76031

Cruise Report

OCEANUS 13-3

August 12-23, 1976

U.S. Geological Survey

Woods Hole Oceanographic Institution

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B. Butman
USGS

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Ship: OCEANUS

Cruise No.: 13-3

Area of Operation: North Atlantic Bight
Georges Bank
(Woods Hole to Woods Hole)

Dates: Depart Woods Hole 2000 12 August 1976
Return Woods Hole 2200 23 August 1976

Personnel

Michael Palmieri	Master	
R.C. Beardsley	Chief Scientist, WHOI	(Associate Scientist)
B. Butman	Chief Scientist, USGS	(Oceanographer)
D.W. Folger	Chief Scientist, USGS	(Geologist)
J.A. Vermersch	WHOI	(Research Associate)
J. Milliman	WHOI	(Associate Scientist)
C. Parmenter	WHOI	(Research Assistant)
F. Faller	MIT	(Student)
D. Limeburner	WHOI	(Student)
R. Fabro	USGS	(Physical Science Tech.)
M. Bothner	USGS	(Geologist)
M. Noble	USGS	(Physicist)
E. Eliason	Eliason Data Services	

Objectives

The objectives of OCEANUS 13-3 were to:

1. Measure the distribution of temperature and salinity in the vicinity of Georges Bank and along the shelf to the west of Georges Bank. These measurements were designed to provide a synoptic picture of the regional density field to aid in interpretation of current meter records, and to study mixing and transport in the Georges Bank region of the New England Continental Shelf.

2. Measure the distribution of suspended matter using optical techniques in the vicinity of Georges Bank and along the shelf to the west of Georges Bank. Collect and filter water samples to calibrate the optical sensor and to determine the composition of suspended material. These measurements are designed to study seston flux in the region.

3. Recover USGS moorings 107, 108, 109, 110, 111.

4. Deploy USGS mooring 115.

Narrative

Aug. 12 Depart Woods Hole
Conductivity-temperature-depth (CTD), Expendable bathythermographs (XBT), Nephelometer-transmissometer (NT) profiling, water samples. Shelf south of Cape Cod (see Chart).

Aug. 13 Continue CTD, XBT, NT profiling and sampling, shelf south of Cape Cod

Aug. 14 Continue CTD, XBT, NT profiling and sampling, Great South Channel

Aug. 15 Recover mooring 107 (0500-1100)
Continue CTD, XBT, NT profiling and sampling

Aug. 16 Continue CTD, XBT, NT profiling and sampling, western edge of Georges Bank.

Aug. 17 Deploy mooring 115 (0000-0300)
Recover mooring 108 (0600-0800)
Recover mooring 109 (1300-1400). Chain to PT recorder parted. Dragged for groundline with no success (1400-2100). Continue CTD, XBT, NT profiling, southern side of Georges Bank.

Aug. 18 Continue CTD, XBT, NT profiling, southern side of Georges Bank.
Start steam to recover pressure guage "Reiko".

Aug. 19 Recover "Reiko" (1200-1400). Slowly steam back toward Georges Bank trackline. Hurricane passed to NE. Seas 8-12'.

Aug. 20 Continue CTD, XBT, NT profiling and sampling, North Channel.

Aug. 21 Recover mooring 111 (North Channel - 1200-1500). Continue CTD, XBT, NT profiling and sampling, North Channel. CTD temperature channel lost data.

Aug. 21 Repair CTD (0900-1930).

Aug. 22 Recover mooring 110 (1800-2100) and surface markers. Search pattern for lost portion of mooring. No success (2100-0200).
Continue CTD, XBT, NT profiling and sampling. Northern side of Georges Bank.

Aug. 23 Continue CTD, XBT, NT profiling and sampling, northern side of Georges Bank, Great South Channel, Nantucket Sound.
Arrive Woods Hole 2200.

Tabulated Information

a. Number of days at sea 11

b. Number of working days 11

c. Total ship track 1660

d. Number of stations

CTD profiles	111
XBT profiles	142
Surface water samples (salinity)	242
Deep calibration samples (temperature and salinity)	96
Transmissometer profiles	70
Water samples; suspended matter.	186

e. Instrumentation Recovered

1. Mooring 107 40°49.0'N (77 m)
69°00.0'W

1 current meter (V0168)
heavily fouled
1 pressure-temperature recorder (PT068)

2. Mooring 108 40°51.0'N (86 m)
67°24.0'W

1 current meter (V0335)
Rotor missing

3. Mooring 109 41°24.0'N (38 m)
67°34.1'W

1 current meter (V0322)
Rotor bearings worn
(PT Recorder lost due to parted chain)

4. Mooring 110 41°59.0'N (86 m)
67°47.1'W

1 current meter (V0225)

5. Mooring 111 42°13.7'N (236 m)
65°51.1'W

1 current meter (V0190)
rotor missing
1 pressure-temperature recorder (PT069)

f. Instrumentation deployed

USGS mooring 115 (same location as 108)

40°51.2'N
67°24.7'W

3 current meters at 15, 45, 75 m.
(V0333, V0322, V0334)

5 current meters recovered

Station Procedure

Three types of water profiling and sampling stations were conducted on OCEANUS 13-3.

a. Expendable Bathythermograph Station (XBT).

Profiles of water temperature were obtained while underway using XBT's. At almost all XBT stations, a surface water sample was taken for surface salinity. Salinity bottles were rinsed at least twice prior to filling. [T4 (460m), T7 (760m), and T10 (220m) probes were used depending on water depth].

b. Conductivity-temperature-depth station (CTD)

Profiles of water temperature and conductivity were obtained using a Plessy 9040 CTD. At most of these stations a surface water sample was taken for surface salinity. Also at most stations, a Nansen bottle sample was obtained at depth for CTD calibration. Station procedure was as follows:

