MGGB09005045

LABORATORY ITEM 471

MGG09005045

A SUMMARY OF SEDIMENT SIZE AND CHEMISTRY OF FOUR CORES FROM YORKTOWN, VA, AND TWO CORES FROM MOORHEAD CITY, S.C. NAVY DIVERS. NOVEMBER 1973.

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Prepared for: Code 6110

July 1974

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WASHINGTON, D.C. 20373

The results of the sediment size and composition analyses are printed out in tabular form.

The following is an explanation of the terms encountered on the data printout sheet:

CRUISE	A number assigned to each cruise for identification purposes.
SAMPLE	A consecutive number applied to each core taken successively throughout the cruise.
LATITUDE	Expressed in degrees, minutes, and tenths of minutes.
LONGITUDE	Expressed in degrees, minutes and tenths of minutes.
TAKEN	Date in day, month, and year that core was taken.
CORER TYPE	Letters corresponding to sampling device code below.

Corers		Grabs	
HYP	Hydroplastic piston	SPK	Shipek Sediment Sampler
HYG	Hydroplastic gravity	HLP	Alpine Heavy Duty Grab
KUP	Kullenberg piston	SMS	Small Mud Snapper
KUG	Kullenberg gravity	VVS	Van Veen Grab
PHL	Phlegar gravity	BED	Birge-Ekman Dredge
MEG	Modified Ewing gravity	DLS	Dietz-LaFond Snapper
MEP	Modified Ewing piston	OPG	Orange Peel Grab
VIB	Vibrocorer	SBS	Scoopfish Bottom Sampler
BOM	Boomerang	DOC	Diver Operated Corer
EWP	Ewing piston		
EWG	Ewing gravity		

LENGTH	Length of core recorded in centimeters as observed in the laboratory.
PENETRATION	Penetration of coring device recorded in centimeters as observed in the field.
DEPTH	The uncorrected sonic sounding in meters.
ANALYZED	Date in day, month, and year that core was analyzed in the laboratory.
I.D. No.	Three or four digit laboratory project number followed by consecutive number assigned to each subsample analyzed.
INTERVAL	Interval of subsample as measured in centimeters from the top of the core.
MM	Particle diameter size intervals based on Wentworth size grades in millimeters.
PER	Percent of total sample weight within the given size interval.

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GRAVEL, SAND SILT, CLAY — Percent of the total sample weight within the four size classes.

Class ranges are:

1. Gravel - coarser than 2 mm
2. Sand - 2 to 0.0625 mm
3. Silt - 0.0625 to 0.0039 mm
4. Clay - finer than 0.0039

MEAN (MM) — The geometric mean of the distribution expressed in millimeters.

MEAN (PHI) — The logarithmic mean of the distribution expressed in phi units ($-\log_2$) of the diameter in millimeters.

STAN DEV — Standard deviation. A measure of the degree of spread or dispersion of the distribution about the mean expressed in phi units.

$$s = \sqrt{\frac{\sum f \quad (X_i - \bar{X})^2}{100}}$$

SKEWNESS — A measure of the asymmetry of the distribution. Positive values denote skewness of the distribution toward the fine particles; negative values denote skewness toward the coarse particles. A normal distribution has a skewness of 0.

$$\text{Skewness} = \frac{2 \sum f \quad (X_i - X)^3}{100 \quad s^3}$$

KURTOSIS — A measure of the peakedness of the distribution. Positive values denote a "leptokurtic" distribution more "peaked" than normal. Negative values denote a "platykurtic" distribution, or a distribution more "flat" than normal. When using the following formula, a normal curve has a kurtosis of 0.

$$\text{Kurtosis} = \left[\frac{\sum f \quad (X_i - \bar{X})^4}{100 \quad s^4} \right] - 3$$

$CACO_3$ — Percent of the total sample weight soluble in 2 N HCL.

ORG CARBON — Percent organic carbon of the total sample weight as determined using a Leco carbon analyzer.

COLOR — Wet sediment color, based on the Geological Society of America Rock-Color Chart, as determined in the laboratory.

NITROGEN — Percent nitrogen of the total sample weight as determined by the Kjeldahl method.

