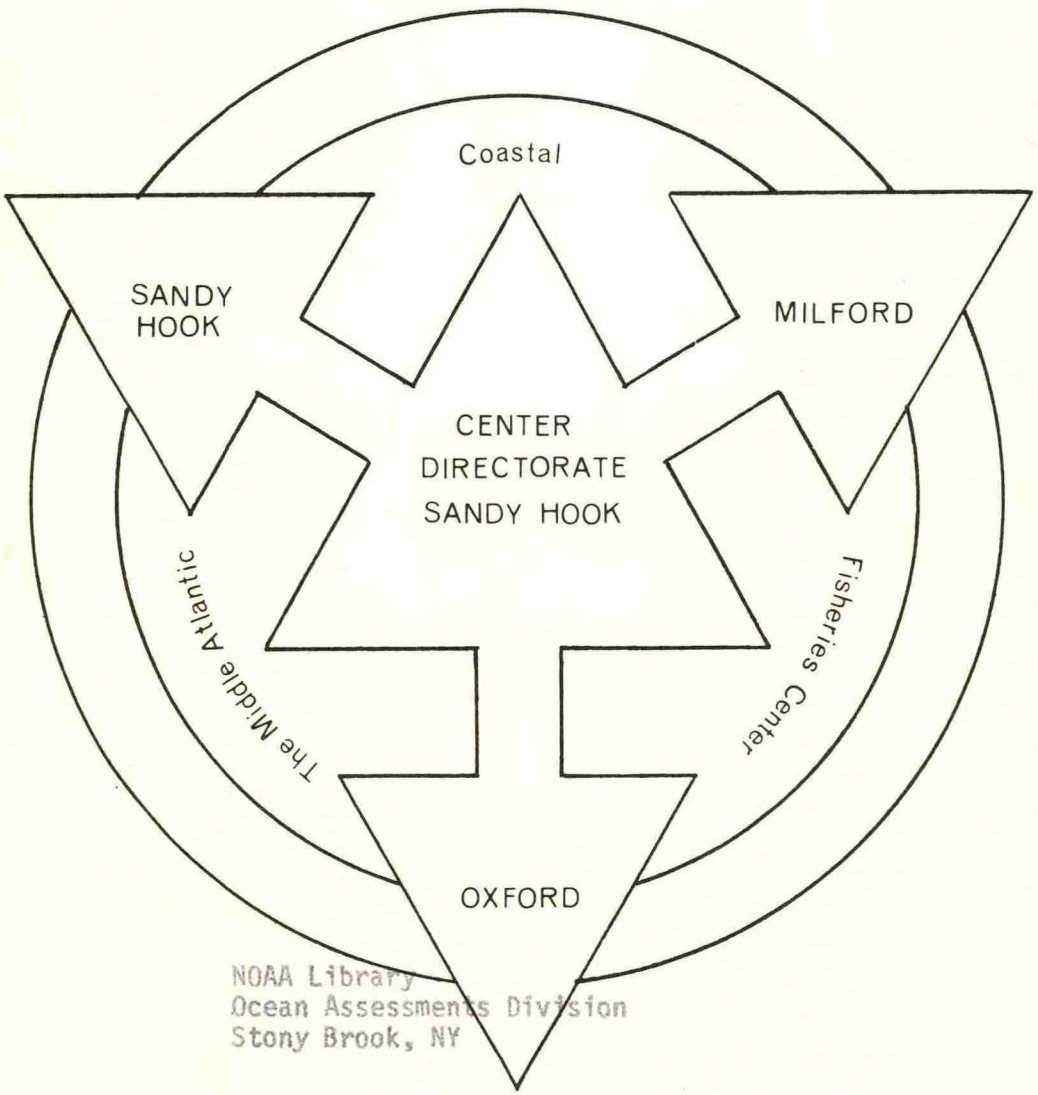
DISTRIBUTION OF FIVE METALS IN SEDIMENTS FROM THE NEW YORK BIGHT

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Region

MIDDLE ATLANTIC COASTAL FISHERIES CENTER



Informal Report No. 36
September 1974

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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MIDDLE ATLANTIC COASTAL FISHERIES CENTER
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Title: - Distribution of Five Metals in Sediments from the New York Bight - Data Report

ABSTRACT

Sediment samples from 107 stations located in the dumping areas of the New York Bight were analyzed for the metals Cu, Cr, Pb, Zn and Ni. Sampling at most of the stations was also done on a quarterly interval for possible variations of metal concentrations with time. The range of concentrations of the metals found in the area sampled (expressed as ppm on dry weight of the sediment) was as follows: Cu - 215-0.8, Cr - 300-1.6, Pb - 266-0.9, Zn - 520-1.3, Ni - 38-0.8. The highest concentrations of metals were found in sediments at stations located in the dumping areas. With a few notable exceptions, the concentrations of the metals did not vary greatly over the quarterly year sampling period.

INTRODUCTION

The following report consists of data on the concentrations and distribution of 5 metals (Cr, Cu, Ni, Zn, Pb) in sediments collected from 107 established stations in the apex of the New York Bight. The stations encompass the several dump sites (acid, dredge, sewage sludge) and peripheral areas in the Bight region. The stations were established by Marine Ecosystems Analysis (MESA) program of NOAA for periodic monitoring to develop baseline data for that geographical area.

For this study sediment sampling was conducted in August and October of 1973 and January and February of 1974 from the same established stations. In addition to determining the specific levels of metals in the sediments an attempt was made to determine variations in metal content in the sediments from the same station over a year sampling interval.

METHODS

Collection of Sediments

Bottom sediment samples were obtained with a Smith McIntyre grab sampler. Plastic tubes about 1-3/4 inches in diameter were inserted to the depth of the grab, the tubes were then capped and kept frozen until time for analysis. Chemical analyses of the samples were conducted during May-July 1974.

Metal Analyses

At the laboratory, the top 1-1/2 inches of sediment core were removed from the plastic tube and dried at 60°C. Where possible the dried sample was ground into a homogenous mass using a glass mortar and pestle. The metal analyses of the prepared sediments were conducted as follows: 2.5 g of sediment were placed in a 250 ml beaker and to this were added 10 ml of concentrated nitric acid and 0.5 ml of a 30% solution of hydrogen peroxide. The solution was evaporated to dryness by gentle boiling. The following were then added: 8 ml of 10% ammonium chloride, 0.4 ml of calcium nitrate (11.8 g/100 ml of $Ca(NO_3)_2.4\ H_2O$) and 25 ml of a mixture of concentrated acids consisting of 80 ml of nitric acid, 20 ml of hydrochloric acid and 300 ml of distilled water. This mixture was gently boiled for five minutes or longer. The sample was then filtered through Whatman No. 2 filter paper and diluted to 100 ml with distilled water. All filtered samples were analyzed in a Perkin Elmer Model 403 atomic absorption spectrophotometer.

In addition to our in-house analysis and to expedite analysis and the need for collaborative data, a group of sediments from a duplicate core from each station sampled during March 1974 was analyzed for each metal by a consulting laboratory (Analytical Consulting Services, Inc., Kensington, Md.). Prior to the submission of these samples, some sediments previously analyzed by our laboratory were sent to the consulting laboratory for comparison of technique using our methodology.

The values obtained for copper, lead, nickel and zinc showed good agreement between the two laboratories. However, the value obtained for chromium by our laboratory was 100% lower than that obtained by the consulting laboratory. In order to resolve the difficulties, sediments were also sent to our Technology Laboratory at College Park, Maryland. Laboratory personnel were able to analyze the same sediment employing three different digestion methods as listed in Table 1. Two of the procedures resulted in chromium levels in the sediment similar to our laboratory findings. The third procedure resulted in chromium values which were significantly lower than obtained by our laboratory and the consulting laboratory. The results of this comparative study and the digestion and analytic procedures employed are presented in Table 1.

The conclusion reached by us was that the values for chromium initially obtained by Analytical Consulting Services were high.

Before the results from our Technology Laboratory were known to us, the duplicate cores were sent to the consulting laboratory for analysis for the five metals since there was urgency in completing the present work.

As it turned out, the chromium values generally agreed quite well for the samples analyzed for the present study by the two laboratories (Tables 2 and 3). Some exceptions were noted. Samples obtained at station 6 where the Milford laboratory found 100 ppm of chromium and the consulting laboratory found only 11.7 ppm of chromium and at station 85 where the Milford laboratory found 22 ppm of chromium while the private laboratory found only 1.9 ppm of this metal.

The values for copper, lead, nickel and zinc were generally quite similar for the data obtained by the two laboratories (Tables 2 and 3). However, there were again a few notable exceptions. Interestingly, if one metal value showed large disagreement, then generally all metals showed this disagreement and with the same order of magnitude. This would suggest that even though duplicate core samples

were analyzed, differences in sediment homogeneity can exist within the cores which resulted in these differences rather than disagreement in analytical techniques employed by the two laboratories. This spotty distribution of different sediment types in a dredge spoils area can be expected since the source of spoils can vary. This has been observed in a previous study on the New Haven, Connecticut, dump site by our laboratory.

RESULTS

For comparative purposes a series of isopleth drawings giving metal concentrations for each metal are presented in Figures 2 to 16. For this comparison, 4 isopleths for each metal have been prepared. These figures represent the metal concentrations obtained in the sediments during the four quarterly sampling periods. The latitude and longitude and the metal concentrations in the sediments from each station are listed in tabular form in the appendix.

Copper

The distribution of this metal in sediments was similar for the four different sampling periods (Figures 2 through 5). The highest levels of this metal, with one exception, were found at latitude 40°25'N and between longitudes of 73°46' to 73°54'W. The one exceptional case was for a sample obtained from a station at coordinates 40°22'N and 73°48'W. The copper level in sediment at this location was 215 ppm which was the highest level of copper found in any sediment collected.

Although the distribution pattern of copper levels in sediments was quite similar for the four quarterly sampling periods, certain individual areas were observed to have significant variations in copper levels as related to the sampling time. For example, at the station with coordinates 40°25'N and 73°52'W the copper levels were 18, 6, 114 and 170 ppm for the months of August and October

(1973), January and March (1974), respectively. This station is near the center of the dredge spoils dumping. These variations probably relate to the differences introduced by the frequency of dumping the spoils.

Chromium

The levels of this metal were similar in magnitude to the copper levels. The highest level found in sediments, however, was 300 ppm for a sample taken at co-ordinates 40°25'N and 73°52'W which is near the center of the dredge spoils dumping.

The distribution of this metal in sediments followed a pattern similar to that of copper - that is, the stations at 40°25'N and between 73°46' to 73°54'W generally had sediments with the highest levels of this metal (Figures 6 through 9). Also, the distribution pattern in sediments for this metal did not vary significantly for the four temporal sampling periods.

Lead

The levels of this metal were of the same order of magnitude as for copper and chromium. The highest level (266 ppm) of this metal was found in sediment at a station with the coordinates of 40°22'N and 73°48'W (obtained October 1973).

The distribution pattern of lead in sediments for all stations sampled was fairly similar to the copper and chromium distribution patterns (Figures 10 through 13). Also, the distributions of lead in sediments were fairly similar for the four seasonal samplings.

Zinc

The levels of this metal generally were greater in magnitude than the levels of the other three metals cited above. The highest level of zinc found in sediments was 520 ppm for a sample obtained in March 1974 at a station with the coordinates of 40°22'N and 73°48'W. A level of 440 ppm was found, however, for a sample obtained in October 1973 at a station with coordinates of 40°22'N and 73°54'W.

Like the three metals cited above, the zinc distribution pattern in sediments for all stations was fairly similar for the four temporal sampling periods (Figures 14 through 17).

Noted exceptions to this, however, were evident for the October 1973 sample collections. Sediments collected at this time at stations with coordinates of 40°16'N and 73°44'W and 40°13'N and 73°44'W had zinc levels of 275 and 154 ppm, respectively, while samples collected from these stations in January and March 1974 had zinc levels less than 40 ppm.

Nickel

Isopleths were not drawn for this metal because of the relatively low values obtained for most sediments. The highest level of nickel was found at station 31 obtained in January 1974 where the level of this metal in sediment was 38 ppm. Most other sediment samples contained less than 10 ppm of this metal.

Table 1. Interlaboratory comparison for the determination of chromium in sediments.

Sample No.	Laboratory	Chromium Concentrations Average ppm, dry wt.				
		Milford*	Anal. Serv.*	College Park**		
				Method A	Method B	Method C
7,460		103.	170.	27.3	117.2	116.5
7,942		7.0	13.4	7.1	10.	8.
8,213		65.	114.	28.7	69.2	68.8
8,280		40.	80.9	34.7	46.1	47.5
8,370		189.	320.	132.7	163.7	163.7
8,592		55.	89.0	78.	142.	83.
10,264		102.	189.0	100.	129.	126.
10,267		11.8	18.0	8.7	--	14.7

* Milford and Anal. Serv. used Acid extraction and Acetylene flame for atomic absorption spectrophotometer.

** Method A = Wet ash digestion, Acetylene flame for atomic absorption spectrophotometer.
Method B = Wet ash digestion, Nitrous oxide flame.
Method C - Dry ash digestion, Nitrous oxide flame.

Table 2. Interlaboratory determinations of chromium, copper, and nickel levels in sediments collected from the New York Bight, March 1974.

