78010

Cruise Report

OCEANUS 45

10-18 May 1978

Brad Butman
U. S. Geological Survey
Woods Hole, MA 02543

Vessel: OCEANUS, Cruise 45

Area of Operations: Georges Bank and mid-Atlantic shelf

Dates: Depart Woods Hole 1030 10 May 1978

Arrive Woods Hole 1330 18 May 1978

Personnel:

Paul Howland, Master
Mike Bothner, USGS
Stephanie Pfirman, USGS
Rick Rendigs, USGS
John West, USGS

Brad Butman, Chief Scientist, USGS
Carol Parmenter, USGS
Gary Prisby, USGS
Nora Thom, USGS
Sally Wood, USGS

Jim Broda, WHOI
Andy Eliason, Eliason Data Services

Dave Stremaitis, Energy Resources Co.

Equipment:

Navigation: Northstar Loran C 6000
Conductivity-Temperature-Depth (CTD): Neil Brown Instrument Systems Instrument modified to record light transmission with a Montedoro-Whitney transmissometer-nephelometer

Objectives:

The OCEANUS cruise was part of a continuing study of currents and sediment transport on the United States East Coast continental shelf. The purpose of the cruise was to:

1. Recover 4 tripod systems
2. Recover 3 current moorings (7 instruments)
3. Deploy 2 tripod systems
4. Deploy 2 current moorings (5 instruments)
5. Replace and repair surface marker buoys and lights as necessary
6. Obtain piston and hydrostatically dampened cores from 'mud patch' region south of Martha's Vineyard
7. Conduct hydrographic observations (temperature, salinity, light transmission and suspended sediment measurements)

Narrative:

10 May	1030	Depart Woods Hole
		Underway to Georges Bank
		XBT and CTD section along Nantucket Shoals
		CTD winch inadequate--switch winch systems, terminate CTD for calmer weather
		Seas 10'-15'
11 May	0500	At Station K
		Recover current mooring (mooring 144)
		Wait for seas to moderate for tripod recovery
	1015	Recover tripod (mooring 138)
		Recover surface marker buoy
		Underway to Station A
	1400	Arrive Station A
		Deploy surface buoy to clear decks
		Recovered tripod (mooring 139); premature release on enable command
	1630	Recovered current mooring (mooring 145)
		Recovered three surface marker buoys
		Set two surface marker buoys, one with subsurface current meter (mooring 131)
	2322	Deployed tripod (mooring 149), verified upright
12 May	0045	Deployed subsurface current mooring (mooring 151); obtain surface grab sample
	0500	Start CTD transect across southern flank of bank
	1400	Complete CTD transect
	1600	Underway along 60 m isobath to New Jersey shelf

13 May	0500	XBT, CTD section along shelf south of Martha's Vineyard
	1100	Commence coring operations in 'mud patch'
	2300	Terminate coring operations, underway to tripod Station E
14 May	0000	CTD wire termination bad
	0400	Complete new termination
	1000	Recover tripod at Station E (mooring 141)
		Weather deteriorating; conduct cross-shelf hydro transect to await weather for buoy work
15 May	1530	At Station B
	1628	Recover current mooring (mooring 146)
	1700	Recover tripod mooring (mooring 140)
	1855	Deploy tripod mooring (mooring 148)
	2042	Set subsurface current mooring (mooring 150)
		Surface grab sample
	2200	Underway; conduct cross-shelf CTD and XBT section
16 May	0200	Complete hydrographic section
	1300	Arrive 'mud patch' region, start coring operations
	2200	Finish coring operation
17 May	0200	Start CTD, XBT, transmission survey of mud patch
18 May	1100	Finish hydrographic survey
	1330	Arrive Woods Hole

Tabulated Information:

a. Days at Sea: 9

b. Instrumentation Recovered:

Area	Type	Mooring	Latitude	Longitude	Station
GB	T	138	41° 3.9'N	67°34.0'W	K
GB	T	139	40°51.2'N	67°24.2'W	A
MA	T	140	38°43.5'N	73°36.5'W	B
MA	T	141	39°57.1'N	72°35.6'W	E
GB	cm(2)	144	41° 3.9'N	67°34.0'W	K
GB	cm(3)	145	40°51.2'N	67°24.2'W	A
MA	cm(2)	146	38°43.5'N	67°24.2'W	B