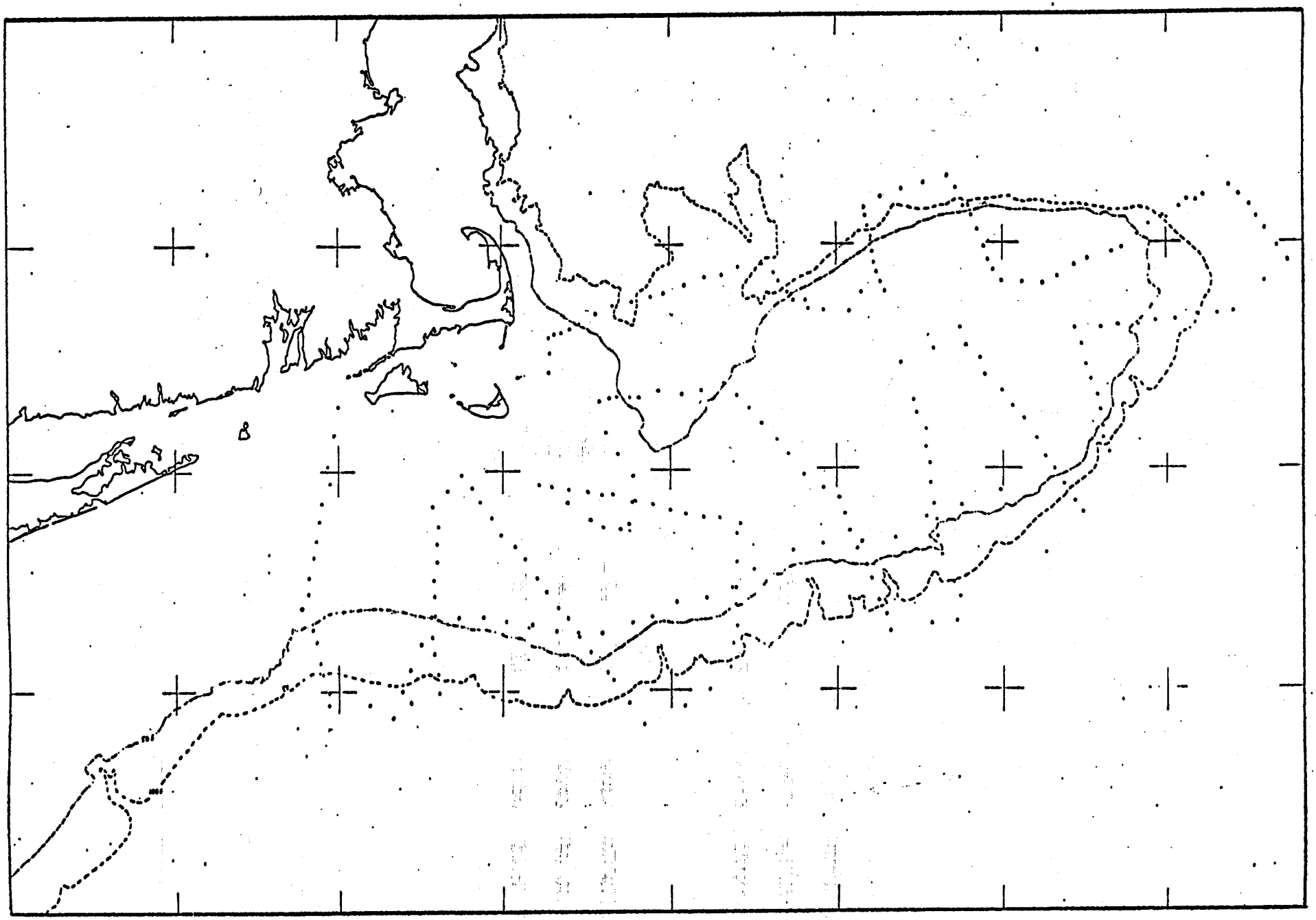
1. Place CTD fish in water, lower to approximately three meters. Read frequency output of CTD.
2. Attach Nansen bottle with reversing thermometer to wire (bottle approximately five meters above fish sensors).
3. Lower fish to desired depth (to within 5 m of bottom where possible). Read frequency output of CTD.
4. Raise fish to desired level for calibration, generally a well mixed place in the water column, usually near bottom.
5. Allow fish and Nansen bottle to "soak" for 5 minutes. Trip bottle with messenger.
6. Raise fish 5 m and read frequency output of fish (fish at level of Nansen bottle).
7. Raise fish to 3 m of surface, remove Nansen bottle, read frequency output of CTD.
8. Remove fish from water.
9. Obtain surface salinity sample. Rinse sample bottle at least twice.

10. Let Nansen bottle thermometers equilibrate at least 15 minutes. Read reversing thermometer twice. Draw water sample, rinsing sample bottle at least twice.

c. Transmissometer-suspended sediment station (NT)

Profiles of light transmission and 30 liter water samples at selected depths were obtained using a Montedoro-Whitney nephelometer-transmissometer, and a rosette of Niskin bottles. Near bottom water samples were obtained using a bottom finding mechanism attached to the transmissometer which indicated when the sensor package was 1 m from the bottom.

The XBT and CTD water sampling and profiling stations were numbered consecutively (Table 1). Typically, XBT and CTD stations were alternated to obtain maximum information on the temperature structure (every 5 miles), with sufficient resolution of the salinity field (10 mi.). Transmissometer profiling and suspended sediment sampling stations were conducted at selected CTD stations, and were numbered by the XBT-CTD station number sequence (Table 2).



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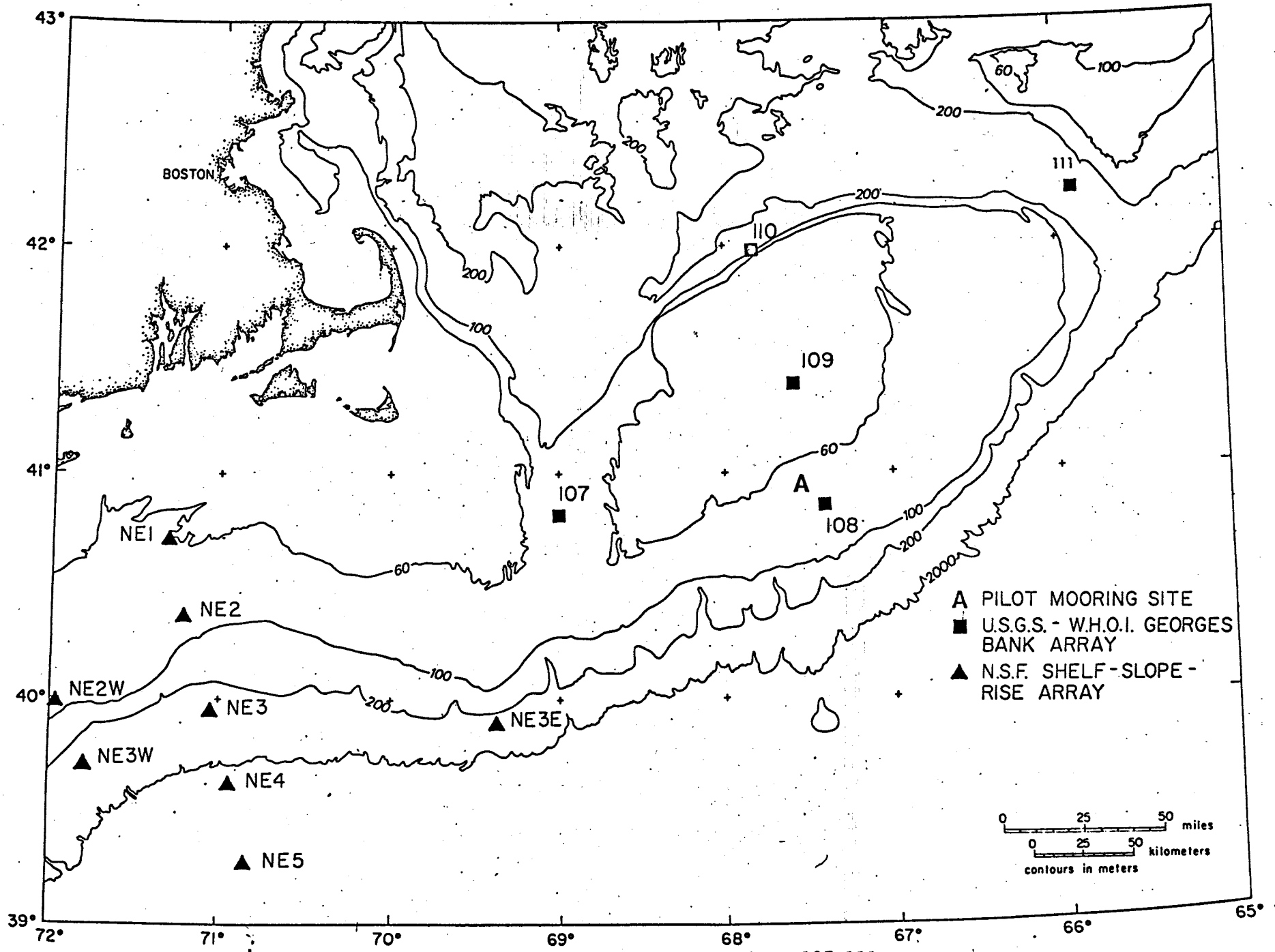
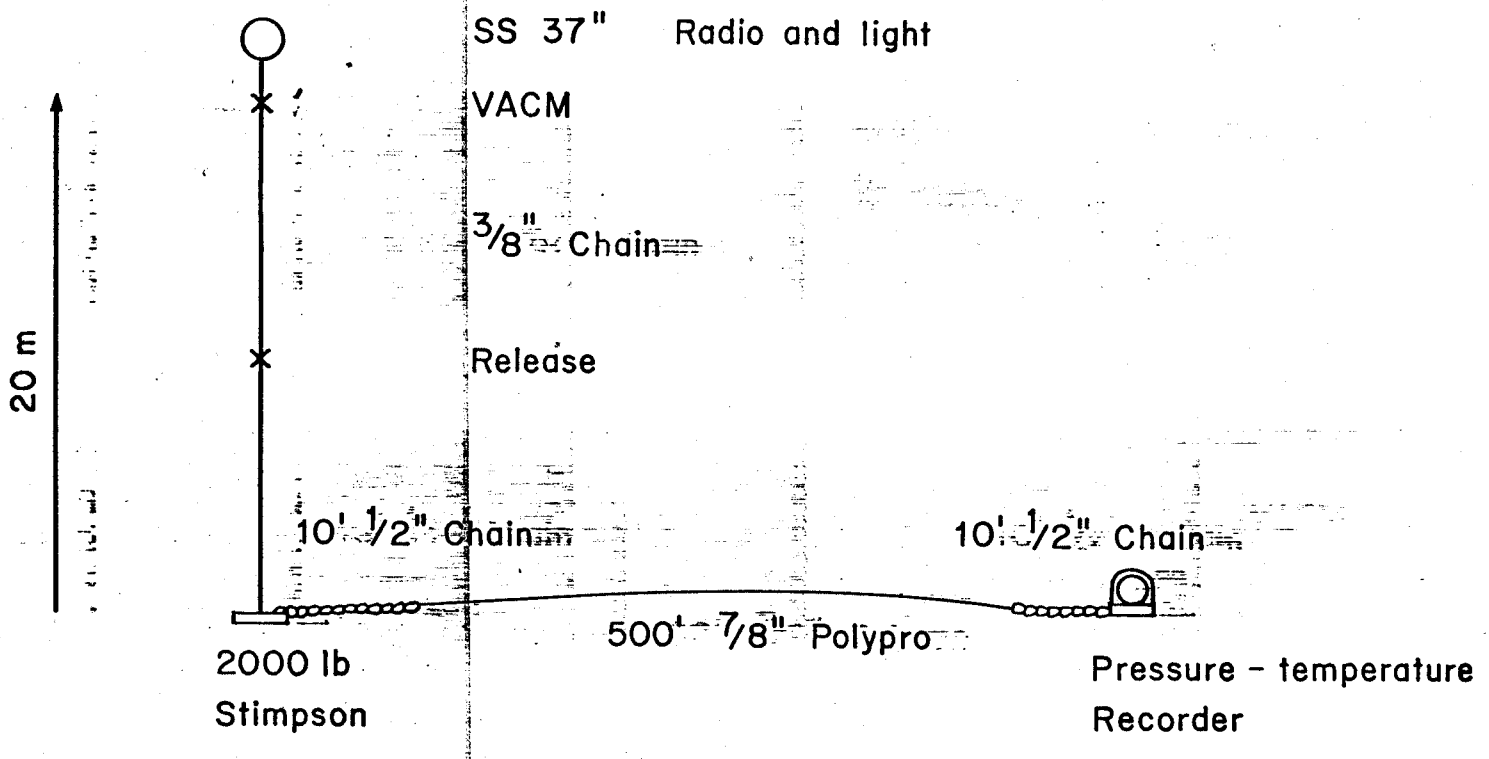


