**ATLANTIC COASTAL EXPERIMENT III
FRV DELAWARE II CRUISE, 17-27 MAY 1977
AND R/V ONRUST CRUISE, 28-30 JUNE 1977
DATA REPORT**

K. VON BOCK, A. STODDARD, AND S. MALLOY, Editors

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September 1980

**OCEANOGRAPHIC SCIENCES DIVISION
DEPARTMENT OF ENERGY AND ENVIRONMENT
BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.**

**UNDER CONTRACT NO. DE-AC02-76CH00016 WITH THE
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ABSTRACT

The DELAWARE II and ONRUST cruises, continuations of Atlantic Coastal Experiment III, were made during May and late June, 1977, to compare seasonal changes in chlorophyll a, nitrogen nutrient, dissolved oxygen and phytoplankton composition within the mid-Atlantic and New York Bights. Data from 106 stations and 3300 km of surface mapping are reported as classical hydrographic listings, areal and/or vertical contours of chlorophyll a, inorganic nitrogen and salinity, and listings of phytoplankton species abundance. Temperature profiles from 100 stations are included, as well as respiration experiments [ETS assay] for the dinoflagellate, Ceratium tripos.

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PART I

FRV DELAWARE II CRUISE

17-27 MAY 1977

INTRODUCTION

Cruise 77-05 of the DELAWARE II was an ichthyoplankton survey of shelf waters from Cape Hatteras to Martha's Vineyard undertaken by the Northeast Fisheries Center (NEFC/NMFS), Sandy Hook. Their objective was the spatio-temporal assessment of the egg/larval production, survival, and dispersal of springtime spawners, particularly yellowtail flounder (Limanda ferruginea) and Atlantic mackerel (Scomber scombrus). Approximately 470 plankton net hauls were made of which 281 were intended neuston collections.*

The Division's participation concerned itself with comparative changes in trans-shelf chlorophyll, nitrogen nutrient, and phytoplankton composition during the decline of the spring bloom and the onset of stratification. The cruise coverage (Figs. 1-3) comprehended the major riverine and estuarine inflows to the mid-Atlantic shelf ecosystem.

Data from 101 stations and #3300 km of continuous surface-layer mapping have been resolved in this report as: (1) areal and vertical distributions of chlorophyll a, nitrate plus nitrite, and salinity, (Figs. 4-21) (2) station listings of hydrographic variables, and (3) phytoplankton taxonomy and abundance. The cruise track was sailed sequentially from NEFC-MARMAP stations 92 through 179 (Figs. 2 and 3); thence to Shinnecock transect where 5 stations were reoccupied prior to proceeding Sandy Hook. While the station maps reflect the NEFC/MAPMAP designations, the station listings (p. 31 ff.) begin with station 1 et seq. to accommodate convenient data base (IRIS) file access. Appropriate cross-referencing appears in Table 1 (p. 32) and columns 1 and 2 of the station header information.

* For further information contact W.G. Smith, NMFS, Sandy Hook Laboratory, Highlands, New Jersey 07732. Telephone (201) 872-0200.

Figure 1. Station locations, FRV DELAWARE II cruise

Figure 2. NMFS station locations, cruise track and map calibrations: Cape Hatteras to Cape May, 17-21 May

Figure 3. NMFS station locations, cruise track and map calibrations: Cape May to Nantucket Island, 21-27 May

Salinity and dissolved oxygen concentrations were analyzed and provided by NEFC. The temperature data are transcriptions of NODC XBT listings produced for 5-m intervals. Minor density anomalies appearing for some stations are attributed to the relative imprecision, contra salinity, inherent in XBT measurements. Continuous profiles (traces) appear in an appendix, p. 129.

Chlorophyll a was measured aboard ship for whole and fractionated concentrations, and nutrients were frozen for post-cruise analysis ashore. Phytoplankton were sampled at stations chosen for spatial representation of the New York Bight. Second collections were taken at 4 locations during the re-transit of the Shinnecock transect. Upon completion of the cruise selected samples were immediately examined for the presence and development of the dinoflagellate Ceratium tripos (cf. Part II).

METHODS

Discrete water samples were obtained at each station from a surface bucket and standard casts of Niskin bottles. Depth permitting, water was taken from 0, 10, 25, 50, 75, 110, 150, 183, 250, and 300 m, and representative fractions drawn for the analysis of dissolved oxygen, phytoplankton composition, chlorophyll a, nutrients, and salinity. Replicate observations of surface temperature (XBT reference), salinity, and dissolved oxygen were acquired from the bucket samples, a laboratory-grade stem thermometer being used to measure temperature. Dissolved oxygen analysis was a titrimetric procedure performed upon first-drawn, immediately-fixed samples according to standard methods (Carpenter, 1965).

Chlorophyll

Chlorophyll a concentrations of discrete samples were determined fluorometrically with a Turner Model 111 fluorometer. Chlorophyll a was measured by filtering 100 to 290 ml of seawater sample through glass-fiber filters (Whatman GF/C), extracting the chlorophyll in 90% acetone, and reading the fluorescent emission of the extracts before and after acidification with 1.0 N HCl (Holm-Hansen, 1965; Lorenzen, 1966).

Surface in vivo chlorophyll was determined by continuous fluorometry using a Turner Designs fluorometer modified for in vivo chlorophyll measurement. The fluorescence record was calibrated with an extracted chlorophyll measurement every hour.

The fluorometers were calibrated using serial dilutions of a pure chlorophyll a standard derived from laboratory cultures of phytoplankton. The concentration of the standard was measured spectrophotometrically using an extinction coefficient of $87.67 \text{ l} \cdot \text{cm}^{-1} \text{g}^{-1}$ at 664 nm. The dilution (90% acetone) fluorescences were read before (R_0) and after (R_a) acidification (10% HCl) on at least two sensitivity ranges. Calibration factors for all dilutions were computed by:

$$F' = \frac{\mu\text{g chl } \underline{a} \cdot \text{ml}^{-1}}{\frac{\tau}{\tau-1} (R_0 - R_a)}$$

The mean F' determination was accepted as the calibration factor for all subsequent instrument determinations of chlorophyll a and concomitant phaeophytin, and any significant variation amongst the serial factors over the selected ranges has been compensated by appropriate internal adjustments (Perkins and Roberts, 1962).

Size fractionation of the phytoplankton biomass was performed using a 20 μ mesh Nitex screen disc and a Gelman-type AE glass-fiber filter holder and funnel. Chlorophyll a measurements were obtained for the net (>20 μ) fractions of the phytoplankton at transect stations.

Nutrients

Discrete nutrient samples were analyzed colorometrically for nitrate, nitrite, ammonium, phosphate, and silicate. The automated methods (Whitledge and others, in press) used on the Technicon AutoAnalyzer utilized the analytical procedures of Murphy and Riley (1962) for reactive phosphorous and Armstrong and others (1967) for silicate and nitrate. Ammonium was measured by the phenolhypochlorite method of Koroleff (1970) as adapted to the AutoAnalyzer by Slawyk and MacIsaac (1972) and modified by Patton and Crouch (1977).

Phytoplankton

Phytoplankton samples of 125 ml were drawn from the surface and chlorophyll-maximum depths and immediately preserved with 2-3 ml of Lugol's solution. In the analysis, 10 ml aliquots were "settled" in Uttermohl chambers and examined with an inverted microscope equipped with phase-contrast illumination. One-half, or the whole chamber, was counted depending upon cell density.

Temperature

Temperature profiles were produced for each station by sounding Sippican model T-6 or T-10 expendable bathythermographs (XBT). The manufacturer's specifications for accuracy are:

Temperature	$\pm 0.2^{\circ}\text{C}$
Depth	$\pm 2\%$ or 5 m whichever is greater
Thermal response	63% of step in 1 m 95% of step in 5 m.

PERSONNEL

S. MALLOY
A. STODDARD

BROOKHAVEN NATIONAL LABORATORY

W. G. SMITH }
J. SIBUNKA } Chief Scientists

P. CHRISTIAN } NORTHEAST FISHERIES CENTER, SANDY HOOK

C. DE GORGUE

M. P. FAHAY

A. KENDALL

A. MATARESE

B. POLICASTRO

M. SILVERMAN

ACKNOWLEDGMENT

The Division's appreciation is extended to the officers and crew of the DELAWARE II and to the NEFC staff for their cooperation given toward accomplishing Division objectives, especially their permitting selected re-stationing of the Shinnecock transect.

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AREAL AND VERTICAL DISTRIBUTIONS

OF CHLOROPHYLL a, SALINITY

AND NITRATE + NITRITE

Figure 4. Surface in vivo chlorophyll a, Cape Hatteras to Cape May, 17-21 May

Figure 5. Surface in vivo chlorophyll a , Cape May to Nantucket Island, 21-27 May

Figure 6. Areal distribution of chlorophyll a at 25m, Cape Hatteras to Cape May, 17-21 May

Figure 7. Areal distribution of chlorophyll *a* at 25m, Cape May to Nantucket Island, 21-27 May

Figure 8. Vertical distribution of chlorophyll a, Wachapreague Inlet Transect, 19 May

Figure 9. Vertical distribution of chlorophyll a, Cape Henlopen
Transect, 20-21 May

Figure 10. Vertical distribution of chlorophyll a, Beach Haven Transect, 22 May

Figure 11. Vertical distribution of chlorophyll a, Sandy Hook
Transect, 22-23 May

Figure 12. Vertical distribution of chlorophyll a, Shinnecock Inlet Transect, 24 May

Figure 13. Vertical distribution of salinity, Shinnecock Inlet
Transect, 24 May

Figure 14. Vertical distribution of nitrate + nitrite, Shinnecock Inlet Transect, 24 May

Figure 15. Vertical distribution of chlorophyll a, Montauk Point Transect, 25 May

Figure 16. Vertical distribution of salinity, Montauk Point
Transect, 25 May

Figure 17. Vertical distribution of nitrate + nitrite, Montauk Point Transect, 25 May

Figure 18. Vertical distribution of chlorophyll $\underline{a}$, Shinnecock Inlet Transect, 26-27 May

Figure 19. Vertical distribution of salinity, Shinnecock Inlet
Transect, 26 May

Figure 20. Vertical distribution of nitrate + nitrite,
Shinnecock Inlet Transect, 26 May

STATION DATA

TABLE 1
NMFS - IRIS STATION CORRESPONDENCE

Station		Station		Station		Station	
NMFS	IRIS	NMFS	IRIS	NMFS	IRIS	NMFS	IRIS
92	1	119	28	146	55	167	82
93	2	120	29	147	56	168	83
94	3	121	30	148	57	169	84
95	4	122	31	149	58	170	85
96	5	123	32	150	59	171	86
97	6	124	33	151	60	172	87
98	7	125	34	152	61	173	88
99	8	126	35	153	62	174	89
100	9	127	36	154	63	175	90
101	10	128	37	155	64	176	91
102	11	129	38	156	65	177	92
103	12	130	39	157	66	178	93
104	13	131	40	158a	67	179	94
105	14	132	41	158b	68	158a	95
106	15	133	42	158	69	158c	96
107	16	134	43	157	70	165d	97
108	17	135	44	160	71	165c	98
109	18	136	45	161	72	165e	99
110	19	137	46	162	73	165	100
111	20	138	47	163	74	181	101
112	21	139	48	164	75		
113	22	140	49	165a	76		
114	23	141	50	165	77		
115	24	142	51	165b	78		
116	25	143	52	165c	79		
117	26	144	53	165d	80		
118	27	145	54	166	81		

TABLE 2
STATION LIST

Station		Date (EDT)	Time (EDT)	Latitude (N)		Longitude (W)		Sonic depth (m)
IRIS	NMFS							
1	92	18 May 77	01:53	37	9.0	74	32.0	366
2	93		04:05	36	59.5	74	38.1	159
3	94		07:16	36	31.0	74	46.0	95
4	95		09:16	36	19.0	74	56.0	40
5	96		10:52	36	22.0	75	14.0	31
6	97		12:56	36	38.5	75	7.0	29
7	98		15:44	36	31.0	75	41.0	20
8	99		17:34	36	47.0	75	40.0	20
9	100		20:13	36	50.0	75	10.0	24
10	101	19 May 77	22:07	37	0.0	75	27.0	20
11	102		00:03	36	54.0	75	48.5	13
12	103		01:47	37	3.0	75	48.5	8
13	104		04:12	37	20.0	75	36.0	14
14	105		07:12	37	10.0	75	9 0	34
15	106		08:50	37	20.0	75	0.0	37
16	107		10:37	37	32.0	75	8.0	31
17	108		12:01	37	33.0	75	23.0	20
18	109		13:58	37	45.2	75	9.0	22
19	110	20 May 77	16:20	37	31.0	74	44.0	53
20	111		18:30	37	28.0	74	24.0	192
21	112		22:18	37	50.0	74	14.0	87
22	113		00:11	37	43.0	74	31.0	57
23	114		01:57	37	50.0	74	47.0	37
24	115		03:56	38	6.0	74	47.0	19
25	116		05:42	38	10.0	75	4.0	11
26	117		08:13	38	23.0	75	43.0	29
27	118		10:09	38	16.0	74	21.0	44
28	119	21 May 77	11:48	38	23.0	74	9.0	53
29	120		14:36	38	3.0	73	50.0	476
30	121		17:15	38	18.0	73	39.0	141
31	122		19:15	38	23.0	73	23.0	430
32	123		21:16	38	33.0	73	22.0	102
33	124		00:18	38	37.0	74	6.0	51
34	125		02:35	38	41.0	74	25.0	347
35	126		05:14	38	35.0	74	52.0	15
36	127		07:10	38	47.0	74	52.0	13
37	128	22 May 77	09:06	38	59.0	74	36.0	13
38	129		11:20	38	57.0	74	12.0	31
39	130		13:32	38	49.0	73	45.0	44
40	131		15:10	38	58.0	73	34.0	48
41	132		17:39	39	1.0	73	3.0	75
42	133		19:25	38	52.0	72	52.7	214
43	134		22:00	38	50.0	72	30.0	2223
44	135		01:15	39	16.2	72	47.2	89
45	136		03:57	39	26.0	73	4.4	35
46	137		05:55	39	18.0	73	35.0	42

STATION LIST cont.

Station		Date (EDT)	Time (EDT)	Latitude (N)		Longitude (W)		Sonic depth (m)
IRIS	NMFS							
47	138	22 May 77	06:48	39	34.0	73	43.0	27
48	139		10:18	39	18.0	74	4.0	28
49	140		12:06	39	16.0	74	24.0	16
50	141		14:34	39	36.0	74	7.0	16
51	142		16:11	39	48.0	74	1.0	18
52	143		18:13	40	6.0	73	59.0	24
53	144		19:32	40	5.0	73	43.0	32
54	145		21:18	40	18.0	73	46.0	29
55	146		22:26	40	24.0	73	54.0	16
56	147	23 May 77	01:00	40	17.5	73	23.5	31
57	148		02:47	40	14.0	73	1.0	44
58	149		05:13	39	58.0	73	19.0	71
59	150		07:07	39	41.0	73	33.0	35
60	151		09:22	39	42.6	73	7.0	46
61	152		11:20	39	58.8	72	55.6	51
62	153		13:50	39	58.5	72	24.5	68
63	154		15:22	39	45.0	72	34.0	73
64	155		17:37	39	31.0	72	49.0	64
65	156		20:12	39	24.0	72	19.0	146
66	157		22:58	39	47.0	72	2.0	132
67	158a	24 May 77	01:28	39	52.0	71	46.0	200
68	158b		02:23	39	59.0	71	50.0	100
69	158		03:27	40	8.0	71	56.0	77
70	159		07:09	40	19.0	72	32.0	50
71	160		09:04	40	30.0	72	49.0	37
72	161		11:15	40	32.0	73	9.0	26
73	162		12:27	40	39.0	73	2.0	15
74	163		14:28	40	40.0	72	40.0	15
75	164		15:57	40	35.0	72	28.0	40
76	165a		18:10	40	48.8	72	23.6	24
77	165		18:40	40	45.2	72	21.3	37
78	165b		19:40	40	37.7	72	16.2	45
79	165c		21:10	40	25.0	72	7.5	60
80	165d		22:28	40	13.0	71	59.0	65
81	166	25 May 77	00:35	40	36.0	71	58.0	55
82	167		03:12	40	55.0	72	14.0	15
83	168		04:40	40	57.8	71	57.8	26
84	169		06:45	41	1.6	71	32.8	44
85	170		09:20	40	36.0	71	30.0	66
86	171		12:19	40	14.0	71	18.2	91
87	172		14:18	39	59.5	71	15.2	298
88	173		17:53	40	0.8	70	43.0	219
89	174		20:55	40	22.5	70	57.0	90
90	175		23:14	40	41.5	71	1.2	62
91	176	26 May 77	02:08	41	1.2	71	2.0	44
92	177		05:11	41	15.7	70	36.0	24
93	178		06:50	41	2.0	70	31.0	43

STATION LIST cont.