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LOG FOR CORE SAMPLES

Project No: 471
Location: Yorktown, Morehead City

Logged By J.C. Bowman
Date Logged 21 May 74

	La No.	Color	Calc. Mat.	Sediment Type	Remarks
Sample No: mc #1 Lat: 76° 42' N Long: 34° 42' W Date: Nov, 73 Water depth:	471-1	Black N1	No	Silty Clay	0"-12" (0-29cm) Oil slicks Oil odor
Sample No: Lat: Long: Date: Water depth:	471-2	Dark greenish grayish black 5GY3/1	No	Silty Sand	12"-28" (29-71cm) Strong Oil odor
Sample No: Lat: Long: Date: Water depth:	471-3	Greenish black 5GY2/1	Yes	Sand	28"-44" (71-112cm) Shell fragments
Sample No: mc #2 Lat: 76° 42' N Long: 34° 42' W Date: Nov, 73 Water depth:	471-4	Greenish gray 5GY7/1	Yes	Sand	0"-12" (0-30cm) Shell fragments
Sample No: Lat: Long: Date: Water depth:	471-5	Greenish gray 5GY7/1	Yes	Sand	12"-26" (30-66cm) Shell fragments
Sample No: Lat: Long: Date: Water depth:					
Sample No: Lat: Long: Date: Water depth:					
Sample No: Lat: Long: Date: Water depth:					
Sample No: Lat: Long:					

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LOG FOR CORE SAMPLES

Project No: 471
Location: Yorktown, Morehead City

Logged By J.C. Bowman
Date Logged 21 May 74

	La No.	Color	Calc. Mat.	Sediment Type	Remarks
Sample No: YTN-1 Lat: 76° 30' N Long: 37° 14' W Date: Nov, 73 Water depth:	469-6	Black N1	No	Silt	0"-12" (0-30cm) Ammonia odor
Sample No: Lat: Long: Date: Water depth:	469-7	Black N1	No	Silt	12"-36" (30-66cm) Oil odor
Sample No: Lat: Long: Date: Water depth:	469-8	Black N1	No	Silt	26"-41" (66-112 cm) Slight Ammonia odor
Sample No: YTN-2 Lat: 76° 30' N Long: 37° 14' W Date: Nov, 73 Water depth:	469-9	Black N1	No	Silt	0"-12" (0-30cm)
Sample No: Lat: Long: Date: Water depth:	469-10	Black N1	No	Silt	12"-28" (30-71cm)
Sample No: Lat: Long: Date: Water depth:	469-11	Black N1	Yes	Silt	28"-45" (71-114cm) H_2S odor Shell fragments
Sample No: Lat: Long: Date: Water depth:					
Sample No: Lat: Long: Date: Water depth:					
Sample No: Lat: Long:					

LOG FOR CORE SAMPLES

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Project No: 471
Location: Yorktown, Morehead City

Logged By J.C Bowman
Date Logged 21 May 74

	La No.	Color	Calc. Mat.	Sediment Type	Remarks
Sample No: YTN-3 Lat: 76° 30' N Long: 37° 14' W Date: Nov, 73 Water depth:	469-12	Black N1	No	Silt	0"-12" (0-30 cm)
Sample No: Lat: Long: Date: Water depth:	469-13	Greenish black 5GY 2/1	No	Silt	12"-34" (30-86 cm)
Sample No: Lat: Long: Date: Water depth:	469-14	Black N1	No	Silt	34"-57" (86-145 cm)
Sample No: YTN-4 Lat: 76° 30' N Long: 37° 14' W Date: Nov, 73 Water depth:	469-15	Black N1	No	Silt	0"-12" (0-30 cm) Oil Sticks Oil odor
Sample No: Lat: Long: Date: Water depth:	469-16	Greenish black 5G2/1	No	Silt	12"-34" (30-86 cm)
Sample No: Lat: Long: Date: Water depth:	469-17	Black N1	No	Silt	34"-56" (86-142 cm)
Sample No: Lat: Long: Date: Water depth:					
Sample No: Lat: Long: Date: Water depth:					
Sample No: Lat: Long: Date: Water depth:					

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE MRHOCY TAKEN 7NOV73 LATITUDE 76 42.00 N MARSDEN SQUARE 118 LENGTH ANALYZED 5JUL74
SAMPLE MC-1 DEPTH LONGITUDE 34 42.00 W CORER TYPE DOC PENETRATION

