded, very fine to coarse pebbles abundant throughout; moderately disturbed (washed) throughout; sharp contact. Note: Smear slide is biased toward finer fraction.

Smear Slide:	116 cm	Smear Slide (cont'd):	116 cm
Quartz	75	Volcanic glass	1
Feldspar	1	Rock fragments	12
Mica	<<1	Pyrite	<1
Heavy minerals	7	Diatoms	<<1
Clay	4	Sponge spicules	<<1

133-206 cm: Muddy sandy pebbles, olive gray (5Y 4/1); pebbles are medium, poorly sorted, angular to subrounded, primarily of granitic and basaltic composition, sand is coarse, poorly sorted, contains abundant rock fragments; moderately disturbed (washed) between 133-140 cm, slightly disturbed (washed) elsewhere; sharp contact. Note: Smear slide is biased toward finer fraction.

Smear Slide:	173 cm
Quartz	73
Feldspar	1
Mica	<<1
Heavy minerals	12
Clay	2
Volcanic glass	2
Rock fragments	10
Pyrite	<1
Diatoms	<<1

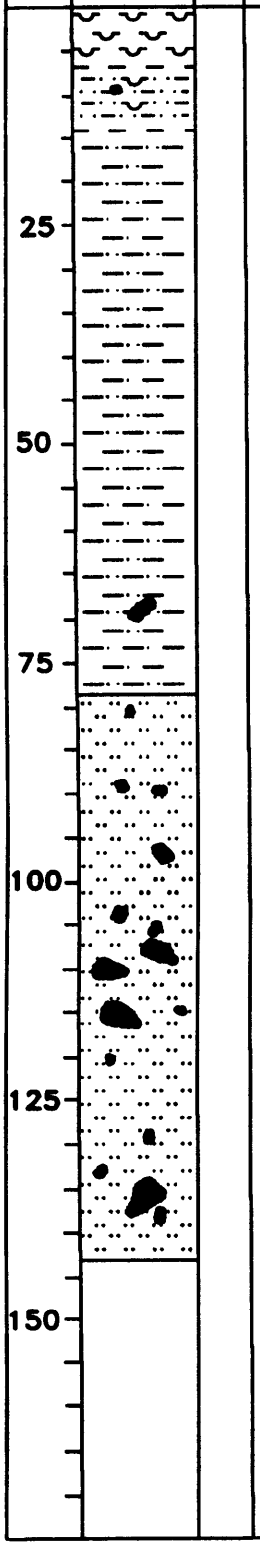
206-254 cm: Muddy sand, olive gray (5Y 4/1); sand is coarse, poorly sorted, contains abundant rock fragments; fine to medium subangular to subrounded pebbles common throughout; slightly disturbed throughout.

Smear Slide:	233 cm
Quartz	72
Feldspar	<1
Mica	<1
Heavy minerals	7
Clay	2
Volcanic glass	1
Rock fragments	18
Diatoms	<<1

Bottom topography: Not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-125



Latitude: 68°13.9' S
Longitude: 69°40.7' W
Water Depth: 558 M
Core Length: 143 CM

LITHOLOGIC DESCRIPTION

0-14 cm: Diatomaceous ooze, grayish olive (10Y 4/2) gradationally changing to diatomaceous mud, grayish olive (10Y 4/2) at 7 cm; 5 mm, subrounded, basaltic pebble between 9-10 cm; gradational contact.

Smear Slides:	3 cm	10 cm
Quartz	13	44
Feldspar	<1	1
Mica	<1	<1
Heavy minerals	2	8
Clay	4	22
Volcanic glass	1	1
Carbonate unspecified	-	<<1
Foraminifera	-	<<1
Diatoms	78	24
Radiolarians	<1	<1
Sponge spicules	2	<1
Silicoflagellates	<<1	<<1

14-78 cm: Mud, olive gray (5Y 4/1); 12 mm, angular, andesitic pebble between 68-70 cm; sharp contact.

Smear Slide:	56 cm
Quartz	65
Feldspar	1
Mica	<1
Heavy minerals	8
Clay	22
Volcanic glass	4
Carbonate unspecified	<1
Foraminifera	<<1
Diatoms	<<1

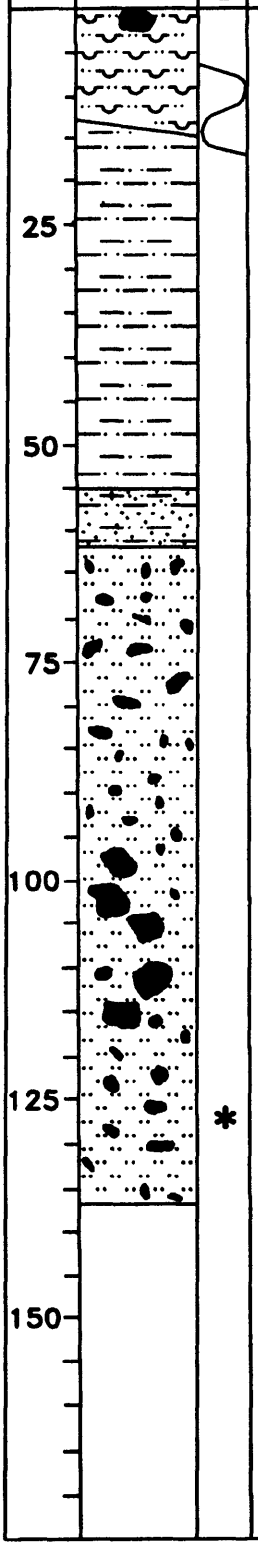
78-143 cm: Muddy sand, olive gray (5Y 4/1); color changes to brownish gray (5YR 4/1) between 80-91 cm; fine to medium, angular to subangular pebbles common throughout; 50 mm, elongate, angular, granitic pebble between 114-119 cm; elongate, subangular, granitic pebbles between 108-113 cm (45 mm) and 106-109 cm (29 mm); 45 mm flat, subangular pebble between 133-139 cm.

Smear Slide:	103 cm
Quartz	76
Feldspar	<<1
Mica	<<1
Heavy minerals	10
Clay	12
Volcanic glass	2
Carbonate unspecified	<1
Diatoms	<<1

Bottom topography: Not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-126



Latitude: 68°10.3' S
Longitude: 69°41.0' W
Water Depth: 860 M
Core Length: 137 CM

LITHOLOGIC DESCRIPTION

0-14 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); 21 mm angular granitic pebble between 0-3 cm; slightly disturbed between 7-14 cm; sharp, inclined contact.

Smear Slide:	3 cm
Quartz	31
Fedlspar	<<1
Heavy minerals	2
Clay	4
Volcanic glass	2
Foraminifera	<1
Diatoms	60
Radiolarians	<<1
Sponge spicules	1
Silicoflagellates	<1

14-62 cm: Mud, olive gray (5Y 4/1); layer of sandy mud, olive gray (5Y 4/1) between 55-62 cm; stringer of coarse ash, light brown (5YR 5/6) between 59-60 cm; slightly disturbed between 14-17 cm; slightly washed along the sides between 56-62 cm; sharp contact.

Smear Slide:	30 cm
Quartz	61
Feldspar	1
Mica	<1
Heavy minerals	5
Clay	30
Volcanic glass	3
Diatoms	<<1
Sponge spicules	<<1

62-137 cm: Pebbly muddy sand, brownish gray (5YR 4/1); sand is medium, poorly sorted; pebbles are very fine to medium, angular to subrounded; 25 mm angular pebble of dioritic composition between 96-99 cm; coarse, subangular pebbles of various composition between 101-104 cm (27 mm), 104-107 cm (30 mm), 110-114 cm (32 mm) and 114-117 cm (24 mm).

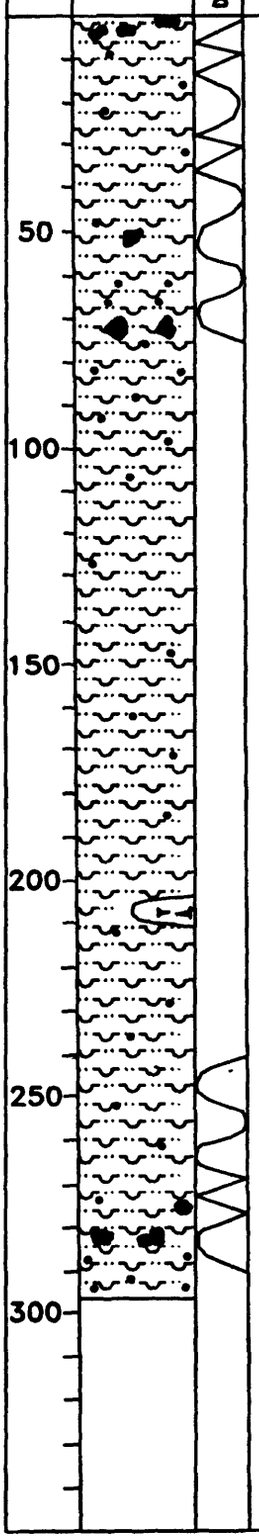
Smear Slide:	108 cm
Quartz	59
Feldspar	2
Mica	<1
Heavy minerals	6
Clay	28
Volcanic glass	3
Rock fragments	2
Diatoms	<<1
Sponge spicules	<<1

Bottom topography: not recorded in deck log.

