COMPILATION OF ANALYTICAL DATA FOR PHOSPHATE-RICH SEDIMENTS IN ONSLOW BAY, NORTH CAROLINA

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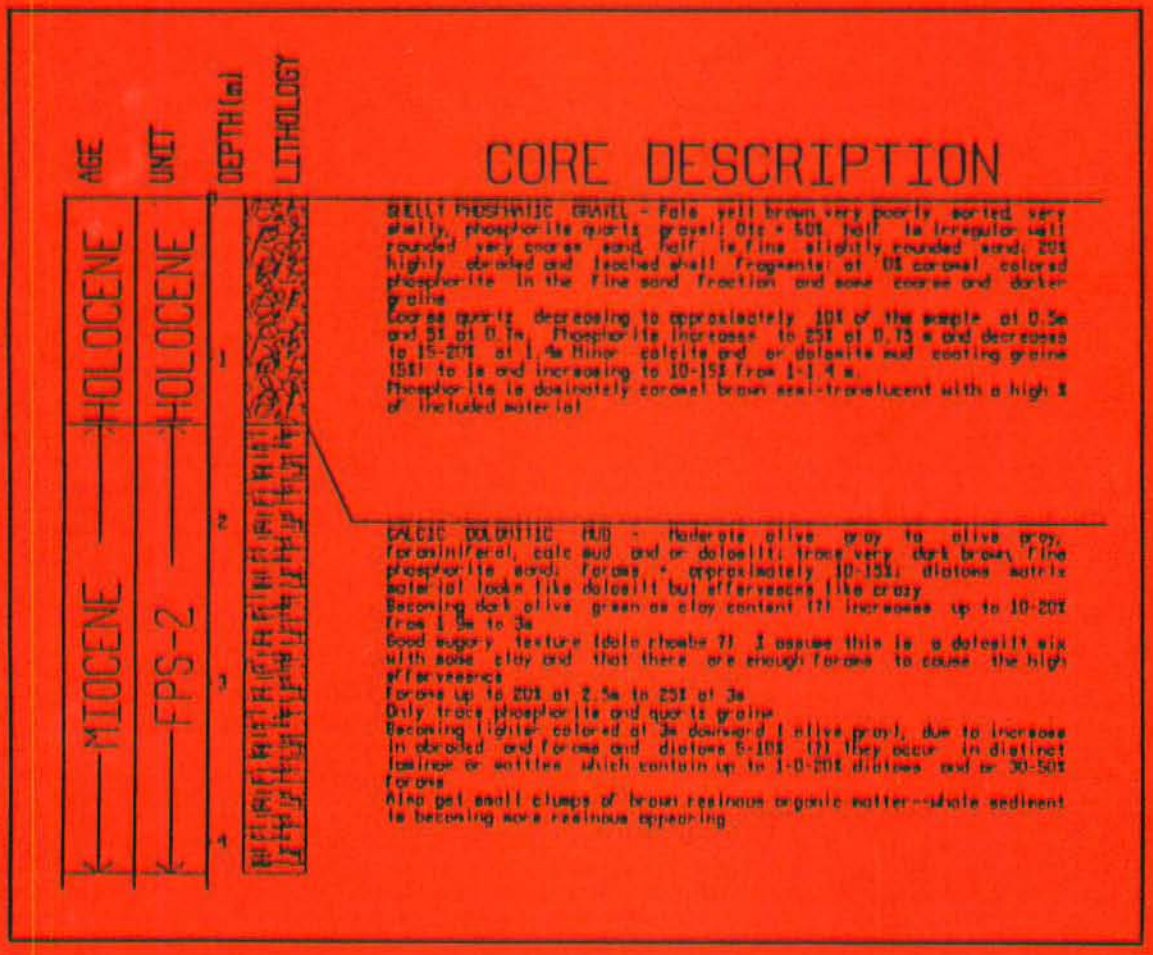

OPEN-FILE REPORT 93-36
NORTH CAROLINA GEOLOGICAL SURVEY
DIVISION OF LAND RESOURCES
DEPARTMENT OF ENVIRONMENT, HEALTH
AND NATURAL RESOURCES

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Charles H. Gardner, State Geologist

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Stanley R. Riggs, Dorothea v.d.P. Ames, Robert A. Wyrick, Katrina L. Lueck, Eric R. Powers, and Ronald A. Crowson[1]

ONSLOW BAY RESEARCH PROJECT

This compilation of analytical data for phosphate–rich sediments concerns the Upper Cenozoic geology of the Onslow Bay on the North Carolina continental margin as indicated in Figures 1 and 2. This study area is the Carolina phosphogenic province as defined by Riggs (1979, 1984) and represents the focus of an extended research program entitled *Genesis of the Upper Cenozoic Depositional Sequences of the Mid-Atlantic Continental Margin* with Stanley R. Riggs, Albert C. Hine, Scott W. Snyder, Stephen W. Snyder, and William J. Showers as co–principal investigators of various portions of the research. This extended research program began in 1979 and is still in progress, although at a slower pace than during the first decade. The data compiled in the present volume represents some of the analytical products of this research program on the Carolina phosphogenic province.

The included data are the results of research funded by the National Science Foundation (NSF) and the University of North Carolina Sea Grant College Program (UNCSGCP) of the National Oceanic and Atmospheric Administration (NOAA). Specific research grants during the period of 1979 through 1990 are listed below.

National Science Foundation Research Grants:

OCE–7908949 to S. R. Riggs and A. C. Hine
Submarine phosphorites in Onslow Bay, North Carolina: evaluation of an exploration model.

OCE–8110907 to S. R. Riggs and A. C. Hine
Submarine phosphorites in Onslow Bay, North Carolina: evaluation of an exploration model.

OCE–8118164 to S. R. Riggs and A. C. Hine
Genesis of the phosphorite sediment sequence on the mid–Atlantic continental margin.

OCE–8342777 to A. C. Hine, Stephen W. Snyder, and S. R. Riggs Seismic stratigraphy of the North Carolina estuarine system.

OCE–8400383 to S. R. Riggs, A. C. Hine, and Scott W. Snyder
Genesis of the phosphorite sediment sequence on the mid–Atlantic continental margin.

OCE–8540985 to S. R. Riggs and A. C. Hine
Geologic and biologic impacts of Hurricane Diana on the outer continental shelf, Frying Pan Shoals region, North Carolina.

[1] Work performed by authors while affiliated with the Department of Geology, East Carolina University, Greenville, North Carolina 27858

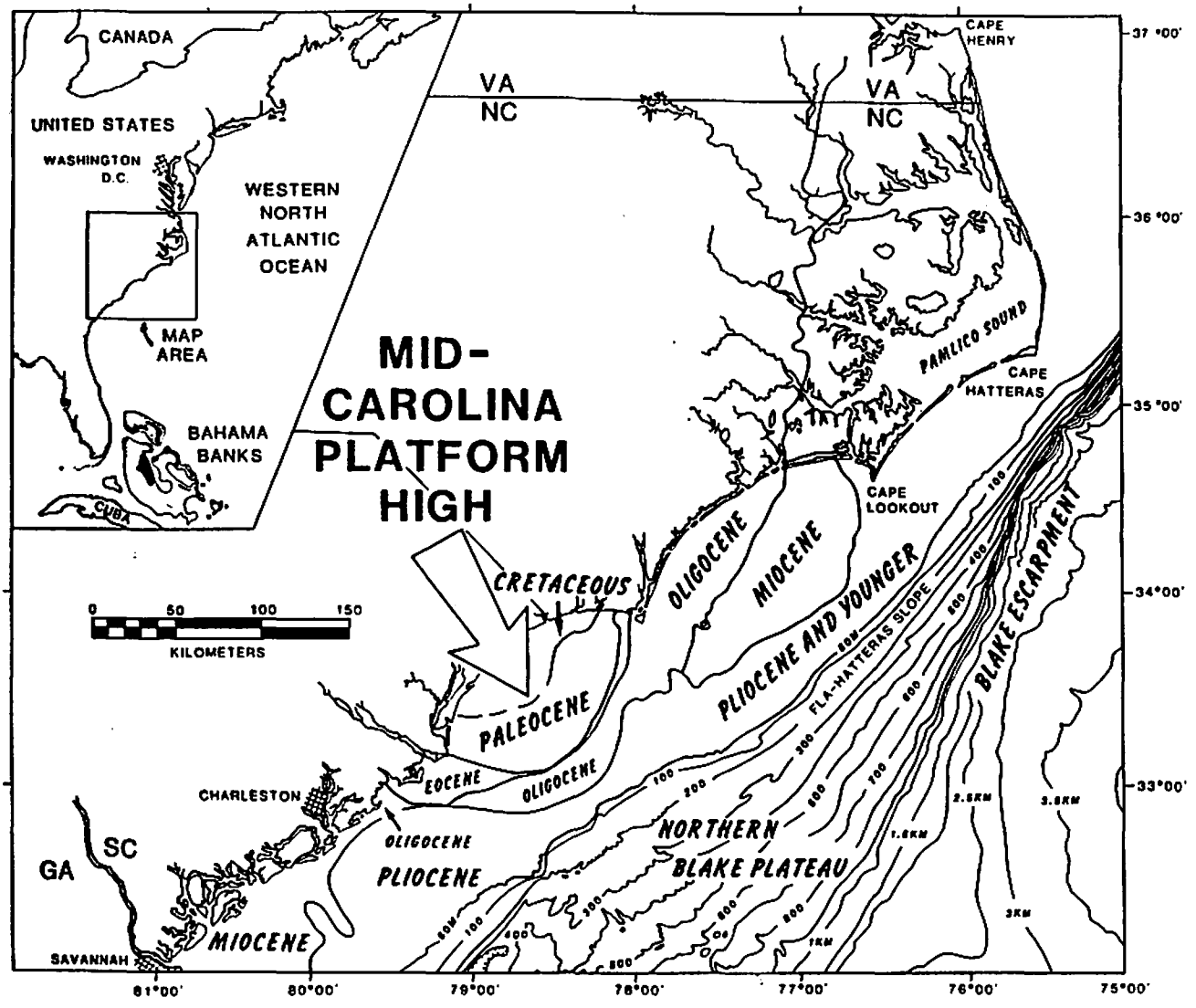


Figure 1. Distribution of outcropping Cenozoic and Cretaceous sequences within the continental shelf of the Carolinas and Georgia as mapped from chronostratigraphic correlations via seismic–reflection studies (modified from Stephen W. Snyder, 1982). Note that the Miocene sequences only crop out on the sea floor across the limbs of the Mid–Carolina Platform High and are partially missing from the nose of this first–order paleotopographic feature; the remaining Miocene sediment has been buried by Pliocene and Quaternary shelf–margin sediments.

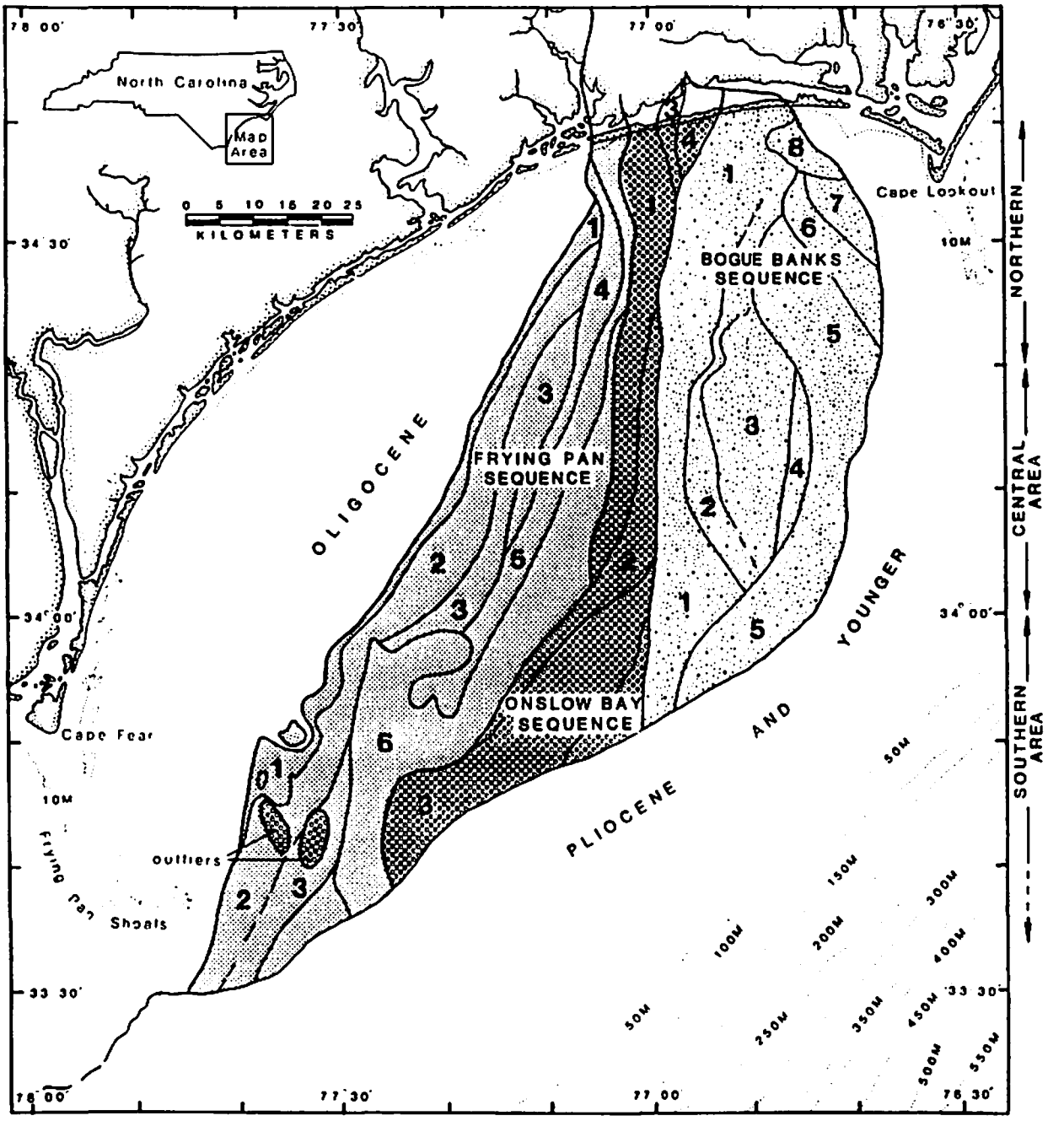


Figure 2. Outcrop distribution map of Onslow Bay, North Carolina showing 16 fourth–order seismic sequences of the Miocene Pungo River Formation. Also, shown on the map are the three third–order seismic, biostratigraphic, and depositional sections referred to as the Frying Pan (FPS), Onslow Bay (OBS), and Bogue Banks Sections (BBS) of mid–Burdigalian, Langhian, and Serravallian ages, respectively. Modified from Stephen W. Snyder (1982) by Mallette (1986).

OCE–8609161 to S. R. Riggs, A. C. Hine, and Scott W. Snyder
Genesis of the phosphorite sediment sequence on the mid–Atlantic continental margin.
OCE–8709429 to S. R. Riggs
Isotopic composition of the Miocene phosphorite sediment on the Carolina continental margin: a detailed record of glacio–eustatic sea–level cyclicity.
OCE–8710311 to W. J. Showers
Isotopic composition of the Miocene phosphorite sediment on the Carolina continental margin: a detailed record of glacio–eustatic sea–level cyclicity.

University of North Carolina Sea Grant College Program of the National Oceanographic and Atmospheric Administration Research Grants:

NA83AA–D–SG012 to Scott W. Snyder and S. R. Riggs
Micropaleontological characterization and correlation of the continental shelf phosphorites, Onslow Bay, North Carolina.
NA85AA–D–SG022 to 1) Scott W. Snyder and S. R. Riggs
Relationship of microfauna to post–depositional changes in cyclical Neogene sedimentary sequences of Onslow Bay.
NA85AA–D–SG023 to 2) S. R. Riggs, A. C. Hine, and Scott W. Snyder
Carbonate hardgrounds in Onslow Bay, North Carolina.

Preparation and publication of this specific document is the result of a grant from the **U.S. Department of Interior, Minerals Management Service** to S. R. Riggs with the assistance of the **North Carolina Geological Survey**.

Publications resulting directly from this extended research project include 54 peer–reviewed manuscripts appearing in professional journals, monographs, and as chapters in technical books, and 88 abstracts appearing in abstract volumes. Several synthesis papers are being prepared for publication during the next few years. In fact, this long–term research project continues, but with a slightly different focus that considers the following:

- Isotope stratigraphy (including strontium age dating of various sediment components) within the Upper Cenozoic
- Isotope and trace element geochemistry (including oxygen, carbon, and neodymium isotopes) of the phosphate sediment component
- Quaternary history and role of hardbottoms in biological productivity on the continental shelf.

The results from this extended research program have been published in many different places and formats. The references and abstracts for all project publications have been summarized and published in the following volume:

Riggs, S. R., and Ames, D. v. d. P., 1992, Upper Cenozoic geology of the Onslow Bay and Aurora Embayments, North Carolina: compilation of published abstracts from the literature: North Carolina Geological Survey Information Circular 28, 209 p.

The seismic database is being published separately by the North Carolina Geological Survey as the *Miocene Seismic Library for the North Carolina Continental Shelf south of Cape Lookout* by Stephen W. Snyder (in preparation as a North Carolina Geological Survey open-file report) and a color map with cross sections titled *Miocene Geology of the Continental Shelf,*

Onslow Bay, North Carolina by Stephen W. Snyder, A. C. Hine, S. R. Riggs, and Scott W. Snyder (North Carolina Geological Survey Map 3, 1993). The biostratigraphic database was published in Scott W. Snyder (1988). The phosphate resource database for Onslow Bay has been published in numerous formats and upgraded over the years as increased information has become available and include Riggs and others (1982, 1985), Development Planning and Research Associates (1987), Riggs (1989), and Powers and others (1990).

Personnel associated with this multidisciplinary, Onslow Bay project include many senior researchers from numerous universities and government agencies, as well as many graduate students. Additional analytical data are available from the 25 M.S. theses and 2 Ph.D. dissertations completed as part of this project. Abstracts for each of these 25 M.S. theses are included in Riggs and Ames (1992). These unpublished theses contain additional data on the various phosphate–bearing stratigraphic units including the Miocene Pungo River Formation, Pleistocene carbonates, and the surficial Holocene sands. The data include: 1) various types of remotely sensed stratigraphic and structural surveys; 2) biostratigraphic age evaluations; 3) many types of elemental and isotopic analyses; 3) mineralogic and petrographic evaluations of the sediments; 4) textural measurements on specific sediment components; and 5) evaluations of stratigraphic facies and depositional environments. The theses are from the five institutions listed below and are available from each institution through the appropriate interlibrary loan programs.

East Carolina University, Greenville, North Carolina 27858.
North Carolina State University, Raleigh, North Carolina 27650.
University of South Florida, St. Petersburg, Florida 33701.
University of North Carolina-Chapel Hill, North Carolina 27514.
Duke University, Durham, North Carolina 27706.

Two Ph.D. dissertations are in their final stages by Ronald A. Crowson at North Carolina State University and Stephen W. Snyder at the University of South Florida. These dissertations concern the isotope geochemistry of the Onslow Bay phosphorites and the seismic stratigraphy of the Onslow Bay Tertiary section, respectively.

PURPOSE AND SCOPE OF PRESENT PUBLICATION

The purpose of the present document is to publish the general databases produced by various analytical aspects of the phosphate–rich sediments resulting from the Onslow Bay research project. This report does not include any remotely sensed data (high–resolution seismic, side–scan sonar, and bottom video and photographic surveys), water–column and pore–water chemistry, paleontological analyses, or any of the specialized databases that are included in the unpublished theses and dissertations done as part of this project. As previously stated, all of these data are available through other publications.

The samples utilized to develop the analytical databases included in this publication were obtained during the 11 research cruises outlined in Table 1. Table 2 summarizes the types and numbers of shipboard samples that were obtained during the research cruises. These samples form the basis for the analytical data presented in this report which includes the following:

Sample locations
Stratigraphic units occurring in vibracores
Chemical data for vibracore and surface bulk–sediment samples
Chemical data for surface bulk–sediment samples from the archives
Organic data for bulk–sediment samples
Textural data for SHIPEK surface samples
Metallurgical analysis of phosphate from vibracore samples
Chemical analysis of phosphate concentrates from metallurgical tests
Chemical analysis of hand–picked concentrates of phosphate grain types
Geologic logs for Miocene–bearing vibracores

Table 1. Research cruises and data obtained for the Onslow Bay continental shelf research project.

CRUISE	SHIP	DATA *	DATES	DAYS
I	R/V Eastward	C, SS, HRS	May, 1980	19
II.	R/V Endeavor	VC, SS, HRS	Oct., 1980	10
III.	R/V Columbus Iselin	VC, SS, HRS	May, 1981	18
IV.	R/V Cape Hatteras	VC, SS, HRS	May, 1982	19
V.	R/V Cape Hatteras	VC, SS, HRS, SSS	May, 1983	17
VI.	R/V Nitro	Estuarine HRS	June, 1983	20
VII.	R/V Cape Hatteras	BC, SS, HRS, SSS	Oct., 1983	5
VIII.	R/V Cape Hatteras	BC, SS, HRS, SSS, V	Dec., 1984	4
IX.	R/V Peirce	BC, SS, HRS, SSS	Dec., 1985	4
X.	R/V Cape Hatteras	BC, SS, HRS, WC	June, 1989	5
XI.	R/V Cape Hatteras	BC, SS, HRS, SSS, WC	May, 1991	6

* VC = vibracores; SS = surface samples; BC = boxcores;
HRS = high–resolution seismic profiles (Uniboom™, sparker, 1 in^3 airgun); SSS = side–scan sonar profiles; V = bottom video profiles;
WC = water chemistry

Table 2. Shipboard samples obtained on 11 research cruises for the Onslow Bay continental shelf research project. These samples form the basis for the analytical data included in this report.

SAMPLE TYPE	AVERAGE PENETRATION	QUANTITY
Vibracores	< 9 meters	141
Stratigraphic section	meters	923
SHIPEK surface samples	centimeters	313
Rock–dredge hauls	< .25 meters	30
Boxcores	< .5 meters	34
Gravity cores	< 1 meter	2

SAMPLE LOCATIONS

This data file presents pertinent location information for samples obtained from shipboard in Onslow Bay, North Carolina during the Onslow Bay project. The samples were obtained as vibracores, box cores, and gravity cores, as well as surface samples obtained with SHIPEK and rock–dredge samplers. Figure 3 presents the location of vibracores that penetrated the Pungo River Formation. The key for the types of shipboard samples and included data is as follows.

Column 1: SAMPLE

OB–11	Onslow Bay vibracore number 11
LB–3	Long Bay vibracore number 3
OBS–17	Onslow Bay SHIPEK sample number 17
OBS–175 (153)	active sample number (old sample number)
RBS–12	Raleigh Bay SHIPEK sample number 12
OBD–6	Onslow Bay rock dredge sample number 6. The first entry represents the time and location of rock dredge deployment; the second entry is the time and location of rock dredge retrieval.
OB–BC–15	Onslow Bay box core number 15
OBG–3	Onslow Bay gravity core number 3

Column 2: LATITUDE

Latitude location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 3: LONGITUDE

Longitude location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 4: STATION

The ship's station number, where available

Column 5: CRUISE

The ship and cruise numbers are as follows:

E–3–80	NSF ship R/V Eastward, cruise 3 of 1980
EN–057	NSF ship R/V Endeavor, cruise 57 of 1980
I–8105	NSF ship R/V Columbus Iselin, cruise 5 of 1981
CH–13–82	NSF ship R/V Cape Hatteras, cruise 13 of 1982; similar number system is used for all 6 of the Cape Hatteras cruises
RV Peirce	NOAA ship R/V Peirce cruise of 1985

Column 6: LORAN1

First Loran C reading at sample site

Column 7: LORAN2

Second Loran C reading at sample site

Column 8: DATE

Date sample obtained

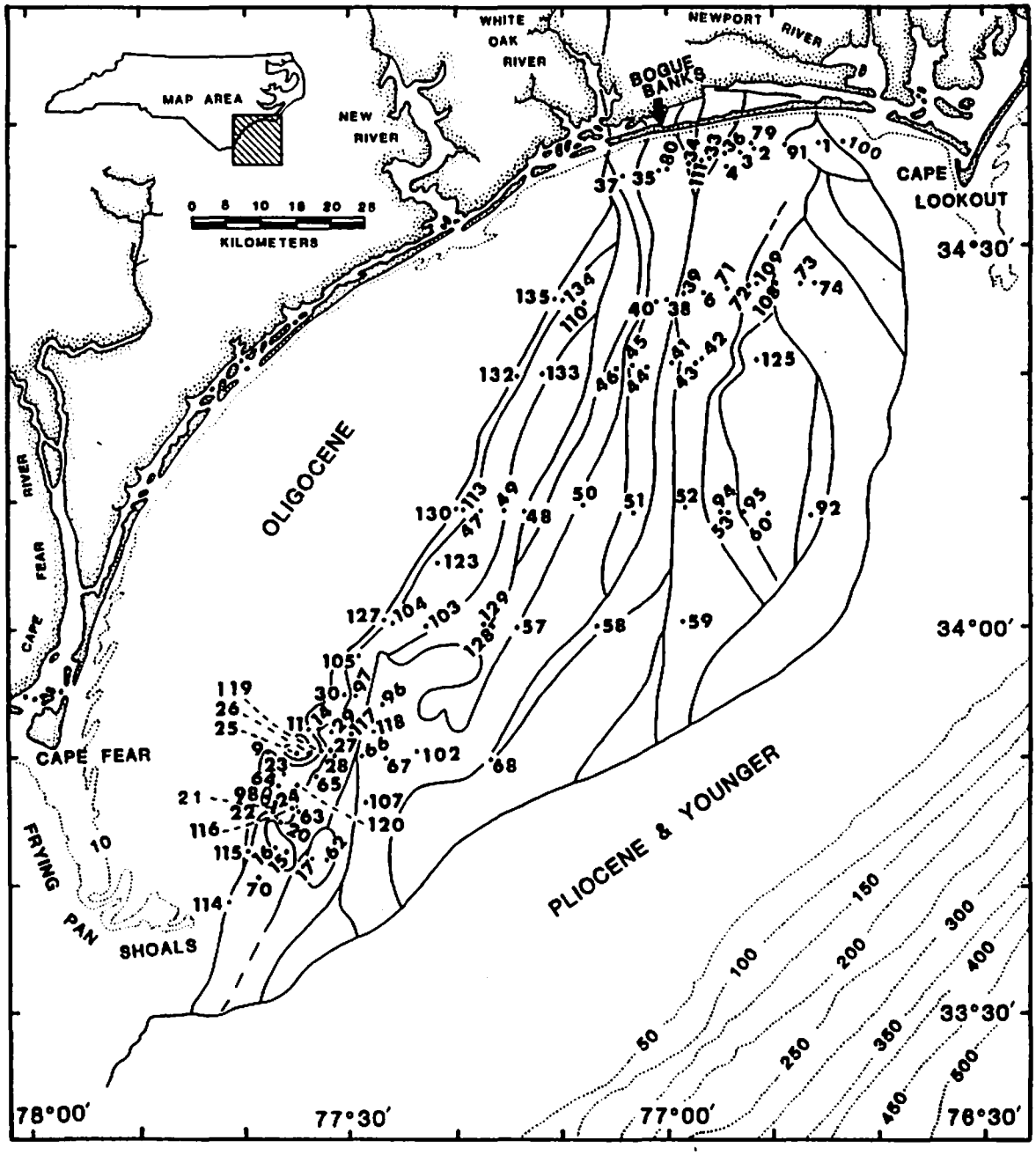


Figure 3. Location of 95 vibracores that penetrated the sediments of the Miocene Pungo River Formation in Onslow Bay, North Carolina (from Scott W. Snyder, 1988).

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OB-1	34.640	76.760	38059	E-3-80	27131.6	39637.3	12-May-80
OB-2	34.633	76.865	38060	E-3-80	27147.7	39607.4	12-May-80
OB-2B	34.467	76.865	38060	E-3-80	27147.7	29607.4	12-May-80
OB-3	34.628	76.090	38062	E-3-80	27152.3	39599.2	13-May-80
OB-4	34.608	76.913	38063	E-3-80	27154.2	39581.3	13-May-80
OB-5	34.636	76.700	38064	E-3-80	27118.9	39651.1	14-May-80
OB-6	34.443	76.943	38068	E-3-80	27148.4	39481.0	15-May-80
OB-6B	34.443	76.943	38068	E-3-80	27148.4	39481.1	14-May-80
OB-7	33.855	77.611	38116	E-3-80	27222.0	57551.7	19-May-80
OB-8	33.853	77.656	38117	E-3-80	27227.1	57539.4	19-May-80
OB-9	33.851	77.628	38118	E-3-80	27222.2	57546.8	19-May-80
OB-10	33.855	77.641	38119	E-3-80	27224.8	57543.7	19-May-80
OB-11	33.860	77.578	38120	E-3-80	27215.0	57561.9	19-May-80
OB-12	33.866	77.590	38121	E-3-80	27217.2	57558.6	19-May-80
OB-13	33.861	77.601	38122	E-3-80	27219.0	57555.3	19-May-80
OB-14	33.861	77.565	38123	E-3-80	27209.3	39065.5	19-May-80
OB-15	33.713	77.603	38124	E-3-80	27208.0	57535.1	19-May-80
OB-16	33.685	77.623	38127	E-3-80	27211.5	57530.9	20-May-80
OB-17	33.706	77.570	38128	E-3-80	27201.9	57542.8	20-May-80
OB-18	33.728	77.671	38129	E-3-80	27220.1	57519.7	20-May-80
OB-19	33.728	77.688	38130	E-3-80	27223.1	57515.4	20-May-80
OB-20	33.753	77.613	38131	E-3-80	27212.5	57538.1	20-May-80
OB-21	33.771	77.626	38132	E-3-80	27216.4	57536.4	20-May-80
OB-22	33.763	77.625	38147	E-3-80	27215.0	57536.3	21-May-80
OB-23	33.815	77.611	38148	E-3-80	27216.3	57547.0	21-May-80
OB-24	33.780	77.621	38149	E-3-80	27215.9	57539.0	21-May-80
OB-25	33.846	77.585	38150	E-3-80	27214.5	57557.2	21-May-80
OB-26	33.843	77.560	38151	E-3-80	27209.9	57563.5	21-May-80
OB-27	33.841	77.533	38152	E-3-80	27205.0	57570.8	21-May-80
OB-28	33.831	77.528	38153	E-3-80	27204.0	39065.6	22-May-80
OB-29	33.873	77.535	38154	E-3-80	27207.9	57573.6	21-May-80
OB-29B	33.873	77.535	38155	E-3-80	27207.9	57573.6	21-May-80
OB-30	33.916	77.503	38156	E-3-80	27211.1	57579.1	22-May-80
OB-31	33.913	77.533	38157	E-3-80	27206.2	39085.5	22-May-80
OB-32			none	E-3-80	none	39085.5	22-May-80
OB-33	34.618	76.936	38170	E-3-80	27159.4	39581.7	25-May-80
OB-34	34.610	76.970	38171	E-3-80	27165.0	39567.6	25-May-80
OB-35	34.608	77.011	38172	E-3-80	27172.8	39553.3	25-May-80
OB-36	34.626	76.915	38173	E-3-80	27156.0	39591.0	25-May-80
OB-37	34.593	77.078	38174	E-3-80	27183.1	39530.6	26-May-80
OB-38	34.436	77.008	38175	E-3-80	27157.5	39462.5	26-May-80
OB-39	34.440	76.975	38176	E-3-80	27153.4	39471.1	26-May-80
OB-40	34.433	77.016	38195	E-3-80	27159.9	39455.1	27-May-80

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OB-41	34.358	76.996	38196	E-3-80	27150.1	29419.4	27-May-80
OB-42	34.355	76.953	38197	E-3-80	27142.7	39434.1	27-May-80
OB-43	34.353	76.958	38198	E-3-80	27143.6	39431.3	27-May-80
OB-44	34.346	77.031	38199	E-3-80	27156.4	39407.4	27-May-80
OB-45	34.346	77.055	38200	E-3-80	27160.2	39400.8	27-May-80
ob-45B	34.346	77.055	38201	E-3-80	27160.2	39400.8	27-May-80
OB-46	34.341	77.081	38202	E-3-80	27164.7	39389.6	27-May-80
OB-47	34.075	77.295	38203	E-3-80	27188.9	39239.9	28-May-80
OB-48	34.156	77.220	38204	E-3-80	27176.0	39262.9	28-May-80
OB-49	34.161	77.258	38205	E-3-80	27182.0	39250.2	28-May-80
OB-50	34.158	77.141	38206	E-3-80	27161.9	39288.2	28-May-80
OB-51	34.153	77.055	38207	E-3-80	27147.6	39313.0	28-May-80
OB-52	34.158	76.975	38208	E-3-80	27133.0	39341.8	28-May-80
OB-53	34.160	76.915	38209	E-3-80	27121.6	39358.2	28-May-80
OB-54	34.015	77.463	38210	E-3-80	27206.4	39128.8	29-May-80
OB-55	34.010	77.491	38211	E-3-80	27210.6	39120.4	29-May-80
OB-56	34.013	77.395	38212	E-3-80	27194.9	39151.2	29-May-80
OB-57	34.000	77.230	38213	E-3-80	27168.1	39195.2	29-May-80
OB-58	34.000	77.123	38214	E-3-80	27147.5	39231.3	29-May-80
OB-59	34.010	76.988	38215	E-3-80	27123.5	39277.8	29-May-80
OB-60	34.163	76.846	38216	E-3-80	27110.4	39377.7	29-May-80
OB-61	33.910	77.563		EN=057	27110.4	39377.7	26-Oct-80
OB-62	33.703	77.533		EN=057	27195.3	39048.7	27-Oct-80
OB-63	33.763	77.501		EN=057	27208.2	39044.6	27-Oct-80
OB-64	33.805	77.630		EN=057	27216.9	39040.4	27-Oct-80
OB-65	33.813	77.558		EN=057	27208.0	39056.0	27-Oct-80
OB-66	33.836	77.498		EN=057	27197.7	39078.3	28-Oct-80
OB-67	33.835	77.448		EN=057	27190.7	39089.2	28-Oct-80
OB-68	33.833	77.285		EN=057	27163.2	39136.3	28-Oct-80
OB-69	33.650	77.610		EN=057	27204.4	39030.9	29-Oct-80
OB-70	33.681	77.645		EN=057	27212.5	39026.0	29-Oct-80
OB-71	34.448	77.913		EN=057	27142.1	39494.0	31-Oct-80
OB-72	34.453	76.876		EN=057	27136.1	39506.9	31-Oct-80
OB-73	34.455	77.806		EN=057	27123.7	39527.5	31-Oct-80
OB-74	34.460	76.703		EN=057	27119.4	39533.7	31-Oct-80
OB-75	34.436	76.970		EN=057	27151.9	39471.9	31-Oct-80
OB-76	33.851	77.630		EN=057	27222.5	39042.8	01-Nov-80
OB-77	33.848	77.593		EN=057	27216.1	39052.0	01-Nov-80
OB-78	33.723	77.651		EN=057	27216.3	39027.2	02-Nov-80
OB-79	34.635	76.868		EN=057	27147.8	39608.1	03-Nov-80
OB-80	34.605	77.005		EN=057	27171.1	39556.8	03-Nov-80
OB-81	34.591	77.096		EN=057	27186.8	39525.9	03-Nov-80
OB-82	34.595	77.050		EN=057	27178.3	39539.1	03-Nov-80

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OB-83	34.603	77.081		EN=057	27176.5	39548.1	03-Nov-80
OB-84	34.653	76.818		I-8105	27140.7	39632.6	04-May-81
OB-85	34.655	77.793		I-8105	27136.1	39639.1	04-May-81
OB-86	34.655	76.836		I-8105	27144.0	39628.4	05-May-81
OB-87	34.635	77.060		I-8105	27183.6	39560.6	05-May-81
OB-88	34.676	76.790		I-8105	27137.1	39652.8	09-May-81
OB-89	34.610	76.873		I-8105	27147.6	39593.0	12-May-81
OB-90	34.641	76.723		I-8105	27121.9	39650.0	12-May-81
OB-91	34.636	76.823		I-8105	27140.3	39621.2	12-May-81
OB-92	34.156	76.708		I-8105	27099.3	39395.6	13-May-81
OB-93A	34.160	76.733		I-8105	27089.7	39413.3	13-May-81
OB-93A	34.160	76.733		I-8105	27089.7	39413.3	13-May-81
OB-94	34.163	76.923		I-8105	27123.8	39356.1	13-May-81
OB-95	34.160	76.870		I-8105	27117.1	39366.6	13-May-81
OB-96	33.901	77.455		I-8105	27196.9	39100.7	14-May-81
OB-97	33.915	77.491		I-8105	27204.3	39092.4	14-May-81
OB-98	33.783	77.635		I-8105	27210.1	57536.0	14-May-81
OB-99	34.011	76.836		I-8105	27090.0	39325.9	15-May-81
OB-100	34.625	76.713		CH-13-82	27122.6	37647.1	22-May-82
OB-101	34.433	77.051		CH-13-82	27166.4	39445.4	23-May-82
OB-102	33.830	77.401		CH-13-82	27183.0	57604.5	25-May-82
OB-103	34.005	77.381		CH-13-82	27191.5	57632.0	26-May-82
OB-104	34.006	77.440		CH-13-82	27201.8	57617.6	26-May-82
OB-105	33.965	77.491		CH-13-82	27207.3	57598.6	26-May-82
OB-106	33.848	77.626		CH-13-82	27221.8	57548.3	27-May-82
OB-107	33.773	77.480		CH-13-82	27192.0	57576.1	27-May-82
OB-108	34.455	76.[illegible]840		CH-13-82	27130.4	57832.4	28-May-82
OB-109	34.455	76.[illegible]865		CH-13-82	27133.5	57827.9	28-May-82
OB-110	34.428	77.131		CH-13-82	27179.7	57756.6	28-May-82
OB-111	34.615	76.941		CH-13-82	27159.7	57833.7	29-May-82
OB-112	34.493	77.093		CH-13-82	27173.0	57767.2	29-May-82
OB-113A	34.163	77.325		CH-13-82	27193.5	57668.0	29-May-82
OB-113B	34.163	77.325		CH-13-82	27193.5	57668.0	29-May-82
OB-114	33.645	77.696		CH-13-82	27218.4	57503.3	31-May-82
OB-115	33.711	77.660		CH-13-82	27216.6	57521.0	31-May-82
OB-116	33.768	77.591		CH-13-82	27209.4	57545.8	31-May-82
OB-117	33.865	77.498		CH-13-82	27201.1	57582.1	02-Jun-82
OB-118	33.870	77.468		CH-13-82	27196.3	57590.3	02-Jun-82
OB-119	33.843	77.551		CH-13-82	27208.3	57565.7	02-Jun-82
OB-120	33.795	77.588		CH-13-82	27211.0	57550.2	02-Jun-82
OB-121	33.968	77.526		CH-13-82	27213.5	57588.5	04-Jun-82
OB-122	34.086	77.401		CH-13-82	27200.9	57637.0	04-Jun-82
OB-123	34.340	77.150		CH-13-82	27195.7	57645.6	04-Jun-82

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OB-124	34.090	77.370		CH-13-82	27176.3	57737.3	05-Jun-82
OB-125	34.360	76.870		CH-13-82	27127.5	57811.2	05-Jun-82
OB-126	33.976	77.500		CH-11-83	27209.8	57598.4	12-May-83
OB-127	34.006	77.446		CH-11-83	27203.3	57616.3	12-May-83
OB-128	33.996	77.280		CH-11-83	39181.8	27174.0	13-May-83
OB-129	34.005	77.203		CH-11-83	39183.6	27175.4	13-May-83
OB-130	34.158	77.325		CH-11-83	39228.3	27194.0	13-May-83
OB-131	34.011	77.026		CH-11-83	57722.6	27131.3	14-May-83
OB-132	34.336	77.221		CH-11-83	57720.6	27189.3	15-MAY-83
OB-133	34.338	77.198		CH-11-83	39054.7	27185.4	15-May-83
OB-134	34.423	77.185		CH-11-83	27189.7	57743.1	17-MAY-83
OB-135	34.425	77.188		CH-11-83	27190.4	39484.5	17-May-83
LB-1	33.488	77.761		CH-13-82	27217.3	57467.2	03-Jun-82
LB-2	33.478	77.740		CH-13-82	27213.1	57471.6	03-Jun-82
LB-3	33.473	77.728		CH-13-82	27210.7	57474.1	03-Jun-82
LB-4	33.455	77.883		CH-11-83	27234.6	57432.1	11-May-83
LB-5	33.503	77.948		CH-11-83	27248.4	57421.3	11-May-83
LB-6	33.305	77.710		CH-11-83	57458.2	27196.4	11-May-83
OBS-1	34.436	76.936	38067	E-3-80	27148.4	39481.0	15-May-80
OBS-2	33.754	77.519	38078	E-3-80	27199.4	39055.9	17-May-80
OBS-3	33.756	77.535	38079	E-3-80	27200.9	39053.8	12-May-80
OBS-4	33.739	77.585	38080	E-3-80	27209.1	39033.5	17-May-80
OBS-5	33.737	77.570	38081	E-3-80	27203.5	39046.4	18-May-80
OBS-6	33.777	77.576	38083	E-3-80	27208.8	39047.3	18-May-80
OBS-7	33.854	77.620	38084	E-3-80	27220.8	39043.7	18-May-80
OBS-8	33.856	77.626	38085	E-3-80	27222.8	39040.6	18-May-80
OBS-9	33.839	77.654	38086	E-3-80	27226.8	57539.4	18-May-80
OBS-10	33.729	77.685	38087	E-3-80	27222.4	57515.8	18-May-80
OBS-11	33.727	77.672	38088	E-3-80	27220.0	57520.0	18-May-80
OBS-12	33.724	77.637	38089	E-3-80	27215.1	57526.1	18-May-80
OBS-13	33.721	77.626	38089	E-3-80	27212.1	57530.0	18-May-80
OBS-14	33.708	77.603	38091	E-3-80	27207.7	57535.2	18-May-80
OBS-15	33.705	77.580	38092	E-3-80	27203.9	57540.6	18-May-80
OBS-16	33.727	77.589	38093	E-3-80	27208.2	57538.5	18-May-80
OBS-17	33.751	77.608	38094	E-3-80	27212.7	57537.6	18-May-80
OBS-18	33.772	77.627	38095	E-3-80	27216.0	57536.4	18-May-80
OBS-19	33.778	77.633	38096	E-3-80	27218.8	57534.8	18-May-80
OBS-20	33.800	77.650	38097	E-3-80	27222.1	57534.1	18-May-80
OBS-21	33.809	77.658	38098	E-3-80	27225.8	57532.8	18-May-80
OBS-22	33.831	77.676	38099	E-3-80	27229.1	57531.8	18-May-80
OBS-23	33.851	77.685	38100	E-3-80	27232.7	57530.7	18-May-80
OBS-24	33.856	77.701	38101	E-3-80	27235.2	57529.0	18-May-80
OBS-25	33.870	77.677	38102	E-3-80	27231.5	57536.1	18-May-80

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OBS-26	33.859	77.653	38103	E-3-80	27227.6	57542.1	18-May-80
OBS-27	33.858	77.588	38104	E-3-80	27218.0	57556.4	18-May-80
OBS-28	33.870	77.601	38105	E-3-80	27219.0	57555.6	18-May-80
OBS-29	33.871	77.574	38106	E-3-80	27215.2	57561.8	18-May-80
OBS-30	33.988	77.555	38107	E-3-80	27211.4	57566.6	18-May-80
OBS-31	33.859	77.537	38108	E-3-80	27209.5	57569.8	18-May-80
OBS-32	33.883	77.580	38109	E-3-80	27217.4	57563.5	19-May-80
OBS-33	33.902	77.604	38110	E-3-80	27222.1	57559.4	19-May-80
OBS-34	33.924	77.625	38111	E-3-80	27227.0	57557.5	19-May-80
OBS-35	33.935	77.636	38112	E-3-80	27231.5	57555.2	19-May-80
OBS-36	33.977	77.682	38113	E-3-80	27241.3	57548.5	19-May-80
OBS-37	33.886	77.671	38114	E-3-80	27231.9	57542.3	19-May-80
OBS-38	33.853	77.607	38115	E-3-80	27219.9	57551.8	19-May-80
OBS-39	33.736	77.726	38125	E-3-80	27230.3	57507.3	20-May-80
OBS-40	33.908	77.724	38126	E-3-80	27242.6	57530.5	20-May-80
OBS-41	33.770	77.727	38133	E-3-80	27232.4	57510.0	20-May-80
OBS-42	33.707	77.677	38134	E-3-80	27219.9	57516.3	20-May-80
OBS-43	33.681	77.654	38135	E-3-80	27214.5	57518.1	21-May-80
OBS-44	33.659	77.635	38136	E-3-80	27210.5	57518.8	21-May-80
OBS-45	33.633	77.605	38137	E-3-80	27203.3	57524.4	21-May-80
OBS-46	33.621	77.581	38137	E-3-80	27197.7	57528.3	21-May-80
OBS-47	33.606	77.553	38138	E-3-80	27192.0	57536.8	21-May-80
OBS-48	33.555	77.521	38139	E-3-80	27185.9	57546.4	21-May-80
OBS-49	33.620	77.470	38140	E-3-80	27177.4	57559.4	21-May-80
OBS-50	33.652	77.456	38141	E-3-80	27179.8	57567.4	21-May-80
OBS-51	33.704	77.439	38142	E-3-80	27183.2	57569.6	21-May-80
OBS-52	33.728	77.470	38143	E-3-80	27187.2	57572.0	21-May-80
OBS-53	33.770	77.470	38144	E-3-80	27189.1	57577.9	21-May-80
OBS-54	33.757	77.509	38145	E-3-80	27196.7	57566.3	21-May-80
OBS-55	34.451	76.673	38159	E-3-80	27097.9	39564.0	24-May-80
OBS-56	34.451	76.708	38160	E-3-80	27106.3	39551.9	24-May-80
OBS-57	34.452	76.733	38161	E-3-80	27114.2	39541.2	24-May-80
OBS-58	34.452	76.753	38162	E-3-80	27121.7	39532.9	24-May-80
OBS-59	34.454	76.784	38163	E-3-80	27128.7	39520.1	24-May-80
OBS-60	34.454	76.875	38164	E-3-80	27136.7	39507.6	25-May-80
OBS-61	34.451	76.920	38165	E-3-80	27143.3	39493.3	25-May-80
OBS-62	34.437	76.955	38166	E-3-80	27150.4	39478.6	25-May-80
OBS-63	34.432	76.987	38167	E-3-80	27156.5	39462.9	25-May-80
OBS-64	34.426	77.036	38168	E-3-80	27164.1	39444.3	25-May-80
OBS-65	34.409	77.080	38169	E-3-80	27170.0	39426.9	25-May-80
OBS-66	34.409	76.908	38177	E-3-80	27139.8	39475.5	26-May-80
OBS-67	34.379	76.905	38178	E-3-80	27136.6	39460.7	26-May-80
OBS-68	34.338	76.901	38179	E-3-80	27132.8	39444.5	26-May-80

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OBS-69	34.320	76.886	30180	E-3-80	27129.0	39432.5	26-May-80
OBS-70	34.268	76.882	30181	E-3-80	27125.8	39419.3	26-May-80
OBS-71	34.250	76.878	30182	E-3-80	27121.7	39406.3	26-May-80
OBS-72	34.228	76.875	30183	E-3-80	27120.1	39400.2	27-May-80
OBS-73	34.236	76.905	30184	E-3-80	27128.2	39394.9	27-May-80
OBS-74	34.260	76.936	30185	E-3-80	27135.1	39393.2	27-May-80
OBS-75	34.269	76.979	30186	E-3-80	27142.8	39389.7	27-May-80
OBS-76	34.289	77.010	30187	E-3-80	27150.0	39387.2	27-May-80
OBS-77	34.308	77.050	30188	E-3-80	27158.1	39385.9	27-May-80
OBS-78	34.329	77.080	30189	E-3-80	27165.3	39384.0	27-May-80
OBS-79	34.336	77.106	30190	E-3-80	27170.4	39382.5	27-May-80
OBS-80	34.335	77.060	30191	E-3-80	27162.8	39395.7	27-May-80
OBS-81	34.335	77.016	30192	E-3-80	27155.4	39405.5	27-May-80
OBS-82	34.334	76.985	30193	E-3-80	27147.6	39415.4	27-May-80
OBS-83	34.331	76.951	30193	E-3-80	27140.1	39425.8	27-May-80
OBS-84	34.421	76.671	30193	I-8105	27095.6	39548.7	10-May-81
OBS-85	34.383	76.624		I-8105	27085.1	39546.6	10-May-81
OBS-86	34.354	76.670		I-8105	27091.1	39519.7	10-May-81
OBS-87	34.302	76.707		I-8105	27095.5	39481.7	10-May-81
OBS-88	34.094	77.670		I-8105	27084.2	39473.8	10-May-81
OBS-89	34.209	76.624		I-8105	27073.1	39469.3	10-May-81
OBS-90	34.164	76.670		I-8105	27078.6	39438.8	10-May-81
OBS-91	34.125	76.259		I-8105	27084.3	39404.9	10-May-81
OBS-92	34.065	76.671		I-8105	27072.4	39399.8	11-May-81
OBS-93	34.063	76.723		I-8105	27081.6	39383.1	11-May-81
OBS-94	34.063	76.777		I-8105	27091.7	39365.8	11-May-81
OBS-95	34.065	76.831		I-8105	27101.8	39349.0	11-May-81
OBS-96	34.063	76.870		I-8105	27109.6	39334.4	11-May-81
OBS-97	34.063	76.925		I-8105	27117.8	39319.8	11-May-81
OBS-98	34.064	77.000		I-8105	27131.0	39297.1	11-May-81
OBS-99	34.104	76.956		I-8105	27129.6	39322.3	11-May-81
OBS-100	34.137	76.922		I-8105	27121.9	39350.1	11-May-81
OBS-101	34.166	76.881		I-8105	27117.9	39374.5	11-May-81
OBS-102	34.204	76.853		I-8105	27114.5	39395.7	11-May-81
OBS-103	34.228	76.826		I-8105	27111.4	39414.5	11-May-81
OBS-104	34.260	76.806		I-8105	27110.0	39341.4	11-May-81
OBS-105	34.304	76.836		I-8105	27116.7	39425.8	11-May-81
OBS-106	34.114	76.784		I-8105	27110.1	39460.2	11-May-81
OBS-107	34.329	76.779		I-8105	27110.5	39475.9	11-May-81
OBS-108	34.358	76.773		I-8105	27110.5	39492.3	11-May-81
OBS-109	34.408	76.752		I-8105	27110.8	39521.3	11-May-81
OBS-110	34.459	76.734		I-8105	27112.0	39551.5	11-May-81
OBS-111	34.500	76.725		I-8105	27111.8	39573.8	11-May-81

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OBS-112	34.481	76.674		I-8105	27101.4	39580.3	11-May-81
OBS-113	34.482	76.622		I-8105	27091.3	39595.5	11-May-81
OBS-114	34.481	76.559		I-8105	27079.4	39613.4	11-May-81
OBS-115	34.437	76.574		I-8105	27080.3	39587.4	11-May-81
OBS-116	34.402	76.489		I-8105	27063.1	39590.3	11-May-81
OBS-117	34.356	76.555		I-8105	27071.2	39552.8	11-May-81
OBS-118	34.305	76.604		I-8105	27076.7	39514.8	11-May-81
OBS-119	34.268	76.552		I-8105	27065.2	39518.3	11-May-81
OBS-120	34.251	76.489		I-8105	27053.1	39522.0	11-May-81
OBS-121	34.220	76.202		I-8105	27061.0	39490.8	11-May-81
OBS-122	34.186	76.605		I-8105	27069.5	39464.9	11-May-81
OBS-123	34.138	76.553		I-8105	27056.6	39462.3	11-May-81
OBS-124	34.100	76.488		I-8105	27043.9	39466.2	11-May-81
OBS-125	34.063	76.534		I-8105	27049.1	39437.3	11-May-81
OBS-126	34.030	76.505		I-8105	27055.9	39408.3	11-May-81
OBS-127	33.959	76.571		I-8105	27041.4	39402.4	11-May-81
OBS-128	33.001	76.579		I-8105	27052.0	39400.3	15-May-81
OBS-129	33.989	76.625		I-8105	27059.8	39386.3	15-May-81
OBS-130	34.000	76.659		I-8105	27067.1	39374.0	15-May-81
OBS-131	34.000	76.705		I-8105	27074.5	39361.4	15-May-81
OBS-132	34.000	76.739		I-8105	27081.9	39348.7	15-May-81
OBS-133	33.989	76.784		I-8105	27089.0	39335.4	15-May-81
OBS-134	34.000	76.830		I-8105	27096.7	39323.1	15-May-81
OBS-135	34.001	76.875		I-8105	27104.1	39310.3	15-May-81
OBS-136	33.989	76.909		I-8105	27111.2	39296.9	15-May-81
OBS-137	33.989	76.954		I-8105	27118.9	39284.1	15-May-81
OBS-138	33.988	77.000		I-8105	27126.1	39271.0	11-May-81
OBS-139	34.000	77.035		I-8105	27133.5	39257.7	15-May-81
OBS-140	34.000	77.081		I-8105	27140.8	39244.6	15-May-81
OBS-141	34.000	77.125		I-8105	27148.0	39231.7	15-May-81
OBS-142	34.000	77.160		I-8105	27155.0	39218.7	15-May-81
OBS-143	33.989	77.205		I-8105	27161.9	39205.3	16-May-81
OBS-144	33.989	77.250		I-8105	27169.2	39192.0	16-May-81
OBS-145	34.000	77.285		I-8105	27176.5	39179.2	16-May-81
OBS-146	33.989	77.331		I-8105	27183.7	39165.4	16-May-81
OBS-147	34.000	77.375		I-8105	27191.2	39153.9	16-May-81
OBS-148	34.007	77.421		I-8105	27199.0	39143.1	16-May-81
OBS-149	34.008	77.457		I-8105	27206.4	39129.3	16-May-81
OBS-150	34.007	77.500		I-8105	27212.9	39116.2	16-May-81
OBS-151	34.008	77.553		I-8105	27222.4	39098.6	16-May-81
OBS-152	34.007	77.623		I-8105	27233.3	39076.7	16-May-81
OBS-175(153)	33.758	77.573		CH-08-84	57551.0	39046.1	08-Jun-82
OBS-176(154)	33.766	77.566		CH-08-84	57551.0	39046.1	08-Jun-82

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OBS-177(155)	33.780	77.566		CH-08-84	57554.1	39048.6	08-Jun-82
OBS-178(156)	34.138	77.916		CH-08-84	57557.8	39052.2	08-Jun-82
OBS-179(157)	33.752	77.543		CH-08-84	57555.6	39050.1	08-Jun-82
OBS-180(158)	33.760	77.547		CH-08-84	57557.9	39052.4	08-Jun-82
OBS-181(159)	33.304	77.299		CH-08-84	27129.9	57560.0	09-Jun-84
OBS-182(160)	33.293	77.308		CH-08-84	27130.8	57556.4	09-Jun-84
OBS-183(161)	33.278	77.318		CH-08-84	27131.6	57552.0	09-Jun-84
OBS-184(162)	33.263	77.332		CH-08-84	27132.9	57546.8	09-Jun-84
OBS-185(163)	33.252	77.320		CH-08-84	27130.1	57548.4	09-Jun-84
OBS-186(164)	33.237	77.314		CH-08-84	27128.1	57548.1	09-Jun-84
OBS-187(165)	33.239	77.306		CH-08-84	27126.3	57548.3	09-Jun-84
OBS-188(166)	33.215	77.299		CH-08-84	27124.4	57549.0	09-Jun-84
OBS-189(167)	33.215	77.298		CH-08-84	27124.3	57549.2	09-Jun-84
OBS-190(168)	33.198	77.293		CH-08-84	27122.3	57548.4	09-Jun-84
OBS-191(169)	33.198	77.292		CH-08-84	27122.2	57548.6	09-Jun-84
OBS-192(170)	33.182	77.287		CH-08-84	27120.4	57547.9	09-Jun-84
OBS-193(171)	33.163	77.278		CH-08-84	27117.9	57547.5	09-Jun-84
OBS-194(172)	33.149	77.274		CH-08-84	27116.2	57546.8	09-Jun-84
OBS-195(173)	33.151	77.275		CH-08-84	27116.4	57547.0	09-Jun-84
OBS-196(174)	33.781	77.517		CH-08-84	27115.4	57546.6	09-Jun-84
OBS-197(175)	33.771	77.512		CH-08-84	27113.4	57545.4	09-Jun-84
OBS-198(176)	33.237	77.197		CH-08-84	27109.1	57576.5	10-Jun-84
OBS-199	33.802	77.605		CH-22-84	27216.1	57548.8	27-Nov-84
OBS-200	33.794	77.554		CH-22-84	27205.7	57560.1	28-Nov-84
OBS-201	33.793	77.553		CH-22-84	27205.7	57559.8	28-Nov-84
OBS-202	33.769	77.560		CH-22-84	27204.8	39050.2	28-Nov-84
OBS-203	33.796	77.561		CH-22-84	27206.9	39052.9	28-Nov-84
OBS-204	33.782	77.559		CH-22-84	27205.6	39051.9	30-Nov-84
OBS-205	33.853	77.666		RV Peirce	27205.6	39051.9	11-Dec-85
OBS-206	33.852	77.665		RV Peirce			11-Dec-85
OBS-207	33.849	77.664		RV Peirce			11-Dec-85
OBS-208	33.846	77.662		RV Peirce			11-Dec-85
OBS-209	33.839	77.656		RV Peirce			11-Dec-85
OBS-210	33.855	77.659		RV Peirce			12-Dec-85
OBS-211	33.951	77.657		RV Peirce			12-Dec-85
OBS-212	33.848	77.654		RV Peirce			12-Dec-85
OBS-213	33.846	77.650		RV Peirce			12-Dec-85
OBS-214	33.844	77.647		RV Peirce			12-Dec-85
OBS-215	33.839	77.644		RV Peirce			12-Dec-85
OBS-216	33.836	77.640		RV Peirce			12-Dec-85
OBS-217	33.834	77.638		RV Peirce			12-Dec-85
OBS-218	33.012	77.595		RV Peirce			12-Dec-85
OBS-219	33.774	77.591		RV Peirce			12-Dec-85

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OBS-220	33.771	77.507		RV Peirce			12-Dec-85
OBS-221	33.815	77.624		RV Peirce			12-Dec-85
OBS-222	33.816	77.621		RV Peirce			12-Dec-85
OBS-223	33.813	77.618		RV Peirce			12-Dec-85
OBS-224	33.810	77.615		RV Peirce			12-Dec-85
OBS-225	33.807	77.612		RV Peirce			12-Dec-85
OBS-226	33.804	77.608		RV Peirce			12-Dec-85
OBS-227	33.801	77.605		RV Peirce			12-Dec-85
OBS-228	33.798	77.602		RV Peirce			12-Dec-85
OBS-229	33.794	77.599		RV Peirce			12-Dec-85
OBS-230	33.790	77.595		RV Peirce			12-Dec-85
OBS-231	33.787	77.592		RV Peirce			12-Dec-85
OBS-232	33.787	77.509		RV Peirce			12-Dec-85
OBS-233	33.781	77.586		RV Peirce			12-Dec-85
OBS-234	33.778	77.583		RV Peirce			12-Dec-85
OBS-235	33.774	77.413		RV Peirce			12-Dec-85
OBS-236	33.772	77.576		RV Peirce			12-Dec-85
OBS-237	33.768	77.572		RV Peirce			12-Dec-85
OBS-238	33.764	77.569		RV Peirce			12-Dec-85
OBS-239	33.761	77.566		RV Peirce			12-Dec-85
OBS-240	33.758	77.563		RV Peirce			12-Dec-85
OBS-241	33.756	77.560		RV Peirce			12-Dec-85
OBS-242	33.752	77.556		RV Peirce			12-Dec-85
OBS-243	33.749	77.554		RV Peirce			12-Dec-85
OBS-244	33.745	77.555		RV Peirce			12-Dec-85
OBS-245	33.743	77.547		RV Peirce			12-Dec-85
OBS-246	33.091	77.[illegible]0		RV Peirce	57544.2	27110.2	13-Dec-85
OBS-247	33.092	7[illegible].[illegible]0		RV Peirce	57544.5	27110.1	13-Dec-85
OBS-248	33.102	77.267		RV Peirce	57543.5	27111.9	13-Dec-85
OBS-249	33.115	77.269		RV Peirce	57544.9	27113.1	13-Dec-85
OBS-250	33.115	77.269		RV Peirce	57544.5	27114.7	13-Dec-85
OBS-251	33.139	77.281		RV Peirce	57544.9	27116.4	13-Dec-85
OBS-252	33.143	77.288		RV Peirce	57543.7	27117.9	13-Dec-85
OBS-253	33.160	77.291		RV Peirce	57545.3	27119.9	13-Dec-85
OBS-254	33.175	77.295		RV Peirce	57545.7	27120.8	13-Dec-85
OBS-255	33.188	77.300		RV Peirce	57546.0	27122.5	13-Dec-85
OBS-256	33.194	77.305		RV Peirce	57546.0	27123.7	13-Dec-85
OBS-257	33.208	77.311		RV Peirce	57546.3	27125.5	13-Dec-85
OBS-258	33.222	77.313		RV Peirce	57547.3	27126.9	13-Dec-85
OBS-259	33.223	77.320		RV Peirce	57546.8	27128.5	13-Dec-85
OBS-260	33.243	77.324		RV Peirce	57547.2	27129.8	13-Dec-85
OBS-261	33.254	77.328		RV Peirce	57547.6	27131.1	13-Dec-85
OBS-262	33.267	77.335		RV Peirce	57547.7	27133.1	13-Dec-85

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OBS-263	33.278	77.338		RV Peirce	57548.4	27134.4	13-Dec-85
OBS-264	33.485	76.629		CH-0689	27029.1	39248.2	20-Jun-89
OBS-265	33.495	76.639		CH-0689	27031.3	39247.1	20-Jun-89
OBS-266	33.505	76.661		CH-0689	27035.7	39243.5	20-Jun-89
OBS-267	33.518	76.679		CH-0689	27039.4	39241.3	20-Jun-89
OBS-268	33.528	76.704		CH-0689	27044.4	39236.3	20-Jun-89
OBS-269	33.530	76.706		CH-0689	27044.6	39236.6	20-Jun-89
OBS-270	33.534	76.706		CH-0689	27045.1	39236.9	20-Jun-89
OBS-271	33.541	76.708		CH-0689	27045.7	39238.1	20-Jun-89
OBS-272	33.540	76.709		CH-0689	27045.8	39237.6	20-Jun-89
OBS-273	33.534	76.728		CH-0689	27048.9	39231.2	20-Jun-89
OBS-274	33.540	76.747		CH-0689	27052.4	39227.4	20-Jun-89
OBS-275	33.550	76.793		CH-0689	27060.9	39216.2	20-Jun-89
OBS-276	33.549	76.855		CH-0689	27071.3	39199.6	20-Jun-89
OBS-277	33.546	76.822		CH-0689	27065.6	39207.7	20-Jun-89
OBS-278	33.553	76.759		CH-0689	27055.1	39226.2	20-Jun-89
OBS-279	33.533	76.907		CH-0689	27079.1	39182.7	20-Jun-89
OBS-280	33.534	76.944		CH-0689	27082.7	39177.5	21-Jun-89
OBS-281	33.468	77.118		CH-0689	27110.5	39120.3	21-Jun-89
OBS-282	33.435	77.028		CH-0689	27093.3	39137.6	21-Jun-89
OBS-283	33.433	77.004		CH-0689	27089.2	39143.1	21-Jun-89
OBS-284	33.421	76.960		CH-0689	27081.2	39152.1	21-Jun-89
OBS-285	33.410	76.951		CH-0689	27079.0	39152.8	21-Jun-89
OBS-286	33.400	76.941		CH-0689	27076.6	39153.9	21-Jun-89
OBS-287	33.374	76.939		CH-0689	27074.8	39151.0	21-Jun-89
OBS-288	33.338	76.943		CH-0689	27073.2	39145.5	21-Jun-89
OBS-289	33.357	76.939		CH-0689	27073.6	39148.9	21-Jun-89
OBS-290	33.312	76.950		CH-0689	27072.9	39139.9	21-Jun-89
OBS-291	33.289	76.937		CH-0689	27069.2	39141.1	21-Jun-89
OBS-292	33.238	76.892		CH-0689	27058.8	39145.3	21-Jun-89
OBS-293	33.371	77.190		CH-0689	27116.2	39093.7	22-Jun-89
OBS-294	33.357	77.184		CH-0689	27114.3	39093.7	22-Jun-89
OBS-295	33.351	77.178		CH-0689	27112.9	39094.5	22-Jun-89
OBS-296	33.337	77.164		CH-0689	27109.7	39096.3	22-Jun-89
OBS-297	33.315	77.145		CH-0689	27105.3	39098.1	22-Jun-89
OBS-298	33.279	77.124		CH-0689	27099.6	39099.6	22-Jun-89
OBS-299	33.247	77.101		CH-0689	27093.8	39101.5	22-Jun-89
OBS-300	33.232	77.088		CH-0689	27090.8	39102.9	22-Jun-89
OBS-301	33.219	77.079		CH-0689	27088.7	39103.3	22-Jun-89
OBS-302	33.192	77.063		CH-0689	27084.4	39104.5	22-Jun-89
OBS-303	33.174	77.056		CH-0689	39104.4	27082.0	22-Jun-89
OBS-304	33.152	77.040		CH-0689	27078.2	39105.8	22-Jun-89
OBS-305	33.109	77.283		CH-0689	27114.9	39059.5	22-Jun-89

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OBS-306	33.077	77.259		CH-0689	27109.0	39061.9	22-Jun-89
OBS-307	33.053	77.237		CH-0689	27104.1	39064.4	22-Jun-89
OBS-308	32.975	77.550		CH-0689	27149.0	39020.9	23-Jun-89
OBS-309	32.971	77.365		CH-0689	27119.5	39042.6	23-Jun-89
OBS-310	33.006	77.377		CH-0689	27123.6	39041.9	23-Jun-89
OBS-311	33.018	77.386		CH-0689	27126.7	39041.4	23-Jun-89
OBS-312	33.046	77.390		CH-0689	27128.2	39041.2	23-Jun-89
OBS-313	33.059	77.392		CH-0689	27129.2	39041.2	23-Jun-89
OBS-314	33.076	77.399		CH-0689	27131.5	39040.9	23-Jun-89
OBS-315	33.901	77.405		CH-0689	27133.3	39040.6	23-Jun-89
OBS-316	33.106	77.413		CH-0689	27135.7	39039.9	23-Jun-89
OBS-317	33.142	77.421		CH-0689	27139.4	39039.4	23-Jun-89
OBS-318	33.177	77.430		CH-0689	27144.0	39038.6	23-Jun-89
OBS-319	33.191	76.441		CH-0689	27147.4	39038.7	23-Jun-89
OBS-320	33.206	77.439		CH-0689	27146.2	39039.3	23-Jun-89
OBS-321	33.086	77.508		CH-0689	27161.4	39019.0	23-Jun-89
OBS-322	33.034	77.559		CH-0689	27154.1	39020.8	24-Jun-89
OBS-323	33.021	77.553		CH-0689	27152.4	39021.2	24-Jun-89
OBS-324	32.974	77.547		CH-0689	27148.5	39021.3	24-Jun-89
OBS-325	32.950	77.540		CH-0689	27146.0	39021.5	24-Jun-89
RBS-1	34.487	76.418		CH-13-82	27053.6	39652.6	05-Jun-82
RBS-2	34.498	76.398		CH-13-82	27050.4	39663.7	05-Jun-82
RBS-3	34.509	76.379		CH-13-82	27047.5	39674.2	05-Jun-82
RBS-4	34.518	76.362		CH-13-82	27045.0	39683.5	05-Jun-82
RBS-5	34.526	76.345		CH-13-82	27042.3	39692.0	05-Jun-82
RBS-6	34.535	76.327		CH-13-82	27039.5	39701.4	05-Jun-82
RBS-7	34.553	76.304		CH-13-82	27034.4	39719.1	05-Jun-82
RBS-8	34.570	76.260		CH-13-82	27029.1	39737.1	05-Jun-82
RBS-9	34.588	76.226		CH-13-82	27023.7	39755.1	05-Jun-82
RBS-10	34.607	76.192		CH-13-82	27018.5	39773.7	05-Jun-82
RBS-11	34.626	76.160		CH-13-82	27013.5	39791.6	05-Jun-82
OBD-1	33.713	77.607	38071	E-3-80	27208.3	57534.5	17-May-80
OBD-1	33.713	77.615	dredge/up	E-3-80	27209.8	57532.3	17-May-80
OBD-2	33.717	77.612	38072	E-3-80	27209.6	57533.5	17-May-80
OBD-2	33.722	77.613	dredge/up	E-3-80	27210.2	57533.6	17-May-80
OBD-3	33.735	77.602	38073	E-3-80	27208.7	57538.7	17-May-80
OBD-3	33.732	77.598	dredge/up	E-3-80	27208.7	57539.3	17-May-80
OBD-4	33.742	77.587	38074	E-3-80	27206.7	57543.6	17-May-80
OBD-4	33.735	77.588	dredge/up	E-3-80	27206.7	57541.8	17-May-80
OBD-5	33.758	77.527	38075	E-3-80	27197.5	39656.7	17-May-80
OBD-5	33.745	77.507	dredge/up	E-3-80	27195.0	39060.3	17-May-80
OBD-6	33.748	77.525	38076	E-3-80	27190.0	39056.6	17-May-80
OBD-6			dredge/up	E-3-80	27196.5	39057.0	17-May-80

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OBD-7	33.757	77.518	38077	E-3-80	27197.2	39058.1	17-May-80
OBD-7	33.768	77.525	dredge/up	E-3-80	27198.6	39057.3	17-May-80
OBD-8			38082	E-3-80	27209.3	39046.8	18-May-80
OBD-8	33.777	77.582	dredge/up	E-3-80	27209.7	39046.2	18-May-80
OBD-9	34.074	77.350		CH-08-84	27191.7	39186.4	6-June-84
OBD-9	34.075	77.346	dredge/up	CH-08-84	27191.1	39187.8	6-June-84
OBD-10	34.071	77.360		CH-08-84	27193.3	39181.8	6-June-84
OBD-10	34.074	77.352	dredge/up	CH-08-84	27192.2	39185.6	6-June-84
OBD-11	33.784	77.599		CH-08-84	45233.5	59090.9	8-June-84
OBD-11	33.777	77.604	dredge/up	CH-08-84	45232.9	59094.2	8-June-84
OBD-12	33.784	77.597		CH-08-84	45233.2	59090.8	8-June-84
OBD-12	33.777	77.602	dredge/up	CH-08-84	45232.6	59093.9	8-June-84
OBD-13	33.784	77.518		CH-08-84	27114.5	57547.3	9-June-84
OBD-13	33.782	77.515	dredge/up	CH-08-84	27114.4	57547.1	9-June-84
OBD-14	33.783	77.517		CH-08-84	27115.2	57546.9	10-June-84
OBD-14	33.795	77.519	dredge/up	CH-08-84	27115.7	57548.8	10-June-84
OBD-15	33.793	77.519		CH-08-84	27114.4	57548.2	10-June-84
OBD-15	33.796	77.513	dredge/up	CH-08-84	27115.2	57551.8	10-June-84
OBD-16	33.824	77.548		CH-08-84	27126.7	57547.6	10-June-84
OBD-16	33.832	77.551	dredge/up	CH-08-84	27126.7	57548.0	10-June-84
OBD-17	33.335	77.219		CH-08-84	27118.8	57584.7	10-June-84
OBD-17	33.338	77.219	dredge/up	CH-08-84	27119.0	57585.2	10-June-84
OBD-18	33.217	77.208		CH-08-84	27109.7	57571.3	10-June-84
OBD-18	33.227	77.200	dredge/up	CH-08-84	27109.8	57575.0	10-June-84
OBD-19	33.340	77.213		CH-08-84	27110.2	57585.7	10-June-84
OBD-19	33.345	77.207	dredge/up	CH-08-84	27117.6	57587.6	10-June-84
OBD-20	33.312	77.222		CH-08-84	27118.0	57581.1	10-June-84
OBD-20	33.337	77.213	dredge/up	CH-08-84	27118.1	57585.0	10-June-84
OBD-23	33.795	77.569		CH-22-84	27207.5	57555.4	28-Nov-84
OBD-23	33.774	77.552	dredge/up	CH-22-84	27203.7	37557.9	28-Nov-84
OBD-24	33.782	77.540		CH-22-84	27202.3	39056.6	30-Nov-84
OBD-24	33.770	77.537	dredge/up	CH-22-84	27200.7	57560.7	30-Nov-84
OBD-25	33.508	77.412		CH-22-84	27163.9	39059.6	30-Nov-84
OBD-25	33.518	77.416	dredge/up	CH-22-84	27161.9	39061.1	30-Nov-84
OBD-26	33.523	77.403		CH-22-84	27161.6	39061.9	30-Nov-84
OBD-26	33.529	77.399	dredge/up	CH-22-84	27161.3	39063.6	30-Nov-84
OBD-27				CH-22-84	27202.2	57559.7	1-Dec-84
OBD-27			dredge/up	CH-22-84	27202.3	57560.4	1-Dec-84
OBD-28	33.129	77.268		CH-06-89	27113.7	39062.9	22-June-89
OBD-28	33.145	77.272	dredge/up	CH-06-89	27115.3	39063.1	22-June-89
OBD-29	33.098	77.408		CH-06-89	27134.3	39040.3	22-June-89
OBD-29	33.082	77.407	dredge/up	CH-06-89	27133.0	39040.0	22-June-89
OBD-30	32.974	77.548		CH-06-89	27140.7	39020.9	22-June-89

SAMPLE LOCATIONS

Sample	Latitude	Longitude	Station	Cruise	Loran1	Loran2	Date
OBD-30	32.997	77.555	dredge/up	CH-06-89	27151.2	39020.7	22-June-89
OB-BC-1	33.766	77.566		CH-08-84	57551.0	39046.1	08-Jun-82
OB-BC-2				CH-08-84	57554.1	39048.6	08-Jun-82
OB-BC-3	33.753	77.544		CH-08-84	57557.0	39052.4	08-Jun-82
OB-BC-4	33.775	77.550		CH-08-84	57555.6	39050.1	08-Jun-82
OB-BC-5	33.759	77.547		CH-08-84	57557.9	39052.4	08-Jun-82
OB-BC-6	33.484	76.634					
OB-BC-8				CH-06-89	27029.9	39246.8	20-Jun-89
OB-BC-9	33.238	77.090		CH-06-89	27091.5	39102.9	22-Jun-89
OB-BC-10	33.175	77.056		CH-06-89	27082.1	39104.6	22-Jun-89
OB-BC-11	33.181	77.053		CH-06-89	27082.1	39105.6	22-Jun-89
OB-BC-12	33.048	77.229		CH-06-89	27102.5	39065.4	22-Jun-89
OB-BC-13	32.974	77.366		CH-06-89	27120.0	39042.4	23-Jun-89
OB-BC-14	33.017	77.370		CH-06-89	27124.5	39042.0	23-Jun-89
OB-BC-15	32.950	77.530		CH-06-89	27145.5	39021.9	24-Jun-89
OB-BC-101	34.006	77.389		CH-06-91	27193.0	57631.1	22-MAY-91
OB-BC-102	34.006	77.389		CH-06-91	27193.3	57630.8	22-MAY-91
OB-BC-103	34.001	77.372		CH-06-91	27189.8	57634.8	22-MAY-91
OB-BC-104	33.993	77.356		CH-06-91	27186.5	57637.7	22-MAY-91
OB-BC-105	33.989	77.344		CH-06-91	27184.2	57640.2	22-MAY-91
OB-BC-106	33.986	77.351		CH-06-91	27185.3	57637.8	22-MAY-91
OB-BC-107	33.999	77.383		CH-06-91	27191.5	57631.8	22-MAY-91
OB-BC-108	33.809	77.617		CH-06-91	27216.8	57546.0	22-MAY-91
OB-BC-109A	33.789	77.631		CH-06-91	27216.3	57542.0	23-May-91
OB-BC-109B	33.787	77.623		CH-06-91	27216.2	57542.0	23-May-91
OB-BC-109C	33.785	77.622		CH-06-91	27216.0	57541.7	23-May-91
OB-BC-110	33.784	77.626		CH-06-91	27216.5	57541.0	23-May-91
OB-BC-111	33.758	77.595		CH-06-91	27209.3	57545.3	23-May-91
OB-BC-112	33.784	77.543		CH-06-91	27202.8	57561.9	23-May-91
OB-BC-P1	33.795	77.548		RV Peirce	27202.8	57561.9	10-Dec-85
OB-BC-P2	33.795	77.548		RV Peirce	27202.2	57561.8	11-Dec-85
OB-BC-P3	33.784	77.543		RV Peirce	27202.2	57561.8	11-Dec-85
OB-BC-P4	33.790	77.544		RV Peirce			11-Dec-85
OB-BC-P5	33.550	77.789		RV Peirce			11-Dec-85
OBG-1	33.168	77.057		CH-06-89	27081.8	39103.9	22-Jun-89
OBG-2	33.046	77.224		CH-06-89	27101.6	39066.2	22-Jun-89

STRATIGRAPHIC UNITS OCCURRING IN VIBRACORES

This data file presents the stratigraphic units identified within each vibracore obtained in Onslow Bay, North Carolina during the Onslow Bay project. Stratigraphic assignments represent the most recent core interpretations and are based upon many avenues of research carried out on these cores including the seismic–stratigraphy (Stephen W. Snyder and others, 1982, 1990), biostratigraphy (Scott W. Snyder, 1988, 1990), lithofacies analysis (Riggs, 1984; Riggs and others, 1985, 1990; Riggs and Mallette, 1990), and ongoing isotopic analysis and radiometric age–dating (Stille and others, in press) and as summarized in Riggs and Ames (1992). The key for the various stratigraphic units and included data is as follows.

Column 1: CORE

OB 11 Onslow Bay vibracore number 11

Column 2: HOLOCENE

Thickness of active surface sands that are responding to modern energy regimes. This includes shelf sediments that have been deposited since the last glacial maximum and sea-level lowstand at approximately 18,000 years before present. Depths are in meters below sediment-water interface.

Column 3: PLEISTOCENE

Thickness of unconsolidated to consolidated sands, muddy sands, muds, and limestones that are of Pleistocene age. Depth and thickness of unit recovered in the core are in meters below sediment–water interface.

Columns 4, 5, and 6: MIOCENE/OLIGOCENE

Thickness of unconsolidated to consolidated sands, muddy sands, muds, phosphorites, dolomites, and limestones that are of Miocene or Oligocene age. The Miocene units are part of the Pungo River Formation; the Oligocene units are part of the Silverdale Formation. The name Silverdale Formation, used throughout this report to refer to the uppermost portion of the pre-Pungo River section, was applied by Baum and others (1978) to a sandy, pelecypod-mold bimicrudite that grades upward to an unconsolidated, sandy, pelecypod biomicrudite. Approximately the same section was named the Haywood Landing Member of the Belgrade Formation by Ward and others (1978). This second terminology is also in use (for example, North Carolina Geological Survey (1985)). Column 4 is the uppermost unit, if present. Column 5 is the next lower or older unit, if present. Column 6 is the lowest and oldest unit, if present. Depth and thickness of unit recovered in the core are given in meters below sediment-water interface.

STRATIGRAPHIC UNITS OCCURRING IN VIBRACORES

CORE	HOLOCENE depth (m)	PLEISTOCENE depth (m)	M I O C E N E / O L I G O C E N E depth (m)	unit	depth (m)	unit	depth (m)	unit
OB 1	-	0 to 3.0	3.0 to 9.0	BBS-8	-		-	
OB 2	0 to 0.6	0.6 to 2.7	2.7 to 7.1	BBS-1	-		-	
OB 3	-	0 to 0.8	0.8 to 8.7	BBS-1	8.7 to 9.3	OBS-4	-	
OB 4	0 to 0.5	0.5 to 2.1	2.05 to 9.1	BBS-1	-		-	
OB 5	0 to 0.5	0.5 to 7.8	-		-		-	
OB 68	-	-	0 to 7.5	BBS-1	-		-	
OB 7	0 to 0.8	0.8 to 3.4	3.4 to 5.8	Oligocene	-		-	
OB 8	0 to 1.7	1.7 to 5.1	5.1 to 6.0	Oligocene	-		-	
OB 9	0 to 1.6	-	1.6 to 3.3	FPS-1	-		-	
OB 10	0 to 0.4	-	0.4 to 9.1	Oligocene	-		-	
OB 11	-	-	0 to 2.1	FPS-1	2.1 to 9.0	Oligocene	-	
OB 12	-	-	0 to 9.1	Oligocene	-		-	
OB 13	0 to 0.2	-	0.2 to 5.4	Oligocene	-		-	
OB 14	0 to 0.8	-	0.8 to 5.0	FPS-1	5.0 to 6.7	Oligocene	-	
OB 15	-	-	0 to 1.9	OBS-U	-		-	
OB 16	-	-	0 to 6.1	OBS-U	-		-	
OB 17	0 to 1.3	1.3 to 2.5	2.5 to 6.3	OBS-U	-		-	
OB 18	0 to 1.1	1.1 to 2.5	2.6 to 8.9	Oligocene	-		-	
OB 19	0 to 0.2	0.2 to 2.1	2.1 to 6.5	Oligocene	-		-	
OB 20	-	0 to 0.8	0.8 to 1.5	FPS-2	1.5 to 6.1	FPS-1	-	
OB 21	0 to 0.3	0.3 to 2.''	2.9 to 3.3	Oligocene	-		-	
OB 22	0 to 0.5	0.5 to 2.7	2.7 to 5.7	FPS-1	-		-	
OB 23	0 to 0.3	0.3 to 1.4	1.4 to 2.9	FPS-1	-		-	
OB 24	0 to 0.3	0.3 to 0.4	0.4 to 1.8	FPS-1	1.8 to 9.3	Oligocene	-	
OB 25	0 to 1.3	-	1.3 to 1.8	FPS-1	1.8 to 7.7	Oligocene	-	
OB 26	-	-	0 to 4.3	FPS-1	4.3 to 9.5	Oligocene	-	
OB 27	0 to 0.5	-	0.5 to 7.9	FPS-2	-		-	
OB 28	0 to 0.1	-	0.1 to 3.8	FPS-2	-		-	
OB 29	0 to 1.0	1.0 to 2.8	2.8 to 3.9	FPS-2	-		-	
OB29b	0 to 1.0	1.0 to 2.8	2.8 to 8.6	FPS-2	8.6 to 10.0	FPS-1	-	
OB 30	0 to 0.9	-	0.9 to 2.9	FPS-1	2.9 to 6.8	Oligocene	-	
OB 31	0 to 0.5	0.5 to 5.7	5.7 to 7.0	Oligocene	-		-	
OB 32	**********	NO CORE*NO CORE*N	**********		-		-	
OB 33	-	-	0 to 5.8	OBS-4	5.8 to 9.2	OBS-3	-	
OB 34	0 to 0.4	0.4 to 1.2	1.2 to 3.2	OBS-3	3.2 to 9.0	OBS-1	-	

STRATIGRAPHIC UNITS OCCURRING IN VIBRACORES

CORE	HOLOCENE depth (m)	PLEISTOCENE depth (m)	MIOCENE / OLIGOCENE depth (m)	unit	depth (m)	unit	depth (m)	unit
OB 35	0 to 0.4	0.4 to 0.7	0.7 to 7.9	OBS-1	-		-	
OB 36	0 to 0.3	0.3 to 1.5	1.5 to 3.7	BBS-1	3.7 to 5.4	OBS-4	-	
OB 37	-	-	0 to 5.3	FPS-5	5.3 to 8.4	FPS-4	8.4 to 9.0	Oligocene
OB 38	-	-	0 to 1.8	OBS-2	1.8 to 9.2	OBS-1	-	
OB 39	-	-	0 to 8.3	BBS-1	8.3 to 9.2	OBS-2	-	
OB 40	-	0 to 7.8	7.8 to 9.3	OBS-1	-		-	
OB 41	0 to 0.9	-	0.9 to 8.2	OBS-1	-		-	
OB 42	0 to 0.5	0.5 to 1.1	1.1 to 7.1	BBS-1	-		-	
OB 43	0 to 0.4	-	0.4 to 4.6	BBS-1	-		-	
OB 44	0 to 1.0	1.0 to 1.4	1.4 to 6.0	OBS-1	-		-	
OB 45	0 to 0.5	-	0.5 to 5.8	FPS-6	-		-	
OB 46	-	0 to 1.6	1.6 to 8.7	FPS-5	-		-	
OB 47	-	-	0 to 7.5	FPS-2	7.5 to 9.3	FPS-1	-	
OB 48	0 to 0.2	-	0.2 to 8.4	FPS-3	-		-	
OB 49	0 to 0.7	-	0.7 to 9.1	FPS-2	-		-	
OB 50	0 to 0.6	-	0.6 to 2.0	FPS-6	2.0 to 9.1	FPS-5	-	
OB 51	0 to 0.6	-	0.6 to 9.1	OBS-1	-		-	
OB 52	0 to 0.8	0.8 to 2.7	2.7 to 4.3	BBS-1	-		-	
OB 53	0 to 0.8	-	0.8 to 6.5	BBS-2	-		-	
OB 54	0 to 1.3	-	1.3 to 3.6	Oligocene	-		-	
OB 55	0 to 2.4	-	2.4 to 8.3	Oligocene (?)	-		-	
OB 56	0 to 0.8	0.8 to 6.7 (?)	-		-		-	
OB 57	-	-	0.0 to 5.6	FPS-6	5.6 to 9.1	FPS-5	-	
OB 58	-	0 to 1.0	1.0 to 9.3	OBS-2	-		-	
OB 59	-	0 to 5.9	5.9 to 8.2	BBS-1	-		-	
OB 60	0 to 0.9	0.9 to 2.0 (?)	2.0 to 7.9	BBS-3	-		-	
OB 61	0 to 1.0	-	1.0 to 6.1	Oligocene	-		-	
OB 62	0 to 0.8	0.8 to 3.3	3.3 to 5.8	OBS-u	-		-	
OB 63	-	-	0 to 2.7	FPS-2	2.7 to 2.8 (cutter head)		-	
OB 64	0 to 0.9	0.9 to 3.3	3.3 to 6.4	FPS-1	-		-	
OB 65	0 to 0.5	0.5 to 1.5	1.5 to 4.4	FPS-2	-		-	
OB 66	0 to 0.7	0.8 to 1.0	1.0 to 2.9	FPS-6	2.9 to 3.5	FPS-3	-	
OB 67	0 to 1.5	1.5 to 3.1	3.1 to 7.6	FPS-6	-		-	
OB 68	-	-	0 to 2.8	OBS-3	2.8 to 4.4	OBS-2	-	
OB 69	-	0 to 7.4	-		-		-	

STRATIGRAPHIC UNITS OCCURRING IN VIBRACORES

CORE	HOLOCENE depth (m)	PLEISTOCENE depth (m)		M I O C E N E depth (m)		unit	/ O L I G O C E N E depth (m)		unit	depth (m)	unit
OB 70	-	0	to 0.6	0.6	to 2.2	FPS-2		-		-	
OB 71	0 to 0.1		-	0.1	to 1.1	BBS-1		-		-	
OB 72	0 to 0.2		-	0.2	to 3.8	BBS-2	3.8	to 4.2	BBS-1	-	
OB 73	?		to 9.1					-		-	
OB 74	0 to 0.2	0.2	to 4.3					-		-	
OB 75	?		to 4.1					-		-	
OB 76	-	0	to 1.0	1.0	to 2.5	Oligocene		-		-	
OB 77	0 to 1.1		-	1.1	to 8.1	Oligocene		-		-	
OB 78	?		to 0.2					-		-	
OB 79	-	0	to 4.5	4.5	to 5.7	BBS-1		-		-	
OB 80	-	0	to 4.9	4.9	to 5.7	OBS-1		-		-	
OB 81	?		to 2.0					-		-	
OB 82	?		to 2.6					-		-	
OB 83	?		to 4.4					-		-	
OB 84	?		to 6.1					-		-	
OB 85	?		to 6.5					-		-	
OB 86	?		to 6.1					-		-	
OB 87	?		to 6.1					-		-	
OB 88	?		to 6.1					-		-	
OB 89	-	0	to 5.7					-		-	
OB 90	0 to 0.7	0.7	to 3.5	3.5	to 6.0	BBS-8 (?)		-		-	
OB 91	0 to 0.7	0.7	to 2.5	2.5	to 6.0	BBS-1		-		-	
OB 92	0 to 3.1	3.1	to 4.4	4.4	to 6.2	BBS-4		-		-	
OB93a	0 to 0.2	0.2	to 0.2		-			-		-	
OB93b	0 to 3.9		-		-			-		-	
OB 94	0 to 0.5		-	0.5	to 1.9	BBS-2		-		-	
OB 95	0 to 0.5		-	0.5	to 2.2	BBS-3	2.2	to 2.4	BBS-2	-	
OB 96	0 to 0.9		-	0.9	to 6.3	FPS-6		-		-	
OB 97	0 to 0.5	0.5	to 0.4	0.4	to 6.9	FPS-2		-		-	
OB 98	0 to 1.4		-	1.4	to 4.2	FPS-2		-		-	
OB 99	-	0	to 7.5		-			-		-	
OB100	0 to 1.2	1.2	to 4.4	4.4	to 8.7	BBS-8		-		-	
OB101	-	0	to 5.1	5.1	to 8.6	FPS-4 (?)		-		-	
OB102	-		-	0	to 8.8	FPS-6		-		-	
OB103	0 to 0.7		-	0.7	to 5.9	FPS-2		-		-	

STRATIGRAPHIC UNITS OCCURRING IN VIBRACORES

CORE	HOLOCENE depth (m)	PLEISTOCENE depth (m)	M I O C E N E / O L I G O C E N E depth (m)	unit	depth (m)	unit	depth (m)	unit
08104	0 to 4.5	-	4.5 to 6.0	FPS-2	6.0 to 7.2	FPS-1	-	
08105	-	-	0 to 4.5	FPS-2	4.5 to 9.1	FPS-1	-	
08106	0 to 0.9	-	0.9 to 9.1	Oligocene	-		-	
08107	0 to 0.3	-	0.3 to 2.8	FPS-6	-		-	
08108	0 to 1.8	-	1.8 to 5.5	BBS-5	-		-	
08109	0 to 0.2	-	0.2 to 5.6	BBS-2	5.6 to 6.2	BBS-1	-	
08110	0 to 0.38	-	0.38 to 6.2	FPS-2	-		-	
08111	-	-	0 to 4.6	OBS-4	4.6 to 8.6	OBS-3	-	
08112	0 to 0.8	0.8 to 4.1	-		-		-	
08113a	0 to 0.2	-	0.2 to 2.3	FPS-1	-		-	
08113b	0 to 0.8	-	0.8 to 4.6	FPS-1	-		-	
08114	0 to 1.8	1.8 to 5.3	5.3 to 8.2	FPS-1	-		-	
08115	0 to 0.9	0.9 to 5.4	5.4 to 7.4	FPS-1	7.4 to 9.3	Oligocene	-	
08116	-	-	0 to 3.4	FPS-1	-		-	
08117	-	0 to 2.2	2.2 to 9.0	FPS-2	-		-	
08118	-	0 to 1.8	1.8 to 9.1	FPS-6	-		-	
08119	-	0 to 0.1	0.1 to 3.7	FPS-1	-		-	
08120	0 to 0.8	0.8 to 4.0	4.0 to 7.1	FPS-1	7.1 to 7.8	Oligocene	-	
08121	0 to 0.2	-	0.2 to 6.7	Oligocene	-		-	
08122	0 to 2.1	-	-		-		-	
08123	-	-	0 to 6.6	FPS-2	-		-	
08124	0 to 0.6	0.6 to 4.8	-		-		-	
08125	0 to 0.8	-	0.8 to 5.2	BBS-2	-		-	
08126	-	-	0 to 8.4	Oligocene	-		-	
08127	0 to 1.3	-	1.3 to 8.6	FPS-1	-		-	
08128	0 to 1.5	-	1.5 to 6.6	FPS-5	-		-	
08129	0 to 2.1	-	2.1 to 8.5	FPS-3	-		-	
08130	0 to 0.5	-	0.5 to 4.1	FPS-1	-		-	
08131	0 to 1.9	1.9 to 6.4	-		-		-	
08132	0 to 0.3	0.3 to 1.0	1.0 to 3.9	FPS-1	-		-	
08133	lost core	samples from liner in bags			-		-	
08134	poor core	samples in bags; total depth 0.2m(?)			-		-	
08135	0 to 0.15	-	0.2 to 6.8	FPS-1	-		-	

CHEMICAL DATA FOR VIBRACORE AND SURFACE BULK–SEDIMENT SAMPLES

This file contains all chemical data obtained by various laboratories on bulk-sediment samples from vibracores in Onslow Bay, North Carolina. The last two pages (pages 81 and 82) in this file include the chemical data obtained on bulk-sediments from SHIPEK surface samples in Onslow Bay. Data are organized sequentially by vibracore number beginning with OB–1 and depth in the core beginning at the sediment-water surface or sequentially by SHIPEK sample number beginning with OBS–1.

Due to the large number of data entrees per sample, each sample requires three rows of data. Consequently, the data for 1 set of samples are presented in sets of three rows that occupy one full page. Since all SHIPEK surface samples are from the sediment–water interface, water depth equals the sample depth. Blanks indicate that the samples were not analyzed for that element.

Four types of data are presented in this section.

1. *Columns 1 through 8:* Location data include the sample number, vibracore hole or SHIPEK sample number, stratigraphic unit, latitude and longitude of sample location, top and bottom depth of sample in the vibracore, and water depth at the sample site.

2. *Columns 9 through 21:* All of these chemical analyses were done by Inductively Coupled Argon Plasma Emission Spectrometry (ICAPES) by Dr. John T. Bray of the Trace Elements Laboratory, School of Medicine, East Carolina University, Greenville, North Carolina. The samples were digested utilizing a hydrofluoric bomb technique. Concentrations of the digested solutions were determined in ppm of the element. Concentrations of major elements were then converted to percent oxides of the dry material and concentrations of copper and zinc were converted to ppm of the dry material. All ICAPES data are quantitative; only the elements with good reproducibility, hence high reliability have been included.

3. *Columns 9 through 16 and 22 through 26:* Data that occur in these columns are for major elements (in weight percent) and were done in one of the following industrial laboratories:

Agrico Chemicals Corp., Bartow, FL
North Carolina State University, Mineral Research Laboratory, Asheville, NC
Texasgulf, Inc., Aurora, NC
W.R. Grace Inc., Bartow, FL

This group of analyses was done using standard wet chemical procedures utilized by the phosphate industry on phosphate concentrates and as outlined by the Association of Florida Phosphate Chemists (1980). Analytical numbers are not adjusted for percent insoluble residue.

Each of the four labs analyzed for different elements on samples that they ran. Consequently, each sample has different elements included in the data set.

4. *Columns 27 through 40:* Data that occur in these columns are from chemical analyses done by Energy Dispersive X–ray Fluorescence (EDXRF) instrumentation by Dr. John T. Bray of the Trace Elements Laboratory, School of Medicine, East Carolina University, Greenville, North Carolina. This is a thin-film EDXRF analysis of a powdered sample. Data are reported as ppm or percent of the dry powder and are qualitative or semi-quantitative, at best.

Column 1: SPL NUM

OB–1A	Onslow Bay vibracore number 1, sample A.
BR–1	Onslow Bay vibracore bulk rock analysis number 1.
BR123	Onslow Bay SHIPEK surface sample bulk rock analysis number 123.
ML–4	Onslow Bay vibracore or SHIPEK surface sample metallurgical lab analysis number 4
5	Onslow Bay vibracore sample number 5.
P–7	Onslow Bay vibracore minicore number 7 (frozen for carbon analysis).

Column 2: HOLE

OB–11	Onslow Bay vibracore number 11; all cores are from the Onslow Bay Project between 1980–90 with locations based upon Loran C navigation.
OBS–1	Onslow Bay SHIPEK sample number 1; all SHIPEK samples are from the Onslow Bay Project between 1980–90 with locations based upon Loran C navigation.

Column 3: UNIT

Holocene: Modern shelf sand, gravelly sand, and gravel
Pleistocene: Undifferentiated
Miocene: Pungo River Formation
- Bogue Banks Sequences
  - BBS–8
  - BBS–7
  - BBS–6
  - BBS–5
  - BBS–4
  - BBS–3
  - BBS–2
  - BBS–1
- Onslow Bay Sequences
  - OBS–U (Undifferentiated)*
  - OBS–4
  - OBS–3
  - OBS–2
  - OBS–1
- Frying Pan Sequences
  - FPS–6
  - FPS–5
  - FPS–4
  - FPS–3
  - FPS–2
  - FPS–1

Oligocene: Silverdale Formation

* Where data are insufficient to identify the specific OBS sequence, it is listed as "OBS-U".

Column 4: LAT

Location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 5: LONG

Location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 6: TOP DEPTH

Depth in meters in vibracore to top of bulk–sediment sample.

Column 7: BOT DEPTH

Depth in meters in vibracore to bottom of bulk–sediment sample.

Column 8: H2ODEPTH

Depth of water in meters to sediment–water interface at sample site. There is a variability in these numbers that is a function of the tide, type of fathometer utilized, correction for transducer location on ship, etc.

Columns 9 through 26: CHEMICAL DATA

COLUMN	ECU-ICAPES DATA	PHOSPHATE COMPANY DATA	DESCRIPTION
9	P2O5 %	P2O5 %	P_2O_5 percent
10	CAO %	CAO %	CaO percent
11	SIO2 %	SIO2 %	SiO_2 percent
12	MGO %	MGO %	MgO percent
13	FE2O3 %	FE2O3 %	Fe_2O_3 percent
14	AL2O3 %	AL2O3 %	Al_2O_3 percent
15	NA2O %	NA2O %	Na_2O percent
16	K2O %	K2O %	K_2O percent
17	TIO2 %		TiO_2 percent
18	MNO %		MnO percent
19	SUM %		Sum of previous oxides in percent
20	CU PPM		Copper parts per million
21	ZN PPM		Zinc parts per million
22		INSOL %	Insoluble residue in percent
23		SO3 %	SO_3 percent
24		F2 %	Fluoride percent
25		C %	Carbon percent
26		CO2 %	CO_2 percent

Columns 27 through 40: CHEMICAL DATA

COLUMN	ECU-EDXRF DATA		DESCRIPTION
27	TI	%	Titanium percent
28	ZR	PPM	Zirconium parts per million
29	CR	PPM	Chromium parts per million
30	V	PPM	Vanadium parts per million
31	FE	%	Iron percent
32	MN	%	Manganese percent
33	CA	%	Calcium percent
34	P	%	Phosphorus percent
35	CO	PPM	Cobalt parts per million
36	BR	PPM	Bromine parts per million
37	RB	PPM	Rubidium parts per million
38	SR	PPM	Strontium parts per million
39	Y	PPM	Yttrium parts per million
40	MO	PPM	Molybdenum parts per million

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
OB-1A	OB-1	BBS-8	34.640	76.768	3.75	4.00	16.0	3.35	16.50	49.1	1.18	1.47	2.80
OB-1A	OB-1	BBS-8	34.640	76.768	3.75	4.00	16.0	3.35	16.50	49.1	1.18	1.47	2.80
BR-1	OB-1	BBS-8	34.640	76.768	4.50	4.75	16.0	3.90	6.63	.	1.92	0.64	0.75
OB-1B	OB-1	BBS-8	34.640	76.768	4.75	5.00	16.0	4.10	13.70	56.7	2.56	0.78	1.42
OB-1B	OB-1	BBS-8	34.640	76.768	4.75	5.00	16.0	4.10	13.70	56.7	2.56	0.78	1.42
OB-1C	OB-1	BBS-8	34.640	76.768	5.75	6.00	16.0	4.07	9.03	50.2	1.64	1.18	2.40
OB-1C	OB-1	BBS-8	34.640	76.768	5.75	6.00	16.0	4.07	9.03	50.2	1.64	1.18	2.40
OB-1C	OB-1	BBS-8	34.640	76.768	5.75	6.00	16.0	4.07	9.03	50.2	1.64	1.18	2.40
OB-1C	OB-1	BBS-8	34.640	76.768	5.75	6.00	16.0	4.07	9.03	50.2	1.64	1.18	2.40

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
OB-1A	0.70	0.87	0.29	0.04	76.34	20	44	.	.	.	.	.	0.15	376.01	23.20
OB-1A	0.70	0.87	0.29	0.04	76.34	20	44	.	.	.	.	.	0.15	376.01	23.20
BR-1	.	.	.	.	.	.	.	65.70	.	.	.	.	.	.	.
OB-1B	0.50	0.63	0.28	0.02	80.74	36	41	.	.	.	.	.	0.27	200.33	20.00
OB-1B	0.50	0.63	0.28	0.02	80.74	36	41	.	.	.	.	.	0.27	200.33	20.00
OB-1C	0.80	0.57	0.29	0.01	70.21	31	51	.	.	.	.	.	0.15	120.93	27.29
OB-1C	0.80	0.57	0.29	0.01	70.21	31	51	.	.	.	.	.	0.15	120.93	27.29
OB-1C	0.80	0.57	0.29	0.01	70.21	31	51	.	.	.	.	.	0.15	120.93	27.29
OB-1C	0.80	0.57	0.29	0.01	70.21	31	51	.	.	.	.	.	0.15	120.93	27.29

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-1A	21.28	1.18	0.01	10.20	2.47	9.49	85.84	19.33	602.21	49.73	22.93
OB-1A	21.28	1.18	0.01	10.20	2.47	9.49	85.84	19.33	602.21	49.73	22.93
BR-1	.	.	.	.	.	.	.	.	.	.	.
OB-1B	32.81	0.60	0.01	9.38	2.81	7.72	4.80	11.66	414.61	67.06	13.44
OB-1B	32.81	0.60	0.01	9.38	2.81	7.72	4.80	11.66	414.61	67.06	13.44
OB-1C	22.86	0.93	0.01	5.71	2.22	5.76	124.77	22.90	431.52	76.25	8.38
OB-1C	22.86	0.93	0.01	5.71	2.22	5.76	124.77	22.90	431.52	76.25	8.38
OB-1C	22.86	0.93	0.01	5.71	2.22	5.76	124.77	22.90	431.52	76.25	8.38
OB-1C	22.86	0.93	0.01	5.71	2.22	5.76	124.77	22.90	431.52	76.25	8.38

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR-13	OB-1	BBS-8	34.640	76.768	6.00	6.25	16.0	4.70	10.13	.	1.60	0.71
ML-4	OB-1	BBS-8	34.640	76.768	6.25	6.75	16.0	4.71	12.86	.	1.69	1.10
OB-1D	OB-1	BBS-8	34.640	76.768	6.75	7.00	16.0	6.21	12.90	61.5	1.22	0.95
OB-1D	OB-1	BBS-8	34.640	76.768	6.75	7.00	16.0	6.21	12.90	61.5	1.22	0.95
OB-1D	OB-1	BBS-8	34.640	76.768	6.75	7.00	16.0	6.21	12.90	61.5	1.22	0.95
OB-1D	OB-1	BBS-8	34.640	76.768	6.75	7.00	16.0	6.21	12.90	61.5	1.22	0.95
BR-14	OB-1	BBS-8	34.640	76.768	7.00	7.25	16.0	6.09	11.50	.	0.82	0.57
OB-1E	OB-1	BBS-8	34.640	76.768	7.75	8.00	16.0	5.82	11.00	61.0	1.15	1.33
OB-1E	OB-1	BBS-8	34.640	76.768	7.75	8.00	16.0	5.82	11.00	61.0	1.15	1.33

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR-13	1.18	.	.	.	.	.	.	.	68.73	.	.	.	.	.	.
ML-4	1.38	0.64	0.31	.	.	.	.	.	69.80	1.59	0.59	0.63	4.05	.	.
OB-1D	1.66	0.60	0.51	0.31	1.28	87.21	18	59	.	.	.	.	.	.	.
OB-1D	1.66	0.60	0.51	0.31	1.28	87.21	18	59	.	.	.	.	.	.	.
OB-1D	1.66	0.60	0.51	0.31	1.28	87.21	18	59	.	.	.	.	.	.	.
OB-1D	1.66	0.60	0.51	0.31	1.28	87.21	18	59	.	.	.	.	.	.	.
BR-14	0.70	.	.	.	.	.	.	.	70.84	.	.	.	.	.	.
OB-1E	2.42	0.50	0.80	0.42	0.02	84.50	54	68	.	.	.	.	.	0.26	283.82
OB-1E	2.42	0.50	0.80	0.42	0.02	84.50	54	68	.	.	.	.	.	0.26	283.82

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR-13	.	.	.	.	.	.	.	.	.	.	.	.
ML-4	.	.	.	.	.	.	.	.	.	.	.	.
OB-1D	.	.	.	.	.	.	.	.	.	.	.	.
OB-1D	.	.	.	.	.	.	.	.	.	.	.	.
OB-1D	.	.	.	.	.	.	.	.	.	.	.	.
OB-1D	.	.	.	.	.	.	.	.	.	.	.	.
BR-14	.	.	.	.	.	.	.	.	.	.	.	.
OB-1E	33.44	24.18	0.99	0.01	5.96	3.73	7.98	64.79	19.58	483.47	101.60	21.16
OB-1E	33.44	24.18	0.99	0.01	5.96	3.73	7.98	64.79	19.58	483.47	101.60	21.16

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
OB-1E	OB-1	BBS-8	34.640	76.768	7.75	8.00	16.0	5.82	11.00	61.0	1.15	1.33	2.42
OB-1E	OB-1	BBS-8	34.640	76.768	7.75	8.00	16.0	5.82	11.00	61.0	1.15	1.33	2.42
OB-1F	OB-1	BBS-8	34.640	76.768	8.75	9.00	16.0	5.25	11.80	56.2	1.28	1.32	2.37
OB-1F	OB-1	BBS-8	34.640	76.768	8.75	9.00	16.0	5.25	11.80	56.2	1.28	1.32	2.37
OB-1F	OB-1	BBS-8	34.640	76.768	8.75	9.00	16.0	5.25	11.80	56.2	1.28	1.32	2.37
OB-1F	OB-1	BBS-8	34.640	76.768	8.75	9.00	16.0	5.25	11.80	56.2	1.28	1.32	2.37
BR-2	OB-1	BBS-8	34.640	76.768	8.90	9.10	16.0	5.21	9.82	.	1.02	0.68	1.13
OB-2A	OB-2	BBS-1	34.633	76.865	3.25	3.50	15.5	1.26	5.22	62.6	0.69	2.30	3.93
OB-2B	OB-2	BBS-1	34.633	76.865	6.25	6.50	15.5	1.92	4.06	67.4	0.65	1.99	4.26

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
OB-1E	0.50	0.80	0.42	0.02	84.50	54	68	.	.	.	.	.	0.26	283.82	33.44
OB-1E	0.50	0.80	0.42	0.02	84.50	54	68	.	.	.	.	.	0.26	283.82	33.44
OB-1F	0.60	0.42	0.49	0.02	79.82	52	52	.	.	.	.	.	0.29	486.69	44.80
OB-1F	0.60	0.42	0.49	0.02	79.82	52	52	.	.	.	.	.	0.29	486.69	44.80
OB-1F	0.60	0.42	0.49	0.02	79.82	52	52	.	.	.	.	.	0.29	486.69	44.80
OB-1F	0.60	0.42	0.49	0.02	79.82	52	52	.	.	.	.	.	0.29	486.69	44.80
BR-2	.	.	.	.	.	.	.	69.90	.	.	.	.	.	.	.
OB-2A	0.60	0.86	1.00	0.04	78.58	114	56	.	.	.	.	.	0.79	1100.34	46.75
OB-2B	0.60	0.89	0.91	0.04	82.81	105	67	.	.	.	.	.	0.32	413.61	45.91

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-1E	24.18	0.99	0.01	5.96	3.73	7.98	64.79	19.58	483.47	101.60	21.16
OB-1E	24.18	0.99	0.01	5.96	3.73	7.98	64.79	19.58	483.47	101.60	21.16
OB-1F	21.71	1.20	0.01	9.24	5.29	11.44	86.13	19.95	496.41	107.17	30.14
OB-1F	21.71	1.20	0.01	9.24	5.29	11.44	86.13	19.95	496.41	107.17	30.14
OB-1F	21.71	1.20	0.01	9.24	5.29	11.44	86.13	19.95	496.41	107.17	30.14
OB-1F	21.71	1.20	0.01	9.24	5.29	11.44	86.13	19.95	496.41	107.17	30.14
BR-2	.	.	.	.	.	.	.	.	.	.	.
OB-2A	32.02	2.42	0.03	5.52	2.33	21.65	90.94	32.44	265.45	71.17	63.96
OB-2B	53.33	1.96	0.03	3.70	2.92	15.47	41.53	30.54	224.35	71.53	24.66

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
BR-22	OB-2B	BBS-1	34.467	76.865	4.75	5.00	15.5	1.96	2.26	.	0.95	1.25	1.46
ML-5	OB-2B	BBS-1	34.467	76.865	5.25	6.00	15.5	2.29	4.86	.	0.84	1.59	1.45
BR-3	OB-2B	BBS-1	34.467	76.865	6.10	6.25	15.5	4.55	7.29	.	0.82	0.85	1.18
5	OB-2B	BBS-1	34.467	76.865	6.10	6.25	15.5	1.76	3.36	.	1.16	2.15	4.53
BR-82	OB-3	OBS-4	34.628	76.890	8.70	9.10	14.5	1.59	46.43	.	4.57	0.34	0.46
BR-38	OB-4	BBS-1	34.608	76.913	5.75	6.00	14.5	3.81	5.47	.	0.45	0.57	1.05
BR-39	OB-4	BBS-1	34.608	76.913	8.90	9.10	14.5	3.74	9.77	.	0.42	0.39	0.77
OB-6BA	OB-6B	BBS-1	34.443	76.943	3.00	3.25	20.0	1.62	2.87	65.8	0.99	2.07	5.77
BR-35	OB-6B	BBS-1	34.443	76.943	5.75	6.00	20.0	2.08	1.71	.	0.60	1.04	1.57

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
BR-22	.	.	.	.	.	.	.	84.11	.	.	.	.	.	.	.
ML-5	0.30	0.25	.	.	.	.	.	82.00	2.83	0.29	0.75	0.52	.	.	.
BR-3	.	.	.	.	.	.	.	75.18	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BR-82	.	.	.	.	.	.	.	5.02	.	.	.	.	.	.	.
BR-38	.	.	.	.	.	.	.	78.63	.	.	.	.	.	.	.
BR-39	.	.	.	.	.	.	.	74.64	.	.	.	.	.	.	.
OB-6BA	1.40	1.48	0.57	0.04	82.63	38	75	.	.	.	.	.	.	.	.
BR-35	.	.	.	.	.	.	.	81.27	.	.	.	.	.	.	.

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR-22	.	.	.	.	.	.	.	.	.	.	.
ML-5	.	.	.	.	.	.	.	.	.	.	.
BR-3	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.
BR-82	.	.	.	.	.	.	.	.	.	.	.
BR-38	.	.	.	.	.	.	.	.	.	.	.
BR-39	.	.	.	.	.	.	.	.	.	.	.
OB-6BA	.	.	.	.	.	.	.	.	.	.	.
BR-35	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
ML-7	OB-6B	BBS-1	34.443	76.943	6.50	7.00	20.0	2.61	6.95	.	0.22	0.61	0.35
OB-6BB	OB-6B	BBS-1	34.443	76.943	6.50	6.50	20.0	2.85	4.80	73.3	0.35	0.50	1.51
OB-6BC	OB-6B	BBS-1	34.443	76.943	7.00	7.00	20.0	2.54	4.73	74.9	0.36	0.53	1.43
BR-36	OB-6B	BBS-1	34.443	76.943	7.40	7.60	20.0	2.70	3.66	.	0.17	0.15	0.20
BR-83	OB-7	OLIG	33.855	77.611	4.00	5.00	26.7	0.72	7.45	.	0.30	0.65	0.34
BR-84	OB-8	PLEIS	33.853	77.656	2.00	4.00	23.0	0.68	6.59	.	0.40	0.80	0.32
OB-9A	OB-9	FPS-1	33.851	77.628	1.75	2.00	25.0	3.36	14.10	48.9	0.94	1.73	5.35
OB-9B	OB-9	FPS-1	33.851	77.628	2.75	3.00	25.0	3.20	12.40	45.7	2.12	1.79	5.52
BR-52	OB-9	FPS-1	33.851	77.628	3.00	3.10	25.0	3.55	11.56	.	1.45	0.86	1.76

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
ML-7	0.38	0.09	.	.	.	.	.	87.60	0.54	0.31	0.24	1.09	.	.	.
OB-6BB	0.60	0.52	0.25	1.24	85.96	14	35	.	.	.	.	.	0.22	197.62	29.61
OB-6BC	0.50	0.62	0.23	0.02	85.95	15	34	.	.	.	.	.	0.08	94.46	16.83
BR-36	.	.	.	.	.	.	.	85.92	.	.	.	.	.	.	.
BR-83	.	.	.	.	.	.	.	78.78	.	.	.	.	.	.	.
BR-84	.	.	.	.	.	.	.	82.20	.	.	.	.	.	.	.
OB-9A	1.50	1.61	0.79	0.03	78.35	97	88	.	.	.	.	.	.	.	.
OB-9B	2.50	1.38	0.65	0.02	75.32	84	119	.	.	.	.	.	0.46	244.00	78.17
BR-52	.	.	.	.	.	.	.	63.83	.	.	.	.	.	.	.

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
ML-7	.	.	.	.	.	.	.	.	.	.	.
OB-6BB	23.68	0.47	0.01	4.33	3.00	10.46	78.48	10.23	267.22	52.88	10.51
OB-6BC	16.88	0.29	0.00	1.96	0.00	4.23	64.76	7.54	185.03	37.02	3.51
BR-36	.	.	.	.	.	.	.	.	.	.	.
BR-83	.	.	.	.	.	.	.	.	.	.	.
BR-84	.	.	.	.	.	.	.	.	.	.	.
OB-9A	.	.	.	.	.	.	.	.	.	.	.
OB-9B	65.38	1.56	0.02	10.00	2.88	9.73	55.40	31.78	479.17	70.10	24.52
BR-52	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
BR-85	OB-10	OLIG	33.855	77.641	1.00	.	25.0	0.76	16.20	.	0.58	0.71	0.46
ML-28	OB-11	FPS-1	33.868	77.578	0.75	1.50	25.0	14.23	27.75	.	0.84	0.88	1.03
BR-51	OB-11	FPS-1	33.868	77.578	0.90	1.00	25.0	15.93	26.99	.	0.85	0.54	1.11
15	OB-11	FPS-1	33.868	77.578	3.20	3.30	25.0	0.60	22.38	.	4.31	0.99	2.83
16	OB-12	OLIG	33.866	77.590	8.00	8.10	27.0	0.00	4.76	.	0.32	1.00	2.83
OB-14A	OB-14	FPS-1	33.861	77.565	1.00	1.25	28.0	5.41	23.50	24.9	1.31	1.00	2.89
OB-14A	OB-14	FPS-1	33.861	77.565	1.00	1.25	28.0	5.41	23.50	24.9	1.31	1.00	2.89
BR-47	OB-14	FPS-1	33.861	77.565	1.25	1.35	28.0	6.15	25.00	.	0.97	0.36	0.80
ML-16	OB-14	FPS-1	33.861	77.565	1.25	1.75	28.0	6.60	27.10	.	1.23	0.39	0.80

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
BR-85	.	.	.	.	.	.	.	62.92	.	.	.	.	.	.	.
ML-28	.	.	.	.	.	.	.	41.15	.	.	.	.	.	.	.
BR-51	.	.	.	.	.	.	.	37.76	.	.	.	.	.	.	.
15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-14A	1.40	0.86	0.56	0.02	61.87	78	91	.	.	.	.	.	0.24	292.71	43.15
OB-14A	1.40	0.86	0.56	0.02	61.87	78	91	.	.	.	.	.	0.24	292.71	43.15
BR-47	.	.	.	.	.	.	.	43.67	.	.	.	.	.	.	.
ML-16	0.77	0.14	.	.	.	.	.	43.00	2.24	0.77	1.42	13.91	.	.	.