Station		Date (EDT)	Time (EDT)	Latitude (N)		Longitude (W)		Sonic depth (m)
IRIS	NMFS							
94	179	26 May 77	09:03	40	42.6	70	24.3	50
95	158a		17:08	39	52.3	71	45.6	200
96	158c		18:34	40	3.2	71	52.8	77
97	165d		19:47	40	13.0	71	59.0	66
98	165c		21:07	40	25.0	72	7.5	60
99	165e		22:27	40	35.7	72	14.9	48
100	165	27 May 77	23:34	40	45.2	72	21.3	37
101	181		06:42	40	29.1	74	0.1	11

TABLE OF UNITS

STATION	NHFS STATION LOCATION	DATE DY/MO/YR	TIME EDT	LATITUDE DEG NORTH	LONGITUDE DEG WEST	SONIC DEPTH METERS	WIND DIRECTION CARDINAL	WIND SPEED M/SEC	XBT REF TEMPERATURE CELSIUS
DEPTH METERS	TEMPERATURE DEG CELSIUS	SALINITY PARTS/1000	SIGMA-T	OXYGEN MG/L	FLUOROMETRIC CHLOROPHYLL UG/L	FLUOR CHL >200 UG/L	FLUOR CHL <200 UG/L		
DEPTH METERS	PHOSPHATE UG-AT/L	SILICATE UG-AT/L	NITRATE UG-AT/L	NITRITE UG-AT/L	AMMONIUM UG-AT/L				

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STATION 1	NMFS STATION LOCATION 92	DATE 18 MAY 77	TIME 01:53:00	LATITUDE 37 9.0 N	LONGITUDE 74 32.0 W	SONIC DEPTH 356	WIND DIRECTION SW	WIND SPEED 9	XBT REF TEMPERATURE 17.5
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DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	17.6	36.019	26.17	8.41	2.58	-	-
10	17.2	35.806	26.10	8.28	2.34	-	-
25	16.0	35.486	26.14	8.29	4.28	-	-
50	11.4	35.191	26.87	8.06	5.34	-	-
75	11.0	35.458	27.15	6.52	0.33	-	-
110	10.6	35.308	27.11	7.25	-	-	-
150	10.6	35.348	27.14	7.50	0.25	-	-
193	-	-	-	7.29	0.08	-	-
250	9.6	35.412	27.36	6.20	0.17	-	-
300	-	35.241	-	5.33	0.09	-	-
320	-	35.273	-	5.25	0.06	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	5.03	14.38	1.51	0.09	1.39
10	0.27	15.08	0.79	0.14	0.66
25	0.29	13.38	0.36	0.10	0.56
50	0.51	13.87	5.54	0.29	2.14
75	0.99	16.30	16.91	0.24	1.13
110	0.96	15.23	15.11	0.24	1.01
150	0.85	12.59	14.81	0.13	2.30
193	-	-	-	-	-
250	1.20	16.37	20.84	0.12	1.93
300	1.43	18.39	23.25	0.13	0.80
320	1.30	17.93	23.97	0.28	2.76

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
2	93	18 MAY 77	04:05:00	36 59.5 N	74 38.1 W	159	SW	7	17.8

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	-	35.880	-	8.20	2.21	-	-
10	-	35.942	-	8.45	3.11	-	-
25	-	36.015	-	8.20	8.17	-	-
50	-	35.858	-	5.75	0.49	-	-
75	-	35.693	-	6.05	0.21	-	-
110	-	35.428	-	6.85	0.21	-	-
159	-	35.270	-	7.10	0.29	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	1.18	5.02	1.79	0.12	2.28
10	0.18	5.27	0.30	0.05	1.15
25	0.18	5.62	1.42	0.07	1.81
50	0.87	10.47	17.13	0.23	1.56
75	0.93	10.09	15.86	0.15	0.68
110	0.82	10.28	14.77	0.12	0.61
159	0.74	10.90	15.30	0.15	1.12

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
3	94	18 MAY 77	07:16:00	38 31.0 N	74 46.0 W	95	SW	7	-

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.6	34.689	25.84	9.34	3.19	-	-
10	15.6	35.038	25.89	9.29	3.15	-	-
25	13.2	35.151	26.49	8.02	3.21	-	-
50	7.1	34.441	26.99	8.38	0.95	-	-
75	7.5	34.599	27.05	8.14	0.37	-	-
95	7.9	34.347	26.95	8.17	0.50	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.98	8.86	0.97	0.05	2.45
10	0.16	6.75	0.11	0.04	0.51
25	0.48	7.79	6.26	0.33	1.39
50	0.77	8.23	7.14	0.23	3.71
75	0.91	8.90	-	-	3.71
95	0.73	8.78	-	-	3.05

- DATA NOT TAKEN

STATION	NMFS STATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC	WIND	WIND	XBT REF
4	LOCATION 95	18 MAY 77	09:18:00	38 19.0 N	74 58.0 W	DEPTH 40	DIRECTION SSH	SPEED 4	TEMPERATURE 13.8

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.4	33.882	25.47	9.38	1.71	0.17	1.29
10	11.3	33.997	25.96	9.65	2.15	-	-
25	9.3	34.128	26.41	9.18	7.46	0.13	1.78
40	7.3	34.352	26.89	8.64	1.23	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
40	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC	WIND	WIND	XBT REF
5	LOCATION 96	18 MAY 77	10:52:00	38 22.0 N	75 14.0 W	DEPTH 31	DIRECTION SW	SPEED 4	TEMPERATURE 14.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.3	33.055	24.64	8.98	1.28	-	-
10	13.5	33.001	24.77	8.93	0.34	-	-
25	10.8	33.532	25.69	9.20	5.73	-	-
31	10.7	33.523	25.78	8.72	5.64	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
31	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
6	97	18 MAY 77	12:56:00	38 38.5 N	75 7.0 W	29	MSW	4	17.1

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.1	33.054	24.68	8.54	0.98	0.29	1.23
10	12.9	33.199	25.04	9.22	1.23	-	-
25	10.4	33.446	25.69	9.38	4.28	0.59	0.98
29	10.5	33.488	25.71	-	4.28	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.56	6.54	3.98	0.00	2.04
10	0.14	6.63	0.12	0.00	0.29
25	0.18	-	-	0.00	0.96
29	0.13	8.17	0.16	0.02	0.41

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
7	98	18 MAY 77	15:44:00	36 31.0 N	75 41.0 W	20	SSE	2	20.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	19.5	29.550	20.77	8.55	2.58	-	-
10	12.9	32.538	24.53	8.41	2.09	-	-
20	12.6	33.303	25.18	8.70	4.08	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.33	5.81	1.08	0.03	2.94
10	0.23	5.90	0.21	0.03	0.52
20	0.14	6.05	0.26	0.09	0.71

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
8	99	18 MAY 77	17:34:00	38 47.0 N	75 40.0 W	20	SSE	4	19.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	19.8	27.391	19.06	8.25	3.89	0.11	4.38
10	13.4	33.041	24.82	8.65	3.31	-	-
20	12.9	33.138	24.98	8.57	4.57	0.19	4.95

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.35	4.78	0.79	0.04	4.32
10	0.34	6.13	0.33	0.08	1.28
20	0.18	5.49	0.21	0.05	1.14

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
9	100	18 MAY 77	20:13:00	38 50.0 N	75 10.0 W	24	SSW	5	14.1

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.2	33.000	24.41	8.89	1.60	-	-
10	12.8	32.839	24.78	9.11	1.28	-	-
26	9.9	33.437	25.77	8.91	9.34	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
26	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
10	101	18 MAY 77	22:07:00	37 0.0 N	75 27.0 W	20	SSW	5	17.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	18.0	30.622	22.41	8.48	2.83	-	-
10	12.8	32.757	24.72	8.91	1.41	-	-
20	11.2	32.878	25.11	8.69	5.45	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
20	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
11	102	19 MAY 77	00:03:00	38 54.0 N	75 48.5 W	13	SSW	5	20.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	16.1	25.363	18.37	9.58	22.56	-	-
10	12.8	33.072	24.96	8.25	4.29	-	-
13	12.8	33.109	24.99	8.23	3.69	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
13	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
12	103	19 MAY 77	01:47:00	37 3.0 N	75 48.5 W	8	SSW	3	19.2

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	22.7	30.328	20.51	8.45	5.45	-	-
8	18.1	32.954	24.17	8.38	1.79	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
8	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
13	104	19 MAY 77	04:12:00	37 20.0 N	75 38.0 W	14	WNW	5	18.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	19.0	33.069	23.58	8.03	1.35	-	-
10	14.2	32.865	24.53	8.55	2.09	-	-
16	13.3	32.756	24.64	8.31	5.64	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
16	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
14	105	19 MAY 77	07:12:00	37 10.0 N	75 9.0 W	34	NH	4	14.4

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	18.4	32.819	23.53	8.53	0.60	-	0.53
10	13.5	33.406	25.08	9.33	0.69	-	-
25	9.0	33.810	26.21	8.55	0.58	-	-
34	7.7	33.878	26.48	8.74	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
34	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
15	106	19 MAY 77	08:50:00	37 20.0 N	75 0.0 W	37	W	5	14.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.1	-	-	8.49	-	0.14	0.38
10	12.8	33.045	24.94	9.02	-	-	-
25	8.1	33.548	26.14	8.99	-	0.21	8.17
30	7.9	-	-	-	8.95	-	-
37	6.9	34.064	26.72	-	3.50	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
37	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
16	107	19 MAY 77	10:37:00	37 32.0 N	75 8.0 W	31	NNW	4	15.1

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.7	32.809	24.37	8.65	-	0.48	0.50
10	12.3	33.065	25.05	8.95	0.75	-	-
25	9.5	33.254	25.70	9.31	-	0.83	6.03
31	8.9	33.378	25.89	8.93	8.94	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	2.27	4.95	0.45	0.07	1.10
10	0.22	5.51	0.12	0.04	0.24
25	0.15	4.61	0.16	0.01	0.78
31	0.19	4.86	0.15	0.02	0.48

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
17	108	19 MAY 77	12:01:00	37 33.0 N	75 23.0 W	20	NNW	2	18.8

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	19.5	32.668	23.14	8.19	1.47	0.12	1.35
10	12.3	32.534	24.64	8.77	7.97	-	-
21	10.1	32.818	25.25	8.58	5.84	0.85	3.31

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.43	4.75	0.71	0.02	2.82
10	0.08	4.11	0.11	0.01	0.71
21	0.12	4.98	0.32	0.01	0.86

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
19	109	19 MAY 77	13:58:00	37 45.2 N	75 9.0 W	22	SW	2	18.3

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	18.7	32.280	23.03	8.18	1.47	-	-
10	13.2	32.254	24.25	9.00	2.03	-	-
19	10.8	32.774	25.14	8.62	7.58	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
19	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
19	110	19 MAY 77	15:20:00	37 31.0 N	74 44.0 W	53	NNW	2	18.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.1	32.051	23.70	8.73	1.11	0.12	0.98
10	11.7	33.259	25.39	9.51	0.65	-	-
25	7.4	33.940	26.47	8.68	3.70	0.17	3.11
35	5.9	-	-	-	1.35	0.16	1.35
55	6.0	34.155	26.91	8.58	1.23	0.09	1.11

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.38	5.75	1.39	0.03	10.24
10	0.18	4.98	0.38	0.02	0.66
25	0.44	-	1.38	0.05	2.04
35	0.69	-	3.26	0.13	7.70
55	0.67	6.33	3.24	0.15	9.06

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
20	111	19 MAY 77	18:30:00	37 29.0 N	74 24.0 W	192	NE	10	13.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	18.5	35.024	25.55	8.38	1.23	1.96	0.79
10	18.3	35.985	25.97	8.45	-	-	-
25	16.8	35.823	26.21	8.79	11.51	0.72	9.28
35	15.8	-	-	-	3.50	-	-
50	15.1	35.815	26.60	6.67	-	-	-
75	12.5	35.596	26.97	5.82	0.62	-	-
110	11.8	35.554	27.08	5.87	0.19	-	-
150	11.5	35.448	27.05	5.38	-	-	-
183	-	35.467	-	6.59	-	-	-
192	-	35.458	-	6.64	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	0.11	9.01	0.45	0.02	0.42
25	0.16	7.17	0.03	0.03	0.18
35	0.38	8.58	5.11	0.41	1.58
50	0.48	8.57	7.94	0.78	0.32
75	0.98	12.17	18.16	0.14	0.28
110	0.98	12.79	19.04	0.09	0.23
150	0.98	12.78	18.32	0.08	0.34
183	1.00	12.36	18.21	0.09	0.61
192	0.95	12.30	17.54	0.10	0.47

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
21	112	19 MAY 77	22:18:00	37 50.0 N	74 14.0 W	87	NE	10	13.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.1	33.735	25.21	9.18	9.78	4.49	2.37
10	13.2	33.714	25.38	9.20	1.29	-	-
25	10.0	34.064	26.24	9.73	8.95	0.43	7.39
30	9.0	-	-	-	1.54	-	-
50	7.4	34.292	26.83	8.48	1.06	-	-
75	8.1	34.499	26.69	8.03	0.42	-	-
87	8.7	34.554	26.87	7.92	0.52	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.52	6.87	0.40	0.04	2.48
10	0.25	6.76	0.05	0.03	0.29
25	0.41	7.38	0.79	0.17	2.18
30	0.66	8.62	4.98	0.20	2.71
50	0.78	11.23	6.92	0.27	3.55
75	1.02	9.66	9.00	0.25	3.31
87	0.86	10.02	9.78	0.25	3.80

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
22	113	20 MAY 77	00:11:00	37 43.0 N	74 31.0 W	57	NE	8	13.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.2	34.111	25.48	9.24	1.17	-	-
10	13.9	34.015	25.47	9.19	1.11	-	-
25	14.5	35.470	26.46	8.65	7.39	-	-
35	13.2	-	-	-	2.92	-	-
50	6.6	34.305	26.95	8.80	1.35	-	-
57	6.6	34.324	26.96	8.80	1.11	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
35	-	-	-	-	-
50	-	-	-	-	-
57	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
23	114	20 MAY 77	01:57:00	37 50.0 N	74 47.0 W	37	NNE	8	14.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.2	32.663	24.36	8.71	2.21	0.33	1.72
10	13.7	32.632	24.44	9.11	2.03	-	-
25	9.9	33.132	25.53	9.21	3.69	1.00	3.11
35	8.4	34.299	26.68	8.50	3.50	0.67	2.53

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	4.31	4.79	1.24	0.03	1.91
10	1.06	3.74	0.27	0.03	0.49
25	0.58	4.99	0.21	0.04	1.47
35	0.69	6.39	2.27	0.14	3.29

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
24	115	20 MAY 77	03:56:00	38 8.0 N	74 47.0 W	19	N	5	13.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.7	32.001	23.96	8.99	5.64	0.58	5.45
10	10.6	32.220	24.70	9.27	6.22	-	-
19	7.8	33.230	25.94	8.43	9.72	4.28	3.89