Figure 2 Current Meter Mooring Locations 107-111

USGS MOORING 107: GREAT SOUTH CHANNEL

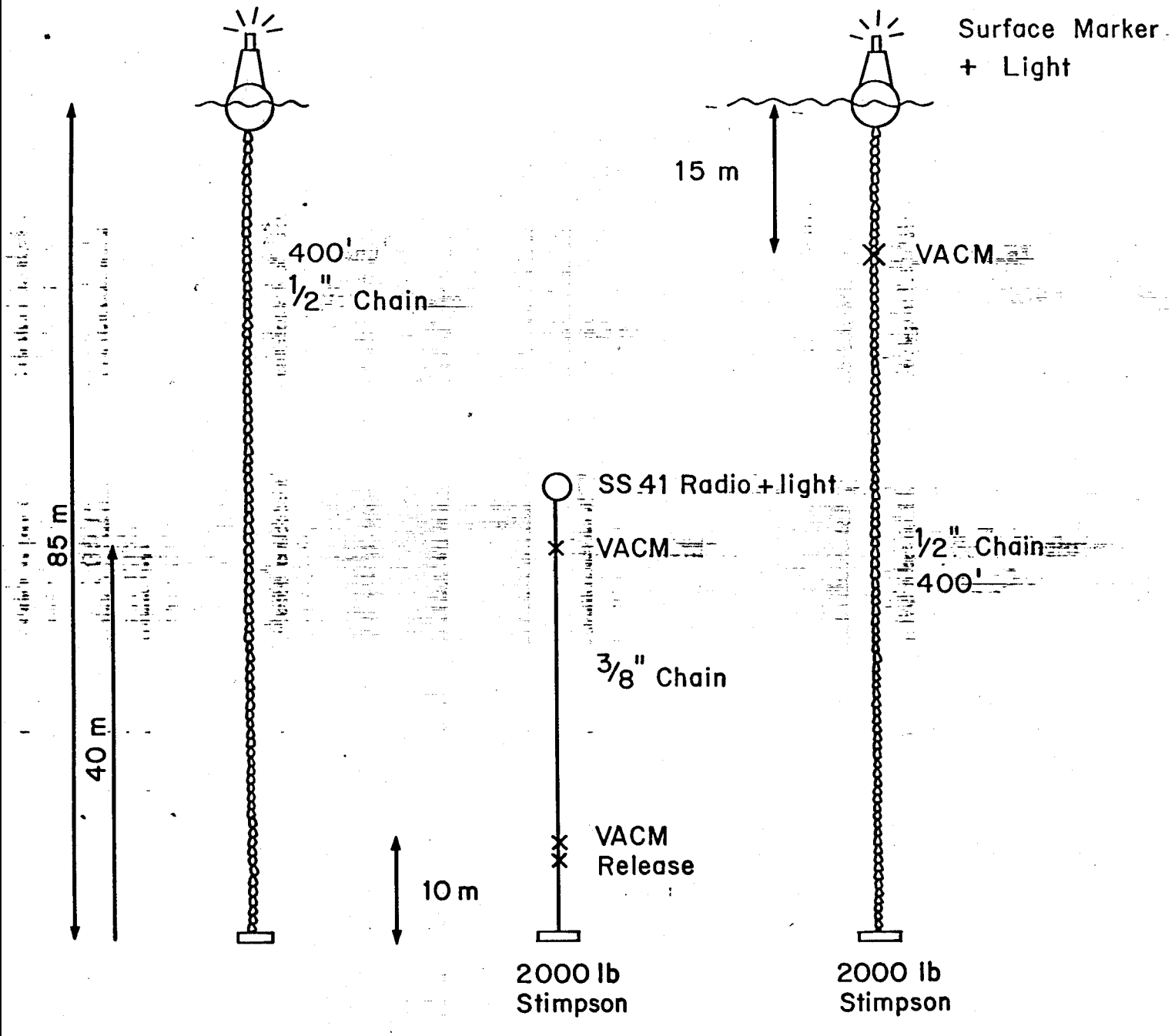
Water depth: 75 m
Instrument depth: 55 m (20 m from bottom)
Latitude: 40° 49' N
Longitude: 69° 00' W



(not to scale) .