Station No.	Laboratory: Milford			Laboratory: Anal. Consulting Services		
	Cr	Cu	Ni	Cr	Cu	Ni
1	6.0	3.1	2.0	4.7	2.7	5.4
2	5.6	3.6	2.0	4.3	2.7	5.8
3	5.8	3.1	<2.0	4.7	1.6	2.3
4	2.4	2.1	<2.0	5.3	1.9	4.1
5	<2.0	7.2	<2.0	2.8	1.2	1.6
6	100.	75.	20.0	11.7	6.9	5.6
7	<2.	2.6	<2.0	3.1	1.9	3.0
8	4.8	2.6	2.0	6.3	2.0	4.7
9	10.0	3.1	2.0	11.5	2.0	6.4
10	10.0	4.6	2.0	10.6	3.0	5.7
11	17.8	8.2	4.0	12.4	3.3	5.8
12	9.2	4.6	2.0	9.2	3.2	6.4
13	6.8	4.6	2.0	7.3	3.1	5.3
14	6.4	4.1	4.0	8.2	3.3	9.0
15	--	--	--	8.5	3.9	8.5
16	3.0	4.6	8.0	4.2	4.9	11.6
17	8.6	4.6	4.0	12.9	7.2	9.5
18	--	--	--	15.9	12.7	6.3
19	12.4	9.2	4.0	7.0	3.5	6.6
20	10.2	8.2	10.0	17.4	17.8	10.5
21	66.	55.	12.0	69.1	57.8	12.4
22	92.	82.	14.0	63.5	54.4	13.3
23	70.	57.	10.0	47.4	34.2	10.2
24	8.4	5.1	2.0	11.9	4.5	1.7
25	6.6	3.6	2.0	3.6	1.7	0.5
26	5.6	2.1	<2.0	6.1	2.0	0.8
27	4.4	2.1	<2.0	5.8	1.7	2.6
28	10.4	7.2	<2.0	11.8	5.8	5.9
29	5.0	2.6	<2.0	7.1	8.2	4.2
30	8.6	5.6	<2.0	11.9	10.7	3.8
31	215.	189.	28.0	115.	151.	26.5
32	--	--	--	98.7	100.	22.6
33	100.	76.	24.0	63.4	65.1	21.2
34	300.	170.	26.0	191.	430.	43.1
35	40.	38.	14.0	72.1	73.	18.4
36	<2.0	<2	4.0	0.8	2.5	2.1
37	<2.0	<2	4.0	2.3	2.3	2.7
38	6.0	2.8	8.0	12.3	4.0	6.4
39	10.0	4.0	6.0	12.9	4.2	5.9
40	12.0	6.4	8.0	15.5	3.7	6.6
41	30.0	16.5	10.0	33.7	23.2	11.0
42	18.0	21.6	26.0	16.6	13.7	11.7
43	22.0	215.	20.0	58.9	63.2	28.5

Table 2. Interlaboratory determinations of chromium, copper, and nickel levels in sediments collected from the New York Bight, March 1974.

Station No.	Laboratory: Milford			Laboratory: Anal. Consulting Services		
	Cr	Cu	Ni	Cr	Cu	Ni
44	4.0	3.4	6.0	8.9	4.9	6.9
45	6.0	4.0	8.0	9.0	8.0	7.8
46	--	--	--	13.0	7.1	5.9
47	20.0	13.0	8.0	8.3	3.0	4.5
48	36.0	22.8	10.0	7.9	2.8	4.0
49	2.0	< 2	4.0	4.9	1.7	4.2
50	2.0	< 2	6.0	5.5	2.5	3.4
51	4.0	< 2	6.0	6.1	2.9	4.1
52	6.0	2.6	6.0	6.4	3.0	4.7
53	12.0	8.6	8.0	17.3	11.2	7.4
54	130.0	72.	24.0	57.2	53.5	21.0
55	10.0	9.0	6.0	12.5	8.8	6.7
56	24.0	21.8	8.0	5.9	4.6	4.6
57	30.0	21.2	10.0	13.1	3.2	6.4
58	--	--	--	10.0	0.8	4.8
59	6.0	2.4	6.0	6.3	0.4	3.3
60	8.0	3.8	12.0	8.4	2.6	7.4
61	6.0	< 2	4.0	2.0	0.4	4.9
62	4.0	< 2	4.0	3.0	0.7	7.1
63	20.0	12.0	12.0	13.2	8.3	7.0
64	4.0	2.0	6.0	8.3	4.4	5.7
65	6.0	3.8	8.0	7.9	3.2	7.9
66	--	--	--	40.3	27.3	13.0
67	6.0	4.2	6.0	9.9	4.8	3.6
68	4.0	< 2.0	6.0	5.5	2.0	2.8
69	4.0	2.2	6.0	5.1	2.0	3.1
70	2.0	3.2	4.0	4.5	1.6	3.7
71	4.0	2.6	6.0	7.1	2.9	5.5
72	8.0	4.6	6.0	13.9	6.3	7.6
73	6.0	< 2.0	6.0	9.1	4.1	9.1
74	8.0	2.2	8.0	8.9	2.8	3.6
75	40.0	26.8	14.0	40.3	28.3	13.3
76	6.0	3.2	4.0	7.7	4.9	4.9
77	2.0	< 2.0	6.0	4.6	0.8	1.7
78	2.0	< 2.0	< 2.0	2.8	0.8	4.3
79	4.0	2.0	2.0	16.9	6.1	4.4
80	6.0	< 2.0	2.0	11.2	2.1	3.3
81	4.0	< 2.0	2.0	11.4	2.3	3.8
82	9.0	4.2	9.0	13.6	4.1	10.7
83	< 2.0	< 2.0	< 2.0	1.3	1.3	1.7
84	4.0	< 2.0	2.0	7.8	1.6	3.9
85	22.0	16.2	2.0	1.9	1.1	3.1
86	< 2.0	< 2.0	4.0	1.2	0.4	1.3

Table 2. Interlaboratory determinations of chromium, copper, and nickel levels in sediments collected from the New York Bight, March 1974.

Station No.	Milford			Anal. Consulting Services		
	Cr	Cu	Ni	Cr	Cu	Ni
87	2.0	< 2.0	< 2.0	5.5	1.6	4.3
88	2.0	< 2.0	< 2.0	2.8	0.8	4.9
89	4.0	< 2.0	2.0	2.5	0.8	1.2
90	6.0	< 2.0	2.0	4.3	1.7	1.3
91	12.0	5.8	4.0	12.9	6.9	5.7
92	36.0	23.8	12.0	24.9	16.0	9.7
93	20.0	11.2	8.0	18.8	10.5	11.7
94	8.0	4.6	2.0	9.5	5.2	7.9
95	6.0	< 2.0	< 2.0	3.1	--	1.9
96	6.0	2.8	< 1.6	5.2	2.0	3.6
97	4.0	< 2.0	< 2.0	4.1	0.8	2.5
98	4.0	4.4	2.0	9.2	4.4	5.6
99	4.0	< 2.0	< 2.0	4.3	--	4.3
100	2.0	< 2.0	< 2.0	1.6	0.2	1.1
101	8.0	< 2.0	2.0	10.3	1.6	3.2
102	14.0	< 2.0	2.0	8.8	2.5	6.7
103	4.0	< 2.0	<2.0	4.9	2.4	0.8
104				2.4	1.2	3.9
105				9.9	2.4	4.8
106				8.5	5.7	5.3
107				4.6	2.5	8.0

Table 3. Interlaboratory determinations of lead and zinc levels in sediments collected from the New York Bight, March 1974.

Station No.	Laboratory: Milford		Laboratory: Anal. Consulting Services	
	Pb	Zn	Pb	Zn
1	< 12	26.6	4.4	18.2
2	< 12	22.6	3.8	17.4
3	< 12	35.4	8.5	20.2
4	< 12	14.8	6.7	25.1
5	< 12	16.0	7.1	16.5
6	98	160.	12.2	27.5
7	< 12	8.4	--	12.6
8	< 12	30.2	--	24.2
9	14	42.0	11.1	35.1
10	< 12	37.0	17.3	35.8
11	20.	55.0	15.0	33.9
12	12.	94.0	16.8	27.3
13	< 12	24.6	2.1	20.2
14	12.	27.8	10.0	27.2
15	--	--	23.1	32.8
16	42.0	24.4	30.8	28.3
17	16.0	37.4	44.1	51.7
18	--	--	27.0	38.9
19	20.0	42.2	13.2	27.2
20	32.0	46.0	42.0	46.1
21	62.0	118.0	72.4	141.0
22	88.	160.0	60.9	131.0
23	66.	119.0	50.3	82.3
24	12.	27.0	18.2	24.3
25	< 12.	20.4	3.5	6.5
26	< 12.	22.2	8.2	17.9
27	< 12.	14.4	9.3	12.6
28	14.	26.8	16.8	24.9
29	< 12.	14.8	3.8	18.8
30	16.0	28.0	17.3	36.0
31	252.	380.	216.	319.
32	--	--	113.	209.
33	108.	152.0	110.	133.0
34	198.	270.0	217.	412.0
35	64.	79.0	98.6	138.0
36	< 8.	7.4	9.2	7.1
37	< 8.	12.0	7.6	5.4
38	14.	30.6	22.3	37.8
39	12.	35.6	15.1	34.6
40	12.	31.8	16.4	31.8
41	23.	44.6	35.8	63.4
42	36.	63.0	47.2	44.9
43	260.	520.0	96.9	253.
44	24.	24.6	18.7	26.8
45	14.	28.4	22.2	39.6

Table 3. Interlaboratory determinations of lead and zinc levels in sediments collected from the New York Bight, March 1974.

Station No.	Laboratory: Milford		Laboratory: Anal. Consulting Services	
	Pb	Zn	Pb	Zn
46	--	--	11.8	26.5
47	24.	41.4	13.3	19.2
48	46.	51.	30.5	16.6
49	16.	16.6	5.9	12.4
50	<8.	15.2	11.9	17.7
51	<8.	14.6	12.2	15.5
52	<8.	22.6	17.1	18.4
53	46.	43.4	17.9	41.1
54	102.	156.	80.7	134.0
55	10.	22.6	10.0	27.6
56	30.	42.4	1.7	10.9
57	40.	71.	14.3	42.1
58	--	--	12.8	20.9
59	8.0	18.6	4.2	12.9
60	<8.0	15.2	14.2	16.8
61	<8.0	10.8	--	6.1
62	<8.0	9.0	--	5.2
63	24.	44.6	13.2	22.8
64	<8.0	13.4	13.5	14.2
65	10.0	22.0	15.1	21.0
66	--	--	53.8	7.1
67	10.0	28.6	11.9	19.4
68	<8.0	12.4	9.5	11.9
69	8.0	13.8	11.7	10.1
70	8.0	20.6	7.3	8.9
71	<8.0	12.0	4.2	12.2
72	<8.0	21.0	11.0	27.5
73	<8.0	16.4	12.4	21.9
74	8.0	27.8	15.3	19.8
75	46.	79.	54.0	81.8
76	<8.0	17.2	13.8	13.4
77	<8.0	8.6	0.8	9.1
78	<8.0	5.0	1.6	4.1
79	<8.0	13.6	11.3	26.6
80	12.0	21.6	19.1	22.0
81	8.0	26.4	21.4	34.3
82	16.	53.	5.8	38.0
83	<8.0	<4.0	2.5	3.3
84	<8.0	14.2	7.8	21.1
85	22.0	42.0	--	5.0
86	<8.0	<4.0	0.9	1.3
87	<8.0	5.2	7.8	12.1
88	<8.0	4.4	4.9	5.3
89	<8.0	8.0	3.3	3.7
90	<8.0	12.4	3.4	11.0

Table 3. Interlaboratory determinations of lead and zinc levels in sediments collected from the New York Bight, March 1974.

Station No.	Laboratory: Milford		Laboratory: Anal. Consulting Services	
	Pb	Zn	Pb	Zn
91	10.0	25.6	16.2	27.9
92	38.0	80.0	27.8	57.3
93	20.0	41.8	24.3	36.8
94	10.0	24.0	7.9	17.5
95	< 8.0	11.4	--	3.5
96	10.0	12.8	--	10.0
97	< 8.0	12.5	7.4	7.4
98	8.0	9.8	10.4	23.6
99	8.0	12.8	2.3	11.3
100	< 8.0	6.2	0.9	3.4
101	12.0	26.0	19.0	34.1
102	22.0	45.8	6.7	29.8
103	< 8.0	17.4	2.4	12.1
104			3.1	7.8
105			20.7	32.6
106			15.4	38.1
107			17.7	21.1

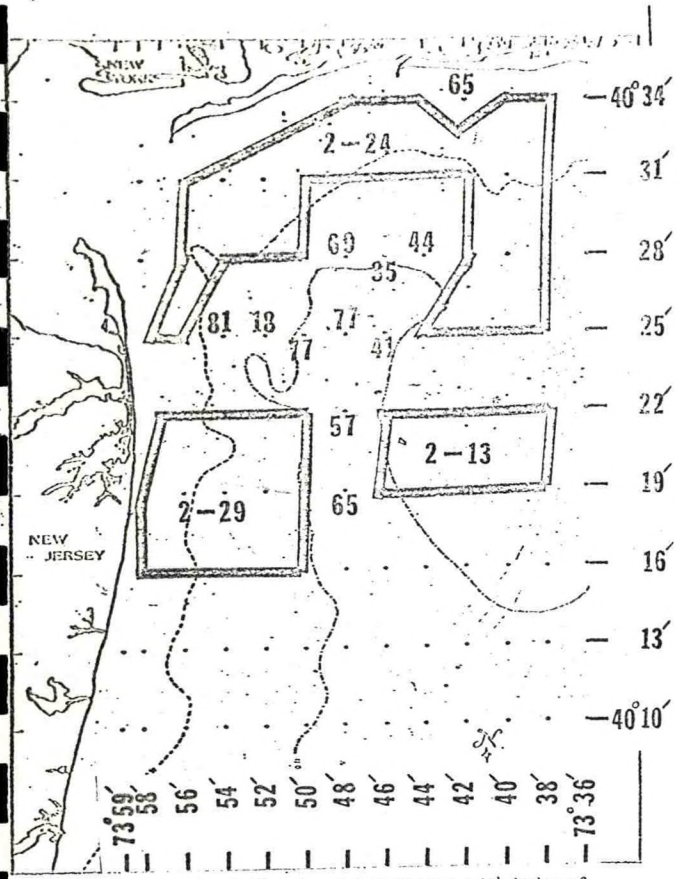

Figure 2. Copper levels(ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight August, 1973.

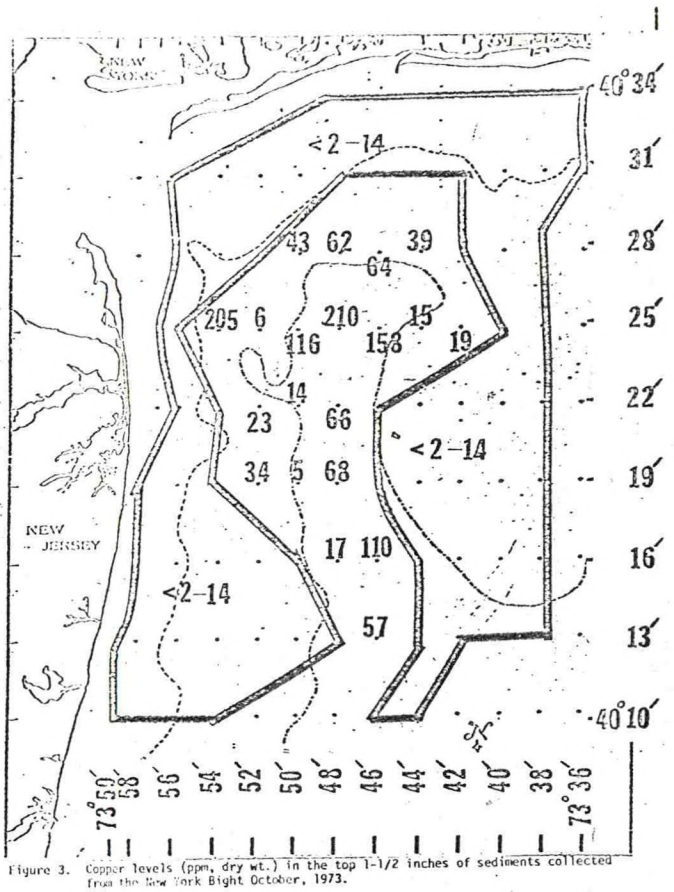

Figure 3. Copper levels (ppm, dry wt.) in the top 1-1/2 inches of sediments collected from the New York Bight October, 1973.