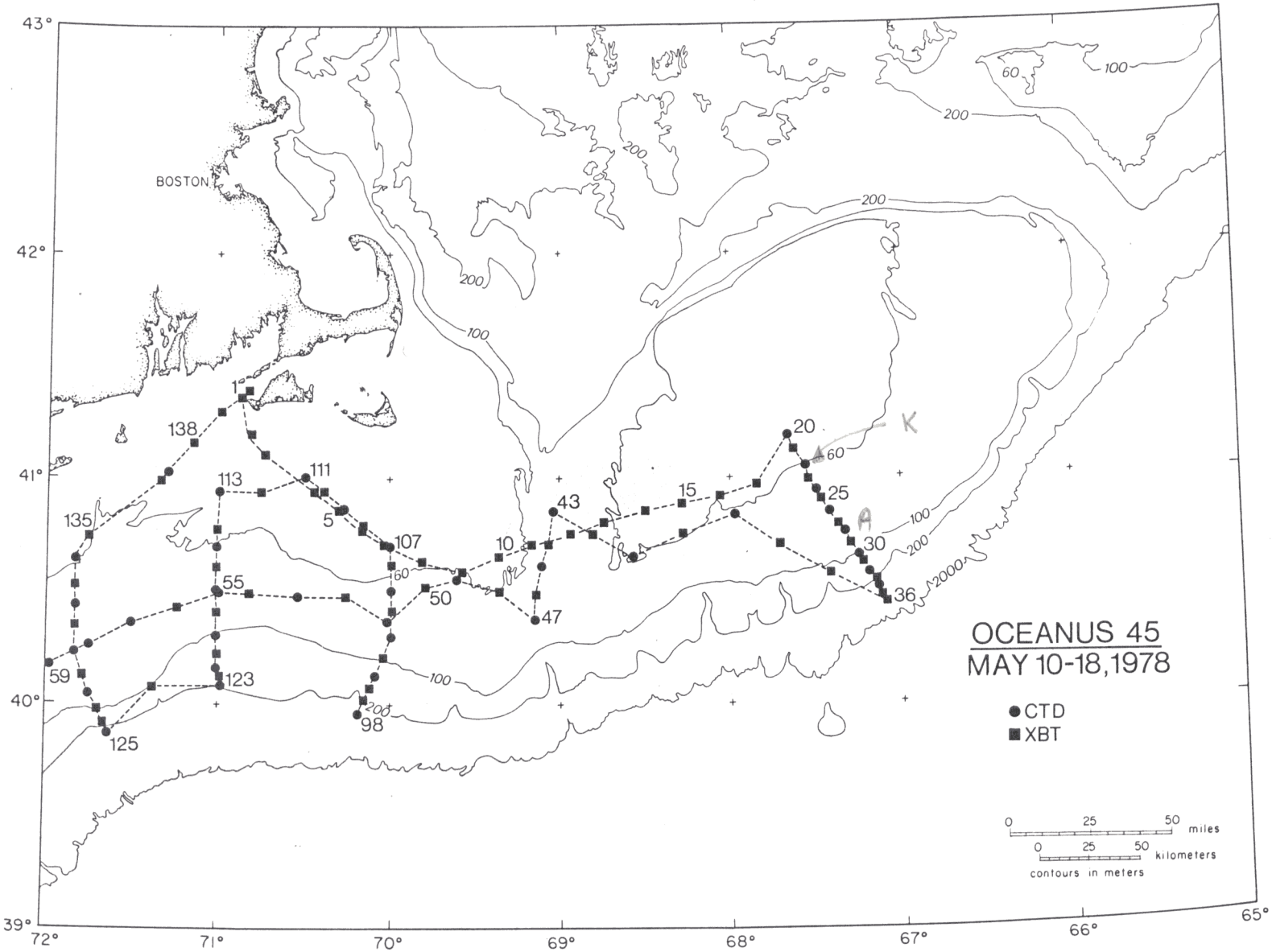
c. Instrumentation Deployed:

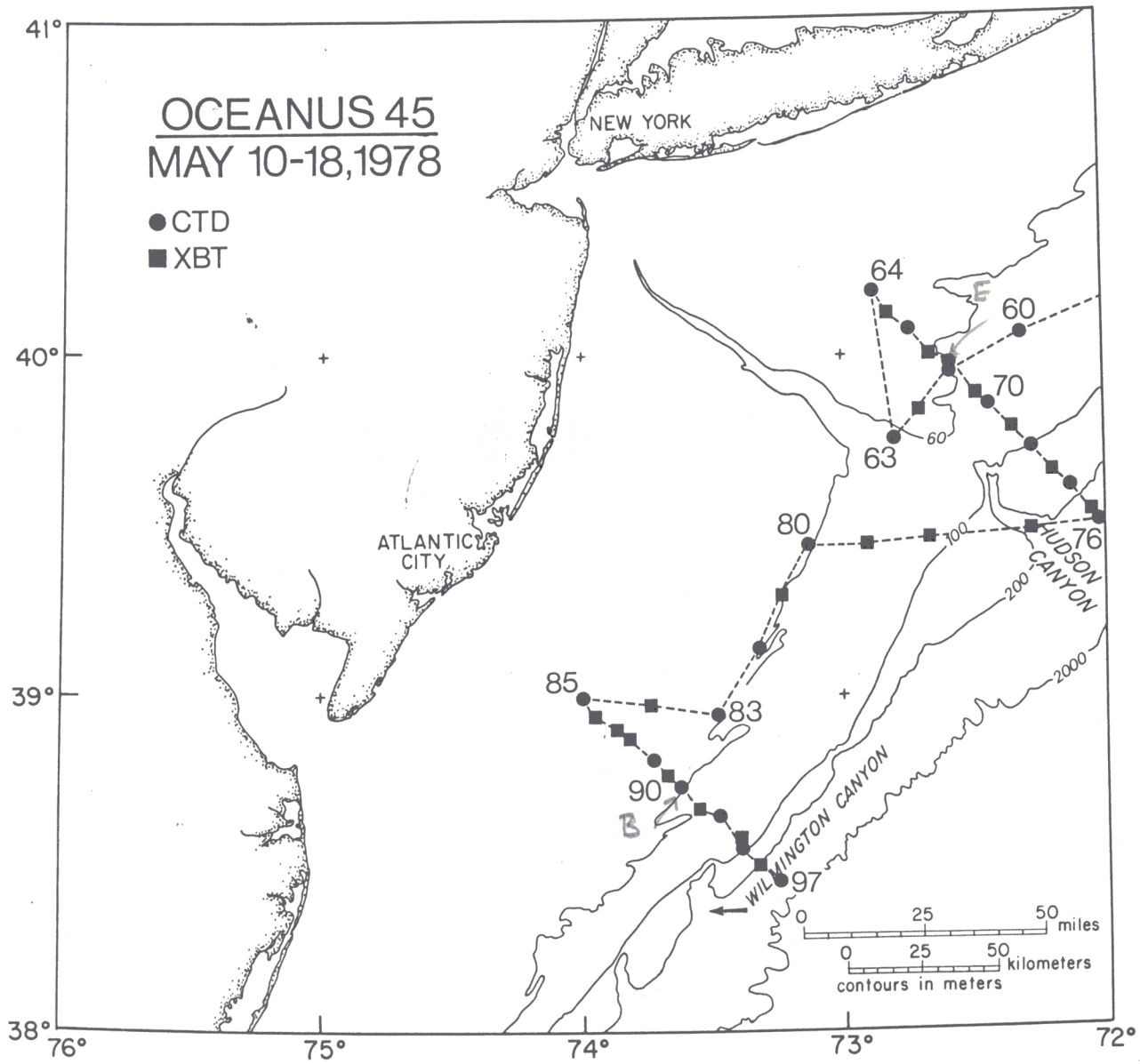
Area	Type	Mooring	Latitude	Longitude	Station
MA	T	148	38°43.5'N	73°36.5'W	B
GB	T	149	40°51.2'N	67°24.2'W	A
MA	cm(2)	150	38°43.5'N	73°37.9'W	B
GB	cm(3)	151	40°51.4'N	67°24.0'W	A

