

SUSPENDED SEDIMENTS NEAR PIER 12  
NORFOLK NAVY BASE ON 26 JUNE  
AND 15 SEPTEMBER, 1973

by  
E. P. Ruzecki  
and  
R. Ayres

DATA REPORT NO. 11

Virginia Institute of Marine Science  
Gloucester Point, Virginia 23062

William J. Hargis, Jr.  
Director

October, 1974

COMMONWEALTH OF VIRGINIA



**VIRGINIA INSTITUTE OF MARINE SCIENCE**  
**GLOUCESTER POINT, VIRGINIA 23062**

February 27, 1975

This report constitutes completion of contract  
N62470-73-C-0397 dated 14 February 1973.

A handwritten signature in black ink, appearing to read 'William J. Hargis, Jr.', written over a light background.

William J. Hargis, Jr.  
Director

WJHJr:smc

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## ABSTRACT

Results of two suspended sediment studies near Norfolk Navy Base Pier 12 are given. The studies were conducted during one tidal cycle on both 26 June and 15 September 1973. The following parameters were measured at five stations in the vicinity of the pier:

- suspended sediment
- water temperature, salinity and density
- current speed and direction

## ELIZABETH RIVER SEDIMENT STUDY

### I. Introduction

On 26 June and 15 September, 1973, the Virginia Institute of Marine Science conducted intensive suspended sediment surveys in the vicinity of Norfolk Naval Base Pier 12, Norfolk, Va. (Figure 1) under the provisions of contract #N62470-73-C-0397. The purpose of these surveys was to determine the size and quantity of suspended sediment throughout the water column in the vicinity of the pier during a tidal cycle.

For each study, measurements of salinity, temperature and current velocity were made in conjunction with suspended sediment samplings. In June, current data were obtained with Marine Advisors' current meters which were manually lowered to successive levels. Current speed and direction were read from a deck unit and recorded on field data sheets.

During the September study, currents were measured with Braincon model 1381 Histogram type current meters which were integral parts of taut wire moorings. Data were recorded on film in each current meter and subsequently processed to obtain 20 minute averages of speed and direction at each current meter level.

In addition to the suspended sediment, temperature, salinity and current data, information pertaining to local wind speed and direction, tide, waves and previous fluvial discharge in the James were assembled and are presented in Tables I and II.

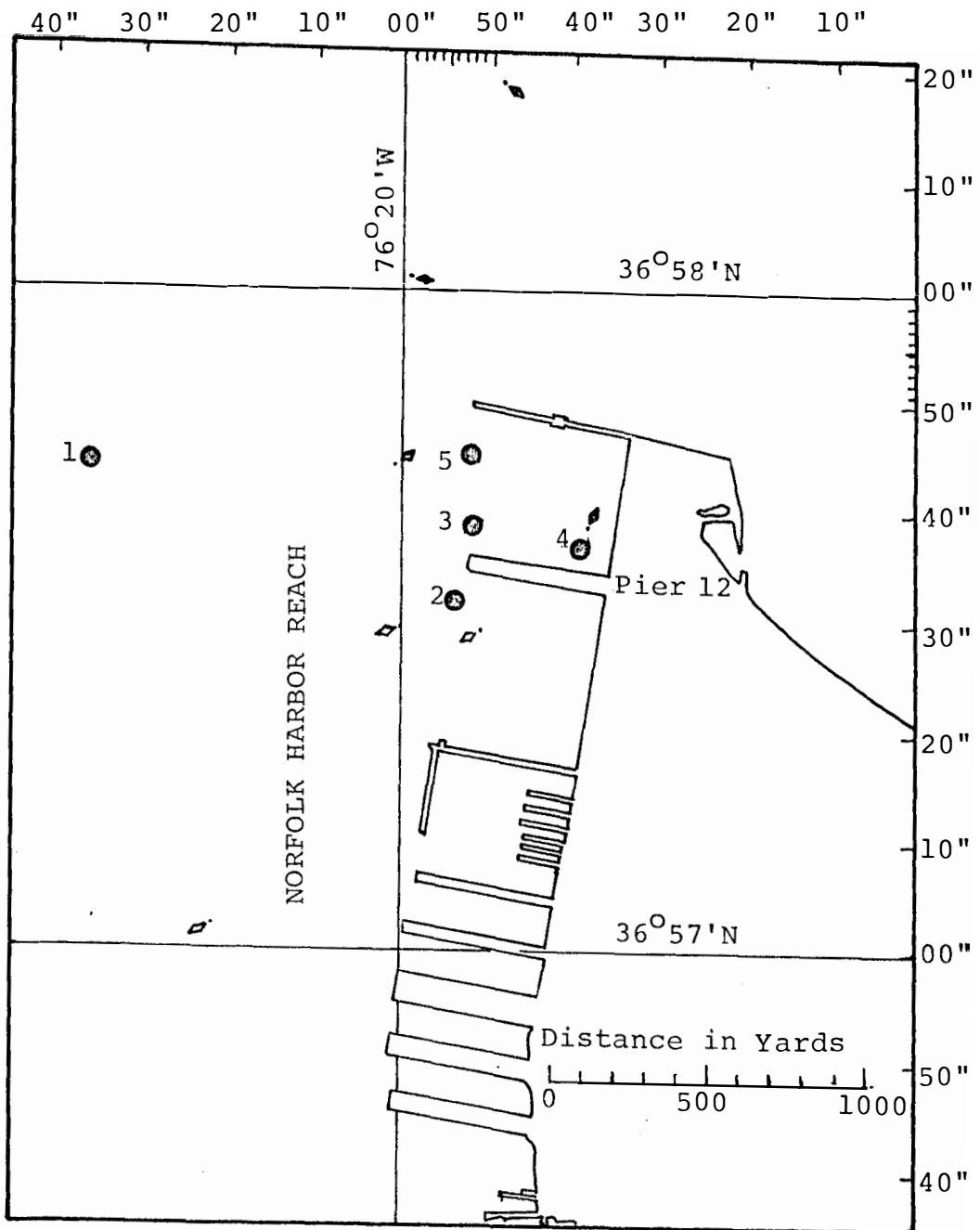


Figure 1. Section of USC&GS Chart 400 showing portions of stations 1 through 5 (⊙) for June and September deployments of Pier 12 sediment study.

TABLE I

WIND, TIDE AND RIVER FLOW DATA ASSOCIATED  
WITH 26 JUNE 1973 SAMPLING

- A. Winds: 5 knots from 45<sup>o</sup>  
 Waves: 3-4 ft.  
 Tide: Transition from mean to spring
- B. River flow at Richmond (including flow from Kanawah Canal)
- | <u>Period</u>  | <u>Average Daily Flow (cfs)</u> |
|----------------|---------------------------------|
| 1-30 April '73 | 22,825                          |
| 1-28 May '73   | 10,463                          |
| 29-31 May '73  | 45,174                          |
| 1-26 June '73  | 8,345                           |

TABLE II

WIND, TIDE AND RIVER FLOW DATA ASSOCIATED  
WITH 15 SEPTEMBER 1973 SAMPLING

- A. Winds: 10 knots from 350<sup>o</sup>  
 Waves: 3 ft.  
 Tide: Spring
- B. River flow at Richmond (including flow from Kanawah Canal)
- | <u>Period</u>      | <u>Average Daily Flow (cfs)</u> |
|--------------------|---------------------------------|
| 27-30 June '73     | 8,000                           |
| 1-31 July '73      | 4,336                           |
| 1-31 August        | 3,693                           |
| 1-15 September '73 | 2,141                           |

## II. Field Procedures

### A. First Deployment

On 21 June, 1973, the 5 stations shown in Figure 1 were set to obtain samples from 3, 10, 20, 50, 100, and 200 cm from the bottom and at mid water depth.

Station equipment consisted of a weighted platform to which an 8-foot vertical mast was attached. Water samples were pumped to the surface through 1/2 inch hoses, the lower ends of which were attached to the mast. At the mast end, each hose was terminated with a section of copper pipe bent to form an "L" shape and secured to a board the desired distance from the end of the board. The board was, in turn, loosely attached to the mast with hose clamps. Final secure attachment of the board was made by divers to ensure proper sample levels and vertical orientation of the mast. Hoses were bundled together along a line and attached to a float which served as a station marker. A typical station is shown schematically in Figure 2.

On 26 June, 1973, sampling was accomplished by anchoring alongside the floating hoses, attaching each to a battery-operated water pump and filling a 5-gallon collapsible cubitainer with water. One set of samples was taken each hour for 13 hours. Samples were preserved with formaldehyde to stop biological action and transported to the Institute for analysis.

All equipment was recovered on 27 June 1973.