* Note: Sediment between 121-137 cm is bagged.

Logged by: Weiterman, Kaharoeddin

USCGC GLACIER DF 85-128



Latitude: 68°02.5' S
Longitude: 69°37.3' W
Water Depth: 774 M
Core Length: 297 CM

LITHOLOGIC DESCRIPTION

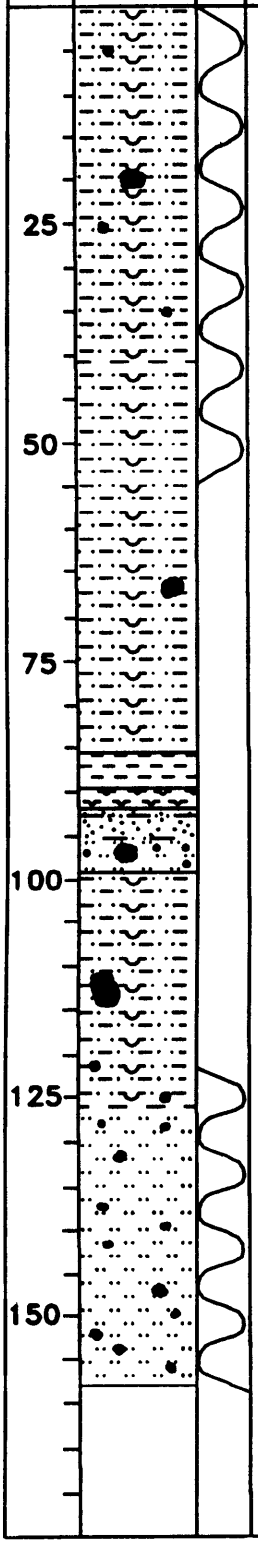
0-297 cm: Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); lense of matted sponge spicules between 206-208 cm; medium, angular to subrounded pebbles common between 62-98 cm and 275-297 cm, sparsly scattered elsewhere; course, angular to subangular pebbles of verious composition between 0-2 cm (20 mm), 2-5 cm (25 mm), 3-6 cm (26 mm), 50-53 cm (18 mm), 70-74 cm (25 mm, flat), 71-77 cm (29 mm, flat), 275-278 cm (21 mm), 281-284 cm (21 mm) and 281-285 cm (29 mm); highly disturbed between 268-274 cm; moderately disturbed between 5-13 cm and 27-32 cm; slightly disturbed (washed) between 13-27 cm, 32-70 cm, 247-268 cm, and 274-290 cm; slightly washed along the side between 123-247 cm.

Smear Slides:	15 cm	165 cm	290 cm
Quartz	32	28	32
Feldspar	<1	<<1	<1
Mica	<1	<1	<1
Heavy minerals	2	2	2
Clay	2	2	1
Volcanic glass	2	1	1
Carbonate unspecified	<1	<1	<1
Foraminifera	-	-	1
Diatoms	61	66	62
Radiolarians	<1	<<1	<1
Sponge spicules	1	1	1
Silicoflagellates	<<1	<<1	<1

Bottom topography: not recorded in deck log.

Logged by: Breza, Kaharoeddin

USCGC GLACIER DF 85-129



Latitude: 67°49.9' S
Longitude: 67°34.9' W

Water Depth: 256 M
Core Length: 158 CM

LITHOLOGIC DESCRIPTION

0-41 cm: Diatomaceous mud, moderate olive brown (5Y 4/4); very fine subangular pebbles sparsely scattered throughout; 28 mm, subangular pebble between 19-22 cm; slightly disturbed (washed) throughout; gradational contact.

Smear Slide:	16 cm
Quartz	40
Feldspar	1
Mica	<1
Heavy minerals	6
Clay	10
Volcanic glass	2
Diatoms	40
Radiolarians	<<1
Sponge spicules	1
Silicoflagellates	<<1

41-126 cm: Diatomaceous mud, grayish olive (10Y 4/2), differs from the over lying unit by its lower diatom content; 3 cm layer of silt between 86-89 cm; 3 cm layer of muddy diatomaceous ooze, moderate olive brown (5Y 4/4) between 89-92 cm; 7 cm layer of sandy mud between 92-99 cm, gradationally changing to muddy sand at 95 cm, sand is medium, moderately sorted; very fine, subangular to subrounded pebbles common between 95-99 cm; fine, subangular pebbles sparsely scattered between 120-126 cm; 27 mm, subangular, granitic pebble between 110-114 cm; 17 mm, angular, granitic pebble between 96-98 cm; 15 mm subangular pebble between 66-68 cm; slightly disturbed (washed) between 41-58 cm and 123-126 cm; sharp contact.

Smear Slides:	63 cm	90 cm (layer)	96 cm (layer)
Quartz	50	32	73
Feldspar	<1	<1	1
Mica	<<1	<1	<<1
Heavy minerals	5	3	4
Clay	11	1	14
Volcanic glass	2	2	2
Carbonate unspecified	<<1	<<1	<<1
Foraminifera	<<1	-	-
Ostracods	<1	<1	<1
Diatoms	31	54	6
Sponge spicules	1	<1	<1
Silicoflagellates	<<1	8	<<1

126-158 cm: Muddy sand, olive gray (5Y 4/1); sand is medium, moderately sorted; zone of higher clay content between 126-130 cm; very fine to medium, angular to subrounded pebbles common throughout; slightly disturbed (washed) throughout. Note: slide is biased toward fine fraction.

Smear Slide:	144 cm
Quartz	76
Feldspar	<1
Mica	1
Heavy minerals	7
Clay	10
Volcanic glass	3
Carbonate unspecified	<<1
Foraminifera	<<1
Diatoms	3
Sponge spicules	<1

Bottom topography: Not recorded in deck log.

Logged by: Weiterman, Kaharoeddin

DESCRIPTIONS OF TRIGGER CORES

Trigger core sediments were recovered at 36 stations. All of these are described here. Descriptions are given in the same format as piston cores, but without a graphic log. Bagged trigger core samples generally result from poor recovery. Weights are given for bagged samples to give an indication of the amount of material that is available. Station location data for trigger cores are included here (and in Table 1), and are plotted on the maps of Figures 2-6.

TC 85-1 Latitude: 61°34.3'S Water Depth: 2504 m
Longitude: 47°29.9'W Core Length: 60 cm

0-32 cm: Muddy diatomaceous ooze, grayish olive (10Y 4/2); layer of diatomaceous mud, moderate olive brown (5Y 4/4) between 0-3 cm; 5mm lamina of silt, olive gray (5Y 3/2) between 6-7 cm; layer of very fine sand, olive gray (5Y 3/2) between 30-32 cm, sand is very fine and very well sorted; sharp inclined contact.

32-43 cm: Diatomaceous ooze, olive gray (5Y 4/1), mottled with light olive brown (5Y 5/6); sharp inclined contact.

43-60 cm: Muddy diatomaceous ooze, grayish olive (10Y 4/2); layer of muddy diatomaceous ooze, light olive gray (5Y 5/2) between 46-48 cm, with higher silt content than the main unit; layer of sandy diatomaceous mud, grayish olive (10Y 4/2) between 48-49 cm; angular basaltic pebbles between 49-50 cm (8 mm) and 51-52 cm (6 mm).

Smear Slides:	15cm	34 cm	56 cm
Quartz	40	25	42
Feldspar	<1	<<1	<1
Mica	<1	--	<1
Heavy minerals	1	<1	2
Clay	6	1	4
Volcanic glass	1	1	1
Diatoms	50	73	50
Radiolarians	1	<<1	<1
Sponge spicules	1	<<1	1
Silicoflagellates	<1	<1	<1
Ebridians	--	--	<1

TC 85-2 Latitude: 61°32.9'S Water Depth: 988 m
Longitude: 47°14.4'W Core Length: 45 cm

0-8 cm: Diatomaceous muddy sand, grayish olive (10Y 4/2); 9 mm angular basaltic pebble between 7-8 cm; sharp contact.

8-24 cm: Diatomaceous mud, olive gray (5Y 4/1); very fine to fine, angular to subangular pebbles common throughout; 8 mm subrounded granitic pebble between 16-17 cm; gradational contact.

24-45 cm: Mud, olive gray (5Y 4/1); foraminifera abundant between 32-45 cm.