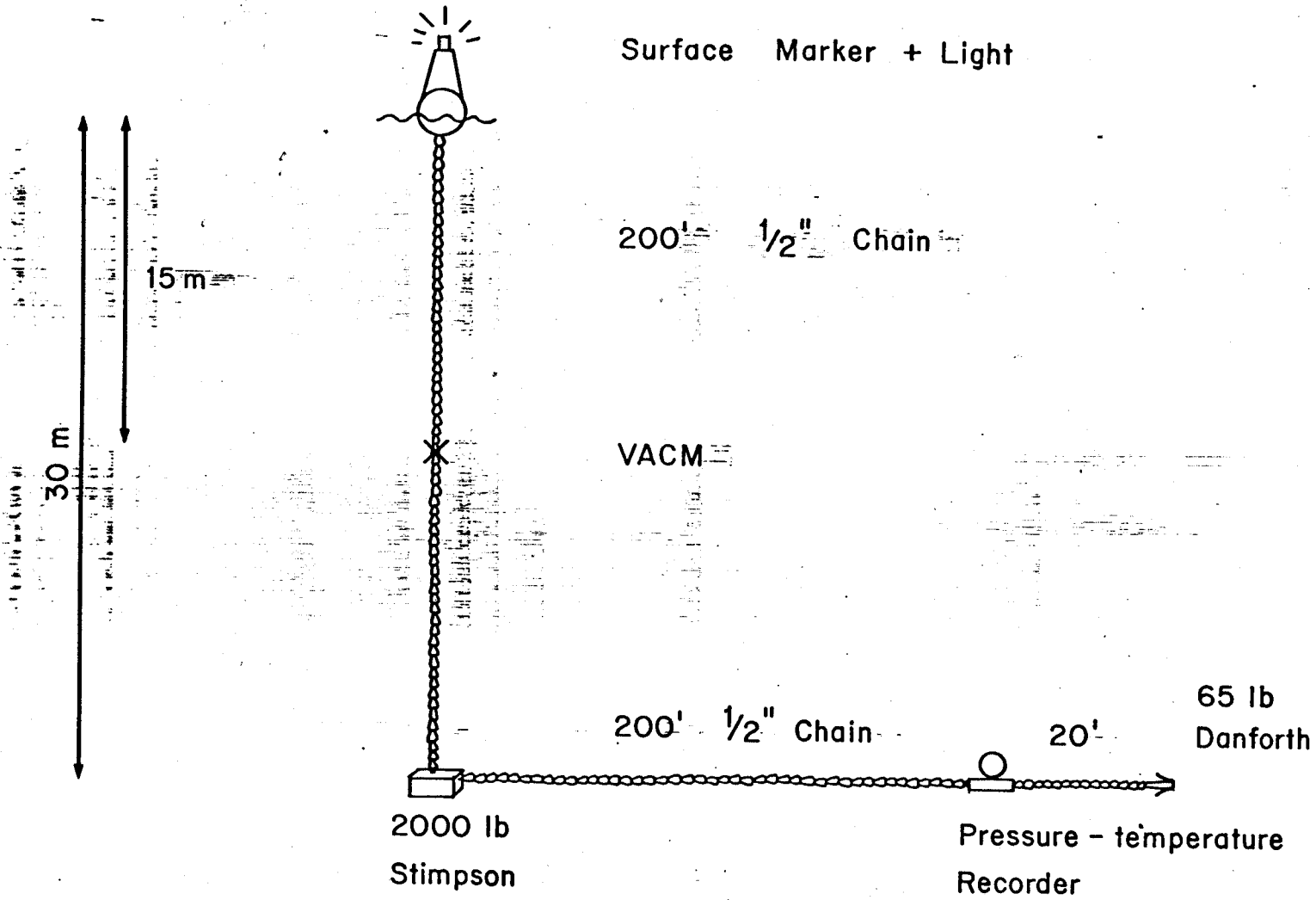
USGS MOORING 108: SOUTH FLANK GEORGES BANK

Water depth: 85 m
Instrument depth: 15, 45, 75 m
Latitude: 40° 51.0' N
Longitude: 67° 24.0' W



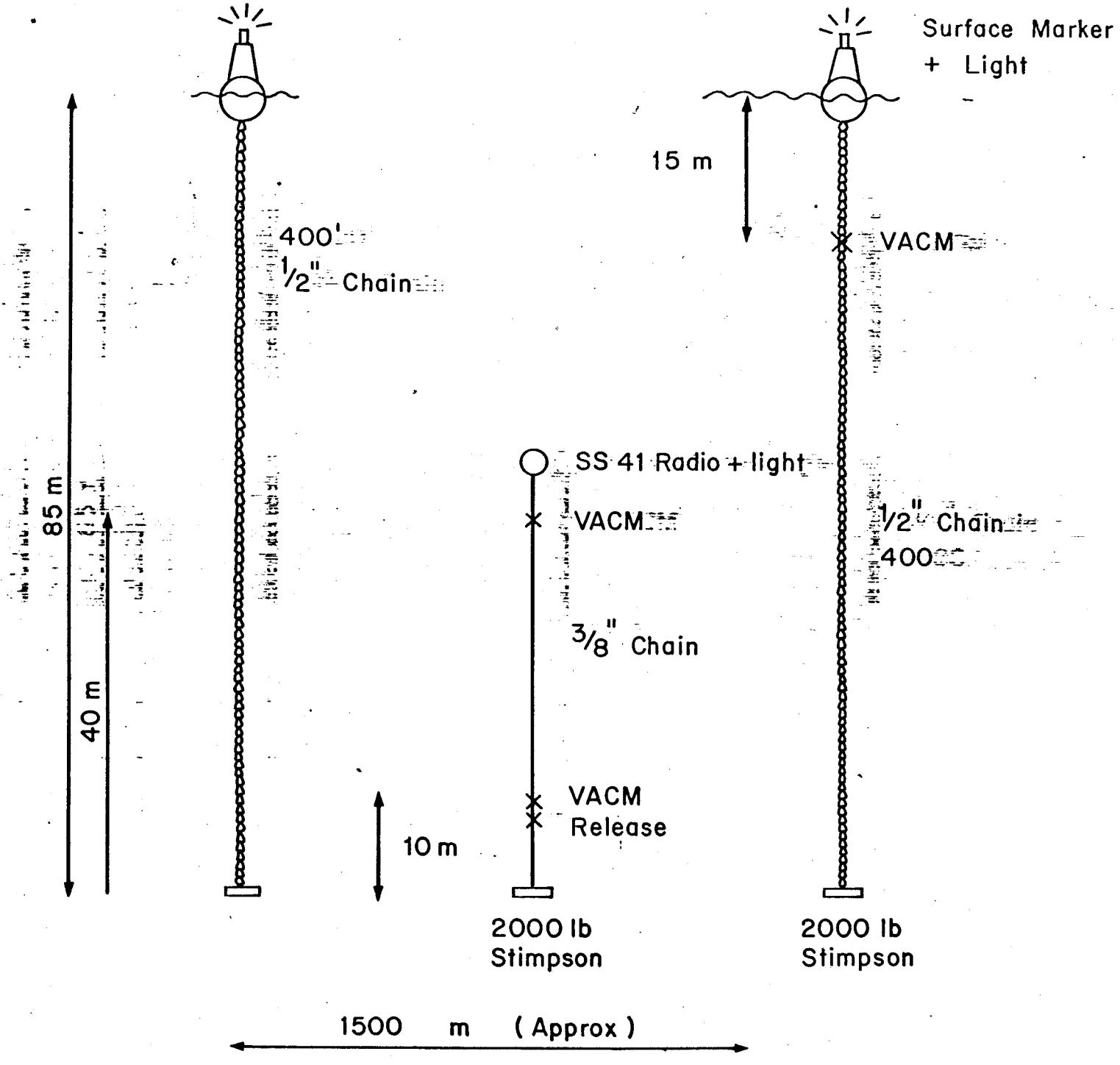
USGS MOORING 109: GEORGES BANK

Water depth: 30 m
Instrument depth: 15 m
Latitude: 41° 24' N
Longitude: 67° 33' W



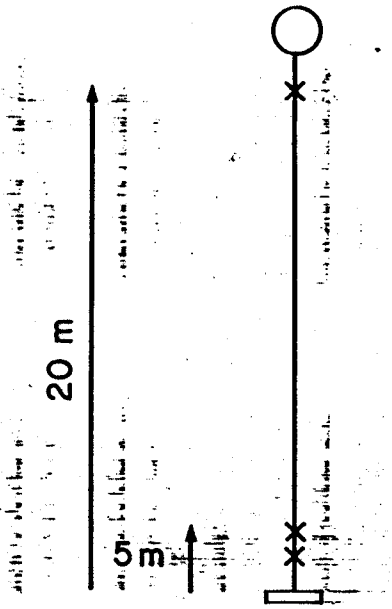
USGS MOORING 110: NORTH FLANK GEORGES BANK