d. Stations:

XBT	80
CTD/transmission	58
Surface salinity	121
Surface grab samples	6
Piston cores	5
Hydrostatically dampened cores	5

Cruise Track, OCEANUS 45 (A, B, K, and E are mooring locations)


OCEANUS 45
MAY 10-18,1978
CTD
XBT
BOSTON
43°
42°
41°
40°
39°
72°
71°
70°
69°
68°
67°
66°
65°
0 25 50 miles
0 25 50 kilometers
contours in meters
SCALE
0 25 50 miles
0 25 50 kilometers
contours in meters


OCEANUS 45
MAY 10-18,1978
CTD
XBT
NEW YORK
ATLANTIC CITY
HUDSON CANYON
WILMINGTON CANYON
64
60
70
63
80
76
85
83
90
97
E
B
60
100
200
2000
41°
40°
39°
38°
76°
75°
74°
73°
72°
0 25 50 miles
0 25 50 kilometers
contours in meters

APPENDIX 1

Surface Sample List

Station	Type	Latitude	Longitude	Station
4709	Surface Grab	41° 4.0'N	67°34.0'W	K
4710	" "	40°51.0'N	67°24.0'W	A
4711	Piston Core	40°30.0'N	71° 0.0'W	
4712	Hydro. Core	40°30.0'N	70°59.5'W	
4713	" "	40°30.2'N	70°59.9'W	
4714	" "	40°21.4'N	71°30.5'W	
4715	Piston Core	40°21.1'N	71°30.5'W	
4716	Surface Grab	40°21.1'N	71°30.4'W	
4717	" "	39°56.9'N	72°34.6'W	E
4718	" "	38°44.0'N	73°37.0'W	B
4719	Hydro. Core	40°16.2'N	70°57.9'W	
4720	Piston Core	40°16.3'N	70°58.0'W	
4721	Pilot Core	40°16.3'N	70°58.0'W	
4722	Piston Core	40°27.7'N	70°32.7'W	
4723	Hydro. Core	40°27.6'N	70°32.6'W	
4724	Surface Grab	40°30.2'N	71° 0.9'W	

APPENDIX 2

OCEANUS 45 Hydrographic Station List

Sta.#	Depth (m)	Latitude	Longitude	XBT	Suspended Sediment and CTD	Surface Salinity	Date	Time
1	31	41°21.87'N	70°52.20'W	X		X	5/10	1340
2	30	41°11.03'N	70°50.33'W	X		X		1430
3	45	41°06.91'N	70°44.06'W	X		X		1508
4	46	40°56.34'N	70°26.01'W	X		X		1845
5	47	40°51.70'N	70°17.10'W	X		X		1925
6	41	40°46.90'N	70°10.00'W	X		X		1959
7	43	40°42.25'N	70°01.44'W	X		X		2030
8	57	40°38.93'N	69°48.32'W	X		X		2118
9	62	40°35.81'N	69°34.53'W	X		X		2216
10	47	40°39.23'N	69°21.08'W	X		X		2303
11	69	40°42.44'N	69°09.25'W	X				2344
12	71	40°45.88'N	68°56.58'W	X		X	5/11	0028
13	67	40°48.76'N	68°44.17'W	X		X		0110
14	61	40°51.00'N	68°29.75'W	X		X		0155
15	52	40°53.07'N	68°16.63'W	X		X		0240
16	55	40°55.00'N	68°03.00'W	X		X		0321
17	55	40°58.39'N	67°50.64'W	X		X		0408
20	60	41°11.00'N	67°39.80'W		X		5/12	0513
21	54	41°07.20'N	67°37.30'W	X				0605
22	63	41°02.60'N	67°33.90'W		X	X		0627
23	69	40°59.53'N	67°32.36'W			X		0710
24	74	40°56.50'N	67°29.50'W		X	X		0744
25	80	40°54.10'N	67°27.90'W	X		X		0820
26	89	40°50.65'N	67°23.97'W		X	X		0857
27	94	40°47.91'N	67°21.73'W	X		X		0929

APPENDIX 2 (Continued)