	SUBSAMPLE ID.	471 1	471 3
	DEPTH INTERVAL	.0- 29.0	71.0-112.0
DIAM (PHI)	DIAM (MM)	PERCENT	PERCENT
<-4	>16.000	.000	.000
-4 TO -3	16.000 TO 8.000	.000	.000
-3 TO -2	8.000 TO 4.000	.000	.000
-2 TO -1	4.000 TO 2.000	.410	.105
-1 TO 0	2.000 TO 1.000	.332	.166
0 TO 1	1.000 TO .500	.293	.736
1 TO 2	.500 TO .250	3.531	5.301
2 TO 3	.250 TO .125	59.227	38.575
3 TO 4	.125 TO .063	11.881	4.696
4 TO 5	.063 TO .031	.215	4.486
5 TO 6	.031 TO .016	.078	7.824
6 TO 7	.016 TO .008	2.634	6.562
7 TO 8	.008 TO .004	2.634	1.901
8 TO 9	.004 TO .002	3.355	.210
9 TO 10	.002 TO .001	1.131	.000
>10	<.001	14.280	29.438
	GRAVEL (>2.0 MM)	.410	.105
	SAND (2.0-.063 MM)	75.263	49.474
	SILT (.063-.004 MM)	5.560	20.773
	CLAY (<.004 MM)	18.767	29.648
	MEAN (MM)	.0537	.0218
	MEAN (PHI)	4.218	5.520
	STANDARD DEVIATION	3.051	3.517
	SKEWNESS	.633	.235
	KURTOSIS	.001	-1.445
	ORGANIC CARBON	.356	.180
	NITROGEN (KJELDAHL)	.139	.123
	COLOR (GSA)	N1	5GY2/1

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE MRHDCY TAKEN NOV73 LATITUDE 76 42.00 N MARSDEN SQUARE 116 LENGTH ANALYZED JUL74
SAMPLE MC-2 DEPTH LONGITUDE 34 42.00 W CORER TYPE DOC PENETRATION

	SUBSAMPLE ID.	471 4	471 5
	DEPTH INTERVAL	.0-30.0	30.0-66.0
DIAM (PHI)	DIAM (MM)	PERCENT	PERCENT
<-4	>16.000	.000	.000
-4 TO -3	16.000 TO 8.000	.000	1.151
-3 TO -2	8.000 TO 4.000	.000	4.284
-2 TO -1	4.000 TO 2.000	.742	3.541
-1 TO 0	2.000 TO 1.000	.311	4.255
0 TO 1	1.000 TO .500	1.312	7.314
1 TO 2	.500 TO .250	21.128	27.815
2 TO 3	.250 TO .125	73.949	48.928
3 TO 4	.125 TO .063	2.468	2.506
4 TO 5	.063 TO .031	.017	.146
5 TO 6	.031 TO .016	.017	.015
6 TO 7	.016 TO .008	.017	.015
7 TO 8	.008 TO .004	.017	.015
8 TO 9	.004 TO .002	.017	.015
9 TO 10	.002 TO .001	.002	.001
>10	<.001	.002	.001
	GRAVEL (>2.0 MM)	.742	8.975
	SAND (2.0-.063 MM)	99.168	90.818
	SILT (.063-.004 MM)	.059	.189
	CLAY (<.004 MM)	.021	.017
	MEAN (MM)	.2100	.3406
	MEAN (PHI)	2.252	1.554
	STANDARD DEVIATION	.625	1.468
	SKEWNESS	-.977	-.797
	KURTOSIS	13.373	2.309
	ORGANIC CARBON	.636	.780
	NITROGEN (KJELDAHL)	.116	.103
	COLOR (GSA)	5GY7/1	5GY7/1

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE YRKTWN TAKEN NOV73 LATITUDE 76 30.00 N MARSDEN SQUARE 116 LENGTH ANALYZED JUL74
SAMPLE YTN-1 DEPTH LONGITUDE 37 14.00 W CORER TYPE DOC PENETRATION