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR-85	.	.	.	.	.	.	.	.	.	.	.
ML-28	.	.	.	.	.	.	.	.	.	.	.
BR-51	.	.	.	.	.	.	.	.	.	.	.
15	.	.	.	.	.	.	.	.	.	.	.
16	.	.	.	.	.	.	.	.	.	.	.
OB-14A	25.38	0.69	0.01	17.21	3.50	5.76	308.95	14.97	794.80	100.05	20.44
OB-14A	25.38	0.69	0.01	17.21	3.50	5.76	308.95	14.97	794.80	100.05	20.44
BR-47	.	.	.	.	.	.	.	.	.	.	.
ML-16	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-14B	OB-14	FPS-1	33.861	77.565	2.50	2.75	28.0	11.70	29.80	23.2	1.16	0.95
BR-48	OB-14	FPS-1	33.861	77.565	3.00	3.10	28.0	11.65	21.42	.	0.72	0.54
ML-15	OB-14	FPS-1	33.861	77.565	3.25	3.75	28.0	14.30	30.92	.	1.35	0.41
OB-14C	OB-14	FPS-1	33.861	77.565	4.00	4.25	28.0	14.58	26.90	27.1	1.03	1.05
ML-29	OB-14	FPS-1	33.861	77.565	4.25	4.85	28.0	11.11	23.65	.	0.69	1.02
BR-49	OB-14	FPS-1	33.861	77.565	4.75	4.85	28.0	12.23	24.28	.	0.92	0.50
BR-50	OB-14	OLIG	33.861	77.565	5.90	6.00	28.0	0.60	18.87	.	1.95	0.46
BR-69	OB-15	OBS-U	33.713	77.603	0.90	1.00	29.0	1.66	12.17	.	2.25	1.00
8	OB-15	OBS-U	33.713	77.603	1.00	1.50	29.0	1.24	12.59	.	2.16	5.01

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-14B	2.54	1.60	0.60	0.49	0.86	72.95	36	116	.	.	.	.	.	0.32	743.09
BR-48	0.94	.	.	.	.	.	.	.	50.19	.	.	.	.	.	.
ML-15	1.17	0.85	0.16	.	.	.	.	.	35.00	2.74	1.38	1.36	7.58	.	.
OB-14C	2.48	1.50	0.68	0.58	0.03	75.96	45	153	.	.	.	.	.	.	.
ML-29	1.17	.	.	.	.	.	.	.	49.29	.	.	.	.	.	.
BR-49	0.89	.	.	.	.	.	.	.	43.30	.	.	.	.	.	.
BR-50	0.42	.	.	.	.	.	.	.	57.49	.	.	.	.	.	.
BR-69	0.99	.	.	.	.	.	.	.	62.17	.	.	.	.	.	.
8	5.67	.	.	.	.	.	.	.	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-14B	52.10	20.96	0.79	0.01	26.14	12.03	5.67	200.11	11.75	1137.74	180.94	44.92
BR-48	.	.	.	.	.	.	.	.	.	.	.	.
ML-15	.	.	.	.	.	.	.	.	.	.	.	.
OB-14C	.	.	.	.	.	.	.	.	.	.	.	.
ML-29	.	.	.	.	.	.	.	.	.	.	.	.
BR-49	.	.	.	.	.	.	.	.	.	.	.	.
BR-50	.	.	.	.	.	.	.	.	.	.	.	.
BR-69	.	.	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
9	OB-15	OBS-U	33.713	77.603	6.00	6.10	29.0	0.00	5.18	.	2.32	2.72
OB-16A	OB-16	OBS-U	33.685	77.623	0.50	0.75	28.0	0.88	4.90	37.90	4.86	4.78
BR-70	OB-16	OBS-U	33.685	77.623	1.10	1.25	28.0	1.02	4.90	.	3.55	1.54
14	OB-16	OBS-U	33.685	77.623	1.25	1.35	28.0	0.00	6.16	.	4.97	4.29
OB-16B	OB-16	OBS-U	33.685	77.623	4.25	4.50	28.0	0.84	2.09	45.30	3.32	5.00
OB-16C	OB-16	OBS-U	33.685	77.623	5.75	5.82	28.0	1.21	2.24	45.00	3.40	5.27
BR-66	OB-17	HOLO	33.706	77.570	0.40	0.50	27.0	1.01	12.14	.	0.62	0.78
BR-67	OB-17	OBS-U	33.706	77.570	3.00	3.10	27.0	2.07	12.22	.	3.25	1.32
OB-17A	OB-17	OBS-U	33.706	77.570	3.00	3.25	27.0	1.76	12.40	32.20	4.11	2.56

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
9	7.18	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-16A	10.91	2.40	2.13	0.86	2.11	71.73	51	160	.	.	.	.	.	.	.
BR-70	1.94	.	.	.	.	.	.	.	64.91	.	.	.	.	.	.
14	9.63	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-16B	11.20	2.00	2.16	0.80	0.03	72.81	97	120	.	.	.	.	.	0.40	136.50
OB-16C	12.00	2.10	2.15	0.85	2.30	76.59	50	164	.	.	.	.	.	.	.
BR-66	0.17	.	.	.	.	.	.	.	70.79	.	.	.	.	.	.
BR-67	1.70	.	.	.	.	.	.	.	58.31	.	.	.	.	.	.
OB-17A	6.94	2.10	1.78	0.54	0.05	64.48	34	123	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
9	.	.	.	.	.	.	.	.	.	.	.	.
OB-16A	.	.	.	.	.	.	.	.	.	.	.	.
BR-70	.	.	.	.	.	.	.	.	.	.	.	.
14	.	.	.	.	.	.	.	.	.	.	.	.
OB-16B	95.75	65.53	3.69	0.01	1.07	0.48	12.42	353.99	92.53	92.53	193.09	57.70
OB-16C	.	.	.	.	.	.	.	.	.	.	.	.
BR-66	.	.	.	.	.	.	.	.	.	.	.	.
BR-67	.	.	.	.	.	.	.	.	.	.	.	.
OB-17A	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
10	OB-17		33.706	77.570	3.00	3.10	27.0	0.00	16.79	.	0.90	1.06
OB-17B	OB-17	OBS-U	33.706	77.570	5.75	6.00	27.0	1.22	13.50	40.00	2.33	2.20
11	OB-17	OBS-U	33.706	77.570	5.80	5.90	27.0	0.00	12.87	.	2.32	2.15
BR-68	OB-17	OBS-U	33.706	77.570	5.90	6.00	27.0	1.49	12.05	.	1.77	0.82
ML-30	OB-18	HOLO	33.728	77.671	0.00	1.00	24.5	6.08	24.97	.	0.81	1.44
BR-86	OB-18	HOLO	33.728	77.671	0.45	0.55	24.5	6.63	24.66	.	0.78	1.20
BR-87	OB-18	HOLO	33.728	77.671	1.00	1.10	24.5	3.46	21.66	.	0.87	1.30
BR-88	OB-19	HOLO	33.728	77.688	0.00	0.20	23.0	3.90	23.66	.	0.99	2.05
BR-63	OB-20	FPS-1	33.753	77.613	3.25	3.35	24.5	7.85	20.42	.	1.57	0.75

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
10	1.13	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-17B	6.70	2.10	1.55	0.62	0.01	70.25	90	104	.	.	.	.	.	0.44	294.51
11	6.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BR-68	1.19	.	.	.	.	.	.	.	64.29	.	.	.	.	.	.
ML-30	0.42	.	.	.	.	.	.	.	50.67	.	.	.	.	.	.
BR-86	0.30	.	.	.	.	.	.	.	46.65	.	.	.	.	.	.
BR-87	0.36	.	.	.	.	.	.	.	51.88	.	.	.	.	.	.
BR-88	0.35	.	.	.	.	.	.	.	48.69	.	.	.	.	.	.
BR-63	1.51	.	.	.	.	.	.	.	46.59	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
10	.	.	.	.	.	.	.	.	.	.	.	.
OB-17B	59.21	55.06	2.04	0.02	12.69	1.23	14.22	364.66	36.80	425.25	57.60	18.82
11	.	.	.	.	.	.	.	.	.	.	.	.
BR-68	.	.	.	.	.	.	.	.	.	.	.	.
ML-30	.	.	.	.	.	.	.	.	.	.	.	.
BR-86	.	.	.	.	.	.	.	.	.	.	.	.
BR-87	.	.	.	.	.	.	.	.	.	.	.	.
BR-88	.	.	.	.	.	.	.	.	.	.	.	.
BR-63	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR-64	OB-20	FPS-1	33.753	77.613	4.90	5.00	24.5	10.55	28.21	.	1.32	0.54
7	OB-20	FPS-1	33.753	77.613	4.90	5.00	24.5	8.25	27.98	.	1.66	1.03
BR-65	OB-20	FPS-1	33.753	77.613	5.75	5.85	24.5	12.38	28.69	.	1.15	0.46
6	OB-20	FPS-1	33.753	77.613	5.75	5.85	24.5	9.85	26.58	.	1.19	0.86
BR-89	OB-21	OLIG	33.771	77.626	2.90	3.30	24.0	1.43	11.70	.	1.15	1.59
BR-90	OB-22	HOLO	33.763	77.625	0.00	0.30	26.0	4.82	36.41	.	0.44	1.07
OB-22A	OB-22	FPS-1	33.763	77.625	3.25	3.50	26.0	6.33	19.60	28.90	2.15	1.89
BR-61	OB-22	FPS-1	33.763	77.625	3.34	3.40	26.0	7.21	20.81	.	1.93	0.86
ML-18	OB-22	FPS-1	33.763	77.625	3.75	4.50	26.0	8.90	23.63	.	1.72	0.76

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR-64	1.20	.	.	.	.	.	.	.	36.47	.	.	.	.	.	.
7	2.46	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BR-65	1.10	.	.	.	.	.	.	.	35.82	.	.	.	.	.	.
6	1.81	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BR-89	1.38	.	.	.	.	.	.	.	57.04	.	.	.	.	.	.
BR-90	0.24	.	.	.	.	.	.	.	27.98	.	.	.	.	.	.
OB-22A	4.56	1.60	0.12	0.51	0.04	65.71	40	124	.	.	.	.	.	.	.
BR-61	1.57	.	.	.	.	.	.	.	45.83	.	.	.	.	.	.
ML-18	1.80	0.87	0.37	.	.	.	.	.	43.40	3.64	0.90	1.46	7.79	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR-64	.	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.	.	.
BR-65	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.
BR-89	.	.	.	.	.	.	.	.	.	.	.	.
BR-90	.	.	.	.	.	.	.	.	.	.	.	.
OB-22A	.	.	.	.	.	.	.	.	.	.	.	.
BR-61	.	.	.	.	.	.	.	.	.	.	.	.
ML-18	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR-62	OB-22	FPS-1	33.763	77.625	4.80	4.90	26.0	11.09	26.89	.	1.57	0.53
OB-22B	OB-22	FPS-1	33.763	77.625	5.25	5.50	26.0	2.31	25.60	25.40	1.42	1.97
BR-58	OB-23	HOLO	33.815	77.611	0.20	0.30	26.0	4.96	17.95	.	0.55	0.82
BR-59	OB-23	FPS-1	33.815	77.611	2.00	2.10	26.0	4.83	12.85	.	1.70	0.97
ML-34	OB-24	FPS-1	33.780	77.621	0.30	1.50	24.0	20.04	36.26	.	1.09	0.56
OB-24A	OB-24	PLEIS	33.780	77.621	0.30	0.50	24.0	9.26	33.40	20.30	1.23	0.99
ML-11	OB-24	FPS-1	33.780	77.621	0.75	1.50	24.0	22.90	39.96	.	1.09	0.46
BR-4	OB-24	FPS-1	33.780	77.621	0.80	0.85	24.0	21.69	39.47	.	0.92	0.50
OB-24B	OB-24	FPS-1	33.780	77.621	1.00	1.25	24.0	23.20	41.70	3.65	1.00	0.58

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR-62	1.15	.	.	.	.	.	.	.	37.10	.	.	.	.	.	.
OB-22B	3.62	1.30	0.83	0.40	1.44	64.29	24	49	.	.	.	.	.	0.29	146.19
BR-58	0.21	.	.	.	.	.	.	.	60.44	.	.	.	.	.	.
BR-59	2.01	.	.	.	.	.	.	.	58.31	.	.	.	.	.	.
ML-34	0.73	.	.	.	.	.	.	.	14.52	.	.	.	.	.	.
OB-24A	1.60	1.00	0.37	0.17	0.03	68.40	18	74	.	.	.	.	.	0.11	171.27
ML-11	0.48	0.90	0.14	.	.	.	.	.	13.80	3.34	2.27	1.13	7.68	.	.
BR-4	0.82	.	.	.	.	.	.	.	14.29	.	.	.	.	.	.
OB-24B	1.00	1.70	0.27	0.11	2.20	75.49	32	128	.	.	.	.	.	0.06	69.40

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR-62	.	.	.	.	.	.	.	.	.	.	.	.
OB-22B	77.01	27.46	1.13	0.01	17.95	7.03	9.11	278.83	19.72	1050.39	185.09	16.18
BR-58	.	.	.	.	.	.	.	.	.	.	.	.
BR-59	.	.	.	.	.	.	.	.	.	.	.	.
ML-34	.	.	.	.	.	.	.	.	.	.	.	.
OB-24A	53.97	33.89	0.84	0.01	29.04	10.54	1.03	132.21	4.46	1245.22	107.13	3.46
ML-11	.	.	.	.	.	.	.	.	.	.	.	.
BR-4	.	.	.	.	.	.	.	.	.	.	.	.
OB-24B	55.35	31.90	0.40	0.00	29.64	21.97	2.98	7.77	1.56	1839.06	188.17	7.50

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR102	OB-24	FPS-1	33.780	77.621	1.50	1.67	24.0	20.96	36.17	.	0.77	0.93
12	OB-24	OLIG	33.780	77.621	2.00	2.10	24.0	0.00	34.96	.	2.16	0.64
BR-5	OB-24	OLIG	33.780	77.621	2.50	2.55	24.0	1.04	30.08	.	2.49	0.50
13	OB-24	OLIG	33.780	77.621	7.70	7.80	24.0	0.00	29.38	.	3.98	1.02
ML-35	OB-25	HOLO	33.846	77.585	0.00	1.20	25.0	8.46	25.48	.	0.90	0.68
BR-53	OB-25	HOLO	33.846	77.585	0.45	0.55	25.0	10.81	26.33	.	0.75	0.68
OB-26A	OB-26	FPS-1	33.843	77.560	0.25	0.50	28.0	8.89	23.50	34.5	1.59	1.30
BR-54	OB-26	FPS-1	33.843	77.560	0.50	0.60	28.0	8.39	21.57	.	1.27	0.64
OB-26B	OB-26	FPS-1	33.843	77.560	1.25	1.50	28.0	10.18	28.20	22.4	1.44	1.04

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR102	0.80	.	.	.	.	.	.	.	21.95	.	.	.	.	.	.
12	2.08	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BR-5	0.64	.	.	.	.	.	.	.	34.00	.	.	.	.	.	.
13	2.83	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-35	0.39	.	.	.	.	.	.	.	46.40	.	.	.	.	.	.
BR-53	0.26	.	.	.	.	.	.	.	42.85	.	.	.	.	.	.
OB-26A	3.58	1.90	0.86	0.67	1.08	77.89	43	122	.	.	.	.	.	0.28	553.31
BR-54	1.37	.	.	.	.	.	.	.	46.77	.	.	.	.	.	.
OB-26B	2.89	1.60	0.80	0.47	0.03	69.05	36	116	.	.	.	.	.	0.23	201.72

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR102	.	.	.	.	.	.	.	.	.	.	.	.
12	.	.	.	.	.	.	.	.	.	.	.	.
BR-5	.	.	.	.	.	.	.	.	.	.	.	.
13	.	.	.	.	.	.	.	.	.	.	.	.
ML-35	.	.	.	.	.	.	.	.	.	.	.	.
BR-53	.	.	.	.	.	.	.	.	.	.	.	.
OB-26A	73.07	36.56	0.96	0.01	16.37	6.48	2.09	26.82	17.69	833.75	137.57	32.24
BR-54	.	.	.	.	.	.	.	.	.	.	.	.
OB-26B	74.70	25.96	0.67	0.01	22.52	11.48	5.44	224.64	10.26	1293.07	191.18	14.58

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-26B	OB-26	FPS-1	33.843	77.560	1.25	1.50	28.0	10.18	28.20	22.40	1.44	1.04
ML-13	OB-26	FPS-1	33.843	77.560	1.75	2.50	28.0	15.10	33.36	.	1.45	0.40
BR-55	OB-26	FPS-1	33.843	77.560	2.00	2.10	28.0	15.71	33.34	.	1.22	0.50
2	OB-26	FPS-1	33.843	77.560	2.00	2.10	28.0	15.58	31.48	.	1.36	0.86
OB-26C	OB-26	FPS-1	33.843	77.560	2.75	3.00	28.0	12.90	29.90	17.10	1.31	0.85
ML-26	OB-26	FPS-1	33.843	77.560	3.25	4.25	28.0	13.32	27.20	.	0.84	0.65
BR-56	OB-26	FPS-1	33.843	77.560	4.00	4.10	28.0	12.16	22.60	.	0.85	0.54
3	OB-26		33.843	77.560	4.00	4.10	28.0	14.43	24.48	.	0.96	0.87
BR-91	OB-27	HOLO	33.841	77.533	0.00	0.30	29.0	1.00	9.55	.	0.45	0.36

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-26B	2.89	1.60	0.80	0.47	0.03	69.05	36	116	.	.	.	.	.	0.25	296.39
ML-13	1.15	0.89	0.20	.	.	.	.	.	27.60	3.11	1.57	1.46	9.71	.	.
BR-55	1.19	.	.	.	.	.	.	.	26.58	.	.	.	.	.	.
2	2.08	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-26C	2.20	1.47	0.47	0.39	0.01	66.60	63	124	.	.	.	.	.	.	.
ML-26	0.95	.	.	.	.	.	.	.	43.38	.	.	.	.	.	.
BR-56	1.09	.	.	.	.	.	.	.	47.27	.	.	.	.	.	.
3	2.08	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BR-91	0.14	.	.	.	.	.	.	.	76.82	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-26B	66.05	42.00	0.82	0.01	23.81	9.94	0.73	252.26	13.30	1057.33	148.48	15.97
ML-13	.	.	.	.	.	.	.	.	.	.	.	.
BR-55	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.
OB-26C	.	.	.	.	.	.	.	.	.	.	.	.
ML-26	.	.	.	.	.	.	.	.	.	.	.	.
BR-56	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.
BR-91	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR-92	OB-27	FPS-2	33.841	77.533	1.00	1.30	29.0	0.80	2.47	.	1.70	2.62
OB-27A	OB-27	FPS-2	33.841	77.533	1.25	1.50	29.0	0.61	16.20	44.70	2.67	4.34
BR-57	OB-27	FPS-2	33.841	77.533	5.90	6.00	29.0	2.62	15.78	.	1.07	0.61
ML-17	OB-27	FPS-2	33.841	77.533	6.25	7.00	29.0	3.10	15.64	.	1.50	0.57
OB-27B	OB-27	FPS-2	33.841	77.533	7.25	7.50	29.0	5.93	13.80	45.20	2.32	1.60
OB-28A	OB-28	FPS-2	33.831	77.528	1.00	1.25	30.0	0.96	4.03	47.40	3.44	3.36
BR-93	OB-28	FPS-2	33.831	77.528	2.00	2.30	30.0	0.72	2.48	.	1.70	2.64
OB-28B	OB-28	FPS-2	33.831	77.528	2.00	2.27	30.0	0.63	3.75	48.80	2.70	4.39
OB-28C	OB-28	FPS-2	33.831	77.528	3.00	3.25	30.0	0.77	3.50	44.70	2.95	5.56

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR-92	1.46	.	.	.	.	.	.	.	73.82	.	.	.	.	.	.
OB-27A	10.10	2.10	2.65	0.89	0.03	84.36	109	120	.	.	.	.	.	0.50	294.09
BR-57	1.04	.	.	.	.	.	.	.	60.21	.	.	.	.	.	.
ML-17	1.32	0.78	0.44	.	.	.	.	.	62.60	2.62	0.40	1.46	8.15	.	.
OB-27B	4.28	1.60	0.93	0.56	0.02	76.26	86	100	.	.	.	.	.	0.47	603.17
OB-28A	9.61	2.60	2.43	0.74	0.02	74.68	97	122	.	.	.	.	.	0.64	186.40
BR-93	1.49	.	.	.	.	.	.	.	73.38	.	.	.	.	.	.
OB-28B	10.40	2.10	2.68	0.91	0.03	76.44	111	124	.	.	.	.	.	0.79	211.54
OB-28C	12.70	2.40	2.70	1.02	2.44	78.74	60	158	.	.	.	.	.	0.60	282.79

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR-92	.	.	.	.	.	.	.	.	.	.	.	.
OB-27A	75.14	55.88	3.36	0.01	1.09	0.39	28.27	200.87	76.63	174.91	65.40	20.53
BR-57	.	.	.	.	.	.	.	.	.	.	.	.
ML-17	.	.	.	.	.	.	.	.	.	.	.	.
OB-27B	89.85	51.68	1.83	0.02	13.53	3.38	11.04	336.85	33.33	557.68	64.17	43.35
OB-28A	117.88	65.37	3.58	0.02	4.74	1.33	13.94	508.64	.	281.90	49.42	14.62
BR-93	.	.	.	.	.	.	.	.	.	.	.	.
OB-28B	103.08	97.12	4.20	0.02	3.84	1.01	19.33	26.54	74.73	251.43	53.45	15.00
OB-28C	110.20	104.59	4.55	0.02	2.60	0.50	6.48	320.51	87.30	259.87	54.15	18.01

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
ML-1	OB-29	HOLO	33.873	77.535	0.01	0.01	26.5	17.80	31.62	.	0.57	0.81
ML-14	OB-29	FPS-2	33.873	77.535	3.75	4.25	26.5	3.00	14.25	.	1.13	0.46
OB-29BA	OB-29B	HOLO	33.873	77.535	0.25	0.50	26.5	0.77	21.90	41.50	0.77	0.34
BR-43	OB-29B	PLEIS	33.873	77.535	1.40	1.50	26.5	2.78	11.34	.	1.07	0.64
OB-29BB	OB-29B	FPS-2	33.873	77.535	3.00	3.25	26.5	3.42	.	.	1.49	1.51
BR-44	OB-29B	FPS-2	33.873	77.535	4.40	4.50	26.5	3.59	13.62	.	0.87	0.46
BR-45	OB-29B	FPS-2	33.873	77.535	5.90	6.00	26.5	6.29	26.12	.	0.82	0.39
OB-29BC	OB-29B	FPS-1	33.873	77.535	6.00	6.25	26.5	6.94	27.00	25.70	1.07	0.98
BR-46	OB-29B	FPS-2	33.873	77.535	7.10	7.20	26.5	10.76	28.63	.	0.95	0.46

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
ML-1	0.43	0.84	0.11	.	.	.	.	.	33.50	2.08	2.10	0.57	5.29	.	.
ML-14	0.81	0.65	0.13	.	.	.	.	.	67.00	1.92	0.40	1.21	7.42	.	.
OB-29BA	8.50	0.30	0.29	0.03	0.96	67.75	4	9	.	.	.	.	.	.	.
BR-43	11.18	.	.	.	.	.	.	.	63.98	.	.	.	.	.	.
OB-29BB	4.41	1.30	1.26	0.95	0.03	.	116	106	.	.	.	.	.	.	.
BR-44	0.85	.	.	.	.	.	.	.	65.20	.	.	.	.	.	.
BR-45	0.80	.	.	.	.	.	.	.	42.05	.	.	.	.	.	.
OB-29BC	2.72	1.20	0.84	0.53	0.03	67.07	38	104	.	.	.	.	.	.	.
BR-46	0.94	.	.	.	.	.	.	.	37.05	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
ML-1	.	.	.	.	.	.	.	.	.	.	.	.
ML-14	.	.	.	.	.	.	.	.	.	.	.	.
OB-29BA	.	.	.	.	.	.	.	.	.	.	.	.
BR-43	.	.	.	.	.	.	.	.	.	.	.	.
OB-29BB	.	.	.	.	.	.	.	.	.	.	.	.
BR-44	.	.	.	.	.	.	.	.	.	.	.	.
BR-45	.	.	.	.	.	.	.	.	.	.	.	.
OB-29BC	.	.	.	.	.	.	.	.	.	.	.	.
BR-46	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
ML-27	OB-30	FPS-1	33.916	77.503	1.25	2.00	26.0	13.11	25.33	.	0.86	0.83
BR-42	OB-30	FPS-1	33.916	77.503	1.50	1.60	26.0	14.25	24.92	.	0.90	0.53
4	OB-30	FPS-1	33.916	77.503	1.50	1.60	26.0	13.06	25.74	.	1.13	0.84
OB-33A	OB-33	OBS-4	34.618	76.936	0.50	0.75	16.0	0.21	52.20	0.00	1.66	0.30
BR-94	OB-33	OBS-4	34.618	76.936	1.80	2.30	16.0	0.21	52.25	.	1.12	0.28
21	OB-33	OBS-4	34.618	76.936	2.50	2.60	16.0	0.00	54.56	.	0.86	0.17
OB-33B	OB-33	OBS-4	34.618	76.936	4.50	4.75	16.0	0.27	49.70	0.00	3.41	0.45
OB-33C	OB-33	OBS-3	34.618	76.936	6.50	6.75	16.0	0.91	.	.	1.87	1.18
BR-37	OB-33	OBS-3	34.618	76.936	8.25	8.50	16.0	1.35	34.94	.	1.30	0.93

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
ML-27	0.92	.	.	.	.	.	.	.	42.41	.	.	.	.	.	.
BR-42	0.99	.	.	.	.	.	.	.	42.55	.	.	.	.	.	.
4	2.27	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-33A	0.32	0.60	0.03	0.02	0.29	55.64	7	18	.	.	.	.	.	0.00	26.99
BR-94	0.09	.	.	.	.	.	.	.	2.19	.	.	.	.	.	.
21	0.15	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-33B	0.54	0.60	0.21	0.03	1.79	57.06	18	19	.	.	.	.	.	0.00	22.91
OB-33C	1.77	0.90	0.42	0.13	0.02	.	13	50	.	.	.	.	.	0.05	35.87
BR-37	1.30	.	.	.	.	.	.	.	23.93	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
ML-27	.	.	.	.	.	.	.	.	.	.	.	.
BR-42	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.
OB-33A	4.56	0.00	0.22	0.00	44.65	0.43	2.22	11.02	0.42	1108.82	7.33	1.29
BR-94	.	.	.	.	.	.	.	.	.	.	.	.
21	.	.	.	.	.	.	.	.	.	.	.	.
OB-33B	12.75	0.21	0.33	0.00	49.67	0.40	9.58	15.91	29.49	523.24	87.06	25.48
OB-33C	25.92	5.21	0.79	0.00	29.99	0.55	1.43	219.18	9.46	940.72	17.44	4.63
BR-37	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-33D	OB-33	OBS-3	34.618	76.936	8.25	8.50	16.0	1.00	38.20	9.26	1.49	1.46
22	OB-33	OBS-3	34.618	76.936	8.25	8.50	16.0	0.00	36.37	.	1.82	1.86
OB-34A	OB-34	OBS-1	34.610	76.970	3.75	4.00	15.5	1.09	16.50	40.20	2.77	1.43
19	OB-34	OBS-1	34.610	76.970	4.00	4.10	15.5	0.00	15.39	.	2.98	1.39
OB-34B	OB-34	OBS-1	34.610	76.970	5.75	6.00	15.5	1.08	12.40	51.60	2.93	1.62
OB-34C	OB-34	OBS-1	34.610	76.970	6.75	7.00	15.5	1.00	11.40	48.40	2.39	1.47
BR-30	OB-34	OBS-1	34.610	76.970	8.00	8.25	15.5	1.19	21.78	.	2.15	0.43
20	OB-34	OBS-1	34.610	76.970	8.00	8.25	15.5	0.00	23.78	.	2.32	0.64
OB-35A	OB-35	OBS-1	34.608	77.011	0.90	1.15	15.0	0.76	.	.	1.87	0.98

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-33D	2.51	1.10	0.25	0.19	0.01	55.52	19	95	.	.	.	.	.	0.10	49.92
22	3.40	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-34A	2.47	0.80	0.40	0.17	0.01	65.85	28	58	.	.	.	.	.	0.10	37.70
19	2.65	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-34B	3.37	0.80	0.73	0.23	0.01	74.86	39	74	.	.	.	.	.	0.16	100.03
OB-34C	3.23	0.80	0.52	0.22	0.02	69.54	18	72	.	.	.	.	.	.	.
BR-30	0.47	.	.	.	.	.	.	.	50.24	.	.	.	.	.	.
20	1.34	.	.	.	.	.	.	.	.	.	.	.	.	.	.
OB-35A	1.17	0.60	0.30	0.14	0.02	.	14	43	.	.	.	.	.	0.00	25.99

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-33D	38.70	11.65	1.33	0.01	35.96	0.91	8.88	306.06	17.32	818.34	24.27	2.97
22	.	.	.	.	.	.	.	.	.	.	.	.
OB-34A	49.77	23.00	1.30	0.01	12.42	0.68	7.88	277.24	18.64	365.65	25.32	1.98
19	.	.	.	.	.	.	.	.	.	.	.	.
OB-34B	76.06	30.94	1.52	0.01	11.33	1.26	7.72	166.25	23.15	275.71	22.91	5.41
OB-34C	.	.	.	.	.	.	.	.	.	.	.	.
BR-30	.	.	.	.	.	.	.	.	.	.	.	.
20	.	.	.	.	.	.	.	.	.	.	.	.
OB-35A	5.86	0.00	0.24	0.00	48.00	0.26	1.95	6.46	0.00	1063.47	3.68	1.25

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-35B	OB-35	OBS-1	34.608	77.011	1.75	2.00	15.0	1.23	27.20	14.8	6.25	1.56
OB-35C	OB-35	OBS-1	34.608	77.011	3.75	4.00	15.0	1.08	26.60	17.7	5.05	1.27
OB-35D	OB-35	OBS-1	34.608	77.011	5.75	6.00	15.0	1.08	28.30	24.5	4.23	0.98
OB-35E	OB-35	OBS-1	34.608	77.011	7.20	7.50	15.0	1.10	28.30	19.8	3.26	0.84
ML-6	OB-36	BBS-1	34.626	76.915	2.25	2.75	15.5	2.51	5.21	.	0.43	0.96
17	OB-36	BBS-1	34.626	76.915	2.90	3.00	15.5	2.52	4.20	.	0.70	1.27
BR-6	OB-36	BBS-1	34.626	76.915	3.25	3.50	15.5	2.02	3.69	.	0.65	0.79
BR-7	OB-36	OBS-4	34.626	76.915	5.25	5.39	15.5	0.42	37.09	.	8.84	0.46
18	OB-36	OBS-4	34.626	76.915	5.25	5.35	15.5	0.00	39.17	.	8.46	0.56

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-35B	3.07	0.80	0.67	0.27	0.02	55.95	45	65	.	.	.	.	.	.	.
OB-35C	2.48	0.50	0.60	0.25	0.01	55.61	44	65	.	.	.	.	.	0.19	86.62
OB-35D	2.09	0.50	0.15	0.22	0.01	62.14	20	57	.	.	.	.	.	0.15	138.31
OB-35E	2.00	0.40	0.48	0.22	0.02	56.46	15	64	.	.	.	.	.	.	.
ML-6	1.00	0.27	0.14	.	.	.	.	.	85.50	1.57	0.32	0.73	0.52	.	.
17	3.02	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BR-6	1.08	.	.	.	.	.	.	.	81.63	.	.	.	.	.	.
BR-7	0.66	.	.	.	.	.	.	.	9.80	.	.	.	.	.	.
18	1.32	.	.	.	.	.	.	.	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-35B	.	.	.	.	.	.	.	.	.	.	.	.
OB-35C	59.24	28.35	1.18	0.01	26.65	1.21	7.91	13.46	14.16	406.97	23.77	4.22
OB-35D	47.80	19.37	0.89	0.01	27.98	0.99	4.99	118.14	13.50	462.85	20.16	8.75
OB-35E	.	.	.	.	.	.	.	.	.	.	.	.
ML-6	.	.	.	.	.	.	.	.	.	.	.	.
17	.	.	.	.	.	.	.	.	.	.	.	.
BR-6	.	.	.	.	.	.	.	.	.	.	.	.
BR-7	.	.	.	.	.	.	.	.	.	.	.	.
18	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-37A	OB-37	FPS-5	34.593	77.078	1.50	1.75	15.5	0.51	3.45	80.8	0.51	0.97
OB-37B	OB-37	FPS-5	34.593	77.078	4.75	5.00	15.5	0.72	1.94	73.3	0.33	0.80
OB-37C	OB-37	FPS-4	34.593	77.078	8.00	8.25	15.5	0.57	20.70	50.2	0.15	0.32
OB-37C	OB-37	FPS-4	34.593	77.078	8.00	8.25	15.5	0.57	20.70	50.2	0.15	0.32
OB-38A	OB-38	OBS-2	34.436	77.008	0.25	0.50	21.0	1.93	38.50	13.7	0.98	1.83
OB-38A	OB-38	OBS-2	34.436	77.008	0.25	0.50	21.0	1.93	38.50	13.7	0.98	1.83
BR-95	OB-38	OBS-2	34.436	77.008	1.00	2.00	21.0	1.35	1.69	.	0.64	1.38
OB-38B	OB-38	OBS-2	34.436	77.008	1.50	1.80	21.0	3.33	28.40	28.2	1.08	2.74
OB-38C	OB-38	OBS-1	34.436	77.008	2.25	2.50	21.0	1.42	13.50	40.1	3.93	0.42

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-37A	2.73	0.70	0.91	0.86	0.03	91.51	95	34	.	.	.	.	.	0.65	580.00
OB-37B	2.37	0.60	0.71	0.70	0.02	81.53	80	29	.	.	.	.	.	0.45	400.68
OB-37C	0.98	0.40	0.40	0.17	0.03	74.01	11	20	.	.	.	.	.	0.08	80.09
OB-37C	0.98	0.40	0.40	0.17	0.03	74.01	11	20	.	.	.	.	.	0.07	284.20
OB-38A	0.55	0.60	0.50	0.04	0.02	58.71	8	35	.	.	.	.	.	0.00	15.93
OB-38A	0.55	0.60	0.50	0.04	0.02	58.71	8	35	.	.	.	.	.	0.00	23.00
BR-95	1.09	.	.	.	.	.	.	.	82.87	.	.	.	.	.	.
OB-38B	1.80	1.00	0.40	0.29	0.02	67.29	28	45	.	.	.	.	.	0.12	303.21
OB-38C	1.05	0.50	0.32	0.18	0.02	61.49	11	28	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-37A	17.14	45.03	0.86	0.02	2.81	1.05	13.04	9.07	19.07	160.18	17.82	32.52
OB-37B	9.35	37.41	0.68	0.01	1.72	0.95	8.30	32.04	17.80	105.17	18.25	20.40
OB-37C	6.27	11.88	0.20	0.01	13.80	0.58	1.06	42.73	5.79	738.21	6.13	1.60
OB-37C	5.44	10.01	0.17	0.00	14.80	0.52	1.13	42.77	7.20	796.89	7.64	13.45
OB-38A	69.60	0.00	1.36	0.00	32.09	1.33	2.60	125.47	9.75	916.30	33.55	3.91
OB-38A	64.84	0.00	1.32	0.00	29.56	1.26	3.44	122.68	10.47	946.54	32.17	3.02
BR-95	.	.	.	.	.	.	.	.	.	.	.	.
OB-38B	54.48	22.98	1.97	0.01	18.62	2.32	14.54	275.43	16.43	861.55	49.96	28.32
OB-38C	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-38D	OB-38	OBS-1	34.436	77.008	3.75	4.00	21.0	1.61	9.10	53.5	4.08	0.58
BR-33	OB-38	OBS-1	34.436	77.008	5.75	6.00	21.0	1.84	3.66	.	1.79	0.12
OB-38E	OB-38	OBS-1	34.436	77.008	5.75	6.00	21.0	1.68	5.39	74.9	2.19	0.30
OB-38F	OB-38	OBS-1	34.436	77.008	8.46	8.46	21.0	1.70	8.44	55.1	4.89	0.91
BR-34	OB-38	OBS-1	34.436	77.008	8.80	9.10	21.0	1.98	1.83	.	0.21	0.06
ML-9	OB-39	BBS-1	34.440	76.975	6.75	7.25	23.0	2.00	4.86	.	0.87	1.41
BR-11	OB-39	OBS-2	34.440	76.975	8.00	8.25	23.0	2.79	3.81	.	0.67	0.86
BR-12	OB-39	OBS-2	34.440	76.975	8.50	8.75	23.0	3.11	26.93	.	0.75	0.86
OB-39A	OB-39	OBS-2	34.440	76.975	8.75	9.00	23.0	2.93	31.20	24.3	0.97	1.58

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-38D	1.73	0.70	0.55	0.19	0.02	72.11	12	40	.	.	.	.	.	0.13	65.33
BR-33	0.21	.	.	.	.	.	.	.	82.64	.	.	.	.	.	.
OB-38E	1.19	0.40	0.49	0.17	0.01	86.74	24	21	.	.	.	.	.	0.11	95.35
OB-38F	2.53	1.20	0.56	0.22	0.02	75.60	16	62	.	.	.	.	.	.	.
BR-34	0.10	.	.	.	.	.	.	.	88.14	.	.	.	.	.	.
ML-9	1.56	0.66	0.44	.	.	.	.	.	82.00	2.16	0.24	0.92	0.52	.	.
BR-11	1.32	.	.	.	.	.	.	.	82.25	.	.	.	.	.	.
BR-12	0.53	.	.	.	.	.	.	.	43.06	.	.	.	.	.	.
OB-39A	0.79	0.40	0.20	0.06	0.01	62.50	2	31	.	.	.	.	.	0.02	36.97

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-38D	34.26	18.51	0.56	0.01	7.26	1.24	9.93	170.24	11.43	207.18	32.18	4.88
BR-33	.	.	.	.	.	.	.	.	.	.	.	.
OB-38E	11.88	9.49	0.23	0.00	3.34	1.36	7.56	18.39	7.93	181.73	33.07	3.84
OB-38F	.	.	.	.	.	.	.	.	.	.	.	.
BR-34	.	.	.	.	.	.	.	.	.	.	.	.
ML-9	.	.	.	.	.	.	.	.	.	.	.	.
BR-11	.	.	.	.	.	.	.	.	.	.	.	.
BR-12	.	.	.	.	.	.	.	.	.	.	.	.
OB-39A	84.90	11.57	1.41	0.00	33.31	4.00	7.49	53.59	9.84	860.20	32.31	3.38

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR-20	OB-41	OBS-1	34.358	76.996	4.30	4.50	26.0	1.71	5.09	.	0.35	0.43
OB-42A	OB-42	BBS-1	34.355	76.953	5.25	5.50	25.0	1.83	3.61	62.6	1.26	2.40
BR-41	OB-42	BBS-1	34.355	76.953	5.80	6.00	25.0	2.24	1.16	.	0.75	1.10
OB-42B	OB-42	BBS-1	34.355	76.953	6.25	6.50	25.0	1.61	2.45	61.5	1.56	2.91
ML-33	OB-43	HOLO	34.353	76.958	0.00	.	25.0	5.69	29.62	.	1.28	2.33
OB-43A	OB-43	BBS-1	34.353	76.958	1.00	1.25	25.0	1.98	4.76	58.9	1.66	2.79
OB-43B	OB-43	BBS-1	34.353	76.958	2.00	2.25	25.0	2.06	3.31	56.2	0.15	0.32
BR-40	OB-43	BBS-1	34.353	76.958	2.80	3.00	25.0	1.74	0.67	.	1.00	1.75
OB-43C	OB-43	BBS-1	34.353	76.958	3.50	3.75	25.0	1.19	1.69	53.5	2.01	3.88

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR-20	0.18	.	.	.	.	.	.	.	84.26	.	.	.	.	.	.
OB-42A	5.70	1.2	1.42	0.94	0.04	81.09	112	109	.	.	.	.	.	0.76	730.48
BR-41	1.08	.	.	.	.	.	.	.	81.86	.	.	.	.	.	.
OB-42B	7.54	1.8	1.52	0.81	1.84	83.61	49	113	.	.	.	.	.	0.55	351.13
ML-33	0.37	.	.	.	.	.	.	.	40.99	.	.	.	.	.	.
OB-43A	6.20	1.5	1.50	0.96	0.04	80.36	115	122	.	.	.	.	.	0.57	393.08
OB-43B	0.95	0.4	0.36	0.18	0.03	64.05	11	18	.	.	.	.	.	.	.
BR-40	2.16	.	.	.	.	.	.	.	79.80	.	.	.	.	.	.
OB-43C	9.96	2.4	1.86	0.98	2.15	79.63	64	142	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR-20	.	.	.	.	.	.	.	.	.	.	.	.
OB-42A	51.89	52.38	2.24	0.03	3.27	2.47	14.60	19.69	35.89	240.21	67.16	41.54
BR-41	.	.	.	.	.	.	.	.	.	.	.	.
OB-42B	77.27	47.65	2.69	0.02	2.39	2.09	6.22	261.55	50.93	204.04	54.01	22.16
ML-33	.	.	.	.	.	.	.	.	.	.	.	.
OB-43A	52.97	50.41	2.31	0.02	4.10	1.79	14.26	61.27	41.65	301.96	60.90	25.92
OB-43B	.	.	.	.	.	.	.	.	.	.	.	.
BR-40	.	.	.	.	.	.	.	.	.	.	.	.
OB-43C	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-43D	OB-43	BBS-1	34.353	76.958	4.25	4.50	25.0	0.99	1.54	52.1	1.79	3.34
OB-45A	OB-45	FPS-6	34.346	77.055	0.75	1.00	24.0	1.24	38.20	10.4	2.80	0.80
OB-45A	OB-45	FPS-6	34.346	77.055	0.75	1.00	24.0	1.24	38.20	10.4	2.80	0.80
OB-45B	OB-45	FPS-6	34.346	77.055	3.00	3.25	24.0	2.19	18.60	50.7	1.16	0.66
OB-45C	OB-45	FPS-6	34.346	77.055	4.75	5.00	24.0	2.75	14.00	65.8	0.50	0.54
BR-9	OB-46	FPS-5	34.341	77.081	7.30	7.50	24.0	1.72	3.50	.	0.30	0.43
BR-10	OB-46	FPS-5	34.341	77.081	8.90	9.10	24.0	1.67	5.64	.	0.35	0.39
OB-47A	OB-47	FPS-2	34.075	77.295	0.00	0.25	27.0	0.79	3.61	59.9	2.54	1.99
OB-47B	OB-47	FPS-2	34.075	77.295	2.00	2.25	27.0	0.74	6.90	56.7	4.37	1.61

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-43D	8.99	1.8	1.73	0.76	0.03	73.10	111	118	.	.	.	.	.	.	.
OB-45A	1.14	0.7	0.31	0.13	0.02	55.82	12	34	.	.	.	.	.	0.06	31.36
OB-45A	1.14	0.7	0.31	0.13	0.02	55.82	12	34	.	.	.	.	.	0.07	88.01
OB-45B	1.46	0.6	0.49	0.21	0.02	76.16	15	38	.	.	.	.	.	0.07	122.47
OB-45C	1.14	0.5	0.47	0.14	0.01	85.86	26	29	.	.	.	.	.	0.07	128.00
BR-9	0.38	.	.	.	.	.	.	.	84.52	.	.	.	.	.	.
BR-10	0.33	.	.	.	.	.	.	.	73.01	.	.	.	.	.	.
OB-47A	4.37	1.4	1.24	0.71	0.04	76.64	36	87	.	.	.	.	.	0.50	446.56
OB-47B	3.84	1.1	1.16	0.70	0.03	77.18	86	69	.	.	.	.	.	0.35	772.09

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-43D	.	.	.	.	.	.	.	.	.	.	.	.
OB-45A	35.40	8.83	0.75	0.01	40.81	1.79	0.97	159.31	5.99	662.97	15.58	3.18
OB-45A	28.23	6.30	0.65	0.01	32.80	1.10	2.25	149.88	7.90	677.89	17.72	5.98
OB-45B	35.97	14.78	0.54	0.00	15.67	2.15	4.43	140.38	10.99	423.64	38.87	4.13
OB-45C	27.64	10.88	0.44	0.00	11.49	3.04	7.19	69.95	7.07	452.91	34.74	6.85
BR-9	.	.	.	.	.	.	.	.	.	.	.	.
BR-10	.	.	.	.	.	.	.	.	.	.	.	.
OB-47A	56.99	39.62	1.78	0.01	2.66	0.46	5.72	287.23	34.98	140.08	34.59	20.51
OB-47B	33.36	36.89	1.16	0.01	3.67	0.52	5.31	189.67	26.48	145.07	31.51	41.58

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-47C	OB-47	FPS-2	34.075	77.295	4.25	4.50	27.0	0.90	4.06	57.2	2.66	1.74
BR-46	OB-47	FPS-2	34.075	77.295	4.30	4.50	27.0	0.96	4.02	.	2.40	0.71
OB-47D	OB-47	FPS-2	34.075	77.295	5.50	5.75	27.0	1.12	3.12	65.3	1.65	1.78
OB-47E	OB-47	FPS-1	34.075	77.295	7.50	7.75	27.0	1.43	5.81	52.0	3.41	2.50
OB-47F	OB-47	FPS-1	34.075	77.295	8.50	8.75	27.0	2.95	9.38	49.5	4.26	1.82
BR-27	OB-47	FPS-1	34.075	77.295	8.75	9.13	27.0	3.16	8.66	.	3.25	0.64
OB-48A	OB-48	FPS-3	34.156	77.220	0.75	1.00	27.5	1.24	.	.	1.17	1.15
OB-48B	OB-48	FPS-3	34.156	77.220	2.25	2.50	27.5	0.90	6.34	66.3	0.61	0.87
OB-48C	OB-48	FPS-3	34.156	77.220	4.75	5.00	27.5	0.74	7.63	68.5	0.62	1.02

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-47C	4.12	1.30	1.31	0.56	0.04	73.97	27	89	.	.	.	.	.	0.34	216.05
BR-46	1.13	.	.	.	.	.	.	.	75.13	.	.	.	.	.	.
OB-47D	4.37	1.40	1.31	0.72	0.04	80.90	40	99	.	.	.	.	.	.	.
OB-47E	5.88	1.60	1.97	0.71	0.04	75.36	42	143	.	.	.	.	.	0.51	211.01
OB-47F	4.36	1.00	1.46	0.85	0.03	75.63	105	106	.	.	.	.	.	0.65	493.98
BR-27	1.04	.	.	.	.	.	.	.	67.19	.	.	.	.	.	.
OB-48A	2.19	0.70	0.76	1.16	0.04	.	55	53	.	.	.	.	.	.	.
OB-48B	1.95	0.80	0.73	0.89	0.03	79.43	42	37	.	.	.	.	.	.	.
OB-48C	1.85	0.60	0.61	0.89	0.04	82.59	44	36	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-47C	52.09	46.00	1.58	0.01	2.69	0.53	12.04	319.08	31.75	139.00	28.40	10.23
BR-46	.	.	.	.	.	.	.	.	.	.	.	.
OB-47D	.	.	.	.	.	.	.	.	.	.	.	.
OB-47E	87.12	57.18	2.21	0.01	4.97	1.34	3.60	290.15	43.69	199.27	39.43	10.12
OB-47F	86.55	33.29	1.58	0.02	8.65	3.91	9.99	169.06	28.58	297.78	67.17	28.84
BR-27	.	.	.	.	.	.	.	.	.	.	.	.
OB-48A	.	.	.	.	.	.	.	.	.	.	.	.
OB-48B	.	.	.	.	.	.	.	.	.	.	.	.
OB-48C	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR-31	OB-48	FPS-3	34.156	77.220	5.80	6.00	27.5	0.72	1.83	.	0.25	0.29
OB-48D	OB-48	FPS-3	34.156	77.220	6.75	7.00	27.5	0.75	1.51	76.0	0.46	1.24
OB-49A	OB-49	FPS-2	34.161	77.258	1.00	1.25	25.0	0.84	7.91	61.5	3.59	1.21
OB-49B	OB-49	FPS-2	34.161	77.258	4.25	4.50	25.0	0.74	5.04	70.1	2.46	1.00
OB-49C	OB-49	FPS-2	34.161	77.258	8.75	9.00	25.0	0.99	3.50	73.8	1.52	1.27
BR-96	OB-50	FPS-6	34.158	77.141	1.00	1.50	20.5	1.34	8.35	.	1.20	0.54
OB-50A	OB-50	FPS-6	34.158	77.141	1.00	1.25	20.5	1.56	7.98	65.8	1.34	0.83
BR-97	OB-50	FPS-5	34.158	77.141	2.00	3.00	20.5	2.17	25.20	.	0.69	0.36
OB-50B	OB-50	FPS-5	34.158	77.141	2.00	2.25	20.5	1.80	20.00	45.5	0.78	0.66

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR-31	0.25	.	.	.	.	.	.	.	87.79	.	.	.	.	.	.
OB-48D	2.43	0.90	0.94	1.46	0.05	85.80	66	47	.	.	.	.	.	1.09	1157.76
OB-49A	2.61	0.90	0.87	0.75	0.03	80.27	85	39	.	.	.	.	.	0.54	687.07
OB-49B	3.30	1.00	0.97	0.74	0.02	85.42	87	55	.	.	.	.	.	0.41	439.82
OB-49C	3.61	1.00	1.67	1.05	1.44	89.94	47	57	.	.	.	.	.	.	.
BR-96	0.33	.	.	.	.	.	.	.	75.81	.	.	.	.	.	.
OB-50A	1.75	0.70	0.62	0.34	0.03	80.95	19	34	.	.	.	.	.	0.23	468.44
BR-97	0.33	.	.	.	.	.	.	.	49.99	.	.	.	.	.	.
OB-50B	1.25	0.60	0.46	0.17	0.02	71.24	13	27	.	.	.	.	.	0.08	107.24

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR-31	.	.	.	.	.	.	.	.	.	.	.	.
OB-48D	21.64	58.12	1.02	0.02	1.29	1.27	9.26	171.46	17.65	115.94	29.11	54.66
OB-49A	20.57	24.48	1.06	0.02	6.72	0.87	9.48	223.57	18.13	215.47	19.11	45.56
OB-49B	6.85	18.62	0.60	0.01	3.06	0.54	6.94	99.62	20.14	140.22	24.46	23.31
OB-49C	.	.	.	.	.	.	.	.	.	.	.	.
BR-96	.	.	.	.	.	.	.	.	.	.	.	.
OB-50A	24.29	24.99	0.72	0.01	7.36	1.63	3.65	126.14	9.61	577.70	31.18	20.51
BR-97	.	.	.	.	.	.	.	.	.	.	.	.
OB-50B	25.79	29.12	0.53	0.00	14.89	1.96	5.62	102.15	6.53	724.23	29.03	8.53

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-50C	OB-50	FPS-5	34.158	77.141	3.75	4.00	20.5	2.03	6.65	70.6	0.98	1.30
OB-50C	OB-50	FPS-5	34.158	77.141	3.75	4.00	20.5	2.03	6.65	70.6	0.98	1.30
OB-50D	OB-50	FPS-5	34.158	77.141	6.00	6.25	20.5	2.22	7.25	64.2	2.92	1.36
BR-98	OB-50	FPS-9	34.158	77.141	8.00	9.00	20.5	1.48	3.02	.	1.64	2.10
OB-51A	OB-51	OBS-1	34.153	77.055	2.00	2.25	29.5	1.78	3.18	73.8	1.25	1.18
BR-32	OB-51	OBS-1	34.153	77.055	4.30	4.50	29.5	1.77	1.95	.	1.05	0.50
OB-51B	OB-51	OBS-1	34.153	77.055	5.00	5.25	29.5	1.57	3.61	70.6	1.22	1.38
OB-51C	OB-51	OBS-1	34.153	77.055	8.00	8.25	29.5	1.19	3.36	74.4	1.16	1.17
OB-52A	OB-52	BBS-1	34.158	76.975	2.85	3.00	31.0	1.34	13.90	35.4	8.28	1.52

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-50C	3.36	1.20	1.10	0.50	0.03	87.78	26	64	.	.	.	.	.	0.41	180.26
OB-50C	3.36	1.20	1.10	0.50	0.03	87.78	26	64	.	.	.	.	.	0.41	180.26
OB-50D	3.50	1.20	0.81	0.65	1.41	85.58	31	82	.	.	.	.	.	0.42	401.69
BR-98	1.46	.	.	.	.	.	.	.	75.52	.	.	.	.	.	.
OB-51A	2.65	0.90	0.88	0.53	0.03	86.20	27	63	.	.	.	.	.	0.39	349.01
BR-32	0.98	.	.	.	.	.	.	.	82.17	.	.	.	.	.	.
OB-51B	3.25	0.90	0.92	0.62	0.04	84.19	32	64	.	.	.	.	.	.	.
OB-51C	3.12	0.80	1.09	0.43	0.02	86.75	55	48	.	.	.	.	.	.	.
OB-52A	3.14	1.20	0.62	0.49	0.02	65.99	60	56	.	.	.	.	.	0.30	187.82

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-50C	40.88	48.48	1.24	0.01	5.81	2.41	4.59	256.40	24.95	248.68	37.70	9.60
OB-50C	40.88	48.48	1.24	0.01	5.81	2.41	4.59	256.40	24.95	248.68	37.70	9.60
OB-50D	45.86	48.94	1.15	0.01	5.55	1.76	11.03	124.28	20.59	243.19	41.29	22.01
BR-98	.	.	.	.	.	.	.	.	.	.	.	.
OB-51A	52.82	37.65	1.26	0.01	3.24	2.36	7.02	210.52	20.84	240.78	44.91	18.20
BR-32	.	.	.	.	.	.	.	.	.	.	.	.
OB-51B	.	.	.	.	.	.	.	.	.	.	.	.
OB-51C	.	.	.	.	.	.	.	.	.	.	.	.
OB-52A	84.36	29.23	1.42	0.01	13.64	1.28	8.47	23.94	22.10	256.71	34.74	11.80

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-52B	OB-52	BBS-1	34.158	76.975	3.75	4.00	31.0	1.40	13.80	35.2	8.51	2.29
BR-99	OB-52	BBS-1	34.158	76.975	3.90	4.40	31.0	1.42	18.79	.	8.23	1.18
BR-15	OB-53	BBS-2	34.160	76.915	1.25	1.50	31.0	3.77	7.88	.	0.79	0.67
OB-53A	OB-53	BBS-2	34.160	76.915	1.25	1.50	31.0	3.56	7.28	65.8	0.82	1.17
BR-16	OB-53	BBS-2	34.160	76.915	2.75	3.00	31.0	5.45	9.43	.	0.80	0.68
OB-53B	OB-53	BBS-2	34.160	76.915	2.75	3.00	31.0	5.24	9.21	61.5	1.31	1.24
OB-53C	OB-53	BBS-2	34.160	76.915	3.30	3.50	31.0	3.90	8.16	58.3	1.31	1.28
ML-10	OB-53	BBS-2	34.160	76.915	3.50	4.25	31.0	6.50	14.59	.	1.23	0.81
BR-17	OB-53	BBS-2	34.160	76.915	3.75	4.00	31.0	8.46	15.98	.	1.05	0.68

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-52B	4.07	1.30	0.90	0.59	0.02	68.10	75	76	.	.	.	.	.	0.40	362.37
BR-99	1.15	.	.	.	.	.	.	.	39.52	.	.	.	.	.	.
BR-15	1.06	.	.	.	.	.	.	.	75.93	.	.	.	.	.	.
OB-53A	2.33	0.90	0.41	0.21	0.01	82.54	23	75	.	.	.	.	.	0.15	155.34
BR-16	1.15	.	.	.	.	.	.	.	71.50	.	.	.	.	.	.
OB-53B	2.69	1.10	0.74	0.36	0.03	83.45	53	88	.	.	.	.	.	0.20	262.99
OB-53C	2.77	1.00	0.65	0.28	0.03	77.75	20	90	.	.	.	.	.	.	.
ML-10	1.07	0.75	0.24	.	.	.	.	.	65.20	2.15	0.65	0.97	3.63	.	.
BR-17	1.19	.	.	.	.	.	.	.	59.64	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-52B	79.42	41.60	2.06	0.02	12.51	1.19	11.50	32.14	24.94	255.42	34.03	22.58
BR-99	.	.	.	.	.	.	.	.	.	.	.	.
BR-15	.	.	.	.	.	.	.	.	.	.	.	.
OB-53A	32.44	35.05	1.09	0.01	5.60	2.83	11.60	288.75	19.42	389.87	50.32	10.53
BR-16	.	.	.	.	.	.	.	.	.	.	.	.
OB-53B	41.27	18.14	1.08	0.01	6.37	3.75	9.52	5.36	20.05	486.52	64.03	18.58
OB-53C	.	.	.	.	.	.	.	.	.	.	.	.
ML-10	.	.	.	.	.	.	.	.	.	.	.	.
BR-17	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
BR-18	OB-53	BBS-2	34.160	76.915	4.25	4.50	31.0	9.77	18.67	.	1.55	0.82	1.76
OB-53D	OB-53	BBS-2	34.160	76.915	4.25	4.50	31.0	8.34	18.50	38.6	1.90	1.52	3.63
OB-53E	OB-53	BBS-2	34.160	76.915	4.75	5.00	31.0	4.53	.	.	1.72	1.48	3.45
OB-53F	OB-53	BBS-2	34.160	76.915	5.25	5.50	31.0	5.01	19.10	45.6	1.42	1.43	3.19
BR-19	OB-53	BBS-2	34.160	76.915	6.25	6.50	31.0	5.75	18.16	.	1.12	0.78	1.22
OB-53G	OB-53	BBS-2	34.160	76.915	6.50	6.75	31.0	0.97	17.50	39.6	1.81	3.53	9.03
OB-57A	OB-57	FPS-6	34.000	77.238	1.75	2.00	28.0	0.78	2.27	61.0	1.27	2.23	6.36
OB-57B	OB-57	FPS-6	34.000	77.238	4.00	4.25	28.0	1.86	2.62	59.9	1.02	2.00	6.00
BR-24	OB-57	FPS-6	34.000	77.238	5.25	5.55	28.0	1.34	1.83	.	1.17	0.82	1.14

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
BR-18	.	.	.	.	.	.	.	50.84	.	.	.	.	.	.	.
OB-53D	1.80	0.97	0.54	0.04	75.92	39	214	.	.	.	.	.	.	.	.
OB-53E	1.60	0.95	0.59	0.04	.	35	137	.	.	.	.	.	0.27	210.97	40.34
OB-53F	1.40	0.63	0.53	0.02	78.34	62	134	.	.	.	.	.	0.34	269.14	37.25
BR-19	.	.	.	.	.	.	.	55.94	.	.	.	.	.	.	.
OB-53G	1.90	1.86	0.77	0.07	77.08	52	124	.	.	.	.	.	0.23	351.50	44.40
OB-57A	1.70	1.42	0.71	0.03	77.82	83	92	.	.	.	.	.	0.75	574.42	68.66
OB-57B	1.60	1.50	0.67	0.03	77.26	81	88	.	.	.	.	.	0.64	494.16	64.80
BR-24	.	.	.	.	.	.	.	84.43	.	.	.	.	.	.	.

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR-18	.	.	.	.	.	.	.	.	.	.	.
OB-53D	.	.	.	.	.	.	.	.	.	.	.
OB-53E	30.25	1.06	0.01	17.00	3.35	2.33	321.41	21.50	610.18	51.57	19.33
OB-53F	28.35	1.14	0.02	13.75	4.13	9.20	156.63	19.89	564.93	55.23	18.54
BR-19	.	.	.	.	.	.	.	.	.	.	.
OB-53G	27.25	1.02	0.01	13.67	4.78	8.86	22.74	17.00	794.82	59.20	24.89
OB-57A	51.12	2.55	0.02	2.22	1.48	11.50	162.38	44.89	190.01	48.34	30.82
OB-57B	55.65	2.36	0.03	3.31	2.25	13.07	276.29	42.75	254.32	48.34	28.70
BR-24	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
OB-57C	OB-57	FPS-5	34.000	77.238	6.50	6.75	28.0	1.53	11.50	30.5	6.39	3.13	7.51
BR100	OB-57	FPS-5	34.000	77.238	7.00	8.00	28.0	1.62	10.70	.	5.43	2.41	1.51
OB-58A	OB-58	OBS-2	34.000	77.123	3.40	3.45	31.0	1.40	6.20	65.8	1.96	1.70	3.51
OB-58B	OB-58	OBS-2	34.000	77.123	3.70	3.75	31.0	1.54	2.81	82.9	0.12	0.22	0.90
BR-8	OB-58	OBS-2	34.000	77.123	3.75	4.00	31.0	1.73	2.21	.	0.12	0.29	0.14
OB-58C	OB-58	OBS-2	34.000	77.123	4.40	4.45	31.0	1.47	7.18	38.3	5.32	4.19	9.03
OB-59A	OB-59	PLEIS	34.010	76.988	4.75	5.00	33.0	0.47	42.00	16.7	1.19	0.28	0.62
OB-59C	OB-59	PLEIS	34.010	76.988	5.89	6.00	33.0	2.28	23.80	34.3	1.94	1.09	2.85
OB-59B	OB-59	BBS-1	34.010	76.988	6.25	6.50	33.0	1.08	18.30	34.0	4.77	1.81	5.36

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
OB-57C	1.70	1.76	0.59	0.06	64.74	35	114	.	.	.	.	.	0.15	121.63	33.36
BR100	.	.	.	.	.	.	.	57.00	.	.	.	.	.	.	.
OB-58A	1.30	1.07	0.63	0.03	83.63	83	52	.	.	.	.	.	0.40	973.24	50.95
OB-58B	0.20	0.54	0.09	2.49	91.88	19	13	.	.	.	.	.	0.02	26.73	2.90
BR-8	.	.	.	.	.	.	.	86.72	.	.	.	.	.	.	.
OB-58C	3.50	1.80	0.61	0.06	71.49	38	127	.	.	.	.	.	.	.	.
OB-59A	0.50	0.44	0.09	0.01	62.34	29	9	.	.	.	.	.	0.04	49.51	9.45
OB-59C	1.20	0.63	0.37	0.02	68.52	51	44	.	.	.	.	.	0.27	475.39	38.50
OB-59B	1.80	1.26	0.56	0.04	69.00	34	71	.	.	.	.	.	0.36	206.21	113.97

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-57C	23.81	1.20	0.01	2.80	0.00	3.61	112.64	26.02	143.41	23.00	8.54
BR100	.	.	.	.	.	.	.	.	.	.	.
OB-58A	29.22	1.41	0.01	4.10	1.36	14.29	194.31	23.67	177.47	38.62	56.74
OB-58B	5.39	0.11	0.00	1.01	0.64	2.93	1.53	6.32	150.30	27.12	1.88
BR-8	.	.	.	.	.	.	.	.	.	.	.
OB-58C	.	.	.	.	.	.	.	.	.	.	.
OB-59A	0.00	0.17	0.00	30.95	0.21	2.00	96.22	0.67	752.12	9.13	1.00
OB-59C	21.75	1.10	0.01	26.73	3.16	6.86	154.26	15.93	574.61	38.69	29.29
OB-59B	47.67	2.31	0.01	18.20	0.86	9.17	444.68	40.03	346.28	39.81	11.22

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-59D	OB-59	BBS-1	34.010	76.988	6.75	7.00	33.0	1.27	18.30	27.4	6.35	2.46
BR-25	OB-59	BBS-1	34.010	76.988	7.75	7.90	33.0	2.56	10.79	.	0.65	0.50
OB-59E	OB-59	BBS-1	34.010	76.988	7.80	8.20	33.0	2.16	9.00	67.9	1.06	1.00
OB-60A	OB-60	BBS-3	34.163	76.846	1.25	1.50	33.0	0.72	2.23	80.3	1.12	1.09
BR101	OB-60	BBS-3	34.163	76.846	2.00	3.00	33.0	0.88	8.03	.	1.00	1.00
OB-60B	OB-60	BBS-3	34.163	76.846	3.50	3.75	33.0	0.76	8.68	63.1	1.31	1.31
OB-60C	OB-60	BBS-3	34.163	76.846	6.00	6.25	33.0	1.17	3.09	62.1	1.96	2.10
OB-62A	OB-62	PLEIS	33.703	77.533	3.25	3.50	24.6	1.60	9.42	39.8	2.49	2.77
OB-62B	OB-62	OBS-U	33.703	77.533	4.25	4.50	24.6	1.69	8.19	43.2	3.93	3.16

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-59D	6.90	2.70	1.27	0.53	1.34	68.61	32	91	.	.	.	.	.	.	.
BR-25	0.38	.	.	.	.	.	.	.	71.92	.	.	.	.	.	.
OB-59E	.	1.00	.	0.26	1.30	.	16	37	.	.	.	.	.	0.17	68.39
OB-60A	4.32	1.20	1.49	0.25	0.01	92.82	43	36	.	.	.	.	.	0.20	133.96
BR101	0.80	.	.	.	.	.	.	.	76.89	.	.	.	.	.	.
OB-60B	4.31	1.30	1.22	0.34	0.03	82.37	20	46	.	.	.	.	.	0.09	120.79
OB-60C	5.40	1.50	1.22	0.40	0.04	78.99	26	68	.	.	.	.	.	0.11	87.29
OB-62A	5.92	1.80	1.11	0.49	0.02	65.42	69	90	.	.	.	.	.	0.40	414.81
OB-62B	7.10	1.80	1.47	0.55	0.02	71.17	75	116	.	.	.	.	.	0.28	158.75

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-59D	.	.	.	.	.	.	.	.	.	.	.	.
BR-25	.	.	.	.	.	.	.	.	.	.	.	.
OB-59E	58.90	44.16	1.09	0.01	10.69	2.97	4.65	177.84	19.81	388.70	39.17	4.42
OB-60A	20.18	31.03	1.09	0.01	1.91	0.25	10.40	272.93	33.77	207.94	23.44	7.72
BR101	.	.	.	.	.	.	.	.	.	.	.	.
OB-60B	12.55	14.28	0.53	0.00	2.75	0.00	3.56	69.67	12.43	178.25	11.86	6.64
OB-60C	21.09	22.16	0.90	0.01	0.91	0.00	3.70	104.06	20.46	98.30	22.06	4.04
OB-62A	81.59	50.30	2.55	0.01	9.43	1.28	13.66	542.56	40.22	517.95	36.26	21.39
OB-62B	75.67	45.84	2.18	0.01	4.58	0.59	19.03	304.71	49.61	314.41	42.69	10.29

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-62C	OB-62	OBS-U	33.703	77.533	5.75	5.82	24.6	1.93	7.21	50.8	3.11	3.11
P-7	OB-63	FPS-2	33.763	77.581	0.15	0.25	24.4	0.98	9.94	35.5	2.17	3.50
OB-63A	OB-63	FPS-2	33.763	77.581	1.25	1.50	24.4	1.10	22.20	28.0	1.56	2.33
P-3	OB-63	FPS-2	33.763	77.581	1.60	1.70	24.4	1.21	25.80	18.5	1.59	2.04
BR-75	OB-63	FPS-2	33.763	77.581	1.80	2.00	24.4	3.16	28.66	.	1.87	1.44
OB-63B	OB-63	FPS-2	33.763	77.581	2.25	2.50	24.4	9.24	30.90	17.9	1.40	1.83
ML-31	OB-64	HOLO	33.805	77.630	0.30	0.54	20.1	4.07	27.52	.	1.01	1.23
BR-71	OB-64	HOLO	33.805	77.630	0.40	.	20.1	4.55	26.77	.	0.82	0.81
BR-72	OB-64	FPS-1	33.805	77.630	4.00	4.50	20.1	12.88	29.35	.	1.49	1.05

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-62C	7.50	2.00	1.52	0.61	0.05	77.92	40	143	.	.	.	.	.	.	.
P-7	8.99	2.10	2.30	0.68	0.05	66.30	1	2	.	.	.	.	.	.	.
OB-63A	5.71	1.70	2.08	0.48	0.04	65.21	33	96	.	.	.	.	.	.	.
P-3	5.32	2.20	1.61	0.40	0.04	58.75	1	2	.	.	.	.	.	.	.
BR-75	1.42	.	.	.	.	.	.	.	31.59	.	.	.	.	.	.
OB-63B	2.98	2.00	0.66	0.31	0.01	67.26	38	87	.	.	.	.	.	0.21	154.18
ML-31	0.46	.	.	.	.	.	.	.	47.58	.	.	.	.	.	.
BR-71	0.22	.	.	.	.	.	.	.	45.77	.	.	.	.	.	.
BR-72	1.16	.	.	.	.	.	.	.	34.38	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-62C	.	.	.	.	.	.	.	.	.	.	.	.
P-7	.	.	.	.	.	.	.	.	.	.	.	.
OB-63A	.	.	.	.	.	.	.	.	.	.	.	.
P-3	.	.	.	.	.	.	.	.	.	.	.	.
BR-75	.	.	.	.	.	.	.	.	.	.	.	.
OB-63B	55.13	42.73	1.48	.	27.61	10.05	8.95	445.49	14.23	1043.76	70.38	22.18
ML-31	.	.	.	.	.	.	.	.	.	.	.	.
BR-71	.	.	.	.	.	.	.	.	.	.	.	.
BR-72	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
ML-32	OB-64	FPS-1	33.805	77.630	4.00	4.50	20.1	12.55	31.97	.	0.77	0.87
OB-64A	OB-64	FPS-1	33.805	77.630	4.00	4.25	20.1	12.47	26.90	23.9	1.59	1.22
OB-64B	OB-64	FPS-1	33.805	77.630	4.50	4.75	20.1	15.13	31.20	15.3	1.38	1.01
P-14	OB-64	FPS-1	33.805	77.630	4.50	4.70	20.1	14.28	32.30	10.9	1.44	1.04
ML-12	OB-64	FPS-1	33.805	77.630	4.70	5.45	20.1	15.70	33.01	.	1.35	0.39
BR-73	OB-64	FPS-1	33.805	77.630	5.50	5.80	20.1	15.19	31.14	.	1.12	0.76
OB-64C	OB-64	FPS-1	33.805	77.630	6.00	6.20	20.1	14.60	30.50	15.9	1.02	0.73
OB-64D	OB-64	FPS-1	33.805	77.630	6.35	6.40	20.1	0.60	22.30	46.1	0.49	0.28
BR-76	OB-65	FPS-2	33.813	77.558	2.00	2.50	23.2	1.00	6.29	.	1.15	2.04

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
ML-32	0.46	.	.	.	.	.	.	.	37.09	.	.	.	.	.	.
OB-64A	2.57	1.50	0.76	0.45	0.03	71.42	36	120	.	.	.	.	.	0.09	81.92
OB-64B	2.18	1.50	0.59	0.37	0.03	68.74	33	129	.	.	.	.	.	0.07	73.62
P-14	2.34	1.60	0.53	0.34	0.03	64.83	31	123	.	.	.	.	.	.	.
ML-12	0.97	0.85	0.18	.	.	.	.	.	27.30	2.95	1.63	1.45	9.08	.	.
BR-73	1.26	.	.	.	.	.	.	.	29.46	.	.	.	.	.	.
OB-64C	1.64	1.30	0.19	0.31	0.01	66.29	41	118	.	.	.	.	.	0.23	113.91
OB-64D	1.28	0.30	0.58	0.17	0.02	72.19	15	31	.	.	.	.	.	.	.
BR-76	1.09	.	.	.	.	.	.	.	72.08	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
ML-32	.	.	.	.	.	.	.	.	.	.	.	.
OB-64A	33.61	16.22	0.44	0.00	7.41	0.00	1.99	113.51	7.38	644.45	113.02	5.40
OB-64B	40.02	13.70	0.40	0.00	9.27	0.22	1.22	131.60	5.73	894.63	189.89	4.90
P-14	.	.	.	.	.	.	.	.	.	.	.	.
ML-12	.	.	.	.	.	.	.	.	.	.	.	.
BR-73	.	.	.	.	.	.	.	.	.	.	.	.
OB-64C	92.73	29.25	0.74	0.01	32.18	22.68	3.31	285.07	7.27	1599.20	249.65	10.68
OB-64D	.	.	.	.	.	.	.	.	.	.	.	.
BR-76	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
P-18	OB-65	FPS-2	33.813	77.558	3.00	3.10	23.2	0.80	7.25	46.3	1.73	1.74
BR-77	OB-65	FPS-2	33.813	77.558	4.00	4.30	23.2	1.08	3.11	.	1.06	1.60
P-13	OB-65	FPS-2	33.813	77.558	4.70	4.80	23.2	0.90	4.10	52.8	2.25	2.71
ML-19	OB-66	FPS-6	33.836	77.498	1.60	2.20	.	2.40	12.16	.	0.96	0.61
BR-74	OB-66	FPS-6	33.836	77.498	2.00	2.50	.	2.44	11.52	.	0.58	0.62
P-23	OB-66	FPS-3	33.836	77.498	3.50	3.60	.	1.77	3.26	58.3	1.79	1.65
OB-67A	OB-67	FPS-6	33.835	77.448	3.25	3.50	23.5	1.01	18.40	44.9	0.74	0.97
BR-79	OB-67	FPS-6	33.835	77.448	3.50	4.00	23.5	1.08	18.03	.	0.55	0.59
P-8	OB-67	FPS-6	33.835	77.448	4.50	4.60	23.5	0.99	19.80	37.3	0.79	0.95

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
P-18	7.42	2.90	1.88	0.61	0.05	70.75	35	94	.	.	.	.	.	.	.
BR-77	1.00	.	.	.	.	.	.	.	80.60	.	.	.	.	.	.
P-13	8.04	2.10	1.73	0.74	0.05	75.46	39	112	.	.	.	.	.	.	.
ML-19	0.48	0.60	0.23	.	.	.	.	.	73.80	1.21	0.25	0.57	6.64	.	.
BR-74	0.56	.	.	.	.	.	.	.	70.59	.	.	.	.	.	.
P-23	4.42	1.90	1.32	0.43	0.03	74.88	25	105	.	.	.	.	.	.	.
OB-67A	3.64	1.50	1.03	0.70	0.03	72.98	79	38	.	.	.	.	.	0.50	283.54
BR-79	0.45	.	.	.	.	.	.	.	59.55	.	.	.	.	.	.
P-8	3.64	2.40	1.24	0.61	0.04	67.85	31	42	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
P-18	.	.	.	.	.	.	.	.	.	.	.	.
BR-77	.	.	.	.	.	.	.	.	.	.	.	.
P-13	.	.	.	.	.	.	.	.	.	.	.	.
ML-19	.	.	.	.	.	.	.	.	.	.	.	.
BR-74	.	.	.	.	.	.	.	.	.	.	.	.
P-23	.	.	.	.	.	.	.	.	.	.	.	.
OB-67A	26.65	34.64	0.78	0.02	18.10	1.55	6.92	115.58	19.15	427.77	35.30	17.00
BR-79	.	.	.	.	.	.	.	.	.	.	.	.
P-8	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-67B	OB-67	FPS-6	33.835	77.448	4.75	5.00	23.5	1.15	3.08	65.8	1.10	1.01
P-12	OB-67	FPS-6	33.835	77.448	7.70	7.80	23.5	1.03	12.40	41.9	1.68	1.14
P-4	OB-68	OBS-3	33.833	77.285	1.50	1.60	25.9	1.66	11.30	39.4	4.12	1.13
BR-80	OB-68	OBS-3	33.833	77.285	2.50	2.70	25.9	4.67	8.90	.	1.90	1.47
ML-20	OB-68	OBS-2	33.833	77.285	3.05	3.55	25.9	1.60	6.95	.	2.84	0.45
BR-81	OB-68	OBS-2	33.833	77.285	3.70	3.80	25.9	1.40	11.70	.	6.37	0.76
P-9	OB-68	OBS-2	33.833	77.285	4.80	4.90	25.9	1.77	5.18	62.1	1.92	0.98
P-1	OB-70	FPS-2	33.681	77.645	1.50	1.60	22.3	1.59	4.69	48.2	2.33	2.82
OB-71A	OB-71	BBS-1	34.448	77.913	0.50	0.50	22.0	3.20	7.32	66.3	1.02	1.46

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-67B	2.00	0.70	0.47	0.94	0.03	76.36	105	41	.	.	.	.	.	0.74	880.78
P-12	4.59	2.60	1.45	0.67	0.04	67.54	32	52	.	.	.	.	.	.	.
P-4	4.94	2.20	1.33	0.56	0.04	66.68	1	2	.	.	.	.	.	.	.
BR-80	1.51	.	.	.	.	.	.	.	66.70	.	.	.	.	.	.
ML-20	0.37	0.44	0.14	.	.	.	.	.	83.00	0.79	0.24	0.39	4.67	.	.
BR-81	0.83	.	.	.	.	.	.	.	54.26	.	.	.	.	.	.
P-9	2.81	1.20	0.81	0.52	0.03	77.35	25	49	.	.	.	.	.	.	.
P-1	8.02	2.40	1.79	0.81	0.12	72.81	1	2	.	.	.	.	.	.	.
OB-71A	2.98	0.90	0.91	0.53	0.03	84.65	29	57	.	.	.	.	.	0.28	373.50

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-67B	40.95	25.08	0.96	0.02	3.11	2.11	10.05	86.67	14.31	162.81	27.97	48.74
P-12	.	.	.	.	.	.	.	.	.	.	.	.
P-4	.	.	.	.	.	.	.	.	.	.	.	.
BR-80	.	.	.	.	.	.	.	.	.	.	.	.
ML-20	.	.	.	.	.	.	.	.	.	.	.	.
BR-81	.	.	.	.	.	.	.	.	.	.	.	.
P-9	.	.	.	.	.	.	.	.	.	.	.	.
P-1	.	.	.	.	.	.	.	.	.	.	.	.
OB-71A	36.44	29.86	1.18	0.01	4.46	2.12	12.70	118.91	26.90	374.08	66.24	23.61

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-71B	OB-71	BBS-1	34.448	77.913	1.00	1.00	22.0	1.42	12.90	39.2	5.20	1.65
OB-72A	OB-72	BBS-2	34.453	76.876	1.00	1.00	22.0	2.30	16.40	45.8	1.42	1.97
BR-78	OB-72	BBS-2	34.453	76.876	1.20	1.40	22.0	3.32	7.48	.	0.65	1.02
P-5	OB-72	BBS-2	34.453	76.876	1.50	1.60	22.0	2.99	7.32	61.5	0.75	1.14
ML-8	OB-72	BBS-2	34.453	76.876	1.75	2.20	22.0	2.88	6.95	.	0.89	1.20
OB-72B	OB-72	BBS-2	34.453	76.876	3.00	3.25	22.0	2.60	5.32	40.1	1.88	1.91
OB-72C	OB-72	BBS-1	34.453	76.876	4.00	4.00	22.0	3.38	11.60	56.2	2.67	1.66
P-10	OB-72	BBS-1	34.453	76.876	4.30	.	22.0	1.02	22.90	16.5	5.75	0.95
OB-72D	OB-72	BBS-1	34.453	76.876	4.50	4.50	22.0	2.75	5.22	66.3	1.66	1.79

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-71B	3.67	1.10	0.91	0.37	0.04	66.53	25	77	.	.	.	.	.	0.08	42.25
OB-72A	3.61	1.20	0.82	0.38	1.40	75.37	23	48	.	.	.	.	.	.	.
BR-78	0.86	.	.	.	.	.	.	.	75.10	.	.	.	.	.	.
P-5	2.33	0.60	0.78	0.35	0.03	77.87	0	1	.	.	.	.	.	.	.
ML-8	1.24	0.61	0.28	.	.	.	.	.	80.40	1.76	0.33	0.69	1.3	.	.
OB-72B	4.14	1.00	1.25	0.54	0.04	58.84	31	82	.	.	.	.	.	0.26	287.72
OB-72C	3.67	1.10	0.91	0.51	1.45	83.17	30	90	.	.	.	.	.	0.13	490.86
P-10	2.36	0.80	0.66	0.31	0.03	51.32	19	55	.	.	.	.	.	.	.
OB-72D	3.73	1.10	1.04	0.56	1.54	85.73	29	81	.	.	.	.	.	0.13	476.06

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-71B	9.55	14.31	0.58	0.00	3.23	0.00	0.81	109.57	12.57	103.50	11.35	3.19
OB-72A	.	.	.	.	.	.	.	.	.	.	.	.
BR-78	.	.	.	.	.	.	.	.	.	.	.	.
P-5	.	.	.	.	.	.	.	.	.	.	.	.
ML-8	.	.	.	.	.	.	.	.	.	.	.	.
OB-72B	50.83	47.56	1.46	0.01	3.06	1.43	12.93	205.95	36.04	362.18	63.91	23.31
OB-72C	26.37	24.18	0.80	0.01	4.14	0.33	3.80	104.51	16.15	275.86	31.28	99.75
P-10	.	.	.	.	.	.	.	.	.	.	.	.
OB-72D	24.40	21.99	0.70	0.00	1.20	0.00	1.53	106.90	14.79	158.10	30.39	28.35

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
P-24	OB-79	BBS-1	34.635	76.868	4.50	4.60	15.0	2.82	.	.	0.26	0.89
P-6	OB-79	BBS-1	34.635	76.868	5.90	6.00	15.0	2.20	4.20	57.80	1.39	2.91
P-26	OB-80	OBS-1	34.605	77.005	4.90	5.30	15.0	0.99	19.50	40.10	1.80	0.88
BR118	OB-90	BBS-8?	34.641	76.723	5.80	6.00	15.5	1.42	3.31	.	0.38	1.08
BR106	OB-91	BBS-1	34.636	76.823	2.50	2.75	15.8	2.90	15.09	.	1.36	1.30
BR107	OB-91	BBS-1	34.636	76.823	2.80	2.90	15.8	3.45	14.28	.	1.44	1.37
ML-23	OB-91	BBS-1	34.636	76.823	2.80	3.20	15.8	3.82	15.75	.	1.97	1.29
BR108	OB-91	BBS-1	34.636	76.823	3.50	3.75	15.8	4.25	10.95	.	1.32	1.09
OB-91A	OB-91	BBS-1	34.636	76.823	3.50	3.50	15.8	4.52	11.80	57.80	1.79	1.85

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
P-24	0.94	0.3	0.09	0.14	0.04	.	47	127	.	.	.	.	.	.	.
P-6	6.32	0.9	1.27	1.25	0.07	78.38	1	2	.	.	.	.	.	.	.
P-26	1.63	0.4	0.49	0.15	0.02	66.02	11	29	.	.	.	.	.	.	.
BR118	0.84	.	.	.	.	.	.	.	85.92	.	.	.	.	.	.
BR106	1.18	.	.	.	.	.	.	.	85.92	.	.	.	.	.	.
BR107	1.07	.	.	.	.	.	.	.	64.21	.	.	.	.	.	.
ML-23	0.89	.	.	.	.	.	.	.	64.91	.	.	.	.	.	.
BR108	1.04	.	.	.	.	.	.	.	71.57	.	.	.	.	.	.
OB-91A	2.58	0.6	0.79	1.00	0.06	82.81	50	63	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
P-24	.	.	.	.	.	.	.	.	.	.	.	.
P-6	.	.	.	.	.	.	.	.	.	.	.	.
P-26	.	.	.	.	.	.	.	.	.	.	.	.
BR118	.	.	.	.	.	.	.	.	.	.	.	.
BR106	.	.	.	.	.	.	.	.	.	.	.	.
BR107	.	.	.	.	.	.	.	.	.	.	.	.
ML-23	.	.	.	.	.	.	.	.	.	.	.	.
BR108	.	.	.	.	.	.	.	.	.	.	.	.
OB-91A	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
ML-24	OB-91	BBS-1	34.636	76.823	3.90	4.20	15.8	3.52	11.42	.	1.24	1.27
BR109	OB-91	BBS-1	34.636	76.823	4.00	4.25	15.8	3.84	10.17	.	1.21	1.04
BR110	OB-91	BBS-1	34.636	76.823	4.50	4.75	15.8	2.95	7.63	.	0.90	1.27
ML-25	OB-91	BBS-1	34.636	76.823	4.80	5.20	15.8	1.88	7.86	.	0.84	1.30
BR111	OB-91	BBS-1	34.636	76.823	5.00	5.25	15.8	2.11	6.98	.	0.86	1.17
BR112	OB-91	BBS-1	34.636	76.823	5.50	5.75	15.8	1.63	6.02	.	0.62	1.22
BR113	OB-91	BBS-1	34.636	76.823	6.00	6.25	15.8	1.32	4.80	.	0.58	1.12
OB-91B	OB-91	BBS-1	34.636	76.823	6.00	6.00	15.8	1.10	4.76	66.30	0.88	2.18
OB-92A	OB-92	BBS-4	34.156	76.788	3.50	3.75	32.0	0.76	23.50	46.10	0.76	0.33

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
ML-24	0.72	.	.	.	.	.	.	.	73.59	.	.	.	.	.	.
BR109	0.81	.	.	.	.	.	.	.	69.10	.	.	.	.	.	.
BR110	0.95	.	.	.	.	.	.	.	77.92	.	.	.	.	.	.
ML-25	0.60	.	.	.	.	.	.	.	80.69	.	.	.	.	.	.
BR111	0.82	.	.	.	.	.	.	.	80.27	.	.	.	.	.	.
BR112	0.84	.	.	.	.	.	.	.	82.55	.	.	.	.	.	.
BR113	0.78	.	.	.	.	.	.	.	84.32	.	.	.	.	.	.
OB-91B	4.08	0.8	1.17	1.16	0.07	82.53	56	62	.	.	.	.	.	0.21	155.92
OB-92A	0.84	0.3	0.29	0.03	0.93	73.87	4	9	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
ML-24	.	.	.	.	.	.	.	.	.	.	.	.
BR109	.	.	.	.	.	.	.	.	.	.	.	.
BR110	.	.	.	.	.	.	.	.	.	.	.	.
ML-25	.	.	.	.	.	.	.	.	.	.	.	.
BR111	.	.	.	.	.	.	.	.	.	.	.	.
BR112	.	.	.	.	.	.	.	.	.	.	.	.
BR113	.	.	.	.	.	.	.	.	.	.	.	.
OB-91B	19.43	21.81	0.68	0.01	1.30	0.00	0.51	52.81	9.77	73.44	21.41	7.82
OB-92A	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-92B	OB-92	BBS-4	34.156	76.788	4.25	4.50	32.0	0.76	5.25	78.10	0.20	0.21
BR119	OB-92	BBS-4	34.156	76.788	5.00	5.25	32.0	0.87	1.49	.	0.13	0.36
OB-92C	OB-92	BBS-4	34.156	76.788	5.00	5.25	32.0	0.75	1.66	77.00	0.18	0.23
OB-92D	OB-92	BBS-4	34.156	76.788	5.50	5.50	32.0	0.84	1.59	78.10	0.24	0.30
OB-92E	OB-92	BBS-4	34.156	76.788	6.00	6.00	32.0	0.81	1.54	73.80	0.13	0.23
BR104	OB-93B	HOLO	34.160	76.733	2.50	2.75	32.0	0.30	15.52	.	0.68	0.79
BR105	OB-93B	HOLO	34.160	76.733	3.75	4.00	32.0	0.32	28.92	.	0.94	0.90
BR122	OB-94	HOLO	34.163	76.923	0.40	0.50	30.7	1.55	22.76	.	1.24	0.81
ML-21	OB-94	BBS-2	34.163	76.923	0.69	1.00	30.7	7.50	23.31	.	1.36	1.24

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-92B	0.98	0.2	0.31	0.03	0.00	86.10	0	6	.	.	.	.	.	0.03	21.10
BR119	0.20	.	.	.	.	.	.	.	92.65	.	.	.	.	.	.
OB-92C	1.11	0.4	0.39	0.03	0.03	81.80	0	1	.	.	.	.	.	0.04	16.37
OB-92D	1.37	0.4	0.57	0.04	0.00	83.50	6	9	.	.	.	.	.	0.04	20.74
OB-92E	1.16	0.3	0.63	0.03	0.00	78.69	13	8	.	.	.	.	.	0.06	18.64
BR104	0.15	.	.	.	.	.	.	.	66.40	.	.	.	.	.	.
BR105	0.18	.	.	.	.	.	.	.	41.69	.	.	.	.	.	.
BR122	0.61	.	.	.	.	.	.	.	51.26	.	.	.	.	.	.
ML-21	1.28	.	.	.	.	.	.	.	50.11	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-92B	4.52	15.67	0.24	0.00	6.84	1.42	5.64	36.48	8.08	142.78	8.60	0.77
BR119	.	.	.	.	.	.	.	.	.	.	.	.
OB-92C	3.12	20.03	0.26	0.00	1.59	0.99	7.89	97.73	12.64	124.32	13.99	0.01
OB-92D	1.92	15.33	0.27	0.00	1.62	1.30	6.72	23.11	11.97	119.90	9.83	0.44
OB-92E	1.21	32.19	0.41	0.00	2.95	2.39	14.16	141.71	14.61	168.18	13.36	1.17
BR104	.	.	.	.	.	.	.	.	.	.	.	.
BR105	.	.	.	.	.	.	.	.	.	.	.	.
BR122	.	.	.	.	.	.	.	.	.	.	.	.
ML-21	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-94A	OB-94	BBS-2	34.163	76.923	0.70	0.95	30.7	8.34	21.40	40.50	1.52	1.37
BR-23	OB-94	BBS-2	34.163	76.923	1.00	1.20	30.7	7.54	20.64	.	1.28	1.21
BR121	OB-94	BBS-2	34.163	76.923	1.00	1.20	30.7	1.34	13.03	.	0.60	.
P-17	OB-94	BBS-2	34.163	76.923	1.00	1.10	30.7	3.33	.	.	1.28	1.13
OB-94B	OB-94	BBS-2	34.163	76.923	1.50	1.75	30.7	1.40	30.90	25.00	1.13	1.07
BR124	OB-94	BBS-2	34.163	76.923	1.70	1.90	30.7	1.77	31.62	.	1.02	0.87
BR125	OB-95		34.160	76.870	.	.	30.8	1.00	15.52	.	0.68	0.80
OB-95A	OB-95	BBS-3	34.160	76.870	1.25	1.50	30.8	0.84	17.20	54.00	0.97	1.09
OB-95B	OB-95	BBS-2	34.160	76.870	2.20	2.40	30.8	0.72	15.60	5.35	0.91	1.37

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-94A	2.49	1.5	0.75	0.40	0.03	78.32	26	211	.	.	.	.	.	0.07	80.36
BR-23	0.60	.	.	.	.	.	.	.	50.33	.	.	.	.	.	.
BR121	0.13	.	.	.	.	.	.	.	71.22	.	.	.	.	.	.
P-17	2.26	0.8	0.53	0.40	0.04	.	23	102	.	.	.	.	.	.	.
OB-94B	2.28	0.8	0.28	0.44	0.02	63.39	46	62	.	.	.	.	.	0.29	816.78
BR124	0.67	.	.	.	.	.	.	.	36.30	.	.	.	.	.	.
BR125	0.28	.	.	.	.	.	.	.	66.57	.	.	.	.	.	.
OB-95A	1.50	0.7	0.22	0.22	0.01	76.79	19	28	.	.	.	.	.	0.15	175.44
OB-95B	3.37	1.3	0.65	0.40	0.02	29.71	44	68	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-94A	24.30	6.49	0.45	0.00	5.69	0.00	0.48	112.94	5.93	381.41	24.03	7.25
BR-23	.	.	.	.	.	.	.	.	.	.	.	.
BR121	.	.	.	.	.	.	.	.	.	.	.	.
P-17	.	.	.	.	.	.	.	.	.	.	.	.
OB-94B	19.89	10.05	1.03	0.01	36.07	1.72	5.74	166.62	14.32	338.02	19.22	48.03
BR124	.	.	.	.	.	.	.	.	.	.	.	.
BR125	.	.	.	.	.	.	.	.	.	.	.	.
OB-95A	23.80	14.70	0.98	0.01	17.03	1.33	5.91	115.57	6.55	1072.56	25.47	6.70
OB-95B	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR114	OB-96	HOLO	33.901	77.455	0.60	0.70	25.9	0.47	7.02	.	0.28	0.36
BR115	OB-96	FPS-6	33.901	77.455	1.40	1.50	25.9	1.91	17.64	.	0.58	0.76
P-20	OB-96	FPS-6	33.901	77.455	1.40	1.50	25.9	1.53	32.30	19.7	0.76	0.72
OB-96A	OB-96	FPS-6	33.901	77.455	2.25	2.50	25.9	1.73	22.00	36.6	0.66	0.98
P-16	OB-96	FPS-6	33.901	77.455	2.90	3.00	25.9	1.77	18.60	37.7	0.74	1.24
P-22	OB-96	FPS-6	33.901	77.455	4.40	4.50	25.9	1.38	11.60	43.7	1.22	1.76
OB-96B	OB-96	FPS-6	33.901	77.455	5.25	5.50	25.9	1.54	9.45	51.5	1.35	1.96
BR103	OB-97	FPS-2	33.915	77.491	1.40	1.50	25.2	2.54	7.87	.	0.84	1.00
P-25	OB-97	FPS-2	33.915	77.491	1.40	1.50	25.2	2.32	8.37	53.2	0.83	1.28

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR114	0.09	.	.	.	.	.	.	.	82.97	.	.	.	.	.	.
BR115	0.67	.	.	.	.	.	.	.	60.84	.	.	.	.	.	.
P-20	1.80	0.9	0.62	0.52	0.04	58.98	26	40	.	.	.	.	.	.	.
OB-96A	2.52	1.0	0.70	0.74	0.03	67.03	86	48	.	.	.	.	.	0.54	698.00
P-16	3.53	1.2	1.16	0.85	0.05	66.85	40	63	.	.	.	.	.	.	.
P-22	5.15	1.4	1.60	0.73	0.05	68.61	37	97	.	.	.	.	.	.	.
OB-96B	5.55	1.7	1.77	0.88	0.06	75.78	46	101	.	.	.	.	.	0.23	525.51
BR103	0.92	.	.	.	.	.	.	.	76.29	.	.	.	.	.	.
P-25	4.17	1.7	1.21	0.77	0.04	73.96	38	80	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR114	.	.	.	.	.	.	.	.	.	.	.	.
BR115	.	.	.	.	.	.	.	.	.	.	.	.
P-20	.	.	.	.	.	.	.	.	.	.	.	.
OB-96A	68.45	28.22	0.89	0.02	20.13	2.21	6.58	132.29	14.29	549.43	433.99	37.60
P-16	.	.	.	.	.	.	.	.	.	.	.	.
P-22	.	.	.	.	.	.	.	.	.	.	.	.
OB-96B	26.17	27.67	0.74	0.01	2.78	0.00	1.57	92.49	14.66	162.19	27.10	27.58
BR103	.	.	.	.	.	.	.	.	.	.	.	.
P-25	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
P-11	OB-97	FPS-2	33.915	77.491	2.90	3.00	25.2	3.13	5.81	62.10	1.48	1.68
P-15	OB-97	FPS-2	33.915	77.491	4.40	4.50	25.2	1.43	13.00	33.30	6.37	1.58
P-19	OB-97	FPS-2	33.915	77.491	5.90	6.00	25.2	1.24	2.75	46.40	3.14	3.71
BR116	OB-98	HOLO	33.783	77.635	0.10	0.20	25.3	4.14	22.57	.	0.90	1.65
ML-22	OB-98	HOLO	33.783	77.635	0.75	1.00	25.3	3.86	29.84	.	1.30	1.67
BR117	OB-98	HOLO	33.783	77.635	1.00	1.10	25.3	3.70	22.48	.	0.96	1.27
OB-98A	OB-98	HOLO	33.783	77.635	1.25	1.50	25.3	1.53	15.10	31.00	2.45	2.86
P-21	OB-98	FPS-2	33.783	77.635	1.40	1.50	25.3	1.25	13.30	27.40	2.11	2.82
OB-98B	OB-98	FPS-2	33.783	77.635	3.25	3.50	25.3	1.02	17.80	34.70	2.18	2.87

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
P-11	5.19	2.1	1.28	0.88	0.05	83.75	47	113	.	.	.	.	.	.	.	.
P-15	4.77	1.2	1.03	0.63	0.05	63.37	5	81	.	.	.	.	.	.	.	.
P-19	9.68	1.6	1.68	0.86	0.06	71.18	49	148	.	.	.	.	.	.	.	.
BR116	0.36	.	.	.	.	.	.	.	51.38	.	.	.	.	.	.	.
ML-22	0.54	.	.	.	.	.	.	.	42.86	.	.	.	.	.	.	.
BR117	0.54	.	.	.	.	.	.	.	51.68	.	.	.	.	.	.	.
OB-98A	8.00	2.2	1.13	0.55	0.02	64.93	74	124	.	.	.	.	.	.	.	.
P-21	8.68	2.3	1.47	0.60	0.05	60.06	46	139	.	.	.	.	.	.	.	.
OB-98B	7.58	1.9	2.00	0.58	0.02	70.66	85	126	.	.	.	.	.	0.41	205.37	91.87

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
P-11	.	.	.	.	.	.	.	.	.	.	.
P-15	.	.	.	.	.	.	.	.	.	.	.
P-19	.	.	.	.	.	.	.	.	.	.	.
BR116	.	.	.	.	.	.	.	.	.	.	.
ML-22	.	.	.	.	.	.	.	.	.	.	.
BR117	.	.	.	.	.	.	.	.	.	.	.
OB-98A	.	.	.	.	.	.	.	.	.	.	.
P-21	.	.	.	.	.	.	.	.	.	.	.
OB-98B	56.06	2.53	0.01	15.26	0.96	14.92	270.68	52.53	529.20	43.54	17.05

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
P-2	OB-98	FPS-2	33.783	77.635	4.00	4.10	25.3	1.00	17.40	19.40	2.12	3.48
BR120	OB-99	PLEIS	34.011	76.836	4.00	4.10	35.6	0.80	23.07	.	0.36	0.15
OB-103A	OB-103	FPS-2	34.005	77.381	5.00	5.00	29.9	1.16	5.08	70.10	1.57	1.07
OB-103B	OB-103	FPS-2	34.005	77.381	5.90	5.90	29.9	1.13	5.46	65.30	1.42	1.14
OB-105A	OB-105	FPS-2	33.965	77.491	1.25	1.50	29.2	1.82	11.10	58.90	1.10	1.30
OB-105B	OB-105	FPS-2	33.965	77.491	2.25	2.50	29.2	2.19	7.63	45.20	0.89	1.36
OB-105C	OB-105	FPS-2	33.965	77.491	3.25	3.50	29.2	3.72	12.10	52.50	1.66	1.32
OB-105D	OB-105	FPS-2	33.965	77.491	4.25	4.50	29.2	5.58	13.40	53.50	0.57	1.06
OB-105E	OB-105	FPS-1	33.965	77.491	5.25	5.50	29.2	9.59	21.00	44.60	0.73	1.01

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
P-2	7.29	2.8	1.90	0.48	0.05	55.95	1	3	.	.	.	.	.	.	.	.
BR120	0.06	.	.	.	.	.	.	.	56.01	.	.	.	.	.	.	.
OB-103A	3.27	0.9	0.81	0.89	0.03	84.92	104	62	.	.	.	.	.	0.83	445.96	52.77
OB-103B	3.07	0.7	0.95	0.92	0.04	80.21	47	63	.	.	.	.	.	.	.	.
OB-105A	3.74	1.2	1.40	0.90	0.03	81.49	110	72	.	.	.	.	.	.	.	.
OB-105B	3.72	1.1	1.26	0.97	0.05	64.45	52	186	.	.	.	.	.	0.24	187.96	24.24
OB-105C	3.75	0.9	1.22	0.90	0.03	78.18	109	83	.	.	.	.	.	0.64	521.75	54.57
OB-105D	2.85	1.2	1.02	0.98	0.04	80.28	56	81	.	.	.	.	.	.	.	.
OB-105E	2.73	1.2	0.66	0.69	0.02	82.32	82	100	.	.	.	.	.	.	.	.

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
P-2	.	.	.	.	.	.	.	.	.	.	.
BR120	.	.	.	.	.	.	.	.	.	.	.
OB-103A	34.29	1.24	0.02	6.60	2.31	6.96	159.96	24.90	234.75	34.86	27.08
OB-103B	.	.	.	.	.	.	.	.	.	.	.
OB-105A	.	.	.	.	.	.	.	.	.	.	.
OB-105B	23.90	0.43	0.01	3.44	0.00	1.22	75.26	8.39	130.25	19.70	10.36
OB-105C	41.82	1.12	0.02	9.29	3.45	8.48	90.81	25.84	450.85	78.78	34.34
OB-105D	.	.	.	.	.	.	.	.	.	.	.
OB-105E	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-105F	OB-105	FPS-1	33.965	77.491	6.25	6.50	29.2	11.57	20.90	35.50	0.75	1.04
OB-105G	OB-105	FPS-1	33.965	77.491	7.25	7.50	29.2	4.38	18.20	47.00	0.51	1.24
OB-107A	OB-107	FPS-6	33.773	77.480	0.50	0.75	28.9	1.19	7.07	39.40	5.18	4.24
OB-107B	OB-107	FPS-6	33.773	77.480	1.50	1.75	28.9	1.30	1.96	48.70	2.65	4.80
OB-107C	OB-107	FPS-6	33.773	77.480	2.50	2.75	28.9	1.46	3.13	45.50	2.81	4.54
OB-108A	OB-108	BBS-5	34.455	76.848	2.25	2.50	20.4	0.47	21.00	40.50	2.82	1.49
OB-108B	OB-108	BBS-5	34.455	76.848	3.25	3.50	20.4	0.49	14.70	46.00	2.11	1.92
OB-108C	OB-108	BBS-5	34.455	76.848	4.25	4.50	20.4	0.39	26.20	39.60	1.32	0.38
OB-108D	OB-108	BBS-5	34.455	76.848	5.75	6.00	20.4	0.34	30.00	28.00	1.19	0.32

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
OB-105F	2.75	1.30	0.91	0.67	0.03	75.47	44	151	.	.	.	.	.	0.18	269.65	34.43
OB-105G	2.76	0.90	0.92	0.98	0.04	77.01	54	79	.	.	.	.	.	.	.	.
OB-107A	9.83	1.90	2.20	0.68	0.06	71.82	42	132	.	.	.	.	.	0.39	113.19	98.43
OB-107B	10.88	2.00	2.22	0.72	0.06	75.37	45	134	.	.	.	.	.	0.44	127.97	111.78
OB-107C	10.47	2.10	2.03	0.70	0.06	72.88	44	156	.	.	.	.	.	0.41	122.26	109.84
OB-108A	3.30	1.40	0.89	0.21	0.03	72.11	16	41	.	.	.	.	.	.	.	.
OB-108B	4.41	1.90	0.92	0.40	1.40	74.30	23	50	.	.	.	.	.	0.19	142.92	40.14
OB-108C	1.46	0.60	0.56	0.08	0.01	70.60	19	13	.	.	.	.	.	0.03	23.29	9.35
OB-108D	1.19	0.50	0.41	0.07	0.02	62.04	7	14	.	.	.	.	.	.	.	.

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-105F	20.64	0.40	0.01	6.59	0.10	0.71	83.78	8.22	530.21	76.24	18.83
OB-105G	.	.	.	.	.	.	.	.	.	.	.
OB-107A	60.70	3.45	0.01	4.48	0.52	16.08	381.87	73.48	222.83	48.82	7.26
OB-107B	82.60	3.94	0.01	1.17	0.55	10.58	376.27	85.00	191.48	52.11	9.18
OB-107C	72.18	3.79	0.01	1.88	0.69	9.40	429.88	81.40	230.28	53.84	6.60
OB-108A	.	.	.	.	.	.	.	.	.	.	.
OB-108B	35.62	1.61	0.01	10.04	0.31	15.90	364.57	34.38	404.25	21.74	9.16
OB-108C	5.69	0.32	0.00	25.36	0.34	3.17	112.19	7.25	624.29	10.07	0.00
OB-108D	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-109A	OB-109	BBS-2	34.455	76.865	1.50	1.50	21.0	4.11	8.37	70.10	1.52	1.20
OB-109B	OB-109	BBS-2	34.455	76.865	2.50	2.50	21.0	3.41	5.99	67.90	1.51	2.15
OB-109C	OB-109	BBS-2	34.455	76.865	4.00	4.00	21.0	3.15	5.92	65.30	1.49	2.14
OB-109D	OB-109	BBS-2	34.455	76.865	5.50	5.50	21.0	2.89	7.46	64.20	1.58	1.58
OB-109E	OB-109	BBS-1	34.455	76.865	6.00	6.00	21.0	1.17	24.90	27.00	5.63	1.27
OB-111A	OB-111	OBS-4	34.615	76.941	1.75	2.00	15.4	0.38	45.50	0.00	3.34	0.51
OB-111B	OB-111	OBS-4	34.615	76.941	4.50	4.50	15.4	0.42	51.10	1.02	1.03	0.46
OB-111C	OB-111	OBS-3	34.615	76.941	5.00	5.00	15.4	0.29	49.40	0.00	1.03	0.38
OB-113A	OB-113	FPS-1	34.165	77.325	1.25	1.50	24.9	2.72	12.10	45.90	5.37	1.32

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM	CR PPM
OB-109A	2.65	0.80	0.84	0.46	0.03	90.11	26	63	.	.	.	.	.	.	.	.
OB-109B	4.51	1.10	1.04	0.55	1.58	89.78	31	67	.	.	.	.	.	0.34	143.58	47.90
OB-109C	4.56	1.00	1.17	0.51	0.04	85.34	31	65	.	.	.	.	.	0.46	678.90	34.54
OB-109D	3.83	0.80	1.11	0.42	0.03	83.93	23	86	.	.	.	.	.	.	.	.
OB-109E	2.94	0.60	0.84	0.30	0.03	64.75	18	46	.	.	.	.	.	0.15	595.39	20.31
OB-111A	0.47	0.60	0.11	0.03	0.02	51.01	7	21	.	.	.	.	.	0.00	.	1.17
OB-111B	0.32	0.70	0.03	0.02	0.40	55.51	10	18	.	.	.	.	.	.	.	.
OB-111C	0.35	0.30	0.08	0.03	0.02	51.97	7	13	.	.	.	.	.	0.00	37.26	0.92
OB-113A	2.80	1.10	1.04	0.81	0.05	73.27	45	80	.	.	.	.	.	0.36	550.51	55.27

SPL NUM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-109A	.	.	.	.	.	.	.	.	.	.	.
OB-109B	47.29	2.04	0.02	5.07	3.42	8.06	178.11	38.27	427.27	63.78	13.64
OB-109C	13.57	1.48	0.01	5.00	3.00	8.88	126.67	29.54	431.81	67.54	41.68
OB-109D	.	.	.	.	.	.	.	.	.	.	.
OB-109E	15.21	1.01	0.01	17.76	0.92	9.12	98.79	21.40	605.35	24.16	35.25
OB-111A	7.39	0.00	0.00	0.00	0.60	422.91	0.05	121.84	0.54	686.61	7.04
OB-111B	.	.	.	.	.	.	.	.	.	.	.
OB-111C	0.00	0.21	0.00	37.01	0.56	2.33	36.48	0.00	1000.67	5.74	0.17
OB-113A	31.27	1.26	0.01	8.67	6.39	7.79	135.82	25.00	502.81	77.09	35.35

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-113A	OB-113	FPS-1	34.165	77.325	1.25	1.50	24.9	2.72	12.10	45.9	5.37	1.32
OB-113B	OB-113	FPS-1	34.165	77.325	2.75	3.00	24.9	0.93	3.78	65.8	2.47	1.34
OB-113B	OB-113	FPS-1	34.165	77.325	2.75	3.00	24.9	0.93	3.78	65.8	2.47	1.34
OB-113C	OB-113	FPS-1	34.165	77.325	4.25	4.50	24.9	0.80	.	.	2.04	1.85
OB-114A	OB-114	FPS-1	33.645	77.696	6.35	6.60	20.4	7.09	34.40	15.4	2.83	1.27
OB-114B	OB-114	FPS-1	33.645	77.696	7.25	7.50	20.4	9.46	24.90	22.4	2.64	1.10
OB-114C	OB-114	FPS-1	33.645	77.696	8.00	8.20	20.4	11.92	.	.	2.42	1.10
OB-116A	OB-116	FPS-1	33.768	77.591	0.50	0.75	29.4	2.53	23.80	19.5	2.20	2.16
OB-116B	OB-116	FPS-1	33.768	77.591	3.00	3.24	29.4	7.58	22.90	30.5	1.75	1.49

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-113A	2.80	1.10	1.04	0.81	0.05	73.27	45	80	.	.	.	.	.	0.58	502.44
OB-113B	3.99	1.20	1.33	0.98	0.04	81.91	52	61	.	.	.	.	.	0.48	726.30
OB-113B	3.99	1.20	1.33	0.98	0.04	81.91	52	61	.	.	.	.	.	0.57	909.38
OB-113C	4.40	1.30	1.49	1.06	0.05	.	52	56	.	.	.	.	.	.	.
OB-114A	1.96	1.20	0.62	0.24	0.03	65.06	25	99	.	.	.	.	.	0.13	97.38
OB-114B	2.60	1.50	0.50	0.34	0.02	65.50	42	105	.	.	.	.	.	0.19	72.44
OB-114C	2.05	1.50	0.56	0.33	0.03	.	35	147	.	.	.	.	.	0.16	310.45
OB-116A	5.90	2.50	1.60	0.44	1.20	61.83	46	145	.	.	.	.	.	.	.
OB-116B	3.84	1.60	1.15	0.46	0.03	71.32	33	112	.	.	.	.	.	0.21	359.90

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-113A	57.89	38.04	1.23	0.02	12.84	3.63	6.16	240.55	19.20	293.05	58.74	33.15
OB-113B	22.90	49.06	1.03	0.02	2.71	0.78	15.05	89.87	27.68	150.90	34.65	51.46
OB-113B	17.47	45.25	1.41	0.02	2.17	0.67	24.11	104.79	28.11	144.33	37.45	58.60
OB-113C	.	.	.	.	.	.	.	.	.	.	.	.
OB-114A	44.96	17.80	0.95	0.01	27.77	6.02	3.85	201.47	9.02	901.27	129.26	10.20
OB-114B	76.64	28.31	1.07	0.01	22.18	8.38	4.93	278.67	16.14	892.38	170.19	12.16
OB-114C	93.50	77.98	0.88	0.01	20.63	11.24	4.78	248.72	10.30	1123.47	191.52	21.77
OB-116A	.	.	.	.	.	.	.	.	.	.	.	.
OB-116B	69.09	25.38	1.13	0.01	14.91	6.17	3.22	281.66	22.95	914.00	127.85	31.80

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-118A	OB-118	FPS-6	33.870	77.468	3.00	3.25	26.7	1.06	15.90	51.5	1.19	0.83
OB-118B	OB-118	FPS-6	33.870	77.468	4.25	4.50	26.7	1.33	11.00	62.1	0.65	0.90
OB-118C	OB-118	FPS-6	33.870	77.468	5.90	6.10	26.7	1.15	15.20	56.7	0.58	0.89
OB-118D	OB-118	FPS-6	33.870	77.468	8.90	9.10	26.7	1.05	15.10	51.8	0.48	0.78
OB-119A	OB-119	FPS-1	33.843	77.551	3.35	3.60	29.4	4.92	16.20	42.1	1.89	1.97
OB-120A	OB-120	FPS-1	33.795	77.588	4.25	4.50	23.4	8.36	36.40	16.0	1.62	1.84
OB-120B	OB-120	FPS-1	33.795	77.588	5.90	6.10	23.4	15.50	31.40	25.6	1.30	0.94
OB-126A	OB-126	OLIG	33.976	77.500	1.00	1.00	25.6	1.16	8.23	65.8	0.65	1.14
OB-126B	OB-126	OLIG	33.976	77.500	2.00	2.00	25.6	0.48	5.18	69.6	0.56	1.07

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-118A	3.53	1.20	1.11	0.52	0.02	76.95	65	30	.	.	.	.	.	0.34	145.52
OB-118B	3.66	1.30	1.44	0.59	0.04	83.04	31	39	.	.	.	.	.	0.40	320.40
OB-118C	3.40	1.40	1.00	0.60	0.02	80.95	68	35	.	.	.	.	.	0.43	272.21
OB-118D	3.01	1.20	0.83	0.55	0.02	74.86	59	29	.	.	.	.	.	0.36	151.13
OB-119A	5.47	1.70	1.31	0.70	0.04	76.30	51	151	.	.	.	.	.	.	.
OB-120A	2.06	1.10	0.66	0.30	0.02	68.40	57	131	.	.	.	.	.	0.12	129.36
OB-120B	2.32	1.50	0.65	0.41	0.02	79.69	69	173	.	.	.	.	.	0.17	196.69
OB-126A	3.66	1.16	1.30	0.73	0.04	83.87	38	54	.	.	.	.	.	.	.
OB-126B	3.88	1.21	1.26	0.78	0.04	84.06	39	39	.	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-118A	16.20	27.83	0.66	0.01	12.33	0.99	5.68	85.63	19.64	417.55	28.43	10.58
OB-118B	17.34	32.91	0.76	0.01	10.44	1.47	3.42	132.62	22.20	353.86	37.61	18.93
OB-118C	31.51	44.36	0.83	0.01	18.19	1.96	4.75	218.57	22.41	433.57	34.94	14.01
OB-118D	38.88	25.95	0.84	0.02	22.41	0.85	6.33	809.75	18.87	496.87	36.25	8.33
OB-119A	.	.	.	.	.	.	.	.	.	.	.	.
OB-120A	46.72	16.47	1.22	0.01	24.95	5.60	11.19	18.57	9.13	994.04	124.49	20.46
OB-120B	72.71	27.84	0.63	0.01	21.12	13.04	4.41	18.06	9.50	1419.15	210.59	18.55
OB-126A	.	.	.	.	.	.	.	.	.	.	.	.
OB-126B	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-126C	OB-126	OLIG	33.976	77.500	3.50	3.50	25.6	0.66	7.35	67.9	0.46	0.99
OB-126D	OB-126	OLIG	33.976	77.500	5.00	5.00	25.6	0.44	3.23	81.3	0.03	0.72
OB-126E	OB-126	OLIG	33.976	77.500	7.00	7.00	25.6	0.44	2.46	82.9	0.25	0.68
OB-127A	OB-127	FPS-1	34.006	77.446	1.50	1.75	25.6	11.40	22.60	32.2	3.34	1.48
OB-127B	OB-127	FPS-1	34.006	77.446	3.50	3.75	25.6	8.37	15.60	49.6	1.98	1.14
OB-127C	OB-127	FPS-1	34.006	77.446	5.50	5.75	25.6	2.31	7.21	66.3	0.72	1.88
OB-127D	OB-127	FPS-1	34.006	77.446	7.50	7.75	25.6	1.45	4.73	72.2	0.55	1.12
OB-128A	OB-128	FPS-5	33.996	77.280	1.75	2.00	29.2	1.00	4.66	55.6	2.96	3.14
OB-128B	OB-128	FPS-5	33.996	77.280	5.50	5.75	29.2	0.95	3.54	67.4	1.27	1.97

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-126C	3.10	0.91	1.21	0.59	0.03	83.20	31	39	.	.	.	.	.	0.44	516.63
OB-126D	2.51	0.65	0.99	0.51	0.02	90.40	59	34	.	.	.	.	.	.	.
OB-126E	2.30	0.72	1.00	0.63	0.03	91.41	30	32	.	.	.	.	.	0.42	170.89
OB-127A	3.17	1.20	0.95	0.56	0.02	76.97	84	127	.	.	.	.	.	0.31	347.98
OB-127B	3.12	1.30	0.78	0.80	0.02	82.78	94	128	.	.	.	.	.	0.51	643.41
OB-127C	4.50	1.20	1.26	1.10	0.05	86.53	56	73	.	.	.	.	.	.	.
OB-127D	3.48	1.10	1.14	0.84	0.04	86.71	41	49	.	.	.	.	.	.	.
OB-128A	8.14	1.60	2.08	0.70	0.03	79.97	91	105	.	.	.	.	.	0.67	251.25
OB-128B	6.45	1.80	1.90	1.10	0.04	86.43	138	65	.	.	.	.	.	1.00	919.38

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-126C	22.93	35.51	0.95	0.01	8.46	1.24	7.68	117.71	20.68	219.47	20.91	28.71
OB-126D	.	.	.	.	.	.	.	.	.	.	.	.
OB-126E	13.47	27.15	0.62	0.01	2.87	0.75	8.98	76.46	17.62	103.73	14.62	8.81
OB-127A	67.85	29.00	1.07	0.01	14.73	8.46	9.33	134.41	18.74	913.98	54.58	24.01
OB-127B	70.44	30.95	0.98	0.02	13.82	10.08	6.60	129.11	18.28	681.01	127.63	40.49
OB-127C	.	.	.	.	.	.	.	.	.	.	.	.
OB-127D	.	.	.	.	.	.	.	.	.	.	.	.
OB-128A	86.04	74.84	3.33	0.02	4.71	1.28	17.67	22.77	58.75	218.45	42.38	17.44
OB-128B	43.84	58.77	2.01	0.03	3.34	1.97	12.47	123.87	38.87	231.02	62.20	49.02

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
OB-131A	OB-131	PLEIS	34.011	77.026	3.00	3.00	34.0	1.48	21.90	45.0	0.93	0.72
OB-131B	OB-131	PLEIS	34.011	77.026	4.50	4.50	34.0	0.81	42.00	12.9	1.20	0.34
OB-131C	OB-131	PLEIS	34.011	77.026	6.59	6.59	34.0	0.06	41.70	15.7	1.08	0.28
OB-132A	OB-132	FPS-1	34.336	77.221	1.50	1.50	22.0	0.44	7.39	66.3	0.61	1.67
OB-132B	OB-132	FPS-1	34.336	77.221	2.00	2.00	22.0	0.37	10.00	61.5	0.55	1.50
OB-132C	OB-132	FPS-1	34.336	77.221	2.50	2.50	22.0	0.81	12.90	58.9	0.71	1.90
OB-132D	OB-132	FPS-1	34.336	77.221	3.00	3.00	22.0	0.27	18.40	51.9	0.52	1.13
OB-132E	OB-132	FPS-1	34.336	77.221	3.50	3.50	22.0	0.36	9.31	66.3	0.40	1.27
OB-132F	OB-132	FPS-1	34.336	77.221	4.10	4.10	22.0	0.34	9.07	66.3	0.37	1.18

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
OB-131A	1.14	0.76	0.39	0.16	0.02	72.50	12	31	.	.	.	.	.	0.07	11.97
OB-131B	0.74	0.64	0.18	0.09	0.54	59.44	10	25	.	.	.	.	.	.	.
OB-131C	0.57	0.36	0.23	0.06	0.01	60.05	20	15	.	.	.	.	.	0.01	86.10
OB-132A	4.22	1.10	1.56	0.92	0.05	84.34	40	56	.	.	.	.	.	0.59	354.14
OB-132B	3.94	1.00	1.48	0.88	0.05	81.32	38	55	.	.	.	.	.	.	.
OB-132C	3.79	1.00	1.26	0.77	0.05	82.09	41	51	.	.	.	.	.	.	.
OB-132D	2.52	0.70	0.66	0.86	0.03	77.01	97	55	.	.	.	.	.	0.52	342.16
OB-132E	3.05	0.80	1.25	1.01	0.04	83.80	42	50	.	.	.	.	.	0.50	714.22
OB-132F	2.87	0.90	1.00	1.03	0.04	83.10	49	48	.	.	.	.	.	0.54	581.39

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
OB-131A	26.38	10.50	0.64	0.00	22.79	1.85	2.49	143.79	5.81	736.38	18.71	7.55
OB-131B	.	.	.	.	.	.	.	.	.	.	.	.
OB-131C	13.03	0.00	0.22	0.00	41.18	0.58	1.07	6.91	2.04	475.63	9.87	4.14
OB-132A	14.95	61.33	1.55	0.02	6.29	0.76	9.33	206.40	27.67	276.58	31.76	23.75
OB-132B	.	.	.	.	.	.	.	.	.	.	.	.
OB-132C	.	.	.	.	.	.	.	.	.	.	.	.
OB-132D	17.93	32.14	0.87	0.02	17.37	0.64	5.75	68.40	17.06	227.75	13.55	18.23
OB-132E	19.87	51.60	0.94	0.02	5.23	0.45	11.12	95.10	19.99	293.02	22.12	40.48
OB-132F	18.02	37.48	0.87	0.02	6.03	0.63	13.19	62.63	17.84	300.45	19.06	31.43

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
ML-2	OBS-1	HOLO	34.436	76.936	0.01	0.01	.	6.59	20.50	.	0.43	1.26
ML-3	OBS-18	HOLO	33.770	77.628	0.01	0.01	.	5.22	23.98	.	0.89	1.45
BR123	OBS-109	HOLO	34.413	76.753	0.00	0.01	24.0	.	.	.	.	.
BR131	OBS-128	HOLO	33.001	76.580	0.00	0.01	40.0	0.52	27.45	.	44.93	0.77
BR132	OBS-133	HOLO	33.998	76.790	0.00	0.01	36.0	1.19	33.78	.	28.92	1.37
BR133	OBS-135	HOLO	34.001	76.875	0.00	0.01	.	0.86	24.90	.	48.60	0.51
BR134	OBS-136	HOLO	33.998	76.915	0.00	0.01	35.0	1.20	19.48	.	57.84	0.78
BR135	OBS-140	HOLO	34.000	77.085	0.00	0.01	32.0	1.78	11.56	.	72.93	0.50
BR136	OBS-141	HOLO	34.000	77.126	0.00	0.01	32.0	1.15	18.11	.	61.55	0.56

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
ML-2	0.38	0.54	0.06	.	.	.	.	.	59.60	0.87	0.71	0.38	8.26	.	.
ML-3	0.35	0.71	0.07	.	.	.	.	.	52.30	1.07	0.61	0.36	12.61	.	.
BR123	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BR131	1.09	.	.	.	.	.	.	.	0.12	.	.	.	.	.	.
BR132	2.42	.	.	.	.	.	.	.	0.13	.	.	.	.	.	.
BR133	0.72	.	.	.	.	.	.	.	0.11	.	.	.	.	.	.
BR134	0.66	.	.	.	.	.	.	.	0.15	.	.	.	.	.	.
BR135	0.36	.	.	.	.	.	.	.	0.12	.	.	.	.	.	.
BR136	0.66	.	.	.	.	.	.	.	0.12	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
ML-2	.	.	.	.	.	.	.	.	.	.	.	.
ML-3	.	.	.	.	.	.	.	.	.	.	.	.
BR123	.	.	.	.	.	.	.	.	.	.	.	.
BR131	.	.	.	.	.	.	.	.	.	.	.	.
BR132	.	.	.	.	.	.	.	.	.	.	.	.
BR133	.	.	.	.	.	.	.	.	.	.	.	.
BR134	.	.	.	.	.	.	.	.	.	.	.	.
BR135	.	.	.	.	.	.	.	.	.	.	.	.
BR136	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR VIBRACORE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR137	OBS-142	HOLO	34.000	77.166	0.00	0.01	30.5	0.97	12.16	.	70.84	0.43
BR138	OBS-143	HOLO	33.996	77.208	0.00	0.01	30.5	0.88	16.31	.	64.54	0.90
BR139	OBS-144	HOLO	33.998	77.250	0.00	0.01	28.9	0.80	12.62	.	71.22	0.68
BR140	OBS-145	HOLO	34.000	77.291	0.00	0.01	27.4	0.70	10.92	.	72.87	0.57

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR137	0.46	.	.	.	.	.	.	.	0.12	.	.	.	.	.	.
BR138	0.74	.	.	.	.	.	.	.	0.14	.	.	.	.	.	.
BR139	0.50	.	.	.	.	.	.	.	0.11	.	.	.	.	.	.
BR140	0.48	.	.	.	.	.	.	.	0.11	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR137	.	.	.	.	.	.	.	.	.	.	.	.
BR138	.	.	.	.	.	.	.	.	.	.	.	.
BR139	.	.	.	.	.	.	.	.	.	.	.	.
BR140	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR SURFACE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
ML-2	OBS-1	HOLO	34.436	76.936	0.01	0.01	.	6.59	20.50	.	0.43	1.26
ML-3	OBS-18	HOLO	33.770	77.628	0.01	0.01	.	5.22	23.98	.	0.89	1.45
BR123	OBS-109	HOLO	34.413	76.753	0.00	0.01	24.0	.	.	.	.	.
BR131	OBS-128	HOLO	33.001	76.580	0.00	0.01	40.0	0.52	27.45	.	44.93	0.77
BR132	OBS-133	HOLO	33.998	76.790	0.00	0.01	36.0	1.19	33.78	.	28.92	1.37
BR133	OBS-135	HOLO	34.001	76.875	0.00	0.01	.	0.86	24.90	.	48.60	0.51
BR134	OBS-136	HOLO	33.998	76.915	0.00	0.01	35.0	1.20	19.48	.	57.84	0.78
BR135	OBS-140	HOLO	34.000	77.085	0.00	0.01	32.0	1.78	11.56	.	72.93	0.50
BR136	OBS-141	HOLO	34.000	77.126	0.00	0.01	32.0	1.15	18.11	.	61.55	0.56

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
ML-2	0.38	0.54	0.06	.	.	.	.	.	59.60	0.87	0.71	0.38	8.26	.	.
ML-3	0.35	0.71	0.07	.	.	.	.	.	52.30	1.07	0.61	0.36	12.61	.	.
BR123	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BR131	1.09	.	.	.	.	.	.	.	0.12	.	.	.	.	.	.
BR132	2.42	.	.	.	.	.	.	.	0.13	.	.	.	.	.	.
BR133	0.72	.	.	.	.	.	.	.	0.11	.	.	.	.	.	.
BR134	0.66	.	.	.	.	.	.	.	0.15	.	.	.	.	.	.
BR135	0.36	.	.	.	.	.	.	.	0.12	.	.	.	.	.	.
BR136	0.66	.	.	.	.	.	.	.	0.12	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
ML-2	.	.	.	.	.	.	.	.	.	.	.	.
ML-3	.	.	.	.	.	.	.	.	.	.	.	.
BR123	.	.	.	.	.	.	.	.	.	.	.	.
BR131	.	.	.	.	.	.	.	.	.	.	.	.
BR132	.	.	.	.	.	.	.	.	.	.	.	.
BR133	.	.	.	.	.	.	.	.	.	.	.	.
BR134	.	.	.	.	.	.	.	.	.	.	.	.
BR135	.	.	.	.	.	.	.	.	.	.	.	.
BR136	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR SURFACE BULK-SEDIMENT SAMPLES

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH (M)	BOT DEPTH (M)	H2ODEPTH (M)	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
BR137	OBS-142	HOLO	34.000	77.166	0.00	0.01	30.5	0.97	12.16	.	70.84	0.43
BR138	OBS-143	HOLO	33.996	77.208	0.00	0.01	30.5	0.88	16.31	.	64.54	0.90
BR139	OBS-144	HOLO	33.998	77.250	0.00	0.01	28.9	0.80	12.62	.	71.22	0.68
BR140	OBS-145	HOLO	34.000	77.291	0.00	0.01	27.4	0.70	10.92	.	72.87	0.57

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	CU PPM	ZN PPM	INSOL %	SO3 %	F2 %	C %	CO2 %	TI %	ZR PPM
BR137	0.46	.	.	.	.	.	.	.	0.12	.	.	.	.	.	.
BR138	0.74	.	.	.	.	.	.	.	0.14	.	.	.	.	.	.
BR139	0.50	.	.	.	.	.	.	.	0.11	.	.	.	.	.	.
BR140	0.48	.	.	.	.	.	.	.	0.11	.	.	.	.	.	.

SPL NUM	CR PPM	V PPM	FE %	MN %	CA %	P %	CO PPM	BR %	RB PPM	SR PPM	Y PPM	MO PPM
BR137	.	.	.	.	.	.	.	.	.	.	.	.
BR138	.	.	.	.	.	.	.	.	.	.	.	.
BR139	.	.	.	.	.	.	.	.	.	.	.	.
BR140	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL DATA FOR SURFACE BULK-SEDIMENT SAMPLES FROM THE ARCHIVES

This file contains chemical analyses on a suite of surface samples that were collected with a SHIPEK grab sampler in 1965 by O. H. Pilkey and in 1966 by S. R. Riggs. All of the samples are Holocene sediments from the general Frying Pan phosphate district in Onslow Bay. However, since these samples were collected utilizing Loran A navigational systems, there is a major inherent error in their geographic location. Also, these surficial samples display generally low phosphate concentrations as compared to the phosphate concentrations of the underlying Miocene sediments. This demonstrates that the phosphate has been reworked from these Miocene phosphate-rich beds and has been significantly diluted by continental shelf sediments including quartz sand, modern shell hash, and eroded lithoclasts from adjacent hardbottoms.

Chemical analyses were done by International Minerals and Chemical Corp., Bartow, Florida, using standard wet chemical procedures utilized by the phosphate industry on phosphate concentrates and as outlined by the Association of Florida Phosphate Chemists (1980). Analytical numbers are not adjusted for percent insoluble residue.

Column 1: SPL NUM

3 Onslow Bay surface sample number 3

Samples numbered 3 through 51 were collected by S. R. Riggs; the others were collected by O. H. Pilkey.

Column 2: LAT

Location in decimal degrees is derived by calculation from Loran A navigational system. Thus, there is a major inherent error in the locations for these samples.

Column 3: LONG

Location in decimal degrees is derived by calculation from Loran A navigational system. Thus, there is a major inherent error in the locations for these samples.

Column 4: H2ODEPTH

Depth of water in meters to sediment-water interface at sample site. Since all samples were obtained from a SHIPEK grab sampler, the sample depth is the same as water depth. There is a variability in these numbers that is a function of the tide, type of fathometer utilized, correction for transducer location on ship, etc.

Columns 5 and 6: CHEMICAL DATA

P205 % P_2O_5 percent

INSOL % Insoluble residue in percent

CHEMICAL DATA FOR SURFACE BULK-SEDIMENT SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH (M)	P2O5 %	INSOL %
3	33.906	77.578	22.9	3.75	.
10	33.847	77.628	23.2	4.80	.
29	33.743	77.705	22.7	1.18	.
30	33.732	77.692	21.3	7.81	.
31	33.728	77.670	21.9	3.15	.
32	33.722	77.647	21.9	8.90	.
36	33.735	77.606	19.8	4.55	.
37	33.742	77.627	18.9	7.17	.
42	33.758	77.663	19.8	4.55	.
43	33.747	77.663	19.8	4.70	.
46	33.790	77.612	20.4	5.36	.
47	33.815	77.613	22.7	4.37	.
48	33.828	77.600	24.3	3.81	.
49	33.818	77.622	22.7	7.95	.
51	33.805	77.622	22.7	3.39	.
166	33.680	77.458	.	0.32	.
166	33.680	77.458	.	0.32	.
167	33.862	77.758	.	0.38	.
167	33.862	77.758	.	0.38	.
172	33.908	77.730	.	0.49	.
176	33.930	77.708	.	0.81	.
182	33.780	77.722	.	0.42	.
188	33.713	77.662	.	6.81	.
947	33.580	77.625	.	2.76	.
948	33.578	77.665	.	0.12	.
1170	34.001	77.443	.	0.72	.
1171	33.945	77.501	.	0.83	.
1172	33.878	77.550	.	0.60	.
1176	33.744	77.340	.	1.93	61.8
1177	33.725	77.642	.	7.02	53.1
1179	33.710	77.670	.	1.46	.
1180	33.710	77.677	.	6.94	53.3
1181	33.675	77.683	.	4.17	58.6
1182	33.770	77.675	.	1.33	.
1183	33.806	77.705	.	0.54	.
1184	33.663	77.717	.	1.90	53.1
1185	33.695	77.720	.	1.06	.
1186	33.710	77.725	.	1.54	69.7
1187	33.755	77.730	.	0.62	.
1188	33.755	77.720	.	1.80	.
1189	33.755	77.730	.	7.11	.

CHEMICAL DATA FOR SURFACE BULK-SEDIMENT SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH (M)	P2O5 %	INSOL %
1190	33.705	77.670	.	3.22	.
1191	33.683	77.642	.	3.71	46.3
1193	33.662	77.620	.	0.76	.
1194	33.638	77.585	.	1.06	.
1195	33.618	77.575	.	1.27	73.5
1196	33.600	77.538	.	2.79	57.3
1197	33.650	77.580	.	0.73	.
1198	33.650	77.609	.	0.96	61.8
1199	33.720	77.625	.	1.63	.
1200	33.745	77.650	.	6.74	48.0
1202	33.760	77.650	.	4.65	66.2
1203	33.785	77.675	.	1.29	.
1204	33.825	77.692	.	0.70	.
1205	33.810	77.695	.	1.21	.
1206	33.780	77.663	.	5.51	.
1207	33.760	77.626	.	3.49	.
1208	33.730	77.580	.	1.66	.
1209	33.700	77.642	.	1.23	.
1210	33.758	77.592	.	1.17	.
1211	33.908	77.642	.	8.88	.
1212	33.908	77.642	.	0.49	.
1213	33.942	77.770	.	0.53	.
1214	33.920	77.580	.	0.64	.
1215	33.880	77.492	.	1.06	.
1216	33.850	77.392	.	0.59	.
1217	33.830	77.280	.	0.50	.
1221	33.920	77.298	.	0.50	.
1222	33.837	77.392	.	0.55	.
1223	34.002	77.477	.	0.27	.

ORGANIC DATA FOR BULK-SEDIMENT SAMPLES

This file contains all organic data obtained by various laboratories on bulk-sediment samples from vibracores in Onslow Bay, North Carolina. Data included in this file are from the analysis of two types of bulk-sediment samples. The first set of samples are labeled with a P prefix. These 26 samples were obtained from the vibracores as they were retrieved from the sea floor. Ten centimeter minicores were removed from the cores and frozen immediately and were kept frozen throughout the analytical period. The second set of samples are labeled with an OB prefix. These samples were obtained at some time after the cores were retrieved from the sea floor; these room temperature cores were cut open, described, and subsampled for organic analysis with samples kept at room temperature.

The analytical data were developed in three laboratories.

1. Christopher S. Martens, Curriculum of Marine Science, University of North Carolina-Chapel Hill, NC 27514.

% Organic carbon by weight
% Nitrogen by weight
Carbon/nitrogen elemental ratio
C13M Stable carbon isotopic ratios relative to PDB

These analyses were all done on samples with OB and P labels.

2. Stephen W. Snyder, Department of Marine Science, University of South Florida, St. Petersburg, FL 33701.

% Total carbon by weight
% Organic carbon by weight
% Inorganic carbon by weight
% Nitrogen by weight
Carbon/nitrogen elemental ratio

These analyses were all done on samples with a P label.

3. William J. Showers, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC 27650.

C13SH Stable carbon isotopic ratios relative to PDB

These analyses were done on some of the P samples only.

Column 1: HOLE

OB–24 = Onslow Bay vibracore number 24.

Column 2: SPL NUM

OB–24A	Sample A in vibracore number OB–24.
P7	Minicore (10 cm) collected from OB–63 when retrieved from the sea floor and frozen for subsequent organic analyses.

Column 3: UNIT

Holocene: Modern shelf sand, gravelly sand, and gravel
Miocene: Pungo River Formation
Bogue Banks Sequences
BBS–8
BBS–7
BBS–6
BBS–5

BBS–4
BBS–3
BBS–2
BBS–1
Onslow Bay Sequences
OBS–U (Undifferentiated)*
OBS–4
OBS–3
OBS–2
OBS–1
Frying Pan Sequences
FPS–6
FPS–5
FPS–4
FPS–3
FPS–2
FPS–1

* Where data are insufficient to identify the specific OBS sequence, it is listed as "OBS-U".

Column 4: TOP DEPTH
Depth in meters in vibracore below sediment-water interface to top of bulk-sediment sample.

Column 5: BOT DEPTH
Depth in meters in vibracore below sediment-water interface to bottom of bulk-sediment sample. If bottom depth is blank or the same as top depth, it is a spot sample that is from that location within the core.

Column 6: OC1
Percent organic carbon of total sample by weight; Martens and Snyder lab.

Column 7: N
Percent nitrogen of total sample by weight; Martens and Snyder labs.

Column 8: C/N ELE
Carbon/nitrogen elemental ratio; Martens and Snyder labs.

Column 9: OC2
Percent organic carbon of total sample by weight; Snyder lab.

Column 10: INOGC
Percent inorganic carbon of total sample by weight; Snyder lab.

Column 11: OC3
Percent organic carbon of total sample by weight; Martens lab.

Column 12: C13M
Stable carbon isotopic ratios relative to PDB; Martens lab.

Column 13: C13SH
Stable carbon isotopic ratios relative to PDB; Showers lab.