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.34	4.30	1.65	0.05	1.99
10	0.11	3.72	1.48	0.03	0.57
19	0.39	6.84	0.97	0.06	2.43

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
25	115	20 MAY 77	05:42:00	38 10.0 N	75 4.0 W	11	N	8	14.3

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.5	31.116	23.11	8.79	9.34	1.04	8.36
11	12.9	31.345	23.83	8.01	43.88	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
11	0.34	6.38	0.30	0.02	0.30

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
25	117	20 MAY 77	08:13:00	38 23.0 N	74 43.0 W	29	NNE	4	13.4

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.8	31.709	23.71	9.08	4.67	-	-
10	13.2	31.908	23.98	9.08	4.08	-	-
25	7.8	32.997	25.75	8.28	7.92	-	-
29	7.6	33.043	25.82	8.20	8.17	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
29	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
27	118	20 MAY 77	10:09:00	38 16.0 N	74 21.0 W	44	NE	3	15.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.8	33.390	25.01	8.51	1.29	-	-
10	12.7	33.388	25.22	8.92	1.27	-	-
25	5.8	33.319	26.27	9.09	2.99	-	-
35	5.3	-	-	-	2.72	-	-
44	5.2	33.681	26.79	8.80	2.80	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
35	-	-	-	-	-
44	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
29	113	20 MAY 77	11:48:00	33 23.0 N	74 9.0 W	53	NE	2	-

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.5	32.529	24.40	9.00	1.47	0.13	1.66
10	13.0	32.338	24.35	9.00	2.03	-	-
25	7.3	34.230	26.79	8.91	2.40	-	-
35	6.4	-	-	-	1.72	0.25	1.90
53	6.3	34.229	26.93	8.85	1.90	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.51	5.89	0.62	0.02	1.73
10	0.11	5.25	0.06	0.01	0.22
25	0.69	10.56	4.47	0.29	3.53
35	0.69	10.08	4.32	0.29	3.47
53	0.70	9.44	4.27	0.29	3.69

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
29	120	20 MAY 77	14:38:00	38 3.0 N	73 50.0 W	478	NNE	3	14.4

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.0	34.332	25.68	8.81	1.11	-	-
10	14.1	34.350	25.68	8.01	1.17	-	-
25	14.2	35.193	28.31	8.68	2.03	-	-
35	11.5	-	-	-	8.81	-	-
50	10.1	34.789	26.79	8.28	1.11	-	-
75	11.4	35.097	26.80	7.15	0.19	-	-
110	11.7	35.596	27.13	7.56	0.15	-	-
150	11.8	35.538	27.10	7.08	0.11	-	-
193	11.3	35.471	27.11	7.01	-	-	-
250	10.2	35.406	27.25	6.22	-	-	-
300	9.3	35.331	27.35	5.80	-	-	-
350	7.7	35.220	27.51	5.11	-	-	-

- DATA NOT TAKEN

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
35	-	-	-	-	-
50	-	-	-	-	-
75	-	-	-	-	-
110	-	-	-	-	-
150	-	-	-	-	-
193	-	-	-	-	-
250	-	-	-	-	-
300	-	-	-	-	-
350	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
30	121	20 MAY 77	17:15:00	33 18.0 N	73 39.0 W	141	NNH	2	13.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	13.3	33.971	25.58	9.19	1.11	0.05	1.17
10	10.9	33.753	25.64	9.20	1.35	-	-
25	8.0	33.738	25.30	9.92	4.47	0.12	3.11
35	5.9	-	-	-	1.04	-	-
50	5.9	33.962	25.77	8.40	0.25	-	-
75	7.7	34.358	25.83	8.00	0.23	0.19	-
110	10.4	35.082	25.97	7.20	-	-	-
141	-	35.424	-	6.91	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.25	10.57	0.47	0.02	3.49
10	0.41	10.09	0.44	0.01	1.29
25	0.40	10.59	0.42	0.03	2.46
35	0.80	13.09	6.62	0.12	6.23
50	0.94	13.65	8.97	0.14	4.53
75	0.68	15.09	10.64	0.23	4.52
110	0.83	11.58	14.09	0.43	1.21
141	0.70	11.46	13.57	0.19	0.42

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
31	122	20 MAY 77	19:15:00	38 23.0 N	73 23.0 W	430	NNH	3	17.4

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	17.4	35.773	28.03	8.22	1.04	-	-
10	16.6	35.657	28.13	9.00	1.11	-	-
25	13.5	35.403	28.62	8.79	3.50	-	-
35	13.9	-	-	-	2.50	-	-
50	13.7	35.686	28.80	6.58	0.27	-	-
75	13.2	35.822	28.65	6.79	0.13	-	-
110	12.3	35.569	28.99	6.08	0.08	-	-
150	11.3	35.509	27.13	7.19	0.19	-	-
183	11.3	35.557	27.18	7.01	-	-	-
250	9.9	35.314	27.23	5.59	-	-	-
300	9.1	35.195	27.27	5.00	-	-	-
330	-	35.162	-	5.41	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
35	-	-	-	-	-
50	-	-	-	-	-
75	-	-	-	-	-
110	-	-	-	-	-
150	-	-	-	-	-
183	-	-	-	-	-
250	-	-	-	-	-
300	-	-	-	-	-
330	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
32	123	20 MAY 77	21:16:00	38 33.0 N	73 22.0 W	102		0	14.3

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.6	34.568	25.54	8.97	0.85	0.15	0.88
10	12.3	34.001	25.78	9.47	1.34	-	-
25	12.0	34.122	25.93	9.71	2.57	0.11	2.70
35	14.6	-	-	-	2.92	-	-
50	12.7	35.400	26.79	7.12	0.52	-	-
75	8.6	34.592	26.68	8.00	0.29	-	-
102	9.6	35.003	27.04	7.46	0.16	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.29	8.42	0.50	0.03	2.54
10	0.29	9.35	0.30	0.02	1.41
25	0.23	9.07	0.10	0.02	0.80
35	0.25	6.71	2.50	0.40	0.80
50	0.60	8.94	10.25	0.64	0.90
75	0.83	11.48	11.22	0.34	3.40
102	0.68	11.94	14.04	0.30	1.79

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
33	124	21 MAY 77	00:18:00	38 37.0 N	74 6.0 W	51		0	13.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.2	33.440	25.17	9.05	0.60	0.08	0.62
10	12.7	33.355	25.20	9.12	0.92	-	-
25	9.5	33.813	26.13	10.10	-	0.49	1.47
35	6.4	-	-	-	1.84	-	-
51	6.4	34.183	26.88	8.85	1.72	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.24	6.60	4.55	0.02	0.62
10	0.22	7.21	0.45	0.05	1.41
25	0.22	7.09	0.41	0.04	0.92
35	0.68	7.60	4.04	0.17	3.39
51	0.40	6.75	3.84	0.17	3.39

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
34	125	21 MAY 77	02:33:00	39 41.0 N	74 25.0 W	347	S	2	13.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.2	32.195	24.00	9.18	1.47	0.15	1.75
10	11.6	32.155	24.48	9.27	2.27	-	-
25	5.7	33.599	26.51	9.03	1.97	0.21	1.90
35	5.7	33.601	26.51	8.55	1.90	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.26	9.78	0.56	0.01	1.37
10	0.11	8.18	0.21	0.00	0.20
25	0.59	10.77	1.79	0.07	4.33
35	0.59	9.85	1.69	0.16	4.47

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
35	126	21 MAY 77	05:14:00	38 35.0 N	74 32.0 W	15	SE	2	13.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.1	30.754	22.71	9.00	17.48	-	-
10	11.9	31.347	23.80	8.04	26.22	-	-
15	10.9	31.973	24.46	7.39	26.22	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.34	7.21	0.34	0.02	2.17
10	0.27	8.23	0.34	0.02	1.73
15	0.37	9.14	0.39	0.03	0.78

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
36	127	21 MAY 77	07:10:00	38 47.0 N	74 52.0 W	13		0	13.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.2	31.865	23.61	9.20	10.69	1.02	8.99
15	11.3	31.904	24.34	9.08	6.80	0.72	5.88

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.23	6.97	0.45	0.01	2.45
15	0.23	7.46	0.30	0.01	3.75

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
37	128	21 MAY 77	09:08:00	38 59.0 N	74 38.0 W	13		0	12.4

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	12.7	31.877	24.08	9.00	6.22	-	-
12	10.8	31.825	24.38	8.95	6.75	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
12	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
38	129	21 MAY 77	11:20:00	38 57.0 N	74 12.0 W	31		0	13.8

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.1	32.233	24.05	9.10	1.50	-	-
10	12.0	32.174	24.42	9.13	1.25	-	-
25	5.8	33.260	26.23	8.75	1.12	-	-
31	5.7	33.599	26.51	8.75	1.20	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
31	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
39	130	21 MAY 77	13:32:00	38 49.0 N	73 45.0 W	44	ESE	4	14.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.4	33.054	24.41	9.01	0.69	-	-
10	11.7	33.018	25.13	9.33	1.35	-	-
25	8.6	33.688	26.33	9.33	5.25	-	-
35	6.2	-	-	-	2.53	-	-
44	6.1	33.379	26.28	9.02	4.72	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
35	-	-	-	-	-
44	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
40	131	21 MAY 77	15:10:00	38 58.0 N	73 34.0 W	48	SE	4	14.4

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.2	33.211	24.78	9.30	0.67	-	-
10	11.1	33.191	25.37	9.52	1.04	-	-
25	8.2	33.592	26.18	10.23	1.84	-	-
35	5.4	-	-	-	1.17	-	-
47	5.3	33.817	26.73	8.40	1.11	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
35	-	-	-	-	-
47	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
41	132	21 MAY 77	17:39:00	39 1.0 N	73 3.0 W	75	SE	4	14.8

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	11.7	33.424	25.44	9.50	1.17	-	-
10	10.7	33.437	25.63	-	1.08	-	-
25	8.1	33.598	26.18	9.78	2.40	-	-
35	7.8	-	-	-	1.83	-	-
50	5.5	33.665	26.74	8.19	0.25	-	-
75	5.5	33.900	26.77	8.09	0.29	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
35	-	-	-	-	-
50	-	-	-	-	-
75	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
42	133	21 MAY 77	19:25:00	38 52.0 N	72 52.7 W	214	SE	8	20.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	20.0	35.266	25.74	7.71	0.62	-	-
10	18.4	35.127	25.05	7.65	0.54	-	-
25	16.7	35.633	26.09	8.25	1.78	-	-
35	13.8	-	-	-	7.78	-	-
50	13.5	35.653	26.81	6.59	0.54	-	-
75	12.1	35.514	26.99	6.38	0.37	-	-
110	10.1	35.094	27.03	7.94	0.14	-	-
150	11.3	35.455	27.09	7.87	-	-	-
183	11.0	35.437	27.13	6.71	-	-	-
208	10.7	35.418	27.17	6.43	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
35	-	-	-	-	-
50	-	-	-	-	-
75	-	-	-	-	-
110	-	-	-	-	-
150	-	-	-	-	-
183	-	-	-	-	-
208	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SCHIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
43	134	21 MAY 77	22:00:00	38 50.0 N	72 30.0 W	2223	ESE	5	19.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	19.5	35.347	25.18	7.58	0.25	-	-
10	17.7	35.543	25.73	8.02	0.21	-	-
25	18.8	35.517	26.25	7.57	0.37	-	-
30	18.8	-	-	-	0.44	-	-
35	18.9	-	-	-	0.50	-	-
50	18.8	35.464	26.21	7.25	0.59	-	-
75	18.7	35.470	26.24	7.00	0.64	-	-
110	17.8	35.358	26.39	5.55	0.30	-	-
150	15.8	35.582	26.57	5.51	0.18	-	-
183	13.5	35.489	26.69	6.78	-	-	-
250	12.6	35.478	26.66	6.57	-	-	-
300	12.3	35.281	26.77	6.21	-	-	-
330	-	35.503	-	5.72	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.14	4.77	0.30	0.01	2.43
10	0.17	4.69	0.24	0.07	0.66
25	0.07	7.01	0.81	0.11	0.68
30	0.06	3.69	0.24	0.02	0.41
35	0.02	3.72	0.24	0.02	0.59
50	0.07	4.00	0.40	0.07	0.62
75	0.11	4.23	1.58	0.22	1.35
110	0.39	6.50	6.87	0.14	0.45
150	0.62	7.67	13.48	0.11	0.22
183	0.68	8.79	13.03	0.15	0.23
250	0.68	10.65	17.94	0.04	0.27
300	1.04	11.92	20.38	0.02	1.08
350	1.24	23.11	24.91	0.02	0.28

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SCHIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
44	135	22 MAY 77	01:15:00	39 13.2 N	72 47.2 W	69	SSE	4	13.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	14.3	33.364	24.88	9.25	1.64	-	-
10	11.2	33.301	25.44	9.82	1.35	-	-
25	8.2	33.495	25.08	9.98	3.31	-	-
35	7.6	-	-	-	2.33	-	-
50	5.2	33.697	26.64	8.59	0.46	-	-
75	5.2	33.778	26.71	8.44	0.25	-	-
85	5.2	33.768	26.71	8.42	0.27	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
35	-	-	-	-	-
50	-	-	-	-	-
75	-	-	-	-	-
85	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
45	138	22 MAY 77	03:57:00	39 26.0 N	73 4.4 W	35	SSE	5	13.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.6	32.478	24.34	9.15	0.98	0.09	1.11
10	10.9	32.439	24.82	9.43	1.04	-	-
25	6.8	32.838	25.78	10.10	3.50	0.07	3.89
35	5.2	33.618	26.58	9.26	3.50	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.40	6.07	0.71	0.01	1.68
10	0.20	5.68	0.21	0.00	0.19
25	0.25	5.90	0.21	0.00	0.19
35	0.75	6.38	2.00	0.16	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
46	137	22 MAY 77	05:55:00	39 18.0 N	73 35.0 W	42	SSE	4	13.2

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	16.2	32.808	24.04	9.00	0.62	-	-
10	10.9	32.968	25.23	9.46	0.69	-	-
25	6.4	33.428	26.28	8.94	3.89	-	-
30	5.9	-	-	-	1.23	-	-
35	5.9	-	-	-	1.17	-	-
42	6.0	33.560	26.44	8.59	1.29	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
35	-	-	-	-	-
42	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
47	138	22 MAY 77	06:48:00	39 34.0 N	73 43.0 W	27	SXE	6	13.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.9	32.961	24.65	8.90	0.96	0.13	1.11
10	11.0	32.860	25.13	9.25	0.95	-	-
27	7.7	33.154	25.89	8.63	1.47	0.11	1.70

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.31	8.37	0.35	0.01	2.06
10	0.31	7.01	0.30	0.01	4.46
27	0.58	8.77	0.97	0.06	1.05

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
48	139	22 MAY 77	10:18:00	39 18.0 N	74 4.0 W	28	-	0	15.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.4	31.203	22.99	9.09	1.23	-	-
10	11.7	31.533	23.98	9.15	2.15	-	-
25	8.5	32.980	25.90	7.65	1.17	-	-
28	6.5	33.058	25.99	7.70	1.11	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
28	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
49	140	22 MAY 77	12:06:00	39 16.0 N	74 24.0 W	15	-	0	15.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.6	31.623	23.27	8.94	2.83	0.07	2.70
10	9.2	31.636	24.48	8.76	-	-	-
16	9.0	31.869	24.71	6.85	1.78	0.17	2.21

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.42	7.09	0.60	0.02	2.88
10	0.20	7.29	0.29	0.02	1.51
16	0.57	9.58	1.26	0.02	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
50	141	22 MAY 77	14:34:00	39 36.0 N	74 7.0 W	16	SE	4	15.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.8	31.323	23.21	8.68	4.86	0.04	4.47
10	11.0	31.707	24.24	8.28	9.53	-	-
16	7.4	32.689	25.57	6.60	1.10	0.05	1.66