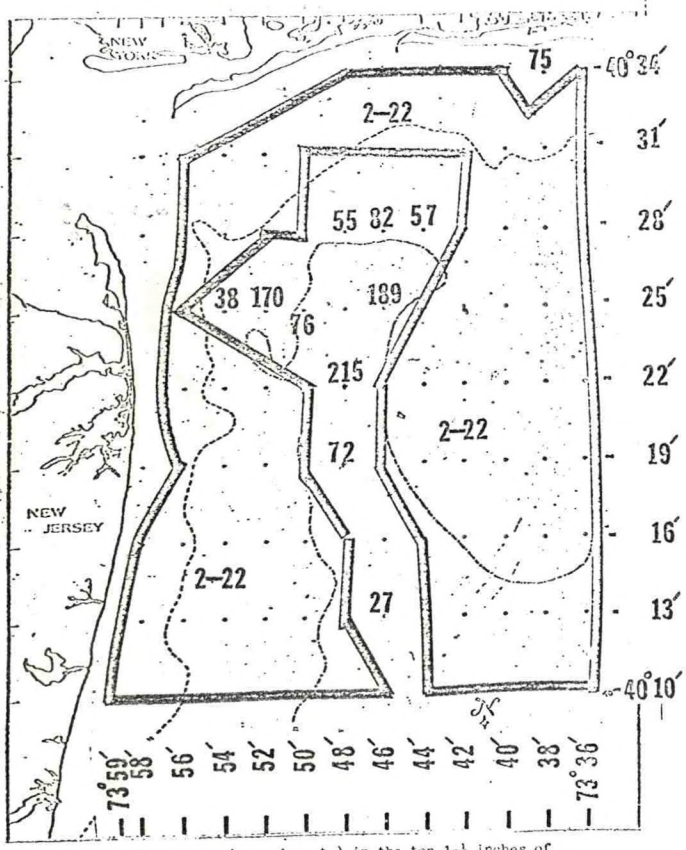

Figure 5. Copper levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight March, 1974.

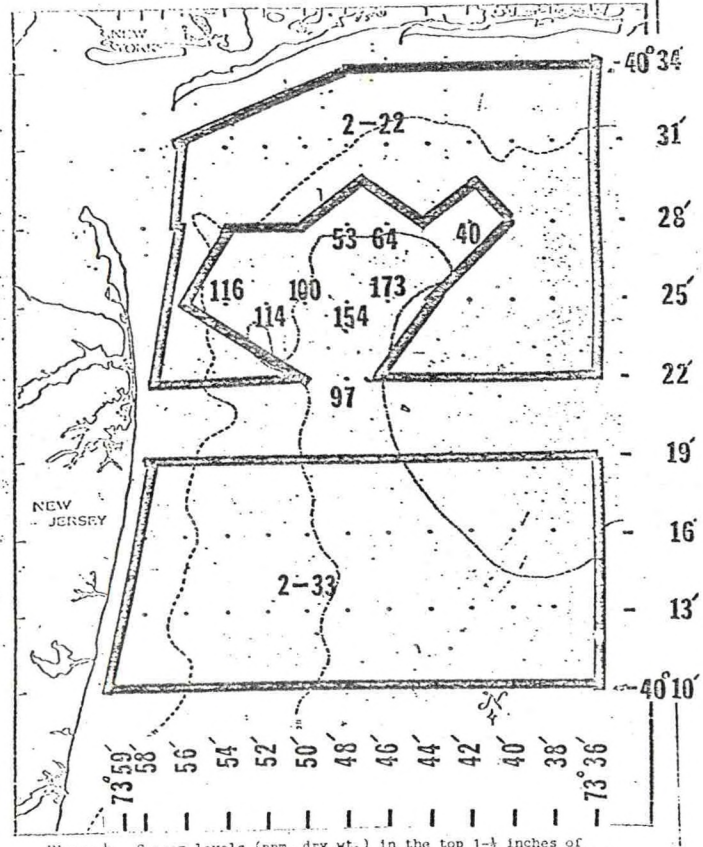

Figure 4. Copper levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight January, 1974

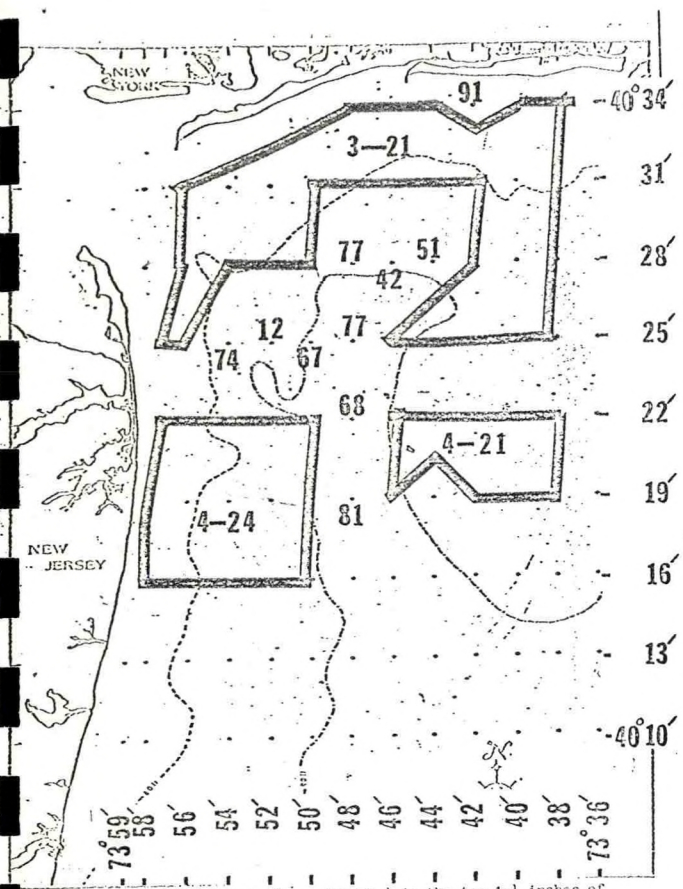

Figure 6. Chromium levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight August, 1973.

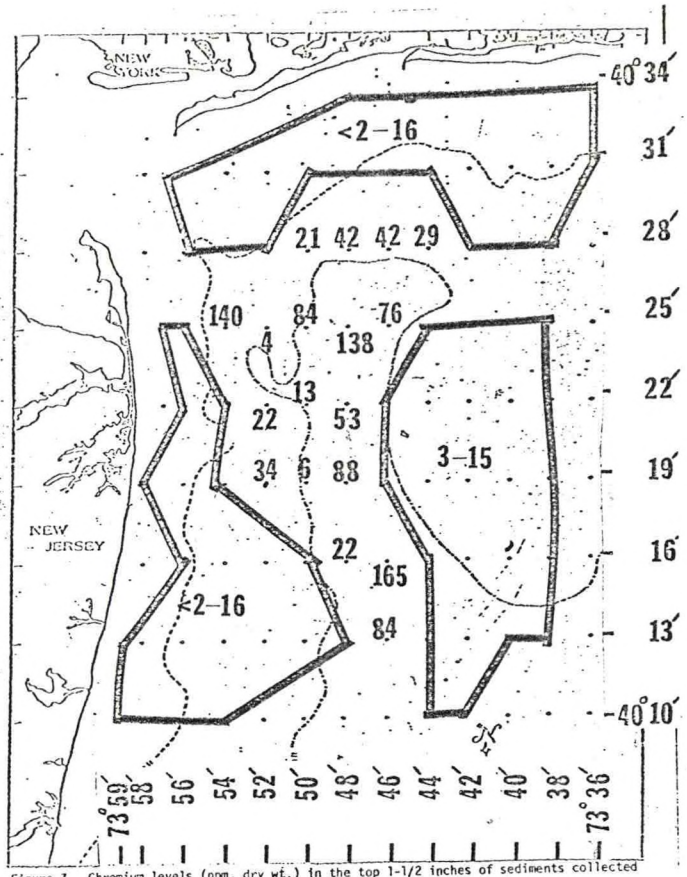

Figure 7. Chromium levels (ppm, dry wt.) in the top 1-1/2 inches of sediments collected from the New York Bight October, 1973.

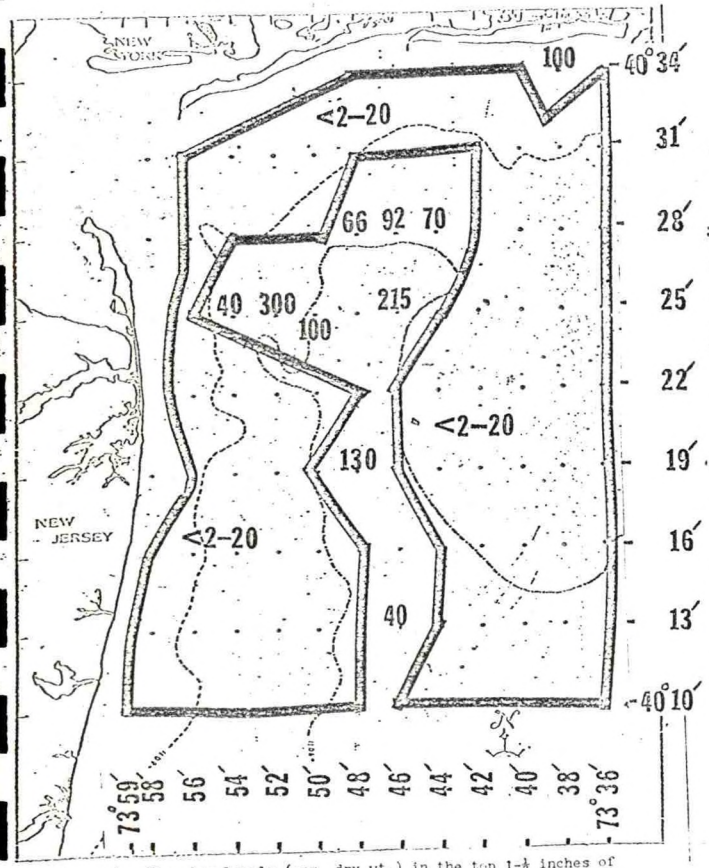

Figure 9. Chromium levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight March, 1974.

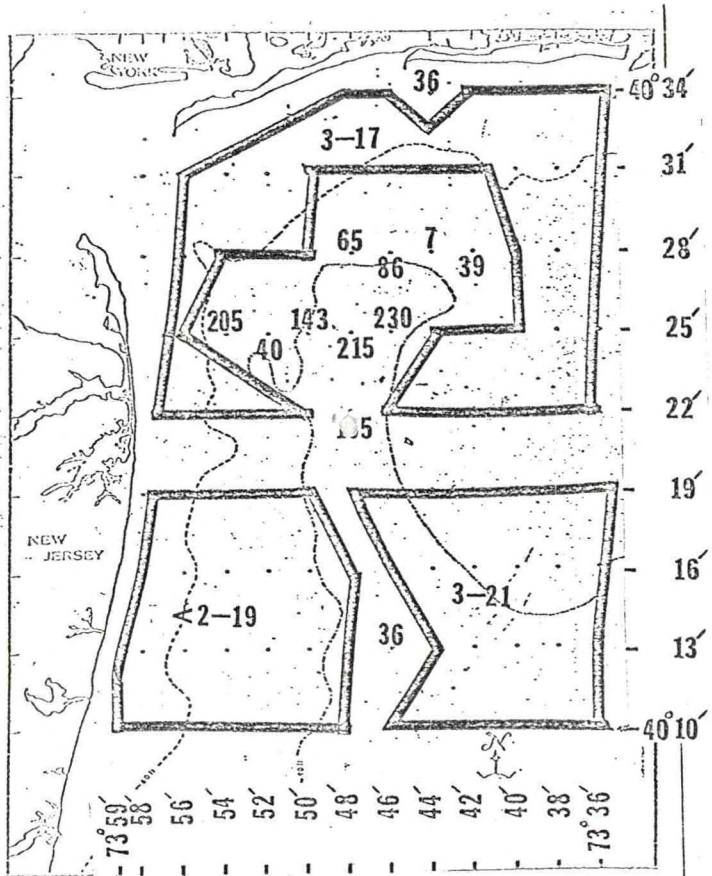

Figure 8. Chromium levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight January, 1974..

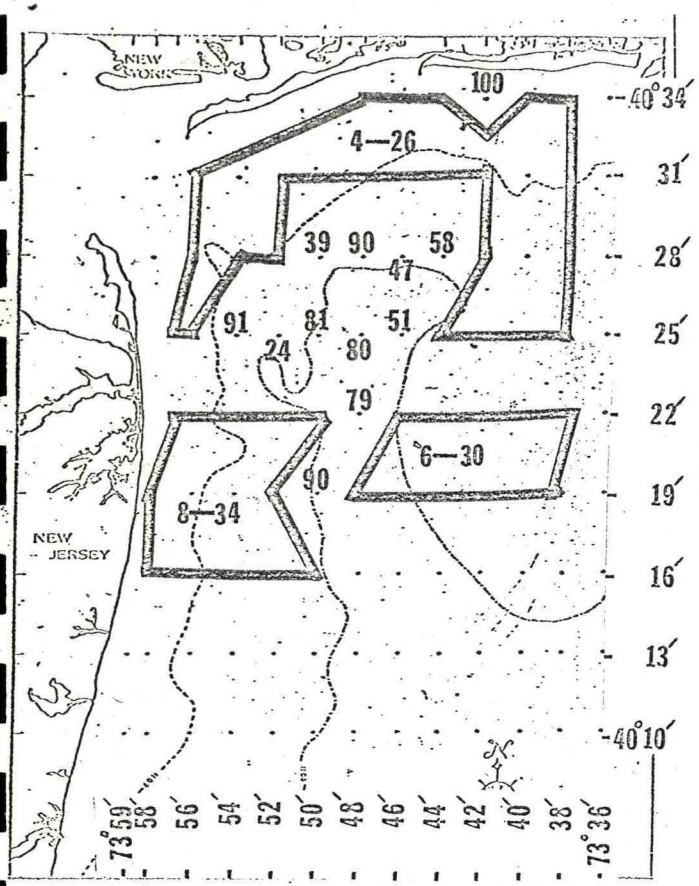

Figure 10. Lead levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight August, 1973.

