Phytoplankton Productivity Experiments on the Scotian Shelf from April 18 to May 2, 1979

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Canadian Data Report

Fisheries and Aquatic Sciences No. 384

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by

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ABSTRACT

Irwin, B., P. Lindley, C.L. Gallegos and T. Platt. 1983. Phytoplankton productivity experiments on the Scotian Shelf from April 18 to May 2, 1979. Can. Data Rept. Fish. Aquat. Sci. No. 384: 118 p.

Series of primary productivity experiments and related nutrient determinations were made on CSS Hudson during a cruise on the Scotian Shelf from April 18 to May 2, 1979. In this report we make available the raw data and also the fitted light saturation parameters with confidence limits.

RÉSUME

Irwin, B., P. Lindley, C.L. Gallegos and T. Platt. 1983. Phytoplankton productivity experiments on the Scotian Shelf from April 18 to May 2, 1979. Can. Data Rept. Fish. Aquat. Sci. No. 384: 118 p.

On a, au cours d'une campagne du CSS Hudson sur le plateau continental de Scotian, menée du 18 avril au 2 mai 1979, réalisé une série d'expériences et mesuré des éléments nutritifs relatifs à la productivité primaire. Le rapport contient les données de base, la valeur des paramètres ajusté décrivant la saturation en lumière et les limites de confiance.

INTRODUCTION

This is the fourth in a series of data reports presenting the results of photosynthesis experiments on natural phytoplankton populations of the Scotian Shelf and adjacent oceanic waters. Samples were collected from CSS Hudson between April 18th and May 2nd, 1979 at a total of fourty-four stations. The eastern and western boundaries of the sampling area were 61°19'W and 62°48.6'W respectively and the northern and southern boundaries were 44°30.2'N and 39°54'N respectively.

Two diurnal experiments were conducted at fixed locations from April 26 to 27 (Stations D1-7) and from May 1st to 2nd (Stations F1-9). The remainder of the experiments were carried out at stations located across the shelf break (Figure 1).

This was a joint cruise between the Marine Ecology Laboratory and the Metrology Division of the Atlantic Oceanographic Laboratory.

In this report we present the experimental results, the light saturation parameters along with their confidence intervals and the corresponding measurements of various environmental parameters.

SAMPLING

Water samples were collected at various depths with thirty litre Niskin bottles and with a bucket from the surface. Samples for light saturation experiments were taken as follows:

Stations No. 1, 3-13, E15 - 1% and 50% light levels as determined from a secchi disc.

Diurnal Stations (D1-7, F1-9) - 35 m.

Stations E1-14 - One depth (20, 25 or 35 m).

In addition, water was sampled at some stations to 100 m using the rosette for a more detailed examination of the chemical and physical structure of the upper water column.

METHODS

Primary productivity was measured using the method of Strickland and Parsons (1972). For each light saturation experiment 8 litres of water were innoculated with sodium bicarbonate ^{14}C solution to yield an approximate activity of 10 µci per 100 ml. This was dispensed in 100 ml aliquots into thirty pairs of light and two pairs of dark 125 ml pyrex glass bottles. The bottles were then placed in temperature controlled incubators illuminated by 2000 watt tungsten-halogen lamps (New Haline OH2 2000) having a maximum light intensity of approximately 1000 W m^{-2} (PAR). The incubation time was variable (2, 3 or 4 hours) dependent on the sampling and experiment schedule.

At the end of the incubation period the samples were filtered onto 2.5 cm diameter 0.45 µm pore size membrane filters, and stored in a dessicator at -20°C. Filters were later thawed, exposed to HCl fumes and counted in a Scintillation counter.

Chlorophyll a

Duplicate 1 litre samples were filtered onto 5.5 cm glass fibre filters and stored in a dessicator at -20°C. These were later thawed and analysed using the fluorometric technique of Yentsch and Menzel (1963) as modified by Holm-Hansen *et al.* (1965). A model III Turner Fluorometer was used having been calibrated with acetone extracts of pure chlorophyll *a* (Sigma Chemical Co.).

Incubator Light Intensity

The photosynthetically active radiation (PAR) was measured for each position occupied by a light bottle in the incubator using a Licor Li 185A Quantum meter with a 190S underwater quantum sensor.

Nutrients

Four inorganic nutrients were measured from each sample. Three of these, phosphate, silicate and nitrate were measured on a Technicon II autoanalyzer. The following methods were used:

Phosphate - industrial method 155-71W

Nitrate - industrial method 158-71W

Silicate - industrial method 186-72W

Ammonia was measured using the phenolhypochlorite method of Solorzano (1969).

Nucleic Acids

Replicate 1 litre samples were filtered onto 5.5 cm glass fibre filters (GF/C) and stored at -20°C in a dessicator. The frozen filters were homogenized in buffered sodium chloride solution at 0°C then centrifuged. The clear supernatant was transferred to a test tube and an equal volume of the dye Ethidium Bromide was added with vigorous mixing. The fluorescence of this mixture was measured on a Model III Turner fluorometer (Excitation filter Corning 7-60, Emission filter Wratten 23A). This yielded a measure of Ribonucleic acid (RNA) plus Deoxibonucleic acid (DNA) RNAse solution, 0.04 ml, was added to the test tube, mixed and incubated at 50°C for 60 minutes. The fluorescence was remeasured. This second reading

was a measure of DNA concentration only. RNA concentration was determined by difference.

Adendosine Triphosphate (ATP)

Duplicate 100 ml samples were filtered onto 2.4 cm baked glass fibre filters (Whatman GF/C) and immediately placed into 10 ml test tubes containing 5 ml of boiling tris buffer. After 3 minutes the tubes were cooled to room temperature then stored at -20°C. ATP concentrations were estimated using the technique described in Strickland and Parsons (1972) using an SAI Model 200 Integrating photometer.

Particulate Carbon

Duplicate 500 ml samples were filtered onto previously baked 2.4 cm glass fibre filters and sucked dry. Filters were then folded, placed in baked aluminum foil wrappers and stored at -20°C. Filters were freeze-dried overnight before combustion in a Hewlett-Packard Model 185B CHN analyzer.

Protein

Particulate protein was measured using the modified Packard and Dortch (1975) fluorescamine method described in Irwin et al. (1982).

Cell Numbers

For each sample 500 ml were preserved with lugols solution for species identification and enumeration. Estimates of particle concentration for each sample were done using a Model TA II Coulter Counter.

Light Saturation Parameters

The three parameter model for photosynthesis predicts a unique optimal intensity for photosynthesis, unless $\beta = 0$, in which case there is no photoinhibition over the range of observed light intensities. On this cruise we observed many cases in which photosynthesis was light saturated over a relatively wide range of intensities, out to an apparent threshold, beyond which photoinhibition was pronounced. An additional parameter is required to describe data with that property. For experiments with a threshold for photoinhibition we use the equation:

$$P^B = \left(\frac{P_s}{2}\right) \tanh (I/I_s) \left(1 - \frac{I-I_b'}{[(I-I_b')^6 + I_T'^6]^{1/6}}\right)$$

The parameter P_s is the light saturated photosynthetic rate and the parameter I_s is related to α by the identity $I_s = P_s/\alpha$. The parameter I_b' is the itensity (such that $I > I_s$) at which $P^B = P_s/2$. The threshold of photoinhibition is the derived parameter $I_T = I'_b - I'_T$ The derived parameter $I_{bU} = I'_b + I'_T$ is the intensity at which extrapolation of the maximum negative slope of the photoinhibited portion of the curve intersects zero production rate. The analagous parameter for the three parameter equation is given by the identity $I_b = P_s/\beta$. I_b is the parameter to use when comparing experiments fitted by different models for their susceptibility to photoinhibition.

We used the following procedure for deciding when it was necessary to use the four parameter equation. Initially the three parameter equation was fitted to all experiments. The residuals of the fit for intensities greater than 80 Wm^{-2} were then examined for significant quadratic dependence with irradiance. The four parameter equation was used whenever a

second order polynomial fit to the residuals, with irradiance as the independent variable, resulted in a significant reduction in the sum of squared residuals as judged by an F test at the 0.01 significance level. Details of the procedure are given by Gallegos and Platt (1981) and Platt and Gallegos (1980).

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ORGANIC PARTICULATES, INORGANIC NUTRIENTS AND COULTER COUNT DATA

SCOTIAN SHELF

LATITUDE: 44°30.20'N LONGITUDE: 63°27.32'W STATION NO.: 1

DATE: 18/4/79 TIME(AST): 1525 SECCHI DEPTH: 11 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.57	95.0	10.0	15.3		
5	0.60	110.5	16.5	42.7	7.98	5.28
10	0.60	65.5	13.0	15.5		
15	0.64	84.8	13.5	31.5		
30	2.60	162.5	18.5	28.3	11.16	4.82
48	3.17		-			

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0				
5	0.07	0.40	0.66	0.86
10				
15				
30	2.31	1.77	1.42	1.45
48	4.60	2.41	1.21	1.38

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3

SCOTIAN SHELF

LATITUDE: 44°17.2'N LONGITUDE: 63°19.8'W STATION NO.: 2

DATE: 19/4/79 TIME(AST): 0630 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.68					
5	0.55					
10	0.46					
20	0.52					
30	1.74					
40	2.22					
50	2.09					
75	1.64					
100	0.98					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.02	0.15		1.28
5	0.02	0.08		0.99
10	0.21	0.13		0.89
20	0.05	0.10		1.09
30	0.72	0.66		1.07
40	2.98	1.74		1.08
50	7.12	4.10		1.39
75	11.34	8.45		1.73
100	14.23	8.06		1.96

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3

SCOTIAN SHELF

LATITUDE: 44°07.5'N LONGITUDE: 63°10.6'W STATION NO.: 3

DATE: 19/4/79 TIME(AST): 2005 SECCHI DEPTH: 13 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.56	70	8	10.8		
5	0.72	69	7.5	16.6	4.67	3.14
10	0.70	86.5	12.5	49.3		
20	0.51			16.2		
40	1.00	66	8.3	87.6	6.41	2.83
50	1.52					
75	1.02					
100	0.54					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.03	0.42		0.60
5	0.02	0.31	0.66	0.64
10	0.01	0.39		0.50
20	0.03	0.62		0.53
40	0.28	0.54	0.42	0.60
50	0.18	0.18	1.34	0.60
75	11.21	8.13	0.70	1.56
100	16.04	14.68	0.34	1.79

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
5	2.265×10^6	2.03	896
40	4.691×10^6	25.35	5404

SCOTIAN SHELF

LATITUDE: 43°49.6'N LONGITUDE: 62°48.2'W STATION NO.: 4

DATE: 19/4/79 TIME(AST): 1500 SECCHI DEPTH: 15 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
5	1.11	76.5	8.5	20.0	6.18	2.53
45	3.25	104	14.5	29.4	10.33	3.61
50	3.51					
75	2.33					
100	2.06					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
5	0.09	0.33	0.35	0.69
45	4.10	1.79	0.31	0.90
50	5.07	2.24		1.06
75	10.11	6.42		1.27
100	13.75	10.03		1.54

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3

SCOTIAN SHELF

LATITUDE: 43°28.8'N LONGITUDE: 62°27.5'W STATION NO.: 5

DATE: 20/4/79 TIME(AST): 0700 SECCHI DEPTH: 17 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.11	30.5	2.8	20.9		
10	0.17			15.6	3.89	1.99
15	0.15	27.0	2.5	14.2		
25	0.13	59.5	7.8	15.5		
50	0.21	45.0	6.3	13.7	3.00	1.94
75	0.10					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.14	0.36	0.82	1.07
10	0.19	0.35	0.79	0.96
15	0.12	0.34	0.85	0.99
25	0.34	0.53	0.89	1.03
50	2.23	1.69	1.48	1.15
75	8.67	7.02	1.46	1.49

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
10	1.001×10^6	3.18	3178.5
50	1.064×10^6	2.27	2131.5

SCOTIAN SHELF

LATITUDE: 42°59.5'N LONGITUDE: 61°56.5'W STATION NO.: 6

DATE: 20/4/79 TIME(AST): 1200 SECCHI DEPTH: 13 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	1.36	126.2	26.0	22.2		
5	1.87	97.5	18.0	19.0	16.96	4.72
10	1.85	110.3	20.5	28.7		
20	1.75	223.0	20.8	54.6		
40	0.92	76.0	61.0	18.5	6.60	3.05

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.40	0.86	0.52	1.11
5	0.33	0.91	0.54	1.03
10	0.48	1.01	0.53	1.12
20	1.10	1.32	0.71	1.16
40	2.35	1.84	0.70	0.96

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
5	4.422×10^6	3.52	796
40	2.993×10^6	3.36	1123

SCOTIAN SHELF

LATITUDE: 41°48'N

LONGITUDE: 61°29.8'W

STATION NO.: 7

DATE: 21/4/79

TIME(AST): 1200

SECCHI DEPTH: 12 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.65	64.0	12.5	24.9		
5	0.66	59.3	11.5	55.0	8.67	4.30
10	0.70	74.8	12.5	13.4		
20	0.69	77.5	11.5	20.0		
35	1.36	92.0	16.0	44.1	8.39	3.93
50	0.17					
75	0.03					
100	0.03					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.13	0.62	0.93	0.93
5	0.05	0.73	0.46	0.91
10	0.03	0.68	0.20	0.75
20	0.12	0.74	1.03	1.22
35	0.20	0.76	1.08	0.75
50	3.36	2.10	1.77	1.31
75	8.84	5.17	1.39	1.34
100	12.00	7.10	0.99	1.26