ORGANIC DATA FOR BULK-SEDIMENT SAMPLES

HOLE	SPL NUM	UNIT	TOP DEPTH (M)	BOT DEPTH (M)	OC1 %	N %	C/N ELE	OC2 %	INOGC %	OC3 %	C13M	C13SH
OB-1	OB1A	BBS-8	3.75	4.00	0.313	0.023	13.158	.	.	.	.	.
OB-1	OB1A	BBS-8	3.75	4.00	0.317	0.026	12.465	.	.	.	.	.
OB-1	OB1B	BBS-8	4.75	5.00	0.331	0.021	15.220	.	.	.	.	.
OB-1	OB1B	BBS-8	4.75	5.00	0.323	0.022	14.634	.	.	.	.	.
OB-1	OB1C	BBS-8	5.75	6.00	0.611	0.038	16.319	.	.	.	.	.
OB-1	OB1C	BBS-8	5.75	6.00	0.596	0.038	16.077	.	.	.	.	.
OB-1	OB1C	BBS-8	5.75	6.00	0.600	0.038	16.206	.	.	.	.	.
OB-1	OB1C	BBS-8	5.75	6.00	0.631	0.039	16.345	.	.	.	.	.
OB-1	OB1D	BBS-8	6.75	7.00	0.500	0.031	16.248	.	.	.	.	.
OB-1	OB1D	BBS-8	6.75	7.00	0.500	0.032	15.650	.	.	.	.	.
OB-1	OB1D	BBS-8	6.75	7.00	0.513	0.031	16.591	.	.	.	.	.
OB-1	OB1D	BBS-8	6.75	7.00	0.507	0.031	16.376	.	.	.	.	.
OB-1	OB1E	BBS-8	7.75	8.00	0.542	0.033	16.303	.	.	.	.	.
OB-1	OB1E	BBS-8	7.75	8.00	0.547	0.034	16.055	.	.	.	.	.
OB-1	OB1E	BBS-8	7.75	8.00	0.573	0.036	16.034	.	.	.	.	.
OB-1	OB1E	BBS-8	7.75	8.00	0.551	0.034	15.860	.	.	.	.	.
OB-1	OB1F	BBS-8	8.75	9.00	0.702	0.037	19.470	.	.	.	.	.
OB-1	OB1F	BBS-8	8.75	9.00	0.683	0.034	19.967	.	.	.	.	.
OB-1	OB1F	BBS-8	8.75	9.00	0.713	0.036	19.874	.	.	.	.	.
OB-1	OB1F	BBS-8	8.75	9.00	0.678	0.035	19.211	.	.	.	.	.
OB-2	OB2A	BBS-1	3.25	3.50	0.743	0.040	18.624	.	.	.	.	.
OB-2	OB2B	BBS-1	6.25	6.50	0.955	0.044	21.454	.	.	.	.	.
OB-6B	OB6BA	BBS-1	3.00	3.25	1.264	0.061	20.989	.	.	.	.	.
OB-6B	OB6BB	BBS-1	6.50	6.50	0.383	0.018	20.403	.	.	.	.	.
OB-6B	OB6BC	BBS-1	7.00	7.00	0.414	0.019	21.029	.	.	.	.	.
OB-9	OB9A	FPS-1	1.75	2.00	1.292	0.069	18.942	.	.	.	.	.
OB-9	OB9B	FPS-1	2.75	3.00	2.395	0.132	18.106	.	.	.	.	.
OB-14	OB14A	FPS-1	1.00	1.25	1.500	0.088	17.415	.	.	.	.	.
OB-14	OB14A	FPS-1	1.00	1.25	1.500	0.088	17.172	.	.	.	.	.
OB-14	OB14B	FPS-1	2.50	2.75	1.600	0.086	17.819	.	.	.	.	.
OB-14	OB14C	FPS-1	4.00	4.25	1.800	0.092	19.034	.	.	.	.	.
OB-17	OB17A	OBS-U	3.00	3.25	2.122	0.118	18.110	.	.	.	.	.
OB-17	OB17B	OBS-U	5.75	6.00	1.756	0.096	18.276	.	.	.	.	.
OB-22	OB22A	FPS-1	3.25	3.50	2.159	0.123	17.688	.	.	.	.	.
OB-22	OB22B	FPS-1	5.25	5.50	2.119	0.122	17.358	.	.	.	.	.
OB-24	OB24A	FPS-1	0.30	0.50	0.932	0.056	16.434	.	.	.	.	.
OB-24	OB24B	FPS-1	1.00	1.25	1.217	0.065	18.658	.	.	.	.	.
OB-26	OB26A	FPS-1	0.25	0.50	1.765	0.098	17.964	.	.	.	.	.
OB-26	OB26B	FPS-1	1.25	1.50	1.762	0.100	17.707	.	.	.	.	.
OB-26	OB26C	FPS-1	2.75	3.00	1.822	0.099	18.454	.	.	.	.	.

ORGANIC DATA FOR BULK-SEDIMENT SAMPLES

HOLE	SPL NUM	UNIT	TOP DEPTH (M)	BOT DEPTH (M)	OC1 %	N %	C/N ELE	OC2 %	INOGC %	OC3 %	C13M	C13SH
OB-27	OB27A	FPS-2	1.25	1.50	1.695	0.103	16.427	.	.	.	.	.
OB-27	OB27B	FPS-2	7.25	7.50	1.746	0.102	17.051	.	.	.	.	.
OB-28	OB28A	FPS-2	1.00	1.25	2.210	0.127	17.327	.	.	.	.	.
OB-28	OB28B	FPS-2	2.00	2.27	1.840	0.108	17.157	.	.	.	.	.
OB-28	OB28C	FPS-2	3.00	3.25	2.100	0.126	16.666	.	.	.	.	.
OB-29B	OB29BA	FPS-2	0.25	0.50	1.800	0.113	16.394	.	.	.	.	.
OB-29B	OB29BB	FPS-2	3.00	3.25	1.500	0.085	17.283	.	.	.	.	.
OB-29B	OB29BC	FPS-2	6.00	6.25	1.400	0.086	17.166	.	.	.	.	.
OB-33	OB33A	OBS-4	0.50	0.75	0.112	0.003	39.408	.	.	.	.	.
OB-33	OB33B	OBS-4	4.50	4.75	0.162	0.014	11.325	.	.	.	.	.
OB-33	OB33C	OBS-3	6.50	6.75	0.503	0.033	15.211	.	.	.	.	.
OB-33	OB33D	OBS-3	8.25	8.50	0.907	0.061	15.021	.	.	.	.	.
OB-34	OB34A	OBS-1	3.75	4.00	1.001	0.054	18.482	.	.	.	.	.
OB-34	OB34B	OBS-1	5.75	6.00	1.113	0.064	17.275	.	.	.	.	.
OB-34	OB34C	OBS-1	6.75	7.00	1.192	0.067	17.741	.	.	.	.	.
OB-35	OB35A	OBS-1	0.90	1.15	0.441	0.029	15.391	.	.	.	.	.
OB-35	OB35B	OBS-1	1.75	2.00	0.827	0.053	15.338	.	.	.	.	.
OB-35	OB35C	OBS-1	3.75	4.00	0.688	0.043	15.338	.	.	.	.	.
OB-35	OB35D	OBS-1	5.75	6.00	0.582	0.032	18.146	.	.	.	.	.
OB-35	OB35E	OBS-1	7.20	7.50	0.620	0.033	18.710	.	.	.	.	.
OB-37	OB37A	FPS-5	1.50	1.75	0.375	0.016	23.321	.	.	.	.	.
OB-37	OB37B	FPS-5	4.75	5.00	0.237	0.010	21.834	.	.	.	.	.
OB-37	OB37C	FPS-4	8.00	8.25	0.115	0.000	.	.	.	.	.	.
OB-38	OB38A	OBS-2	0.25	0.50	0.216	0.018	11.638	.	.	.	.	.
OB-38	OB38B	OBS-2	1.50	1.80	0.481	0.030	16.357	.	.	.	.	.
OB-38	OB38C	OBS-1	2.25	2.50	0.391	0.030	13.072	.	.	.	.	.
OB-38	OB38D	OBS-1	3.75	4.00	0.485	0.029	16.645	.	.	.	.	.
OB-38	OB38E	OBS-1	5.75	6.00	0.170	9.010	16.758	.	.	.	.	.
OB-38	OB38F	OBS-1	8.46	8.46	0.943	0.053	17.676	.	.	.	.	.
OB-39	OB39A	OBS-2	8.75	9.00	0.262	0.019	14.208	.	.	.	.	.
OB-42	OB42A	BBS-1	5.25	5.50	1.298	0.064	20.454	.	.	.	.	.
OB-42	OB42B	BBS-1	6.25	6.50	1.750	0.087	20.276	.	.	.	.	.
OB-43	OB43A	BBS-1	1.00	1.25	1.321	0.075	17.836	.	.	.	.	.
OB-43	OB43B	BBS-1	2.00	2.25	1.470	0.080	18.338	.	.	.	.	.
OB-43	OB43C	BBS-1	3.50	3.75	2.159	0.117	18.478	.	.	.	.	.
OB-43	OB43D	BBS-1	4.25	4.50	2.226	0.116	19.129	.	.	.	.	.
OB-45	OB45A	FPS-6	0.75	1.00	0.311	0.025	12.704	.	.	.	.	.
OB-45	OB45B	FPS-6	3.00	3.25	0.303	0.020	15.318	.	.	.	.	.
OB-45	OB45C	FPS-6	4.75	5.00	0.204	0.014	14.976	.	.	.	.	.
OB-47	OB47A	FPS-2	0.00	0.25	0.829	0.046	18.083	.	.	.	.	.

ORGANIC DATA FOR BULK-SEDIMENT SAMPLES

HOLE	SPL NUM	UNIT	TOP DEPTH (M)	BOT DEPTH (M)	OC1 %	N %	C/N ELE	OC2 %	INOGC %	OC3 %	C13M	C13SM
OB-47	OB47B	FPS-2	2.00	2.25	0.626	0.038	16.526	.	.	.	.	.
OB-47	OB47C	FPS-2	4.25	4.50	1.064	0.058	18.073	.	.	.	.	.
OB-47	OB47D	FPS-2	5.50	5.75	0.980	0.052	18.884	.	.	.	.	.
OB-47	OB47E	FPS-1	7.50	7.75	1.778	0.098	18.037	.	.	.	.	.
OB-47	OB47F	FPS-1	8.50	8.75	1.561	0.086	18.130	.	.	.	.	.
OB-48	OB48A	FPS-3	0.75	1.00	0.363	0.020	19.090	.	.	.	.	.
OB-48	OB48B	FPS-3	2.25	2.50	0.260	0.015	17.218	.	.	.	.	.
OB-48	OB48C	FPS-3	4.75	5.00	0.233	0.012	18.545	.	.	.	.	.
OB-48	OB48D	FPS-3	6.75	7.00	0.266	0.013	19.605	.	.	.	.	.
OB-49	OB49A	FPS-2	1.00	1.25	0.239	0.017	14.641	.	.	.	.	.
OB-49	OB49B	FPS-2	4.25	4.50	0.121	0.000	.	.	.	.	.	.
OB-49	OB49C	FPS-2	8.75	9.00	0.188	0.011	17.773	.	.	.	.	.
OB-50	OB50A	FPS-6	1.00	1.25	0.241	0.015	15.987	.	.	.	.	.
OB-50	OB50B	FPS-5	2.00	2.25	0.244	0.016	14.929	.	.	.	.	.
OB-50	OB50C	FPS-5	3.75	4.00	0.414	0.027	15.485	.	.	.	.	.
OB-50	OB50C	FPS-5	3.75	4.00	0.406	0.028	14.662	.	.	.	.	.
OB-51	OB51A	OBS-1	2.00	2.25	0.407	0.025	16.471	.	.	.	.	.
OB-51	OB51B	OBS-1	5.00	5.25	0.482	0.029	16.786	.	.	.	.	.
OB-51	OB51C	OBS-1	8.00	8.25	0.434	0.027	16.376	.	.	.	.	.
OB-52	OB52A	BBS-1	2.85	2.85	0.726	0.049	14.816	.	.	.	.	.
OB-52	OB52B	BBS-1	3.75	3.75	0.824	0.053	15.547	.	.	.	.	.
OB-53	OB53A	BBS-2	1.25	1.25	0.565	0.034	16.618	.	.	.	.	.
OB-53	OB53B	BBS-2	2.75	2.75	1.059	0.062	17.081	.	.	.	.	.
OB-53	OB53C	BBS-2	3.30	3.30	1.143	0.068	16.809	.	.	.	.	.
OB-53	OB53D	BBS-2	4.25	4.25	1.191	0.067	17.776	.	.	.	.	.
OB-53	OB53E	BBS-2	4.75	4.75	0.825	0.050	16.500	.	.	.	.	.
OB-53	OB53F	BBS-2	5.25	5.25	0.859	0.048	17.896	.	.	.	.	.
OB-53	OB53G	BBS-2	6.50	6.50	0.815	0.048	16.979	.	.	.	.	.
OB-57	OB57A	FPS-6	1.75	1.75	0.651	0.038	17.132	.	.	.	.	.
OB-57	OB57B	FPS-6	4.00	4.00	0.638	0.038	16.789	.	.	.	.	.
OB-57	OB57C	FPS-5	6.50	6.50	0.911	0.062	14.694	.	.	.	.	.
OB-58	OB58A	OBS-2	3.40	3.40	1.169	0.074	15.797	.	.	.	.	.
OB-58	OB58B	OBS-2	3.70	3.70	0.120	0.000	.	.	.	.	.	.
OB-58	OB58C	OBS-2	4.40	4.40	1.909	0.117	16.316	.	.	.	.	.
OB-59	OB59A	BBS-1	4.75	4.75	0.184	0.000	.	.	.	.	.	.
OB-59	OB59B	BBS-1	6.25	6.25	0.728	0.046	15.826	.	.	.	.	.
OB-59	OB59C	BBS-1	5.89	5.89	0.360	0.026	13.846	.	.	.	.	.
OB-59	OB59D	BBS-1	6.75	6.75	1.232	0.077	16.000	.	.	.	.	.
OB-59	OB59E	BBS-1	7.80	.	0.436	0.027	16.333	.	.	.	.	.
OB-60	OB60A	BBS-3	1.25	.	0.463	0.025	18.450	.	.	.	.	.

ORGANIC DATA FOR BULK-SEDIMENT SAMPLES

HOLE	SPL NUM	UNIT	TOP DEPTH (M)	BOT DEPTH (M)	OC1 %	N %	C/N ELE	OC2 %	INOGC %	OC3 %	C13M	C13SH
OB-60	OB60B	BBS-3	3.50	.	1.054	0.04900	21.308	.	.	.	.	.
OB-62	OB62A	OBS-U	3.25	.	1.470	0.07300	20.012	.	.	.	.	.
OB-62	OB62B	OBS-U	4.25	.	1.861	0.09100	20.380	.	.	.	.	.
OB-63	OB63A	FPS-2	1.25	.	2.024	0.11200	18.103	.	.	.	.	.
OB-63	OB63B	FPS-2	2.25	.	1.325	0.07600	17.354	.	.	.	.	.
OB-63	P7	FPS-2	0.20	0.2	2.230	0.12274	18.168	3.40	1.17	2.12	-21.28	.
OB-64	OB64A	FPS-1	4.00	.	1.924	0.10500	18.372	.	.	.	.	.
OB-64	OB64B	FPS-1	4.50	.	1.931	0.09700	19.934	.	.	.	.	.
OB-64	OB64C	FPS-1	6.00	.	1.964	0.10400	19.030	.	.	.	.	.
OB-64	OB64D	FPS-1	6.35	.	0.156	0.01600	9.988	.	.	.	.	.
OB-64	P14	FPS-1	4.50	4.7	3.660	0.16503	22.180	4.52	0.86	3.07	-21.52	-24.623
OB-65	P13	FPS-2	4.70	4.8	0.850	0.04504	18.870	1.50	0.65	0.94	-21.18	.
OB-66	P23	FPS-3	3.50	3.6	1.040	0.04766	21.820	1.14	0.10	1.11	-20.78	-21.090
OB-67	OB67A	FPS-6	3.25	.	0.463	0.03500	13.341	.	.	.	.	.
OB-67	OB67B	FPS-6	4.75	.	0.485	0.02700	18.129	.	.	.	.	.
OB-67	P12	FPS-6	7.70	7.8	0.510	0.02022	25.220	2.89	2.38	0.65	-22.52	-24.380
OB-67	P8	FPS-6	4.50	4.6	0.330	0.00608	54.280	4.02	3.69	0.41	-22.04	-24.670
OB-68	P4	OBS-3	1.50	1.6	1.750	0.08440	20.730	3.89	2.14	3.14	-20.02	-22.780
OB-68	P9	OBS-2	4.80	4.9	0.520	0.01229	38.760	1.41	0.89	0.99	-21.90	-22.730
OB-70	P1	FPS-2	1.50	1.6	1.260	0.08345	15.100	1.71	0.45	1.72	-21.04	-21.220
OB-71	OB71A	BBS-1	0.50	.	0.765	0.04400	17.236	.	.	.	.	.
OB-71	OB71B	BBS-1	1.00	.	0.873	0.05700	15.054	.	.	.	.	.
OB-72	OB72A	BBS-2	1.00	.	0.724	0.04800	15.106	.	.	.	.	.
OB-72	OB72D	BBS-1	4.50	.	0.977	0.05400	18.019	.	.	.	.	.
OB-72	P10	BBS-1	4.30	.	0.720	0.03507	20.530	7.63	6.91	1.22	-20.95	-23.010
OB-72	P5	BBS-2	1.50	1.6	0.520	0.02092	24.860	1.22	0.70	0.59	-21.19	-23.490
OB-79	P24	BBS-1	4.50	4.6	1.510	0.06254	23.090	1.36	.	1.19	-20.50	-20.625
OB-79	P6	BBS-1	5.90	6.0	1.040	0.05681	18.310	1.09	0.05	1.10	-20.68	-22.770
OB-80	P26	OBS-1	4.90	5.3	0.280	0.00117	683.760	1.93	1.65	0.70	-21.53	-23.779
OB-91	OB91A	BBS-1	3.50	.	0.534	0.03500	15.406	.	.	.	.	.
OB-91	OB91B	BBS-1	6.00	.	0.692	0.03900	17.400	.	.	.	.	.
OB-92	OB92B	BBS-4	4.25	.	0.119	0.01200	9.792	.	.	.	.	.
OB-92	OB92C	BBS-4	5.00	.	0.167	0.01100	15.208	.	.	.	.	.
OB-92	OB92D	BBS-4	5.50	.	0.175	0.01300	14.326	.	.	.	.	.
OB-92	OB92E	BBS-4	6.00	.	0.153	0.00970	15.292	.	.	.	.	.
OB-94	OB94A	BBS-2	0.70	.	1.072	0.05800	18.678	.	.	.	.	.
OB-94	P17	BBS-2	1.00	1.1	0.690	0.01154	59.790	6.32	5.63	0.84	-21.37	-20.831
OB-95	OB95A	BBS-3	1.25	.	0.201	0.01800	10.875	.	.	.	.	.
OB-95	OB95B	BBS-2	2.20	.	0.447	0.02600	17.446	.	.	.	.	.
OB-96	OB96A	FPS-6	2.20	.	0.457	0.02300	19.717	.	.	.	.	.

ORGANIC DATA FOR BULK-SEDIMENT SAMPLES

HOLE	SPL NUM	UNIT	TOP DEPTH (M)	BOT DEPTH (M)	OC1 %	N %	C/N ELE	OC2 %	INOGC %	OC3 %	C13M	C13SH
OB-96	OB96B	FPS-6	5.25	.	1.046	0.05700	18.200	.	.	.	.	.
OB-96	P16	FPS-6	2.90	3.0	0.530	0.00998	188.300	3.95	3.45	0.64	-20.91	-24.000
OB-96	P20	FPS-6	1.40	1.5	0.520	0.00739	142.120	7.62	7.10	0.66	-20.62	-21.666
OB-96	P22	FPS-6	4.40	4.5	0.910	0.03672	24.780	2.96	0.05	0.88	-21.38	-23.590
OB-97	P11	FPS-2	2.90	3.0	1.510	0.07638	19.760	1.81	0.30	1.66	-22.08	-24.120
OB-97	P15	FPS-2	4.40	4.5	1.200	0.03268	36.720	4.95	3.75	2.00	-22.54	-23.730
OB-97	P19	FPS-2	5.90	6.0	1.910	0.10715	17.820	2.05	0.14	1.92	-22.09	-22.721
OB-97	P25	FPS-2	1.40	1.5	0.890	0.03940	22.590	1.85	0.96	0.54	-21.19	-22.990
OB-98	OB98A	HOL	1.25	.	2.929	0.15300	19.204	.	.	.	.	.
OB-98	OB98B	FPS-2	3.25	.	2.888	0.16100	17.875	.	.	.	.	.
OB-98	P2	FPS-2	4.00	4.1	4.740	0.26452	17.290	6.92	2.18	5.73	-21.73	.
OB-103	OB103A	FPS-2	5.00	.	0.778	0.04100	18.977	.	.	.	.	.
OB-105	OB105A	FPS-2	1.25	.	1.238	0.06700	18.460	.	.	.	.	.
OB-105	OB105B	FPS-2	2.25	.	1.240	0.06500	19.178	.	.	.	.	.
OB-105	OB105C	FPS-2	3.25	.	1.430	0.07300	19.549	.	.	.	.	.
OB-105	OB105D	FPS-2	4.25	.	1.167	0.06000	19.389	.	.	.	.	.
OB-105	OB105E	FPS-1	5.25	.	1.385	0.07300	18.862	.	.	.	.	.
OB-105	OB105F	FPS-1	6.25	.	1.690	0.09000	18.770	.	.	.	.	.
OB-105	OB105G	FPS-1	7.25	.	0.849	0.04000	21.467	.	.	.	.	.
OB-107	OB107A	FPS-6	0.50	.	1.884	0.09800	19.643	.	.	.	.	.
OB-107	OB107B	FPS-6	1.50	.	0.109	0.10900	17.549	.	.	.	.	.
OB-108	OB108A	BBS-5	2.25	.	0.056	0.95300	16.916	.	.	.	.	.
OB-108	OB108C	BBS-5	4.25	.	0.027	0.24700	8.996	.	.	.	.	.
OB-108	OB108D	BBS-5	5.75	.	0.030	0.22600	7.453	.	.	.	.	.
OB-109	OB109A	BBS-2	1.50	.	0.039	0.62500	15.961	.	.	.	.	.
OB-109	OB109B	BBS-2	2.50	.	0.054	0.85600	15.887	.	.	.	.	.
OB-109	OB109C	BBS-2	4.00	.	0.044	0.71600	16.019	.	.	.	.	.
OB-109	OB109D	BBS-2	5.50	.	0.076	2.03200	26.848	.	.	.	.	.
OB-111	OB111B	OBS-4	4.50	.	0.022	0.11500	4.974	.	.	.	.	.
OB-111	OB111C	OBS-3	5.00	.	0.022	0.08900	4.360	.	.	.	.	.
OB-113	OB113BB	FPS-1	2.75	.	0.039	0.68000	17.538	.	.	.	.	.
OB-113	OB133BC	FPS-1	4.25	.	0.031	0.64300	20.182	.	.	.	.	.
OB-114	OB114A	FPS-1	6.35	.	0.072	1.12600	15.643	.	.	.	.	.
OB-114	OB114B	FPS-1	7.25	.	0.099	1.63400	16.650	.	.	.	.	.
OB-114	OB114C	FPS-1	8.00	.	0.090	1.51900	16.739	.	.	.	.	.
OB-118	OB118A	FPS-6	3.00	.	0.025	0.39500	15.883	.	.	.	.	.
OB-118	OB118B	FPS-6	4.25	.	0.026	0.43800	16.682	.	.	.	.	.
OB-118	OB118C	FPS-6	5.90	.	0.032	0.48600	15.497	.	.	.	.	.
OB-118	OB118D	FPS-6	8.90	.	0.030	0.42000	13.948	.	.	.	.	.

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

This file contains textural data for the SHIPEK surface samples obtained from Onslow Bay during the Onslow Bay Research Project. The key to the data sheets is as follows.

Column 1: SPL NUM

OBS–11 Onslow Bay SHIPEK sample number 11.

Column 2: LAT

Latitude location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 3: LONG

Longitude location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 4: H2ODEPTH

Water depth is in meters. There is a variability in these numbers that is a function of the tide, type of fathometer utilized, correction for transducer location on ship, etc.

Column 5: DESCRPTN

Sample description that includes the following abbreviations:

CS	coarse sand
MS	medium sand
FS	fine sand
SH	shell
GV	gravel
M	mud
HG	hardground
GFO	glauconite foram ooze
NONE	no description

Column 6: HRDGRND

Hardground present: Y = yes; N = no.

Column 7: PHOS EST

Visual estimate of concentration of phosphate grains is in volume percent.

Column 8: INTLWGT

Initial weight of sample for textural analysis is in grams.

Columns 9 through 20: PHI(Ø)

Weight in grams of sample fraction retained on each screen with the size opening indicated in phi units. Phi (Ø) sizes range from –1.0 to 4.0 plus the pan fraction (<4 Ø) as given below. Dots indicate no textural analysis.

–1.0	Ø	2.00	mm
–0.5	Ø	1.41	mm
0.0	Ø	1.00	mm
0.5	Ø	0.71	mm
1.0	Ø	0.50	mm
1.5	Ø	0.35	mm
2.0	Ø	0.25	mm
2.5	Ø	0.177	mm
3.0	Ø	0.125	mm
3.5	Ø	0.088	mm
4.0	Ø	0.0625	mm
Pan		< 0.0625	mm

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-1	34.436	76.936	20.0	MS	N	18	35.00	1.83	0.78	1.06
OBS-2	33.754	77.519	29.0	SHFS	Y	3	35.29	0.58	0.63	0.61
OBS-3	33.756	77.535	29.5	SHMS	N	5	50.40	4.14	1.49	1.16
OBS-4	33.739	77.585	29.0	SHCS	N	5	50.00	3.63	3.33	3.08
OBS-5	33.737	77.570	28.0	SHMS	N	3	50.80	16.83	3.64	2.67
OBS-6	33.777	77.576	26.0	SHMS	N	6	50.30	7.86	3.21	2.85
OBS-7	33.854	77.620	25.5	FS	N	10	51.00	0.41	0.46	0.40
OBS-8	33.856	77.626	24.5	FS	N	10	50.02	0.29	0.19	0.16
OBS-9	33.839	77.654	24.0	SHMS	N	2	50.03	4.35	3.11	3.58
OBS-10	33.729	77.685	22.0	SHCS	N	10	50.03	13.53	13.81	8.31
OBS-11	33.727	77.672	22.0	MS	N	13	50.11	4.85	2.57	3.92
OBS-12	33.724	77.637	24.0	CS	N	5	50.03	6.85	23.96	8.55
OBS-13	33.721	77.626	27.0	SHCS	Y	5	50.02	17.35	8.74	6.70
OBS-14	33.708	77.603	27.0	SHM	Y	3	50.01	7.00	3.09	2.44
OBS-15	33.705	77.580	27.0	SHMS	N	2	50.07	3.33	3.21	2.60
OBS-16	33.727	77.589	25.0	SHMS	N	2	50.06	7.40	3.81	3.74
OBS-17	33.751	77.608	26.0	FS	N	25	.	.	.	.
OBS-18	33.772	77.627	24.0	SHFS	N	17	48.24	0.48	0.71	0.94

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-1	2.34	4.48	8.76	8.80	4.68	1.88	0.29	0.08	0.01
OBS-2	1.55	2.68	5.57	7.11	7.78	7.15	1.24	0.30	0.05
OBS-3	2.96	5.31	9.09	5.95	3.03	4.27	1.93	0.78	0.25
OBS-4	6.17	7.84	11.26	7.89	4.13	2.23	0.69	0.42	0.08
OBS-5	4.11	4.17	3.31	2.56	3.23	5.81	2.64	1.29	0.40
OBS-6	4.27	5.26	8.17	8.07	6.60	3.36	0.37	0.10	0.05
OBS-7	0.61	0.67	0.97	2.01	7.60	28.44	8.26	0.98	0.14
OBS-8	0.76	1.94	7.23	16.17	13.90	7.94	1.05	0.15	0.03
OBS-9	5.65	7.07	7.95	7.54	5.95	4.00	0.63	0.08	0.04
OBS-10	5.02	2.74	2.66	2.06	1.04	0.42	0.10	0.06	0.07
OBS-11	8.32	9.50	8.66	5.60	3.89	2.33	0.21	0.07	0.03
OBS-12	3.72	2.12	2.28	1.52	0.63	0.11	0.03	0.02	0.02
OBS-13	6.82	4.96	2.98	1.04	0.36	0.27	0.19	0.15	0.10
OBS-14	4.84	6.28	4.88	3.79	2.34	3.08	5.18	6.01	1.12
OBS-15	3.86	4.80	7.50	7.93	8.11	6.93	1.12	0.52	0.13
OBS-16	4.58	6.08	10.37	8.44	3.59	1.68	0.17	0.09	0.05
OBS-17	.	.	.	.	.	.	.	.	.
OBS-18	1.84	2.97	4.32	5.77	10.30	17.07	3.19	0.52	0.04

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-19	33.778	77.633	24.0	CS	N	10	50.10	1.16	0.86	1.99
OBS-20	33.800	77.650	22.0	CS	N	2	50.09	5.22	10.38	10.28
OBS-21	33.809	77.658	22.0	CS	N	2	50.02	4.24	6.48	8.25
OBS-22	33.831	77.676	23.0	MS	N	1	50.02	3.45	4.63	2.63
OBS-23	33.851	77.685	23.0	MS	N	1	50.01	2.28	1.23	0.62
OBS-24	33.856	77.701	24.0	CS	N	1	50.10	1.57	1.84	3.88
OBS-25	33.870	77.677	23.0	MS	N	1	50.09	0.09	0.21	0.15
OBS-26	33.859	77.653	24.0	CS	N	1	50.06	3.85	1.85	5.80
OBS-27	33.858	77.588	24.0	SHFS	N	5	.	.	.	.
OBS-28	33.870	77.601	27.0	FS	N	10	50.07	0.28	0.30	0.33
OBS-29	33.871	77.574	25.0	FS	N	80	52.96	0.65	0.27	0.30
OBS-30	33.988	77.555	25.5	HG	Y	0	.	.	.	.
OBS-31	33.859	77.537	30.0	MS	N	10	50.01	1.03	0.58	0.78
OBS-32	33.883	77.580	26.0	SHCS	N	1	50.00	22.57	19.13	5.52
OBS-33	33.902	77.604	26.0	SHCS	N	1	50.01	5.32	2.74	2.63
OBS-34	33.924	77.625	22.0	MS	N	1	50.00	6.12	1.40	2.30
OBS-35	33.935	77.636	20.0	MS	N	1	50.00	1.51	0.37	0.93
OBS-36	33.977	77.682	18.0	MS	N	1	50.01	4.61	3.98	5.15

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-19	12.18	14.12	8.17	6.49	3.66	1.22	0.15	0.08	0.02
OBS-20	5.98	4.62	6.16	4.40	1.92	0.81	0.06	0.02	0.01
OBS-21	8.78	8.00	7.00	4.05	1.85	0.97	0.12	0.04	0.01
OBS-22	3.04	8.16	12.98	5.45	3.99	4.51	0.84	0.19	0.06
OBS-23	1.37	2.44	6.05	12.01	17.02	6.57	0.37	0.06	0.05
OBS-24	8.45	9.75	13.62	5.85	2.85	1.75	0.32	0.13	0.09
OBS-25	0.33	0.83	2.34	8.63	21.87	14.17	1.23	0.15	0.06
OBS-26	19.04	8.53	3.66	3.46	2.53	0.99	0.12	0.03	0.02
OBS-27	.	.	.	.	.	.	.	.	.
OBS-28	0.60	1.48	4.06	9.44	16.39	14.78	1.98	0.31	0.09
OBS-29	0.24	0.34	1.06	11.15	25.74	12.10	2.21	0.16	0.01
OBS-30	.	.	.	.	.	.	.	.	.
OBS-31	1.40	2.75	5.33	8.42	13.07	12.64	3.23	0.11	.
OBS-32	1.39	0.38	0.18	0.09	0.08	0.06	0.03	0.02	0.02
OBS-33	3.42	3.86	4.01	3.89	6.83	12.64	4.00	0.46	0.10
OBS-34	17.26	14.02	4.93	2.33	1.13	0.48	0.05	0.01	0.01
OBS-35	5.85	6.77	9.11	10.80	9.27	4.77	0.45	0.08	0.01
OBS-36	7.42	8.30	6.70	7.12	4.72	1.42	0.10	0.02	0.01

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-37	33.886	77.671	20.0	SHMS	N	1	50.01	0.16	0.38	0.35
OBS-38	33.853	77.607	26.5	FS	N	13	50.01	0.22	0.22	0.18
OBS-39	33.736	77.726	23.0	CS	N	0	50.01	1.68	14.48	15.55
OBS-40	33.908	77.724	20.0	MS	N	1	50.01	2.13	2.24	1.62
OBS-41	33.770	77.727	21.0	CS	N	4	50.01	1.28	1.19	3.57
OBS-42	33.707	77.677	22.0	MS	N	8	50.60	1.38	0.44	0.91
OBS-43	33.681	77.654	25.0	FS	N	40	54.10	0.10	0.31	0.34
OBS-44	33.659	77.635	22.0	SHFS	N	3	50.08	1.96	1.80	4.39
OBS-45	33.633	77.605	26.0	FS	N	1	50.14	0.04	0.09	0.12
OBS-46	33.621	77.581	26.0	FS	N	1	50.87	0.03	0.07	0.12
OBS-47	33.606	77.553	26.0	SHFS	N	1	50.30	0.24	0.32	0.55
OBS-48	33.555	77.521	27.0	SHCS	N	4	50.25	15.43	12.87	9.73
OBS-49	33.620	77.470	33.0	SHMS	N	1	50.63	10.17	4.78	6.42
OBS-50	33.652	77.456	33.0	SHMS	N	1	50.00	3.68	1.61	1.63
OBS-51	33.704	77.439	28.0	SHCS	N	3	50.13	6.99	2.94	9.92
OBS-52	33.728	77.470	31.0	GVMS	N	0	50.13	13.23	0.64	0.36
OBS-53	33.770	77.470	32.0	SHMS	N	0	50.01	5.40	2.43	2.39
OBS-54	33.757	77.509	25.5	SHMS	N	1	.	.	.	.

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-37	1.15	1.91	3.58	11.63	22.60	8.35	0.54	0.08	0.03
OBS-38	0.40	0.60	1.52	4.99	12.29	22.77	5.73	0.84	0.23
OBS-39	7.12	4.04	2.72	1.49	0.92	0.85	0.62	0.41	0.10
OBS-40	4.12	4.93	4.97	7.30	12.85	9.49	0.73	0.09	0.04
OBS-41	7.89	9.08	8.72	5.74	2.32	2.32	0.45	0.31	0.06
OBS-42	3.57	6.50	10.10	11.03	10.31	5.24	0.15	0.07	0.01
OBS-43	2.33	4.67	7.30	10.89	16.53	9.43	1.48	0.59	0.03
OBS-44	6.60	7.35	9.48	8.08	6.19	2.75	0.51	0.11	0.03
OBS-45	0.30	0.66	1.69	6.50	19.49	16.69	3.24	0.64	0.06
OBS-46	0.44	0.99	2.36	5.56	19.29	17.82	3.26	0.58	0.07
OBS-47	1.31	1.96	3.43	7.53	23.78	9.22	1.48	0.22	0.02
OBS-48	7.07	3.33	1.00	0.26	0.16	0.08	0.03	0.01	0.03
OBS-49	8.64	7.66	5.45	2.80	2.42	1.05	0.62	0.19	0.08
OBS-50	2.97	5.43	11.00	10.12	5.58	4.23	2.60	0.82	0.07
OBS-51	14.73	10.14	5.63	2.74	0.92	0.29	0.09	0.03	0.01
OBS-52	1.12	4.80	11.21	11.30	5.39	1.31	0.30	0.08	.
OBS-53	3.27	4.35	7.19	8.69	6.70	5.96	2.46	0.76	.
OBS-54	.	.	.	.	.	.	.	.	.

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-55	34.451	76.673	22.5	FS	N	1	50.14	0.18	0.94	0.81
OBS-56	34.451	76.708	23.0	SHMS	N	1	50.04	0.05	0.12	0.17
OBS-57	34.452	76.733	22.5	FS	N	1	50.06	0.12	0.06	0.19
OBS-58	34.452	76.753	22.5	FS	N	1	50.02	1.16	1.21	2.65
OBS-59	34.454	76.784	21.5	MS	N	1	50.11	0.04	0.14	0.25
OBS-60	34.454	76.875	23.0	SHCS	N	15	50.42	12.42	4.63	2.64
OBS-61	34.451	76.920	24.0	MS	N	3	50.09	0.21	0.31	0.27
OBS-62	34.437	76.955	22.0	MS	N	3	49.65	0.14	0.19	0.21
OBS-63	34.432	76.987	20.0	CS	N	2	49.65	0.29	0.38	1.35
OBS-64	34.426	77.036	20.0	FS	N	1	50.68	0.06	0.08	0.05
OBS-65	34.409	77.080	22.0	MS	N	3	50.06	0.23	0.19	0.16
OBS-66	34.409	76.908	25.0	FS	N	10	50.05	0.41	0.33	0.39
OBS-67	34.379	76.905	26.0	CS	N	3	50.08	0.56	1.31	3.48
OBS-68	34.338	76.901	27.0	SHMS	N	1	50.03	0.04	0.09	0.09
OBS-69	34.320	76.886	25.0	SHMS	N	1	50.01	0.06	0.16	0.25
OBS-70	34.268	76.882	28.0	CS	N	1	50.07	3.17	0.38	1.05
OBS-71	34.250	76.878	29.0	MS	N	1	50.95	0.25	0.38	0.37
OBS-72	34.228	76.875	29.0	MS	N	1	50.24	2.51	1.29	1.87

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-55	1.45	2.08	3.79	9.79	20.88	8.83	4.86	2.26	0.82
OBS-56	0.58	1.17	3.43	11.20	19.66	9.29	3.16	1.43	0.12
OBS-57	0.52	1.27	4.89	14.74	19.65	6.11	1.61	.	.
OBS-58	6.23	10.73	10.70	7.72	6.83	2.28	0.30	0.07	0.01
OBS-59	0.76	1.06	2.28	6.85	22.17	15.86	2.56	0.65	0.05
OBS-60	3.11	3.87	4.71	4.29	4.66	4.07	3.47	1.57	0.50
OBS-61	0.59	0.86	2.17	7.68	20.62	12.79	2.62	0.65	0.07
OBS-62	0.37	0.66	1.18	4.90	19.95	18.22	3.23	0.56	0.02
OBS-63	5.68	12.62	15.11	7.62	5.00	1.65	0.10	0.03	0.00
OBS-64	0.12	0.63	7.23	18.10	17.87	5.48	0.45	0.06	0.01
OBS-65	0.32	0.59	1.75	5.13	21.33	18.64	1.68	0.18	0.00
OBS-66	1.75	3.02	5.44	9.45	15.84	9.21	3.25	1.14	0.08
OBS-67	7.17	7.24	9.29	10.59	7.45	2.18	0.48	0.16	0.02
OBS-68	0.35	0.83	12.71	8.33	17.18	13.81	4.89	1.55	0.23
OBS-69	1.48	3.57	8.28	16.09	15.90	3.40	0.50	0.09	0.01
OBS-70	8.70	17.66	10.89	5.34	2.31	0.56	0.11	0.03	0.01
OBS-71	1.11	2.16	5.70	13.20	17.42	7.05	2.01	0.39	0.05
OBS-72	3.62	8.27	12.27	8.92	6.36	1.30	0.39	0.09	0.01

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-73	34.236	76.905	29.0	CS	N	3	50.15	0.65	0.10	0.23
OBS-74	34.260	76.936	27.0	SHCS	N	8	50.39	0.97	1.48	3.07
OBS-75	34.269	76.979	27.0	CS	N	3	50.17	0.67	0.39	0.44
OBS-76	34.289	77.010	26.0	SHCS	N	1	50.13	0.40	0.85	1.67
OBS-77	34.308	77.050	26.0	SHCS	N	5	49.53	10.57	4.19	3.89
OBS-78	34.329	77.080	24.0	SHCS	N	3	49.51	0.62	0.51	0.54
OBS-79	34.336	77.106	24.0	MS	N	3	49.30	0.90	1.01	0.95
OBS-80	34.335	77.060	24.0	CS	N	5	49.37	1.80	0.84	1.40
OBS-81	34.335	77.016	26.0	MS	N	3	49.45	0.03	0.13	0.16
OBS-82	34.334	76.985	26.0	SHMS	N	1	50.58	2.86	3.40	4.37
OBS-83	34.331	76.951	27.0	MS	N	10	50.59	0.37	0.58	0.95
OBS-84	34.421	76.671	24.5	MS	N	18	49.83	0.36	0.42	0.64
OBS-85	34.383	76.624	24.5	SHMS	N	1	50.28	0.18	0.15	0.19
OBS-86	34.354	76.670	26.5	SHFS	N	1	50.20	0.23	0.19	0.21
OBS-87	34.302	76.707	28.5	SHMS	N	25	50.72	0.76	0.95	2.05
OBS-88	34.094	77.670	28.5	FS	N	7	50.47	0.04	0.16	0.23
OBS-89	34.209	76.624	31.0	SHCS	N	15	50.15	0.91	1.31	2.07
OBS-90	34.164	76.670	34.0	SHFS	N	10	50.07	0.09	0.10	0.12

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-73	1.23	1.80	2.93	9.03	22.33	8.57	2.42	0.44	0.07
OBS-74	7.65	9.38	10.50	8.67	6.48	1.26	0.38	0.11	0.02
OBS-75	1.32	2.63	5.18	11.25	20.18	6.11	1.34	0.28	0.03
OBS-76	5.90	8.50	10.14	10.15	9.48	2.24	0.29	0.06	0.01
OBS-77	6.80	6.78	6.13	5.60	3.91	1.16	0.18	0.09	0.05
OBS-78	1.62	4.40	11.08	16.77	10.88	2.32	0.16	0.03	0.01
OBS-79	2.11	4.03	6.44	11.72	15.29	5.48	0.39	0.06	0.01
OBS-80	10.20	16.05	4.09	4.42	7.47	2.38	0.21	0.06	0.02
OBS-81	0.59	2.05	5.34	11.72	20.12	7.53	1.10	0.18	0.01
OBS-82	7.83	8.76	9.21	7.13	4.87	1.45	0.25	0.05	0.01
OBS-83	2.67	6.43	15.06	13.18	8.54	1.75	0.38	0.13	0.01
OBS-84	1.14	2.32	7.33	15.27	15.38	4.60	1.67	0.62	0.04
OBS-85	0.32	0.57	1.28	3.19	7.78	10.57	18.57	5.75	0.95
OBS-86	0.47	0.54	0.72	1.33	2.46	16.67	23.42	6.71	1.16
OBS-87	5.66	10.34	12.88	9.82	6.13	1.41	0.39	0.15	0.02
OBS-88	0.71	1.52	4.09	10.09	23.33	8.39	0.69	0.20	0.03
OBS-89	4.31	6.50	9.29	11.74	9.84	3.22	0.39	0.10	0.01
OBS-90	0.70	1.48	3.00	6.86	10.01	14.75	2.16	0.34	0.05

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-91	34.125	76.259	36.3	SHMS	N	43	49.74	1.09	1.03	1.97
OBS-92	34.065	76.671	38.0	SHMS	N	2	49.36	0.33	0.64	1.37
OBS-93	34.063	76.723	36.5	SHMS	N	5	50.44	0.16	0.44	0.87
OBS-94	34.063	76.777	36.5	SHMS	N	10	50.14	0.27	0.74	2.24
OBS-95	34.065	76.831	36.5	SHMS	N	10	50.25	2.72	2.78	5.09
OBS-96	34.063	76.878	33.5	SHMS	N	8	50.48	0.86	2.74	7.63
OBS-97	34.063	76.925	35.0	SHMS	N	5	50.00	2.27	2.50	4.85
OBS-98	34.064	77.000	33.5	SHMS	N	15	48.72	0.02	0.10	0.15
OBS-99	34.104	76.956	33.5	MS	N	7	49.88	0.55	1.16	2.69
OBS-100	34.137	76.922	30.5	SHCS	N	5	49.43	7.69	3.96	3.26
OBS-101	34.166	76.881	31.5	SHMS	N	7	49.04	0.03	0.14	0.21
OBS-102	34.204	76.853	31.5	SHMS	N	3	49.19	0.17	0.29	0.49
OBS-103	34.228	76.826	30.5	SHMS	N	18	49.60	5.81	3.71	5.22
OBS-104	34.260	76.806	30.0	MS	N	23	41.81	4.16	3.69	9.17
OBS-105	34.304	76.836	26.5	SHMS	N	18	49.35	0.24	0.34	0.64
OBS-106	34.114	76.784	26.5	SHMS	N	18	49.30	7.38	3.19	4.95
OBS-107	34.329	76.779	27.0	SHMS	N	38	48.42	0.08	0.18	0.30
OBS-108	34.358	76.773	27.0	SHCS	N	5	49.20	7.46	3.22	3.02

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-91	5.39	10.57	13.97	8.52	4.85	1.77	0.28	0.07	0.02
OBS-92	5.54	11.44	13.66	10.89	4.08	1.17	0.11	0.04	0.01
OBS-93	3.32	8.08	13.62	12.84	8.01	2.80	0.27	0.07	0.01
OBS-94	6.72	11.32	12.36	9.85	5.06	1.35	0.19	0.04	0.01
OBS-95	10.34	11.38	9.75	5.91	1.75	0.33	0.06	0.02	0.01
OBS-96	12.01	9.23	7.29	6.46	3.10	0.79	0.17	0.07	0.02
OBS-97	8.74	7.99	8.56	7.96	5.18	1.51	0.28	0.09	0.01
OBS-98	0.53	1.25	3.41	9.84	20.08	11.64	1.45	0.11	0.01
OBS-99	4.96	6.22	10.89	12.78	7.86	2.18	0.34	0.09	0.06
OBS-100	5.37	6.86	8.93	7.32	4.91	1.15	0.19	0.05	0.01
OBS-101	0.47	0.84	2.40	7.20	19.70	13.75	3.27	0.70	0.15
OBS-102	1.79	4.45	9.58	12.61	13.87	4.78	0.87	0.18	0.02
OBS-103	8.75	10.00	7.98	4.55	2.35	0.95	0.13	0.06	0.02
OBS-104	10.45	5.42	4.98	2.34	1.11	0.22	0.09	0.04	0.03
OBS-105	2.44	5.94	11.54	11.53	11.26	4.19	0.90	0.21	0.02
OBS-106	8.85	8.51	6.85	4.79	2.55	1.27	0.54	0.26	0.08
OBS-107	0.84	1.64	3.33	6.44	13.11	13.76	6.18	2.09	0.25
OBS-108	4.70	6.04	6.94	7.00	6.83	2.07	1.16	0.50	0.09

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-109	34.408	76.752	24.5	SHCS	N	8	49.55	1.90	3.03	5.86
OBS-110	34.459	76.734	23.0	FS	N	3	49.28	0.79	0.34	0.34
OBS-111	34.500	76.725	20.5	FS	N	2	49.00	0.45	0.35	0.45
OBS-112	34.481	76.674	20.5	FS	N	1	48.32	0.04	0.16	0.16
OBS-113	34.482	76.622	18.5	FS	N	1	48.62	0.06	0.08	0.09
OBS-114	34.481	76.553	18.5	FS	N	1	48.24	0.04	0.02	0.06
OBS-115	34.437	76.574	18.5	FS	N	1	49.25	0.11	0.03	0.04
OBS-116	34.402	76.489	15.2	MS	N	1	49.33	0.11	0.04	0.07
OBS-117	34.356	76.555	27.5	SHMS	N	2	49.37	1.35	1.30	1.80
OBS-118	34.305	76.684	27.5	SHCS	N	3	49.52	1.81	2.18	2.56
OBS-119	34.268	76.552	32.0	SHFS	N	1	48.78	0.02	0.12	0.19
OBS-120	34.251	76.489	33.5	MS	N	1	49.22	0.01	0.07	0.07
OBS-121	34.220	76.202	32.0	SHMS	N	6	49.27	0.00	0.07	0.16
OBS-122	34.186	76.605	32.0	SHMS	N	1	49.44	0.10	0.10	0.18
OBS-123	34.138	76.553	36.0	SHFS	N	1	49.58	0.03	0.17	0.25
OBS-124	34.100	76.488	37.5	SHMS	N	1	49.45	0.41	0.45	0.43
OBS-125	34.063	76.534	39.0	SHMS	N	5	49.47	0.21	0.24	0.32
OBS-126	34.030	76.585	39.0	SHMS	N	2	49.21	0.41	0.54	0.95

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-109	10.28	8.43	8.52	6.69	3.55	0.95	0.13	0.07	0.02
OBS-110	0.81	2.73	6.10	8.72	16.85	9.53	2.08	0.68	0.04
OBS-111	0.73	1.06	2.32	3.79	7.94	14.20	14.13	3.29	0.28
OBS-112	0.43	0.75	1.57	3.50	7.98	11.87	16.73	4.54	0.44
OBS-113	0.16	0.29	0.70	2.01	6.32	19.21	15.94	3.12	0.38
OBS-114	0.10	0.16	0.31	1.96	14.21	23.64	6.15	1.18	0.16
OBS-115	0.06	0.09	0.15	1.12	17.39	24.43	4.82	0.81	0.04
OBS-116	0.11	0.12	0.24	3.20	32.20	12.31	0.47	0.06	0.01
OBS-117	3.22	5.40	11.86	11.62	7.54	4.43	1.48	0.32	0.10
OBS-118	4.90	9.21	11.16	9.73	5.86	1.65	0.29	0.08	0.01
OBS-119	0.40	0.64	1.06	2.54	7.22	25.76	9.06	1.42	0.12
OBS-120	0.17	0.38	1.03	3.44	11.83	27.80	3.87	0.33	0.02
OBS-121	0.34	0.91	2.34	5.88	17.38	19.49	2.14	0.26	0.01
OBS-122	0.60	1.16	3.01	9.15	23.53	10.40	0.82	0.09	0.01
OBS-123	1.06	2.68	6.79	12.13	17.16	8.50	0.53	0.05	0.01
OBS-124	0.97	2.09	6.03	16.14	17.36	5.14	0.26	0.03	0.01
OBS-125	0.85	2.36	7.61	15.53	16.38	5.44	0.20	0.02	0.00
OBS-126	2.11	3.71	6.85	11.76	15.20	6.77	0.27	0.03	0.01

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-127	33.959	76.571	40.0	SHMS	N	2	49.25	0.87	1.55	2.96
OBS-128	33.001	76.579	40.5	SHMS	N	9	49.43	0.70	1.08	2.69
OBS-129	33.989	76.625	40.0	SHMS	N	1	44.97	6.22	4.83	4.10
OBS-130	34.000	76.659	40.0	SHMS	N	1	48.86	0.08	0.11	0.28
OBS-131	34.000	76.705	39.0	SHMS	N	1	48.78	0.51	0.61	2.48
OBS-132	34.000	76.739	38.1	SHCS	N	2	49.34	3.63	3.52	5.40
OBS-133	33.989	76.784	36.5	SHMS	N	1	49.66	12.06	1.39	1.12
OBS-134	34.000	76.830	35.0	SHFS	N	1	49.20	0.25	0.12	0.18
OBS-135	34.001	76.875	35.0	SHFS	N	1	49.36	1.98	1.06	2.35
OBS-136	33.989	76.909	35.0	SHMS	N	4	49.64	6.28	1.59	2.01
OBS-137	33.989	76.954	32.0	SHMS	N	2	49.45	0.37	0.69	0.93
OBS-138	33.988	77.000	32.0	SHMS	N	1	49.26	6.69	1.78	2.60
OBS-139	34.000	77.035	32.0	SHMS	N	1	49.32	1.46	0.61	1.01
OBS-140	34.000	77.081	32.0	SHMS	N	5	49.58	1.98	1.99	2.45
OBS-141	34.000	77.125	32.0	SHMS	N	5	49.13	5.07	2.16	2.35
OBS-142	34.000	77.160	30.5	SHMS	N	3	49.36	0.15	0.30	0.50
OBS-143	33.989	77.205	30.0	SHMS	N	3	49.61	15.72	3.73	3.97
OBS-144	33.989	77.250	30.0	SHCS	N	4	49.57	3.60	4.78	7.02

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-127	6.89	9.49	9.65	8.77	7.83	1.16	0.03	0.00	0.01
OBS-128	6.47	9.53	10.73	9.80	6.68	1.79	0.07	0.02	0.01
OBS-129	5.36	5.84	6.27	4.34	4.18	2.77	0.21	0.04	0.08
OBS-130	1.22	3.37	8.30	13.65	13.27	8.08	0.30	0.02	0.00
OBS-131	9.18	11.80	9.94	9.10	3.74	1.30	0.08	0.02	0.02
OBS-132	9.32	8.54	6.85	7.10	4.14	0.62	0.06	0.02	0.02
OBS-133	3.28	10.90	11.27	5.33	2.81	1.32	0.13	0.04	0.04
OBS-134	0.40	0.86	2.62	6.37	17.52	18.50	2.07	0.20	0.01
OBS-135	5.93	9.67	10.67	9.66	5.73	2.19	0.15	0.02	0.01
OBS-136	4.30	10.16	14.93	6.78	2.63	0.76	0.08	0.02	0.01
OBS-137	2.06	4.05	6.69	13.16	15.92	4.96	0.32	0.04	0.01
OBS-138	4.22	5.37	7.61	7.44	7.24	5.36	0.72	0.08	0.06
OBS-139	2.28	5.08	9.21	13.50	10.47	5.04	0.53	0.07	0.03
OBS-140	5.18	10.50	14.41	10.11	2.32	0.50	0.07	0.03	0.01
OBS-141	4.82	8.43	10.35	8.05	5.76	1.75	0.24	0.07	0.03
OBS-142	1.51	2.97	7.68	15.08	15.21	5.10	0.64	0.09	0.01
OBS-143	6.20	6.63	6.39	3.95	2.24	0.68	0.10	0.04	0.02
OBS-144	7.26	5.44	8.48	7.25	4.85	0.75	0.06	0.01	0.01

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-145	34.000	77.285	27.5	MS	N	3	49.40	0.95	2.12	3.99
OBS-146	33.989	77.331	26.0	SHMS	N	2	49.39	0.13	0.14	0.16
OBS-147	34.000	77.375	26.0	SHMS	N	2	49.18	5.25	2.36	2.48
OBS-148	34.007	77.421	24.0	FS	N	7	49.26	0.09	0.16	0.05
OBS-149	34.008	77.457	23.0	FS	N	5	49.38	0.03	0.08	0.05
OBS-150	34.007	77.500	23.0	FS	N	4	49.36	0.10	0.05	0.12
OBS-151	34.008	77.553	21.5	FS	N	3	49.23	0.19	0.18	0.17
OBS-152	34.007	77.623	20.0	CS	Y	1	49.62	11.70	2.20	5.00
OBS-199	33.802	77.605	30.0	SHCS	Y	0	.	.	.	.
OBS-200	33.794	77.554	28.0	SHMS	N	2	.	.	.	.
OBS-201	33.793	77.553	30.0	SHFS	N	13	.	.	.	.
OBS-202	33.769	77.560	30.0	SHCS	N	23	.	.	.	.
OBS-203	33.796	77.561	30.0	SHFS	N	13	.	.	.	.
OBS-204	33.782	77.559	28.0	SHCS	N	3	.	.	.	.
OBS-205	33.853	77.666	25.0	FS	N	3	.	.	.	.
OBS-206	33.852	77.665	28.0	SHCS	Y	1	.	.	.	.
OBS-207	33.849	77.664	26.0	FS	N	3	.	.	.	.
OBS-208	33.846	77.662	24.7	SHMS	N	3	.	.	.	.

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-145	5.21	6.74	10.85	9.79	6.98	2.35	0.29	0.06	0.01
OBS-146	0.35	0.64	1.55	8.46	26.80	10.23	0.55	0.05	0.00
OBS-147	3.35	3.11	3.44	5.45	14.77	7.86	0.80	0.13	0.05
OBS-148	0.36	0.58	1.30	3.73	16.91	23.18	2.48	0.17	0.01
OBS-149	0.33	0.94	3.53	11.72	21.82	9.93	0.62	0.04	0.00
OBS-150	0.19	0.46	1.38	6.51	23.41	15.30	1.29	0.09	0.00
OBS-151	0.28	0.60	1.59	6.32	22.46	15.47	1.33	0.10	0.01
OBS-152	8.57	5.46	6.33	5.82	3.60	1.26	0.16	0.01	0.02
OBS-199	.	.	.	.	.	.	.	.	.
OBS-200	.	.	.	.	.	.	.	.	.
OBS-201	.	.	.	.	.	.	.	.	.
OBS-202	.	.	.	.	.	.	.	.	.
OBS-203	.	.	.	.	.	.	.	.	.
OBS-204	.	.	.	.	.	.	.	.	.
OBS-205	.	.	.	.	.	.	.	.	.
OBS-206	.	.	.	.	.	.	.	.	.
OBS-207	.	.	.	.	.	.	.	.	.
OBS-208	.	.	.	.	.	.	.	.	.

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-209	33.839	77.656	24.5	SHCS	N	3	.	.	.	.
OBS-210	33.855	77.659	25.5	SHCS	Y	1	.	.	.	.
OBS-211	33.951	77.657	24.0	FS	N	1	.	.	.	.
OBS-212	33.848	77.654	25.0	SHFS	N	4	.	.	.	.
OBS-213	33.846	77.650	24.5	SHFS	N	4	.	.	.	.
OBS-214	33.844	77.647	25.5	FS	N	4	.	.	.	.
OBS-215	33.839	77.644	23.0	FS	N	8	.	.	.	.
OBS-216	33.836	77.640	23.1	SHMS	N	5	.	.	.	.
OBS-217	33.834	77.638	23.0	MS	N	5	.	.	.	.
OBS-218	33.012	77.595	23.0	MS	N	8	.	.	.	.
OBS-219	33.774	77.591	24.0	SHMS	N	10	.	.	.	.
OBS-220	33.771	77.587	23.0	SHCS	N	3	.	.	.	.
OBS-221	33.815	77.624	23.0	SHCS	Y	3	.	.	.	.
OBS-222	33.816	77.621	23.5	FS	N	8	.	.	.	.
OBS-223	33.813	77.618	23.5	SHMS	N	13	.	.	.	.
OBS-224	33.810	77.615	25.5	MS	Y	25	.	.	.	.
OBS-225	33.807	77.612	25.0	SHMS	N	18	.	.	.	.
OBS-226	33.804	77.608	24.5	SHMS	N	20	.	.	.	.

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-209	.	.	.	.	.	.	.	.	.
OBS-210	.	.	.	.	.	.	.	.	.
OBS-211	.	.	.	.	.	.	.	.	.
OBS-212	.	.	.	.	.	.	.	.	.
OBS-213	.	.	.	.	.	.	.	.	.
OBS-214	.	.	.	.	.	.	.	.	.
OBS-215	.	.	.	.	.	.	.	.	.
OBS-216	.	.	.	.	.	.	.	.	.
OBS-217	.	.	.	.	.	.	.	.	.
OBS-218	.	.	.	.	.	.	.	.	.
OBS-219	.	.	.	.	.	.	.	.	.
OBS-220	.	.	.	.	.	.	.	.	.
OBS-221	.	.	.	.	.	.	.	.	.
OBS-222	.	.	.	.	.	.	.	.	.
OBS-223	.	.	.	.	.	.	.	.	.
OBS-224	.	.	.	.	.	.	.	.	.
OBS-225	.	.	.	.	.	.	.	.	.
OBS-226	.	.	.	.	.	.	.	.	.

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-227	33.801	77.605	24.5	FS	N	25	.	.	.	.
OBS-228	33.798	77.602	23.0	SHMS	N	15	.	.	.	.
OBS-229	33.794	77.599	23.0	MS	N	15	.	.	.	.
OBS-230	33.790	77.595	23.0	MS	N	10	.	.	.	.
OBS-231	33.787	77.592	24.0	MS	N	8	.	.	.	.
OBS-232	33.787	77.589	28.0	SHMS	N	20	.	.	.	.
OBS-233	33.781	77.586	28.0	SHCS	N	13	.	.	.	.
OBS-234	33.778	77.583	28.5	SHCS	Y	8	.	.	.	.
OBS-235	33.774	77.413	30.5	SHCS	N	0	.	.	.	.
OBS-236	33.772	77.576	24.0	SHFS	N	8	.	.	.	.
OBS-237	33.768	77.572	24.0	SHCS	Y	8	.	.	.	.
OBS-238	33.764	77.569	25.0	SHCS	Y	5	.	.	.	.
OBS-239	33.761	77.566	24.0	CS	Y	0	.	.	.	.
OBS-240	33.758	77.563	28.0	SHCS	Y	2	.	.	.	.
OBS-241	33.756	77.560	28.0	SHCS	Y	0	.	.	.	.
OBS-242	33.752	77.556	25.5	SHMS	Y	0	.	.	.	.
OBS-243	33.749	77.554	25.5	NONE	Y	.	.	.	.	.
OBS-244	33.745	77.555	30.5	SHMS	Y	0	.	.	.	.

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-227	.	.	.	.	.	.	.	.	.
OBS-228	.	.	.	.	.	.	.	.	.
OBS-229	.	.	.	.	.	.	.	.	.
OBS-230	.	.	.	.	.	.	.	.	.
OBS-231	.	.	.	.	.	.	.	.	.
OBS-232	.	.	.	.	.	.	.	.	.
OBS-233	.	.	.	.	.	.	.	.	.
OBS-234	.	.	.	.	.	.	.	.	.
OBS-235	.	.	.	.	.	.	.	.	.
OBS-236	.	.	.	.	.	.	.	.	.
OBS-237	.	.	.	.	.	.	.	.	.
OBS-238	.	.	.	.	.	.	.	.	.
OBS-239	.	.	.	.	.	.	.	.	.
OBS-240	.	.	.	.	.	.	.	.	.
OBS-241	.	.	.	.	.	.	.	.	.
OBS-242	.	.	.	.	.	.	.	.	.
OBS-243	.	.	.	.	.	.	.	.	.
OBS-244	.	.	.	.	.	.	.	.	.

TEXTURAL DATA FOR SHIPEK SURFACE SAMPLES

SPL NUM	LAT	LONG	H2ODEPTH(M)	DESCRPTN	HRDGRND	PHOS EST(%)	INTLWGT(G)	PHI -1.0(G)	PHI -0.5(G)	PHI 0.0(G)
OBS-245	33.743	77.547	30.0			.	.	.	.	.
OBS-246	33.091	77.260	283.0	GFO	N	0	.	.	.	.
OBS-247	33.092	77.260	278.0	MS	N	1	.	.	.	.
OBS-248	33.102	77.267	268.0	MS	N	1	.	.	.	.
OBS-249	33.115	77.269	268.0	CS	N	10	.	.	.	.
OBS-250	33.115	77.269	265.0	MS	N	7	.	.	.	.
OBS-251	33.139	77.281	265.5	MS	N	1	.	.	.	.
OBS-252	33.143	77.288	256.0	SHMS	N	3	.	.	.	.
OBS-254	33.175	77.295	195.0	FS	N	0	.	.	.	.
OBS-255	33.188	77.300	171.0	FS	N	0	.	.	.	.

SPL NUM	PHI 0.5(G)	PHI 1.0(G)	PHI 1.5(G)	PHI 2.0(G)	PHI 2.5(G)	PHI 3.0(G)	PHI 3.5(G)	PHI 4.0(G)	PAN(G)
OBS-245	.	.	.	.	.	.	.	.	.
OBS-246	.	.	.	.	.	.	.	.	.
OBS-247	.	.	.	.	.	.	.	.	.
OBS-248	.	.	.	.	.	.	.	.	.
OBS-249	.	.	.	.	.	.	.	.	.
OBS-250	.	.	.	.	.	.	.	.	.
OBS-251	.	.	.	.	.	.	.	.	.
OBS-252	.	.	.	.	.	.	.	.	.
OBS-254	.	.	.	.	.	.	.	.	.
OBS-255	.	.	.	.	.	.	.	.	.

METALLURGICAL ANALYSIS OF PHOSPHATE FROM VIBRACORE SAMPLES

This file contains the detailed metallurgical data obtained for two phosphate samples by the Minerals Research Laboratory, North Carolina State University, Asheville, North Carolina. Sample ML–34 is from unit FPS–1 of the Miocene Pungo River Formation. The sample is from –0.3 to –1.5 meters below the sediment-water interface in vibracore OB–24 (Figure 3). Sample ML–35 is from the Holocene sands that extend from the surface to –1.2 meters below the sediment-water interface in vibracore OB–25 (Figure 3). Both cores are from the Frying Pan phosphate district and represent two very different types of phosphate as indicated by the following chemistry. ML–34 comes from a very rich bed of phosphate that locally crops out on the sea floor in this area or more commonly is overlain by a thin, but variable layer of surficial Holocene sands. Sample ML–35 comes from these latter surface sands and contains highly variable, but lesser amounts of phosphate. All of the phosphate within the Holocene sands (ML–35) has been derived from the erosion of the underlying Miocene bed (ML–34) and has been significantly diluted by continental shelf sediments including quartz sand, modern shell hash, and eroded lithoclasts from adjacent hardbottoms.

The size distribution and double froth flotation analyses were obtained from subsamples of ML–34 and ML–35. Froth flotation analysis utilized a 400-gram subsample. Chemical analyses were done on a bulk-sediment sample, on each size fraction, and the various froth flotation fractions by standard wet chemical procedures utilized by the phosphate industry and as outlined by the Association of Florida Phosphate Chemists (1980). Analytical numbers are not adjusted for percent insoluble residue.

The double-cell froth flotation technique utilized the following reagent levels:

Rougher Flotation
- 0.52 lb of M28–B fatty acid/ton flotation feed
- 0.72 lb of #2 fuel oil/ton flotation feed

Cleaner Flotation
- 0.19 lb of Armac T amine acetate/ton flotation feed
- 0.19 lb of NaOH/ton flotation feed
- 0.24 lb of F–65 frother/ton flotation feed

Acid Scrub
- 5.3 lb H_2SO_4/ton flotation feed

Sample ML-34, Core OB-24 in FPS-1 in the Frying Pan Phosphate District, Onslow Bay
Sediment Size Distribution and Chemical Analysis of Size Fractions

Size Fraction		Assay (%)						% Distribution					
Tyler Mesh	Wt %	P2O5	MgO	CaO	Al2O3	Fe2O3	Insoluble	P2O5	MgO	CaO	Al2O3	Fe2O3	Insoluble
+ 14	9.0	19.64	0.80	39.20	0.53	0.79	15.75	9.5	7.2	8.7	7.6	12.1	9.4
- 14 + 28	7.1	20.85	0.82	41.65	0.43	0.50	15.05	7.9	6.1	7.3	4.4	5.2	7.0
- 28 + 35	8.5	20.75	0.86	38.22	0.42	0.44	16.50	9.4	7.2	8.1	6.1	6.9	9.2
- 35 + 48	21.3	21.16	0.92	43.61	0.53	0.45	11.40	24.2	20.4	23.0	16.7	17.2	16.0
- 48 + 65	30.2	21.34	0.99	44.10	0.61	0.49	8.54	34.6	30.6	33.0	27.3	25.9	17.0
- 65 + 100	10.5	20.80	0.93	42.14	0.60	0.58	13.45	11.7	10.2	11.0	9.1	10.3	9.3
- 100+ 200	5.4	6.64	1.19	26.70	1.38	0.87	40.88	1.9	6.1	3.6	10.6	8.6	14.6
- 200	8.0	1.58	1.49	26.46	1.45	1.04	33.20	0.8	12.2	5.3	18.2	13.8	17.5
Totals	100.0	18.6	1.0	40.3	0.7	0.6	15.2	100.0	100.0	100.0	100.0	100.0	100.0
Bulk Sediment	-	20.04	1.09	36.26	0.73	0.56	14.52	-	-	-	-	-	-

Material Balance of Single Froth Flotation Analysis of Phosphate Sample ML-34

Category		Assay (%)						% Distribution					
Sample	Wt %	P2O5	MgO	CaO	Al2O3	Fe2O3	Insoluble	P2O5	MgO	CaO	Al2O3	Fe2O3	Insoluble
+ 14	10.1	20.08	0.73	41.16	0.46	0.72	15.30	9.4	6.8	10.0	7.9	11.4	10.4
#1 Slimes	10.1	1.46	1.98	26.95	1.78	1.06	32.00	0.7	19.4	6.5	28.5	19.6	21.8
#2 Slimes	4.4	7.50	1.98	38.22	2.11	1.28	19.60	1.5	8.7	4.0	14.2	9.8	5.8
Rougher Tails	6.0	1.49	0.09	3.18	0.16	0.21	92.04	0.4	1.0	0.4	1.6	1.6	37.2
Cleaner Tails	0.4	8.07	0.36	19.11	0.44	0.50	60.45	0.1	7.8	0.2	0.3	0.4	1.6
Concentrate	69.0	27.48	0.84	47.53	0.44	0.51	5.00	87.9	56.3	78.9	47.5	57.2	23.2
Totals	100.0	21.6	1.0	41.6	0.6	0.6	14.8	100.0	100.0	100.0	100.0	100.0	100.0

Sample ML-35, Core 08-25 in the Holocene in the Frying Pan Phosphate District, Onslow Bay
Sediment Size Distribution and Chemical Analysis of Size Fractions

Size Fraction		Assay (%)						% Distribution					
Tyler Mesh	Wt %	P2O5	MgO	CaO	Al2O3	Fe2O3	Insoluble	P2O5	MgO	CaO	Al2O3	Fe2O3	Insoluble
+ 14	1.5	2.12	1.46	37.00	0.42	0.71	26.04	0.4	2.4	2.2	2.4	1.4	0.8
- 14 + 28	12.5	1.85	1.20	23.03	0.28	0.80	52.20	3.0	17.9	11.5	7.1	14.3	13.9
- 28 + 48	14.9	4.30	1.06	23.76	0.33	0.70	49.96	8.3	19	14.1	11.9	14.3	15.8
- 48 + 65	19.7	10.50	0.84	28.91	0.34	0.82	37.40	27.0	19	22.6	16.7	22.9	15.7
- 65 + 100	33.7	10.60	0.66	26.46	0.52	0.68	44.30	46.6	26.2	35.5	40.5	32.9	31.8
- 100+ 200	16.0	7.00	0.58	19.11	0.45	0.52	61.01	14.6	10.7	12.2	16.7	11.4	20.8
- 200	1.7	0.68	2.35	28.91	1.14	1.43	32.65	0.1	4.8	1.9	4.7	2.8	1.2
Totals	100.0	7.70	0.80	25.10	0.40	0.70	47.0	100.0	100.0	100.0	100.0	100.0	100.0
Bulk Sediment	-	8.46	0.90	25.48	0.39	0.68	46.4	-	-	-	-	-	-

Material Balance of Single Froth Flotation Analysis of Phosphate Sample ML-35

Category		Assay (%)						% Distribution					
Sample	Wt %	P2O5	MgO	CaO	Al2O3	Fe2O3	Insoluble	P2O5	MgO	CaO	Al2O3	Fe2O3	Insoluble
+ 14 M	1.5	2.19	1.22	38.96	0.20	0.48	28.10	0.3	2.4	2.1	1.0	1.0	0.9
Slimes	4.1	0.95	2.42	28.91	1.34	1.87	38.76	0.4	11.6	4.4	15.9	11.5	3.3
Rougher Tails	44.4	0.52	0.15	2.45	0.13	0.20	94.20	2.6	8.1	4.0	19.2	12.9	88.0
Cleaner Tails	3.5	6.90	0.46	15.68	0.41	0.43	66.20	2.7	2.3	2.0	3.2	1.4	4.9
Concentrate	46.5	18.06	1.4	51.2	0.42	1.09	3.00	94.0	75.6	87.5	60.7	73.2	2.9
Totals	100.0	8.90	0.90	27.20	0.30	0.70	47.50	100.0	100.0	100.0	100.0	100.0	100.0

CHEMICAL ANALYSIS OF PHOSPHATE CONCENTRATES FROM METALLURGICAL TESTS

This file contains all analytical data from phosphate concentrates obtained by various phosphate companies that ran metallurgical analyses on bulk samples from Onslow Bay, North Carolina. All initial samples included in this file contained bulk-sediment analyses with greater than 2 percent P_2O_5. Each laboratory carried out a double-froth flotation separation on approximately 1 kg bulk-sediment samples. The included chemical analyses were performed on the resulting phosphate concentrates.

Column 1: SPL NUM

ML–28	Metallurgical Lab number 28.

Column 2: HOLE

OB–11	Onslow Bay vibracore number 11.

Column 3: UNIT

HOL	Holocene
BBS–8	Bogue Banks Sequence 8 of the Pungo River Formation
BBS–1	Bogue Banks Sequence 1 of the Pungo River Formation
OBS–2	Onslow Bay Sequence 2 of the Pungo River Formation
FPS–6	Frying Pan Sequence 6 of the Pungo River Formation
FPS–2	Frying Pan Sequence 2 of the Pungo River Formation
FPS–1	Frying Pan Sequence 1 of the Pungo River Formation

Column 4: LAT

Latitude location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 5: LONG

Longitude location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 6: TOP DEPTH

Depth in core is in meters below sediment-water interface to the top of the sample analyzed.

Column 7: BOT DEPTH

Depth in core is in meters below sediment-water interface to the bottom of the sample analyzed.

Column 8: LAB

Analytical Laboratories

AGR	Agrico Chemicals Corp., Bartow, FL
GRC	W.R. Grace Inc., Bartow, FL
NCS	North Carolina State University Minerals Research Laboratory, Asheville, NC

Each of the three labs carried out different types of chemical analyses on the samples that they ran. Consequently, each sample has different elements that are included in the following data.

Column 9 through 22

This group of analyses was done using standard wet chemical procedures utilized by the phosphate industry on phosphate concentrates and as outlined by the Association of Florida Phosphate Chemists (1980). Analytical numbers are not adjusted for percent insoluble residue.

P2O5	%	P_2O_5 percent
SIO2	%	SiO_2 percent
FE2O3	%	Fe_2O_3 percent
AL2O3	%	Al_2O_3 percent
CAO	%	CaO percent
CO2	%	CO_2 percent
SO3	%	SO_3 percent
F2	%	F_2 percent
C	%	C percent
MGO	%	MgO percent
NA2O	%	Na_2O percent
K2O	%	K_2O percent
FE	%	Fe percent
INSOL	%	Insoluble residue in percent

Columns 23 through 44

This group of analyses was done on four samples (ML–21, ML–26, ML–27, and ML–28) of phosphate concentrate produced by Agrico. The analyses were carried out by Fluorescent X-ray Spectrographic Analytic Laboratory, Denver, Colorado, and utilized X-ray spectrographic techniques. These data, in parts per million, are both qualitative and semi-quantitative.

AG	PPM	Silver parts per million
AS	PPM	Arsenic parts per million
BA	PPM	Barium parts per million
CD	PPM	Cadmium parts per million
CE	PPM	Cerium parts per million
CL	PPM	Chlorine parts per million
CS	PPM	Cesium parts per million
CU	PPM	Copper parts per million
FE	PPM	Iron parts per million
LA	PPM	Lanthanum parts per million
MN	PPM	Manganese parts per million
NI	PPM	Nickel parts per million
PB	PPM	Lead parts per million
RB	PPM	Rubidium parts per million
SB	PPM	Antimony parts per million
SR	PPM	Strontium parts per million
TH	PPM	Thorium parts per million
TI	PPM	Thallium parts per million
U	PPM	Uranium parts per million
Y	PPM	Yttrium parts per million
ZN	PPM	Zinc parts per million
ZR	PPM	Zirconium parts per million

CHEMICAL ANALYSES OF PHOSPHATE CONCENTRATES FROM METALLURGICAL TESTS

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH	BOT DEPTH	LAB	P2O5 %	SIO2 %	FE2O3 %	AL2O3 %	CAO %	CO2 %	SO3 %	F2 %	C %	MGO %	NA2O %
ML-4	OB-1	BBS-8	34.640	76.768	6.25	6.75	GRC	25.30	17.80	0.39	0.48	39.66	7.55	2.64	2.98	0.67	0.90	0.95
ML-5	OB-2B	BBS-1	34.467	76.865	5.25	6.00	GRC	29.10	7.20	0.55	0.73	42.81	28.96	3.27	3.56	0.59	0.61	0.79
ML-7	OB-6B	BBS-1	34.443	76.943	6.50	7.00	GRC	28.80	8.64	0.73	0.63	44.53	6.71	4.56	3.06	0.65	0.90	0.81
ML-28	OB-11	FPS-1	33.868	77.578	0.75	1.50	AGR	22.01	.	.	.	.	.	.	.	.	.	.
ML-15	OB-14	FPS-1	33.861	77.565	3.25	3.75	GRC	29.00	4.84	0.20	0.59	46.37	5.30	4.16	3.59	1.48	0.82	0.98
ML-16	OB-14	FPS-1	33.861	77.565	1.25	1.75	GRC	23.49	12.24	0.19	0.52	42.59	8.84	3.76	2.99	1.34	0.77	0.94
ML-29	OB-14	FPS-1	33.861	77.565	4.25	4.85	AGR	26.06	.	.	.	.	.	.	.	.	.	.
ML-30	OB-18	HOL	33.728	77.671	0.00	1.00	AGR	13.12	.	.	.	.	.	.	.	.	.	.
ML-18	OB-22	FPS-1	33.763	77.625	3.75	4.50	GRC	23.80	17.84	0.39	0.52	39.50	5.37	4.24	3.15	1.10	0.72	0.95
ML-11	OB-24	FPS-1	33.780	77.621	0.75	1.50	GRC	28.40	6.80	0.19	0.43	45.69	4.62	4.00	3.16	0.96	0.88	0.99
ML-34	OB-24	FPS-1	33.780	77.621	0.30	1.50	NCS	27.48	.	.	.	.	.	.	.	.	.	.
ML-35	OB-25	HOL	33.846	77.585	0.00	1.20	NCS	18.06	.	.	.	.	.	.	.	.	.	.
ML-13	OB-26	FPS-1	33.843	77.560	1.75	2.50	GRC	29.10	5.20	0.19	0.47	48.09	4.59	4.20	3.61	1.10	0.96	1.00
ML-26	OB-26	FPS-1	33.843	77.560	3.25	4.25	AGR	28.42	.	.	.	.	.	.	.	.	.	.
ML-17	OB-27	FPS-2	33.841	77.533	6.25	7.00	GRC	20.20	23.60	0.37	0.73	35.72	5.92	3.48	2.46	1.21	0.72	0.85
ML-1	OB-29	HOL	33.873	77.535	0.00	0.00	GRC	24.00	5.16	1.31	0.57	46.61	11.59	2.42	3.13	0.57	1.28	0.89
ML-14	OB-29B	FPS-2	33.873	77.535	3.75	4.25	GRC	27.50	4.40	0.18	0.58	47.40	7.45	4.84	3.57	1.17	0.85	0.99
ML-27	OB-30	FPS-1	33.916	77.503	1.25	2.00	AGR	29.10	.	.	.	.	.	.	.	.	.	.

SPL NUM	K2O %	FE %	INSOL %	AG PPM	AS PPM	BA PPM	CD PPM	CE PPM	CL PPM	CS PPM	CU PPM	FE PPM	LA PPM	MN PPM	NI PPM	PB PPM	RB PPM	SB PPM	SR PPM	TH PPM	TI PPM	U PPM	Y PPM	ZN PPM	ZR PPM
ML-4	0.14	.	17.40	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-5	0.16	.	6.70	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-7	0.17	.	7.30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-28	.	.	24.06	.	12	330	.	180	85	85	38	2400	73	140	66	.	52	.	1700	130	830	.	130	110	130
ML-15	0.09	.	3.90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-16	0.11	.	12.40	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-29	.	.	8.08	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-30	.	.	16.66	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-18	0.13	.	18.80	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-11	0.08	.	6.30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-34	.	.	5.00	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-35	.	.	3.00	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-13	0.08	.	4.30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-26	.	.	3.98	.	41	230	.	.	.	.	76	2100	.	120	25	82	.	.	2400	82	660	.	180	140	130
ML-17	0.19	.	26.50	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-1	0.14	.	4.40	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-14	0.08	.	3.80	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-27	.	.	2.73	.	13	240	.	.	.	.	76	2700	.	23	63	71	.	.	2400	.	500	100	200	100	110

CHEMICAL ANALYSES OF PHOSPHATE CONCENTRATES FROM METALLURGICAL TESTS

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH	BOT DEPTH	LAB	P2O5 %	SIO2 %	FE2O3 %	AL2O3 %	CAO %	CO2 %	SO3 %	F2 %	C %	MGO %	NA2O %
ML-6	OB-36	BBS-1	34.626	76.915	2.25	2.75	GRC	29.70	5.36	0.28	0.54	44.53	4.94	3.31	3.22	0.58	0.53	0.79
ML-9	OB-39	BBS-1	34.440	76.975	6.75	7.25	GRC	27.00	11.84	0.56	0.79	41.44	4.24	1.14	3.26	0.61	1.02	0.82
ML-33	OB-43		34.353	76.958	.	.	AGR	10.87	.	.	.	.	.	.	.	.	.	.
ML-10	OB-53	BBS-2	34.160	76.915	3.50	4.25	GRC	28.30	6.28	0.25	0.67	45.69	5.51	3.72	3.36	1.06	0.93	0.94
ML-12	OB-64	FPS-1	33.805	77.630	4.70	5.45	GRC	28.90	5.36	0.18	0.49	47.06	5.30	4.12	3.70	0.88	0.93	0.98
ML-31	OB-64	HOL	33.805	77.630	0.30	0.54	AGR	9.21	.	.	.	.	.	.	.	.	.	.
ML-32	OB-64	FPS-1	33.805	77.630	4.00	4.50	AGR	26.55	.	.	.	.	.	.	.	.	.	.
ML-19	OB-66	FPS-6	33.836	77.498	1.60	2.20	GRC	19.30	17.88	0.35	0.48	39.50	11.12	3.76	2.31	0.99	0.57	0.84
ML-20	OB-68	OBS-2	33.833	77.285	3.05	3.55	GRC	28.32	9.20	0.46	0.68	42.13	25.01	3.54	3.51	0.97	0.51	0.75
ML-8	OB-72	BBS-2	34.453	76.876	1.75	2.20	GRC	26.82	12.52	0.37	0.57	41.97	4.56	2.92	2.91	0.97	0.65	0.93
ML-23	OB-91	BBS-1	34.636	76.823	2.80	3.20	AGR	23.67	.	.	.	.	.	.	.	.	.	.
ML-24	OB-91	BBS-1	34.636	76.823	3.90	4.20	AGR	29.02	.	.	.	.	.	.	.	.	.	.
ML-25	OB-91	BBS-1	34.636	76.823	4.80	5.20	AGR	8.70	.	.	.	.	.	.	.	.	.	.
ML-21	OB-94	BBS-2	34.163	76.923	0.69	1.00	AGR	27.78	.	.	.	.	.	.	.	.	.	.
ML-22	OB-98	HOL	33.783	77.635	0.75	1.00	AGR	9.30	.	.	.	.	.	.	.	.	.	.
ML-2	OBS-1	HOL	34.436	76.936	0.00	0.01	GRC	28.20	2.36	1.44	0.46	46.61	7.38	3.12	3.46	0.72	1.15	1.00
ML-3	OBS-18	HOL	33.770	77.628	0.00	0.01	GRC	16.00	9.36	1.50	0.49	43.51	16.90	1.80	1.97	0.61	1.61	0.85
L-175	L-175	HOL	.	.	0.00	0.00	IMC	8.93	.	.	.	37.39	.	.	.	.	1.13	.

SPL NUM	K2O %	FE %	INSOL %	AG PPM	AS PPM	BA PPM	CD PPM	CE PPM	CL PPM	CS PPM	CU PPM	FE PPM	LA PPM	MN PPM	NI PPM	PB PPM	RB PPM	SB PPM	SR PPM	TH PPM	TI PPM	U PPM	Y PPM	ZN PPM	ZR PPM
ML-6	0.11	.	6.00	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-9	0.17	.	12.70	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-33	.	.	15.13	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-10	0.14	.	6.80	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-12	0.08	.	4.90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-31	.	.	12.60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-32	.	.	1.77	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-19	0.13	.	20.20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-20	0.12	.	11.30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-8	0.14	.	13.10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-23	.	.	6.88	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-24	.	.	3.12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-25	.	.	56.84	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-21	.	.	2.75	42	.	230	34	.	.	.	60	2900	.	140	110	160	.	46	2500	.	660	120	100	550	160
ML-22	.	.	15.63	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-2	0.09	.	1.70	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
ML-3	0.07	.	9.20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
L-175	.	.	27.82	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

CHEMICAL ANALYSIS OF HAND-PICKED CONCENTRATES OF PHOSPHATE GRAIN TYPES

This file contains all analytical data obtained on concentrates of four specific phosphate grain types from Onslow Bay sediment samples. All phosphate concentrate samples were hand-picked using a binocular microscope and based upon the phosphate grain classification scheme of Riggs (1979), Ellington (1984), Mallette (1986), and Riggs and Mallette (1990).

All chemical analyses were done by ICAPES (Inductively Coupled Argon Plasma Emission Spectrometry) by Dr. John T. Bray of the Trace Elements Laboratory, School of Medicine, East Carolina University, Greenville, North Carolina. The samples were digested utilizing a hydrofluoric bomb technique. Concentrations of the digested solutions were determined in ppm of the element. Concentrations of major elements were then converted to percent oxides of the dry material and concentrations of the trace elements were converted to ppm of the dry material. All ICAPES data are quantitative; only the elements with good reproducibility, hence high reliability have been included.

Column 1: SPL NUM

F17	Laboratory identification number
M20	Laboratory identification number
272	Laboratory identification number

Column 2: HOLE

OB–11	Onslow Bay vibracore number 11.

Column 3: UNIT

HOL	Holocene
PLEIS	Pleistocene undifferentiated
FPS–2	Frying Pan Sequence 2 of the Pungo River Formation
FPS–1	Frying Pan Sequence 1 of the Pungo River Formation
OLIG	Oligocene Silverdale Formation

Column 4: TOP DEPTH

Depth in core is in meters below sediment-water interface to the top of the sample analyzed.

Column 5: BOT DEPTH

Depth in core is in meters below sediment-water interface to the bottom of the sample analyzed.

Column 6: LAT

Latitude location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 7: LONG

Longitude location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships.

Column 8: H2ODEPTH

Depth of water in meters at the sample site. There is a variability in these numbers that is a function of the tide, type of fathometer utilized, correction for transducer location on ship, etc.

CHEMICAL ANALYSES OF PHOSPHATE CONCENTRATES FROM METALLURGICAL TESTS

SPL NUM	HOLE	UNIT	LAT	LONG	TOP DEPTH	BOT DEPTH	LAB	P2O5 %	SIO2 %	FE2O3 %	AL2O3 %	CAO %	CO2 %	SO3 %	F2 %	C %	MGO %	NA2O %
L-188	L-188	HOL	.	.	0.00	0.00	IMC	15.74	.	.	.	46.29	19.20	.	.	.	2.01	.
L-205	L-205	HOL	.	.	0.00	0.00	IMC	16.91	.	.	.	46.10	19.20	.	.	.	1.26	.
L-208	L-208	HOL	.	.	0.00	0.00	IMC	6.66	.	.	.	45.70	29.80	.	.	.	1.94	.
L-925	L-925	HOL	.	.	0.00	0.00	IMC	7.93	.	.	.	43.52	26.44	.	.	.	1.37	.
L-932	L-932	HOL	.	.	0.00	0.00	IMC	7.13	.	.	.	45.31	28.44	.	.	.	1.76	.

SPL NUM	K2O %	FE %	INSOL %	AG PPM	AS PPM	BA PPM	CD PPM	CE PPM	CL PPM	CS PPM	CU PPM	FE PPM	LA PPM	MN PPM	NI PPM	PB PPM	RB PPM	SB PPM	SR PPM	TH PPM	TI PPM	U PPM	Y PPM	ZN PPM	ZR PPM
L-188	.	4.24	5.72	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
L-205	.	2.12	77.57	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
L-208	.	2.94	13.32	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
L-925	.	2.87	15.70	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
L-932	.	2.46	13.17	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Column 9: GRAIN TYPE

P	Phosphate peloidal grain
S	Phosphate skeletal grain
I	Phosphate intraclastic grain
M	Phosphate microsphoritic grain from an unconformity hardground surface

Columns 10 through 19

P2O5	%	P_2O_5 percent
CAO	%	CaO percent
SIO2	%	SiO_2 percent
MGO	%	MgO percent
FE2O3	%	Fe_2O_3 percent
AL2O3	%	Al_2O_3 percent
NA2O	%	Na_2O percent
K2O	%	K_2O percent
TIO2	%	TiO_2 percent
MNO	%	MnO percent

Column 20

SUM	Sum of percent oxides analyzed

Column 21 through 31

AS	PPM	Arsenic parts per million
CD	PPM	Cadmium parts per million
CO	PPM	Cobalt parts per million
CR	PPM	Chromium parts per million
CU	PPM	Copper parts per million
MO	PPM	Molybdenum parts per million
NI	PPM	Nickel parts per million
PB	PPM	Lead parts per million
SE	PPM	Selenium parts per million
V	PPM	Vanadium parts per million
ZN	PPM	Zinc parts per million

CHEMICAL ANALYSES OF HAND-PICKED CONCENTRATES OF PHOSPHATE GRAIN TYPES

SPL NUM	HOLE	UNIT	TOP DEPTH	BOT DEPTH	LAT	LONG	H2ODEPTH (M)	GRAIN TYPE	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %
F03	OB-11	FPS-1	0.75	1.50	33.868	77.578	25.0	S	31.3	52.4	3.40	0.460	0.37
F04	OB-11	FPS-1	0.75	1.50	33.868	77.578	25.0	I	28.0	48.0	8.19	0.600	0.77
F05	OB-11	FPS-1	0.75	1.50	33.868	77.578	25.0	P	30.0	52.4	4.07	0.630	0.45
F06	OB-14	FPS-1	1.25	1.75	33.861	77.565	28.0	S	31.2	53.5	1.82	0.410	0.25
F07	OB-14	FPS-1	1.25	1.75	33.861	77.565	28.0	I	28.2	46.5	5.07	0.710	0.56
F08	OB-14	FPS-1	1.25	1.75	33.861	77.565	28.0	P	29.0	48.5	4.13	0.790	0.37
F09	OB-14	FPS-1	3.25	3.75	33.861	77.565	28.0	S	30.4	49.7	3.13	0.470	0.26
F10	OB-14	FPS-1	3.25	3.75	33.861	77.565	28.0	I	27.7	45.9	7.12	0.631	0.49
F11	OB-14	FPS-1	3.25	3.75	33.861	77.565	28.0	P	28.0	47.1	4.16	0.740	0.38
F12	OB-14	FPS-1	4.25	4.85	33.861	77.565	28.0	S	29.9	51.1	2.62	0.410	0.35
F13	OB-14	FPS-1	4.25	4.85	33.861	77.565	28.0	I	29.2	50.0	6.75	0.600	0.72
F14	OB-14	FPS-1	4.25	4.85	33.861	77.565	28.0	P	28.6	47.0	5.19	0.670	0.47
F15	OB-18	HOL	0.50	0.50	33.728	77.671	24.5	P	29.7	45.6	3.21	0.870	1.59
F16	OB-19	HOL	0.25	0.25	33.728	77.688	23.0	P	28.1	32.8	2.14	0.880	1.68
F17	OB-20	FPS-1	6.00	6.10	33.753	77.613	24.5	P	27.4	45.1	5.37	0.660	0.52
F18	OB-20	FPS-1	6.00	6.10	33.753	77.613	24.5	P	27.3	46.9	5.63	0.690	0.53
F19	OB-20	FPS-1	6.00	6.10	33.753	77.613	24.5	P	28.0	46.0	6.85	0.690	0.55
F20	OB-21	PLEIS	0.25	0.25	33.771	77.626	24.0	P	27.1	43.3	5.14	0.830	1.12

SPL NUM	AL2O3 %	NA2O %	K2O %	TIO2 %	MNO %	SUM %	AS PPM	CD PPM	CO PPM	CR PPM	CU PPM	MO PPM	NI PPM	PB PPM	SE PPM	V PPM	ZN PPM
F03	0.18	1.32	0.047	0.017	0.0030	89.497	1	7	8	48	12	172	9	4	7	11	109
F04	0.71	1.45	0.189	0.086	0.0050	88.000	7	7	8	73	16	161	25	3	7	16	86
F05	0.55	1.50	0.106	0.073	0.0040	89.783	1	7	5	137	16	176	19	7	4	17	121
F06	0.12	1.32	0.033	0.016	0.0030	87.672	1	1	4	52	10	147	11	1	5	9	86
F07	0.49	1.65	0.113	0.056	0.0030	83.352	1	2	4	68	13	77	20	2	2	14	69
F08	0.51	1.81	0.102	0.034	0.0030	85.249	1	6	7	120	17	71	20	10	7	15	114
F09	0.19	1.44	0.045	0.027	0.0030	85.665	1	3	6	60	11	103	14	2	1	13	111
F10	0.60	0.77	0.160	0.071	0.0030	83.445	1	3	7	67	12	75	20	10	2	15	76
F11	0.51	1.61	0.091	0.048	0.0030	82.642	1	5	6	119	15	92	21	4	11	18	102
F12	0.22	1.28	0.059	0.030	0.0040	85.973	1	5	4	48	8	192	10	1	7	10	158
F13	0.83	1.57	0.192	0.090	0.0040	89.956	3	7	6	86	15	175	23	4	1	16	75
F14	0.59	1.45	0.111	0.059	0.0030	84.143	1	6	7	127	14	140	19	1	7	16	102
F15	0.49	1.48	0.107	0.066	0.0070	83.120	99	2	5	131	12	1	12	42	6	16	67
F16	0.49	1.49	0.106	0.070	0.0080	67.764	158	2	5	118	15	1	8	40	4	17	62
F17	0.49	1.51	0.120	0.109	0.0040	81.283	1	6	5	133	18	124	24	41	16	14	103
F18	0.52	1.54	0.121	0.107	0.0040	83.342	1	6	6	137	17	129	26	40	10	14	103
F19	0.52	1.52	0.121	0.121	0.0040	84.376	1	6	5	133	17	135	24	42	11	15	105
F20	0.47	1.47	0.107	0.077	0.0060	79.620	69	1	5	123	16	1	12	42	8	16	66

CHEMICAL ANALYSES OF HAND-PICKED CONCENTRATES OF PHOSPHATE GRAIN TYPES

SPL NUM	HOLE	UNIT	TOP DEPTH	BOT DEPTH	LAT	LONG	H2ODEPTH (M)	GRAIN TYPE	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
F21	OB-22	HOL	0.00	0.25	33.763	77.625	26	P	30.1	49.4	3.83	0.73	1.27	0.48
F22	OB-22	HOL	0.00	0.25	33.763	77.625	26	P	29.3	47.4	4.06	0.79	1.05	0.43
F23	OB-22	FPS-1	2.75	3.00	33.763	77.625	26	M	26.8	47.1	9.25	0.88	1.09	1.58
F24	OB-22	FPS-1	2.75	3.00	33.763	77.625	26	S	33.5	51.7	2.36	0.66	0.93	0.07
F25	OB-22	FPS-1	3.00	3.25	33.763	77.625	26	S	30.4	51.7	2.63	0.43	0.52	0.23
F26	OB-22	FPS-1	3.25	3.50	33.763	77.625	26	P	27.4	45.9	6.29	0.69	0.62	0.49
F27	OB-22	FPS-1	3.75	4.50	33.763	77.625	26	P	28.1	46.9	6.16	0.74	0.59	0.50
F28	OB-22	FPS-1	4.75	5.00	33.763	77.625	26	P	26.0	42.5	4.41	0.67	0.52	0.46
F29	OB-23	PLEIS	0.50	0.75	33.815	77.611	26	P	30.1	50.4	4.84	0.93	1.11	0.56
M20	OB-23	PLEIS	0.50	0.75	33.815	77.611	26	P	28.7	47.7	2.38	0.85	1.11	0.53
F30	OB-23	FPS-1	1.75	2.00	33.815	77.611	26	I	27.7	46.8	5.60	0.61	0.50	0.43
F31	OB-23	FPS-1	1.75	2.00	33.815	77.611	26	P	29.1	49.4	4.13	0.77	0.43	0.45
M21	OB-23	FPS-1	1.75	2.00	33.815	77.611	26	P	28.4	46.0	0.32	0.86	0.44	0.43
F32	OB-24	PLEIS	0.30	0.50	33.780	77.621	24	P	28.5	44.1	2.89	0.71	0.48	0.43
F33	OB-24	PLEIS	0.30	0.50	33.780	77.621	24	I	28.2	46.6	3.30	0.67	0.63	0.38
F34	OB-24	FPS-1	0.30	1.50	33.780	77.621	24	P	28.6	49.1	2.35	0.74	0.45	0.44
F35	OB-24	FPS-1	0.30	1.50	33.780	77.621	24	P	28.8	48.9	2.50	0.76	0.49	0.44
F36	OB-24	FPS-1	0.30	1.50	33.780	77.621	24	P	28.4	47.7	2.59	0.75	0.49	0.43

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	AS PPM	CD PPM	CO PPM	CR PPM	CU PPM	MO PPM	NI PPM	PB PPM	SE PPM	V PPM	ZN PPM
F21	1.70	0.134	0.079	0.0110	87.734	38	1.000	8	130	22	89	10	13	7	18	48
F22	1.53	0.099	0.080	0.0080	84.747	56	2.000	8	126	22	5	9	12	7	17	54
F23	1.85	0.356	0.126	0.0060	89.038	40	2.000	8	82	7	107	11	19	7	29	33
F24	1.77	0.072	0.004	0.0150	91.081	1	2.000	8	30	3	316	3	5	2	11	40
F25	1.46	0.077	0.027	0.0090	87.483	1	4.000	4	63	55	276	12	17	6	10	97
F26	1.43	0.126	0.131	0.0090	83.086	1	8.000	9	150	19	66	27	9	14	14	147
F27	1.59	0.110	0.115	0.0060	84.811	1	9.000	5	146	16	98	23	1	3	14	107
F28	1.43	0.100	0.102	0.0050	76.197	1	4.000	5	130	16	113	20	34	10	12	80
F29	1.56	0.131	0.067	0.0050	89.703	59	2.000	8	132	17	1	11	16	7	19	63
M20	1.68	0.230	0.117	0.0056	83.333	58	1.000	5	121	12	0	12	4	3	25	62
F30	1.58	0.140	0.050	0.0060	83.416	1	3.000	6	79	81	67	17	20	3	14	97
F31	1.59	0.103	0.460	0.0040	86.437	1	5.000	8	152	53	50	21	19	7	13	104
M21	1.66	0.230	0.043	0.0038	78.427	0	7.000	3	151	32	52	19	15	11	19	110
F32	1.54	0.088	0.043	0.0040	78.785	1	10.000	4	118	28	50	21	42	5	17	138
F33	1.54	0.101	0.044	0.0040	81.469	1	6.000	5	75	42	72	21	49	12	19	105
F34	1.53	0.085	0.047	0.0030	83.345	1	8.000	3	122	13	23	22	28	12	24	146
F35	1.53	0.089	0.049	0.0030	83.561	1	9.000	5	120	13	26	23	35	13	25	148
F36	1.50	0.087	0.045	0.0030	81.995	1	9.000	3	129	13	29	22	34	14	26	147

CHEMICAL ANALYSES OF HAND-PICKED CONCENTRATES OF PHOSPHATE GRAIN TYPES

SPL NUM	HOLE	UNIT	TOP DEPTH	BOT DEPTH	LAT	LONG	H2ODEPTH (M)	GRAIN TYPE	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
F37	OB-24	FPS-1	0.30	1.50	33.780	77.621	24.0	I	27.2	44.0	7.07	0.68	0.93	0.70
F38	OB-24	FPS-1	0.30	1.50	33.780	77.621	24.0	I	27.5	45.7	7.66	0.69	0.96	0.71
F39	OB-24	FPS-1	0.30	1.50	33.780	77.621	24.0	I	24.9	43.1	8.21	0.61	0.71	0.66
M17	OB-24	PLEIS	0.30	0.50	33.780	77.621	24.0	P	28.5	47.2	0.49	0.77	0.52	0.40
F40	OB-24	FPS-1	0.75	1.50	33.780	77.621	24.0	M	20.0	39.0	12.77	0.57	1.17	0.86
F41	OB-24	FPS-1	0.75	1.50	33.780	77.621	24.0	M	22.5	44.3	12.77	0.59	0.53	0.93
F42	OB-24	FPS-1	0.75	1.50	33.780	77.621	24.0	S	32.4	54.2	2.56	0.68	0.24	0.10
F43	OB-24	FPS-1	0.75	1.50	33.780	77.621	24.0	I	27.1	46.2	8.96	0.69	0.82	0.67
F44	OB-24	FPS-1	0.75	1.50	33.780	77.621	24.0	P	30.2	48.1	3.94	0.76	0.52	0.46
M18	OB-24	FPS-1	0.75	1.50	33.780	77.621	24.0	P	29.3	48.2	0.95	0.93	0.48	0.37
F45	OB-24	FPS-1	1.50	1.67	33.780	77.621	24.0	S	31.1	48.5	0.88	0.60	0.24	0.12
F46	OB-24	FPS-1	1.50	1.67	33.780	77.621	24.0	P	27.9	46.6	2.21	0.70	0.44	0.43
F47	OB-24	FPS-1	1.50	1.67	33.780	77.621	24.0	P	28.9	47.2	4.68	0.70	0.48	0.44
M19	OB-24	FPS-1	1.50	1.67	33.780	77.621	24.0	P	28.3	47.2	0.00	0.65	0.51	0.42
F48	OB-24	OLIG	1.70	2.70	33.780	77.621	24.0	M	21.8	38.5	12.77	0.43	0.55	1.02
F49	OB-25	HOL	0.50	0.50	33.846	77.585	25.0	P	27.9	46.4	3.19	0.79	1.14	0.51
F50	OB-25	FPS-1	1.25	1.50	33.846	77.585	25.0	P	28.3	47.0	2.55	0.73	0.62	0.46
F51	OB-26	FPS-1	1.75	2.50	33.843	77.560	28.0	S	31.5	52.9	3.14	0.53	0.27	0.16

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	AS PPM	CD PPM	CO PPM	CR PPM	CU PPM	MO PPM	NI PPM	PB PPM	SE PPM	V PPM	ZN PPM
F37	1.53	0.193	0.084	0.0030	82.390	2	3.000	5	87	12	142	34	39	16	37	85
F38	1.53	0.203	0.083	0.0030	85.039	2	3.000	5	88	15	152	36	41	13	38	87
F39	1.45	0.221	0.069	0.0030	79.933	1	2.000	5	71	18	193	22	38	10	29	69
M17	1.79	0.190	0.039	0.0034	79.872	0	10.000	3	125	27	34	23	10	14	24	145
F40	1.35	0.146	0.083	0.0030	75.952	17	4.000	5	13	9	376	47	42	13	71	62
F41	1.56	0.243	0.086	0.0040	83.513	12	2.000	7	68	24	239	27	6	4	49	48
F42	1.62	0.048	0.019	0.0030	91.870	1	2.000	7	44	8	93	10	2	7	14	78
F43	1.76	0.222	0.081	0.0030	86.506	14	3.000	7	80	14	212	30	8	1	34	73
F44	1.71	0.097	0.061	0.0030	85.851	1	10.000	5	148	17	94	25	9	16	29	141
M18	1.23	0.180	0.046	0.0026	81.729	16	10.000	5	136	13	113	25	0	35	32	141
F45	1.50	0.038	0.020	0.0030	83.001	1	3.000	4	54	13	103	11	28	10	16	97
F46	1.58	0.086	0.045	0.0030	79.994	1	7.000	5	122	16	89	19	31	12	24	143
F47	1.63	0.094	0.043	0.0300	84.197	1	8.000	5	138	22	101	22	2	13	27	137
M19	1.94	0.420	0.050	0.0029	79.483	0	8.000	3	136	17	78	24	0	15	33	137
F48	1.57	0.364	0.000	77.1590	48.000	62	0.151	9	18	2	53	6	12	13	7	468
F49	1.47	0.092	0.000	81.5590	58.000	16	0.063	13	30	2	116	5	10	37	7	1
F50	1.53	0.096	0.072	0.0040	81.362	5	4.000	5	123	23	118	17	44	13	15	97
F51	1.59	0.050	0.026	0.0030	90.169	1	2.000	4	47	8	107	10	2	5	11	90

CHEMICAL ANALYSES OF HAND-PICKED CONCENTRATES OF PHOSPHATE GRAIN TYPES

SPL NUM	HOLE	UNIT	TOP DEPTH	BOT DEPTH	LAT	LONG	H2ODEPTH (M)	GRAIN TYPE	P205 %	CAO %	SIO2 %	MGO %	FE203 %	AL203 %
F52	OB-26	FPS-1	1.75	2.50	33.843	77.560	28.0	I	29.1	48.3	6.52	0.680	0.86	0.51
F53	OB-26	FPS-1	1.75	2.50	33.843	77.560	28.0	P	29.7	48.4	5.56	0.740	0.49	0.53
M22	OB-26	FPS-1	1.75	2.50	33.843	77.560	28.0	P	28.7	47.3	3.76	0.850	0.48	0.47
F54	OB-26	FPS-1	3.25	4.25	33.843	77.560	28.0	M	26.9	46.1	9.65	0.680	0.70	0.82
F55	OB-26	FPS-1	3.25	4.25	33.843	77.560	28.0	S	31.1	52.0	2.60	0.500	0.37	0.20
F56	OB-26	FPS-1	3.25	4.25	33.843	77.560	28.0	I	28.9	47.4	6.80	0.650	0.70	0.68
F57	OB-26	FPS-1	3.25	4.25	33.843	77.560	28.0	P	29.4	48.0	4.03	0.660	0.41	0.46
M23	OB-26	FPS-1	3.25	4.25	33.843	77.560	28.0	P	28.5	47.3	0.11	0.820	0.39	0.37
F58	OB-29	PLEIS	1.25	1.50	33.873	77.535	26.5	P	29.3	50.3	5.75	0.720	0.76	0.55
M06	OB-29B	HOL	0.00	0.50	33.873	77.535	26.5	P	28.6	47.2	2.47	0.810	0.59	0.52
M07	OB-29B	PLEIS	1.25	1.50	33.873	77.535	26.5	P	27.6	44.8	2.56	0.790	0.76	0.45
M08	OB-29B	FPS-2	5.00	5.50	33.873	77.535	26.5	P	28.7	46.8	.	0.640	0.40	0.44
F59	OB-29B	FPS-1	7.00	7.25	33.873	77.535	26.5	S	30.6	49.7	1.48	0.490	0.27	0.15
F60	OB-29B	FPS-1	7.00	7.20	33.873	77.535	26.5	I	29.9	48.0	2.68	0.580	0.41	0.40
F61	OB-29B	FPS-1	7.00	7.20	33.873	77.535	26.5	P	28.5	47.4	3.24	0.650	0.40	0.49
M09	OB-29B	FPS-2	7.00	7.10	33.873	77.535	26.5	P	28.9	46.2	0.76	0.710	0.39	0.43
F62	OB-30	FPS-1	1.50	1.50	33.916	77.503	26.0	P	28.5	48.3	3.09	0.630	0.37	0.51
F63	OB-43	HOL	0.00	0.00	34.353	76.958	25.0	P	28.4	47.5	4.50	0.880	1.62	0.48

SPL NUM	NA20 %	K20 %	TIO2 %	MNO %	SUM %	AS PPM	CD PPM	CO PPM	CR PPM	CU PPM	MO PPM	NI PPM	PB PPM	SE PPM	V PPM	ZN PPM
F52	1.89	0.157	0.063	0.0040	88.084	1	3.000	7	69	17	84	25	9	2	14	75
F53	1.63	0.116	0.100	0.0030	87.269	1	4.000	5	139	16	106	21	7	7	16	92
M22	1.81	0.210	0.079	0.0031	83.602	3	5.000	4	138	14	101	25	6	22	22	93
F54	1.82	0.216	0.093	0.0040	86.983	8	2.000	8	66	12	183	19	9	9	16	63
F55	1.71	0.069	0.029	0.0030	88.581	1	5.000	4	49	9	343	15	2	7	9	96
F56	1.88	0.181	0.083	0.0030	87.277	1	6.000	5	82	15	203	23	2	7	14	83
F57	0.41	0.099	0.067	0.0030	83.539	1	7.000	4	133	16	204	20	2	4	14	117
M23	1.18	0.210	0.049	0.0027	78.942	3	8.000	5	125	12	226	21	0	23	18	121
F58	1.60	0.142	0.098	0.0040	89.224	1	9.000	9	154	18	12	24	9	7	12	130
M06	1.66	0.210	0.000	82.1290	127.000	17	0.085	21	0	8	152	4	22	8	5	5
M07	1.13	0.220	0.110	0.0042	78.334	13	10.000	6	141	13	45	21	0	22	16	129
M08	1.89	0.200	0.045	0.0026	.	0	5.000	3	122	20	87	20	2	15	20	19
F59	1.41	0.037	0.031	0.0040	84.172	1	4.000	4	45	15	140	12	27	5	10	92
F60	1.56	0.092	0.490	0.0030	84.115	1	3.000	5	67	19	83	18	31	5	13	84
F61	1.59	0.085	0.054	0.0030	82.412	1	5.000	5	115	15	77	19	32	12	14	94
M09	1.58	0.180	0.050	0.0026	79.193	0	6.000	3	115	15	63	19	6	4	20	104
F62	1.44	0.084	0.055	0.0030	82.982	1	10.000	5	104	26	13	19	36	5	19	167
F63	1.58	0.130	0.000	85.1470	56.000	17	0.049	14	198	1	134	6	12	6	1	1

CHEMICAL ANALYSES OF HAND-PICKED CONCENTRATES OF PHOSPHATE GRAIN TYPES

SPL NUM	HOLE	UNIT	TOP DEPTH	BOT DEPTH	LAT	LONG	H2ODEPTH (M)	GRAIN TYPE	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
F64	OB-64	HOL	0.30	0.54	33.805	77.630	20.1	P	28.0	45.9	2.36	0.880	1.52	0.51
F65	OB-64	HOL	0.30	0.54	33.805	77.630	20.1	P	28.6	47.2	2.78	0.810	1.57	0.52
M01	OB-64	PLEIS	1.00	1.25	33.805	77.630	20.1	P	28.9	47.8	1.49	0.670	1.27	0.43
F66	OB-64	FPS-1	3.38	3.50	33.805	77.630	20.1	P	29.8	46.6	3.75	0.730	0.66	0.47
M02	OB-64	FPS-1	3.38	3.50	33.805	77.630	20.1	P	27.3	44.9	2.32	0.670	0.66	0.45
F67	OB-64	FPS-1	4.00	4.50	33.805	77.630	20.1	P	27.6	47.2	3.13	0.720	0.48	0.45
M03	OB-64	FPS-1	4.00	4.50	33.805	77.630	20.1	P	29.3	48.4	1.94	0.720	0.51	0.44
F68	OB-64	FPS-1	4.70	5.45	33.805	77.630	20.1	I	27.9	48.2	8.02	0.580	0.59	0.49
F69	OB-64	FPS-1	4.70	5.45	33.805	77.630	20.1	P	30.0	49.3	5.10	0.790	0.49	0.50
M04	OB-64	FPS-1	4.75	5.45	33.805	77.630	20.1	P	29.8	47.3	1.73	0.810	0.45	0.44
F70	OB-64	FPS-1	5.50	5.80	33.805	77.630	20.1	I	28.9	46.1	3.39	0.630	0.46	0.38
F71	OB-64	FPS-1	5.50	5.80	33.805	77.630	20.1	S	31.4	49.5	1.38	0.630	0.24	0.15
F72	OB-64	FPS-1	5.50	5.80	33.805	77.630	20.1	P	28.0	46.0	4.95	0.700	0.48	0.49
F73	OB-64	FPS-1	5.50	5.80	33.805	77.630	20.1	P	27.8	45.5	4.64	0.700	0.47	0.49
F74	OB-64	FPS-1	5.50	5.80	33.805	77.630	20.1	P	28.5	43.7	4.72	0.700	0.48	0.51
M05	OB-64	FPS-1	5.50	5.80	33.805	77.630	20.1	P	29.0	47.7	1.37	0.870	0.44	0.43
M33	OB-64	FPS-1	6.00	6.25	33.805	77.630	20.1	P	27.8	44.9	5.22	0.720	0.42	0.42
F75	OB-78	PLEIS	0.10	0.10	33.723	77.651	19.5	P	28.2	43.1	2.49	0.860	1.70	0.44

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	AS PPM	CD PPM	CO PPM	CR PPM	CU PPM	MO PPM	NI PPM	PB PPM	SE PPM	V PPM	ZN PPM
F64	1.49	0.091	0.089	0.0080	80.848	54	1.000	6	119	12	1	11	41	10	21	63
F65	1.41	0.090	0.098	0.0080	83.086	56	1.000	6	119	12	1	11	44	2	22	65
M01	1.80	0.240	0.094	0.0095	82.693	26	1.000	5	124	13	68	7	10	3	19	44
F66	1.49	0.104	0.070	0.0060	83.680	1	6.000	4	132	42	189	19	67	4	13	118
M02	1.79	0.220	0.063	0.0056	78.389	0	7.000	2	135	40	138	19	25	10	21	121
F67	1.45	0.094	0.073	0.0060	81.203	1	8.000	5	131	15	41	20	34	9	13	131
M03	1.76	0.230	0.075	0.0058	83.381	0	9.000	0	130	12	31	21	0	10	14	140
F68	1.61	0.153	0.057	0.0040	87.604	1	2.000	5	67	13	125	23	2	5	20	85
F69	1.58	0.111	0.084	0.0050	87.960	1	10.000	5	142	17	86	24	1	2	16	137
M04	1.73	0.200	0.055	0.0041	82.559	0	9.000	4	130	15	46	21	4	8	21	134
F70	1.45	0.094	0.057	0.0050	81.466	1	4.000	5	70	23	96	19	35	5	14	114
F71	1.41	0.048	0.028	0.0050	84.791	1	4.000	5	13	17	96	13	27	5	12	114
F72	1.43	0.104	0.080	0.0050	82.239	1	9.000	5	130	15	80	23	39	15	15	142
F73	1.43	0.113	0.087	0.0050	81.235	1	9.000	5	128	15	82	23	34	15	15	139
F74	1.48	0.111	0.091	0.0050	80.297	1	10.000	5	131	16	86	21	37	12	15	141
M05	1.63	0.190	0.047	0.0043	81.721	0	10.000	4	137	16	68	23	7	21	22	155
M33	1.18	0.220	0.071	0.0034	80.904	6	6.000	7	120	13	141	20	0	17	20	110
F75	1.48	0.086	0.056	0.0080	78.420	141	1.000	5	124	14	1	9	37	3	17	51

CHEMICAL ANALYSES OF HAND-PICKED CONCENTRATES OF PHOSPHATE GRAIN TYPES

SPL NUM	HOLE	UNIT	TOP DEPTH	BOT DEPTH	LAT	LONG	H2ODEPTH (M)	GRAIN TYPE	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
F76	OB-78	PLEIS	0.10	0.10	33.723	77.651	19.5	P	27.2	46.1	2.52	0.870	1.74	0.44
F77	OB-98	HOL	0.75	1.00	33.783	77.635	25.3	P	28.4	47.3	2.95	0.870	1.33	0.49
251	OB-104	FPS-1	6.50	6.75	34.006	77.440	29.5	P	28.7	47.8	2.47	0.607	0.39	0.56
272	OB-104	FPS-1	6.50	6.75	34.006	77.440	29.5	I	27.3	44.9	4.85	0.567	0.44	0.60
257	OB-114	FPS-1	6.50	6.75	33.645	77.696	20.4	P	25.8	42.5	6.47	0.638	0.51	0.45
265	OB-114	FPS-1	6.50	6.75	33.645	77.696	20.4	I	25.0	41.1	.	0.589	1.02	0.71
253	OB-114	FPS-1	7.00	7.25	33.645	77.696	20.4	P	27.3	45.1	5.21	0.669	0.48	0.47
266	OB-114	FPS-1	7.00	7.25	33.645	77.696	20.4	I	26.0	43.7	5.33	0.545	0.77	0.44
261	OB-114	FPS-1	7.25	7.50	33.645	77.696	20.4	P	27.3	45.7	6.53	0.660	0.50	0.49
254	OB-115	FPS-1	5.50	5.75	33.711	77.660	24.2	P	27.7	45.1	3.97	0.656	0.51	0.44
273	OB-115	FPS-1	5.50	5.75	33.711	77.660	24.2	I	26.5	42.9	5.22	0.564	1.01	0.52
259	OB-115	FPS-1	6.00	6.25	33.711	77.660	24.2	P	27.7	45.4	4.21	0.654	0.48	0.46
271	OB-115	FPS-1	6.00	6.25	33.711	77.660	24.2	I	27.3	42.4	6.02	0.538	1.25	0.40
250	OB-115	FPS-1	6.50	6.75	33.711	77.660	24.2	P	27.6	45.9	4.44	0.649	0.48	0.46
268	OB-115	FPS-1	6.50	6.75	33.711	77.660	24.2	I	25.6	41.3	7.62	0.542	2.21	0.54
252	OB-115	FPS-1	7.00	7.30	33.711	77.660	24.2	P	27.3	45.0	4.95	0.651	0.47	0.49
267	OB-115	FPS-1	7.00	7.30	33.711	77.660	24.2	I	26.0	43.7	7.05	0.602	1.29	0.69
262	OB-120	FPS-1	4.25	4.50	33.795	77.588	23.4	P	26.8	44.2	2.68	0.629	0.51	0.39

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	AS PPM	CD PPM	CO PPM	CR PPM	CU PPM	MO PPM	NI PPM	PB PPM	SE PPM	V PPM	ZN PPM
F76	1.47	0.087	0.061	0.0080	80.526	140	1.000	5	125	13	1	8	41	7	17	79
F77	1.45	0.100	0.000	82.9660	65.000	16	0.068	13	52	1	126	5	11	37	7	1
251	1.54	.	0.052	0.0050	.	3	5.000	14	96	2	44	21	2	2	15	75
272	1.41	.	0.074	0.0050	.	9	5.000	22	58	3	48	18	5	4	16	79
257	1.36	.	0.067	0.0050	.	11	8.000	15	119	3	91	20	3	11	14	92
265	1.38	.	0.086	0.0050	.	42	3.000	23	87	3	163	34	4	13	26	57
253	1.41	.	0.050	0.0050	.	9	6.000	14	120	2	110	20	0	6	14	94
266	.	1.344	0.056	0.0050	.	30	4.000	20	66	3	168	33	2	12	20	62
261	1.44	.	0.075	0.0050	.	12	7.000	14	118	3	135	28	2	10	17	100
254	1.40	.	0.061	0.0050	.	9	11.000	16	118	3	103	20	1	11	19	136
273	1.09	.	0.050	0.0270	.	32	2.000	20	70	4	144	27	4	12	23	74
259	1.49	.	0.077	0.0050	.	8	13.000	16	126	3	115	23	1	12	20	157
271	1.19	.	0.050	0.0040	.	38	4.000	21	61	3	247	32	5	15	19	88
250	1.46	.	0.067	0.0040	.	7	15.000	15	127	3	108	23	0	10	18	163
268	1.42	.	0.066	0.0040	.	53	4.000	24	70	4	473	38	10	20	20	90
252	1.44	.	0.069	0.0040	.	9	14.000	17	126	3	133	24	2	17	18	158
267	1.34	.	0.074	0.0040	.	48	4.000	25	72	4	506	37	8	14	28	80
262	1.33	.	0.053	0.0050	.	11	8.000	15	112	3	247	35	2	16	21	183

CHEMICAL ANALYSES OF HAND-PICKED CONCENTRATES OF PHOSPHATE GRAIN TYPES

SPL NUM	HOLE	UNIT	TOP DEPTH	BOT DEPTH	LAT	LONG	H2ODEPTH (M)	GRAIN TYPE	P2O5 %	CAO %	SIO2 %	MGO %	FE2O3 %	AL2O3 %
260	OB-120	FPS-1	4.75	5.00	33.795	77.588	23.4	P	27.3	45.7	3.34	0.635	0.52	0.45
269	OB-120	FPS-1	4.75	5.00	33.795	77.588	23.4	I	24.2	41.1	7.05	0.545	1.60	0.53
255	OB-120	FPS-1	5.50	5.75	33.795	77.588	23.4	P	28.2	45.6	2.45	0.668	0.40	0.43
270	OB-120	FPS-1	5.50	5.75	33.795	77.588	23.4	I	26.4	44.2	4.46	0.532	0.68	0.39
256	OB-120	FPS-1	5.75	6.00	33.795	77.588	23.4	P	27.8	45.4	2.26	0.585	0.35	0.35
263	OB-120	FPS-1	5.75	6.00	33.795	77.588	23.4	I	24.9	41.6	.	0.543	0.72	0.62
263	OB-120	FPS-1	5.75	6.00	33.795	77.588	23.4	I	25.7	41.4	8.16	0.537	0.68	0.55
258	OB-120	FPS-1	6.50	6.75	33.795	77.588	23.4	P	27.5	46.1	3.02	0.614	0.55	0.50
264	OB-120	FPS-1	6.50	6.75	33.795	77.588	23.4	I	25.3	42.0	7.38	0.544	0.78	0.61
F01	OBS-1	HOL	0.00	0.00	34.436	76.936	.	M	27.4	45.4	6.64	0.730	2.80	0.77
F02	OBS-1	HOL	0.00	0.00	34.436	76.936	.	M	28.2	47.9	8.00	0.960	2.90	1.07

SPL NUM	NA2O %	K2O %	TIO2 %	MNO %	SUM %	AS PPM	CD PPM	CO PPM	CR PPM	CU PPM	MO PPM	NI PPM	PB PPM	SE PPM	V PPM	ZN PPM
260	1.40	.	0.080	0.0040	.	11	9.000	16	123	3	152	23	1	11	16	114
269	1.02	.	0.051	0.0040	.	79	4.000	16	55	3	.	28	5	10	9	67
255	1.44	.	0.041	0.0030	.	4	11.000	15	119	3	96	22	2	9	16	141
270	1.29	.	0.046	0.0030	.	18	4.000	23	60	2	140	24	2	8	18	83
256	1.13	.	0.041	0.0030	.	1	12.000	14	101	3	88	19	0	7	13	139
263	1.30	.	0.061	0.0040	.	19	4.000	20	63	2	214	22	9	8	23	66
263	1.11	.	0.055	0.0030	.	17	4.000	18	60	2	185	21	5	12	21	65
258	1.32	.	0.053	0.0033	.	8	10.000	16	111	2	187	24	0	2	16	135
264	1.01	.	0.063	0.0030	.	25	4.000	17	60	4	234	24	13	13	19	67
F01	1.24	0.184	0.091	0.0190	85.274	74	2.000	9	62	1	234	14	49	5	49	37
F02	1.29	0.259	0.084	0.0240	90.687	129	3.000	13	97	10	169	21	16	10	66	58

GEOLOGIC LOGS OF MIOCENE-BEARING VIBRACORES

This data file presents the geologic logs for vibracores obtained in Onslow Bay, North Carolina during the Onslow Bay research project. All vibracores that have a Miocene section are included and are located on Figure 3. However, not all vibracores have a Miocene section nor do all of the cores presented have a Miocene section. A stratigraphic summary of all vibracores is presented in the data section entitled *Stratigraphic Units Occurring in Vibracores*.

The unedited logs have been copied directly from the originals and are presented as described by the person who logged the core. Consequently, there have been no grammatical corrections or changes to develop uniformity between the logs. The logs summarize the lithostratigraphic descriptions and present the stratigraphic unit assignments based upon the most recent core interpretations utilizing biostratigraphy (Scott W. Snyder, 1988; 1990), seismic-stratigraphy (Stephen W. Snyder, 1982; Stephen W. Snyder and others, 1982, 1990), lithofacies analysis (Riggs, 1984; Riggs and others, 1985, 1990; Riggs and Mallette, 1990), and ongoing isotopic analysis and radiometric age-dating (Stille and others, in press) and as summarized in Riggs and Ames (1992).

The logs are presented in numerical order. If a core number is missing in the log sequence, check the section entitled *Stratigraphic Units Occurring in Vibracores* for the status of that particular core. Many cores that only contain Pleistocene or Oligocene sediments have not been included in this publication. The key for the vibracore information, geologic log, and associated data provided on each log is as follows.

ONSLOW BAY CORE NUMBER:
OB-1 Onslow Bay vibracore number 1.

CRUISE:
National Science Foundation: Onslow Bay Research Project.

LENGTH ATTEMPTED:
Length of vibracore attempted in meters.

LENGTH OF CORE:
Length of core recovered in meters. Length of core is commonly longer than length attempted due to high organic content and unique clay mineral compositions of the Miocene section resulting in core expansion of the Miocene sediments.

DATE LOGGED:
Date that vibracore was described and logged.

BY:
Geologist that logged the vibracore.

LATITUDE:
Location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships. Latitude is presented in three different formats:
1) 34.865 degrees
2) 34d 51.9'

LONGITUDE:

Location in decimal degrees is derived by calculation from Loran C navigational system. Thus, there is a certain variability in utilizing different navigational systems on different ships. Longitude is presented in three different formats:

1) 77.787 degrees
2) 77d 47.2'

CHEMICAL DATA:

Only chemical data for a few representative samples, primarily of the Miocene section, are presented on the lithologic logs. These chemical data are for total sediment with only 6 major elements presented; all sample data for all elements analyzed are presented in the data tables in the section entitled *Chemical Data for Vibracore and Surface Bulk-Sediment samples* Notice that the histogram scales on the logs are different for each element as outlined below.

P2O5	P_2O_5 percent;	scale width = 0% on left to 30% on right.
CaO	CaO percent;	scale width = 0% on left to 60% on right.
SiO2	SiO_2 percent;	scale width = 0% on left to 100% on right.
MgO	MgO percent;	scale width = 0% on left to 10% on right.
Fe2O3	Fe_2O_3 percent;	scale width = 0% on left to 10% on right.
Al2O3	Al_2O_3 percent;	scale width = 0% on left to 15% on right.

AGE:

Holocene	Modern shelf sand, gravelly sand, and gravel
Pleistocene	Undifferentiated
Miocene	Pungo River Formation
Oligocene	Silverdale Formation

UNIT:

Stratigraphic units of the Miocene Pungo River Formation from oldest at the base to youngest at the top:

Bogue Banks Sequences
- BBS–8
- BBS–7
- BBS–6
- BBS–5
- BBS–4
- BBS–3
- BBS–2
- BBS–1

Onslow Bay Sequences
- OBS–U (Undifferentiated)*
- OBS–4
- OBS–3
- OBS–2
- OBS–1

Frying Pan Sequences
- FPS–6
- FPS–5
- FPS–4

FPS–3
FPS–2
FPS–1

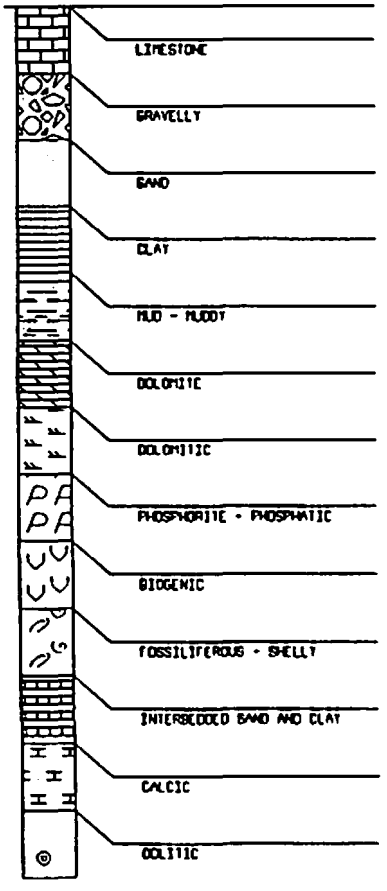
* Where data are insufficient to identify the specific OBS sequence, it is listed as "OBS-U".

DEPTH:

Depth in meters from the top of the core and the sediment-water interface.

LITHOLOGY:

The general lithologic patterns utilized in the logs are outlined below.