Sta.#	Depth (m)	Latitude	Longitude	XBT	Suspended Sediment and CDT	Surface Salinity	Date	Time
28	96	40°45.08'N	67°19.29'W		X	X		0955
29	99	40°42.30'N	67°17.60'W	X		X		1030
30	105	40°39.39'N	67°15.17'W		X	X		1057
31	114	40°37.60'N	67°13.10'W	X		X		1127
32	163	40°34.78'N	67°10.11'W		X	X		1150
33	210	40°32.80'N	67°08.97'W	X		X		1215
34	325	40°30.78'N	67°07.74'W		X	X		1235
35	375	40°28.30'N	67°06.20'W	X		X		1325
36	650	40°26.78'N	67°05.04'W	X		X		1334
37	110	40°34.45'N	67°24.50'W	X		X	5/12	1450
38	71	40°42.80'N	67°42.60'W	X		X		1608
39	66	40°50.80'N	67°58.20'W		X	X		1736
40	63	40°44.30'N	68°16.00'W	X		X		1910
41	61	40°39.60'N	68°34.43'W		X	X		2025
42	65	40°45.41'N	68°48.91'W	X		X		2140
43	85	40°51.58'N	69°02.00'W		X	X		2240
44	80	40°42.60'N	69°03.94'W	X		X		2345
45	77	40°36.30'N	69°06.14'W		X		5/13	0031
46	79	40°29.48'N	69°08.74'W	X		X		0127
47	87	40°22.94'N	69°09.82'W		X	X		0206
48	68	40°30.11'N	69°21.27'W	X		X		0316
49	61	40°36.70'N	69°33.50'W		X	X		0412
50	69	40°31.60'N	69°47.50'W	X		X		0535
51	82	40°22.80'N	70°00.60'W		X	X		0648
52	70	40°28.15'N	70°16.50'W	X		X		0805
53	75	40°28.31'N	70°32.03'W		X	X		0902
54	79	40°29.51'N	70°49.37'W	X		X		1012

APPENDIX 2 (Continued)

Sta.#	Depth (m)	Latitude	Longitude	XBT	Suspended Sediment and CDT	Surface Salinity	Date	Time
55	81	40°30.00'N	71°00.00'W		X	X		1050
56	81	40°25.48'N	71°14.81'W	X		X		1740
58	82	40°15.23'N	71°45.06'W		X	X		
		40°15.51'N	71°45.76'W		X		5/14	0447
59	68	40°09.80'N	71°59.80'W		X	X		0613
60	76	40°63.70'N	72°18.20'W		X	X		0850
61	63	39°56.90'N	72°34.60'W		X			1144
62	59	39°49.59'N	72°42.50'W	X		X		1305
63	70	39°44.57'N	72°48.55'W		X			1347
64	53	40°11.00'N	72°52.50'W		X	X		1700
65		40°07.70'N	72°49.50'W	X		X		1753
66	53	40°04.35'N	72°44.19'W		X	X		1830
67	61	40°00.50'N	72°39.70'W	X		X		1930
68	60	39°57.20'N	72°35.07'W		X	X		2000
69	64	39°52.85'N	72°29.37'W	X		X		2100
70	81	39°50.20'N	72°25.20'W		X	X		2127
71	90	39°46.40'N	72°20.00'W	X		X		2217
72	116	39°42.55'N	72°16.72'W		X	X	5/14	2300
73	125	39°38.75'N	72°11.91'W	X		X		2345
74	153	39°35.33'N	72°07.77'W		X		5/15	0023
75	580	39°31.37'N	72°02.92'W	X				0155
76	780	39°30.10'N	71°59.91'W		X			0235
77	600	39°28.91'N	72°17.24'W	X				0355
78	88	39°27.10'N	72°40.40'W	X		X		0520
79	61	39°26.80'N	72°54.30'W	X		X		0610
80	64	39°26.00'N	73°07.03'W		X	X		0700
81	64	39°17.16'N	73°13.74'W	X		X		0819

APPENDIX 2 (Continued)

Sta.#	Depth (m)	Latitude	Longitude	XBT	Suspended Sediment and CTD	Surface Salinity	Date	Time
82	59	39°08.39'N	73°19.85'W		X	X		0915
83	58	38°56.05'N	73°28.44'W		X	X		1040
84	47	38°58.46'N	73°44.62'W	X		X		1146
85	39	38°59.89'N	74°00.36'W		X			1252
86	42	38°56.71'N	73°57.11'W	X				1326
87	40	38°54.26'N	73°52.68'W	X				1358
88	41	38°52.30'N	73°49.40'W	X		X		1415
89	52	38°48.46'N	73°43.96'W		X			1446
90	53	38°45.98'N	73°40.85'W	X				1512
91	61	38°43.70'N	73°37.70'W		X	X		2136
92	65	38°39.90'N	73°33.60'W	X		X		2240
93	78	38°38.00'N	73°28.80'W		X	X		2304
94	87	38°34.70'N	73°24.40'W	X		X		2337
95	115	38°32.40'N	73°22.30'W		X	X	5/16	0000
96	260	38°29.20'N	73°19.29'W	X		X		0033
97	1405	38°26.30'N	73°15.30'W	X	X			0100
98	365	39°57.20'N	70°10.70'W		X	X	5/17	0240
99	205	40°01.00'N	70°09.30'W	X		X		0333
100	164	40°04.40'N	70°07.10'W	X		X		0352
101	136	40°07.20'N	70°05.50'W		X	X		0412
102	101	40°12.90'N	70°02.50'W	X		X		0515
103	89	40°18.20'N	69°59.50'W		X	X		0458
104	79	40°25.30'N	69°59.60'W	X		X		0655
105	79	40°30.20'N	69°59.90'W		X	X		0733
106	57	40°37.50'N	69°59.60'W	X		X		0815
107	45	40°42.50'N	70°00.00'W		X	X		0850
108	39	40°47.40'N	70°09.20'W	X		X	5/17	0944

APPENDIX 2 (Continued)