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
5	5.089×10^6	1.304	7091
35	3.980×10^6	0.98	1196

SCOTIAN SHELF

LATITUDE: 39°54'N

LONGITUDE: 61°26.5' W

STATION NO.: 8

DATE: 22/4/79

TIME(AST): 1000

SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
5	0.60	40.0	8.5	21.6	3.74	1.04
60	0.49	61.5	7.5	11.00	3.56	0.72

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
5	0.91	1.54	0.62	0.50
60	1.59	1.87	0.00	0.63

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
5	1.969×10^6	1.30	659
60	2.705×10^6	1.23	453

SCOTIAN SHELF

LATITUDE: 41°40'N LONGITUDE: 61°30'W STATION NO.: 9

DATE: 23/4/79 TIME(AST): 0700 SECCHI DEPTH: 12 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.49	86.8	11.5	15.9		
5	0.63	59.0	12.5	9.4	6.32	5.52
10	0.63	61.0	11.0	15.9		
15	0.73	68.0	12.5	14.4		
35	0.96	65.5	10.0	13.7	7.70	2.78
50	0.63					
75	0.07					
100	0.03					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.12	0.52	1.08	0.87
5	0.25	0.57	0.79	0.73
10	0.11	0.54	0.61	0.82
15	0.18	0.58	1.82	0.66
35	0.23	0.55	0.83	0.56
50	0.76	0.67	0.79	0.75
75	0.19	0.65	0.33	0.68
100	11.47	6.45	0.26	1.15

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
5	3.353×10^6	1.68	502
35	2.572×10^6	1.43	556

SCOTIAN SHELF

LATITUDE: 41°29'N LONGITUDE: 61°29.5'W STATION NO.: 10

DATE: 23/4/79 TIME(AST): 1500 SECCHI DEPTH: 10 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.84					
5	1.51	69.0	7.0	21.5	12.54	6.59
10	1.43					
15	1.64					
30	1.43	70.5	15.5	28.4	7.70	4.30
50	0.81					
75	0.16					
100	0.08					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.62	1.09	0.15	0.87
5	0.55	0.96	0.17	0.71
10	1.13	1.28	0.57	0.89
15	1.84	1.58	1.21	0.79
30	3.45	2.13	0.00	0.83
50	5.43	3.01	0.00	0.75
100	9.19	4.89	0.51	1.26

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
5	7.161×10^6	2.47	344
30	2.636×10^6	1.07	406

SCOTIAN SHELF

LATITUDE: 41°20'N LONGITUDE: 61°30'W STATION NO.: 11

DATE: 24/4/79 TIME(AST): 0815 SECCHI DEPTH: 12 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.72	53.0	6.0	11.9		
5	0.86	45.0	3.0	12.2	3.14	0.86
10	0.78	29.8	4.0	3.1		
15	0.87	30.8	4.0	6.3		
35	0.86	48.8	7.0	11.3	4.76	1.10
50	0.67					
75	0.76					
100	0.81					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	9.14	5.05	0.00	1.11
5	9.27	4.56	0.13	1.13
10	9.05	4.54	0.09	1.38
15	8.98	4.39	0.13	1.38
35	9.22	4.55	0.00	1.40
50	8.50	4.09	0.35	1.18
75	8.88	4.26	0.95	1.04
100	8.65	3.32	0.00	0.87

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
5	2.407×10^6	1.44	602
35	2.195×10^6	1.17	533

SCOTIAN SHELF

LATITUDE: 41°29'N LONGITUDE: 61°30'W STATION NO.: 12

DATE: 24/4/79 TIME(AST): 1500 SECCHI DEPTH: 12 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	1.02	58.0	8.0	7.0		
5	1.00	65.0	4.5	10.6	8.25	4.50
10	1.30		-	15.5		
15	1.18	69.0	10.5	11.7		
35	1.20	11.6	3.5	4.1	3.01	3.86
50	0.81					
75	0.59					
100	0.32					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	4.37	2.91	0.00	1.02
5	3.81	2.53	0.10	0.84
10	4.34	2.92	0.00	1.14
15	8.28	4.30	0.12	1.17
35	9.75	4.80	0.04	1.28
50	9.24	4.78	0.53	1.15
75	9.78	4.87	1.16	1.06
100	9.79	4.64	0.04	0.96

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
5	5.340×10^6	2.98	558
35	1.859×10^6	3.99	2147

SCOTIAN SHELF

LATITUDE: 41°24'N LONGITUDE: 61°29.5'W STATION NO.: 13

DATE: 25/4/79 TIME(AST): 1300 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
5	0.43	28.5	3.2	6.3	3.98	1.98
35	0.20	14.5	5.8	4.3	1.22	1.15

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
5	7.59	4.00	0.53	1.48
35	9.34	4.27	0.69	1.28

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
5	1.959×10^6	3.92	2002
35	2.2×10^4	2.26	10295

SCOTIAN SHELF

LATITUDE: 41°43'N LONGITUDE: 61°30'W STATION NO.: D1

DATE: 26/4/79 TIME(AST): 1515 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	1.08	240.5	31.0	12.6	6.60	3.75

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	0.58	1.32	0.53	0.72

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.80×10^6	1.92	6.86

SCOTIAN SHELF

LATITUDE: 41°43'N LONGITUDE: 61°30'W STATION NO.: D2

DATE: 26/4/79 TIME(AST): 1900 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.21	45.5	10:5	10.2		
5	0.31	63.5	17.0	9.2		
10	0.24	73.5	21.8	9.2		
15	0.45	54.5	12.0	15.4		
35	0.79	81.0	8.5	21.8	7.56	4.78
50	0.78					
75	0.16					
100	0.02					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.08	0.54	9.83	0.99
5	0.40	0.48	2.21	0.85
10	0.04	0.76	0.27	0.96
15	0.06	0.80	0.11	0.96
35	0.45	1.04	0.17	0.63
50	0.78	1.30	0.02	1.12
75	3.80	2.40	0.37	1.20
100	12.88	6.62	0.01	1.70

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.775×10^6	4.13	1490

SCOTIAN SHELF

LATITUDE: 41°43'N LONGITUDE: 61°30'W STATION NO.: D3

DATE: 26/4/79 TIME(AST): 2300 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.59	50.3	13.0	22.5	5.91	4.55

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	0.32	1.05	0.00	0.86

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	3.258×10^6	3.23	991

SCOTIAN SHELF

LATITUDE: 41°43'N LONGITUDE: 61°30.5'W STATION NO.: D4

DATE: 27/4/79 TIME(AST): 0330 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
5	0.30					
10	0.42					
15	0.54					
35	0.56	118	11.0	10.8	5.08	4.22
50	0.18					
75	0.07					
100	0.03					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
5	0.09	0.63	0.00	1.22
10	0.04	0.48	0.34	0.78
15	0.32	1.04	0.00	1.44
35	2.18	1.79	0.16	1.51
50	4.33	2.90	0.12	1.72
75	11.35	5.61	0.00	2.00
100	16.13	8.04	0.00	2.24

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.066×10^6	1.91	926

SCOTIAN SHELF

LATITUDE: 41°43'N LONGITUDE: 61°29.5'W STATION NO.: D5

DATE: 27/4/79 TIME(AST): 0700 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.54	116.5	13.2	15.2	4.66	3.89
5	0.57	86.0	11.5	10.6	5.49	4.82
10	0.45	117.5	13.0	20.2	3.56	4.26
15	0.54	-		61.0	4.94	4.35
35	1.06	106.0	40.0	15.6	4.80	4.82
50	0.45				1.90	3.51
75	0.07				0.24	1.56
100	0.05				1.07	1.46

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.04	1.22	0.21	1.35
5	0.08	1.25	0.11	1.29
10	0.06	1.15	0.48	0.79
15	0.03	1.18	0.33	1.08
35	0.55	1.90	0.53	1.03
50	2.52	2.41	0.60	1.01
75	9.40	5.93	0.09	1.33
100	12.57	7.92	1.27	1.52

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.115×10^6	0.90	427

SCOTIAN SHELF

LATITUDE: 41°43'N LONGITUDE: 61°28.1'W STATION NO.: D6

DATE: 27/4/79 TIME(AST): 1100 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.80					
5	0.48					
10	0.86					
15	0.65					
35	1.12	121.0	27.0	43.4	5.20	5.00
50	0.28					
75	0.06					
100	0.04					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.22	2.18	0.45	1.54
5	0.06	3.72	0.05	1.45
10	0.03	1.43	0.27	1.03
15	0.11	2.38	0.54	1.60
35	1.14	2.28	0.62	1.30
50	4.99	4.59	0.98	1.81
75	12.35	7.74	0.69	2.01
100	18.46	11.64	0.10	2.43

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.44×10^6	5.72	2343

SCOTIAN SHELF

LATITUDE: 41°46'N LONGITUDE: 61°24'W STATION NO.: D7

DATE: 27/4/79 TIME(AST): 1430 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
5	0.30					
10	0.24	25.2	2.5			
15	0.30					
35	0.61			21.4	1.90	3.60
50	0.18					
75	0.04					
100	0.02					

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
5	0.08	1.46	1.15	1.37
10	0.16	1.62	0.18	1.46
15	0.09	1.41	0.35	1.07
35	1.88	2.74	0.36	1.25
50	7.36	5.41	0.97	1.85
75	14.60	9.22	0.17	2.42
100	15.50	9.61	0.13	1.53

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.993×10^6	1.30	434

SCOTIAN SHELF

LATITUDE: 43°14'N LONGITUDE: 61°39.1'W STATION NO.: E1

DATE: 28/4/79 TIME(AST): 0915 SECCHI DEPTH: 15 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
20	0.66	51.0	11.5	32.0	9.08	5.20

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
20	0.45	0.93	1.41	1.48

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
20	3.188×10^6	0.91	286

SCOTIAN SHELF

LATITUDE: 43°33.5'N LONGITUDE: 61°30'W STATION NO.: E2

DATE: 28/4/79 TIME(AST): 1400 SECCHI DEPTH: 22 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.19	58.5	11.5	14.9		
10	0.10	54.5	11.5	18.5		
20	0.16	37.0	9.0	27.6	6.26	4.30
30	0.31			21.2		
45	0.50	24.0	6.0	36.4	8.90	4.39

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.04	0.09	1.35	1.39
10	0.07	0.28	1.31	1.48
20	0.18	0.32	1.15	1.44
30	0.67	1.27	1.27	1.38
45	0.62	1.83	1.74	1.55

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
20	2.994×10^6	1.08	359

SCOTIAN SHELF

LATITUDE: 43°31.9'N LONGITUDE: 62°06.7'W STATION NO.: E3

DATE: 28/4/79 TIME(AST): 1815 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
25	0.22	123.5	23.5	18.2	2.73	2.03

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
25	0.47	0.49	1.17	1.13

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
25	2.187×10^6	1.31	601

SCOTIAN SHELF

LATITUDE: 43°28'N LONGITUDE: 62°25'W STATION NO.: E4

DATE: 28/4/79 TIME(AST): 2215 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
25	0.22	66.5	11.0	13.9	2.45	3.38

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
25	0.18	0.34	-	1.20

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
25	2.290×10^6	1.02	445

SCOTIAN SHELF

LATITUDE: 43°11'N LONGITUDE: 62°05.5'W STATION NO.: E5

DATE: 29/4/79 TIME(AST): 0230 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
25	1.10	53.0	14.8	24.0	9.22	5.29

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
25	0.16	0.76	1.30	1.12

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
25	6.078×10^6	1.67	276

SCOTIAN SHELF

LATITUDE: 42°41'N

LONGITUDE: 62°44.5'W

STATION NO.: E6

DATE: 29/4/79

TIME(AST): 0710

SECCHI DEPTH: 15 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.48	107.0	14.0	37.6		
5	0.34	218.2	27.5	20.8		
15	0.32	91.0	8.2	21.6		
20	0.42	121.0	18.0	22.2		
45	0.66	137.0	7.5	12.6	1.76	4.52

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.06	0.99	0.00	0.85
5	0.03	0.94	0.16	0.95
15	0.02	1.06	0.20	0.93
20	0.07	1.20	0.01	0.90
45	1.53	1.77	1.01	1.00

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
45	2.251×10^6	1.20	536

SCOTIAN SHELF

LATITUDE: 42°32.0'N LONGITUDE: 61°24.5'W STATION NO.: E7

DATE: 29/4/79 TIME(AST): 1025 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.91	88.8	13	29.9	4.50	2.44

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	0.48	0.91	0.56	0.98

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.244×10^6	3.10	1382

SCOTIAN SHELF

LATITUDE: 42°36.0'N LONGITUDE: 61°21'W STATION NO.: E8

DATE: 29/4/79 TIME(AST): 1415 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.79	117.0	8.2	24.7	6.62	6.78

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	1.36	1.93	0.47	1.06

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.850×10^6	1.62	568

SCOTIAN SHELF

LATITUDE: 42°32'N LONGITUDE: 61°25'W STATION NO.: E9

DATE: 29/4/79 TIME(AST): 1800 SECCHI DEPTH: _ m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.92	67.5	11.5	29.9	5.49	4.30