Smear Slides:	6 cm	14 cm	30 cm
Quartz	71	48	66
Feldspar	<1	<1	<1
Mica	--	--	<<1
Heavy minerals	5	5	10
Clay	1	2	15
Volcanic glass	3	3	4
Glauconite	<1	--	--
Carbonate unspec.	--	--	<1
Foraminifera	--	--	<1
Diatoms	18	40	5
Radiolarians	1	<<1	<1
Sponge spicules	1	2	<1
Silicoflagellates	--	<<1	--

TC 85-15 Latitude: 61°55.6'S Water Depth: 2397 m
Longitude: 47°14.3'W Core Length: 55 cm

0-12 cm: Sandy diatomaceous mud, olive gray (5Y 4/1); layer of diatomaceous sand, light olive gray (5Y 5/2); very fine to fine, angular to subangular pebbles common throughout; sharp contact.

12-55 cm: Mud, light olive gray (5Y 5/2); soft sedimentary clasts composed of sandy diatomaceous mud, olive gray (5Y 4/1) between 17-19 cm (1 cm, elongate) and 40-42 cm (12 mm); soft sedimentary clasts composed of diatomaceous muddy sand, grayish olive (10Y 4/2), sand is fine, well sorted, between 43-45 cm (15 mm) and 48-53 cm (28 mm, elongate); 16 mm angular basaltic pebble between 18-20 cm; highly disturbed between 47-55 cm.

Smear Slides:	2 cm (layer)	10 cm	24 cm
Quartz	64	49	46
Feldspar	<1	<1	<<1
Mica	<1	<1	<<1
Heavy minerals	4	3	1
Clay	5	15	48
Volcanic glass	7	4	3
Glauconite	<1	--	--
Diatoms	18	28	1
Radiolarians	1	1	--
Sponge spicules	1	<1	1

Silicoflagellates	<<1	<<1	--

TC 85-16 Latitude: 61°55.3'S Water Depth: 2004 m
Longitude: 47°04.7'W Core Length: Bag

Bag sample (50.7 grams): Sandy muddy diatomaceous ooze, moderate olive brown (5Y 4/4); medium subangular pebbles sparsely scattered.

Smear Slide:	Cutter
Quartz	40
Feldspar	<1
Mica	<1
Heavy minerals	1
Clay	10
Volcanic glass	2
Diatoms	47
Radiolarians	<1
Sponge spicules	<1

TC 85-18 Latitude: 61°51.9'S Water Depth: 1261 m
Longitude: 47°03.3'W Core Length: 17 cm

0-9 cm: Diatomaceous muddy sand, grayish olive (10Y 4/2), sand is fine, well sorted; very fine to fine, angular to subangular pebbles common throughout; moderately disturbed (washed) between 0-4 cm, slightly washed along the sides between 4-9 cm; sharp contact.

9-17 cm: Sandy mud, olive gray (5Y 4/1); very fine to fine, angular to subangular pebbles sparsely scattered throughout; slightly washed along the sides between 9-11 cm.

Smear Slides:	5 cm	13 cm
Quartz	73	61
Feldspar	<1	<1
Heavy minerals	2	6
Clay	1	20
Volcanic glass	5	5
Glauconite	<1	<1
Carbonate unspec.	--	1
Foraminifera	--	5

Diatoms	18	1
Radiolarians	1	<1
Sponge spicules	<1	1

TC 85-19 Latitude: 61°52.6'S Water Depth: 1151 m
Longitude: 46°57.3'W Core Length: Bag

Bag sample (154.8 grams, in 3 bags): Muddy sand, grayish olive (10Y 4/2); 22 mm angular pebble; very fine to fine subangular pebbles sparsely scattered.

Smear Slides:	Catcher	Cutter
Quartz	74	82
Feldspar	<1	1
Mica	<1	<1
Heavy minerals	6	6
Clay	12	4
Volcanic glass	5	4
Diatoms	2	2
Radiolarians	<1	<1
Sponge spicules	1	1

TC 85-20 Latitude: 61°45.5'S Water Depth: 768 m
Longitude: 46°50.6'W Core Length: Bag

Bag sample (18.9 grams): Sandy diatomaceous ooze, light olive gray (5Y 5/2); very fine subangular pebbles sparsely scattered.

Smear Slide:	Bag
Quartz	33
Feldspar	<1
Mica	<<1
Heavy minerals	1
Clay	<1
Volcanic glass	<1
Diatoms	66
Radiolarians	<1
Sponge spicules	<1

TC 85-21 Latitude: 60°49.5'S Water Depth: 256 m
Longitude: 45°36.2'W Core Length: 14 cm

0-14 cm: Diatomaceous muddy sand, light olive gray (5Y 5/2), sand is very fine, well sorted; layer of diatomaceous mud, light olive gray (5Y 5/2) between 0-4 cm; angular, elongate schist pebbles between 6-8 cm (16 mm) and 8-10 cm (17 mm); 10 mm subrounded basaltic pebble between 9-10 cm.

Smear Slide:	6 cm
Quartz	70
Feldspar	<1
Mica	<1
Heavy minerals	5
Clay	2
Volcanic glass	3
Diatoms	20
Sponge spicules	<1
Silicoflagellates	<<1

TC 85-23 Latitude: 60°49.1'S Water Depth: 304 m
Longitude: 45°44.7'W Core Length: 33 cm

0-33 cm: Muddy diatomaceous ooze, grayish olive (10Y 4/2); layer of diatomaceous sand, grayish olive (10Y 4/2) between 3-5 cm, sand is very fine, well sorted; 4 mm angular basaltic pebble between 30-31 cm; slightly disturbed (washed) between 0-4 cm; slightly washed along the sides between 4-33 cm.

Smear Slide:	24 cm
Quartz	36
Feldspar	<1
Mica	<<1
Heavy minerals	1
Clay	<1
Volcanic glass	<1
Diatoms	63
Radiolarians	<1
Silicoflagellates	<<1

TC 85-33 Latitude: 62°20.4'S Water Depth: 2843 m
Longitude: 46°29.5'W Core Length: 15 cm

0-9 cm: Muddy sand, olive gray (5Y 4/1), sand is fine, moderately well sorted; very fine to fine subangular to rounded pebbles common between 0-6 cm; 12 mm angular pebble between 2-4 cm; sharp contact.

9-15 cm: Mud, light olive gray (5Y 5/2); 3 mm subrounded pebble between 14-15 cm; slightly bioturbated between 9-13 cm.

Smear Slides:	5 cm	12 cm
Quartz	78	45
Feldspar	<1	<<1
Mica	--	1
Heavy minerals	2	1
Clay	12	53
Volcanic glass	3	1
Glauconite	<1	--
Diatoms	5	--
Radiolarians	<1	--
Sponge spicules	<1	<<1

TC 85-36 Latitude: 62°11.8'S Water Depth: 1684 m
Longitude: 46°19.7'W Core Length: 8 cm

0-3 cm: Diatomaceous sand, light olive gray (5Y 5/2), sand is fine, well sorted; very fine subrounded pebbles sparsely scattered throughout; slightly disturbed between 0-1 cm; sharp contact.

3-8 cm: Diatomaceous mud, light olive gray (5Y 5/2); very fine to fine, rounded to subangular pebbles sparsely scattered throughout.

Smear Slides:	2 cm	5 cm
Quartz	66	66
Feldspar	<1	<1
Heavy minerals	2	5
Clay	1	6
Volcanic glass	5	4
Glauconite	<1	<1
Diatoms	23	18

Radiolarians	2	<1
Sponge spicules	1	1
Silicoflagellates	<<1	<<1

TC 85-48 Latitude: 62°08.9'S Water Depth: 439 m
Longitude: 58°25.7'W Core Length: 14 cm

0-14 cm: Ash-bearing diatomaceous mud, olive gray (5Y 4/1); subangular pebbles between 1-4 cm (15 mm) and 5-6 cm (9 mm); highly disturbed between 0-5 cm; slightly washed along the side between 5-14 cm.

Smear Slide:	10 cm
Quartz	58
Feldspar	<1
Heavy minerals	2
Clay	8
Volcanic glass	16
Glauconite	<<1
Diatoms	16
Sponge spicules	<1
Silicoflagellates	<<1

TC 85-49 Latitude: 62°08.4'S Water Depth: 363 m
Longitude: 58°26.6'W Core Length: 9 cm

0-9 cm: Ash-bearing mud, olive gray (5Y 4/1); fine subrounded pebbles sparsely scattered throughout; slightly washed along the sides throughout.

Smear Slide:	4 cm
Quartz	40
Feldspar	<<1
Heavy minerals	1
Clay	35
Volcanic glass	17
Diatoms	6
Radiolarians	<1
Sponge spicules	1

TC 85-52 Latitude: 63°46.6'S Water Depth: 522 m
Longitude: 63°22.9'W Core Length: 8 cm

0-8 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); moderately disturbed between 0-3 cm; slightly washed along the sides between 3-8 cm.