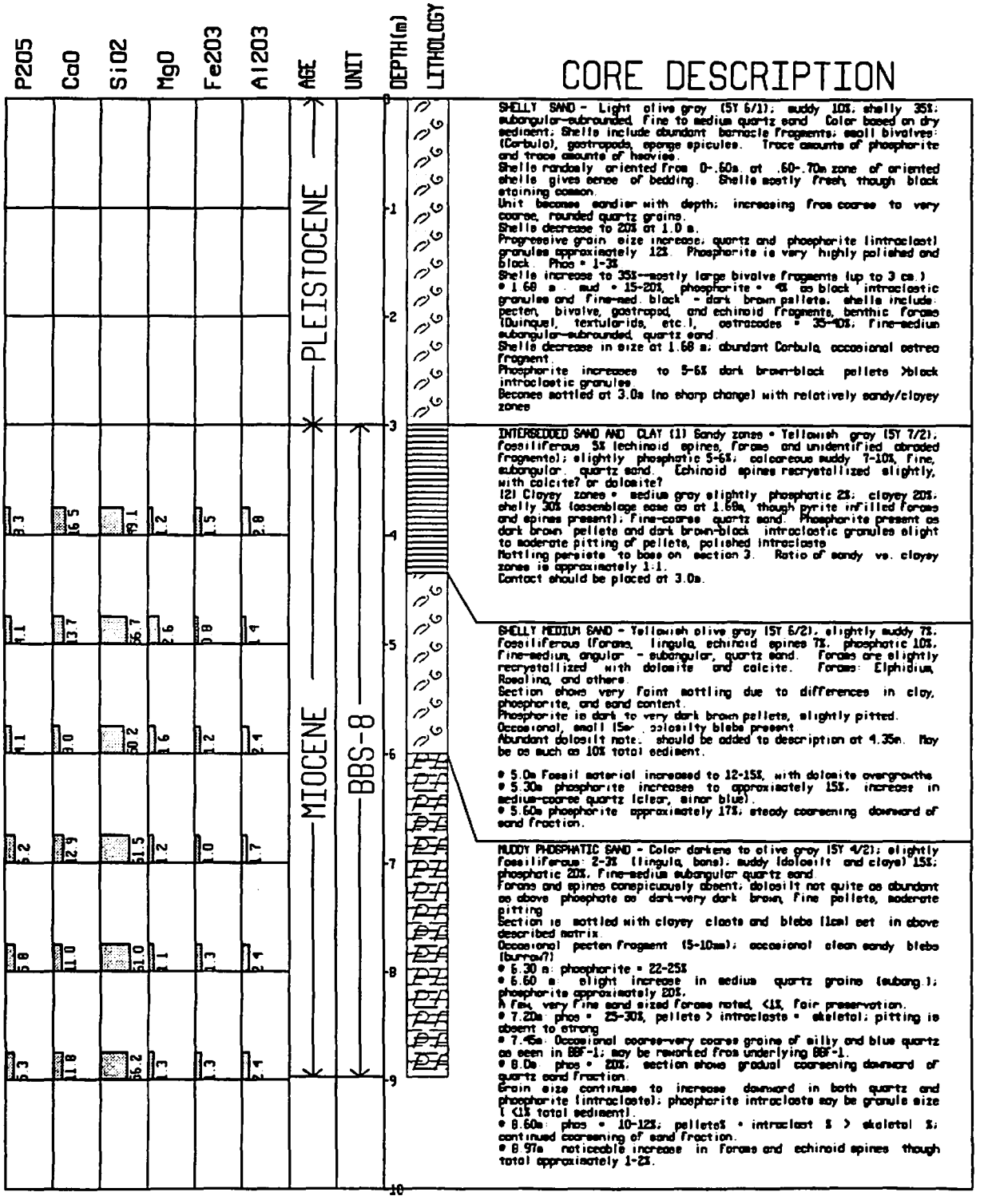


CORE DESCRIPTION:

An unedited description of the sediments is presented by major lithologic units.

ONSLOW BAY CORE NUMBER: OB-1

CRUISE: NSF O. BAY DATE LOGGED: 5-8-84 LATITUDE: 34.640
LENGTH ATTEMPTED: 8.6 BY: P. MALLETTE LONGITUDE: 76.768
LENGTH OF CORE: 8.97



CORE DESCRIPTION

SHELLY SAND - Light olive gray (5Y 6/1); muddy 10%, shelly 35%; subangular-subrounded, fine to medium quartz sand. Color based on dry sediment; Shells include abundant barnacle fragments; small bivalves: (Corbula), gastropods, sponge spicules. Trace amounts of phosphorite and trace amounts of heavies.
Shells randomly oriented from 0-.60m, at .60-.70m zone of oriented shells gives sense of bedding. Shells mostly fresh, though black staining common.
Unit becomes sandier with depth; increasing from coarse to very coarse, rounded quartz grains.
Shells decrease to 20% at 1.0 m.
Progressive grain size increase; quartz and phosphorite (intraclast) granules approximately 12%. Phosphorite is very highly polished and black. Phos = 1-3%
Shells increase to 35%--mostly large bivalve fragments (up to 3 cm.)
@ 1.68 m. mud = 15-20%, phosphorite = 4% as black intraclastic granules and fine-med. black - dark brown pellets. shells include: pecten, bivalve, gastropod, and echinoid fragments, benthic forams (Quinqueloculina, textularids, etc.), cetracodes = 35-40%; fine-medium subangular-subrounded, quartz sand.
Shells decrease in size at 1.68 m; abundant Corbula, occasional ostrea fragment.
Phosphorite increases to 5-6% dark brown-black pellets >black intraclastic granules.
Becomes mottled at 3.0m (no sharp change) with relatively sandy/clayey zones.

INTERBEDDED SAND AND CLAY (1) Sandy zones = Yellowish gray (5Y 7/2); fossiliferous 5% (echinoid spines, forams and unidentified abraded fragments); slightly phosphatic 5-6%; calcareous muddy 7-10%, fine, subangular quartz sand. Echinoid spines recrystallized slightly, with calcite? or dolomite?
(2) Clayey zones = medium gray slightly phosphatic 2%; clayey 20%, shelly 30% (assemblage same as at 1.68m, though pyrite infilled forams and spines present); fine-coarse quartz sand. Phosphorite present as dark brown pellets and dark brown-black intraclastic granules slight to moderate pitting of pellets, polished intraclasts.
Mottling persists to base on section 3. Ratio of sandy vs. clayey zones is approximately 1:1.
Contact should be placed at 3.0m.

SHELLY MEDIUM SAND - Yellowish olive gray (5Y 6/2), slightly muddy 7%. fossiliferous (forams, lingula, echinoid spines 7%, phosphatic 10%, fine-medium, angular - subangular, quartz sand. Forams are slightly recrystallized with dolomite and calcite. Forams: Elphidium, Rosalina, and others.
Section shows very faint mottling due to differences in clay, phosphorite, and sand content.
Phosphorite is dark to very dark brown pellets, slightly pitted.
Occasional, small (5mm) dolosilt blebs present.
Abundant dolosilt note: should be added to description at 4.35m. May be as much as 10% total sediment.

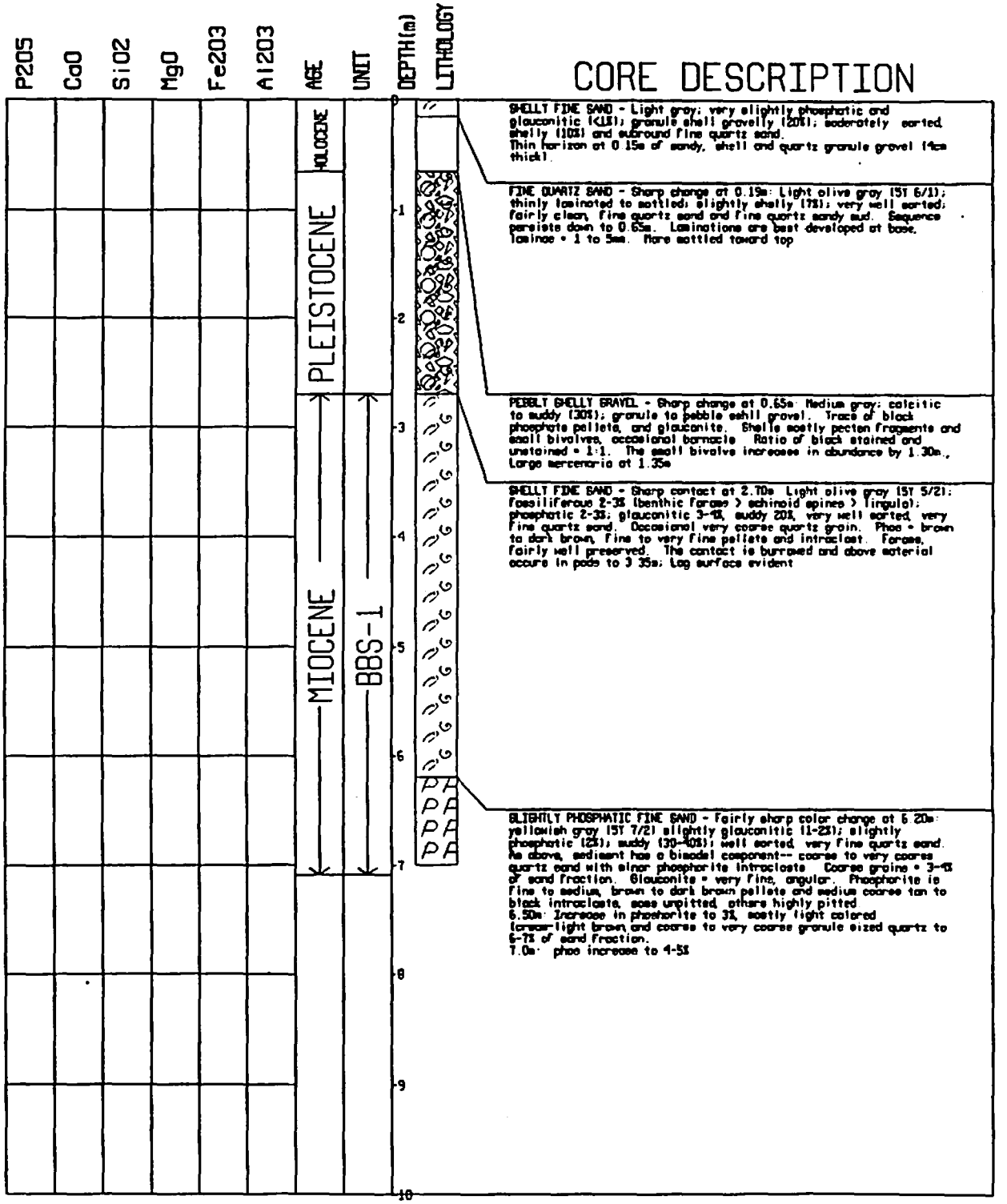
- 5.0m Fossil material increased to 12-15%, with dolomite overgrowths.
- 5.30m phosphorite increases to approximately 15%, increase in medium-coarse quartz (clear, minor blue).
- 5.60m phosphorite approximately 17%; steady coarsening downward of sand fraction.

MUDDY PHOSPHATIC SAND - Color darkens to olive gray (5Y 4/2); slightly fossiliferous 2-3% (lingula, bone); muddy (dolosilt and clay) 15%; phosphatic 20%. Fine-medium subangular quartz sand.
Forams and spines conspicuously absent; dolosilt not quite as abundant as above phosphate as dark-very dark brown, fine pellets, moderate pitting.
Section is mottled with clayey clasts and blebs (local set in above described matrix.
Occasional pecten fragment (5-10mm); occasional clean sandy blebs (burrow?)
- 6.30 m: phosphorite = 22-25%
- 6.60 m: slight increase in medium quartz grains (subang.); phosphorite approximately 20%.
A few, very fine sand sized forams noted, <1%, fair preservation.
- 7.20m: phos = 25-30%, pellets > intraclasts = skeletal; pitting is absent to strong.
- 7.45m: Occasional coarse-very coarse grains of milky and blue quartz as seen in BBF-1; may be reworked from underlying BBF-1.
- 8.0m: phos = 20%, section shows gradual coarsening downward of quartz sand fraction.

Grain size continues to increase downward in both quartz and phosphorite (intraclasts); phosphorite intraclasts may be granule size (<1% total sediment).
- 8.60m: phos = 10-12%; pellets% = intraclast % > skeletal %; continued coarsening of sand fraction.
- 8.97m noticeable increase in forams and echinoid spines though total approximately 1-2%.

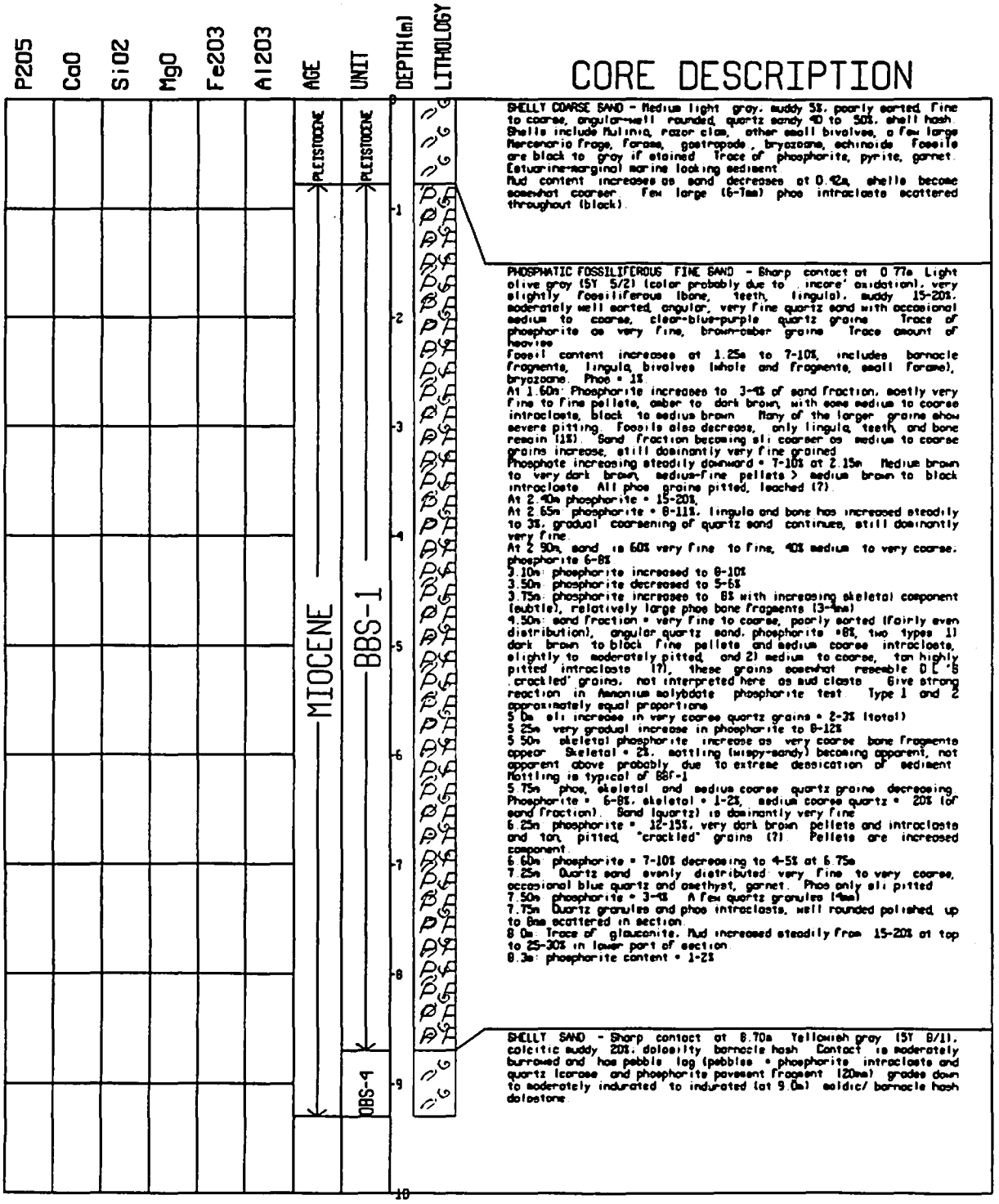
ONSLOW BAY CORE NUMBER: OB-2

CRUISE: NSF O. BAY DATE LOGGED: 3-25-84 LATITUDE: 34d 38'
LENGTH ATTEMPTED: 6.96 BY: P. MALLETTE LONGITUDE: 76d 51.9'
LENGTH OF CORE: 7.09



ONSLOW BAY CORE NUMBER: OB3

CRUISE: NSF N. O.BAY DATE LOGGED: 2-9-84 LATITUDE: 34.628 degrees
LENGTH ATTEMPTED: 6.7 m BY: P. MALLETTE LONGITUDE: 76.890 degrees
LENGTH OF CORE: 9.30 m



CORE DESCRIPTION

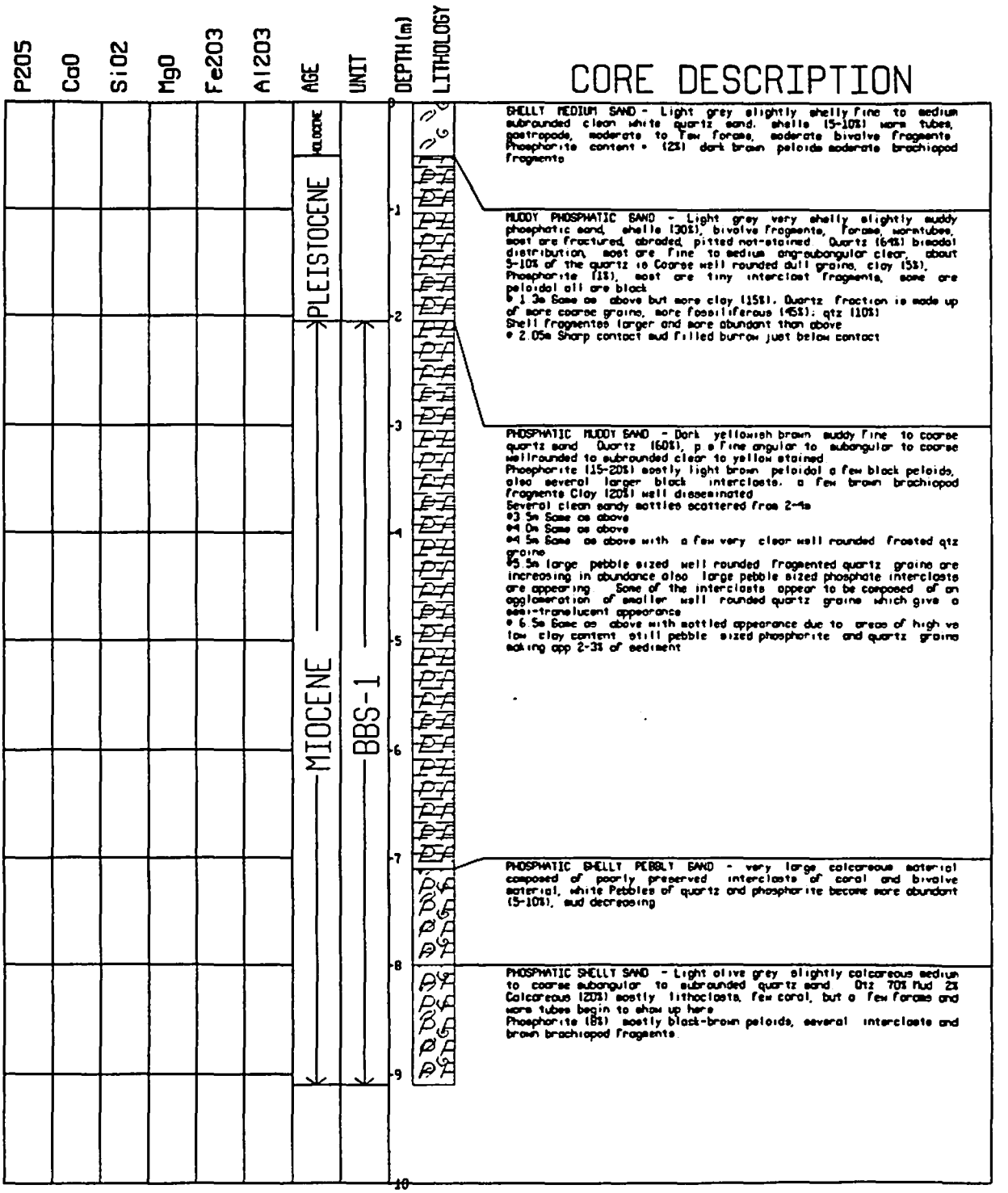
SHELLY COARSE SAND - Medium light gray, muddy 5%, poorly sorted, fine to coarse, angular-well rounded, quartz sandy 40 to 50%, shell hash. Shells include Mulinia, razor clam, other small bivalves, a few large Mercenaria frags, Forams, gastropods, bryozoans, echinoids. Fossils are black to gray if stained. Trace of phosphorite, pyrite, garnet. Estuarine-marginal marine looking sediment.
Mud content increases as sand decreases at 0.42m, shells become somewhat coarser. Few large (6-7mm) phos intraclasts scattered throughout (black).

PHOSPHATIC FOSSILIFEROUS FINE SAND - Sharp contact at 0.77m. Light olive gray (5Y 5/2) (color probably due to 'incore' oxidation), very slightly fossiliferous (bone, teeth, lingula), muddy 15-20%, moderately well sorted, angular, very fine quartz sand with occasional medium to coarse, clear-blue-purple quartz grains. Trace of phosphorite as very fine, brown-amber grains. Trace amount of heavies.
Fossil content increases at 1.25m to 7-10%, includes barnacle fragments, lingula, bivalves (whole and fragments, small forams), bryozoans. Phos = 1%
At 1.60m: Phosphorite increases to 3-4% of sand fraction, mostly very fine to fine pellets, amber to dark brown, with some medium to coarse intraclasts, black to medium brown. Many of the larger grains show severe pitting. Fossils also decrease, only lingula, teeth, and bone remain (1%). Sand fraction becoming slightly coarser as medium to coarse grains increase, still dominantly very fine grained.
Phosphate increasing steadily downward = 7-10% at 2.15m. Medium brown to very dark brown, medium-fine pellets > medium brown to black intraclasts. All phos grains pitted, leached (?).
At 2.40m phosphorite = 15-20%.
At 2.65m phosphorite = 8-11%. Lingula and bone has increased steadily to 3%, gradual coarsening of quartz sand continues, still dominantly very fine.
At 2.90m, sand is 60% very fine to fine, 40% medium to very coarse, phosphorite 6-8%.
3.10m: phosphorite increased to 8-10%.
3.50m: phosphorite decreased to 5-6%.
3.75m: phosphorite increases to 8% with increasing skeletal component (subtle), relatively large phos bone fragments (3-4mm).
4.50m: sand fraction = very fine to coarse, poorly sorted (fairly even distribution), angular quartz sand, phosphorite =8%, two types 1) dark brown to black fine pellets and medium coarse intraclasts, slightly to moderately pitted, and 2) medium to coarse, tan highly pitted intraclasts (?), these grains somewhat resemble O.L.'s 'cracked' grains, not interpreted here as mud clasts. Give strong reaction in Ammonium molybdate phosphorite test. Type 1 and 2 approximately equal proportions.
5.0m: slight increase in very coarse quartz grains = 2-3% (total).
5.25m: very gradual increase in phosphorite to 8-12%.
5.50m: skeletal phosphorite increase as very coarse bone fragments appear. Skeletal = 2%. mottling (wispy-sandy) becoming apparent, not apparent above probably due to extreme dessication of sediment. Mottling is typical of BBF-1.
5.75m: phos, skeletal and medium coarse quartz grains decreasing. Phosphorite = 6-8%, skeletal = 1-2%, medium coarse quartz = 20% (of sand fraction). Sand (quartz) is dominantly very fine.
6.25m: phosphorite = 12-15%, very dark brown pellets and intraclasts and tan, pitted, "cracked" grains (?). Pellets are increased component.
6.60m: phosphorite = 7-10% decreasing to 4-5% at 6.75m.
7.25m: Quartz sand evenly distributed very fine to very coarse, occasional blue quartz and amethyst, garnet. Phos only slightly pitted.
7.50m: phosphorite = 3-4%. A few quartz granules (4mm).
7.75m: Quartz granules and phos intraclasts, well rounded polished, up to 8mm scattered in section.
8.0m: Trace of glauconite. Mud increased steadily from 15-20% at top to 25-30% in lower part of section.
8.3m: phosphorite content = 1-2%.

SHELLY SAND - Sharp contact at 8.70m. Yellowish gray (5Y 8/1), calcitic muddy 20%, dolosilty barnacle hash. Contact is moderately burrowed and has pebble lag (pebbles = phosphorite intraclasts and quartz (coarse) and phosphorite pavement fragment (20mm) grades down to moderately indurated to indurated (at 9.0m) oolidic/ barnacle hash dolostone.

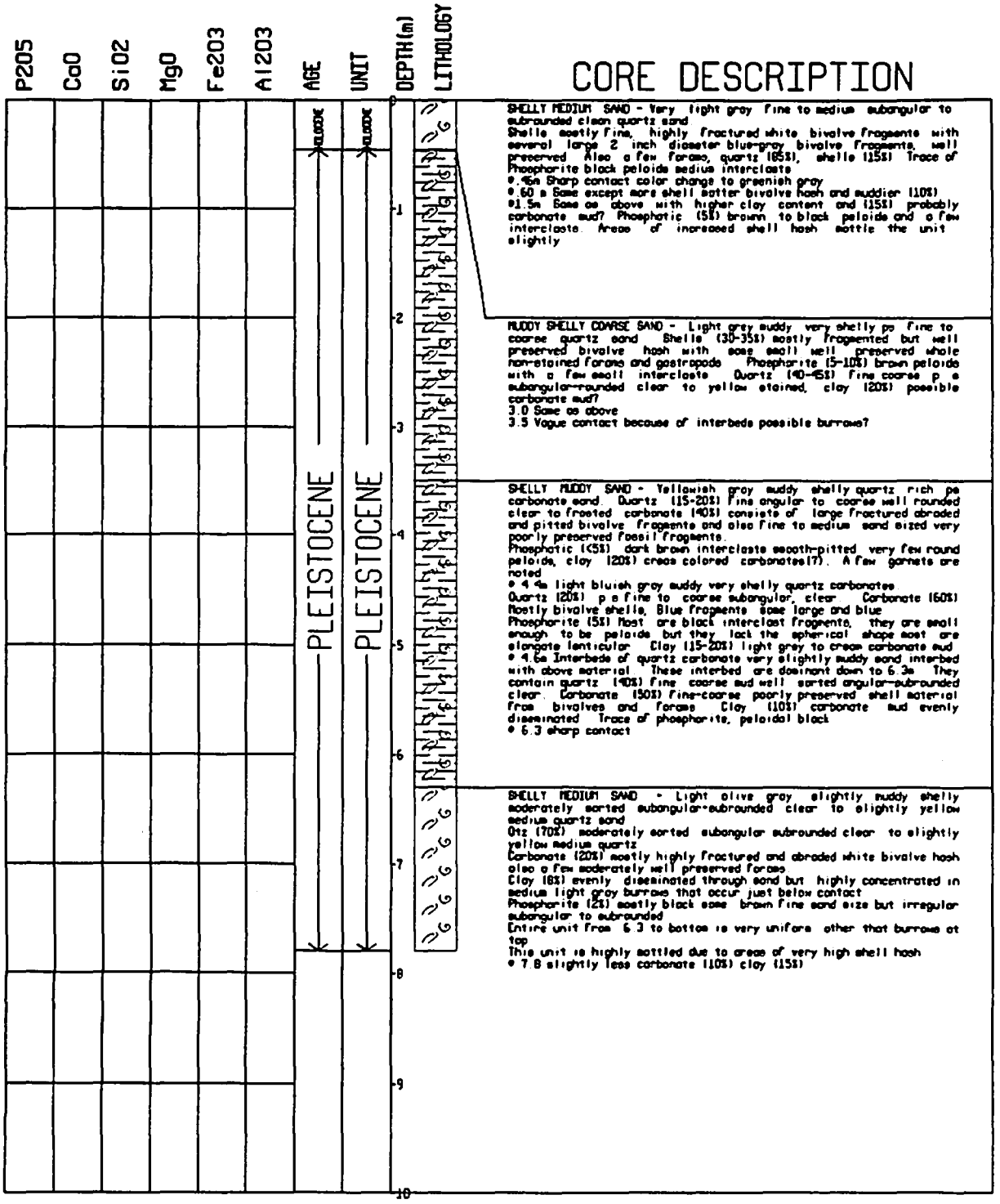
ONSLOW BAY CORE NUMBER: OB-4

CRUISE: NSF O. BAY DATE LOGGED: 6-25-90 LATITUDE: 34.608 degrees
LENGTH ATTEMPTED: 7.3 BY: D. YEATES LONGITUDE: 76.913 degrees
LENGTH OF CORE: 9.1



ONSLOW BAY CORE NUMBER: OB-5

CRUISE: NSF O. BAY DATE LOGGED: 6-26-90 LATITUDE: 34.640 degrees
LENGTH ATTEMPTED: 5.2m BY: D. YEATES LONGITUDE: 76.708 degrees
LENGTH OF CORE: 7.8m



CORE DESCRIPTION

SHELLY MEDIUM SAND - Very light gray fine to medium subangular to subrounded clean quartz sand
Shells mostly fine, highly fractured white bivalve fragments with several large 2 inch diameter blue-gray bivalve fragments, well preserved Also a few forams, quartz (65%), shells (15%) Trace of Phosphorite black peloids medium interclasts
@.45m Sharp contact color change to greenish gray
@.60 m Same as above with higher clay content and (15%) probably carbonate mud? Phosphatic (5%) brownn to black peloids and a few interclasts Areas of increased shell hash mottle the unit slightly

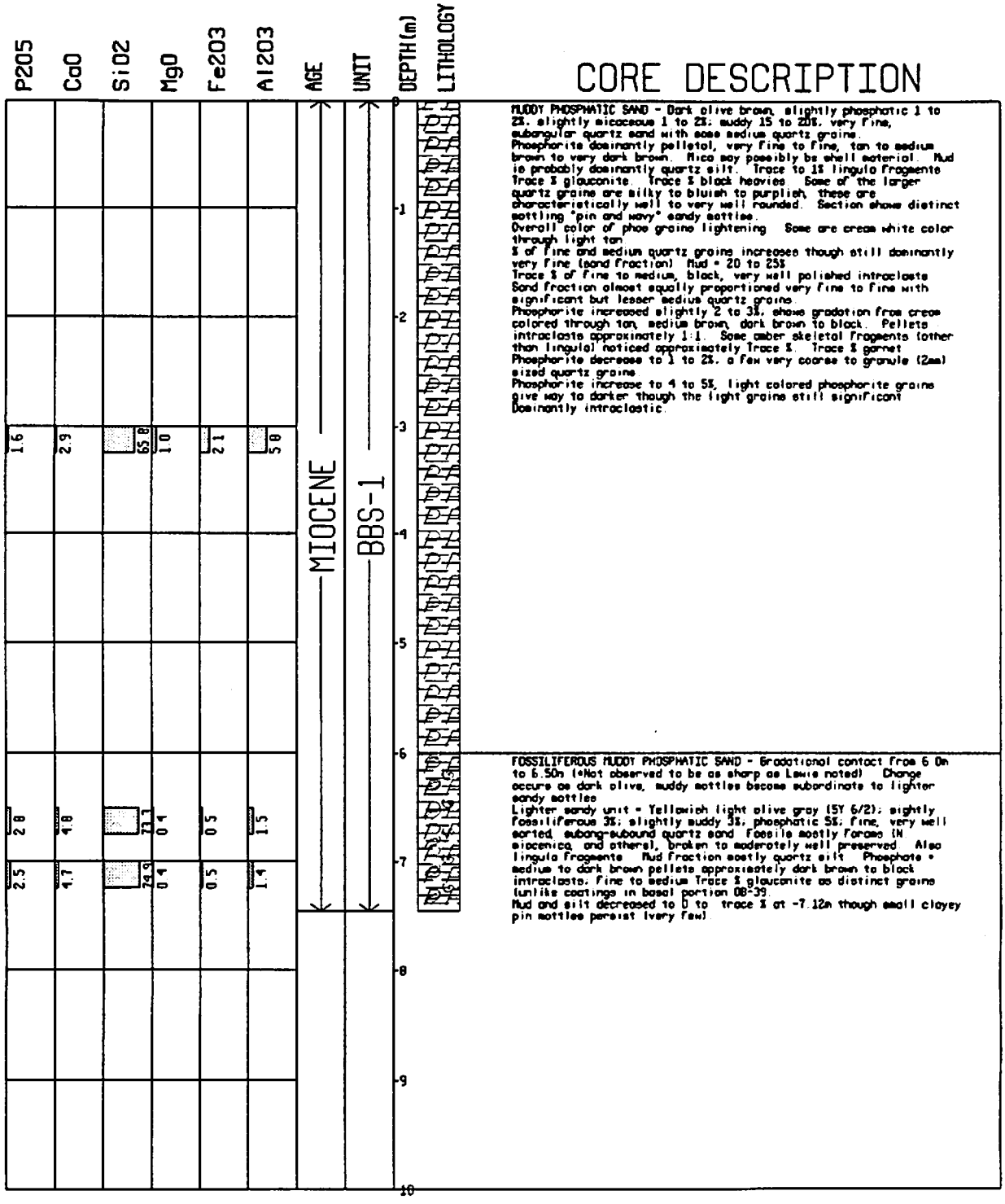
MUDDY SHELLY COARSE SAND - Light grey muddy very shelly po fine to coarse quartz sand Shells (30-35%) mostly fragmented but well preserved bivalve hash with some small well preserved whole non-stained forams and gastropods Phosphorite (5-10%) brown peloids with a few small interclasts Quartz (40-45%) fine coarse p e subangular-rounded clear to yellow stained, clay (20%) possible carbonate mud?
3.0 Same as above
3.5 Vague contact because of interbeds possible burrows?

SHELLY MUDDY SAND - Yellowish gray muddy shelly quartz rich po carbonate sand. Quartz (15-20%) fine angular to coarse well rounded clear to frosted carbonate (40%) consists of large fractured abraded and pitted bivalve fragments and also fine to medium sand sized very poorly preserved fossil fragments.
Phosphatic (5%) dark brown interclasts smooth-pitted very few round peloids, clay (20%) cream colored carbonates(?). A few garnets are noted
@ 4.4m light bluish gray muddy very shelly quartz carbonates
Quartz (20%) p e fine to coarse subangular, clear Carbonate (60%) Mostly bivalve shells, Blue fragments some large and blue
Phosphorite (5%) Most are black interclast fragments, they are small enough to be peloids but they lack the spherical shape most are elongate lenticular Clay (15-20%) light grey to cream carbonate mud
@ 4.6m Interbeds of quartz carbonate very slightly muddy sand interbed with above material These interbed are dominant down to 6.3m They contain quartz (40%) fine coarse mud well sorted angular-subrounded clear Carbonate (50%) fine-coarse poorly preserved shell material from bivalves and forams Clay (10%) carbonate mud evenly disseminated Trace of phosphorite, peloidal black
@ 6.3 sharp contact

SHELLY MEDIUM SAND - Light olive gray slightly muddy shelly moderately sorted subangular-subrounded clear to slightly yellow medium quartz sand
Qtz (70%) moderately sorted subangular subrounded clear to slightly yellow medium quartz
Carbonate (20%) mostly highly fractured and abraded white bivalve hash also a few moderately well preserved forams
Clay (8%) evenly disseminated through sand but highly concentrated in medium light gray burrows that occur just below contact
Phosphorite (2%) mostly black some brown fine sand size but irregular subangular to subrounded
Entire unit from 6.3 to bottom is very uniform other that burrows at top
This unit is highly mottled due to areas of very high shell hash
@ 7.8 slightly less carbonate (10%) clay (15%)

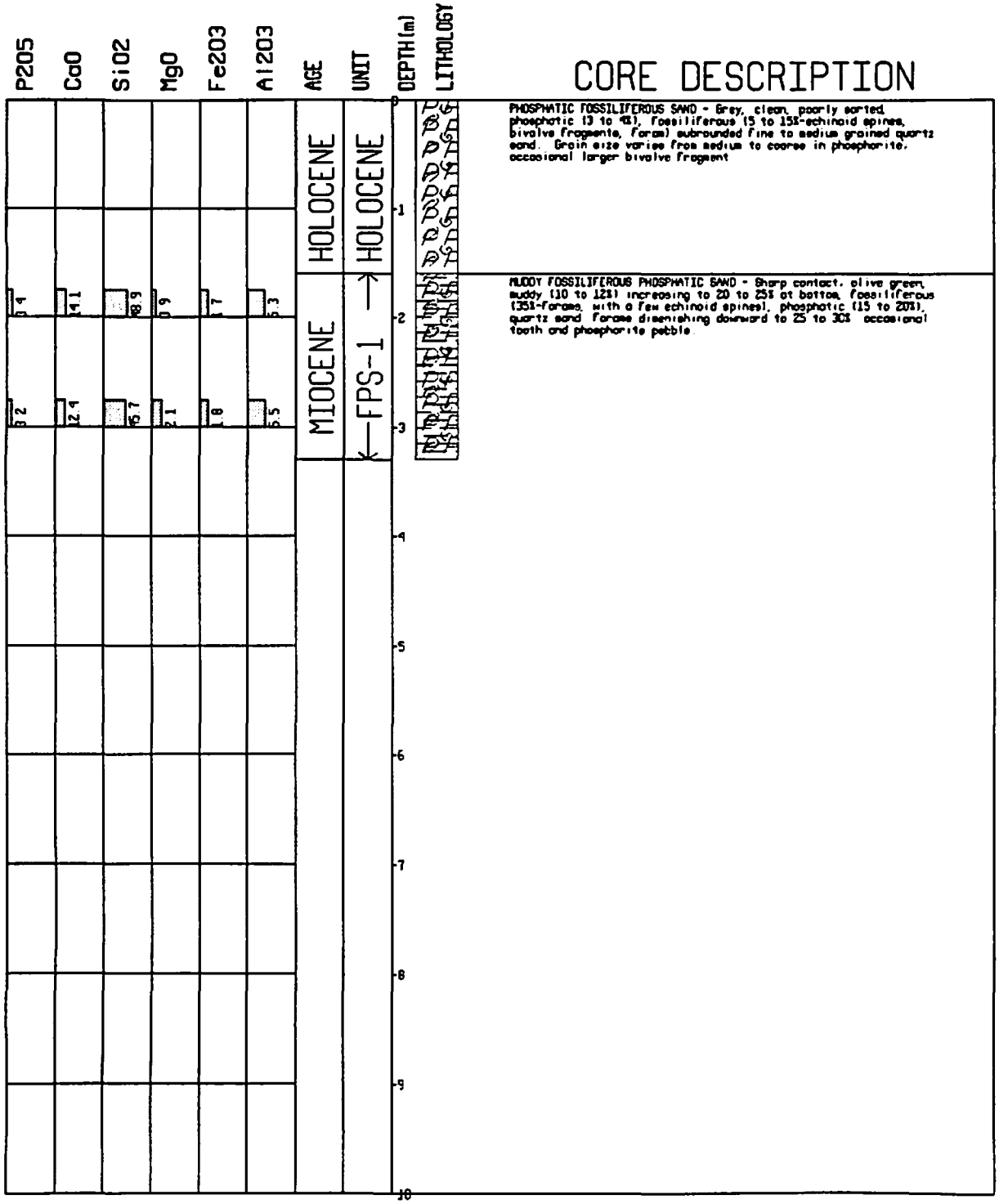
ONSLOW BAY CORE NUMBER: OB6B

CRUISE: NSF O. BAY DATE LOGGED: 5-8-84 LATITUDE: 34.443 degrees
LENGTH ATTEMPTED: 7.46m BY: P. MALLETTE LONGITUDE: 76.943 degrees
LENGTH OF CORE: 7.46m



ONSLOW BAY CORE NUMBER: OB9

CRUISE: NSF O. BAY DATE LOGGED: 8-23-80 LATITUDE: 33.852 degrees
LENGTH ATTEMPTED: 3.0m BY: D. LEWIS LONGITUDE: 77.628 degrees
LENGTH OF CORE: 3.3m



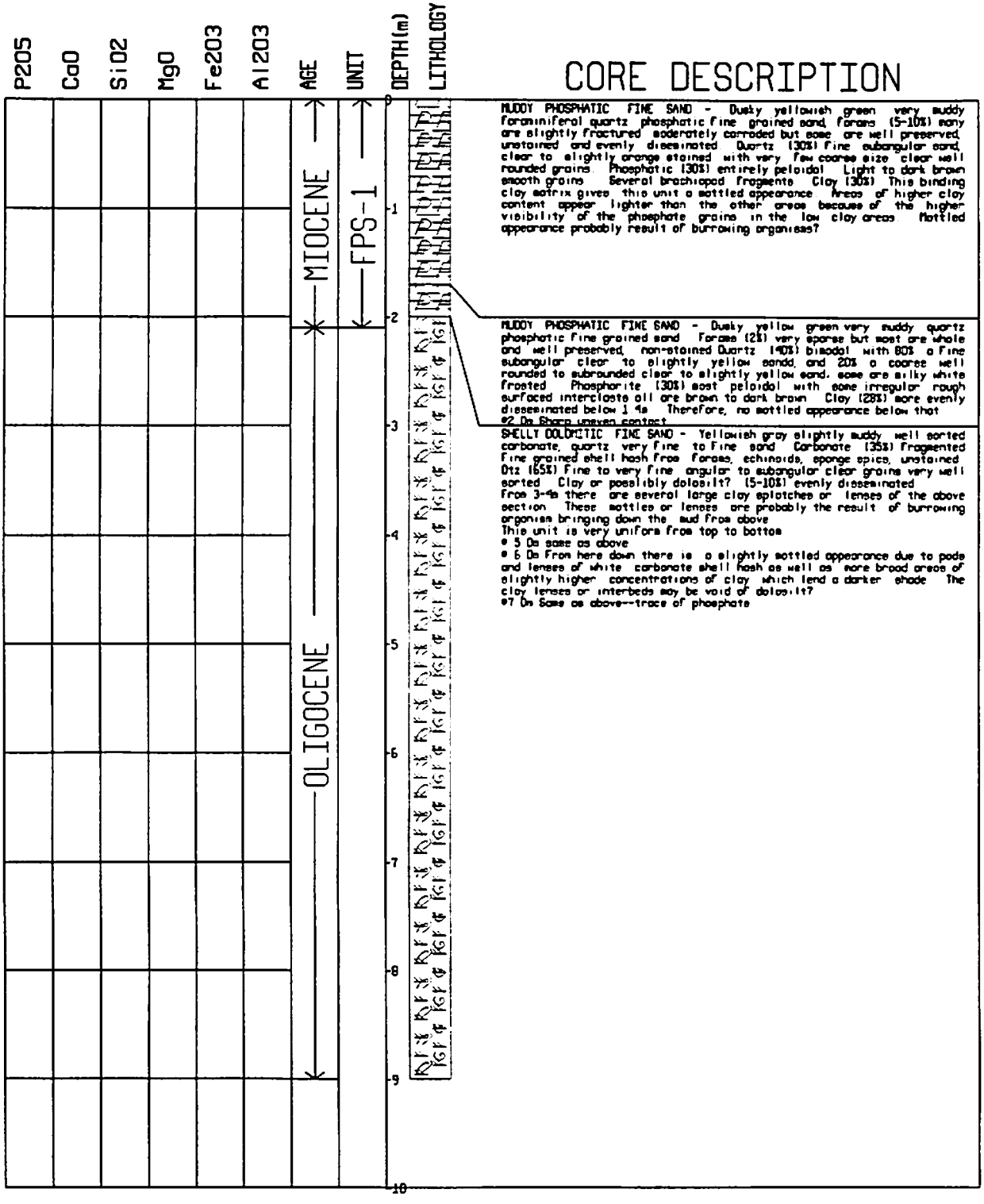
CORE DESCRIPTION

PHOSPHATIC FOSSILIFEROUS SAND - Grey, clean, poorly sorted phosphatic (3 to 9%), fossiliferous (5 to 15%-echinoid spines, bivalve fragments, forams) subrounded fine to medium grained quartz sand. Grain size varies from medium to coarse in phosphorite, occasional larger bivalve fragment

MUDDY FOSSILIFEROUS PHOSPHATIC SAND - Sharp contact, olive green, muddy (10 to 12%) increasing to 20 to 25% at bottom, fossiliferous (35%-forams, with a few echinoid spines), phosphatic (15 to 20%), quartz sand forams diminishing downward to 25 to 30% occasional tooth and phosphorite pebble

ONSLOW BAY CORE NUMBER: OB-11

CRUISE: NSF O. BAY DATE LOGGED: 6-25-90 LATITUDE: 33d 52.1'
LENGTH ATTEMPTED: 6.4 BY: D. YEATES LONGITUDE: 77d 34.7'
LENGTH OF CORE: 9.0



CORE DESCRIPTION

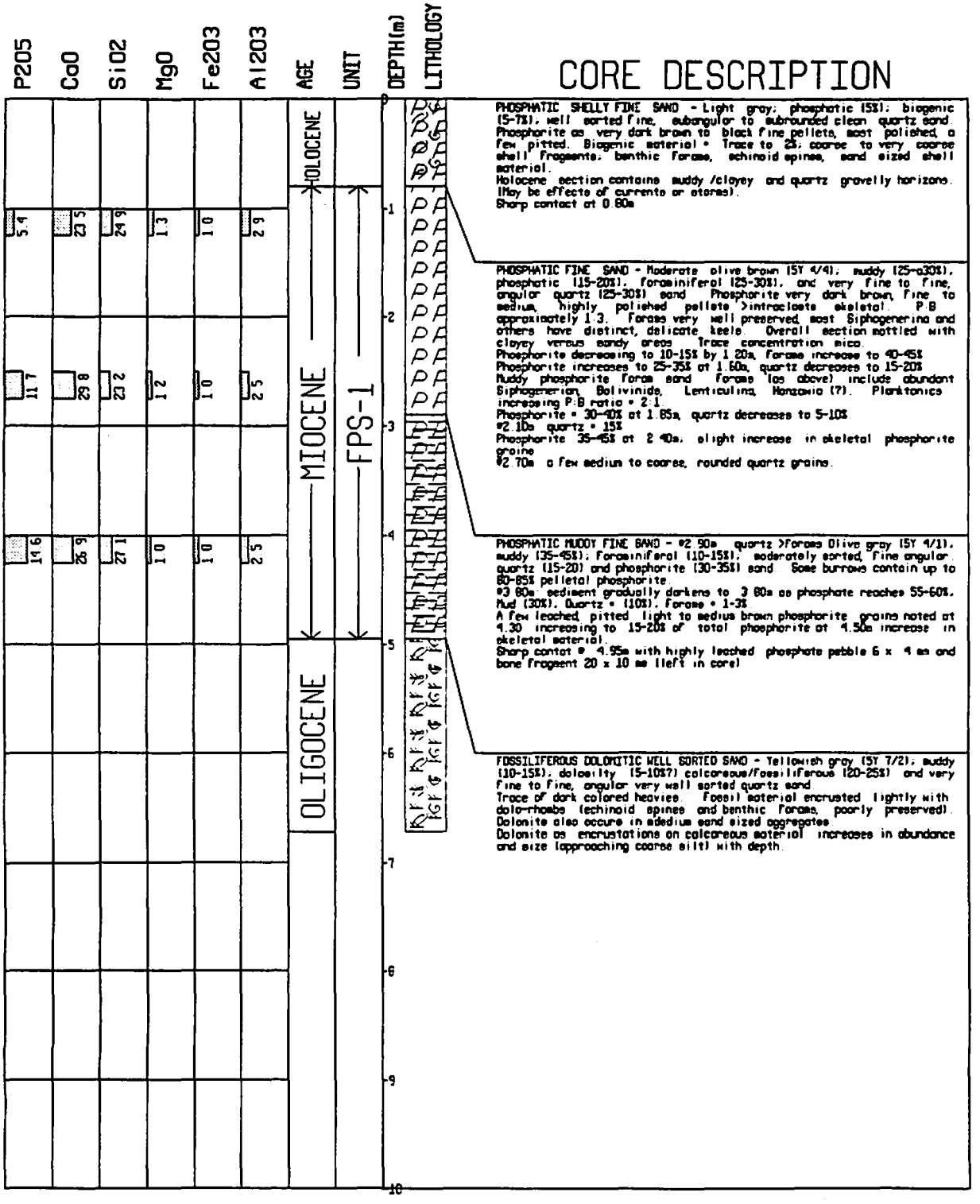
MUDDY PHOSPHATIC FINE SAND - Dusky yellowish green very muddy foraminiferal quartz phosphatic fine grained sand, forams (5-10%) many are slightly fractured moderately corroded but some are well preserved, unstained and evenly disseminated. Quartz (30%) fine subangular sand, clear to slightly orange stained with very few coarse size clear well rounded grains. Phosphatic (30%) entirely peloidal. Light to dark brown smooth grains. Several brachiopod fragments. Clay (30%) This binding clay matrix gives this unit a mottled appearance. Areas of higher clay content appear lighter than the other areas because of the higher visibility of the phosphate grains in the low clay areas. Mottled appearance probably result of burrowing organisms?

MUDDY PHOSPHATIC FINE SAND - Dusky yellow green very muddy quartz phosphatic fine grained sand. Forams (2%) very sparse but most are whole and well preserved, non-stained Quartz (40%) bimodal with 80% a fine subangular clear to slightly yellow sand, and 20% a coarse well rounded to subrounded clear to slightly yellow sand, some are milky white frosted. Phosphorite (30%) most peloidal with some irregular rough surfaced intercloste all are brown to dark brown. Clay (28%) more evenly disseminated below 1 4a. Therefore, no mottled appearance below that
#2 Ds Sharp uneven contact

SHELLY DOLOMITIC FINE SAND - Yellowish gray slightly muddy well sorted carbonate, quartz very fine to fine sand. Carbonate (35%) fragmented fine grained shell hash from forams, echinoids, sponge spics, unstained. Otz (65%) Fine to very fine angular to subangular clear grains very well sorted. Clay or possibly dolosilt? (5-10%) evenly disseminated
From 3-4a there are several large clay splotches or lenses of the above section. These mottles or lenses are probably the result of burrowing organism bringing down the mud from above
This unit is very uniform from top to bottom
5 Ds same as above
6 Ds From here down there is a slightly mottled appearance due to pods and lenses of white carbonate shell hash as well as more broad areas of slightly higher concentrations of clay which lend a darker shade. The clay lenses or interbeds may be void of dolosilt?
#7 Ds Same as above--trace of phosphate

ONSLOW BAY CORE NUMBER: OB-14

CRUISE: NSF S. O.BAY DATE LOGGED: 9-5-84 LATITUDE: 33d 42.5'
LENGTH ATTEMPTED: 4.6 BY: P. MALLETTE LONGITUDE: 77d 33.9'
LENGTH OF CORE: 6.72



CORE DESCRIPTION

PHOSPHATIC SHELLY FINE SAND - Light gray; phosphatic (5%); biogenic (5-7%), well sorted fine, subangular to subrounded clean quartz sand. Phosphorite as very dark brown to black fine pellets, most polished, a few pitted. Biogenic material - Trace to 2%; coarse to very coarse shell fragments; benthic forams, echinoid spines, sand sized shell material.
Holocene section contains muddy /clayey and quartz gravelly horizons. (May be effects of currents or storms).
Sharp contact at 0.80m

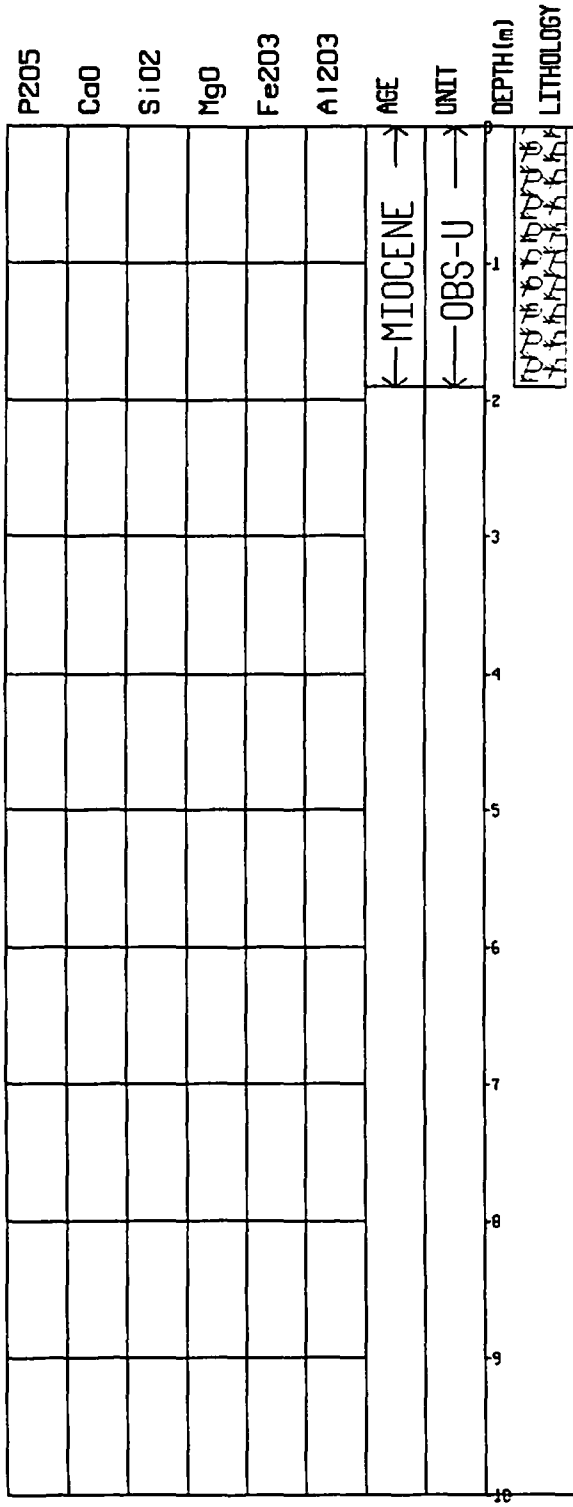
PHOSPHATIC FINE SAND - Moderate olive brown (5Y 4/4); muddy (25-a30%), phosphatic (15-20%); foraminiferal (25-30%), and very fine to fine, angular quartz (25-30%) sand. Phosphorite very dark brown, fine to medium, highly polished pellets >intraclasts skeletal. P:B approximately 1:3. Forams very well preserved, most Siphogenerina and others have distinct, delicate keels. Overall section mottled with clayey versus sandy areas. Trace concentration mica.
Phosphorite decreasing to 10-15% by 1.20m, forams increase to 40-45%
Phosphorite increases to 25-35% at 1.60m, quartz decreases to 15-20%
Muddy phosphorite foram sand. Forams (as above) include abundant Siphogenerina, Bolivinids, Lenticulina, Hanzawia (?). Planktonics increasing P:B ratio - 2:1.
Phosphorite - 30-40% at 1.85m, quartz decreases to 5-10%
@2.10m quartz - 15%
Phosphorite 35-45% at 2.40m, slight increase in skeletal phosphorite grains
@2.70m a few medium to coarse, rounded quartz grains.

PHOSPHATIC MUDDY FINE SAND - @2.90m quartz >forams Olive gray (5Y 4/1), muddy (35-45%); foraminiferal (10-15%), moderately sorted, fine angular quartz (15-20) and phosphorite (30-35%) sand. Some burrows contain up to 60-65% pelletal phosphorite.
@3.80m sediment gradually darkens to 3.80m as phosphate reaches 55-60%. Mud (30%). Quartz - (10%). Forams - 1-3%
A few leached, pitted, light to medium brown phosphorite grains noted at 4.30 increasing to 15-20% of total phosphorite at 4.50m increase in skeletal material.
Sharp contact @ 4.95m with highly leached phosphate pebble 6 x 4 cm and bone fragment 20 x 10 mm (left in core)

FOSSILIFEROUS DOLOMITIC WELL SORTED SAND - Yellowish gray (5Y 7/2), muddy (10-15%), dolomitic (5-10%?) calcareous/fossiliferous (20-25%) and very fine to fine, angular very well sorted quartz sand.
Trace of dark colored heavies. Fossil material encrusted lightly with dolo-rhombs (echinoid spines and benthic forams, poorly preserved). Dolomite also occurs in medium sand sized aggregates.
Dolomite as encrustations on calcareous material increases in abundance and size (approaching coarse silt) with depth.

ONSLOW BAY CORE NUMBER: OB-15

CRUISE: NSF S. O.BAY DATE LOGGED: 5-10-86 LATITUDE: 33d 42.8'
LENGTH ATTEMPTED: 1.80 BY: P. MALLETTE LONGITUDE: 77d 36.2'
LENGTH OF CORE: 1.90

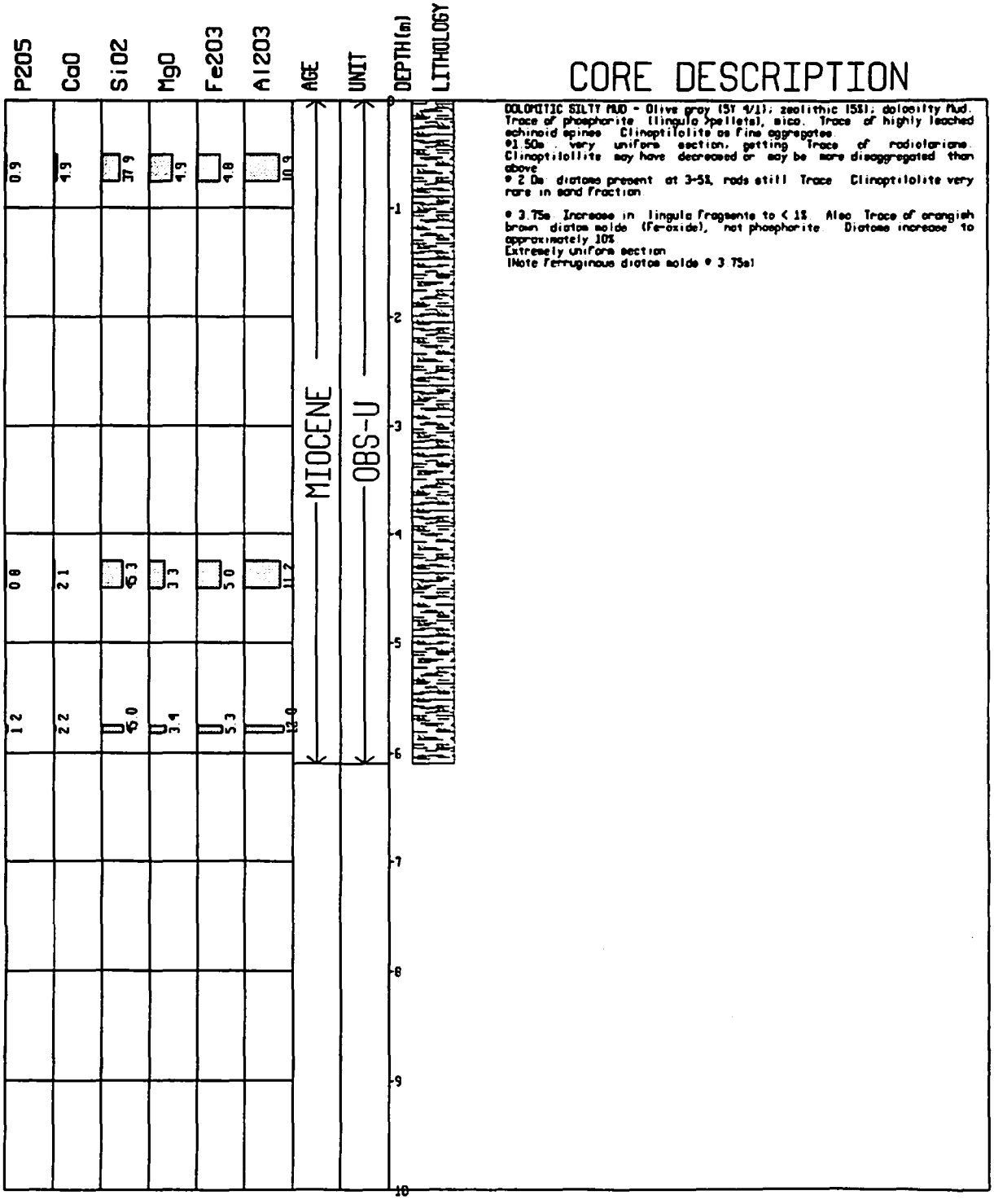


CORE DESCRIPTION

SLIGHTLY PHOSPHATIC DOLOMITIC FINE SAND - Olive gray (5Y 4/1), phosphatic (5-7%), siliceous (5-7%), foraminiferal (15-20%), very fine angular to subangular, dull (dirty **), quartz sandy (20%), dolosilty (20%) Mud Trace of siliceous fossils: spicules and rods (very abund for P.R.) Phosphorite is highly leached, pitted, hollowed pellets and intraclasts light to dark brown, skeletal, and internal molds of Lenticulina common Forams are 'rotten'--abraded, fragmented Tend to lose a lot in washed samples since 'rotten', mostly benthics Quartz has mud (?) coatings, giving it a dull, dirty appearance. Very abundant dolosilt rhombs seen @ 60x magnification after treating bulk sed with 10% HCl
#0.60m Forams preservation increasing though still poor Fairly abundant clinoptilolite noted, mostly as fine mold fragments May be 10-15% of total sediment
@ 90m siliceous microfossils are absent, phosphorite shows only slightly leached texture or is smooth, dark to medium brown Pellet < skeleton < intraclasts Forams are slightly encrusted with dolo-rhombs (externally, clinoptilolite is internal)
@ 1.20m Phosphorite = dark brown, mostly unleached Forams increase as preservation increases Still abundant clinoptilolite though contained within the foram tests No rods or diatoms in sand fraction Rare spicule noted
@ 1.50m Forams become very 'rotten' Appear to constitute 10-15% of bulk sediment, however = (trace to 0%)% in washed sample due to fragility Phosphorite shows no increase in dissolution
#1.60m Forams are absent in bulk sediment and washed samples, however clinoptilolite mold fragments very abundant Phosphorite mostly unleached
**much of 'dirty quartz' may be clinoptilolite co-occurs with siliceous fossils
Note Good lenticulina (Phosphorite) molds at top of core and natural 'eggshells'--need some SEM work.
Note Siliceous fossils only appear in upper portion of core Good clinoptilolite This is obviously FPF #2 and not a distinct unit as was suspected by an assumed high siliceous fossil content in Core Holes OB 15, 16, 17, and 62
#Two distict dissolution profiles--may warrant detailed investigation

ONSLOW BAY CORE NUMBER: OB16

CRUISE: NSF S. O.BAY DATE LOGGED: 11-14-84 LATITUDE: 33.685 degrees
LENGTH ATTEMPTED: 3.4m BY: P. MALLETTE LONGITUDE: 77.623 degrees
LENGTH OF CORE: 6.10m



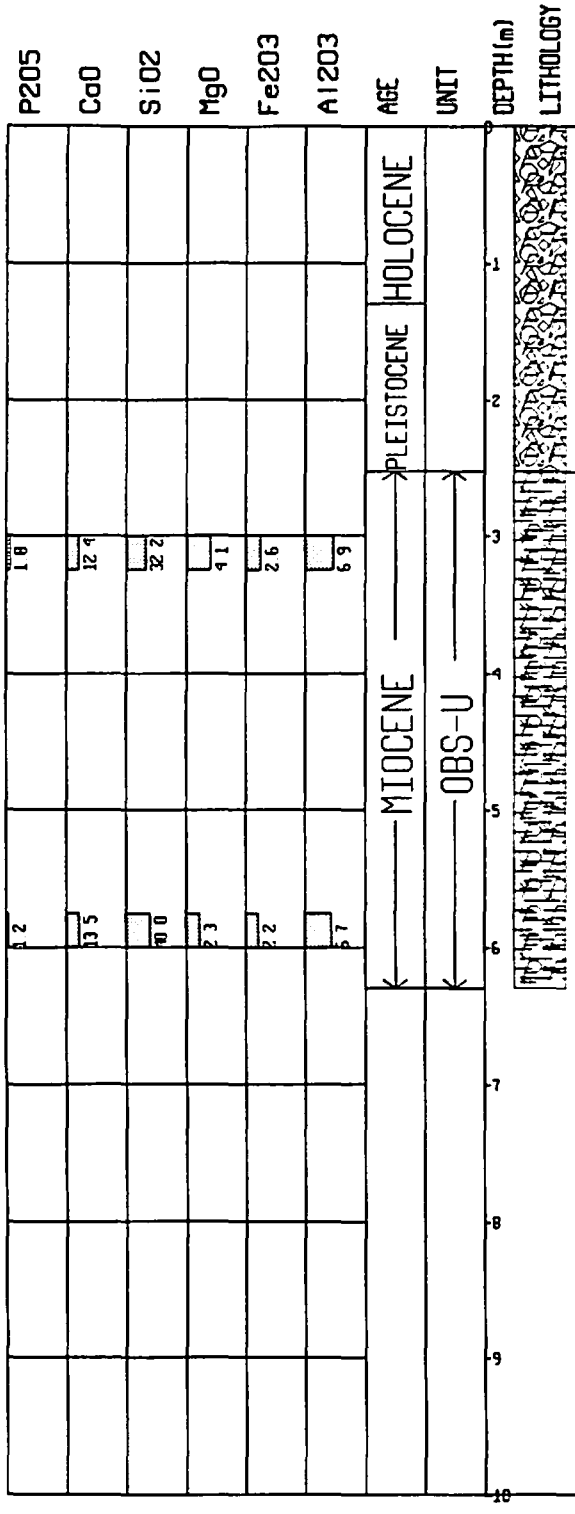
CORE DESCRIPTION

DOLOMITIC SILTY MUD - Olive gray (5Y 4/1); zeolithic (5S); dolosilty mud. Trace of phosphorite (lingula ?pellets), sico. Trace of highly leached echinoid spines. Clinoptilolite as fine aggregates.
@1.50m: very uniform section, getting Trace of radiolarians. Clinoptilolite may have decreased or may be more disaggregated than above.
@ 2.0m: diatoms present at 3-5%, rods still Trace. Clinoptilolite very rare in sand fraction.

@ 3.75m: Increase in lingula fragments to < 1%. Also Trace of orangish brown diatom molds (Fe-oxide), not phosphorite. Diatoms increase to approximately 10%.
Extremely uniform section.
(Note ferruginous diatom molds @ 3.75m)

ONSLOW BAY CORE NUMBER: OB-17

CRUISE: NSF S. O.BAY DATE LOGGED: 9-13-84 LATITUDE: 33d 42.4'
LENGTH ATTEMPTED: 5.2 BY: P. MALLETTE LONGITUDE: 77d 34.2'
LENGTH OF CORE: 6.3



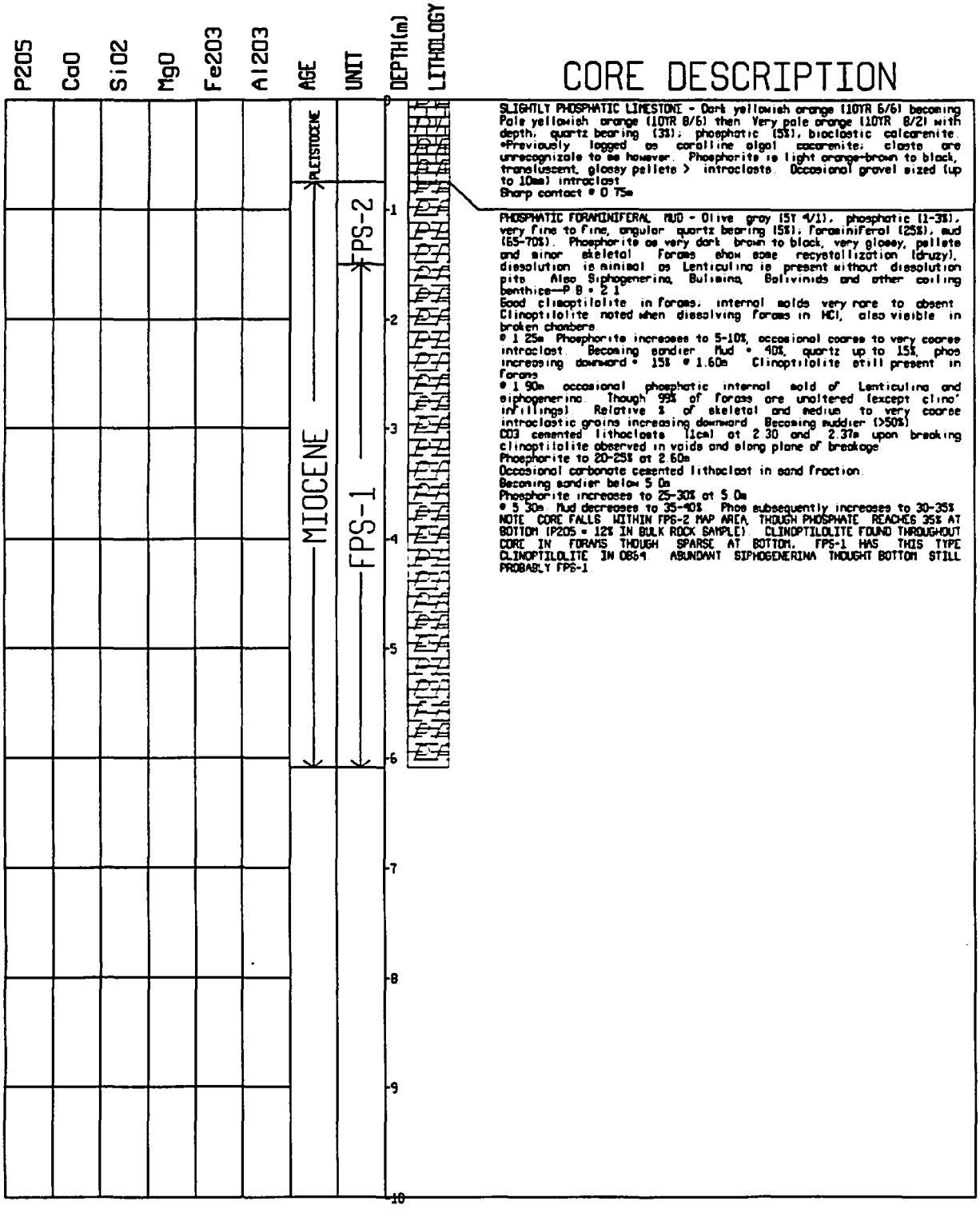
CORE DESCRIPTION

SLIGHTLY PHOSPHATIC GRAVELLY MEDIUM SAND - Variegated (typical Holocene), slightly phosphatic (1-2%), shell (3%) and quartz (7%) gravelly, shelly (15%) and medium, subangular quartz sand. Fresh orange, and black stained shell fragments and forams, phosphorite as fine, medium to dark brown pellets, glossy
Sediment coarsens downward, becoming a sandy, quartz gravel by 0.50m- gravel approximately 30%
Becoming muddy and slightly grayish at 1.15m, grading into (@1.50m) Light olive gray (5Y 6/1); slightly muddy (3-5%), slightly phosphatic (1-3%), fossiliferous (20-25%), well sorted, subrounded, fine to medium quartz sand. Diverse fossil assemblage: Benthic forams Quinqueloculina (dominant), Elphidium, minor reworked Siphogenerina, echinoid spines and plates, bivalve shells and fragments delicate to robust unstained to gray to black, bryozoans, barnacles, gastropods (cosecus and others) *
PLEISTOCENE SEDIMENT WITH REWORKED MIOCENE
Distinct burrow fill mottling

PHOSPHATIC DOLOMITIC MUD - Sharp contact @ 2.53m Light olive gray (5Y 5/2), radiolarian, phosphate, very fine quartz and foram sandy (5-10%), dolosilty (10%) mud. Sand fraction * 10% rods, 25% phosphate, 35% quartz, 30% foram, trace of diatoms, 1-3% mica. Phosphate is highly leached, pitted, hollowed, dull, pithy, tan
Forams may be somewhat encrusted with silt sized, clear dolo-rhombs, though preservation is very good (no dissolution). Includes dominant fora resembles Florilus (planispiral, slightly involute), siphogenerina, and Bolibina. Rods * "spheres and helicts *
@ 3.10m rods decreased to Tr-1% of sand fraction. Diatoms increase to approximately 5% sand fraction. Beginning to get phosphatic forams (trace sand fraction though all planktonics are coated) and initial development of phosphatic internal molds--most still retain primary test material, these * trace of sand fraction, most benthics unaltered moderately well preserved
@ 4.10m internal molds of Lenticulina have been steadily increasing downward though still only trace to 1%. Must be reworked from FDF *2 as majority of forams are unaltered * moderately well preserved. Forams have increased to 15% total sediment
sand fraction (20-30% total sed) * 60% forams, 30% quartz, 5% phosphorite (as molds, skeletal and highly leached allochems) 5% diatoms, rods, sponge spicules
@ 4.50m Forams continue to increase 15-20%, mostly benthics, very few planktonics. Diatoms and radiolarians virtually absent
@ 4.90m skeletal phos (lingula, bone) increases somewhat (<1% total sediment) though noticeably, intraclastic and pelletal phosphorite (fine to medium) is darker in general though some light highly leached grains remain
Phosphatic internal molds of Lenticulina reach a maximum at 5.0-5.20m, decrease very abrupt., and are absent below 5.60m. Lenticulina show better preservation, though still thin walled. When dissolved in HCl, reveal infillings of dolosilty mud and bladed xls (probably clinoptilolite)
All phosphatic material decreases below approximately 5.20m skeletal, intraclastic, and molds

ONSLOW BAY CORE NUMBER: OB-20

CRUISE: NSF S. O.BAY DATE LOGGED: 9-11-84 LATITUDE: 33d 45.2'
LENGTH ATTEMPTED: 4.4 BY: P. MALLETTE LONGITUDE: 77d 36.8'
LENGTH OF CORE: 6.09



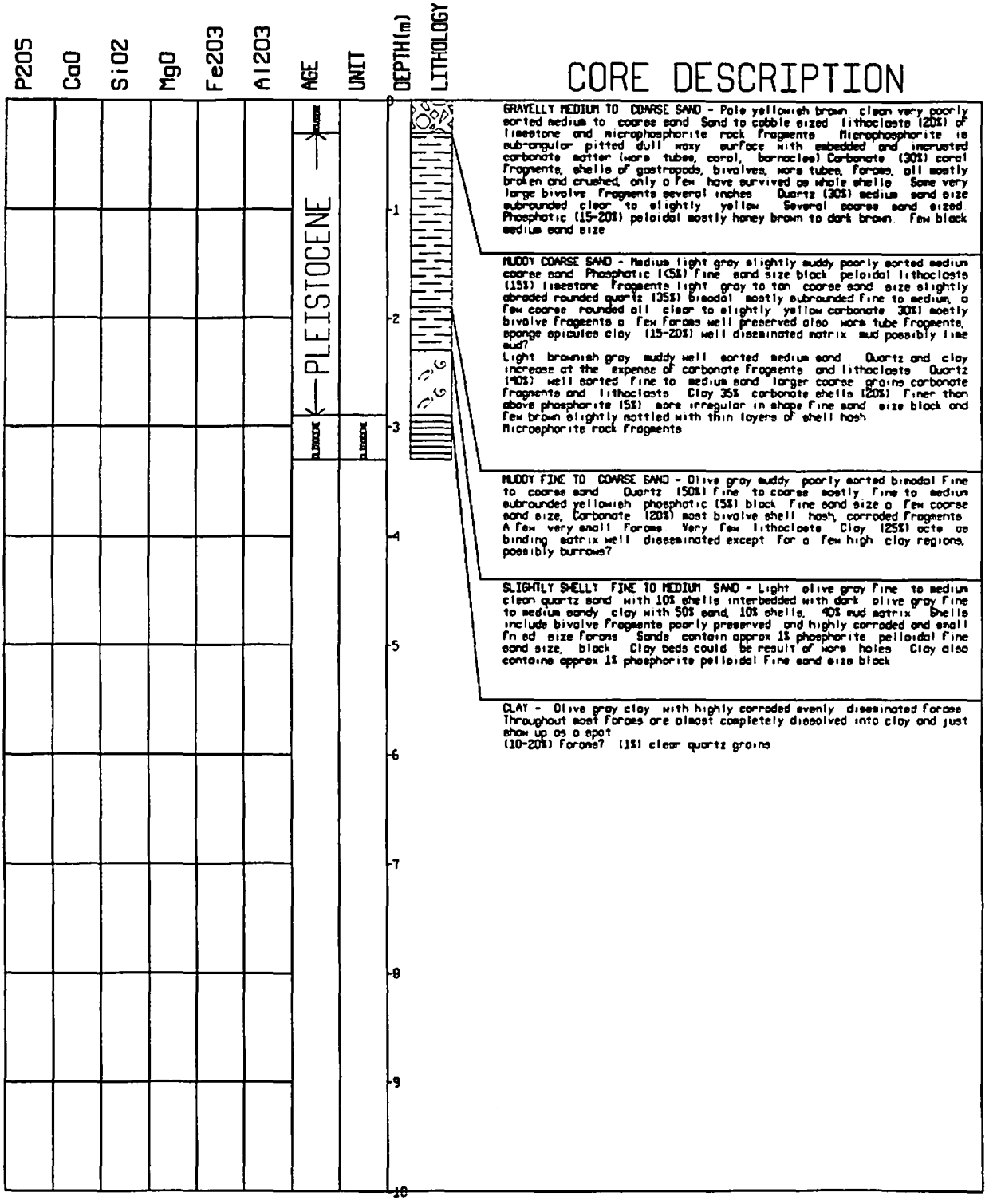
CORE DESCRIPTION

SLIGHTLY PHOSPHATIC LIMESTONE - Dark yellowish orange (10YR 6/6) becoming Pale yellowish orange (10YR 8/6) then Very pale orange (10YR 8/2) with depth; quartz bearing (3%); phosphatic (5%), bioclastic calcarenite. *Previously logged as coralline algal cocarenite; clasts are unrecognizable to me however. Phosphorite is light orange-brown to black, translucent, glossy pellets > intraclasts. Occasional gravel sized (up to 10mm) intraclast
Sharp contact @ 0.75m

PHOSPHATIC FORAMINIFERAL MUD - Olive gray (5Y 4/1), phosphatic (1-3%), very fine to fine, angular quartz bearing (5%); foraminiferal (25%), mud (65-70%). Phosphorite as very dark brown to black, very glossy, pellets and minor skeletal. Forams show some recrystallization (druzy), dissolution is minimal as Lenticulina is present without dissolution pits. Also Siphogenerina, Bulimina, Bolivinids and other coiling benthics—P.B.=2.1
Good clinoptilolite in forams; internal molds very rare to absent. Clinoptilolite noted when dissolving forams in HCl, also visible in broken chambers
@ 1.25m Phosphorite increases to 5-10%, occasional coarse to very coarse intraclast. Becoming sandier. Mud = 40%, quartz up to 15%, phos increasing downward = 15% @ 1.60m. Clinoptilolite still present in forams
@ 1.90m occasional phosphatic internal mold of Lenticulina and siphogenerina. Though 95% of forams are unaltered (except clino' infillings). Relative % of skeletal and medium to very coarse intraclastic grains increasing downward. Becoming muddier (>50%)
CO3 cemented lithoclasts (1cm) at 2.30 and 2.37m upon breaking clinoptilolite observed in voids and along plane of breakage
Phosphorite to 20-25% at 2.60m
Occasional carbonate cemented lithoclast in sand fraction.
Becoming sandier below 5.0m
Phosphorite increases to 25-30% at 5.0m
@ 5.30m. Mud decreases to 35-40%. Phos subsequently increases to 30-35%
NOTE: CORE FALLS WITHIN FPS-2 MAP AREA, THOUGH PHOSPHATE REACHES 35% AT BOTTOM (P2O5 = 12% IN BULK ROCK SAMPLE). CLINOPTILOLITE FOUND THROUGHOUT CORE IN FORAMS THOUGH SPARSE AT BOTTOM. FPS-1 HAS THIS TYPE CLINOPTILOLITE IN OB64. ABUNDANT SIPHOGENERINA THOUGHT BOTTOM STILL PROBABLY FPS-1

ONSLOW BAY CORE NUMBER: OB-21

CRUISE: NSF O. BAY DATE LOGGED: 6-2-90 LATITUDE: 33d 46.3'
LENGTH ATTEMPTED: 3.1 BY: D. YEATES LONGITUDE: 77d 37.6'
LENGTH OF CORE: 3.3



CORE DESCRIPTION

GRAVELLY MEDIUM TO COARSE SAND - Pale yellowish brown clean very poorly sorted medium to coarse sand Sand to cobble sized lithoclasts (20%) of limestone and microphosphorite rock fragments Microphosphorite is sub-angular pitted dull waxy surface with embedded and incrusted carbonate matter (worm tubes, coral, barnacles) Carbonate (30%) coral fragments, shells of gastropods, bivalves, worm tubes, forams, all mostly broken and crushed, only a few have survived as whole shells Some very large bivalve fragments several inches Quartz (30%) medium sand size subrounded clear to slightly yellow Several coarse sand sized Phosphatic (15-20%) peloidal mostly honey brown to dark brown Few black medium sand size

MUDDY COARSE SAND - Medium light gray slightly muddy poorly sorted medium coarse sand Phosphatic (5%) fine sand size black peloidal lithoclasts (15%) limestone fragments light gray to tan coarse sand size slightly abraded rounded quartz (35%) bimodal mostly subrounded fine to medium, a few coarse rounded all clear to slightly yellow carbonate 30% mostly bivalve fragments a few forams well preserved also worm tube fragments, sponge spicules clay (15-20%) well disseminated matrix mud possibly lime mud?
Light brownish gray muddy well sorted medium sand Quartz and clay increase at the expense of carbonate fragments and lithoclasts Quartz (40%) well sorted fine to medium sand larger coarse grains carbonate fragments and lithoclasts Clay 35% carbonate shells (20%) Finer than above phosphorite (5%) more irregular in shape fine sand size black and few brown slightly mottled with thin layers of shell hash
Microphorite rock fragments

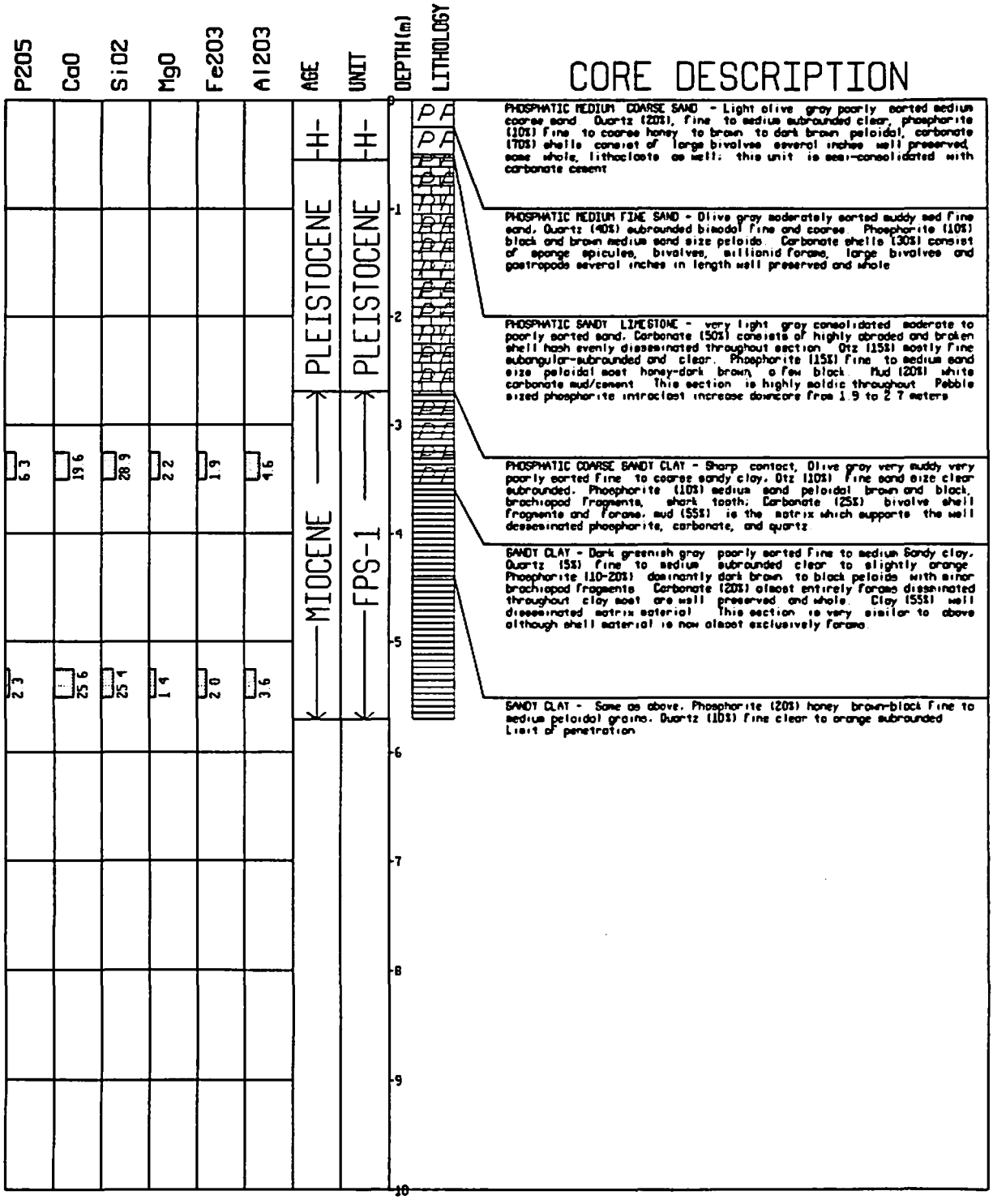
MUDDY FINE TO COARSE SAND - Olive gray muddy poorly sorted bimodal Fine to coarse sand Quartz (50%) fine to coarse mostly fine to medium subrounded yellowish phosphatic (5%) black fine sand size a few coarse sand size, Carbonate (20%) most bivalve shell hash, corroded fragments A few very small forams Very few lithoclasts Clay (25%) acts as binding matrix well disseminated except for a few high clay regions, possibly burrows?

SLIGHTLY SHELLY FINE TO MEDIUM SAND - Light olive gray fine to medium clean quartz sand with 10% shells interbedded with dark olive gray fine to medium sandy clay with 50% sand, 10% shells, 40% mud matrix Shells include bivalve fragments poorly preserved and highly corroded and small finned size forams Sands contain approx 1% phosphorite pelloidal fine sand size, black Clay beds could be result of worm holes Clay also contains approx 1% phosphorite pelloidal fine sand size black

CLAY - Olive gray clay with highly corroded evenly disseminated forams Throughout most forams are almost completely dissolved into clay and just show up as a spot
(10-20%) forams? (1%) clear quartz grains

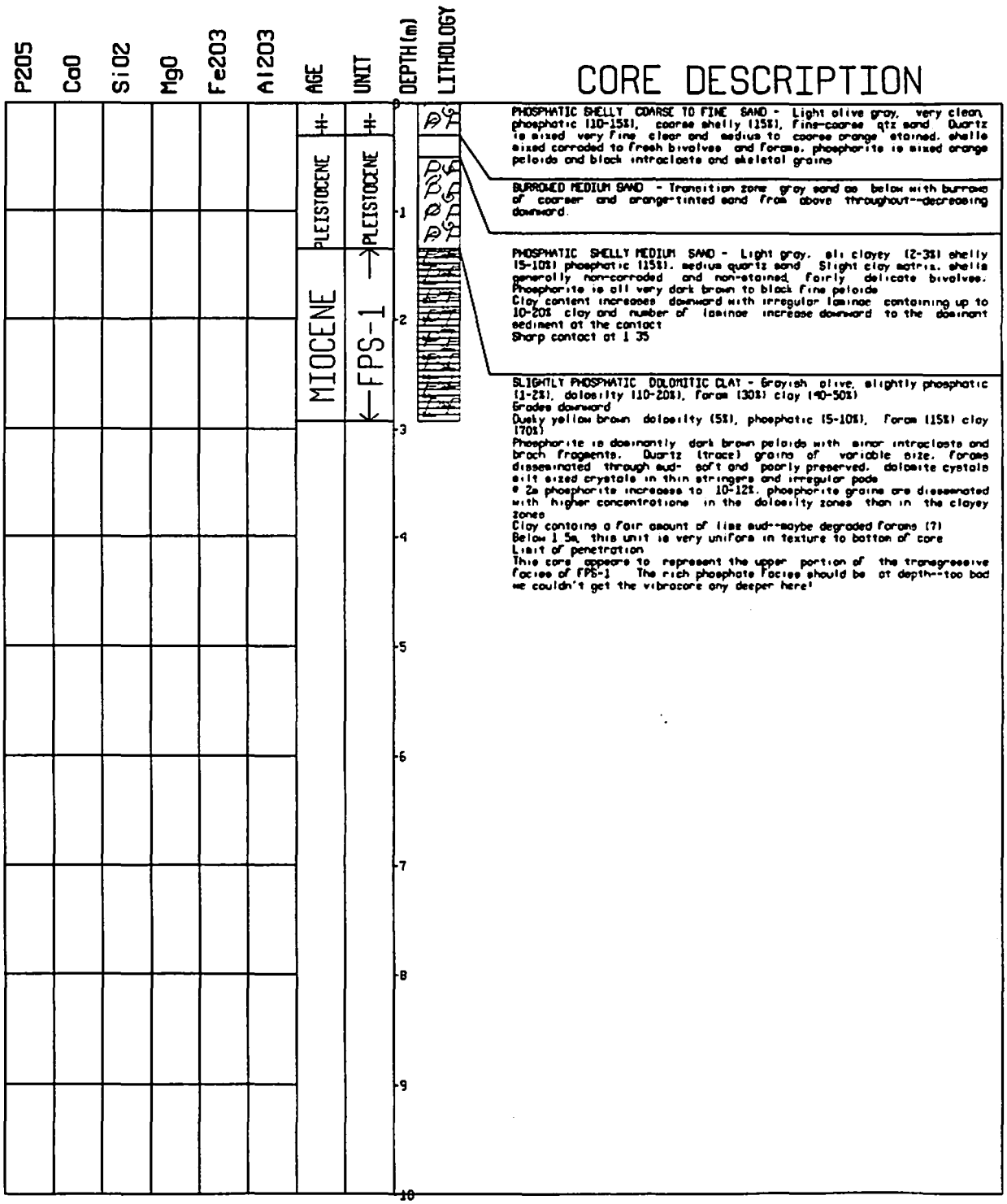
ONSLOW BAY CORE NUMBER: OB-22

CRUISE: NSF O. BAY DATE LOGGED: 6-20-90 LATITUDE: 33.763 degrees
LENGTH ATTEMPTED: 4.5m BY: D. YEATES LONGITUDE: 77.625 degrees
LENGTH OF CORE: 5.7m



ONSLOW BAY CORE NUMBER: OB-23

CRUISE: NSF O. BAY DATE LOGGED: 6-20-90 LATITUDE: 33.815 degrees
LENGTH ATTEMPTED: 2.4m BY: S. RIGGS LONGITUDE: 77.612 degrees
LENGTH OF CORE: 2.93m



CORE DESCRIPTION

PHOSPHATIC SHELLY COARSE TO FINE SAND - Light olive gray, very clean, phosphatic (10-15%), coarse shelly (15%), fine-coarse qtz sand. Quartz is mixed very fine clear and medium to coarse orange stained. shells mixed corroded to fresh bivalves and forams. phosphorite is mixed orange peloids and black intraclasts and skeletal grains

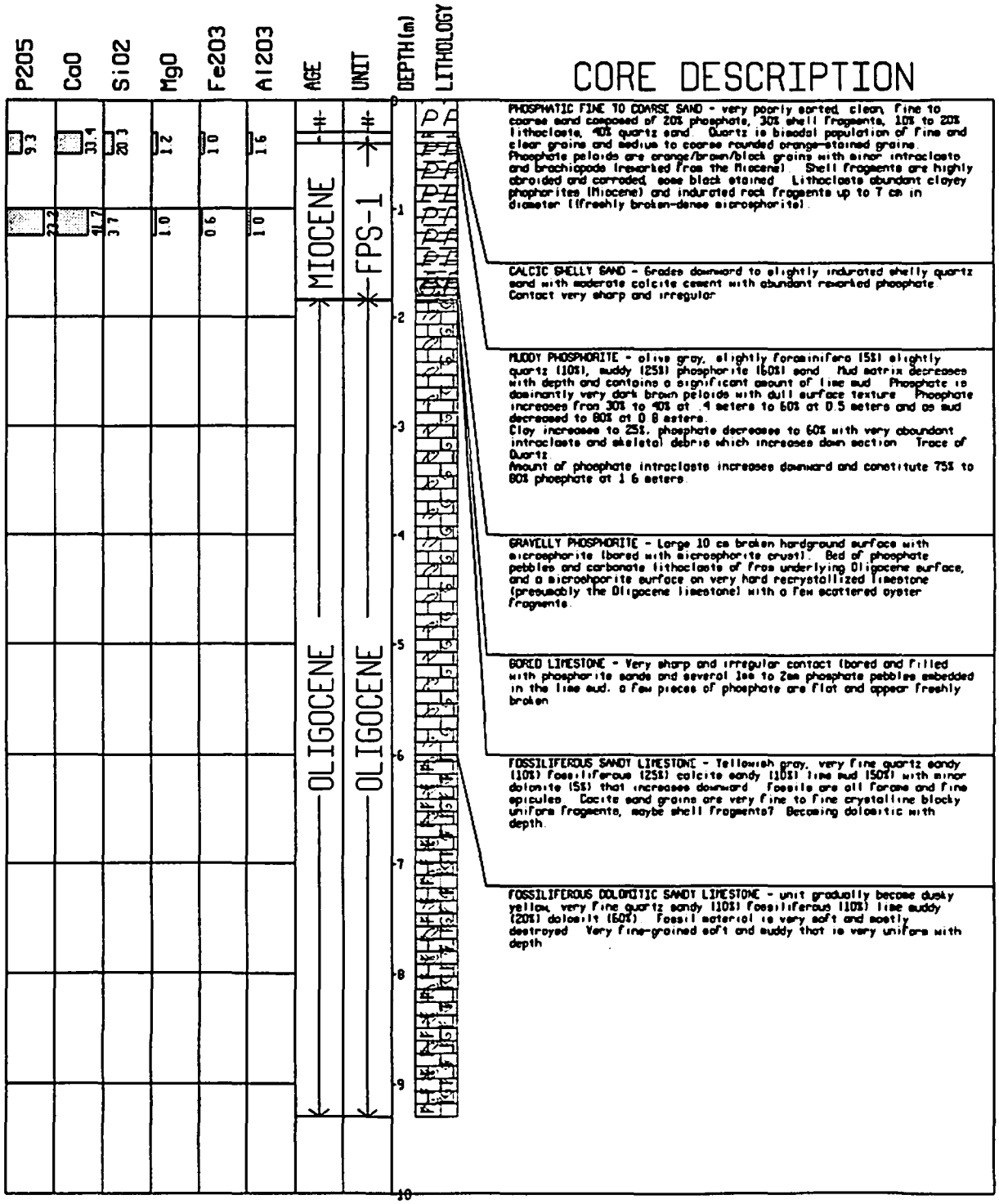
BURROWED MEDIUM SAND - Transition zone gray sand as below with burrows of coarser and orange-tinted sand from above throughout--decreasing downward.

PHOSPHATIC SHELLY MEDIUM SAND - Light gray, silt clayey (2-3%) shelly 15-10%) phosphatic (15%), medium quartz sand. Slight clay matrix. shells generally non-corroded and non-stained, fairly delicate bivalves. Phosphorite is all very dark brown to black fine peloids
Clay content increases downward with irregular laminae containing up to 10-20% clay and number of laminae increase downward to the dominant sediment at the contact
Sharp contact at 1.35

SLIGHTLY PHOSPHATIC DOLOMITIC CLAY - Grayish olive, slightly phosphatic (1-2%), dolosilty (10-20%), foram (30%) clay (40-50%)
Grades downward
Dusky yellow brown dolosilty (5%), phosphatic (5-10%), foram (15%) clay (70%)
Phosphorite is dominantly dark brown peloids with minor intraclasts and broch fragments. Quartz (trace) grains of variable size. Forams disseminated through out- soft and poorly preserved. dolomite crystals silt sized crystals in thin stringers and irregular pods
@ 2m phosphorite increases to 10-12%. phosphorite grains are disseminated with higher concentrations in the dolosilty zones than in the clayey zones
Clay contains a fair amount of lime mud--maybe degraded forams (?)
Below 1.5m, this unit is very uniform in texture to bottom of core
Limit of penetration
This core appears to represent the upper portion of the transgressive facies of FPS-1. The rich phosphate facies should be at depth--too bad we couldn't get the vibracore any deeper here!

ONSLOW BAY CORE NUMBER: OB-24

CRUISE: NSF O. BAY DATE LOGGED: 6-19-90 LATITUDE: 33.780 degrees
LENGTH ATTEMPTED: 6.1m BY: S. RIGGS LONGITUDE: 77.622 degrees
LENGTH OF CORE: 9.3m



CORE DESCRIPTION

PHOSPHATIC FINE TO COARSE SAND - very poorly sorted clean fine to coarse sand composed of 20% phosphate, 30% shell fragments, 10% to 20% lithoclasts, 40% quartz sand. Quartz is bimodal population of fine and clear grains and medium to coarse rounded orange-stained grains. Phosphate peloids are orange/brown/black grains with minor intraclasts and brachiopods (reworked from the Miocene). Shell fragments are highly abraided and corroded, some black stained. Lithoclasts abundant clayey phosphorites (Miocene) and indurated rock fragments up to 7 cm in diameter (freshly broken-dense microphorite).

CALCIC SHELLY SAND - Grades downward to slightly indurated shelly quartz sand with moderate calcite cement with abundant reworked phosphate. Contact very sharp and irregular.

MUDDY PHOSPHORITE - olive gray, slightly foraminifera (5%) slightly quartz (10%), muddy (25%) phosphorite (60%) sand. Mud matrix decreases with depth and contains a significant amount of lime mud. Phosphate is dominantly very dark brown peloids with dull surface texture. Phosphate increases from 30% to 40% at .4 meters to 60% at 0.5 meters and as mud decreased to 80% at 0.8 meters.
Clay increases to 25%, phosphate decreases to 60% with very abundant intraclasts and skeletal debris which increases down section. Trace of Quartz.
Amount of phosphate intraclasts increases downward and constitute 75% to 80% phosphate at 1.6 meters.

GRAVELLY PHOSPHORITE - Large 10 cm broken hardground surface with microphorite (bored with microphorite crust). Bed of phosphate pebbles and carbonate lithoclasts of from underlying Oligocene surface, and a microphorite surface on very hard recrystallized limestone (presumably the Oligocene limestone) with a few scattered oyster fragments.

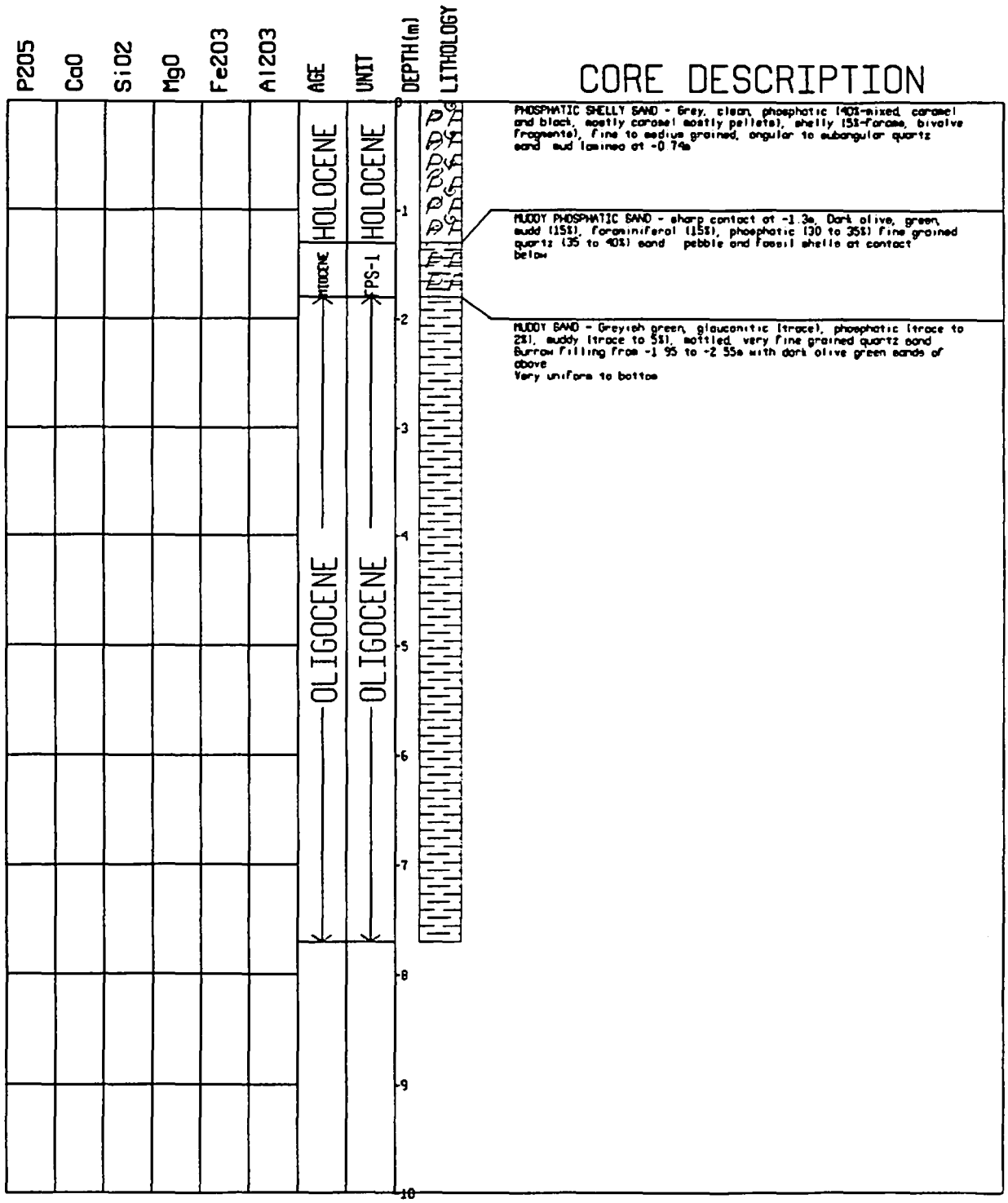
BORED LIMESTONE - Very sharp and irregular contact (bored and filled with phosphorite sands and several 1mm to 2mm phosphate pebbles embedded in the lime mud. a few pieces of phosphate are flat and appear freshly broken.

FOSSILIFEROUS SANDY LIMESTONE - Yellowish gray, very fine quartz sandy (10%) fossiliferous (25%) calcite sandy (10%) lime mud (50%) with minor dolomite (5%) that increases downward. Fossils are all foram and fine spicules. Calcite sand grains are very fine to fine crystalline blocky uniform fragments, maybe shell fragments? Becoming dolomitic with depth.

FOSSILIFEROUS DOLOMITIC SANDY LIMESTONE - unit gradually becomes dusky yellow, very fine quartz sandy (10%) fossiliferous (10%) lime muddy (20%) dolomite (60%). Fossil material is very soft and mostly destroyed. Very fine-grained soft and muddy that is very uniform with depth.

ONSLOW BAY CORE NUMBER: OB25

CRUISE: NSF O. BAY DATE LOGGED: 8-22-80 LATITUDE: 33.847 degrees
LENGTH ATTEMPTED: 5.5m BY: D. Lewis LONGITUDE: 77.585 degrees
LENGTH OF CORE: 7.7m



CORE DESCRIPTION

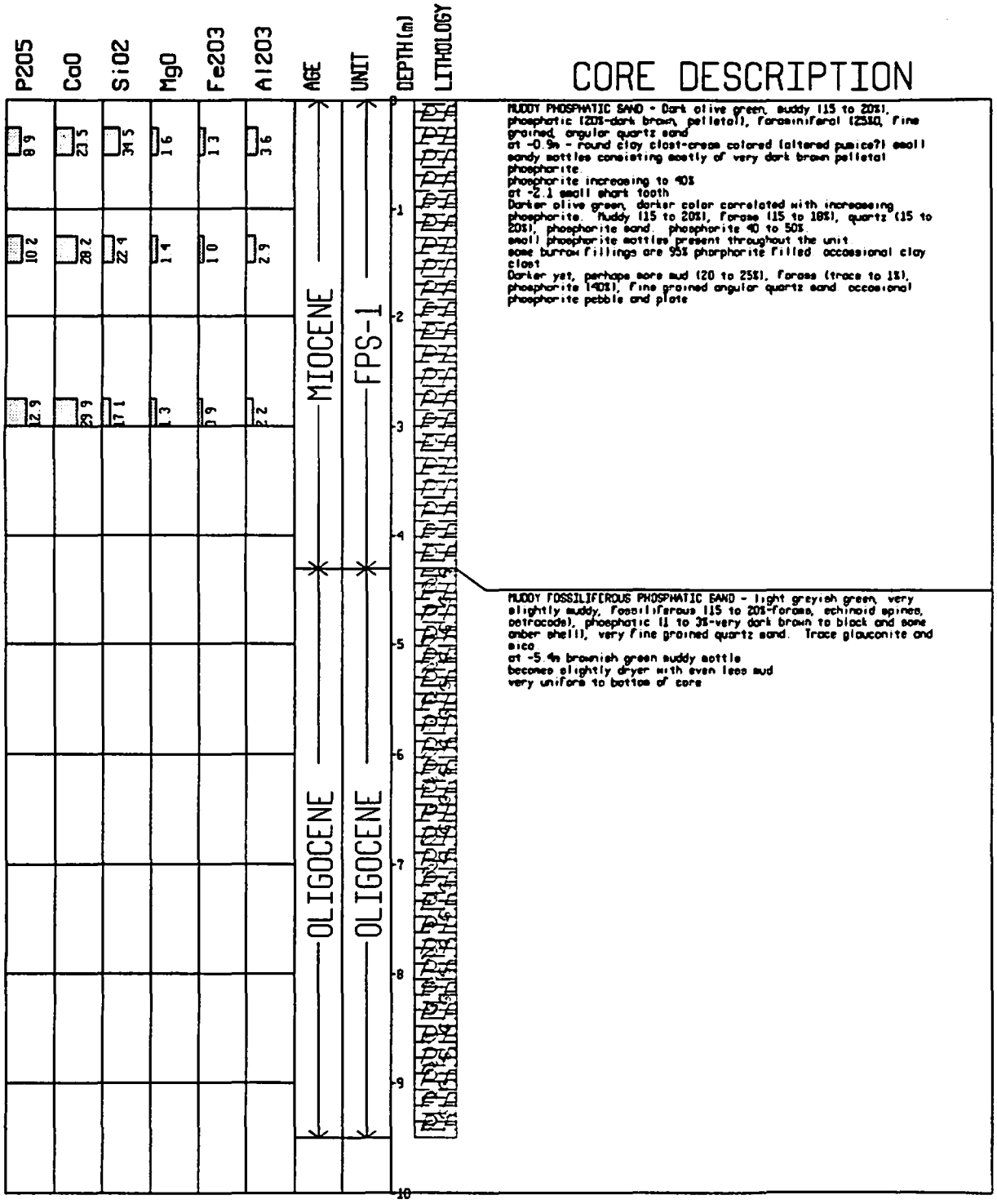
PHOSPHATIC SHELLY SAND - Grey, clean, phosphatic (40%-mixed coraoel and black, mostly coraoel mostly pellets), shelly (5%-foraoe, bivalve fragments), fine to medium grained, angular to subangular quartz sand mud laminae at -0.74m

MUDDY PHOSPHATIC SAND - sharp contact at -1.3m. Dark olive, green, mudd (15%), foraminiferal (15%), phosphatic (30 to 35%) fine grained quartz (35 to 40%) sand pebble and fossil shells at contact below

MUDDY SAND - Greyish green, glauconitic (trace), phosphatic (trace to 2%), muddy (trace to 5%), mottled, very fine grained quartz sand Burrow filling from -1.95 to -2.55m with dark olive green sands of above
Very uniform to bottom

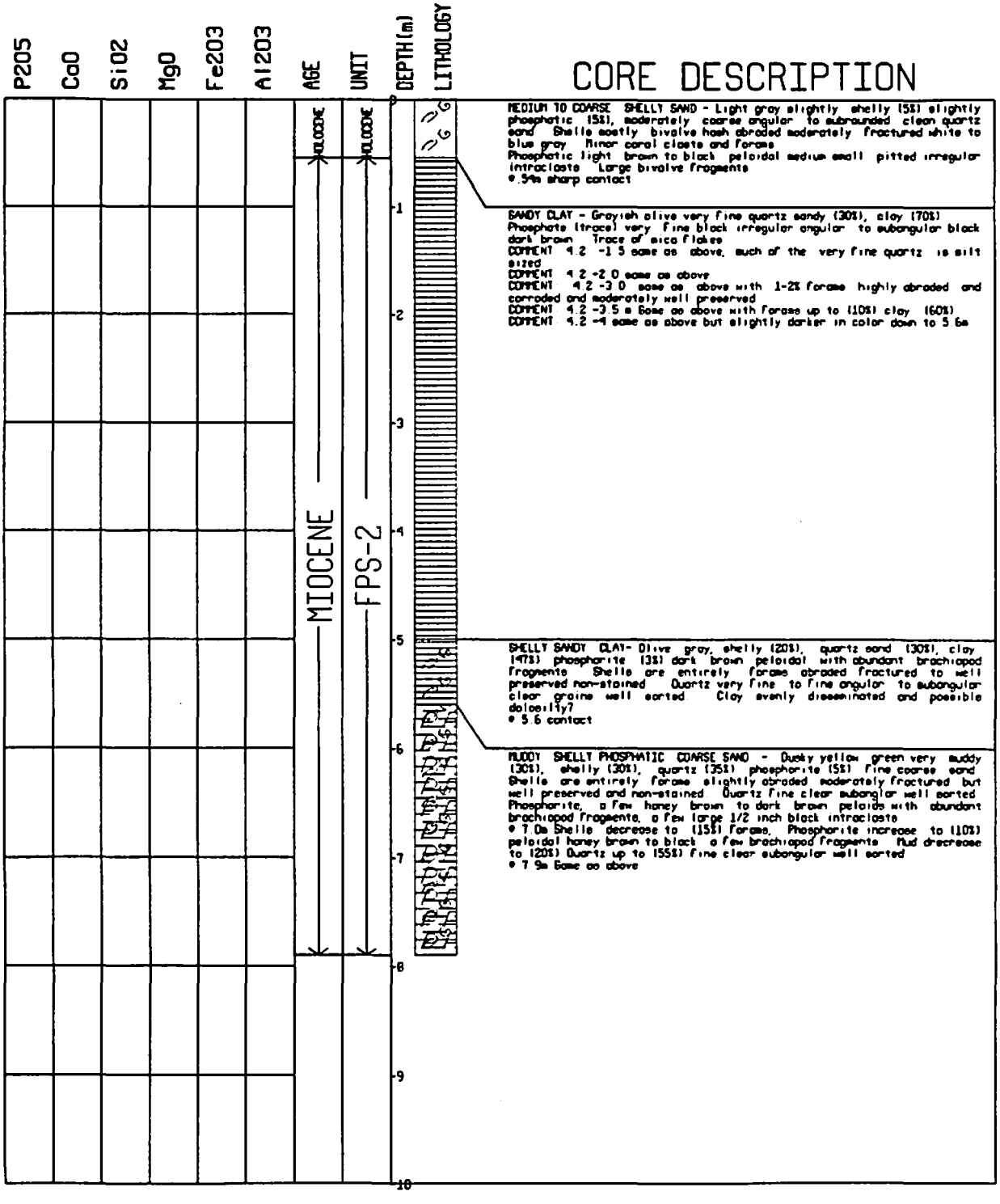
ONSLOW BAY CORE NUMBER: OB26

CRUISE: NSF O. BAY DATE LOGGED: 8-22-80 LATITUDE: 33.843 degrees
LENGTH ATTEMPTED: 5.5m BY: D. LEWIS LONGITUDE: 77.560 degrees
LENGTH OF CORE: 9.5m



ONSLOW BAY CORE NUMBER: OB-27

CRUISE: NSF O. BAY DATE LOGGED: 6-28-90 LATITUDE: 33.842 degrees
LENGTH ATTEMPTED: 9.6m BY: D. YEATES LONGITUDE: 77.533 degrees
LENGTH OF CORE: 7.9m



CORE DESCRIPTION

MEDIUM TO COARSE SHELLY SAND - Light gray slightly shelly (5%) slightly phosphatic (5%), moderately coarse angular to subrounded clean quartz sand. Shells mostly bivalve hash abraded moderately fractured white to blue gray. Minor coral clasts and forams. Phosphatic light brown to black peloidal medium small pitted irregular intraclasts. Large bivalve fragments.
@ 5.4m sharp contact

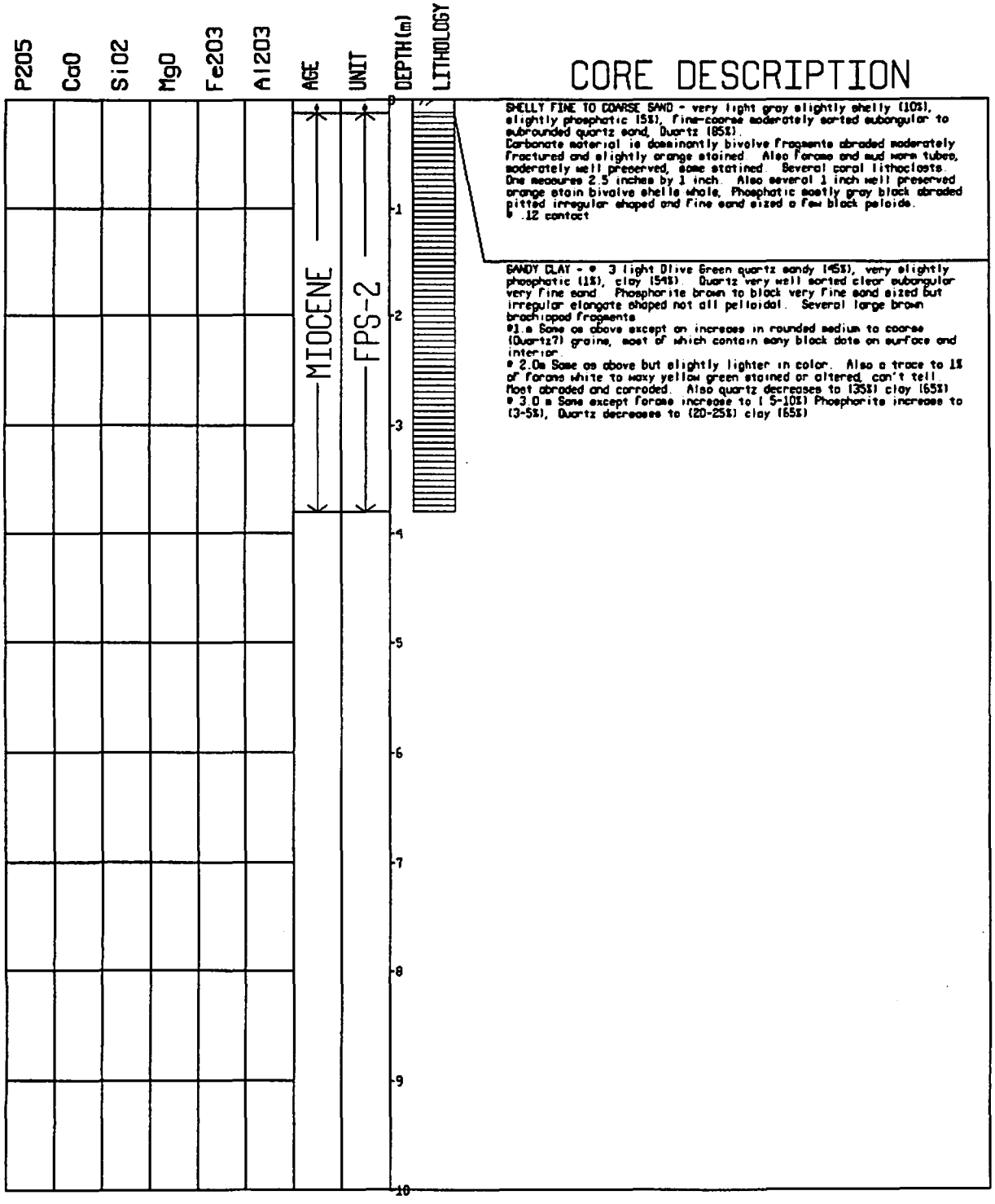
SANDY CLAY - Grayish olive very fine quartz sandy (30%), clay (70%). Phosphate (trace) very fine black irregular angular to subangular black dark brown. Trace of mica flakes.
COMMENT 4.2 -1.5 same as above, much of the very fine quartz is silt sized.
COMMENT 4.2 -2.0 same as above.
COMMENT 4.2 -3.0 same as above with 1-2% forams highly abraded and corroded and moderately well preserved.
COMMENT 4.2 -3.5 m Same as above with forams up to (10%) clay (60%).
COMMENT 4.2 -4 same as above but slightly darker in color down to 5.6m.

SHELLY SANDY CLAY- Olive gray, shelly (20%), quartz sand (30%), clay (47%) phosphorite (3%) dark brown peloidal with abundant brachiopod fragments. Shells are entirely forams abraded fractured to well preserved non-stained. Quartz very fine to fine angular to subangular clear grains well sorted. Clay evenly disseminated and possible dolocilty?
@ 5.6 contact

MUDDY SHELLY PHOSPHATIC COARSE SAND - Dusky yellow green very muddy (30%), shelly (30%), quartz (35%) phosphorite (5%) fine coarse sand. Shells are entirely forams slightly abraded moderately fractured but well preserved and non-stained. Quartz fine clear subangular well sorted. Phosphorite, a few honey brown to dark brown peloids with abundant brachiopod fragments, a few large 1/2 inch black intraclasts.
@ 7.0m Shells decrease to (15%) forams. Phosphorite increase to (10%) peloidal honey brown to black a few brachiopod fragments. Mud drecrease to (20%) Quartz up to (55%) fine clear subangular well sorted.
@ 7.9m Same as above.

ONSLOW BAY CORE NUMBER: OB28

CRUISE: NSF O. BAY DATE LOGGED: 6-27-90 LATITUDE: 33.832 degrees
LENGTH ATTEMPTED: 2.3m BY: D. YEATES LONGITUDE: 77.528 degrees
LENGTH OF CORE: 3.8m



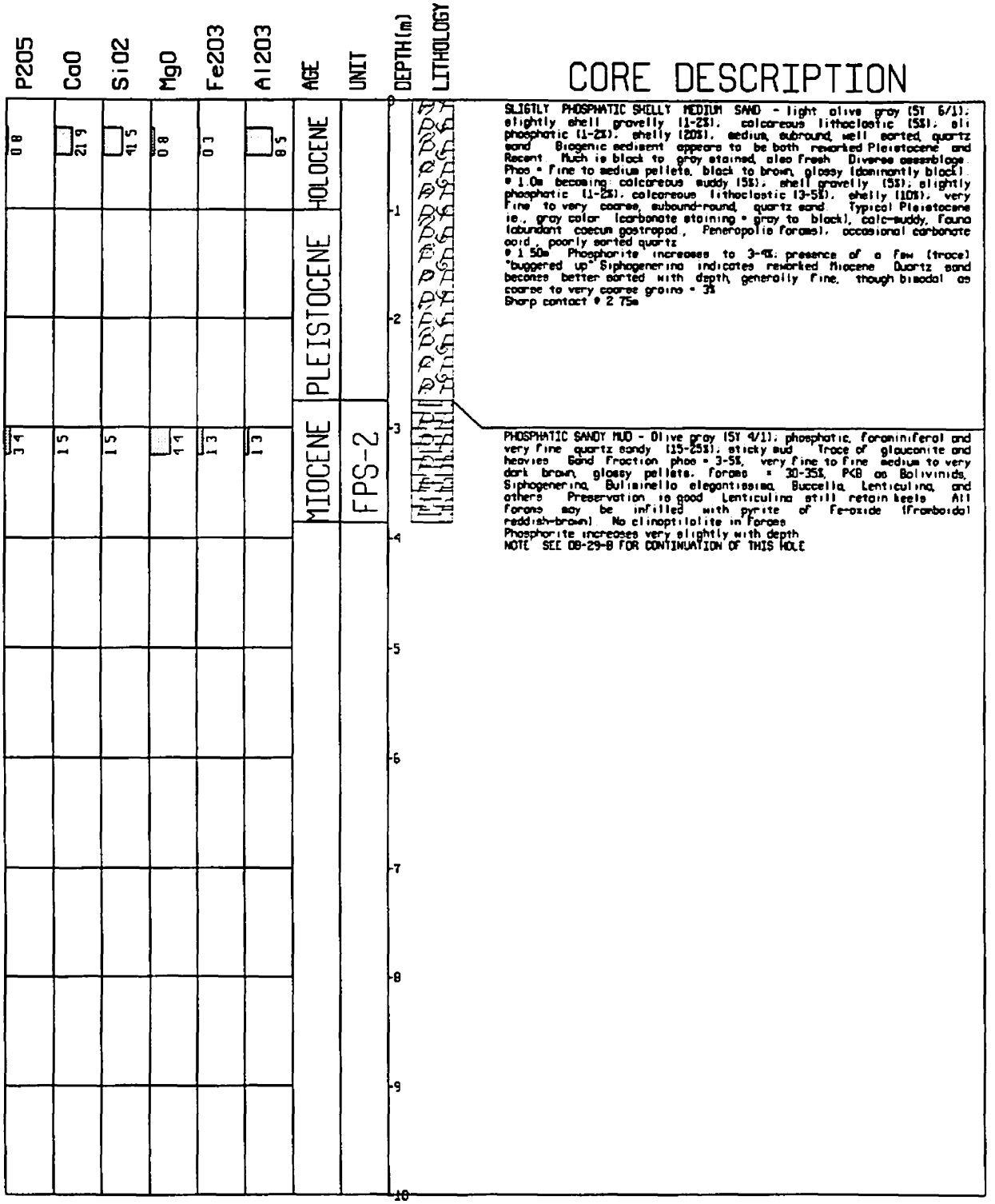
CORE DESCRIPTION

SHELLY FINE TO COARSE SAND - very light gray slightly shelly (10%), slightly phosphatic (5%), fine-coarse moderately sorted subangular to subrounded quartz sand, Quartz (85%).
Carbonate material is dominantly bivalve fragments abraded moderately fractured and slightly orange stained. Also forams and mud worm tubes, moderately well preserved, some stained. Several coral lithoclasts. One measures 2.5 inches by 1 inch. Also several 1 inch well preserved orange stain bivalve shells whole. Phosphatic mostly gray black abraded pitted irregular shaped and fine sand sized a few black peloids.
@ .12 contact

SANDY CLAY - @ 3 light Olive Green quartz sandy (45%), very slightly phosphatic (1%), clay (54%). Quartz very well sorted clear subangular very fine sand. Phosphorite brown to black very fine sand sized but irregular elongate shaped not all pelloidal. Several large brown brachiopod fragments.
@1.0 Same as above except an increase in rounded medium to coarse (Quartz?) grains, most of which contain many black dots on surface and interior.
@ 2.0m Same as above but slightly lighter in color. Also a trace to 1% of forams white to waxy yellow green stained or altered, can't tell. Most abraded and corroded. Also quartz decreases to (35%) clay (65%).
@ 3.0 m Same except forams increase to (5-10%) Phosphorite increase to (3-5%), Quartz decreases to (20-25%) clay (65%).