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	0.27	0.97	0.49	1.28

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.596×10^6	1.55	596

SCOTIAN SHELF

LATITUDE: 42°40'N LONGITUDE: 61°19'W STATION NO.: E10

DATE: 29/4/79 TIME(AST): 2300 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.68	54.0	6.5	32.6	7.06	6.93

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	0.49	1.31	0.96	1.03

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	3.339×10^6	1.56	469

SCOTIAN SHELF

LATITUDE: 43°06.3'N LONGITUDE: 62°10'W STATION NO.: E11

DATE: 30/4/79 TIME(AST): 0800 SECCHI DEPTH: 12 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.68	75.8	14.0	26.1		
5	0.54	64.0	14.5	23.2		
10	0.56	47.8	11.0	28.1		
15	0.61	26.0	7.2	32.6		
35	1.03		7.5	33.4	6.54	5.74

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.03	1.00	0.65	1.11
5	0.03	1.46	0.07	1.13
10	0.04	1.29	0.39	1.27
15	0.08	1.48	0.83	1.03
35	0.61	1.16	0.03	1.06

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3

SCOTIAN SHELF

LATITUDE $43^{o}23.5'N$ LONGITUDE: $62^{o}10.5'W$ STATION NO.: E12

DATE: 30/4/79 TIME(AST): 1200 SECCHI DEPTH: 16 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.40	45.0	14.0	24.8	7.70	3.48

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	0.30	0.31	1.51	1.20

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	4.866×10^6	2.10	431

SCOTIAN SHELF

LATITUDE: 43°50'N LONGITUDE: 62°48.5'W STATION NO.: E13

DATE: 30/4/79 TIME(AST): 1800 SECCHI DEPTH: 16 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
20	0.20	48.0	7.0	8.6	1.90	3.61

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
20	0.08	0.17	0.96	0.98

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
20	1.219×10^5	1.47	1204

SCOTIAN SHELF

LATITUDE: 43°41.9'N LONGITUDE: 63°03.5'W STATION NO.: E14

DATE: 30/4/79 TIME(AST): 2225 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
20	0.21	34.5	8.0	22.9	7.02	2.11

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
20	0.35	0.09	0.83	0.98

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
20	3.620×10^6	3.25	898

SCOTIAN SHELF

LATITUDE: 43°47.5'N LONGITUDE: 63°02.5'W STATION NO.: E15

DATE: 1/5/79 TIME(AST): 0130 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
10	0.30	20.0	3.5	8.6	2.32	2.35
35	0.28		9.5	8.4	1.21	3.56

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
10	0.04	0.02	0.22	1.05
35	0.12	0.03	0.37	1.00

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
10	1.925×10^6	0.64	332
35	1.498×10^6	0.47	317

SCOTIAN SHELF

LATITUDE: 42°49.8'N LONGITUDE: 62°48.6'W STATION NO.: F1

DATE: 1/5/79 TIME(AST): 0720 SECCHI DEPTH: 12 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.82	69.5	8.5	12.4	5.21	6.68

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	0.97	1.12	0.63	0.99

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.394×10^6	1.21	505

SCOTIAN SHELF

LATITUDE: 42°49.5'N LONGITUDE: 62°48'W STATION NO.: F2

DATE: 1/5/79 TIME(AST): 1210 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.68	67.5	5.5	11.3	1.90	4.92

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	2.94	2.18	1.38	1.12

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.786×10^6	0.81	291

SCOTIAN SHELF

LATITUDE: 42°49.7'N LONGITUDE: 62°48.4'W STATION NO.: F3

DATE: 1/5/79 TIME(AST): 1600 SECCHI DEPTH: 12 m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.79	56.5	6.0	24.3		
5	0.65	60.0	5.5	42.5		
10	0.70	33.0	6.0	20.3		
20	0.56	52.5	10.0	19.2		
35	0.86	33.5	4.0	14.6	2.46	4.68

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.12	0.70	0.25	0.94
5	0.10	0.68	0.55	0.94
10	0.14	0.66	0.19	0.89
20	0.11	0.71	0.00	0.94
35	1.95	1.75	0.58	1.02

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.099×10^6	0.40	192

SCOTIAN SHELF

LATITUDE: 42°49.8'N LONGITUDE: 62°48.3'W STATION NO.: F4

DATE: 1/5/79 TIME(AST): 1940 SECCHI DEPTH: _ m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.92	35.2	6.5	42.3	5.91	4.44

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	0.57	0.51	0.27	1.09

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	3.099×10^6	0.72	231

SCOTIAN SHELF

LATITUDE: 42°50'N LONGITUDE: 62°48.3'W STATION NO.: F5

DATE: 2/5/79 TIME(AST): 0005 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	1.06	45.5	9.0	11.6	5.35	5.36

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	1.10	1.29	0.63	1.18

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	4.544×10^6	1.18	260

SCOTIAN SHELF

LATITUDE: 42°50'N LONGITUDE: 62°48'W STATION NO.: F6

DATE: 2/5/79 TIME(AST): 0320 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35	0.82	80.0	12.5	18.4	5.35	3.84

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35	0.70	0.73	0.33	1.06

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	3.699×10^6	1.23	332

SCOTIAN SHELF

LATITUDE: 42°49.5'N LONGITUDE: 62°47.7'W STATION NO.: F7

DATE: 2/5/79 TIME(AST): 0800 SECCHI DEPTH: 13m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
0	0.72	45.0	3.5	19.2		
5	0.75	31.0	5.8	16.0		
10	1.20			25.0		
20	0.84	55.5	9.5	14.8		
35	0.61	27.5	4.0	16.8	4.94	2.63

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
0	0.07	0.45	0.37	0.96
5	0.28	0.39	0.04	0.91
10	0.25	0.33	0.15	0.86
20	0.26	0.36	0.20	0.97
35	0.77	0.68	0.30	0.91

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35	2.154×10^6	1.02	476

SCOTIAN SHELF

LATITUDE: 42°49.5'N LONGITUDE: 62°47.5'W STATION NO.: F8

DATE: 2/5/79 TIME(AST): 1230 SECCHI DEPTH: _ m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35 bottle	1.04	77.5	11.5	24.3	6.87	3.47
35 pump	1.04	49.5	6.0	33.3	7.70	4.40

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35 bottle	0.26	0.44	0.57	1.10
35 pump	0.18	0.41	1.32	1.26

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35 bottle	2.525×10^6	0.88	350
35 pump	3.576×10^6	1.47	410

SCOTIAN SHELF

LATITUDE: 42°49.8'N LONGITUDE: 62°47.5'W STATION NO.: F9

DATE: 2/5/79 TIME(AST): 1725 SECCHI DEPTH: - m

DEPTH m	CHLOROPHYLL mg m^{-3}	CARBON mg m^{-3}	NITROGEN mg m^{-3}	PROTEIN mg m^{-3}	RNA mg m^{-3}	DNA mg m^{-3}
35 bottle	1.01	74.5	12.5	31.7	7.70	4.86
35 pump	0.99	63.8	10.0	23.0	5.90	4.68

DEPTH m	NITRATE mg-at m^{-3}	SILICATE mg-at m^{-3}	AMMONIA mg-at m^{-3}	PHOSPHATE mg-at m^{-3}
35 bottle	0.29	0.66	0.31	1.24
35 pump	0.24	0.49	0.74	1.17

COULTER COUNTS

DEPTH m	TOTAL CELLS L^{-1}	TOTAL PPM	MEAN CELL V. μ^3
35 bottle	3.328×10^6	3.77	1134
35 pump	2.831×10^6	1.80	636

LIGHT SATURATION DATA AND RELATED BIOMASS AND NUTRIENT MEASUREMENTS

SYMBOLS AND ABBREVIATIONS

P = mg C $m^{-3}h^{-1}$(mg Chl)$^{-1}$

I = W m^{-2}

P_s = mg C(mg Chl)$^{-1}h^{-1}$

Alpha = mg C(mg Chl)$^{-1}h^{-1}W^{-1}m^{-2}$

Beta = mg C(mg Chl)$^{-1}h^{-1}W^{-1}m^{-2}$

Organic particulate = mg m^{-3}

inorganic nutrients = mg at m^{-3}

SCOTIAN SHELF

LAT 44 30.2'N LONG 63 27.3'W STATION NO. 1
DATE 18/04/79 TIME(ADT) 1525 DEPTH 5 M

T	P	T	P	T	P	T	P
1058	2.74	1024	2.14	880	3.12	825	2.89
762	2.33	728	2.36	719	2.08	698	1.84
550	2.95	508	2.08	444	2.46	423	2.82
349	2.38	317	2.63	283	2.58	283	2.34
248	2.58	245	2.57	207	2.17	199	2.45
167	2.45	159	1.95	152	2.49	142	2.60
112	1.97	108	2.47	102	2.27	85	2.01
80	2.20	70	1.94	70	2.01	59	1.95
59	1.75	55	1.44	55	1.67	47	1.11
44	1.23	42	1.37	40	1.32	32	1.08
31	.78	30	.94	28	.94	19	.53
19	.59	14	.18	13	.21	9	.14
9	.14	7	.03	6	.08	5	.00
5	.00	3	.00	3	.00	3	.00
2	.00	2	.00	2	.00		

PARAMETER VALUES

PS : 2.59 ALPHA : .043 BETA : .0001

(2.45, 2.72) (.040, .046) (-.0001, .0004)

SAMPLE TEMPERATURE 4.0 C INCUBATION TEMPERATURE 6.0 C

CHLOROPHYLL :	.50	RNA :	7.98	PHOSPHATE :	.86
CARBON :	110	DNA :	5.28	NITRATE :	.07
NITROGEN :	16	ATP :	.20	SILICATE :	.40
		PROTEIN:	42.60	AMMONIA :	.66

SCOTIAN SHELF

LAT 44 30.2'N LONG 63 27.3'W STATION NO. 1
DATE 18/04/79 TIME(ADT) 1525 DEPTH 30 M

I	P	I	P	I	P	I	P
1219	.48	1206	.43	1054	.80	994	.26
910	.59	889	.44	825	.95	783	.55
677	.82	656	1.00	571	1.72	571	1.79
465	1.57	444	1.48	381	2.02	381	1.69
343	1.75	313	1.87	271	2.09	267	2.22
243	1.93	237	2.23	201	2.39	195	2.14
157	2.30	154	2.13	144	2.42	135	1.86
116	2.03	110	2.18	104	2.00	91	2.23
85	1.94	80	1.85	74	2.46	74	2.02
63	1.94	59	1.92	55	1.91	53	1.80
42	1.54	42	1.57	42	1.50	40	1.43
25	1.17	24	1.14	17	.77	17	1.02
14	.54	13	.51	10	.34	10	.39
7	.18	7	.21	5	.14	4	.07
3	.06	3	.07	3	.07	2	.07

PARAMETER VALUES

PS : 3.19 ALPHA : .053 BETA : .0052

(3.02, 3.37) (.050, .056) (.0045, .0059)

SAMPLE TEMPERATURE 2.5 C INCUBATION TEMPERATURE 6.0 C

CHLOROPHYLL :	2.60	RNA :	11.16	PHOSPHATE :	1.44
CARBON :	162	DNA :	4.82	NITRATE :	2.31
NITROGEN :	18	ATP :	.47	SILICATE :	1.77
		PROTEIN:	28.20	AMMONIA :	1.60

SCOTIAN SHELF

LAT 44 07.5'N
DATE 19/04/79

LONG 63 10.6'W
TIME(ADT) 0805

STATION NO. 3
DEPTH 5 M

I	P	I	P	I	P	I	P
1016	1.65	1007	1.95	867	1.78	853	1.70
740	1.94	732	1.59	685	1.54	677	1.31
550	1.77	509	1.55	432	2.05	410	1.97
387	1.71	383	2.10	295	2.10	277	1.89
250	1.87	243	1.74	188	2.06	165	1.83
161	2.08	157	2.29	127	2.04	118	1.89
115	2.13	101	1.79	96	1.90	93	1.94
85	1.67	76	1.61	75	1.60	65	1.57
59	1.40	58	1.40	56	1.17	49	1.10
41	.99	41	1.15	39	1.02	37	.96
30	.83	29	.91	27	.56	24	.58
16	.24	15	.22	13	.13	10	.14
9	.04	8	.09	6	.00	6	.01
4	.00	4	.00	3	.00	3	.00
2	.00	2	.00	1	.00	1	.00

PARAMETER VALUES

PS : 2.27 ALPHA : .036 BETA : .0008

(2.15, 2.39) (.034, .038) (.0006, .0011)

SAMPLE TEMPERATURE 3.0 C INCUBATION TEMPERATURE 5.5 C

CHLOROPHYLL :	.72	RNA :	4.67	PHOSPHATE :	.64
CARBON :	69	DNA :	3.14	NITRATE :	.02
NITROGEN :	8	ATP :	.26	SILICATE :	.30
		PROTEIN:	16.60	AMMONIA :	.66