Smear Slide:	6 cm
Quartz	26
Feldspar	<<1
Heavy minerals	1
Clay	12
Volcanic glass	<1
Diatoms	61
Radiolarians	<<1
Sponge spicules	<1

TC 85-53 Latitude: 64°33.5'S Water Depth: 201 m
Longitude: 63°09.3'W Core Length: 26 cm

0-26 cm: Mud, olive gray (5Y 4/1); fine, angular pebbles sparsely scattered throughout; 26 mm angular pebble between 5-8 cm; moderately disturbed (washed) between 24-26 cm, slightly disturbed (washed) between 20-24 cm.

Smear Slide:	22 cm
Quartz	42
Feldspar	1
Mica	<1
Heavy minerals	2
Clay	48
Volcanic glass	4
Diatoms	3
Sponge spicules	<1

TC 85-54 Latitude: 64°31.9'S Water Depth: 311 m
Longitude: 63°08.0'W Core Length: 13 cm

0-13 cm: Mud, light olive gray (5Y 5/2); very fine to fine, subrounded to angular pebbles common throughout; 3 mm lapilli between 4-5 cm; moderately disturbed (washed) between 0-2

cm and 12-13 cm.

Smear Slide:	7 cm
Quartz	43
Feldspar	<<1
Mica	<1
Heavy minerals	10
Clay	38
Volcanic glass	5
Diatoms	4
Sponge spicules	<1
Silicoflagellates	<<1

TC 85-55 Latitude: 64°30.3'S Water Depth: 462 m
Longitude: 63°06.6'W Core Length: 52 cm

0-52 cm: Mud, light olive gray (5Y 5/2); zone of coarser and higher silt content between 43-52 cm.

Smear Slides:	10 cm	48 cm
Quartz	36	57
Feldspar	<1	<1
Mica	<1	<1
Heavy minerals	4	8
Clay	53	28
Volcanic glass	5	5
Diatoms	2	2
Sponge spicules	<1	<1
Silicoflagellates	<<1	--

TC 85-57 Latitude: 65°05.8'S Water Depth: 650 m
Longitude: 63°10.2'W Core Length: 15 cm

0-15 cm: Mud, light olive gray (5Y 5/2); very fine to fine angular to subrounded pebbles sparsely scattered throughout; 20 mm angular pebble between 13-15 cm; slightly washed along the sides between 0-12 cm.

Smear Slide:	8 cm

Quartz	40
Feldspar	<1
Mica	2
Heavy minerals	2
Clay	43
Volcanic glass	1
Diatoms	12
Sponge spicules	<1

TC 85-58 Latitude: 65°04.7'S Water Depth: 439 m
Longitude: 63°10.7'W Core Length: 16 cm

0-16 cm: Diatomaceous mud, light olive gray (5Y 5/2); very fine to fine subangular to subrounded pebbles common throughout; slightly disturbed (washed) between 0-3 cm; slightly washed along the sides between 3-16 cm.

Smear Slide:	8 cm
Quartz	52
Feldspar	<1
Mica	1
Heavy minerals	3
Clay	19
Volcanic glass	1
Diatoms	24
Sponge spicules	<1

TC 85-59 Latitude: 65°03.1'S Water Depth: 384 m
Longitude: 63°11.4'W Core Length: 13 cm

0-13 cm: Diatomaceous mud, grayish olive (10Y 4/2); very fine angular to subrounded basaltic pebbles throughout; 12 mm angular basaltic pebble between 4-6 cm; slightly washed along the sides throughout.

Smear Slide:	7 cm
Quartz	30
Feldspar	<1

Mica	1
Heavy minerals	2
Clay	34
Volcanic glass	<1
Diatoms	33
Radiolarians	<<1
Sponge spicules	<1

TC 85-63 Latitude: 64°56.9'S Water Depth: 1373 m
Longitude: 64°19.0'W Core Length: 6 cm

0-6 cm: Muddy diatomaceous ooze, light olive gray (5Y 5/2); slightly washed along the sides throughout.

Smear Slide:	3 cm
Quartz	34
Feldspar	<1
Mica	<1
Heavy minerals	1
Clay	5
Volcanic glass	<1
Ostracods	<<1
Diatoms	59
Radiolarians	<<1
Sponge spicules	1
Silicoflagellates	<<1

TC 85-65 Latitude: 67°46.1'S Water Depth: 358 m
Longitude: 68°16.1'W Core Length: Bag

Bag sample (44.3 grams): Muddy diatomaceous ooze, grayish olive (10Y 4/2).

Smear Slide:	Bag
Quartz	36
Feldspar	<1
Mica	<1
Heavy minerals	1
Clay	10

Volcanic glass	<1
Diatoms	52
Radiolarians	<1
Sponge spicules	1
Silicoflagellates	<<1

TC 85-72 Latitude: 67°54.9'S Water Depth: 808 m
Longitude: 68°26.9'W Core Length: Bag

Bag sample (35.0 grams): Diatomaceous ooze, grayish olive (10Y 4/2).

Smear Slide:	Bag
Quartz	12
Heavy minerals	<1
Clay	10
Volcanic glass	<<1
Diatoms	78
Sponge spicules	<1
Silicoflagellates	<<1

TC 85-95 Latitude: 73°18.3'S Water Depth: 777 m
Longitude: 103°38.4'W Core Length: 25 cm

0-25 cm: Mud, light olive brown (5Y 5/6) gradually changing to light olive gray (5Y 5/2) at 6 cm; diatom content decreases with depth; slightly disturbed between 0-10 cm.

Smear Slide:	10 cm
Quartz	28
Feldspar	<<1
Mica	2
Heavy minerals	5
Clay	61
Volcanic glass	2
Diatoms	1
Sponge spicules	1

TC 85-96 Latitude: 73°17.9'S Water Depth: 786 m
Longitude: 103°37.1'W Core Length: 18 cm

0-18 cm: Mud, light olive brown (5Y 5/6) gradually changing to light olive gray (5Y 5/2) at 5 cm; diatom content decreases with depth.

Smear Slide:	7 cm
Quartz	32
Feldspar	<<1
Mica	1
Heavy minerals	2
Clay	64
Volcanic glass	<1
Diatoms	<1
Radiolarians	<1
Sponge spicules	1

TC 85-97 Latitude: 73°23.1'S Water Depth: 728 m
Longitude: 103°45.7'W Core Length: 36 cm

0-36 cm: Mud, light olive brown (5Y 5/6) gradationally changing to light olive gray (5Y 5/2) at 5 cm; 5 mm soft sedimentary clasts composed of mud with higher silt content than main unit, dusky yellow (5Y 6/4) between 10-11 cm and light olive gray (5Y 5/2) between 30-31 cm; very fine, subangular pebbles sparsely scattered between 32-35 cm; 8 mm, subangular basaltic pebble between 29-30 cm.

Smear Slide:	26 cm
Quartz	43
Feldspar	<1
Mica	1
Heavy minerals	4
Clay	52
Volcanic glass	<1
Diatoms	<1
Sponge spicules	<1

TC 85-98 Latitude: 73°59.7'S Water Depth: 329 m
Longitude: 104°30.3'W Core Length: Bag

Bag sample (59.3 grams): Mud, light olive gray (5Y 5/2); very fine, angular to subrounded pebbles common.

Smear Slide:	Bag
Quartz	40
Feldspar	<1
Mica	<1
Heavy minerals	3
Clay	56
Volcanic glass	<1
Diatoms	<1
Radiolarians	<<1
Sponge spicules	1

TC 85-100 Latitude: 73°43.9'S Water Depth: 915 m
Longitude: 103°44.7'W Core Length: 35 cm

0-35 cm: Mud, dusky yellow (5Y 6/4) gradationally changing to light olive gray (5Y 5/2) at 7 cm; zone of higher diatom content between 0-7 cm; moderately disturbed (washed) between 0-8 cm; slightly disturbed (washed) between 17-20 cm.

Smear Slide:	8 cm
Quartz	45
Feldspar	<<1
Mica	<1
Heavy minerals	2
Clay	51
Volcanic glass	1
Diatoms	1
Radiolarians	<<1
Sponge spicules	<1

TC 85-101 Latitude: 73°44.4'S Water Depth: 924 m
Longitude: 103°43.1W Core Length: 31 cm

0-31 cm: Mud, dusky yellow (5Y 6/4) gradationally changing to light olive gray (5Y 5/2) at 3 cm; 6 mm soft sedimentary clast composed of sandy silt, light olive gray (5Y 5/2) between 22-23

cm; very fine, angular to subangular pebbles sparsely scattered throughout; 24 mm, subangular basaltic pebble between 20-23 cm.

Smear Slide:	27 cm
Quartz	46
Feldspar	<<1
Mica	<1
Heavy minerals	3
Clay	49
Volcanic glass	1
Diatoms	<1
Radiolarians	<1
Sponge spicules	1

TC 85-102 Latitude: 73°32.0'S Water Depth: 329 m
Longitude: 103°33.6'W Core Length: Bag

Bag sample (43.4 grams): Mud, light olive gray (5Y 5/2); 26 mm angular basaltic pebble; very fine, angular pebbles sparsely scattered.