Sta.#	Depth (m)	Latitude	Longitude	XBT	Suspended Sediment and CTD	Surface Salinity	Date	Time
109	44	40°51.50'N	70°16.10'W		X	X		1023
110	45	40°56.00'N	70°24.20'W	X		X		1114
111	46	41°00.00'N	70°30.10'W		X	X		1152
112	52	40°56.80'N	70°45.40'W	X		X		1310
113	69	40°56.60'N	71°00.00'W		X	X		1416
114	60	40°46.50'N	71°01.00'W	X		X		1513
115	64	40°41.80'N	71°00.20'W		X	X		1544
116	73	40°36.70'N	71°00.50'W	X		X		1645
117	80	40°30.20'N	71°00.90'W		X	X		1736
118	89	40°24.30'N	71°00.80'W	X		X		1816
119	107	40°18.20'N	71°00.10'W		X	X		1900
120	102	40°13.70'N	71°00.20'W	X		X		1930
121	145	40°09.50'N	71°00.20'W		X	X		2005
122	155	40°07.20'N	70°59.90'W	X		X		2048
123	200	40°04.40'N	70°59.90'W		X	X		2108
124	105	40°04.30'N	71°22.20'W	X		X		2306
125	325	39°52.00'N	71°38.20'W		X	X	5/18	0042
126	151	39°54.90'N	71°39.60'W	X		X		0116
127	100	39°58.90'N	71°42.00'W	X		X		0136
128	94	40°02.90'N	71°44.60'W		X	X		0200
129	85	40°07.70'N	71°47.30'W	X		X		0235
130	79	40°13.30'N	71°50.40'W		X	X		0310
131	75	40°20.60'N	71°50.20'W	X		X		0355
132	65	40°27.6'N	71°50.20'W		X	X		0430
133	82	40°31.90'N	71°50.10'W	X		X		0615
134	61	40°38.40'N	71°50.40'W		X	X		0645

APPENDIX 2 (Continued)

Sta.#	Depth (m)	Latitude	Longitude	XBT	Suspended Sediment and CDT	Surface Salinity	Date	Time
135	66	40°43.70'N	71°35.30'W	X		X		0745
136	44	40°59.00'N	71°21.60'W	X		X		0845
137	44	41°01.40'N	71°18.30'W		X	X		0903
138	45	41°09.20'N	71°09.60'W	X		X		1018
139		41°17.90'N	70°59.60'W	X		X		1119
140		41°23.80'N	70°50.50'W	X		X		1210

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LORAN LOG

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Date	Time +4	Sta. GMT	+/-.	Reading	Latitude N	Longitude W	Remarks
10 MAY							
	1407	1807	W Y	16 297.9 49 414.8			
			X Z	38 159.9 69 907.8	41-15.55'	70-52.35'	
	1407	1807	LC		41-15.9	70-52.3	← WRONG READING
	1407	1807	RA		41-15.55'	70-52.2	
	1						
	1423	1823	RA		41-12.2	70-52.3	C/C 127°T
	1500	1900	RA		41-06.9	70-44.3	C/C 120°T
	1500	1900	LC		41-07.3	70-44.7	← WRONG READING
	1500	1900	X Y	38 169 49 399.2			
			Z	69 960.1	41-07.1	70-44.35'	
	1545'	1945'	X Z	38 130. 70 002.5'	41-01.8	70-32.8	
	1620	2020		38108.3 70034.3	40°57.5'	70°25.5'	STOP #4
							1730 JOGGING
	1846	2246	X Y	38121.3 49 346			END STA S/C 159 FA.
			Z	70037.3	40-56.4	70-26.2	
	1900	X Y Z		38141.4 49 40.6 70050.3	40°54.7	70°22.5'	
	2000	X Z		38072.0 70109.1	40-46.1	70-08.7	
	2032				40-42.2	70-01.4	Davis Shoal D 40- 1.2 mi
							C/C 106°G

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
5-10-78	+4	GMT			N	W	
	2131	0131		37954.0 70177.0	40-38.1	69-44.6	
	2214			37896 70199.2	40-35.8	69-34.7	c/c 073-G
	2310			37747.2 70200.2	40-39.87	69-18.59	
	~~0004~~			~~LC~~	~~40-03.6~~	~~69-44.1~~	
	0015	0415		37574 70199.5	40-44.9	69-00.3	~~44.9~~ 00.3 c/c 075G.

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Date	Time	GMT Sta.	+/-.	Reading	N Latitude	W Longitude	Remarks
11 May	0100	0500	X Z	37451.9 70200.0	40-48.1	68-47.3	48.1 47.3 C/C 080
	0130	0530					C/C 085G
	0200	0600	X Z	37 293.7 70 209.3	40-50.7	68-28.8	C/C 075G
	0300	0700	X Z	37 131.5 70 214.3	40-54.1	68-10.7	54.1 10.7 C/C 070G
	0400	0800	X Z	36967.0 70216.3	40°58	67°52.5	
	0430	0830	X Z	36886.0 70217.5	40°59.8	67°43.5	
	0500	0900	X Y	36806.4 70219.5	41°01.4	67°34.6	0503 C/C 000°G
							0507 V/C V/S
	0712			36791.0 70214.3	41°02.9	67°34.4	0633 Buoy-CURRENT METER ADD
	1014				41-04.15	67-34.09	Tripod abd "K" Station K
	1135				41-04.04	67-33-49	Eastern Buoy on deck Hauling back anchor
	1225	1625	X Z	36 777.7 70-209.9	41-04	67-33.7	START BOTTOM GRAB
	1305	1705	OR		"	"	END STA S/C 150G.FA
	1410	1810			40-51	67-24.0	V/S ON STA

Vessel ORCAVUS

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LORAN LOG

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Date	Time +4 GMT	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
							1634 Buoy ABD
	1801	2201		36795.9 70370.0	40°51'-13	67°23'95	Set Buoy
	1937	2237					Western Buoy ABD
	2210	0210			40-51-05	67-24.53	Recover 3 mooring buoy and one current mete
	2321			36796.8 70270.3			Set Tripod
				49289.4	40-51.04	67-24.01	