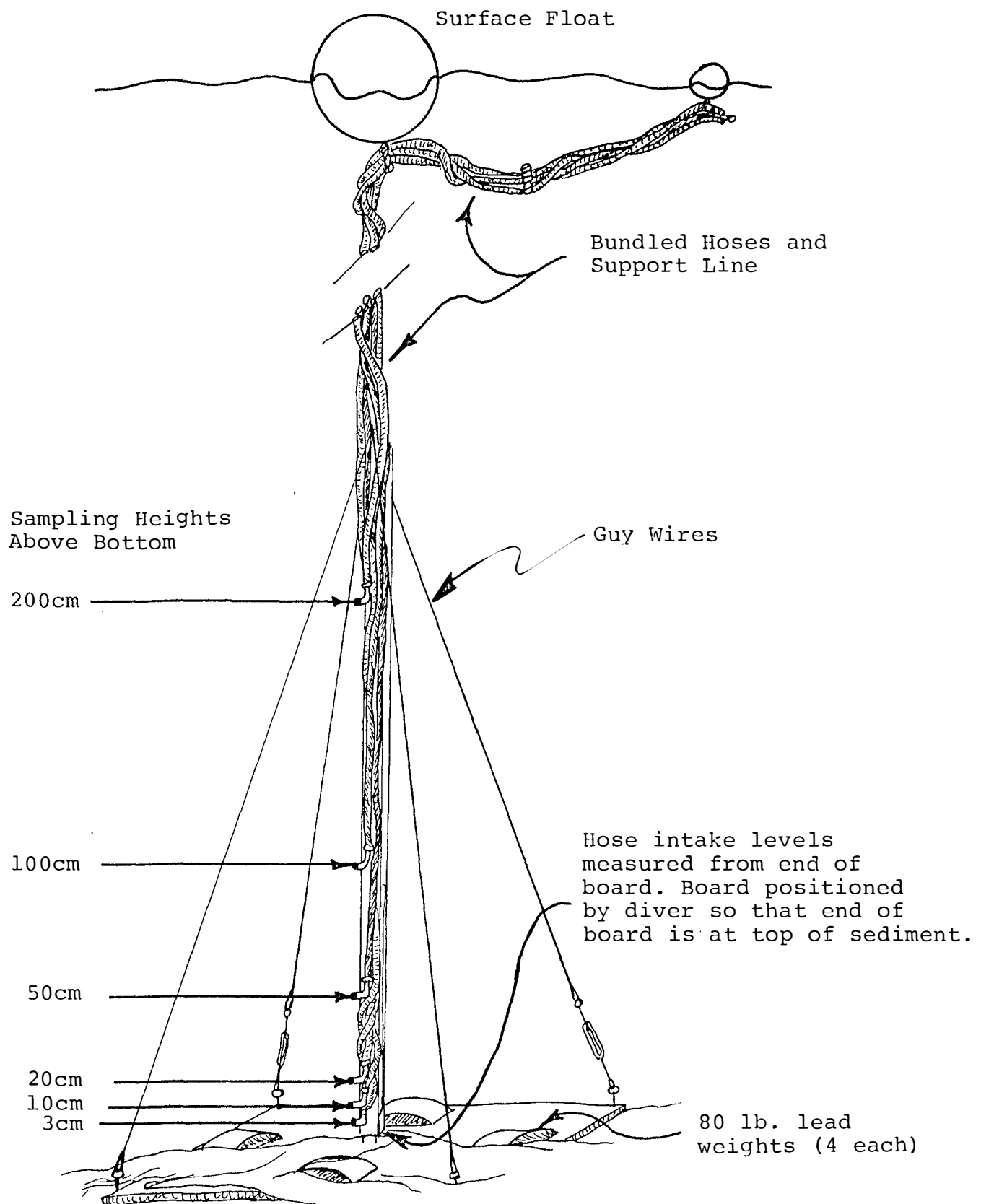


Figure 2. Drawing of suspended sediment sampling apparatus used in June and September deployments.

## B. Second Deployment

On 14 September, 1973, platform arrangements similar to those for the June deployment were re-installed at the same locations (Figure 1). Currents for this deployment were measured with continuous recording Braincon 1381 Histogram current meters. Current meters were integral parts of a taut wire mooring placed within 50 feet of the sediment sampling station. Sediment sampling was reduced to samples taken at slack water and maximum current, (as determined by NOAA tide tables) for reasons discussed below. Two liter samples were taken at 3, 10 and 100 cm above the bottom and at mid depth, preserved, and transported to the laboratory for analysis.

### III. Data Analysis

Each sample was analyzed by pouring the entire volume (or as much as possible) through a stack of 4 sieves; with screen sizes 500 $\mu$  (to catch all organic detritus) 88 $\mu$  , 62.5 $\mu$  , and 53 $\mu$  (the smallest screen available). The sediment caught in each sieve was then transferred to either an aluminum moisture dish which had been washed, dried and weighed (1st study) or to a similarly treated Millipore brand filter, to be dried and weighed. Two aliquots of the sieved water were then measured and passed through a 0.8 $\mu$  Millipore brand filter to obtain sediment fractions between 0.8 $\mu$  and 53 $\mu$  if this data becomes necessary.

Extreme care was taken during all phases of analysis to: 1) prevent spillage and contamination of the sediment fraction by dust, 2) remove all salt from the sediment and 3) obtain the most representative data from each sample by continually shaking and re-suspending the sample.

The drying and weighing process was repeated at least three times in all samples to assure all moisture had been removed.

Once sample analysis was started, it became apparent that processing of all samples taken during the June deployment would exhaust available resources. After consultation with the contractor, it was decided to only process samples taken at

3, 10 and 100 cm and mid-water depth for periods of slack water and maximum tidal current for the June deployment. However, samples at all depths from station 4 (during the June deployment) were analyzed for slack and maximum current periods and 10 series of samples (for the reduced number of depths) from station 3 were analyzed.

#### IV. Results

Results of this study are given in the Appendix. Tables A-1 through 5 and D-1 through 5 give values of suspended sediments in milligrams per liter retained by the 88, 63 and 53 $\mu$  sieves and the 0.8 $\mu$  filter. Values of current speed and direction are given in Tables B-1 through 5 and E-1 through 5 as listings of current speeds and directions. Tables C-1 through 5 and F-1 through 5 give temperature, salinity, and density ( $\sigma_t$ ) of water sampled. Table series A, B and C pertain to the 26 June, 1973, deployment while table series D, E, and F pertain to the 15 September, 1973, deployment.

Measurements are reported in metric units and all times are Eastern Standard time.

## APPENDIX

TABLE A-1

Results of Suspended Sediment Analysis of Samples Taken  
 at Station 1 During 26 June 1973 Deployment  
 All Values are in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth= 20m

Sample Time		09.0	13.8	15.3	16.0	18.0
Tidal Current		Max Ebb	Low Slack		Max Flood	High Slack
Sample Height	Sieve Size					
		(A)				
3 cm	88 $\mu$	1.9000	1.9366	96.4066	524.5539	344.7710
	63 $\mu$	6.7500	2.3873	151.1648	666.0990	356.3478
	53 $\mu$	2.7000	0.0248	21.3187	91.4744	58.8290
	0.8 $\mu$	56.6667	90.0000	472.0000	1480.0000	378.0000
	Total	68.0167	94.3487	740.8901	2762.1273	1137.9478
10 cm	88 $\mu$	0.2493	2.0053	29.1574	*	288.1081
	63 $\mu$	0.7745	2.8158	51.4682	67.4354	306.9222
	53 $\mu$	0.4191	0.8000	*	9.3140	40.9046
	0.8 $\mu$	77.0000	84.8000	225.6000	142.0000	378.0000
	Total	78.4429	90.4211	-	-	1013.9349
100 cm	88 $\mu$	0.1624	1.1015		1.6856	8.5995
	63 $\mu$	0.3653	2.4670		2.1789	23.6948
	53 $\mu$	0.1928	0.8629		1.0623	5.1444
	0.8 $\mu$	48.5000	*		17.6000	101.0000
	Total	49.2205	-		22.5268	138.4387

I-V

Total Water Depth= 20m

Sample Time	09.0	13.8	15.3	16.0	18.0
Tidal Current	Max Ebb	Low Slack		Max Flood	High Slack
Sample Height	Sieve Size			(B)	
Mid	88 $\mu$	2.4769	3.1591	1538.9861	0.8806
Depth	63 $\mu$	0.1282	5.7159	1804.9652	0.0126
	53 $\mu$	0.2205	2.1818	92.6246	0.0154
	0.8 $\mu$	18.4000	19.2000	2268.0000	0.0091
Total		21.2256	30.2568	5704.5759	0.9177

A-2

NOTE: \* During the course of analysis, one tray of samples fell in the drying oven. These samples could not be processed and are marked with an asterisk.

(A) Sample container was leaking near top. Approx 1/2 liter of water was lost, therefore mg/l values may be incorrect by 5%

(B) Values appear extremely high for mid depth sample. The original container number was listed twice on field sheets, once for position shown (16.0 hr sample at mid depth for station 1) and for 10.0 hr sample at 3 cm for station 1.

TABLE A-2

Results of Suspended Sediment Analysis of Samples Taken  
at Station 2 During 26 June 1973 Deployment  
All Values are in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth = 17m

Sample Time	05.0	08.2	09.4	14.1	15.0	16.4
Tidal Current	High Slack		Max Ebb		Low Slack	Max Flood
Sample Height	Sieve Size					
3 cm	88 $\mu$	0.5894	0.2991	0.2994	2.1100	0.1237
	63 $\mu$	0.4943	0.6601	0.2363	2.9950	0.2527
	53 $\mu$	0.3359	NO SED	0.3046	2.9900	0.1398
	0.8 $\mu$	*	16.0000	42.6667	224.0000	39.0000
Total	-	16.9592	43.5070 (A)		232.0950	39.5162 (A)
10 cm	88 $\mu$	0.1844		0.2158	0.3878	0.1316
	63 $\mu$	0.0059		0.3421	1.2299	0.2474
	53 $\mu$	0.1428		0.1263	0.3380	0.1158
	0.8 $\mu$	12.4000		149.0000	79.2000	76.6667
Total	12.7331		149.6842	81.1557		77.1615
100 cm	88 $\mu$	0.0551		NO DATA	0.2445	0.0490
	63 $\mu$	0.0802		NO DATA	0.5180	0.0926
	53 $\mu$	0.0301		NO DATA	0.2270	0.0708
	0.8 $\mu$	15.6000		NO DATA	58.5000	20.8000
Total	15.7654		-	59.4895		21.0124

A-3

Total Water Depth= 17m

Sample Time	05.0	08.2	09.4	14.1	15.0	16.4
Tidal Current	High Slack		Max Ebb	Low Slack		Max Flood
Sample Height	Sieve Size					
Mid	88μ	0.5276	0.1037	0.9145	0.0706	
Depth	63μ	0.4543	0.0691	0.5560	0.0471	
	53μ	0.3566	0.0741	0.3533	0.0059	
	0.8μ	13.3333	9.6000	34.0000	25.6000	
Total		14.6718	9.8469	35.8238	25.7236	

A-4

NOTE: \* During the course of analysis, one tray of samples fell in the drying oven. These samples could not be processed and are marked with an asterisk.