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.26	5.86	0.44	0.33	1.62
10	0.29	6.06	0.30	0.06	0.54
16	0.68	12.31	2.27	0.16	4.29

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
51	142	22 MAY 77	16:11:00	39 48.0 N	74 1.0 W	18	SSE	4	15.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.9	31.168	22.85	9.02	2.15	0.25	1.72
10	9.3	31.952	24.71	9.97	4.08	-	-
18	7.0	32.799	25.71	7.18	2.33	0.25	1.75

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.29	3.27	0.49	0.02	3.35
10	0.29	3.78	0.24	0.02	1.38
18	0.55	10.04	1.53	0.12	1.45

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
52	143	22 MAY 77	18:13:00	40 6.0 N	73 59.0 W	24	SSE	5	13.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.4	31.665	23.76	9.38	3.11	0.02	2.21
10	8.7	32.126	24.94	9.07	4.06	-	-
24	-	32.766	-	6.90	6.85	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.20	3.40	0.34	0.03	1.18
10	0.32	3.86	0.28	0.02	1.34
24	0.80	12.77	2.00	0.21	4.14

- DATA NOT TAKEN

STATION 53	NMFS STATION LOCATION 144	DATE 22 MAY 77	TIME 19:32:00	LATITUDE 40 5.0 N	LONGITUDE 73 43.0 W	SONIC DEPTH 32	WIND DIRECTION SSE	WIND SPEED 5	XBT REF TEMPERATURE 14.2
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DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.1	31.338	23.15	9.41	1.83	-	-
10	11.6	32.132	24.46	9.70	1.42	-	-
25	4.3	33.078	26.25	7.94	6.22	-	-
30	4.1	-	-	-	4.71	-	-
32	4.2	33.246	26.39	7.51	3.21	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
32	-	-	-	-	-

- DATA NOT TAKEN

STATION 54	NMFS STATION LOCATION 145	DATE 22 MAY 77	TIME 21:18:00	LATITUDE 40 18.0 N	LONGITUDE 73 46.0 W	SONIC DEPTH 29	WIND DIRECTION SSE	WIND SPEED 5	XBT REF TEMPERATURE 14.5
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DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.9	30.218	22.34	9.97	2.49	0.28	2.43
10	11.1	31.629	24.16	9.81	1.62	-	-
25	5.5	32.744	25.65	8.03	11.38	1.94	7.29
29	5.1	32.919	26.04	7.99	11.09	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.14	2.59	0.24	0.02	3.37
10	0.15	2.57	0.15	0.00	1.27
25	-	-	-	-	-
29	0.69	10.13	2.77	0.17	2.91

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
55	146	22 MAY 77	22:26:00	40 24.0 N	73 54.0 W	16	SSH	5	14.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.3	29.976	22.28	10.20	5.83	-	-
10	9.3	32.249	24.94	9.40	2.03	-	-
16	7.6	32.630	25.49	7.01	42.01	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
16	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
56	147	23 MAY 77	01:00:00	40 17.5 N	73 23.5 W	31	SSH	8	14.4

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.6	31.449	23.35	9.15	2.15	0.23	1.60
10	10.5	32.132	24.65	10.00	1.91	-	-
25	5.8	32.922	25.96	8.24	3.70	1.41	2.64
31	5.0	33.005	26.12	8.00	2.14	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.15	2.87	0.38	0.05	0.94
10	0.15	2.60	0.21	0.00	0.34
25	0.30	9.37	1.47	0.07	2.79
31	0.63	10.56	2.41	0.16	3.41

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
57	149	23 MAY 77	02:47:00	40 14.0 N	73 1.0 W	44	SSW	3	13.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.0	32.468	24.25	9.32	2.09	0.80	1.23
10	11.3	32.815	25.04	9.50	1.79	-	-
25	7.1	33.098	25.93	9.87	4.67	1.68	3.50
30	5.4	-	-	-	1.84	-	-
35	3.5	-	-	-	1.05	-	-
44	3.4	33.328	26.54	8.26	0.48	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.17	3.82	0.20	0.00	0.35
10	0.27	5.90	0.15	0.00	0.00
25	0.23	4.79	0.09	0.02	0.25
30	0.54	8.90	1.41	0.09	3.38
35	0.72	10.41	2.79	0.20	-
44	0.63	10.29	2.75	0.18	4.21

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
58	149	23 MAY 77	05:13:00	39 58.0 N	73 19.0 W	71	S	4	12.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.1	32.274	24.29	9.42	4.47	-	-
10	12.0	32.345	24.55	9.51	1.91	-	-
25	6.5	32.594	25.61	9.35	7.78	-	-
30	4.8	-	-	-	2.52	-	-
35	3.6	-	-	-	0.80	-	-
50	3.6	33.480	26.64	8.01	0.43	-	-
71	3.7	33.449	26.61	8.08	0.43	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
35	-	-	-	-	-
50	-	-	-	-	-
71	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
59	150	23 MAY 77	07:07:00	39 41.0 N	73 33.0 W	35	SE	2	12.2

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.1	32.460	24.02	9.50	1.72	0.11	0.11
10	10.8	32.413	24.62	9.86	1.66	-	-
25	6.3	32.762	25.77	9.10	2.92	-	-
30	5.2	-	-	-	0.95	0.08	1.22
35	5.1	33.414	26.43	8.40	1.17	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.27	6.73	0.35	0.00	1.63
10	0.21	6.67	0.05	0.00	0.53
25	0.37	6.66	1.00	0.24	2.13
30	0.66	8.37	1.68	0.12	2.42
35	0.59	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
60	151	23 MAY 77	09:22:00	39 42.5 N	73 7.0 W	46	SE	2	15.1

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.5	32.601	24.25	9.34	7.70	6.03	0.63
10	11.1	32.554	24.88	9.70	2.53	-	-
25	7.5	33.073	25.86	10.12	4.62	-	-
30	7.1	-	-	-	4.97	0.10	2.31
35	4.6	-	-	-	1.20	-	-
46	4.4	33.493	26.57	8.22	0.54	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.25	7.24	0.00	0.02	0.45
10	0.37	9.33	0.00	0.02	1.52
25	0.39	8.91	0.00	0.03	0.87
30	0.54	8.38	1.37	0.34	0.92
35	0.75	10.10	2.38	0.54	3.80
46	0.80	10.31	2.43	0.54	4.15

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
61	152	23 MAY 77	11:20:00	39 58.8 N	72 55.6 W	51	SE	3	14.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.9	32.894	24.60	9.24	2.21	-	-
10	10.7	32.834	25.16	9.72	1.29	-	-
25	8.1	33.383	26.01	10.25	3.11	-	-
30	7.7	-	-	-	2.33	-	-
35	6.1	-	-	-	2.14	-	-
51	3.7	33.441	26.60	8.81	0.29	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
35	-	-	-	-	-
51	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
62	153	23 MAY 77	13:50:00	39 58.5 N	72 24.5 W	68	S	5	12.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	12.0	33.280	25.27	9.48	0.90	-	-
10	9.8	33.240	25.63	10.00	1.35	-	-
25	6.8	33.573	26.34	9.61	3.11	-	-
30	6.1	-	-	-	2.92	-	-
35	5.4	-	-	-	1.29	-	-
50	4.7	33.612	26.63	6.35	0.33	-	-
68	4.6	33.588	26.62	6.43	0.92	0.21	0.92

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
35	-	-	-	-	-
50	-	-	-	-	-
68	-	-	-	-	-

- DATA NOT TAKEN

STATION	NPFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
63	154	23 MAY 77	15:22:00	39 45.0 N	72 34.0 W	73	SSE	5	14.6

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	12.8	33.447	25.25	9.27	0.92	0.21	0.92
10	10.1	33.257	25.60	9.70	0.98	-	-
25	7.7	33.486	26.15	10.95	1.79	0.81	3.89
30	6.7	-	-	-	12.84	0.44	14.78
35	4.9	-	-	-	2.53	-	-
50	4.5	33.492	26.55	8.41	0.31	-	-
71	4.6	33.534	26.58	8.38	0.46	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.25	9.36	0.00	0.03	1.29
10	0.23	8.11	0.00	0.03	1.78
25	0.33	3.04	0.00	0.03	1.29
30	0.48	6.90	0.00	0.03	0.55
35	0.90	11.23	2.06	0.08	-
50	0.83	11.90	4.04	0.12	-
71	0.83	12.00	4.15	0.12	-

- DATA NOT TAKEN

STATION	NPFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
64	155	23 MAY 77	17:37:00	39 31.0 N	72 49.0 W	64	SSE	5	12.2

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.1	32.996	24.64	9.50	1.17	-	-
10	10.9	33.103	25.34	9.60	1.06	-	-
25	7.5	33.426	26.13	9.83	2.03	-	-
30	6.8	-	-	-	2.72	-	-
35	6.1	-	-	-	1.17	-	-
50	4.9	33.643	26.63	8.74	0.39	-	-
64	4.8	33.640	26.84	8.61	0.33	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
35	-	-	-	-	-
50	-	-	-	-	-
64	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
85	156	23 MAY 77	20:12:00	39 24.0 N	72 19.0 W	146	SSE	5	14.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	12.8	33.169	25.04	9.35	1.04	-	-
10	11.0	33.794	25.88	10.30	1.47	-	-
25	10.5	34.243	26.29	9.27	5.25	-	-
35	9.3	-	-	-	0.42	-	-
50	5.8	33.944	26.77	7.88	0.16	-	-
75	9.3	34.961	27.06	6.59	0.32	-	-
110	9.7	35.010	27.03	6.35	0.25	-	-
146	10.5	35.193	27.03	7.76	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.29	5.68	0.00	0.02	1.00
10	0.90	6.36	0.04	0.03	2.17
25	1.44	5.88	1.70	0.13	2.07
35	0.86	12.40	5.15	0.14	-
50	1.03	13.08	7.73	0.14	-
75	0.92	10.31	13.63	0.44	3.43
110	0.89	10.56	15.86	0.70	0.79
146	0.92	11.71	17.23	0.20	1.12

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
66	157	23 MAY 77	22:58:00	39 47.0 N	72 2.0 W	132	SSW	3	14.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.1	33.724	24.99	9.64	1.01	0.25	0.88
10	10.6	33.777	25.91	10.32	1.91	-	-
25	8.9	33.971	26.35	8.84	0.37	-	-
35	6.6	-	-	-	0.54	-	-
50	7.6	34.475	26.94	7.58	0.21	-	-
75	11.0	35.308	27.03	7.13	0.15	-	-
110	10.6	35.184	27.01	7.11	0.27	-	-
132	10.5	35.185	27.03	6.64	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.33	4.24	0.05	0.04	3.11
10	0.32	5.59	0.00	0.04	0.87
25	0.78	10.13	5.71	0.22	-
35	0.84	10.81	6.88	0.19	-
50	0.85	10.23	9.22	0.23	-
75	0.77	8.19	14.43	0.08	0.62
110	0.88	10.80	16.97	0.07	0.46
132	0.98	11.47	17.12	0.09	1.12

- DATA NOT TAKEN

STATION	NFIS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
57	158A	24 MAY 77	01:28:00	39 52.0 N	71 46.0 W	200	SSW	4	14.8

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	12.4	33.919	25.69	9.34	0.44	-	-
10	11.2	33.923	25.92	9.91	2.40	-	-
25	9.0	34.337	26.62	9.13	5.06	0.31	4.67
35	11.2	-	-	-	1.84	-	-
50	11.4	35.082	26.78	7.77	0.39	-	-
75	10.4	35.322	27.15	7.21	0.23	-	-
110	-	35.473	-	7.19	0.07	-	-
150	-	35.418	-	6.70	0.12	-	-
183	-	35.532	-	6.59	0.17	-	-
200	-	35.416	-	6.01	0.12	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.22	4.68	0.00	0.06	1.20
10	0.36	5.62	0.07	0.06	1.15
25	0.36	5.56	2.08	0.22	1.47
35	0.44	5.78	4.86	0.39	1.59
50	0.79	8.95	9.69	0.30	4.30
75	-	-	-	-	-
110	0.81	8.37	14.61	0.08	1.59
150	0.87	9.41	16.74	0.07	0.82
183	0.95	11.28	18.15	0.17	0.45
200	0.93	20.62	19.99	0.13	0.83

- DATA NOT TAKEN

STATION	NFIS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
58	158B	24 MAY 77	02:23:00	39 59.0 N	71 50.0 W	100	SW	4	14.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.9	33.661	25.21	9.68	2.15	-	-
10	11.1	33.827	25.86	10.91	1.60	-	-
25	9.0	33.970	26.33	9.52	3.50	-	-
35	9.8	-	-	-	1.54	-	-
50	8.9	34.518	26.73	7.99	0.33	-	-
75	9.8	34.848	26.89	6.80	0.29	-	-
100	9.9	34.841	26.86	6.72	0.21	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.22	13.68	0.86	0.02	1.92
10	0.28	11.42	0.24	0.01	0.51
25	0.44	10.36	2.86	0.18	3.70
35	0.51	12.17	6.93	0.29	2.06
50	0.50	13.79	12.90	0.23	0.74
75	0.60	14.96	14.18	0.55	1.78
100	1.25	14.32	14.31	0.57	2.76

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
69	158	24 MAY 77	03:27:00	40 8.0 N	71 58.0 W	77	SW	8	14.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.6	33.483	24.91	9.75	1.41	0.08	1.72
10	10.8	33.502	25.67	11.10	0.75	-	-
25	8.5	33.526	26.06	10.79	9.33	0.27	7.78
30	7.3	-	-	-	-	-	-
35	6.4	-	-	-	-	-	-
50	5.2	33.738	26.67	8.12	-	-	-
77	5.1	33.812	26.74	8.49	1.05	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.29	8.61	0.49	0.02	2.06
10	0.20	7.82	0.11	0.00	0.18
25	0.29	7.91	0.18	0.02	0.16
30	0.35	8.73	2.25	0.02	4.10
35	0.82	10.85	4.13	0.09	10.10
50	0.89	16.26	5.47	0.09	10.99
77	1.05	16.82	5.79	0.08	9.72

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
70	159	24 MAY 77	07:09:00	40 19.0 N	72 32.0 W	50	SW	5	14.4

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.9	32.657	24.21	9.10	1.32	0.04	1.17
10	11.5	33.025	25.17	9.51	0.86	-	-
25	7.0	33.349	26.14	10.00	5.45	-	-
30	6.1	-	-	-	3.64	0.12	3.17
50	5.0	33.501	26.51	7.10	0.27	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.35	9.39	0.34	0.02	1.31
10	0.20	12.51	0.19	0.02	0.13
25	0.33	9.68	0.19	0.02	0.37
30	0.40	12.01	0.54	0.02	3.03
50	0.65	18.05	0.42	0.04	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
71	160	24 MAY 77	09:04:00	40 30.0 N	72 49.0 W	37	SM	4	14.4

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.2	32.294	24.07	9.18	1.35	0.06	1.29
10	9.5	32.900	25.42	8.41	1.50	-	-
25	6.7	33.232	26.09	7.37	0.45	-	-
30	6.6	-	-	-	0.47	0.09	0.37
37	5.8	33.315	26.27	7.29	0.45	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.33	9.68	0.34	0.02	1.78
10	0.17	10.29	0.50	0.02	0.25
25	0.38	12.89	1.30	0.04	2.26
30	0.41	12.87	1.41	0.04	2.52
37	0.63	16.30	2.40	0.02	3.19

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
72	161	24 MAY 77	11:15:00	40 32.0 N	73 9.0 W	26	SSW	7	15.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.9	30.981	22.71	9.31	3.50	0.21	2.89
10	9.9	32.232	24.83	9.76	1.91	-	-
26	7.1	32.872	25.75	7.60	3.50	1.48	1.78

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.27	7.24	0.73	0.03	1.75
10	0.23	7.50	0.09	0.00	0.43
26	0.62	12.24	1.25	0.08	1.73

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
73	162	24 MAY 77	12:27:00	40 39.0 N	73 2.0 W	15	SSW	8	-