SCOTIAN SHELF

LAT 44 07.5'N LONG 63 10.6'W STATION NO. 3
DATE 19/04/79 TIME(ADT) 0805 DEPTH 40 M

T	P	T	P	T	P	T	P
1206	.14	1193	.08	1054	.19	1032	.23
867	.14	825	.23	795	.36	795	.14
698	.40	652	.67	550	.68	512	1.01
461	.75	444	1.05	398	1.22	339	1.31
290	1.28	286	1.13	250	1.34	224	1.42
185	1.14	163	1.15	150	1.40	150	1.46
120	1.13	115	1.36	107	1.29	87	1.18
85	1.08	80	1.07	79	1.13	64	1.12
63	1.24	60	.87	60	1.23	47	1.13
47	1.05	44	.97	44	1.13	38	1.13
36	1.07	34	.85	33	.78	20	.51
18	.49	14	.33	13	.31	11	.16
10	.13	7	.13	5	.04	5	.05
3	.05	3	.05	3	.03	2	.01
2	.02	2	.04				

PARAMETER VALUES

PS : 2.24 ALPHA : .030 BETA : .0049

(2.03, 2.46) (.028, .032) (.0039, .0058)

SAMPLE TEMPERATURE 3.0 C INCUBATION TEMPERATURE 6.0 C

CHLOROPHYLL :	1.00	RNA :	6.41	PHOSPHATE :	.56
CARBON :	66	DNA :	2.83	NITRATE :	.24
NITROGEN :	8	ATP :	.03	SILICATE :	.44
		PROTEIN:	87.60	AMMONIA :	.42

SCOTIAN SHELF

LAT 43 49.6'N LONG 62 48.2'W STATION NO. 4
DATE 19/04/79 TIME(ADT) 1500 DEPTH 5 M

I	P	I	P	I	P	I	P
1007	.93	982	1.03	922	.87	821	1.11
719	.75	698	.79	495	.97	491	.81
453	.87	415	.97	319	.78	307	1.05
277	1.06	243	1.04	217	1.13	199	.97
180	1.13	173	1.08	150	1.04	138	.85
135	.92	130	1.00	102	.81	91	.85
88	.93	74	.81	74	.84	63	.88
58	.69	53	.58	51	.62	49	.74
44	.60	40	.42	37	.45	36	.53
30	.54	29	.33	29	.44	25	.33
16	.22	15	.13	10	.12	10	.10
8	.07	8	.05	6	.03	6	.02
3	.02	3	.02	2	.00	2	.00
2	.00	2	.01	1	.02	1	.00

PARAMETER VALUES

PS : 1.08 ALPHA : .019 BETA : .0002

(1.03, 1.13) (.018, .020) (.0001, .0003)

SAMPLE TEMPERATURE 4.0 C INCUBATION TEMPERATURE 7.0 C

CHLOROPHYLL :	1.11	RNA :	6.18	PHOSPHATE :	.69
CARBON :	76	DNA :	2.53	NITRATE :	.09
NITROGEN :	9	ATP :	-	SILICATE :	.26
		PROTEIN:	20.00	AMMONIA :	.32

SCOTIAN SHELF

LAT 43 49.6'N LONG 62 45.2'W STATION NO. 4
DATE 19/04/79 TIME(ADT) 1500 DEPTH 45 M

T	P	T	P	T	P	T	P
1193	.09	1062	.15	1058	.25	977	.18
880	.21	876	.31	825	.23	804	.44
647	.47	618	.50	537	1.01	533	1.09
495	1.06	423	1.08	381	1.35	377	1.39
339	1.26	294	1.39	255	1.30	241	1.25
210	1.53	184	1.23	163	1.35	157	1.40
136	1.25	131	1.38	127	1.39	123	1.46
88	1.52	88	1.29	88	1.25	83	1.40
68	1.27	67	1.28	61	1.33	60	1.52
51	1.21	49	1.18	49	.95	44	1.27
37	1.05	37	1.01	36	.94	35	1.03
22	.65	22	.70	16	.51	16	.49
11	.35	11	.37	8	.28	8	.25
4	.12	4	.12	3	.07	3	.06
2	.02	2	.03	2	.05	2	.02

PARAMETER VALUES

PS : 2.14 ALPHA : .038 BETA : .0040

(2.00, 2.28) (.035, .040) (.0034, .0046)

SAMPLE TEMPERATURE 3.0 C INCUBATION TEMPERATURE 7.0 C

CHLOROPHYLL :	3.25	RNA :	10.33	PHOSPHATE :	.90
CARBON :	104	DNA :	3.61	NITRATE :	4.10
NITROGEN :	14	ATP :	.23	SILICATE :	1.79
		PROTEIN:	29.40	AMMONIA :	.31

SCOTIAN SHELF

LAT 43 28.8'N LONG 62 27.5'W STATION NO. 5
DATE 20/04/79 TIME(ADT) 0700 DEPTH 10 M

T	P	I	P	I	P	I	P
990	2.64	956	2.70	798	2.24	795	2.64
762	2.42	690	1.68	681	2.02	677	2.06
537	2.15	529	2.20	419	2.15	415	2.19
377	2.27	317	2.54	317	2.10	267	2.41
222	2.35	215	2.18	181	2.66	174	2.52
153	2.42	149	2.25	126	2.17	126	2.18
108	2.01	107	2.25	84	2.52	84	1.96
72	1.97	71	1.98	65	1.51	63	1.84
57	1.56	55	1.04	44	.73	43	1.39
39	.68	35	1.02	32	1.02	31	.58
29	.50	27	.89	23	.69	15	.28
14	.27	10	.14	8	.06	8	.11
8	.11	6	.00	6	.00	4	.00
4	.00	3	.00	3	.00	2	.00
2	.00	2	.00	1	.00		

PARAMETER VALUES

PS : 2.50 ALPHA : .039 BETA : .0003

(2.33, 2.66) (.035, .042) (0.0000, .0006)

SAMPLE TEMPERATURE 3.8 C INCUBATION TEMPERATURE 7.0 C

CHLOROPHYLL :	.17	RNA :	3.89	PHOSPHATE :	.96
CARBON :	-	DNA :	1.99	NITRATE :	.17
NITROGEN :	-	ATP :	-	SILICATE :	.35
		PROTEIN:	15.60	AMMONIA :	.79

SCOTIAN SHELF

LAT 43 28.8'N LONG 62 27.5'W STATION NO. 5
DATE 20/04/79 TIME(ADT) 0700 DEPTH 50 M

T	P	T	P	T	P	T	P
1159	.12	1130	.03	973	.08	965	.05
867	.00	791	.24	740	.01	724	.14
685	.25	584	.22	497	.46	444	.64
421	.63	372	.77	336	.83	290	1.04
262	1.51	243	1.18	226	1.20	188	1.26
167	1.39	161	1.31	145	1.32	144	1.37
113	1.12	108	1.26	102	1.35	94	1.34
90	1.37	79	1.04	71	1.29	69	1.63
64	1.51	57	1.27	55	1.03	47	1.25
47	.98	37	1.23	35	1.41	31	.79
30	.95	28	.82	26	.96	23	1.09
18	.53	15	.66	11	.39	11	.38
9	.22	8	.24	6	.12	5	.06
4	.04	3	.01	3	.00	2	.00
2	.00	2	.00	2	.00		

PARAMETER VALUES

PS : 2.33 ALPHA : .043 BETA : .0073

(2.08, 2.58) (.040, .046) (.0056, .0089)

SAMPLE TEMPERATURE 4.2 C INCUBATION TEMPERATURE 6.0 C

CHLOROPHYLL	:	.21	RNA	:	3.00	PHOSPHATE	: 1.15
CARBON	:	45	DNA	:	1.94	NITRATE	: 2.24
NITROGEN	:	6	ATP	:	-	SILICATE	: 1.69
			PROTEIN	:	13.60	AMMONIA	: 1.48

SCOTIAN SHELF

LAT 42 59.5'N LONG 61 56.5'W STATION NO. 6
DATE 20/04/79 TIME(ADT) 1200 DEPTH 5 M

I	P	I	P	I	P	I	P
1037	1.32	1005	1.57	846	1.69	836	1.45
719	1.78	719	1.25	709	1.52	698	1.36
508	1.88	465	1.92	455	2.48	434	2.25
355	2.40	330	2.36	322	2.56	283	2.60
239	2.35	231	2.41	216	2.46	199	2.59
163	2.50	157	2.51	148	2.36	131	2.48
116	2.36	112	2.50	112	2.21	99	2.45
78	2.06	78	2.10	76	2.16	72	2.00
57	1.62	53	1.63	53	1.68	53	1.43
41	1.25	40	1.16	39	1.24	39	1.31
28	.89	28	1.09	27	.80	27	1.02
17	.46	15	.39	13	.23	11	.21
9	.11	8	.11	8	.06	7	.06
5	.01	4	.01	3	.00	3	.00
2	.00	2	.00	2	.00	1	.00

PARAMETER VALUES

PS : 3.43 ALPHA : .042 BETA : .0035

(3.25, 3.60) (.041, .044) (.0030, .0040)

SAMPLE TEMPERATURE 6.0 C INCUBATION TEMPERATURE 8.0 C

CHLOROPHYLL :	1.87	RNA :	16.96	PHOSPHATE :	1.03
CARBON :	98	DNA :	4.72	NITRATE :	.33
NITROGEN :	18	ATP :	.43	SILICATE :	.91
		PROTEIN:	19.00	AMMONIA :	.54

SCOTIAN SHELF

LAT 42 59.5'N LONG 61 56.5'W STATION NO. 5
DATE 20/04/79 TIME(ADT) 1200 DEPTH 40 M

I	P	I	P	I	P	I	P
1185	.00	1016	.00	973	.00	952	.03
878	.06	867	.08	846	.02	825	.04
677	.09	674	.12	550	.28	529	.48
508	.47	497	.85	370	1.64	360	1.30
334	1.34	324	1.74	273	1.80	264	2.09
213	1.46	205	1.92	167	2.04	167	1.92
142	1.91	133	1.97	129	1.94	121	2.10
112	1.84	102	1.93	93	2.05	89	2.21
76	1.87	70	1.81	68	2.05	68	2.08
55	1.83	53	1.98	53	1.87	49	2.07
42	1.78	40	1.90	36	1.71	36	1.64
22	1.22	21	1.26	16	.94	15	.86
11	.57	11	.61	8	.47	8	.41
6	.27	5	.27	3	.11	3	.12
3	.10	3	.09	2	.07	2	.08

PARAMETER VALUES

PS : 3.57 ALPHA : .066 BETA : .0116

(3.25, 3.89) (.062, .070) (.0095, .0137)

SAMPLE TEMPERATURE 7.2 C INCUBATION TEMPERATURE 8.0 C

CHLOROPHYLL :	.92	RNA :	6.60	PHOSPHATE :	.96
CARBON :	76	DNA :	3.05	NITRATE :	2.35
NITROGEN :	-	ATP :	-	SILICATE :	1.84
		PROTEIN:	18.50	AMMONIA :	.70

SCOTIAN SHELF

LAT 41 48.0'N
DATE 21/04/79

LONG 51 29.8'W
TIME(ADT) 1230

STATION NO. 7
DEPTH 5 M

T	P	T	P	T	P	T	P
1028	1.35	982	1.63	867	1.45	844	1.86
821	1.84	753	1.87	703	1.42	702	1.60
550	1.87	537	1.94	508	2.07	449	1.97
444	2.02	345	1.99	296	2.14	288	1.92
281	2.21	243	2.12	197	1.99	180	1.60
173	1.96	146	2.06	133	2.19	123	1.96
104	1.97	98	2.14	94	2.01	87	1.90
74	1.73	66	1.79	66	1.83	61	1.84
51	1.51	50	1.48	47	1.49	44	1.60
39	1.23	37	1.18	36	1.16	34	1.10
31	.98	28	.93	27	.78	26	.83
16	.36	14	.40	12	.18	10	.25
9	.09	7	.06	7	.10	6	.05
5	.00	5	.01	3	.00	3	.00
2	.00	2	.00	1	.00	1	.00

PARAMETER VALUES

PS : 2.37 ALPHA : .045 BETA : .0010

(2.27, 2.47) (.043, .047) (.0008, .0013)

SAMPLE TEMPERATURE 6.0 C INCUBATION TEMPERATURE 7.5 C

CHLOROPHYLL :	.66	RNA :	8.67	PHOSPHATE :	.91
CARBON :	59	DNA :	4.30	NITRATE :	.05
NITROGEN :	12	ATP :	-	SILICATE :	.73
		PROTEIN:	55.00	AMMONIA :	.46

SCOTIAN SHELF

LAT 41 48.0'N
DATE 21/04/79

LONG 61 29.8'W
TIME(ADT) 1230

STATION NO. 7
DEPTH 35 M

I	P	I	P	I	P	I	P
1206	.16	1172	.14	1003	.14	961	.20
889	.21	791	.28	791	.20	690	.27
614	.45	592	.58	592	.36	542	.90
508	.80	453	1.25	415	1.18	343	1.47
313	1.21	294	1.63	262	1.56	248	1.67
214	1.47	203	1.58	178	1.75	171	1.44
135	1.57	125	1.60	121	1.63	121	1.50
99	1.60	95	1.41	94	1.47	93	1.45
73	1.66	70	1.51	68	1.53	62	1.50
57	1.38	47	1.18	47	1.36	46	1.32
40	1.31	35	1.12	35	1.28	34	1.10
22	.75	22	.73	16	.52	15	.53
13	.32	11	.33	8	.22	8	.24
5	.13	5	.13	4	.06	3	.07
3	.03	2	.03	2	.04	2	.06