	SUBSAMPLE ID.	471 6	471 7	471 8
	DEPTH INTERVAL	.0- 30.0	30.0- 56.0	56.0-112.0
DIAM (PHI)	DIAM (MM)	PERCENT	PERCENT	PERCENT
<-4	>16.000	.000	.000	.000
-4 TO -3	16.000 TO 8.000	.000	.000	.000
-3 TO -2	8.000 TO 4.000	.000	.000	.000
-2 TO -1	4.000 TO 2.000	.444	2.929	.242
-1 TO 0	2.000 TO 1.000	.415	.853	.253
0 TO 1	1.000 TO .500	.563	.779	.202
1 TO 2	.500 TO .250	.563	.890	.242
2 TO 3	.250 TO .125	.592	.853	.323
3 TO 4	.125 TO .063	.681	1.446	.606
4 TO 5	.063 TO .031	.800	.853	.161
5 TO 6	.031 TO .016	.089	6.822	1.534
6 TO 7	.016 TO .008	6.248	10.567	4.078
7 TO 8	.008 TO .004	9.329	8.750	16.714
8 TO 9	.004 TO .002	7.196	1.929	15.130
9 TO 10	.002 TO .001	28.961	11.235	12.919
>10	<.001	44.172	52.095	47.517
	GRAVEL (>2.0 MM)	.444	2.929	.242
	SAND (2.0-.063 MM)	2.813	4.820	1.655
	SILT (.063-.004 MM)	16.464	26.993	22.487
	CLAY (<.004 MM)	80.278	65.258	75.616
	MEAN (MM)	.0017	.0028	.0018
	MEAN (PHI)	9.183	8.499	9.146
	STANDARD DEVIATION	1.966	2.946	1.759
	SKEWNESS	-1.313	-.884	-1.074
	KURTOSIS	8.655	2.840	7.022
	ORGANIC CARBON	.636	4.326	1.846
	NITROGEN (KJELDAHL)	.116	.272	.325
	COLOR (GSA)	5GY7/1	N1	N1

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE YRKTWN TAKEN .NOV73 LATITUDE 76 30.00 N MARSDEN SQUARE 116 LENGTH ANALYZED .JUL74
SAMPLE YTN-2 DEPTH LONGITUDE 37 14.00 W CORER TYPE DOC PENETRATION

	SUBSAMPLE ID.	471 9	471 10	471 11
	DEPTH INTERVAL	.0- 30.0	30.0- 71.0	71.0-114.0
DIAM (PHI)	DIAM (MM)	PERCENT	PERCENT	PERCENT
<-4	>16.000	.000	.000	.000
-4 TO -3	16.000 TO 8.000	.000	.000	.000
-3 TO -2	8.000 TO 4.000	.000	.000	8.349
-2 TO -1	4.000 TO 2.000	1.495	1.187	4.463
-1 TO 0	2.000 TO 1.000	1.100	.908	2.687
0 TO 1	1.000 TO .500	.649	.698	1.727
1 TO 2	.500 TO .250	.649	.454	1.344
2 TO 3	.250 TO .125	.480	.384	.960
3 TO 4	.125 TO .063	.564	.768	.768
4 TO 5	.063 TO .031	.141	.105	.288
5 TO 6	.031 TO .016	4.401	2.584	2.879
6 TO 7	.016 TO .008	7.475	8.624	3.455
7 TO 8	.008 TO .004	9.394	5.272	9.309
8 TO 9	.004 TO .002	8.519	6.844	7.150
9 TO 10	.002 TO .001	10.635	11.418	9.501
>10	<.001	54.499	60.754	47.121
	GRAVEL (>2.0 MM)	1.495	1.187	12.812
	SAND (2.0-.063 MM)	3.441	3.212	7.486
	SILT (.063-.004 MM)	21.410	16.585	15.931
	CLAY (<.004 MM)	73.653	79.015	63.772
	MEAN (MM)	.0021	.0017	.0062
	MEAN (PHI)	8.912	9.173	7.343
	STANDARD DEVIATION	2.522	2.379	4.497
	SKEWNESS	-1.113	-1.250	-.646
	KURTOSIS	5.403	6.869	.102
	ORGANIC CARBON	4.000	3.705	1.591
	NITROGEN (KJELDAHL)	.295	.256	.193
	COLOR (GSA)	N1	N1	N1

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE YORKTOWN TAKEN NOV73 LATITUDE 76 30.00 N MARSDEN SQUARE 116 LENGTH ANALYZED JUL74
SAMPLE YTN-3 DEPTH LONGITUDE 37 14.00 W CORER TYPE DOC PENETRATION