Water depth: 85 m
Instrument depth: 15, 45, 75 m
Latitude: 41° 59.0' N
Longitude: 67° 47.1' W



USGS MOORING 111: NORTH CHANNEL

Water depth: 240 m
Instrument depth: 220 m (20 m from bottom)
Latitude: 42° 13.5' W
Longitude: 65° 50.7' N



SS 37 Radio and light
VACM

3/8" Chain

Pressure - temperature - Recorder
Release

1800 lb Anchor

HYDROGRAPHIC STATIONS

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
1	12 Aug	2155	41°17.6'N	71°00.'W			✓	✓	41
2	12 "	2230	41°09.7'N	71°01.W			✓	✓	36
3	12 "	2310	41°01.3'N	[1]71°04.1'W	✓	3m	✓	✓	47
4	13 "	0135	40°57.0'N	71°02.9'W			✓	✓	52
5	13 "	0210	40°51.5'N	71°06.0'W	✓			✓	59
6	13 "	0305	40°45.9'N	71°07.0'W			✓	✓	58
7	13 "	0330	40°40.6'N	71°08.3'W	✓	51m		✓	61
8	13 "	0421	40°36.3'N	71°09.0'W			✓	✓	~70
9	13 "	0445	40°30.9'N	71°10.5'W	✓	64m		✓	74
10	13 "	0608	40°26.3'N	71°11.0'W			✓	✓	81
11	13 "	0653	40°22.4'N	71°13.3'W	✓	74m		✓	85
12	13 "	0801	40°17.1'N	71°09.5'W			✓	✓	96
13	13 "	0822	40°13.2'N	71°08.1'W	✓	3m		✓	119
14	13 "	0927	40°07.9'N	71°06.4'W			✓	✓	150
15	13 "	0945	40°04.2'N	71°05.3'W	✓	144m		✓	195
16	13 "	1155	39°59.7'N	71°03.5'W			✓	✓	330
17	13 "	1300	39°56.2'N	71°03.5'W	✓	194m		✓	480
18	13 "	1445	39°56.6'N	70°48.9'W			✓	✓	450
19	13 "	1540	39°57.0'N	70°33.4'W			✓	✓	
20	13 "	1618	39°59.5'N	70"23.0'W	✓	194m		✓	265
21	13 "	1813	40°04.5'N	70°23.3'W			✓	✓	153
22	13 "	1841	40°10.3'N	70°25.0'W	✓	104m		✓	121
23	13 "	2025	40°14.9'N	70°25.3'W			✓	✓	107
24	13 "	2055	40°20.3'N	70°24.5'W	✓	79m		✓	90

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
25	13 Aug	2200	40°25.5'N	70°24.1'W			✓	✓	75
26	13 "	2220	40°29.7'N	70°24.6'W	✓	59m		✓	69
27	13 "	2325	40°34.6'N	70°23.6'W			✓	✓	61
28	13 "	2350	40°40.0'N	70°23.7'W	✓	44m		✓	55
29	14 "	0053	40°44.8'N	70°23.5'W			✓	✓	50
30	14 "	0123	40°50.3'N	70°25.4'W	✓	39m		✓	51
31	14 "	0231	40°54.4'N	70°19.9'W			✓	✓	~42
32	14 "	0300	40°58.9'N	70°14.9'W	✓	19m		✓	33
33	14 "	0358	40°55.3'N	70°11.1'W			✓	✓	29
34	14 "	0420	40°51.5'N	70°08.2'W	✓	3m		✓	30
35	14 "	0505	40°47.1'N	70°04.2'W			✓	✓	30
36	14 "	0530	40°42.5'N	70°00.6'W	✓	3m		✓	43
37	14 "	0614	40°39.0'N	69°55.9'W			✓	✓	53
38	14 "	0635	40°35.2'N	69°52.1'W	✓	33m		✓	61
39	14 "	0739	40°30.4'N	69°47.6'W			✓	✓	60
40	14 "	0757	40°27.0'N	69°44.5'W	✓	56m		✓	70
41	14 "	0910	40°22.0'N	69°40.0'W			✓	✓	
42	14 "	0930	40°19.4'N	69°36.5'W	✓	46m		✓	73
43	14 "	1025	40°14.9'N	69°32.5'W			✓	✓	80
44	14 "	1045	40°10.7'N	69°28.5'W	✓			✓	87
45	14 "	1204	40°05.3'N	69°23.5'W			✓	✓	96
46	14 "	1217	40°03.0'N	69°20.5'W	✓	91m		✓	102
47	14 "	1354	~39°57.'N	~69°15.'W			✓	✓	315
48	14 "	1433	39°51.2'N	69°09.8'W	✓	194m		✓	1505
49	14 "	1600	~39°56.'N	~68°55.'W			✓	✓	1625
50	14 "	1653	40°00.5'N	68°41.0'W	✓	155m		✓	1920
51	14 "	1840	40°06.0'N	68°38.5'W			✓	✓	

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
52	14 Aug	1903	40°12.5'N	68°37.5'W	✓	86m		✓	160
53	14 "	1958	40°17.8'N	68°36.2'W			✓	✓	113
54	14 "	2025	40°21.8'N	68°36.9'W	✓	74m		✓	89
55	14 "	2136	40°27.7'N	68°36.3'W			✓	✓	~88
56	14 "	2210	40°34.5'N	68°36.1'W	✓	59m		✓	70
57	15 "	0120	40°42.8'N	68°36.2'W			✓	✓	61
58	15 "	0133	40°45.4'N	68°34.7'W	✓	40m		✓	60
59	15 "	0243	40°47.2'N	68°42.7'W			✓	✓	64
60	15 "	0307	40°47.1'N	68°48.1'W	✓	35m		✓	65
61	15 "	0356	40°48.3'N	68°54.6'W			✓	✓	67
62	15 "	0418	40°49.4'N	68°59.9'W	✓	50m		✓	77
63	15 "	1124	40°51.0'N	69°06.2'W			✓	✓	~71
64	15 "	1147	40°51.9'N	69°12.5'W	✓	54m		✓	67
65	15 "	1308	40°54.0'N	69°20.3'W			✓	✓	~47
66	15 "	1330	40°53.5'N	69°24.4'W	✓	34m		✓	45
67	15 "	1443	40°54.8'N	69°29.8'W			✓	✓	~37
68	15 "	1508	40°54.8'N	69°36.2'W	✓	28m	✓	✓	39
69	15 "	1600	40°56.0'N	69°42.3'W			✓	✓	~31
70	15 "	1617	40°56.5'N	69°46.7'W	✓	24m		✓	35
71	15 "	1736	40°51.4'N	69°36.3'W			✓	✓	40
72	15 "	1810	40°46.5'N	69°28.2'W			✓	✓	47
73	15 "	1828	40°44.3'N	69°24.0'W			✓	✓	~43
74	15 "	1850	40°44.2'N	69°17.8'W			✓	✓	47
75	15 "	1904	40°45.5'N	69°14.4'W			✓	✓	62
76	15 "	1940	40°51.9'N	69°13.9'W			✓	✓	66
77	15 "	2011	40°58.0'N	69°13.6'W			✓	✓	69
78	15 "	2052	41°05.0'N	69°18.8'W	✓	31m		✓	52
79	15 "	2143	41°10.5'N	69°23.1'W			✓	✓	50