ONSLOW BAY CORE NUMBER: OB-29

CRUISE: NSF S. O.BAY DATE LOGGED: 9-13-84 LATITUDE: 33d 52.4'
LENGTH ATTEMPTED: 3.7 BY: P. MALLETTE LONGITUDE: 77d 32.1'
LENGTH OF CORE: 3.86



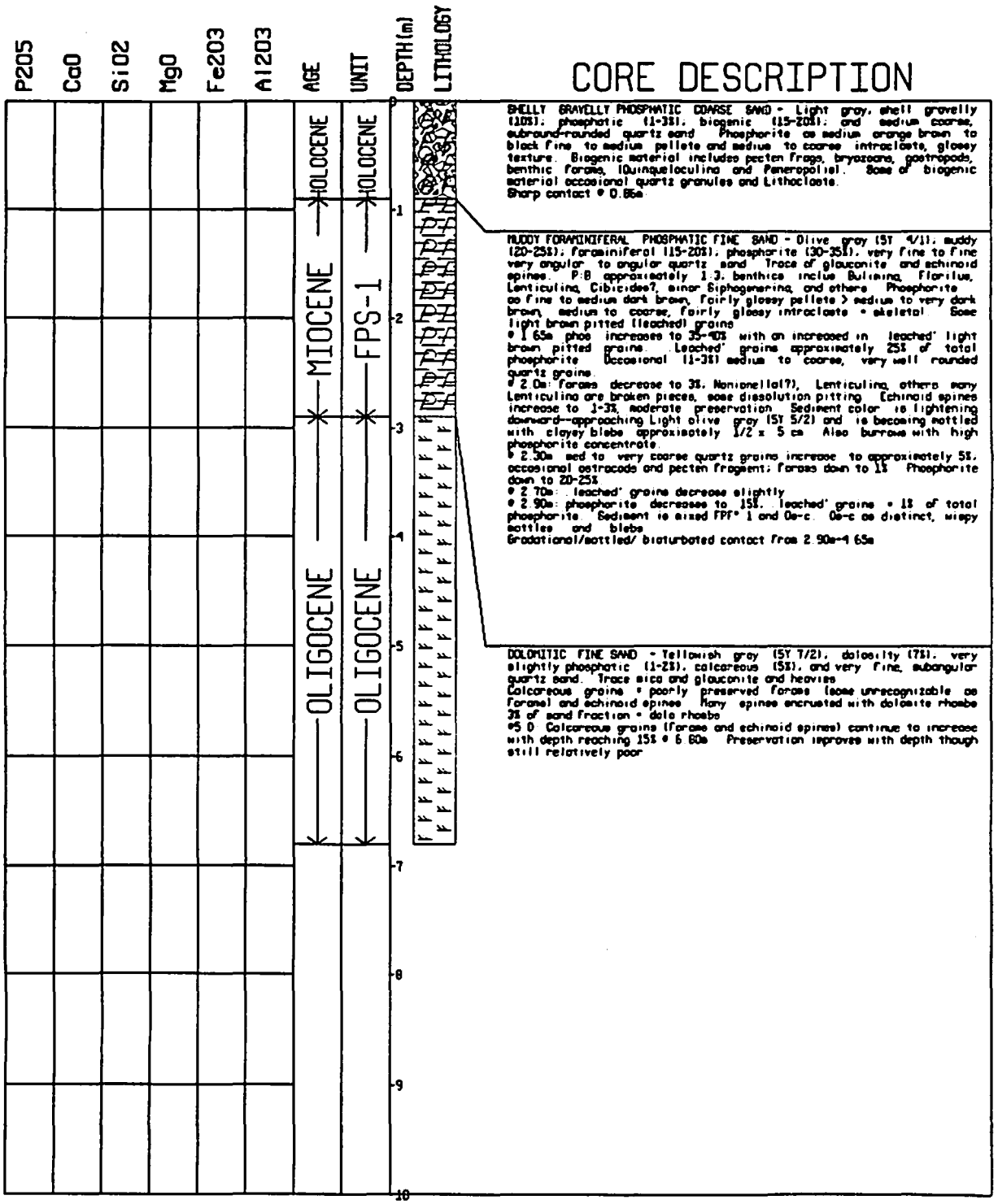
CORE DESCRIPTION

SLIGTLY PHOSPHATIC SHELLY MEDIUM SAND - light olive gray (5Y 6/1); slightly shell gravelly (1-2%), calcareous lithoclastic (5%); sli phosphatic (1-2%), shelly (20%), medium, subround, well sorted, quartz sand. Biogenic sediment appears to be both reworked Pleistocene and Recent. Much is black to gray stained, also fresh. Diverse assemblage. Phos = fine to medium pellets, black to brown, glossy (dominantly black). @ 1.0m becoming calcareous muddy (5%); shell gravelly (5%); slightly phosphatic (1-2%), calcareous lithoclastic (3-5%), shelly (10%), very fine to very coarse, subound-round, quartz sand. Typical Pleistocene ie., gray color (carbonate staining = gray to black), calc-muddy, fauna (abundant caecum gastropod, Peneropolis forams), occasional carbonate oolid, poorly sorted quartz.
@ 1.50m Phosphorite increases to 3-4%; presence of a few (trace) "buggered up" Siphogenerina indicates reworked Miocene. Quartz sand becomes better sorted with depth, generally fine, though bimodal as coarse to very coarse grains = 3%
Sharp contact @ 2.75m

PHOSPHATIC SANDY MUD - Olive gray (5Y 4/1); phosphatic, foraminiferal and very fine quartz sandy (15-25%); sticky mud. Trace of glauconite and heavies. Sand fraction phos = 3-5%, very fine to fine, medium to very dark brown, glossy pellets. Forams = 30-35%, PKB on Bolivinids, Siphogenerina, Bulimanella elegantissima, Buccella, Lenticulina, and others. Preservation is good. Lenticulina still retain keels. All forams may be infilled with pyrite or Fe-oxide (framboidal reddish-brown). No clinoptilolite in forams.
Phosphorite increases very slightly with depth.
NOTE: SEE OB-29-B FOR CONTINUATION OF THIS HOLE

ONSLOW BAY CORE NUMBER: OB-30

CRUISE: NSF O. BAY DATE LOGGED: 9-35-84 LATITUDE: 33.917 degrees
LENGTH ATTEMPTED: 5.1m BY: P. MALLETTE LONGITUDE: 77.503 degrees
LENGTH OF CORE: 6.8m



CORE DESCRIPTION

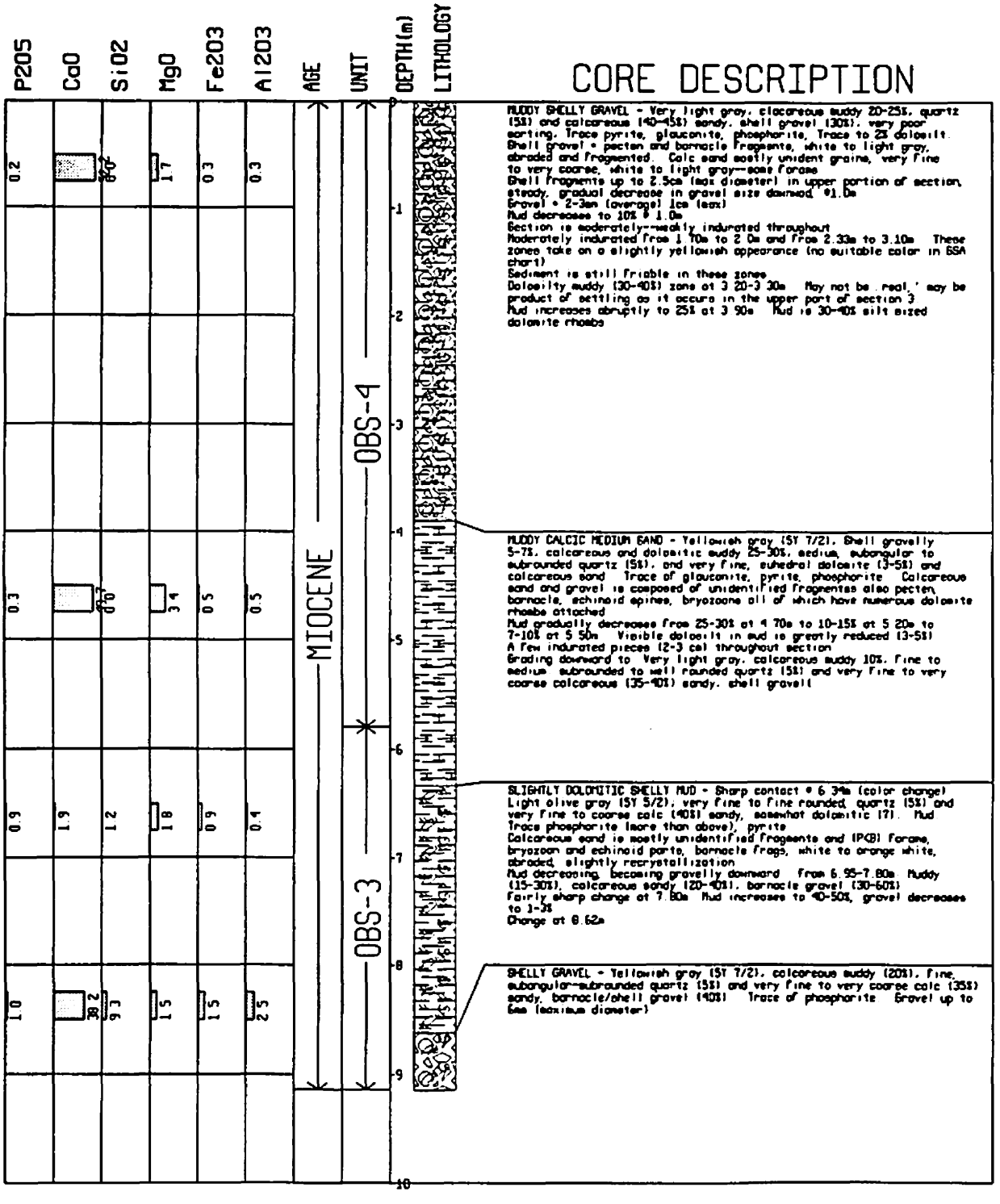
SHELLY GRAVELLY PHOSPHATIC COARSE SAND - Light gray, shell gravelly (10%); phosphatic (1-3%), biogenic (15-20%); and medium coarse, subround-rounded quartz sand. Phosphorite as medium orange brown to black fine to medium pellets and medium to coarse intraclasts, glossy texture. Biogenic material includes pecten frags, bryozoans, gastropods, benthic forams, (Quinqueloculina and Peneropolis). Base of biogenic material occasional quartz granules and Lithoclasts.
Sharp contact @ 0.85m

MUDDY FORAMINIFERAL PHOSPHATIC FINE SAND - Olive gray (5Y 4/1), muddy (20-25%); foraminiferal (15-20%), phosphorite (30-35%), very fine to fine very angular to angular quartz sand. Trace of glauconite and echinoid spines. P:B approximately 1:3. benthics inclus Bulimina, Florilus, Lenticulina, Cibicidoe?, minor Siphogenerina, and others. Phosphorite as fine to medium dark brown, fairly glossy pellets > medium to very dark brown, medium to coarse, fairly glossy intraclasts + skeletal. Some light brown pitted (leached) grains
@ 1.65m phos increases to 35-40% with an increased in 'leached' light brown pitted grains. 'Leached' grains approximately 25% of total phosphorite. Occasional (1-3%) medium to coarse, very well rounded quartz grains.
@ 2.0m: forams decrease to 3%. Nonionella(?), Lenticulina, others many Lenticulina are broken pieces, some dissolution pitting. Echinoid spines increase to 1-3%, moderate preservation. Sediment color is lightening downward--approaching Light olive gray (5Y 5/2) and is becoming mottled with clayey blebs approximately 1/2 x 5 cm. Also burrows with high phosphorite concentrate.
@ 2.30m med to very coarse quartz grains increase to approximately 5%, occasional ostracods and pecten fragment; forams down to 1%. Phosphorite down to 20-25%
@ 2.70m: 'leached' grains decrease slightly
@ 2.90m: phosphorite decreases to 15%. 'leached' grains + 1% of total phosphorite. Sediment is mixed FPF* 1 and De-c. De-c as distinct, wispy mottles and blebs
Gradational/mottled/ bioturbated contact from 2.90m-4.65m

DOLOMITIC FINE SAND - Yellowish gray (5Y 7/2), dolocilty (7%), very slightly phosphatic (1-2%), calcareous (5%), and very fine, subangular quartz sand. Trace silca and glauconite and heavies
Calcareous grains + poorly preserved forams (some unrecognizable as foram) and echinoid spines. Many spines encrusted with dolomite rhombs 3% of sand fraction + dolo rhombs
@5.0 Calcareous grains (forams and echinoid spines) continue to increase with depth reaching 15% @ 6.60m. Preservation improves with depth though still relatively poor

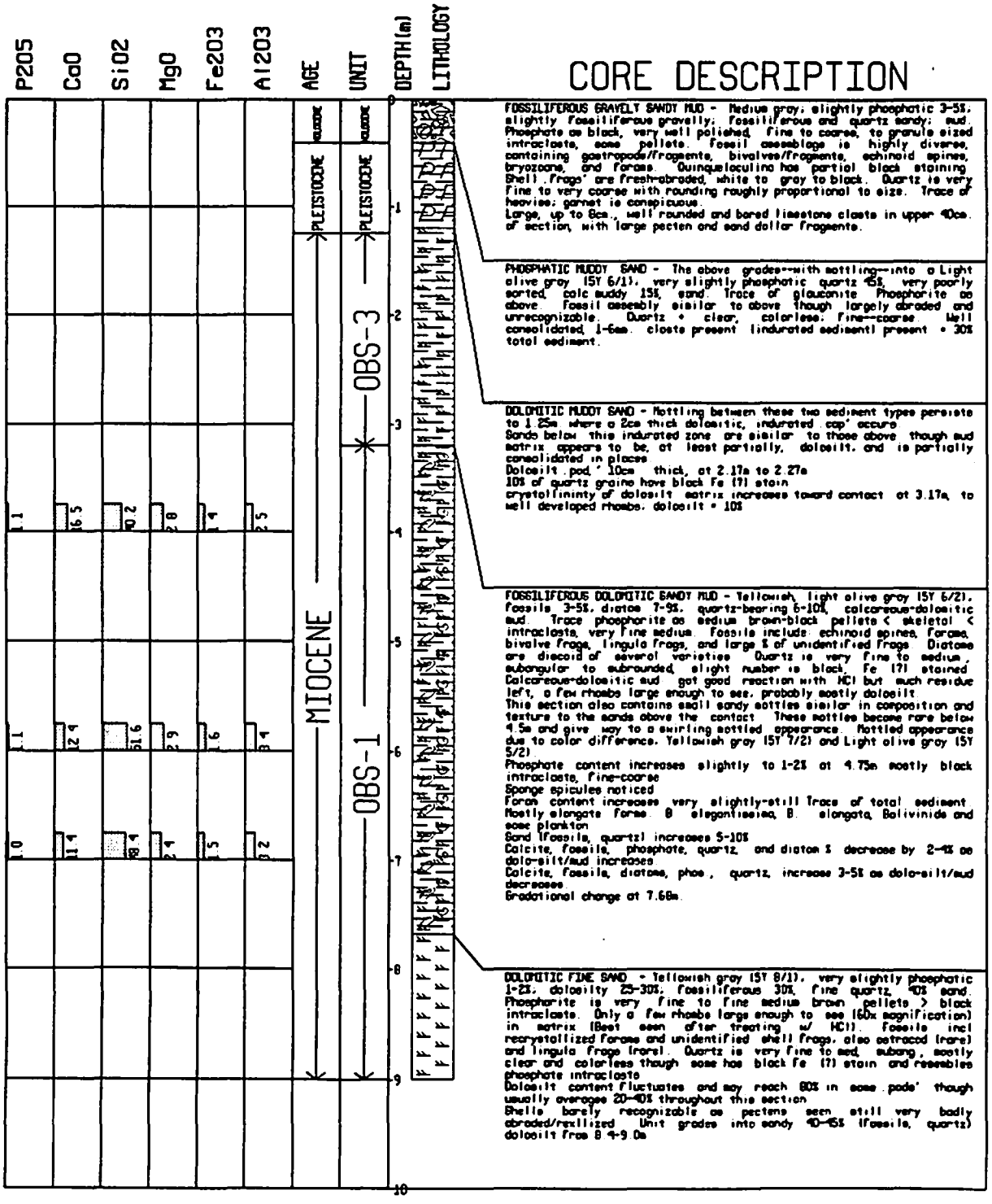
ONSLOW BAY CORE NUMBER: OB33

CRUISE: NSF N. O.BAY DATE LOGGED: 5-22-84 LATITUDE: 34.618 degrees
LENGTH ATTEMPTED: 8.8m BY: P. MALLETTE LONGITUDE: 76.937 degrees
LENGTH OF CORE: 9.15m



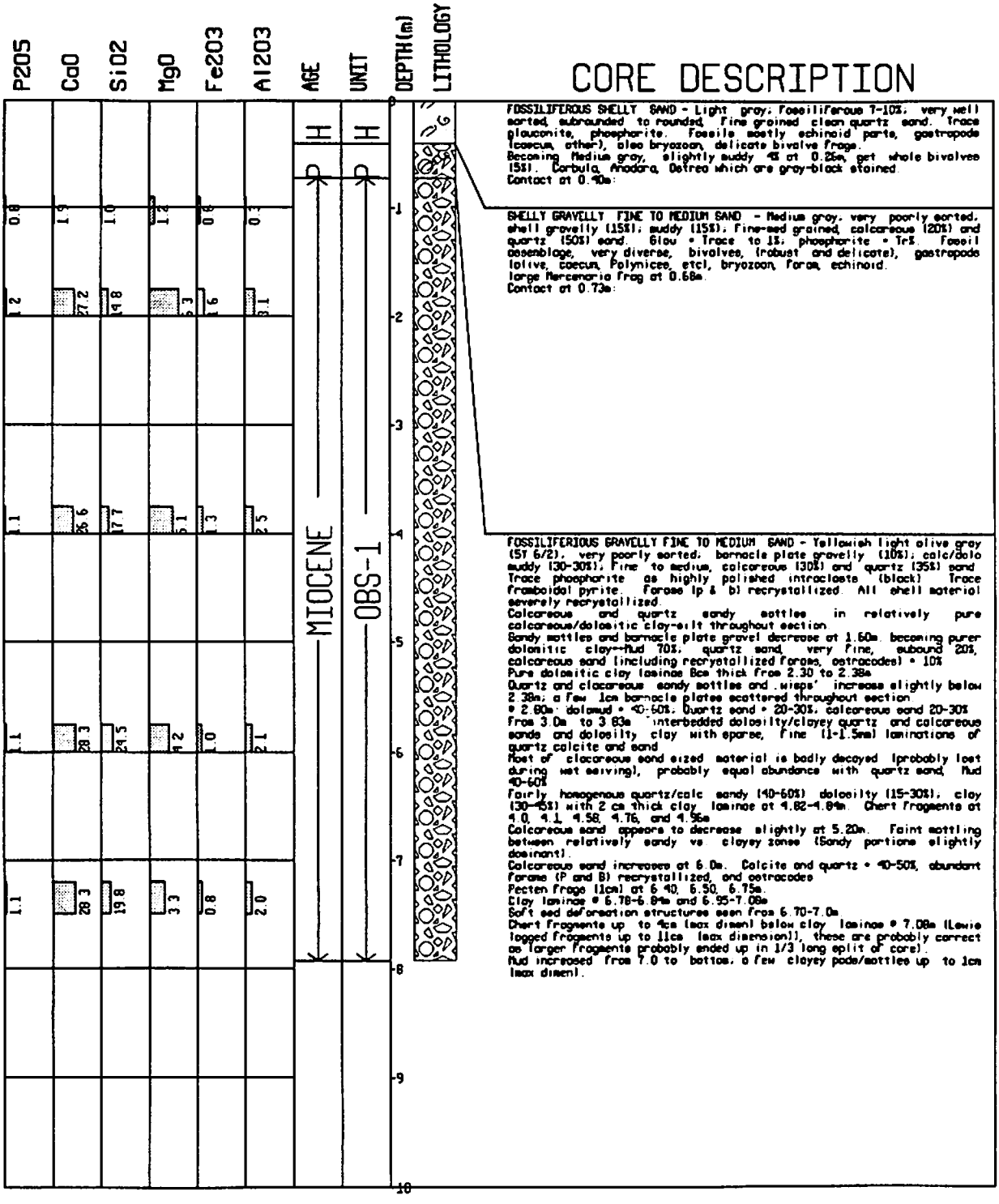
ONSLOW BAY CORE NUMBER: OB-34

CRUISE: NSF N. O.BAY DATE LOGGED: 12-29-83 LATITUDE: 34.610 degrees
LENGTH ATTEMPTED: 6.8m BY: P. MALLETTE LONGITUDE: 76.970 degrees
LENGTH OF CORE: 9.0m



ONSLOW BAY CORE NUMBER: OB-35

CRUISE: NSF N. O.BAY DATE LOGGED: 5-16-84 LATITUDE: 34.608 degrees
LENGTH ATTEMPTED: 5.2m BY: P. MALLETTE LONGITUDE: 77.012 degrees
LENGTH OF CORE: 7.93m



CORE DESCRIPTION

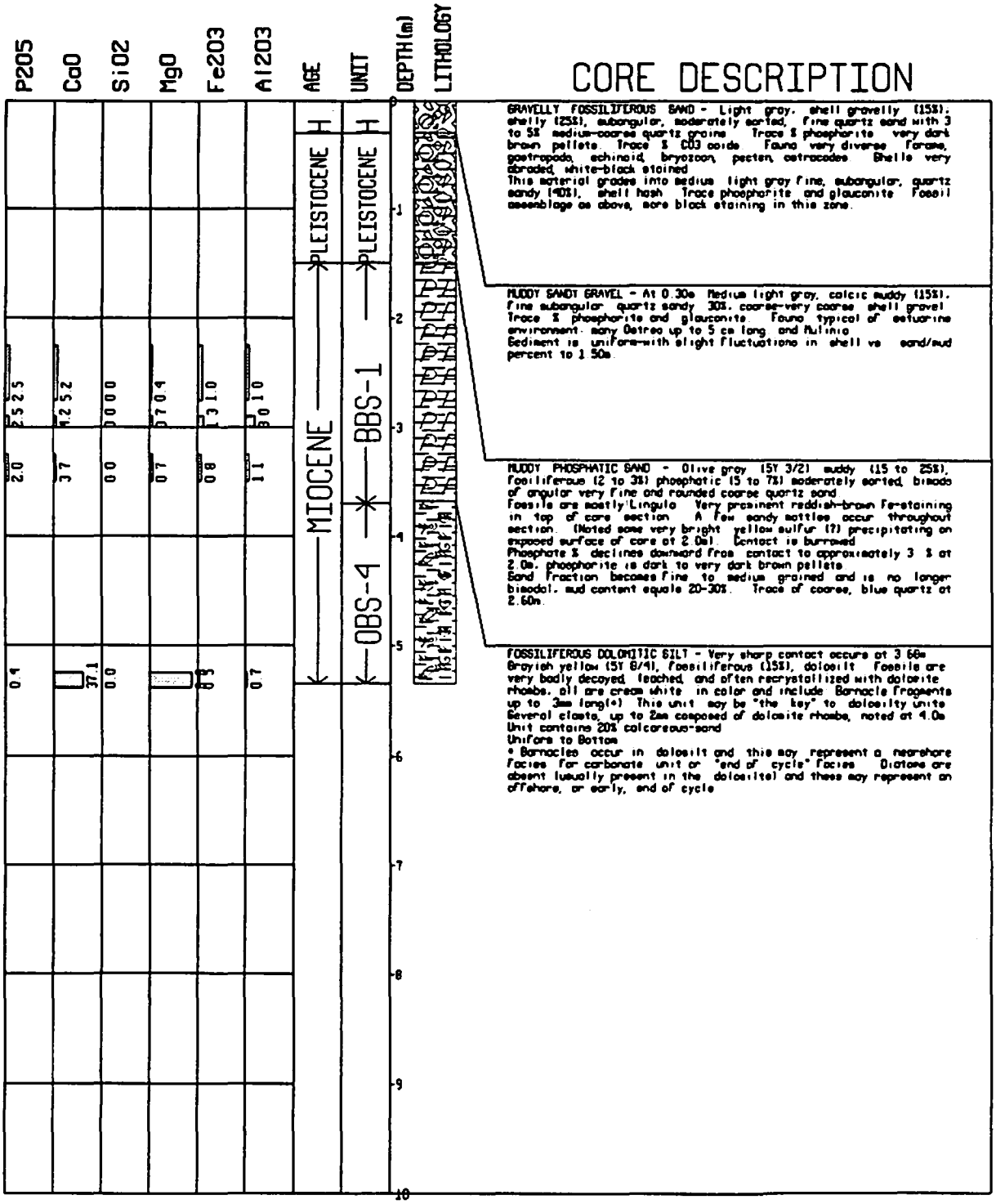
FOSSILIFEROUS SHELLY SAND - Light gray; fossiliferous 7-10%; very well sorted, subrounded to rounded, fine grained clean quartz sand. Trace glauconite, phosphorite. Fossils mostly echinoid parts, gastropods (caecum, other), also bryozoan, delicate bivalve frags.
Becoming medium gray, slightly muddy 4% at 0.25m, get whole bivalves (5%). Corbula, Anadara, Ostrea which are gray-black stained.
Contact at 0.40m:

SHELLY GRAVELLY FINE TO MEDIUM SAND - Medium gray, very poorly sorted, shell gravelly (15%); muddy (15%). Fine-sed grained, calcareous (20%) and quartz (50%) sand. Glau + Trace to 1%; phosphorite + Tr%. Fossil assemblage, very diverse, bivalves, (robust and delicate), gastropods (olive, caecum, Polynices, etc), bryozoan, foram, echinoid.
large Mercenaria frag at 0.68m.
Contact at 0.73m:

FOSSILIFERIOUS GRAVELLY FINE TO MEDIUM SAND - Yellowish light olive gray (5Y 6/2), very poorly sorted; barnacle plate gravelly (10%); calc/dolo muddy (30-30%); Fine to medium, calcareous (30%) and quartz (35%) sand. Trace phosphorite as highly polished intraclasts (black). Trace framboidal pyrite. Forams (p & b) recrystallized. All shell material severely recrystallized.
Calcareous and quartz sandy mottles in relatively pure calcareous/dolositic clay-silt throughout section.
Sandy mottles and barnacle plate gravel decrease at 1.60m, becoming purer dolomitic clay--mud 70%, quartz sand, very fine, subound 20%, calcareous sand (including recrystallized forams, ostracodes) + 10%
Pure dolomitic clay laminae 8cm thick from 2.30 to 2.38m
Quartz and clacareous sandy mottles and .wisps' increase slightly below 2.38m; a few 1cm barnacle plates scattered throughout section.
@ 2.80m: dolomud + 40-60%; Quartz sand + 20-30%, calcareous sand 20-30%
From 3.0m to 3.93m interbedded dolosilty/clayey quartz and calcareous sands and dolosilty clay with sparse, fine (1-1.5mm) laminations of quartz calcite and sand
Most of clacareous sand sized material is badly decayed (probably lost during wet sieving), probably equal abundance with quartz sand, mud 40-60%
Fairly homogenous quartz/calc sandy (40-60%) dolosilty (15-30%), clay (30-45%) with 2 cm thick clay laminae at 4.82-4.84m. Chert fragments at 4.0, 4.1, 4.58, 4.76, and 4.96m
Calcareous sand appears to decrease slightly at 5.20m. Faint mottling between relatively sandy vs clayey zones (Sandy portions slightly dominant).
Calcareous sand increases at 6.0m. Calcite and quartz + 40-50%, abundant forams (P and B) recrystallized, and ostracodes
Pecten frags (incl at 6.40, 6.50, 6.75m.
Clay laminae @ 6.78-6.84m and 6.95-7.08m
Soft sed deformation structures seen from 6.70-7.0m
Chert fragments up to 4cm (max dimen) below clay laminae @ 7.08m (Lewis logged fragments up to 11cm (max dimension)), these are probably correct as larger fragments probably ended up in 1/3 long split of core).
Mud increased from 7.0 to bottom, a few clayey pods/mottles up to 1cm (max dimen).

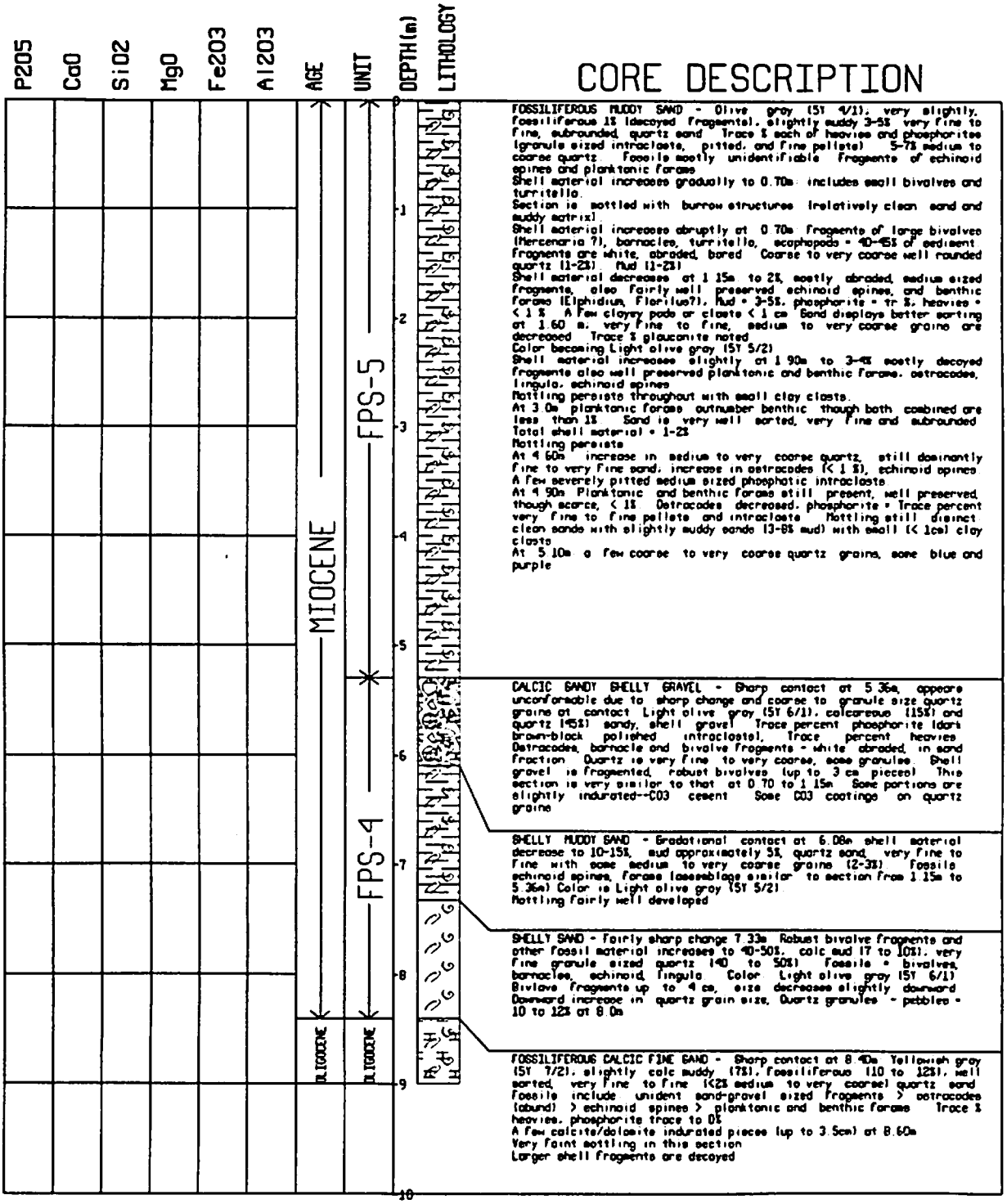
ONSLOW BAY CORE NUMBER: OB36

CRUISE: NSF O. BAY DATE LOGGED: 1-26-84 LATITUDE: 34.625 degrees
LENGTH ATTEMPTED: 4.2m BY: P. MALLETTE LONGITUDE: 76.915 degrees
LENGTH OF CORE: 5.35m



ONSLOW BAY CORE NUMBER: OB37

CRUISE: NSF O. BAY DATE LOGGED: 5-15-84 LATITUDE: 34.593 degrees
LENGTH ATTEMPTED: 9m BY: P. MALLETTE LONGITUDE: 77.078 degrees
LENGTH OF CORE: 9m



CORE DESCRIPTION

FOSSILIFEROUS MUDDY SAND - Olive gray (5Y 4/1), very slightly, fossiliferous 1% (decayed fragments), slightly muddy 3-5% very fine to fine, subrounded quartz sand Trace % each of heavies and phosphorites (granule sized intraclasts, pitted, and fine pellets) 5-7% medium to coarse quartz Fossils mostly unidentifiable Fragments of echinoid spines and planktonic forams
Shell material increases gradually to 0.70m (includes small bivalves and turritella).
Section is mottled with burrow structures (relatively clean sand and muddy matrix)
Shell material increases abruptly at 0.70m Fragments of large bivalves (Mercenaria ?), barnacles, turritella, ecophopods = 40-45% of sediment Fragments are white, abraded, bored Coarse to very coarse well rounded quartz (1-2%) Mud (1-2%)
Shell material decreases at 1.15m to 2%, mostly abraded, medium sized fragments, also fairly well preserved echinoid spines, and benthic forams (Elphidium, Florilus?), Mud = 3-5%, phosphorite = tr %, heavies = < 1 % A few clayey pods or clasts < 1 cm Sand displays better sorting at 1.60 m. very fine to fine, medium to very coarse grains are decreased Trace % glauconite noted
Color becoming Light olive gray (5Y 5/2)
Shell material increases slightly at 1.90m to 3-4% mostly decayed fragments also well preserved planktonic and benthic forams. ostracodes, lingula, echinoid spines
Mottling persists throughout with small clay clasts.
At 3.0m planktonic forams outnumber benthic though both combined are less than 1% Sand is very well sorted, very fine and subrounded
Total shell material = 1-2%
Mottling persists
At 4.60m increase in medium to very coarse quartz, still dominantly fine to very fine sand, increase in ostracodes (< 1 %), echinoid spines A few severely pitted medium sized phosphatic intraclasts
At 4.90m Planktonic and benthic forams still present, well preserved, though scarce, < 1% Ostracodes decreased. phosphorite = Trace percent very fine to fine pellets and intraclasts Mottling still disinct clean sands with slightly muddy sands (3-8% mud) with small (< 1cm) clay clasts
At 5.10m a few coarse to very coarse quartz grains, some blue and purple

CALCIC SANDY SHELLY GRAVEL - Sharp contact at 5.36m, appears unconformable due to sharp change and coarse to granule size quartz grains at contact Light olive gray (5Y 6/1), calcareous (15%) and quartz (45%) sandy, shell gravel Trace percent phosphorite (dark brown-black polished intraclasts), Trace percent heavies Ostracodes, barnacle and bivalve fragments - white abraded, in sand fraction Quartz is very fine to very coarse, some granules Shell gravel is fragmented, robust bivalves (up to 3 cm pieces) This section is very similar to that at 0.70 to 1.15m Some portions are slightly indurated--CO3 cement Some CO3 coatings on quartz grains

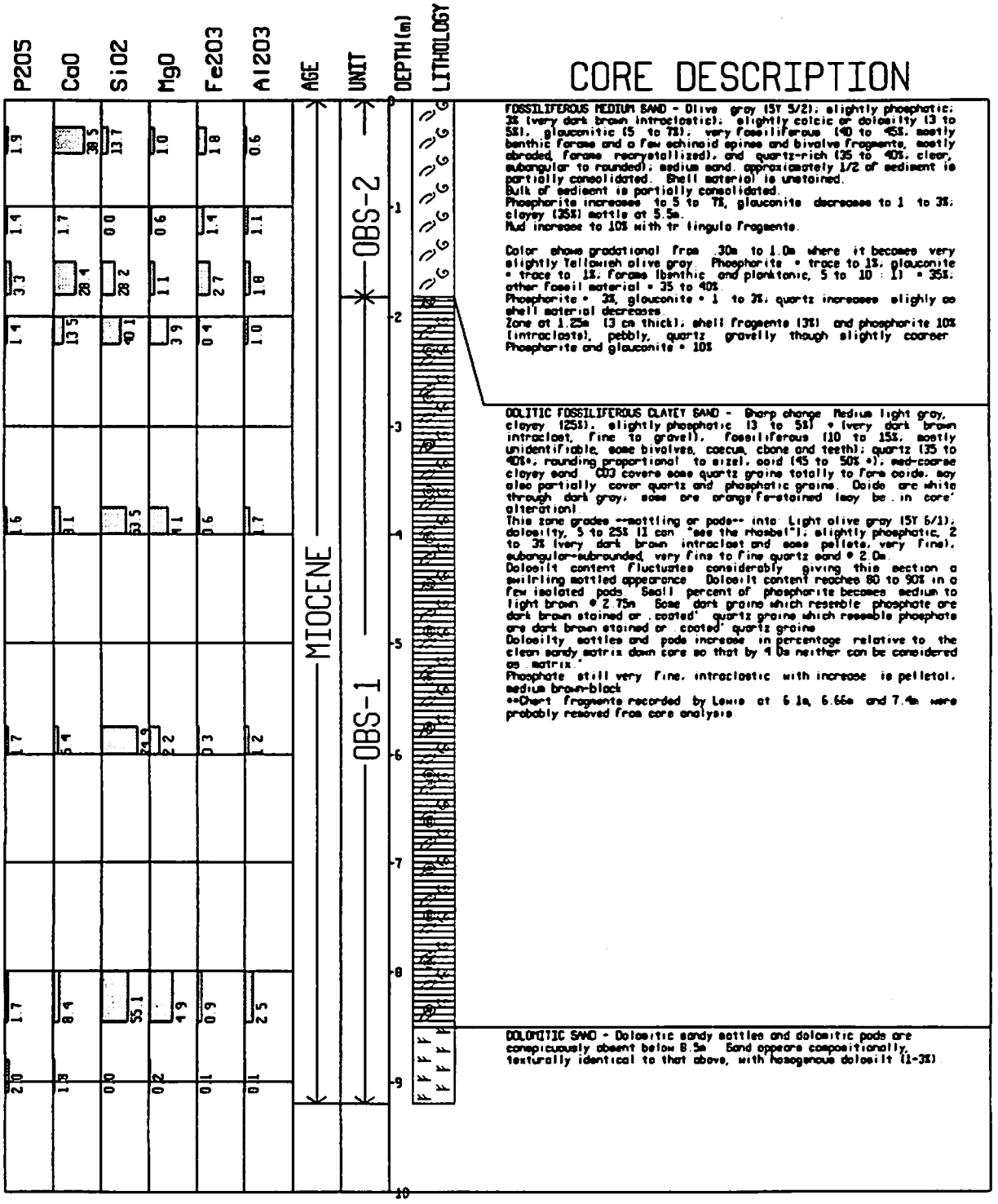
SHELLY MUDDY SAND - Gradational contact at 6.06m shell material decrease to 10-15%, mud approximately 5%, quartz sand, very fine to fine with some medium to very coarse grains (2-3%) Fossils echinoid spines, forams (assemblage similar to section from 1.15m to 5.36m) Color is Light olive gray (5Y 5/2)
Mottling fairly well developed

SHELLY SAND - Fairly sharp change 7.33m Robust bivalve fragments and other fossil material increases to 40-50%. calc mud 17 to 10%), very fine granule sized quartz (40 to 50%) Fossils = bivalves, barnacles, echinoid, lingula Color Light olive gray (5Y 6/1)
Bivalve fragments up to 4 cm, size decreases slightly downward
Downward increase in quartz grain size, Quartz granules - pebbles = 10 to 12% at 8.0m

FOSSILIFEROUS CALCIC FINE SAND - Sharp contact at 8.40m Yellowish gray (5Y 7/2), slightly calc muddy (7%), fossiliferous (10 to 12%), well sorted, very fine to fine (<2% medium to very coarse) quartz sand Fossils include unident sand-gravel sized fragments > ostracodes (abund) > echinoid spines > planktonic and benthic forams Trace % heavies, phosphorite trace to 0%
A few calcite/dolomite indurated pieces (up to 3.5cm) at 8.60m
Very faint mottling in this section
Larger shell fragments are decayed

ONSLOW BAY CORE NUMBER: OB38

CRUISE: NSF O. BAY DATE LOGGED: 12-27-83 LATITUDE: 34.437 degrees
LENGTH ATTEMPTED: 8.4m BY: P. MALLETTE LONGITUDE: 76.000 degrees
LENGTH OF CORE: 9.2m



CORE DESCRIPTION

FOSSILIFEROUS MEDIUM SAND - Olive gray (5Y 5/2); slightly phosphatic; 3% (very dark brown intraclastic); slightly calcic or dolosilty (3 to 5%), glauconitic (5 to 7%); very fossiliferous (40 to 45%, mostly benthic forams and a few echinoid spines and bivalve fragments, mostly abraded, forams recrystallized), and quartz-rich (35 to 40%, clear, subangular to rounded); medium sand, approximately 1/2 of sediment is partially consolidated. Shell material is unretained.
Bulk of sediment is partially consolidated.
Phosphorite increases to 5 to 7%, glauconite decreases to 1 to 3%; clayey (35%) mottle at 5.5m.
Mud increase to 10% with tr lingula fragments.

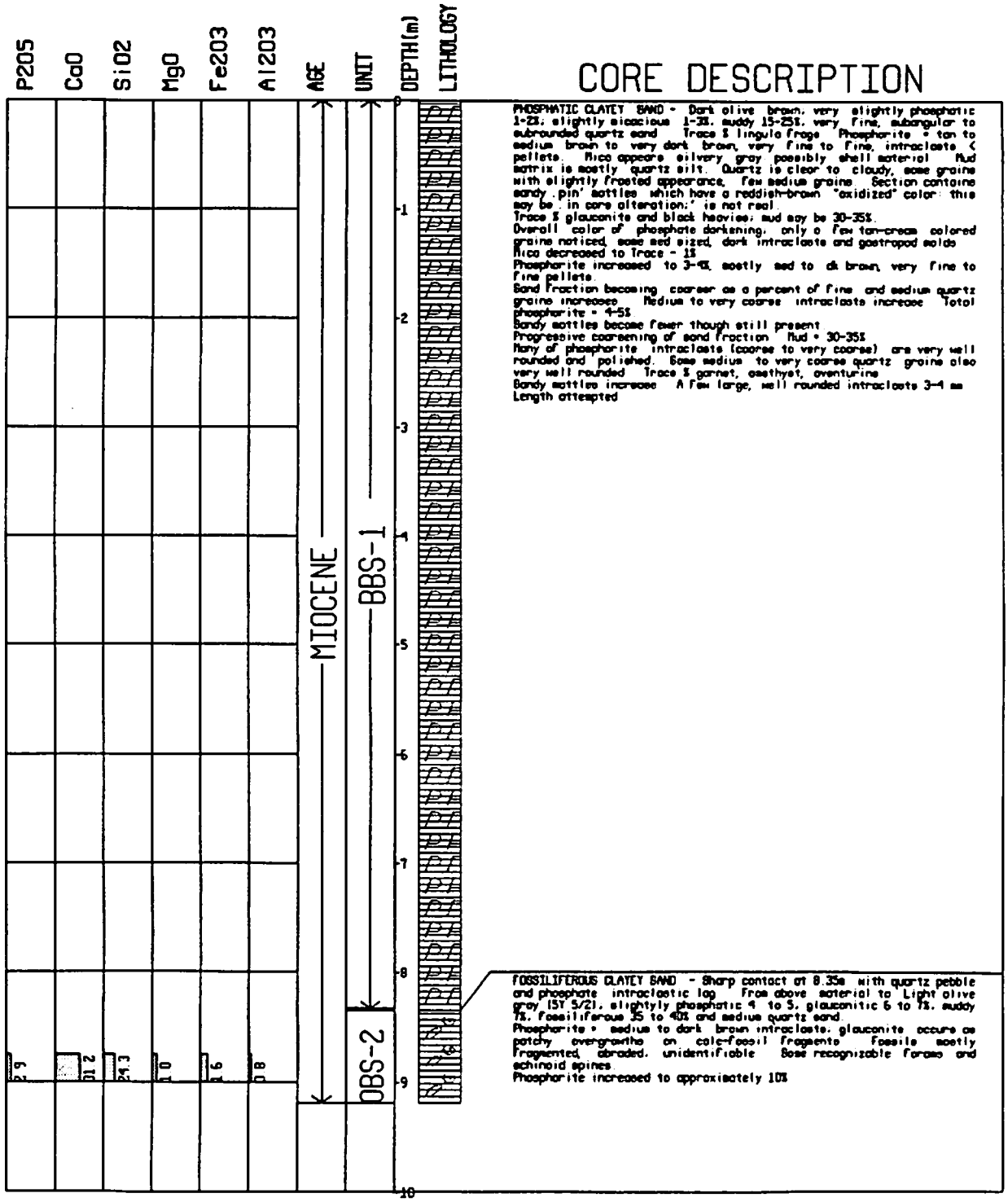
Color shows gradational from .30m to 1.0m where it becomes very slightly Yellowish olive grey. Phosphorite = trace to 1%, glauconite = trace to 1%, forams (benthic and planktonic, 5 to 10 : 1) = 35%; other fossil material = 35 to 40%
Phosphorite = 3%, glauconite = 1 to 3%; quartz increases slighly as shell material decreases.
Zone at 1.25m (3 cm thick); shell fragments (3%) and phosphorite 10% (intraclasts), pebbly, quartz gravelly though slightly coarser
Phosphorite and glauconite = 10%

OOLITIC FOSSILIFEROUS CLAYEY SAND - Sharp change Medium light gray, clayey (25%), slightly phosphatic (3 to 5%) = (very dark brown intraclast, fine to gravel), fossiliferous (10 to 15%, mostly unidentifiable, some bivalves, caecum, cbone and teeth); quartz (35 to 40%+, rounding proportional to size), oaid (45 to 50% +); med-coarse clayey sand. CO3 covers some quartz grains totally to form oaids, may also partially cover quartz and phosphatic grains. Oaids are white through dark gray; some are orange Fe-stained (may be in core alteration).
This zone grades --mottling or pods-- into Light olive gray (5Y 6/1); dolosilty, 5 to 25% (I can "see the rhombs"); slightly phosphatic, 2 to 3% (very dark brown intraclast and some pellets, very fine), subangular-subrounded, very fine to fine quartz sand @ 2.0m.
Dolosilt content fluctuates considerably giving this section a swirling mottled appearance. Dolosilt content reaches 80 to 90% in a few isolated pods. Small percent of phosphorite becomes medium to light brown @ 2.75m. Some "dark grains which resemble phosphate are dark brown stained or "coated" quartz grains which resemble phosphate are dark brown stained or "coated" quartz grains.
Dolosilty mottles and pods increase in percentage relative to the clean sandy matrix down core so that by 4.0m neither can be considered as matrix.
Phosphate still very fine, intraclastic with increase in pelletal, medium brown-black
**Chert fragments recorded by Lewis at 5.1m, 6.66m and 7.4m were probably removed from core analysis

DOLOMITIC SAND - Dolosilic sandy mottles and dolomitic pods are conspicuously absent below 8.5m. Sand appears compositionally, texturally identical to that above, with homogenous dolosilt (1-3%)

ONSLOW BAY CORE NUMBER: OB39

CRUISE: NSF O.BAY DATE LOGGED: 1-2-84 LATITUDE: 34.440 degrees
LENGTH ATTEMPTED: 7.3m BY: P. MALLETTE LONGITUDE: 76.975 degrees
LENGTH OF CORE: 9.19m



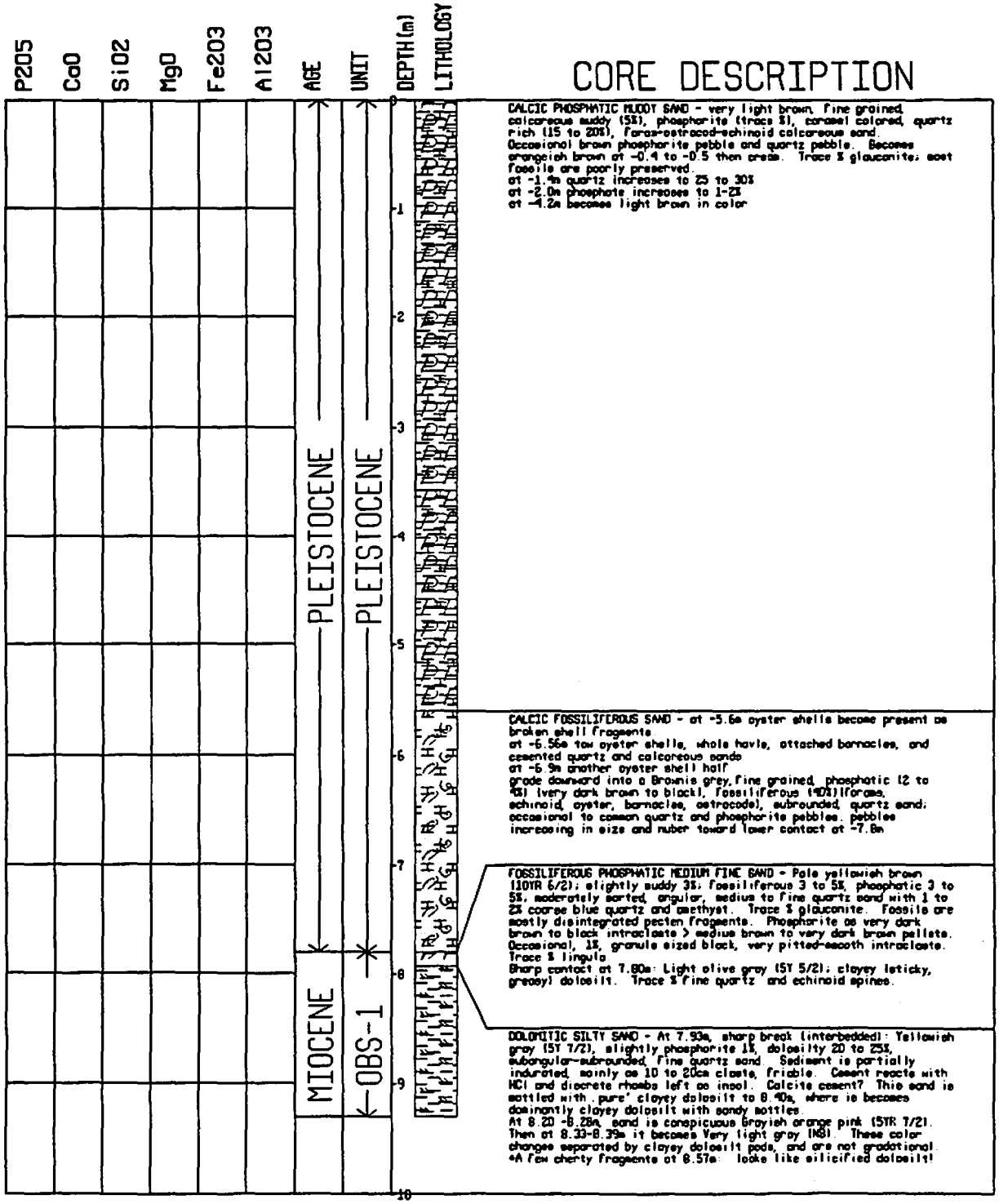
CORE DESCRIPTION

PHOSPHATIC CLAYEY SAND - Dark olive brown, very slightly phosphatic 1-2%; slightly siliceous 1-3%, muddy 15-25%, very fine, subangular to subrounded quartz sand. Trace % lingula frags. Phosphorite = tan to medium brown to very dark brown, very fine to fine, intraclasts & pellets. Mica appears silvery gray possibly shell material. Mud matrix is mostly quartz silt. Quartz is clear to cloudy, some grains with slightly frosted appearance. Few medium grains. Section contains sandy 'pin' mottles which have a reddish-brown "oxidized" color: this may be in core alteration; is not real.
Trace % glauconite and black heavies; mud may be 30-35%.
Overall color of phosphate darkening; only a few tan-cream colored grains noticed, some med sized, dark intraclasts and gastropod molds.
Mica decreased to Trace - 1%.
Phosphorite increased to 3-4%, mostly med to dk brown, very fine to fine pellets.
Sand fraction becoming coarser as a percent of fine and medium quartz grains increases. Medium to very coarse intraclasts increase. Total phosphorite = 4-5%.
Sandy mottles become fewer though still present.
Progressive coarsening of sand fraction. Mud = 30-35%.
Many of phosphorite intraclasts (coarse to very coarse) are very well rounded and polished. Some medium to very coarse quartz grains also very well rounded. Trace % garnet, amethyst, aventurine.
Sandy mottles increase. A few large, well rounded intraclasts 3-4 mm.
Length attempted.

FOSSILIFEROUS CLAYEY SAND - Sharp contact at 8.35m with quartz pebble and phosphate intraclastic lag. Fros above material to Light olive gray (5Y 5/2), slightly phosphatic 4 to 5, glauconitic 6 to 7%, muddy 7%, fossiliferous 35 to 40% and medium quartz sand.
Phosphorite = medium to dark brown intraclasts, glauconite occurs as patchy overgrowths on calc-fossil fragments. Fossils mostly fragmented, abraded, unidentifiable. Some recognizable forams and echinoid spines.
Phosphorite increased to approximately 10%.

ONSLOW BAY CORE NUMBER: OB40

CRUISE: NSF O. BAY DATE LOGGED: 1-16-84 LATITUDE: 34.433 degrees
LENGTH ATTEMPTED: 6.6m BY: P. MALLETTE LONGITUDE: 76.017 degrees
LENGTH OF CORE: 9.3m



CORE DESCRIPTION

CALCIC PHOSPHATIC MUDDY SAND - very light brown, fine grained, calcareous muddy (5%), phosphorite (trace %), corneel colored, quartz rich (15 to 20%), foras-ostracod-echinoid calcareous sand. Occasional brown phosphorite pebble and quartz pebble. Becomes orangeish brown at -0.4 to -0.5 then cream. Trace % glauconite; most fossils are poorly preserved.
at -1.4m quartz increases to 25 to 30%
at -2.0m phosphate increases to 1-2%
at -4.2m becomes light brown in color

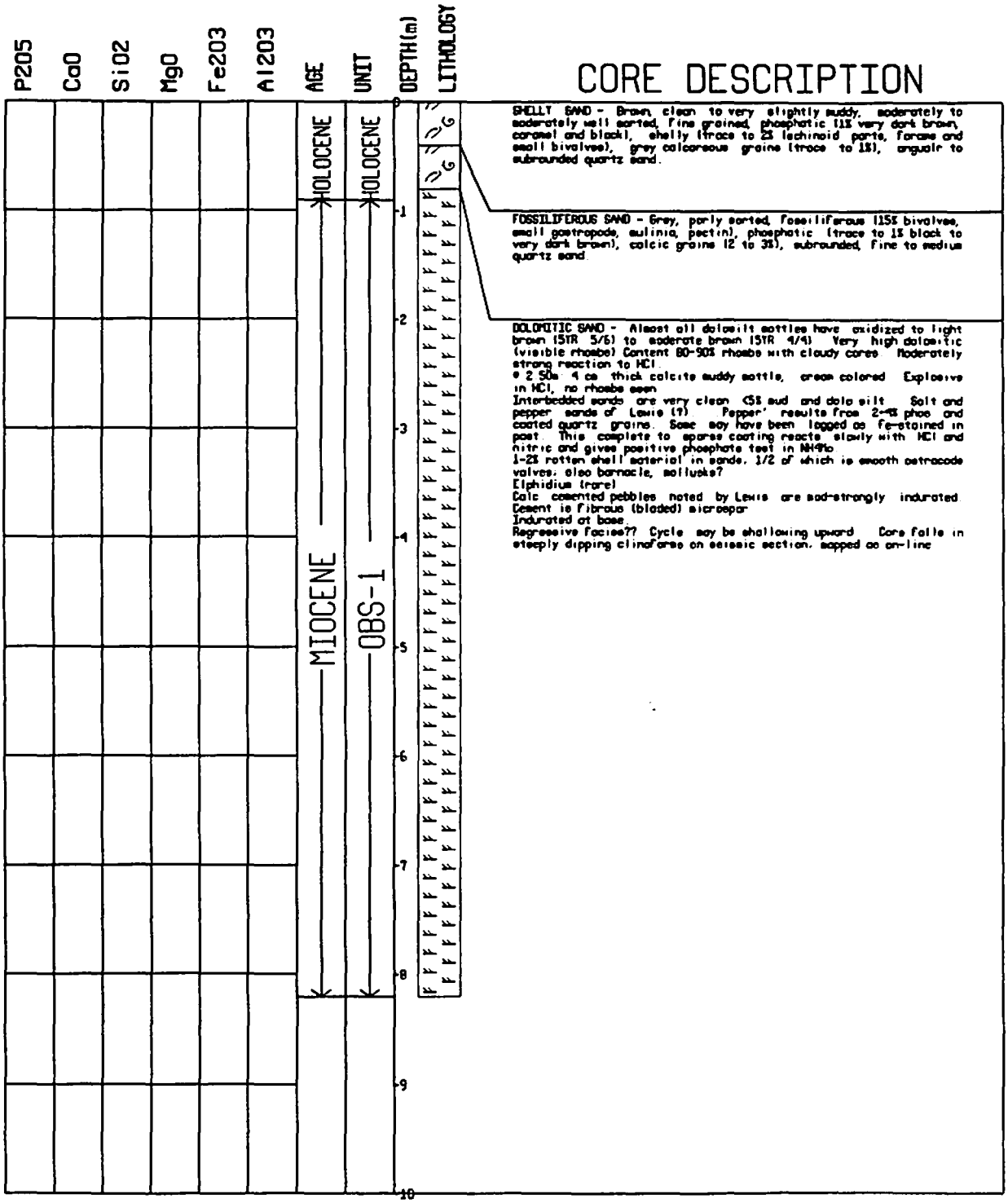
CALCIC FOSSILIFEROUS SAND - at -5.6m oyster shells become present as broken shell fragments
at -6.56m tow oyster shells, whole havle, attached barnacles, and cemented quartz and calcareous sands
at -6.9m another oyster shell half
grade downward into a Brownis grey, fine grained, phosphatic (2 to 9%) (very dark brown to black), fossiliferous (40%) (forams, echinoid, oyster, barnacles, ostracods), subrounded, quartz sand; occasional to common quartz and phosphorite pebbles, pebbles increasing in size and nuber toward lower contact at -7.8m

FOSSILIFEROUS PHOSPHATIC MEDIUM FINE SAND - Pale yellowish brown (10YR 6/2); slightly muddy 3%; fossiliferous 3 to 5%, phosphatic 3 to 5%, moderately sorted, angular, medium to fine quartz sand with 1 to 2% coarse blue quartz and amethyst. Trace % glauconite. Fossils are mostly disintegrated pecten fragments. Phosphorite as very dark brown to black intraclasts > medium brown to very dark brown pellets. Occasional, 1%, granule sized black, very pitted-smooth intraclasts. Trace % lingula
Sharp contact at 7.80m: Light olive gray (5Y 5/2); clayey, lethicky, greasy! dolosilt. Trace % fine quartz and echinoid spines.

DOLOMITIC SILTY SAND - At 7.93m, sharp break (interbedded): Yellowish gray (5Y 7/2), slightly phosphorite 1%, dolosilty 20 to 25%, subangular-subrounded, fine quartz sand. Sediment is partially indurated, mainly as 10 to 20cm clasts, friable. Cement reacts with HCl and discrete rhombs left as insol. Calcite cement? This sand is mottled with pure' clayey dolosilt to 8.40m, where is becomes dominantly clayey dolosilt with sandy mottles.
At 8.20 -8.28m, sand is conspicuous Grayish orange pink (5YR 7/2). Then at 8.33-8.39m it becomes Very light gray (N8). These color changes separated by clayey dolosilt pods, and are not gradational.
+A few cherty fragments at 8.57m: looks like silicified dolosilt!

ONSLOW BAY CORE NUMBER: OB41

CRUISE: NSF O. BAY DATE LOGGED: 6-23-80 LATITUDE: 34.351 degrees
LENGTH ATTEMPTED: 6.8m BY: D. LEWIS LONGITUDE: 76.997 degrees
LENGTH OF CORE: 8.2m



CORE DESCRIPTION

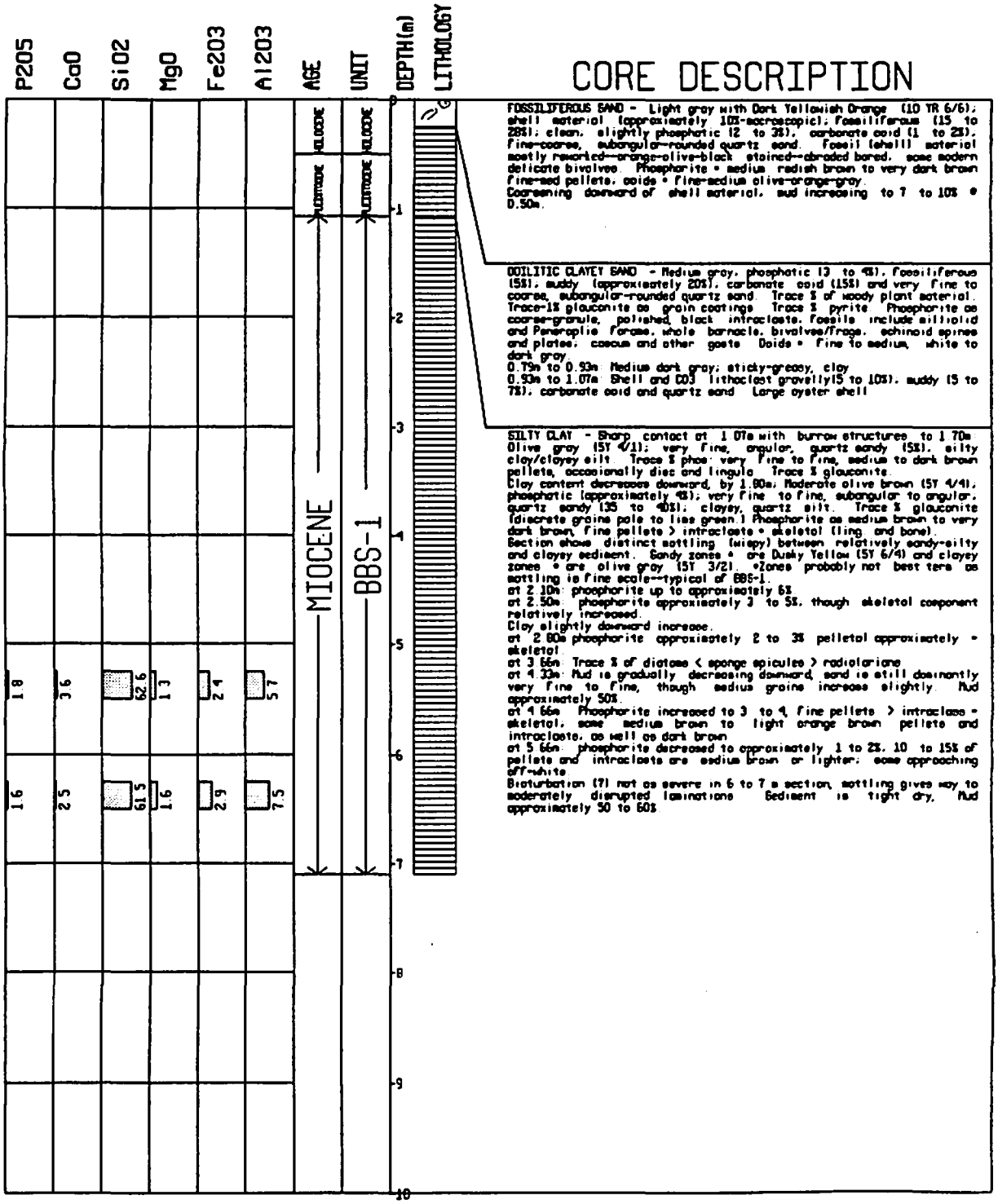
SHELLY SAND - Brown, clean to very slightly muddy, moderately to moderately well sorted, fine grained, phosphatic (1% very dark brown, coromel and black), shelly (trace to 2% lechinoid parts, foram and small bivalves), grey calcareous grains (trace to 1%), angular to subrounded quartz sand.

FOSSILIFEROUS SAND - Grey, poorly sorted, fossiliferous (15% bivalves, small gastropods, aulinia, pectin), phosphatic (trace to 1% black to very dark brown), calcic grains (2 to 3%), subrounded, fine to medium quartz sand.

DOLOMITIC SAND - Almost all dolosilt mottles have oxidized to light brown (5YR 5/6) to moderate brown (5YR 4/4). Very high dolomitic (visible rhombs) Content 80-90% rhombs with cloudy cores. Moderately strong reaction to HCl.
@ 2.50m 4 cm thick calcite muddy mottle, cream colored. Explosive in HCl, no rhombs seen.
Interbedded sands are very clean <5% mud and dolo silt. Salt and pepper sands of Lewis (?). 'Pepper' results from 2-4% phos and coated quartz grains. Some may have been logged as fe-stained in past. This complete to sparse coating reacts slowly with HCl and nitric and gives positive phosphate test in NH4Mo.
1-2% rotten shell material in sands, 1/2 of which is smooth ostracode valves; also barnacle, mollusks?
Elphidium (rare).
Calc cemented pebbles noted by Lewis are mod-strongly indurated. Cement is fibrous (bladed) microspar.
Indurated at base.
Regressive facies?? Cycle may be shallowing upward. Core falls in steeply dipping clinoforms on seismic section, mapped as on-lap.

ONSLOW BAY CORE NUMBER: OB42

CRUISE: NSF O. BAY DATE LOGGED: 5-30-84 LATITUDE: 34.355 degrees
LENGTH ATTEMPTED: 5m BY: P. MALLETTE LONGITUDE: 76.953 degrees
LENGTH OF CORE: 7.1m



CORE DESCRIPTION

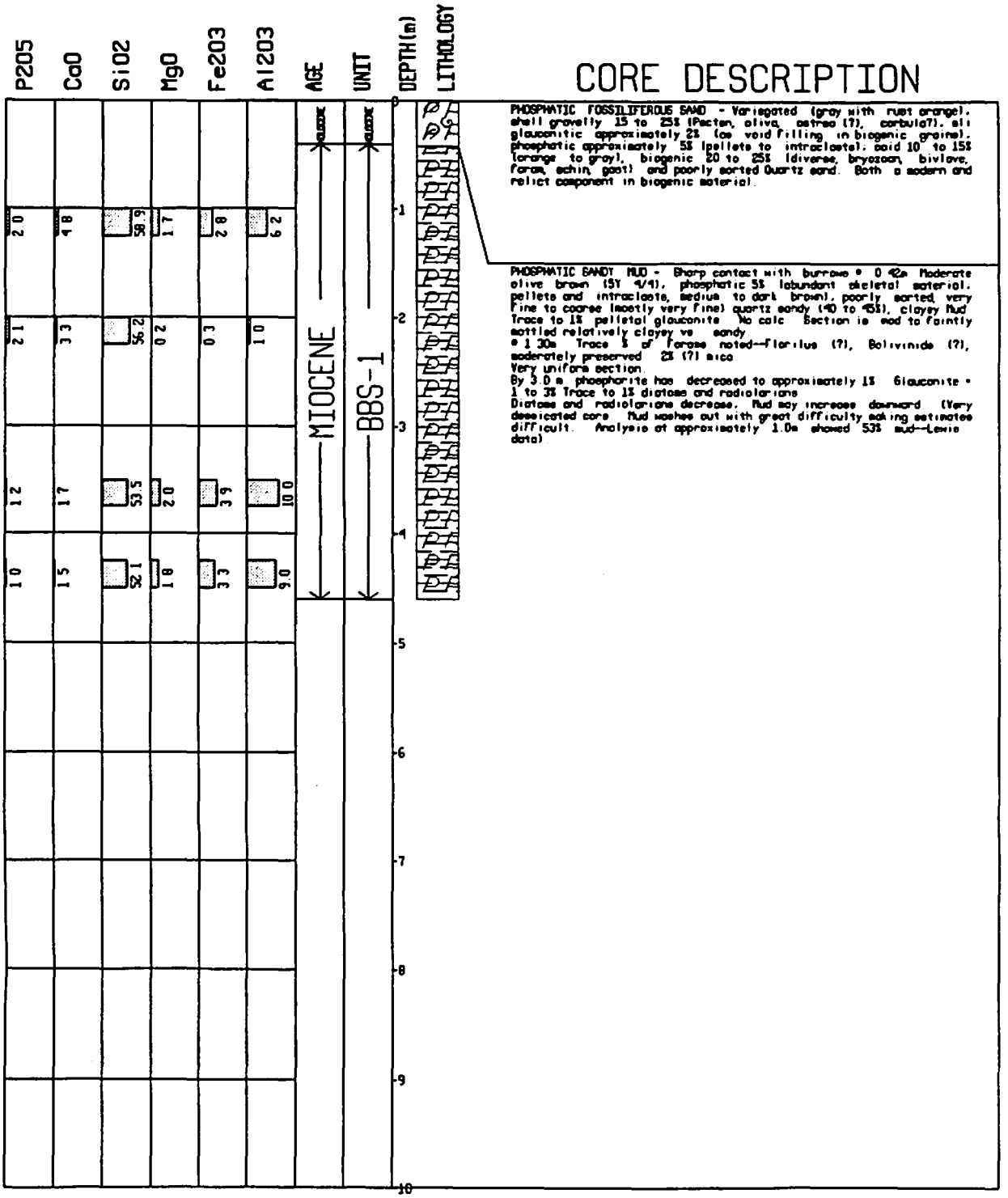
FOSSILIFEROUS SAND - Light gray with Dark Yellowish Orange (10 YR 6/6); shell material (approximately 10%-macroscopic); fossiliferous (15 to 28%); clean, slightly phosphatic (2 to 3%), carbonate cmtd (1 to 2%). Fine-coarse, subangular-rounded quartz sand. Fossil (shell) material mostly reworked--orange-olive-black stained--abraded bored, some modern delicate bivalves. Phosphorite = medium reddish brown to very dark brown fine-sed pellets, oolds = fine-medium olive-orange-gray.
Coarsening downward of shell material, mud increasing to 7 to 10% @ 0.50m.

OOLITIC CLAYEY SAND - Medium gray, phosphatic (3 to 4%), fossiliferous (15%), muddy (approximately 20%), carbonate cmtd (15%) and very fine to coarse, subangular-rounded quartz sand. Trace % of woody plant material. Trace-1% glauconite as grain coatings. Trace % pyrite. Phosphorite as coarse-granule, polished, black intraclasts. Fossils include miliolid and Peneroplis forams, whole barnacle, bivalves/frags, echinoid spines and plates, cascum and other gastr. Ooids = fine to medium, white to dark gray.
0.79m to 0.93m Medium dark gray; sticky-greasy, clay
0.93m to 1.07m Shell and CO3 lithoclast gravelly(15 to 10%), muddy (5 to 7%), carbonate cmtd and quartz sand. Large oyster shell

SILTY CLAY - Sharp contact at 1.07m with burrow structures to 1.70m. Olive gray (5Y 4/1); very fine, angular, quartz sandy (5%), silty clay/clayey silt. Trace % phos: very fine to fine, medium to dark brown pellets, occasionally diss and lingula. Trace % glauconite.
Clay content decreases downward, by 1.90m: Moderate olive brown (5Y 4/4), phosphatic (approximately 4%); very fine to fine, subangular to angular, quartz sandy (35 to 40%); clayey, quartz silt. Trace % glauconite (discrete grains pale to lime green.) Phosphorite as medium brown to very dark brown, fine pellets > intraclasts + skeletal (ling and bone).
Section shows distinct mottling (wispy) between relatively sandy-silty and clayey sediment. Sandy zones = are Dusky Yellow (5Y 6/4) and clayey zones = are olive gray (5Y 3/2). =Zones probably not best term as mottling is fine scale--typical of BBS-1.
at 2.10m: phosphorite up to approximately 6%
at 2.50m: phosphorite approximately 3 to 5%, though skeletal component relatively increased.
Clay slightly downward increase.
at 2.80m phosphorite approximately 2 to 3% pelletal approximately = skeletal
at 3.66m: Trace % of diatoms < sponge spicules > radiolarians
at 4.33m: Mud is gradually decreasing downward, sand is still dominantly very fine to fine, though medium grains increase slightly. Mud approximately 50%.
at 4.66m: Phosphorite increased to 3 to 4, fine pellets > intraclasts = skeletal, some medium brown to light orange brown pellets and intraclasts, as well as dark brown.
at 5.66m: phosphorite decreased to approximately 1 to 2%. 10 to 15% of pellets and intraclasts are medium brown or lighter; some approaching off-white.
Bioturbation (?) not as severe in 6 to 7 m section, mottling gives way to moderately disrupted laminations. Sediment is tight dry. Mud approximately 50 to 60%.

ONSLOW BAY CORE NUMBER: OB43

CRUISE: NSF O. BAY DATE LOGGED: 6-25-80 LATITUDE: 34.352 degrees
LENGTH ATTEMPTED: 3.2m BY: P. MALLETTE LONGITUDE: 76.958 degrees
LENGTH OF CORE: 4.6m



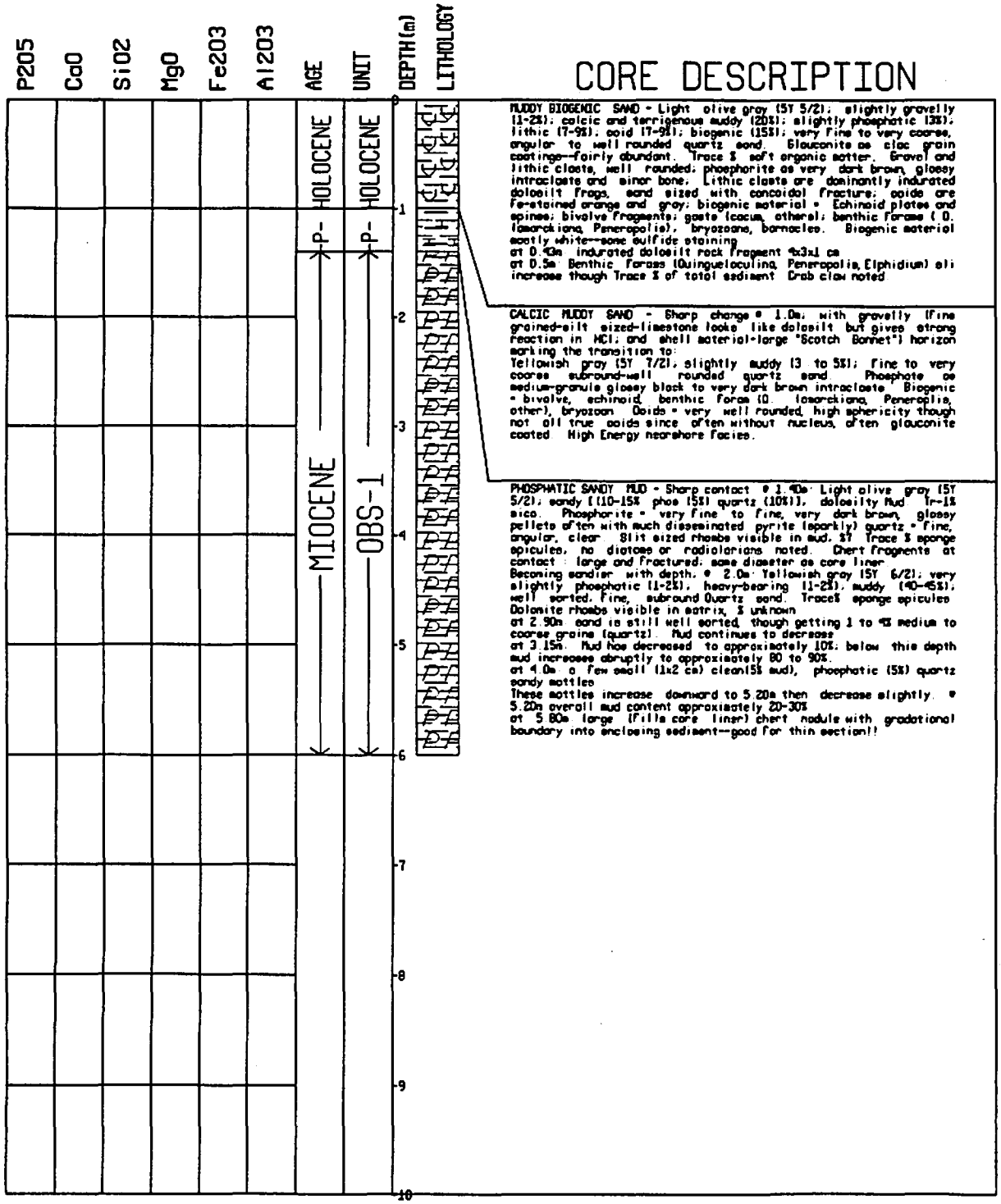
CORE DESCRIPTION

PHOSPHATIC FOSSILIFEROUS SAND - Variegated (gray with rust orange), shell gravelly 15 to 25% (Pecten, olive, ostrea (?), corbula?). sli glauconitic approximately 2% (as void filling in biogenic grains), phosphatic approximately 5% (pellets to intraclasts), void 10 to 15% (orange to gray), biogenic 20 to 25% (diverse, bryozoan, bivlave, foram, echin, gast) and poorly sorted Quartz sand. Both a modern and relict component in biogenic material.

PHOSPHATIC SANDY MUD - Sharp contact with burrows @ 0.42m Moderate olive brown (5Y 4/4), phosphatic 5% (abundant skeletal material, pellets and intraclasts, medium to dark brown), poorly sorted, very fine to coarse (mostly very fine) quartz sandy (40 to 45%), clayey Mud Trace to 1% pelletal glauconite No calc Section is mod to faintly mottled relatively clayey vs sandy
@ 1.30m Trace % of forams noted--Florilus (?), Bolivinids (?), moderately preserved 2% (?) mica
Very uniform section
By 3.0 m phosphorite has decreased to approximately 1% Glauconite @ 1 to 3% Trace to 1% diatoms and radiolarians
Diatoms and radiolarians decrease. Mud say increase downward (Very desiccated core Mud washes out with great difficulty making estimates difficult Analysis at approximately 1.0m showed 53% mud--Lewis data)

ONSLOW BAY CORE NUMBER: OB44

CRUISE: NSF O. BAY DATE LOGGED: 1-22-85 LATITUDE: 34.347 degrees
LENGTH ATTEMPTED: 3.1m BY: P. MALLETTE LONGITUDE: 76.031 degrees
LENGTH OF CORE: 6m



CORE DESCRIPTION

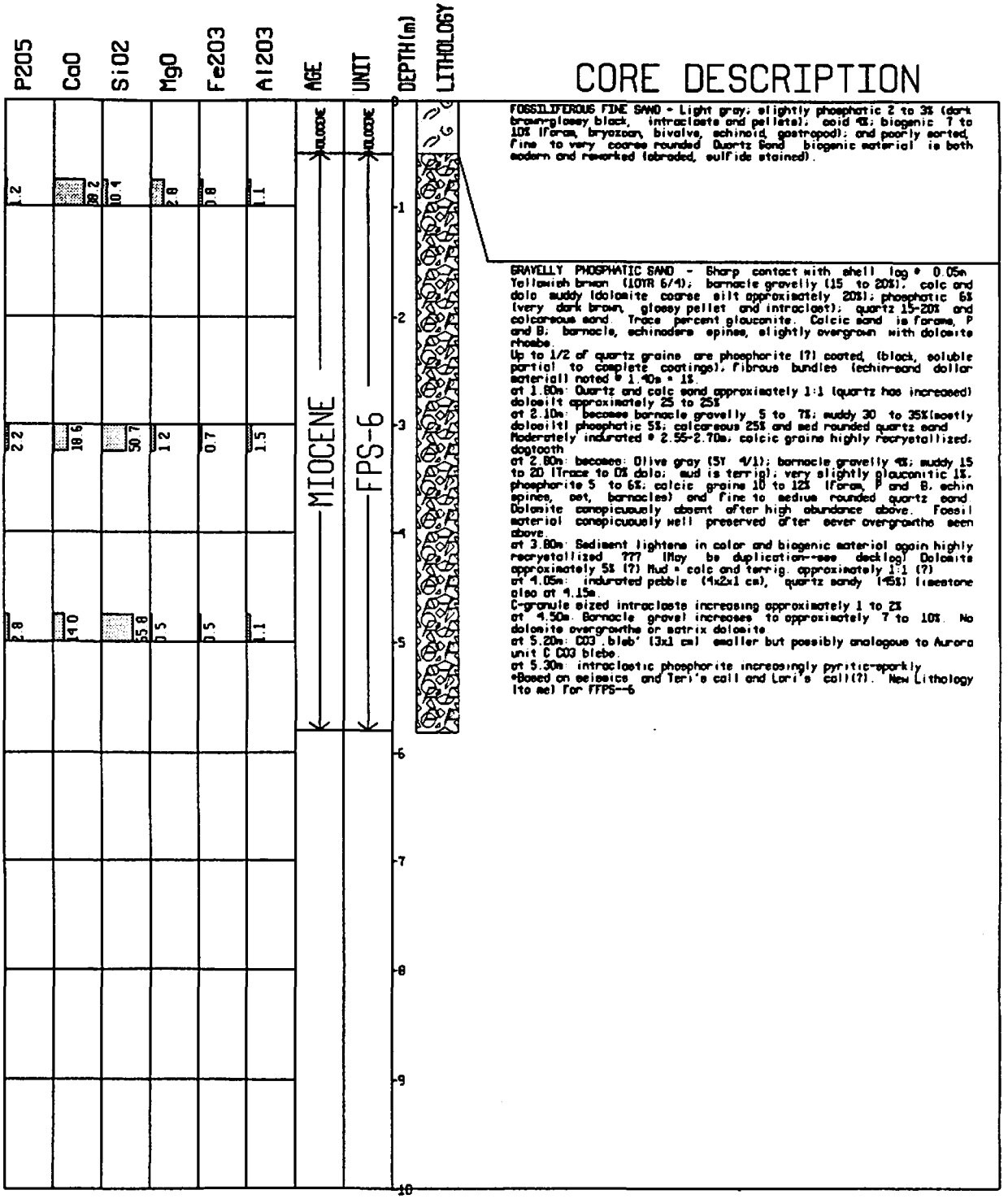
MUDDY BIOGENIC SAND - Light olive gray (5Y 5/2); slightly gravelly (1-2%); calcic and terrigenous muddy (20%); slightly phosphatic (3%); lithic (7-9%); coid (7-9%); biogenic (15%); very fine to very coarse, angular to well rounded quartz sand. Glauconite as clac grain coatings--fairly abundant. Trace % soft organic matter. Gravel and lithic clasts, well rounded; phosphorite as very dark brown, glossy intraclasts and minor bone. Lithic clasts are dominantly indurated dolosilt frags, sand sized with concoidal fracture; coids are Fe-stained orange and gray; biogenic material - Echinoid plates and spines; bivalve fragments; gastr (cacum, etheral; benthic forams (O. lasarckiana, Peneropolis). bryozoans, barnacles. Biogenic material mostly white--some sulfide staining.
at 0.40m indurated dolosilt rock fragment 4x3x1 cm
at 0.5m Benthic forams (Quinqueloculina, Peneropolis, Elphidium) all increase though Trace % of total sediment. Crab claw noted.

CALCIC MUDDY SAND - Sharp change @ 1.0m; with gravelly (fine grained-silt sized-limestone looks like dolosilt but gives strong reaction in HCl; and shell material-large "Scotch Bonnet") horizon marking the transition to:
Yellowish gray (5Y 7/2), slightly muddy (3 to 5%); fine to very coarse subround-well rounded quartz sand. Phosphate as medium-granule glossy black to very dark brown intraclasts. Biogenic - bivalve, echinoid, benthic foram (O. lasarckiana, Peneropolis, other), bryozoan. Coids - very well rounded, high sphericity though not all true coids since often without nucleus, often glauconite coated. High Energy nearshore facies.

PHOSPHATIC SANDY MUD - Sharp contact @ 1.40m: Light olive gray (5Y 5/2); sandy ((10-15% phos (5%) quartz (10%)), dolosilty mud (1-1% silc). Phosphorite - very fine to fine, very dark brown, glossy pellets often with much disseminated pyrite (sparkly) quartz - fine, angular, clear. Silt sized rhombs visible in mud. 3? Trace % sponge spicules, no diatoms or radiolarians noted. Chert fragments at contact - large and fractured; same diameter as core liner.
Becoming sandier with depth. @ 2.0m: Yellowish gray (5Y 6/2); very slightly phosphatic (1-2%), heavy-bearing (1-2%), muddy (40-45%); well sorted, fine, subround Quartz sand. Trace% sponge spicules. Dolomite rhombs visible in matrix, % unknown
at 2.90m sand is still well sorted, though getting 1 to 4% medium to coarse grains (quartz). Mud continues to decrease.
at 3.15m. Mud has decreased to approximately 10%; below this depth mud increases abruptly to approximately 80 to 90%.
at 4.0m a few small (1x2 cm) clean(5% mud), phosphatic (5%) quartz sandy mottles.
These mottles increase downward to 5.20m then decrease slightly. @ 5.20m overall mud content approximately 20-30%
at 5.80m large (fills core liner) chert nodule with gradational boundary into enclosing sediment--good for thin section!!

ONSLOW BAY CORE NUMBER: OB45

CRUISE: NSF O. BAY DATE LOGGED: 2-22-85 LATITUDE: 34.347 degrees
LENGTH ATTEMPTED: 2.9m BY: P. MALLETTE LONGITUDE: 76.055 degrees
LENGTH OF CORE: 5.82m



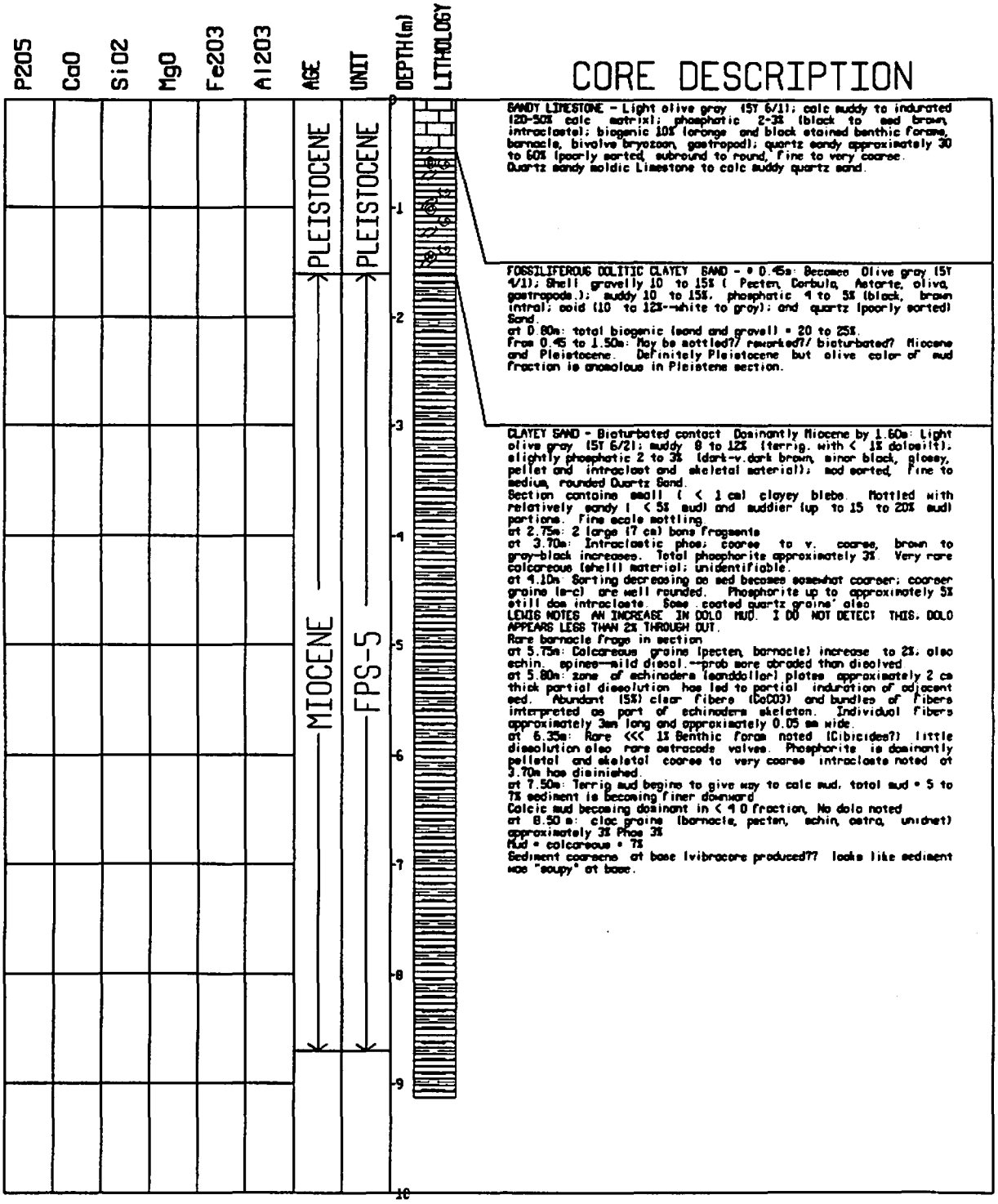
CORE DESCRIPTION

FOSSILIFEROUS FINE SAND - Light gray, slightly phosphatic 2 to 3% (dark brown-glossy black, intraclasts and pellets); calc 4%; biogenic 7 to 10% (foram, bryozoan, bivalve, echinoid, gastropod); and poorly sorted, fine to very coarse rounded Quartz Sand. biogenic material is both modern and reworked (abraded, sulfide stained).

GRAVELLY PHOSPHATIC SAND - Sharp contact with shell lag @ 0.05m. Yellowish brown (10YR 6/4); barnacle gravelly (15 to 20%); calc and dolo muddy (dolomite coarse silt approximately 20%); phosphatic 6% (very dark brown, glossy pellet and intraclast); quartz 15-20% and calcareous sand. Trace percent glauconite. Calcic sand is foram, P and B; barnacle, echinoderm spines, slightly overgrown with dolomite rhombs.
Up to 1/2 of quartz grains are phosphorite (?) coated, (black, soluble partial to complete coatings). Fibrous bundles (echin-sand dollar material) noted @ 1.40m - 1%.
at 1.80m: Quartz and calc sand approximately 1:1 (quartz has increased) dolosilt approximately 25 to 25%
at 2.10m: becomes barnacle gravelly 5 to 7%; muddy 30 to 35% (mostly dolosilt) phosphatic 5%; calcareous 25% and red rounded quartz sand. Moderately indurated @ 2.55-2.70m; calcic grains highly recrystallized. dogtooth.
at 2.80m: becomes: Olive gray (5Y 4/1); barnacle gravelly 4%; muddy 15 to 20 (Trace to 0% dolo; mud is terrig); very slightly glauconitic 1%. phosphorite 5 to 6%; calcic grains 10 to 12% (foram, P and B, echin spines, bot, barnacles) and fine to medium rounded quartz sand. Dolomite conspicuously absent after high abundance above. Fossil material conspicuously well preserved after never overgrowths seen above.
at 3.80m: Sediment lightens in color and biogenic material again highly recrystallized. ??? (May be duplication--see decklog) Dolomite approximately 5% (?) Mud = calc and terrig. approximately 1:1 (?)
at 4.05m: indurated pebble (1x2x1 cm), quartz sandy (45%) limestone also at 4.15m.
C-granule sized intraclasts increasing approximately 1 to 2%
at 4.50m: Barnacle gravel increases to approximately 7 to 10%. No dolomite overgrowths or matrix dolomite.
at 5.20m: CO3 'blob' (3x1 cm) smaller but possibly analogous to Aurora unit C CO3 blebs.
at 5.30m: intraclastic phosphorite increasingly pyritic-sparkly.
*Based on seismics and Teri's call and Lori's call(?). New Lithology (to me) for FFPS--6

ONSLOW BAY CORE NUMBER: OB46

CRUISE: NSF O. BAY DATE LOGGED: 2-18-85 LATITUDE: 34.340 degrees
LENGTH ATTEMPTED: 6.3m BY: P. MALLETTE LONGITUDE: 77.082 degrees
LENGTH OF CORE: 9.13m



CORE DESCRIPTION

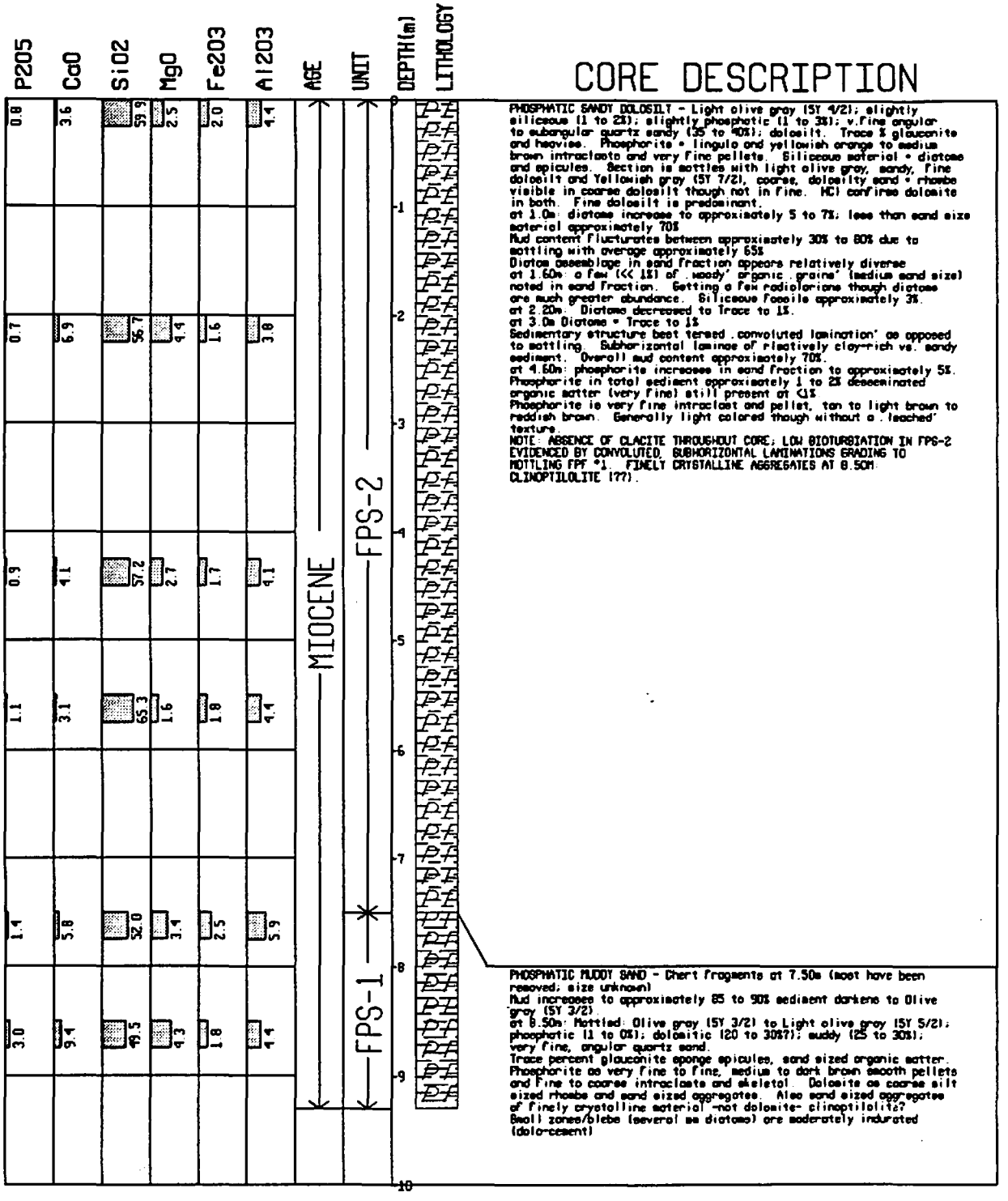
SANDY LIMESTONE - Light olive gray (5Y 6/1); calc suddy to indurated (20-50% calc matrix); phosphatic 2-3% (black to med brown, intraclastal; biogenic 10% (orange and black stained benthic foram, barnacle, bivalve bryozoan, gastropod); quartz sandy approximately 30 to 60% (poorly sorted, subround to round, fine to very coarse. Quartz sandy moldic Limestone to calc suddy quartz sand.

FOSSILIFEROUS OOLITIC CLAYEY SAND - @ 0.45m: Becomes Olive gray (5Y 4/1); Shell gravelly 10 to 15% (Pecten, Corbula, Astarte, oliva, gastropods.); suddy 10 to 15%, phosphatic 4 to 5% (black, brown intral; ooid (10 to 12%--white to gray); and quartz (poorly sorted) Sand.
at 0.80m: total biogenic (sand and gravel) = 20 to 25%.
From 0.45 to 1.50m: May be mottled?/ reworked?/ bioturbated? Miocene and Pleistocene. Definitely Pleistocene but olive color of mud fraction is anomalous in Pleistene section.

CLAYEY SAND - Bioturbated contact Dominantly Miocene by 1.60m: Light olive gray (5Y 6/2); suddy 8 to 12% (terrig. with < 1% dolosilt), slightly phosphatic 2 to 3% (dark-v.dark brown, minor black, glossy, pellet and intraclast and skeletal material); mod sorted, fine to medium, rounded Quartz Sand.
Section contains small (< 1 cm) clayey blebs. Mottled with relatively sandy (< 5% mud) and suddier (up to 15 to 20% mud) portions. Fine scale mottling.
at 2.75m: 2 large (7 cm) bone fragments
at 3.70m: Intraclastic phos; coarse to v. coarse, brown to gray-black increases. Total phosphorite approximately 3%. Very rare calcareous (shell) material; unidentifiable.
at 4.10m: Sorting decreasing as mod becomes somewhat coarser; coarser grains (s-c) are well rounded. Phosphorite up to approximately 5% still dom intraclasts. Some 'coated quartz grains' also.
LEWIS NOTES AN INCREASE IN DOLO MUD. I DO NOT DETECT THIS. DOLO APPEARS LESS THAN 2% THROUGH OUT.
Rare barnacle frags in section
at 5.75m: Calcareous grains (pecten, barnacle) increase to 2%, also echin. spines--mild diesol.--prob more abraded than dissolved
at 5.80m: zone of echinoderm (mandibular) plates approximately 2 cm thick partial dissolution has led to partial induration of adjacent mud. Abundant (5%) clear fibers ($CaCO_3$) and bundles of fibers interpreted as part of echinoderm skeleton. Individual fibers approximately 3mm long and approximately 0.05 mm wide.
at 6.35m: Rare <<< 1% Benthic foram noted (Cibicides?) little dissolution also rare ostracode valves. Phosphorite is dominantly pelletal and skeletal coarse to very coarse intraclasts noted at 3.70m has diminished.
at 7.50m: Terrig mud begins to give way to calc mud, total mud = 5 to 7% sediment is becoming finer downward
Calcic mud becoming dominant in < 4 ϕ fraction, No dolo noted
at 8.50 m: clac grains (barnacle, pecten, echin, ostra, unidnet) approximately 3% Phos 3%
Mud = calcareous = 7%
Sediment coarsens at base (vibracore produced?? looks like sediment was "soupy" at base.

ONSLOW BAY CORE NUMBER: OB47

CRUISE: NSF O. BAY DATE LOGGED: 11-19-84 LATITUDE: 34.075 degrees
LENGTH ATTEMPTED: 6.1m BY: P. MALLETTE LONGITUDE: 77.295 degrees
LENGTH OF CORE: 9.3m



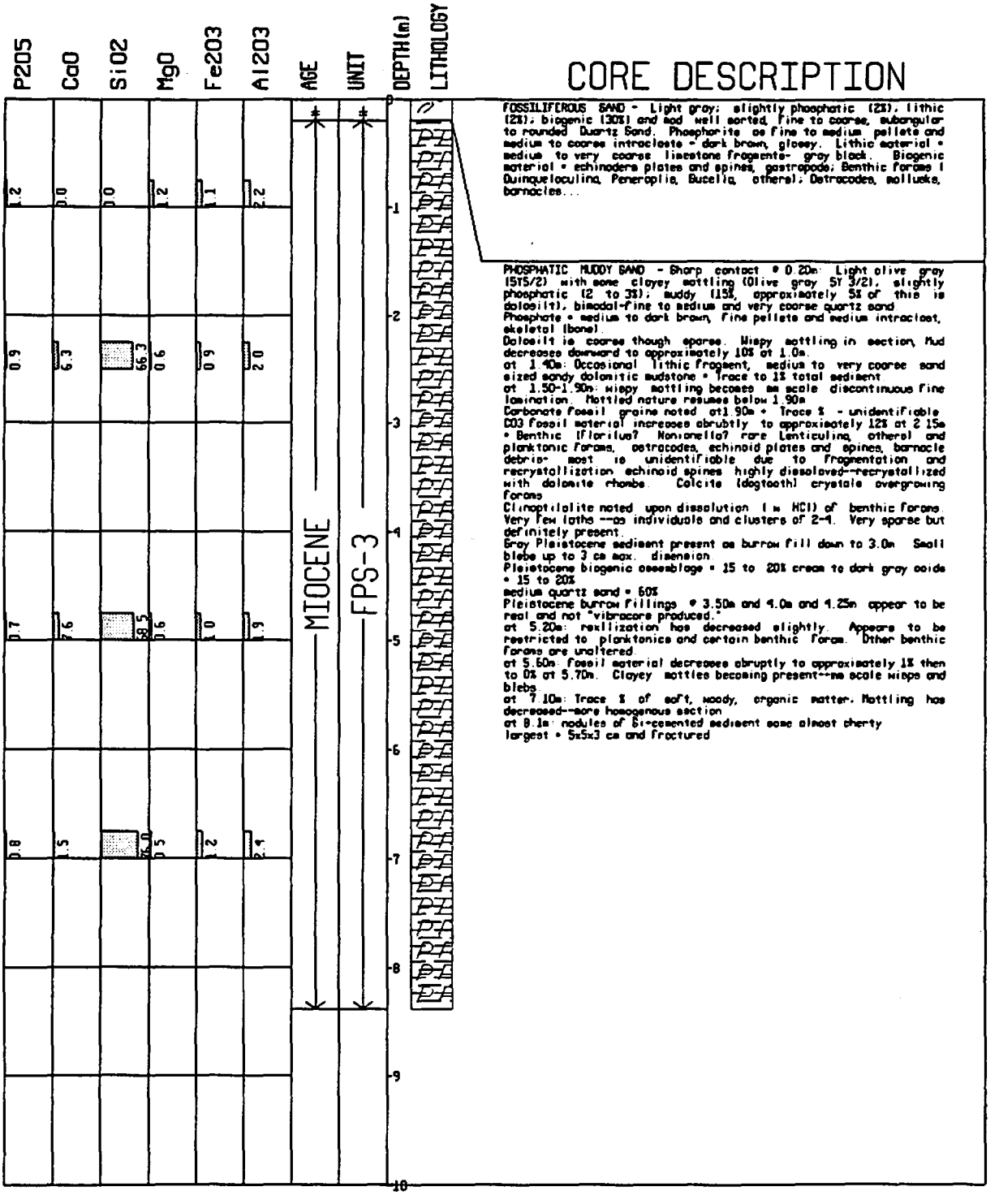
CORE DESCRIPTION

PHOSPHATIC SANDY DOLOSILT - Light olive gray (5Y 4/2); slightly siliceous (1 to 2%); slightly phosphatic (1 to 3%); v.fine angular to subangular quartz sandy (35 to 40%); dolosilt. Trace % glauconite and heavies. Phosphorite = lingula and yellowish orange to medium brown intraclasts and very fine pellets. Siliceous material = diatoms and spicules. Section is mottles with light olive gray, sandy, fine dolosilt and Yellowish gray (5Y 7/2), coarse, dolosilty sand = rhombs visible in coarse dolosilt though not in fine. HCl confirms dolomite in both. Fine dolosilt is predominant.
at 1.0m: diatoms increase to approximately 5 to 7%; less than sand size material approximately 70%
Mud content fluctuates between approximately 30% to 80% due to mottling with average approximately 65%
Diatom assemblage in sand fraction appears relatively diverse
at 1.60m: a few (<< 1%) of 'woody' organic 'grains' (medium sand size) noted in sand fraction. Getting a few radiolarians though diatoms are much greater abundance. Siliceous fossils approximately 3%.
at 2.20m: Diatoms decreased to Trace to 1%.
at 3.0m Diatoms = Trace to 1%
Sedimentary structure best termed 'convoluted lamination' as opposed to mottling. Subhorizontal laminae of relatively clay-rich vs. sandy sediment. Overall mud content approximately 70%.
at 4.60m: phosphorite increases in sand fraction to approximately 5%.
Phosphorite in total sediment approximately 1 to 2% disseminated organic matter (very fine) still present at <1%
Phosphorite is very fine intraclast and pellet, tan to light brown to reddish brown. Generally light colored though without a 'leached' texture.
NOTE: ABSENCE OF CLACITE THROUGHOUT CORE; LOW BIOTURBIATION IN FPS-2 EVIDENCED BY CONVOLUTED, SUBHORIZONTAL LAMINATIONS GRADING TO MOTTLING FPF #1. FINELY CRYSTALLINE AGGREGATES AT 8.5CM: CLINOPTILOLITE (??).

PHOSPHATIC MUDDY SAND - Chert fragments at 7.50m (most have been removed; size unknown)
Mud increases to approximately 85 to 90% sediment darkens to Olive gray (5Y 3/2)
at 8.50m: Mottled: Olive gray (5Y 3/2) to Light olive gray (5Y 5/2); phosphatic (1 to 0%); dolomitic (20 to 30%?); muddy (25 to 30%); very fine, angular quartz sand.
Trace percent glauconite sponge spicules, sand sized organic matter. Phosphorite as very fine to fine, medium to dark brown smooth pellets and fine to coarse intraclasts and skeletal. Dolomite as coarse silt sized rhombs and sand sized aggregates. Also sand sized aggregates of finely crystalline material -not dolomite- clinoptilolite?
Small zones/blebs (several mm diatoms) are moderately indurated (dolo-cement)

ONSLOW BAY CORE NUMBER: OB48

CRUISE: NSF O. BAY DATE LOGGED: 2-4-85 LATITUDE: 34.157 degrees
LENGTH ATTEMPTED: 6m BY: P. MALLETTE LONGITUDE: 76.217 degrees
LENGTH OF CORE: 8.38m



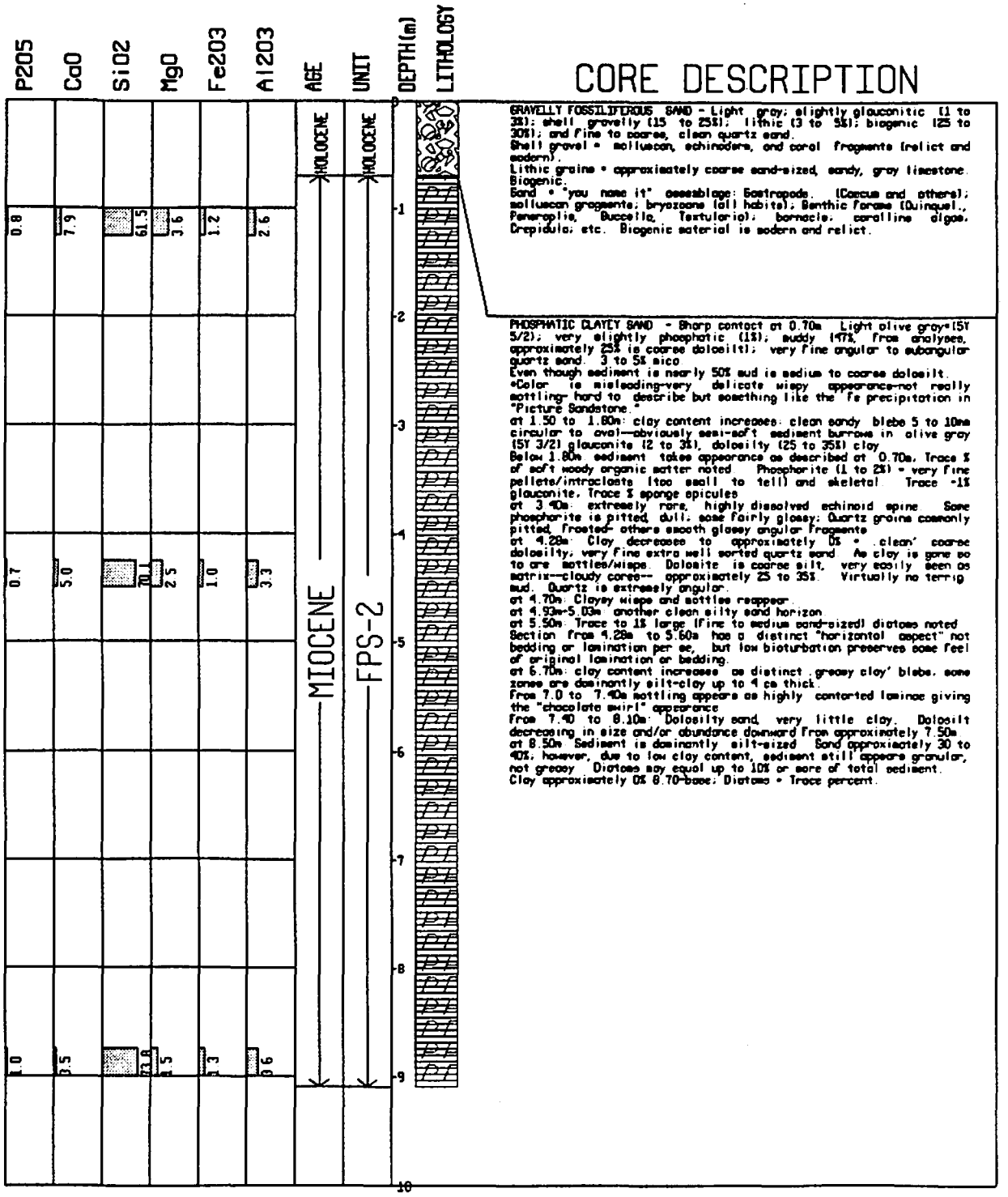
CORE DESCRIPTION

FOSSILIFEROUS SAND - Light gray; slightly phosphatic (2%); lithic (2%); biogenic (30%) and mod well sorted, fine to coarse, subangular to rounded Quartz Sand. Phosphorite as fine to medium pellets and medium to coarse intraclasts - dark brown, glossy. Lithic material - medium to very coarse limestone fragments- gray black. Biogenic material - echinoderm plates and spines, gastropods; Benthic forams (Quinqueloculina, Peneroplis, Bucella, others); Ostracodes, molluscs, barnacles...

PHOSPHATIC MUDDY SAND - Sharp contact @ 0.20m: Light olive gray (5Y5/2) with some clayey mottling (Olive gray 5Y 3/2), slightly phosphatic (2 to 3%); muddy (15%, approximately 5% of this is dolosilt), bimodal-fine to medium and very coarse quartz sand. Phosphate - medium to dark brown, fine pellets and medium intraclast, skeletal (bone).
Dolosilt is coarse though sparse. Wispy mottling in section, Mud decreases downward to approximately 10% at 1.0m.
at 1.40m: Occasional lithic fragment, medium to very coarse sand sized sandy dolomitic mudstone - Trace to 1% total sediment
at 1.50-1.90m: wispy mottling becomes on scale discontinuous fine lamination. Mottled nature resumes below 1.90m
Carbonate fossil grains noted at1.90m - Trace % - unidentifiable
CO3 fossil material increases abrubtly to approximately 12% at 2.15m - Benthic (Florilus? Nonionella? rare Lenticulina, others) and planktonic forams, ostracodes, echinoid plates and spines, barnacle debris- most is unidentifiable due to fragmentation and recrystallization. echinoid spines highly dissolved--recrystallized with dolomite rhombs. Calcite (dogtooth) crystals overgrowing forams
Clinoptilolite noted upon dissolution (w HCl) of benthic forams. Very few laths --as individuals and clusters of 2-4. Very sparse but definitely present.
Gray Pleistocene sediment present as burrow fill down to 3.0m. Small blebs up to 3 cm max. dimension.
Pleistocene biogenic assemblage - 15 to 20% cream to dark gray oolds - 15 to 20%
medium quartz sand - 60%
Pleistocene burrow fillings @ 3.50m and 4.0m and 4.25m appear to be real and not "vibracore produced."
at 5.20m: recalcitration has decreased slightly. Appears to be restricted to planktonics and certain benthic forms. Other benthic forms are unaltered.
at 5.60m: fossil material decreases abruptly to approximately 1% then to 0% at 5.70m. Clayey mottles becoming present--no scale wisps and blebs
at 7.10m: Trace % of soft, woody, organic matter. Mottling has decreased--more homogenous section
at 8.1m: nodules of Fe-cemented sediment some almost cherty
largest - 5x5x3 cm and fractured

ONSLOW BAY CORE NUMBER: OB49

CRUISE: NSF O.BAY DATE LOGGED: 1-24-85 LATITUDE: 34.162 degrees
LENGTH ATTEMPTED: 6.6m BY: P. MALLETTE LONGITUDE: 76.258 degrees
LENGTH OF CORE: 9.1m



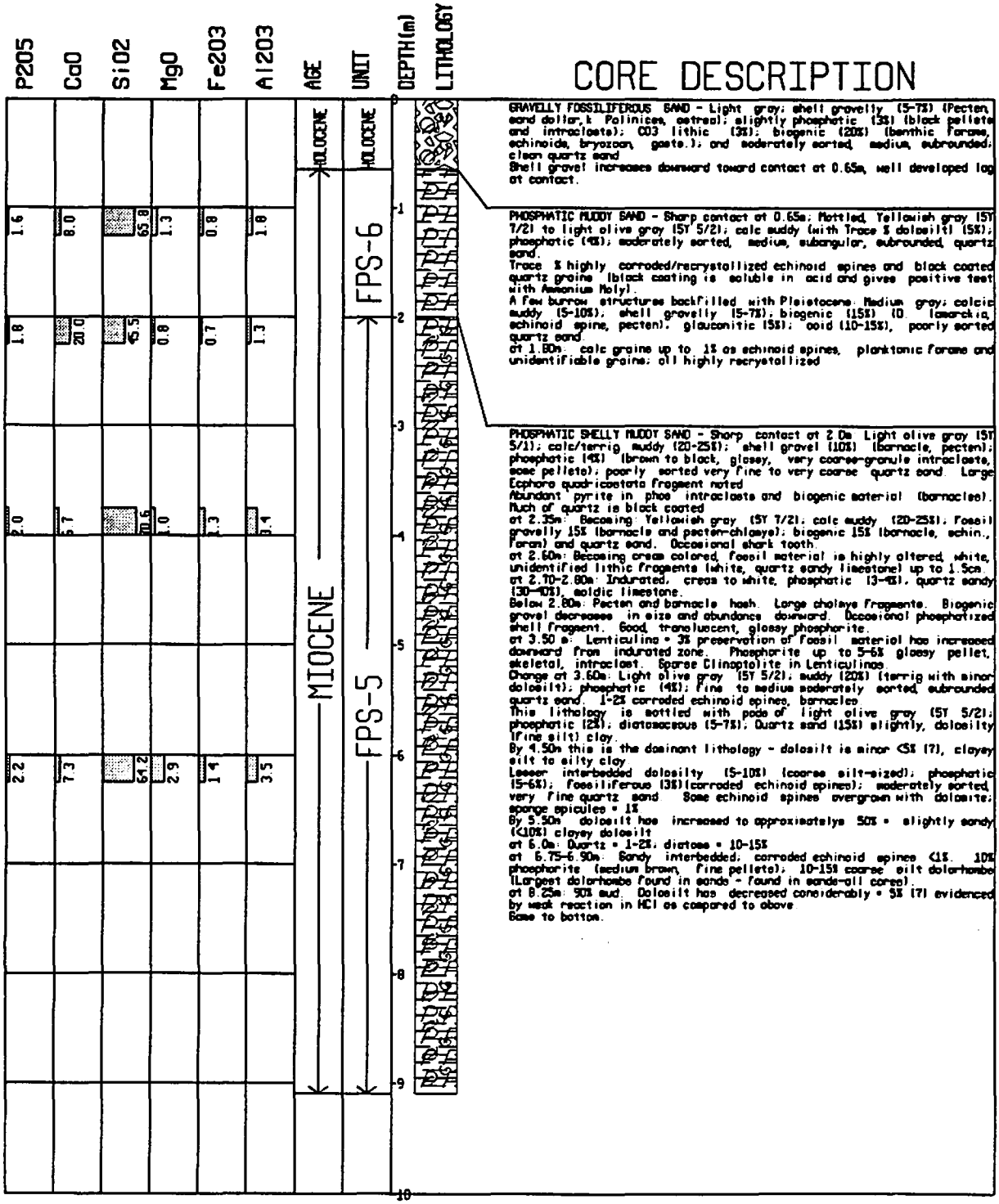
CORE DESCRIPTION

GRAVELLY FOSSILIFEROUS SAND - Light gray; slightly glauconitic (1 to 3%); shell gravelly (15 to 25%); lithic (3 to 5%); biogenic (25 to 30%); and fine to coarse, clean quartz sand.
Shell gravel = molluscan, echinoderm, and coral fragments (relict and modern).
Lithic grains = approximately coarse sand-sized, sandy, gray limestone.
Biogenic.
Sand = "you name it" assemblage: Gastropods. (Cassus and others); molluscan fragments; bryozoans (all habits); Benthic forams (Quinquel., Peneroplis, Buccella, Textularia); barnacle, coralline algae, Crepidula; etc. Biogenic material is modern and relict.

PHOSPHATIC CLAYEY SAND - Sharp contact at 0.70m. Light olive gray (5Y 5/2); very slightly phosphatic (1%); muddy (47% from analyses, approximately 25% is coarse dolosilt); very fine angular to subangular quartz sand. 3 to 5% mica.
Even though sediment is nearly 50% mud is mostly coarse dolosilt.
=Color is misleading-very delicate wispy appearance-not really mottling- hard to describe but something like the Fe precipitation in "Picture Sandstone."
at 1.50 to 1.80m: clay content increases: clean sandy blebs 5 to 10mm circular to oval—obviously semi-soft sediment burrows in olive gray (5Y 3/2) glauconite (2 to 3%), dolosilty (25 to 35%) clay.
Below 1.80m sediment takes appearance as described at 0.70m. Trace % of soft woody organic matter noted. Phosphorite (1 to 2%) = very fine pellets/intraclasts (too small to tell) and skeletal. Trace -1% glauconite. Trace % sponge spicules.
at 3.40m: extremely rare, highly dissolved echinoid spine. Some phosphorite is pitted, dull; some fairly glossy; Quartz grains commonly pitted, frosted- others smooth glassy angular fragments.
at 4.20m: Clay decreases to approximately 0% = 'clean' coarse dolosilty; very fine extra well sorted quartz sand. As clay is gone so too are mottles/wisps. Dolosilt is coarse silt, very easily seen as matrix—cloudy cores— approximately 25 to 35%. Virtually no terrig mud. Quartz is extremely angular.
at 4.70m: Clayey wisps and mottles reappear.
at 4.93m-5.03m: another clean silty sand horizon.
at 5.50m: Trace to 1% large (fine to medium sand-sized) diatoms noted.
Section from 4.28m to 5.60m has a distinct "horizontal aspect" not bedding or lamination per se, but low bioturbation preserves some feel of original lamination or bedding.
at 6.70m: clay content increases as distinct 'greasy clay' blebs. some zones are dominantly silt-clay up to 4 cm thick.
From 7.0 to 7.40m mottling appears as highly contorted laminae giving the "chocolate swirl" appearance.
From 7.40 to 8.10m: Dolosilty sand, very little clay. Dolosilt decreasing in size and/or abundance downward from approximately 7.50m.
at 8.50m: Sediment is dominantly silt-sized. Sand approximately 30 to 40%, however, due to low clay content, sediment still appears granular, not greasy. Diatoms may equal up to 10% or more of total sediment.
Clay approximately 0% 8.70-base; Diatoms = Trace percent.

ONSLOW BAY CORE NUMBER: OB50

CRUISE: NSF O. BAY DATE LOGGED: 2-13-85 LATITUDE: 34.158 degrees
LENGTH ATTEMPTED: 6.25m BY: P. MALLETTE LONGITUDE: 77.142 degrees
LENGTH OF CORE: 9.1m



CORE DESCRIPTION

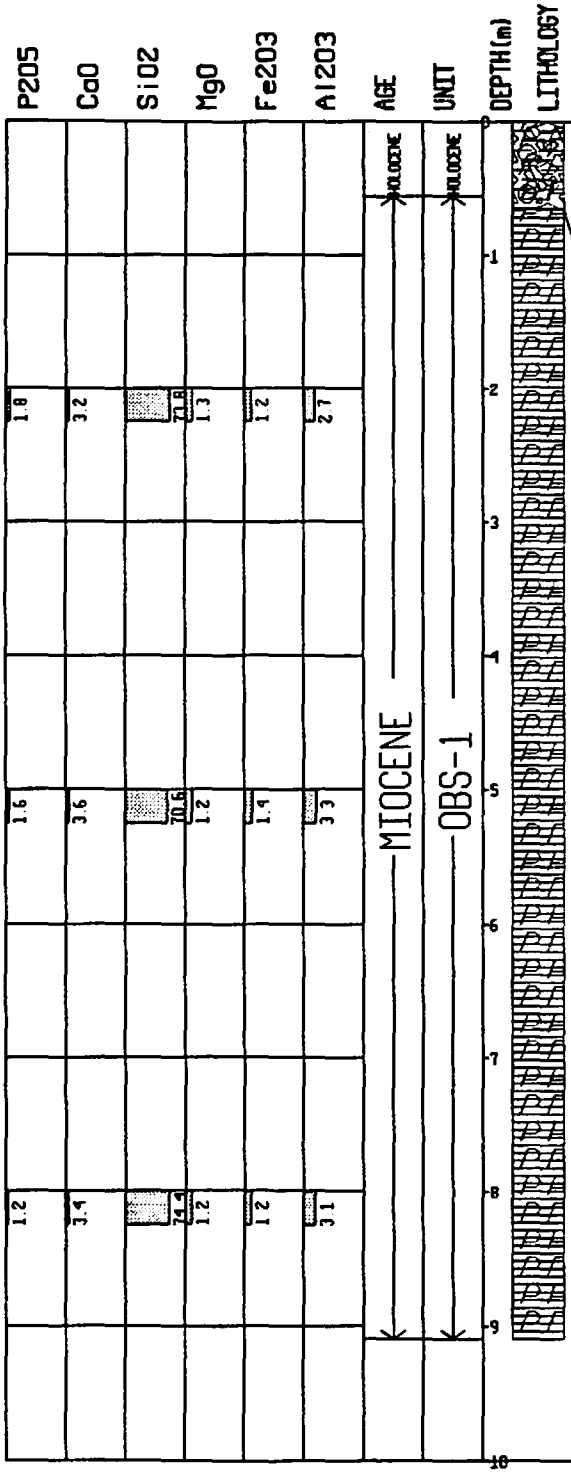
GRAVELLY FOSSILIFEROUS SAND - Light gray; shell gravelly (5-7%) (Pecten, sand dollar, t. Polinices, ostreol); slightly phosphatic (3%) (black pellets and intraclasts); CO3 lithic (3%); biogenic (20%) (benthic foram, echinoid, bryozoan, gastr.); and moderately sorted, medium, subrounded, clean quartz sand
Shell gravel increases downward toward contact at 0.65m, well developed lag at contact.

PHOSPHATIC MUDDY SAND - Sharp contact at 0.65m; Mottled, Yellowish gray (5Y 7/2) to light olive gray (5Y 5/2); calc muddy (with Trace % dolosilt) (5%); phosphatic (4%); moderately sorted, medium, subangular, subrounded quartz sand.
Trace % highly corroded/recrystallized echinoid spines and black coated quartz grains (black coating is soluble in acid and gives positive test with Ammonium Moly).
A few burrow structures backfilled with Pleistocene: Medium gray; calcic muddy (5-10%), shell gravelly (5-7%); biogenic (15%) (O. lamarckia, echinoid spine, pecten); glauconitic (5%); ooid (10-15%), poorly sorted quartz sand
at 1.80m: calc grains up to 1% as echinoid spines, planktonic forams and unidentifiable grains; all highly recrystallized

PHOSPHATIC SHELLY MUDDY SAND - Sharp contact at 2.0m Light olive gray (5Y 5/1); calc/terrig muddy (20-25%); shell gravel (10%) (barnacle, pecten); phosphatic (4%) (brown to black, glossy, very coarse-granule intraclasts, some pellets); poorly sorted very fine to very coarse quartz sand. Large Ecphora quadricostata fragment noted
Abundant pyrite in phos intraclasts and biogenic material (barnacles). Much of quartz is black coated
at 2.35m: Becoming: Yellowish gray (5Y 7/2); calc muddy (20-25%). Fossil gravelly 15% (barnacle and pecten-chalaye); biogenic 15% (barnacle, echin., foram) and quartz sand. Occasional shark tooth.
at 2.60m: Becoming cream colored, fossil material is highly altered, white, unidentified lithic fragments (white, quartz sandy limestone) up to 1.5cm.
at 2.70-2.80m: Indurated, cream to white, phosphatic (3-4%), quartz sandy (30-40%), soldic limestone.
Below 2.80m: Pecten and barnacle hash. Large chalaye fragments. Biogenic gravel decreases in size and abundance downward. Occasional phosphatized shell fragment. Good, translucent, glossy phosphorite.
at 3.50 m: Lenticulina = 3% preservation of fossil material has increased downward from indurated zone. Phosphorite up to 5-6% glossy pellet, skeletal, intraclast. Sparse Clinoptolite in Lenticulinas.
Change at 3.60m: Light olive gray (5Y 5/2); muddy (20%) (terrig with minor dolosilt); phosphatic (4%); fine to medium moderately sorted, subrounded quartz sand. 1-2% corroded echinoid spines, barnacles.
This lithology is mottled with pods of light olive gray (5Y 5/2); phosphatic (2%); diatomaceous (5-7%); Quartz sand (15%) slightly, dolosilty (fine silt) clay
By 4.50m this is the dominant lithology - dolosilt is minor <5% (?), clayey silt to silty clay
Lesser interbedded dolosilty (5-10%) (coarse silt-sized); phosphatic (5-6%); fossiliferous (3%)(corroded echinoid spines); moderately sorted, very fine quartz sand. Some echinoid spines overgrown with dolosilt; sponge spicules = 1%
By 5.50m dolosilt has increased to approximately 50% = slightly sandy (<10%) clayey dolosilt
at 6.0m: Quartz = 1-2%; diatoms = 10-15%
at 6.75-6.90m: Sandy interbedded, corroded echinoid spines <1%. 10% phosphorite (medium brown, fine pellets); 10-15% coarse silt dolorhombs (Largest dolorhombs found in sands - found in sands-all cores).
at 8.25m: 90% mud. Dolosilt has decreased considerably = 5% (?) evidenced by weak reaction in HCl as compared to above
Base to bottom.

ONSLOW BAY CORE NUMBER: OB51

CRUISE: NSF O. BAY DATE LOGGED: 1-11-85 LATITUDE: 34.153 degrees
LENGTH ATTEMPTED: 7.5m BY: P. MALLETTE LONGITUDE: 77.055 degrees
LENGTH OF CORE: 9.1m



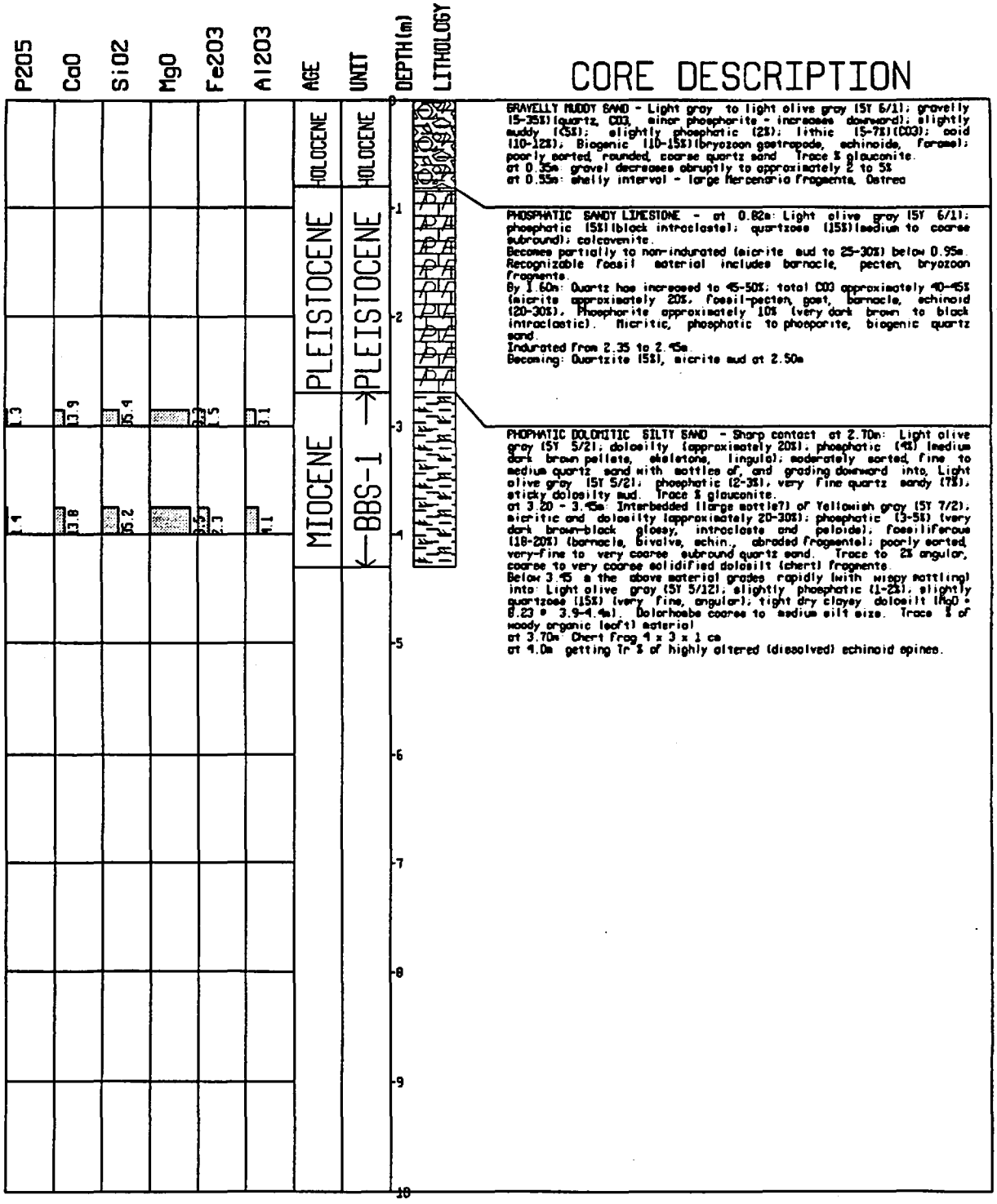
CORE DESCRIPTION

PHOSPHATIC MUDDY SHELLY GRAVEL - Light gray; calc muddy (12%- from analysis); phosphatic (10%); medium to coarse sand (15%); fine to medium, subround quartzose (15%); shelly (35%); lithic (10-20%); muddy (12) sandy (45) gravel.
Percents are very difficult to estimate due to lithologic complexity. Phosphorite as 2mm - 10mm intraclasts and totally replaced shell material. Good phosphatized Mercenaria (?) hingepart, all glossy black. Oxide are areas to light gray (very abundant relative to other cores); shell material = bivlave, barnacle, echin., gast., bryozoan, worm tubes. Lithic material is CO3 cemented fragments of above material. Very hard - well indurated, probably a coprock broken during coring.