(A) Sample container was leaking near top. Approx 1/2 liter of water was lost, therefore mg/l values may be incorrect by 5%

TABLE

Results of Suspended Sediment Analysis of Samples Taken  
at Station 3 During 26 June 1973 Deployment  
All Values are in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth= 14m										
Sample Time		05.0	06.1	07.5	09.3	11.2	13.2	14.6	15.5	
Tidal Current		High Slack			Max Ebb		Low Slack		Max Flood	
Sample Height	Sieve Size									
		(A)								
3cm	88 $\mu$	18.0831	2.5485	14.5579	52.8636	161.9000	23.5667	11.5158	*	
	63 $\mu$	23.8658	4.5752	31.3684	122.5727	255.0000	44.4000	19.3680	18.9345	
	53 $\mu$	1.2407	1.1044	8.7211	29.3818	67.3000	11.3667	4.5099	5.2080	
	0.8 $\mu$	408.0000	137.0000	2113.3333	2908.0000	1664.0000	1403.3333	410.0000	457.0000	
	Total	451.1896	145.2281	2167.9807	3112.8181	2148.2000	1482.6667	445.3937		
		(B)								
10 cm	88 $\mu$	0.7404	0.6222	2.9739	2.7061	3.9885	0.3733	3.4286	1.7308	
	63 $\mu$	1.4190	1.0706	4.7969	5.3724	5.3736	1.9145	3.3016	6.1429	
	53 $\mu$	0.4884	0.3027	1.9536	4.9119	1.8103	0.6261	2.2915	2.8516	
	0.8 $\mu$	78.0000	17.5000	250.6667	235.3333	163.0000	99.3333	133.0000	444.0000	
	Total	80.6478	19.4955	260.3911	248.3237	174.1724	102.2472	142.0217	454.7253	
		(A)								
100 cm	88 $\mu$	0.0909	0.1543	0.1641	0.1947	0.1138	0.2408	0.2884	0.1805	
	63 $\mu$	0.0284	0.0735	0.0462	0.0368	0.0057	0.3733	0.5005	0.2427	
	53 $\mu$	0.0284	0.0441	0.0205	0.0421	0.0057	0.1746	0.3863	0.1369	
	0.8 $\mu$	20.4000	18.0000	23.2000	7.3333	22.0000	50.5000	83.5000	22.4000	
	Total	20.5477	18.2719	23.4308	7.6069	22.1252	51.2887	84.6752	22.9601	
		(B)								

Total Water Depth= 14m

Sample Time	0.5	06.1	07.5	09.3	11.2	13.2	14.6	15.5	16.7	18.0	
Tidal Current	High Slack			Max Ebb		Low Slack		Max Flood		High Slack	
Sample Height	Sieve Size										
Mid Depth	88 $\mu$	0.4551	0.9624	0.0974	0.3051	0.0301	1.2383	0.0831		0.0632	0.1211
	63 $\mu$	0.2332	0.1976	0.0172	0.0904	0.0151	0.2850	0.0052		0.0369	0.0684
	53 $\mu$	0.1706	*	0.0057	0.0339	0.0050	0.1295	0.0052		0.0105	0.1316
	0.8 $\mu$	9.3333	6.8000	10.0000	*	6.4000	5.2000	8.0000		79.2000	6.8000
Total		10.1922	-	10.1203	-	6.4502	6.8528	8.0935		79.3106	7.1211
200 cm	88 $\mu$						0.0960				
	63 $\mu$						0.0263				
	53 $\mu$						0.5657				
	0.8 $\mu$						400.5850				
Total							401.2730				

NOTE: \* During the course of analysis, one tray of samples fell in the drying oven. These samples could not be processed and are marked with an asterisk.

(A) Sample container was leaking near top. Approx 1/2 liter of water was lost, therefore mg/l values may be incorrect by 5%

(B) This sample was from 20 cm above the bottom. The 10 cm sample was lost.

TABLE A-4

Results of Suspended Sediment Analysis of Samples Taken  
at Station 4 During 26 June 1973 Deployment  
All Values are in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth= 14m

Sample Time		05.5	08.0	13.5	14.2	15.8
Tidal Current		High Slack	Max Ebb	Low Slack		Max Flood
Sample Height	Sieve Size					
3 cm	88 $\mu$	4.8087	25.9341	3.6118	4.2594	3.6448
	63 $\mu$	6.5191	25.7418	4.8529	4.5178	4.1749
	53 $\mu$	2.2623	6.6703	1.8235	1.4524	1.4699
	0.8 $\mu$	340.0000	764.0000	290.0000	200.0000	207.0000
Total		353.5901	822.3462	300.2882	201.2296	216.2896
10 cm	88 $\mu$	2.8037	5.8794	0.7951		0.8582
	63 $\mu$	4.0552	8.5887	0.7884		1.2060
	53 $\mu$	1.0675	3.5248	0.3789		0.5390
	0.8 $\mu$	168.0000	99.2000	71.2000		93.6000
Total		175.9264	117.1929	73.1624		96.2032
20 cm	88 $\mu$	0.1549	0.4956	0.2727		0.0776
	63 $\mu$	0.1606	0.0531	0.1669		0.1656
	53 $\mu$	0.1090	0.0177	0.1169		0.1346
	0.8 $\mu$	44.0000	54.0000	43.2000		48.8000
Total		44.4245	54.5664	43.7565		49.1778

A-7

Continued

Total Water Depth= 14m

Sample Time		05.5	08.0	13.5	14.2	15.8
Tidal Current		High Slack	Max Ebb	Low Slack		Max Flood
Sample Height	Sieve Size					
50 cm	88 $\mu$	0.0681	0.0738	0.0756	0.5322	0.1038
	63 $\mu$	0.0965	0.0061	0.1297	1.1404	0.2186
	53 $\mu$	0.0511	0.0000	0.0864	0.4663	0.1093
	0.8 $\mu$	22.0000	28.0000	43.0000	72.0000	34.0000
Total		22.2157	28.0799	43.2917	74.1389	34.4317
100 cm	88 $\mu$	0.2167	0.2000	0.0620		0.0800
	63 $\mu$	0.1144	0.0743	0.1033		0.0114
	53 $\mu$	0.0783	0.0457	0.0826		0.0057
	0.8 $\mu$	22.0000	21.2000	36.0000		6.4000
Total		22.4094	21.5200	36.2479		6.4971
200 cm	88 $\mu$	0.0751	0.1844	0.0944		0.1737
	63 $\mu$	0.0694	0.0059	0.0682		0.5316
	53 $\mu$	0.0520	0.1428	0.0682		0.0579
	0.8 $\mu$	19.2000	12.4000	30.5000		25.0000
Total		19.3965	12.7331	30.7308		25.7632

8-V

Continued

Total Water Depth= 14m

Sample Time	05.5	08.0	13.5	14.2	15.8
Tidal Current	High Slack	Max Ebb	Low Slack		Max Flood
Sample Height	Sieve Size	(A)			
Mid	88 $\mu$	*		0.4767	0.2527
Depth	63 $\mu$	0.3922		0.2953	0.0172
	53 $\mu$	0.0000	0.1429	0.2021	0.0057
	0.8 $\mu$	6.0000	13.6000	9.7143	19.6000
Total	-	13.7429	10.6884		19.8756

6-V

NOTE: \* During the course of analysis, one tray of samples fell in the drying oven. These samples could not be processed and are marked with an asterisk.

(A) 53 $\mu$  value is sum of 88 $\mu$ , 63 $\mu$  and 53 $\mu$  sieves.

TABLE A-5

Results of Suspended Sediment Analysis of Samples Taken  
at Station 5 During 26 June 1973 Deployment  
All Values are in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth= 4m

Sample Time		08.5	10.7	13.7	16.0
Tidal Current		Max Ebb	Ebb	Low Slack	Max Flood
Sample Height	Sieve Size				
3 cm	88 $\mu$	1.1236	0.6000	0.0345	0.1938
	63 $\mu$	0.2850	0.0833	0.0461	0.0969
	53 $\mu$	0.0000	0.0555	0.0461	0.0513
	0.8 $\mu$	7.2000	9.2000	16.4000	5.2000
	Total	8.6086	9.9388	16.5267	5.5420
10 cm	88 $\mu$	0.2065		L	0.0956
	63 $\mu$	0.0598		O	0.0319
	53 $\mu$	0.0707		S	0.0372
	0.8 $\mu$	5.2000		T	4.8000
	Total	5.5370			4.9647
100 cm	88 $\mu$	0.5402		0.1200	0.1986
	63 $\mu$	0.0270		0.0218	0.0055
	53 $\mu$	0.0108		0.0218	0.0000
	0.8 $\mu$	8.8000		12.8000	10.0000
	Total	9.3780		12.9636	10.2041

A-10

A-5  
Continued

Total Water Depth= 4m

Sample Time		0.8	10.7	13.7	16.0
Tidal Current		Max Ebb	Ebb	Low Slack	Max Flood
Sample Height	Sieve Size				
200 cm	88 $\mu$			0.4284	
	63 $\mu$			0.1297	
	53 $\mu$			0.0733	
	0.8 $\mu$			4.6000	
Total				5.2314	
Mid Depth	88 $\mu$	0.0544		11.5886	0.3059
	63 $\mu$	0.0163		0.3106	0.0118
	53 $\mu$	0.0054		0.0866	0.0059
	0.8 $\mu$	5.6000		10.8000	13.6000
Total		5.6761		22.7858	13.9236

II-V  
A-11

TABLE B-1

Current Speed and Direction Measured at Station 1 During 26 June 1973 Deployment

Total Water Depth = 20 m

Depth (m)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Depth (m)
0	07.1	0.01	170	11.7	0.11	090	12.7	0.24	270	0
2		0.03	180		0.09	090		0.24	280	2
4		0.03	200		0.11	220		0.22	270	4
6		0.05	220		0.11	190		0.21	050	6
8		0.20	210		0.17	120		0.11	060	8
10		0.16	200		0.20	120		0.16	260	10
12		0.03	170		0.13	160		0.12	280	12
14		0.03	260							
16		0.03	180							
0	14.8	0.05	280	16.5	0.05	080	17.6	0.09	100	0
2		0.04	280		0.05	070		0.09	100	2
4		0.05	270		0.05	350		0.09	150	4
6		0.04	270		0.07	010		0.09	100	6
8		0.04	270		0.07	280		0.07	100	8
10		0.06	270		0.06	290		0.08	080	10
12		0.06	270		0.05	330		0.07	150	12
14		0.05	280							