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
80	15 Aug	2227	41°18.6'N	69°25.8'W	✓	29m		✓	39
81	15 "	2320	41°19.8'N	69°22.0'W			✓	✓	
82	15 "	2327	41°20.0'N	69°19.2'W			✓	✓	85
83	15 "	2347	41°20.0'N	69°14.5'W			✓	✓	104
84	15 "	2352	41°20.0'N	69°11.3'W	✓	91m		✓	125
85	16 "	0116	41°22.0'N	69°04.5'W			✓	✓	~158
86	16 "	0150	41°20.8'N	68°55.8'W	✓	134m		✓	145
87	16 "	0244	41°22.2'N	68°49.0'W			✓	✓	128
88	16 "	0308	41°23.6'N	68°41.0'W	✓	91m		✓	102
89	16 "	0424	41°20.1'N	68°36.0'W			✓	✓	73
90	16 "	0455	41°16.1'N	68°31.8'W	✓	44m		✓	57
91	16 "	0603	41°12.1'N	68°27.0'W			✓	✓	55
92	16 "	0626	41°07.9'N	68°21.9'W	✓	34m		✓	47
93	16 "	0737	41°04.1'N	68°17.5'W			✓	✓	43
94	16 "	0815	40°58.5'N	68°11.8'W	✓	35m		✓	56
95	16 "	0937	40°54.9'N	68°04.8'W			✓	✓	63
96	16 "	1003	40°52.3'N	67°59.0'W	✓	44m		✓	59
97	16 "	1107	40°47.4'N	67°57.0'W			✓		72
98	16 "	1137	40°43.2'N	67°55.2'W	✓	49m		✓	79
99	16 "	1247	40°38.3'N	67°52.9'W			✓	✓	86
100	16 "	1305	40°34.0'N	67°49.2'W	✓	82m		✓	93
101	16 "	1410	40°29.8'N	67°47.5'W			✓	✓	
102	16 "	1437	40°24.0'N	67°44.9'W	✓	104m		✓	141
103	16 "	1546	40°20.0'N	67°42.0'W			✓	✓	~450
104	16 "	1607	40°15.8'N	67°40.4'W	✓	169m		✓	1200
105	16 "	1837	40°17.8'N	67°25.8'W			✓	✓	1200
106	16 "	1915	40°18.2'N	67°15.7'W	✓	194m		✓	1120
107	16 "	2020	40°25.2'N	67°15.1'W			✓	✓	

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
108	16 Aug	2044	40°28.9'N	67°18.0'W	✓	104m		✓	143
109	16 "	2230	~40°36.'N	~67°22.'W			✓	✓	105
110	16 "	2257	40°41.5'N	67°23.5'W	✓	44m		✓	97
111	16 "	2346	40°46.5'N	67°24.0'W			✓	✓	92
112	17 "	0005	40°50.9'N	67°25.1'W	✓	74m		✓	87
113	17 "	0852	40°56.5'N	67°26.0'W			✓	✓	~78
114	17 "	0918	41°01.7'N	67°26.0'W	✓	56m		✓	67
115	17 "	1010	41°05.9'N	67°27.5'W			✓	✓	~62
116	17 "	1041	41°10.8'N	[1]67°27.5'W	✓	36m		✓	47
117	17 "	1130	41°15.0'N	67°31.5'W			✓	✓	~48
118	17 "	1153	41°18.5'N	67°32.2'W	✓	32m		✓	43
119	17 "	2128	[1]41°28.8'N	[1]67°36.8'W	✓	3m		✓	35
120	17 "	2230	41°32.2'N	67°25.0'W			✓	✓	54
121	17 "	2314	41°37.6'N	67°15.6'W	✓	34m		✓	47
122	18 "	0018	41°32.8'N	67°13.4'W			✓	✓	53
123	18 "	0040	41°29.8'N	67°08.5'W	✓	41m		✓	57
124	18 "	0148	41°25.2'N	67°05.6'W			✓	✓	61
125	18 "	0215	41°21.1'N	67°00.2'W	✓	51m		✓	66
126	18 "	0320	41°16.5'N	66°56.6'W			✓	✓	70
127	18 "	0340	41°13.2'N	66°52.5'W	✓	51m		✓	72
128	18 "	0500	41°08.0'N	66°47.9'W			✓	✓	72
129	18 "	0525	41°04.7'N	66°44.5'W	✓	66m		✓	77
130	18 "	0640	41°00.2'N	66°41.5'W			✓	✓	
131	18 "	0703	40°56.0'N	66°37.9'W	✓	87m		✓	105
132	18 "	0813	40°51.5'N	66°34.2'W			✓	✓	
133	18 "	0836	40°48.5'N	66°31.0'W	✓	194m		✓	1800

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
134	18 Aug	1123	40°54.2'N	67°01.0'W			✓	✓	87
135	18 "	1217	40°50.3'N	67°15.0'W			✓	✓	92
136	18 "	1259	40°46.8'N	67°27.5'W			✓	✓	88
137	18 "	1340	40°41.4'N	67°38.5'W			✓	✓	79
138	18 "	1422	40°40.0'N	67°50.7'W			✓	✓	81
139	18 "	1505	40°39.1'N	68°05.0'W			✓	✓	88
140	18 "	1546	40°37.8'N	68°16.0'W	✓	69m			84
141	18 "	1654	40°32.4'N	68°30.0'W			✓	✓	82
142	18 "	1725	40°28.2'N	68°37.1'W	✓	74m		✓	85
143	18 "	1827	40°25.0'N	68°47.1'W			✓	✓	81
144	18 "	1915	40°23.9'N	68°57.8'W	✓			✓	85
145	18 "	2055	40°20.0'N	69°06.4'W			✓	✓	90
146	18 "	2114	40°18.6'N	69°13.4'W	✓	3m		✓	89
147	18 "	2255	40°15.4'N	69°24.3'W			✓	✓	81
148	18 "	2330	40°15.4'N	69°33.0'W	✓	15m		✓	79
149	19 "	0018	40°16.1'N	69°40.8'W			✓	✓	
150	19 "	0046	40°17.5'N	69°49.6'W	✓			✓	83
151	19 "	0130	40°18.6'N	69°58.9'W			✓	✓	
152	19 "	0156	40°19.4'N	70°07.3'W	✓			✓	87
153	19 "	0235	40°19.6'N	70°16.0'W			✓	✓	
154	19 "	0304	40°20.4'N	70°28.2'W	✓			✓	90
155	19 "	0400	*40°12.9'N	*70°29.9'W			✓	✓	
156	19 "	0430	40°06.1'N	70°33.5'W			✓	✓	
157	19 "	0500	40°00.'N	70°36.5'W			✓		255
158	19 "	0530	39°53.5'N	70°40.0'W			✓		500
159	20 "	1727	41°04.2'N	66°21.2'W	✓			✓	780

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
160	20 Aug	1823	41°08.1'N	66°23.2'W			✓	✓	
161	20 "	1855	41°11.5'N	66°23.2'W	✓	3m		✓	98
162	20 "	2015	41°15.8'N	66°24.5'W			✓	✓	99
163	20 "	2037	41°19.8'N	66°25.4'W	✓			✓	94
164	20 "	2120	41°24.0'N	66°28.1'W			✓	✓	75
165	20 "	2144	41°28.0'N	66°30.0'W	✓	74		✓	89
166	20 "	2230	41°33.2'N	66°31.9'W			✓	✓	85
167	20 "	2257	41°37.6'N	66°34.0'W	✓			✓	70
168	21 "	0011	41°37.5'N	66°24.8'W			✓	✓	81
169	21 "	0043	41°38.5'N	66°18.8'W	✓			✓	87
170	21 "	0125	41°38.4'N	66°11.0'W			✓	✓	97
171	21 "	0155	41°39.0'N	66°04.2'W	✓	66	✓	✓	94
172	21 "	0248	41°39.7'N	65°57.0'W			✓	✓	110
173	21 "	0314	41°41.3'N	65°49.0'W	✓			✓	225
174	21 "	0420	41°41.0'N	65°42.0'W			✓	✓	~1640
175	21 "	0442	41°41.3'N	65°36.1'W	✓			✓	1830
176	21 "	0600	41°49.6'N	65°25.2'W			✓	✓	1900
177	21 "	0640	41°55.0'N	65°16.0'W			✓	✓	
178	21 "	0705	41°58.8'N	65°20.0'W			✓	✓	1550
179	21 "	0722	42°03.5'N	65°24.0'W	✓	95m		✓	1075
180	21 "	0812	42°06.7'N	65°27.8'W			✓	✓	~500
181	21 "	0832	42°10.0'N	65°30.3'W	✓			✓	120
182	21 "	0909	42°12.6'N	65°34.0'W			✓	✓	115
183	21 "	1019	42°15.0'N	65°37.3'W			✓	✓	113
184	21 "	1057	42°12.8'N	65°46.8'W			✓	✓	224