PHOSPHATIC CLAYEY SAND - Sharp bioturbated contact at 0.56m
Moderate olive brown (5Y 4/4); clayey (25-35%) * ; well sorted, phosphatic (3-5%); fine to medium subangular, subrounded, quartz sand. *Section is highly mottled with fairly clean sandy portions and relatively pure clayey portions. mud (total) = 25-35%
Phosphorite as very dark brown to black, fine pellets, very glossy, and lesser intraclasts.
-1.60 -1.80m: thin burrow backfilled with Pleistocene material.
at 2.10m: lingula increased (Trace to 1%), mud approximately 2-4%
Swirling mottled appearance. No dolosite rhombs visible in mud.
-Very uniform loverall section
-Mottling becoming more equant podlike (sandy areas) than swirling type above.
at 3.80m: clean sandy pods/areas < than muddy/clayey areas. Mud approximately 30-40%
-No calcic grains observed in section
at 4.50m: Extremely rare, white altered calcic grains (only 2 medium sand size in subsample).
at 4.50-4.80m: mud decreases to 10-15%; phosphorite = 4-6%
at 4.70m: indurated (fairly strong) nodule of bulk sediment. Matrix looks like mud; cement is not calcite, only very very mild reaction to HCl - dolosilt(?) no rhombs visible.
at 6.20m: calc grains have gradually increased downward to Trace to 1%. A couple of echinoid spines recognized, show high dissolution without recrystallization, larger grains may be plates (echin.).
at 6.50m: calcic grains absent
at 6.90m: calcic grains reappear = Trace percent still leached, rotten, phosphorite = 4%.
at 7.70m: calcic grains have gradually increased to 1-2%: barnacle, echinoids, rare (recognizable) benthic forams and unidentified grains. Occasional large 1cm barnacle in section
at 8.40m: echinoid spines showing oli better preservation. CO* = 1%; Phosphorite = 3%; Mud = 7-10%; Quartz = 85%.

ONSLOW BAY CORE NUMBER: OB52

CRUISE: NSF O. BAY DATE LOGGED: 3-8-85 LATITUDE: 34.158 degrees
LENGTH ATTEMPTED: 3.44m BY: P. MALLETTE LONGITUDE: 76.975 degrees
LENGTH OF CORE: 4.3m



CORE DESCRIPTION

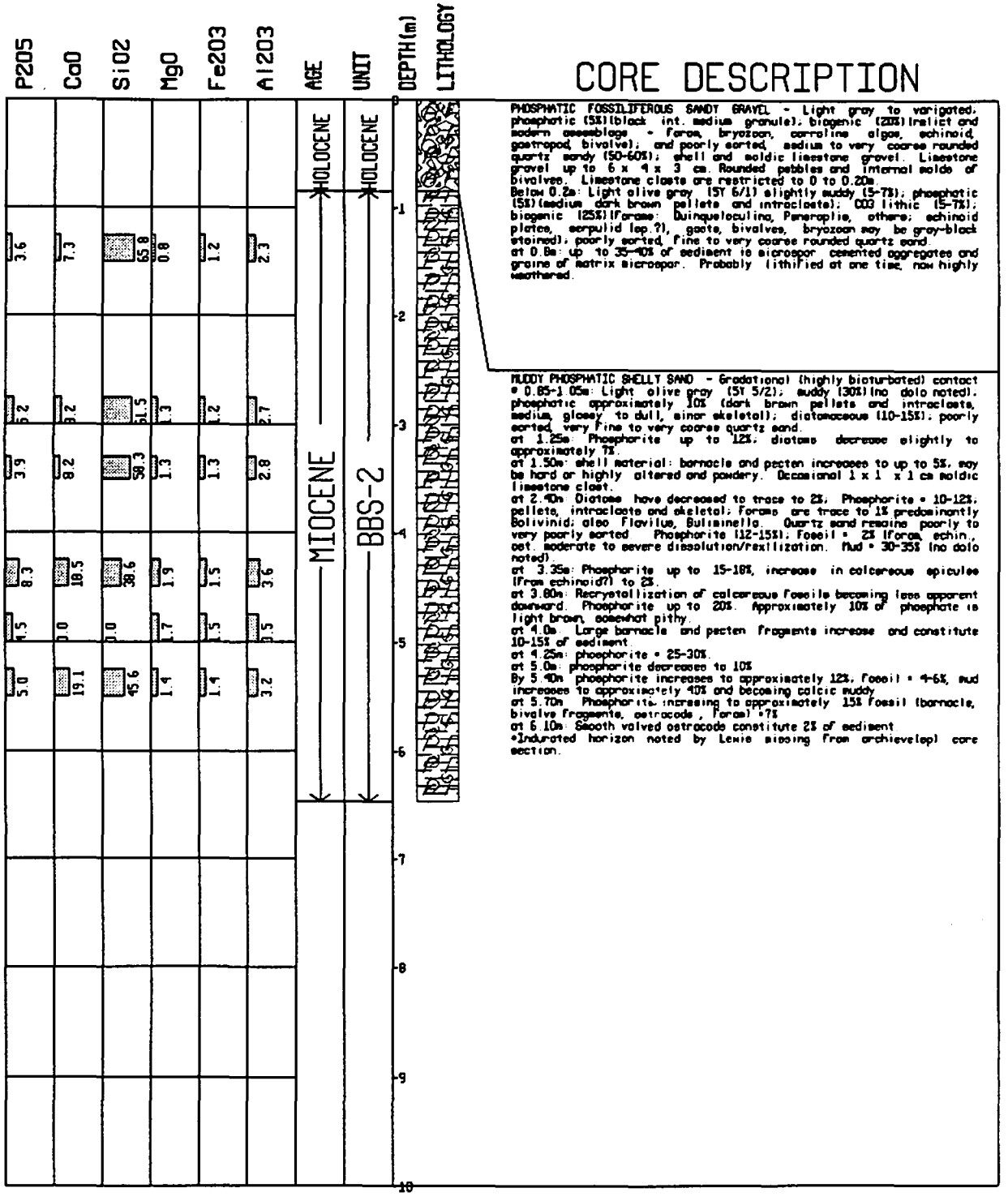
GRAVELLY MUDDY SAND - Light gray to light olive gray (5Y 6/1); gravelly (5-35%)(quartz, CO3, minor phosphorite - increases downward); slightly muddy (5%); slightly phosphatic (2%); lithic (5-7%)(CO3); sand (10-12%); Biogenic (10-15%)(bryozoan gastropods, echinoids, foram); poorly sorted, rounded, coarse quartz sand Trace % glauconite.
at 0.35m gravel decreases abruptly to approximately 2 to 5%
at 0.55m: shelly interval - large Mercenaria fragments, Ostrea

PHOSPHATIC SANDY LIMESTONE - at 0.82m: Light olive gray (5Y 6/1); phosphatic (5%)(black intraclastel; quartzose (15%)(medium to coarse subround); calcarenite.
Becomes partially to non-indurated (micrite mud to 25-30%) below 0.95m. Recognizable fossil material includes barnacle, pecten, bryozoan fragments.
By 1.60m: Quartz has increased to 45-50%; total CO3 approximately 40-45% (micrite approximately 20%, fossil-pecten, gast, barnacle, echinoid (20-30%), Phosphorite approximately 10% (very dark brown to black intraclastic). Micritic, phosphatic to phosporite, biogenic quartz sand.
Indurated from 2.35 to 2.45m
Becoming: Quartzite (5%), micrite mud at 2.50m

PHOSPHATIC DOLOMITIC SILTY SAND - Sharp contact at 2.70m: Light olive gray (5Y 5/2); dolosilty (approximately 20%), phosphatic (4%) (medium dark brown pellets, skeletons, lingula); moderately sorted, fine to medium quartz sand with mottles of, and grading downward into, Light olive gray (5Y 5/2); phosphatic (2-3%), very fine quartz sandy (7%), sticky dolosilty mud. Trace % glauconite.
at 3.20 - 3.45m: Interbedded (large mottle?) of Yellowish gray (5Y 7/2); micritic and dolosilty (approximately 20-30%); phosphatic (3-5%) (very dark brown-black glossy, intraclasts and peloids); fossiliferous (18-20%) (barnacle, bivalve, echin., abraded fragments); poorly sorted, very-fine to very coarse subround quartz sand. Trace to 2% angular, coarse to very coarse solidified dolosilt (chert) fragments
Below 3.45 m the above material grades rapidly (with wispy mottling) into: Light olive gray (5Y 5/12); slightly phosphatic (1-2%), slightly quartzose (15%) (very fine, angular); tight dry clayey dolosilt (MgO = 8.23 @ 3.9-4.1m). Dolomoebe coarse to medium silt size. Trace % of woody organic (leaf) material
at 3.70m Chert frag 4 x 3 x 1 cm
at 4.0m getting Tr % of highly altered (dissolved) echinoid spines.

ONSLOW BAY CORE NUMBER: OB53

CRUISE: NSF O. BAY DATE LOGGED: 3-9-85 LATITUDE: 34.016 degrees
LENGTH ATTEMPTED: 3.5m BY: P. MALLETTE LONGITUDE: 76.915 degrees
LENGTH OF CORE: 6.47m



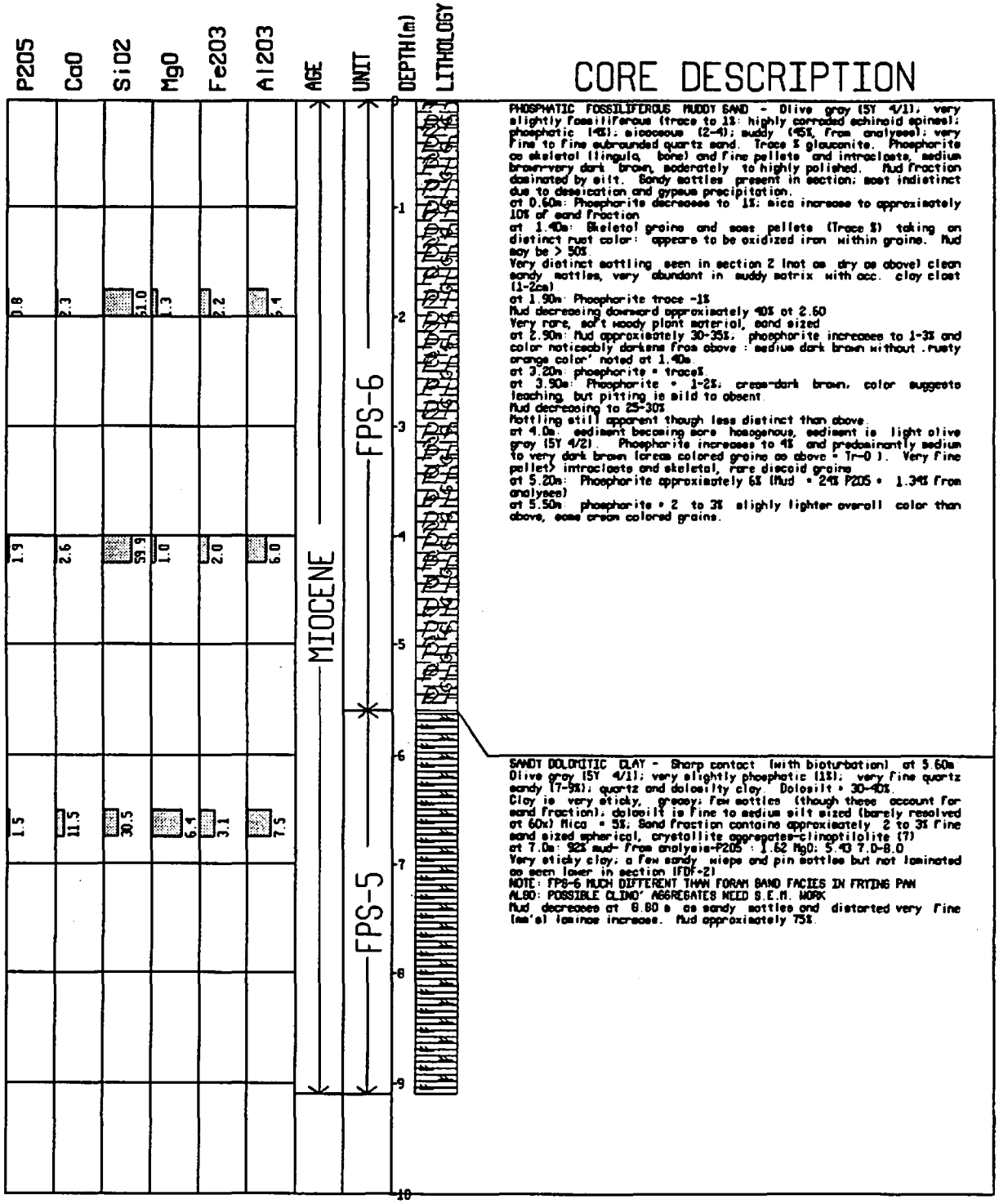
CORE DESCRIPTION

PHOSPHATIC FOSSILIFEROUS SANDY GRAVEL - Light gray to variegated, phosphatic (5%)(black int. sedium granule); biogenic (20%)(relict and modern assemblage - Foram, bryozoan, corraline algae, echinoid, gastropod, bivalve); and poorly sorted, sedium to very coarse rounded quartz sandy (50-60%); shell and moldic limestone gravel. Limestone gravel up to 6 x 4 x 3 cm. Rounded pebbles and internal molds of bivalves. Limestone clasts are restricted to 0 to 0.20m
Below 0.2m: Light olive gray (5Y 6/1) slightly muddy (5-7%); phosphatic (5%)(sedium dark brown pellets and intraclasts); CO3 lithic (5-7%); biogenic (25%)(Foram: Quinqueloculina, Peneroplis, others; echinoid plates, serpulid tep.?), gasts, bivalves, bryozoan may be gray-black stained); poorly sorted, fine to very coarse rounded quartz sand.
at 0.8m: up to 35-40% of sediment is microspar cemented aggregates and grains of matrix microspar. Probably lithified at one time, now highly weathered.

MUDDY PHOSPHATIC SHELLY SAND - Gradational (highly bioturbated) contact @ 0.85-1.05m: Light olive gray (5Y 5/2); muddy (30%)(no dolo noted), phosphatic approximately 10% (dark brown pellets and intraclasts, sedium, glossy to dull, minor skeletal); diatomaceous (10-15%); poorly sorted, very fine to very coarse quartz sand.
at 1.25m: Phosphorite up to 12%, diatoms decrease slightly to approximately 7%.
at 1.50m: shell material: barnacle and pecten increases to up to 5%, may be hard or highly altered and powdery. Occasional 1 x 1 x 1 cm moldic limestone clast.
at 2.40m: Diatoms have decreased to trace to 2%; Phosphorite = 10-12%, pellets, intraclasts and skeletal; Forams are trace to 1% predominantly Bolivinid; also Flavilus, Bulliminella. Quartz sand remains poorly to very poorly sorted. Phosphorite (12-15%); Fossil = 2% (Foram, echin., ost moderate to severe dissolution/recrystallization. Mud = 30-35% (no dolo noted).
at 3.35m: Phosphorite up to 15-18%, increase in calcareous spicules (from echinoid?) to 2%.
at 3.80m: Recrystallization of calcareous fossils becoming less apparent downward. Phosphorite up to 20%. Approximately 10% of phosphate is light brown, somewhat pithy.
at 4.0m: Large barnacle and pecten fragments increase and constitute 10-15% of sediment.
at 4.25m: phosphorite = 25-30%.
at 5.0m: phosphorite decreases to 10%
By 5.40m phosphorite increases to approximately 12%, fossil = 4-6%, mud increases to approximately 40% and becoming calcic muddy.
at 5.70m: Phosphorite increasing to approximately 15% fossil (barnacle, bivalve fragments, ostracods, Foram) *?%
at 6.10m: Smooth valved ostracods constitute 2% of sediment.
*Indurated horizon noted by Lewis missing from archieveloal core section.

ONSLOW BAY CORE NUMBER: OB57

CRUISE: NSF O. BAY DATE LOGGED: 12-11-84 LATITUDE: 34.000 degrees
LENGTH ATTEMPTED: 6.7m BY: P. MALLETTE LONGITUDE: 77.072 degrees
LENGTH OF CORE: 9.1m



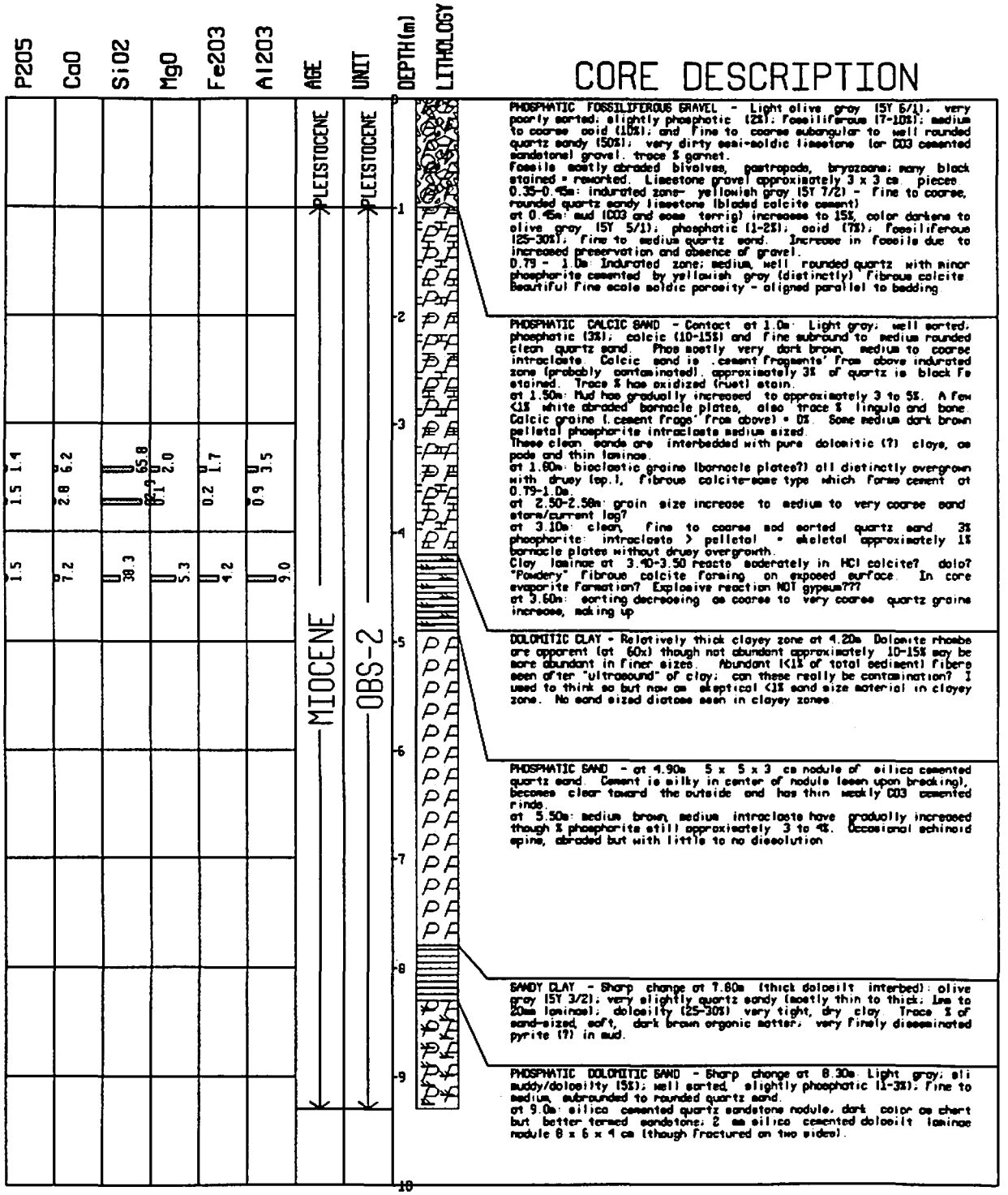
CORE DESCRIPTION

PHOSPHATIC FOSSILIFEROUS MUDDY SAND - Olive gray (5Y 4/1); very slightly fossiliferous (trace to 1%: highly corroded echinoid spines); phosphatic (4%); siliceous (2-4); muddy (45% from analyses); very fine to fine subrounded quartz sand. Trace % glauconite. Phosphorite as skeletal (lingula, bone) and fine pellets and intraclasts, medium brown-very dark brown, moderately to highly polished. Mud fraction dominated by silt. Sandy mottles present in section; most indistinct due to desiccation and gypsum precipitation.
at 0.60m: Phosphorite decreases to 1%; mica increase to approximately 10% of sand fraction
at 1.40m: Skeletal grains and some pellets (Trace %) taking on distinct rust color: appears to be oxidized iron within grains. Mud may be > 50%
Very distinct mottling seen in section 2 (not as dry as above) clean sandy mottles, very abundant in muddy matrix with occ. clay clast (1-2cm)
at 1.90m: Phosphorite trace -1%
Mud decreasing downward approximately 40% at 2.60
Very rare, soft woody plant material, sand sized
at 2.90m: Mud approximately 30-35%; phosphorite increases to 1-3% and color noticeably darkens from above : medium dark brown without .rusty orange color' noted at 1.40m
at 3.20m: phosphorite = trace%
at 3.90m: Phosphorite = 1-2%; cream-dark brown, color suggests leaching, but pitting is mild to absent
Mud decreasing to 25-30%
Mottling still apparent though less distinct than above
at 4.0m: sediment becoming more homogenous, sediment is light olive gray (5Y 4/2). Phosphorite increases to 4% and predominantly medium to very dark brown (cream colored grains as above = Tr-0). Very fine pellet> intraclasts and skeletal, rare discoid grains
at 5.20m: Phosphorite approximately 6% (Mud = 24% P2O5 = 1.34% from analyses)
at 5.50m: phosphorite = 2 to 3% slighly lighter overall color than above, some cream colored grains.

SANDY DOLOMITIC CLAY - Sharp contact (with bioturbation) at 5.60m Olive gray (5Y 4/1); very slightly phosphatic (1%); very fine quartz sandy (7-9%); quartz and dolosilty clay. Dolosilt = 30-40%.
Clay is very sticky, greasy; few mottles (though these account for sand fraction); dolosilt is fine to medium silt sized (barely resolved at 60x) Mica = 5%; Sand fraction contains approximately 2 to 3% fine sand sized spherical, crystallite aggregates-clinoptilolite (?)
at 7.0m: 92% mud- from analysis-P2O5 : 1.62 MgO: 5.43 7.0-8.0
Very sticky clay; a few sandy wisps and pin mottles but not laminated as seen lower in section (FDF-2)
NOTE: FPS-6 MUCH DIFFERENT THAN FORAM SAND FACIES IN FRYING PAN
ALSO: POSSIBLE CLINO' AGGREGATES NEED S.E.M. WORK
Mud decreases at 8.80 m as sandy mottles and distorted very fine lam'al laminae increase. Mud approximately 75%

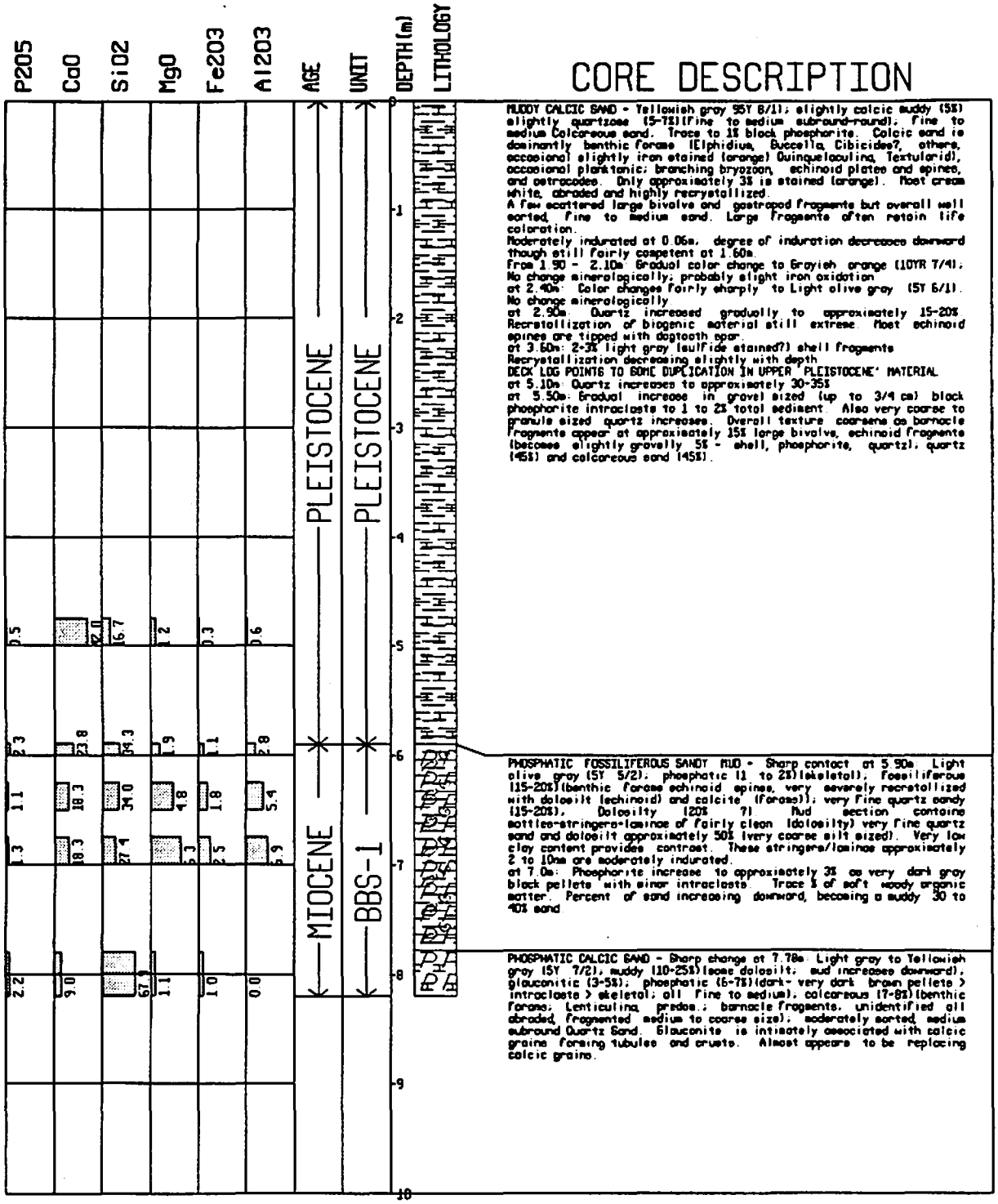
ONSLOW BAY CORE NUMBER: OB58

CRUISE: NSF O. BAY DATE LOGGED: 12-31-84 LATITUDE: 34.000 degrees
LENGTH ATTEMPTED: 5.9m BY: P. MALLETTE LONGITUDE: 76.123 degrees
LENGTH OF CORE: 9.3m



ONSLOW BAY CORE NUMBER: OB59

CRUISE: NSF O. BAY DATE LOGGED: 3-12-85 LATITUDE: 34.163 degrees
LENGTH ATTEMPTED: 7m BY: P. MALLETTE LONGITUDE: 76.857 degrees
LENGTH OF CORE: 8.2m



CORE DESCRIPTION

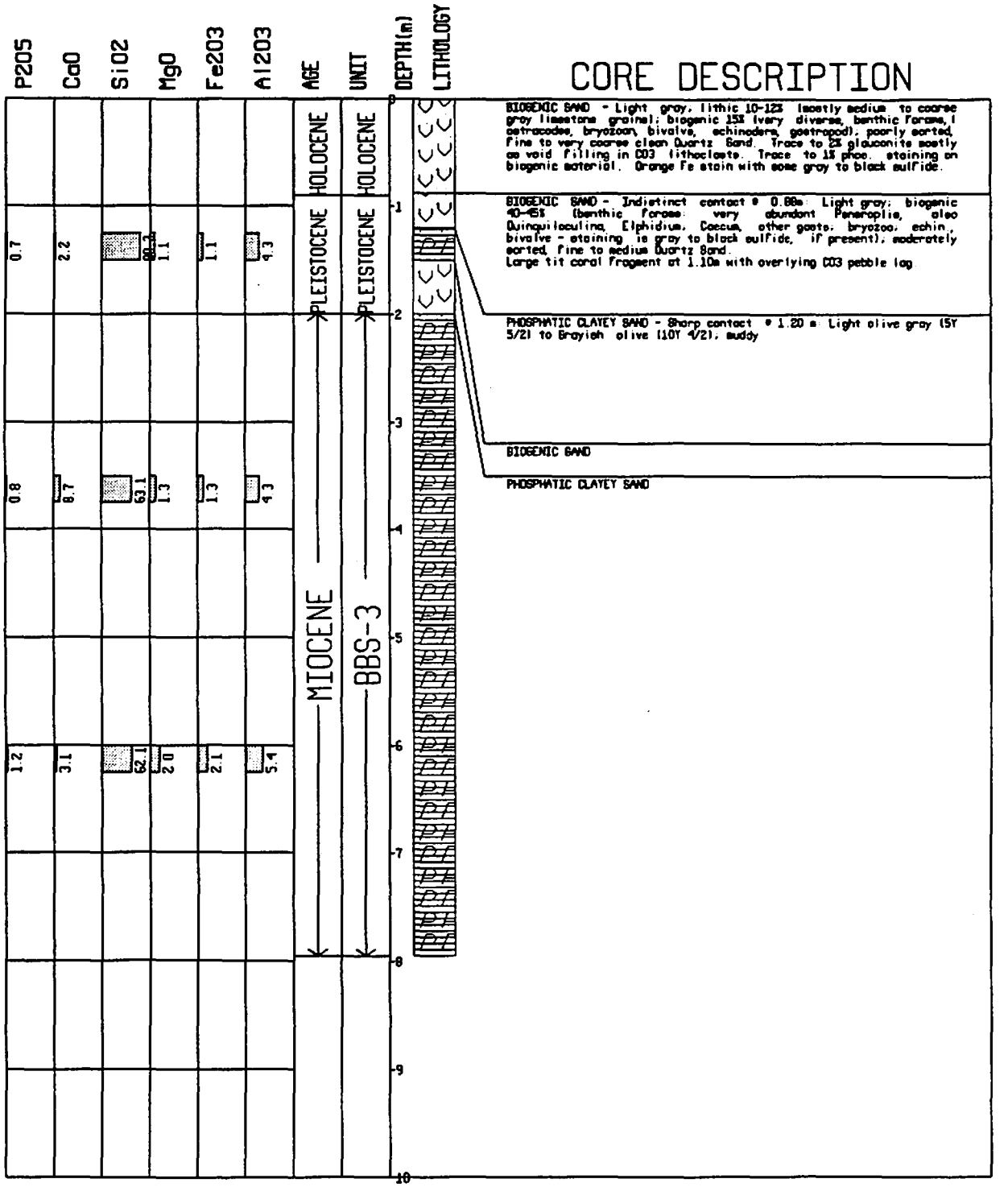
MUDDY CALCIC SAND - Yellowish gray 5Y 8/1; slightly calcic muddy (5%) slightly quartzose (5-7%)(fine to medium subround-round). Fine to medium Calcareous sand. Trace to 1% black phosphorite. Calcic sand is dominantly benthic forams (Elphidium, Buccella, Cibicides?, others, occasional slightly iron stained (orange) Quinqueloculina, Textularid), occasional planktonic; branching bryozoan, echinoid plates and spines, and ostracodes. Only approximately 3% is stained (orange). Most grains white, abraded and highly recrystallized.
A few scattered large bivalve and gastropod fragments but overall well sorted, fine to medium sand. Large fragments often retain life coloration.
Moderately indurated at 0.06m, degree of induration decreases downward though still fairly competent at 1.60m.
From 1.90 - 2.10m: Gradual color change to Grayish orange (10YR 7/4). No change mineralogically; probably slight iron oxidation
at 2.40m: Color changes fairly sharply to Light olive gray (5Y 6/1). No change mineralogically
at 2.90m: Quartz increased gradually to approximately 15-20%
Recrystallization of biogenic material still extreme. Most echinoid spines are tipped with dogtooth spar.
at 3.60m: 2-3% light gray (sulfide stained?) shell fragments
Recrystallization decreasing slightly with depth
DECK LOG POINTS TO SOME DUPLICATION IN UPPER 'PLEISTOCENE' MATERIAL
at 5.10m: Quartz increases to approximately 30-35%
at 5.50m: Gradual increase in gravel sized (up to 3/4 cm) black phosphorite intraclasts to 1 to 2% total sediment. Also very coarse to granule sized quartz increases. Overall texture coarsens as barnacle fragments appear at approximately 15% large bivalve, echinoid fragments (becomes slightly gravelly. 5% - shell, phosphorite, quartz), quartz (45%) and calcareous sand (45%).

PHOSPHATIC FOSSILIFEROUS SANDY MUD - Sharp contact at 5.90m. Light olive gray (5Y 5/2), phosphatic (1 to 2%)(skeletal), fossiliferous (15-20%)(benthic forams echinoid spines, very severely recrystallized with dolosilt (echinoid) and calcite (forams)); very fine quartz sandy (15-20%). Dolosilty (20% ?). Mud section contains mottles-stringers-laminae of fairly clean (dolosilty) very fine quartz sand and dolosilt approximately 50% (very coarse silt sized). Very low clay content provides contrast. These stringers/laminae approximately 2 to 10mm are moderately indurated.
at 7.0m: Phosphorite increase to approximately 3% as very dark gray black pellets with minor intraclasts. Trace % of soft woody organic matter. Percent of sand increasing downward, becoming a muddy 30 to 40% sand

PHOSPHATIC CALCIC SAND - Sharp change at 7.78m. Light gray to Yellowish gray (5Y 7/2); muddy (10-25%)(very dolosilt; mud increases downward), glauconitic (3-5%); phosphatic (5-7%)(dark- very dark brown pellets > intraclasts > skeletal; all fine to medium), calcareous 17-82%)(benthic forams; Lenticulina, prodos.; barnacle fragments, unidentified all abraded, fragmented medium to coarse size); moderately sorted, medium subround Quartz Sand. Glauconite is intimately associated with calcic grains forming tubules and crusts. Almost appears to be replacing calcic grains.

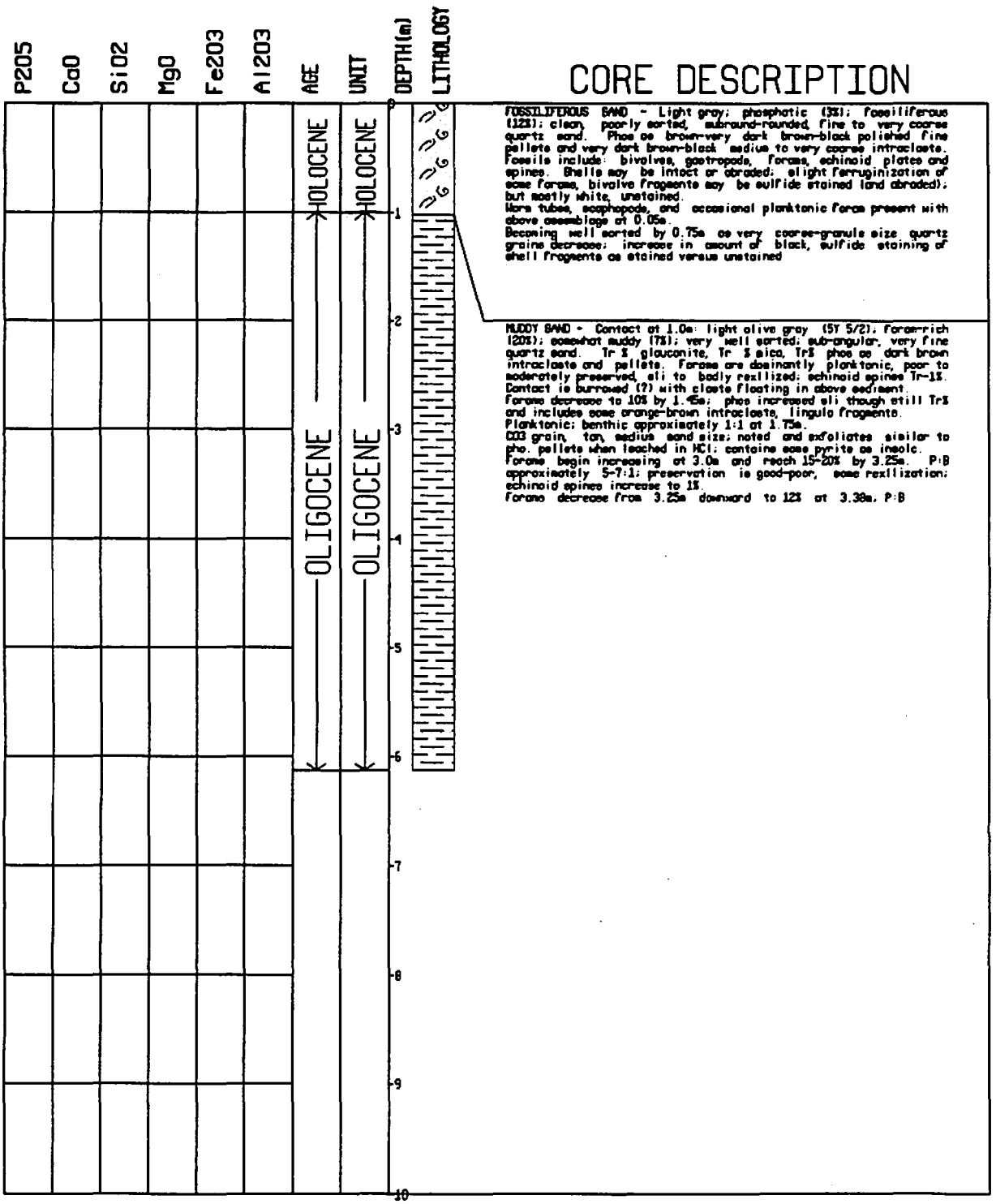
ONSLOW BAY CORE NUMBER: OB60

CRUISE: NSF O. BAY DATE LOGGED: 3-10-85 LATITUDE: 34.163 degrees
LENGTH ATTEMPTED: 5m BY: P. MALLETTE LONGITUDE: 76.847 degrees
LENGTH OF CORE: 7.95m



ONSLOW BAY CORE NUMBER: OB61

CRUISE: NSF O. BAY DATE LOGGED: 8-16-83 LATITUDE: 33.909 degrees
LENGTH ATTEMPTED: 8.6m BY: P. MALLETTE LONGITUDE: 77.563 degrees
LENGTH OF CORE: 6.13m



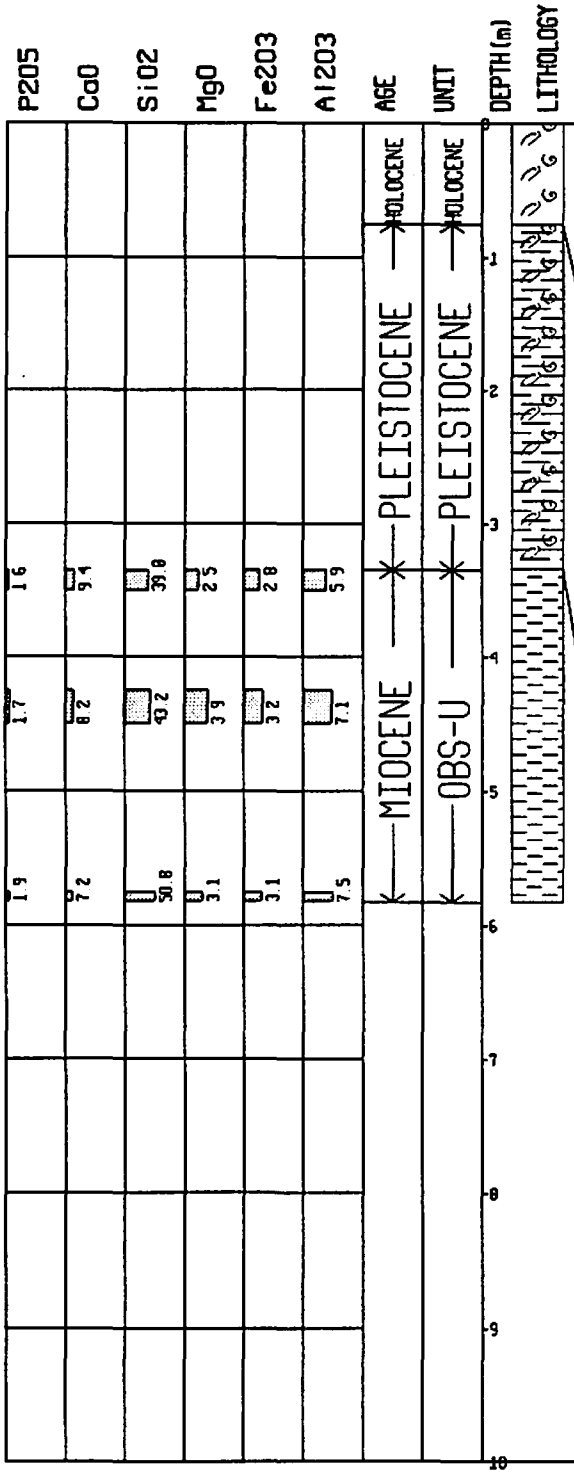
CORE DESCRIPTION

FOSSILIFEROUS SAND - Light gray; phosphatic (3%); fossiliferous (12%); clean, poorly sorted, subround-rounded, fine to very coarse quartz sand. Phos as brown-very dark brown-black polished fine pellets and very dark brown-black medium to very coarse intraclasts. Fossils include: bivalves, gastropods, forams, echinoid plates and spines. Shells may be intact or abraded; slight ferruginization of some forams, bivalve fragments may be sulfide stained (and abraded); but mostly white, unstained.
Worm tubes, scaphopods, and occasional planktonic forms present with above assemblage at 0.05m.
Becoming well sorted by 0.75m as very coarse-granule size quartz grains decrease; increase in amount of black, sulfide staining of shell fragments as stained versus unstained

MUDDY SAND - Contact at 1.0m: light olive gray (5Y 5/2); foram-rich (20%); somewhat muddy (7%); very well sorted; sub-angular, very fine quartz sand. Tr % glauconite, Tr % mica, Tr% phos as dark brown intraclasts and pellets. Forams are dominantly planktonic, poor to moderately preserved, all to badly recrilized; echinoid spines Tr-1%.
Contact is burrowed (?) with clasts floating in above sediment.
Forams decrease to 10% by 1.45m; phos increased all though still Tr% and includes some orange-brown intraclasts, lingula fragments.
Planktonic: benthic approximately 1:1 at 1.75m.
CO3 grain, tan, medium sand size; noted and exfoliates similar to pho. pellets when leached in HCl; contains some pyrite as insolc.
Forams begin increasing at 3.0m and reach 15-20% by 3.25m. P:B approximately 5-7:1; preservation is good-poor, some recrilization; echinoid spines increase to 1%.
Forams decrease from 3.25m downward to 12% at 3.38m. P:B

ONSLOW BAY CORE NUMBER: OB62

CRUISE: NSF O. BAY DATE LOGGED: 5-8-84 LATITUDE: 33.702 degrees
LENGTH ATTEMPTED: 5.7m BY: P. MALLETTE LONGITUDE: 77.533 degrees
LENGTH OF CORE: 5.83m



CORE DESCRIPTION

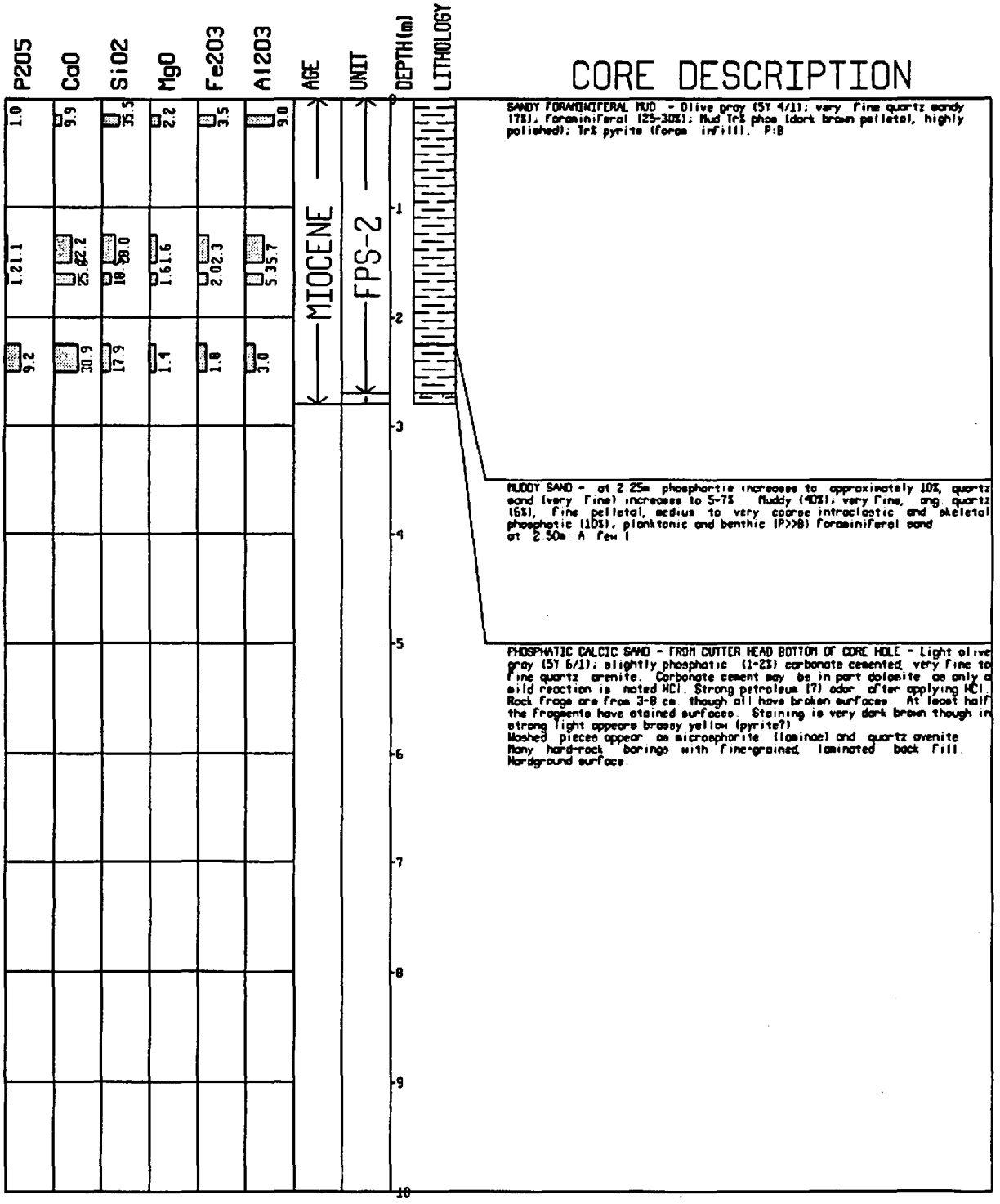
FOSSILIFEROUS SAND - Yellowish gray (5Y 8/1); somewhat fossiliferous (7%); well sorted, clean, subangular to subrounded, fine quartz sand. Fossils include: forams and fragments, may be ferruginized-brown and/or black, mostly benthics, gastropod fragments (cascus); echinoid plates and spines; bivalve fragments, some quartz grains with slt CO3 coating. Trace to 1% phosphorite as red brown to brown to very dark brown fine pellets and very dark brown-black intraclasts. Also contains 3% gray-black, highly pitted (bored?) micrite(?) grains or reduced shell fragments(?)
Fossil content increasing to 12-15% at 0.25m to include also more tubes, scaphopods, and ostracods. Fossils slightly less fragmented and coarser. Sediment only moderately sorted at 0.05m with occasional medium, coarse, very coarse, and granule size quartz and large shells/fragments.
Quartz sandy, shell gravelly layer at 0.66-0.75m: bivalves/fragments, sand dollar fragments, gastropods/fragments.

MUDDY FOSSILIFEROUS SAND - Contact, fairly sharp at 0.75m. Olive gray (5Y 4/1); slightly muddy (3%), slightly fossiliferous (7%), moderately sorted, subangular, fine-medium quartz sand. Fossil assemblage essentially same as above, though the staining (when present) is all black (reduced). Shells show signs of abrasion and many are pitted.
Trace % phosphorite as very dark brown pellets.
Very coarse quartz grains increase to 1-2% at 1.0m. Shell fragments slightly coarser by 1.25m, large bivalve fragment (45mm) at 1.42m.
Fossil content increases to 15% by 1.60m; mostly fragments including many delicate bivalve forms.
Fossils increase further to 25% at 1.75m; mud increases to 5-7% in fairly distinct, large mottles.
Fossils appear slightly less abraded at 2.0m, and sulfide (black) staining has decreased, many shell fragments retain natural, life color: (pinks, tans). Most forams unaltered by ferruginization (black) on some.
Fossils increased gradually to 40% at 2.50m, fragments and shells mostly coarse to very coarse sand size.
Increase in worm tubes-as large clusters-at 2.75m, become significant component. Mud balls, medium to very coarse, non or slightly calcareous noted, comprising 1-2% of sediment, light brown-tan. Rare "corn cob" (Siphogenerina (sp?)) forms; reworked from PR? Sponge spicules noted at 2.99m, uni- and trioxial.
*Some forams appear to have chambers filled with pyrite(?).

SANDY DOLOSILT - Sharp contact at 3.34m. Greenish gray (5GY 6/1), slt foraminiferal (2%), slightly quartz sandy (1%); diatomaceous (5-7%), tight dolosilt.
Forams are both planktonic and benthic, one triserial benthic foram appears to have infilled outer chamber which revealed upon breaking an infilling consisting of spherical particles approximately < .0125mm, dark brown and sparkly, pyrite? Diatoms mostly disk shape, flattened, approximately .0625mm - .125mm.
Quartz fine sand size, angular. Occasional rhomb of dolomite(?), fine to medium sand size.
**Percentages difficult to ascertain in dolosilt since disaggregation is very difficult. Unit appears uniform to bottom though possibly with slt increase in forams, quartz.
*Mud balls described @ 2.75m probably reworked from underlying dolosilt, may support presence of Siphogenerina sp.

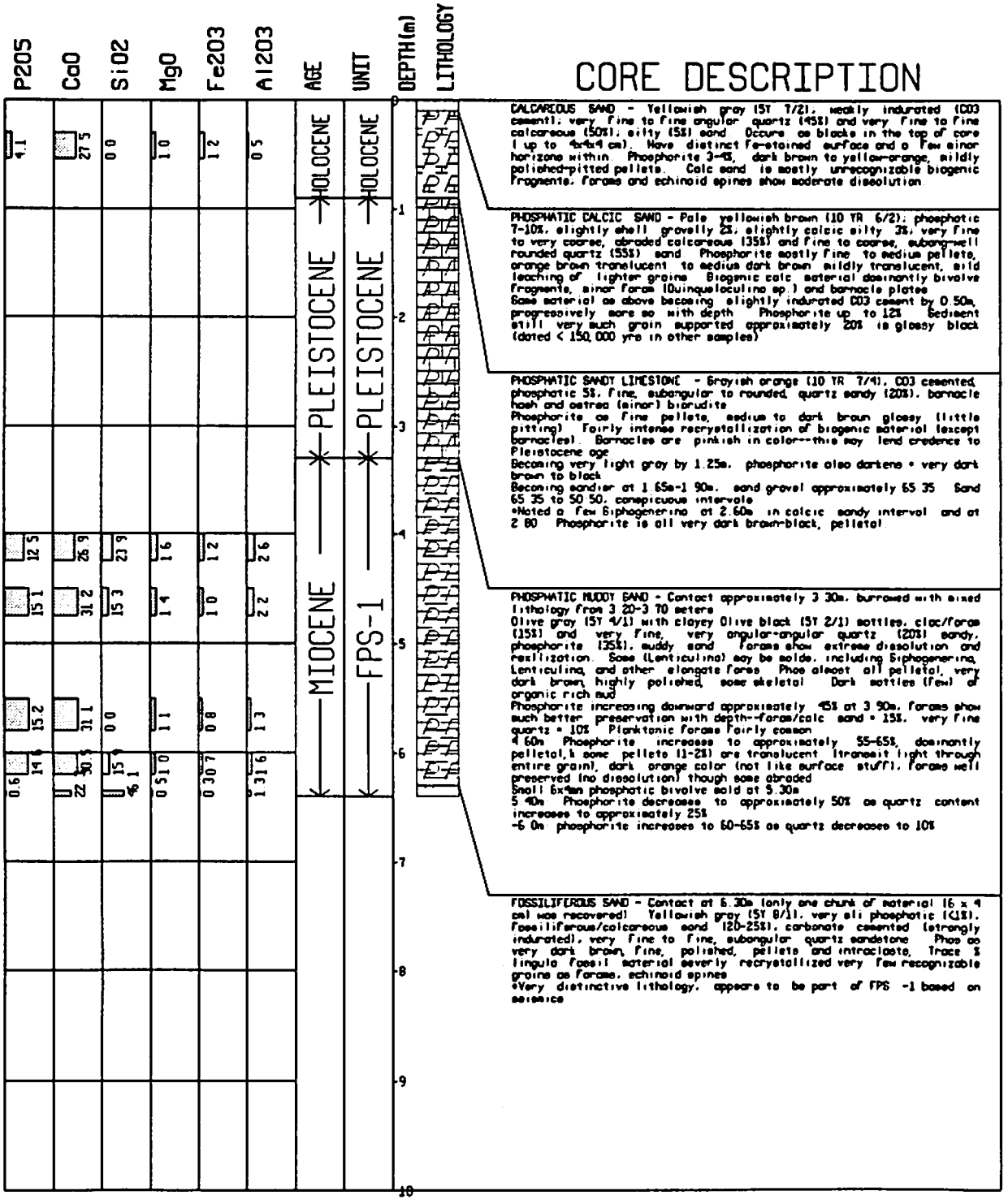
ONSLOW BAY CORE NUMBER: OB63

CRUISE: NSF O. BAY DATE LOGGED: 5-8-84 LATITUDE: 33.763 degrees
LENGTH ATTEMPTED: 2.14m BY: P. MALLETTE LONGITUDE: 77.582 degrees
LENGTH OF CORE: 2.7m



ONSLOW BAY CORE NUMBER: OB64

CRUISE: NSF O. BAY DATE LOGGED: 7-18-84 LATITUDE: 33.803 degrees
LENGTH ATTEMPTED: 5.7m BY: P. MALLETTE LONGITUDE: 77.618 degrees
LENGTH OF CORE: 6.9m



CORE DESCRIPTION

CALCAREOUS SAND - Yellowish gray (5Y 7/2), weakly indurated (CO3 cement); very fine to fine angular quartz (45%) and very fine to fine calcareous (50%), silty (5%) sand. Occurs as blocks in the top of core (up to 4x4x4 cm). Have distinct Fe-stained surface and a few minor horizons within. Phosphorite 3-4%, dark brown to yellow-orange, mildly polished-pitted pellets. Calc sand is mostly unrecognizable biogenic fragments; forams and echinoid spines show moderate dissolution.

PHOSPHATIC CALCIC SAND - Pale yellowish brown (10 YR 6/2); phosphatic 7-10%, slightly shell gravelly 2%, slightly calcic silty 3%, very fine to very coarse, abraded calcareous (35%) and fine to coarse, subang-well rounded quartz (55%) sand. Phosphorite mostly fine to medium pellets, orange brown translucent to medium dark brown mildly translucent, mild leaching of lighter grains. Biogenic calc material dominantly bivalve fragments, minor forams (Quinqueloculina sp.) and barnacle plates.
Same material as above becoming slightly indurated CO3 cement by 0.50m, progressively more so with depth. Phosphorite up to 12%. Sediment still very much grain supported. Approximately 20% is glossy black (dated < 150,000 yrs in other samples).

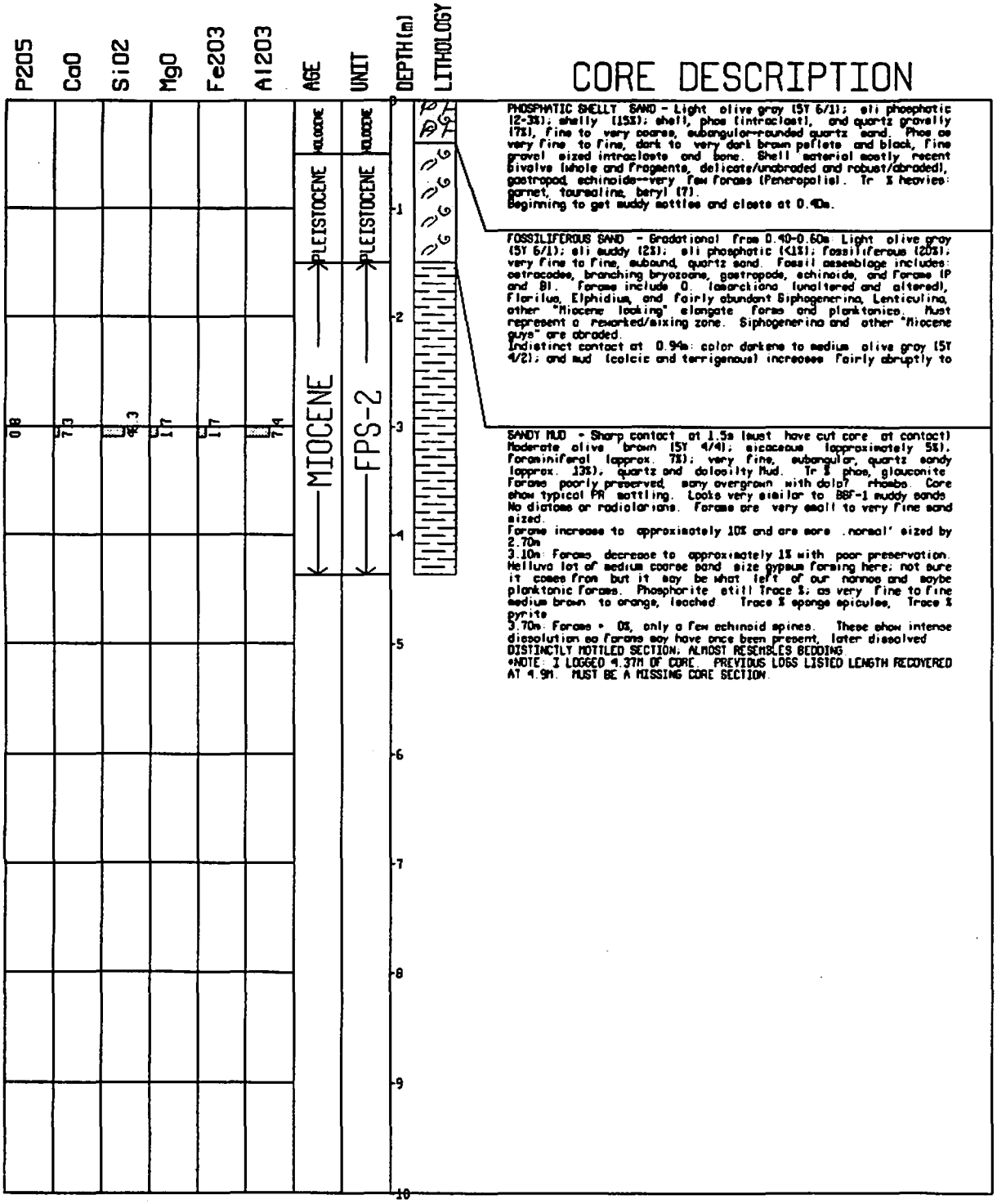
PHOSPHATIC SANDY LIMESTONE - Grayish orange (10 YR 7/4), CO3 cemented, phosphatic 5%, fine, subangular to rounded quartz sandy (20%), barnacle hash and ostrea (minor) bioturbite.
Phosphorite as fine pellets, medium to dark brown glossy (little pitting). Fairly intense recrystallization of biogenic material (except barnacles). Barnacles are pinkish in color--this may lend credence to Pleistocene age.
Becoming very light gray by 1.25m, phosphorite also darkens + very dark brown to black.
Becoming sandier at 1.65m-1.90m, sand:gravel approximately 65:35. Sand 65:35 to 50:50, conspicuous intervals.
*Noted a few Siphogenerina at 2.60m in calcic sandy interval and at 2.80. Phosphorite is all very dark brown-black, pelletal.

PHOSPHATIC MUDDY SAND - Contact approximately 3.30m, burrowed with mixed lithology from 3.20-3.70 meters.
Olive gray (5Y 4/1) with clayey Olive black (5Y 2/1) mottles, clac/foram (15%) and very fine, very angular-angular quartz (20%) sandy, phosphorite (35%), muddy sand. Forams show extreme dissolution and recalcification. Some (Lenticulina) may be molds, including Siphogenerina, Lenticulina, and other elongate forms. Phos almost all pelletal, very dark brown, highly polished, some skeletal. Dark mottles (few) of organic rich mud.
Phosphorite increasing downward approximately 45% at 3.90m, forams show much better preservation with depth--foram/calc sand + 15%, very fine quartz + 10%. Planktonic forams fairly common.
4.60m Phosphorite increases to approximately 55-65%, dominantly pelletal, k some pellets (1-2%) are translucent (transmit light through entire grain), dark orange color (not like surface stuff). Forams well preserved (no dissolution) though some abraded.
Small 6x4mm phosphatic bivalve mold at 5.30m.
5.40m Phosphorite decreases to approximately 50% as quartz content increases to approximately 25%.
~6.0m phosphorite increases to 60-65% as quartz decreases to 10%.

FOSSILIFEROUS SAND - Contact at 6.30m (only one chunk of material (6 x 4 cm) was recovered). Yellowish gray (5Y 8/1), very slt phosphatic (<1%), fossiliferous/calcareous sand (20-25%), carbonate cemented (strongly indurated), very fine to fine, subangular quartz sandstone. Phos as very dark brown, fine, polished, pellets and intraclasts. Trace % lingula fossil material severly recrystallized very few recognizable grains as forams, echinoid spines.
*Very distinctive lithology, appears to be part of FPS -1 based on seismics.

ONSLOW BAY CORE NUMBER: OB65

CRUISE: NSF O. BAY DATE LOGGED: 7-18-84 LATITUDE: 33.804 degrees
LENGTH ATTEMPTED: 4.2m BY: P. MALLETTE LONGITUDE: 77.620 degrees
LENGTH OF CORE: 4.37m



CORE DESCRIPTION

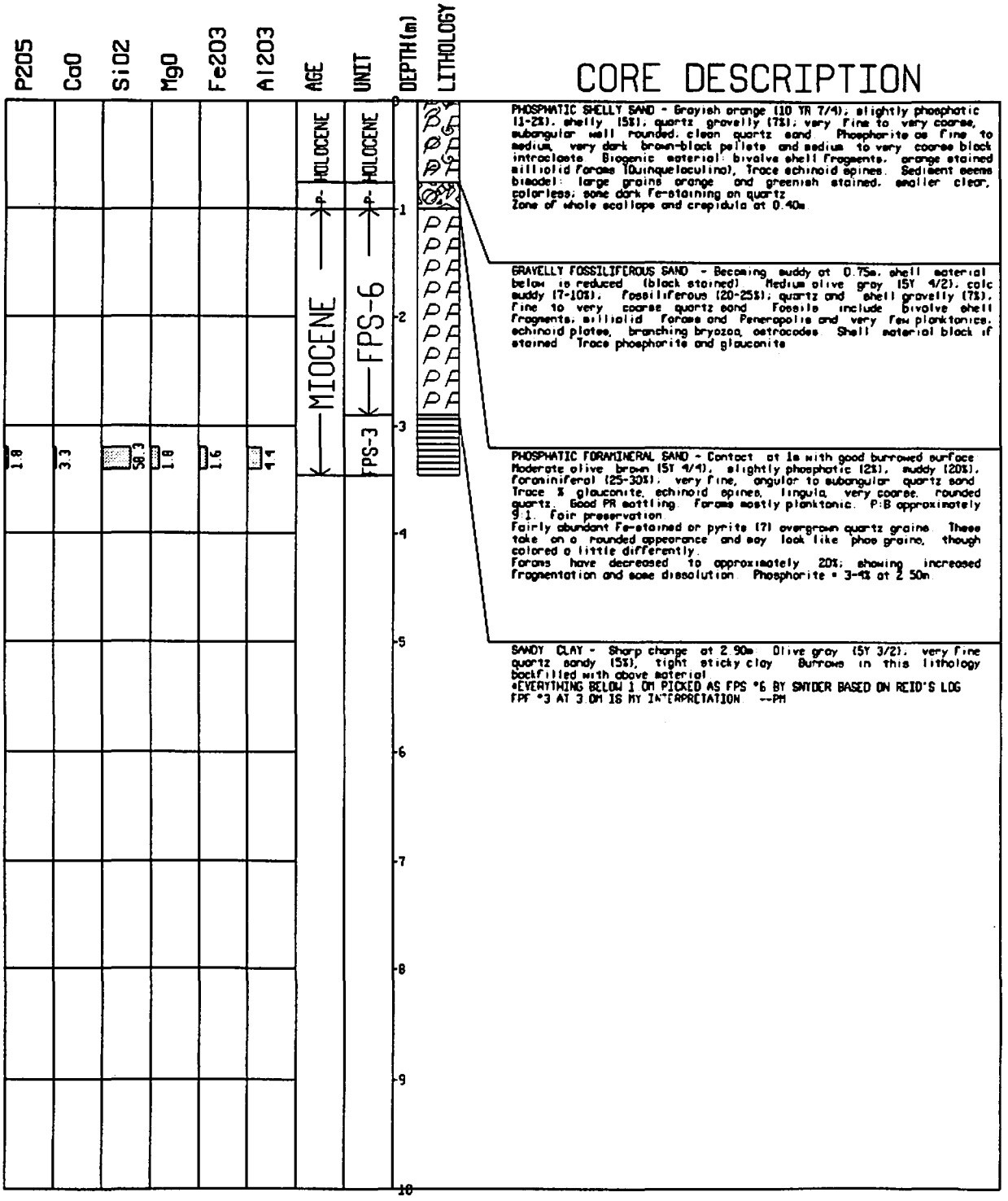
PHOSPHATIC SHELLY SAND - Light olive gray (5Y 6/1); abl phosphatic (2-3%); shelly (15%); shell, phos (intraclast), and quartz gravelly (7%), fine to very coarse, subangular-rounded quartz sand. Phos as very fine to fine, dark to very dark brown pellets and black, fine gravel sized intraclasts and bone. Shell material mostly recent bivalve (whole and fragments, delicate/unabraded and robust/abraded), gastropod, echinoids--very few forams (Peneropolis). Tr % heavies: garnet, tourmaline, beryl (?).
Beginning to get muddy mottles and clasts at 0.40m.

FOSSILIFEROUS SAND - Gradational from 0.40-0.60m Light olive gray (5Y 6/1); abl muddy (2%); abl phosphatic (<1%); fossiliferous (20%); very fine to fine, subround, quartz sand. Fossil assemblage includes: ostracodes, branching bryozoans, gastropods, echinoids, and forams (P and B). Forams include O. laboriosa (unaltered and altered), Florilus, Elphidium, and fairly abundant Siphogenerina, Lenticulina, other "Miocene looking" elongate forms and planktonics. Must represent a reworked/mixing zone. Siphogenerina and other "Miocene guys" are abraded.
Indistinct contact at 0.94m: color darkens to medium olive gray (5Y 4/2); and mud (calcic and terrigenous) increases fairly abruptly to

SANDY MUD - Sharp contact at 1.5m (must have cut core at contact) Moderate olive brown (5Y 4/4); siliceous (approximately 5%), foraminiferal (approx. 7%); very fine, subangular, quartz sandy (approx. 13%), quartz and dolosilty Mud. Tr % phos, glauconite. Forams poorly preserved, many overgrown with dolo? rhombs. Core show typical PR mottling. Looks very similar to BSF-1 muddy sands. No diatoms or radiolarians. Forams are very small to very fine sand sized.
Forams increase to approximately 10% and are more 'normal' sized by 2.70m
3.10m: Forams decrease to approximately 1% with poor preservation. Helluva lot of medium coarse sand size gypsum forms in here; not sure it comes from but it may be what left of our rhombs and maybe planktonic forams. Phosphorite still Trace %; as very fine to fine medium brown to orange, leached. Trace % sponge spicules, Trace % pyrite
3.70m: Forams = 0%, only a few echinoid spines. These show intense dissolution so forams may have once been present, later dissolved
DISTINCTLY MOTTLED SECTION; ALMOST RESEMBLES BEDDING
*NOTE: I LOGGED 4.37M OF CORE. PREVIOUS LOGS LISTED LENGTH RECOVERED AT 4.9M. MUST BE A MISSING CORE SECTION.

ONSLOW BAY CORE NUMBER: OB66

CRUISE: NSF O. BAY DATE LOGGED: 7-20-84 LATITUDE: 33.837 degrees
LENGTH ATTEMPTED: 3.15m BY: P. MALLETTE LONGITUDE: 77.488 degrees
LENGTH OF CORE: 3.46m



CORE DESCRIPTION

PHOSPHATIC SHELLY SAND - Grayish orange (10 YR 7/4), slightly phosphatic (1-2%), shelly (5%); quartz gravelly (7%); very fine to very coarse, subangular well rounded, clean quartz sand. Phosphorite as fine to medium, very dark brown-black pellets and sedium to very coarse black intraclasts. Biogenic material: bivalve shell fragments, orange stained milliolid forams (Quinqueloculina), Trace echinoid spines. Sediment seems bimodal: large grains orange and greenish stained, smaller clear, colorless; some dark Fe-staining on quartz.
Zone of whole scallops and crepidula at 0.40m.

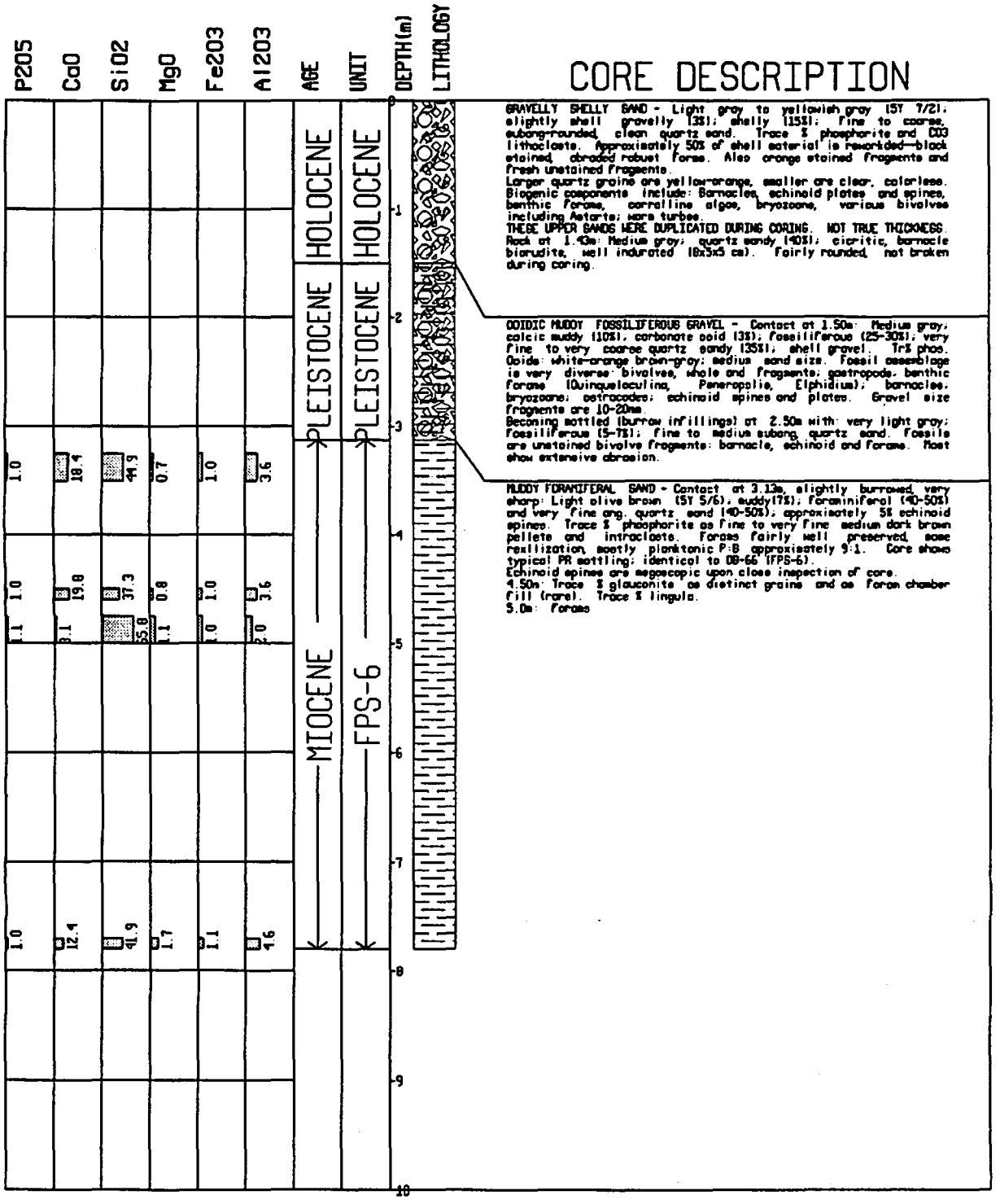
GRAVELLY FOSSILIFEROUS SAND - Becoming muddy at 0.75m, shell material below is reduced (black stained). Medium olive gray (5Y 4/2), calc muddy (7-10%), fossiliferous (20-25%); quartz and shell gravelly (7%), fine to very coarse quartz sand. Fossils include bivalve shell fragments, milliolid forams and Peneropolis and very few planktonics, echinoid plates, branching bryozoa, ostracodes. Shell material black if stained. Trace phosphorite and glauconite.

PHOSPHATIC FORAMINERAL SAND - Contact at 1m with good burrowed surface. Moderate olive brown (5Y 4/4), slightly phosphatic (2%), muddy (20%), foraminiferal (25-30%); very fine, angular to subangular quartz sand. Trace % glauconite, echinoid spines, lingula, very coarse, rounded quartz. Good PR mottling. Forams mostly planktonic. P:B approximately 9:1. Fair preservation.
Fairly abundant Fe-stained or pyrite (?) overgrown quartz grains. These take on a rounded appearance and may look like phos grains, though colored a little differently.
Forams have decreased to approximately 20%; showing increased fragmentation and some dissolution. Phosphorite = 3-4% at 2.50m.

SANDY CLAY - Sharp change at 2.90m. Olive gray (5Y 3/2), very fine quartz sandy (5%), tight sticky clay. Burrows in this lithology backfilled with above material.
*EVERYTHING BELOW 1.0M PICKED AS FPS #6 BY SNYDER BASED ON REID'S LOG. FPF #3 AT 3.0M IS MY INTERPRETATION. --PH

ONSLOW BAY CORE NUMBER: OB67

CRUISE: NSF O. BAY DATE LOGGED: 7-24-84 LATITUDE: 33.717 degrees
LENGTH ATTEMPTED: 5.6m BY: P. MALLETTE LONGITUDE: 77.433 degrees
LENGTH OF CORE: 7.8m



CORE DESCRIPTION

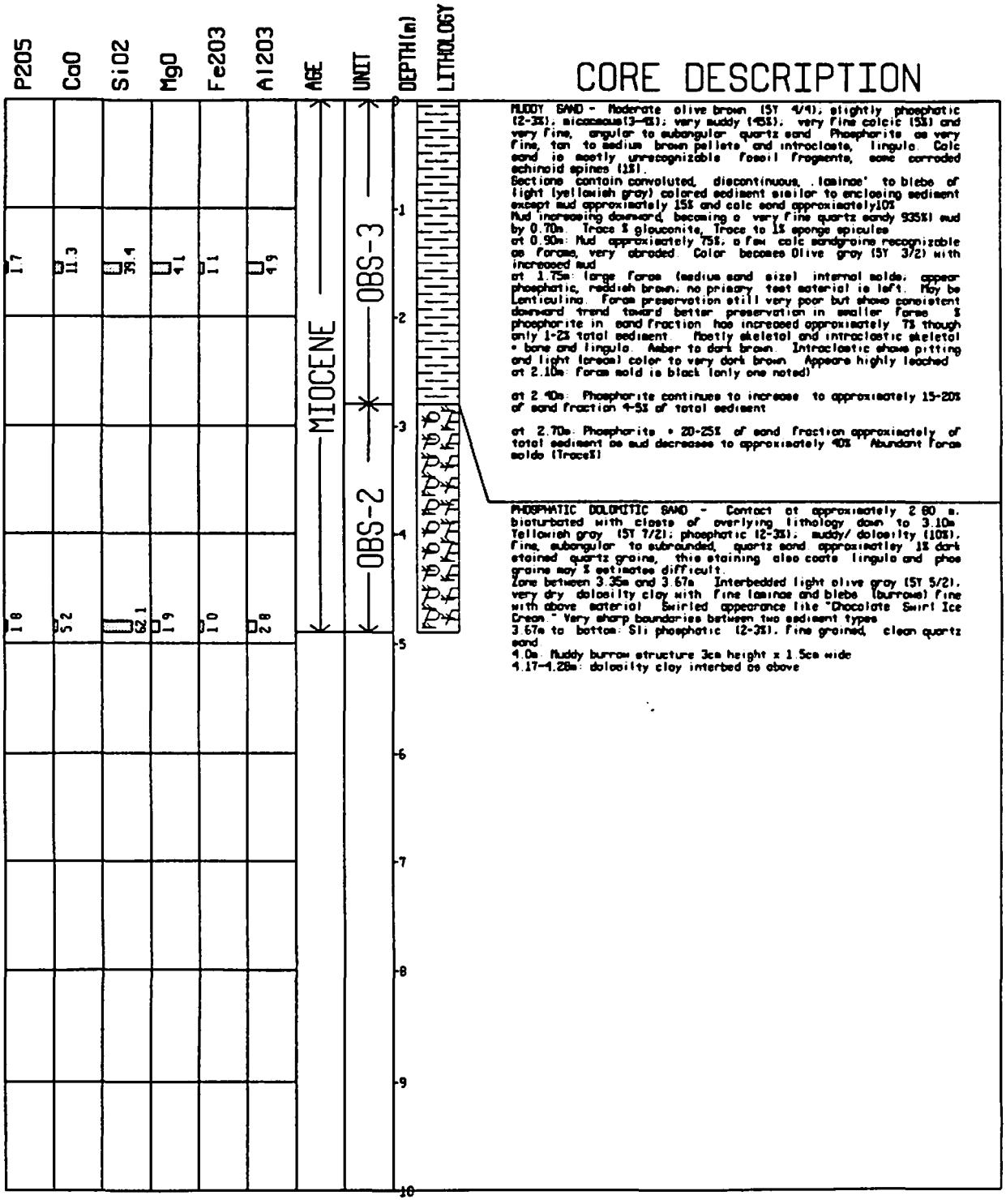
GRAVELLY SHELLY SAND - Light gray to yellowish gray (5Y 7/2); slightly shell gravelly (3%); shelly (15%); fine to coarse, subang-rounded, clean quartz sand. Trace % phosphorite and CO3 lithoclasts. Approximately 50% of shell material is reworked--black stained, abraded robust forms. Also orange stained fragments and fresh unstained fragments.
Larger quartz grains are yellow-orange, smaller are clear, colorless. Biogenic components include: Barnacles, echinoid plates and spines, benthic forams, coralline algae, bryozoans, various bivalves including Astarte; worm tubes.
THESE UPPER SANDS WERE DUPLICATED DURING CORING. NOT TRUE THICKNESS.
Rock at 1.40m: Medium gray; quartz sandy (40%); cicritic, barnacle biorudite, well indurated (8x5x5 cm). Fairly rounded, not broken during coring.

OOIDIC MUDDY FOSSILIFEROUS GRAVEL - Contact at 1.50m: Medium gray; calcic muddy (10%), carbonate sand (3%); fossiliferous (25-30%); very fine to very coarse quartz sandy (35%); shell gravel. Trs phos. Ooids: white-orange brown-gray; medium sand size. Fossil assemblage is very diverse: bivalves, whole and fragments; gastropods, benthic forams (Quinqueloculina, Peneroplis, Elphidium); barnacles, bryozoans; ostracodes; echinoid spines and plates. Gravel size fragments are 10-20mm.
Becoming mottled (burrow infillings) at 2.50m with: very light gray; fossiliferous (5-7%); fine to medium subang, quartz sand. Fossils are unstained bivalve fragments: barnacle, echinoid and forams. Most show extensive abrasion.

MUDDY FORAMINIFERAL SAND - Contact at 3.13m, slightly burrowed, very sharp: Light olive brown (5Y 5/6); muddy(7%); foraminiferal (40-50%) and very fine ang. quartz sand (40-50%); approximately 5% echinoid spines. Trace % phosphorite as fine to very fine medium dark brown pellets and intraclasts. Forams fairly well preserved, some recrystallization, mostly planktonic P:B approximately 9:1. Core shows typical PR mottling; identical to OB-66 (FPS-6).
Echinoid spines are megascopic upon close inspection of core.
4.50m: Trace % glauconite as distinct grains and as foram chamber fill (rare). Trace % lingula.
5.0m: Forams

ONSLOW BAY CORE NUMBER: OB68

CRUISE: NSF O. BAY DATE LOGGED: 5-8-84 LATITUDE: 33.833 degrees
LENGTH ATTEMPTED: 3.8m BY: P. MALLETTE LONGITUDE: 77.284 degrees
LENGTH OF CORE: 4.9



CORE DESCRIPTION

MUDDY SAND - Moderate olive brown (5Y 4/4); slightly phosphatic (2-3%), micaceous(3-4%); very muddy (45%); very fine calcic (5%) and very fine, angular to subangular quartz sand. Phosphorite as very fine, tan to medium brown pellets and intraclasts, lingula. Calc sand is mostly unrecognizable fossil fragments, some corroded echinoid spines (1%).
Sections contain convoluted, discontinuous, 'laminae' to blebs of light (yellowish gray) colored sediment similar to enclosing sediment except mud approximately 15% and calc sand approximately10%
Mud increasing downward, becoming a very fine quartz sandy 935%) mud by 0.70m. Trace % glauconite, Trace to 1% sponge spicules
at 0.90m: Mud approximately 75%, a few calc sandgrains recognizable as forams, very abraded. Color becomes Olive gray (5Y 3/2) with increased mud
at 1.75m: large foram (medium sand size) internal molds, appear phosphatic, reddish brown, no primary test material is left. May be Lenticulina. Foram preservation still very poor but shows consistent downward trend toward better preservation in smaller forms. % phosphorite in sand fraction has increased approximately 7% though only 1-2% total sediment. Mostly skeletal and intraclastic skeletal + bone and lingula. Amber to dark brown. Intraclastic shows pitting and light foreign color to very dark brown. Appears highly leached
at 2.10m: foram mold is black (only one noted)

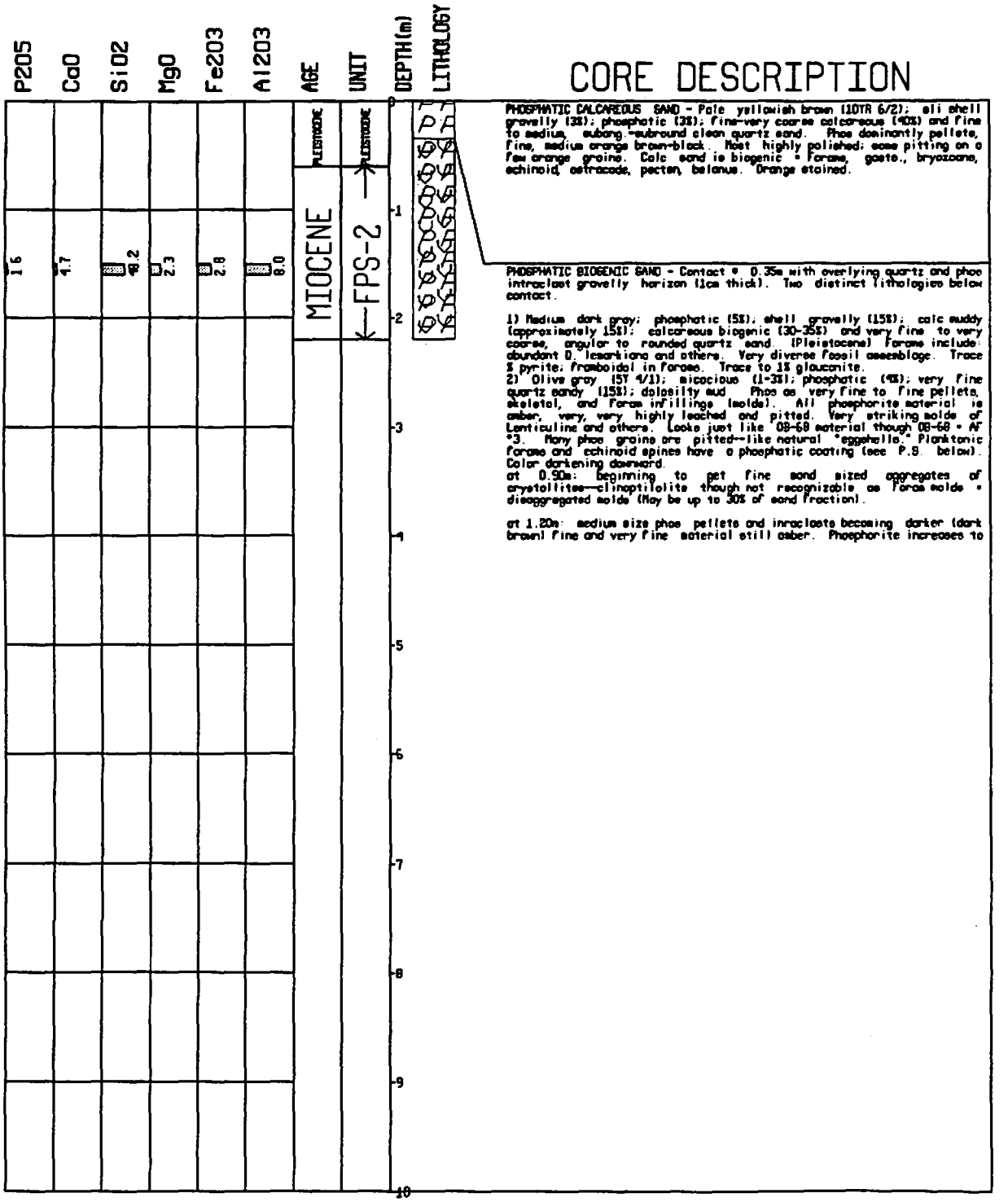
at 2.40m: Phosphorite continues to increase to approximately 15-20% of sand fraction 4-5% of total sediment

at 2.70m: Phosphorite + 20-25% of sand fraction approximately of total sediment as mud decreases to approximately 40%. Abundant foram molds (Trace%)

PHOSPHATIC DOLOMITIC SAND - Contact at approximately 2.60 m. bioturbated with clasts of overlying lithology down to 3.10m. Yellowish gray (5Y 7/2); phosphatic (2-3%); muddy/ dolosilty (10%). Fine, subangular to subrounded, quartz sand approximatley 1% dark stained quartz grains, this staining also coats lingula and phos grains may % estimates difficult.
Zone between 3.35m and 3.67m. Interbedded light olive gray (5Y 5/2), very dry dolosilty clay with fine laminae and blebs (burrows) fine with above material. Swirled appearance like "Chocolate Swirl Ice Cream." Very sharp boundaries between two sediment types
3.67m to bottom: Sli phosphatic (2-3%), fine grained, clean quartz sand
4.0m: Muddy burrow structure 3cm height x 1.5cm wide
4.17-4.28m: dolosilty clay interbed as above

ONSLOW BAY CORE NUMBER: OB70

CRUISE: NSF O. BAY DATE LOGGED: 8-15-84 LATITUDE: 33.682 degrees
LENGTH ATTEMPTED: 2.1m BY: P. MALLETTE LONGITUDE: 77.645 degrees
LENGTH OF CORE: 2.2m



CORE DESCRIPTION

PHOSPHATIC CALCAREOUS SAND - Pale yellowish brown (10YR 6/2); sli shell gravelly (3%); phosphatic (3%); fine-very coarse calcareous (90%) and fine to sediun, subang.-subround clean quartz sand. Phos dominantly pellets, fine, sediun orange brown-black. Most highly polished; some pitting on a few orange grains. Calc sand is biogenic * foram, gastr., bryozoans, echinoid, ostracode, pecten, balanus. Orange stained.

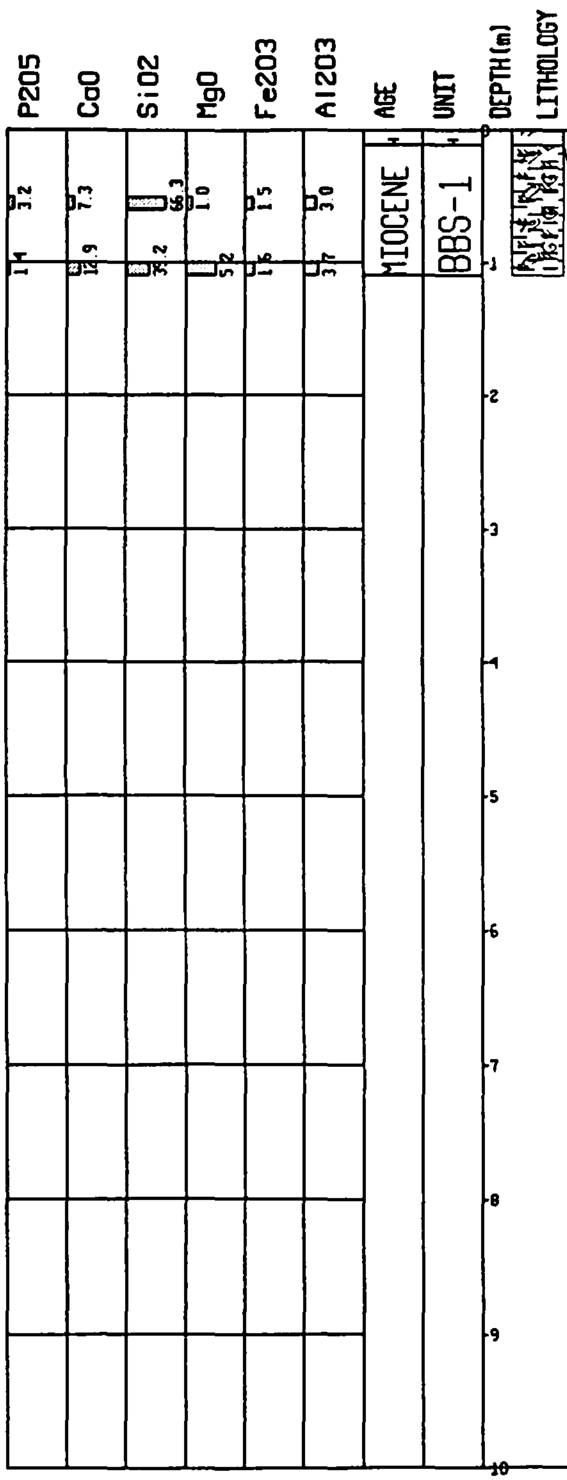
PHOSPHATIC BIOGENIC SAND - Contact @ 0.35m with overlying quartz and phos intraclast gravelly horizon (1cm thick). Two distinct lithologies below contact.

1) Medium dark gray; phosphatic (5%); shell gravelly (15%); calc muddy (approximately 15%); calcareous biogenic (30-35%) and very fine to very coarse, angular to rounded quartz sand. (Pleistocene) Forams include abundant O. lesariana and others. Very diverse fossil assemblage. Trace % pyrite; framboidal in forams. Trace to 1% glauconite.
2) Olive gray (5Y 4/1); micaceous (1-3%); phosphatic (4%); very fine quartz sandy (15%); dolosilty mud. Phos as very fine to fine pellets, skeletal, and foram infillings (molds). All phosphorite material is amber, very, very highly leached and pitted. Very striking molds of Lenticulina and others. Looks just like OB-68 material though OB-68 * AF *3. Many phos grains are pitted--like natural "eggshells." Planktonic forams and echinoid spines have a phosphatic coating (see P.S. below). Color darkening downward.
at 0.90m: beginning to get fine sand sized aggregates of crystallites--clinoptilolite though not recognizable as foram molds * disaggregated molds (May be up to 30% of sand fraction).

at 1.20m: medium size phos pellets and intraclasts becoming darker (dark brown) fine and very fine material still amber. Phosphorite increases to

ONSLOW BAY CORE NUMBER: OB71

CRUISE: NSF O. BAY DATE LOGGED: 1-6-84 LATITUDE: 34.448 degrees
LENGTH ATTEMPTED: 0.6m BY: P. MALLETTE LONGITUDE: 77.913 degrees
LENGTH OF CORE: 1.1m



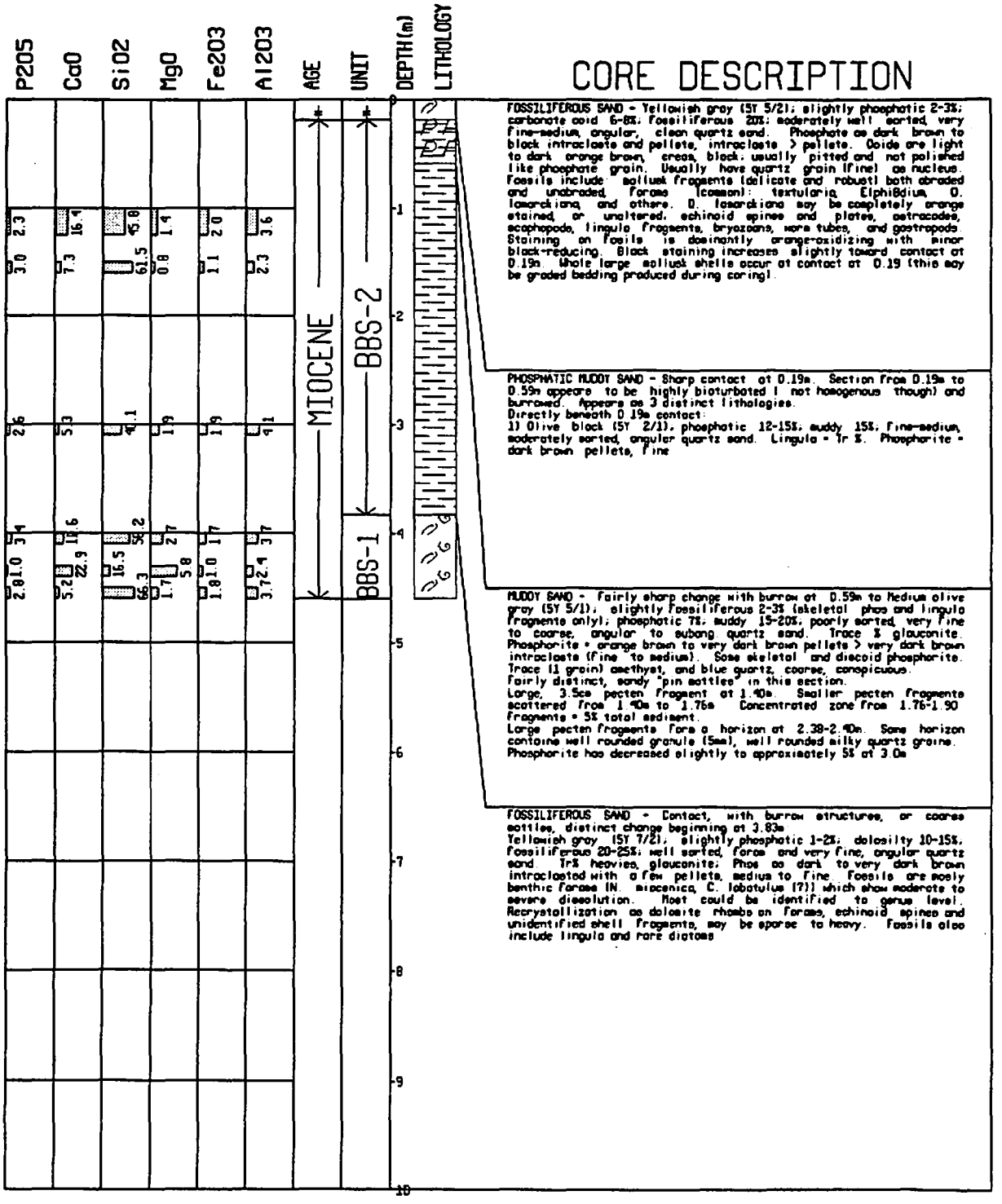
CORE DESCRIPTION

FOSSILIFEROUS SAND - Yellowish gray (5Y 8/1). very slightly phosphatic, Tr-1%; carbonate ooid Tr-1%. fossiliferous 10%. sli fossil gravelly, fine, angular-subangular, well sorted, clean quartz sand. Phos = fine, brown to very dark brown pellets and intraclast. Fossils include: mollusk shell frags (mostly unabraded, delicate), forams (Quinqueloculina sp., minimal brown stain; and others); echinoid spines and plates, gasts., bryozoans.

FOSSILIFEROUS SANDY DOLOMITIC SILT - Sharp contact at 0.11m with mottling or clasts, contain in surface sand to 0.19m (vibracore produced?).
Yellowish light olive gray (5Y 6/2); slightly phosphatic 2-3% *; fossiliferous 7-10% *; very fine quartz sandy 25-35% dolosilt (* % of sand fraction).
Phosphorite = fine-medium, very dark brown pellets > intraclasts. Fossils include: lingula, forams (benthic, very poorly preserved, dissolved and overgrown with calcite/dolo?) (xlls too small to make out shape, some suggest rhombs), echinoid spines (largely unaltered), diatoms (Trace to 1% *), occasional medium-coarse quartz grain. Noticed one purplish (amethyst) coarse grain, also rare blue quartz, coarse.
Phosphorite increases to 5% (of sand fraction) at 0.50m.
Phosphorite increase to 7% (of sand fraction) at 0.75m, begin getting very coarse to coarse, brown to very dark brown intraclasts. Increase in coarse, blue and purplish quartz.
Increasing diatom % (* Trace to 1% of sand fraction)
Rhombic crystal overgrowths becoming visible (large enough) on forams...dolomite(?) and other finer crystals (shape can't be distinguished), dolomite (?) calcite(?).

ONSLOW BAY CORE NUMBER: OB72

CRUISE: NSF O. BAY DATE LOGGED: 1-2-84 LATITUDE: 34.453 degrees
LENGTH ATTEMPTED: 3.65m BY: P. MALLETTE LONGITUDE: 76.877 degrees
LENGTH OF CORE: 4.17m



CORE DESCRIPTION

FOSSILIFEROUS SAND - Yellowish gray (5Y 5/2); slightly phosphatic 2-3%; carbonate cmtd 6-8%; fossiliferous 20%; moderately well sorted, very fine-medium, angular, clean quartz sand. Phosphate as dark brown to black intraclasts and pellets, intraclasts > pellets. Oxide are light to dark orange brown, cream, black; usually pitted and not polished like phosphate grain. Usually have quartz grain (fine) as nucleus. Fossils include mollusk fragments (delicate and robust) both abraded and unabraded, forams (common): textularia, Elphidium, O. lamarckiana, and others. O. lamarckiana may be completely orange stained, or unaltered. echinoid spines and plates, ostracodes, ecophopods, lingula fragments, bryozoans, worm tubes, and gastropods. Staining on fossils is dominantly orange-oxidizing with minor black-reducing. Black staining increases slightly toward contact at 0.19m. Whole large mollusk shells occur at contact at 0.19 (this may be graded bedding produced during coring).

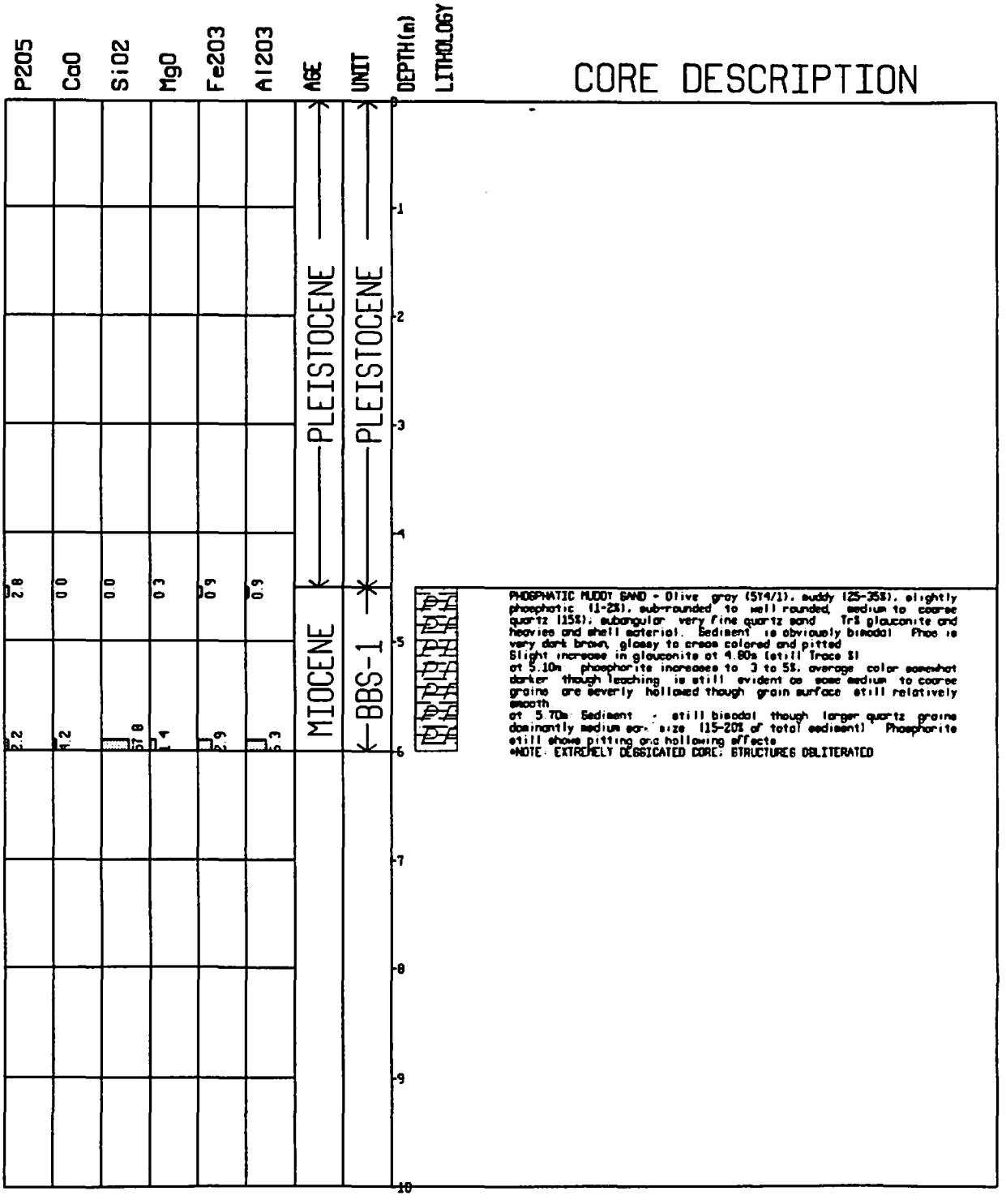
PHOSPHATIC MUDDY SAND - Sharp contact at 0.19m. Section from 0.19m to 0.59m appears to be highly bioturbated (not homogenous though) and burrowed. Appears as 3 distinct lithologies.
Directly beneath 0.19m contact:
1) Olive black (5Y 2/1), phosphatic 12-15%; muddy 15%; fine-medium, moderately sorted, angular quartz sand. Lingula = Tr %. Phosphorite = dark brown pellets, fine

MUDDY SAND - Fairly sharp change with burrow at 0.59m to Medium olive gray (5Y 5/1), slightly fossiliferous 2-3% (skeletal phos and lingula fragments only); phosphatic 7%; muddy 15-20%; poorly sorted, very fine to coarse, angular to subang quartz sand. Trace % glauconite. Phosphorite = orange brown to very dark brown pellets > very dark brown intraclasts (fine to medium). Some skeletal and discoid phosphorite. Trace (1 grain) amethyst, and blue quartz, coarse, conspicuous.
Fairly distinct, sandy "pin mottles" in this section.
Large, 3.5cm pecten fragment at 1.40m. Smaller pecten fragments scattered from 1.40m to 1.76m. Concentrated zone from 1.76-1.90 fragments = 5% total sediment.
Large pecten fragments form a horizon at 2.38-2.40m. Some horizon contains well rounded granule (5mm), well rounded milky quartz grains. Phosphorite has decreased slightly to approximately 5% at 3.0m

FOSSILIFEROUS SAND - Contact, with burrow structures, or coarse mottles, distinct change beginning at 3.83m
Yellowish gray (5Y 7/2); slightly phosphatic 1-2%; dolosilty 10-15%; fossiliferous 20-25%; well sorted, force and very fine, angular quartz sand. Tr% heavies, glauconite; Phos as dark to very dark brown intraclasted with a few pellets, medium to fine. Fossils are mostly benthic forams (N. miocenica, C. lobatulus (?)) which show moderate to severe dissolution. Most could be identified to genus level. Recrystallization as dolomite rhombs on forams, echinoid spines and unidentified shell fragments, may be sparse to heavy. Fossils also include lingula and rare diatoms

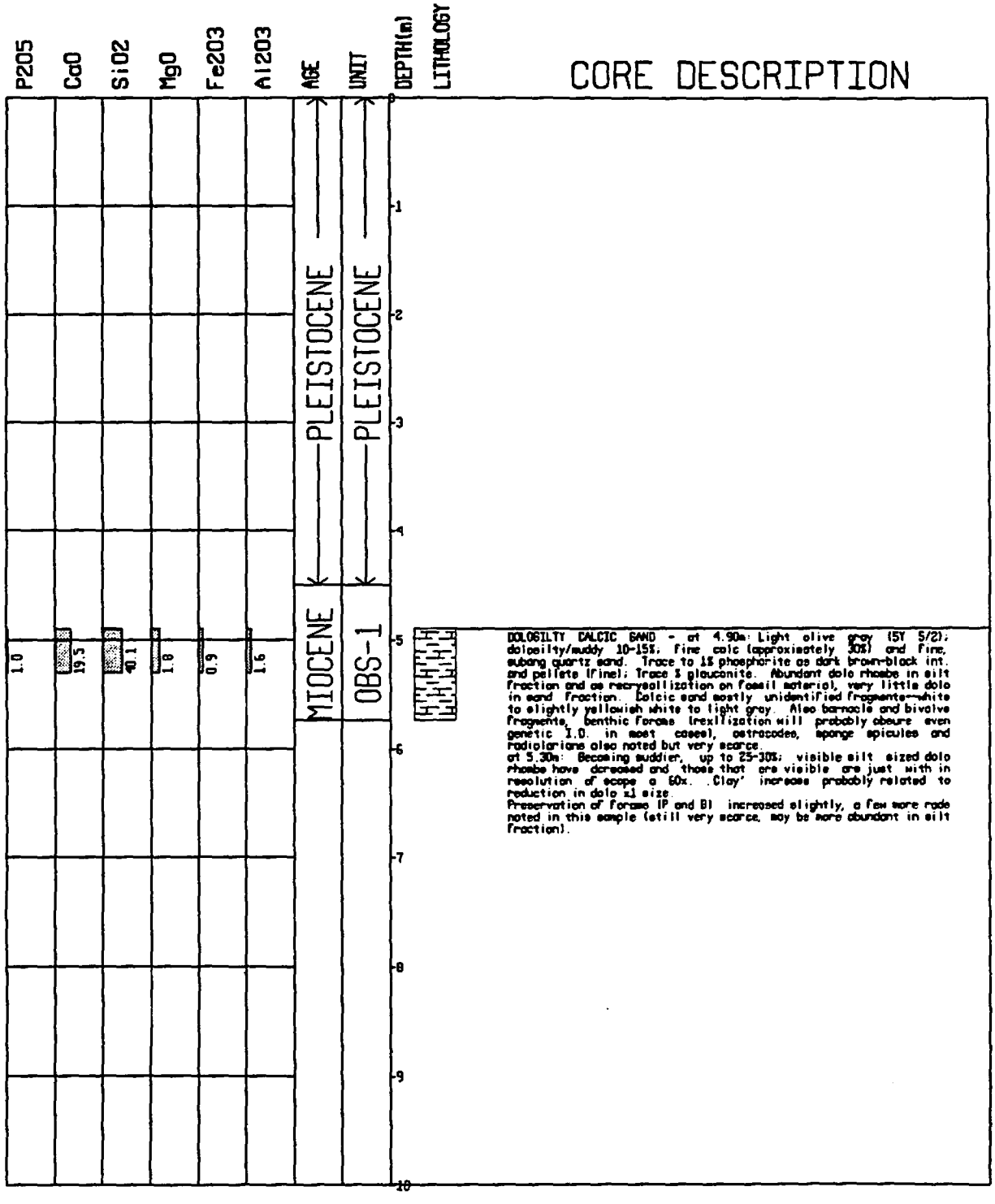
ONSLOW BAY CORE NUMBER: OB79

CRUISE: NSF O. BAY DATE LOGGED: 8-20-84 LATITUDE: 34.635 degrees
LENGTH ATTEMPTED: 4.2m BY: P. MALLETTE LONGITUDE: 76.868 degrees
LENGTH OF CORE: 6.0m



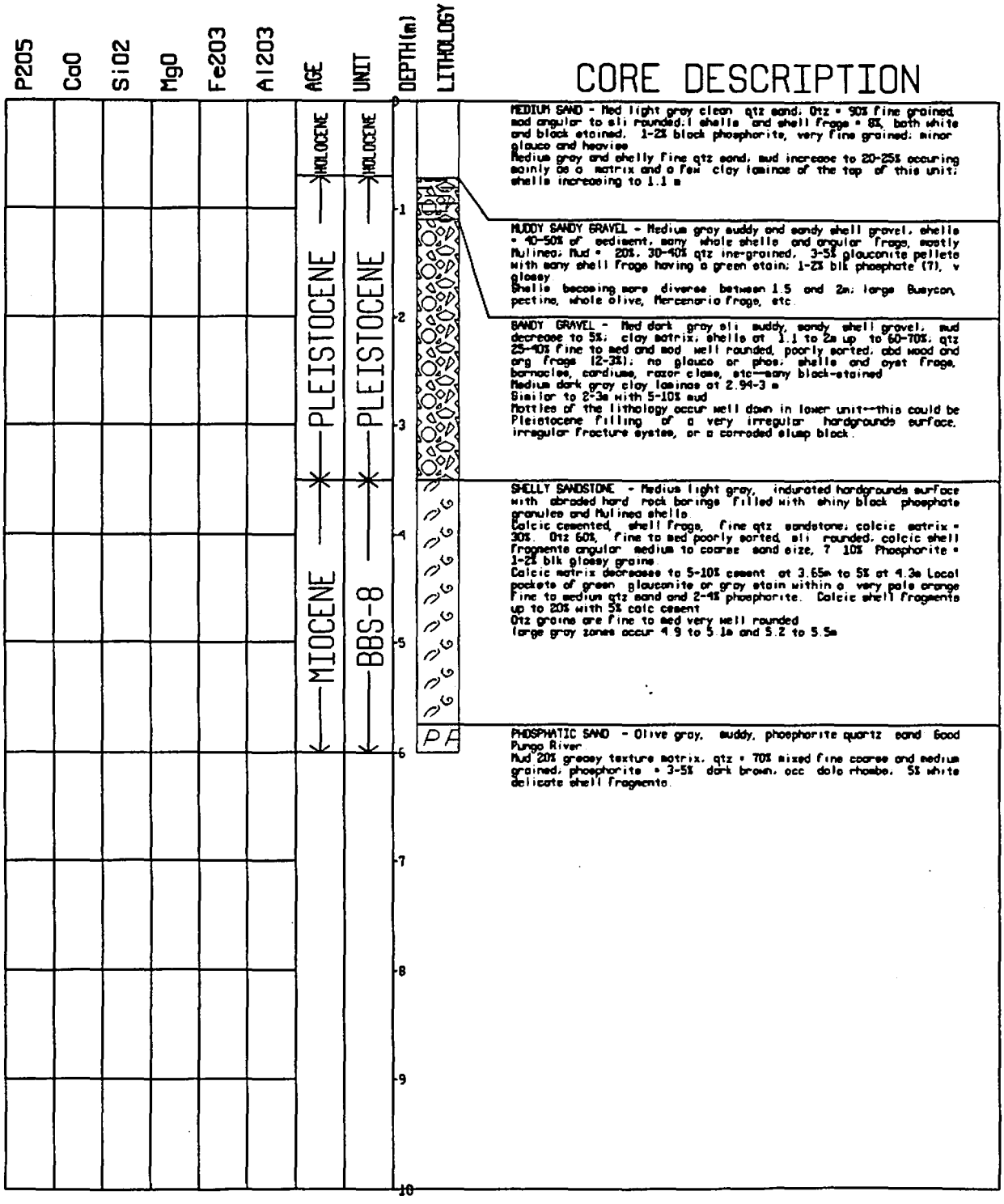
ONSLOW BAY CORE NUMBER: OB80

CRUISE: NSF O. BAY DATE LOGGED: 5-8-84 LATITUDE: 34.605 degrees
LENGTH ATTEMPTED: 4.65m BY: P. MALLETTE LONGITUDE: 77.000 degrees
LENGTH OF CORE: 5.7m



ONSLOW BAY CORE NUMBER: OB90

CRUISE: NSF O. BAY DATE LOGGED: 6-28-81 LATITUDE: 34.640 degrees
LENGTH ATTEMPTED: 6m BY: S. RIGGS LONGITUDE: 76.722 degrees
LENGTH OF CORE: 6m



CORE DESCRIPTION

MEDIUM SAND - Med light gray clean qtz sand; Otz = 90% fine grained sod angular to sli rounded.1 shells and shell frags = 8%, both white and black stained. 1-2% black phosphorite, very fine grained; minor glauco and heavies
Medium gray and shelly fine qtz sand; mud increase to 20-25% occuring mainly as a matrix and a few clay laminae of the top of this unit; shells increasing to 1.1 m

MUDDY SANDY GRAVEL - Medium gray muddy and sandy shell gravel, shells = 40-50% of sediment, many whole shells and angular frags, mostly Mulinea; Mud = 20%, 30-40% qtz ine-grained, 3-5% glauconite pellets with many shell frags having a green stain; 1-2% blk phosphate (?), v glossy
Shells becoming more diverse between 1.5 and 2m; large Busycon, pectins, whole olive, Mercenaria frags, etc

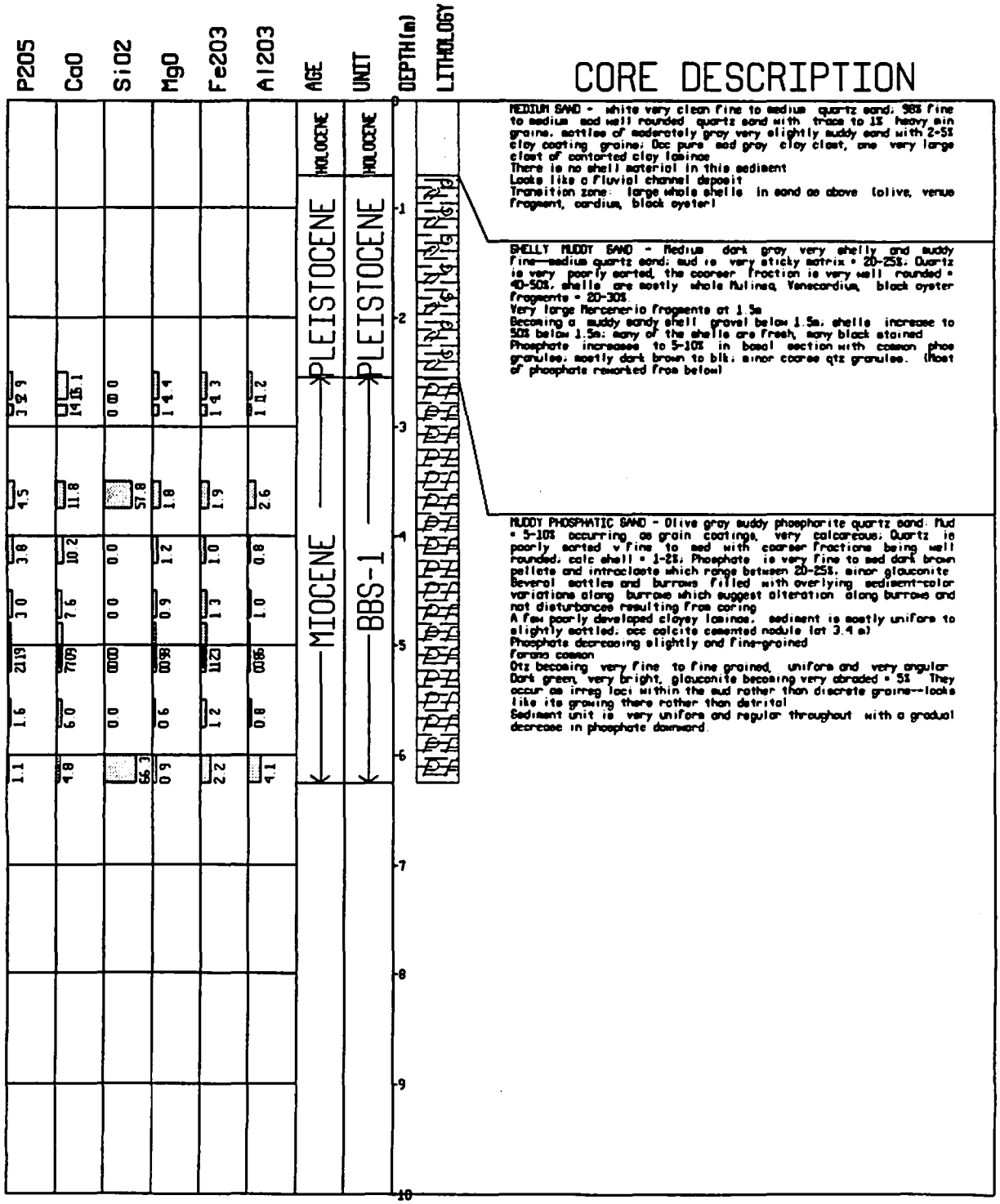
SANDY GRAVEL - Med dark gray sli muddy, sandy shell gravel, mud decrease to 5%; clay matrix; shells at 1.1 to 2m up to 60-70%; qtz 25-40% fine to sod and sod well rounded, poorly sorted; abd wood and org frags (2-3%); no glauco or phos; shells and oyst frags, barnacles, cardiums, razor clams, etc—many black-stained
Medium dark gray clay laminae at 2.94-3 m
Similar to 2-3m with 5-10% mud
Mottles of the lithology occur well down in lower unit--this could be Pleistocene filling of a very irregular hardgrounds surface, irregular fracture system, or a corroded slump block

SHELLY SANDSTONE - Medium light gray, indurated hardgrounds surface with abraded hard rock borings filled with shiny black phosphate granules and Mulinea shells
Calcic cemented, shell frags, fine qtz sandstone; calcic matrix = 30%. Otz 60%, fine to sod poorly sorted sli rounded; calcic shell fragments angular medium to coarse sand size, 7 10% Phosphorite = 1-2% blk glossy grains
Calcic matrix decreases to 5-10% cement at 3.65m to 5% at 4.3m Local pockets of green glauconite or gray stain within a very pale orange fine to medium qtz sand and 2-4% phosphorite. Calcic shell fragments up to 20% with 5% calc cement
Otz grains are fine to sod very well rounded
large gray zones occur 4.9 to 5.1m and 5.2 to 5.5m

PHOSPHATIC SAND - Olive gray, muddy, phosphorite quartz sand Good Pungo River
Mud 20% greasy texture matrix, qtz = 70% mixed fine coarse and medium grained; phosphorite = 3-5% dark brown, occ dolo rhombs. 5% white delicate shell fragments

ONSLOW BAY CORE NUMBER: OB91

CRUISE: NSF O. BAY DATE LOGGED: 6-30-81 LATITUDE: 34.635 degrees
LENGTH ATTEMPTED: 6m BY: S. RIGGS LONGITUDE: 76.823 degrees
LENGTH OF CORE: 6.25m



CORE DESCRIPTION

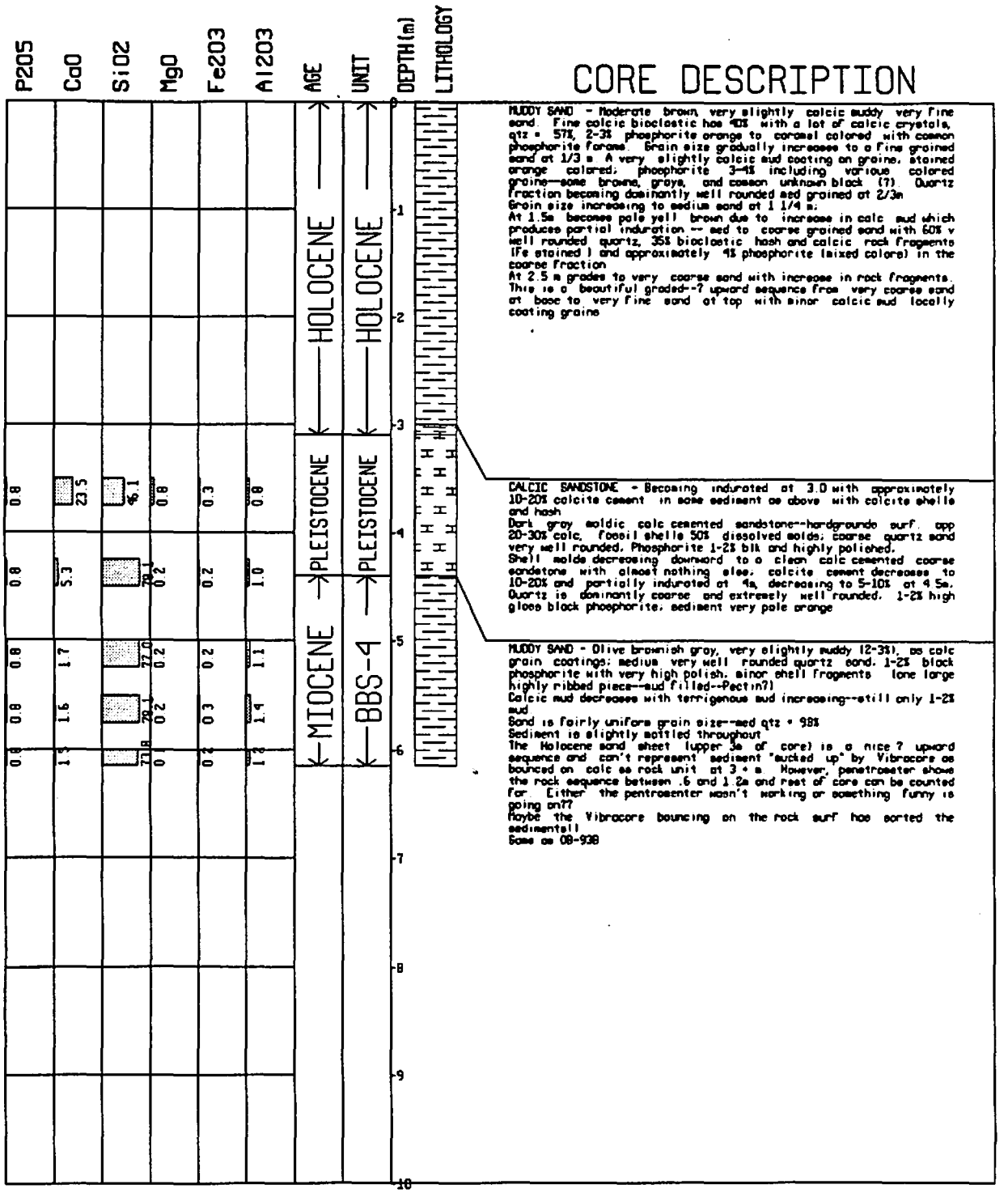
MEDIUM SAND - white very clean fine to medium quartz sand; 98% fine to medium sod well rounded quartz sand with trace to 1% heavy min grains, mottles of moderately grey very slightly muddy sand with 2-5% clay coating grains; Occ pure sod grey clay clast, one very large clast of contorted clay laminae
There is no shell material in this sediment
Looks like a fluvial channel deposit
Transition zone: large whole shells in sand as above (olive, venus fragment, cardium, black oyster)

SHELLY MUDDY SAND - Medium dark grey very shelly and muddy fine-medium quartz sand; mud is very sticky matrix = 20-25%. Quartz is very poorly sorted, the coarser fraction is very well rounded = 40-50%. shells are mostly whole Mulinea, Venecardium, black oyster fragments = 20-30%
Very large Mercenaria fragments at 1.5m
Becoming a muddy sandy shell gravel below 1.5m; shells increase to 50% below 1.5m; many of the shells are fresh, many black stained
Phosphate increases to 5-10% in basal section with common phos granules; mostly dark brown to blk; minor coarse qtz granules. (Most of phosphate reworked from below)

MUDDY PHOSPHATIC SAND - Olive grey muddy phosphorite quartz sand; Mud = 5-10% occurring as grain coatings, very calcareous; Quartz is poorly sorted v fine to sod with coarser fractions being well rounded; calc shell = 1-2%; Phosphate is very fine to sod dark brown pellets and intraclasts which range between 20-25%. minor glauconite
Several mottles and burrows filled with overlying sediment-color variations along burrows which suggest alteration along burrows and not disturbances resulting from coring
A few poorly developed clayey laminae; sediment is mostly uniform to slightly mottled; occ calcite cemented nodule (at 3.4 m)
Phosphate decreasing slightly and fine-grained
Forams common
Qtz becoming very fine to fine grained, uniform and very angular
Dark green, very bright, glauconite becoming very abraded = 5% They occur as irreg loci within the mud rather than discrete grains--looks like its growing there rather than detrital
Sediment unit is very uniform and regular throughout with a gradual decrease in phosphate downward.