A-12

TABLE B-2

## Current Speed and Direction Measured at Station 2 During 26 June 1973 Deployment

Total Water Depth = 17 m

Depth (m)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Depth (m)
0	07.5	0.03	170	08.5	0.05	150	11.0	0.30	160	0
2		0.03	160		0.05	150		0.27	160	2
4		0.01	150		0.07	170		0.15	170	4
6		0.02	260		0.08	190		0.08	090	6
8		0.03	260		0.10	230		0.07	260	8
10		0.03	260		0.09	250		0.10	110	10
12		0.03	050		0.08	060		0.10	070*	12
14		0.03	120							14
A-13										
0	11.9	0.15	210	15.0	0.03	120	16.8	0.10	220	0
2		0.19	160		0.01	150		0.10	240	2
4		0.17	150		0.01	150		0.11	210	4
6		0.13	130		0.01	130		0.10	180	6
8		0.13	080		0.01	230		0.10	190	8
10		0.18	090		0.01	020		0.10	090	10
12					0.01	220		0.09	090	12
0	17.9	0.05	250							
2		0.05	210							
4		0.04	050							
6		0.04	150							
8		0.04	150							
10		0.04	070							
12		0.03	050							

NOTE: \* Sensor depth = 10.5 m

TABLE B-3

## Current Speed and Direction Measured at Station 3 During 26 June 1973 Deployment

Total Water Depth = 14 m

Depth (m)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Depth (m)
0	08.0	0.03	170	08.9	0.09	160	10.5	0.27	170	0
2		0.02	130		0.05	160		0.21	160	2
4		0.03	150		0.10	150		0.12	120	4
6		0.03	150		0.09	160		0.11	100	6
8		0.03	200		0.07	040		0.10	100	8
10		0.02	050		0.06	070		0.09	240	10
12		0.03	060		(A)0.08	090		(B)0.10	160	12
0	12.1	0.21	180	15.3	0.05	090	17.0	0.10	200	0
2		0.10	160		0.20	100		0.09	070	2
4		0.07	070		0.08	220		0.09	240	4
6		0.08	090		0.07	090		0.10	200	6
8		0.11	040		0.05	080		0.10	230	8
10		0.05	080		0.07	200		0.10	090	10
12					0.20	220		0.09	090	12
0	18.1	0.06	090							
2		0.07	260							
4		0.10	140							
6		0.09	100							
8		0.08	300							
10		0.09	290							
12		0.06	180							

NOTES: (A) Measurement made at 11.5 m  
(B) Measurement made at 10.5 m

TABLE B-4

## Current Speed and Direction Measured at Station 4 During 26 June 1973 Deployment

Total Water Depth = 14 m

Depth (m)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Depth (m)
0	0.07	0.02	170	09.0	0.09	240	10.7	0.14	250	0
2		0.03	130		0.09	220		0.10	090	2
4		0.03	110		0.10	230		0.12	050	4
6		0.03	100		0.08	090		0.08	250	6
8		0.03	240		0.08	130		0.10	140	8
10		0.03	210		0.07	110		0.11	090	10
12		0.02	110		(A)0.08	080		(B)0.06	180	12
14		0.03	100							
A-15	12.3	0.13	260	14.3	0.10	280	15.5	0.05	120	0
2		0.10	260		0.11	250		0.06	100	2
4		0.15	270		0.10	140		0.05	190	4
6		0.10	090		0.07	090		0.07	140	6
8		0.11	070		0.11	250		0.06	080	8
10		0.11	120		0.07	070		0.08	210	10
12		(C)0.07	120		0.08	200		0.08	230	12
0	17.2	0.10	210	18.5	0.08	210				
2		0.09	270		0.09	180				
4		0.10	220		0.07	260				
6		0.10	260		0.10	200				
8		0.10	210		0.08	090				
10		0.09	270		0.09	250				
12		0.10	250		0.10	010				

NOTES: (A) Measurement made at 10.5 m  
 (B) Measurement made at 11.0 m  
 (C) Measurement made at 11.5 m

TABLE B-5

Current Speed and Direction Measured at Station 5 During 26 June 1973 Deployment

Total Water Depth = 4 m

Depth (m)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Time (hrs)	Speed (m/sec)	Direction (mag)	Depth (m)
0	08.8	0.07	150	11.5	0.18	180	12.5	0.12	180	0
2		0.07	140		0.18	160		0.10	280	2
3.5		0.07	130		0.15	170		0.15	240	3.5
0	14.5	0.05	060	15.9	0.05	270	17.4	0.11	210	0
2		0.06	180		0.06	100		0.09	220	2
3.5		0.08	160		0.07	240		0.10	200	3.5
0	18.8	0.08	250	19.9	0.03	160				
2		0.07	180		0.02	140				
3.5		0.07	180		0.02	120				

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TABLE C-1

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 1 During 26 June During 1973 Deployment

Water Depth = 20 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 07.1			Time = 08.3			Time = 09.3			
0	24.18	18.39	11.1266	24. 0	18.23	11.0011	24.33	18.14	10.8998	0
2	24.00	19.29	11.8475	24.24	18.38	11.1020	24.13	18.77	11.4259	2
4	23.76	19.98	12.4342	24.07	19.44	11.9414	24.12	19.11	11.6818	4
6	23.63	20.18	12.6197	23.65	20.09	12.5491	23.87	19.55	12.0777	6
8	23.47	20.44	12.8564	22.94	21.23	13.5956	23.45	20.37	12.8101	8
10	23.30	20.72	13.1169	22.61	21.66	14.0061	23.27	20.60	13.0337	10
12	22.40	22.09	14.3878	22.08	22.68	14.9169	22.41	23.06	15.1108	12
14	22.14	22.46	14.7331							
16	21.89	22.88	15.1141							
18	20.14	25.88	17.6055							
19.5	19.93	25.73	17.7657							
	Time = 11.7			Time = 12.7			Time = 13.9			
0	24.49	18.12	10.8379	25.07	17.88	10.4966	24.47	18.77	11.3286	0
2	24.28	18.41	11.1148	24.78	18.48	11.0274	24.43	18.81	11.3678	2
4	24.23	18.65	11.3099	24.62	18.71	11.2398	24.33	19.01	11.5462	4
6	24.05	19.06	11.6609	24.57	18.84	11.3518	24.02	19.35	11.8930	6
8	23.96	19.27	11.8453	24.55	18.90	11.4050	23.58	19.97	12.4753	8
10	23.93	19.31	11.8842	24.31	19.71	12.0781	23.37	20.19	12.6993	10
12	22.35	22.35	14.5967	22.50	22.54	14.6978	23.50	20.38	12.8692	12

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C-1  
Continued

Water Depth = 20 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 14.8			Time = 16.5			Time = 17.6			
0	24.41	19.39	11.8147	24.44	18.84	11.3877	24.24	19.01	11.5738	0
2	24.22	19.49	11.9398	24.39	19.03	11.5467	24.26	19.06	11.6087	2
4	24.18	19.61	12.0370	24.27	20.26	12.5048	24.34	19.42	11.5817	4
6	24.11	19.66	12.0951	24.23	21.02	13.0809	24.26	20.17	12.4377	6
8	23.98	19.78	12.2265	20.83	24.56	16.6573	24.24	22.62	14.2803	8
10	22.47	21.47	13.9033	20.29	25.36	17.3938	20.36	25.39	17.4036	10
12	21.90	23.13	15.2980	20.08	25.56	17.6005	20.03	25.68	17.7009	12
14	20.93	24.45	16.5483							

TABLE C-2

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 2 During 26 June 1973 Deployment

Water Depth = 17 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 07.5			Time = 08.5			Time = 09.3			
0	24.03	18.77	11.4485	24.10	18.79	11.4488	24.37	18.38	11.0622	0
2	24.06	18.79	11.4568	24.11	18.88	11.5106	24.31	18.40	11.0973	2
4	23.99	18.96	11.6025	23.67	19.39	12.0137	24.29	18.52	11.1917	4
6	23.99	18.62	11.3522	23.94	19.26	11.8468	24.16	18.80	11.4394	6
8	23.77	19.42	12.0117	23.82	19.46	12.0237	23.81	19.75	12.2455	8
10	23.66	19.85	12.3630	22.95	21.18	13.5514	23.72	19.82	12.3213	10
12	23.62	19.92	12.4297	20.82	24.90	16.9134	23.57	20.07	12.5508	12
14	22.15	22.43	14.7044				22.10	22.68	14.9094	14
16	20.78	24.56	16.6685							
17.2	20.15	22.46	15.2373							
	Time = 09.8			Time = 11.0			Time = 11.9			
0	24.30	18.37	11.0773	24.25	18.44	11.1427	24.62	17.65	10.4505	0
2	24.50	18.47	11.1634	24.18	18.65	11.3237	24.43	18.07	10.8161	2
4	24.17	18.74	11.3919	24.16	18.73	11.3874	24.41	18.27	10.9719	4
6	24.16	18.71	11.3718	24.16	18.74	11.3926	24.38	18.40	11.0770	6
8	24.12	18.77	11.4266	24.08	18.93	11.5596	24.18	18.90	11.5055	8
10	23.72	20.49	12.8294	23.84	19.43	12.0012	24.06	19.04	11.6497	10
10.5	21.72	21.08	13.8000	23.71	19.52	12.1057				