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
185	21 Aug	1447	42°11.7'N	65°52.5'W			✓	✓	240
186	21 "	1915	42°06.7'N	66°00.0'W	✓	69m		✓	213
187	21 "	2044	42°12.0'N	65°49.2'W	✓	123m		✓	240
188	21 "	2141	42°09.5'N	65°55.3'W			✓	✓	~220
189	21 "	2205	42°07.0'N	66°01.5'W			✓	✓	209
190	21 "	2225	42°04.8'N	66°06.1'W			✓	✓	96
191	21 "	2315	42°02.0'N	66°10.8'W	✓	70m		✓	93
192	22 "	0001	41°58.8'N	66°16.7'W			✓	✓	83
193	22 "	0021	41°57.2'N	66°20.4'W	✓	72m		✓	83
194	22 "	0144	41°55.1'N	66°29.2'W			✓	✓	85
195	22 "	0202	41°54.2'N	66°34.1'W	✓	70m		✓	74
196	22 "	0306	41°51.2'N	66°40.4'W			✓	✓	69
197	22 "	0326	41°49.0'N	66°45.5'W	✓	54m		✓	65
198	22 "	0435	41°49.7'N	66°53.4'W			✓	✓	65
199	22 "	0459	41°50.0'N	67°00.5'W	✓	49m		✓	64
200	22 "	0550	41°52.7'N	67°03.1'W			✓	✓	60
201	22 "	0604	41°55.5'N	67°05.2'W	✓	45m		✓	58
202	22 "	0657	41°59.2'N	67°06.6'W			✓	✓	57
203	22 "	0718	42°03.6'N	67°09.0'W	✓	29m		✓	41
204	22 "	0816	42°07.5'N	67°11.3'W			✓	✓	63
205	22 "	0940	42°10.0'N	67°14.0'W	✓	24m		✓	155
206	22 "	0926	42°10.8'N	67°12.5'W			✓		155
207	22 "	0929	42°10.8'N	67°12.5'W			✓		155
208	22 "	1000	42°14.8'N	67°16.8'W			✓	✓	245
209	22 "	1015	42°17.7'N	67°20.1'W	✓	178m		✓	285
210	22 "	1235	42°16.0'N	67°28.2'W			✓	✓	268

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
211	22 Aug	1301	42°14.9'N	67°35.0'W	✓	100m		✓	245
212	22 "	1448	42°12.6'N	67°44.0'W			✓	✓	
213	22 "	1517	42°10.0'N	67°50.1'W	✓	187m		✓	215
214	22 "	1610	42°07.6'N	67°49.2'W			✓	✓	205
215	22 "	1626	42°04.9'N	67°48.5'W	✓	109m		✓	193
216	22 "	1736	42°01.9'N	67°47.2'W			✓	✓	165
217	22 "	2035	42°01.0'N	67°47.5'W	✓	102m		✓	115
218	22 "	2325	41°58.1'N	67°46.4'W			✓	✓	57
219	23 "	0117	41°54.8'N	67°46.2'W			✓	✓	41
220	23 "	0130	41°52.2'N	67°45.1'W	✓	24m		✓	35
221	23 "	0201	41°49.8'N	67°44.1'W			✓	✓	36
222	23 "	0216	41°46.8'N	67°42.4'W	✓	30m		✓	36
223	23 "	0322	41°46.8'N	67°51.1'W			✓	✓	35
224	23 "	0349	41°42.0'N	67°55.2'W	✓	15m		✓	29
225	23 "	0435	41°42.5'N	68°04.6'W			✓	✓	35
226	23 "	0456	41°43.0'N	68°10.0'W	✓	8m		✓	33
227	23 "	0542	41°45.0'N	68"11.1'W			✓	✓	51
228	23 "	0557	41°45.2'N	68°15.7'W	✓	66m		✓	73
229	23 "	0648	41°47.6'N	68°18.1'W			✓	✓	139
230	23 "	0706	41°50.0'N	68°21.3'W	✓	127m		✓	219
231	23 "	0820	41°52.4'N	68°23.0'W			✓	✓	205
232	23 "	0843	41°54.9'N	68°27.1'W	✓	94m		✓	183
233	23 "	1035	41°53.8'N	68°35.4'W			✓	✓	174
234	23 "	1100	41°51.1'N	68°41.3'W	✓	144m		✓	165
235	23 "	1150	41°50.0'N	68°47.4'W			✓	✓	171
236	23 "	1220	41°49.3'N	68°54.8'W	✓	114m		✓	166

Sta.	Date	Time	Latitude	Longitude	CTD	Calib. Bottle	XBT	Surf	Water Depth (m)
237	23 Aug	1336	41°47.0'N	69°02.5'W			✓	✓	165
238	23 "	1357	41°46.2'N	69°07.0'W	✓	169m		✓	182
239	23 "	1446	41°44.9'N	69°13.8'W			✓	✓	197
240	23 "	1508	41°44.0'N	69°20.8'W	✓	144m		✓	176
241	23 "	1623	41°41.7'N	69°26.5'W			✓	✓	150
242	23 "	1652	41°39.1'N	69°32.8'W	✓	49m		✓	92
243	23 "	1719	41°37.8'N	69°35.8'W			✓	✓	~80
244	23 "	1733	41°36.8'N	69°39.0'W	✓	40m		✓	57
245	23 "	1800	41°36.2'N	69°41.7'W			✓	✓	41
246	23 "	1808	41°35.2'N	69°43.2'W	✓			✓	32
247	23 "	1915	41°31.1'N	69°40.3'W			✓	✓	~28
248	23 "	1933	41°26.0'N	69°43.5'W	✓				21
249	23 "	2018	41°24.6'N	69°55.5'W			✓		
250	23 "	2139	41°27.2'N	70°17.3'W			✓	✓	

SUSPENDED SEDIMENT SAMPLING STATIONS

Sta.	Date	Time	Latitude	Longitude	T	Suspended Sample Depths (m)				Water Depth (m)
3	13 Aug	0105	41°02.0'N	[1]71°01.0'W	✓	1.6	30	45		47
15	13 "	1100	40°03.7'N	71°03.8'W	✓	1.6	100	230		195
						1.6	85	194**		
20	13 "	1710	39°59.9'N	70°22.7'W	✓	1.6	30	259		260
22	13 "	2003	40°10.5'N	70°25.7'W	✓	1.6	120			121
24	13 "	2132	40°21.0'N	70°24.2'W	✓	1.6	85			90
26	13 "	2310	40°31.4'N	70°24.3'W	✓	1.6	60			67
28	14 "	0025	40°41.0'N	70°23.2'W	✓	1.6	50			54
30	14 "	0155	40°50.6'N	70°24.4'W	✓	1.6	48			51
32B	14 "	0335	40°59.1'N	70°13.9'W	✓	1.6	9	28		33
38	14 "	0700	40°35.8'N	69°54.0'W	✓	None				61
40	14 "	0815	40°27.0'N	69°44.0'W	✓	1.6	45	68		73
44	14 "	1110	40°10.7'N	69°28.5'W	✓	None				87
46	14 "	1300	40°03.0'N	69°20.0'W	✓	1.6	37	53	97	102
50	14 "	1750	40°00.5'N	68°41.0'W	✓	None				1720
54	14 "	2108	40°22.5'N	68°38.5'W	✓	None				89
56A	14 "	2345	[1]40°38.2'N	68°36.9'W	✓	1.6	12	19	59	70