PARAMETER VALUES

PS : 2.88 (2.64, 3.12)

ALPHA : .040 (.038, .042)

BETA : .0074 (.0061, .0086)

SAMPLE TEMPERATURE 8.0 C

INCUBATION TEMPERATURE 7.5 C

CHLOROPHYLL : 1.36

CARBON : 92

NITROGEN : 16

RNA : 8.39

DNA : 3.93

ATP : -

PROTEIN: 44.10

PHOSPHATE : .75

NITRATE : .20

SILICATE : .76

AMMONIA : .67

SCOTIAN SHELF

LAT 39 54.0'N LONG 61 26.5'W STATION NO. 8
DATE 22/04/79 TIME(ADT) 1130 DEPTH 5 M

I	P	I	P	I	P	I	P
1057	.04	1030	.05	858	.03	853	.07
842	.23	805	.15	725	.17	614	.17
575	.42	562	.36	539	.46	478	.36
442	.50	420	.53	324	.56	313	.57
281	.59	274	.60	219	.71	210	.65
183	.70	181	.76	148	.72	146	.51
113	.95	107	.68	102	.75	102	.62
80	.44	77	.76	68	.88	68	.62
55	.43	52	.76	52	.58	47	.70
41	.53	39	.64	37	.55	33	.79
31	.39	29	.38	28	.53	27	.60
15	.34	14	.29	11	.29	10	.17
8	.14	7	.11	6	.14	6	.08
4	.03	4	.03	2	.02	2	.02
1	.01	1	.00	1	.02	1	.02

PARAMETER VALUES

PS : 1.00 ALPHA : .024 BETA : .0020

(.92, 1.08) (.022, .027) (.0016, .0024)

SAMPLE TEMPERATURE 21.0 C INCUBATION TEMPERATURE 24.0 C

CHLOROPHYLL :	.60	RNA :	3.74	PHOSPHATE :	.50
CARBON :	40	DNA :	1.04	NITRATE :	.91
NITROGEN :	8	ATP :	-	SILICATE :	1.55
		PROTEIN:	21.40	AMMONIA :	.21

SCOTIAN SHELF

LAT 33 54.0'N LONG 61 26.5'W STATION NO. 8
DATE 22/04/79 TIME(ADT) 1130 DEPTH 60 M

T	P	I	P	I	P	I	P
1206	.34	1136	.01	1005	.03	967	.00
903	.13	818	.14	787	.13	745	.13
639	.37	582	.32	580	.32	512	.44
507	.52	425	.57	390	.58	332	.61
309	.53	282	.73	258	.56	232	.49
213	.74	183	.39	183	.64	159	.56
141	.63	133	.74	122	.83	108	.37
102	.54	95	.54	87	.59	85	.63
77	.67	65	.84	65	.62	62	.70
55	.64	48	.50	44	.79	44	.72
41	.39	37	.55	33	.57	32	.67
20	.39	20	.42	14	.35	14	.31
11	.24	10	.23	8	.17	7	.09
4	.10	4	.08	3	.05	3	.05
2	.03	2	.03	1	.01	1	.01

PARAMETER VALUES

PS : .81 ALPHA : .029 BETA : .0013

(.76, .87) (.025, .033) (.0010, .0015)

SAMPLE TEMPERATURE 21.0 C INCUBATION TEMPERATURE 23.0 C

CHLOROPHYLL :	.49	RNA :	3.56	PHOSPHATE :	.63
CARBON :	64	DNA :	.72	NITRATE :	1.58
NITROGEN :	8	ATP :	-	SILICATE :	1.86
		PROTEIN:	11.00	AMMONIA :	-

SCOTIAN SHELF

LAT 41 40.0'N LONG 61 30.0'W STATION NO. 9
DATE 23/04/79 TIME(ADT) 0900 DEPTH 5 M

I	P	I	P	I	P	I	P
1087	.03	1079	.01	867	.03	863	.22
857	.12	850	.05	779	.07	751	.05
601	.42	588	.26	571	.57	508	1.26
495	1.13	440	1.54	368	1.77	330	2.29
305	2.11	275	2.18	241	2.60	241	2.26
220	2.26	190	2.69	169	2.41	163	2.26
133	2.39	110	2.72	106	2.38	97	2.83
66	2.19	55	2.62	53	2.30	47	2.68
44	2.15	42	1.93	37	2.07	32	2.40
32	2.05	30	2.00	30	2.01	27	2.16
25	1.74	22	1.76	15	1.30	14	1.38
11	.96	10	.90	8	.66	7	.72
6	.54	5	.45	3	.28	3	.23
2	.16	2	.15	1	.06	1	.06
1	.09	1	.09				

PARAMETER VALUES

PS : 4.27 ALPHA : .096 BETA : .0124

(3.94, 4.59) (.090, .102) (.0104, .0145)

SAMPLE TEMPERATURE 6.5 C INCUBATION TEMPERATURE 30.0 C

CHLOROPHYLL :	.63	RNA :	6.32	PHOSPHATE :	.73
CARBON :	59	DNA :	5.52	NITRATE :	.25
NITROGEN :	12	ATP :	.12	SILICATE :	.57
		PROTEIN:	9.40	AMMONIA :	.79

SCOTIAN SHELF

LAT 41 40.0'N LONG 61 30.0'W STATION NO. 9
DATE 23/04/79 TIME(ADT) 0800 DEPTH 35 M

I	P	I	P	I	P	I	P
1206	.16	1100	.01	1007	.17	973	.18
918	.36	844	.46	800	.35	793	.34
685	.66	573	.51	546	.39	506	.76
482	.44	398	.44	366	.57	322	.45
305	.66	269	.51	254	.58	217	.48
211	.52	195	.54	163	.44	157	.68
146	.61	140	.50	109	.45	96	.44
83	.49	68	.48	58	.33	56	.33
54	.37	49	.35	42	.23	41	.29
39	.31	31	.20	30	.20	30	.22
28	.25	19	.15	17	.11	13	.05
13	.06	9	.04	9	.03	7	.00
6	.01	4	.00	4	.00	3	.00
2	.00	2	.01	2	.00	1	.00
1	.00						

PARAMETER VALUES

PS : .88 ALPHA : .008 BETA : .0010

(.76, .99) (.007, .009) (.0007, .0014)

SAMPLE TEMPERATURE 6.2 C INCUBATION TEMPERATURE 7.5 C

CHLOROPHYLL :	.96	RNA :	7.70	PHOSPHATE :	.56
CARBON :	66	DNA :	2.78	NITRATE :	.23
NITROGEN :	10	ATP :	.07	SILICATE :	.55
		PROTEIN:	13.70	AMMONIA :	.83

SCOTIAN SHELF

LAT 41 29.0'N LONG 41 29.5'W STATION NO. 10
DATE 23/04/79 TIME(ADT) 1530 DEPTH 5 M

I	P	I	P	I	P	I	P
1037	.85	1037	.97	914	1.26	825	1.16
787	1.61	732	1.37	677	1.80	673	1.37
635	1.74	578	1.81	559	2.16	457	1.97
394	1.96	381	2.16	381	1.95	328	2.08
274	2.06	262	2.07	239	2.05	222	2.10
186	1.95	171	2.01	161	2.03	148	1.89
148	2.10	114	1.97	114	2.06	102	1.91
85	1.75	83	1.74	78	1.75	72	1.88
70	1.55	67	1.64	57	1.56	57	1.62
47	1.17	43	1.27	42	1.24	41	1.31
32	1.00	31	.99	30	1.01	30	1.04
22	.55	21	.53	14	.33	13	.33
10	.17	9	.18	7	.05	7	.10
5	.03	5	.04	3	.01	3	.00
2	.01	2	.01	2	.01	2	.01

PARAMETER VALUES

PS : 2.74 ALPHA : .038 BETA : .0023

(2.61, 2.96) (.037, .040) (.0020, .0026)

SAMPLE TEMPERATURE 7.3 C INCUBATION TEMPERATURE 10.5 C

CHLOROPHYLL :	1.51	RNA :	12.54	PHOSPHATE :	.71
CARBON :	79	DNA :	6.59	NITRATE :	.55
NITROGEN :	7	ATP :	.27	SILICATE :	.96
		PROTEIN:	21.40	AMMONIA :	.17

SCOTIAN SHELF

LAT 41 29.0'N LONG 61 29.5'W STATION NO. 10
DATE 23/04/79 TIME(ADT) 1530 DEPTH 30 M

T	P	T	P	T	P	T	P
1227	.00	1164	.04	1058	.07	994	.04
925	.16	817	.12	804	.32	740	.19
647	.53	571	.41	520	.89	495	1.14
489	1.05	444	1.17	406	1.32	343	1.31
315	1.38	275	1.31	254	1.42	216	1.35
203	1.43	186	1.23	173	1.27	144	1.42
131	1.35	125	1.21	123	1.36	106	1.46
96	1.15	89	1.31	85	1.16	74	1.20
68	1.08	64	1.04	63	1.11	51	.92
49	.88	47	.91	47	.96	37	.67
37	.80	35	.87	34	1.10	25	.43
24	.44	17	.31	15	.30	12	.09
11	.20	9	.07	8	.12	5	.03
4	.04	3	.00	3	.01	3	.00
3	.01	2	.00	2	.00		

PARAMETER VALUES

PS : 5.37 ALPHA : .023 BETA : .0188

(2.72, 8.01) (.021, .024) (.0058, .0317)

SAMPLE TEMPERATURE 9.0 C INCUBATION TEMPERATURE 10.5 C

CHLOROPHYLL :	1.43	RNA :	7.70	PHOSPHATE :	.82
CARBON :	70	DNA :	4.30	NITRATE :	3.45
NITROGEN :	7	ATP :	-	SILICATE :	2.13
		PROTEIN:	28.40	AMMONIA :	-

SCOTIAN SHELF

LAT 41 20.0'N
DATE 24/04/79

LONG 61 30.0'W
TIME(ADT) 0845

STATION NO. 11
DEPTH 5 M

I	P	I	P	I	P	I	P
994	2.32	973	2.28	804	3.38	761	3.30
719	3.02	622	3.82	609	4.07	609	3.27
533	4.17	501	4.48	495	4.87	453	4.59
381	4.79	330	4.54	330	4.76	262	4.56
256	4.56	228	4.90	207	4.84	169	4.82
165	4.61	154	3.95	131	4.42	127	4.72
112	4.37	97	4.39	85	4.11	78	3.76
74	3.97	72	3.58	59	3.91	59	3.25
48	2.99	48	2.96	46	3.12	38	2.41
35	2.19	34	2.20	32	2.38	28	1.93
27	1.88	26	1.68	25	1.60	17	.92
16	.88	12	.56	12	.54	9	.36
8	.36	7	.23	6	.23	4	.09
4	.10	3	.03	3	.03	2	.00
2	.00	2	.01	2	.00		

PARAMETER VALUES

PS : 6.35 (6.06, 6.63)

ALPHA : .082 (.079, .086)

BETA : .0055 (.0048, .0063)

SAMPLE TEMPERATURE 13.5 C

INCUBATION TEMPERATURE 15.5 C

CHLOROPHYLL : .86

CARBON : 23

NITROGEN : 3

RNA : 3.14

DNA : .86

ATP : -

PROTEIN: 12.20

PHOSPHATE : 1.13

NITRATE : 9.27

SILICATE : 4.62

AMMONIA : .13

SCOTIAN SHELF

LAT 41 20.0'N LONG 61 30.0'W STATION NO. 11
DATE 24/04/79 TIME(ADT) 0845 DEPTH 35 M

T	P	T	P	T	P	T	P
1164	.86	1142	.64	1037	1.27	994	1.05
867	3.82	825	2.67	812	1.87	783	3.20
692	2.99	622	3.88	616	3.80	495	4.27
457	3.25	419	4.08	336	3.13	330	4.40
283	3.18	258	4.17	216	3.06	212	4.32
178	3.82	156	3.30	144	4.02	125	3.61
118	4.06	118	3.17	108	3.87	101	3.66
93	3.51	88	3.71	76	2.85	66	3.06
63	2.89	59	2.94	52	2.34	51	2.07
51	2.77	51	2.54	43	2.12	41	1.98
35	1.73	35	1.67	32	1.72	32	1.70
21	1.03	20	1.02	14	.70	14	.67
9	.48	9	.43	7	.26	6	.31
5	.15	5	.12	4	.08	4	.07
3	.04	3	.05	2	.02	2	.02

PARAMETER VALUES

PS : 5.77 ALPHA : .063 BETA : .0062

(5.22, 6.33) (.059, .068) (.0047, .0077)

SAMPLE TEMPERATURE 13.5 C INCUBATION TEMPERATURE 14.5 C

CHLOROPHYLL :	.86	RNA :	4.76	PHOSPHATE :	1.40
CARBON :	49	DNA :	1.10	NITRATE :	9.22
NITROGEN :	7	ATP :	-	SILICATE :	4.55
		PROTEIN:	11.30	AMMONIA :	-