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C-2  
Continued

Water Depth = 17 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 12.9			Time = 14.1			Time = 15.0			
0	24.82	17.84	10.5344	24.31	18.49	11.1645	24.62	18.29	10.9265	0
2	24.38	18.52	11.1699	24.26	18.72	11.3544	24.40	18.63	11.2460	2
4	24.27	18.71	11.3381	24.22	18.75	11.3832	24.26	18.75	11.3699	4
6	24.22	18.80	11.4195	24.24	19.11	11.6466	23.82	20.38	12.7198	6
8	24.12	19.01	11.6088	23.12	21.50	13.7469	20.82	23.77	16.0577	8
10	23.75	19.88	12.3611	21.73	20.45	13.3221	20.77	24.85	16.8900	10
12	22.69	22.12	14.3326(A)	21.42	19.44	12.6441	20.36	25.14	17.2098	12
	Time = 16.8			Time = 17.9						
0	24.26	19.15	11.6710	24.12	19.15	11.7130				
2	24.16	19.21	11.7465	24.09	19.27	11.8092				
4	23.57	20.41	12.8053	23.57	20.27	12.7043				
6	21.93	22.61	14.8977	22.94	21.22	13.5847				
8	21.07	24.56	16.5906	21.62	23.43	15.6023				
10	20.24	25.42	17.4525	20.09	25.68	17.6881				
12	19.84	24.01	16.4835	19.82	24.63	16.9582				

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NOTE: (A) Depth = 11.5 m

TABLE C-3

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 3 During 26 June 1973 Deployment

Water Depth = 14 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time=08.0			Time=08.9			Time = 10.0			
0	23.89	18.86	11.5572	24.24	18.85	11.4544	24.75	18.44	11.0041	0
2	24.00	19.07	11.6854	24.05	18.99	11.6139	24.69	18.66	11.1882	2
4	23.97	19.27	11.8445	24.03	19.08	11.6832	24.08	19.08	11.6691	4
6	23.88	19.29	11.8827	23.87	19.43	11.9936	24.04	19.13	11.7190	6
8	23.31	20.70	13.0999	23.75	19.64	12.1817	23.94	19.32	11.8887	8
10	21.55	23.44	15.6263	23.27	20.56	13.0015	23.76	19.74	12.2548	10
12	20.27	25.39	17.4255	20.77	20.47	13.5823(A)	20.65	24.03	16.2993(A)	12
	Time = 10.5			Time = 12.1			Time = 13.1			
0	24.10	18.81	11.4592	24.47	17.94	10.7057	24.47	18.28	10.9626	0
2	24.10	18.91	11.5373	24.32	18.53	11.1897	24.31	18.65	11.2835	2
4	24.09	18.93	11.5589	24.32	18.55	11.2052	24.29	18.60	11.2538	4
6	24.04	19.14	11.7295	24.22	18.71	11.3521	24.28	18.63	11.2804	6
8	23.97	19.24	11.8236	24.18	18.88	11.4899	24.25	18.74	11.3655	8
10	23.42	21.99	14.0349	24.13	19.13	11.6966	23.87	19.34	11.9201	10
12	20.53	24.93	17.0097(B)	21.86	19.24	12.3846	22.40	20.73	13.3614	12

NOTE: (A) Sample Depth = 11.5m

(B) Sample Depth = 10.5m

C-3  
Continued

Water Depth = 14 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
Time = 14.2			Time = 15.3			Time = 17.0				
0	24.39	18.50	11.1486	24.49	18.46	11.0899	24.34	18.58	11.2244	0
2	24.32	18.64	11.2724	24.25	18.75	11.3758	24.21	19.99	12.3167	2
4	24.27	18.71	11.3433	23.93	19.82	12.2674	23.62	20.17	12.6152	4
6	24.21	18.97	11.5501	22.51	22.13	14.3829	22.05	22.73	14.9588	6
8	23.72	20.60	12.9090	21.47	23.44	15.6457	20.98	24.46	16.5429	8
10	21.81	22.91	15.1555	20.62	24.80	16.8891	20.22	25.45	17.4842	10
12	21.62	23.16	15.3990(B)	19.93	25.78	17.8074	19.75	26.09	18.0846	12
Time = 18.1										
0	24.24	18.70	11.3403							
2	24.16	19.20	11.7413							
4	23.84	19.75	12.2379							
6	22.98	21.16	13.5325							
8	21.73	23.29	15.4613							
10	20.46	25.46	17.4272							
12	19.78	25.87	17.9078							

NOTE: (B) Sample Depth = 10.5m

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TABLE C-4

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 4 During 26 June 1973 Deployment

Water Depth = 14 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 07.7			Time = 09.0			Time = 09.5			
0	23.74	19.19	11.8455	23.77	19.21	11.8539	23.98	19.08	11.6973	0
2	23.91	19.19	11.7966	23.89	19.24	11.8400	24.04	19.07	11.6773	2
4	23.89	19.28	11.8714	23.86	19.34	11.9261	23.96	19.23	11.8191	4
6	23.81	19.53	12.0823	23.82	19.43	12.0027	23.91	19.30	11.8804	6
8	23.59	19.99	12.4904	23.76	19.62	12.1651	23.84	19.41	11.9854	8
10	23.04	20.49	13.0094	23.31	20.55	12.9821	23.49	20.35	12.7855	10
12	23.09	20.81	13.2369	20.73	16.74	10.7788	21.40	19.68	12.8335	12
14	22.44	21.82	14.1749		(A)		(B)			
	Time = 10.7			Time = 12.3			Time = 13.2			
0	24.23	18.81	11.4292	24.64	17.98	10.6946	24.91	18.09	10.7012	0
2	24.21	18.82	11.4410	24.39	18.33	11.0248	24.48	18.32	10.9877	2
4	24.15	18.89	11.5077	24.34	18.47	11.1417	24.38	18.41	11.0873	4
6	24.13	18.95	11.5612	24.33	18.52	11.1838	24.34	18.55	11.1986	6
8	24.13	18.99	11.5924	24.34	18.57	11.2193	24.20	18.72	11.3565	8
10	23.81	19.74	12.2403	24.30	18.63	11.2738	23.75	20.33	12.6995	10
12				23.80	17.91	10.8685	21.99	21.74	14.2300	12
					(C)				(D)	

NOTES: (A) Sample Depth = 10.5 m; (B) Sample Depth = 11.0 m; (C) Sample Depth = 11.5 m; (D) Sample Depth = 12.5 m

C-4  
Continued

Water Depth = 14 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 14.3			Time = 15.5			Time = 17.2			
0	24.35	18.31	11.0223	24.24	18.69	11.3351	24.17	18.77	11.4127	0
2	24.27	18.67	11.3122	24.19	18.85	11.4684	24.07	19.20	11.7638	2
4	24.19	18.82	11.4476	21.80	22.90	15.1564	23.73	20.28	12.6642	4
6	24.08	19.00	11.6065	21.66	23.36	15.5361	21.80	22.96	15.1957	6
8	23.12	20.94	13.3259	21.22	23.79	15.9725	20.60	25.10	17.1245	8
10	22.18	22.44	14.7071	20.62	24.75	16.8483	20.01	25.76	17.7685	10
12	21.77	22.21	14.6382	20.33	25.17	17.2424	19.80	25.63	17.7207	12
	Time = 18.5									
0	24.09	19.07	11.6631							
2										
4	23.74	20.05	12.4887							
6	23.16	20.80	13.2094							
8	22.44	22.30	14.5328							
10	20.08	24.67	16.9273							
12	19.84	25.97	17.9726							

A-24

TABLE C-5

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 5 During 26 June 1973 Deployment

Water Depth = 4 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
Time = 08.8			Time = 09.7			Time = 11.5				
0	24.63	18.47	11.0594	24.15	18.56	11.2635	24.67	17.75	10.5137	0
2	24.60	18.85	11.3546	24.17	18.73	11.3867	24.55	18.16	10.8493	2
3.5	24.03	19.09	11.6937	24.17	18.70	11.3608	24.36	18.34	11.0423	3.5
Time = 12.5			Time = 13.6			Time = 14.5				
0	24.60	17.99	10.7075	24.66	18.17	10.8263	24.47	18.32	10.9935	0
2	24.35	18.40	11.0894	24.54	18.46	11.0812	24.34	18.85	11.4263	2
3.5	24.32	18.43	11.1173	24.22	18.64	11.3002	24.20	18.83	11.4521	3.5
Time = 15.9			Time = 17.4			Time = 18.8				
0	24.41	18.48	11.1265	24.27	18.75	11.3744	24.15	19.10	11.6639	0
2	24.26	18.86	11.4529	24.31	19.81	12.1563	23.89	19.68	12.1707	2
3.5	24.14	20.04	12.3753	23.17	21.01	13.3646	23.33	20.10	12.6438	3.5
Time = 19.9										
0	24.08	18.80	11.4606							
2	23.96	19.31	11.8767							
3.5	23.81	19.41	11.9929							

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TABLE D-1

Results of Suspended Sediment Analysis of Samples Taken  
At Station 1 During 15 September 1973 Deployment  
All Values are in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth = 16m

Sample Time		08.5	10.5	14.2	17.6
Tidal Current		Max Flood	Near Slack After Flood*	½ hr After High Slack	Max Ebb
Sample Height	Sieve Size				
3 cm	88 $\mu$	5.2102	58.1113	86.0765	21.8951
	63 $\mu$	4.8446	79.2426	97.5621	17.3413
	53 $\mu$	3.5649	15.0538	21.3431	15.0874
	0.8 $\mu$	566.0000	312.0000	936.0000	308.0000
Total		579.6197	464.4077	1140.9817	362.3238
10 cm	88 $\mu$	21.0478	21.9523	25.0000	*
	63 $\mu$	19.8070	44.3995	40.3000	49.6956
	53 $\mu$	11.6268	8.8169	8.9000	10.3044
	0.8 $\mu$	616.0000	278.0000	472.0000	424.0000
Total		668.4816	353.1687	546.2000	-
100 cm	88 $\mu$	4.7422	0.0979	0.5376	0.4380
	63 $\mu$	12.5691	0.2449	0.6843	0.3406
	53 $\mu$	5.6630	0.2938	0.2444	0.0487
	0.8 $\mu$	430.0000	64.0000	86.0000	28.8000
Total		452.9743	64.6366	87.4663	29.6273

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Table D-1  
Continued

Total Water Depth = 16m

Sample Time		08.5	10.5	14.2	17.6
Tidal Current		Max Flood	Near Slack After Flood*	½hr After High Slack	Max Ebb
Sample Height	Sieve Size				
Mid	88μ	1.1280	0.7692	0.4539	0.4537
Depth	63μ	0.7847	0.0000	0.0454	0.1361
	53μ	0.3923	0.0000	0.1362	0.0454
	0.8μ	26.0000	11.2000	16.8000	18.8000
Total		28.3050	11.9692	17.4355	19.4352

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\* Maximum flood occurred at 09.3 hrs. Current then dropped to within 10% of max flood value (.05 to .06 m/sec) during sampling period (10 to 12 hours), increased to .2 m/sec at 12.5 to 13 hrs. and subsided to high slack at 13.9 hours.