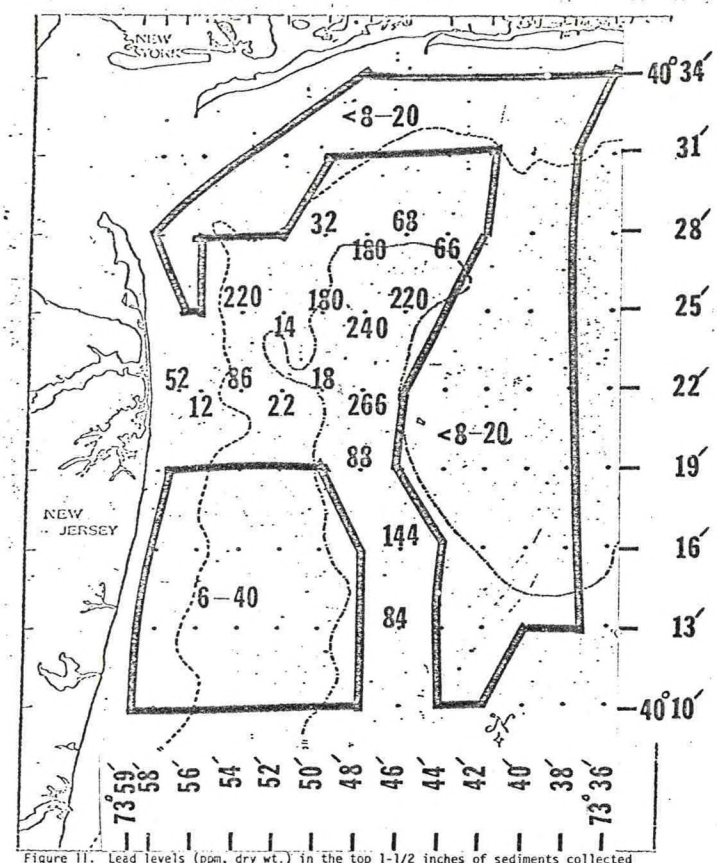

Figure 11. Lead levels (ppm, dry wt.) in the top 1-1/2 inches of sediments collected from the New York Bight October, 1973.

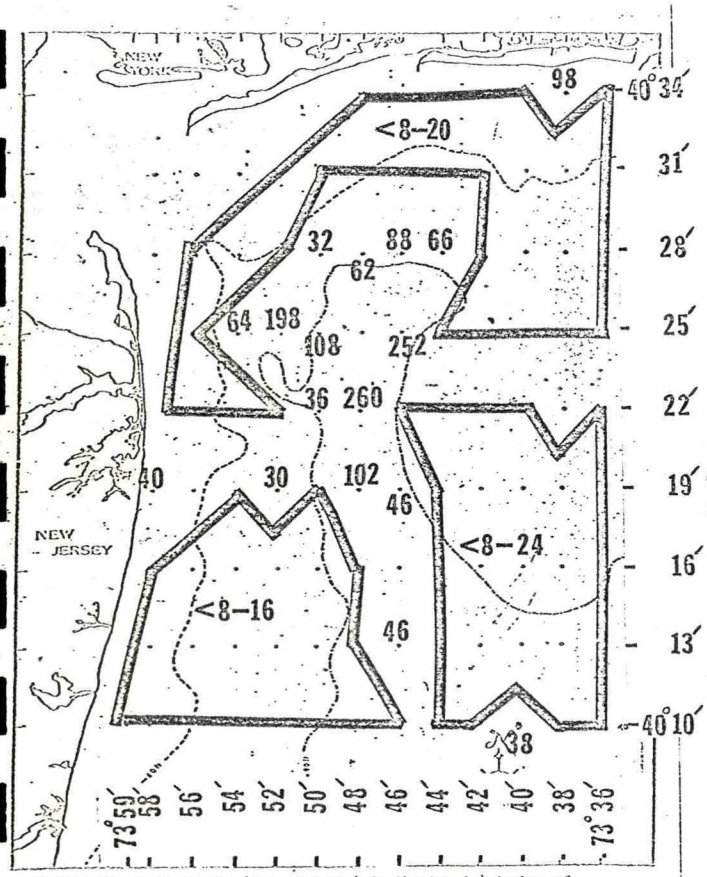

Figure 13. Lead levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight March, 1974.

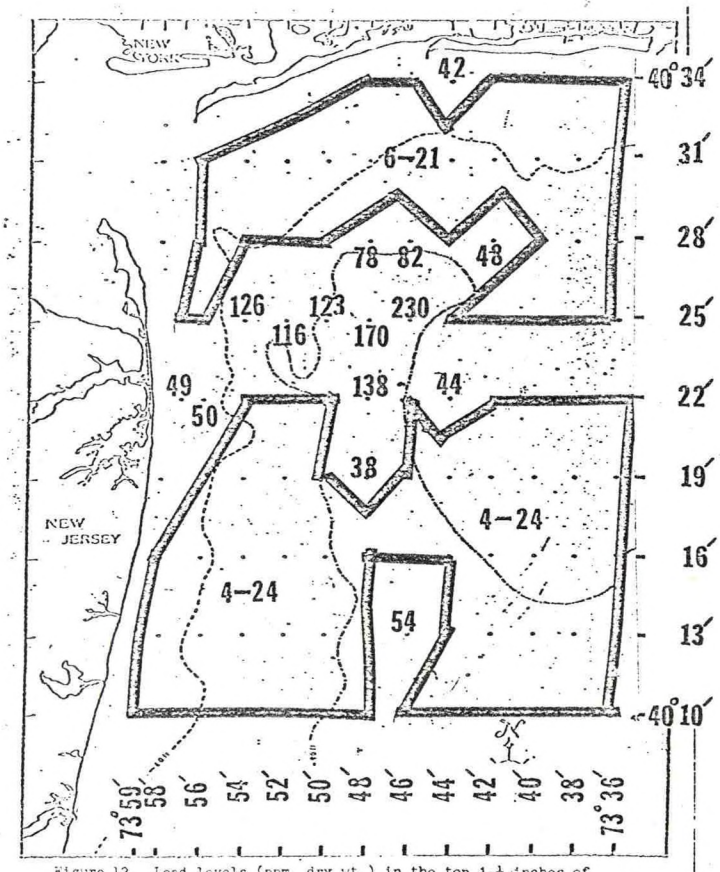

Figure 12. Lead levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight January, 1974.

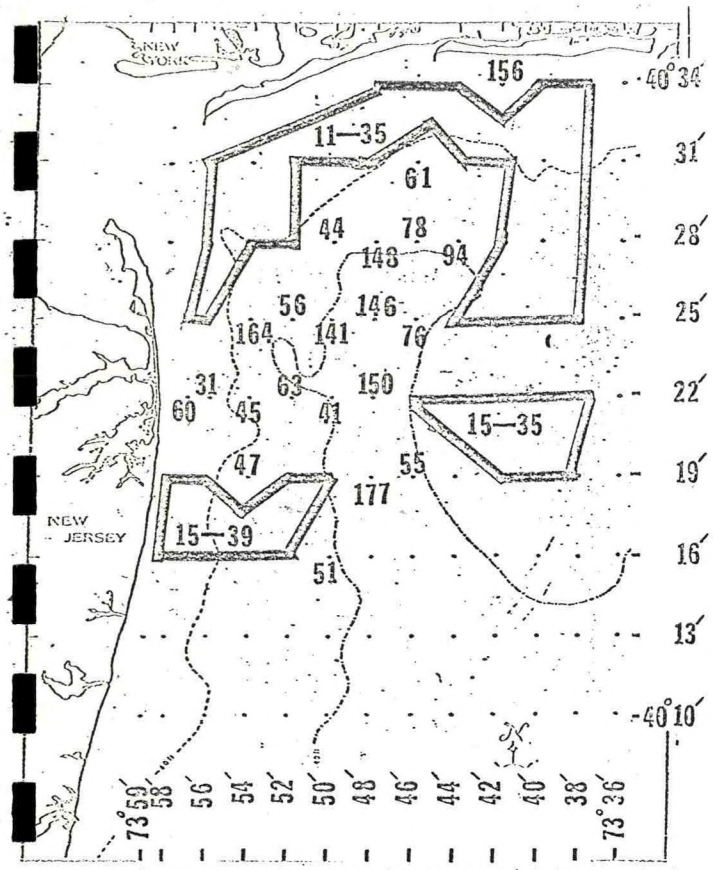

Figure 14. Zinc levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight August, 1973.

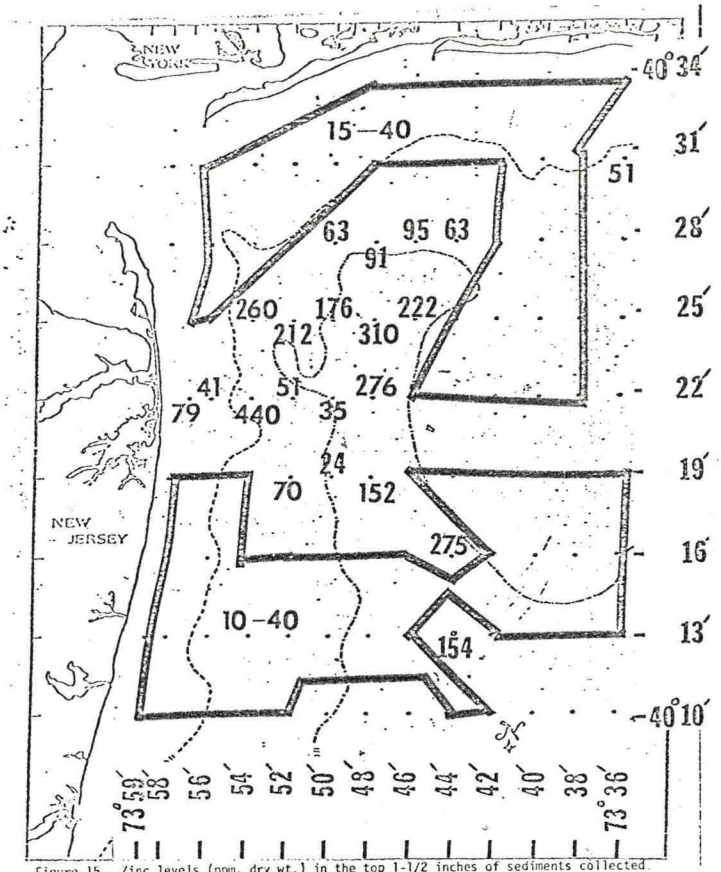

Figure 15. Zinc levels (ppm, dry wt.) in the top 1-1/2 inches of sediments collected from the New York Bight October, 1973.

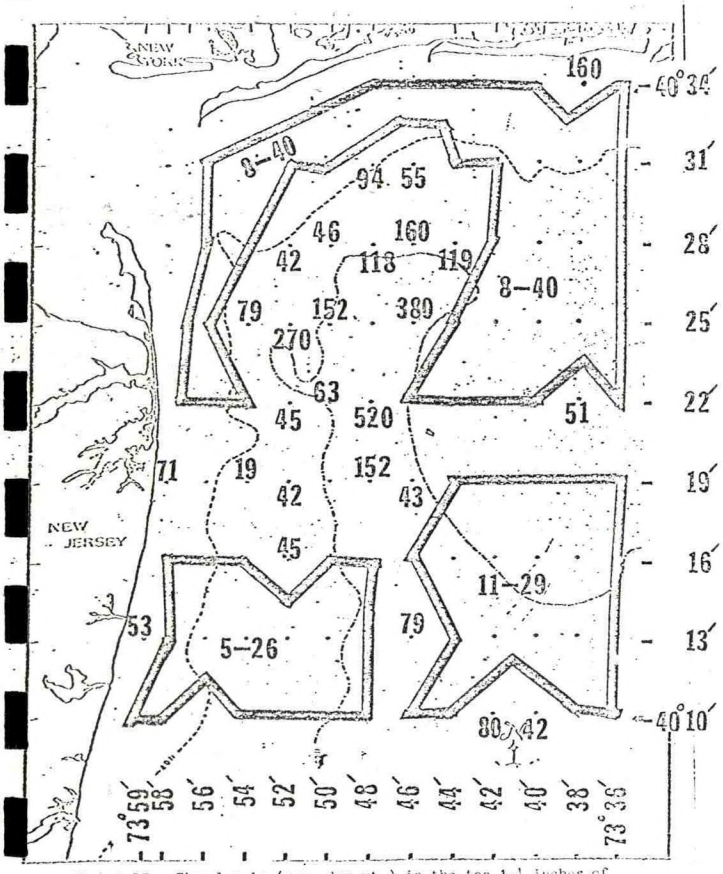

Figure 17. Zinc levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight March, 1974.

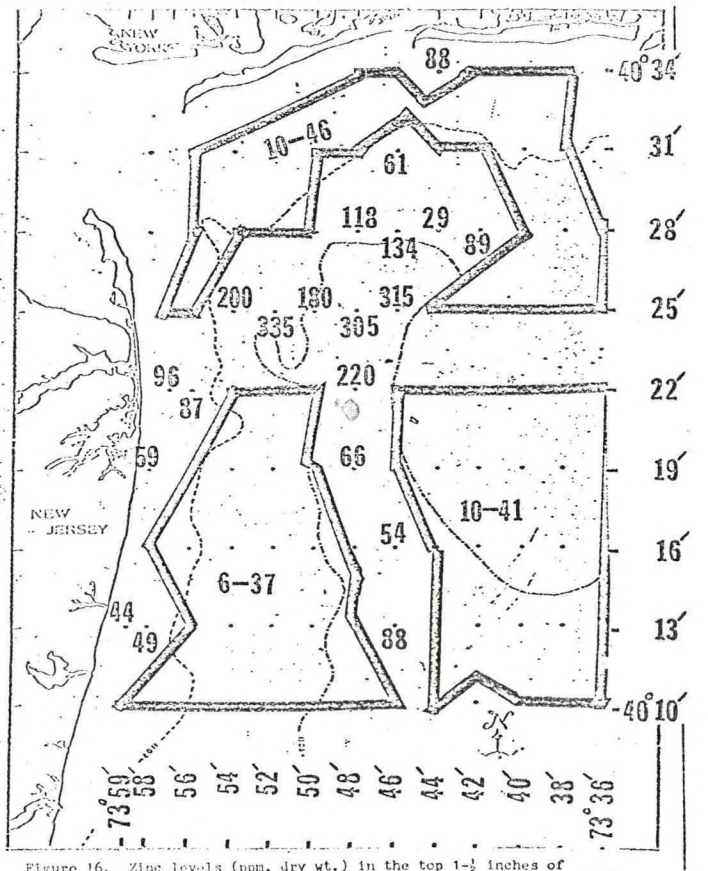

Figure 16. Zinc levels (ppm, dry wt.) in the top 1-½ inches of sediments collected from the New York Bight January, 1974.