SCOTIAN SHELF

LAT 41 29.0'N LONG 61 30.0'W STATION NO. 12
DATE 24/04/79 TIME(ADT) 1530 DEPTH 5 M

T	P	I	P	I	P	T	P
994	1.15	982	1.05	782	1.50	698	1.71
622	1.68	615	1.85	597	1.99	597	1.93
482	2.25	444	2.49	431	2.71	366	2.94
343	1.94	315	2.73	271	2.88	241	3.15
228	2.86	197	2.88	169	2.65	169	2.91
135	2.57	129	2.71	123	2.59	110	2.92
89	2.69	87	2.72	80	2.73	78	2.89
70	2.40	63	2.58	59	2.26	55	2.38
49	1.89	47	1.99	44	2.19	44	2.05
34	1.54	34	1.40	33	1.59	30	1.59
26	1.12	26	1.43	24	1.21	24	1.33
15	.60	14	.64	10	.38	10	.39
8	.21	8	.20	6	.12	6	.11
3	.03	3	.03	3	.00	2	.02
2	.00	1	.00	1	.00	1	.00

PARAMETER VALUES

PS : 3.88 ALPHA : .063 BETA : .0046

(3.69, 4.06) (.060, .066) (.0040, .0052)

SAMPLE TEMPERATURE 10.0 C INCUBATION TEMPERATURE 10.5 C

CHLOROPHYLL :	1.00	RNA :	8.25	PHOSPHATE :	.84
CARBON :	65	DNA :	4.50	NITRATE :	3.81
NITROGEN :	7	ATP :	.35	SILICATE :	2.53
		PROTEIN:	10.60	AMMONIA :	.10

SCOTIAN SHELF

LAT 41 29.0'N LONG 61 30.0'W STATION NO. 12
DATE 24/04/79 TIME(ADT) 1530 DEPTH 35 M

I	P	I	P	I	P	I	P
1121	.01	1100	.01	973	.01	931	.02
727	.09	727	.04	711	.06	698	.12
558	.37	495	.82	476	.55	476	.19
368	1.30	300	1.42	300	1.20	296	1.81
233	1.84	207	1.81	207	1.97	207	1.78
161	1.91	161	1.77	156	1.84	148	2.10
118	1.93	110	1.94	110	1.91	99	2.19
89	1.84	76	1.90	74	2.03	74	1.89
61	1.74	59	1.71	57	1.84	57	1.70
44	1.60	43	1.57	41	1.56	41	1.45
33	1.28	32	1.19	31	1.48	31	1.37
23	.81	22	.86	13	.62	12	.66
9	.50	8	.42	6	.34	6	.31
5	.18	4	.16	3	.06	3	.10
3	.11	2	.03	2	.06	2	.03

PARAMETER VALUES

PS : 5.12 ALPHA : .051 BETA : .0226

(4.27, 5.98) (.049, .053) (.0165, .0288)

SAMPLE TEMPERATURE 13.8 C INCUBATION TEMPERATURE 10.5 C

CHLOROPHYLL :	1.20	RNA :	3.01	PHOSPHATE :	1.28
CARBON :	23	DNA :	3.86	NITRATE :	9.75
NITROGEN :	4	ATP :	.20	SILICATE :	4.81
		PROTEIN:	4.10	AMMONIA :	.05

SCOTIAN SHELF

LAT 41 24.01N LONG 61 29.51W STATION NO. 13
DATE 25/04/79 TIME(ADT) 1300 DEPTH 5 M

T	P	T	P	T	P	T	P
1036	2.38	994	2.24	804	1.94	782	2.61
751	3.63	719	2.17	666	2.06	613	2.04
518	2.64	497	2.69	455	3.28	433	3.15
362	2.97	349	2.97	304	3.44	290	3.04
245	3.07	233	3.19	214	3.42	201	3.23
161	3.11	159	3.02	152	3.12	131	3.33
118	3.04	110	3.12	101	2.94	93	2.86
76	2.80	74	2.75	73	2.94	70	3.08
59	2.72	55	2.85	53	2.63	46	2.45
44	2.04	42	2.11	38	2.14	37	2.23
30	2.01	29	1.98	28	1.81	26	1.79
19	1.08	17	1.09	13	.64	12	.59
10	.37	8	.40	6	.23	6	.23
5	.09	4	.09	3	.00	2	.01
2	.00	2	.00	2	.00	1	.00

PARAMETER VALUES

PS : 3.58 ALPHA : .084 BETA : .0017

(3.44, 3.72) (.079, .089) (.0014, .0021)

SAMPLE TEMPERATURE 11.2 C INCUBATION TEMPERATURE 13.0 C

CHLOROPHYLL :	.43	RNA :	3.98	PHOSPHATE :	1.28
CARBON :	28	DNA :	1.98	NITRATE :	7.59
NITROGEN :	3	ATP :	-	SILICATE :	4.00
		PROTEIN:	6.30	AMMONIA :	.53

SCOTIAN SHELF

LAT 41 24.0'N LONG 61 29.5'W STATION NO. 13
DATE 25/04/79 TIME(ADT) 1300 DEPTH 35 M

T	P	I	P	I	P	T	P
1248	.31	1142	.26	994	.52	952	.26
856	.71	835	.30	825	.45	804	.43
634	.71	603	.60	550	1.10	497	.77
438	1.04	423	.91	370	1.22	349	1.31
347	1.28	296	1.25	283	1.23	252	1.43
192	1.24	188	1.28	180	1.31	159	1.39
116	1.41	114	1.32	114	1.31	101	1.49
85	1.34	82	1.26	82	1.34	78	1.42
60	1.40	59	1.26	59	1.21	57	1.22
46	1.24	46	1.23	44	1.02	42	1.28
37	1.14	35	1.10	35	1.16	32	1.12
19	.77	18	.79	14	.52	13	.63
10	.39	9	.42	7	.26	6	.29
4	.14	3	.14	3	.06	3	.08
2	.02	2	.03	2	.04	1	.02

PARAMETER VALUES

PS : 1.75 ALPHA : .050 BETA : .0024

(1.69, 1.82) (.048, .053) (.0022, .0027)

SAMPLE TEMPERATURE 11.5 C INCUBATION TEMPERATURE 12.0 C

CHLOROPHYLL :	.21	RNA :	1.22	PHOSPHATE :	1.28
CARBON :	14	DNA :	1.15	NITRATE :	9.34
NITROGEN :	6	ATP :	-	SILICATE :	3.77
		PROTEIN:	4.30	AMMONIA :	.69

SCOTIAN SHELF

LAT 41 43.0'N LONG 51 30.0'W STATION NO. D1
DATE 26/04/79 TIME(ADT) 1515 DEPTH 35 M

I	P	I	P	I	P	I	P
1079	.24	1036	.24	846	.24	837	.33
804	1.51	774	.36	719	.82	698	.39
529	1.67	529	1.76	444	1.28	444	1.45
334	1.30	321	1.74	283	1.76	277	1.41
237	1.54	220	1.86	203	1.48	190	1.83
154	1.55	148	1.93	131	1.62	123	1.79
120	1.66	114	1.73	101	1.46	83	1.62
80	1.62	72	1.50	72	1.51	53	1.45
51	1.40	48	1.46	42	1.33	38	1.32
38	1.43	32	1.28	27	.97	23	.95
19	.60	18	.56	11	.45	10	.39
8	.27	8	.29	6	.16	6	.20
5	.10	4	.09	2	.00	2	.03
2	.04	2	.01	1	.01	1	.02

PARAMETER VALUES

PS : 2.37 ALPHA : .046 BETA : .0035

(2.18, 2.56) (.042, .050) (.0028, .0042)

SAMPLE TEMPERATURE 9.5 C INCUBATION TEMPERATURE 9.3 C

CHLOROPHYLL :	1.08	RNA :	6.60	PHOSPHATE :	.72
CARBON :	75	DNA :	3.75	NITRATE :	.58
NITROGEN :	15	ATP :	.34	SILICATE :	1.32
		PROTEIN:	12.60	AMMONIA :	.53

SCOTIAN SHELF

LAT 41 43.0'N LONG 61 30.0'W STATION NO. D2
DATE 26/04/79 TIME(ADT) 1930 DEPTH 35 M

T	P	T	P	T	P	T	P
1185	.26	1142	.08	1010	.24	931	.37
818	.48	817	.63	796	.27	779	.44
599	1.04	589	.67	511	1.69	483	1.17
427	1.62	423	1.34	362	1.89	333	1.96
300	1.98	289	1.87	277	1.98	240	2.13
186	1.95	184	2.11	172	1.89	158	2.19
115	2.09	115	1.96	110	2.07	106	2.29
83	2.08	82	1.91	81	2.32	80	1.92
60	2.04	60	1.93	59	1.60	57	1.88
46	1.86	45	1.42	44	1.93	43	1.73
35	1.64	34	1.45	34	1.70	32	1.26
19	.81	19	.99	14	.67	13	.62
10	.44	9	.41	7	.21	7	.20
4	.04	4	.06	3	.11	3	.09
2	.01	2	.01	2	.01	1	.00

PARAMETER VALUES

PS : 3.38 ALPHA : .056 BETA : .0072

(3.15, 3.61) (.053, .060) (.0061, .0082)

SAMPLE TEMPERATURE 9.8 C INCUBATION TEMPERATURE 8.0 C

CHLOROPHYLL :	.61	RNA :	7.56	PHOSPHATE :	.63
CARBON :	59	DNA :	4.78	NITRATE :	.45
NITROGEN :	12	ATP :	-	SILICATE :	1.02
		PROTEIN:	15.10	AMMONIA :	.20

SCOTIAN SHELF

LAT 41 43.0'N LONG 61 30.0'W STATION NO. D3
DATE 26/04/79 TIME(ADT) 2310 DEPTH 35 M

T	P	I	P	I	P	T	P
1066	.27	1044	.16	850	.36	841	.20
779	.37	744	.33	727	.25	689	.36
529	.53	503	1.01	488	.84	452	1.01
401	1.22	348	1.13	308	1.73	283	1.51
265	1.75	245	1.64	212	1.83	203	1.78
179	1.55	154	1.83	144	1.91	133	2.02
119	1.80	113	1.77	108	1.89	99	1.81
79	1.75	74	1.72	70	1.78	53	1.84
52	1.69	51	1.73	47	1.77	41	1.57
39	1.62	37	1.54	32	1.58	30	1.44
27	1.37	26	1.49	24	1.24	17	.81
17	.88	11	.54	10	.58	8	.33
8	.30	6	.14	6	.21	4	.04
4	.02	2	.05	2	.00	2	.00
2	.00	1	.00	1	.00		

PARAMETER VALUES

PS : 2.80 ALPHA : .065 BETA : .0068

(2.65, 2.95) (.062, .069) (.0059, .0076)

SAMPLE TEMPERATURE 8.2 C INCUBATION TEMPERATURE 10.0 C

CHLOROPHYLL :	.59	RNA :	5.91	PHOSPHATE :	.86
CARBON :	20	DNA :	4.55	NITRATE :	.32
NITROGEN :	13	ATP :	-	SILICATE :	1.05
		PROTEIN:	22.50	AMMONIA :	-

SCOTIAN SHELF

LAT 41 43.0'N LONG 61 33.5'W STATION NO. D4
DATE 27/04/79 TIME(ADT) 0330 DEPTH 35 M

I	P	I	P	I	P	I	P
1060	.17	1049	.23	852	.30	842	.18
766	.32	732	.25	728	.27	685	.20
529	.51	500	.57	491	.81	457	.81
379	1.13	355	1.07	301	1.43	286	1.46
255	1.61	249	1.62	209	1.65	203	1.51
174	1.92	154	1.88	143	1.86	135	1.66
118	1.86	110	1.72	105	1.90	98	1.78
78	1.87	76	1.67	76	1.94	70	1.54
53	1.77	51	1.71	51	1.91	46	1.66
41	1.67	37	1.54	37	1.55	32	1.50
29	1.46	27	1.38	26	1.35	25	1.34
17	.93	17	1.05	10	.78	10	.66
7	.56	7	.46	6	.36	5	.39
4	.22	3	.20	2	.09	2	.13
2	.09	1	.01	1	.08	1	.03

PARAMETER VALUES

PS : 2.65 ALPHA : .074 BETA : .0068

(2.55, 2.75) (.071, .078) (.0062, .0075)

SAMPLE TEMPERATURE 8.8 C INCUBATION TEMPERATURE 10.0 C

CHLOROPHYLL :	.56	RNA :	5.08	PHOSPHATE :	1.51
CARBON :	76	DNA :	4.22	NITRATE :	2.18
NITROGEN :	11	ATP :	.16	SILICATE :	1.79
		PROTEIN:	10.80	AMMONIA :	.17

SCOTIAN SHELF

LAT 41 43.0'N LONG 61 29.5'W STATION NO. D5
DATE 27/04/79 TIME(ADT) 0710 DEPTH 35 M

I	P	I	P	I	P	I	P
1142	.05	1121	.07	1080	.17	909	.09
811	.12	779	.51	758	.07	755	.23
574	.25	564	.76	472	1.53	469	.62
423	.78	420	1.34	355	1.16	316	1.81
282	1.69	272	1.25	252	1.33	228	1.94
188	1.94	179	1.27	157	1.84	155	1.35
117	1.70	117	1.39	111	1.87	103	1.34
84	2.08	84	1.83	79	1.43	78	1.35
62	1.87	61	1.84	59	1.36	57	1.34
45	1.50	44	1.31	44	1.27	43	1.36
34	1.21	34	1.21	33	1.25	32	1.15
20	.81	19	.80	15	.50	14	.42
10	.39	10	.36	8	.29	7	.25
5	.12	4	.10	3	.07	3	.05
2	.00	2	.08	2	.00	2	.01