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	Time	GMT ~~Sta.~~	+/-.	Reading	N Latitude	W Longitude	Remarks
12 MAY	0050	0450					SGT SUBSURFACE MOORING
	0150	0550	LC		40-51.3	67-24.1	BOTTOM SAMPLE
	0207	0607	LC		"	"	FW STA #3305, FO
	0300	0700	LC		41-02.2	67 31.5	C/C 3245
	0330	0730					C/C 3152
	0400	0800	LC	36776.3 70171.1	41°12'2	67°41.1	0355 H.T CTD STA # 5020 ROSETTE WATER SAMPLE
	0514	0914	LC		41°10.8	67°35.6	
	0557		LC		41°10.1	67°38.5	C/C 152° F/A
	0627	1027	LC		41°03.3	67°34.4	H.T STA # 5021
	0700	1100	LC		41°02.2	67°33.7	0658 END STA C/C 152° F/A
	0728	1128	LC		40°56.9	67°29.7	H.T STA # 5022
	0805	1205			40-56.66	67-29.84	END STA #5022 S/C 144-G
	0845	1245			40-50.61	67-24.02	H.T Sta # 5023

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
5/12/78	+4	GMT	LG		N	W	
	0917	1317			40 50.26	67 24.18	END Sta # 5023
							S/C 140
	0954	1315			40 45.08	67 19.28	H-T Sta # 5024
	1012	1412			40-45 19	67-19.54	END #5024 S/C 142
	1050	1450			40-39.44	67-15.1	H-T Sta # 5025
	1113	1513			40-39.36	67-15.2	END Sta S/C 137-6-4
	1149	1549			40 34.82	67 10.13	H-T Sta # 5026
	1208	1608			40-34.6	67-10.3	END STA S/C 147 G, FA.
	1228	1628			40-30.9	67-07.7	H.T. Sta # 5027
	1313	1713			40-30.6	67-08.0	END STA S/C 147 G, FA
	1333	1733			40-26.9	67-05.1	S/C 300 G.
	1400	1800			40-29	67-11.4	
	1500	1900			40-35.1	67-25.3	
	1600	2000	x 2	36986.7 70292.5	40° 41.8	67° 40.2	

Vessel OCEANUS

Cruise 45

LORAN LOG

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Date	+4 Time	GMT Sta.	+/-.	Reading	Latitude	Longitude	Remarks
5/13/78	1700	2100			40°48.6	67°54.4	
	1722	2122			40°50.8	67°59.0	H.T. STA #5028
	1757	2157					END STA c/c 249° g F/
	1900	2300			40°45.1	68°14.4	
							1919 c/c S/A
	1930	2330			40°43.8	68°20.8	1926 F/A
							1931 c/c 255° g
	2000	0000			40 40.64	68-29.07	c/c 260-G
	2022	0022			40-39.63	68-34.45	H-T Sta #5029
	2041	0041			40-39.55	68-34.45	S/C 300-G-4
	2146	0146			40-45.63	68-49.5	c/c 305
	2242	0242			40 51.57	69-01.87	H-T Sta #5030
	2302	0302			40-51.6	69-02	END Sta S/C 187.6
	2400	0400			40-40.1	69-04.4	c/c 195°

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	Time	GMT ~~Sta.~~	+/-.	Reading	N Latitude	W Longitude	Remarks
13MAY	0020	0420			40-36.3	69-06.2	Hit. STA #5031
	0057	0457			40-36.7	69-06.1	END STA. S/C 1915. F.A.
	0138	0538					S/C 1705.
	0200	0600			40-22.9	69-09.8	Hit. STA# 5032
	0218	0618					FIN STA. S/C 3076. FA
	0300	0700			40-28	69-17.9	
	0330	0730			40-32.2	69-24.7	S/C 3006.
	0400	0800			40°35.9	69°32.4	
							0407
	0407	0807			40°36.6	69°33.7	H. T STA #5033
							0444 END STA
	0500	0900			40°35'5	69°37'.6	S/C 345 F/A
	0600	1000			40°29.8	69°53.5	
	0624	1024			40°27.3	69°59.9	C/C 180°
	0646	1046			40°22.8	70°00.4	H. T. STA #5034

Vessel OCEANUS

Cruise #15

LORAN LOG

Date	Time (+4 GMT)	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
	~~0744~~	~~1144~~					~~OBS END STA C/C 307° F/A~~
	0744	1144		40° 38.1	70° 10.		c/c 270° G
	0804			40·28.1	70-15.9		
	0900			40·28.3	70-32.0		H-T St. # 5035
	0916			40·28.3	70·32.1		END St. S/C 274-G4
	1006			40·29.4	70-47.0		~~H-T St. # 5036~~
	1055	1455		40-30.0	71·00.0		~~1055~~ H-T St. # 5036
	1015			40·30.0	71 00.0		Sil Buoy-H-T
	1200	1600		40 30.11	71 00.21		Core #1 bit bottom
	1246	1646					CORE ARM
	1447	1847		40-30.1	70-59.8		H.G. CORE
	1537	1937		40-30.2	71-00.1		H.G. CORE
	1600	2000		40° 30	70° 59.6		
	1653	2053		40° 30.6	71° 00.3		c/c 246 F/A

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	+4 Time	GMT Sta.	+/-.	Reading	N Latitude	W Longitude	Remarks
5/13/78	1800	2300			40°24.6	71°17.7	
	1847	2247			40-20.6	71-30.3	H.T. Sta #
	1918	2318			40°21.0	71°30.4	Buoy over
	2028	0028			40-21-04	71 30-50	
	2041	0041			40 21 11	71-30 48	Core #2 on bottom
	2133	0133			40-21-19	71-30-66	Sta # 5057
	2151	0151			40 21.05	71-30.37	Grab Sample
	2244	0244			40-21-42	71-30-68	END Sta S/C 240-G
							@ 160 RPM