APPENDIX

The following tables contain the specific data on metal concentrations in the sediments as identified by our coding system. From the field code the latitude and longitude of the station from which the sediment was obtained can be determined. The first letter refers to the vessel name, the next two digits the year collected, the single digit refers to the cruise number and the last digits are the station numbers. Certain stations have the designation G-1, which indicates the grab number at that station.

The laboratory code is the sequential numbering system used to identify samples as received in the chemistry laboratory.

Table Latitude and longitude designation for ALBATROSS IV cruise July 26-August 6, 1973 (Field Codes -- A-73-1).

August 2 – August 6, 1973

(01)

Loran Radar

Latitude	Longitude	Date	Field Code	Time (LST)	Latitude	Longitude	Date	Field Code	Time (LST)
40°34'N,	73°48'W	8/3/73	A-73-1-1	0135	40°25'N,	73°52'W		A-73-1-34	1820
40°34'N,	73°46'W	8/3/73	A-73-1-2	0310	40°25'N,	73°54'W		A-73-1-35	1920
40°34'N,	73°44'W		A-73-1-3	0405	40°25'N,	73°56'W		A-73-1-36	2030
40°34'N,	73°42'W		A-73-1-4	0610	40°25'N,	73°57'W		A-73-1-37	2115
40°34'N,	73°40'W		A-73-1-5	0730	40°22'N,	73°57'W		A-73-1-38	2240
40°34'N,	73°38'W		A-73-1-6	0900	40°22'N,	73°56'W		A-73-1-39	2330
40°31'N,	73°38'W		A-73-1-7	1015	40°22'N,	73°54'W	8/5/73	A-73-1-40	0020
40°31'N,	73°40'W		A-73-1-8	1225	40°22'N,	73°52'W		A-73-1-41	0115
40°31'N,	73°42'W		A-73-1-9	1355	40°22'N,	73°50'W		A-73-1-42	0215
40°31'N,	73°44'W		A-73-1-10	1515	40°22'N,	73°48'W		A-73-1-43	0254
40°31'N,	73°46'W		A-73-1-11	1545	40°22'N,	73°46'W		A-73-1-44	0400
40°31'N,	73°48'W		A-73-1-12	1635	40°22'N,	73°44'W		A-73-1-45	0500
40°31'N,	73°50'W		A-73-1-13	1736	40°22'N,	73°42'W		A-73-1-46	0605
40°31'N,	73°52'W		A-73-1-14	1830	40°22'N,	73°40'W		A-73-1-47	0700
40°31'N,	73°54'W		A-73-1-15	1900	40°22'N,	73°38'W		A-73-1-48	0800
40°31'N,	73°56'W		A-73-1-16	2045	40°19'N,	73°38'W		A-73-1-49	0905
40°28'N,	73°56'W		A-73-1-17	2230	40°19'N,	73°40'W		A-73-1-50	0950
40°28'N,	73°54'W		A-73-1-18	2330	40°19'N,	73°42'W		A-73-1-51	1100
40°28'N,	73°52'W	8/4/73	A-73-1-19	0120	40°19'N,	73°44'W		A-73-1-52	1200
40°28'N,	73°50'W		A-73-1-20	0220	40°19'N,	73°46'W		A-73-1-53	1245
40°28'N,	73°48'W		A-73-1-21	0330	40°19'N,	73°48'W		A-73-1-54	1345
40°28'N,	73°46'W		A-73-1-22	0420	40°19'N,	73°50'W		A-73-1-55	1445
40°28'N,	73°44'W		A-73-1-23	0530	40°19'N,	73°52'W		A-73-1-56	1545
40°28'N,	73°42'W		A-73-1-24	0630	40°19'N,	73°54'W		A-73-1-57	1640
40°28'N,	73°40'W		A-73-1-25	0745	40°19'N,	73°56'W		A-73-1-58	1720
40°28'N,	73°38'W		A-73-1-26	0845	40°19'N,	73°58'W		A-73-1-59	1815
40°25'N,	73°38'W		A-73-1-27	1015	40°16'N,	73°58'W		A-73-1-60	1915
40°25'N,	73°40'W		A-73-1-28	1125	40°16'N,	73°56'W		A-73-1-61	2020
40°25'N,	73°42'W		A-73-1-29	1215	40°16'N,	73°54'W		A-73-1-62	2145
40°25'N,	73°44'W		A-73-1-30	1315	40°16'N,	73°52'W		A-73-1-63	2245
40°25'N,	73°46'W		A-73-1-31	1415	40°16'N,	73°50'W	8/6/73	A-73-1-64	0015
40°25'N,	73°48'W		A-73-1-32	1515					
40°25'N,	73°50'W		A-73-1-33	1733					

Table Latitude and longitude designations for OREGON II cruise October 19-26, 1973 (Field Code -- 0-73-1). Loran + Radar (07)

Latitude	Longitude	Field Code	DATE	TIME (LST)
40°34'N,	73°48'W	0-73-1-1	10/20/73	1210 172
40°34'N,	73°46'W	0-73-1-2	M	—
40°34'N,	73°44'W	0-73-1-3	M	—
40°34'N,	73°42'W	0-73-1-4	M	—
40°34'N,	73°40'W	0-73-1-5	M	—
40°34'N,	73°38'W	0-73-1-6		1930 225
40°31'N,	73°38'W	0-73-1-7		1800 230
40°31'N,	73°40'W	0-73-1-8		1930 005
40°31'N,	73°42'W	0-73-1-9		2115 023
40°31'N,	73°44'W	0-73-1-10	M	—
40°31'N,	73°46'W	0-73-1-11		2300 040
40°31'N,	73°48'W	0-73-1-12		2345 047
40°31'N,	73°50'W	0-73-1-13	10/21/73	0033 056
40°31'N,	73°52'W	0-73-1-14		0147 068
40°31'N,	73°54'W	0-73-1-15		0235 076
40°31'N,	73°56'W	0-73-1-16		0310 082
40°28'N,	73°58'W	0-73-1-17		0428 095
40°28'N,	73°56'W	0-73-1-18		0535 106
40°31'N,	73°36'W	0-73-1-19		0745 127
40°34'N,	73°36'W	0-73-1-20		0905 141
40°28'N,	73°54'W	0-73-1-21		1745 225
40°28'N,	73°52'W	0-73-1-22		1930 005
40°28'N,	73°50'W	0-73-1-23		2030 015
40°28'N,	73°48'W	0-73-1-24		—
40°28'N,	73°46'W	0-73-1-25		—
40°28'N,	73°44'W	0-73-1-26		2300 040
40°28'N,	73°42'W	0-73-1-27		2355 049
40°28'N,	73°40'W	0-73-1-28	10/22/73	—
40°28'N,	73°38'W	0-73-1-29		—
40°25'N,	73°38'W	0-73-1-30		—
40°25'N,	73°40'W	0-73-1-31		—
40°25'N,	73°42'W	0-73-1-32		0605 111
40°25'N,	73°44'W	0-73-1-33		0700 125
40°25'N,	73°46'W	0-73-1-34		0810 139
40°25'N,	73°48'W	0-73-1-35		—
40°25'N,	73°50'W	0-73-1-36		—
40°25'N,	73°52'W	0-73-1-37		—
40°25'N,	73°54'W	0-73-1-38		—
40°25'N,	73°56'W	0-73-1-39		—
40°25'N,	73°57'W	0-73-1-40		—
40°22'N,	73°57'W	0-73-1-41		—
40°22'N,	73°56'W	0-73-1-42		—
40°22'N,	73°54'W	0-73-1-43		—
40°22'N,	73°52'W	0-73-1-44		—
40°22'N,	73°50'W	0-73-1-45	10/23/73	0130 065
40°22'N,	73°48'W	0-73-1-46		—

Latitude	Longitude	Field Code	DATE	TIME (LST)
40°22'N,	73°46'W	0-73-1-47		—
40°22'N,	73°44'W	0-73-1-48		0515 103
40°22'N,	73°42'W	0-73-1-49		0600 110
40°22'N,	73°40'W	0-73-1-50		—
40°22'N,	73°38'W	0-73-1-51		—
40°19'N,	73°38'W	0-73-1-52		1400 190
40°19'N,	73°40'W	0-73-1-53		—
40°19'N,	73°42'W	0-73-1-54		—
40°19'N,	73°44'W	0-73-1-55		—
40°19'N,	73°46'W	0-73-1-56		—
40°19'N,	73°48'W	0-73-1-57		—
40°19'N,	73°50'W	0-73-1-58		—
40°19'N,	73°52'W	0-73-1-59	10/24/73	—
40°19'N,	73°54'W	0-73-1-60		—
40°19'N,	73°56'W	0-73-1-61		—
40°19'N,	73°58'W	0-73-1-62		—
40°16'N,	73°58'W	0-73-1-63		—
40°16'N,	73°56'W	0-73-1-64		—
40°16'N,	73°54'W	0-73-1-65		—
40°16'N,	73°52'W	0-73-1-66		—
40°16'N,	73°50'W	0-73-1-67		—
40°16'N,	73°48'W	0-73-1-68		—
40°16'N,	73°46'W	0-73-1-69		—
40°16'N,	73°44'W	0-73-1-70		—
40°16'N,	73°42'W	0-73-1-71		—
40°16'N,	73°40'W	0-73-1-72		—
40°16'N,	73°38'W	0-73-1-73		—
40°13'N,	73°38'W	0-73-1-74		—
40°13'N,	73°40'W	0-73-1-75		—
40°13'N,	73°42'W	0-73-1-76		—
40°13'N,	73°44'W	0-73-1-77		—
40°13'N,	73°46'W	0-73-1-78		2355 049
40°13'N,	73°48'W	0-73-1-79	10/25/73	0100 060
40°13'N,	73°50'W	0-73-1-80		0205 071
40°13'N,	73°52'W	0-73-1-81		0300 080
40°13'N,	73°54'W	0-73-1-82		0335 089
40°13'N,	73°56'W	0-73-1-83		0435 096
40°13'N,	73°58'W	0-73-1-84		0545 107
40°13'N,	73°59'W	0-73-1-85		0620 113
40°10'N,	73°59'W	0-73-1-86		—
40°10'N,	73°58'W	0-73-1-87		—
40°10'N,	73°56'W	0-73-1-88		—
40°10'N,	73°54'W	0-73-1-89		—
40°10'N,	73°46'W	0-73-1-90		—
40°10'N,	73°44'W	0-73-1-91		1530 205

Where done not included = Missing

Table Latitude and longitude designation for ALBATROSS IV cruise January 22-February 5, 1974 (Field Codes -- A-74-1).

Latitude	Longitude	Date	Field Code	Time (LST)
40°34'N,	73°48'W	1/22/74	A-74-1-1	2000
40°34'N,	73°46'W		A-74-1-2	2210
40°34'N,	73°44'W	1/23/74	A-74-1-3	0052
40°34'N,	73°42'W		A-74-1-4	0230
40°34'N,	73°40'W		A-74-1-5	0545
40°34'N,	73°38'W		A-74-1-6	0725
40°31'N,	73°38'W		A-74-1-7	1044
40°31'N,	73°40'W		A-74-1-8	1240
40°31'N,	73°42'W		A-74-1-9	1500
40°31'N,	73°44'W		A-74-1-10	1715
40°31'N,	73°46'W		A-74-1-11	1815
40°31'N,	73°48'W		A-74-1-12	1915
40°31'N,	73°50'W		A-74-1-13	2145
40°31'N,	73°52'W		A-74-1-14	2228
40°31'N,	73°54'W	1/24/74	A-74-1-15	0110
40°31'N,	73°56'W		A-74-1-16	0310
40°28'N,	73°56'W		A-74-1-17	0500
40°28'N,	73°54'W		A-74-1-18	0550
40°28'N,	73°52'W		A-74-1-19	0820
40°28'N,	73°50'W		A-74-1-20	0900
40°28'N,	73°48'W		A-74-1-21	1050
40°28'N,	73°46'W		A-74-1-22	1215
40°28'N,	73°44'W		A-74-1-23	1442
40°28'N,	73°42'W		A-74-1-24	1530
40°28'N,	73°40'W		A-74-1-25	1630
40°28'N,	73°38'W		A-74-1-26	1800
40°25'N,	73°38'W		A-74-1-27	2035
40°25'N,	73°40'W		A-74-1-28	2130
40°25'N,	73°42'W		A-74-1-29	2350
40°25'N,	73°44'W	1/25/74	A-74-1-30	0100
40°25'N,	73°46'W		A-74-1-31	0300
40°25'N,	73°48'W		A-74-1-32	0345
40°25'N,	73°50'W		A-74-1-33	0710
40°25'N,	73°52'W		A-74-1-34	0910
40°25'N,	73°54'W		A-74-1-35	1035
40°25'N,	73°56'W		A-74-1-36	1300
40°25'N,	73°57'W		A-74-1-37	1445
40°22'N,	73°57'W		A-74-1-38	1627
40°22'N,	73°56'W		A-74-1-39	1825
40°22'N,	73°54'W		A-74-1-40	1915
40°22'N,	73°52'W		A-74-1-41	2010
40°22'N,	73°50'W		A-74-1-42	2145
40°22'N,	73°48'W		A-74-1-43	2350
40°22'N,	73°46'W	1/26/74	A-74-1-44	0130
40°22'N,	73°44'W		A-74-1-45	0320
40°22'N,	73°42'W		A-74-1-46	0430
40°22'N,	73°40'W		A-74-1-47	0530
40°22'N,	73°38'W		A-74-1-48	0640
40°19'N,	73°38'W		A-74-1-49	0819
40°19'N,	73°40'W		A-74-1-50	1000
40°19'N,	73°42'W		A-74-1-51	1115
40°19'N,	73°44'W		A-74-1-52	1300
40°19'N,	73°46'W		A-74-1-53	1430
40°19'N,	73°48'W		A-74-1-54	1600
40°19'N,	73°50'W		A-74-1-55	1700
40°19'N,	73°52'W		A-74-1-56	1800
40°19'N,	73°54'W		A-74-1-57	1930
40°19'N,	73°56'W		A-74-1-58	2030
40°19'N,	73°58'W		A-74-1-59	2145
40°16'N,	73°58'W		A-74-1-60	2250
40°16'N,	73°56'W	1/27/74	A-74-1-61	0000
40°16'N,	73°54'W		A-74-1-62	0100
40°16'N,	73°52'W		A-74-1-63	0230
40°16'N,	73°50'W		A-74-1-64	0400
40°16'N,	73°48'W		A-74-1-65	0500
40°16'N,	73°46'W		A-74-1-66	0600
40°16'N,	73°44'W		A-74-1-67	0900
40°16'N,	73°42'W		A-74-1-68	1000
40°16'N,	73°40'W		A-74-1-69	1240
40°16'N,	73°38'W		A-74-1-70	1400
40°13'N,	73°38'W		A-74-1-71	1700
40°13'N,	73°40'W		A-74-1-72	1800
40°13'N,	73°42'W		A-74-1-73	2000
40°13'N,	73°44'W		A-74-1-74	2215
40°13'N,	73°46'W		A-74-1-75	2330
40°13'N,	73°48'W	1/28/74	A-74-1-76	0130
40°13'N,	73°50'W		A-74-1-77	0240
40°13'N,	73°52'W		A-74-1-78	0400
40°13'N,	73°54'W		A-74-1-79	0500
40°13'N,	73°56'W		A-74-1-80	0530
40°13'N,	73°58'W		A-74-1-81	0630
40°13'N,	73°59'W		A-74-1-82	0800
40°10'N,	73°59'W		A-74-1-83	1100
40°10'N,	73°58'W		A-74-1-84	1230
40°10'N,	73°56'W		A-74-1-85	1400
40°10'N,	73°54'W		A-74-1-86	1450
40°10'N,	73°52'W		A-74-1-87	1545
40°10'N,	73°50'W		A-74-1-88	1645
40°10'N,	73°48'W		A-74-1-89	1800
40°10'N,	73°46'W		A-74-1-90	1915
40°10'N,	73°44'W		A-74-1-91	2120
40°10'N,	73°42'W		A-74-1-92	2225
40°10'N,	73°40'W	1/29/74	A-74-1-93	0200
40°10'N,	73°38'W		A-74-1-94	0360
40°10'N,	73°36'W		A-74-1-95	0430
40°13'N,	73°36'W		A-74-1-96	0530
40°16'N,	73°36'W		A-74-1-97	0650
40°19'N,	73°36'W		A-74-1-98	0840
40°22'N,	73°36'W		A-74-1-99	1020
40°25'N,	73°36'W		A-74-1-100	1140
40°28'N,	73°36'W		A-74-1-101	1400
40°31'N,	73°36'W		A-74-1-102	1730
40°36'N,	73°36'W		A-74-1-103	2250