PARAMETER VALUES

PS : 2.90 ALPHA : .046 BETA : .0076

(2.54, 3.27) (.042, .050) (.0056, .0095)

SAMPLE TEMPERATURE 8.1 C INCUBATION TEMPERATURE 9.1 C

CHLOROPHYLL :	1.03	RNA :	4.80	PHOSPHATE :	1.03
CARBON :	102	DNA :	4.82	NITRATE :	.56
NITROGEN :	40	ATP :	-	SILICATE :	1.90
		PROTEIN:	15.80	AMMONIA :	.53

SCOTIAN SHELF

LAT 41 43.0'N LONG 61 28.1'W STATION NO. 06
DATE 27/04/79 TIME(ADT) 1100 DEPTH 35 M

I	P	I	P	I	P	I	P
1055	.17	1053	.16	854	.17	844	.21
753	.35	736	.25	713	.33	681	.26
529	.60	522	.73	478	1.32	461	.85
362	1.44	358	1.37	295	1.58	289	1.50
253	1.78	246	1.73	205	1.85	203	1.66
168	1.74	154	1.80	141	1.91	136	1.66
116	1.87	107	1.74	102	1.90	96	1.68
77	1.65	76	1.82	75	1.91	69	1.74
53	1.57	51	1.62	51	1.71	46	1.56
40	1.47	36	1.52	36	1.45	32	1.55
27	1.31	27	1.26	25	1.09	25	1.28
16	.79	16	.80	10	.54	10	.51
7	.36	7	.36	6	.28	5	.25
3	.13	3	.10	2	.04	2	.07
2	.07	1	.04	1	.04	1	.01

PARAMETER VALUES

PS : 2.82 ALPHA : .060 BETA : .0069

(2.67, 2.98) (.057, .063) (.0061, .0078)

SAMPLE TEMPERATURE 9.3 C INCUBATION TEMPERATURE 10.0 C

CHLOROPHYLL :	1.12	RNA :	5.20	PHOSPHATE :	1.30
CARBON :	121	DNA :	5.00	NITRATE :	1.14
NITROGEN :	11	ATP :	.13	SILICATE :	2.26
		PROTEIN:	43.40	AMMONIA :	.62

SCOTIAN SHELF

LAT 41 46.0'N LONG 61 24.0'W STATION NO. 07
DATE 27/04/73 TIME(ADT) 1430 DEPTH 35 M

I	P	I	P	I	P	I	P
1142	.23	1057	.26	1015	.31	888	.23
904	.47	740	.60	730	.38	719	.34
560	.65	529	.81	455	.94	433	1.26
423	1.41	414	1.46	347	1.57	300	2.04
275	2.19	266	2.00	216	2.43	205	2.07
192	2.34	173	1.91	156	2.58	139	2.09
118	2.25	118	2.10	116	2.50	97	2.07
87	2.61	85	2.31	76	2.18	76	2.00
63	2.41	61	2.24	59	2.10	57	2.11
44	2.01	44	2.06	44	1.88	43	2.00
33	1.59	32	1.75	32	1.83	32	1.74
20	1.26	20	1.22	15	.83	14	.85
10	.61	10	.58	8	.36	8	.37
5	.20	5	.17	3	.11	3	.11
2	.05	2	.02	2	.05	2	.02

PARAMETER VALUES

PS : 3.64 ALPHA : .072 BETA : .0092

(3.43, 3.85) (.069, .076) (.0080, .0104)

SAMPLE TEMPERATURE 7.8 C INCUBATION TEMPERATURE 9.5 C

CHLOROPHYLL :	.61	RNA :	1.90	PHOSPHATE :	1.24
CARBON :	-	DNA :	3.60	NITRATE :	1.88
NITROGEN :	-	ATP :	.25	SILICATE :	2.74
		PROTEIN:	21.40	AMMONIA :	.34

SCOTIAN SHELF

LAT 43 14.0'N LONG 61 39.1'W STATION NO. E1
DATE 29/04/79 TIME(ADT) 0915 DEPTH 20 M

T	P	T	P	T	P	T	P
1057	1.20	1047	1.83	856	1.92	846	1.50
740	1.56	740	1.39	698	1.72	677	1.45
550	1.79	529	1.53	465	1.87	465	1.72
370	1.82	336	1.97	292	1.85	288	2.06
258	1.86	237	2.13	203	1.86	201	2.09
163	1.86	154	1.83	139	1.89	137	1.83
114	1.56	104	1.56	99	1.74	95	1.68
78	1.54	74	1.67	74	1.76	68	1.51
53	1.43	51	1.44	51	1.52	45	1.37
40	1.25	36	1.18	36	1.20	32	1.14
27	.96	26	.95	26	1.02	25	.95
16	.71	15	.62	10	.41	10	.41
7	.23	7	.23	6	.15	5	.16
3	.04	3	.06	2	.00	2	.05
2	.05	1	.02	1	.02	1	.01

PARAMETER VALUES

PS : 2.02 ALPHA : .048 BETA : .0006

(1.96, 2.08) (.046, .051) (.0005, .0007)

SAMPLE TEMPERATURE 6.0 C INCUBATION TEMPERATURE 8.0 C

CHLOROPHYLL :	.66	RNA :	9.08	PHOSPHATE :	1.48
CARBON :	51	DNA :	5.20	NITRATE :	.45
NITROGEN :	12	ATP :	.59	SILICATE :	.96
		PROTEIN:	32.00	AMMONIA :	1.41

SCOTIAN SHELF

LAT 43 33.5'N LONG 61 30.0'W STATION NO. E2
DATE 28/04/79 TIME(ADT) 1400 DEPTH 20 M

T	P	T	P	T	P	T	P
1048	2.59	1036	3.40	843	2.85	838	2.93
752	2.68	734	2.69	690	2.92	675	3.27
542	2.95	540	3.06	460	3.52	454	3.15
364	3.26	331	3.17	287	3.52	285	3.34
251	3.65	235	2.79	201	2.97	199	3.28
161	3.26	152	3.87	139	3.11	134	2.95
111	2.81	103	2.81	98	2.76	95	3.18
77	2.47	74	2.22	73	2.64	67	2.61
53	2.36	51	2.01	51	2.05	45	1.83
40	1.71	36	1.69	36	1.17	32	1.52
27	1.01	26	1.09	26	1.22	25	1.25
15	.51	15	.37	10	.18	10	.12
7	.03	7	.03	6	.13	5	.00
3	.00	3	.00	2	.00	2	.00
2	.00	1	.05	1	.00	1	.00

PARAMETER VALUES

PS : 3.51 ALPHA : .057 BETA : .0006

(3.36, 3.67) (.054, .061) (.0003, .0009)

SAMPLE TEMPERATURE 4.8 C INCUBATION TEMPERATURE 8.2 C

CHLOROPHYLL :	.16	RNA :	6.26	PHOSPHATE :	1.34
CARBON :	37	DNA :	4.30	NITRATE :	.18
NITROGEN :	9	ATP :	.02	SILICATE :	.32
		PROTEIN:	27.60	AMMONIA :	.62

SCOTIAN SHELF

LAT 43 31.9'N LONG 62 06.7'W STATION NO. F3
DATE 28/04/79 TIME (ADT) 1815 DEPTH 25 M

I	P	I	P	I	P	I	P
1039	1.45	1025	1.66	830	1.54	829	1.42
764	1.46	728	1.29	681	1.44	673	1.67
551	2.10	534	2.10	454	2.07	442	2.20
358	2.38	327	2.24	283	2.42	292	2.87
244	2.58	233	1.98	202	2.57	195	2.56
159	2.49	150	2.79	139	2.50	131	2.80
108	2.27	103	2.41	97	2.34	94	2.53
77	2.72	74	2.27	73	2.06	67	2.39
53	1.73	51	1.89	51	1.97	45	1.86
40	1.37	36	1.37	35	1.38	32	1.76
27	1.25	27	1.13	26	1.15	25	1.41
16	.70	16	.43	11	.43	10	.39
7	.35	7	.38	6	.03	5	.27
3	.20	3	.09	2	.10	2	.15
2	.17	1	.19	1	.09	1	.07

PARAMETER VALUES

PS : 3.15 ALPHA : .060 BETA : .0028

(3.02, 3.27) (.057, .063) (.0024, .0031)

SAMPLE TEMPERATURE 5.0 C INCUBATION TEMPERATURE 8.2 C

CHLOROPHYLL :	.22	RNA :	2.73	PHOSPHATE :	1.13
CARBON :	124	DNA :	2.03	NITRATE :	.47
NITROGEN :	24	ATP :	-	SILICATE :	.49
		PROTEIN:	18.20	AMMONIA :	1.16

SCOTIAN SHELF

LAT 43 25.0'N LONG 52 25.0'W STATION NO. E4
DATE 29/04/79 TIME(ADT) 2215 DEPTH 25 M

I	P	I	P	I	P	I	P
1030	.32	1015	.12	821	.50	817	.50
776	.51	722	.40	673	.67	671	.40
562	.51	526	.59	449	.75	431	1.10
352	1.01	322	.79	280	1.10	277	.98
237	1.08	231	1.25	202	1.45	191	1.27
157	1.24	148	1.32	139	1.36	128	1.33
105	1.16	102	1.31	96	1.30	94	1.48
76	1.31	74	1.23	72	1.12	66	1.01
53	1.20	51	1.22	51	1.15	45	1.17
40	1.05	36	.85	35	1.03	32	.86
27	.82	27	1.06	26	.94	25	.70
16	.41	16	.44	11	.18	10	.22
8	.05	7	.07	6	.07	5	.00
3	.00	3	.00	2	.00	2	.00
2	.00	2	.00	1	.00	1	.00

PARAMETER VALUES

PS : 1.83 ALPHA : .039 BETA : .0034

(1.71, 1.95) (.036, .041) (.0029, .0040)

SAMPLE TEMPERATURE 4.5 C INCUBATION TEMPERATURE 7.2 C

CHLOROPHYLL :	.22	RNA :	2.45	PHOSPHATE :	1.20
CARBON :	68	DNA :	3.38	NITRATE :	.18
NITROGEN :	11	ATP :	-	SILICATE :	.34
		PROTEIN:	13.90	AMMONIA :	-

SCOTIAN SHELF

LAT 43 11.0'N LONG 62 05.5'W STATION NO. E5
DATE 23/04/73 TIME(GMT) 0230 DEPTH 25 M

T	P	T	P	T	P	T	P
1021	.36	1005	.52	812	.41	804	.41
788	.49	716	.60	669	.49	664	.44
572	1.02	518	.87	443	1.32	419	1.17
346	1.37	318	1.61	277	1.95	272	1.70
230	1.86	230	1.93	203	2.28	187	1.80
155	1.97	146	1.71	139	2.04	125	1.73
103	2.15	101	1.73	96	2.02	93	1.79
75	1.72	74	2.04	72	1.89	65	1.78
53	1.88	51	1.64	51	1.89	44	1.62
39	1.58	37	1.49	35	1.65	32	1.46
28	1.21	27	1.36	26	1.43	25	1.19
16	.76	16	.78	11	.58	10	.54
8	.32	8	.32	6	.18	5	.18
3	.07	3	.07	2	.00	2	.02
2	.02	2	.00	1	.00	1	.00

PARAMETER VALUES

PS : 2.84 ALPHA : .062 BETA : .0059

(2.70, 2.98) (.059, .065) (.0052, .0066)

SAMPLE TEMPERATURE 8.0 C INCUBATION TEMPERATURE 8.0 C

CHLOROPHYLL :	1.10	RNA :	9.22	PHOSPHATE :	1.12
CARBON :	63	DNA :	5.29	NITRATE :	.16
NITROGEN :	15	ATP :	.26	SILICATE :	.76
		PROTEIN:	24.00	AMMONIA :	1.30

SCOTIAN SHELF

LAT 42 49.1N LONG 62 44.5°W STATION NO. F6
DAT- 23/04/79 TIME(ADT) 0710 DEPTH 45 M

I	P	I	P	I	P	I	P
1012	.15	994	.23	804	.24	800	.07
791	.18	710	.21	667	.25	656	.28
583	.51	510	.49	438	1.04	408	.99
340	1.24	313	1.20	267	1.61	228	1.76
223	1.82	203	1.88	184	1.89	153	2.06
144	1.93	139	2.10	122	2.03	101	2.00
100	2.05	95	2.01	93	2.03	74	2.13
74	1.98	71	1.99	64	2.04	53	1.89
51	2.11	51	1.86	44	1.93	39	1.79
37	1.79	35	1.93	32	1.84	28	1.63
27	1.78	26	1.67	25	1.72	16	1.30
16	1.20	11	.99	10	.93	8	.75
6	.49	6	.44	5	.53	3	.32
3	.29	2	.19	2	.08	2	.13
2	.15	1	.08	1	.11		

PARAMETER VALUES

PS : 2.92 ALPHA : .097 BETA : .0082

(2.82, 3.03) (.093, .101) (.0074, .0089)

SAMPLE TEMPERATURE 7.8 C INCUBATION TEMPERATURE 8.0 C

CHLOROPHYLL :	.67	RNA :	1.76	PHOSPHATE :	1.00
CARBON :	91	DNA :	4.52	NITRATE :	1.53
NITROGEN :	8	ATP :	.12	SILICATE :	1.74
		PROTEIN:	12.60	AMMONIA :	1.08