Smear Slide:	Bag
Quartz	50
Feldspar	<1
Mica	<1
Heavy minerals	5
Clay	45
Volcanic glass	<1
Diatoms	<<1
Sponge spicules	<<1

TC 85-104 Latitude: 74°23.5'S Water Depth: 316 m
Longitude: 102°54.9'W Core Length: 8 cm

0-8 cm: Mud, light olive gray (5Y 5/2); layer of ash-bearing sandy mud, light olive gray (5Y 5/2) between 3-5 cm.

Smear Slide:	2 cm
Quartz	42
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	48
Volcanic glass	1
Foraminifera	<<1
Diatoms	6
Radiolarians	<1
Sponge spicules	1

TC 85-105 Latitude: 74°38.9'S Water Depth: 650 m
Longitude: 102°33.7'W Core Length: 35 cm

0-35 cm: Mud, light olive gray (5Y 5/2); very fine, subrounded pebbles sparsely scattered between 25-28 cm; slightly disturbed (washed) between 0-15 cm.

Smear Slide:	17 cm
Quartz	54
Heavy minerals	1
Clay	45
Volcanic glass	<<1

TC 85-106 Latitude: 74°45.8'S Water Depth: 1052 m
Longitude: 102°25.1'W Core Length: 30 cm

0-30 cm: Mud, dark yellowish brown (10YR 4/2); fine ash common throughout; highly laminated with mud, dusky yellowish brown (10YR 2/2) between 24-30 cm.

Smear Slide:	19 cm
Quartz	56
Mica	<1
Heavy minerals	2
Clay	41
Volcanic glass	1
Diatoms	<<1

Sponge spicules	<<1

TC 85-108 Latitude: 74°39.1'S Water Depth: 615 m
Longitude: 102°57.8'W Core Length: 37 cm

0-37 cm: Mud, dark yellowish brown (10YR 4/2); silt content increases with depth; fine ash common between 22-33 cm; slightly disturbed (washed) between 31-37 cm; slightly washed along the sides between 0-13 cm.

Smear Slide:	10 cm
Quartz	46
Mica	<1
Heavy minerals	2
Clay	51
Volcanic glass	1
Sponge spicules	<<1

TC 85-109 Latitude: 72°29.5'S Water Depth: 567 m
Longitude: 104°28.6'W Core Length: 28 cm

0-8 cm: Mud, dark yellowish brown (10YR 4/2); very fine to fine subangular pebbles sparsely scattered between 0-3 cm; 29 mm angular pebble between 3-6 cm; gradational contact.

8-28 cm: Mud, light olive gray (5Y 5/2); higher clay content than overlying unit; zone of higher silt content between 20-28 cm; 5 mm subangular pebble between 22-23 cm; 9 mm subangular pebble between 27-28 cm.

Smear Slides:	3 cm	11 cm
Quartz	52	42
Mica	<1	1
Heavy minerals	2	2
Clay	44	55
Volcanic glass	1	<1
Diatoms	<1	<<1
Radiolarians	<<1	--
Sponge spicules	1	<<1

TC 85-126 Latitude: 68°10.3'S Water Depth: 860 m
Longitude: 69°41.0'W Core Length: 35 cm

0-19 cm: Muddy diatomaceous ooze; moderate olive brown (5Y 4/4); slightly washed along the sides throughout; sharp contact.

19-35 cm: Mud, light olive gray (5Y 6/1).

Smear Slides:	10 cm	27 cm
Quartz	27	45
Feldspar	<1	<1
Mica	<1	--
Heavy minerals	1	5
Clay	5	47
Volcanic glass	<1	3
Carbonate unspec.	--	<1
Diatoms	67	--
Radiolarians	<1	--
Sponge spicules	<1	--
Silicoflagellates	<<1	--

DESCRIPTIONS OF BAGGED PISTON CORE SAMPLES

For a variety of reasons, not all piston coring attempts are successful. In unsuccessful attempts, sediment is frequently lodged within the core cutter and/or core catcher. Bent or damaged core barrels may cause difficulty in extruding the plastic core liner, resulting in incomplete core recovery. These sediments are bagged and labeled. Eleven samples are described here.

Descriptions of bagged piston core sediments follow the same guidelines as for piston and trigger cores. Smear slide percentage abundance estimates are given if the bagged sample represents the only sediment recovered from that station (unless the lithology is coarse grained). Bag weights are given as an indication of the amount of material available. Station location data for bagged samples are given in Table 1, and are plotted on the maps of Figures 2-6. Numerous bagged samples were retained by the principal investigator of the cruise (John B. Anderson, Rice University), and are not described here (see Table 1).

PC 85-7: Total core recovery contained in one bag (9.9 grams). Diatomaceous sand; dusky yellow (5Y 6/4); sand is fine, moderately sorted; very fine to fine, subangular to subrounded pebbles common.

Smear Slide:	Bag
Quartz	60
Feldspar	<1
Mica	<1
Heavy minerals	7
Clay	6
Volcanic glass	8
Rock Fragments	1
Glauconite	<1
Diatoms	17
Radiolarians	<1
Sponge spicules	1
Silicoflagellates	<<1

PC 85-24: Total core recovery contained in one bag (18.7 grams). Silt, grayish olive (10Y 4/2), very well sorted; very fine, angular to subangular pebbles common.

Smear Slide:	Bag
Quartz	83
Feldspar	1
Mica	<1
Heavy minerals	9
Clay	<1
Volcanic glass	5
Diatoms	1
Sponge spicules	1

PC 85-32: Total core recovery contained in two bags; available bag (99.7 grams). Muddy diatomaceous ooze, olive gray (10Y 4/2); 10 mm, angular granitic pebble; very fine, angular pebbles sparse.

Smear Slide:	Bag
Quartz	36

Feldspar	<1
Heavy minerals	2
Clay	2
Diatoms	59
Sponge spicules	1
Silicoflagellates	<<1

PC 85-38: Total core recovery contained in three bags, as follows:

Bag labeled "A" (913.2 grams): Coarse ash, brownish black (5YR 2/1); well sorted; rounded basaltic pebbles (39 mm), (32 mm); 27 mm flat, angular basaltic pebble; very fine to medium, subangular to rounded basaltic pebbles common.

Bag labeled "B" (897.5 grams): Coarse ash, brownish black (5YR 2/1); well sorted; very fine to medium, subangular to rounded basaltic pebbles common.

Bag labeled "C" (708.7 grams): Coarse ash, brownish black (5YR 2/1); well sorted; 30 mm, semi-indurated, sedimentary clast, brownish black (5YR 2/1), composed of mud-bearing fine and coarse ash; 34 mm, subrounded, basaltic pebble; very fine to medium, subangular to rounded, basaltic pebbles common.

Smear Slide:	Bag A	Bag B	Bag C
Quartz	16	18	13
Feldspar	1	1	1
Mica	<1	<1	<1
Heavy minerals	10	12	12
Clay	1	--	<1
Volcanic glass	72	69	74
Diatoms	<1	<1	<1
Sponge spicules	<<1	<1	<1

PC 85-47: Total core recovery contained in one bag (259.7 grams). Ash-bearing sandy mud, olive gray (5Y 3/2); sand is very fine, well sorted; very fine to angular pebbles sparsely scattered.

Smear Slide:	Bag
Quartz	60
Feldspar	<1
Mica	<1

Heavy minerals	5
Clay	18
Volcanic glass	17
Diatoms	<1
Sponge spicules	<1
Silicoflagellates	<<1

PC 85-50: Total core recovery contained in one bag (6.8 grams): Coarse ash, olive gray (5Y 4/1); well-sorted; very fine to medium, angular to subangular pebbles common.

Smear Slide:	Bag
Quartz	18
Feldspar	1
Heavy minerals	4
Volcanic glass	77
Diatoms	<1
Sponge spicules	<1

PC 85-85: Total core recovery contained in two bags; available bag (37.9 grams). Pebbles with minor matrix of muddy diatomaceous ooze; pebbles are fine to medium, poorly sorted, angular to subangular; 40 mm, elongate, angular basaltic pebble; 17 mm, subangular, granitic pebble.

Smear Slide:	Bag
Quartz	22
Feldspar	<1
Mica	1
Heavy minerals	1
Clay	12
Volcanic glass	3
Diatoms	60
Radiolarians	<1
Sponge spicules	1

PC 85-104: Total core recovery contained in two bags; available bag (61.5 grams). Pebbles with minor matrix of sandy mud; pebbles are medium, well-sorted, angular to subrounded, primarily granitic (1 out of 13 is basaltic).

Smear Slide:	Bag (matrix)
Quartz	42
Feldspar	<1
Mica	<1
Heavy minerals	4
Clay	52
Volcanic glass	2
Diatoms	<<1
Sponge spicules	<<1

PC 85-120: Total core recovery contained in one bag (83.6 grams). Pebbles, medium, well-sorted, subangular to subrounded basaltic pebbles; 32 mm subangular, basaltic pebble.