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	+4 Time	GMT ~~Sta.~~	+/-.	Reading	N Latitude	W Longitude	Remarks
14 MAY	0003	0403			40-15.1	71-45.1	H.T. V45 RECOVER STATION
	0503	0903			40°15.6	71°45.8	END STA 5037 c/c 245° F/A
							0512 c/c 240° G
	0606	1006			40°09.8	71°59.7	H.T. CTD #5038
							0636 END STA c/c 245° F/A
	0700	1100			40°08.5	72°06.2	0702 c/c 240° G
	0749	1149			40°03.6	72°18.2	H.T. CTD #5039
	0816				40-03.9	72 18.66	END
	0923				39-57.1	72-35.93	H-T c/fly Buoy
	1003				39-57.41	72-35-89	Tripod A bd
	1100				39-57.16	72-35.78	Buoy on deck
	1148				39 56.9	72-34.4	CTD
	1203	1603			39-56.9	72-34.3	BOTTOM GRAB
	1210	1610			"	"	END STA S/E 2206, F.A.
	1255	1655			39-51	72-41.8	

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
	1337	1737		LC	39-44.6	72-48.6	H.T. CTD STA
	1415	1815		LC	"	"	END CTD S/C 353G.
	1500	1900		LC	39-52.8	72-49.1	
	1530±	1930			39-59	72-50.2	
	1600	2000			40°04.7	72°51.4	
	1635	2035			40°11.1	72°52.5	H.T CTD STA
							1725 END STA c/s 180° [illegible]
	1804	2204			40°06.2	72°46.4	
	1918	2218			40°04.4	72°44.2	H.T CTD STA
							1908 END STA c/s 180 RPM
	1930	2330			40° 01	72° 40.2	
	2004	0004			39-57.25	72-35.04	CTD STA.
	2020	0020			"	"	2020 END St. S/C 134
							@ 160 RPM
	2126	0126			39-50.22	72-25.23	H-T CTD St.
	2144	0144			39 50 02	72-24.88	S/C 132.6 @ 160 RPM
	2247	0247			39-42.55	72-16-06	H-T CTD
	2318				39-42.6	72-16.5	S/C 133-6 @ 160 RPM

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	Time (+4)	GMT Sta.	+/-.	Reading	Latitude (N)	Longitude (W)	Remarks
15 MAY	0015	0415			39-35.3	72 07.8	H.T. CTD STA
	0125	0525			39-34.9	72-08.5	FIN STA S/C 125G. 160RPM
	0200	0600			39-30.9	72-07.2	S/C 110G.
	0210	0610			39-30.1	71-59.8	H.T. CTD STA
	0250	0650			"	"	END STA. S/C 266 Fa
	0400	0800			39°28.8'	72°18.5'	
	0500	0900			39°27.3'	72°34.9'	050U c/c 370°G
	0600	1000			39°26.8'	72°57.8'	
	0700	1100			39°26.3'	73°07.6'	H.T.
							0770 END STA. c/c 318° 7Kts
	0845				39-12-11	73-17-33	0740 F/A
	0906				39-08.34	73-19.7	H-T CTD Sta
							0930 END Sta. S/C 208
	1039	1439			39-56.0	73-28.4	H-T CTD Sta
	1051				39 56.0	73 28.5	
	1200	1600			39-58.9	73-48.0	

58.7 48

Vessel OCGANUS

Cruise # 45

LORAN LOG

Date	Time (EST)	Sta. (GMT)	+/-.	Reading	Latitude (N)	Longitude (W)	Remarks
15 May	1243	1643			39-00	74-00.3	H.T. CTD STA
	1305	1705			"	"	END STA 2/C 1353, FA
	1345	1745			38-54.1	73-52.6	H.T. CTD STA.
	1400	1800			"	"	FIN STA 2/C 1305, FA
	1440	1840			38-48.4	73-44	H.T. CTD STA
	1457	1857			"	"	END STA 2/C 1345, F.A.
	1528	1928			38-43.4	73-37.5	V 4/S ON STA
	16-						162[illegible] Buoy over board
							1655 TRIPOD ABO
	1755	2155			38-43.46	73-37.48	1757 Buoy ABO
	1823	2223			38°43.4	73°37.9	1823 PUOVOVER
	1854	2254					TRIPOD OVER Bearing ∅ 350
							.2 mi dist
	2044				38-43.28	73 38.04	Set Current Mooring
							Station Bearing ∅ 035°-T
							dist .18 mi
	2144				38-43.75	73-37.6	CTD

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
5/15/78	+4	GMT			N	W	
	2212				38-43.67	73°-38'.08	S/C 133.6 44
	2304				38-38.0	73-28.6	H.T CTD
	2318				38-37.9	73-28.9	END St. S/C 125.6
	2355	0355			38-32.4	73-22.3	H.T. CTD STA

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	+4 Time	GMT ~~Sta.~~	+/-.	Reading	N Latitude	W Longitude	Remarks
16 MAY	0013	0413	LC		38-32.4	73-22.3	END STA #1353 FA.
	0050	0450	LC		38-26.4	73-15.3	H.T. CTD STA
	0128	0128	LC		38-26.3	73-15.6	END STA #1045 G. FA.
	0200	0600	LC		38-31	73-09.6	
	0300	0700	LC		38-40.6	72-56.8	
	0400	0800	LC		38°50.3	72°44.2	
	0500	0900	LC		38°59.7	72°31.7	
	0600	1000	LC		39°09.	72°18.9	0615 c/c 043°g
	0700	1100			39°19.5	72°06.5	
	0803	1203			39.30.53	71° 54.1	
	0858	1258			39 39.7	71°-43.7	Passing through oil slick
	1005	1405			39 46.6	71-34.7	c/c 044-G
	1052	1452			39-52.3	71-27.4	
	1200	1600			40-01.7	71-15.8	