TABLE D-2

Results of Suspended Sediment Analysis of Samples From  
 Station 2 Taken During 15 September 1973 Deployment  
 All Values are in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth = 14m

Sample Time	09.1	10.8	14.6	17.9	
Tidal Current(1)	Max Flood	Near Slack After Flood*	½ hr After High Slack	Max Ebb	
Sample Height	Sieve Size				
3 cm	88 $\mu$	1.0036	0.2273	2.6242	0.4890
	63 $\mu$	1.0036	0.2727	2.8116	0.4401
	53 $\mu$	0.8212	0.1818	0.5623	0.1467
	0.8 $\mu$	57.0000	19.6000	86.0000	31.2000
	Total	59.8284	20.2818	91.9981	32.2758
10 cm	88 $\mu$	3.7570	2.9907	17.8000	10.0186
	63 $\mu$	1.0668	1.0280	28.5000	13.8397
	53 $\mu$	0.3247	0.0467	10.9000	4.1007
	0.8 $\mu$	63.6000	57.5000	668.0000	275.0000
	Total	68.7485	61.5654	725.2000	302.9590
100 cm	88 $\mu$	0.2248	0.2821	0.9066	0.2271
	63 $\mu$	0.3147	0.6112	1.5413	0.0454
	53 $\mu$	0.1349	0.1410	0.5893	0.0454
	0.8 $\mu$	29.2000	48.5000	68.0000	21.6000
	Total	29.8744	49.5343	71.0372	21.9179

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Table D-2  
Continued

Total Water Depth = 14m

Sample Time		09.1	10.8	14.6	17.9
Tidal Current (1)		Max Flood	Near Slack After Flood*	½ hr After High Slack	Max Ebb
Sample Height	Sieve Size				
Mid	88μ	0.5401	0.1883	0.3333	0.2725
Depth	63μ	0.1800	0.0000	0.0952	0.1362
(600)	53μ	0.2250	0.1412	0.0952	0.0000
	0.8μ	15.2000	11.6000	16.8000	14.8000
Total		16.1451	11.9295	17.3237	15.2087

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- 1) Currents at station 2 did not follow a usual FLOOD - EBB pattern, hence tidal currents for sampling periods are with reference to currents measured at station 1. Table E-1 should be consulted to determine current speed and direction prior to and during sampling at this station. Predominant currents 2 meters above the bottom were towards Magnetic North ( $\pm 40^\circ$ ) - an assumed EBB direction and ranged in strength, from .1 to .4 m/sec.

\* See note Table D-1.

Results of Suspended Sediment Analysis of Samples Taken  
 At Station 3 During the 15 September 1973 Deployment  
 All Values in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth - 14m

Sample Time		10.3	12.0
Tidal Current (1)		Near Slack After Flood	Near Slack After Flood
Sample Height	Sieve Size		
3 cm	88 $\mu$	0.0899	0.1821
	63 $\mu$	0.8993	0.5009
	53 $\mu$	0.3147	0.0455
	0.8 $\mu$	33.2000	43.5000
Total		34.5039	44.2285
10 cm	88 $\mu$	0.7623	0.2246
	63 $\mu$	0.4484	0.2246
	53 $\mu$	0.0897	0.4043
	0.8 $\mu$	35.2000	49.0000
Total		36.5004	49.8535
100 cm	88 $\mu$	0.8954	0.3260
	63 $\mu$	0.0943	0.2795
	53 $\mu$	0.0943	0.0000
	0.8 $\mu$	22.8000	33.6000
Total		23.8840	34.2055

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Table D-3  
Continued

Total Water Depth - 14m

Sample Time		10.3	12.0
Tidal Current (1)		Near Slack After Flood	Near Slack After Flood
Sample Height	Sieve Size		
Mid	88 $\mu$	0.7102	0.1355
Depth	63 $\mu$	0.0947	0.1355
	53 $\mu$	0.0000	0.0000
	0.8 $\mu$	14.0000	12.4000
Total		14.8049	12.6710

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- 1) Currents referenced are those measured at station 1. Check Table E-3 for currents measured at station #3. As with station #2, EBB appears to dominate.

TABLE D-4

Results of Suspended Sediment Analysis of Samples Taken  
at Station 4 During the 15 September 1973 Deployment  
All Values in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth = 12m

Sample Time		10.8	12.0	16.5	19.2
Tidal Current (1)		Near Slack After Maximum Flood*		Maximum Ebb	Just Prior to Low Slack
Sample Height	Sieve Size				
3 cm	88 $\mu$	0.4348	0.3726	4.5000	
	63 $\mu$	0.1449	0.0000	8.5000	
	53 $\mu$	0.0483	0.0466	3.3000	
	0.8 $\mu$	30.4000	33.6000	414.0000	
Total		31.0280	34.0192	430.3000	
10 cm	88 $\mu$	0.5655	0.2719	0.2312	
	63 $\mu$	0.0007	0.1359	0.7397	
	53 $\mu$	0.0471	0.1359	0.0925	
	0.8 $\mu$	27.0000	40.4000	59.0000	
Total		27.6133	40.9437	60.0634	
100 cm	88 $\mu$	0.0896	0.0000	0.2685	0.9991
	63 $\mu$	0.0000	0.0000	0.0000	0.5904
	53 $\mu$	0.0448	0.0000	0.0000	0.0908
	0.8 $\mu$	0.2695	25.0000	14.8000	18.4000
Total		0.4039	25.0000	15.0685	20.0803

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Table D-4  
Continued

Total Water Depth = 12m

Sample Time	10.8	12.0	16.5	19.2	
Tidal Current (1)	Near Slack After Maximum Flood*		Maximum Ebb	Just Prior to Low Slack	
Sample Height	Sieve Size				
Mid	88 $\mu$	0.2695	0.9932	0.1787	0.0926
Depth (600)	63 $\mu$	0.0000	0.3612	0.0894	0.0000
	53 $\mu$	0.0000	0.0451	0.0000	0.0000
	0.8 $\mu$	14.4000	15.2000	12.4000	12.8000
Total		14.6695	16.5995	12.6681	12.8926

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(1) Currents referenced to station #1. Check Table E-4 for currents measured at station #4.

\* See note table D-1

TABLE D-5

Results of Suspended Sediment Analysis of Samples Taken  
At Station 5 During the 15 September 1973 Deployment  
All Values in mg/l

EASTERN STANDARD TIME (Hours and Tenths)

Total Water Depth = 8m

Sample Time	11.2	12.4	16.6	19.3	
Tidal Current (1)	Near Slack After Flood*	Flood	Max Ebb	Low Slack	
Sample Height	Sieve Size				
3 cm	88 $\mu$	0.2296	0.0449	1.3188	0.3630
	63 $\mu$	0.1377	0.1346	0.4548	0.3630
	53 $\mu$	0.0000	0.1346	0.1364	0.0454
	0.8 $\mu$	24.0000	24.0000	32.8000	12.4000
Total	24.3673	24.3141	34.7100	13.1714	
10 cm	88 $\mu$	21.0214	0.0463	0.3727	0.9821
	63 $\mu$	4.1040	0.0926	0.3727	0.2232
	53 $\mu$	0.7752	0.0000	0.2130	0.0000
	0.8 $\mu$	135.0000	24.4000	30.8000	16.0000
Total	160.9006	24.5389	31.7584	17.2053	
100 cm	88 $\mu$	0.9950	0.0476	0.5016	0.8617
	63 $\mu$	0.4071	0.1427	0.1824	1.4512
	53 $\mu$	0.0452	0.0476	0.0000	0.3628
	0.8 $\mu$	20.8000	48.5000	16.8000	16.4000
Total	22.2473	48.7379	17.4840	19.0757	

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Table D-5  
Continued

Total Water Depth = 8m					
Sample Time		11.2	12.4	16.6	19.3
Tidal Current (1)		Near Slack After Flood*	Flood	Max Ebb	Low Slack
Sample Height	Sieve Size				
A-35	Mid	88 $\mu$	0.0449	0.0451	0.2313
	Depth	63 $\mu$	0.0000	0.0000	0.0000
	(400 cm)	53 $\mu$	11.6000	0.0451	0.0000
		0.8 $\mu$	0.0449	10.8000	15.2000
	Total		11.6898	10.8902	15.4313

(1) Currents referenced to station #1. Check Table E-5 for currents measured at Station #5.