ONSLOW BAY CORE NUMBER: OB92

CRUISE: NSF O. BAY DATE LOGGED: 6-24-81 LATITUDE: 34.157 degrees
LENGTH ATTEMPTED: 2.55m BY: S. RIGGS LONGITUDE: 76.788 degrees
LENGTH OF CORE: 6.15m



CORE DESCRIPTION

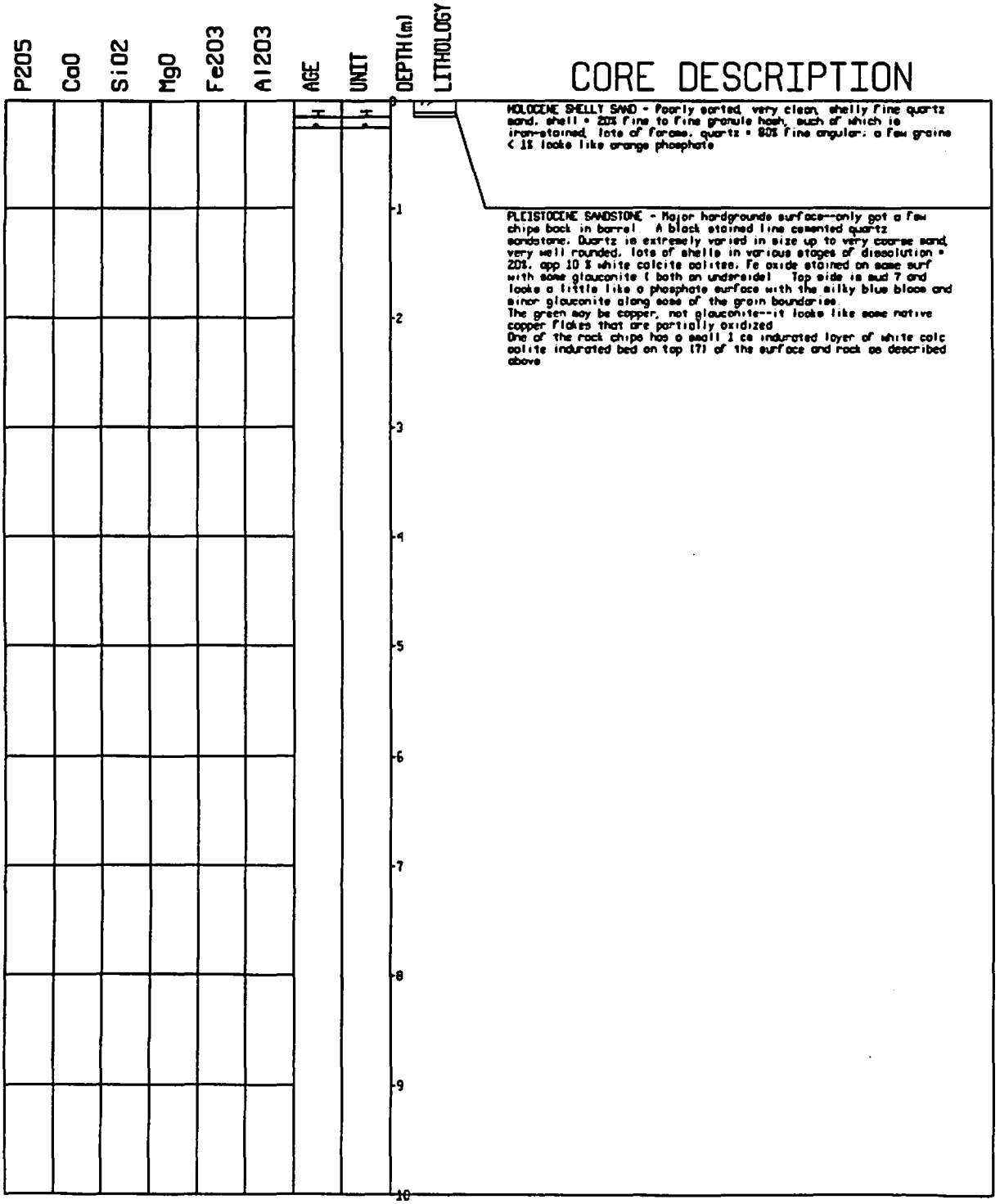
MUDDY SAND - Moderate brown, very slightly calcic muddy very fine sand. Fine calcic bioclastic hash 40% with a lot of calcic crystals, qtz = 57%, 2-3% phosphorite orange to caramel colored with common phosphorite forams. Grain size gradually increases to a fine grained sand at 1/3 m. A very slightly calcic mud coating on grains, stained orange colored; phosphorite 3-4% including various colored grains--some browns, grays, and common unknown black (?). Quartz fraction becoming dominantly well rounded med grained at 2/3m
Grain size increasing to medium sand at 1 1/4 m.
At 1.5m becomes pale yell brown due to increase in calc mud which produces partial induration -- med to coarse grained sand with 60% v well rounded quartz, 35% bioclastic hash and calcic rock fragments (Fe stained) and approximately 4% phosphorite (mixed colors) in the coarse fraction
At 2.5 m grades to very coarse sand with increase in rock fragments. This is a beautiful graded--? upward sequence from very coarse sand at base to very fine sand at top with minor calcic mud locally coating grains

CALCIC SANDSTONE - Becoming indurated at 3.0 with approximately 10-20% calcite cement in same sediment as above with calcite shells and hash
Dark gray moldic calc cemented sandstone--hardground= surf. app 20-30% calc. fossil shells 50% dissolved molds; coarse quartz sand very well rounded. Phosphorite 1-2% blk and highly polished.
Shell molds decreasing downward to a clean calc cemented coarse sandstone with almost nothing else; calcite cement decreases to 10-20% and partially indurated at 4m, decreasing to 5-10% at 4.5m. Quartz is dominantly coarse and extremely well rounded. 1-2% high gloss black phosphorite; sediment very pale orange

MUDDY SAND - Olive brownish gray, very slightly muddy (2-3%), mm calc grain coatings; medium very well rounded quartz sand. 1-2% black phosphorite with very high polish, minor shell fragments lone large highly ribbed piece--mud filled--Pecten?)
Calcic mud decreases with terrigenous mud increasing--still only 1-2% mud
Sand is fairly uniform grain size--med qtz = 98%
Sediment is slightly mottled throughout
The Holocene sand sheet (upper 3m of core) is a nice ? upward sequence and can't represent sediment "sucked up" by Vibracore as bounced on calc ss rock unit at 3 + m. However, penetrometer shows the rock sequence between .6 and 1.2m and rest of core can be counted for. Either the pentrosenter wasn't working or something funny is going on??
Maybe the Vibracore bouncing on the rock surf has sorted the sediments!!
Same as OB-93B

ONSLOW BAY CORE NUMBER: OB93A

CRUISE: NSF O. BAY DATE LOGGED: 5-8-84 LATITUDE: 34.160 degrees
LENGTH ATTEMPTED: 0.15m BY: P. MALLETTE LONGITUDE: 76.733 degrees
LENGTH OF CORE: 0.15m



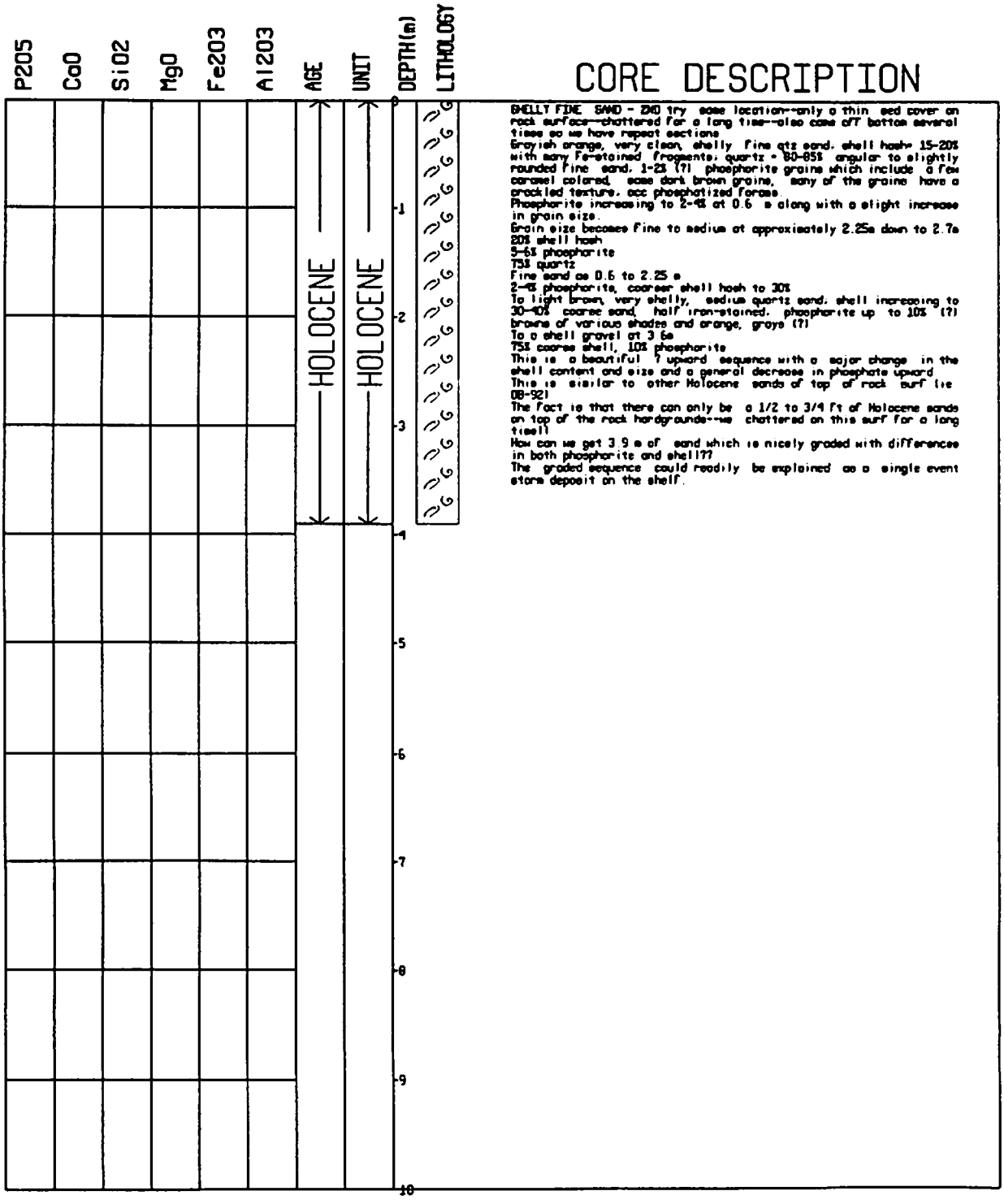
CORE DESCRIPTION

HOLOCENE SHELLY SAND - Poorly sorted, very clean, shelly fine quartz sand. shell = 20% fine to fine granule hash, much of which is iron-stained, lots of forams. quartz = 80% fine angular: a few grains < 1% looks like orange phosphate

PLEISTOCENE SANDSTONE - Major hardground surface--only got a few chips back in barrel A black stained fine cemented quartz sandstone. Quartz is extremely varied in size up to very coarse sand, very well rounded. lots of shells in various stages of dissolution = 20%. app 10 % white calcite oolites. Fe oxide stained on some surf with some glauconite (both an undersided Top side is mud ? and looks a little like a phosphate surface with the silky blue blobs and minor glauconite along some of the grain boundaries.
The green may be copper, not glauconite--it looks like some native copper flakes that are partially oxidized
One of the rock chips has a small 1 cm indurated layer of white calc oolite indurated bed on top (?) of the surface and rock as described above

ONSLOW BAY CORE NUMBER: OB93B

CRUISE: NSF O. BAY DATE LOGGED: 6-20-81 LATITUDE: 34.16 degrees
LENGTH ATTEMPTED: 0.2m BY: S. RIGGS LONGITUDE: 76.733 degrees
LENGTH OF CORE: 3.9m

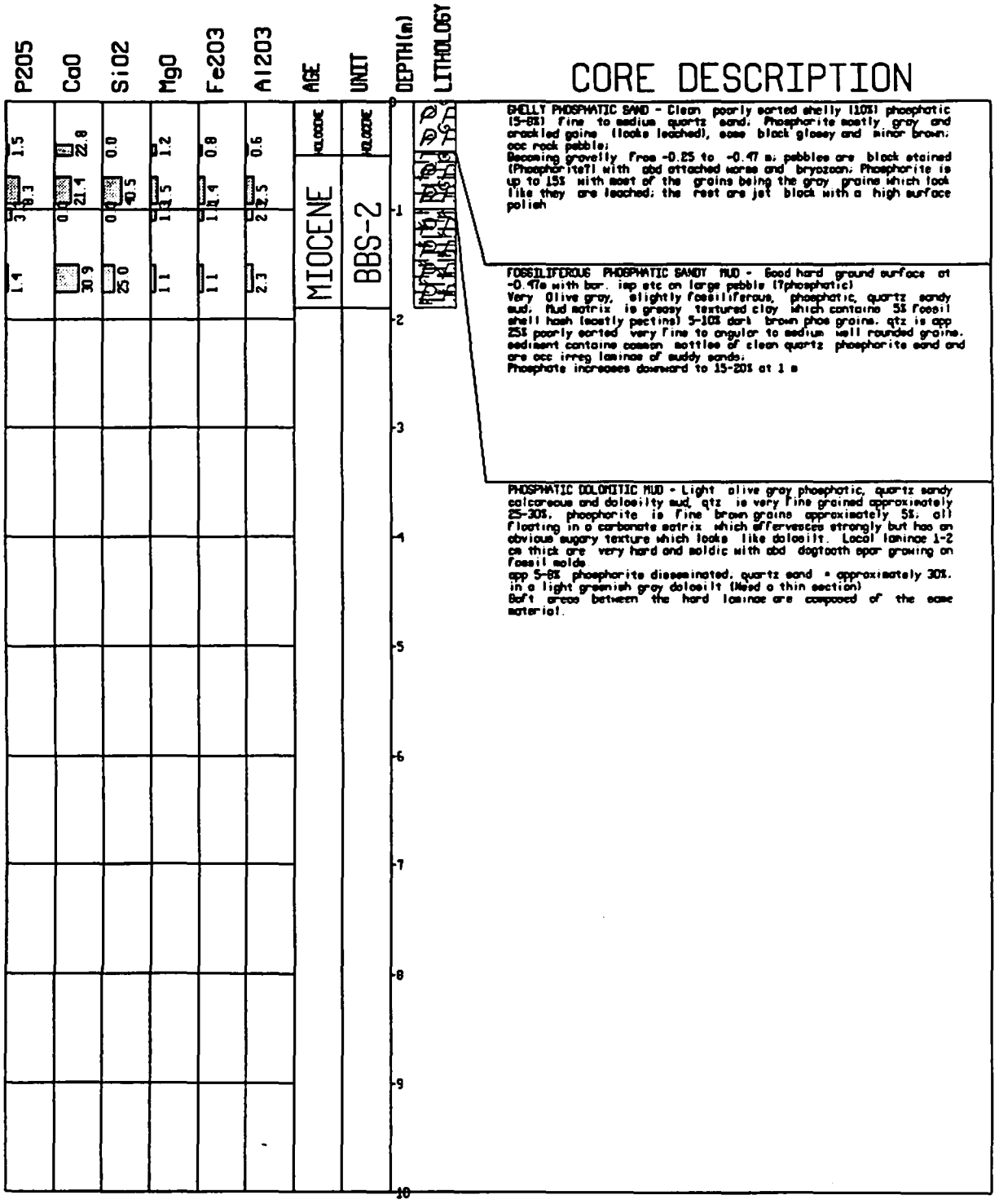


CORE DESCRIPTION

SHELLY FINE SAND - ZOO try some location--only a thin sed cover on rock surface--chattered for a long time--also some oFT bottom several times so we have repeat sections
Grayish orange, very clean, shelly fine qtz sand. shell hash= 15-20% with many Fe-stained fragments; quartz = 80-85% angular to slightly rounded fine sand. 1-2% (?) phosphorite grains which include a few caramel colored, some dark brown grains, many of the grains have a crackled texture. acc phosphatized forams
Phosphorite increasing to 2-4% at 0.6 m along with a slight increase in grain size.
Grain size becomes fine to medium at approximately 2.25m down to 2.7m
20% shell hash
5-6% phosphorite
75% quartz
Fine sand as 0.6 to 2.25 m
2-4% phosphorite, coarser shell hash to 30%
To light brown, very shelly, medium quartz sand. shell increasing to 30-40% coarse sand, half iron-stained. phosphorite up to 10% (?) browns of various shades and orange, grays (?)
To a shell gravel at 3.6m
75% coarse shell, 10% phosphorite
This is a beautiful fining upward sequence with a major change in the shell content and size and a general decrease in phosphate upward
This is similar to other Holocene sands of top of rock surf like OB-92)
The fact is that there can only be a 1/2 to 3/4 ft of Holocene sands on top of the rock hardgrounds--we chattered on this surf for a long time!!
How can we get 3.9 m of sand which is nicely graded with differences in both phosphorite and shell??
The graded sequence could readily be explained as a single event storm deposit on the shelf.

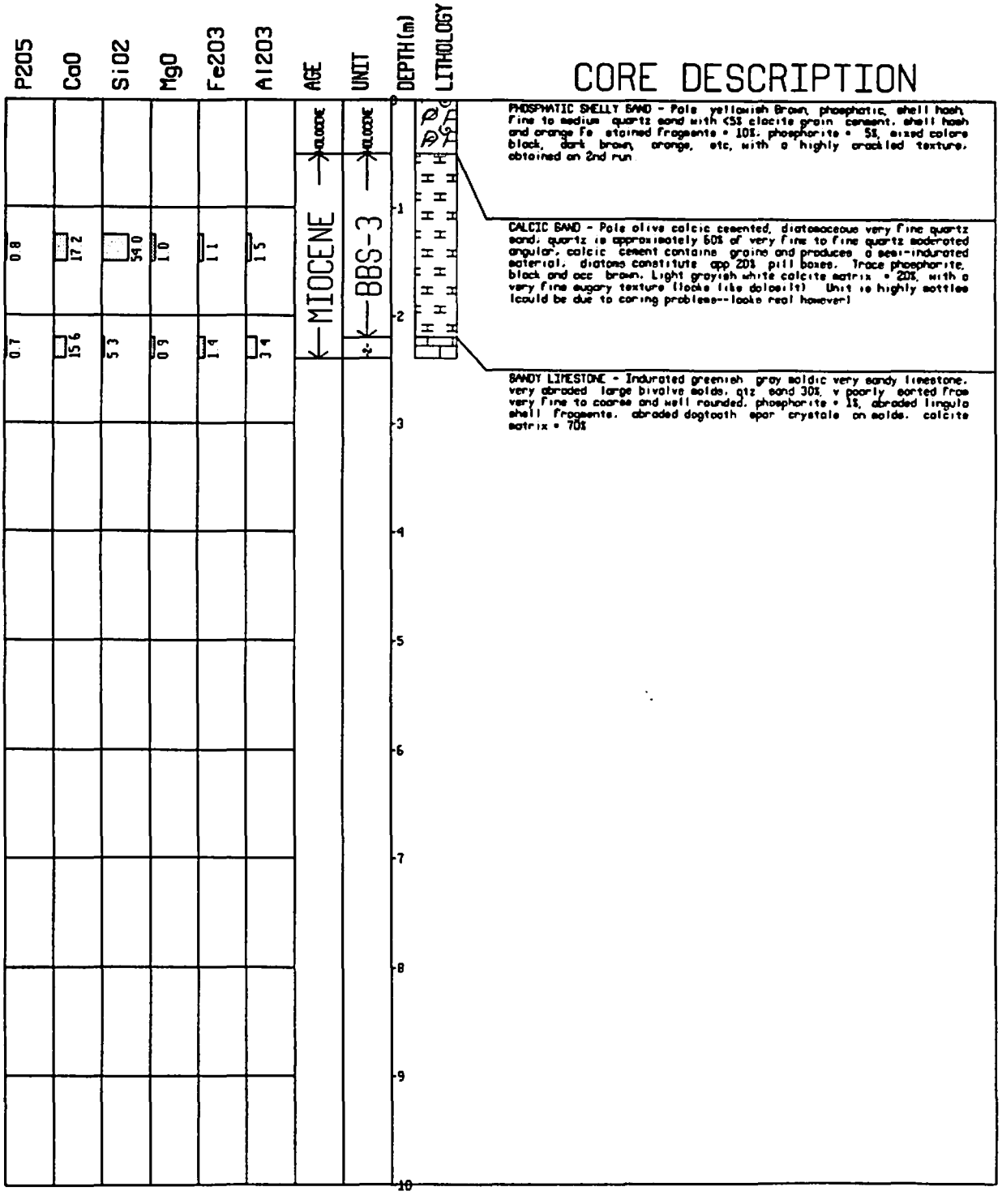
ONSLOW BAY CORE NUMBER: OB94

CRUISE: NSF O. BAY DATE LOGGED: 6-25-81 LATITUDE: 34.163 degrees
LENGTH ATTEMPTED: 1.35m BY: R. RIGGS LONGITUDE: 76.923 degrees
LENGTH OF CORE: 1.9m



ONSLOW BAY CORE NUMBER: OB95

CRUISE: NSF O. BAY DATE LOGGED: 6-6-81 LATITUDE: 34.161 degrees
LENGTH ATTEMPTED: 2.4m BY: S. RIGGS LONGITUDE: 76.887 degrees
LENGTH OF CORE: UNKNOWN



CORE DESCRIPTION

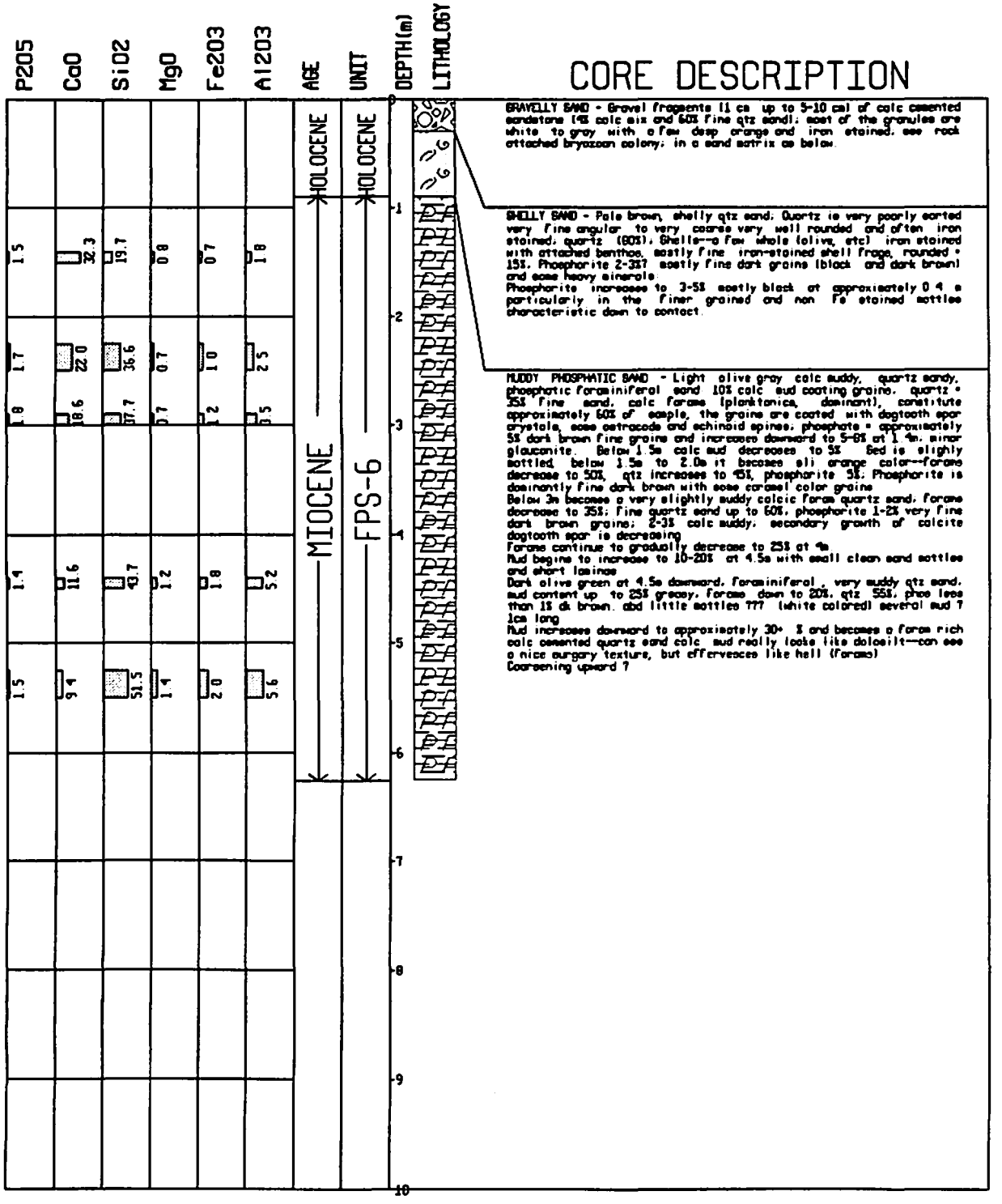
PHOSPHATIC SHELLY SAND - Pale yellowish Brown, phosphatic, shell hash, fine to medium quartz sand with <5% clacite grain cement. shell hash and orange Fe stained frogaents • 10%. phosphorite • 5%, mixed colors black, dark brown, orange, etc, with a highly crackled texture. obtained on 2nd run

CALCIC SAND - Pale olive calcic cemented, diatomaceous very fine quartz sand. quartz is approximately 60% of very fine to fine quartz moderated angular, calcic cement contains grains and produces a semi-indurated material. diatoms constitute app 20% pill boxes. Trace phosphorite, black and occ brown. Light grayish white calcite matrix • 20%, with a very fine sugary texture (looks like dolosilt) Unit is highly mottled (could be due to coring problems--looks real however)

SANDY LIMESTONE - Indurated greenish gray moldic very sandy limestone. very abraded large bivalve molds, qtz sand 30%, v poorly sorted from very fine to coarse and well rounded. phosphorite • 1%, abraded lingula shell frogaents. abraded dogtooth spar crystals on molds. calcite matrix • 70%

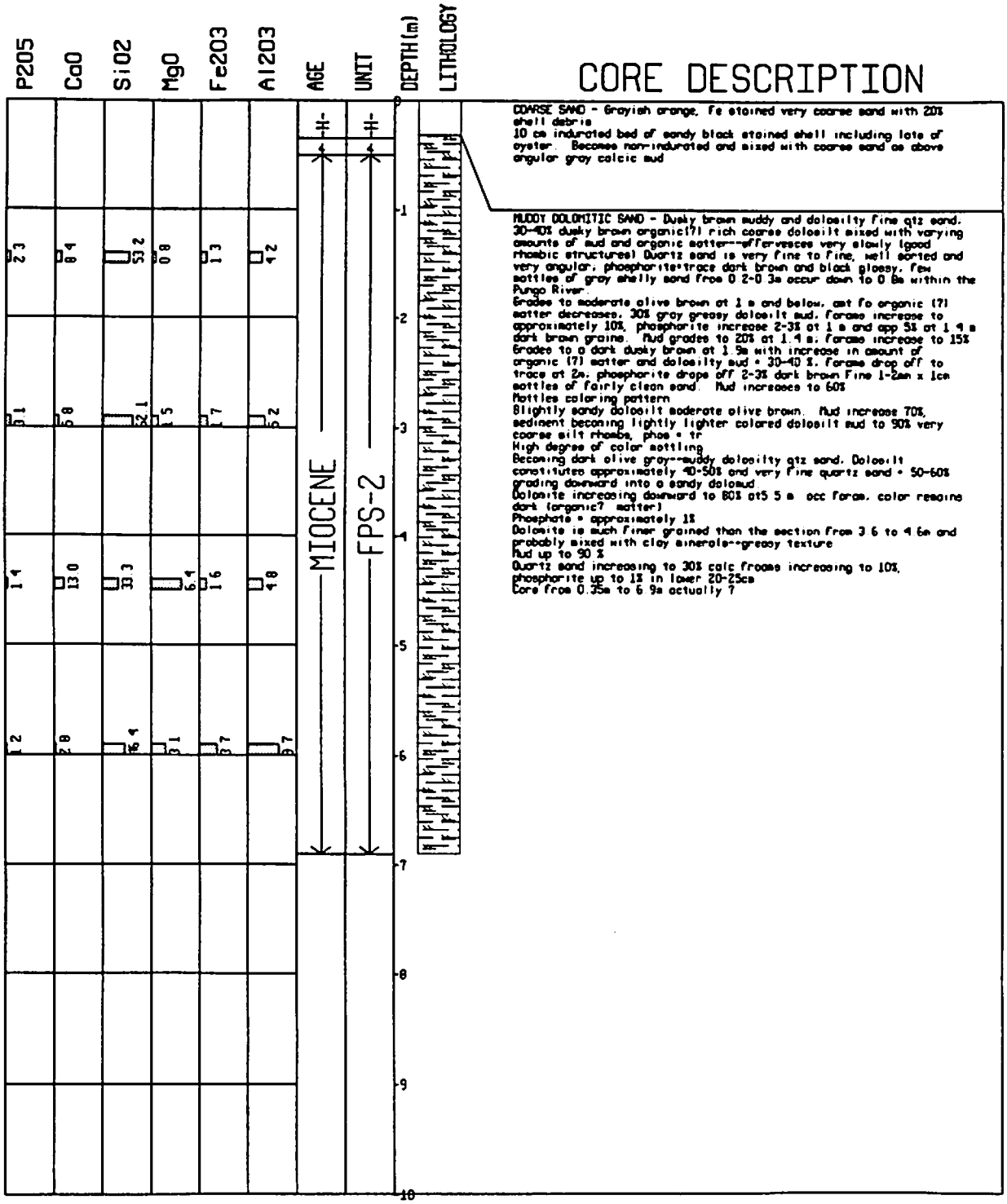
ONSLOW BAY CORE NUMBER: OB96

CRUISE: NSF O. BAY DATE LOGGED: 5-8-84 LATITUDE: 33.900 degrees
LENGTH ATTEMPTED: 4.1m BY: S. RIGGS LONGITUDE: 77.455 degrees
LENGTH OF CORE: 6.25m



ONSLOW BAY CORE NUMBER: OB97

CRUISE: NSF O. BAY DATE LOGGED: 6-7-81 LATITUDE: 33.915 degrees
LENGTH ATTEMPTED: 4.4m BY: S. RIGGS LONGITUDE: 77.492 degrees
LENGTH OF CORE: 6.9m



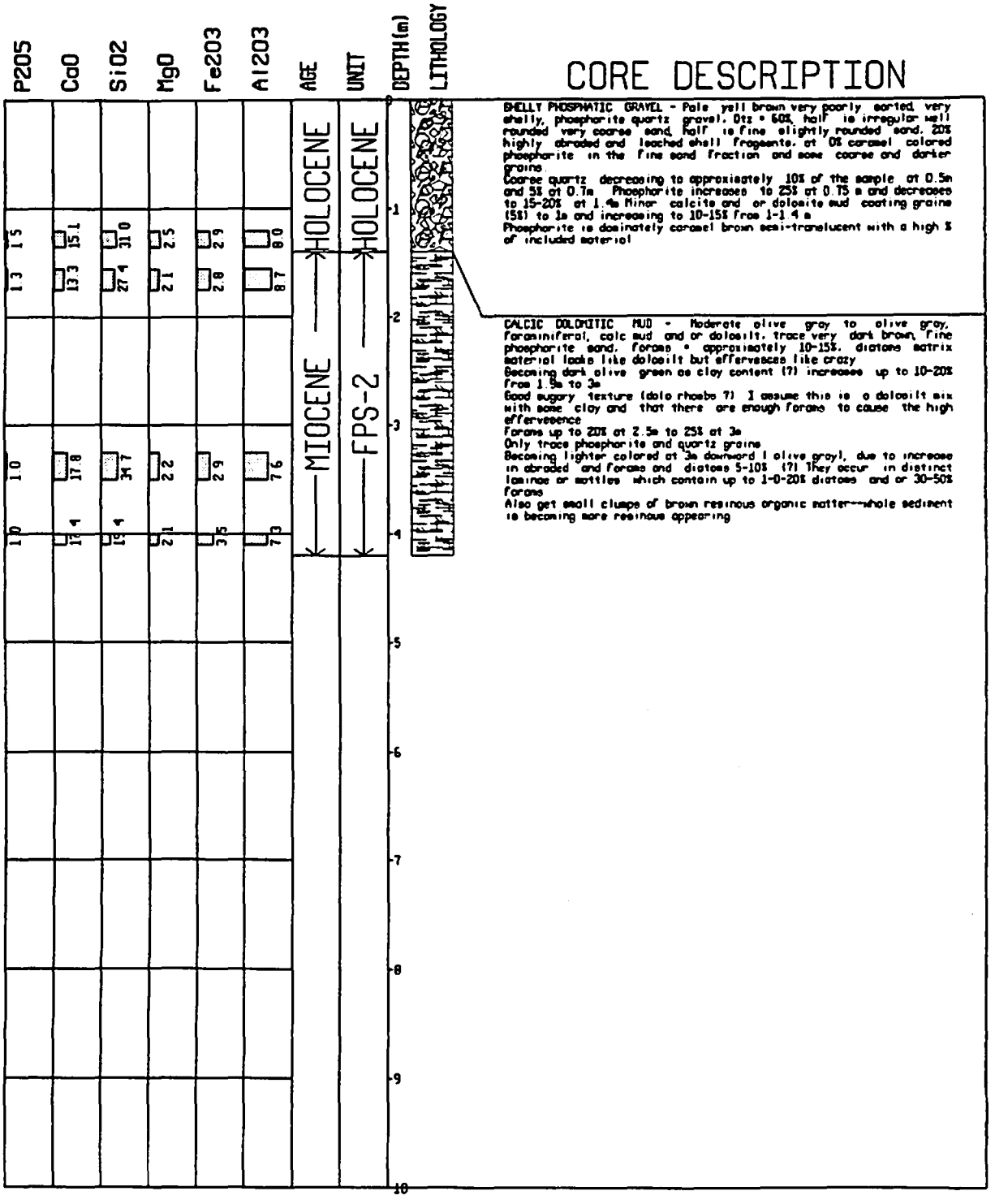
CORE DESCRIPTION

COARSE SAND - Grayish orange, fe stained very coarse sand with 20% shell debris
10 cm indurated bed of sandy black stained shell including lots of oyster. Becomes non-indurated and mixed with coarse sand as above angular gray calcic mud

MUDDY DOLOMITIC SAND - Dusky brown muddy and dolosilty fine qtz sand. 30-40% dusky brown organic(?) rich coarse dolosilt mixed with varying amounts of mud and organic matter--effervesces very slowly (good rhombic structures) Quartz sand is very fine to fine, well sorted and very angular; phosphorite-trace dark brown and black glossy, few mottles of gray shelly sand from 0 2-0 3m occur down to 0 6m within the Pungo River.
Grades to moderate olive brown at 1 m and below, amt fo organic (?) matter decreases. 30% gray greasy dolosilt mud, foram increase to approximately 10%, phosphorite increase 2-3% at 1 m and app 5% at 1 4 m dark brown grains. Mud grades to 20% at 1.4 m; foram increase to 15%
Grades to a dark dusky brown at 1 9m with increase in amount of organic (?) matter and dolosilty mud + 30-40 %. Forams drop off to trace at 2m; phosphorite drops off 2-3% dark brown Fine 1-2mm x 1cm mottles of fairly clean sand. Mud increases to 60%
Mottles coloring pattern
Slightly sandy dolosilt moderate olive brown. Mud increase 70%, sediment becoming lightly lighter colored dolosilt mud to 90% very coarse silt rhombs, phos + tr
High degree of color mottling
Becoming dark olive gray--muddy dolosilty qtz sand. Dolosilt constitutes approximately 40-50% and very fine quartz sand + 50-60% grading downward into a sandy dolomud
Dolomite increasing downward to 80% at5 5 m occ foram. color remains dark (organic? matter)
Phosphate + approximately 1%
Dolomite is much finer grained than the section from 3 6 to 4 6m and probably mixed with clay minerals--greasy texture
Mud up to 90 %
Quartz sand increasing to 30% calc fragms increasing to 10%, phosphorite up to 1% in lower 20-25cm
Core from 0.35m to 6 9m actually ?

ONSLOW BAY CORE NUMBER: OB98

CRUISE: NSF O. BAY DATE LOGGED: 7-6-81 LATITUDE: 33.783 degrees
LENGTH ATTEMPTED: 3.15m BY: S. RIGGS LONGITUDE: 77.633 degrees
LENGTH OF CORE: 4.2m



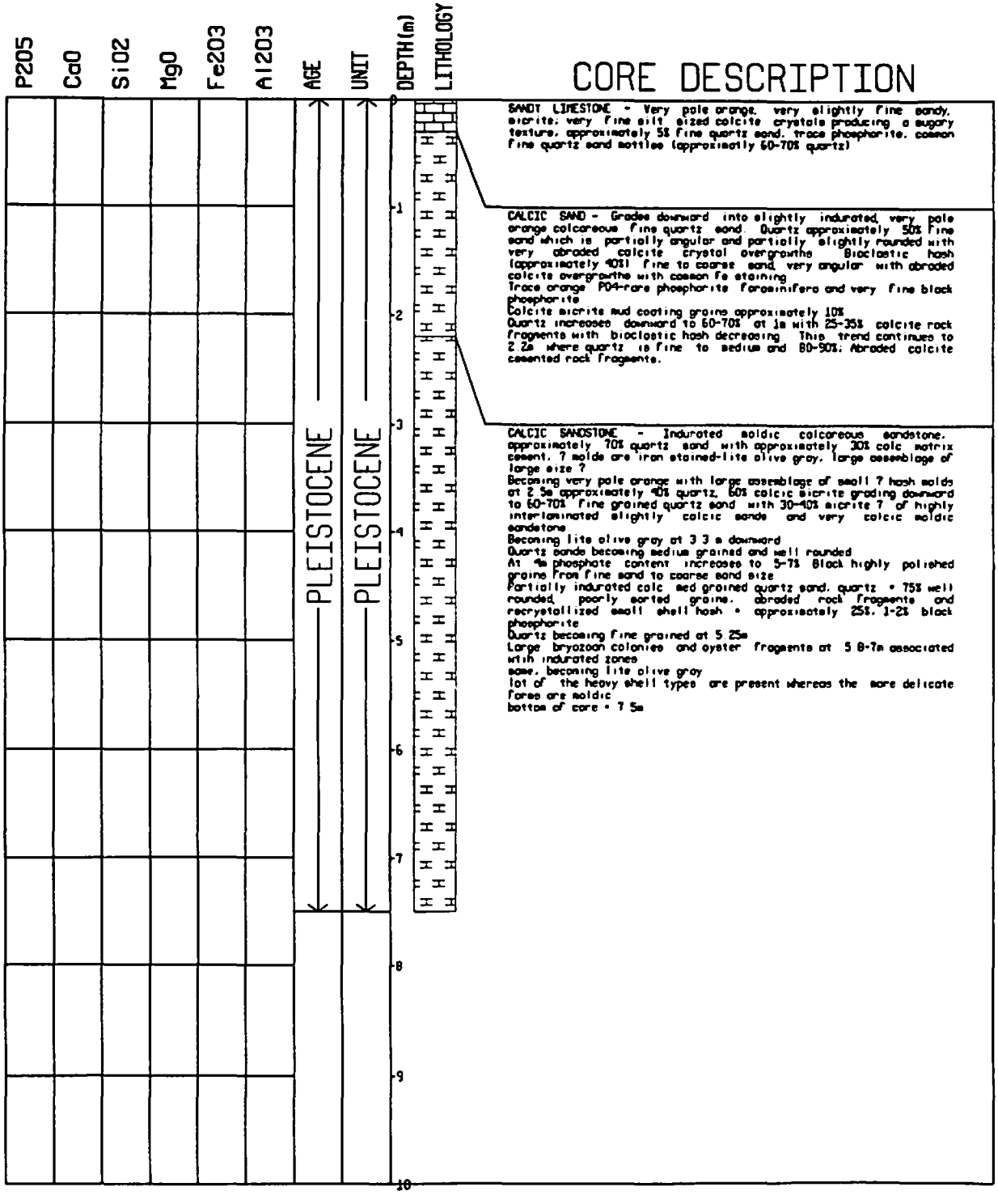
CORE DESCRIPTION

SHELLY PHOSPHATIC GRAVEL - Pale yell brown very poorly sorted very shelly, phosphorite quartz gravel. Otz + 60%, half is irregular well rounded very coarse sand, half is fine slightly rounded sand. 20% highly abraded and leached shell fragments, at 0% carmel colored phosphorite in the fine sand fraction and some coarse and darker grains.
Coarse quartz decreasing to approximately 10% of the sample at 0.5m and 5% at 0.7m. Phosphorite increases to 25% at 0.75 m and decreases to 15-20% at 1.4m Minor calcite and or dolosilt mud coating grains (5%) to 1m and increasing to 10-15% from 1-1.4 m
Phosphorite is dominately carmel brown semi-translucent with a high % of included material

CALCIC DOLOMITIC MUD - Moderate olive gray to olive gray, foraminiferal, calc mud and or dolosilt, trace very dark brown, fine phosphorite sand. Forams + approximately 10-15%. diatoms matrix material looks like dolosilt but effervesces like crazy
Becoming dark olive green as clay content (?) increases up to 10-20% from 1.9m to 3m
Good sugary texture (dolo rhombs ?) I assume this is a dolosilt mix with some clay and that there are enough forams to cause the high effervescence
Forams up to 20% at 2.5m to 25% at 3m
Only trace phosphorite and quartz grains
Becoming lighter colored at 3m downward (olive gray), due to increase in abraded and forams and diatoms 5-10% (?) They occur in distinct laminae or mottles which contain up to 1-0-20% diatoms and or 30-50% forams
Also get small clumps of brown resinous organic matter--whole sediment is becoming more resinous appearing

ONSLOW BAY CORE NUMBER: OB99

CRUISE: NSF O. BAY DATE LOGGED: 6-24-81 LATITUDE: 34.012 degrees
LENGTH ATTEMPTED: 5.1m BY: S. RIGGS LONGITUDE: 76.837 degrees
LENGTH OF CORE: 7.5m



CORE DESCRIPTION

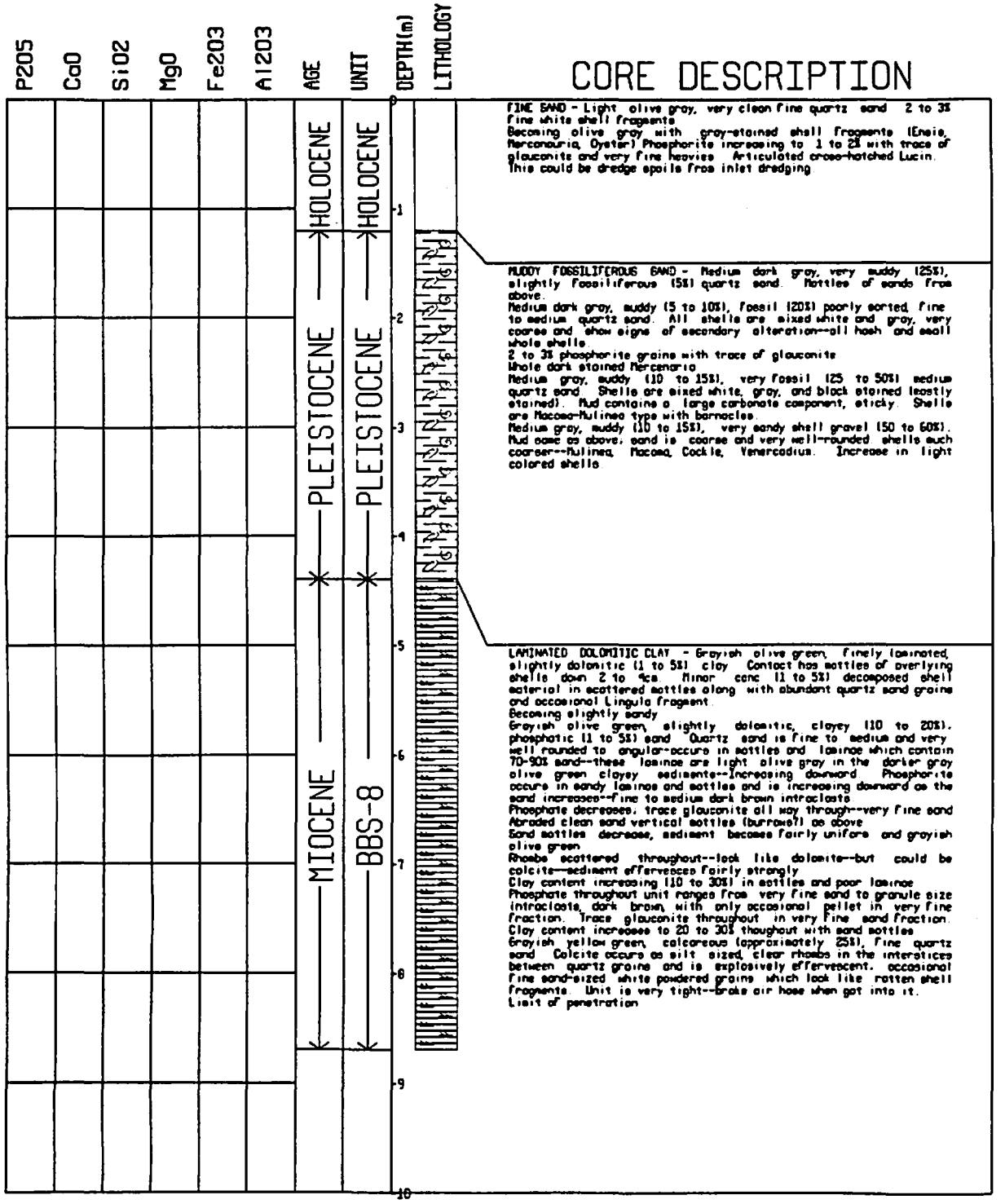
SANDY LIMESTONE - Very pale orange, very slightly fine sandy, micrite; very fine silt sized calcite crystals producing a sugary texture, approximately 5% fine quartz sand, trace phosphorite, common fine quartz sand mottles (approximately 60-70% quartz)

CALCIC SAND - Grades downward into slightly indurated, very pale orange calcareous fine quartz sand. Quartz approximately 50% fine sand which is partially angular and partially slightly rounded with very abraded calcite crystal overgrowths. Bioclastic hash (approximately 40%) fine to coarse sand, very angular with abraded calcite overgrowths with common Fe staining
Trace orange PO4-rare phosphorite foraminifera and very fine black phosphorite
Calcite micrite mud coating grains approximately 10%
Quartz increases downward to 60-70% at 1m with 25-35% calcite rock fragments with bioclastic hash decreasing. This trend continues to 2.2m where quartz is fine to medium and 80-90%. Abraded calcite cemented rock fragments.

CALCIC SANDSTONE - Indurated moldic calcareous sandstone, approximately 70% quartz sand with approximately 30% calc matrix cement. ? molds are iron stained-lite olive gray, large assemblage of large size ?
Becoming very pale orange with large assemblage of small ? hash molds at 2.5m approximately 40% quartz, 60% calcic micrite grading downward to 60-70% fine grained quartz sand with 30-40% micrite ? of highly interlaminated slightly calcic sands and very calcic moldic sandstone
Becoming lite olive gray at 3.3 m downward
Quartz sands becoming medium grained and well rounded
At 4m phosphate content increases to 5-7% Black highly polished grains from fine sand to coarse sand size
Partially indurated calc med grained quartz sand, quartz + 75% well rounded, poorly sorted grains, abraded rock fragments and recrystallized small shell hash + approximately 25%. 1-2% black phosphorite
Quartz becoming fine grained at 5.25m
Large bryozoan colonies and oyster fragments at 5.8-7m associated with indurated zones
same, becoming lite olive gray
lot of the heavy shell types are present whereas the more delicate forms are moldic
bottom of core = 7.5m

ONSLOW BAY CORE NUMBER: OB100

CRUISE: NSF O. BAY DATE LOGGED: 8-3-82 LATITUDE: 34.625 degrees
LENGTH ATTEMPTED: 7.5m BY: S. RIGGS LONGITUDE: 76.713 degrees
LENGTH OF CORE: 8.7m



CORE DESCRIPTION

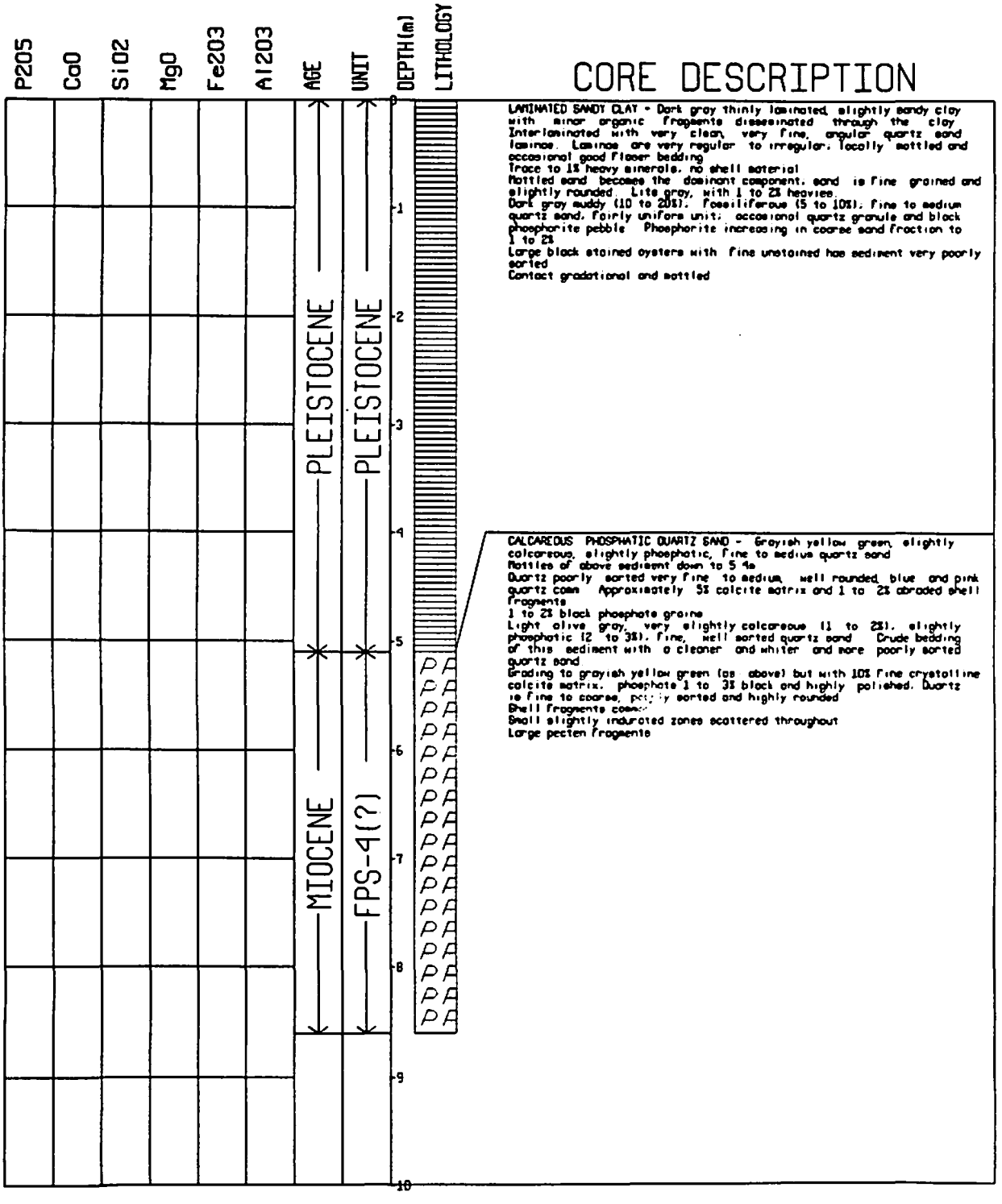
FINE SAND - Light olive gray, very clean fine quartz sand 2 to 3% fine white shell fragments
Becoming olive gray with gray-stained shell fragments (Ensis, Mercenaria, Oyster) Phosphorite increasing to 1 to 2% with trace of glauconite and very fine heavies Articulated cross-hatched Lucin. This could be dredge spoils from inlet dredging

MUDDY FOSSILIFEROUS SAND - Medium dark gray, very muddy (25%), slightly fossiliferous (5%) quartz sand. Mottles of sands from above.
Medium dark gray, muddy (5 to 10%), fossil (20%) poorly sorted, fine to medium quartz sand. All shells are mixed white and gray, very coarse and show signs of secondary alteration--all hash and small whole shells.
2 to 3% phosphorite grains with trace of glauconite
Whole dark stained Mercenaria
Medium gray, muddy (10 to 15%), very fossil (25 to 50%) medium quartz sand. Shells are mixed white, gray, and black stained (mostly stained). Mud contains a large carbonate component, sticky. Shells are Macoma-Mulinea type with barnacles.
Medium gray, muddy (10 to 15%), very sandy shell gravel (50 to 60%). Mud same as above, sand is coarse and very well-rounded shells such coarser--Mulinea, Macoma, Cockle, Venercardium. Increase in light colored shells.

LAMINATED DOLOMITIC CLAY - Grayish olive green, finely laminated, slightly dolomitic (1 to 5%) clay Contact has mottles of overlying shells down 2 to 4cm Minor conc (1 to 5%) decomposed shell material in scattered mottles along with abundant quartz sand grains and occasional Lingula fragment.
Becoming slightly sandy
Grayish olive green, slightly dolomitic, clayey (10 to 20%), phosphatic (1 to 3%) sand Quartz sand is fine to medium and very well rounded to angular--occurs in mottles and laminae which contain 70-90% sand--these laminae are light olive gray in the darker gray olive green clayey sediments--Increasing downward Phosphorite occurs in sandy laminae and mottles and is increasing downward as the sand increases--fine to medium dark brown intraclasts
Phosphate decreases, trace glauconite all way through--very fine sand
Abraded clean sand vertical mottles (burrows?) as above
Sand mottles decrease, sediment becomes fairly uniform and grayish olive green
Rhombs scattered throughout--look like dolomite--but could be calcite--sediment effervesces fairly strongly
Clay content increasing (10 to 30%) in mottles and poor laminae
Phosphate throughout unit ranges from very fine sand to granule size intraclasts, dark brown, with only occasional pellet in very fine fraction. Trace glauconite throughout in very fine sand fraction.
Clay content increases to 20 to 30% thoughout with sand mottles
Grayish yellow green, calcareous (approximately 25%), fine quartz sand Calcite occurs as silt sized, clear rhombs in the interstices between quartz grains and is explosively effervescent. occasional fine sand-sized white powdered grains which look like rotten shell fragments. Unit is very tight--broke air hose when got into it.
Limit of penetration

ONSLOW BAY CORE NUMBER: OB101

CRUISE: NSF CRUISE 4 DATE LOGGED: 9-6-82 LATITUDE: 34.433 Degrees
LENGTH ATTEMPTED: 8.6m BY: S. R. Riggs LONGITUDE: 77.051 Degrees
LENGTH OF CORE: 8.6m



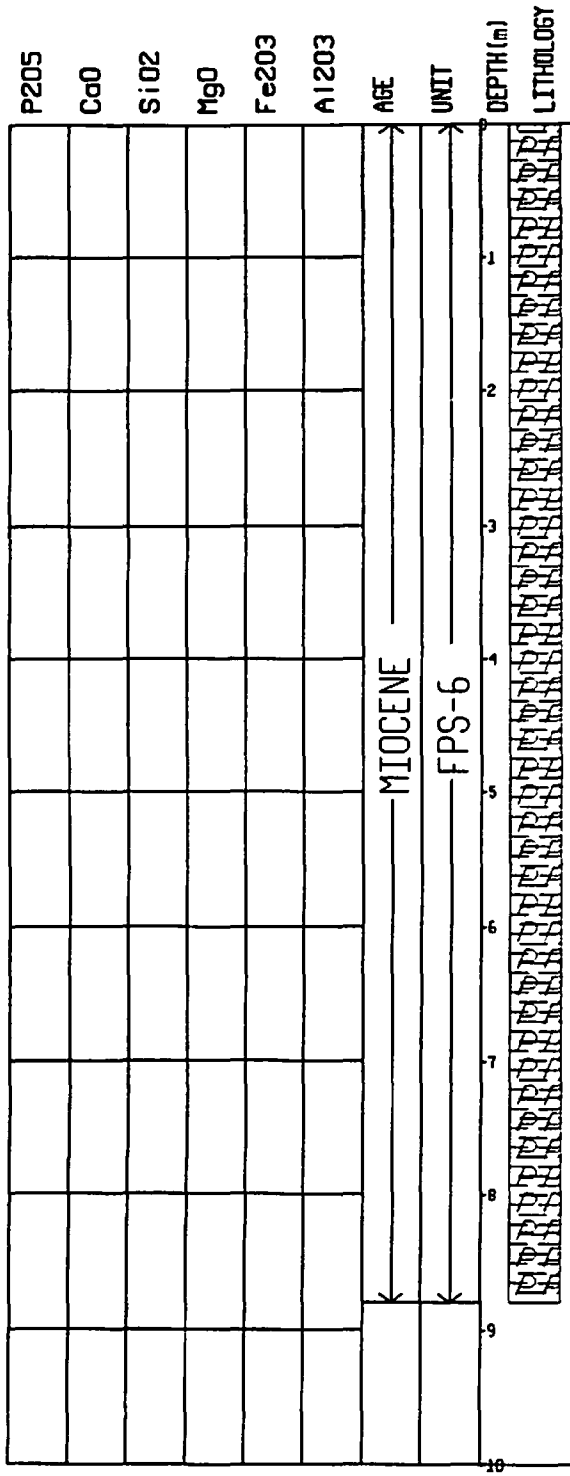
CORE DESCRIPTION

LAMINATED SANDY CLAY - Dark gray thinly laminated, slightly sandy clay with minor organic fragments disseminated through the clay. Interlaminated with very clean, very fine, angular quartz sand laminae. Laminae are very regular to irregular, locally mottled and occasional good flaser bedding.
Trace to 1% heavy minerals, no shell material.
Mottled sand becomes the dominant component, sand is fine grained and slightly rounded. Lite gray, with 1 to 2% heavies.
Dark gray muddy (10 to 20%), fossiliferous (5 to 10%), fine to medium quartz sand, fairly uniform unit; occasional quartz granule and black phosphorite pebble. Phosphorite increasing in coarse sand fraction to 1 to 2%.
Large black stained oysters with fine unstained hae sediment very poorly sorted.
Contact gradational and mottled.

CALCAREOUS PHOSPHATIC QUARTZ SAND - Grayish yellow green, slightly calcareous, slightly phosphatic, fine to medium quartz sand.
Mottles of above sediment down to 5 %.
Quartz poorly sorted very fine to medium, well rounded, blue and pink quartz coms. Approximately 5% calcite matrix and 1 to 2% abraded shell fragments.
1 to 2% black phosphate grains.
Light olive gray, very slightly calcareous (1 to 2%), slightly phosphatic (2 to 3%). Fine, well sorted quartz sand. Crude bedding of this sediment with a cleaner and whiter and more poorly sorted quartz sand.
Grading to grayish yellow green (as above) but with 10% fine cryptolline calcite matrix, phosphate 1 to 3% black and highly polished. Quartz is fine to coarse, poorly sorted and highly rounded.
Shell fragments coarse.
Small slightly indurated zones scattered throughout.
Large pecten fragments.

ONSLOW BAY CORE NUMBER: OB102

CRUISE: NSF CRUISE DATE LOGGED: 3-26-83 LATITUDE: 33.830 degrees
LENGTH ATTEMPTED: 8.8m BY: S. W. SNYDER LONGITUDE: 77.400 degrees
LENGTH OF CORE: 8.8m

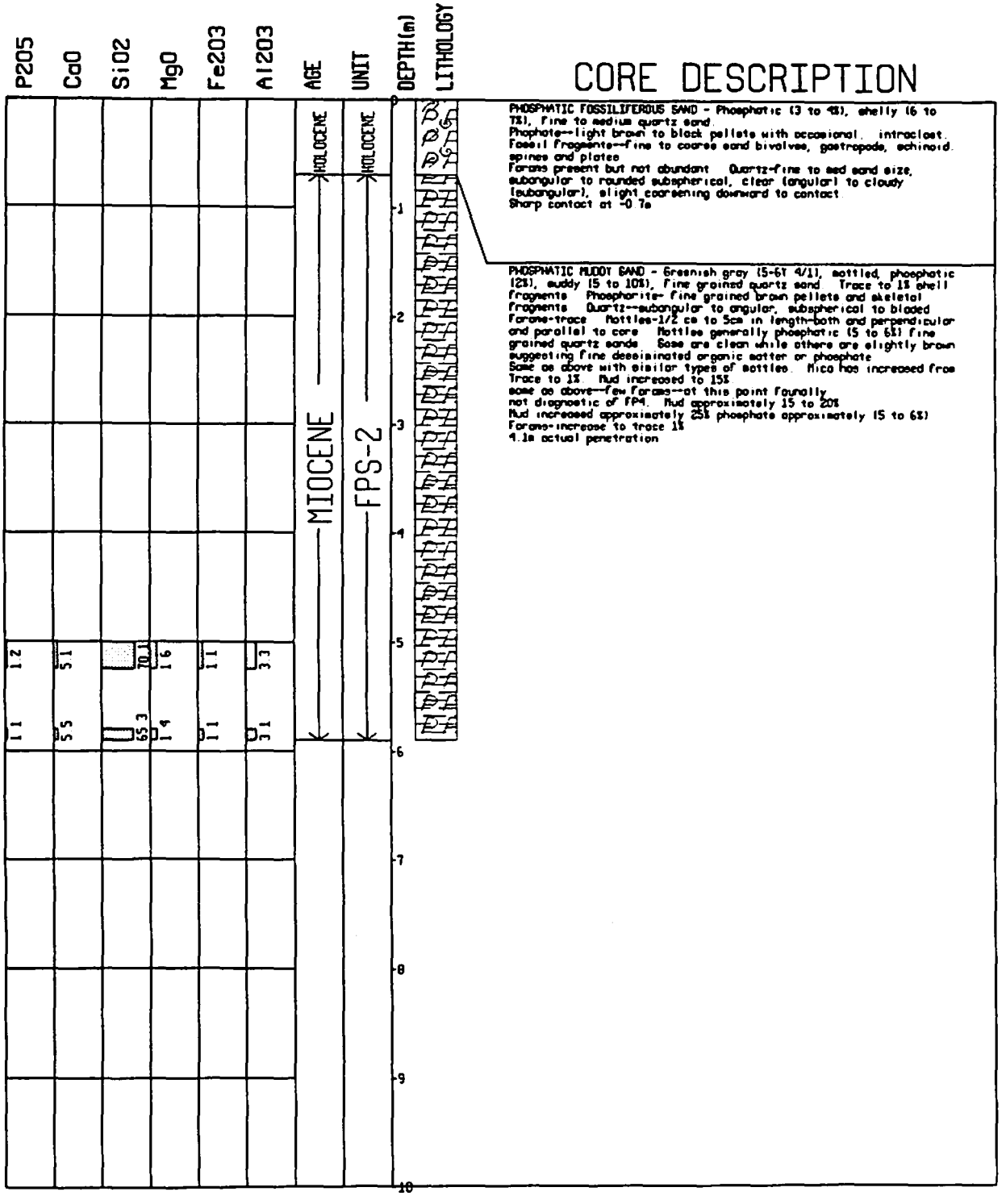


CORE DESCRIPTION

MOTTLED MUDDY GLAUCONITIC PHOSPHATIC QUARTZ SAND - Upper 35cm of core somewhat muddier, but remaining upper 3m uniform (Fit description of sample P1)
Sediments irregularly mottled, slightly muddy sections are dark yellowish brown (10YR 4/2) and sandier parts are moderate yellowish brown (10YR 5/4)
P1 clean, poorly sorted, slightly phosphatic (7) (1 to 2%), foraminiferal (30 to 40%), subangular to subrounded, fine to medium quartz sand, trace of glauconite
Many dark grains appear to be quartz with thin veneer of glossy black material (not phosphorite?) smaller quartz grains angular and clear, larger ones subrounded, grayish, translucent.
Typical brown-channel benthic foram assemblage
Planktonics quite abundant (nearly as abundant as benthics)
Echinoid spines common, shell fragments rare
(No recovery at -3.0 to -3.2m)
P2 similar to P1 in most respects but quartz more abundant and forams less abundant (15 to 20%)
Also quartz is noticeably coarser (still largely fine sand but coarse sand sized particles more common (they are grayish and translucent)
Glauconite 1% Phosphate slightly more abundant (3 to 4%) isolated, irregularly distributed muddy patches
Thin zone of coarse medium gray sand, faunally similar to sediment above and below
P3 more like P1 than P2
Foram fauna, however, not as well preserved (more breakage and recrystallization)
Sediment indistinguishable from that in P1
P4 light to medium gray, poorly sorted, subangular to subrounded, phosphatic (5 to 6%), foraminiferal (10 to 15%), fine to medium to coarse quartz sand
Trace glauconite, echinoid sands
very clean (virtually no mud at all)
Forams decrease in abundance downward
Only 5% of fauna in P5
Phosphate remains at approximately 5 to 6%, otherwise same as P4
P5 a dusky yellow (5Y 6/4), indurated zone approximately 10cm thick
80% foram tests, 18% quartz, 1 to 2% phosphate, trace glauconite
calcite cement from partial dissolved of forams and then reprecipitated
Lower indurated zone similar but dissolved and recrystallization of forams more extensive (somewhat better cemented)
Lower zone about 5 cm thick
Sands between indurated layers down to 8.3m are yellowish, fine to med, slightly phosphatic (1 to 2%), foraminiferal (15 to 20%), quartz sands
Color from recrystallized foram tests
-8.3m to bottom is coarser, med gray, more phosphatic (5 to 6%) sand
Very similar to those higher in core (-5 to -7m)

ONSLOW BAY CORE NUMBER: OB103

CRUISE: NSF O. BAY DATE LOGGED: 3-26-83 LATITUDE: 34.000 degrees
LENGTH ATTEMPTED: 4.1m BY: P. MALLETTE LONGITUDE: 77.382 degrees
LENGTH OF CORE: 5.9m



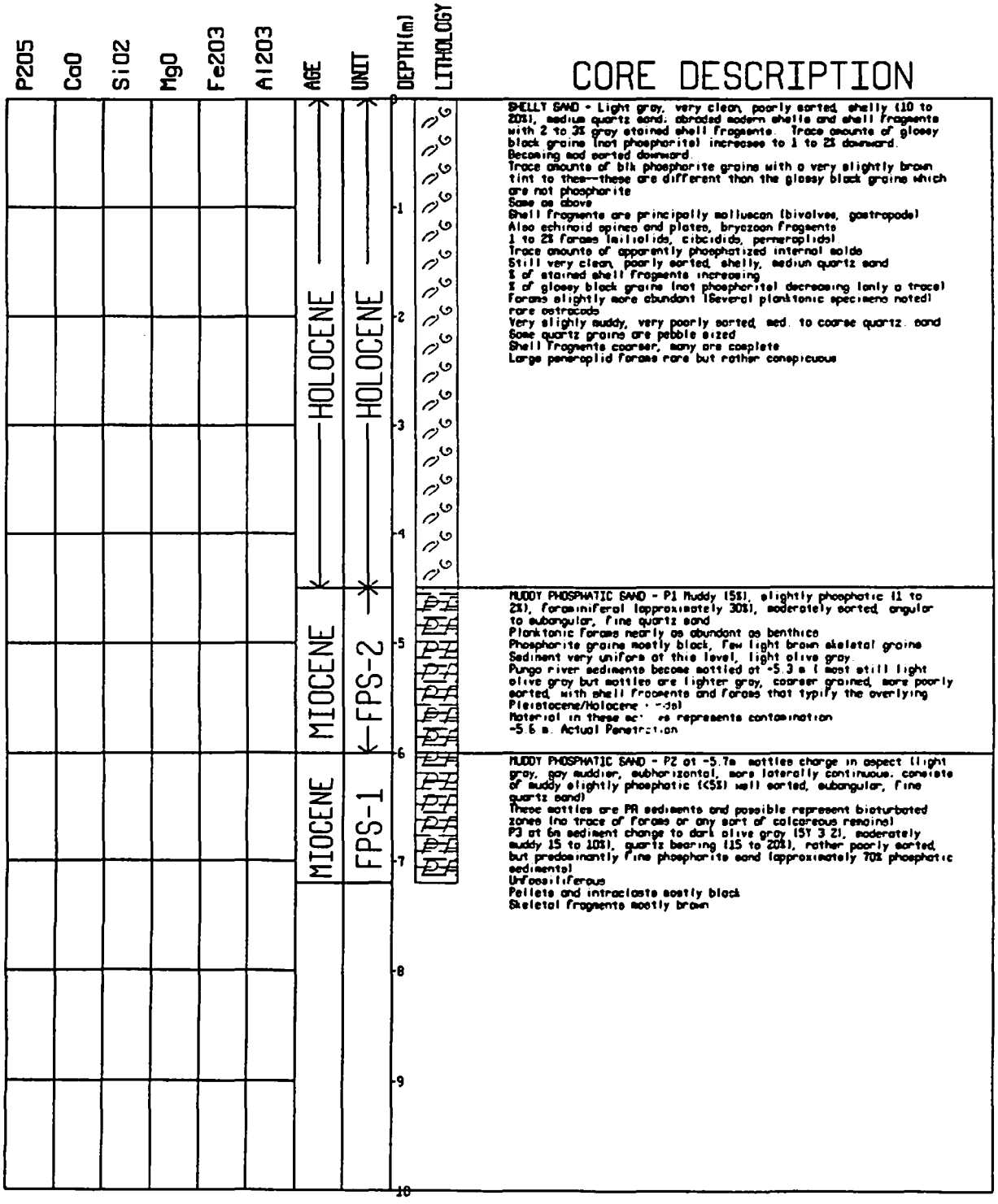
CORE DESCRIPTION

PHOSPHATIC FOSSILIFEROUS SAND - Phosphatic (3 to 4%), shelly (6 to 7%), fine to medium quartz sand.
Phophate--light brown to black pellets with occasional intraclast.
Fossil fragments--fine to coarse sand bivalves, gastropods, echinoid spines and plates
Forams present but not abundant Quartz-fine to sad sand size, subangular to rounded subspherical, clear (angular) to cloudy (subangular), slight coarsening downward to contact
Sharp contact at ~0.7m

PHOSPHATIC MUDDY SAND - Greenish gray (5-6Y 4/1), mottled, phosphatic (2%), muddy (5 to 10%), fine grained quartz sand Trace to 1% shell fragments Phosphorite- fine grained brown pellets and skeletal fragments Quartz--subangular to angular, subspherical to bladed
Forams-trace Mottles-1/2 cm to 5cm in length-both and perpendicular and parallel to core Mottles generally phosphatic (5 to 6%) fine grained quartz sands Some are clean while others are slightly brown suggesting fine desseminated organic matter or phosphate
Same as above with similar types of mottles. Mica has increased from Trace to 1%. Mud increased to 15%
same as above--few forams--at this point faunally not diagnostic of FP4. Mud approximately 15 to 20%
Mud increased approximately 25% phosphate approximately (5 to 6%)
Forams-increase to trace 1%
4.1m actual penetration

ONSLOW BAY CORE NUMBER: OB104

CRUISE: NSF O. BAY DATE LOGGED: 2-16-83 LATITUDE: 34.000 degrees
LENGTH ATTEMPTED: 5.6m BY: SR RIGGS LONGITUDE: 77.440 degrees
LENGTH OF CORE: 7.2m



CORE DESCRIPTION

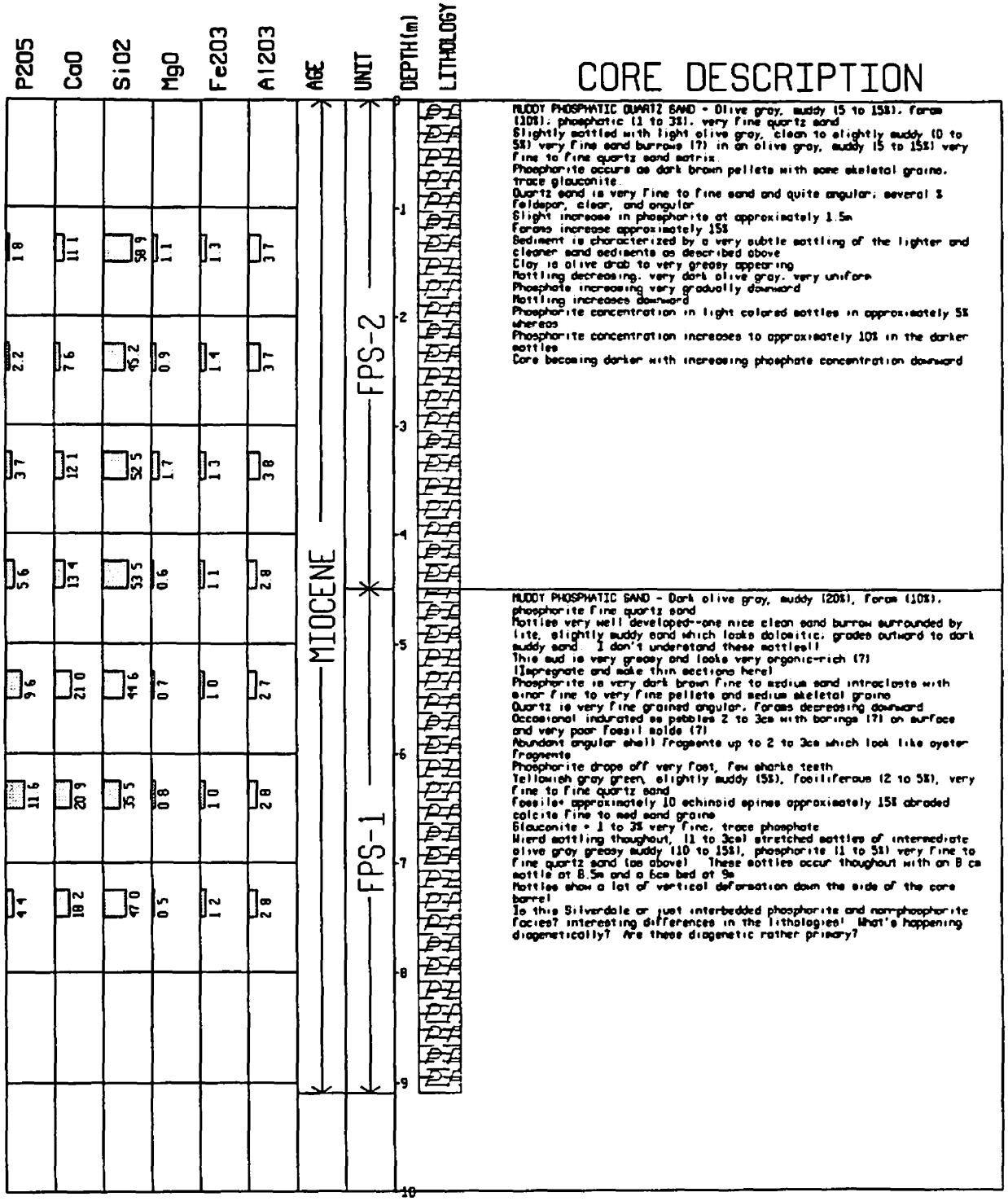
SHELLY SAND - Light gray, very clean, poorly sorted, shelly (10 to 20%), medium quartz sand; abraded modern shells and shell fragments with 2 to 3% gray stained shell fragments. Trace amounts of glossy black grains (not phosphorite) increases to 1 to 2% downward. Becoming mod sorted downward
Trace amounts of blk phosphorite grains with a very slightly brown tint to them--these are different than the glossy black grains which are not phosphorite
Same as above
Shell fragments are principally molluscan (bivalves, gastropods)
Also echinoid spines and plates, bryozoan fragments
1 to 2% forams (miliolids, cibicidids, peneroplids)
Trace amounts of apparently phosphatized internal molds
Still very clean, poorly sorted, shelly, medium quartz sand
% of stained shell fragments increasing
% of glossy black grains (not phosphorite) decreasing (only a trace)
forams slightly more abundant (Several planktonic specimens noted)
rare ostracods
Very slightly muddy, very poorly sorted, med. to coarse quartz sand
Some quartz grains are pebble sized
Shell fragments coarser, many are complete
Large peneroplid forams rare but rather conspicuous

MUDDY PHOSPHATIC SAND - P1 (muddy (5%), slightly phosphatic (1 to 2%), foraminiferal (approximately 30%), moderately sorted, angular to subangular, fine quartz sand
Planktonic forams nearly as abundant as benthics
Phosphorite grains mostly black, few light brown skeletal grains
Sediment very uniform at this level, light olive gray
Pungo river sediments become mottled at ~5.3 m (most still light olive gray but mottles are lighter gray, coarser grained, more poorly sorted, with shell fragments and forams that typify the overlying Pleistocene/Holocene ~ mud)
Material in these sections represents contamination
~5.6 m. Actual Penetration

MUDDY PHOSPHATIC SAND - P2 at ~5.7m mottles change in aspect (light gray, gay muddier, subhorizontal, more laterally continuous, consists of muddy slightly phosphatic (<5%) well sorted, subangular, fine quartz sand)
These mottles are PR sediments and possible represent bioturbated zones (no trace of forams or any sort of calcareous remains)
P3 at 6m sediment change to dark olive gray (5Y 3 2), moderately muddy (5 to 10%), quartz bearing (15 to 20%), rather poorly sorted, but predominantly fine phosphorite sand (approximately 70% phosphatic sediments)
Unfossiliferous
Pellets and intraclasts mostly black
Skeletal fragments mostly brown

ONSLOW BAY CORE NUMBER: OB105

CRUISE: NSF O. BAY DATE LOGGED: 9-17-82 LATITUDE: 33.964 degrees
LENGTH ATTEMPTED: 6.05m BY: S. RIGGS LONGITUDE: 77.492 degrees
LENGTH OF CORE: 9.1m



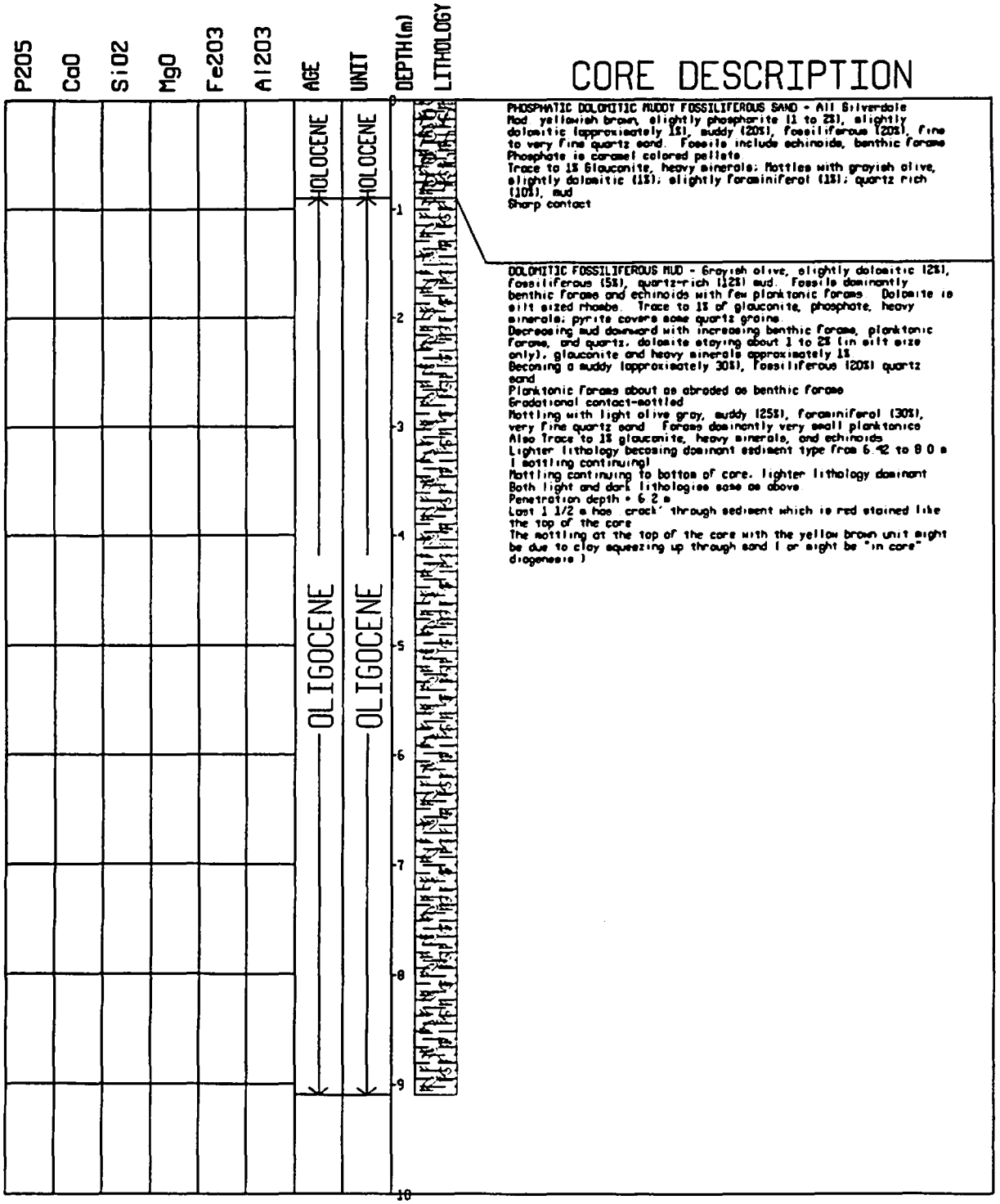
CORE DESCRIPTION

MUDDY PHOSPHATIC QUARTZ SAND - Olive gray, muddy (5 to 15%), foram (10%); phosphatic (1 to 3%), very fine quartz sand
Slightly mottled with light olive gray, clean to slightly muddy (0 to 5%) very fine sand burrows (?) in an olive gray, muddy (5 to 15%) very fine to fine quartz sand matrix
Phosphorite occurs as dark brown pellets with some skeletal grains, trace glauconite
Quartz sand is very fine to fine sand and quite angular; several % feldspar, clear, and angular
Slight increase in phosphorite at approximately 1.5m
Forams increase approximately 15%
Sediment is characterized by a very subtle mottling of the lighter and cleaner sand sediments as described above
Clay is olive drab to very greasy appearing
Mottling decreasing, very dark olive gray, very uniform
Phosphate increasing very gradually downward
Mottling increases downward
Phosphorite concentration in light colored mottles in approximately 5% whereas
Phosphorite concentration increases to approximately 10% in the darker mottles
Core becoming darker with increasing phosphate concentration downward

MUDDY PHOSPHATIC SAND - Dark olive gray, muddy (20%), foram (10%), phosphorite fine quartz sand
Mottles very well developed--one nice clean sand burrow surrounded by lite, slightly muddy sand which looks dolomitic; grades outward to dark muddy sand I don't understand these mottles!!
This mud is very greasy and looks very organic-rich (?)
(Impregnate and make thin sections here)
Phosphorite is very dark brown fine to medium sand intraclasts with minor fine to very fine pellets and medium skeletal grains
Quartz is very fine grained angular, forams decreasing downward
Occasional indurated as pebbles 2 to 3cm with borings (?) on surface and very poor fossil molds (?)
Abundant angular shell fragments up to 2 to 3cm which look like oyster fragments
Phosphorite drops off very fast, few sharks teeth
Yellowish gray green, slightly muddy (5%), foraliferous (2 to 5%), very fine to fine quartz sand
Fossils: approximately 10 echinoid spines approximately 15% abraded calcite fine to med sand grains
Glauconite - 1 to 3% very fine, trace phosphate
Weird mottling throughout, 1 to 3cm stretched mottles of intermediate olive gray greasy muddy (10 to 15%), phosphorite (1 to 5%) very fine to fine quartz sand (as above) These mottles occur throughout with an 8 cm mottle at 8.5m and a 6cm bed at 9m
Mottles show a lot of vertical deformation down the side of the core barrel
Is this Silverdale or just interbedded phosphorite and non-phosphorite facies? interesting differences in the lithologies! What's happening diagenetically? Are these diagenetic rather primary?

ONSLOW BAY CORE NUMBER: OB106

CRUISE: NSF O. BAY DATE LOGGED: 3-26-83 LATITUDE: 33.848 degrees
LENGTH ATTEMPTED: 6.2 m BY: L. STEWART LONGITUDE: 77.627 degrees
LENGTH OF CORE: 9.1 m



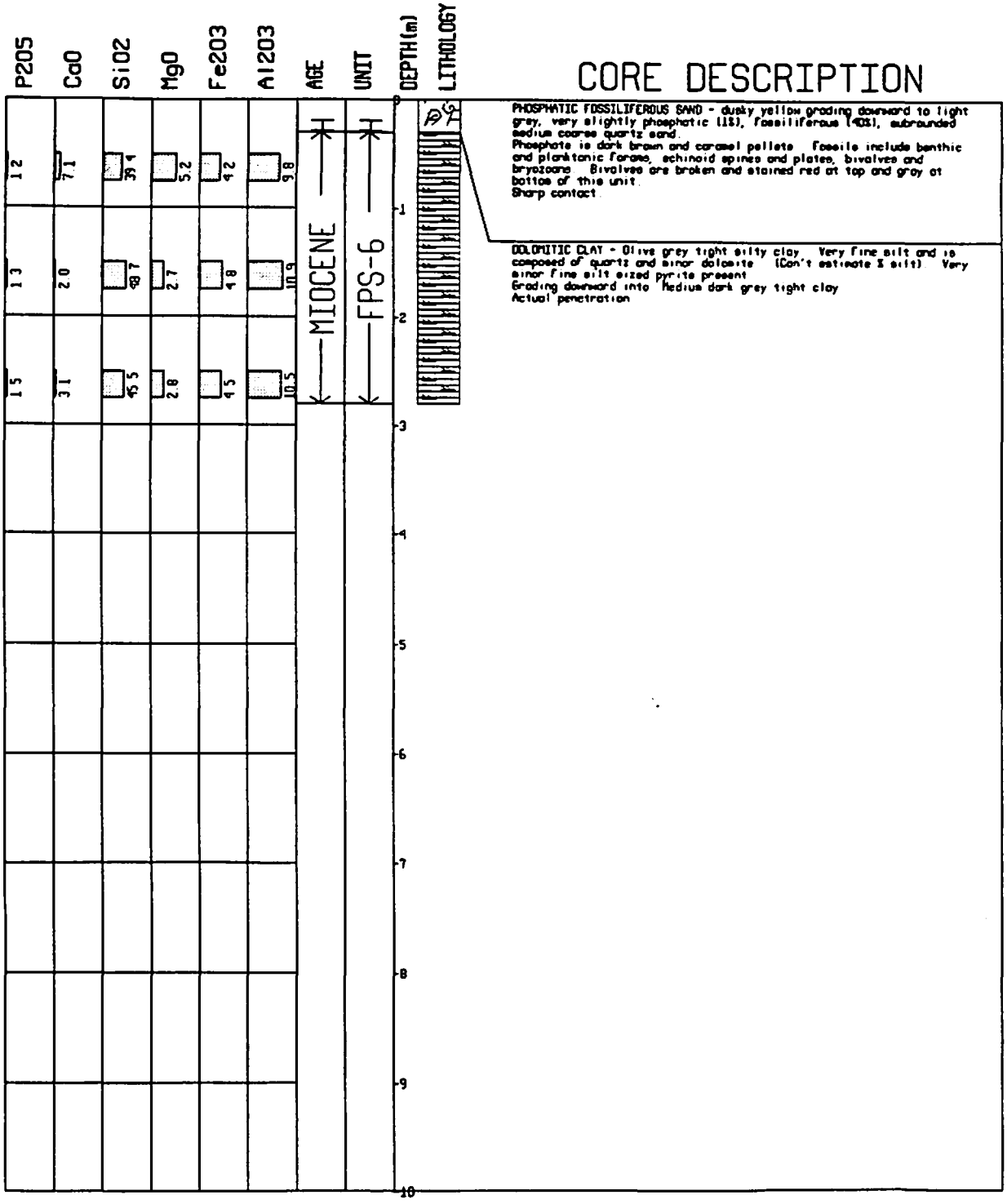
CORE DESCRIPTION

PHOSPHATIC DOLOMITIC MUDDY FOSSILIFEROUS SAND - All Silverdale
Mod yellowish brown, slightly phosphorite (1 to 2%), slightly dolomitic (approximately 1%), muddy (20%), fossiliferous (20%), fine to very fine quartz sand. Fossils include echinoids, benthic foram
Phosphate is caramel colored pellets
Trace to 1% glauconite, heavy minerals; Mottles with grayish olive, slightly dolomitic (1%); slightly foraminiferal (1%); quartz rich (10%), mud
Sharp contact

DOLOMITIC FOSSILIFEROUS MUD - Grayish olive, slightly dolomitic (2%), fossiliferous (5%), quartz-rich (12%) mud. Fossils dominantly benthic forams and echinoids with few planktonic forams. Dolomite is silt sized rhombs. Trace to 1% of glauconite, phosphate, heavy minerals; pyrite covers some quartz grains.
Decreasing mud downward with increasing benthic forams, planktonic forams, and quartz, dolomite staying about 1 to 2% (in silt size only), glauconite and heavy minerals approximately 1%
Becoming a muddy (approximately 30%), fossiliferous (20%) quartz sand
Planktonic forams about as abraded as benthic forams
Gradational contact-mottled
Mottling with light olive gray, muddy (25%), foraminiferal (30%), very fine quartz sand. Forams dominantly very small planktonics
Also Trace to 1% glauconite, heavy minerals, and echinoids
Lighter lithology becoming dominant sediment type from 6.42 to 8.0 m (mottling continuing)
Mottling continuing to bottom of core. lighter lithology dominant
Both light and dark lithologies same as above
Penetration depth = 6.2 m
Last 1 1/2 m has 'crack' through sediment which is red stained like the top of the core
The mottling at the top of the core with the yellow brown unit might be due to clay squeezing up through sand (or might be "in core" diagenesis)

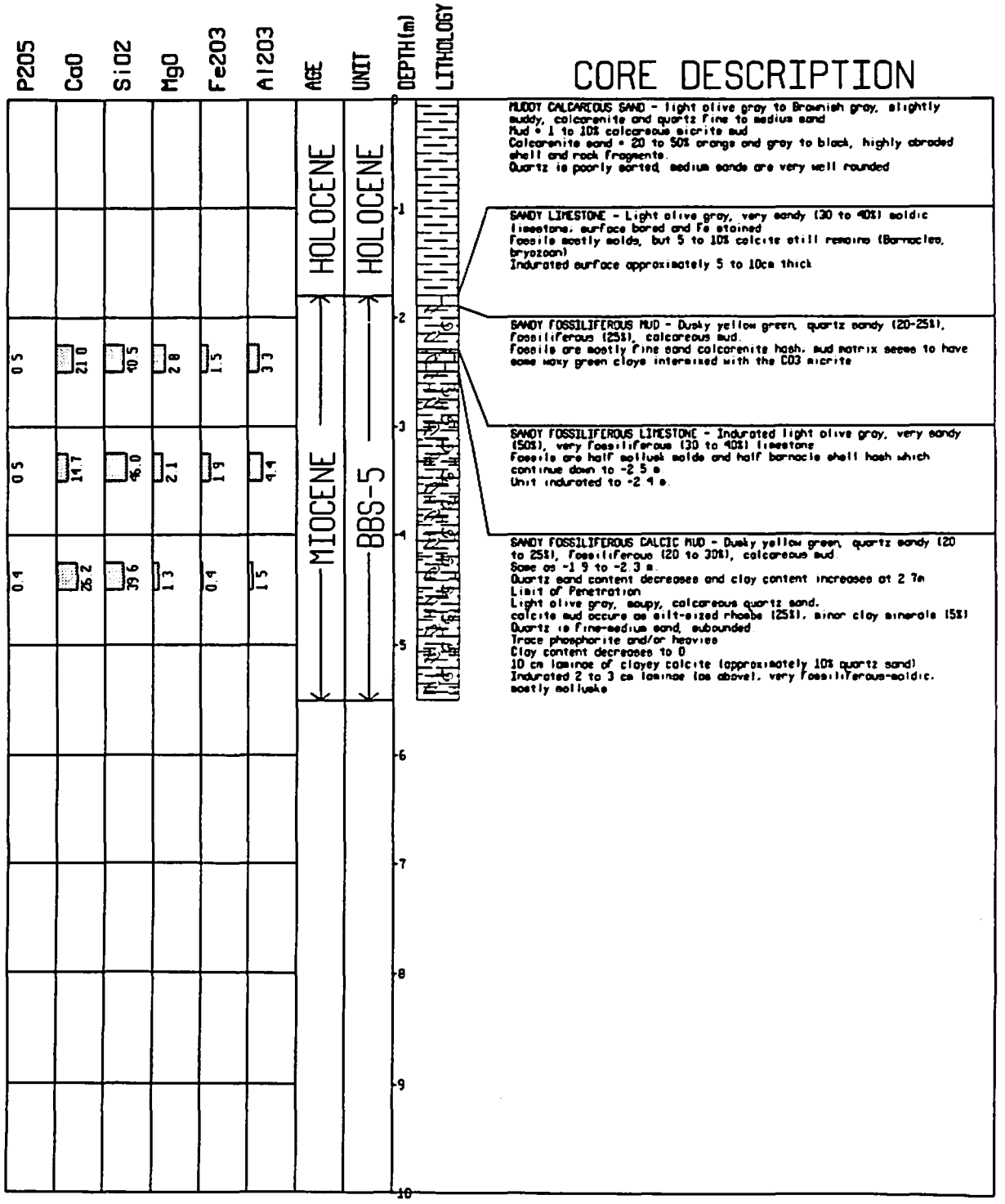
ONSLOW BAY CORE NUMBER: OB107

CRUISE: NSF O. BAY DATE LOGGED: 3-27-83 LATITUDE: 33.773 degrees
LENGTH ATTEMPTED: 1.8 m BY: L. STEWART LONGITUDE: 77.480 degrees
LENGTH OF CORE: 2.78 m



ONSLOW BAY CORE NUMBER: OB108

CRUISE: NSF O. BAY DATE LOGGED: 8-4-82 LATITUDE: 34.455 degrees
LENGTH ATTEMPTED: 3.2 m BY: S.R. RIGGS LONGITUDE: 76.848 degrees
LENGTH OF CORE: 5.5 m



CORE DESCRIPTION

MUDDY CALCAREOUS SAND - light olive gray to Brownish gray, slightly muddy, calcarenite and quartz fine to medium sand
Mud = 1 to 10% calcareous micrite mud
Calcarenite sand = 20 to 50% orange and gray to black, highly abraded shell and rock fragments.
Quartz is poorly sorted, medium sands are very well rounded

SANDY LIMESTONE - Light olive gray, very sandy (30 to 40%) moldic limestone; surface bored and Fe stained
Fossils mostly molds, but 5 to 10% calcite still remains (Barnacles, bryozoan)
Indurated surface approximately 5 to 10cm thick

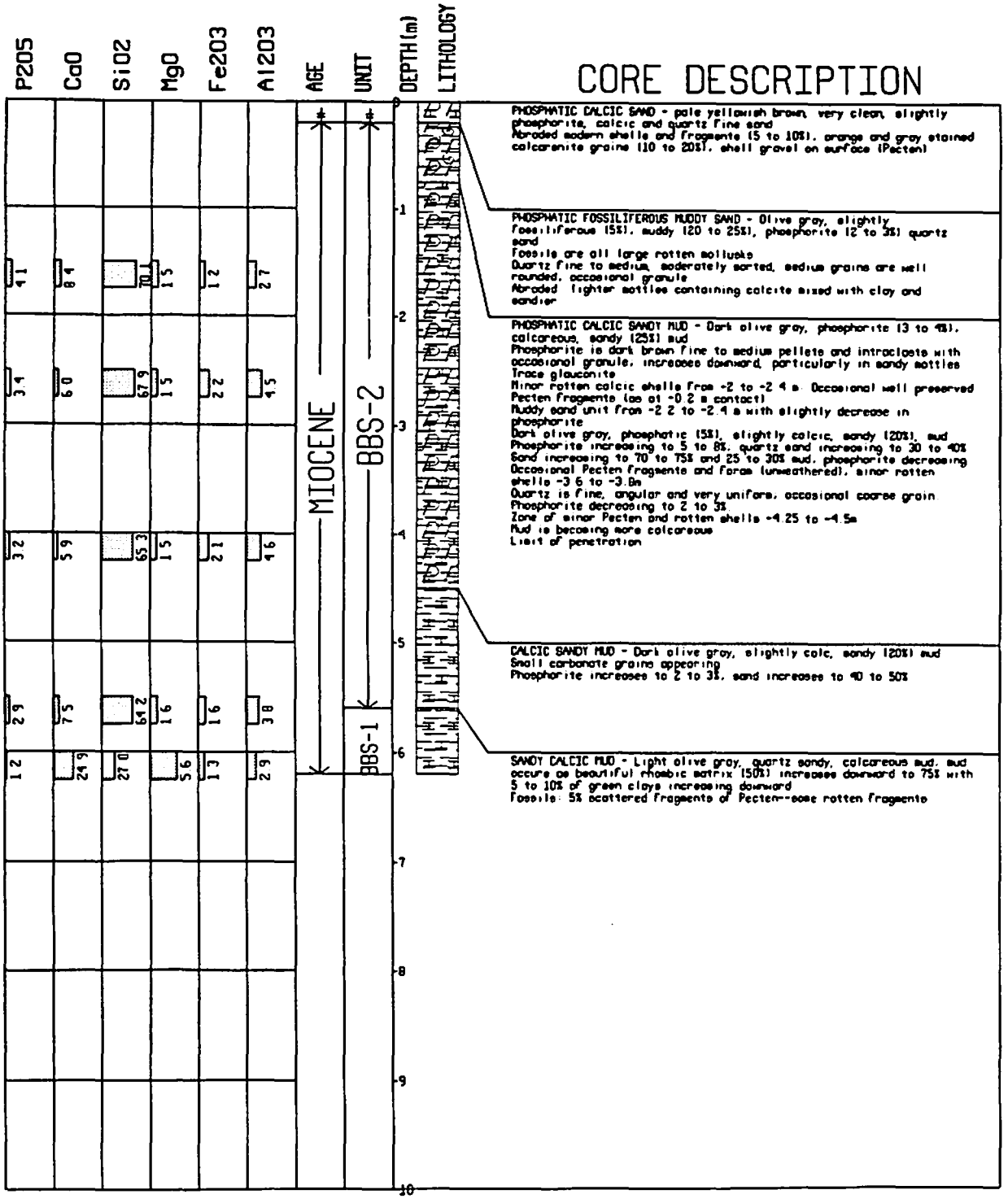
SANDY FOSSILIFEROUS MUD - Dusky yellow green, quartz sandy (20-25%), fossiliferous (25%), calcareous mud.
Fossils are mostly fine sand calcarenite hash, mud matrix seems to have some waxy green clays intermixed with the CO3 micrite

SANDY FOSSILIFEROUS LIMESTONE - Indurated light olive gray, very sandy (50%), very fossiliferous (30 to 40%) limestone
Fossils are half mollusk molds and half barnacle shell hash which continue down to -2.5 m
Unit indurated to -2.4 m.

SANDY FOSSILIFEROUS CALCIC MUD - Dusky yellow green, quartz sandy (20 to 25%), fossiliferous (20 to 30%), calcareous mud
Base at -1.9 to -2.3 m.
Quartz sand content decreases and clay content increases at 2.7m
Limit of Penetration
Light olive gray, soupy, calcareous quartz sand.
calcite mud occurs as silt-sized rhombs (25%), minor clay minerals (5%)
Quartz is fine-medium sand, subrounded
Trace phosphorite and/or heavies
Clay content decreases to 0
10 cm laminae of clayey calcite (approximately 10% quartz sand)
Indurated 2 to 3 cm laminae (as above), very fossiliferous-moldic, mostly mollusks

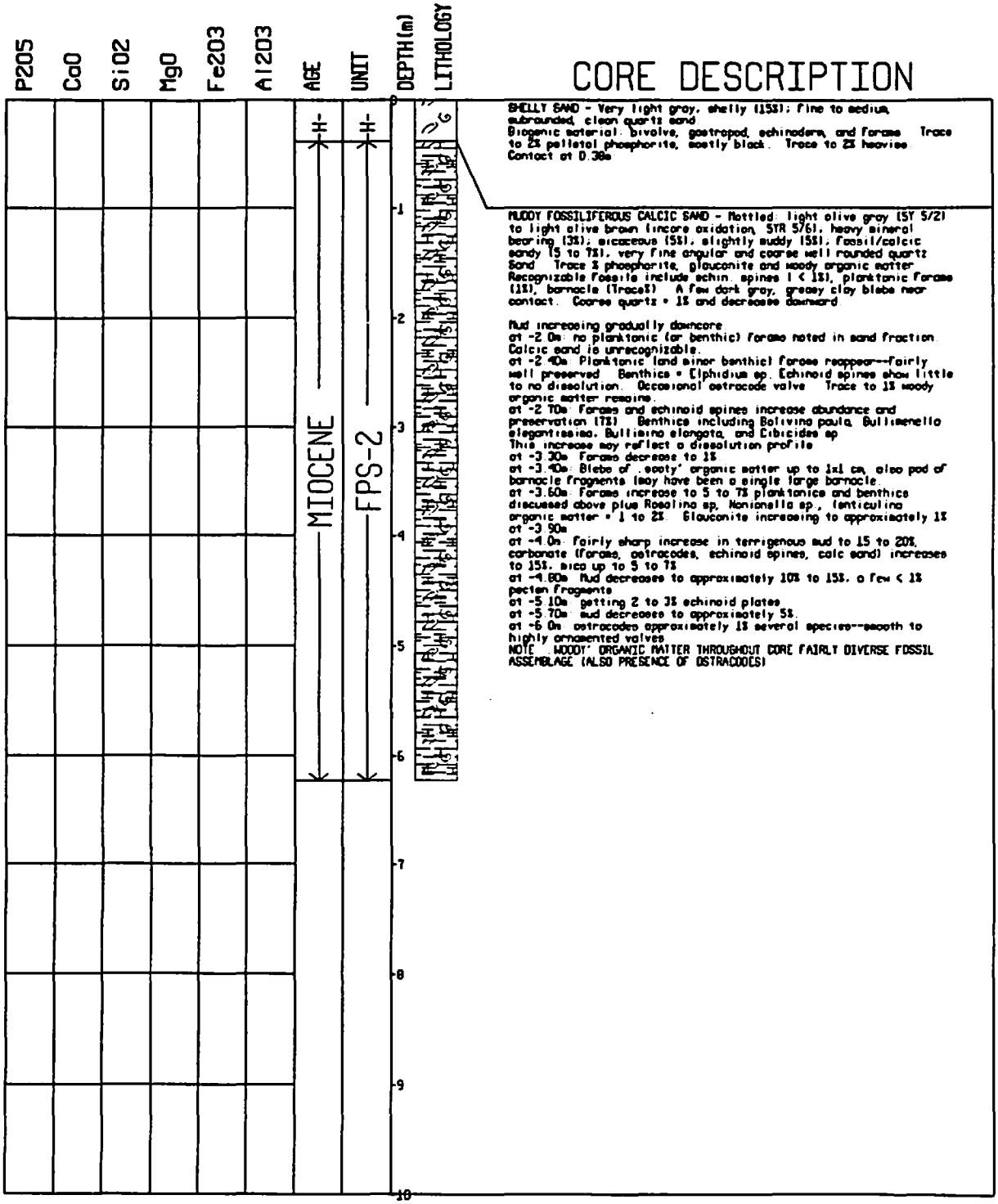
ONSLOW BAY CORE NUMBER: OB109

CRUISE: NSF O. BAY DATE LOGGED: 8-9-82 LATITUDE: 34.453 degrees
LENGTH ATTEMPTED: 4.3 m BY: S.R. RIGGS LONGITUDE: 76.865 degrees
LENGTH OF CORE: 6.2 m



ONSLOW BAY CORE NUMBER: OB110

CRUISE: NSF O. BAY DATE LOGGED: 3-26-83 LATITUDE: 34.428 degrees
LENGTH ATTEMPTED: 5.6 m BY: P. MALLETTE LONGITUDE: 77.132 degrees
LENGTH OF CORE: 6.23 m



CORE DESCRIPTION

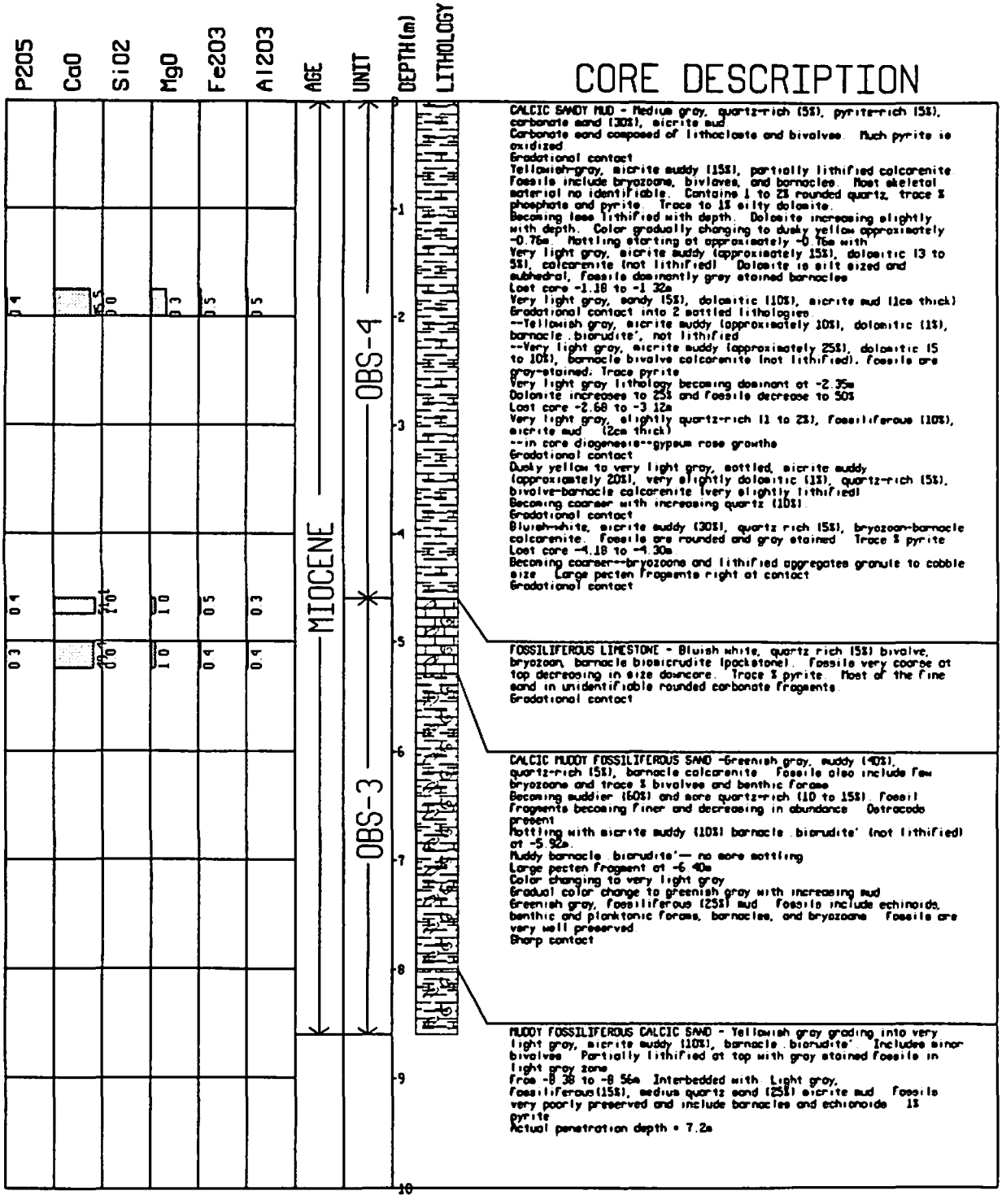
SHELLY SAND - Very light gray, shelly (15%); fine to medium, subrounded, clean quartz sand
Biogenic material: bivalve, gastropod, echinoderm, and foram. Trace to 2% pelletal phosphorite, mostly black. Trace to 2% heavies.
Contact at 0.38m

MUDDY FOSSILIFEROUS CALCIC SAND - Mottled: light olive gray (5Y 5/2) to light olive brown (incore oxidation, 5YR 5/6), heavy mineral bearing (3%); micaceous (5%), slightly muddy (15%), fossil/calcic sandy (5 to 7%), very fine angular and coarse well rounded quartz sand. Trace % phosphorite, glauconite and woody organic matter. Recognizable fossils include echin. spines (< 1%), planktonic foram (1%), barnacle (Trace%). A few dark gray, greasy clay blebs near contact. Coarse quartz = 1% and decreases downward.

Mud increasing gradually downcore.
at -2.0m: no planktonic (or benthic) foram noted in sand fraction. Calcic sand is unrecognizable.
at -2.40m: Planktonic (and minor benthic) foram reappear--fairly well preserved. Benthics = Elphidium sp. Echinoid spines show little to no dissolution. Occasional ostracode valve. Trace to 1% woody organic matter remains.
at -2.70m: Forams and echinoid spines increase abundance and preservation (7%). Benthics including Bolivina paula, Bulliminella elegantissima, Buliimina elongata, and Cibicides sp.
This increase may reflect a dissolution profile
at -3.30m: Foram decrease to 1%
at -3.40m: Blebs of 'sooty' organic matter up to 1x1 cm, also pod of barnacle fragments (may have been a single large barnacle)
at -3.60m: Forams increase to 5 to 7% planktonics and benthics discussed above plus Roealina sp., Nonionella sp., Ienticulina, organic matter = 1 to 2%. Glauconite increasing to approximately 1%
at -3.90m
at -4.0m: fairly sharp increase in terrigenous mud to 15 to 20%, carbonate (forams, ostracodes, echinoid spines, calc sand) increases to 15%, also up to 5 to 7%
at -4.80m: Mud decreases to approximately 10% to 15%, a few < 1% pecten fragments
at -5.10m: getting 2 to 3% echinoid plates
at -5.70m: mud decreases to approximately 5%.
at -6.0m: ostracodes approximately 1% several species--smooth to highly ornamented valves
NOTE: 'WOODY' ORGANIC MATTER THROUGHOUT CORE FAIRLY DIVERSE FOSSIL ASSEMBLAGE (ALSO PRESENCE OF OSTRACODES)

ONSLOW BAY CORE NUMBER: OB111

CRUISE: NSF O. BAY DATE LOGGED: 3-27-83 LATITUDE: 34.615 degrees
LENGTH ATTEMPTED: 7.2 m BY: L. STEWART LONGITUDE: 76.942 degrees
LENGTH OF CORE: 8.56 m



CORE DESCRIPTION

CALCIC SANDY MUD - Medium gray, quartz-rich (5%), pyrite-rich 15%), carbonate sand (30%), micrite mud
Carbonate sand composed of lithoclasts and bivalves. Much pyrite is oxidized
Gradational contact
Yellowish-gray, micrite muddy (15%), partially lithified calcarenite Fossils include bryozoans, bivalves, and barnacles. Most skeletal material no identifiable. Contains 1 to 2% rounded quartz, trace % phosphate and pyrite. Trace to 1% silty dolomite.
Becoming less lithified with depth. Dolomite increasing slightly with depth. Color gradually changing to dusky yellow approximately -0.76m. Mottling starting at approximately -0.76m with
Very light gray, micrite muddy (approximately 15%), dolomitic (3 to 5%), calcarenite (not lithified). Dolomite is silt sized and subhedral, fossils dominantly grey stained barnacles
Lost core -1.18 to -1.32m
Very light gray, sandy (5%), dolomitic (10%), micrite mud (1cm thick)
Gradational contact into 2 mottled lithologies
--Yellowish gray, micrite muddy (approximately 10%), dolomitic (1%), barnacle 'biorudite', not lithified
--Very light gray, micrite muddy (approximately 25%), dolomitic (5 to 10%), barnacle bivalve calcarenite (not lithified). Fossils are gray-stained. Trace pyrite
Very light gray lithology becoming dominant at -2.35m
Dolomite increases to 25% and fossils decrease to 50%
Lost core -2.68 to -3.12m
Very light gray, slightly quartz-rich (1 to 2%), fossiliferous (10%), micrite mud (2cm thick)
--in core diagenesis--gypsum rose growths
Gradational contact
Dusky yellow to very light gray, mottled, micrite muddy (approximately 20%), very slightly dolomitic (1%), quartz-rich (5%), bivalve-barnacle calcarenite (very slightly lithified)
Becoming coarser with increasing quartz (10%)
Gradational contact
Bluish-white, micrite muddy (30%), quartz rich (5%), bryozoan-barnacle calcarenite. Fossils are rounded and gray stained. Trace % pyrite
Lost core -4.18 to -4.30m
Becoming coarser--bryozoans and lithified aggregates granule to cobble size. Large pecten fragments right at contact
Gradational contact

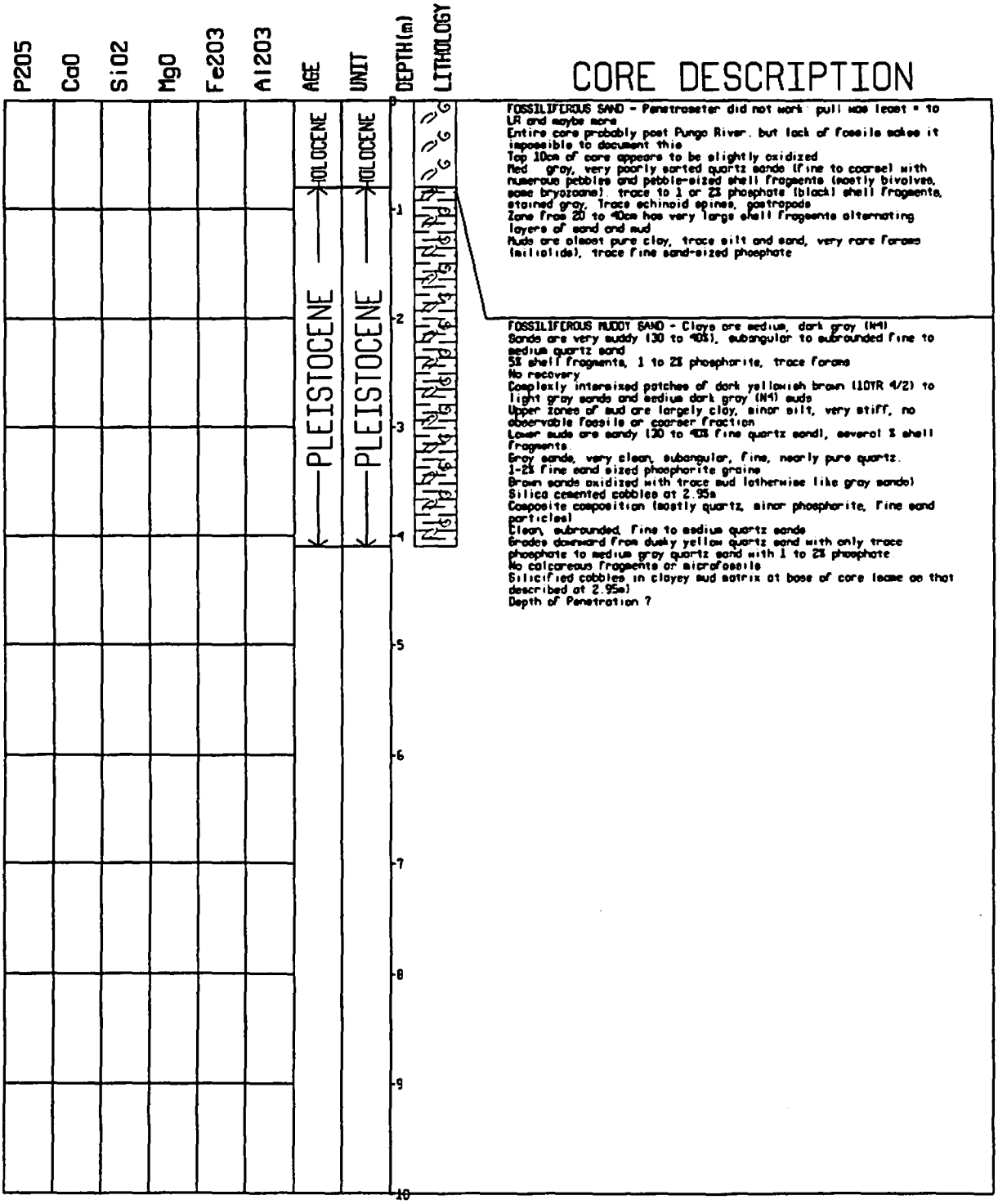
FOSSILIFEROUS LIMESTONE - Bluish white, quartz rich (5%) bivalve, bryozoan, barnacle biosiarudite (packstone). Fossils very coarse at top decreasing in size downcore. Trace % pyrite. Most of the fine sand in unidentifiable rounded carbonate fragments.
Gradational contact

CALCIC MUDDY FOSSILIFEROUS SAND -Greenish gray, muddy (40%), quartz-rich (5%), barnacle calcarenite. Fossils also include few bryozoans and trace % bivalves and benthic forams
Becoming muddier (60%) and more quartz-rich (10 to 15%). Fossil fragments becoming finer and decreasing in abundance. Ostracods present
Mottling with micrite muddy (10%) barnacle 'biorudite' (not lithified) at -5.92m.
Muddy barnacle 'biorudite'— no more mottling
Large pecten fragment at -6.40m
Color changing to very light gray
Gradual color change to greenish gray with increasing mud
Greenish gray, fossiliferous (25%) mud. Fossils include echinoids, benthic and planktonic forams, barnacles, and bryozoans. Fossils are very well preserved
Sharp contact

MUDDY FOSSILIFEROUS CALCIC SAND - Yellowish gray grading into very light gray, micrite muddy (10%), barnacle 'biorudite'. Includes minor bivalves. Partially lithified at top with gray stained fossils in light gray zone
From -8.38 to -8.56m Interbedded with Light gray, fossiliferous(15%), medium quartz sand (25%) micrite mud. Fossils very poorly preserved and include barnacles and echinoids. 1% pyrite
Actual penetration depth = 7.2m

ONSLOW BAY CORE NUMBER: OB112

CRUISE: NSF O. BAY DATE LOGGED: 3-26-83 LATITUDE: 34.433 degrees
LENGTH ATTEMPTED: 4.1 m BY: S.W. SYNDER LONGITUDE: 77.093 degrees
LENGTH OF CORE: 4.1 m



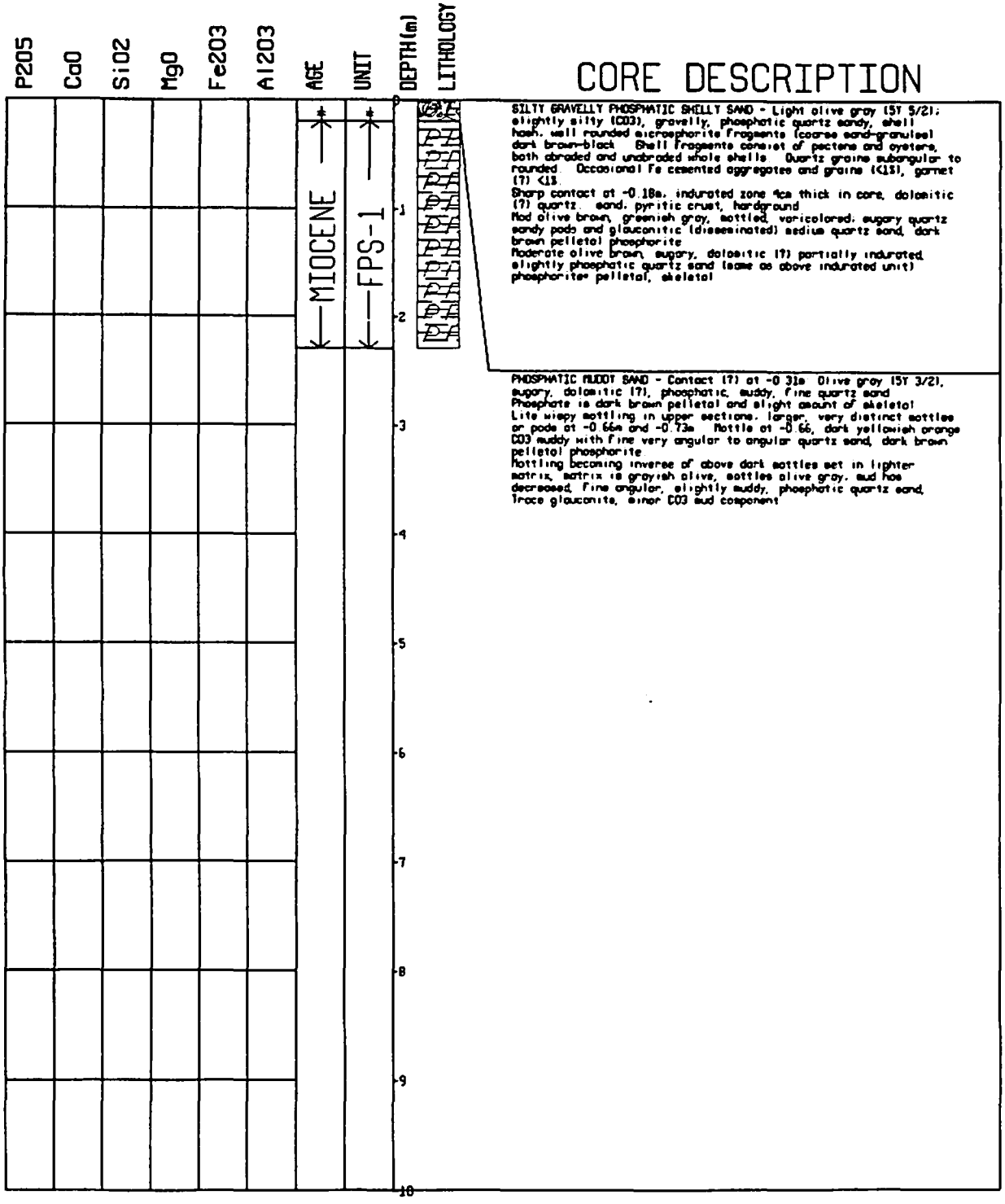
CORE DESCRIPTION

FOSSILIFEROUS SAND - Penetrometer did not work: pull was least = to LR and maybe more
Entire core probably post Pungo River, but lack of fossils makes it impossible to document this
Top 10cm of core appears to be slightly oxidized
Red gray, very poorly sorted quartz sands (fine to coarse) with numerous pebbles and pebble-sized shell fragments (mostly bivalves, some bryozoans) trace to 1 or 2% phosphate (black shell fragments, stained gray, Trace echinoid spines, gastropods
Zone from 20 to 40cm has very large shell fragments alternating layers of sand and mud
Muds are almost pure clay, trace silt and sand, very rare forams (miliolids), trace fine sand-sized phosphate

FOSSILIFEROUS MUDDY SAND - Clays are medium, dark gray (N4)
Sands are very muddy (30 to 40%), subangular to subrounded fine to medium quartz sand
5% shell fragments, 1 to 2% phosphorite, trace forams
No recovery
Complexly intermixed patches of dark yellowish brown (10YR 4/2) to light gray sands and medium dark gray (N4) muds
Upper zones of mud are largely clay, minor silt, very stiff, no observable fossils or coarser fraction
Lower muds are sandy (30 to 40% fine quartz sand), several % shell fragments
Gray sands, very clean, subangular, fine, nearly pure quartz.
1-2% fine sand sized phosphorite grains
Brown sands oxidized with trace mud (otherwise like gray sands)
Silica cemented cobbles at 2.95m
Composite composition (mostly quartz, minor phosphorite, fine sand particles)
Clean, subrounded, fine to medium quartz sands
Grades downward from dusky yellow quartz sand with only trace phosphate to medium gray quartz sand with 1 to 2% phosphate
No calcareous fragments or microfossils
Silicified cobbles in clayey mud matrix at base of core (same as that described at 2.95m)
Depth of Penetration ?