PC 85-121: Total recovery contained in four bags; three available bags are as follows:

Bag labeled "A" (377.2 grams): Ash-bearing mud, light olive gray (5Y 5/2); 20 mm angular pebble; fine to medium, angular to subrounded pebbles abundant.

Bag labeled "B" (520.5 grams): Ash-bearing mud, light olive gray (5Y 5/2); fine to medium, angular to subrounded pebbles abundant.

Bag labeled "C" (424.7 grams): Ash-bearing mud, light olive gray (5Y 5/2); fine to medium, angular to subrounded pebbles abundant.

Smear Slide:	Bag A	Bag B	Bag C
Quartz	21	18	20
Heavy minerals	4	3	5
Clay	58	59	57
Volcanic glass	17	20	18
Diatoms	<<1	<<1	<<1
Sponge spicules	<<1	<<1	<<1

PC 85-131: Total core recovery contained in two bags; available bag (167.9 grams). Very fine sand, moderate olive brown (5Y 4/4), moderately sorted; sponge spicules up to 10 mm common; 38 mm, subangular, granitic pebble; fine to medium, angular to subrounded pebbles abundant.

Smear Slide:	Bag
Quartz	73

Feldspar	1
Mica	1
Heavy minerals	7
Clay	5
Volcanic glass	12
Diatoms	<1
Sponge spicules	1

DESCRIPTIONS OF GRAB SAMPLES

Descriptions of grab samples follow the same guidelines as for piston and trigger cores. Smear slide percentage abundance estimates are given if the grab represents the only sediment recovered from that station (unless the lithology is coarse grained). Bag weights are given as an indication of the amount of material available. Station location data for grab samples are given in Table 1, and are plotted on the maps of Figures 2-6.

Grab samples were taken at 56 stations. Forty six of these samples are at the Antarctic Research Facility. The remaining 10 were kept by the principal investigator (John B. Anderson, Rice University), and are not described here (see Table 1).

GB 85-3: Bags (373 grams, 116 grams). Diatomaceous mud, grayish olive (10Y 4/2).

GB 85-5: Bags (320 grams, 225 grams). Diatomaceous mud, grayish olive (10Y 4/2).

GB 85-6: Bags (294 grams, 266 grams). Sandy diatomaceous mud, light olive gray (5Y 5/2); very fine to medium, subangular to subrounded pebbles common.

GB 85-7: Bag (21 grams). Fine sand, grayish olive (10Y 4/2); well sorted; very fine, subangular pebbles sparsely scattered.

Smear Slide:	Bag
Quartz	85
Feldspar	2
Mica	<1
Heavy minerals	3
Volcanic glass	10
Diatoms	<1
Sponge spicules	<1

GB 85-10: Bags (222 grams, 173 grams). Diatomaceous mud, grayish olive (10Y 4/2).

GB 85-24: Bags (159 grams, 146 grams). Diatomaceous muddy sand, grayish olive (10Y4/2); sand is very fine, moderately well sorted; very fine to fine, subangular pebbles sparsely scattered.

Smear Slide:	Bag
Quartz	63
Feldspar	<1
Mica	<1
Heavy minerals	3
Clay	2
Volcanic glass	10
Diatoms	21
Sponge spicules	1
Silicoflagellates	<<1

GB 85-25: Bags (202 grams, 186 grams). Diatomaceous sandy mud, grayish olive (10Y 4/2); foraminifera and fragments of bryozoans sparsely scattered; sponge fragments with matted sponge spicules abundant.

GB 85-26: Bags (417 grams, 404 grams, 28 grams). Diatomaceous sandy mud, grayish olive (10Y 4/2); very fine to fine, angular to subangular pebbles sparsely scattered; macroscopic sponge spicules sparsely scattered.

GB 85-27: Bags (222 grams, 207 grams). Sandy muddy diatomaceous ooze, grayish olive (10Y 4/2).

GB 85-28: Bags (373 grams, 315 grams, 8 grams). Diatomaceous sandy mud, grayish olive (10Y 4/2); very fine to fine, angular to subangular pebbles sparsely scattered.

GB 85-29: Bags (294 grams, 204 grams, 140 grams, 4.3 grams). Diatomaceous mud, grayish olive (10Y 4/2); worm tubes up to 20 mm sparsely scattered.

GB 85-30: Bags (178 grams, 160 grams). Diatomaceous sandy mud, grayish olive (10Y 4/2); fine to medium, angular to subangular pebbles sparsely scattered.

GB 85-32: Bags (163 grams, 124 grams). Muddy diatomaceous ooze, grayish olive (10Y 4/2).

Smear Slide:	Bag
Quartz	32
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	<1
Volcanic glass	<1
Diatoms	66
Sponge spicules	<1
Silicoflagellates	<1

GB 85-38: Bag (21 grams). Coarse ash, olive black (5Y 2/1); 41 mm worm tube.

GB 85-39: Bag (451 grams). Coarse ash, olive black (5Y 2/1); worm tubes up to 40 mm sparsely scattered.

Smear Slide:	Bag
Quartz	22
Feldspar	<<1
Heavy minerals	4
Clay	2
Volcanic glass	71
Diatoms	1
Sponge spicules	<1

GB 85-41: Bag (61 grams). Pebbly coarse ash, olive black (5Y 2/1); pebbles are medium, well-sorted, angular to subangular, primarily composed of basalt.

Smear Slide:	Bag
Quartz	16
Feldspar	<1
Heavy minerals	2
Clay	2
Volcanic glass	79
Diatoms	<1
Sponge spicules	1

GB 85-44: Bag (188 grams). Ash-bearing sandy mud, olive gray (5Y 3/2); 12 mm subangular basaltic pebble.

Smear Slide:	Bag
Quartz	45
Feldspar	1
Heavy minerals	5
Clay	10
Volcanic glass	36
Diatoms	2
Sponge spicules	1

GB 85-53: Bags (270 grams, 269 grams, 205 grams). Mud, light olive gray (5Y 5/2); fine to coarse, angular to subangular pebbles abundant.

GB 85-56: Bags (422 grams, 356 grams, 309 grams). Mud, moderate olive brown (5Y 4/4); very fine to fine, angular pebbles sparsely scattered.

Smear Slide:	Bag
Quartz	63
Feldspar	2
Mica	<1
Heavy minerals	12
Clay	18
Volcanic glass	5
Diatoms	<1
Sponge spicules	<1

GB 85-61: Bag (207 grams). Muddy diatomaceous ooze, moderate olive brown (5Y 4/4).

GB 85-62: Bags (206 grams, 200 grams). Muddy diatomaceous ooze, light olive gray (5Y 5/2).

GB 85-64: Bag (289 grams). Muddy diatomaceous ooze, moderate olive brown (5Y 4/4).

Smear Slide:	Bag
Quartz	37
Feldspar	<1
Mica	<1
Heavy minerals	4
Clay	5
Volcanic glass	1
Diatoms	52
Sponge spicules	1
Silicoflagellates	<<1

GB 85-66: Bag (172 grams). Diatomaceous ooze, light olive gray (5Y 5/2).

GB 85-67: Bag (183 grams). Muddy diatomaceous ooze, light olive gray (5Y 5/2).

GB 85-68: Bag (265 grams). Muddy diatomaceous ooze, light olive gray (5Y 5/2); 13 mm subangular flat pebble.

Smear Slide:	Bag
Quartz	23
Feldspar	<1
Mica	<<1
Heavy minerals	1
Clay	12
Volcanic glass	1
Diatoms	63
Radiolarians	<1
Sponge spicules	<1

GB 85-70: Bag (465 grams). Pebbles, grayish black (N2) with minor matrix of muddy diatomaceous ooze, moderate olive brown (5Y 4/4); pebbles are coarse, moderately well sorted, angular to subangular; sponge spicules up to 10 mm common.

Smear Slide:	Bag
Quartz	48
Feldspar	<1
Mica	<1
Heavy minerals	2
Clay	17
Volcanic glass	11
Carbonate unspec.	<<1
Ostracods	<<1
Diatoms	20
Radiolarians	<<1
Sponge spicules	2
Silicoflagellates	<<1

GB 85-71: Bag (160 grams). Muddy diatomaceous ooze, light olive gray (5Y 5/2).

GB 85-73: Bag (303 grams). Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); 9 mm subangular, basaltic pebble; 11 mm fragment of "seagrass".

Smear Slide:	Bag
Quartz	21
Feldspar	<1
Heavy minerals	1
Clay	14
Volcanic glass	<1
Foraminifera	<<1
Diatoms	63
Radiolarians	<<1
Sponge spicules	1
Silicoflagellates	<<1

GB 85-74: Bag (156 grams). Muddy diatomaceous ooze, moderate olive brown (5Y 4/4); 5 mm angular pebble.