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	+4 Time	GMT Sta.	+/-.	Reading	N Latitude	W Longitude	Remarks
16 May 16	1300	1700			40-11.6	71-03.6	
	1330	1730			40-16.0	70-56.8	H.T. ON STA
	1348	1748			40-16.1	70-57.6	H.G. CORE
	1430	1830			40-16.3	70-58	PISTON CORE
	1510	1910					CORE ABD.
	1601	2001	LC	38676.0 70178.2	40° 16.0	70° 59.7	CORE ABD
	1615	2015	LC		40° 16.1	71° 00.1	CORE ABD
	1700	2100	LC		40° 16.3	70° 58.0	H.T. CORE
							170 CORE ABD
	1800	2200	LC		40° 20.7	70° 49.0	177 c/c 010° F/A
	1900	2300	LC		40° 27.2	70° 34.4	191 c/c 090°
							~~190 H.T.~~
	1908	2308			40° 27.2	70° 32.4	H.T.
	1958	2358			40-27.64	70-32.72	Piston Core hit
	2104	0104			40-27.61	70-32.62	H.G. Core hit
							failed to Trip

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
MAY	+4	GMT			N	W	
16	2202	0202			40-27.60	70-32.70	HG Core hit bottom
	2234	0234			40-27.66	70-32 71	HG Core hit bottom
	2304				40-27.74	70-33.0	END Station
							S/C 148-6 @ 160 RPM
	2400	0400	LC		40-19.5	70-26.6	

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	+4 Time	GMT ~~Sta.~~	+/-.	Reading	N Latitude	W Longitude	Remarks
17MAY	0100	0500	LC		40-10.4	70-19.9	
	0200	0600	LC		40-01.4	70-13.3	
	0227	0627	LC		39-57.2	70-10.5	H.T. CTD STA
	0307	0707	LC		39-57.4	70-11.1	END STA S/C 025S, 160RPM
	0400	0800	LC		40°05.8	70°06.2	
	0408	0808	LC		40°07.	70°05.5	H.T CTD STA
							160 RP
							0438 END STA c/c 020
	0500	0900	LC		40°10.8	70°03.6	
	0546	0946	LC		40°18.5	69°59.8	H.T CTD STA
							0612 END STA c/c 000 160
	0700	1100	LC		40°27.	69°59.5	0700 c/c 355°
							~~071 H.T. CTD STA~~
	0716	1116			40°30.0	69°59.8	0716 HT CTD STA
							0736 END STA c/c 000° 160RP
	0845				40 42.5	70-00	H-T CTD
	0902				"	"	0902 - S/C 325-G
							@ 160 RPM
							0906 c/c 305-@ 215
							0927 - 160RPM FOG
	1023				40-51.5	70-16.09	H-T CTD

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	+4 Time	GMT Sta.	+/-.	Reading	N Latitude	W Longitude	Remarks
MAY	+4	GMT					
17	1033	1433			40-51.5	70-16.14	END CTD S/C 307
							@ 160 RPM
	1125				40 57-17	70-26-33	C/C 315-G
	1147				40-59.9	70-30.1	H-T CTD
	1207	1607			"	"	END STA S/C 252G 160RPM
	1300	1700	LC		40-57.1 ~~40-[illegible]~~	70-44.9 ~~70-[illegible]~~	C/C 257 G
	1400	1800	LC		40-54.9	70-59.2	C/C 180G
	1410	1810	DR		40-53.0	70-59.5	H.T. CTD STA
	1430	1830	DR		"	"	END STA S/C 180G. 160RPM
	1538	1938	X Z	38478.5 70053.9	40-41.8	70-00.2	
	1555	1955			"	"	END STA S/C 180G 160RP
	600	2000			40°41.2	70°00.2	
	1702	2102			40°30.	70°00.7	H.T CTD STA
							[illegible]
	1800	2200			40°37.3	70°00.8	

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	+4 Time	GMT Sta.	+/-.	Reading	N Latitude	W Longitude	Remarks
17 May	1850	2250		40-18.2	71-00.1		H.T. CTD STA
							1912 END STA c/c 180°
	2004	0004		40 09.5	71-00.2		CTD Sta. - H-T
							2034 - S/c 180 - @ 160 R
	2105	0105		40-04.4	70-59.9		H-T CTD - Sta
							2135 - S/c 270 @ 160
	2257	0257		40 04.94	71-20.0		c/c 245-G
	2323			40-02.89	71-26.15		c/c 220-G
	2356			40-58.32	71 32.16		c/c 218

Vessel OCEANUS

Cruise #45

LORAN LOG

Date	+4 Time	GMT ~~Sta.~~	+/-.	Reading	N Latitude	W Longitude	Remarks
18 MAY	0038	0438	LC		39-52	71 - 38.2	H.T. CTD STA
	0103	0503	LC		"	"	END STA S/C 335°G 205RPM.
	0155	0555	LC		40-02.8	71-44.6	H.T. CTD STA.
	0211	0611	LC		"	"	END STA S/C 335°G. FA
	0305	0705	LC		40-13.2	71-50.4	H.T. CTD STA
	0322	0722	LC		"	"	END STA S/C 000G, FA.
	0400	0800	LC		40° 21.8	71° 50.2	
	0425	0825	LC		40° 27.4	71° 50.2	H.T CTD STA
							[illegible] END STA C/C 220° F/[illegible]
	0500	0900	LC		40° 29.9	71° 50.1	
	0540	0940	LC		40° 38.5	71° 50.	H.T. CTD STA
	0558	0948					END STA C/C 045° 160RPM
	0632	1032			40 43.1	71° 42.9	
	0700				40° 46.8	71° 39	

Vessel OCEANUS

Cruise 45

LORAN LOG

Date	Time	Sta.	+/-.	Reading	Latitude N	Longitude W	Remarks
5/18	2332	LC			40° 50.5	71° 32.7	
	0805	1205			40 54.9	71-26.7	0805-150RPM
	0900				41 01.4	71-18.24	H-T-CTD
							0916-S/C 040 @ 150
	1017				41 09.0	71 10.0	
	1117	Vineyard Sound Buoy					Var Co