Table Latitude and longitude designations for OREGON II cruise March 21-April 4, 1974 (Field Codes -- 0-74-1). Radust (04)

Latitude	Longitude	Date	Field Code	Time (LST)	Latitude	Longitude	Date	Field Code	Time (LST)
40°34'N,	73°48'W	3/22	0-74-1-1	1200 (170)	40°19'N,	73°44'W	3/26	0-74-1-52	1500 (200)
40°34'N,	73°46'W	"	0-74-1-2	1400 (190)	40°19'N,	73°46'W		0-74-1-53	1830 (235)
40°34'N,	73°44'W	"	0-74-1-3	1635 (216)	40°19'N,	73°48'W		0-74-1-54	2040 (017)
40°34'N,	73°42'W	"	0-74-1-4	1845 (237)	40°19'N,	73°50'W		0-74-1-55	2310 (042)
40°34'N,	73°40'W	"	0-74-1-5	2040 (017)	40°19'N,	73°52'W	3/27	0-74-1-56	0030 (005)
40°34'N,	73°38'W	"	0-74-1-6	2230 (037)	40°19'N,	73°54'W		0-74-1-57	0300 (080)
40°31'N,	73°38'W	3/23	0-74-1-7	0036 (006)	40°19'N,	73°56'W		0-74-1-58	0420 (093)
40°31'N,	73°40'W	"	0-74-1-8	0250 (028)	40°19'N,	73°58'W		0-74-1-59	0620 (113)
40°31'N,	73°42'W		0-74-1-9	0415 (093)	40°16'N,	73°58'W		0-74-1-60	0820 (133)
40°31'N,	73°44'W		0-74-1-10	0605 (111)	40°16'N,	73°56'W		0-74-1-61	1020 (153)
40°31'N,	73°46'W		0-74-1-11	0930 (145)	40°16'N,	73°54'W		0-74-1-62	1120 (163)
40°31'N,	73°48'W		0-74-1-12	1040 (157)	40°16'N,	73°52'W		0-74-1-63	M —
40°31'N,	73°50'W		0-74-1-13	1155 (171)	40°16'N,	73°50'W		0-74-1-64	1520 (203)
40°31'N,	73°52'W		0-74-1-14	1330 (185)	40°16'N,	73°48'W		0-74-1-65	1810 (232)
40°31'N,	73°54'W		0-74-1-15	1700 (208)	40°16'N,	73°46'W		0-74-1-66	2015 (013)
40°31'N,	73°56'W		0-74-1-16	1815 (223)	40°16'N,	73°44'W		0-74-1-67	2155 (029)
40°28'N,	73°56'W		0-74-1-17	2010 (012)	40°16'N,	73°42'W		0-74-1-68	2250 (038)
40°28'N,	73°54'W		0-74-1-18	2130 (025)	40°16'N,	73°40'W	3/28	0-74-1-69	0030 (005)
40°28'N,	73°52'W		0-74-1-19	2320 (043)	40°16'N,	73°38'W		0-74-1-70	0230 (075)
40°28'N,	73°50'W	3/24	0-74-1-20	0135 (066)	40°13'N,	73°38'W		0-74-1-71	0345 (087)
40°28'N,	73°48'W		0-74-1-21	0505 (101)	40°13'N,	73°40'W		0-74-1-72	0545 (107)
40°28'N,	73°46'W		0-74-1-22	0630 (118)	40°13'N,	73°42'W		0-74-1-73	0725 (124)
40°28'N,	73°44'W		0-74-1-23	0835 (136)	40°13'N,	73°44'W		0-74-1-74	0900 (140)
40°28'N,	73°42'W		0-74-1-24	1005 (151)	40°13'N,	73°46'W		0-74-1-75	1055 (159)
40°28'N,	73°40'W		0-74-1-25	1145 (167)	40°13'N,	73°48'W		0-74-1-76	1230 (175)
40°28'N,	73°38'W		0-74-1-26	1340 (187)	40°13'N,	73°50'W		0-74-1-77	1445 (197)
40°25'N,	73°38'W		0-74-1-27	1610 (210)	40°13'N,	73°52'W		0-74-1-78	1600 (210)
40°25'N,	73°40'W		0-74-1-28	1745 (227)	40°13'N,	73°54'W		0-74-1-79	1815 (233)
40°25'N,	73°42'W		0-74-1-29	1930 (005)	40°13'N,	73°56'W		0-74-1-80	1915 (003)
40°25'N,	73°44'W		0-74-1-30	2045 (017)	40°13'N,	73°58'W		0-74-1-81	2100 (020)
40°25'N,	73°46'W		0-74-1-31	2355 (049)	40°13'N,	73°59'W		0-74-1-82	2205 (031)
40°25'N,	73°48'W	3/25	0-74-1-32	0150 (068)	40°10'N,	73°59'W	3/29	0-74-1-83	0030 (005)
40°25'N,	73°50'W		0-74-1-33	0330 (085)	40°10'N,	73°58'W		0-74-1-84	0215 (073)
40°25'N,	73°52'W		0-74-1-34	0550 (108)	40°10'N,	73°56'W		0-74-1-85	0410 (092)
40°25'N,	73°54'W		0-74-1-35	0825 (134)	40°10'N,	73°54'W		0-74-1-86	0530 (105)
40°25'N,	73°56'W		0-74-1-36	1010 (152)	40°10'N,	73°52'W		0-74-1-87	0735 (126)
40°25'N,	73°57'W		0-74-1-37	1155 (167)	40°10'N,	73°50'W		0-74-1-88	0915 (143)
40°22'N,	73°57'W		0-74-1-38	1350 (188)	40°10'N,	73°48'W		0-74-1-89	1050 (158)
40°22'N,	73°56'W		0-74-1-39	1500 (200)	40°10'N,	73°46'W		0-74-1-90	1230 (175)
40°22'N,	73°54'W		0-74-1-40	1620 (213)	40°10'N,	73°44'W		0-74-1-91	1500 (200)
40°22'N,	73°52'W		0-74-1-41	1845 (237)	40°10'N,	73°42'W	3/31	0-74-1-92	1140 (167)
40°22'N,	73°50'W		0-74-1-42	2005 (001)	40°10'N,	73°40'W		0-74-1-93	1430 (195)
40°22'N,	73°48'W		0-74-1-43	2315 (043)	40°10'N,	73°38'W		0-74-1-94	1650 (218)
40°22'N,	73°46'W	3/26	0-74-1-44	0130 (065)	40°10'N,	73°36'W		0-74-1-95	1903 (000)
40°22'N,	73°44'W		0-74-1-45	0300 (080)	40°13'N,	73°36'W		0-74-1-96	2045 (017)
40°22'N,	73°42'W		0-74-1-46	0440 (094)	40°16'N,	73°36'W		0-74-1-97	2300 (040)
40°22'N,	73°40'W		0-74-1-47	0620 (113)	40°19'N,	73°36'W	4/1	0-74-1-98	0015 (003)
40°22'N,	73°38'W		0-74-1-48	0805 (131)	40°22'N,	73°36'W		0-74-1-99	0245 (077)
40°19'N,	73°38'W		0-74-1-49	0950 (146)	40°25'N,	73°36'W		0-74-1-100	0430 (095)
40°19'N,	73°40'W		0-74-1-50	1105 (161)	40°23'N,	73°36'W		0-74-1-101	0620 (113)
40°19'N,	73°42'W		0-74-1-51	1250 (178)	40°31'N,	73°36'W		0-74-1-102	0900 (140)

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm)* Cr	Cu	Ni	Pb	Zn
11,519	A-73-1-1 G1 8/2/73	3.0	<1.6	2.6	4.	11.0
11,520	A-73-1-2 G1 8/3/73	8.2	2.6	2.4	10.	27.2
11,521	A-73-1-3 G1 8/3/73	8.2	<1.6	<2.0	10.	27.6
11,522	A-73-1-4 G1 8/3/73	92.	65.	20.2	100.	156.
11,523	A-73-1-5 G1 8/3/73	6.0	<1.6	<2.0	6.	20.8
11,524	A-73-1-6 G1	7.2	<1.6	2.0	10.	26.2
11,525	A-73-1-7 G1	7.4	3.2	<1.6	12.	22.4
11,526	A-73-1-8 G1	6.4	2.0	<1.6	10.	18.6
11,527	A-73-1-9 G1	11.2	4.0	1.6	20.	36.6
11,528	A-73-1-10 G1	6.0	2.4	<2.0	6.	15.8
11,529	A-73-1-11 G1	20.8	3.8	6.4	30.	61.
11,530	A-73-1-12 G1	10.4	4.2	2.6	14.	28.8
"	"	11.0	4.4	2.4	14.	29.8
11,531	A-73-1-13 G1 8/3/73	8.6	3.0	2.0	14.	23.4
11,532	A-73-1-14 G1	7.4	3.2	5.6	8.	21.8
11,533	A-73-1-15 G1 8/3/73	9.0	3.4	3.0	20.	34.8
11,534	A-73-1-16 G1 8/3/73	5.0	3.0	6.2	24.	30.8
11,535	A-73-1-17 G1 8/3/73	9.4	4.8	3.2	22.	25.6
11,536	A-73-1-18 G1 8/3/73	6.8	3.4	3.4	20.	26.8
11,537	A-73-1-19 G1 8/4/73	12.8	7.0	4.2	26.	37.4
11,538	A-73-1-20 G1 8/4/73	18.2	20.2	5.8	36.	47.
"	"	17.4	26.8	5.4	42.	40.
11,539	A-73-1-21 G1	77.3	69.3	14.2	90.	150.
"	"	77.3	69.3	14.8	90.	146.
11,540	A-73-1-22 G1 8/4/73	43	35.8	8.2	46.	80.
"	"	41.2	34.6	7.8	48.	76.
11,541	A-73-1-23 G1 8/4/73	53	45.	9.0	56.	95.
"	"	51	43.	9.0	60.	92.
11,542	A-73-1-24 G1	11.8	5.4	2.0	16.	26.6
"	"	11.8	5.6	2.0	20.	27.0
11,543	A-73-1-25 G1	5.4	<1.6	<2.0	10.	12.6
"	"	5.2	<1.6	<2.0	8.	12.6
11,544	A-73-1-26 G1 8/4/73	5.2	<1.6	<2.0	12.	16.2
11,545	A-73-1-27 G1 8/4/73	4.6	<1.6	<2.0	10.	10.0
11,546	A-73-1-28 G1 8/4/73	11.4	5.8	2.0	20.	25.6
"	"	11.8	6.0	2.0	14.	26.2
11,547	A-73-1-29 G1 8/4/73	8.2	3.8	<2.0	28.	18.4
11,548	A-73-1-30 G1 8/4/73	13.6	19.2	2.6	32.	32.2
11,549	A-73-1-31 G1 8/4/73	24.2	41.	5.6	52.	76.0
11,550	A-73-1-32 G1 8/4/73	76.7	76.7	15.8	80.	146.

*Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm)* Cr	Cu	Ni	Pb	Zn
11,551	A-73-1-33 G1 8/4/73	67.3	76.7	16.8	82.	142.
11,552	A-73-1-34 G1 8/4/73	12.4	18.4	8.0	24.	56.
11,553	A-73-1-35 G1 8/4/73	74.	81.	17.0	92.	164.
11,554	A-73-1-36 G1 8/4/73	3.2	<1.6	<2.0	4.	24.6
11,555	A-73-1-37 G1 8/4/73	2.2	<1.6	<2.0	<4.	8.6
11,556	A-73-1-38 G1 8/4/73	12.8	<1.6	4.0	16.	60.
11,557	A-73-1-39 G1 8/4/73	4.4	1.8	3.4	8.	31.0
11,558	A-73-1-40 G1 8/5/73	10.6	4.0	3.0	24.	45.3
11,559	A-73-1-41 G1 8/5/73	24.2	28.0	10.0	28.	62.
"	"	24.2	29.4	10.4	40.	64.
11,560	A-73-1-42 G1 8/5/73	8.4	7.8	5.8	18.	42.
11,561	A-73-1-43 G1 8/5/73	65.	58.	18.4	80.	147.
"	"	71.	56.	18.2	78.	153.
11,562	A-73-1-44 G1 8/5/73	6.0	2.2	3.0	32.	33.0
"	"	5.2	2.2	4.2	24.	34.6
11,563	A-73-1-45 G1 8/5/73	5.8	2.4	3.4	30.	35.2
11,564	A-73-1-46 G1 8/5/73	8.2	2.6	4.0	14.	32.6
11,565	A-73-1-47 G1 8/5/73	6.6	2.8	3.0	20.	27.0
11,566	A-73-1-48 G1 8/5/73	4.0	<1.6	<2.0	6.0	14.6
11,567	A-73-1-49 G1 8/5/73	4.8	2.4	3.2	12.	20.8
11,568	A-73-1-50 G1 8/5/73	4.4	1.6	4.0	12.	22.2
11,569	A-73-1-51 G1 8/5/73	4.4	1.8	3.2	12.	24.6
11,570	A-73-1-52 G1 8/5/73					
11,571	A-73-1-53 G1 8/5/73	20.8	13.4	9.6	<4.0	55.
11,572	A-73-1-54 G1 8/5/73	81.	65.	20.4	24.	177.
11,573	A-73-1-55 G1 8/5/73	4.6	2.2	3.4	90.	28.2
11,574	A-73-1-56 G1 8/5/73	3.8	1.8	<2.0	12.	15.2
11,575	A-73-1-57 G1 8/5/73	14.0	2.8	3.8	8.0	47.
11,576	A-73-1-58 G1 8/5/73	5.4	<1.6	2.8	20.	27.6
11,577	A-73-1-59 G1 8/5/73	11.0	<1.6	2.4	12.	39.0
11,578	A-73-1-60 G1 8/5/73	11.2	<1.6	5.0	18.	28.8
11,579	A-73-1-61 G1 8/5/73	3.2	<1.6	2.2	8.	10.8
11,580	A-73-1-62 G1 8/5/73	8.0	<1.6	<2.0	6.	18.6
11,581	A-73-1-63 G1 8/5/73	8.2	1.8	3.6	8.	22.2
11,582	A-73-1-63 G1 8/5/73	20.2	11.4	6.8	26.	52.

*Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm)* Cr	Cu	Ni	Pb	Zn
11,218	0-73-1-1 G1	4.4	3.6	<2.0	<8.0	22.6
11,219	0-73-1-2 G1	4.6	3.6	<2.0	<8.0	16.4
11,220	0-73-1-3 G1	3.6	1.8	<2.0	<8.0	15.2
11,221	0-73-1-4 G1	4.8	4.0	<2.0	<8.0	18.8
11,222	0-73-1-5 G1	<2.4	1.8	<2.0	<8.0	9.8
11,223	0-73-1-6 G1	4.6	4.0	<2.0	8.	19.0
11,224	0-73-1-7 G1	4.8	3.2	<2.0	12.	24.2
11,225	0-73-1-8 G1	4.2	2.8	<2.0	12.	22.2
11,226	0-73-1-9 G1	3.8	2.6	<2.0	<8.0	12.0
11,227	0-73-1-10 G1	14.4	14.0	3.6	22.	38.6
11,228	0-73-1-11 G1	12.4	6.0	3.2	26.	43.5
11,229	0-73-1-12 G1	8.4	7.8	2.2	16.	27.6
11,230	0-73-1-13 G1	5.4	5.8	2.0	14.	19.4
11,231	0-73-1-14 G1	5.4	6.2	4.2	14.	25.4
11,232	0-73-1-15 G1	6.0	5.8	2.6	20.	27.4
11,233	0-73-1-16 G1	3.8	5.2	5.4	44.	27.8
11,234	0-73-1-17 G1	20.4	31.8	6.4	36.	47.5
11,235	0-73-1-18 G1	5.4	5.8	2.2	12.	21.8
11,236	0-73-1-19 G1	11.2	3.8	<2.0	34.	50.5
11,237	0-73-1-20 G1	<2.4	1.8	<2.0	<8.0	6.6
11,238	0-73-1-21 G1	4.4	6.0	3.0	16.	25.0
11,239	0-73-1-22 G1	7.6	7.8	2.6	32.	36.0
11,240	0-73-1-23 G1	20.8	43.3	9.6	180.	63.3
11,241	0-73-1-24 G1	41.8	62.	7.8	68.	91.0
11,242	0-73-1-25 G1	41.6	64.	8.6	66.	95.0
11,243	0-73-1-26 G1	29.2	39.3	5.2	42.	63.3
11,244	0-73-1-27 G1	8.0	7.4	<2.0	16.	27.4
11,245	0-73-1-28 G1	4.8	3.0	<2.0	12.	20.6
11,246	0-73-1-29 G1	<2.4	<2.0	<2.0	<8.0	3.6
11,247	0-73-1-30 G1	3.4	2.2	<2.0	8.	16.2
11,248	0-73-1-31 G1	8.6	6.8	2.2	12.	22.0
11,249	0-73-1-32 G1	15.0	18.6	3.4	26.	35.6
11,250	0-73-1-33 G1	9.6	15.2	2.8	20.	25.2
11,251	0-73-1-34 G1	72.	150.	15.8	200.	210.
"	"	80.	165.	17.2	240.	234.
11,252	0-73-1-35 G1	138.	210.	26.6	240.	310.
11,253	0-73-1-36 G1	84.	116.	22.4	180.	176.
11,254	0-73-1-37 G1	4.0	6.2	6.8	14.	21.2
11,255	0-73-1-38 G1	140.	205.	30.0	220.	260.
11,256	0-73-1-39 G1	7.8	6.4	2.4	28.	35.0
11,257	0-73-1-40 G1	<2.4	<2.0	<2.0	<8.0	5.4

*Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm)* Cr	Cu	Ni	Pb	Zn
11,258	0-73-1-41 G1	37.2	34.2	9.6	52.	79.0
11,259	0-73-1-42 G1	6.6	6.2	4.0	12.0	40.6
11,260	0-73-1-43 G1	16.2	6.2	4.0	86.	440.
11,261	0-73-1-44 G1	21.8	22.6	12.0	22.0	51.
11,262	0-73-1-45 G1	12.8	13.8	10.0	18.0	34.8
11,263	0-73-1-46 G1	53.	66.	18.0	266.	276.
11,264	0-73-1-47 G1	13.2	12.3	8.0	16.0	41.6
11,265	0-73-1-48 G1	15.0	12.3	8.0	18.0	47.0
11,266	0-73-1-49 G1	15.2	11.8	6.0	24.0	43.0
11,267	0-73-1-50 G1	6.8	8.7	2.0	12.0	24.0
11,268	0-73-1-51 G1	7.4	5.1	2.0	<12.0	25.0
11,269	0-73-1-52 G1	2.8	3.1	2.0	<12.0	13.0
11,270	0-73-1-53 G1	10.6	7.2	4.0	14.0	28.6
"	"	9.8	7.7	4.0	14.0	28.0
11,271	0-73-1-54 G1	10.2	7.7	4.0	12.0	30.0
11,272	0-73-1-55 G1	6.8	4.6	4.0	<12.0	25.2
11,273	0-73-1-56 G1	11.8	10.3	8.0	<12.0	34.8
"	"	12.0	11.3	6.0	12.0	36.4
11,274	0-73-1-57 G1	88.	68.	20.0	88.	152.
11,275	0-73-1-58 G1	6.0	4.6	4.0	<12.0	23.6
11,276	0-73-1-59 G1	34.4	33.8	8.0	38.0	70.
11,277	0-73-1-60 G1	6.4	2.6	2.0	<12.0	18.6
11,278	0-73-1-61 G1	8.2	2.6	2.0	12.0	27.6
11,279	0-73-1-62 G1	9.0	4.1	2.0	20.0	40.0
11,280	0-73-1-63 G1	19.6	3.1	6.0	<12.0	31.2
11,281	0-73-1-64 G1	2.4	4.6	<2.0	<12.0	9.6
11,282	0-73-1-65 G1	4.0	4.6	<2.0	<12.0	11.6
11,283	0-73-1-66 G1	9.4	5.6	2.0	<12.0	28.6
11,284	0-73-1-67 G1	7.2	5.1	2.0	<12.0	22.0
11,285	0-73-1-68 G1	22.0	17.4	2.0	26.0	50.
11,286	0-73-1-69 G1	165.	110.	2.0	144.0	275.
11,287	0-73-1-70 G1	9.6	6.2	2.0	<12.0	26.2
"	"	9.8	5.6	2.0	<12.0	26.6
11,288	0-73-1-71 G1	5.8	3.1	2.0	<12.0	18.4
11,289	0-73-1-72 G1	5.6	2.6	<2.0	<12.0	17.8
11,290	0-73-1-73 G1	4.4	3.1	2.0	<12.0	14.0
11,291	0-73-1-74 G1	7.0	3.1	<2.0	<12.0	16.4
11,292	0-73-1-75 G1	5.8	3.1	<2.0	<12.0	16.6
11,293	0-73-1-76 G1	7.8	3.6	<2.0	<12.0	23.6

*Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm)* Cr	Cu	Ni	Pb	Zn
11,294	0-73-1-77 G1	11.6	4.6	4.0	<12.0	27.6
11,295	0-73-1-78 G1	84.	57.	22.0	84.	154.
11,296	0-73-1-79 G1	<2.0	2.6	2.0	<12.0	6.8
11,297	0-73-1-80 G1	3.0	<2.1	<2.0	<12.0	11.0
11,298	0-73-1-82 G1	3.8	2.1	<2.0	<12.0	14.2
11,299	0-73-1-83 G1	6.4	2.1	2.0	<12.0	20.0
11,300	0-73-1-84 G1	6.8	3.1	<2.0	<12.0	31.4
11,301	0-73-1-85 G1	8.6	3.6	2.0	16.0	37.0
11,302	0-73-1-86 G1	<2.0	<2.1	<2.0	<12.0	5.6
11,303	0-73-1-87 G1	<2.0	<2.1	<2.0	<12.0	6.0
11,304	0-73-1-88 G1	<2.0	<2.1	<2.0	<12.0	6.2
11,305	0-73-1-89 G1	<2.0	<2.1	<2.0	<12.0	3.4
11,306	0-73-1-90 G1	4.2	3.1	2.0	<12.0	13.0
11,307	0-73-1-91 G1	9.6	7.2	2.0	14.0	31.2
11,518	0-73-1-81 G1	4.6	2.0	<1.6	6.	10.0

* Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE		Elements (ppm)* Cr	Cu	Ni	Pb	Zn
11,583	A-74-1-1	G1	4.4	< 1.6	2.2	10.	30.6
11,584	A-74-1-2	G1	11.6	5.0	3.4	16.	41.3
11,585	A-74-1-3	G1	35.6	21.8	8.8	42.	88.
11,586	A-74-1-4	G1	3.2	< 1.6	< 2.0	8.	27.2
11,587	A-74-1-5	G1	3.8	< 1.6	< 2.0	8.	33.2
11,588	A-74-1-6	G1	4.0	< 1.6	< 2.0	8.	24.0
11,589	A-74-1-7	G1	2.8	< 1.6	< 2.0	6.	11.8
11,590	A-74-1-8	G1	5.6	< 1.6	< 2.0	12.	28.4
11,591	A-74-1-9	G1	8.8	9.7	< 6.	12.	33.6
"	"		8.8	8.6	< 6.	12.	35.8
11,592	A-74-1-10	G1	5.6	7.0	< 6.	8.	26.8
11,593	A-74-1-11	G1	17.4	10.2	< 6.	30.	62.
11,594	A-74-1-12	G1	7.6	9.1	< 6.	14.	29.4
11,595	A-74-1-13	G1	4.4	6.4	< 6.	8.	20.4
11,596	A-74-1-14	G1	6.2	7.5	< 6.	16.	32.6
11,597	A-74-1-15	G1	7.2	8.0	< 6.	22.	39.2
"	"		7.0	8.0	< 6.	20.	36.6
11,598	A-74-1-16	G1	7.4	5.6	5.2	38.	45.5
11,599	A-74-1-17	G1	5.2	7.0	< 6.	16.	25.8
11,600	A-74-1-18	G1	8.8	5.0	3.4	20.	27.2
11,601	A-74-1-19	G1	10.4	10.7	< 6.	26.	41.8
11,602	A-74-1-20	G1	6.6	9.6	6.	32.	35.8
11,603	A-74-1-21	G1	65.	53.	10.	78.	118.
11,604	A-74-1-22	G1	86.	63.8	10.	82.	134.
11,605	A-74-1-23	G1	7.2	10.7	< 6.	16.	28.8
11,606	A-74-1-24	G1	38.6	39.7	10.	48.	89.
11,607	A-74-1-25	G1	2.4	4.8	< 6.	6.	13.8
11,608	A-74-1-26	G1	3.0	5.9	< 6.	< 6.	9.8
11,609	A-74-1-27	G1	4.0	4.8	< 6.	10.	16.6
11,610	A-74-1-28	G1	14.0	13.4	< 6.	20.	36.6
11,611	A-74-1-29	G1	3.8	5.4	< 6.	8.	15.2
11,612	A-74-1-30	G1	7.2	15.5	< 6.	14.	18.4
11,613	A-74-1-31	G1	230.	173.	38.	230.	315.
11,614	A-74-1-32	G1	215.	154.	32.	170.	305.
11,615	A-74-1-33	G1	140.	104.	24.	130.	185.
"	"		145.	95.4	22.	116.	175.
11,616	A-74-1-34	G1	40.	114.	34.	116.	335.
11,617	A-74-1-34	G1	205.	116.	28.	126.	200.
11,618	A-74-1-35	G1	4.0	2.4	< 1.6	6.	10.8
11,619	A-74-1-36	G1	2.0	4.3	< 6.	10.	9.4

*Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm) * Cr	Cu	Ni	Pb	Zn
11,620	A-74-1-38 G1	8.0	13.4	< 6.	50.	99.
"	"	17.8	8.0	< 6.	48.	93.
11,621	A-74-1-39 G1	19.0	9.1	< 6.	50.	87.
11,622	A-74-1-40 G1	8.6	6.4	< 6.	22.	37.4
11,623	A-74-1-41 G1	10.6	8.6	10.	14.	30.2
11,624	A-74-1-42 G1	11.6	13.9	< 6.	26.	38.8
11,625	A-74-1-43 G1	190.	99.2	32.	142.	215.
"	"	135.	95.4	30.	134.	225.
11,626	A-74-1-44 G1	7.4	7.5	< 6.	22.	31.4
11,627	A-74-1-45 G1	7.6	7.5	6.	44.	32.2
11,628	A-74-1-46 G1	9.6	11.8	< 6.	28.	31.2
11,629	A-74-1-47 G1	6.4	7.0	< 6.	20.	23.4
"	"	6.4	6.4	< 6.	22.	22.8
11,630	A-74-1-48 G1	3.0	4.8	< 6.	20.	16.6
11,631	A-74-1-49 G1	2.8	5.4	< 6.	16.	15.0
11,632	A-74-1-50 G1	2.8	5.4	< 6.	16.	15.8
11,633	A-74-1-51 G1	4.0	8.6	< 6.	18.	16.6
11,634	A-74-1-52 G1	5.2	7.0	< 6.	16.	21.8
11,635	A-74-1-53 G1	10.2	10.7	< 6.	18.	32.0
11,636	A-74-1-54 G1	26.4	26.3	8.	38.	66.
11,637	A-74-1-55 G1	5.8	5.9	< 6.	10.	19.8
11,638	A-74-1-56 G1	8.4	9.7	< 6.	10.	19.8
11,639	A-74-1-57 G1	6.8	5.9	< 6.	16.	27.0
11,640	A-74-1-58 G1	6.2	4.8	< 6.	10.	14.8
11,641	A-74-1-59 G1	18.8	17.2	< 6.	36.	59.
11,642	A-74-1-60 G1	12.6	5.9	< 6.	12.	28.6
11,643	A-74-1-61 G1	< 2.0	4.3	< 6.	10.	9.2
11,644	A-74-1-62 G1	6.8	5.9	< 6.	8.	16.0
11,645	A-74-1-63 G1	12.6	3.6	4.0	24.	30.2
11,646	A-74-1-64 G1	10.0	10.7	< 6.	20.	32.6
11,647	A-74-1-65 G1	15.0	15.0	6.	22.	36.6
11,648	A-74-1-66 G1	21.2	18.2	8.	32.	54.
11,649	A-74-1-67 G1	9.6	5.0	1.6	12.	25.6
11,650	A-74-1-68 G1	5.2	7.0	< 6.	10.	18.4
11,651	A-74-1-69 G1	5.0	2.8	< 1.6	8.	18.2
11,652	A-74-1-70 G1	2.8	5.4	< 6.	10.	11.2
"	"	2.8	5.9	< 6.	10.	11.0
11,653	A-74-1-71 G1	5.0	5.9	< 6.	10.	14.2
11,654	A-74-1-72 G1	7.0	7.0	< 6.	14.	22.6
11,655	A-74-1-73 G1	7.8	6.4	< 6.	12.	23.4

*Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm)* Cr	Cu	Ni	Pb	Zn
11,656	A-74-1-74 G1	14.0	14.5	<6.	26.	40.0
11,657	A-74-1-75 G1	35.6	32.7	12.	54.	88.
11,658	A-74-1-76 G1	4.0	5.9	<6.	10.	13.6
"	"	4.0	5.9	<6.	10.	14.2
11,659	A-74-1-77 G1	2.6	4.8	<6.	10.	11.4
11,660	A-74-1-78 G1	<2.0	<4.3	<6.	8.	5.4
11,661	A-74-1-79 G1	4.8	4.3	<6.	8	12.6
11,662	A-74-1-80 G1	10.8	7.0	<6.	24.	31.4
11,663	A-74-1-81 G1	19.2	9.8	5.0	24.	49.
11,664	A-74-1-82 G1	8.0	<1.6	2.2	20.	43.
"	"	9.0	1.6	2.4	20.	44.
11,665	A-74-1-83 G1	3.4	<1.6	<2.0	<4.	6.4
11,666	A-74-1-84 G1	2.4	<1.6	<2.0	<4.	8.2
11,667	A-74-1-85 G1	5.6	<1.6	<2.0	4.	20.4
11,668	A-74-1-86 G1	1.8	<1.6	<2.0	<4.	3.4
11,669	A-74-1-87 G1	2.2	<1.6	<2.0	<4.	3.2
11,670	A-74-1-88 G1	5.2	<1.6	<2.0	4.	8.4
11,671	A-74-1-89 G1	3.8	<1.6	<2.0	<4.	9.0
11,672	A-74-1-90 G1	4.6	<1.6	2.4	6.	16.0
11,673	A-74-1-91 G1	15.6	7.4	5.8	14.	41.0
11,674	A-74-1-92 G1	26.2	18.4	9.4	32.	76.
11,675	A-74-1-93 G1	13.2	7.6	5.0	16.	37.4
11,676	A-74-1-94 G1	6.0	3.6	3.0	8.	18.2
11,677	A-74-1-95 G1	3.4	<1.6	<2.0	<4.	3.2
11,678	A-74-1-96 G1	3.2	<1.6	<2.0	6.	13.0
"	"	3.8	<1.6	2.2	6.	12.6
11,679	A-74-1-97 G1	4.2	<1.6	<2.0	8.	12.4
11,680	A-74-1-98 G1	3.6	<1.6	2.2	10.	19.0
11,681	A-74-1-99 G1	2.8	<1.6	<2.0	4.	16.6
11,682	A-74-1-100 G1	3.4	<1.6	<2.0	<4.	10.6
11,683	A-74-1-101 G1	6.2	2.0	3.0	6.	26.0
"	"	5.4	<1.6	2.6	6.	24.0
11,684	A-74-1-102 G1	9.8	3.0	3.8	18.	
11,685	A-74-1-103 G1	3.4	1.6	<2.0	6.	

* Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm)* Cr	Cu	Ni	Pb	Zn
11,415	0-74-1-1 G2	6.0	3.1	2.0	<12.0	26.6
11,416	0-74-1-2 G2	5.6	3.6	2.0	<12.0	22.6
11,417	0-74-1-3 G2	5.8	3.1	<2.0	<12.0	35.4
11,418	0-74-1-4 G2	2.4	2.1	<2.0	<12.0	14.8
11,419	0-74-1-5 G2	<2.0	7.2	<2.0	<12.0	16.0
11,420	0-74-1-6 G2	100.	75.	20.	98.	160.
11,421	0-74-1-7 G2	<2.0	2.6	<2.0	<12.0	8.4
11,422	0-74-1-8 G2	4.8	2.6	2.0	<12.0	30.2
11,423	0-74-1-9 G2	10.0	3.1	2.0	14.0	42.0
11,424	0-74-1-10 G2	10.0	4.6	2.0	<12.0	37.0
11,425	0-74-1-11 G2	17.8	8.2	4.0	20.0	55.
11,426	0-74-1-12 G2	9.2	4.6	2.0	12.0	94.
11,427	0-74-1-13 G2	6.8	4.6	2.0	<12.0	24.6
11,428	0-74-1-14 G2	6.4	4.1	4.0	12.0	27.8
11,429	0-74-1-15 G2					
11,430	0-74-1-16 G2	3.0	4.6	8.0	42.0	24.4
11,431	0-74-1-17 G2	8.6	4.6	4.0	16.0	37.4
11,432	0-74-1-18 G2					
11,433	0-74-1-19 G2	12.4	9.2	4.0	20.0	42.2
11,434	0-74-1-20 G2	10.2	8.2	10.	32.	46.
11,435	0-74-1-21 G2	66.	55.	12.0	62.	118.
11,436	0-74-1-22 G2	92.	82.	14.0	88.	160.
11,437	0-74-1-23 G2	70.	57.	10.0	66.	119.
11,438	0-74-1-24 G2	8.4	5.1	2.0	12.0	27.0
11,439	0-74-1-25 G2	6.6	3.6	2.0	<12.0	20.4
11,440	0-74-1-26 G2	5.6	2.1	<2.0	<12.0	22.2
11,441	0-74-1-27 G2	4.4	2.1	<2.0	<12.0	14.4
11,442	0-74-1-28 G2	10.4	7.2	<2.0	14.0	26.8
11,443	0-74-1 29 G2	5.0	2.6	<2.0	<12.0	14.8
11,444	0-74-1-30 G2	8.6	5.6	<2.0	16.0	28.0
11,445	0-74-1-31 G2	215.	189.	28.0	252.	380.
11,446	0-74-1-32 G2					
11,447	0-74-1-33 G2	100.	76.	24.	108.	152.
11,448	0-74-1-34 G2	300.	170.	26.	198.	270.
11,449	0-74-1-35 G2	40.	38.0	14.	64.	79.
11,450	0-74-1-36 G2	<2.0	<2.0	4.0	<8.0	7.4
11,451	0-74-1-37 G2	<2.0	<2.0	4.0	<8.0	12.0
11,452	0-74-1-38 G2	6.0	2.8	8.0	14.	30.6
11,453	0-74-1-39 G2	10.	4.0	6.0	12.	35.6
11,454	0-74-1-40 G2	12.	6.4	8.0	12.	31.8
11,455	0-74-1-41 G2	30.	16.6	10.	22.	44.0
"	"	30.	16.4	10.	24.	45.2

*Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm) * Cr	Cu	Ni	Pb	Zn
11,456	0-74-1-42 G2	18.	21.6	26.	36.	63.
11,457	0-74-1-43 G2	22.	215.	20.	260.	520.
11,458	0-74-1-44 G2	4.0	3.4	6.0	24.	24.6
11,459	0-74-1-45 G2	6.0	4.0	8.0	14.	28.4
11,460	0-74-1-46 G2					
11,461	0-74-1-47 G2	20.	13.0	8.0	24.	41.4
11,462	0-74-1-48 G2	36.	22.8	10.	46.	51.
11,463	0-74-1-49 G2	2.0	<2.0	4.0	16.	16.6
11,464	0-74-1-50 G2	2.0	<2.0	6.0	<8.0	15.2
11,465	0-74-1-51 G2	4.0	<2.0	6.0	<8.0	14.6
11,466	0-74-1-52 G2	6.0	2.6	6.0	<8.0	22.6
11,467	0-74-1-53 G2	12.0	8.6	8.0	46.	43.4
11,468	0-74-1-54 G2	120.	76.	24.	102.	162.
"	"	140.	68.	24.	102.	150.
11,469	0-74-1-55 G2	10.	9.0	6.0	10.	22.6
11,470	0-74-1-56 G2	24.	21.8	8.0	30.	42.4
11,471	0-74-1-57 G2	30.	21.2	10.	40.	71.
11,472	0-74-1-58 G2					
11,473	0-74-1-59 G2	6.0	2.4	6.0	8.0	18.6
11,474	0-74-1-60 G2	8.0	3.8	12.	<8.0	15.2
11,475	0-74-1-61 G2	6.0	<2.0	4.0	<8.0	10.8
11,476	0-74-1-62 G2	4.0	<2.0	4.0	<8.0	9.0
11,477	0-74-1-63 G2	20.	12.0	12.	24.	44.6
11,478	0-74-1-64 G2	4.0	2.0	6.0	<8.0	13.4
11,479	0-74-1-65 G2	6.0	3.8	8.0	10.	22.0
11,480	0-74-1-66 G2					
11,481	0-74-1-67 G2	6.0	4.2	6.0	10.	28.6
11,482	0-74-1-68 G2	4.0	<2.0	6.0	<8.0	12.4
11,483	0-74-1-69 G2	4.0	2.2	6.0	8.0	13.8
11,484	0-74-1-70 G2	2.0	3.2	4.0	8.0	20.6
11,485	0-74-1-71 G2	4.0	2.6	6.0	<8.0	12.0
11,486	0-74-1-72 G2	8.0	4.6	6.0	<8.0	21.0
11,487	0-74-1-73 G2	6.0	<2.0	6.0	<8.0	16.4
11,488	0-74-1-74 G2	8.0	2.2	8.0	8.0	27.8
11,489	0-74-1-75 G2	40.	26.8	14.	46.	79.
11,490	0-74-1-76 G2	6.0	3.2	4.0	<8.0	17.2
11,491	0-74-1-77 G2	2.0	<2.0	6.0	<8.0	8.6
11,492	0-74-1-78 G2	2.0	<2.0	<2.0	<8.0	5.0
11,493	0-74-1-79 G2	4.0	2.0	2.0	<8.0	13.6
11,494	0-74-1-80 G2	6.0	<2.0	2.0	12.0	21.6

*Dry weight basis, Top 1 1/2 inches of sediment samples.

MESA SEDIMENTS

LAB CODE	FIELD CODE	Elements (ppm)* Cr	Cu	Ni	Pb	Zn
11,495	0-74-1-81 G2	4.0	<2.0	2.0	8.0	26.4
11,496	0-74-1-82 G2	10.	4.6	10.	18.	51.
		8.0	3.8	8.0	14.	55.
11,497	0-74-1-83 G2	<2.0	<2.0	<2.0	<8.0	<4.0
11,498	0-74-1-84 G2	4.0	<2.0	<2.0	<8.0	14.2
11,499	0-74-1-85 G2	22.	16.2	2.0	22.	42.0
11,500	0-74-1-86 G2	<2.0	<2.0	4.0	<8.0	<4.0
11,501	0-74-1-87 G2	2.0	<2.0	<2.0	<8.0	5.2
11,502	0-74-1-88 G2	2.0	<2.0	<2.0	<8.0	4.4
11,503	0-74-1-89 G2	4.0	<2.0	2.0	<8.0	8.0
11,504	0-74-1-90 G2	6.0	<2.0	2.0	<8.0	12.4
11,505	0-74-1-91 G2	12.	5.8	4.0	10.	25.6
11,506	0-74-1-92 G2	36.	23.8	12.	38.	80.0
11,507	0-74-1-93 G2	20.	11.2	8.0	20.	41.8
11,508	0-74-1-94 G2	8.0	4.6	2.0	10.	24.0
11,509	0-74-1-95 G2	6.0	<2.0	<2.0	<8.0	11.4
11,510	0-74-1-96 G2	6.0	2.8	<1.6	10.	12.8
11,511	0-74-1-97 G2	4.0	<2.0	<2.0	<8.0	16.5
"	"	4.0	<2.0	2.0	<8.0	8.6
11,512	0-74-1-98 G2	4.0	4.4	2.0	8.0	9.8
11,513	0-74-1-99 G2	4.0	<2.0	<2.0	8.0	12.8
11,514	0-74-1-100 G2	2.0	<2.0	<2.0	<8.0	6.2
11,515	0-74-1-101 G2	8.0	<2.0	2.0	12.	26.0
11,516	0-74-1-102 G2	14.	<2.0	2.0	22.	45.8
11,517	0-74-1-103 G2	4.0	<2.0	<2.0	<8.0	17.4

*Dry weight basis, Top 1 1/2 inches of sediment samples.