GB 85-77: Bag (37 grams). Pebbles, olive black (5Y 2/1) with minor matrix of sandy diatomaceous ooze, moderate olive brown (5Y 4/4); pebbles are very fine to fine, well sorted, angular to subangular.

GB 85-79: Bag (257 grams). Muddy diatomaceous ooze, moderate olive brown (5Y 4/4).

GB 85-80: Bags (114 grams, 59 grams). Pebbles, dark greenish gray (5GY 4/1) with minor matrix of sandy diatomaceous mud, moderate olive brown (5Y 4/4); pebbles are medium, moderately well sorted, angular.

Smear Slide:	Bag
Quartz	59
Feldspar	<1
Mica	<<1
Heavy minerals	1
Clay	20
Volcanic glass	2
Glauconite	<1

Diatoms	18
Radiolarians	<<1
Sponge spicules	<1
Silicoflagellates	<<1

GB 85-81: Bag (243 grams). Diatomaceous mud, light olive gray (5Y 5/2).

GB 85-83: Bags (281 grams, 70 grams). Pebbly sandy mud, light olive gray (5Y 5/2); pebbles are fine, angular to subangular.

Smear Slide:	Bag
Quartz	55
Feldspar	<1
Heavy minerals	2
Clay	27
Volcanic glass	9
Rock Fragments	4
Diatoms	2
Radiolarians	<1
Sponge spicules	1

GB 85-86: Bag (243 grams). Muddy diatomaceous ooze, light olive gray (5Y 5/2).

GB 85-87: Bag (245 grams). Muddy diatomaceous ooze, light olive gray (5Y 5/2).

GB 85-89: Bag (356 grams). Mud, grayish olive (10Y 4/2).

Smear Slide:	Bag
Quartz	65
Feldspar	<1
Mica	<1
Heavy minerals	15
Clay	7
Volcanic glass	3

Diatoms	8
Radiolarians	<1
Sponge spicules	2

GB 85-92: Bag (420 grams). Pebbly sandy diatomaceous mud, grayish olive (10Y 4/2); pebbles are fine to coarse, angular to subangular.

GB 85-93: Bag (323 grams). Mud, moderate olive brown (5Y 4/4); very fine to fine, angular pebbles sparsely scattered; 16 mm angular pebble.

GB 85-94: Bag (211 grams). Mud, light olive gray (5Y 5/2).

GB 85-110: Bag (396 grams). Mud, light olive gray (5Y 5/2); very fine to medium, subangular pebbles abundant; 25 mm angular pebble.

GB 85-111: Bag (402 grams). Mud, light olive gray (5Y 5/2); very fine to medium, angular pebbles sparsely scattered; 23 mm angular pebble.

GB 85-112: Bag (413 grams). Mud, light olive gray (5Y 5/2); very fine to coarse, angular pebbles abundant.

GB 85-113: Bag (281 grams). Mud, light olive gray (5Y 5/2); fine angular pebbles abundant.

GB 85-127: Bags (402 grams, 263 grams). Very fine sand, moderate olive brown (5Y 4/4); very well sorted.

Smear Slide:	Bag
Quartz	78
Feldspar	<1
Mica	<1
Heavy minerals	12
Clay	<1
Volcanic glass	6
Diatoms	2

Sponge spicules 2

GB 85-129: Bag (226 grams). Diatomaceous mud, moderate olive brown (5Y 4/4); very fine, angular pebbles sparsely scattered.

REFERENCES

Anderson, J.B., 1985a, Deep Freeze 85 Cruise Report. Rice University, Department of Geology, Houston, Texas, 16 p.

Anderson, J.B., 1985b, Preliminary results from the USCGC *Glacier* 1985 cruise. Antarctic Journal of the United States 19(5):81-85.

Anderson, J.B., 1988, Marine geophysical survey of the Antarctic Peninsula continental shelf (63°W to 68°W): Preliminary results. Antarctic Journal of the United States 23(5):91-94.

Anderson, J.B., 1991, USAP 91 marine geology-geophysics cruise report and R/V *Polar Duke* equipment status. Preliminary results of high resolution seismic and coring surveys in the Antarctic Peninsula region.

Anderson, J.B., and Bartek, L.R., 1990, Preliminary results of a high-resolution seismic reflection survey of the Ross Sea continental shelf. Antarctic Journal of the United States 25(5):61-63.

Anderson, J.B., DeMaster, D.J., and Nittrouer, C.A., 1986, Preliminary results from marine geological cruises aboard the U.S. Coast Guard icebreaker *Glacier*. Antarctic Journal of the United States 21(5):144-148.

Anderson, J.B., Bartek, L.R., and Reid, D.E., 1987, Preliminary results of a 1986-1987 austral summer marine geological survey of the western Ross Sea. Antarctic Journal of the United States 22(5):120-122.

Anderson, J.B. Kennedy, D.S., Smith, M.J., and Domack, E.W., 1991, Sedimentary facies associated with Antarctica's floating ice masses. In: Anderson, J.B., and Ashley G.M., (eds.), Glacial Marine Sedimentation; Paleoclimatic Significance. Geological Society of America Special Paper 261, pp. 1-25.

Domack, E.W., 1988, Depositional environments of the antarctic continental shelf: Fjord studies from the R/V *Polar Duke*. Antarctic Journal of the United States 23(5):96-102.

Barrett, P.J., 1982, Proposal for Cenozoic Investigations in the Western Ross Sea (CIROS). New Zealand Antarctic Record 4(2):32-39.

Barrett, P.J., 1985, Drill core details antarctic glacial history. New Zealand Antarctic Record 6(3):39.

Barrett, P.J., 1987, Oligocene sequence cored at CIROS-1, western McMurdo Sound. New Zealand Antarctic Record 7(3):1-7.

Barrett, P.J., et al., 1985, Plio-Pleistocene glacial sequence cored at CIROS-2, Ferrar Fjord, western McMurdo Sound. New Zealand Antarctic Record 6(2):8-19.

Cassidy, D.S., 1985, Antarctic Marine Geology Research Facility and Core Library, 1984-1985. Antarctic Journal of the United States 20(5):251-252.

Cassidy, D.S., and Devore, G.W., 1973, Antarctic Marine Geology Research Facility and Core Library. Antarctic Journal of the United States 8(3):120-128.

Cassidy, D.S., Kaharoeddin, F.A., Zemmels, I., and Knapp, M.B., 1977a, USNS *ELTANIN*: An inventory of core location data, with core location maps and cruise 55 core descriptions. Contribution No. 44, Sedimentology Research Laboratory, Department of Geology, Florida State University, Tallahassee, 90 p.

Cassidy, D.S., Ciesielski, P.F., Kaharoeddin, F.A., Wise, S.W., Jr., and Zemmels, I., 1977b, ARA *ISLAS ORCADAS* Cruise 0775 sediment descriptions. Contribution No.45, Sedimentology Research Laboratory, Department of Geology, Florida State University, Tallahassee, 76 p.

Clough, J.W., and Hansen, B.L., 1979, The Ross Ice Shelf Project. Science 203(4379):433-34.

Denton, G.H., and Hughes, T.J., 1981, The Last Great Ice Sheets. New York: John Wiley and Sons.

Dry Valley Drilling Project, 1974, Dry Valley Drilling Project (DVDP), Bulletin No. 3, Department of Geology, Northern Illinois University, DeKalb, 239 p.

Dry Valley Drilling Project, 1975, Dry Valley Drilling Project (DVDP), Bulletin No. 5, Mudrey, M.G., Jr., and McGinnis, L.D., (eds.), Department of Geology, Northern Illinois University, DeKalb, 280 p.

Dry Valley Drilling Project, 1976, Dry Valley Drilling Project (DVDP), Bulletin No. 7, Barrett, P.J., and Treves, S.B., (eds.), Department of Geology, Northern Illinois University, DeKalb, 126 p.

Elston, D.P., Rieck, H.J., and Robinson, P.H., 1983, Dry Valleys/McMurdo Sound magnetostratigraphy and sedimentology. Antarctic Journal of the United States 18(5):29-31.

Elston, D.P., Robinson, P.H., and Bressler, S.L., 1981, Stratigraphy, sedimentology, and paleomagnetism of the Coral Ridge Sand Body, Eastern Taylor Valley, Victorialand, Antarctica. U.S. Geological Survey Open File Report 81-1303, Flagstaff, Arizona, 68 p.

Fisher, R.V., 1961, Proposed classification of volcaniclastic sediments and rocks. Geological Society of America Bulletin 72:1409-1414.

Fisher, R.V., 1966, Rocks composed of volcanic fragments and their classification. Earth Science Review 1:287-298.

Frakes, L.A., 1971, USNS *ELTANIN* Cruises 32-45, core descriptions. Contribution No. 33, Sedimentology Research Laboratory, Department of Geology, Florida State University,

Tallahassee, 105 p. (NOTE: In this publication are described only the piston cores of *ELTANIN* Cruises 32-45; see Frakes, 1973, for descriptions of other materials from these cruises.)