ONSLOW BAY CORE NUMBER: OB113A

CRUISE: NSF O. BAY DATE LOGGED: 4-2-83 LATITUDE: 34.163 degrees
LENGTH ATTEMPTED: 1.8 m BY: P. MALLETTE LONGITUDE: 77.325 degrees
LENGTH OF CORE: 2.3 m



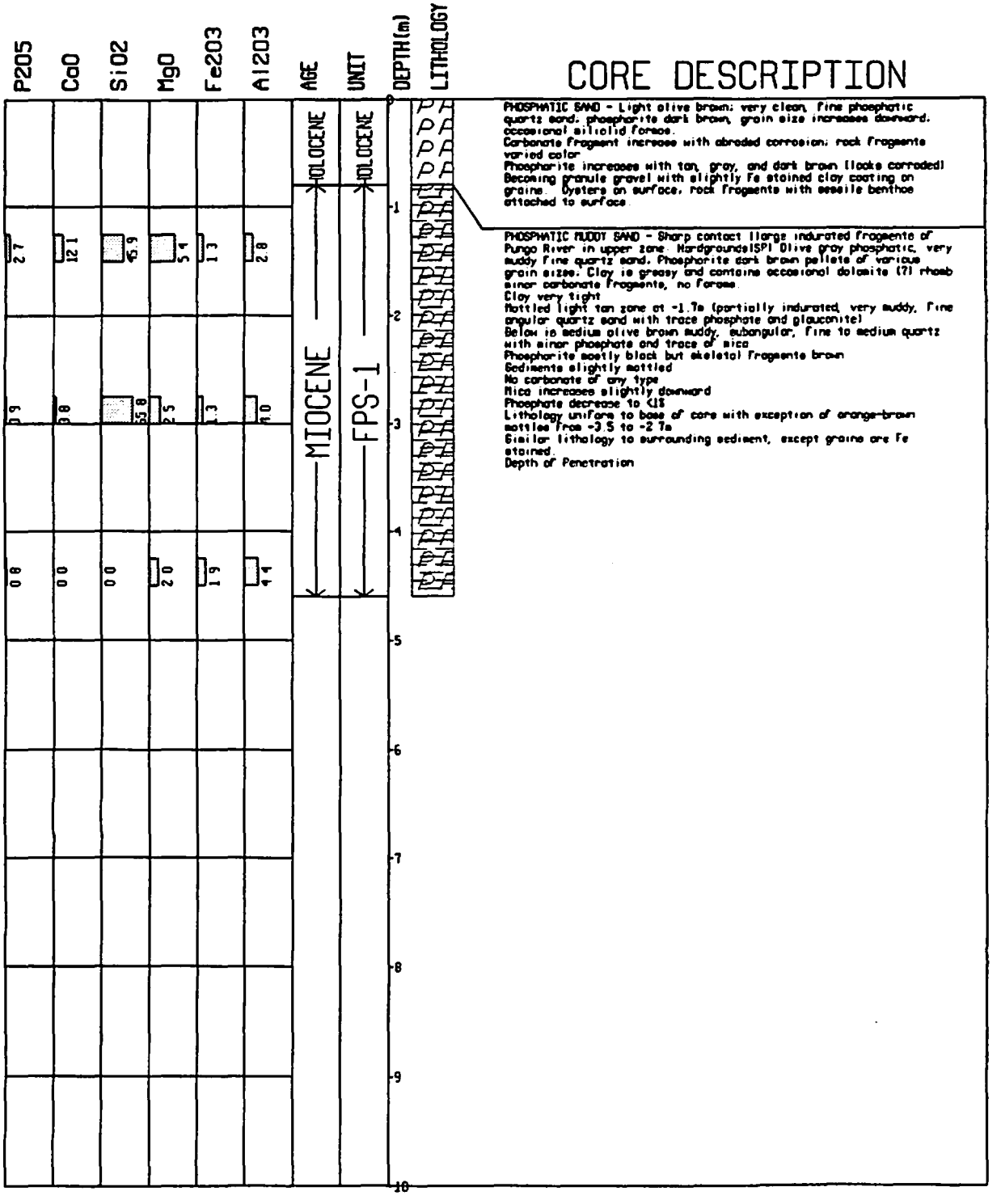
CORE DESCRIPTION

SILTY GRAVELLY PHOSPHATIC SHELLY SAND - Light olive gray (5Y 5/2); slightly silty (CO3), gravelly, phosphatic quartz sandy, shell hash, well rounded microphorite fragments (coarse sand-granules) dark brown-black. Shell fragments consist of pectens and oysters, both abraded and unabraded whole shells. Quartz grains subangular to rounded. Occasional Fe cemented aggregates and grains (<1%), garnet (?) <1%.
Sharp contact at ~0.18m, indurated zone 4cm thick in core, dolomitic (?) quartz. sand, pyritic crust, hardground
Mod olive brown, greenish gray, mottled, varicolored; sugary quartz sandy pods and glauconitic (disseminated) medium quartz sand, dark brown pelletal phosphorite
Moderate olive brown, sugary, dolomitic (?) partially indurated, slightly phosphatic quartz sand (same as above indurated unit) phosphorites pelletal, skeletal

PHOSPHATIC MUDDY SAND - Contact (?) at ~0.31m. Olive gray (5Y 3/2), sugary, dolomitic (?), phosphatic, muddy, fine quartz sand
Phosphate is dark brown pelletal and slight amount of skeletal
Lite wispy mottling in upper sections, larger, very distinct mottles or pods at ~0.66m and ~0.73m. Mottle at ~0.66, dark yellowish orange CO3 muddy with fine very angular to angular quartz sand, dark brown pelletal phosphorite
Mottling becoming inverse of above dark mottles set in lighter matrix, matrix is grayish olive, mottles olive gray, mud has decreased, fine angular, slightly muddy, phosphatic quartz sand, Trace glauconite, minor CO3 mud component

ONSLOW BAY CORE NUMBER: OB113B

CRUISE: NSF O. BAY DATE LOGGED: 3-26-83 LATITUDE: 34.163 degrees
LENGTH ATTEMPTED: 3.6 m BY: S.R. RIGGS LONGITUDE: 77.325 degrees
LENGTH OF CORE: 4.6 m



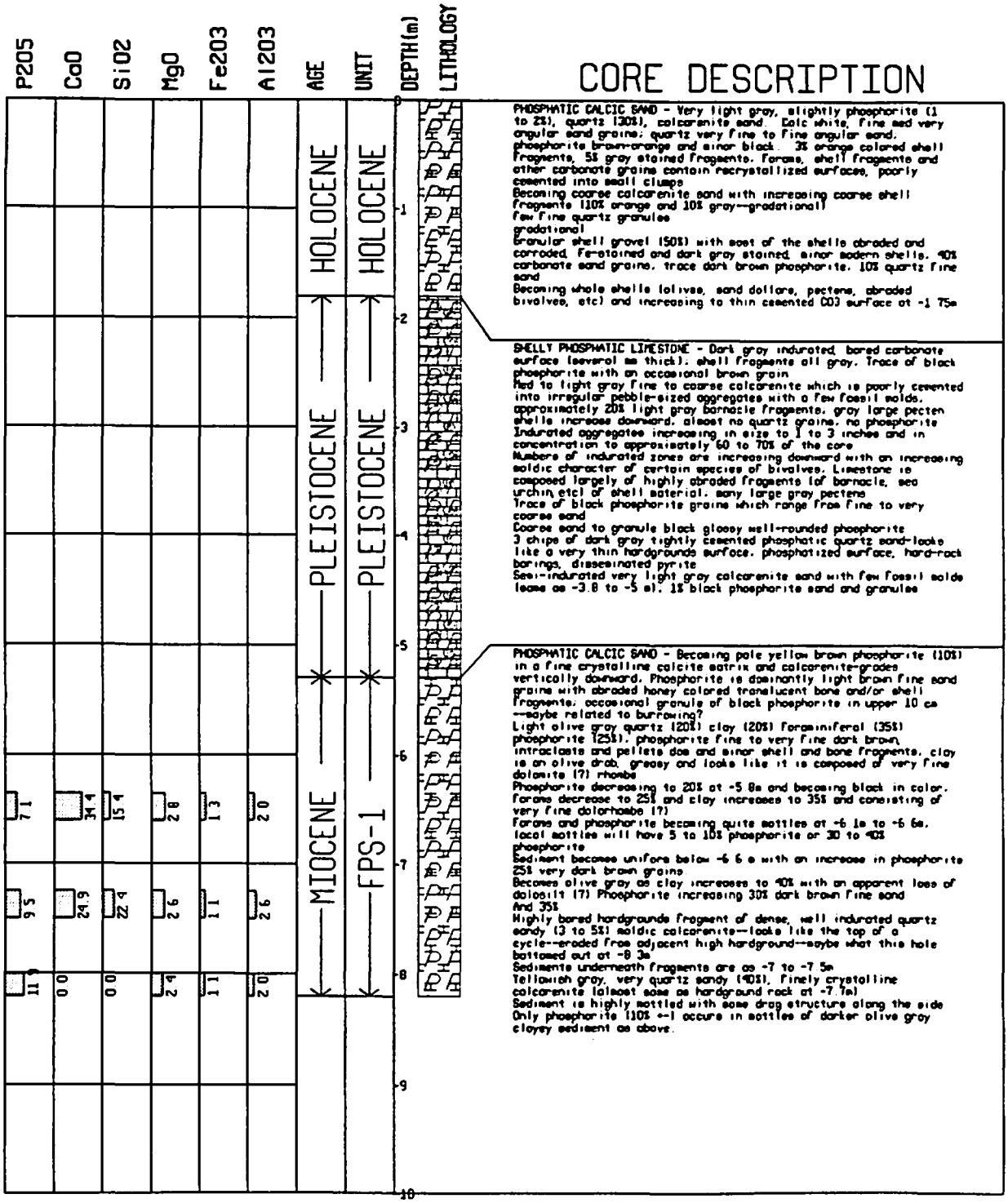
CORE DESCRIPTION

PHOSPHATIC SAND - Light olive brown; very clean, fine phosphatic quartz sand; phosphorite dark brown, grain size increases downward, occasional silicified forams.
Carbonate fragment increase with abraded corrosion; rock fragments varied color
Phosphorite increases with tan, gray, and dark brown (looks corroded)
Becoming granule gravel with slightly Fe stained clay coating on grains. Oysters on surface, rock fragments with sessile benthos attached to surface

PHOSPHATIC MUDDY SAND - Sharp contact (large indurated fragments of Pungo River in upper zone. Hardgrounds!SP) Olive gray phosphatic, very muddy fine quartz sand. Phosphorite dark brown pellets of various grain size. Clay is greasy and contains occasional dolomite (?) rhomb sized carbonate fragments, no forams
Clay very tight
Mottled light tan zone at -1.7m (partially indurated, very muddy, fine angular quartz sand with trace phosphate and glauconite)
Below is medium olive brown muddy, subangular, fine to medium quartz with minor phosphate and trace of mica
Phosphorite mostly black but skeletal fragments brown
Sediments slightly mottled
No carbonate of any type
Mica increases slightly downward
Phosphate decrease to <1%
Lithology uniform to base of core with exception of orange-brown mottles from -3.5 to -3.7m
Similar lithology to surrounding sediment, except grains are Fe stained.
Depth of Penetration

ONSLOW BAY CORE NUMBER: OB114

CRUISE: NSF O. BAY DATE LOGGED: 9-23-82 LATITUDE: 33.647 degrees
LENGTH ATTEMPTED: 6.1 m BY: S.R. RIGGS LONGITUDE: 77.697 degrees
LENGTH OF CORE: 8.2 m



CORE DESCRIPTION

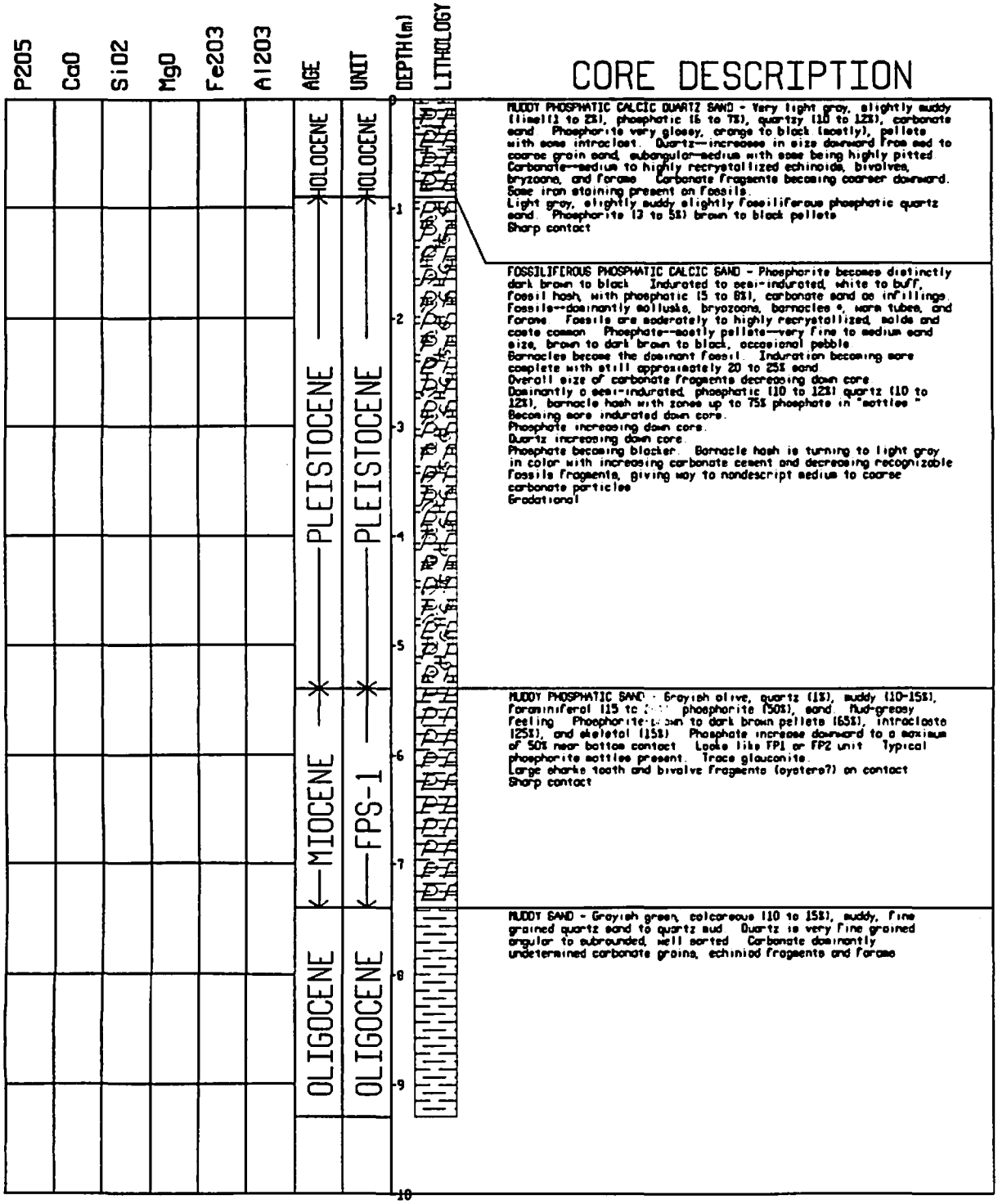
PHOSPHATIC CALCIC SAND - Very light gray, slightly phosphoritic (1 to 2%), quartz (30%), calcarenite sand. Calc white, fine sand very angular sand grains; quartz very fine to fine angular sand, phosphorite brown-orange and minor black. 3% orange colored shell fragments, 5% gray stained fragments. Forams, shell fragments and other carbonate grains contain recrystallized surfaces, poorly cemented into small clumps
Becoming coarse calcarenite sand with increasing coarse shell fragments (10% orange and 10% gray--gradational)
few fine quartz granules
gradational
Granular shell gravel (50%) with most of the shells abraded and corroded, Fe-stained and dark gray stained, minor modern shells. 40% carbonate sand grains, trace dark brown phosphorite. 10% quartz fine sand
Becoming whole shells (olives, sand dollars, pectens, abraded bivalves, etc) and increasing to thin cemented CO3 surface at -1.75m

SHELLY PHOSPHATIC LIMESTONE - Dark gray indurated, bored carbonate surface (several cm thick), shell fragments all gray. Trace of black phosphorite with an occasional brown grain
Red to light gray fine to coarse calcarenite which is poorly cemented into irregular pebble-sized aggregates with a few fossil molds, approximately 20% light gray barnacle fragments, gray large pecten shells increase downward, almost no quartz grains, no phosphorite
Indurated aggregates increasing in size to 1 to 3 inches and in concentration to approximately 60 to 70% of the core
Numbers of indurated zones are increasing downward with an increasing moldic character of certain species of bivalves. Limestone is composed largely of highly abraded fragments (of barnacle, sea urchin, etc) of shell material, many large gray pectens
Trace of black phosphorite grains which range from fine to very coarse sand
Coarse sand to granule black glossy well-rounded phosphorite
3 chips of dark gray tightly cemented phosphatic quartz sand-looks like a very thin hardgrounds surface, phosphatized surface, hard-rock borings, disseminated pyrite
Semi-indurated very light gray calcarenite sand with few fossil molds (core at -3.8 to -5 m), 1% black phosphorite sand and granules

PHOSPHATIC CALCIC SAND - Becoming pale yellow brown phosphorite (10%) in a fine crystalline calcite matrix and calcarenite-grades vertically downward. Phosphorite is dominantly light brown fine sand grains with abraded honey colored translucent bone and/or shell fragments; occasional granule of black phosphorite in upper 10 cm --maybe related to burrowing?
Light olive gray quartz (20%) clay (20%) foraminiferal (35%) phosphorite (25%), phosphorite fine to very fine dark brown, intraclasts and pellets (bone and minor shell and bone fragments, clay is an olive drab, greasy and looks like it is composed of very fine dolomite (?) rhombs
Phosphorite decreasing to 20% at ~5.8m and becoming black in color, forams decrease to 25% and clay increases to 35% and consisting of very fine dolorhombs (?)
Forams and phosphorite becoming quite mottles at ~6.1m to ~6.6m, local mottles will have 5 to 10% phosphorite or 30 to 40% phosphorite
Sediment becomes uniform below ~6.6 m with an increase in phosphorite 25% very dark brown grains
Becomes olive gray as clay increases to 40% with an apparent loss of dolosilt (?) Phosphorite increasing 30% dark brown fine sand
And 35%
Highly bored hardgrounds fragment of dense, well indurated quartz sandy (3 to 5%) moldic calcarenite--looks like the top of a cycle--eroded free adjacent high hardground--maybe what this hole bottomed out at ~8.3m
Sediments underneath fragments are as ~7 to ~7.5m
Yellowish gray, very quartz sandy (40%), finely crystalline calcarenite (closest base as hardground rock at ~7.7m)
Sediment is highly mottled with some drag structure along the side
Only phosphorite (10% +-) occurs in mottles of darker olive gray clayey sediment as above.

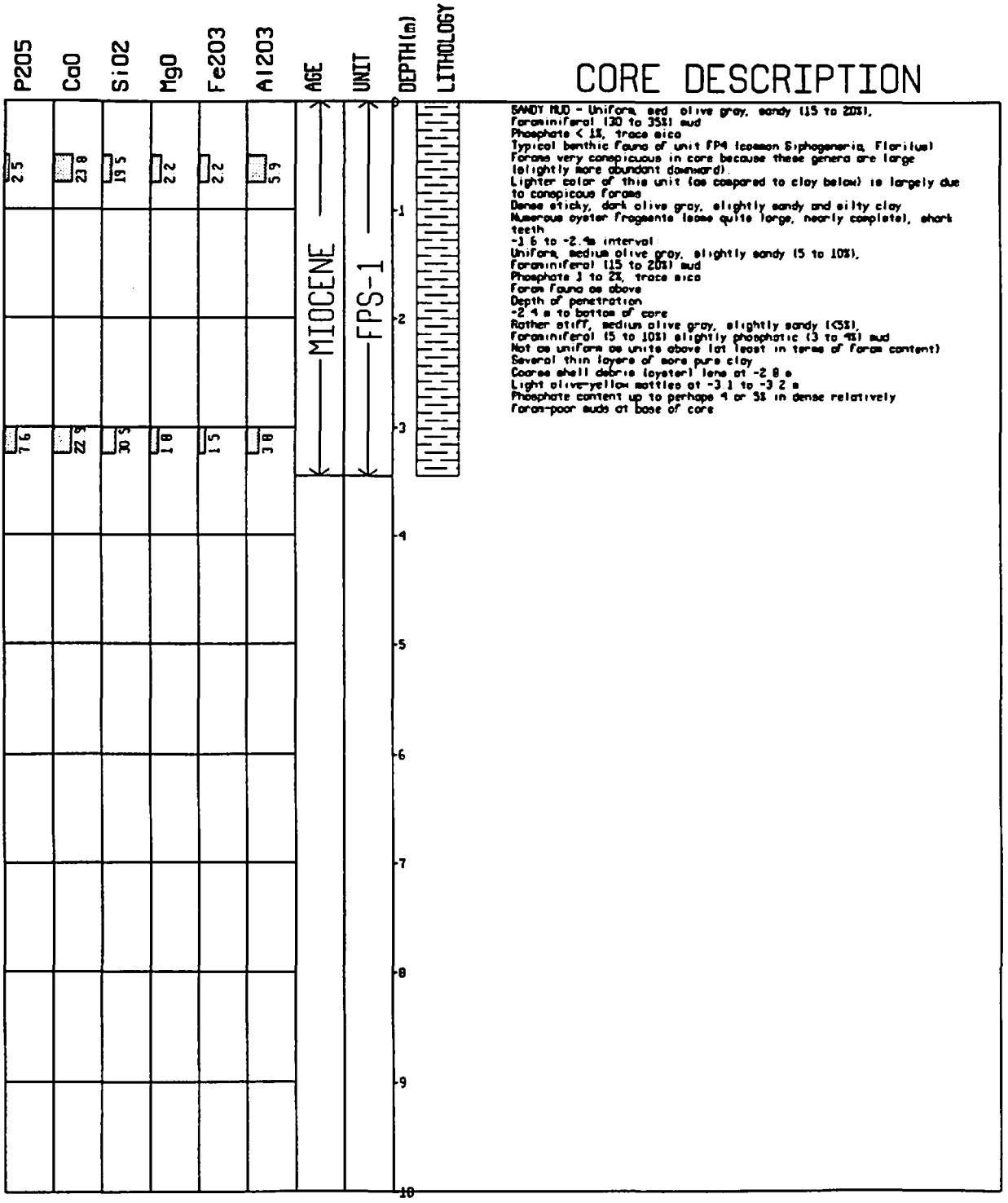
ONSLOW BAY CORE NUMBER: OB115

CRUISE: NSF O. BAY DATE LOGGED: 3-31-83 LATITUDE: 33.710 degrees
LENGTH ATTEMPTED: 7.2 m BY: D. ELLINGTON LONGITUDE: 77.658 degrees
LENGTH OF CORE: 9.03 m



ONSLOW BAY CORE NUMBER: OB116

CRUISE: NSF O. BAY DATE LOGGED: 4-2-83 LATITUDE: 33.768 degrees
LENGTH ATTEMPTED: 2.4 m BY: S. SNYDER LONGITUDE: 77.590 degrees
LENGTH OF CORE: 3.45 m

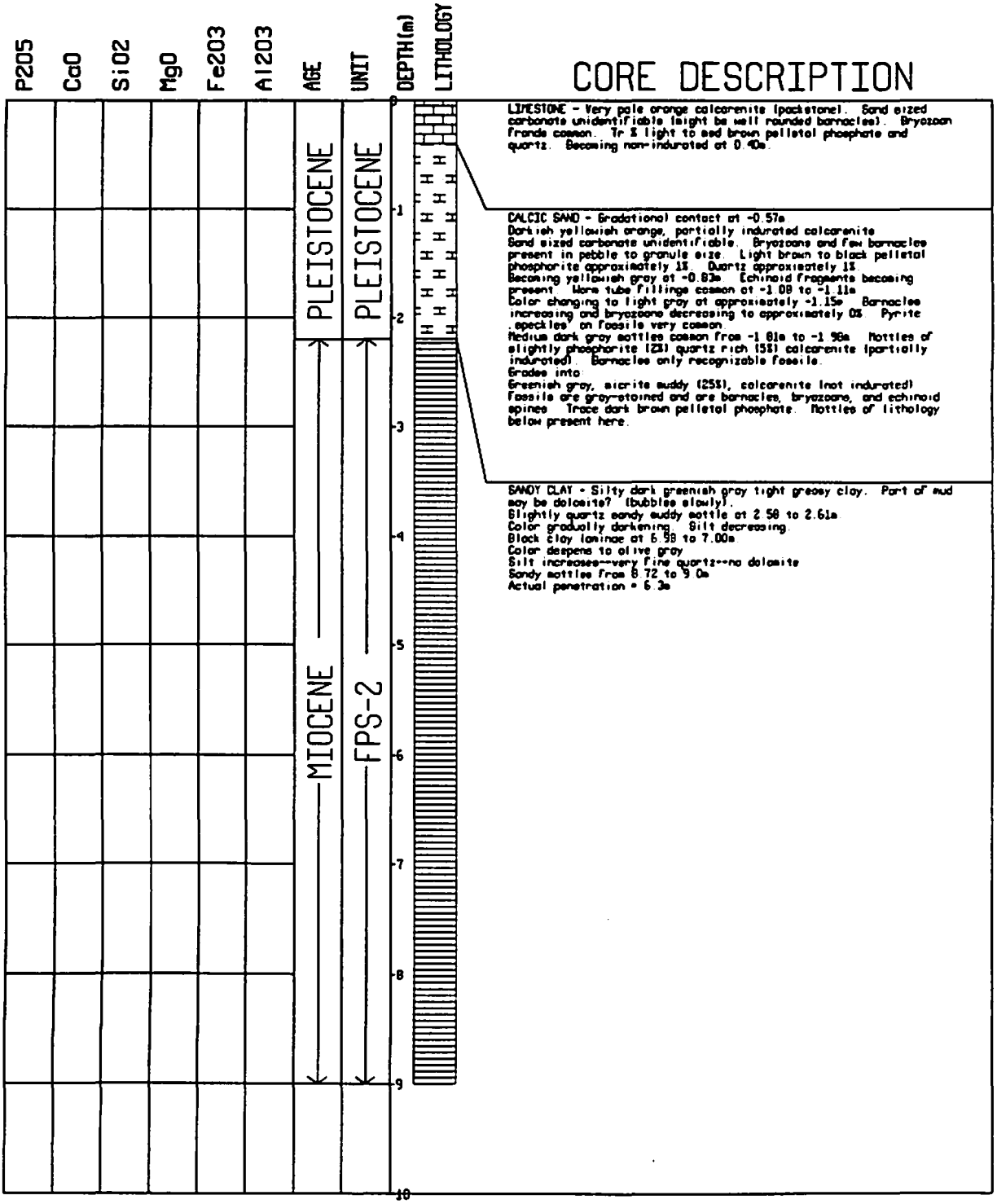


CORE DESCRIPTION

SANDY MUD - Uniform, med olive gray, sandy (15 to 20%), foraminiferal (30 to 35%) mud
Phosphate < 1%, trace silica
Typical benthic fauna of unit FP4 (common Siphogenerina, Florilus)
Forams very conspicuous in core because these genera are large (slightly more abundant downward).
Lighter color of this unit (as compared to clay below) is largely due to conspicuous forams
Dense sticky, dark olive gray, slightly sandy and silty clay
Numerous oyster fragments (some quite large, nearly complete), shark teeth
-1.6 to -2.4m interval
Uniform, medium olive gray, slightly sandy (5 to 10%), foraminiferal (15 to 20%) mud
Phosphate 1 to 2%, trace silica
Foram fauna as above
Depth of penetration
-2.4 m to bottom of core
Rather stiff, medium olive gray, slightly sandy (<5%), foraminiferal (5 to 10%) slightly phosphatic (3 to 4%) mud
Not as uniform as units above (at least in terms of foram content)
Several thin layers of more pure clay
Coarse shell debris (oyster) lens at -2.8 m
Light olive-yellow mottles at -3.1 to -3.2 m
Phosphate content up to perhaps 4 or 5% in dense relatively foram-poor muds at base of core

ONSLOW BAY CORE NUMBER: OB117

CRUISE: NSF O. BAY DATE LOGGED: 4-2-83 LATITUDE: 33.865 degrees
LENGTH ATTEMPTED: 6.3 m BY: L. STEWART LONGITUDE: 77.498 degrees
LENGTH OF CORE: 9 m



CORE DESCRIPTION

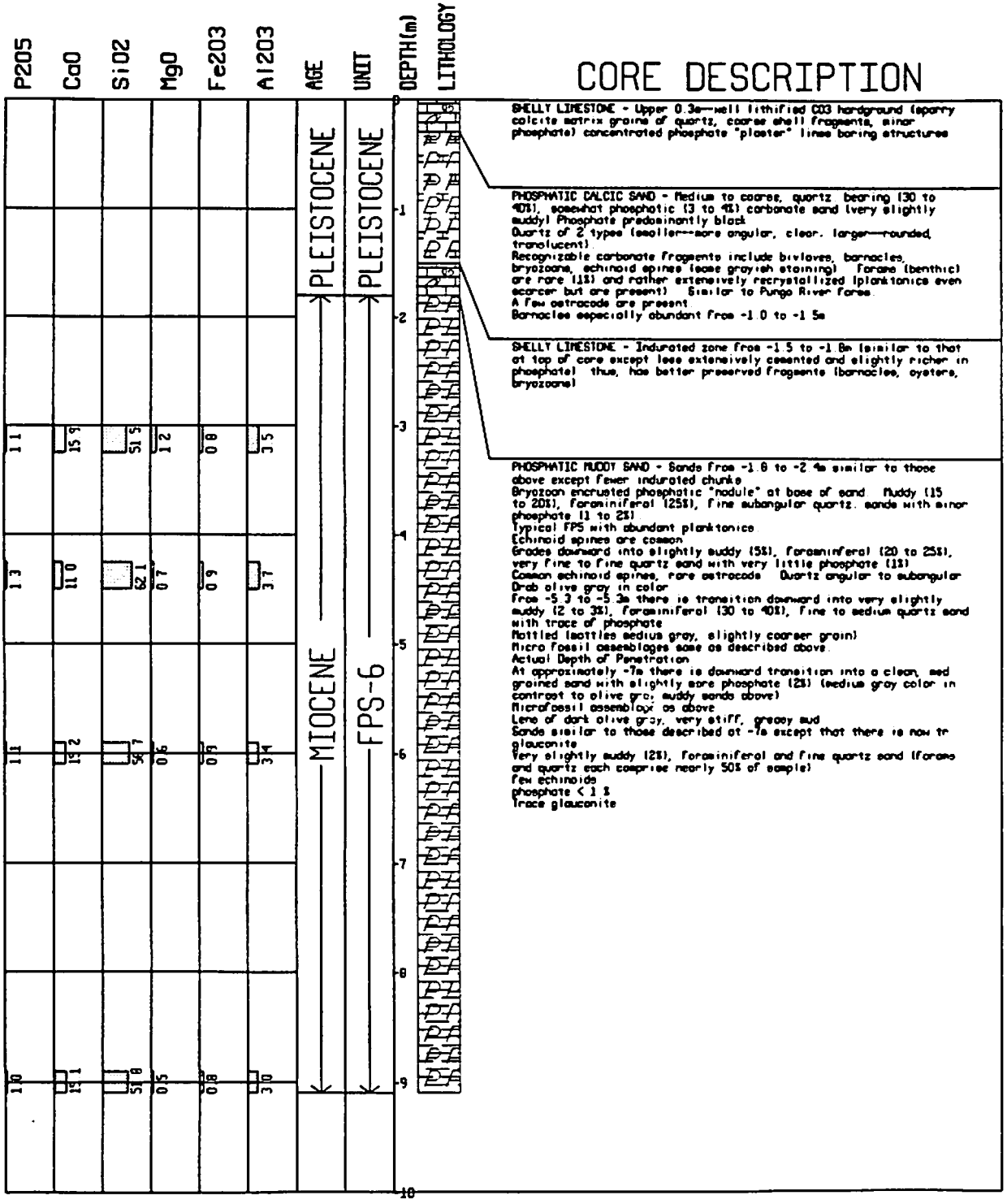
LIMESTONE - Very pale orange calcarenite (packstone). Sand sized carbonate unidentifiable (might be well rounded barnacles). Bryozoan fronds common. Tr % light to med brown pelletal phosphate and quartz. Becoming non-indurated at 0.40m.

CALCIC SAND - Gradational contact at ~0.57m
Darkish yellowish orange, partially indurated calcarenite
Sand sized carbonate unidentifiable. Bryozoans and few barnacles present in pebble to granule size. Light brown to black pelletal phosphorite approximately 1%. Quartz approximately 1%
Becoming yellowish gray at ~0.83m. Echinoid fragments becoming present. Worm tube fillings common at ~1.08 to ~1.11m
Color changing to light gray at approximately ~1.15m. Barnacles increasing and bryozoans decreasing to approximately 0%. Pyrite "speckles" on fossils very common.
Medium dark gray mottles common from ~1.61m to ~1.98m. Mottles of slightly phosphorite (2%) quartz rich (5%) calcarenite (partially indurated). Barnacles only recognizable fossils.
Grades into:
Greenish gray, micrite muddy (25%), calcarenite (not indurated) fossils are gray-stained and are barnacles, bryozoans, and echinoid spines. Trace dark brown pelletal phosphate. Mottles of lithology below present here.

SANDY CLAY - Silty dark greenish gray tight greasy clay. Part of mud may be dolomite? (bubbles slowly).
Slightly quartz sandy muddy mottle at 2.58 to 2.61m
Color gradually darkening. Silt decreasing.
Black clay laminae at 6.98 to 7.00m
Color deepens to olive gray
Silt increases--very fine quartz--no dolomite
Sandy mottles from 8.72 to 9.0m
Actual penetration = 6.3m

ONSLOW BAY CORE NUMBER: OB118

CRUISE: NSF O. BAY DATE LOGGED: 4-2-83 LATITUDE: 33.868 degrees
LENGTH ATTEMPTED: 6.9 m BY: S. SNYDER LONGITUDE: 77.467 degrees
LENGTH OF CORE: 9.1 m



CORE DESCRIPTION

SHELLY LIMESTONE - Upper 0.3m—well lithified CO3 hardground (sparry calcite matrix grains of quartz, coarse shell fragments, minor phosphate) concentrated phosphate "plaster" lines boring structures

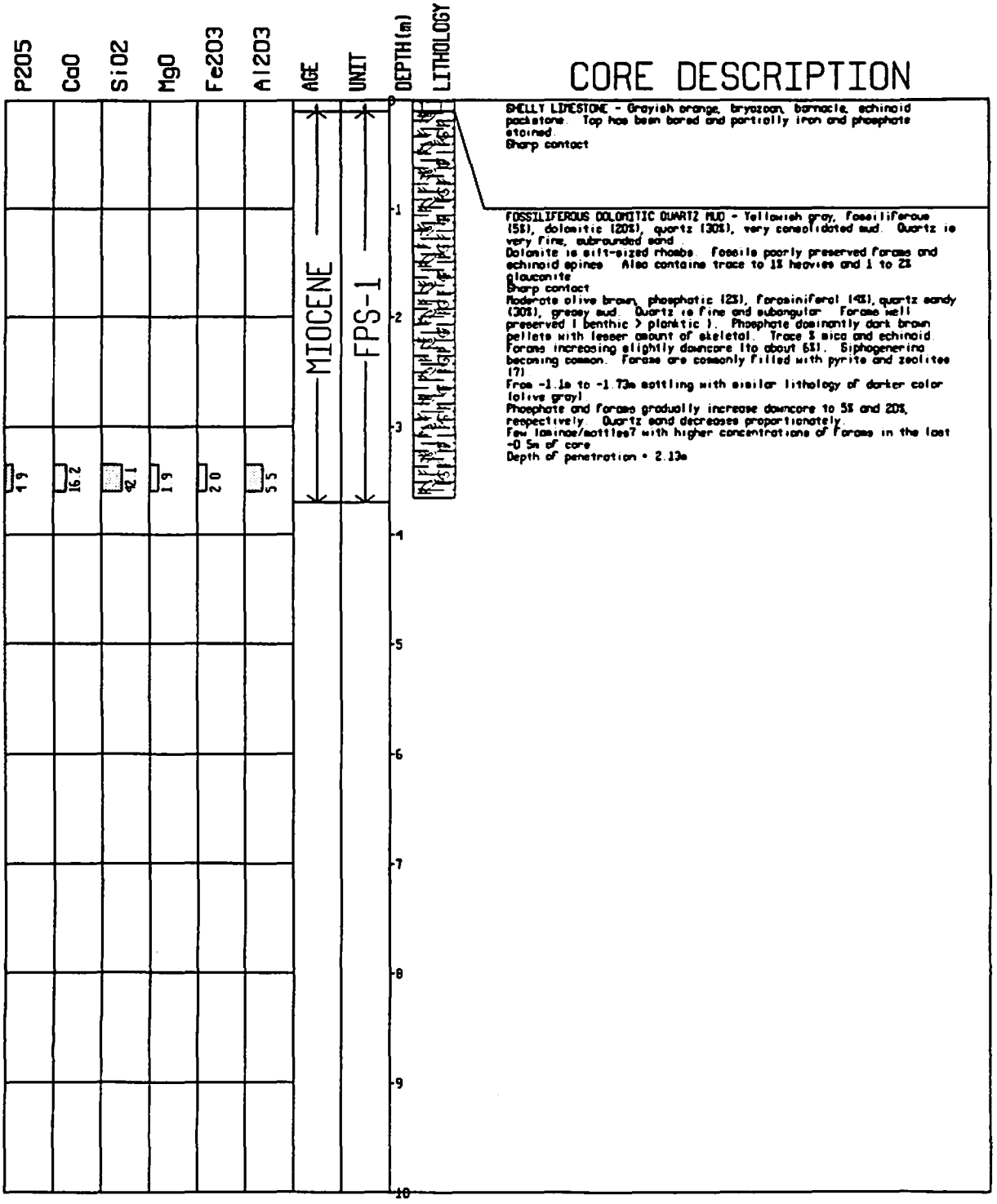
PHOSPHATIC CALCIC SAND - Medium to coarse, quartz bearing (30 to 40%), somewhat phosphatic (3 to 4%) carbonate sand (very slightly muddy) Phosphate predominantly black
Quartz of 2 types (smaller---more angular, clear. larger—rounded, translucent)
Recognizable carbonate fragments include bivalves, barnacles, bryozoans, echinoid spines (some grayish staining) Forams (benthic) are rare (1%) and rather extensively recrystallized (planktonics even scarcer but are present) Similar to Pungo River forms.
A few ostracods are present
Barnacles especially abundant from -1.0 to -1.5m

SHELLY LIMESTONE - Indurated zone from -1.5 to -1.8m (similar to that at top of core except less extensively cemented and slightly richer in phosphate) thus, has better preserved fragments (barnacles, oysters, bryozoans)

PHOSPHATIC MUDDY SAND - Sands from -1.8 to -2.4m similar to those above except fewer indurated chunks
Bryozoan encrusted phosphatic "nodule" at base of sand Muddy (15 to 20%), foraminiferal (25%), fine subangular quartz. sands with minor phosphate (1 to 2%)
Typical FPS with abundant planktonics
Echinoid spines are common
Grades downward into slightly muddy (5%), foraminiferal (20 to 25%), very fine to fine quartz sand with very little phosphate (1%)
Common echinoid spines, rare ostracods Quartz angular to subangular
Drab olive gray in color
From -5.3 to -5.3m there is transition downward into very slightly muddy (2 to 3%), foraminiferal (30 to 40%), fine to medium quartz sand with trace of phosphate
Mottled (mottles medium gray, slightly coarser grain)
Micro fossil assemblages same as described above.
Actual Depth of Penetration
At approximately -7m there is downward transition into a clean, med grained sand with slightly more phosphate (2%) (medium gray color in contrast to olive gray muddy sands above)
Microfossil assemblage as above
Lens of dark olive gray, very stiff, greasy mud
Sands similar to those described at -7m except that there is now tr glauconite
Very slightly muddy (2%), foraminiferal and fine quartz sand (forams and quartz each comprise nearly 50% of sample)
Few echinoids
phosphate < 1 %
Trace glauconite

ONSLOW BAY CORE NUMBER: OB119

CRUISE: NSF O. BAY DATE LOGGED: 5-4-83 LATITUDE: 33.844 degrees
LENGTH ATTEMPTED: 2.13 m BY: L. STEWART LONGITUDE: 77.551 degrees
LENGTH OF CORE: 3.66 m



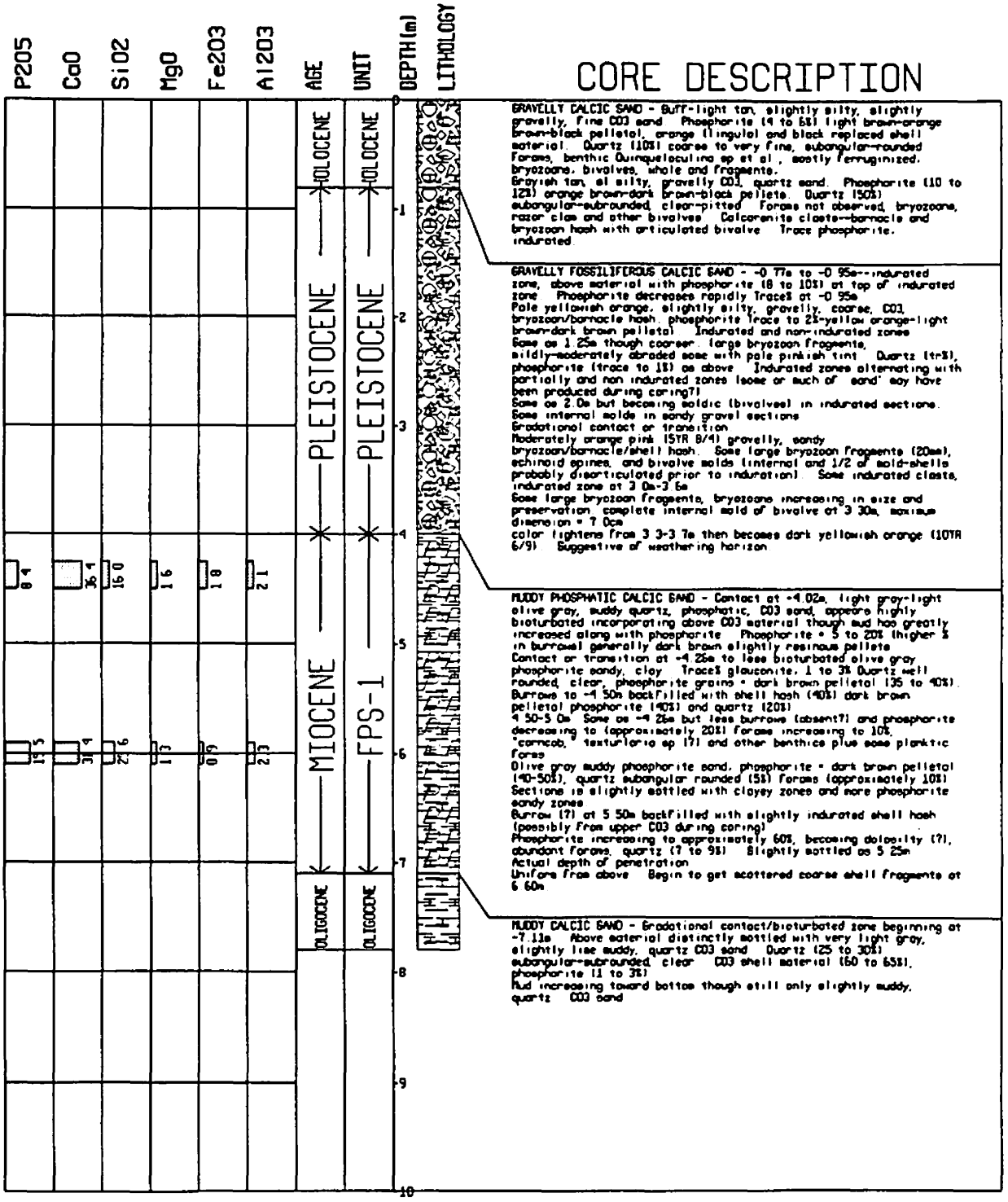
CORE DESCRIPTION

SHELLY LIMESTONE - Grayish orange, bryozoan, barnacle, echinoid packstone. Top has been bored and partially iron and phosphate stained.
Sharp contact

FOSSILIFEROUS DOLOMITIC QUARTZ MUD - Yellowish gray, fossiliferous (55), dolomitic (20%), quartz (30%), very consolidated mud. Quartz is very fine, subrounded sand.
Dolomite is silt-sized rhombs. Fossils poorly preserved forams and echinoid spines. Also contains trace to 1% heavies and 1 to 2% glauconite.
Sharp contact
Moderate olive brown, phosphatic (2%), foraminiferal (4%), quartz sandy (30%), greasy mud. Quartz is fine and subangular. Forams well preserved (benthic > planktic). Phosphate dominantly dark brown pellets with lesser amount of skeletal. Trace % mica and echinoid. Forams increasing slightly downcore to about 6%. Siphogenerina becoming common. Forams are commonly filled with pyrite and zeolites (?).
From ~1.1m to ~1.73m settling with similar lithology of darker color (olive gray).
Phosphate and forams gradually increase downcore to 5% and 20%, respectively. Quartz sand decreases proportionately.
Few laminae/settles? with higher concentrations of forams in the last ~0.5m of core.
Depth of penetration = 2.13m

ONSLOW BAY CORE NUMBER: OB120

CRUISE: NSF O. BAY DATE LOGGED: 5-4-83 LATITUDE: 33.796 degrees
LENGTH ATTEMPTED: 6.6 m BY: P. MALLETTE LONGITUDE: 77.588 degrees
LENGTH OF CORE: 7.8 m



CORE DESCRIPTION

GRAVELLY CALCIC SAND - Buff-light tan, slightly silty, slightly gravelly, fine CO3 sand. Phosphorite (4 to 5%) light brown-orange brown-black pelletal, orange (lingulid and black replaced shell material. Quartz (10%) coarse to very fine, subangular-rounded. Forams, benthic Quinqueloculina sp et al., mostly ferruginized. bryozoans, bivalves, whole and fragments.
Grayish tan, sl silty, gravelly CO3, quartz sand. Phosphorite (10 to 12%) orange brown-dark brown-black pellets. Quartz (50%) subangular-subrounded, clear-pitted. Forams not observed, bryozoans, razor clam and other bivalves. Calcarenite clasts--barnacle and bryozoan hash with articulated bivalve. Trace phosphorite. indurated.

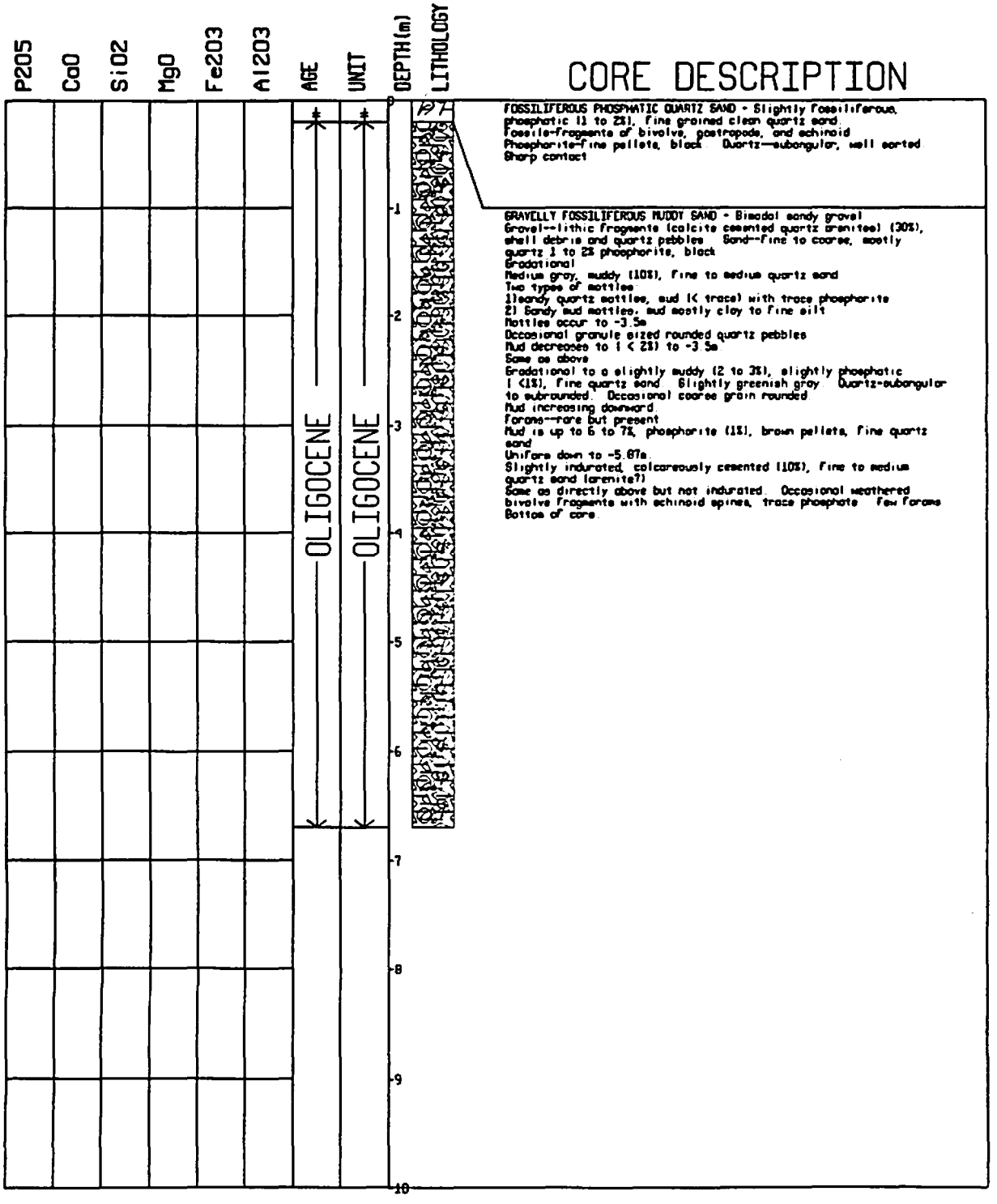
GRAVELLY FOSSILIFEROUS CALCIC SAND - -0.77m to -0.95m--indurated zone, above material with phosphorite (8 to 10%) at top of indurated zone. Phosphorite decreases rapidly Trace% at -0.95m
Pale yellowish orange, slightly silty, gravelly, coarse, CO3, bryozoan/barnacle hash, phosphorite trace to 2%-yellow orange-light brown-dark brown pelletal. Indurated and non-indurated zones.
Same as 1.25m though coarser, large bryozoan fragments, mildly-moderately abraded some with pale pinkish tint. Quartz (tr%), phosphorite (trace to 1%) as above. Indurated zones alternating with partially and non indurated zones (some or much of 'sand' may have been produced during coring?)
Same as 2.0m but becoming moldic (bivalves) in indurated sections. Some internal molds in sandy gravel sections.
Gradational contact or transition.
Moderately orange pink (5YR 8/4) gravelly, sandy bryozoan/barnacle/shell hash. Some large bryozoan fragments (20mm), echinoid spines, and bivalve molds (internal and 1/2 of mold-shells probably disarticulated prior to induration). Some indurated clasts, indurated zone at 3.0m-3.6m.
Some large bryozoan fragments, bryozoans increasing in size and preservation, complete internal mold of bivalve at 3.30m, maximum dimension = 7.0cm.
color lightens from 3.3-3.7m then becomes dark yellowish orange (10YR 6/9). Suggestive of weathering horizon.

MUDDY PHOSPHATIC CALCIC SAND - Contact at -4.02m, light gray-light olive gray, muddy quartz, phosphatic, CO3 sand, appears highly bioturbated incorporating above CO3 material though mud has greatly increased along with phosphorite. Phosphorite = 5 to 20% (higher % in burrows) generally dark brown slightly resinous pellets.
Contact or transition at -4.25m to less bioturbated olive gray phosphoritic sandy, clay. Trace% glauconite, 1 to 3% Quartz well rounded, clear, phosphorite grains = dark brown pelletal (35 to 40%). Burrows to -4.50m backfilled with shell hash (40%) dark brown pelletal phosphorite (40%) and quartz (20%).
4.50-5.0m Same as -4.25m but less burrows (absent?) and phosphorite decreasing to (approximately 20%) forams increasing to 10%. "corncob," texturlaria sp (?) and other benthics plus some planktic forms.
Olive gray muddy phosphorite sand, phosphorite = dark brown pelletal (40-50%), quartz subangular rounded (5%) forams (approximately 10%). Sections is slightly mottled with clayey zones and more phosphorite sandy zones.
Burrow (?) at 5.50m backfilled with slightly indurated shell hash (possibly from upper CO3 during coring).
Phosphorite increasing to approximately 60%, becoming dolomitic (?), abundant forams, quartz (7 to 9%). Slightly mottled as 5.25m. Actual depth of penetration.
Uniform from above. Begin to get scattered coarse shell fragments at 6.60m.

MUDDY CALCIC SAND - Gradational contact/bioturbated zone beginning at -7.11m. Above material distinctly mottled with very light gray, slightly lime muddy, quartz CO3 sand. Quartz (25 to 30%) subangular-subrounded, clear. CO3 shell material (60 to 65%), phosphorite (1 to 3%).
Mud increasing toward bottom though still only slightly muddy, quartz. CO3 sand.

ONSLOW BAY CORE NUMBER: OB121

CRUISE: NSF O. BAY DATE LOGGED: 3-26-83 LATITUDE: 33.968 degrees
LENGTH ATTEMPTED: 6.2 m BY: D. ELLINGTON LONGITUDE: 77.528 degrees
LENGTH OF CORE: 6.7 m



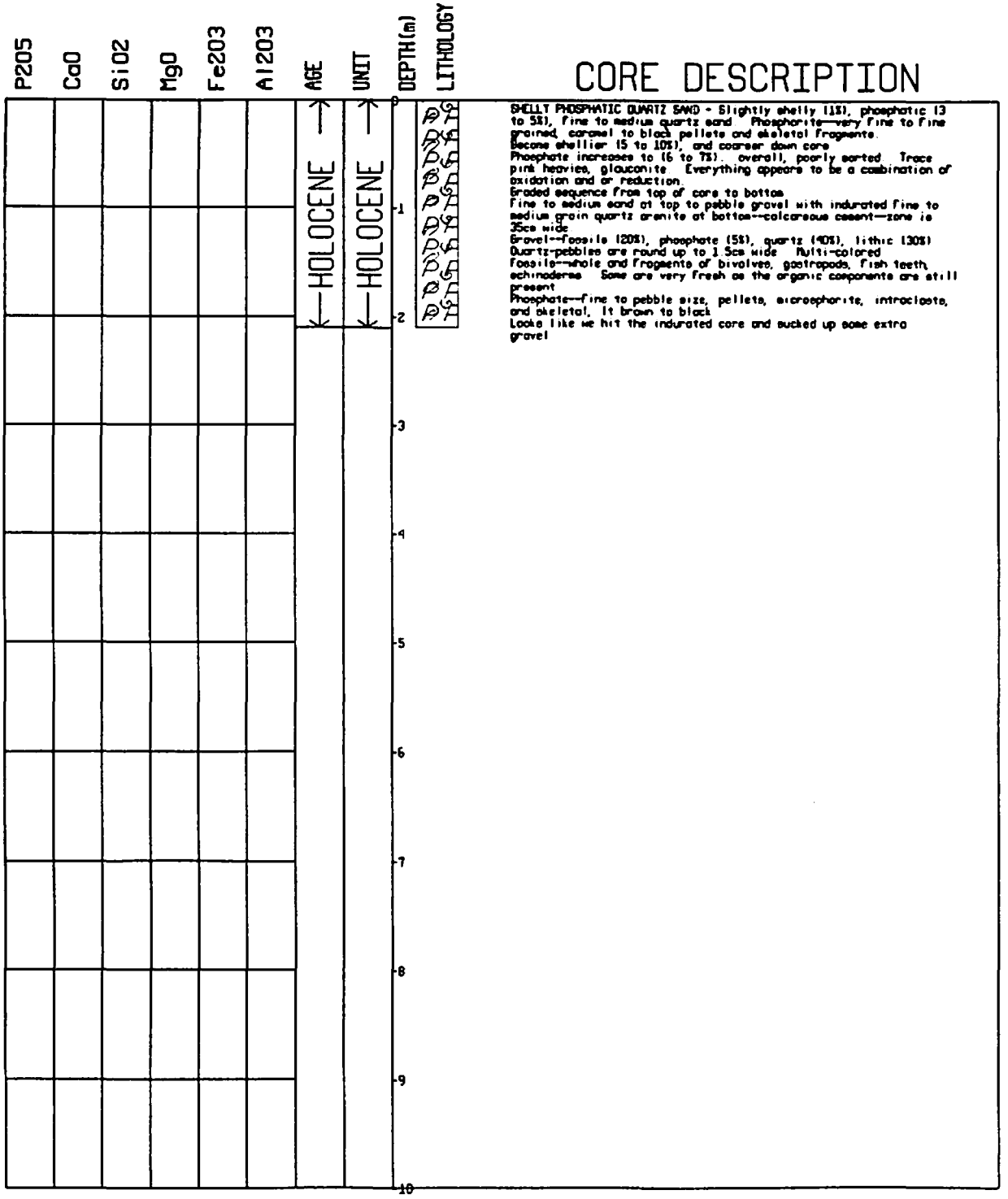
CORE DESCRIPTION

FOSSILIFEROUS PHOSPHATIC QUARTZ SAND - Slightly fossiliferous, phosphatic (1 to 2%), fine grained clean quartz sand. Fossils-fragments of bivalve, gastropods, and echinoid. Phosphorite-fine pellets, black. Quartz--subangular, well sorted. Sharp contact.

GRAVELLY FOSSILIFEROUS MUDDY SAND - Bimodal sandy gravel. Gravel--lithic fragments (calcite cemented quartz arenites) (30%), shell debris and quartz pebbles. Sand--fine to coarse, mostly quartz 1 to 2% phosphorite, black. Gradational. Medium gray, muddy (10%), fine to medium quartz sand. Two types of mottles. 1)sandy quartz mottles, mud (< trace) with trace phosphorite. 2) Sandy mud mottles, mud mostly clay to fine silt. Mottles occur to -3.5m. Occasional granule sized rounded quartz pebbles. Mud decreases to 1 (< 2%) to -3.5m. Same as above. Gradational to a slightly muddy (2 to 3%), slightly phosphatic (<1%), fine quartz sand. Slightly greenish gray. Quartz-subangular to subrounded. Occasional coarse grain rounded. Mud increasing downward. Forams--rare but present. Mud is up to 6 to 7%, phosphorite (1%), brown pellets, fine quartz sand. Uniform down to -5.87m. Slightly indurated, calcareously cemented (10%), fine to medium quartz sand (arenite?). Same as directly above but not indurated. Occasional weathered bivalve fragments with echinoid spines, trace phosphate. Few forams. Bottom of core.

ONSLOW BAY CORE NUMBER: OB122

CRUISE: NSF O. BAY DATE LOGGED: 3-26-83 LATITUDE: 34.086 degrees
LENGTH ATTEMPTED: 1 m BY: D. ELLINGTON LONGITUDE: 77.401 degrees
LENGTH OF CORE: 2.07 m

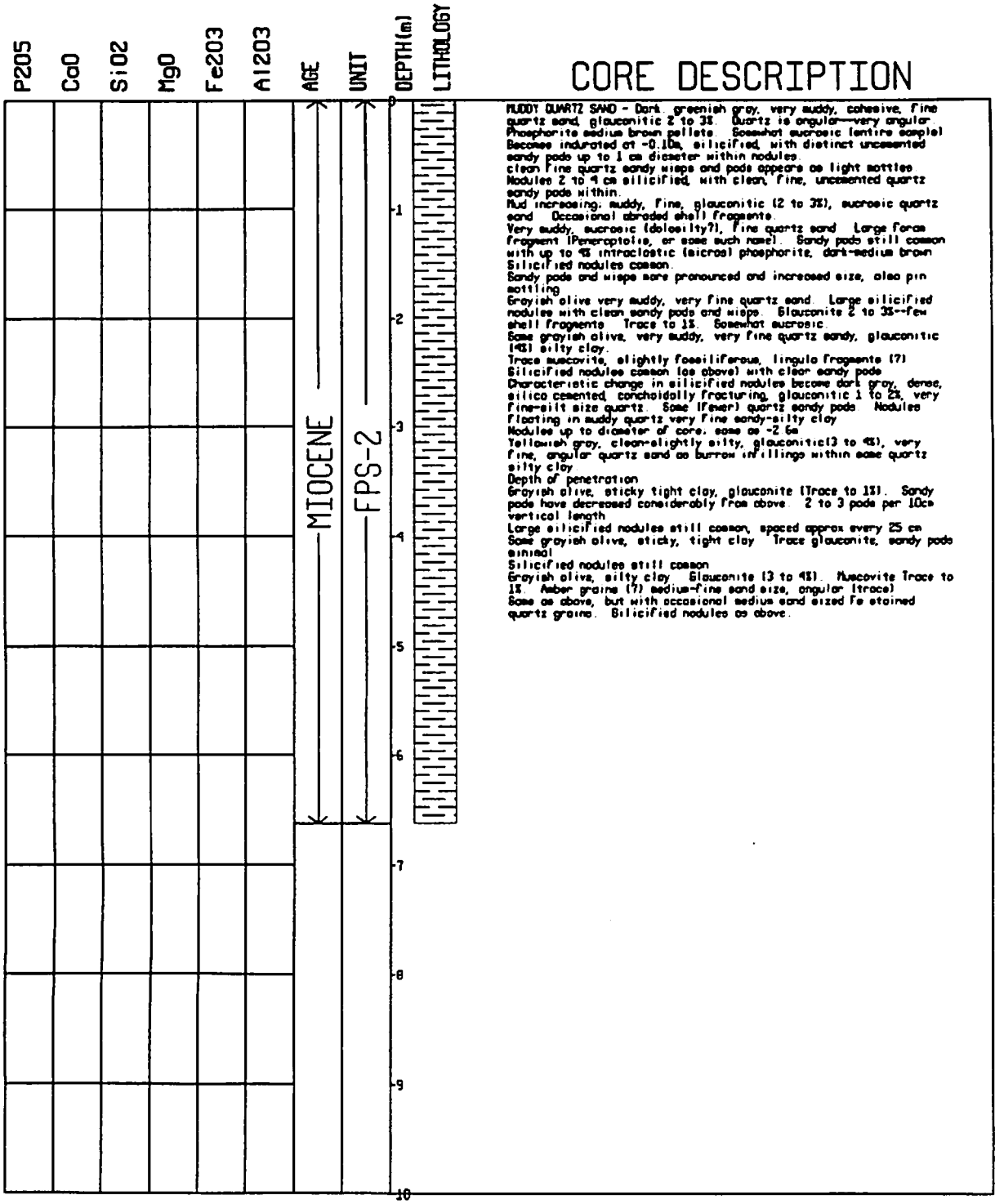


CORE DESCRIPTION

SHELLY PHOSPHATIC QUARTZ SAND - Slightly shelly (1%), phosphatic (3 to 5%), fine to medium quartz sand. Phosphorite--very fine to fine grained, caramel to black pellets and skeletal fragments.
Become shellier (5 to 10%), and coarser down core
Phosphate increases to (6 to 7%). overall, poorly sorted. Trace pink heavies, glauconite. Everything appears to be a combination of oxidation and or reduction.
Graded sequence from top of core to bottom
Fine to medium sand at top to pebble gravel with indurated fine to medium grain quartz arenite at bottom--calcareous cement--zone is 35cm wide
Gravel--fossils (20%), phosphate (5%), quartz (40%), lithic (30%)
Quartz-pebbles are round up to 1.5cm wide. Multi-colored
Fossils--whole and fragments of bivalves, gastropods, fish teeth, echinoderms. Some are very fresh as the organic components are still present
Phosphate--fine to pebble size, pellets, microphorite, intraclasts, and skeletal, lt brown to black
Looks like we hit the indurated core and sucked up some extra gravel

ONSLOW BAY CORE NUMBER: OB123

CRUISE: NSF O. BAY DATE LOGGED: 4-2-83 LATITUDE: 34.090 degrees
LENGTH ATTEMPTED: 4.0 m BY: P. MALLETTE LONGITUDE: 77.369 degrees
LENGTH OF CORE: 6.62 m

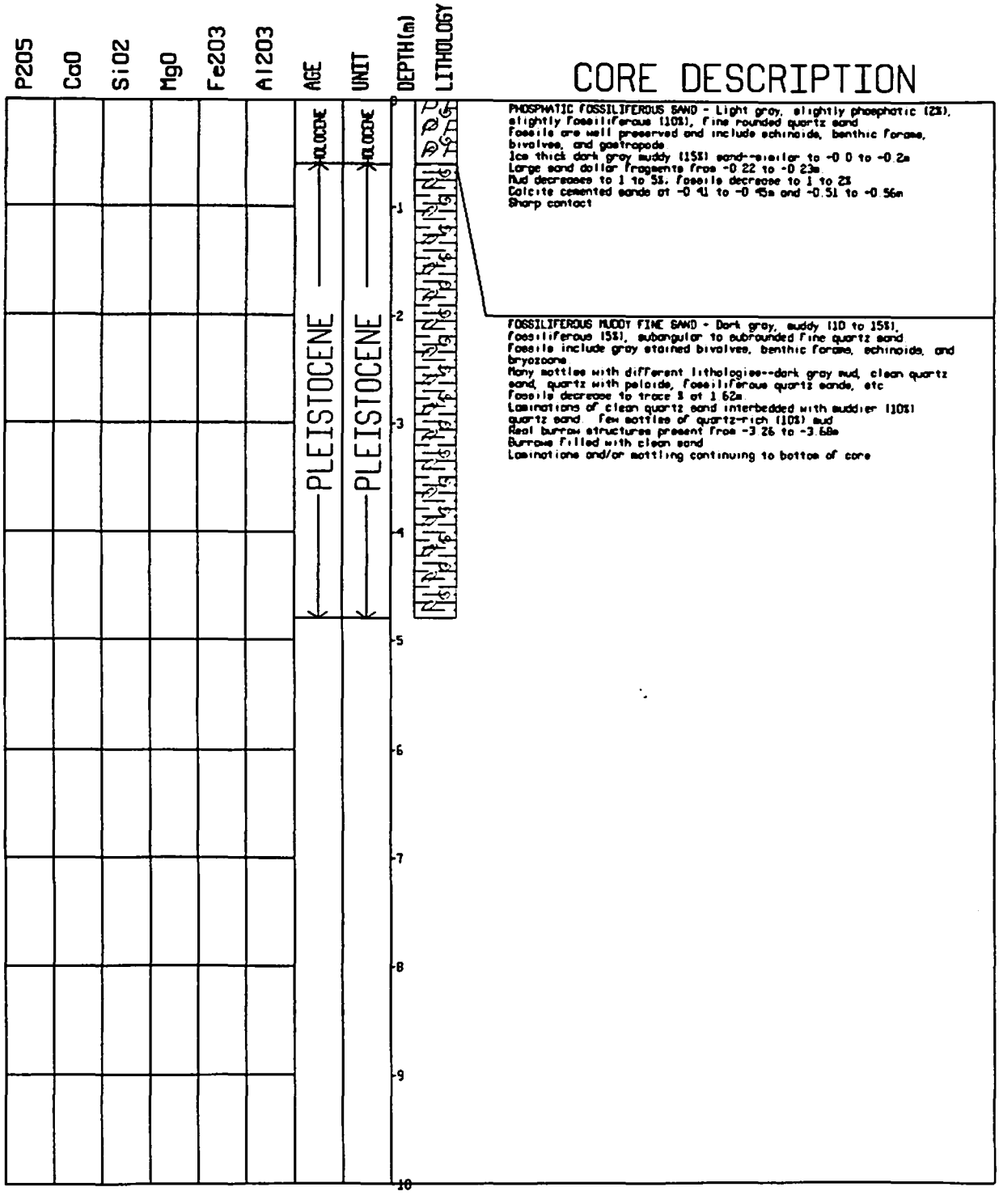


CORE DESCRIPTION

MUDDY QUARTZ SAND - Dark greenish gray, very muddy, cohesive, fine quartz sand, glauconitic 2 to 3%. Quartz is angular--very angular. Phosphorite medium brown pellets. Somewhat sucrosic (entire sample) Becomes indurated at ~0.10m, silicified, with distinct uncemented sandy pods up to 1 cm diameter within nodules.
clean fine quartz sandy wisps and pods appears as light mottles
Nodules 2 to 4 cm silicified, with clean, fine, uncemented quartz sandy pods within.
Mud increasing; muddy, fine, glauconitic (2 to 3%), sucrosic quartz sand. Occasional abraded shell fragments.
Very muddy, sucrosic (dolosilty?), fine quartz sand. Large forams fragment (Peneroplis, or some such name). Sandy pods still common with up to 5% intraclastic (micro) phosphorite, dark-medium brown
Silicified nodules common.
Sandy pods and wisps more pronounced and increased size, also pin mottling
Grayish olive very muddy, very fine quartz sand. Large silicified nodules with clean sandy pods and wisps. Glauconite 2 to 3%--few shell fragments. Trace to 1%. Somewhat sucrosic.
Same grayish olive, very muddy, very fine quartz sandy, glauconitic (4%) silty clay.
Trace muscovite, slightly fossiliferous, lingula fragments (?)
Silicified nodules common (as above) with clean sandy pods
Characteristic change in silicified nodules become dark gray, dense, silica cemented, conchoidally fracturing, glauconitic 1 to 2%, very fine-silt size quartz. Some (fewer) quartz sandy pods. Nodules floating in muddy quartz very fine sandy-silty clay
Nodules up to diameter of core, same as ~2.6m
Yellowish gray, clean-slightly silty, glauconitic(3 to 4%), very fine, angular quartz sand as burrow infillings within same quartz silty clay
Depth of penetration
Grayish olive, sticky tight clay, glauconite (Trace to 1%). Sandy pods have decreased considerably from above. 2 to 3 pods per 10cm vertical length
Large silicified nodules still common, spaced approx every 25 cm
Same grayish olive, sticky, tight clay. Trace glauconite, sandy pods minimal
Silicified nodules still common
Grayish olive, silty clay. Glauconite (3 to 4%). Muscovite Trace to 1%. Amber grains (?) medium-fine sand size, angular (trace)
Same as above, but with occasional medium sand sized Fe stained quartz grains. Silicified nodules as above.

ONSLOW BAY CORE NUMBER: OB124

CRUISE: NSF O. BAY DATE LOGGED: 4-2-83 LATITUDE: 34.339 degrees
LENGTH ATTEMPTED: 6.3 m BY: L. STEWART LONGITUDE: 77.151 degrees
LENGTH OF CORE: 4.8 m



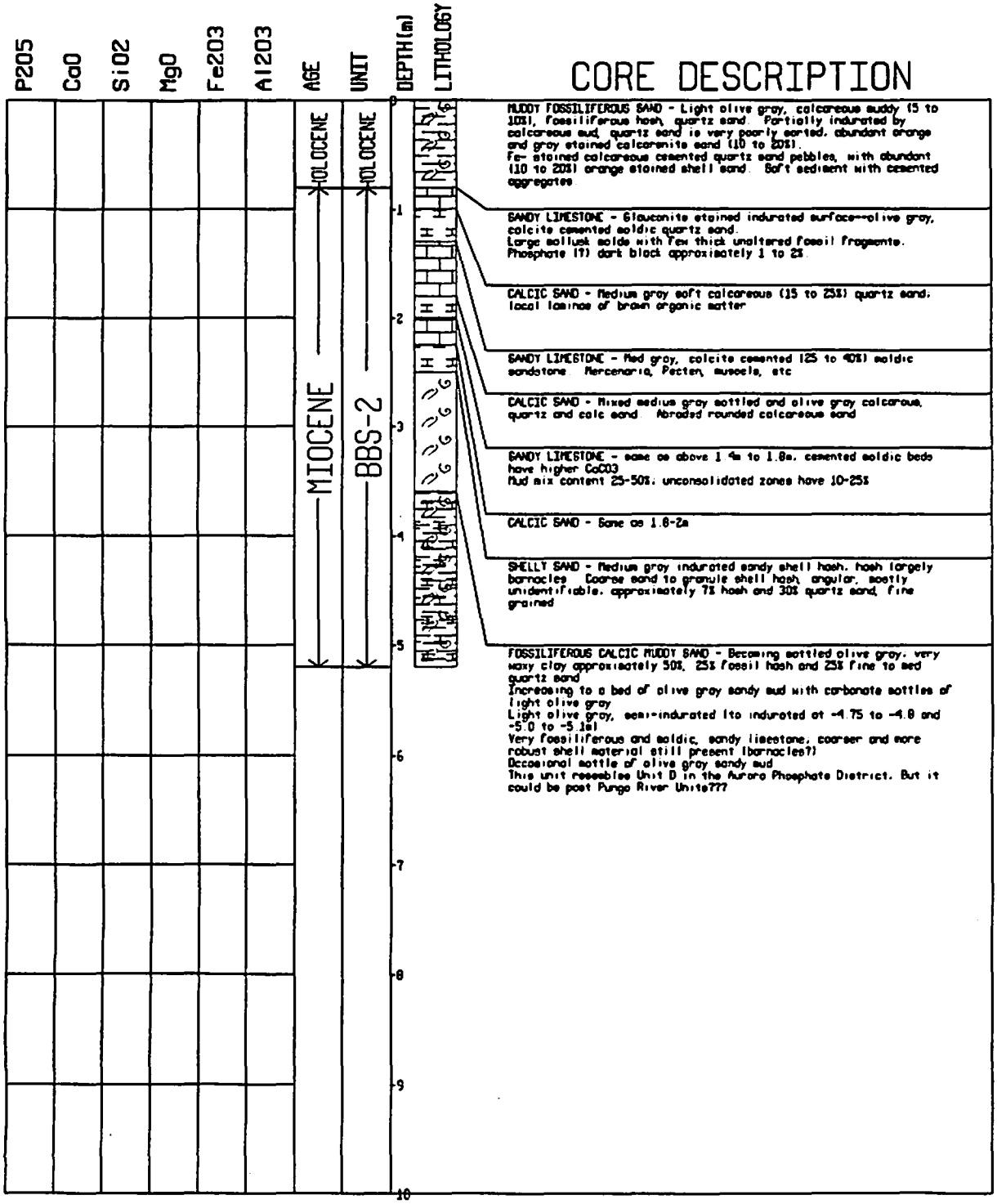
CORE DESCRIPTION

PHOSPHATIC FOSSILIFEROUS SAND - Light gray, slightly phosphatic (2%), slightly fossiliferous (10%), fine rounded quartz sand
Fossils are well preserved and include echinoids, benthic forams, bivalves, and gastropods
1cm thick dark gray muddy (15%) sand--similar to -0.0 to -0.2m
Large sand dollar fragments from -0.22 to -0.23m
Mud decreases to 1 to 5%. Fossils decrease to 1 to 2%
Calcite cemented sands at -0.41 to -0.45m and -0.51 to -0.56m
Sharp contact

FOSSILIFEROUS MUDDY FINE SAND - Dark gray, muddy (10 to 15%), fossiliferous (5%), subangular to subrounded fine quartz sand
Fossils include gray stained bivalves, benthic forams, echinoids, and bryozoans
Many mottles with different lithologies--dark gray mud, clean quartz sand, quartz with peloids, fossiliferous quartz sands, etc
Fossils decrease to trace % at 1.62m
Laminations of clean quartz sand interbedded with muddier (10%) quartz sand. Few mottles of quartz-rich (10%) mud
Real burrow structures present from -3.26 to -3.68m
Burrows filled with clean sand
Laminations and/or mottling continuing to bottom of core

ONSLOW BAY CORE NUMBER: OB125

CRUISE: NSF O. BAY DATE LOGGED: 8-11-82 LATITUDE: 34.360 degrees
LENGTH ATTEMPTED: 4.4 m BY: S.R. RIGGS LONGITUDE: 76.970 degrees
LENGTH OF CORE: 5.2 m



CORE DESCRIPTION

MUDDY FOSSILIFEROUS SAND - Light olive gray, calcareous muddy (5 to 10%), fossiliferous hash, quartz sand. Partially indurated by calcareous mud, quartz sand is very poorly sorted, abundant orange and gray stained calcarenite sand (10 to 20%). Fe- stained calcareous cemented quartz sand pebbles, with abundant (10 to 20%) orange stained shell sand. Soft sediment with cemented aggregates.

SANDY LIMESTONE - Glauconite stained indurated surface--olive gray, calcite cemented oolidic quartz sand. Large oolliust oolds with few thick unaltered fossil fragments. Phosphate (?) dark black approximately 1 to 2%.

CALCIC SAND - Medium gray soft calcareous (15 to 25%) quartz sand, local laminae of brown organic matter

SANDY LIMESTONE - Med gray, calcite cemented (25 to 40%) oolidic sandstone. Mercenaria, Pecten, mussels, etc

CALCIC SAND - Mixed medium gray mottled and olive gray calcareous, quartz and calc sand. Abraded rounded calcareous sand

SANDY LIMESTONE - same as above 1.4m to 1.8m, cemented oolidic beds have higher CaCO3
Mud mix content 25-50%, unconsolidated zones have 10-25%

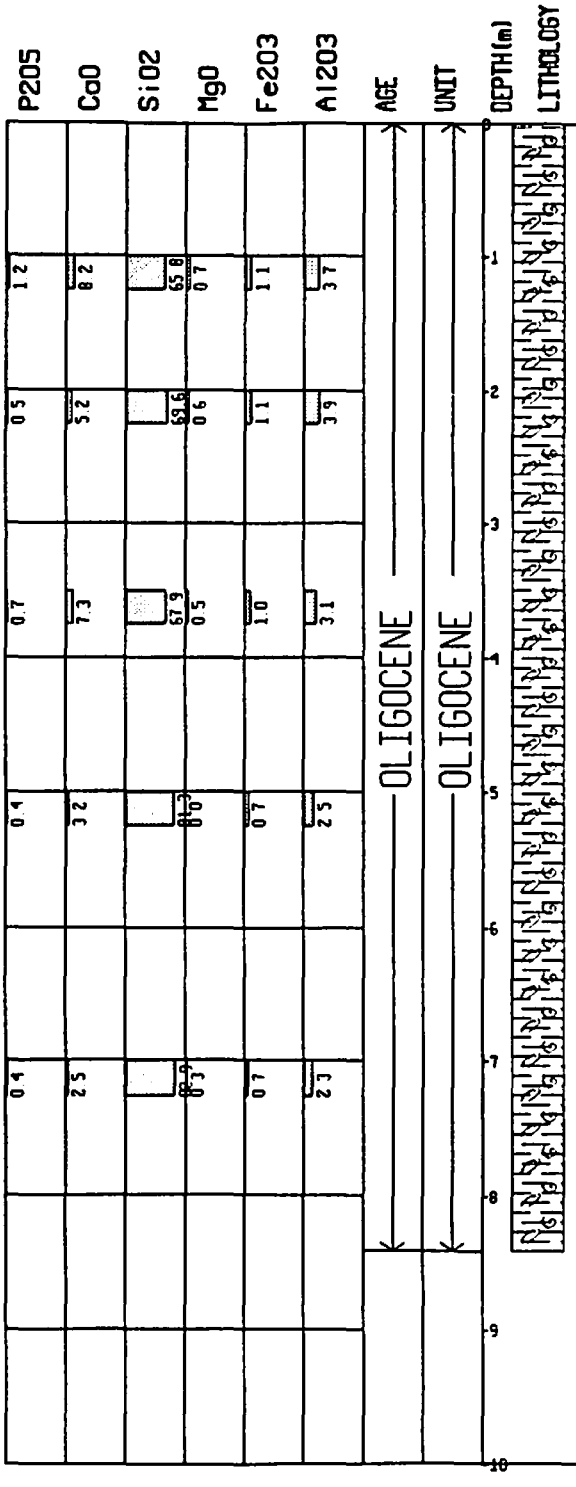
CALCIC SAND - Same as 1.8-2m

SHELLY SAND - Medium gray indurated sandy shell hash, hash largely barnacles. Coarse sand to granule shell hash, angular, mostly unidentifiable, approximately 7% hash and 30% quartz sand, fine grained

FOSSILIFEROUS CALCIC MUDDY SAND - Becoming mottled olive gray, very waxy clay approximately 50%, 25% fossil hash and 25% fine to med quartz sand
Increasing to a bed of olive gray sandy mud with carbonate mottles of light olive gray
Light olive gray, semi-indurated to indurated at -4.75 to -4.8 and -5.0 to -5.1m
Very fossiliferous and oolidic, sandy limestone, coarser and more robust shell material still present (barnacles?)
Occasional mottle of olive gray sandy mud
This unit resembles Unit D in the Aurora Phosphate District. But it could be post Pungo River Unite???

ONSLOW BAY CORE NUMBER: OB126

CRUISE: NSF O. BAY DATE LOGGED: 8-1-83 LATITUDE: 33.974 degrees
LENGTH ATTEMPTED: 6 m BY: P. MALLETTE LONGITUDE: 77.499 degrees
LENGTH OF CORE: 8.41 m

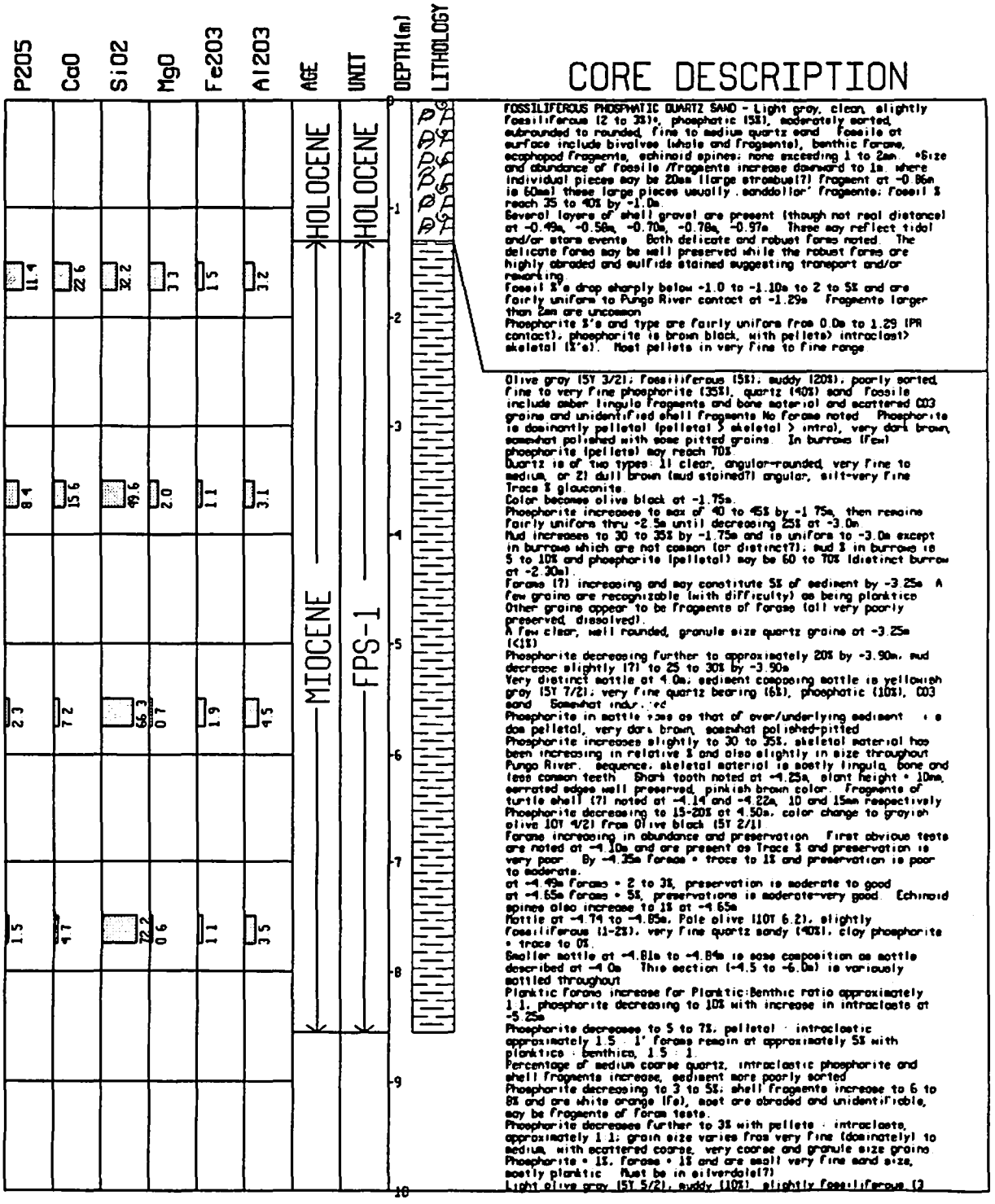


CORE DESCRIPTION

MUDDY FOSSILIFEROUS FINE QUARTZ SAND - Pale olive (10Y 6/2), muddy (15%), fossiliferous (35%), well sorted, subangular-subround, very fine quartz sand. Trace to 0% phosphorite. Trace to 1% heavies. Fossils include very poorly-poorly preserved forams (mostly benthic) and echinoid spines.
Mottle at -7.34 m - Light olive gray, muddy (7 to 10%), fossiliferous (5 to 7%); phosphatic (5 to 7%); poorly sorted; medium to very fine quartz sand.
Mottle at -0.91 to -1.03m - grayish olive (10Y 4.2); fossiliferous (7%); phosphatic (10%); muddy (30 to 35%), very poorly sorted (somewhat bimodal), coarse-very coarse and fine to very fine quartz sand. (Looks at little like FPF 1, mottle only surrounding material is uniform from o.s.).
Mottle @ 1.05-1.14m (same as mottle at -0.47 to -0.54m)
Fossil material--including forams--decreasing to 15% by -1.25 m, then decreasing sharply to 5 to 7% by -1.40m.
Fossils decreasing to 3 to 5% (mostly forams) by -1.75m, scattered grains of quartz in medium-granule size; pyrite grain (2) noted. Foram preservation is very poor to good depending on degree of abrasion, not much (any?) recrystallization noted. Occasional petraced, and lingula fragment.
Fossils (incl. forams) increasing--10 to 12%. Occasional 'corncob' phosphorite trace %, heavies trace to 1%' glauconite trace %, Foram Planktic:Benthic = 1 1/2-2 : 1.
Mud increasing to approximately 20%, % of grains larger than very fine sand size also increasing, sediment becomes mod well sorted. Most larger grains are milky-clear though a few grains of 'blue' quartz are present; all larger grains are well-very well rounded.
Planktic:Benthic (forams) = 4:1.
A few large (up to 13mm), robust shell fragments noted at -3.40 to -3.50m.
Sorting decreasing further and no longer bimodal (very fine and very coarse) as more grains are in fine, medium, and coarse range = moderately sorted. Amber and light brown shell fragments increase (may be some lingula though others present) though still < 1%. Corn cob and other unicorial benthic forams slightly increased. Phosphate intraclasts increase to < 1%.
Zone from -3.70 to -4.0m contains large (20 to 40mm) pebbles of fine quartz sandy (45%), limestone. limestone (calc-matrix) varies from cream (on fresh surface) to dark gray (as outer rim). Outer rim is occasionally glauconitic.
Fairly common grains of this rock material observed in washed samples, coarse sand size. Sediment is uniform from above except forams have decreased to 3-5% and Planktic Benthic approximately 1:1.
Large shells and fragments noted at -4.0 to -4.20m. Detrital pecten.
One pectrea is 85% complete.
Fossils, i.e. sand size shell fragments, echinoid spines, forams increasing to 7 to 10%. (Forams = 5 to 7%).
Core becomes distinctly mottled starting at 4.60m. Mottles are above material enclosed in a slightly greenish, med. gray slightly muddy (3-5%), ext. very well sorted, subangular-subrounded, fine quartz sand.
Forams = Trace to 1%; phosphorite = Trace to 1%. CO3 intraclasts Trace%, heavies Trace%.
At 5.0m mottles and enclosing sediment are approximately equal in volume.
Sorting is enhanced in mottles and becomes mod well sorted, forams = 5-7%, preservation is fair to good.
Mud decreases to 10% in mottles, otherwise mottles and enclosing sediment is uniform.
Mud decreases further in mottles to 5 to 7%, increases in enclosing sediment to approximately 10%. Forams in mottles and enclosing sediment = Trace to 1%. Mottles still distinctly different from enclosing sediment due to color diff and sediment sorting.
Sediment in mottle at -6.30m is very poorly sorted, gravel size material = 5% (shell fragments and well rounded quartz grains), mud = 5 to 7%, glauconite not observed as distinct grains but common as coatings on quartz grains and shell fragments.
Mottling as described above is subdued by -6.40m (except small one @ -6.72m) though small sandy 'pin' mottles are present.
Mud decreases to 5 to 7%, forams present as trace %, these are fairly robust benthics and preservation is poor w/ recrystallization.
Planktic:Benthic approximately 0.1.
Increase in shell fragments (appearance). Robust, medium-granule size, abraded, and may be stained orange. Total = 1%.
Fossils (shell fragments and forams) = 3%. Foram preservation is poor to good, may or may not be recrystallized. One planktic noted.
Fossil material decreasing to trace %, forams that are present are robust forms and are recrystallized.
Mud increase to 10%, fossils increase to 3%.
Granule size barnacle fragments.
Planktic forams increasing slightly, Planktic:Benthic = 1:3-4, still recrystallized.

ONSLOW BAY CORE NUMBER: OB127

CRUISE: NSF O. BAY DATE LOGGED: 7-28-83 LATITUDE: 34.000 degrees
LENGTH ATTEMPTED: 6.18 m BY: P. MALLETTE LONGITUDE: 77.446 degrees
LENGTH OF CORE: 8.55 m



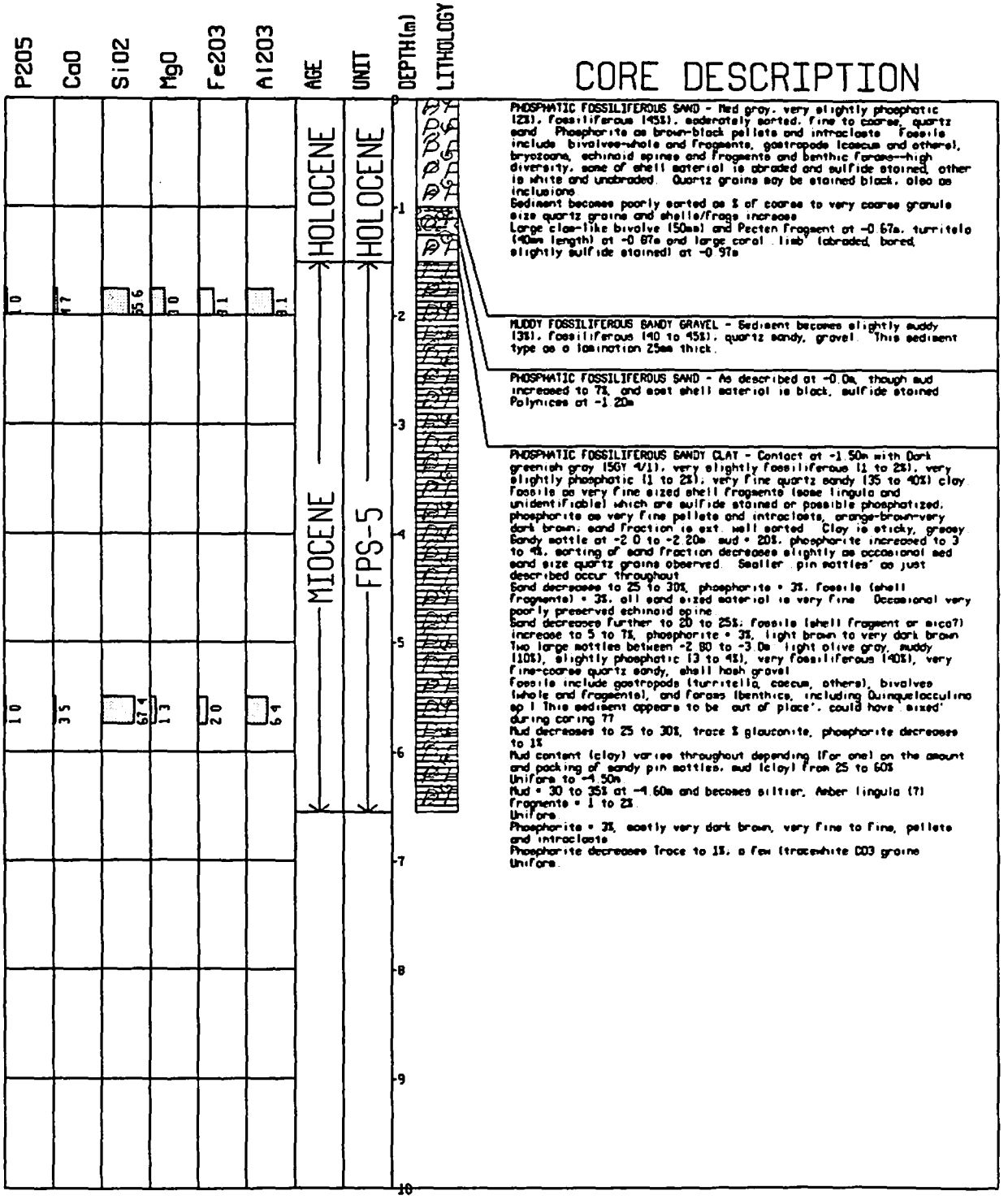
CORE DESCRIPTION

FOSSILIFEROUS PHOSPHATIC QUARTZ SAND - Light gray, clean, slightly fossiliferous (2 to 3%), phosphatic (5%), moderately sorted, subrounded to rounded, fine to medium quartz sand. Fossils at surface include bivalves (whole and fragments), benthic forams, ecahpod fragments, echinoid spines; none exceeding 1 to 2mm. Size and abundance of fossils /fragments increase downward to 1m, where individual pieces may be 20mm (large strombus(?) fragment at -0.86m is 60mm) these large pieces usually sanddollar fragments; fossil % reach 35 to 40% by -1.0m.
Several layers of shell gravel are present (though not real distance) at -0.49m, -0.56m, -0.70m, -0.78m, -0.97m. These may reflect tidal and/or storm events. Both delicate and robust forms noted. The delicate forms may be well preserved while the robust forms are highly abraded and sulfide stained suggesting transport and/or reworking.
Fossil %'s drop sharply below -1.0 to -1.10m to 2 to 5% and are fairly uniform to Pungo River contact at -1.29m. Fragments larger than 2mm are uncommon.
Phosphorite %'s and type are fairly uniform from 0.0m to 1.29 (PR contact), phosphorite is brown black, with pellets> intraclast> skeletal (%'s). Most pellets in very fine to fine range.

Olive gray (5Y 3/2); fossiliferous (5%); muddy (20%), poorly sorted, fine to very fine phosphorite (35%), quartz (40%) sand. Fossils include amber, lingula fragments and bone material and scattered CO3 grains and unidentified shell fragments. No forams noted. Phosphorite is dominantly pelletal (pelletal > skeletal > intra), very dark brown, somewhat polished with some pitted grains. In burrows (few) phosphorite (pelletal) may reach 70%.
Quartz is of two types: 1) clear, angular-rounded, very fine to medium, or 2) dull brown (mud stained?) angular, silt-very fine. Trace % glauconite.
Color becomes olive black at -1.75m.
Phosphorite increases to max of 40 to 45% by -1.75m, then remains fairly uniform thru -2.5m until decreasing 25% at -3.0m.
Mud increases to 30 to 35% by -1.75m and is uniform to -3.0m except in burrows which are not common (or distinct?); mud % in burrows is 5 to 10% and phosphorite (pelletal) may be 60 to 70% (distinct burrow at -2.30m).
Forams (?) increasing and may constitute 5% of sediment by -3.25m. A few grains are recognizable (with difficulty) as being planktics. Other grains appear to be fragments of forams (all very poorly preserved, dissolved).
A few clear, well rounded, granule size quartz grains at -3.25m (<1%).
Phosphorite decreasing further to approximately 20% by -3.90m, mud decrease slightly (?) to 25 to 30% by -3.90m.
Very distinct mottle at 4.0m; sediment composing mottle is yellowish gray (5Y 7/2); very fine quartz bearing (6%), phosphatic (10%), CO3 sand. Somewhat indur.ed.
Phosphorite in mottle does as that of over/underlying sediment - is dom pelletal, very dark brown, somewhat polished-pitted.
Phosphorite increases slightly to 30 to 35%, skeletal material has been increasing in relative % and also slightly in size throughout Pungo River sequence; skeletal material is mostly lingula, bone and less common teeth. Shark tooth noted at -4.25m, plant height = 10mm, serrated edges well preserved, pinkish brown color. Fragments of turtle shell (?) noted at -4.14 and -4.22m, 10 and 15mm respectively.
Phosphorite decreasing to 15-20% at 4.50m, color change to grayish olive 10Y 4/2 from Olive black (5Y 2/1).
Forams increasing in abundance and preservation. First obvious tests are noted at -4.10m and are present as Trace % and preservation is very poor. By -4.25m forams = trace to 1% and preservation is poor to moderate.
at -4.49m forams = 2 to 3%, preservation is moderate to good.
at -4.65m forams = 5%, preservations is moderate-very good. Echinoid spines also increase to 1% at -4.65m.
Mottle at -4.74 to -4.85m, Pale olive (10Y 6.2), slightly fossiliferous (1-2%), very fine quartz sandy (40%), clay phosphorite = trace to 0%.
Smaller mottle at -4.81m to -4.84m is same composition as mottle described at -4.0m. This section (-4.5 to -6.0m) is variously mottled throughout.
Planktic forams increase for Planktic:Benthic ratio approximately 1.1, phosphorite decreasing to 10% with increase in intraclasts at -5.25m.
Phosphorite decreases to 5 to 7%, pelletal = intraclastic, approximately 1.5 : 1. Forams remain at approximately 5% with planktics : benthics, 1.5 : 1.
Percentage of medium coarse quartz, intraclastic phosphorite and shell fragments increase, sediment more poorly sorted.
Phosphorite decreasing to 3 to 5%; shell fragments increase to 6 to 8% and are white orange (fe), most are abraded and unidentifiable, may be fragments of foram tests.
Phosphorite decreases further to 3% with pellets : intraclasts, approximately 1:1; grain size varies from very fine (dominately) to medium, with scattered coarse, very coarse and granule size grains.
Phosphorite = 1%, forams = 1% and are small very fine sand size, mostly planktic. Must be in silverdale(?).
Light olive gray (5Y 5/2), muddy (10%), slightly fossiliferous (2

ONSLOW BAY CORE NUMBER: OB128

CRUISE: NSF O. BAY DATE LOGGED: 8-5-83 LATITUDE: 33.997 degrees
LENGTH ATTEMPTED: 4.56m BY: P. MALLETTE LONGITUDE: 77.278 degrees
LENGTH OF CORE: 6.55



CORE DESCRIPTION

PHOSPHATIC FOSSILIFEROUS SAND - Med gray, very slightly phosphatic (2%), fossiliferous (45%), moderately sorted, fine to coarse, quartz sand. Phosphorite as brown-black pellets and intraclasts. Fossils include bivalves-whole and fragments, gastropods (cassus and others), bryozoans, echinoid spines and fragments and benthic forams--high diversity, some of shell material is abraded and sulfide stained, other is white and unabraded. Quartz grains may be stained black, also as inclusions.
Sediment becomes poorly sorted as % of coarse to very coarse granule size quartz grains and shells/frags increase.
Large clam-like bivalve (50mm) and Pecten fragment at -0.67m, turritella (40mm length) at -0.87m and large coral limb (abraded, bored, slightly sulfide stained) at -0.97m

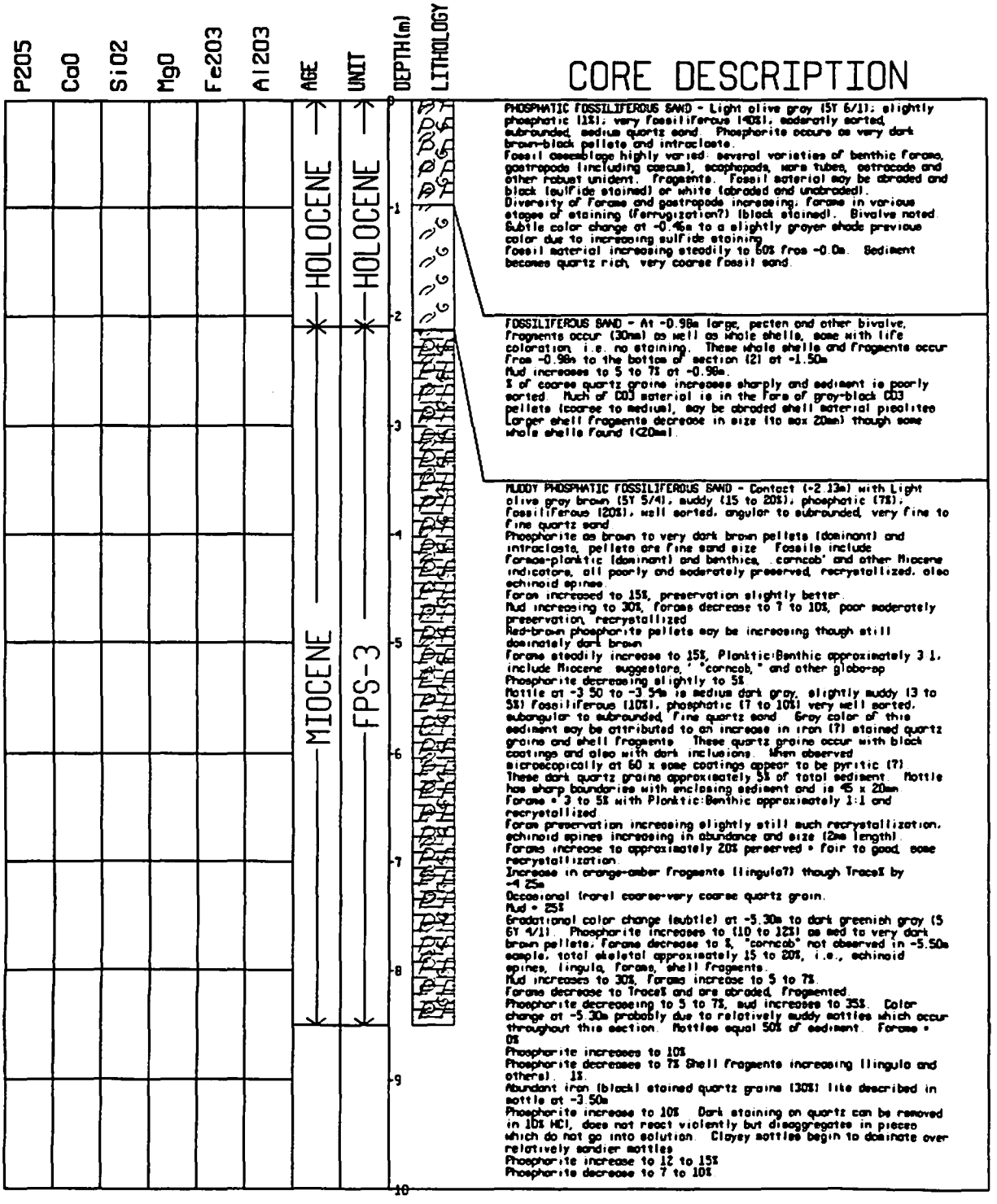
MUDDY FOSSILIFEROUS SANDY GRAVEL - Sediment becomes slightly muddy (3%), fossiliferous (40 to 45%), quartz sandy, gravel. This sediment type as a lamination 25mm thick.

PHOSPHATIC FOSSILIFEROUS SAND - As described at -0.0m, though mud increased to 7%, and most shell material is black, sulfide stained
Polynices at -1.20m

PHOSPHATIC FOSSILIFEROUS SANDY CLAY - Contact at -1.50m with Dark greenish gray (5GY 4/1), very slightly fossiliferous (1 to 2%), very slightly phosphatic (1 to 2%), very fine quartz sandy (35 to 40%) clay
Fossils as very fine sized shell fragments (some lingula and unidentifiable) which are sulfide stained or possible phosphatized, phosphorite as very fine pellets and intraclasts, orange-brown-very dark brown, sand fraction is ext. well sorted. Clay is sticky, greasy
Sandy mottle at -2.0 to -2.20m: mud = 20%, phosphorite increased to 3 to 4%, sorting of sand fraction decreases slightly as occasional med sand size quartz grains observed. Smaller 'pin mottles' as just described occur throughout
Sand decreases to 25 to 30%, phosphorite = 3%, fossils (shell fragments) = 3%, all sand sized material is very fine. Occasional very poorly preserved echinoid spine
Sand decreases further to 20 to 25%; fossils (shell fragment or mica?) increase to 5 to 7%, phosphorite = 3%, light brown to very dark brown
Two large mottles between -2.80 to -3.0m: light olive gray, muddy (10%), slightly phosphatic (3 to 4%), very fossiliferous (40%), very fine-coarse quartz sandy, shell hash gravel
Fossils include gastropods (turritella, cassus, others), bivalves (whole and fragmental), and forams (benthics, including Quinqueloculina sp.) This sediment appears to be 'out of place', could have 'mixed' during coring ??
Mud decreases to 25 to 30%, trace % glauconite, phosphorite decreases to 1%
Mud content (clay) varies throughout depending (for one) on the amount and packing of sandy pin mottles, mud (clay) from 25 to 60%
Uniform to -4.50m
Mud = 30 to 35% at -4.60m and becomes siltier, Amber lingula (?) fragments = 1 to 2%
Uniform
Phosphorite = 3%, mostly very dark brown, very fine to fine, pellets and intraclasts
Phosphorite decreases (trace to 1%, a few (trace-white CO3 grains
Uniform.

ONSLOW BAY CORE NUMBER: OB129

CRUISE: NSF O. BAY DATE LOGGED: 8-3-83 LATITUDE: 34.000 degrees
LENGTH ATTEMPTED: 6.45m BY: P. MALLETTE LONGITUDE: 76.273 degrees
LENGTH OF CORE: 8.46m



CORE DESCRIPTION

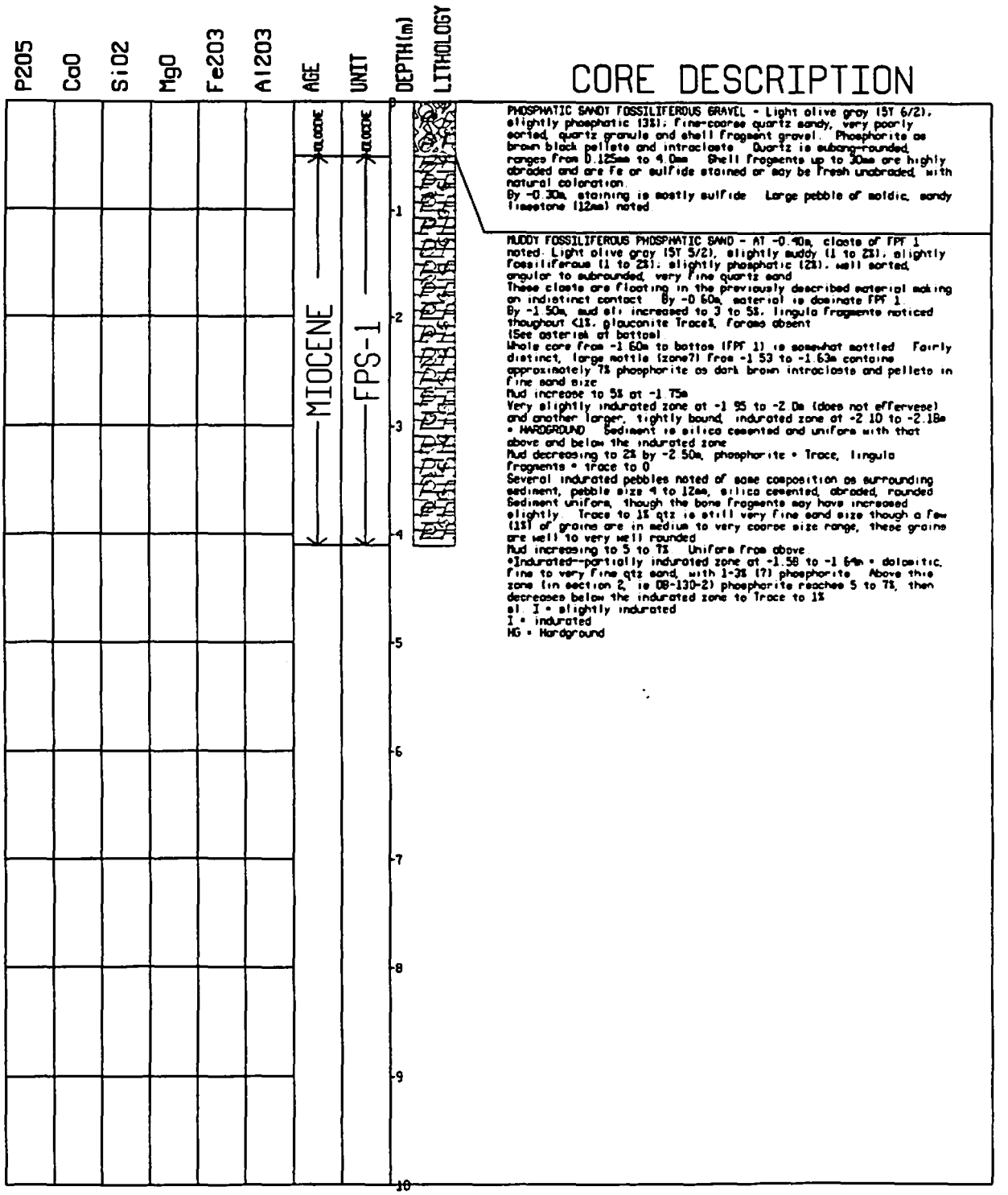
PHOSPHATIC FOSSILIFEROUS SAND - Light olive gray (5Y 6/1); slightly phosphatic (1%); very fossiliferous (40%), moderately sorted, subrounded, medium quartz sand. Phosphorite occurs as very dark brown-black pellets and intraclasts.
Fossil assemblage highly varied: several varieties of benthic forams, gastropods (including caecum), scaphopods, worm tubes, ostracods and other robust unident. fragments. Fossil material may be abraded and black (sulfide stained) or white (abraded and unabraded).
Diversity of forams and gastropods increasing; forams in various stages of staining (ferruginization?) (black stained). Bivalve noted.
Subtle color change at -0.46m to a slightly grayer shade previous color due to increasing sulfide staining.
Fossil material increasing steadily to 60% from -0.0m. Sediment becomes quartz rich, very coarse fossil sand.

FOSSILIFEROUS SAND - At -0.98m large, pecten and other bivalve, fragments occur (30mm) as well as whole shells, some with life coloration, i.e. no staining. These whole shells and fragments occur from -0.98m to the bottom of section (2) at -1.50m.
Mud increases to 5 to 7% at -0.98m.
% of coarse quartz grains increases sharply and sediment is poorly sorted. Much of CO3 material is in the form of gray-black CO3 pellets (coarse to medium), may be abraded shell material pisolites. Larger shell fragments decrease in size (to max 20mm) though some whole shells found (<20mm).

MUDDY PHOSPHATIC FOSSILIFEROUS SAND - Contact (-2.13m) with Light olive gray brown (5Y 5/4), muddy (15 to 20%), phosphatic (7%); fossiliferous (20%), well sorted, angular to subrounded, very fine to fine quartz sand.
Phosphorite as brown to very dark brown pellets (dominant) and intraclasts, pellets are fine sand size. Fossils include foram-planktic (dominant) and benthics, 'corncob' and other Miocene indicators, all poorly and moderately preserved, recrystallized, also echinoid spines.
Forams increased to 15%, preservation slightly better.
Mud increasing to 30%, forams decrease to 7 to 10%, poor moderately preservation, recrystallized.
Red-brown phosphorite pellets may be increasing though still dominately dark brown.
Forams steadily increase to 15%, Planktic:Benthic approximately 3:1, include Miocene 'suggestors,' "corncob," and other globorop.
Phosphorite decreasing slightly to 5%.
Mottle at -3.50 to -3.54m is medium dark gray, slightly muddy (3 to 5%) fossiliferous (10%), phosphatic (7 to 10%) very well sorted, subangular to subrounded, fine quartz sand. Gray color of this sediment may be attributed to an increase in iron (?) stained quartz grains and also with dark inclusions. When observed microscopically at 60 x some coatings appear to be pyritic (?). These dark quartz grains approximately 5% of total sediment. Mottle has sharp boundaries with enclosing sediment and is 45 x 20mm.
Forams = 3 to 5% with Planktic:Benthic approximately 1:1 and recrystallized.
Foram preservation increasing slightly still such recrystallization, echinoid spines increasing in abundance and size (2mm length).
Forams increase to approximately 20% perserved = fair to good, some recrystallization.
Increase in orange-amber fragments (lingula?) though Trace% by -4.25m.
Occasional (rare) coarse-very coarse quartz grain.
Mud = 25%.
Gradational color change (subtle) at -5.30m to dark greenish gray (5 GY 4/1). Phosphorite increases to (10 to 12%) as med to very dark brown pellets; forams decrease to 5%, "corncob" not observed in -5.50m sample, total skeletal approximately 15 to 20%, i.e., echinoid spines, lingula, forams, shell fragments.
Mud increases to 30%, Forams increase to 5 to 7%.
Forams decrease to Trace% and are abraded, fragmented.
Phosphorite decreasing to 5 to 7%, mud increases to 35%. Color change at -5.30m probably due to relatively muddy mottles which occur throughout this section. Mottles equal 50% of sediment. Forams = 0%.
Phosphorite increases to 10%.
Phosphorite decreases to 7%. Shell fragments increasing (lingula and others). 1%.
Abundant iron (black) stained quartz grains (30%) like described in mottle at -3.50m.
Phosphorite increase to 10%. Dark staining on quartz can be removed in 10% HCl, does not react violently but disaggregates in pieces which do not go into solution. Clayey mottles begin to dominate over relatively sandier mottles.
Phosphorite increase to 12 to 15%.
Phosphorite decrease to 7 to 10%.

ONSLOW BAY CORE NUMBER: OB130

CRUISE: NSF O. BAY DATE LOGGED: 7-27-83 LATITUDE: 34.158
LENGTH ATTEMPTED: 2.25m BY: P. MALLETTE LONGITUDE: 77.325
LENGTH OF CORE: 4.11m



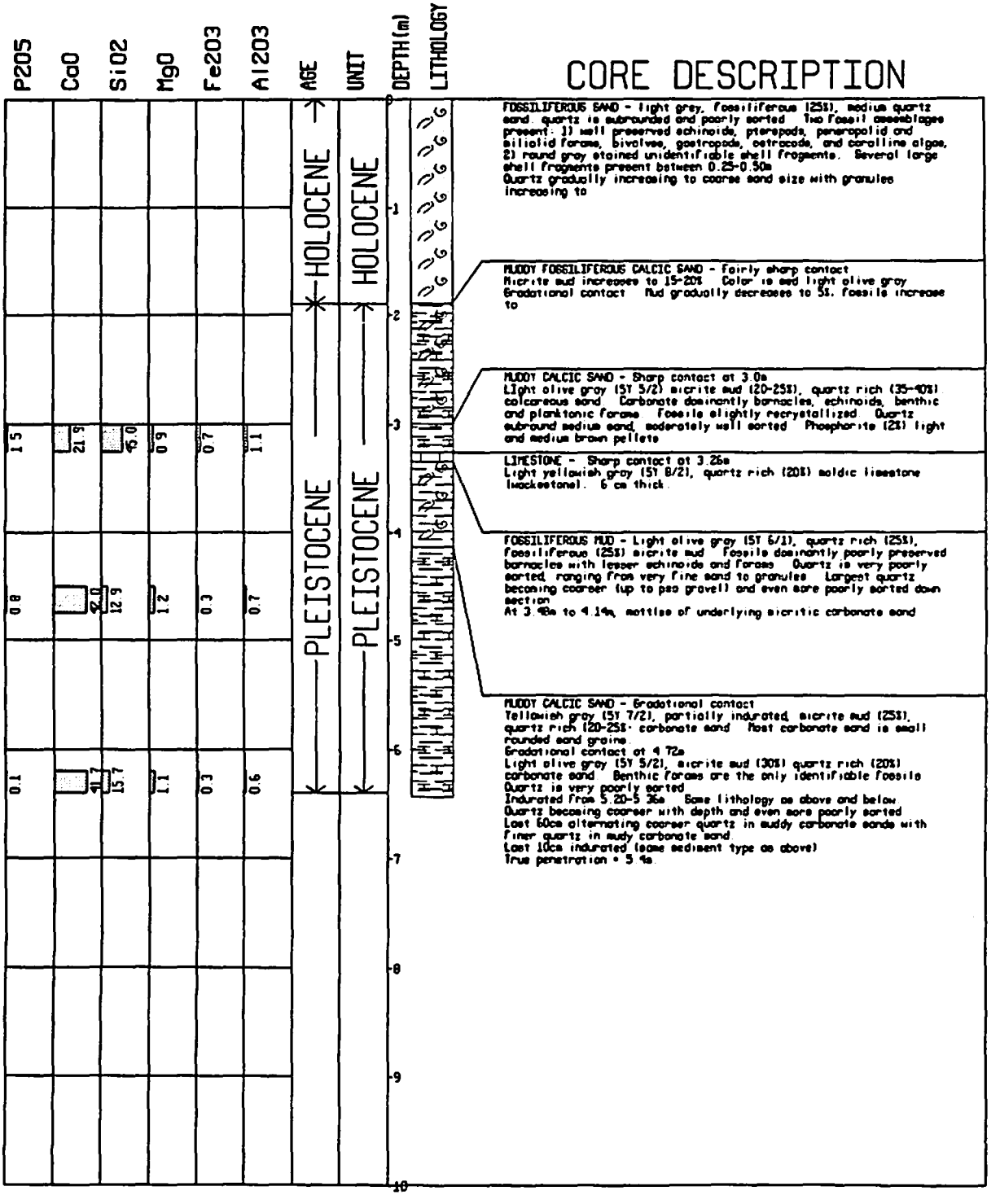
CORE DESCRIPTION

PHOSPHATIC SANDY FOSSILIFEROUS GRAVEL - Light olive gray (5Y 6/2), slightly phosphatic (3%); fine-coarse quartz sandy, very poorly sorted, quartz granule and shell fragment gravel. Phosphorite as brown black pellets and intraclasts. Quartz is subang-rounded, ranges from 0.125mm to 4.0mm. Shell fragments up to 30mm are highly abraded and are Fe or sulfide stained or may be fresh unabraded with natural coloration.
By -0.30m, staining is mostly sulfide. Large pebble of moldic, sandy limestone (12mm) noted

MUDDY FOSSILIFEROUS PHOSPHATIC SAND - AT -0.40m, clasts of FPF 1 noted. Light olive gray (5Y 5/2), slightly muddy (1 to 2%), slightly fossiliferous (1 to 2%), slightly phosphatic (2%), well sorted, angular to subrounded, very fine quartz sand
These clasts are floating in the previously described material making an indistinct contact. By -0.60m, material is dominate FPF 1.
By -1.50m, mud alt increased to 3 to 5%, lingula fragments noticed thoughout (1%, glauconite Trace%, forams absent
(See asterisk at bottom)
Whole core from -1.60m to bottom (FPF 1) is somewhat mottled. Fairly distinct, large mottle (zone?) from -1.53 to -1.63m contains approximately 7% phosphorite as dark brown intraclasts and pellets in fine sand size
Mud increase to 5% at -1.75m
Very slightly indurated zone at -1.95 to -2.0m (does not effervese) and another larger, tightly bound, indurated zone at -2.10 to -2.18m • HARDGROUND. Sediment is silica cemented and uniform with that above and below the indurated zone
Mud decreasing to 2% by -2.50m, phosphorite • Trace, lingula fragments • trace to 0
Several indurated pebbles noted of same composition as surrounding sediment, pebble size 4 to 12mm, silica cemented, abraded, rounded
Sediment uniform, though the bone fragments may have increased slightly. Trace to 1% qtz is still very fine sand size though a few (1%) of grains are in medium to very coarse size range, these grains are well to very well rounded
Mud increasing to 5 to 7%. Uniform from above
*Indurated--partially indurated zone at -1.58 to -1.64m • dolomitic, fine to very fine qtz sand, with 1-3% (?) phosphorite. Above this zone (in section 2, ie OB-130-2) phosphorite reaches 5 to 7%, then decreases below the indurated zone to Trace to 1%
sl. I • slightly indurated
I • indurated
HG • Hardground

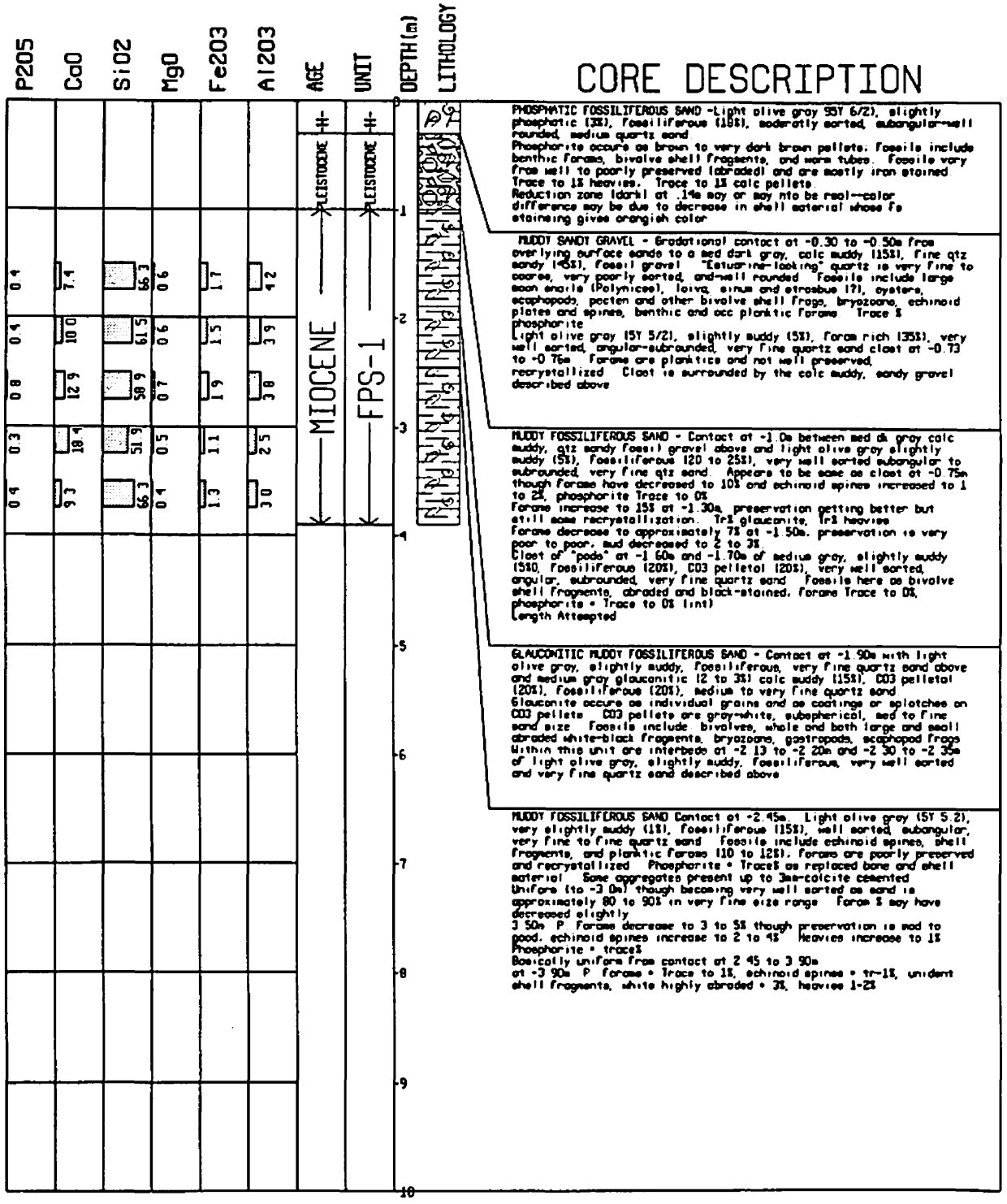
ONSLOW BAY CORE NUMBER: OB131

CRUISE: NSF O. BAY DATE LOGGED: 7-12-83 LATITUDE: 34.011 degrees
LENGTH ATTEMPTED: 5.4m BY: P. MALLETTE LONGITUDE: 77.026 degrees
LENGTH OF CORE: 6.44m



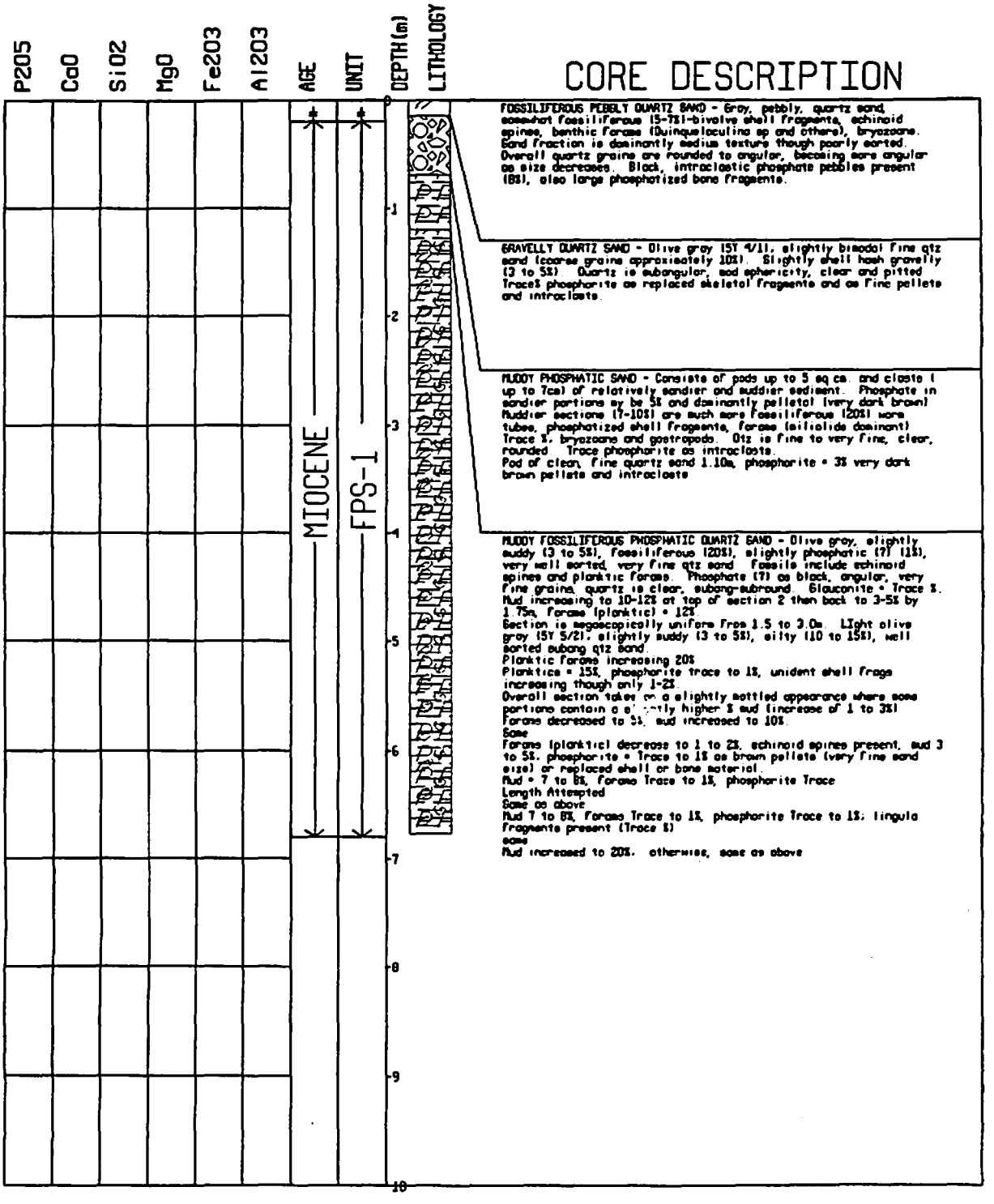
ONSLOW BAY CORE NUMBER: OB132

CRUISE: NSF O. BAY DATE LOGGED: 7-26-83 LATITUDE: 34.468 degrees
LENGTH ATTEMPTED: 3.18m BY: P. MALLETTE LONGITUDE: 77.221 degrees
LENGTH OF CORE: 3.9m



ONSLOW BAY CORE NUMBER: OB135

CRUISE: NSF O. BAY DATE LOGGED: 7-22-83 LATITUDE: 34.425 degrees
LENGTH ATTEMPTED: 5.13m BY: P. MALLETTE LONGITUDE: 77.19 degrees
LENGTH OF CORE: 6.77m



CORE DESCRIPTION

FOSSILIFEROUS PEBBLY QUARTZ SAND - Gray, pebbly, quartz sand, somewhat fossiliferous (5-7%)-bivalve shell fragments, echinoid spines, benthic forams (Quinqueloculina sp and others), bryozoans. Sand fraction is dominantly medium texture though poorly sorted. Overall quartz grains are rounded to angular, becoming more angular as size decreases. Black, intraclastic phosphate pebbles present (8%), also large phosphatized bone fragments.

GRAVELLY QUARTZ SAND - Olive gray (5Y 4/1), slightly bimodal fine qtz sand (coarse grains approximately 10%). Slightly shell hash gravelly (3 to 5%). Quartz is subangular, mod sphericity, clear and pitted Traces phosphorite as replaced skeletal fragments and as fine pellets and intraclasts.

MUDDY PHOSPHATIC SAND - Consists of pods up to 5 sq cm and clasts (up to 7cm) of relatively sandier and muddier sediment. Phosphate in sandier portions may be 5% and dominantly pelletal (very dark brown) Muddier sections (7-10%) are much more fossiliferous (20%) worm tubes, phosphatized shell fragments, forams (miliolids dominant) Trace %, bryozoans and gastropods. Qtz is fine to very fine, clear, rounded. Trace phosphorite as intraclasts.
Pod of clean, fine quartz sand 1.10m, phosphorite = 3% very dark brown pellets and intraclasts

MUDDY FOSSILIFEROUS PHOSPHATIC QUARTZ SAND - Olive gray, slightly muddy (3 to 5%), fossiliferous (20%), slightly phosphatic (7) (1%), very well sorted, very fine qtz sand. Fossils include echinoid spines and planktic forams. Phosphate (?) as black, angular, very fine grains, quartz is clear, subang-subround. Glauconite = Trace %.
Mud increasing to 10-12% at top of section 2 then back to 3-5% by 1.75m, Forams (planktic) = 12%
Section is megascopically uniform from 1.5 to 3.0m. Light olive gray (5Y 5/2), slightly muddy (3 to 5%), silty (10 to 15%), well sorted subang qtz sand.
Planktic forams increasing 20%
Planktics = 15%, phosphorite trace to 1%, unident shell frags increasing though only 1-2%.
Overall section takes on a slightly mottled appearance where some portions contain a slightly higher % mud (increase of 1 to 3%) Forams decreased to 5%, mud increased to 10%.
Same
Forams (planktic) decrease to 1 to 2%, echinoid spines present, mud 3 to 5%, phosphorite = Trace to 1% as brown pellets (very fine sand size) or replaced shell or bone material.
Mud = 7 to 8%, forams Trace to 1%, phosphorite Trace
Length Attempted
Same as above
Mud 7 to 8%, forams Trace to 1%, phosphorite Trace to 1%; lingula fragments present (Trace %)
same
Mud increased to 20%. otherwise, same as above

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