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.2	32.211	23.80	9.31	2.58	0.42	2.58
10	10.7	32.266	24.72	9.40	3.89	-	-
15	10.6	32.275	24.75	9.23	5.64	0.69	4.86

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.32	10.25	0.46	0.03	1.09
10	0.21	10.19	0.08	0.00	0.25
15	0.31	13.95	0.38	0.00	0.97

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
74	163	24 MAY 77	14:28:00	40 40.0 N	72 40.0 W	15	SSW	7	14.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.9	31.917	23.77	9.63	4.08	0.21	4.08
10	9.9	31.917	24.59	10.00	7.00	-	-
15	9.7	32.363	24.97	8.19	8.73	1.91	6.22

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.18	9.30	0.02	0.00	0.53
10	0.28	10.33	0.20	0.02	0.18
15	0.30	9.66	0.22	0.00	0.66

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
75	164	24 MAY 77	15:57:00	40 35.0 N	72 28.0 W	40	SSW	8	14.2

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.9	31.832	23.79	9.90	1.84	0.13	1.73
10	11.0	31.862	24.36	9.54	1.78	-	-
25	6.9	33.193	26.02	7.70	0.92	0.08	1.11
30	6.9	-	-	-	0.71	-	-
40	5.7	33.200	26.06	7.30	0.69	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.24	9.54	0.01	0.00	0.19
10	0.42	10.89	0.65	0.03	2.49
25	0.42	11.83	0.60	0.03	2.63
30	0.38	13.39	0.95	0.02	2.43
40	0.27	9.99	0.05	0.00	0.54

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
76	165A	24 MAY 77	18:10:00	40 48.8 N	72 23.6 W	24	SSW	5	13.3

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.2	-	-	9.62	3.50	0.29	3.10
10	10.2	31.681	24.35	9.88	4.92	-	-
24	8.5	32.428	25.20	7.80	1.66	0.11	2.10

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.25	4.97	0.00	0.01	0.12
10	0.42	10.86	0.78	0.03	1.88
24	0.22	9.82	0.23	0.01	0.51

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
77	165	24 MAY 77	18:40:00	40 45.2 N	72 21.3 W	37	SSW	6	13.7

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.0	31.528	23.53	9.70	2.26	0.22	1.77
10	10.4	31.527	24.20	9.99	2.57	-	-
25	8.0	32.772	25.55	8.97	6.03	-	-
30	7.0	-	-	-	1.41	-	-
37	6.6	33.195	26.07	8.26	6.61	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.16	9.65	0.00	0.00	0.13
10	0.29	7.25	0.13	0.00	0.94
25	0.27	7.92	0.22	0.01	0.41
30	0.36	8.59	1.29	0.02	2.19
37	0.20	9.06	0.31	0.02	1.67

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
79	155B	24 MAY 77	19:40:00	40 37.7 N	72 18.2 W	45	SSW	6	13.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.3	33.155	24.72	9.89	4.47	0.39	2.74
10	9.7	32.764	25.29	8.97	2.84	-	-
25	7.3	32.973	25.80	8.20	2.92	0.11	0.95
30	7.1	-	-	-	-	-	-
45	6.6	33.096	26.00	7.57	0.98	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.27	7.38	0.27	0.00	0.68
10	0.27	7.64	0.19	0.02	1.60
25	0.26	7.95	0.21	0.00	1.77
30	-	-	-	-	-
45	0.32	-	1.23	0.01	2.12

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
79	165C	24 MAY 77	21:10:00	40 25.0 N	72 7.5 W	60	SSW	6	14.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.3	32.026	23.85	9.51	3.50	0.11	3.31
10	10.6	32.907	25.24	9.78	1.91	-	-
25	7.6	33.197	25.94	10.47	8.38	-	-
30	7.0	33.427	26.20	-	0.49	0.08	0.35
50	4.8	33.544	26.57	8.32	0.21	-	-
60	4.7	35.471	28.10	8.18	0.23	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.25	-	0.35	0.01	1.29
10	0.48	9.41	0.00	0.03	0.44
25	0.41	15.29	0.15	0.00	0.19
30	0.58	18.40	2.63	0.05	4.53
50	0.62	17.96	2.37	0.05	4.90
60	0.71	18.25	2.81	0.07	4.38

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
80	165D	24 MAY 77	22:28:00	40 13.0 N	71 59.0 W	65	SSW	6	14.8

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.3	32.620	24.10	9.10	1.11	0.10	0.92
10	9.6	33.200	25.63	-	0.98	-	-
25	6.7	33.519	26.32	9.99	4.68	-	-
30	6.4	-	-	-	0.85	0.14	0.92
50	4.7	33.733	26.73	8.59	0.54	-	-
65	-	33.730	-	8.57	0.54	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.20	12.02	0.21	0.00	0.79
10	0.27	12.00	0.15	0.01	0.25
25	0.48	11.09	3.46	0.04	1.44
30	0.55	11.59	2.31	0.06	4.22
50	0.89	18.09	5.81	0.11	6.82
65	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
81	166	25 MAY 77	00:35:00	40 36.0 N	71 58.0 W	55	SW	7	14.1
DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U		
0	13.9	32.409	24.23	9.20	2.34	0.19	1.97		
10	10.5	33.211	25.49	10.10	2.09	-	-		
25	7.1	33.456	26.21	10.29	12.44	0.27	11.28		
30	6.9	-	-	-	5.45	-	-		
50	5.0	33.569	26.56	8.66	0.35	-	-		
55	5.0	33.567	26.56	9.71	0.33	-	-		

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.19	12.31	0.26	0.00	0.19
10	0.31	8.73	0.19	0.02	0.24
25	0.43	8.71	1.67	0.08	2.37
30	0.48	12.55	1.21	0.07	3.77
50	0.53	14.99	1.69	0.06	3.62
55	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
82	167	25 MAY 77	03:12:00	40 55.0 N	72 14.0 W	15	WSW	4	11.6
DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U		
0	11.4	31.878	24.30	9.75	6.22	5.40	3.70		
10	10.2	32.106	24.68	9.31	9.72	-	-		
15	9.7	32.305	24.92	8.33	19.67	1.60	19.25		

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.17	10.77	0.15	0.01	0.17
10	0.29	10.54	0.21	0.05	0.26
15	0.22	11.40	0.21	0.00	0.19

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
83	168	25 MAY 77	04:40:00	40 57.8 N	71 57.9 W	26	SW	6	11.9
DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U		
0	12.2	31.618	23.95	10.00	7.39	1.17	5.83		
10	9.8	31.618	24.37	9.99	3.90	-	-		
26	8.5	32.838	25.53	8.24	8.75	1.66	8.75		

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.13	12.85	0.40	0.00	0.32
10	0.14	12.94	0.19	0.00	0.17
26	0.43	12.77	0.67	0.03	1.38

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
84	169	25 MAY 77	06:45:00	41 1.6 N	71 32.8 W	44	SW	7	12.8

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	12.8	32.171	24.26	9.42	4.38	-	-
10	9.7	32.687	25.22	9.48	2.83	-	-
25	6.9	33.328	26.14	9.24	0.80	-	-
30	6.6	-	-	-	0.86	-	-
44	6.5	33.380	26.22	9.20	0.54	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.20	10.83	0.28	0.01	0.40
10	0.17	8.67	0.08	0.00	0.14
25	0.50	9.91	0.91	0.04	3.92
30	0.55	9.06	0.80	0.04	4.59
44	0.54	9.31	0.64	0.05	9.75

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
85	170	25 MAY 77	09:20:00	40 38.0 N	71 30.0 W	66	SW	7	13.3

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.3	33.222	24.77	9.40	1.60	-	-
10	10.4	33.357	25.62	10.62	2.53	-	-
25	7.8	33.672	26.28	-	12.54	-	-
30	-	-	-	-	3.11	-	-
50	6.8	33.755	26.49	9.10	0.53	-	-
66	6.8	33.759	26.49	8.91	0.33	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.25	6.89	0.20	0.02	1.06
10	0.19	6.51	0.11	0.00	0.21
25	1.34	8.01	0.32	0.05	1.27
30	0.53	7.90	1.35	0.05	3.38
50	0.81	10.13	2.25	0.11	6.04
66	0.77	10.74	2.63	0.10	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
86	171	25 MAY 77	12:19:00	40 14.0 N	71 18.2 W	91	SW	7	13.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.5	33.173	24.69	-	1.29	0.05	1.29
10	9.1	33.208	25.72	11.81	3.11	-	-
25	7.7	33.747	26.38	9.07	4.08	0.19	4.08
30	8.0	-	-	-	3.30	-	-
50	7.4	33.995	26.59	8.72	0.92	-	-
75	7.8	34.320	26.79	8.50	0.48	-	-
91	8.2	34.479	26.86	7.68	0.37	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.23	7.18	0.34	0.01	0.79
10	0.15	6.43	0.13	0.01	0.30
25	0.35	5.48	0.72	0.04	3.13
30	0.47	9.01	2.13	0.11	3.66
50	0.41	8.94	2.59	0.17	3.27
75	0.74	11.60	9.87	0.20	1.72
91	0.76	13.57	13.07	0.18	0.61

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
87	172	25 MAY 77	14:18:00	39 59.5 N	71 15.2 W	298	WSW	8	14.3

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.0	33.775	25.26	9.53	2.03	0.01	1.97
10	13.1	33.914	25.55	10.14	2.46	-	-
25	10.9	34.501	26.42	8.83	6.22	0.11	5.64
30	10.8	-	-	-	2.46	-	-
50	11.4	35.402	27.03	7.17	0.37	-	-
75	12.0	35.594	27.07	7.32	0.12	-	-
110	12.2	35.600	27.03	7.15	0.08	-	-
150	11.5	35.448	27.05	6.78	0.12	-	-
183	10.3	35.396	27.19	6.12	0.11	-	-
250	8.6	35.235	27.39	6.10	0.09	-	-
293	8.0	35.268	27.97	5.15	0.49	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.12	9.95	0.63	0.01	0.35
10	0.10	-	0.11	0.01	0.30
25	0.34	-	4.88	0.18	0.35
30	0.47	8.92	9.12	0.26	0.31
50	0.49	9.63	10.11	0.04	0.22
75	0.54	9.51	11.84	0.05	0.31
110	-	-	-	-	-
150	-	-	-	-	-
183	-	-	-	-	-
250	-	-	-	-	-
293	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
88	173	25 MAY 77	17:53:00	40 0.8 N	70 43.0 W	219	SW	8	15.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.9	35.607	26.25	8.98	1.11	0.11	1.04
10	14.0	35.602	26.67	9.32	1.04	-	-
25	12.7	35.264	26.68	8.08	1.84	-	-
30	12.9	-	-	-	0.71	-	-
50	12.9	35.342	26.70	7.10	0.21	-	-
75	-	35.263	-	6.79	0.12	-	-
110	-	35.508	-	5.02	0.06	-	-
150	-	35.524	-	6.72	-	-	-
183	-	35.479	-	6.62	-	-	-
219	-	35.414	-	5.59	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
50	-	-	-	-	-
75	-	-	-	-	-
110	-	-	-	-	-
150	-	-	-	-	-
183	-	-	-	-	-
219	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
89	174	25 MAY 77	20:55:00	40 22.5 N	70 57.0 W	90	SW	8	12.5

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	13.2	33.110	24.91	9.89	2.40	-	-
10	11.1	33.107	25.31	10.10	2.18	-	-
25	8.3	33.741	26.26	10.15	13.53	-	-
30	8.8	-	-	-	12.06	-	-
50	8.5	34.114	26.52	8.83	0.25	-	-
75	10.5	35.052	26.92	6.75	0.95	-	-
90	10.2	36.250	27.92	6.79	0.33	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
50	-	-	-	-	-
75	-	-	-	-	-
90	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC	WIND	WIND	XBT REF
90	LOCATION 175	25 MAY 77	23:14:00	40 41.5 N	71 1.2 W	DEPTH 62	DIRECTION SW	SPEED 8	TEMPERATURE 11.8

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	11.9	33.060	25.12	9.75	2.09	-	-
10	11.4	33.016	25.18	9.71	2.03	-	-
25	7.3	33.277	26.04	10.27	2.72	-	-
30	6.9	-	-	-	2.92	-	-
50	7.5	33.650	26.31	9.20	1.33	-	-
62	7.0	33.720	26.43	8.45	0.86	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
50	-	-	-	-	-
62	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC	WIND	WIND	XBT REF
91	LOCATION 178	26 MAY 77	02:08:00	41 1.2 N	71 2.0 W	DEPTH 44	DIRECTION NNW	SPEED 7	TEMPERATURE 13.6

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	13.5	32.711	24.54	8.94	3.50	0.08	3.89
10	13.1	32.673	24.59	9.00	3.50	-	-
25	8.5	33.095	25.73	10.23	1.29	0.12	0.92
30	7.6	-	-	-	3.31	-	-
44	7.0	33.242	26.06	9.00	0.92	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
44	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC	WIND	WIND	XBT REF
92	LOCATION 177	26 MAY 77	05:11:00	41 15.7 N	70 36.0 W	DEPTH 24	DIRECTION NNW	SPEED 4	TEMPERATURE 13.3

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	13.5	32.492	24.37	8.86	2.27	0.16	2.21
10	10.3	32.442	24.93	8.90	2.53	-	-
24	9.0	32.781	25.40	8.58	1.78	0.19	1.23

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
24	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
93	179	26 MAY 77	06:50:00	41 2.0 N	70 31.0 W	43	N	5	13.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	12.7	32.659	24.86	9.22	2.06	0.08	1.89
10	12.4	32.691	24.74	9.21	2.27	-	-
25	8.4	33.117	25.78	10.25	3.38	0.10	3.17
30	7.9	-	-	-	3.69	-	-
43	7.3	33.110	25.91	9.03	3.42	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
43	-	-	-	-	-

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
94	179	26 MAY 77	09:03:00	40 42.6 N	70 24.3 W	50	N	4	11.6

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	12.4	32.904	24.91	10.15	4.86	-	-
10	10.8	32.866	25.17	10.34	5.37	-	-
25	6.7	32.920	25.84	9.68	0.98	-	-
30	6.7	-	-	-	1.04	-	-
50	6.7	33.031	25.93	9.35	0.80	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	0.14	11.77	0.33	0.05	0.41
25	0.40	10.97	2.67	0.08	1.23
30	0.43	10.70	2.62	0.08	1.69
50	0.54	10.33	3.15	0.13	2.65

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
95	158A	26 MAY 77	17:08:00	39 52.3 N	71 45.8 W	200	S	2	15.3

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	17.3	34.088	24.78	9.50	0.92	0.03	1.04
10	13.4	34.142	25.67	9.99	1.80	-	-
25	11.2	34.368	26.27	9.68	7.20	0.08	7.39
30	10.9	-	-	-	4.08	-	-
50	10.9	34.654	26.54	7.78	0.48	-	-
75	11.6	34.840	26.56	7.39	0.19	-	-
110	11.7	35.459	27.02	7.27	0.06	-	-
150	11.2	35.420	27.08	6.81	0.15	-	-
183	-	35.428	-	7.08	-	-	-
200	-	35.299	-	6.21	0.15	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	-	-	-	-	-
10	-	-	-	-	-
25	-	-	-	-	-
30	-	-	-	-	-
50	-	-	-	-	-
75	0.52	10.42	8.62	0.02	0.14
110	0.76	13.07	14.32	0.09	0.22
150	0.59	12.02	12.07	0.08	0.23
183	0.88	13.16	16.97	0.04	0.18
200	1.02	15.50	19.70	0.09	0.23

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
96	158C	26 MAY 77	18:34:00	40 3.2 N	71 52.8 W	77	S	5	14.2