	SUBSAMPLE ID.	471 12	471 13
	DEPTH INTERVAL	.0-30.0	30.0-86.0
DIAM (PHI)	DIAM (MM)	PERCENT	PERCENT
<-4	>16.000	.000	.000
-4 TO -3	16.000 TO 8.000	.000	.000
-3 TO -2	8.000 TO 4.000	.000	.000
-2 TO -1	4.000 TO 2.000	.000	.000
-1 TO 0	2.000 TO 1.000	.308	.277
0 TO 1	1.000 TO .500	.308	.166
1 TO 2	.500 TO .250	.247	.221
2 TO 3	.250 TO .125	.308	.442
3 TO 4	.125 TO .063	.986	1.604
4 TO 5	.063 TO .031	.062	.442
5 TO 6	.031 TO .016	2.528	4.425
6 TO 7	.016 TO .008	2.035	7.190
7 TO 8	.008 TO .004	8.261	8.131
8 TO 9	.004 TO .002	8.138	4.701
9 TO 10	.002 TO .001	4.994	3.319
>10	<.001	71.875	69.082
	GRAVEL (>2.0 MM)	.000	.000
	SAND (2.0-.063 MM)	2.156	2.710
	SILT (.063-.004 MM)	12.885	20.188
	CLAY (<.004 MM)	84.957	77.102
	MEAN (MM)	.0012	.0015
	MEAN (PHI)	9.647	9.379
	STANDARD DEVIATION	1.713	1.965
	SKEWNESS	-1.329	-.924
	KURTOSIS	8.558	3.295
	ORGANIC CARBON	1.608	1.550
	NITROGEN (KJELDAHL)	.318	.297
	COLOR (GSA)	N1	5GY2/1

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SEDIMENT SIZE AND COMPOSITION DATA

CRUISE YRKTWN TAKEN 0NOV73 LATITUDE 76 30.00 N MARSDEN SQUARE 116 LENGTH .0 ANALYZED 0JUL74
SAMPLE YTN-4 DEPTH .0 LONGITUDE 37 14.00 W CORER TYPE DOC PENETRATION .0

	SUBSAMPLE ID.	471 15	471 16	471 17
	DEPTH INTERVAL	.0- 30.0	30.0- 86.0	86.0-142.0
DIAM (PHI)	DIAM (MM)	PERCENT	PERCENT	PERCENT
<-4	>16.000	.000	.000	.000
-4 TO -3	16.000 TO 8.000	.000	.000	.000
-3 TO -2	8.000 TO 4.000	.000	.000	.000
-2 TO -1	4.000 TO 2.000	.844	.000	.000
-1 TO 0	2.000 TO 1.000	1.787	.144	.231
0 TO 1	1.000 TO .500	1.192	.192	.264
1 TO 2	.500 TO .250	.596	.289	.264
2 TO 3	.250 TO .125	.596	.385	1.255
3 TO 4	.125 TO .063	.894	.818	4.055
4 TO 5	.063 TO .031	.248	1.635	.429
5 TO 6	.031 TO .016	1.440	6.494	3.567
6 TO 7	.016 TO .008	4.171	5.628	3.864
7 TO 8	.008 TO .004	8.391	9.861	8.983
8 TO 9	.004 TO .002	12.165	7.119	8.322
9 TO 10	.002 TO .001	13.059	.433	3.633
>10	<.001	54.667	67.003	65.092
	GRAVEL (>2.0 MM)	.844	.000	.000
	SAND (2.0-.063 MM)	5.065	1.828	6.110
	SILT (.063-.004 MM)	14.201	23.617	16.843
	CLAY (<.004 MM)	79.891	74.555	77.048
	MEAN (MM)	.0039	.0016	.0017
	MEAN (PHI)	9.042	9.260	9.206
	STANDARD DEVIATION	2.495	2.000	2.178
	SKEWNESS	-1.247	-.777	-.900
	KURTOSIS	6.349	1.946	2.676
	ORGANIC CARBON	1.842	2.040	1.537
	NITROGEN (KJELDAHL)	.197	.177	.129
	COLOR (GSA)	N1	5G2/1	N1

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