Frakes, L.A., 1973, USNS *ELTANIN* Cruises 4-54, sediment descriptions. Contribution No. 37, Sedimentology Research Laboratory, Department of Geology, Florida State University, Tallahassee, 259 p. (Note: This volume consists of piston core descriptions for *ELTANIN* Cruises 47-54, trigger and Phleger core descriptions for *ELTANIN* Cruises 32-54, and descriptions of dredge, trawl, and grab-retrieved sediments from *ELTANIN* Cruises 4-54.)

Goddard, E.N., Trask, P.D., DeFord, R.K., Rove, O.N., Singlewald, J.T. Jr., and Overbeck, R.M., 1970, Rock-Color Chart. Geological Society of America, Boulder, Colorado.

Goodell, H.G., 1964, Marine geology of the Drake Passage, Scotia Sea, and South Sandwich Trench. Contribution No. 7, Sedimentology Research Laboratory, Department of Geology, Florida State University, Tallahassee, 277 p. (NOTE: This publication provides sediment descriptions of *ELTANIN* Cruises 1-8 piston, trigger, and Phleger cores.)

Goodell, H.G., 1965, Marine geology, *USNS ELTANIN* Cruises 9-15. Contribution No. 11, Sedimentology Research Laboratory, Department of Geology, Florida State University, Tallahassee, 237 p. (NOTE: This publication provides sediment descriptions of *Eltanin* Cruises 9-15 piston, trigger, and Phleger cores.)

Goodell, H.G., 1968, USNS *ELTANIN* Cruises 16-27, core descriptions. Contribution No. 25, Sedimentology Research Laboratory, Department of Geology, Florida State University, Tallahassee, 247 p.

Haase, H., 1984, Marine geology, Sea Beam and 3.5 kHz measurements during the German Antarktis II expedition. Berichte zur Polarforschung, p. 129-136.

Harrington, P.K., Barker, P.F., and Griffiths, D.H., 1972, Crustal structure of the South Orkney Islands area from seismic refraction and magnetic measurements. In: Adie, R.J., (ed.), Antarctic Geology and Geophysics. Oslo:Universitetsforlaget.

Herron, M.J., and Anderson, J.B., 1990, Late Quaternary glacial history of the South Orkney Plateau, Antarctica. Quaternary Research 33:265-275.

Jeffers, J.D., 1987, Preliminary results of marine geological and geophysical investigations in the Bransfield Strait, Antarctic Peninusula. Antarctic Journal of the United States 22(5):131-134.

Jeffers, J.D., and Anderson, J.B., 1986, Sedimentation and tectonics in the Bransfield Strait--A preliminary report. Antarctic Journal of the United States 21(5):141-143.

Jeffers, J.D., and Anderson, J.B., 1990, Sequence stratigraphy of the Bransfield Basin, Antarctica: Implications for tectonic history and hydrocarbon potential. In: St.John, B., (ed.), Antarctica as an Exploration Frontier--Hydrocarbonl Potential, Geology, and Hazards. American Association of Petroleum Geologists Studies in Geology no. 31, pp. 13-29.

Jeffers, J.D., Anderson, J.B., and Lawver, L.A., 1991, Evolution of the Bransfield basin, Antarctic Peninsula. In: Thomson, M.R.A., Crame, J.A., and Thomson, J.W., (eds.), Geological Evolution of Antarcitca. Cambridge University Press, pp. 481-485.

Kaharoeddin, F.A., 1978, ARA *ISLAS ORCADAS* Cruise 1176 sediment descriptions. Contribution No. 46, Sedimentology Research Laboratory, Florida State University, Tallahassee, 124 p.

Kaharoeddin, F.A., Eggers, M.R., Goldstein, E.H., Graves, R.S., Watkins, D.K., Bergen, J.A., Jones, S.C., 1980, ARA *ISLAS ORCADAS* Cruise 1578 sediment descriptions. Contributions No. 48, Sedimentology Research Laboratory, Florida State University, Tallahassee, 162 p.

Kaharoeddin, F.A., Eggers, M.R., Graves, R.S., Goldstein, E.H., Hattner, J.G., Jones, S.C., Ciesielski, P.F., 1979, ARA *ISLAS ORCADAS* Cruise 1277 sediment descriptions. Contribution No. 47, Sedimentology Research Laboratory, Florida State University, Tallahassee, 108 p.

Kaharoeddin, F.A., Graves, R.S., Bergen, J.A., Eggers, M.R., Harwood, D.M., Humphreys, C.L., Goldstein, E.H., Jones, S.C., Watkins, D.K., 1982, ARA *ISLAS ORCADAS* Cruise 1678 sediment descriptions. Contribution No. 50, Sedimentology Research Laboratory, Florida State University, Tallahassee, 172 p.

Kaharoeddin, F.A., Russell, M.D., Weiterman, S.D., Cooper, C.R., Lang, T.H., Clark, D.R., Covington, J.M., Firth, J.V., Applegate, J.L., Knuttel, S., Breza, J.R., 1988, The United States Antarctic Research Program in the western Ross Sea, 1979-1980: The sediment descriptions. Sedimentology Research Laboratory Contribution No. 53, Department of Geology, Florida State University, Tallahassee, 230 p.

Kellogg, T.B., and Kellogg, D.E., 1987, Recent glacial history and rapid ice stream retreat in the Amundsen Sea. Journal of Geophysical Research, 92(B9):8859-8864.

Kennedy, D.S., and Anderson, J.B., 1986, Preliminary results of marine geologic investigations, Marguerite Bay, Antarctic Peninsula. Antarctic Journal of the United States 21(5):149-151.

Kennedy, D.S., and Anderson, J.B., 1989, Glacial-marine sedimentation and Quaternary glacial history of Marguerite Bay, Antarctic Peninsula. Quaternary Research 31:255-276.

Lawver, L.A., and Villinger, H., 1989, North Bransfield Basin: R/V Polar Duke cruise PD VI-88. Antarctic Journal of the United States 24(5):117-11.

McGinnis, L.D., 1979, The Dry Valley Drilling Project--an exercise in international cooperation--viewpoint from the United States. In: Nagata, T. (Ed.), Proceedings of the Seminar III on Dry Valley Drilling Project, 1978. Memoirs of National Institute of Polar Research, Special Issue No. 13:1-21. Tokyo, Japan.

Pyne, A.R., Robinson, P.H., Barrett, P.J., 1985, Core log, description and photographs, CIROS 2, Ferrar Fjord, Antarctica. Antarctic Data Series No. 11. Victoria University of Wellington,

New Zealand, 80 p.

Robinson, P.H., 1983, Preliminary report on the lithostratigraphy and sedimentary history of the near surface glacigenic drill-core sediment of eastern Taylor Valley, Antarctica. New Zealand Geological Survey Report No. G77, Department of Scientific and Industrial Research, Lower Hutt, New Zealand, 26p.

Robinson, P.H., 1985, A record of Ross Ice Sheet glaciations from eastern Taylor Valley drill cores, Antarctica. New Zealand Antarctic Record (special supplement) 6: 32-39.

Robinson, P.H. and Jaegers, A., 1984, The lithologic logs of eastern Taylor Valley (ETV) cores 2 to 13, South Victoria Land, Antarctica. New Zealand Geological Survey Report No. G89, Department of Scientific and Industrial Research, Lower Hutt, New Zealand, 34 p.

Robinson, P.H., Elston, D.P., Rieck, H.J., 1984, Drilling in eastern Taylor Valley, Antarctica, 1982-83: some preliminary results. Polar Record 22(136):73-78.

Robinson, P.H., Pyne, A.R., Hambrey, M.J., Hall, K.J., Barrett, P.J., 1987, Core log, photographs and grain size analyses from the CIROS-1 drillhole, western McMurdo Sound, Antarctica. Antarctic Data Series No. 14, Victoria University of Wellington, New Zealand, 241 p.

Sugden, D.E., and John, B.S., 1973, The ages of glacier flucuations in te South Shetland Islands, Antarctica. In: van Zinderen, E.M., (ed.), Paleoecology of Africa and the Surrounding Islands and Antarctica. VIII Balkema, Cape Town, pp. 139-159.

Terry, R.D., and Chilingar, G.V., 1955, Summary of "concerning some additional aids in studying sedimentary formations" by M.S. Shvetsov. Journal of Sedimentary Petrology 25:229-234.

Torii, T., 1981, A review of the Dry Valley Drilling Project, 1971-76. Polar Record 20(129): 533-541.

Webb, P.N., 1978, Initial reports on geological materials collected at RISP Site J9, 1977-78. RISP Technical Report 78-1, Ross Ice Shelf Project Management Office, University of Nebraska, Lincoln, 46 p.

Webb, P.N., 1979, Initial reports on geological materials collected at RISP Site J9, 1978-79. RISP Technical Report 79-1, Ross Ice Shelf Project Management Office, University of Nebraska, Lincoln, 127 p.

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