\* See note Table D-1

TABLE E-1

Current Speed and Direction Measured At Station 1  
During 15 September 1973 Deployment

Total Water Depth = 15.24 Meters

Time (East.Std.)	0.5 m from bottom		2.0 m from bottom		Time (East.Std.)	0.5 m from bottom		2.0 m from bottom	
	Speed (m/sec)	Direction (mag)	Speed (m/sec)	Direction (mag)		Speed (m/sec)	Direction (mag)	Speed (m/sec)	Direction (mag)
04.00	.294	15.4	.358	25.8	14.33	.130	17.2	.194	29.4
04.33	.275	16.4	.324	30.7	14.67	.184	28.5	.292	36.3
04.67	.242	23.8	.340	36.8	15.00	.231	28.5	.326	42.5
05.00	.253	30.6	.271	47.9	15.33	.243	35.5	.330	47.0
05.33	.172	40.7	.177	37.3	15.67	.265	31.7	.379	39.5
05.67	.131	24.8	.139	9.4	16.00	.302	26.9	.425	36.9
06.00	.074	356.0	.109	330.6	16.33	.324	26.6	.455	38.0
06.33	.080	296.9	.117	277.5	16.67	.338	29.7	.436	37.2
06.67	.111	242.7	.170	239.0	17.00	.352	28.6	.464	40.9
07.00	.159	216.0	.247	226.2	17.33	.301	21.0	.405	29.6
07.33	.218	210.2	.318	232.2	17.67	.308	13.4	.367	26.5
07.67	.258	219.3	.376	221.6	18.00	.264	15.4	.358	26.5
08.00	.326	215.2	.454	220.9	18.33	.250	18.7	.303	26.8
08.33	.392	214.0	.460	210.5	18.67	.214	18.7	.237	25.1
08.67	.337	199.5	.505	217.6	19.00	.162	23.9	.185	38.9
09.00	.401	201.0	.468	211.2	19.33	.121	46.4	.124	65.2
09.33	.426	197.1	.549	212.1	19.67	.084	119.3	.084	95.7
09.67	.411	201.0	.242	209.8	20.00	.082	171.1	.116	106.8
10.00	.392	202.4	.051	213.3	20.33	.127	205.0	.200	202.9
10.33	.288	201.4	.066	211.4	20.67	.181	201.6	.257	213.9
10.67	.276	202.9	.044	214.8	21.00	.230	204.2	.278	221.5
11.00	.258	197.2	.032	209.9	21.33	.208	212.8	.281	215.9
11.33	.342	201.6	.026	219.6	21.67	.232	202.7	.312	213.8
11.67	.305	213.5	.034	224.8	22.00	.239	201.7	.327	214.9
12.00	.265	212.3	.069	226.8	22.33	.258	204.2	.334	219.7
12.33	.228	217.5	.170	233.3	22.67	.268	205.2	.342	212.2
12.67	.158	229.0	.206	241.0	23.00	.285	197.4	.367	202.2
13.00	.123	267.6	.202	286.9	23.33	.324	191.3	.390	206.4
13.33	.098	308.7	.172	299.3	23.67	.271	197.7	.292	203.2
13.67	.091	322.3	.154	337.0					
14.00	.100	5.5	.162	4.5					

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TABLE E-2

Current Speed and Direction Measured at Station 2  
During 15 September 1973 Deployment

Total Water Depth = 13.41 Meters

Time (East.Std.)	0.5 m from bottom		2.0 m from bottom		Time (East.Std.)	0.5 m from bottom		2.0 m from bottom	
	Speed (m/sec)	Direction (mag)	Speed (m/sec)	Direction (mag)		Speed (m/sec)	Direction (mag)	Speed (m/sec)	Direction (mag)
04.00	.142	303.2	.311	336.4	14.00	.266	29.9	.321	15.1
04.33	.152	296.0	.326	291.8	14.33	.326	28.9	.400	25.7
04.67	.146	308.0	.299	299.0	14.67	.361	30.5	.418	28.3
05.00	.146	299.3	.300	295.4	15.00	.308	21.2	.337	14.4
05.33	.148	295.9	.294	295.3	15.33	.232	13.6	.291	20.6
05.67	.140	304.5	.274	308.2	15.67	.218	357.0	.302	4.3
06.00	.134	297.7	.262	303.8	16.00	.211	6.9	.277	18.9
06.33	.112	303.4	.232	313.5	16.33	.166	357.1	.227	2.9
06.67	.091	309.7	.181	303.2	16.67	.129	11.2	.187	14.3
07.00	.077	332.2	.166	319.8	17.00	.146	10.5	.200	352.2
07.33	.135	10.4	.203	6.8	17.33	.104	307.2	.189	346.9
07.67	.159	356.5	.236	353.0	17.67	.102	290.8	.184	318.8
08.00	.173	334.8	.228	339.9	18.00	.111	296.3	.210	297.3
08.33	.116	344.8	.189	348.7	18.33	.093	298.3	.190	297.8
08.67	.077	352.5	.148	345.4	18.67	.093	297.1	.173	300.2
09.00	.062	338.0	.143	347.5	19.00	.092	298.8	.171	302.9
09.33	.139	6.0	.193	9.3	19.33	.066	298.1	.139	301.3
09.67	.143	40.1	.183	48.0	19.67	.065	268.8	.126	293.0
10.00	.096	76.7	.165	54.9	20.00	.062	228.5	.102	273.3
10.33	.102	64.3	.187	50.9	20.33	.055	277.0	.089	295.8
10.67	.154	57.9	.236	45.9	20.67	.056	4.7	.097	217.0
11.00	.172	40.2	.239	31.8	21.00	.101	80.6	.139	77.6
11.33	.204	35.3	.282	29.3	21.33	.126	68.5	.147	62.9
11.67	.188	30.4	.255	28.0	21.67	.143	24.4	.170	37.9
12.00	.204	18.0	.258	24.7	22.00	.136	337.8	.147	347.8
12.33	.212	21.9	.255	28.0	22.33	.133	304.7	.151	315.4
12.67	.219	25.8	.269	28.6	22.67	.135	315.9	.163	327.5
13.00	.247	30.1	.322	31.0	23.00	.113	351.1	.144	4.8
13.33	.236	24.3	.285	16.7	23.33	.101	17.9	.128	20.1
13.67	.264	36.9	.329	24.1	23.67	.064	45.1	.093	28.1

TABLE E-3

Current Speed and Direction Measured at Station 3  
During 15 September 1973 Deployment

Total Water Depth = 12.80 Meters

Time (East.Std.)	* 0.5m from bottom		6.0m from bottom		Time (East.Std.)	* 0.5m from bottom		6.0m from bottom	
	Speed (m/sec)	Direction (mag)	Speed (m/sec)	Direction (mag)		Speed (m/sec)	Direction (mag)	Speed (m/sec)	Direction (mag)
05.00	.030	253.7	.260	349.0	15.00	.070	342.0	.226	23.9
05.33	.031	192.6	.275	323.4	15.33	.097	14.3	.269	26.2
05.67	.027	167.4	.216	232.3	15.67	.067	313.5	.259	23.8
06.00	.038	267.8	.202	186.2	16.00	.053	319.0	.230	24.1
06.33	.121	343.6	.229	57.6	16.33	.049	85.4	.226	28.6
06.67	.128	3.7	.242	3.8	16.67	.066	98.4	.254	16.6
07.00	.129	33.8	.231	286.3	17.00	.077	59.9	.243	12.7
07.33	.106	59.0	.210	290.0	17.33	.089	37.3	.249	12.9
07.67	.086	74.2	.188	11.8	17.67	.098	3.8	.200	360.0
08.00	.118	60.9	.167	48.7	18.00	.114	4.9	.192	337.3
08.33	.106	47.8	.173	33.1	18.33	.087	9.2	.187	331.8
08.67	.129	34.3	.178	5.6	18.67	.078	23.4	.174	336.3
09.00	.102	332.0	.204	329.9	19.00	.073	11.4	.154	110.8
09.33	.101	316.2	.236	0.5	19.33	.080	31.7	.133	145.4
09.67	.101	291.8	.251	28.4	19.67	.077	41.3	.128	140.1
10.00	.093	290.0	.258	33.4	20.00	.054	99.4	.116	98.0
10.33	.109	279.9	.248	23.0	20.33	.045	127.6	.134	40.3
10.67	.109	277.8	.234	18.0	20.67	.048	86.8	.153	6.9
11.00	.115	278.6	.232	24.9	21.00	.061	51.7	.127	347.9
11.33	.106	277.2	.214	32.2	21.33	.096	29.5	.110	344.2
11.67	.106	280.5	.201	35.3	21.67	.087	15.7	.117	8.7
12.00	.113	278.6	.172	27.3	22.00	.070	359.3	.141	352.8
12.33	.128	272.0	.207	26.4	22.33	.079	347.6	.196	358.4
12.67	.126	288.9	.214	25.2	22.67	.119	8.6	.226	357.9
13.00	.113	286.0	.233	25.8	23.00	.066	336.7	.195	8.1
13.33	.118	281.5	.260	26.3	23.33	.056	295.5	.229	16.1
13.67	.102	276.8	.283	22.1	23.67	.069	342.8	.237	16.5
14.00	.096	274.9	.315	25.6					
14.33	.081	273.8	.258	22.2					
14.67	.071	279.6	.246	28.4					

NOTE: \* Bottom meter had grass in rotor  
when retrieved.

TABLE E-4

Current Speed and Direction Measured at Station  
4 During 15 September 1973 Deployment

Total Water Depth = 12.80 Meters

Time (East.Std.)	0.5 m from bottom		2.0 m from bottom		6.1 m from bottom	
	Speed (m/sec)	Direction (mag)	Speed (m/sec)	Direction (mag)	Speed (m/sec)	Direction (mag)
06.00	.146	303.9	.275	301.0	.298	233.8
06.33	.149	308.0	.263	306.4	.254	309.1
06.67	.122	311.2	.223	310.5	.249	280.2
07.00	.118	324.6	.220	308.4	.266	299.8
07.33	.131	320.1	.209	320.1	.279	318.0
07.67	.136	346.8	.223	333.6	.266	326.4
08.00	.142	246.0	.242	355.1	.258	338.0
08.33	.127	349.1	.226	356.6	.205	352.2
08.67	.129	351.3	.191	1.0	.198	354.5
09.00	.121	7.6	.191	5.9	.206	359.6
09.33	.116	15.3	.180	21.7	.193	3.3
09.67	.091	11.9	.185	25.2	.231	18.6
10.00	.087	282.4	.183	5.9	.201	327.2
10.33	.077	223.1	.188	287.4	.205	345.6
10.67	.069	205.5	.172	245.2	.192	321.9
11.00	.101	145.6	.168	193.8	.171	288.3
11.33	.116	126.2	.157	151.4	.185	333.3
11.67	.117	100.6	.164	133.6	.168	79.1
12.00	.141	92.1	.198	111.1	.160	53.1
12.33	.111	87.4	.179	110.8	.170	37.6
12.67	.076	29.9	.166	87.0	.159	81.3
13.00	.050	64.2	.134	88.3	.183	128.1
13.33	.043	85.4	.127	92.9	.204	127.4
13.67	.062	29.2	.155	70.4	.172	110.1
14.00	.046	327.9	.135	55.9	.149	87.7
14.33	.049	245.6	.127	65.2	.190	41.5
14.67	.044	227.9	.130	64.3	.165	47.4