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	14.3	33.396	24.91	9.50	0.69	0.05	0.67
10	10.7	33.528	25.70	10.88	1.28	-	-
20	9.2	33.694	26.09	11.07	6.81	-	-
25	8.3	-	-	9.82	21.47	0.25	14.79
30	7.7	33.863	26.45	9.12	3.89	-	-
50	6.5	34.002	26.72	8.51	0.48	0.25	0.17
77	6.8	34.239	26.87	7.80	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.87	6.56	0.51	0.02	1.49
10	0.27	7.07	1.02	0.03	0.82
20	0.23	6.80	0.36	0.03	0.27
25	0.42	7.99	2.25	0.11	0.48
30	0.56	9.35	3.20	0.19	3.58
50	0.86	12.15	7.55	0.23	8.68
77	1.31	13.44	9.46	0.22	6.85

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
97	1650	26 MAY 77	19:47:00	40 13.0 N	71 59.0 W	66	S	6	14.9

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	15.1	33.748	25.01	9.19	0.75	0.09	0.72
10	10.8	33.431	25.61	11.21	0.92	-	-
20	7.2	33.432	26.19	11.39	14.78	-	-
25	6.8	33.511	26.30	9.80	13.22	0.22	12.44
30	6.4	33.571	26.40	9.59	3.53	-	-
50	5.2	33.726	26.67	8.43	0.76	0.29	0.17
66	-	33.771	-	8.42	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.19	5.24	0.29	0.03	0.79
10	0.25	5.49	0.21	0.01	1.35
20	0.42	8.82	0.82	0.02	0.22
25	0.57	6.04	1.75	0.08	1.20
30	0.65	6.14	2.82	0.10	6.57
50	0.90	12.39	5.73	0.13	8.77
66	0.91	12.43	5.68	0.14	7.41

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
53	165C	26 MAY 77	21:07:00	40 25.0 N	72 7.5 W	60	SM	6	14.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >20U	FLUOR CHL <20U
0	14.0	31.839	23.77	9.20	1.35	0.22	1.14
10	11.1	32.540	24.87	9.98	1.71	-	-
15	10.0	33.208	25.57	10.44	2.34	-	-
20	9.3	-	-	10.70	3.90	-	-
25	8.3	33.320	25.93	10.71	6.75	0.15	6.72
30	7.6	-	-	10.60	13.20	-	-
50	4.9	33.552	26.56	8.35	0.43	0.06	0.27
60	4.7	33.743	26.74	8.00	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.34	7.07	0.36	0.06	1.04
10	0.31	7.49	0.36	0.01	0.29
15	0.31	7.21	0.30	0.02	0.20
20	0.30	12.79	1.39	0.05	0.29
25	0.40	4.95	0.05	0.01	0.16
30	0.00	5.56	0.05	0.01	0.20
50	0.73	12.18	2.71	0.09	7.23
60	0.79	12.17	2.66	0.08	5.86

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
99	165E	26 MAY 77	22:27:00	40 35.7 N	72 14.9 W	48	SW	6	13.0

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	12.8	31.813	23.99	9.32	1.83	0.31	1.72
10	12.1	-	-	9.41	1.81	-	-
15	9.1	33.034	25.59	9.48	1.83	-	-
20	7.7	33.142	25.88	9.45	1.41	-	-
25	7.4	33.290	26.04	9.70	2.92	0.12	3.31
30	6.7	33.280	26.13	9.15	2.53	-	-
47	-	33.467	-	8.19	0.43	0.12	0.33

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.28	8.30	0.12	0.01	0.41
10	0.26	8.55	0.00	0.37	0.25
15	0.35	5.46	0.02	0.00	0.25
20	0.35	6.13	0.02	0.00	0.26
25	0.43	5.81	0.26	0.02	0.38
30	0.48	7.79	0.52	0.02	2.32
47	0.78	11.48	2.18	0.07	11.41

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
100	165	26 MAY 77	23:34:00	40 45.2 N	72 21.3 W	37	WSW	6	-

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	-	31.856	-	9.25	3.31	-	-
10	-	32.317	-	9.30	3.42	-	-
15	-	32.472	-	8.87	21.95	-	-
20	-	32.785	-	8.55	4.66	-	-
25	-	33.083	-	8.25	4.08	1.38	1.78
30	-	33.300	-	8.15	2.80	-	-
36	-	33.283	-	7.95	-	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.33	7.98	0.44	0.00	0.79
10	0.28	6.40	0.02	0.01	0.28
15	0.39	6.81	0.03	0.01	0.17
20	0.37	6.75	0.34	0.01	0.88
25	0.44	7.31	0.38	0.02	1.51
30	0.57	8.87	0.99	0.03	3.18
36	0.58	9.33	1.04	0.04	3.28

- DATA NOT TAKEN

STATION	NMFS STATION LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	WIND DIRECTION	WIND SPEED	XBT REF TEMPERATURE
101	181	27 MAY 77	06:42:00	40 29.1 N	74 0.1 W	11	W	5	18.2

DEPTH	TEMPERATURE	SALINITY	SIGMA-T	OXYGEN	FLUOROMETRIC CHLOROPHYLL	FLUOR CHL >200	FLUOR CHL <200
0	-	30.109	-	9.83	73.00	-	-
6	-	31.905	-	9.72	78.68	-	-
11	-	32.505	-	8.90	42.15	-	-

DEPTH	PHOSPHATE	SILICATE	NITRATE	NITRITE	AMMONIUM
0	0.71	4.26	12.02	1.88	2.64
6	0.68	2.73	10.69	1.38	2.71
11	0.92	6.69	2.18	0.39	2.97

- DATA NOT TAKEN

PHYTOPLANKTON SPECIES COMPOSITION

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
45	136	22 MAY 77	0357	39 26.0 N	73 4.4 W	35	-

	SPECIES	CELLS/LITER	PERCENTAGES
[SURFACE]	Nannoplankton	10400	47
	Gymnodinium sp.	4500	20
	Tintinnida	1900	8
	Siliate	1800	8
	Exuviella sp.	1200	5
	Peridinium sp.	800	4
	Thalassiosira sp.	600	3
	Silica flagellate	300	1
	Ceratium tripos	300	1
	Ceratium furca	200	1
Ceratium fusus	100	0	

TOTAL PERCENTAGES

Diatoms	3
Dinoflagellates	32
Other	65

[25 m]	Nannoplankton	37300	62
	Gymnodinium simplex	10700	18
	Gymnodinium sp.	6600	11
	Tintinnida	3200	5
	Siliate	1300	2
	Thalassiosira sp.	600	1
	Exuviella sp.	300	0
	Ceratium tripos	100	0
	Ceratium Fusus	100	0
	Coscinodiscus sp.	100	0

TOTAL PERCENTAGES

Diatoms	1
Dinoflagellates	30
Other	69

STATION	NMFS STA						SONIC	1% LIGHT
47	LOCATION	DATE	TIME	LATITUDE	LONGITUDE		DEPTH	DEPTH
	138	22 MAY 77	0648	39 34.0 N	73 43.0 W		27	-

	SPECIES	CELLS/LITER	PERCENTAGES
SURFACE	Nannoplankton	18300	34
	Tintinnida	12500	23
	Gymnodinium sp.	8000	15
	Thalassiosira sp.	5400	10
	Gymnodinium simplex	4000	7
	Siliate	2200	4
	Exuviella sp.	1700	2
	Detonula confervacea	900	2
	Peridinium sp.	700	1
	Guinardia flaccida	300	1
	Ceratium tripos	200	0
	Navicula sp.	100	0
	Ceratium furca	100	0

TOTAL PERCENTAGES	
Diatoms	12
Dinoflagellates	27
Other	61

27 m	Nannoplankton	19000	91
	Gymnodinium sp.	5200	17
	Gymnodinium simplex	2200	7
	Tintinnida	1900	6
	Thalassiosira sp.	800	3
	Melosira moniliformis	500	2
	Siliate	500	2
	Thalassiosira sp.	200	1
	Exuviella sp.	200	1
	Pleurosigma aestuarii	200	1
	Silica flagellate	200	1
Guinardia flaccida	200	1	

TOTAL PERCENTAGES	
Diatoms	6
Dinoflagellates	24
Other	69

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
66	157	23 MAY 77	2258	39 47.0 N	72 2.0 W	132	-

	SPECIES	CELLS/LITER	PERCENTAGES
[SURFACE]	Nannoplankton	16500	78
	Gymnodinium simplex	1000	5
	Chaetoceros gracile	900	4
	Thalassiosira sp.	900	4
	Gymnodinium sp.	600	3
	Tintinnida	400	2
	Siliate	300	1
	Guinardia flaccida	300	1
	Coscinodiscus sp.	100	0
	Gymnodinium minutum	100	0
Navicula sp.	100	0	

TOTAL PERCENTAGES	
Diatoms	11
Dinoflagellates	8
Other	81

[25 m]	Nannoplankton	2200	34
	Gymnodinium sp.	1700	27
	Gymnodinium simplex	1200	19
	Thalassiosira sp.	300	5
	Guinardia flaccida	300	5
	Gymnodinium minutum	200	3
	Exuviella sp.	200	3
	Siliate	200	3
	Tintinnida	100	2

TOTAL PERCENTAGES	
Diatoms	9
Dinoflagellates	52
Other	39

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
67	158A	24 MAY 77	0128	39 52.0 N	71 46.0 W	200	-

	SPECIES	CELLS/LITER	PERCENTAGES
[25 m]	Tintinnida	3700	52
	Gymnodinium sp.	1600	23
	Nannoplankton	700	10
	Melosira moniliformis	400	6
	Peridinium sp.	300	4
	Siliate	200	3
	Melosira westii	100	1
	Chaetoceros sp.	100	1

TOTAL PERCENTAGES	
Diatoms	8
Dinoflagellates	27
Other	65

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
69	158	24 MAY 77	0327	40 8.0 N	71 56.0 W	77	-

	SPECIES	CELLS/LITER	PERCENTAGES
┌ SURFACE └	Tintinnida	5100	91
	Chaetoceros atlanticus	300	5
	Siliate	200	4

TOTAL PERCENTAGES	
Diatoms	5
Dinoflagellates	0
Other	95

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
74	163	24 MAY 77	1428	40 40.0 N	72 40.0 W	15	-

	SPECIES	CELLS/LITER	PERCENTAGES
SURFACE	Rhizosolenia delicatula	36400	51
	Tintinnida	14100	20
	Nannoplankton	9200	13
	Mesodinium rubrum	3400	5
	Gymnodinium pygmaeum	2200	3
	Gymnodinium minutum	2100	3
	Exuviella sp.	1000	1
	Gymnodinium filum	500	1
	Navicula sp.	500	1
	Thalassiosira sp.	300	0
	Silica flagellate	200	0
	Gymnodinium simplex	200	0
	Dinophysis punctata	200	0
	Peridinium sp.	200	0
	Gymnodinium sp.	190	0
	Chaetoceros sp.	100	0
	Rhizosolenia hebetta	100	0
Dinophysis acuta	100	0	

TOTAL PERCENTAGES

Diatoms	53
Dinoflagellates	9
Other	38

15 m	Rhizosolenia delicatula	100500	61
	Nannoplankton	47600	29
	Melosira moniliformis	3500	2
	Mesodinium rubrum	3300	2
	Tintinnida	2600	2
	Exuviella sp.	2200	1
	Thalassiosira sp.	1500	1
	Navicula sp.	1000	1
	Melosira nummuloides	900	1
	Coscinodiscus sp.	700	0
	Nitzschia pungens v. atlantica	400	0
	Gymnodinium pygmaeum	300	0
	Silica flagellate	200	0
	Gymnodinium minutum	100	0
	Chaetoceros sp.	100	0
	Peridinium sp.	100	0
	Nitzschia sp.	100	0
Dinophysis punctata	100	0	
Gymnodinium sp.	100	0	

TOTAL PERCENTAGES

Diatoms	66
Dinoflagellates	2
Other	32

STATION	NMFS STA						SONIC	1% LIGHT
77	LOCATION	DATE	TIME	LATITUDE	LONGITUDE		DEPTH	DEPTH
	165	24 MAY 77	1840	40 45.2 N	72 21.3 W		37	-

	SPECIES	CELLS/LITER	PERCENTAGES
[SURFACE]	Rhizosolenia delicatula	82100	91
	Tintinnida	4500	5
	Gymnodinium sp.	1400	2
	Peridinium sp.	1100	1
	Exuviella sp.	500	1
	Chaetoceros gracile	500	1
	Thalassiosira gravida	200	0
	Siliate	100	0
	Dinophysis acuta	100	0
	Ceratium tripos	100	0

TOTAL PERCENTAGES	
Diatoms	91
Dinoflagellates	4
Other	5

[25 m]	Rhizosolenia delicatula	20400	66
	Exuviella sp.	8600	28
	Gymnodinium sp.	1000	3
	Tintinnida	500	2
	Ceratium tripos	200	1
	Dinophysis ovum	100	0
	Phaocystis sp.	100	0
	Thalassiosira gravida	100	0

TOTAL PERCENTAGES	
Diatoms	66
Dinoflagellates	32
Other	2

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
78	165B	24 MAY 77	1940	40 37.7 N	72 16.2 W	45	-

	SPECIES	CELLS/LITER	PERCENTAGES
[SURFACE]	Rhizosolenia delicatula	128700	98
	Perdinium sp.	1100	1
	Chaetoceros gracile	600	0
	Gymnodinium sp.	400	0
	Tintinnida	400	0
	Nitzschia pungens v. atlantica	400	0
	Thalassiosira sp.	100	0
	Exuviella sp.	100	0

TOTAL PERCENTAGES	
Diatoms	98
Dinoflagellates	1
Other	0

[30 m]	Rhizosolenia delicatula	1800	82
	Gymnodinium sp	100	5
	Tintinnida	100	5
	Perdinium sp.	100	5
	Thalassiosira gravida	100	5

TOTAL PERCENTAGES	
Diatoms	86
Dinoflagellates	9
Other	5

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
79	165C	24 MAY 77	2110	40 25.0 N	72 7.5 W	60	-

	SPECIES	CELLS/LITER	PERCENTAGES
[SURFACE]	Rhizosolenia delicatula	170400	72
	Nannoplankton	59200	25
	Gymnodinium sp.	3600	2
	Exuviella sp.	1900	1
	Perdinium sp.	1000	0
	Chaetoceros gracile	300	0
	Tintinnida	100	0
	Nitzschia pungens v. atlantica	100	0
	Siliate	100	0
	Silica flagellate	100	0

TOTAL PERCENTAGES	
Diatoms	72
Dinoflagellates	3
Other	25

[30 m]	Nannoplankton	4100	71
	Thalassiosira sp.	700	12
	Gymnodinium sp.	600	10
	Guinardia flaccida	200	3
	Coccosinodiscus centralis	100	2
	Siliate	100	0

TOTAL PERCENTAGES	
Diatoms	17
Dinoflagellates	10
Other	72

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
80	165D	24 MAY 77	2228	40 13.0 N	71 59.0 W	65	-

	SPECIES	CELLS/LITER	PERCENTAGES
[SURFACE]	Nannoplankton	38600	85
	Rhizosolenia delicatula	2600	6
	Gymnodinium sp.	1500	3
	Siliate	1000	2
	Tintinnida	900	2
	Exuviella sp.	300	1
	Thalassiosira sp.	200	0
	Silica flagellate	200	0
	Dinophysis acuta	100	0

TOTAL PERCENTAGES	
Diatoms	6
Dinoflagellates	4
Other	90

[25 m]	Nannoplankton	8500	91
	Siliate	300	3
	Exuviella sp.	200	2
	Thalassiosira sp.	200	2
	Guinardia flaccida	100	1

TOTAL PERCENTAGES	
Diatoms	3
Dinoflagellates	2
Other	95

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
82	167	25 MAY 77	0312	40 55.0 N	72 14.0 W	15	-

	SPECIES	CELLS/LITER	PERCENTAGES
SURFACE	Rhizosolenia delicatula	191300	92
	Mesodinium rubrum	7700	4
	Gymnodinium sp.	1400	1
	Nitzschia pungens v. atlantica	1200	1
	Gymnodinium pygmaeum	1200	1
	Tintinnida	1100	1
	Nannoplankton	870	0
	Thalassiosira sp.	700	0
	Leptocylindrus minimus	600	0
	Exuviella sp.	500	0
	Thalassionema nitzschioides	300	0
	Navicula sp.	300	0
	Melosira nummuloides	200	0
	Ceratium fusus	100	0
	Thalassiosira gravida	100	0
	Chaetoceros sp.	100	0
	Ceratium tripos	100	0
	Peridinium sp.	100	0
Silica flagellate	100	0	