Sta.	Date	Time	Latitude	Longitude	T	Suspended Sample Depths (m)				Water Depth (m)
58	15 Aug	0140	40°46.4'N	68°35.0'W	✓	1.6	15	40		60
62	15 "	0510	40°49.6'N	68°59.7'W	✓	None				77
66	15 "	1345	40°52.7'N	69°23.6'W	✓	None				45
70	15 "	1625	40°56.3'N	69°45.8'W	✓	None				35
80	15 "	2240	41°19.8'N	69°25.5'W	✓	1.6(2)	31(2)			32
84	16 "	0025	41°21.5'N	69°10.8'W	✓	1.6	16	130		135
88	16 "	0328	41°24.6'N	68°40.4'W	✓	1.6	30	98(2)		100
90	16 "	0525	41°16.7'N	68°30.6'W	✓	None				58
92	16 "	0650	41°07.5'N	68°21.4'W	✓	1.6	45			46
94	16 "	0840	40°58.4'N	68°11.0'W	✓	1.6	53			54
96	16 "	1030	40°52.6'N	67°58.5'W	✓	1.6	58			59
98	16 "	1155	40°43.7'N	67°54.9'W	✓	1.6	50	78(2)		79
100	16 "	1335	40°33.0'N	67°47.0'W	✓		15	90		93
102	16 "	1505	40°24.4'N	67°43.4'W	✓	1.6	50	135		141
104	16 "	1805	~40°17.0'N	~67°35.0'W	✓	1.6	700(3)			750
108	16 "	2120	40°28.9'N	67°17.6'W	✓	1.6	30	100	160	148
						1.6	28	93	147**	
112	17 "	0045	40°51.7'N	67°23.9'W	✓	1.6	22	80		85

Sta.	Date	Time	Latitude	Longitude	T	Suspended Sample Depths (m)				Water Depth (m)
112A	17 Aug	0800	40°50.4'N	67°25.2'W	✓	1.6	22	35	83	85
116	17 "	1105	41°10.5'N	[1]67°29.7'W	✓	None				49
118	17 "	1212	41°19.3'N	67°33.2'W	✓	1.6(2)	41(2)			42
119	17 "	1300	[1]41°24.4'N	[1]67°34.5'W	✓	1.6(2)	33(2)			34
121	17 "	2325	41°36.9'N	67°15.6'W	✓	1.6	42			45
123	18 "	0050	41°29.9'N	67°09.1'W	✓	1.6	54			58
125	18 "	0230	41°21.2'N	67°00.6'W	✓	1.6	10	63		66
127	18 "	0400	41°13.5'N	66°52.2'W	✓	1.6	10	71(2)		72
129	18 "	0550	41°04.6'N	66°44.2'W	✓	1.6	15	76(2)		77
131	18 "	0727	40°55.6'N	66°37.8'W	✓	1.6(3)	102			105
133	18 "	0949	40°47.8'N	66°30.6'W	✓	1.6	33	70	200	1600
144	18 "	1935	40°22.6'N	68°57.8'W	✓	1.6	31	55	92	85
						1.6	29	51	84**	
146	18 "	2225	40°17.0'N	69°14.0'W	✓	1.6	28	65	112	90
						1.6	35	52	89**	
161	20 "	1950	41°11.5'N	66°23.2'W	✓	1.6(2)	33	97		99
167	20 "	2308	41°37.6'N	66°34.0'W	✓	1.6	25	72		73
183	21 "	1040	42°13.0'N	~65°39.0'W	✓	1.6	28	105		109
185	21 "	1130	42°10.1'N	[1]65°47.5'W	✓	1.6	285			244
						1.6	243**			

Sta.	Date	Time	Latitude	Longitude	T	Suspended Sample Depths (m)					Water Depth (m)
186	21 Aug	1535	42°06.5'N	65°54.6'W	✓	1.6(2)	80	264			242
						1.6(2)	73	241**			
191	21 "	2250	42°01.8'N	66°10.2'W	✓	1.6	30	92			95
193	22 "	0040	41°56.2'N	66°19.7'W	✓	1.6	91				83
						1.6	82**				
195	22 "	0210	41°53.9'N	66°34.2'W	✓	1.6	71				74
197	22 "	0345	41°49.4'N	66°46.0'W	✓	1.6	61				65
199	22 "	0410	41°50.6'N	67°01.4'W	✓	1.6	61				64
201	22 "	0600	41°56.5'N	67°05.4'W	✓	1.6	59				60
203	22 "	0740	42°04.8'N	67°08.6'W	✓	1.6	55				56
205	22 "	0858	42°10.4'N	67°13.1'W	✓	1.6	29	46	151		152
209	22 "	1107	42°18.1'N	67°18.6'W	✓	1.6	193	284			285
215	22 "	1635	42°04.6'N	67°48.1'W	✓	1.6	20	190(2)			191
218	22 "	2305	41°58.0'N	67°45.7'W	✓	1.6	25	58			63
222	23 "	0225	41°46.5'N	67°42.5'W	✓	1.6(2)	34(2)				39
226	23 "	0515	41°43.7'N	68°10.2'W	✓	1.6	36				40
228	23 "	0620	41°45.5'N	68°15.9'W	✓	1.6	55	70			73
230	23 "	0743	41°50.7'N	68°20.5'W	✓	1.6	160	216			220
232	23 "	0925	41°55.7'N	68°27.0'W	✓		17	131	171	182	183

Sta.	Date	Time	Latitude	Longitude	T	Suspended Sample Depths (m)			Water Depth (m)
236	23 Aug	1245	41°49.4'N	68°55.0'W	✓	1.6	80	160	166
240	23 "	1530	41°44.2'N	69°21.5'W	✓	1.6	25	170	176
246	23 "	1830	41°35.5'N	69°43.2'W	✓	1.6	17	29	32

NOTES

[1]Latitude/Longitude entries for the same station number differ by more than 0°02 between the CTD/XBT data and the transmissometer data.

*Possible LORAN malfunction

All water sample depths for the transmissometer data are determined by wire depth.

The transmissometer sensor was equipped with a bottom indicator. At stations where the bottom finder touched bottom, the sampling depths have been corrected for wire angle to indicate "true" depth. At these stations, (indicated by a **), both wire depth and corrected depth are listed.

GEORGES BANK CURRENT METER ARRAY

SUMMARY OF INSTRUMENT PERFORMANCE

Mooring	Instrument	Depth	Comments
107: Great South Channel			
40°49.0'N	*V0168	57 m	Good record.
69°00.0'W			Heavy growth on rotor and vane
Depth: 77 m			(lost approx. 30 days record)
			Groundline fouled on recovery.
	*PT068	77 m	Good
108: Southern Flank			
40°51.0'N	V0335	15 m	Rotor missing, electronics failed.
67°24.0'W	V0333	41 m	Recovered by fisherman at site.
Depth: 86 m			Electronics failed.
			Rotor jammed, vane missing.
	V0334	76 m	Recovered by fisherman at site.
			Electronics failed.
			Vane missing.
109: Top of Bank			
41°24.0'N	*V0332	15 m	Good record, heavy growth (lost
67°34.1'W			approx 30 days). Rotor and vane free.
Depth: 38 m	PT067	38 m	Lost - chain parted during recovery.
110: Northern Flank			
41°59.0'N	*V0225	15 m	Good record, heavy growth (lost
67°47.1'W			approx. 30 days) Rotor and vane free.
Depth: 86 m	V0322	41 m	Returned by fisherman
			Electronics failed
	V0228	76 m	Lost
111: North Channel			
42°13.7'N	*V0190	216 m	Good record. Rotor broken at launch.
65°51.1'W			Not much growth.
Depth: 236 m	*PT69	231 m	Good

*Complete records or partially usable record.