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	0.5 m from bottom		2.0 m from bottom		6.1 m from bottom	
	Time (East.Std.)	Speed (m/sec)	Direction (mag)	Speed (m/sec)	Direction (mag)	Speed (m/sec)
15.00	.047	275.8	.121	72.1	.157	47.5
15.33	.072	332.1	.135	42.4	.191	112.5
15.67	.065	292.0	.167	343.4	.209	152.7
16.00	.079	306.0	.151	296.8	.208	70.4
16.33	.066	296.6	.164	317.0	.195	6.9
16.67	.080	294.3	.162	297.0	.158	240.5
17.00	.072	292.8	.144	298.5	.187	232.9
17.33	.073	297.6	.158	330.6	.191	251.2
17.67	.083	293.5	.182	319.3	.209	249.3
18.00	.099	296.6	.181	311.7	.239	240.9
18.33	.094	310.4	.188	325.4	.198	263.6
18.67	.088	285.2	.183	322.7	.173	277.2
19.00	.077	287.1	.172	321.1	.191	277.0
19.33	.073	271.2	.167	317.4	.161	269.3
19.67	.055	228.2	.138	323.6	.131	285.5
20.00	.066	135.5	.106	289.0	.122	251.4
20.33	.055	83.2	.089	210.4	.127	160.2
20.67	.042	73.1	.101	198.0	.132	140.7
21.00	.040	87.3	.107	155.9	.116	220.2
21.33	.042	32.3	.087	139.4	.107	314.1
21.67	.061	301.8	.077	49.2	.117	324.2
22.00	.062	215.7	.096	48.2	.104	334.6
22.33	.080	122.9	.112	115.3	.099	318.5
22.67	.073	120.4	.104	101.0	.107	164.8
23.00	.057	129.7	.094	98.6	.155	359.1
23.33	.055	143.2	.099	74.6	.111	313.3
23.67	.034	190.7	.082	54.2	.096	279.0

07-V

TABLE E-5

Current Speed and Direction Measured at Station  
5 During 15 September 1973 Deployment

Total Water Depth = 7.62 Meters

0.5 m from bottom

0.5 m from bottom

17-V

Time (East.Std.)	Speed (m/sec)	Direction (mag)	Time (East.Std.)	Speed (m/sec)	Direction (mag)
04.00	.316	0.3	14.00	.397	358.2
04.33	.285	3.9	14.33	.416	359.8
04.67	.231	0.6	14.67	.462	4.8
05.00	.203	2.1	15.00	.419	5.7
05.33	.105	27.5	15.33	.411	356.6
05.67	.073	74.6	15.67	.394	354.0
06.00	.111	154.2	16.00	.398	354.7
06.33	.093	215.6	16.33	.352	0.9
06.67	.116	263.0	16.67	.321	6.0
07.00	.135	237.3	17.00	.324	2.9
07.33	.184	230.1	17.33	.293	356.2
07.67	.178	223.8	17.67	.225	356.0
08.00	.180	209.8	18.00	.137	357.5
08.33	.153	227.1	18.33	.138	3.7
08.67	.140	307.3	18.67	.112	14.2
09.00	.139	342.5	19.00	.057	72.2
09.33	.149	298.3	19.33	.112	160.9
09.67	.157	30.6	19.67	.138	174.3
10.00	.192	5.4	20.00	.110	155.8
10.33	.220	349.2	20.33	.133	301.8
10.67	.178	335.8	20.67	.113	272.8
11.00	.158	345.6	21.00	.101	233.1
11.33	.154	1.0	21.33	.101	201.9
11.67	.176	2.2	21.67	.099	199.5
12.00	.168	7.2	22.00	.077	245.7
12.33	.181	19.7	22.33	.069	356.6
12.67	.202	22.7	22.67	.107	15.6
13.00	.232	15.8	23.00	.143	354.8
13.33	.259	1.8	23.33	.182	346.0
13.67	.290	352.5	23.67	.186	352.4

TABLE F-1

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 1 During 15 September 1973 Deployment

Water Depth = 17 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 07.5			Time = 11.5			Time = 15.3			
0	24.51	21.47	13.3442	24.86	21.13	12.9849	24.57	14.72	8.2719	0
2	24.50	21.48	13.3506	24.67	21.22	13.1058	24.54	14.70	8.2624	2
4	24.51	21.50	13.3652	24.55	21.43	13.3028	24.51	14.55	8.1576	4
6	24.53	21.60	13.4310	24.55	21.44	13.3080	24.52	14.18	7.8823	6
8	24.53	21.68	13.4940	24.56	18.69	11.2444	24.49	14.24	7.9326	8
10	24.53	21.75	13.5466	24.56	17.85	10.6179	24.48	14.02	7.7678	10
12	24.55	21.72	13.5179	24.57	17.77	10.5507	24.48	13.55	7.4188	12
14	24.56	21.76	13.5482	24.58	17.69	10.4887	24.47	13.48	7.3641	14
16	24.56	21.76	13.5429	24.55	17.58	10.4138	24.45	12.02	6.2804	16
						(A)				
	Time = 18.7									
0	24.79	20.87	12.8110							
2	24.83	21.01	12.9052							
4	24.85	21.31	13.1265							
6	24.87	21.43	13.2074							
8	24.86	21.45	13.2294							
10	24.84	21.46	13.2370							
12	24.81	21.47	13.2563							
14	24.72	21.49	13.2984							
15	24.71	21.50	13.3101							

NOTE: (A) Bottom sample depth = 15 m

TABLE F-2

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 2 During 15 September 1973 Deployment

Water Depth = 14 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
Time = 10.2			Time = 11.8			Time = 15.6				
0	24.76	21.02	12.9340	24.78	21.14	13.0150	24.93	20.93	12.8159	0
2	24.75	21.02	12.9351	24.74	21.16	13.0456	24.92	20.92	12.8119	2
4	24.73	21.03	12.9478	24.76	21.16	13.0381	24.92	20.90	12.8015	4
6	24.72	21.05	12.9697	24.77	21.16	13.0370	24.86	21.08	12.9485	6
8	24.73	21.08	12.9895	24.78	21.25	13.1035	24.85	21.12	12.9809	8
10	24.70	21.22	13.0972	24.78	21.28	13.1243	24.79	21.17	13.0346	10
12	24.66	21.30	13.1749	24.77	21.33	13.1620	24.73	21.40	13.2241(A)	12
14	24.59	21.34	13.2196	24.73	21.56	13.3495				
Time = 18.9										
0	24.80	20.78	12.7423							
1	24.86	20.95	12.8550							
3	24.86	20.95	12.8498							
5	24.86	20.95	12.8550							
7	24.85	21.01	12.9029							
9	24.85	21.19	13.0380							
11	24.72	21.28	13.1418							

NOTE: (A) Bottom Measurement Depth = 11 m

TABLE F-3

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 3 During 15 September 1973 Deployment

Water Depth = 14 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 10.3			Time = 12.0						
0	24.78	21.03	12.9317	24.85	19.18	11.5292				
2	24.75	21.05	12.9559	24.78	19.24	11.5970				
4	24.73	21.12	13.0155	24.74	19.29	11.6468				
6	24.72	21.13	13.0271	24.74	19.33	11.6726				
8	24.73	21.25	13.1146	24.74	19.30	11.6520				
10	24.68	21.28	13.1517	24.73	19.36	11.6992				
12	25.76	20.81	12.4851	24.64	18.47	11.0585				
14	25.65	20.96	12.6315	24.73	18.55	11.0927				

(A)

NOTE: (A) Bottom Sample Depth = 13 m

TABLE F-4

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 4 During 15 September 1973 Deployment

Water Depth = 13 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 10.8			Time = 12.2			Time = 16.5			
0	24.83	17.28	10.1120	24.87	21.03	12.9110	25.00	21.21	13.0047	0
2	24.77	17.30	10.1460	24.72	21.13	13.0271	24.99	21.23	13.0214	2
4	24.74	17.32	10.1681	24.70	21.28	13.1441	24.93	21.23	13.0442	4
6	24.69	17.34	10.2015	24.69	21.40	13.2393	24.90	21.27	13.0841	6
8	24.68	17.39	10.2378	24.66	21.51	13.5265	24.82	21.35	13.1613	8
10	24.66	17.41	10.2593	24.65	21.55	13.3643	24.78	21.43	13.2338	10
12	24.65	17.45	10.2905	24.62	21.64	13.4360	24.67	21.63	13.4195	12
13	24.61	16.66	9.7128	24.60	21.70	13.4909				
	Time = 21.2									
0	24.80	20.76	12.7268							
2	24.79	20.77	12.7383							
4	24.79	20.78	12.7435							
6	24.79	20.76	12.7331							
8	24.78	20.80	12.7653							
10	24.79	20.81	12.7694							
12	24.80	20.87	12.8099							

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TABLE F-5

Temperature-Salinity Measurements and Computed Density (Based on Temp-Salin)  
As  $\sigma_t$  at Station 5 During 15 September 1973 Deployment

Water Depth = 8 m

Depth (m)	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Temp (°C)	Salin (°/oo)	Density ( $\sigma_t$ )	Depth (m)
	Time = 10.1			Time = 12.4			Time = 16.7			
0	24.76	18.45	11.0085	24.95	21.17	12.9899	24.91	20.65	12.6162	0
2	24.72	17.89	10.6023	24.80	21.22	13.0699	24.91	20.72	12.6627	2
4	24.68	17.59	10.3855	24.73	21.33	13.1719	24.83	20.94	12.8532	4
6	24.55	17.64	10.4650	24.64	21.66	13.4441	24.80	20.96	12.8774	6
8	24.52	17.61	10.4463	24.59	21.70	13.4921				
	Time = 19.3									
0	24.76	20.76	12.7416							
2	24.80	20.94	12.8618							
4	24.87	21.14	12.9889							
6	24.88	21.34	13.1385							
7	24.86	21.37	13.1669							

NOTE: (A) Bottom Sample Depth = 7 m