TOTAL PERCENTAGES

Diatoms	94
Dinoflagellates	2
Other	5

15 m	Rhizosolenia delicatula	432700	85
	Nannoplankton	32500	6
	Tintinnida	15700	3
	Dactyliosolen mediterraneus	7500	1
	Mesodinium rubrum	7000	1
	Gymnodinium pygmaeum	4100	1
	Gymnodinium sp.	2300	0
	Melosira Nummuloides	1400	0
	Thalassiosira sp.	1200	0
	Navicula sp.	1200	0
	Exuviella sp.	700	0
	Chaetoceros gracile	500	0
	Coscinodiscus sp.	300	0
	Pleurosigma aestuarii	200	0
	Grammatophora sp.	200	0
Nitzschia closterium	100	0	
Peridinium sp.	100	0	

TOTAL PERCENTAGES

Diatoms	88
Dinoflagellates	1
Other	11

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
86	171	25 MAY 77	1219	40 14.0 N	71 18.2 W	91	-

	SPECIES	CELLS/LITER	PERCENTAGES
[SURFACE]	Nannoplankton	151200	76
	Gymnodinium sp.	18400	9
	Gymnodinium simplex	13100	7
	Gymnodinium minutum	7500	4
	Siliate	6500	3
	Thalassiosira sp.	600	0
	Peridinium sp.	200	0
	Exuviella sp.	200	0
	Tintinnida	200	0
	Guinardia flaccida	100	0
	Nitzschia closterium	100	0
	Navicula sp.	100	0

TOTAL PERCENTAGES	
Diatoms	0
Dinoflagellates	20
Other	80

[25 m]	Nannoplankton	173200	85
	Gymnodinium simplex	15000	7
	Gymnodinium sp.	10500	5
	Siliate	1900	1
	Thalassiosira sp.	700	0
	Exuviella sp.	400	0
	Gymnodinium minutum	400	0
	Melosira sp.	300	0
	Tintinnida	200	0
	Guinardia flaccida	100	0

TOTAL PERCENTAGES	
Diatoms	1
Dinoflagellates	13
Other	86

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
95	158A	26 MAY 77	1708	39 52.3 N	71 45.6 W	200	-

	SPECIES	CELLS/LITER	PERCENTAGES
┌ SURFACE └	Tintinnida	5900	74
	Siliate	1200	15
	Gymnodinium sp.	800	10
	Thalassiosira gravida	100	1

TOTAL PERCENTAGES	
Diatoms	1
Dinoflagellates	10
Other	89

┌ 25 m └	Tintinnida	1800	51
	Gymnodinium sp.	700	20
	Siliate	500	14
	Melosira nummuloides	400	11
	Ceratium tripos	100	3

TOTAL PERCENTAGES	
Diatoms	11
Dinoflagellates	23
Other	66

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
97	165D	26 MAY 77	1947	40 13.0 N	71 59.0 W	66	-

	SPECIES	CELLS/LITER	PERCENTAGES
[<u>SURFACE</u>]	Rhizosolenia delicatula	5400	81
	Tintinnida	400	6
	Peridinium sp.	300	4
	Exuviella sp.	200	3
	Thalassionema nitzschiodes	200	3
	Gymnodinium sp.	100	1
	Ceratium tripos	100	1

TOTAL PERCENTAGES

Diatoms	84
Dinoflagellates	10
Other	6

[<u>25 m</u>]	Nannoplankton	271400	99
	Siliate	800	0
	Melosira sp.	700	0
	Tintinnida	400	0
	Ceratium tripos	200	0

TOTAL PERCENTAGES

Diatoms	0
Dinoflagellates	0
Other	100

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
98	165C	26 MAY 77	2107	40 25.0 N	72 7.5 W	60	-

	SPECIES	CELLS/LITER	PERCENTAGES
[<u>SURFACE</u>]	Rhizosolenia delicatula	34300	71
	Nannoplankton	11600	24
	Gymnodinium sp.	600	1
	Tintinnida	500	1
	Peridinium sp.	400	1
	Siliate	300	1
	Thalassiosira gravida	300	1

TOTAL PERCENTAGES	
Diatoms	72
Dinoflagellates	2
Other	26

[<u>25 m</u>]	Nannoplankton	254100	100
	Ceratium tripos	100	0

TOTAL PERCENTAGES	
Diatoms	0
Dinoflagellates	0
Other	100

STATION	NMFS STA	DATE	TIME	LATITUDE	LONGITUDE	SONIC	1% LIGHT
99	LOCATION 165E	26 MAY 77	2227	40 35.7 N	72 14.9 W	DEPTH 48	DEPTH -

	SPECIES	CELLS/LITER	PERCENTAGES
[SURFACE 	Rhizosolenia delicatula	131100	68
	Nannoplankton	56000	29
	Gymnodinium sp.	2200	1
	Peridinium sp.	1300	1
	Exuviella sp.	600	0
	Thalassiosira sp.	400	0
	Melosira sp.	300	0
	Chaetoceros gracile	300	0
	Tintinnida	300	0
	Siliate	200	0
	Rhizosolenia setigera	100	0

TOTAL PERCENTAGES	
Diatoms	69
Dinoflagellates	2
Other	29

[25 m 	Rhizosolenia delicatula	254300	80
	Nannoplankton	55000	17
	Gymnodinium sp.	2900	1
	Tintinnida	1400	0
	Chaetoceros sp.	700	0
	Peridinium sp.	500	0
	Thalassionema nitzschioides	400	0
	Siliate	200	0
	Exuviella sp.	200	0
	Thalassiosira sp.	200	0
	Melosira sp.	100	0
	Nitzschia closterium	100	0

TOTAL PERCENTAGES	
Diatoms	81
Dinoflagellates	1
Other	18

STATION	NMFS STA LOCATION	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
100	165	26 MAY 77	2334	40 45.2 N	72 21.3 W	37	-

	SPECIES	CELLS/LITER	PERCENTAGES
[SURFACE]	Rhizosolenia delicatula	15800	79
	Nannoplankton	1300	6
	Gymnodinium sp.	800	4
	Peridinium sp.	800	4
	Siliate	400	2
	Thalassiosira sp.	300	1
	Coscinodiscus sp.	300	1
	Tintinnida	200	0
	Thalassiosira hyalina	100	0
	Dinophysis punctata	100	0

TOTAL PERCENTAGES	
Diatoms	82
Dinoflagellates	8
Other	9

[25 m]	Rhizosolenia delicatula	318200	94
	Nannoplankton	8800	3
	Exuviella sp.	8100	2
	Gymnodinium sp.	900	0
	Chaetoceros sp.	800	0
	Silica flagellate	300	0
	Peridinium sp.	200	0
	Coscinodiscus sp.	100	0
	Dinophysis acuta	100	0

TOTAL PERCENTAGES	
Diatoms	95
Dinoflagellates	3
Other	3

PART II

R/V ONRUST CRUISE

28-30 JUNE 1977

INTRODUCTION

A preliminary assessment of phytoplankton samples taken during the 1977 Delaware II cruise indicated some presence of Ceratium tripos in the off-shore waters (>50 m) of the New York Bight. To investigate the extent of C. tripos development within the nearshore waters (<50 m), the R/V Onrust was stationed daily at 5 locations along the Shinnecock transect from 28 through 30 June.

Chlorophyll a and light attenuation determinations were made for all stations; discrete water samples were fractionated ($\pm 20 \mu$) and the chlorophyll maximum located using a fluorometric profiler (FTD). Phytoplankton composition, nutrient and dissolved oxygen concentrations were determined only for stations 1, 2, and 3. The potential respiration rate of C. tripos was also estimated in order that more definite numbers be made available for models describing anoxia in the New York Bight (Falkowski and Howe, 1976).

CONCLUSIONS

1. Oxygen concentrations were near saturation;
2. The cold pool of water below the primary thermocline is larger than in 1976; the upper mixed layer is 12 m deep near shore. The colder water contains more oxygen per volume;
3. Ceratium biomass was low compared with 1976 and the phytoplankton dominated by nanoplankton (flagellates);
4. An analysis of fractionated electron transport system (ETS) activity yielded a mean ETS value of $5.38 \pm 1.63 \times 10^{-5} \mu\text{l O}_2/\text{cell/hr}$ at 10 C (cf: Table 4). Using a measured ETS/respiration value of 0.25, Ceratium respiration was calculated as $1.4 \times 10^{-4} \mu\text{l O}_2/\text{cell/hr}$ at 10 C.

Figure 21. Station locations, R/V ONRUST cruise

Given a chl a/cell value of 0.06 ng, it was estimated that Ceratium accounts for 40, 100, and 95% of the netplankton chl a biomass at stations 1, 2, and 3, respectively.

METHODS

Chlorophyll a and nutrients were analyzed according to methods discussed supra, pp. 8, 9. Light attenuation was measured by lowering a Lambda 192 S underwater sensor. Dissolved oxygen was determined by the titrimetric methods of Winkler as modified by Carpenter (1965). The C. tripos respiration rate was estimated from an electron transport system (ETS) bioassay following Packard (1971, 1972).

PERSONNEL

<u>Participant</u>	<u>Affiliation</u>
Paul Falkowski, Chief Scientist	Brookhaven National Laboratory
Wayne Esaias	Marine Sciences Research Center, SUNY/Stony Brook
Ann Herriot	Brookhaven National Laboratory
Tom Owens	Brookhaven National Laboratory
Dan Patanjo	Brookhaven National Laboratory
Dave Riper	Brookhaven National Laboratory
Hans van Breuklien	Marine Sciences Research Center, SUNY/Stony Brook

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ACKNOWLEDGMENTS

The conclusions presented on p. 107 are those of the Chief Scientist, Paul Falkowski. The R/V ONRUST was provided by the Marine Sciences Research Center, The State University of New York at Stony Brook. Funding support was granted by the National Atmospheric and Oceanic Administration through their MESA - New York Bight project office, Stony Brook.

STATION LIST

Station	Date	Latitude	Longitude	Sonic depth (m)	Distance offshore (km)
1	28-30 June	40°46.0 N	72°26.2 W	31	9
2	"	40°41.7 N	72°23.2 W	38	18
3	"	40°37.0 N	72°21.3 W	44	28
4	"	40°32.6 N	72°18.2 W	48	39
5	"	40°29.0 N	72°15.8 W	55	46

Station	Chlorophyll <u>a</u> maximum (M)	Light (%)	Temperature (°C)	Chlorophyll <u>a</u> >20μ (μg/l)	Chlorophyll <u>a</u> <20μ (μg/l)	Netplankton (%)
1	14	5	11.5	0.13	1.73	7
2	15	4	10.4	0.09	1.98	5
3	21	3	9.6	0.49	2.30	17
4	22	2	9.4	0.28	1.92	13
5	21	2	9.6	----	----	--

Station	Depth (M)	Dissolved oxygen (ml/l)	Nitrate ($\mu\text{g-at/l}$)	Nitrite ($\mu\text{g-at/l}$)	Ammonium ($\mu\text{g-at/l}$)	Phosphate ($\mu\text{g-at/l}$)	Silicate ($\mu\text{g-at/l}$)
1	0	----	0.00	0.31	0.34	0.50	5.60
	15	6.24	0.00	0.32	0.43	0.59	5.80
	32	5.18	1.91	0.38	5.55	0.84	9.65
2	15	7.53	0.00	0.20	0.93	0.42	3.00
	35	5.26	1.71	0.25	4.40	0.60	7.50
3	0	----	0.08	0.18	2.00	0.41	3.96
	17	7.18	0.00	0.32	0.80	0.55	3.40
	18	7.06	0.00	0.32	0.79	0.59	3.52
	19	6.97	0.00	0.32	1.04	0.55	3.98
	20	6.88	0.00	0.31	0.45	0.53	4.05
	21	7.03	0.00	0.34	0.44	0.55	4.10
	40	6.02	0.61	0.32	4.46	0.70	7.00

Specific ETS Activity

Station	Fraction	ETS (μ l O ₂ /ug CHLa/hr)*	% activity	ETS/cell (μ l O ₂ /cell/hr)
1	<20 u	0.186	15	----
	>20 u	1.062	85	3.16 x 10 ⁻⁵
2	<20 u	0.080	14	----
	>20 u	0.611	86	2.20 x 10 ⁻⁵
3	<20 u	0.097	15	----
	>20 u	0.561	85	5.38 x 10 ⁻⁵

* DCMU insensitive only

Electron Transport System (ETS)
activity at the chlorophyll a maximum*

Station	Fraction	ETS Activity (μ l O ₂ /l/hr)		%I	Netplankton (%)**
		-DCMU	+DCMU		
1	>20 μ	0.137	0.138	----	30
	<20 μ	0.385	0.321	16.6	
2	>20 μ	0.069	0.055	21.2	26
	<20 μ	0.632	0.158	75.0	
3	>20 μ	0.275	0.275	----	55
	<20 μ	0.303	0.224	26.1	

* corrected to in situ temperature

** DCMU insensitive activity only

PHYTOPLANKTON SPECIES COMPOSITION

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	DEPTH	DEPTH
1	1	28 JUNE 77	0940	40 46.0 N	72 26.2 W	32	-

	SPECIES	CELLS/LITER	PERCENTAGES
14 m	Nitzschia pungens v. atlantica	5200	14
	Rhizosolenia delicatula	5100	14
	Nannoplankton	4900	13
	Gymnodinium sp.	3800	10
	Thalassionema nitzchioides	3400	9
	Thalassiosira sp.	3000	8
	Thalassiosira gravida	1800	5
	Cerataulina pelagica	1500	4
	Ceratium tripos	1300	4
	Chaetoceros sp.	1000	3
	Silica flagellate	700	2
	Siliate	1000	3
	Tintinnida	600	2
	Gymnodinium minutum	600	2
	Scenedesmus sp.	500	1
	Exuviella sp.	400	1
	Peridinium sp.	400	1
	Melosira sp.	300	1
	Dinophysis acuta	200	1
	Navicula sp.	200	1
	Ceratium tripos long and short	100	0
	Prorocentrum sp.	100	0
	Chaetoceros gracile	100	0
	Cochlodinium sp.	100	0
	Pleurosigma aestuarii	100	0
	Schroderella sp.	100	0
	Nitzschia closterium	100	0
	Guinardia flaccida	100	0
	Coscinodiscus sp.	100	0

TOTAL PERCENTAGES	
Diatoms	60
Dinoflagellates	19
Other	21

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
1	1	28 JUNE 77	0940	40 46.0 N	72 26.2 W	32	-

	SPECIES	CELLS/LITER	PERCENTAGES
15 m	Rhizosolenia delicatula	32200	38
	Nannoplankton	10500	12
	Nitzschia pungens v. atlantica	6700	8
	Leptocylindrus danicus	5300	6
	Gymnodinium sp.	4700	6
	Chaetoceros sp.	4700	6
	Gymnodinium minutum	3200	4
	Thalassiosira gravida	3200	4
	Gymnodinium simplex	1900	2
	Chaetoceros gracile	1700	2
	Thalassiosira sp.	1700	2
	Skeletonema costatum	1500	2
	Silico flagellate spp.	1400	2
	Tintinnida spp.	1300	2
	Ceratium tripos	1200	1
	Thalassionema nitzschioides	1000	1
	Silico flagellate	900	1
	Rhizosolenia setigera	500	1
	Leptocylindrus minimus	400	0
	Prorocentrum sp.	200	0
	Nitzschia closterium	200	0
	Peridinium sp.	200	0
Pleurosigma aestuarii	100	0	
Dinophysis acuta	100	0	

TOTAL PERCENTAGES	
Diatoms	70
Dinoflagellates	14
Other	17

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
2	1	28 JUNE 77	1058	40 41.7 N	72 23.2 W	35	-

	SPECIES	CELLS/LITER	PERCENTAGES
15 m	Gymnodinium sp.	20400	43
	Nannoplankton	10200	22
	Siliate	3300	7
	Thalassiosira sp.	3200	7
	Gymnodinium simplex	2900	6
	Rhizosolenia delicatula	1700	4
	Ceratium tripos	1500	3
	Gymnodinium minutum	1400	3
	Chaetoceros sp.	400	1
	Dinophysis acuta	400	1
	Tintinnida	400	1
	Ceratium tripos long and short	300	1
	Thalassionema nitzschioides	300	1
	Prorocentrum sp.	200	0
	Thalassiosira gravida	200	0
	Peridinium sp.	200	0
Silica flagellate	100	0	

TOTAL PERCENTAGES	
Diatoms	12
Dinoflagellates	58
Other	30

35 m	Gymnodinium sp.	9400	36
	Nannoplankton	7400	28
	Gymnodinium simplex	2800	11
	Rhizosolenia delicatula	2200	8
	Thalassiosira sp.	1600	6
	Scenedismus sp.	1100	4
	Thalassionema nitzschioides	500	2
	Skeletonema costatum	300	1
	Exuviella sp.	200	1
	Tintinnida	200	1
	Nitzschia closterium	200	1
	Pleurosigma aestuarii	100	0
	Ditylum brightwellii	100	0

TOTAL PERCENTAGES	
Diatoms	19
Dinoflagellates	48
Other	33

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
3	1	28 JUNE 77	1211	40 37.0 N	72 21.3 W	40	-

	SPECIES	CELLS/LITER	PERCENTAGES
19 m	Nannoplankton	14000	31
	Gymnodinium sp.	13200	29
	Thalassiosira sp.	5500	12
	Gymnodinium simplex	3000	7
	Siliate	2700	6
	Ceratium tripos	2500	6
	Nitzschia pungens v. atlantica	1600	4
	Silica flagellate	700	2
	Scenedesmus sp.	600	1
	Rhizosolenia delicatula	500	1
	Ceratium tripos long and short	100	0
	Tintinnida	100	0
	Peridinium sp.	100	0
	Exuviella sp.	100	0
	Thalassionema nitzschioides	100	0

TOTAL PERCENTAGES	
Diatoms	17
Dinoflagellates	42
Other	40

20 m	Gymnodinium sp.	15000	37
	Nannoplankton	11600	29
	Ceratium tripos	5300	13
	Gymnodinium simplex	4900	12
	Siliate	600	1
	Tintinnida	600	1
	Thalassiosira sp.	540	1
	Rhizosolenia delicatula	400	1
	Silica flagellate	400	1
	Ceratium tripos long and short	200	0
	Exuviella sp.	200	0
	Exuviella perforata	200	0
	Gymnodinium minutum	100	0
	Navicula sp.	100	0
Dinophysis acuta	100	0	

TOTAL PERCENTAGES	
Diatoms	3
Dinoflagellates	65
Other	33

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
3	1	28 JUNE 77	1211	40 37.0 N	72 21.3 W	40	-

	SPECIES	CELLS/LITER	PERCENTAGES
21 m	Nannoplankton	40400	36
	Gymnodinium sp.	28100	25
	Thalassiosira sp.	22500	20
	Gymnodinium simplex	7100	6
	Ceratium tripos	5800	5
	Exuviella sp.	2400	2
	Scenedesmus sp.	1500	1
	Nitzschia pungens v. atlantica	800	1
	Siliate	800	1
	Ceratium tripos long and short	300	0
	Silica flagellate	300	0
	Rhizosolenia delicatula	300	0
	Tintinnida	300	0
	Gymnodinium minutum	200	0

TOTAL PERCENTAGES	
Diatoms	21
Dinoflagellates	40
Other	39

40 m	Nannoplankton	4100	32
	Gymnodinium sp.	2500	20
	Gymnodinium simplex	1600	13
	Rhizosolenia sp.	1500	12
	Thalassiosira sp.	1400	11
	Tintinnida	500	4
	Thalassionema nitzschioides	400	3
	Skeletonema costatum	300	2
	Peridinium sp.	200	2
	Navicula sp.	100	1
Prorocentrum sp.	100	1	
Coscinodiscus sp.	100	1	

TOTAL PERCENTAGES	
Diatoms	30
Dinoflagellates	34
Other	36

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
1	2	29 JUNE 77	1000	40 48.0 N	72 26.2 W	32	-

	SPECIES	CELLS/LITER	PERCENTAGES
SURFACE	Rhizosolenia delicatula	13800	25
	Nannoplankton	9700	17
	Gymnodinium sp.	9400	17
	Leptocylindrus danicus	3900	7
	Tintinnida	3100	6
	Thalassiosira sp.	2900	5
	Chaetoceros sp.	2300	4
	Leptocylindrus minimus	2300	4
	Siliate	2200	4
	Prorocentrum micans	1700	3
	Peridinium sp.	1500	3
	Gymnodinium minutum	1100	2
	Nitzschia pungens v. atlantica	600	1
	Chaetoceros gracile	600	1
	Exuviella sp.	400	1
	Dinophysis acuta	300	1
	Navicula sp.	100	0
	Thalassionema nitzschioides	100	0
TOTAL PERCENTAGES			
	Diatoms		47
	Dinoflagellates		26
	Other		27

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
1	2	29 JUNE 77	1000	40 48.0 N	72 26.2 W	32	-

	SPECIES	CELLS/LITTER	PERCENTAGES
15 m	Rhizosolenia delicatula	18100	32
	Chaetoceros sp.	6100	11
	Nannoplankton	4400	8
	Thalassiosira sp.	4300	8
	Leptocylindrus minimus	3800	7
	Gymnodinium sp.	3700	6
	Ceratium tripos	2100	4
	Gymnodinium minutum	1900	3
	Chaetoceros gracile	1900	3
	Leptocylindrus minimus	1900	3
	Tintinnida	1600	3
	Skeletonema costatum	1000	2
	Thalassiosira gravida	900	2
	Nitzschia pungens v. atlantica	800	1
	Thalassionema nitzschioides	700	1
	Peridinium sp.	600	1
	Navicula sp.	600	1
	Exuviella sp.	600	1
	Siliate	500	1
	Dinophysis acuta	500	1
	Silica flagellate	400	1
	Coscinodiscus sp.	200	0
	Ceratium tripos long and short	100	0
	Nitzschia closterium	100	0
	Prorocentrum micans	100	0
	Rhizosolenia setigera	100	0

TOTAL PERCENTAGES	
Diatoms	71
Dinoflagellates	17
Other	12

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
1	2	29 JUNE 77	1000	40 48.0 N	72 26.2 W	32	-

	SPECIES	CELLS/LITER	PERCENTAGES
32 m	Gymnodinium sp.	21400	42
	Nannoplankton	6600	13
	Gymnodinium pygmaeum	4200	8
	Thalassionema nitzschioides	4100	8
	Gymnodinium simplex	4000	8
	Thalassiosira sp.	3200	6
	Skeletonema costatum	2200	4
	Rhizosolenia delicatula	1600	3
	Peridinium sp.	600	1
	Chaetoceros sp.	600	1
	Tintinnida	400	1
	Dinophysis acuta	400	1
	Exuviella sp.	300	1
	Navicula sp.	200	0
	Siliate	200	0
	Silica flagellate	200	0
	Triceratium sp.	100	0
	Nitzschia closterium	100	0
	Coscinodiscus sp.	100	0
	Prorocentrum micans	100	0
Rhizosolenia setigera	100	0	

TOTAL PERCENTAGES	
Diatoms	24
Dinoflagellates	61
Other	15

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
3	1	29 JUNE 77	1300	40 37.0 N	72 21.3 W	40	-

	SPECIES	CELLS/LITER	PERCENTAGES
SURFACE	Nannoplankton	18000	37
	Gymnodinium simplex	8500	17
	Gymnodinium pygmaeum	4200	9
	Gymnodinium sp.	4000	8
	Gymnodinium minutum	4000	8
	Thalassiosira sp.	3900	8
	Ceratium tripos	3500	7
	Thalassionema nitzschioides	800	2
	Exuviella sp.	700	1
	Rhizosolenia delicatula	400	1
	Siliate	400	1
	Rhizosolenia sp.	300	1
	Tintinnida	200	0
	Prorocentrum micans	100	0
	Silica flagellate	100	0
Peridinium sp.	100	0	

TOTAL PERCENTAGES

Diatoms	11
Dinoflagellates	51
Other	38

	Nannoplankton	14400	36
	Thalassiosira sp.	5500	14
	Gymnodinium sp.	5500	14
	Gymnodinium simplex	4600	11
	Gymnodinium pygmaeum	3200	8
	Ceratium tripos	2600	6
	Exuviella sp.	1300	3
17 m	Siliate	1100	3
	Tintinnida	700	2
	Rhizosolenia delicatula	300	1
	Navicula sp.	300	1
	Silica flagellate	200	0
	Peridinium sp.	100	0
	Prorocentrum micans	100	0
	Thalassionema nitzschioides	100	0

TOTAL PERCENTAGES

Diatoms	15
Dinoflagellates	43
Other	41

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
3	1	29 JUNE 77	1300	40 37.0 N	72 21.3 W	40	-

	SPECIES	CELLS/LITER	PERCENTAGES
18 m	Nannoplankton	15000	32
	Gymnodinium sp.	7000	15
	Gymnodinium pygmaeum	5000	11
	Ceratium tripos	4200	9
	Gymnodinium simplex	3600	8
	Thalassiosira sp.	3300	7
	Exuviella sp.	3300	7
	Prorocentrum micans	2000	4
	Amphidinium sp.	1200	3
	Tintinnida	1100	2
	Gymnodinium minutum	600	1
	Siliate	400	1
	Ceratium tripos long and short	100	0
	Dinophysis acuta	100	0
	Guinardia flaccida	100	0
Peridinium sp.	100	0	

TOTAL PERCENTAGES	
Diatoms	7
Dinoflagellates	58
Other	35

19 m	Nannoplankton	1900	20
	Gymnodinium sp.	1700	18
	Thalassiosira sp.	1500	16
	Peridinium sp.	900	9
	Amphidinium sp.	900	9
	Siliate	500	5
	Gymnodinium simplex	400	4
	Exuviella sp.	400	4
	Gymnodinium pygmaeum	300	3
	Dinophysis acuminata	200	2
	Tintinnida	200	2
	Rhizosolenia delicatula	200	2
	Ceratium furca	100	1
	Gymnodinium minutum	100	1
	Silica flagellate	100	1
	Dinophysis sp.	100	1
	Nitzschia pungens v. atlantica	100	1

TOTAL PERCENTAGES	
Diatoms	19
Dinoflagellates	53
Other	28

STATION	CAST	DATE	TIME	LATITUDE	LONGITUDE	SONIC DEPTH	1% LIGHT DEPTH
3	1	29 JUNE 77	1300	40 37.0 N	72 21.3 W	40	-

	SPECIES	CELLS/LITER	PERCENTAGES
40 m	Nannoplankton	15700	36
	Rhizosolenia delicatula	7500	17
	Gymnodinium simplex	3700	9
	Gymnodinium pygmaeum	3600	8
	Gymnodinium sp.	2900	7
	Thalassiosira sp.	1800	4
	Leptocylindrus danicus	1300	3
	Thalassiosira gravida	800	2
	Chaetoceros sp.	800	2
	Gymnodinium minutum	700	2
	Tintinnida	700	2
	Nitzschia pungens v. atlantica	500	1
	Exuviella sp.	500	1
	Amphidinium sp.	400	1
	Siliate	400	1
	Skeletonema costatum	400	1
	Peridinium sp.	400	1
	Prorocentrum micans	400	1
	Silica flagellate	300	1
	Rhizosolenia setigera	300	1
	Thalassionema nitzschioides	100	0
	Chaetoceros gracile	100	0
	Ceratium tripos	100	0

TOTAL PERCENTAGES

Diatoms	31
Dinoflagellates	29
Other	39

APPENDIX

XBT TRACES

FRV DELAWARE II CRUISE

** NEFC/NMFS station designation

† Surface reference temperature: hereafter abbreviated 'S T'

THE SIPPICAN CORP. MARION, MASS., U.S.A.

INCHES AND FEET

THE SIPPICAN CORP. MARION, MASS., U.S.A.

DISCLOSING 10500

THE SIPICAN CORP. MARION, MASS., U.S.A.

PROCESSED BY

THE SIPPICAN CORP. MARION, MASS., U.S.A. 1 INCH = 100 FEET

THE SIPICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH

THE SIPPICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH

THE SIPICAN CORP. MARION, MASS., U.S.A. [INCREASING DEPTH]

THE SIPPICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH
↓

THE SIPPICAN CORP. MAI

MASS., U.S.A.

INCREASING DEPTH

THE SIPICAN CORP. MARION, MASS., U.S.A.

WATERLOGGING CO.

THE SIPPICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPT

THE SIPPICAN CORP. MARION, MASS., U.S.A.

INSTRUCTIONS: 0-1114

THE SIPICAN CORP. MARION, MASS. U.S.A.

INCREASING DEPTH

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INCREASING DEPTH

THE SIPPICAN CORP. MARION, MASS. U.S.A.

INCREASING DEPTH

THE SIPPICAN CORP. MARION, MASS., U.S.A.

THE SIFFICAN CORP. MARION, MASS., U.S.A.

INC. FASING DEPT.

THE SHEPARD CORP. MARION, MASS. U.S.A. ☐ DECREASING DEPTH

THE SIPPICAN CORP. MARION, MASS. U.S.A. | INFORMATION CENTER

THE SIFPACAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH

THE SIFTICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH

THE SYPHICAN CORP. MARION, ILL., U.S.A.

↓ INCREASING DEPTH ↓

THE SIPHERSON CORP. MARION, MASS., U.S.A. [INSTRUCTIONS]

THE SIPPICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH

THE SIPPICAN CONFLUENCE, MASS., U.S.A.

10005516 5127

THE SIPPICAN CORP. MARION, MASS., U.S.A.

THE SIFPIGIAN CORP. MARION, ILL. U.S.A.

INCREASING DEPTH

THE SIFTICAN CORP. MARION, MASS., U.S.A.

THE SIFPICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH

THE SPIGOM CORP. MARION, MASS., U.S.A.

100% COTTON

THE SHEPARD OCEANOGRAPHIC SOCIETY, U.S.A.

THE SPCICAR CORP. MARINE, MASC, U.S.A.

DEPTH (METERS)

THE SIPPICAN COND. MEASUREMENT, JAPAN, U.S.A.

THE SOUTHERN COAST, MARINE METER, U.S.A.

THE SIPRICH CO. P. MANION, MASS., U.S.A.

INCH ASHIG DEPTH

THE SIFTICAM COBT. MARION, IACOS, U.S.A.

INCREASING DEPTH ↓

THE SIFPICAN CORP. MARION, MAOS., U.S.A.

INCREASING DEPTH

THE SIFPICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH

THE SIPICAN CORP., MARION, MASS., U.S.A.

INCREASING DEPTH ↓

THE SIPICAN CORP., MARION, MASS., U.S.A.

INCREASING DEPTH

THE SIFFICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH

THE SIPPICAN CORP, MARION, MASS., U.S.A.

INCREASING DEPTH ↓

THE SIPPICAN CORP., MARION, MASS., U.S.A.

THE SIPPICAN CORP, MARION, MASS., U.S.A.

INCREASING DEPTH

THE SIPPICAN CORP., MARION, MASS., U.S.A.

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THE SHIPPICAN CORP. MARION, MASS., U.S.A.

INCHES

THE SIPPICAN CORP. MARION, MASS., U.S.A.

INCREASING DEPTH ↓

THE GRAPHIC CONTROL BOARD, U.S.A.

U.S. GOVERNMENT PRINTING OFFICE: 1964

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