SCOTIAN SHELF

LAT 42 32.0'N
DATE 29/04/79

LONG 61 24.5'W
TIME(ADT) 1025

STATION NO. E7
DEPTH 35 M

T	P	T	P	T	P	T	P
1003	.52	984	.36	812	.56	795	.41
778	.62	704	.84	665	.64	647	.63
594	1.27	502	1.17	432	1.47	396	1.63
334	1.72	309	1.89	272	1.97	262	1.79
226	2.05	216	1.90	204	2.22	180	1.93
151	2.25	142	2.04	139	2.19	119	1.96
97	2.09	94	2.20	92	1.93	74	1.86
74	2.16	71	1.95	64	1.78	53	1.80
51	1.72	51	1.85	44	1.75	39	1.58
37	1.65	34	1.65	32	1.49	28	1.33
28	1.40	27	1.49	24	1.25	17	.88
16	.87	12	.57	10	.50	8	.43
8	.35	6	.34	5	.35	3	.18
3	.14	2	.08	2	.10	2	.08
2	.05	1	.04	1	.00		

PARAMETER VALUES

PS : 2.97 ALPHA : .064 BETA : .0055

(2.86, 3.09) (.062, .067) (.0050, .0061)

SAMPLE TEMPERATURE 6.2 C INCUBATION TEMPERATURE 8.5 C

CHLOROPHYLL : .91 RNA : 4.50 PHOSPHATE : .98

CARBON : 84 DNA : 2.44 NITRATE : .48

NITROGEN : 13 ATP : .13 SILICATE : .91

PROTEIN: 29.90 AMMONIA : .56

SCOTIAN SHELF

LAT 42 36.0'N LONG 61 21.0'W STATION NO. 58
DATE 29/04/79 TIME(ADT) 1415 DEPTH 35 M

I	P	I	P	I	P	I	P
994	.34	973	.29	787	.33	766	.41
698	.63	660	.44	656	.44	639	.58
495	.99	453	1.09	427	1.46	385	1.45
328	2.01	304	2.09	269	2.86	257	2.54
224	2.69	211	2.62	204	3.02	175	2.73
149	2.94	139	2.94	139	3.01	116	2.87
99	2.85	94	2.85	93	2.95	92	2.88
74	2.72	73	2.81	70	2.91	63	2.79
53	2.73	51	2.55	50	2.74	44	2.66
39	2.40	37	2.29	34	2.50	32	2.38
28	2.12	28	2.33	[illegible]	2.41	24	2.02
17	1.39	16	1.34	12	.87	10	.94
8	.70	8	.67	6	.45	5	.40
3	.21	3	.26	2	.07	2	.14
2	.13	2	.08	1	.02	1	.04

PARAMETER VALUES

PS : 4.65 ALPHA : .103 BETA : .0132

(4.42, 4.89) (.098, .107) (.0117, .0147)

SAMPLE TEMPERATURE 8.0 C INCUBATION TEMPERATURE 9.7 C

CHLOROPHYLL :	.79	RNA :	6.62	PHOSPHATE :	.94
CARBON :	74	DNA :	6.78	NITRATE :	1.36
NITROGEN :	8	ATP :	-	SILICATE :	1.92
		PROTEIN:	24.70	AMMONIA :	.47

SCOTIAN SHELF

LAT 43 32.0'N LONG 61 25.0'W STATION NO. E9
DATE 29/04/72 TIME(ADT) 1800 DEPTH 35 M

T	P	T	P	T	P	T	P
1168	.14	1052	.11	1025	.12	914	.12
788	.43	764	.35	740	.23	737	.55
548	.64	532	.74	449	1.24	447	1.13
411	1.46	400	1.37	330	1.66	309	1.83
263	1.72	261	1.82	216	2.02	199	1.95
180	1.96	166	1.86	153	1.96	137	1.96
119	1.85	114	1.89	113	1.94	97	1.85
85	2.05	82	1.93	76	1.76	75	1.85
61	1.88	59	1.79	57	1.79	55	1.78
45	1.66	43	1.58	42	1.57	41	1.65
32	1.51	31	1.62	31	1.40	30	1.35
19	1.14	19	.97	14	.76	14	.77
10	.56	10	.56	8	.36	8	.27
5	.19	5	.18	3	.10	3	.09
2	.05	2	.03	2	.03	2	.02

PARAMETER VALUES

PS : 3.05 ALPHA : .060 BETA : .0071

(2.89, 3.21) (.058, .063) (.0063, .0080)

SAMPLE TEMPERATURE 6.8 C INCUBATION TEMPERATURE 9.0 C

CHLOROPHYLL :	.93	RNA :	5.49	PHOSPHATE :	1.28
CARBON :	69	DNA :	4.30	NITRATE :	.27
NITROGEN :	12	ATP :	.24	SILICATE :	.97
		PROTEIN:	29.90	AMMONIA :	.49

SCOTIAN SHELF

LAT 42 40.0'N LONG 61 19.0'W STATION NO. E10
DATE 29/04/79 TIME(ADT) 2300 DEPTH 35 M

T	P	I	P	I	P	T	P
1195	.37	1046	.45	1036	.40	941	.35
799	.20	772	.71	761	.66	733	1.03
536	1.05	535	1.40	466	1.68	439	1.44
399	1.58	386	1.75	319	1.82	313	1.59
255	1.82	251	1.94	216	1.83	193	1.82
168	1.76	160	1.75	150	2.11	135	1.75
120	1.78	112	1.88	108	1.85	97	1.85
82	1.99	79	1.42	77	1.66	74	1.76
61	1.55	57	1.65	55	1.60	53	1.60
46	1.44	42	1.36	41	1.46	40	1.36
31	1.20	30	1.16	30	1.24	27	1.19
18	.89	18	.85	14	.63	14	.73
10	.46	9	.41	8	.30	7	.26
5	.13	4	.17	3	.06	3	.13
2	.03	2	.01	2	.03	2	.05

PARAMETER VALUES

PS : 2.63 ALPHA : .050 BETA : .0041

(2.50, 2.76) (.048, .053) (.0036, .0046)

SAMPLE TEMPERATURE 7.2 C INCUBATION TEMPERATURE 9.0 C

CHLOROPHYLL :	.68	RNA :	7.06	PHOSPHATE :	1.03
CARBON :	54	DNA :	6.93	NITRATE :	.49
NITROGEN :	6	ATP :	-	SILICATE :	1.25
		PROTEIN:	32.60	AMMONIA :	.96

SCOTIAN SHELF

LAT 43 06.3'N
DATE 30/04/79

LONG 62 10.0'W
TIME (ADT) 0800

STATION NO. E11
DEPTH 35 M

I	P	I	P	I	P	I	P
1221	.05	1046	.07	1041	.06	967	.07
930	.57	833	.15	783	.10	756	.22
538	.59	524	.40	482	1.07	431	.76
388	1.18	373	1.30	296	1.32	250	1.52
240	1.53	216	1.81	188	1.70	156	1.77
154	1.55	147	1.83	133	1.72	122	1.82
110	1.89	104	1.65	97	1.66	80	2.00
77	1.70	77	1.69	73	1.65	61	1.85
55	1.78	53	1.59	51	1.72	48	1.48
42	1.59	40	1.51	38	1.59	30	1.48
30	1.49	30	1.49	25	1.50	18	.91
18	1.00	14	.71	14	.67	10	.49
9	.50	8	.37	7	.34	5	.30
4	.30	3	.12	3	.15	3	.18
2	.09	2	.13	2	.09		

PARAMETER VALUES

PS : 2.60 (2.47, 2.73)

ALPHA : .068 (.065, .072)

BETA : .0065 (.0057, .0073)

SAMPLE TEMPERATURE 6.5 C

INCUBATION TEMPERATURE 9.0 C

CHLOROPHYLL : 1.03

CARBON : -

NITROGEN : 8

RNA : 6.54

DNA : 5.74

ATP : -

PROTEIN: 33.40

PHOSPHATE : 1.06

NITRATE : .61

SILICATE : 1.16

AMMONIA : .03

SCOTIAN SHELF

LAT 43 23.5'N LONG 62 10.5'W STATION NO. F12
DATE 30/04/79 TIME(ADT) 1200 DEPTH 35 M

I	P	I	P	I	P	I	P
1248	.25	1057	.34	1036	.34	994	.26
867	.44	804	.53	740	.64	727	.65
541	.98	512	1.29	499	1.57	423	1.78
376	2.37	359	1.76	338	2.46	279	2.32
245	2.34	228	2.44	216	2.42	182	2.37
148	2.11	144	2.25	144	2.42	131	2.11
123	2.38	108	2.34	99	2.20	97	2.36
78	2.31	78	2.05	74	2.01	72	2.10
61	2.22	53	1.97	51	1.75	49	1.70
49	1.83	41	1.32	38	2.01	37	1.61
32	1.74	29	1.55	29	1.07	23	1.17
18	1.19	17	.97	14	.62	13	.68
10	.49	9	.57	8	.39	7	.37
5	.17	4	.11	3	.09	3	.05
3	.07	2	.00	2	.01	2	.04

PARAMETER VALUES

PS : 3.89 ALPHA : .056 BETA : .0083

(3.60, 4.19) (.053, .059) (.0069, .0096)

SAMPLE TEMPERATURE 9.0 C INCUBATION TEMPERATURE 9.0 C

CHLOROPHYLL :	.40	RNA :	7.70	PHOSPHATE :	1.21
CARBON :	45	DNA :	3.48	NITRATE :	.30
NITROGEN :	14	ATP :	-	SILICATE :	.31
		PROTEIN:	24.80	AMMONIA :	1.51

SCOTIAN SHELF

LAT 43 50.0'N LONG 62 48.5'W STATION NO. E13
DATE 30/04/79 TIME(ADT) 1800 DEPTH 20 M

I	P	I	P	I	P	I	P
1220	1.55	1054	1.94	1032	1.98	982	1.45
838	1.93	783	1.54	722	2.65	719	1.93
535	3.01	499	2.51	412	2.27	360	3.39
357	3.09	323	3.39	268	2.88	236	2.70
226	2.83	212	3.60	177	2.77	146	3.23
145	3.24	142	3.07	127	3.06	117	2.89
106	3.21	98	3.12	93	2.68	76	2.86
72	2.72	68	2.16	59	2.57	52	2.42
50	1.57	48	1.78	47	1.81	40	1.32
38	1.79	36	1.40	31	1.13	29	1.38
29	.90	23	.99	18	.90	17	.71
14	.45	13	.45	10	.16	9	.37
8	.44	7	.23	5	.25	4	.14
3	.16	3	.13	3	.06	2	.11
2	.08	2	.00				

PARAMETER VALUES

PS : 4.06 ALPHA : .056 BETA : .0034

(3.83, 4.29) (.053, .059) (.0028, .0040)

SAMPLE TEMPERATURE 5.0 C INCUBATION TEMPERATURE 8.0 C

CHLOROPHYLL :	.20	RNA :	1.90	PHOSPHATE :	.98
CARBON :	48	DNA :	3.61	NITRATE :	.08
NITROGEN :	7	ATP :	-	SILICATE :	.17
		PROTEIN:	8.60	AMMONIA :	.96

SCOTIAN SHELF

LAT 43 41.5'N LONG 63 03.5'W STATION NO. F14
DATE 30/04/79 TIME(ADT) 2230 DEPTH 20 M

I	P	I	P	I	P	I	P
1122	.78	1071	1.12	1008	1.39	969	.77
810	1.59	762	1.02	717	1.66	698	1.44
530	1.81	481	2.18	402	1.82	355	2.25
344	2.17	309	2.48	258	1.78	227	2.24
207	2.57	171	2.23	148	2.24	143	1.89
140	2.34	123	1.93	112	1.91	104	2.51
97	2.18	87	1.98	74	1.97	73	1.60
70	1.94	65	1.20	58	1.66	51	1.54
50	1.42	47	1.61	45	1.08	40	.80
38	1.21	35	.74	31	.79	28	.99
28	.79	23	.72	18	.46	17	.43
14	.29	13	.28	10	.16	9	.19
8	.05	7	.00	5	.10	4	.00
3	.00	3	.00	3	.00	2	.00
2	.00	2	.00				

PARAMETER VALUES

PS : 3.25 ALPHA : .037 BETA : .0036

(2.98, 3.51) (.034, .039) (.0028, .0043)

SAMPLE TEMPERATURE 3.8 C INCUBATION TEMPERATURE 7.0 C

CHLOROPHYLL :	.21	RNA :	7.02	PHOSPHATE :	.98
CARBON :	43	DNA :	2.11	NITRATE :	.35
NITROGEN :	8	ATP :	-	SILICATE :	.12
		PROTEIN:	22.90	AMMONIA :	.83

SCOTIAN SHELF

LAT 43 47.5'N LONG 63 02.5'W STATION NO. E15
DATE 01/05/72 TIME(ADT) 0130 DEPTH 10 M

T	P	T	P	T	P	T	P
1008	1.47	1001	2.05	800	1.93	796	1.76
712	1.58	704	1.49	701	1.54	663	1.39
520	1.42	502	2.34	475	1.83	422	2.60
355	2.23	331	2.63	330	2.35	274	2.50
235	2.29	225	2.74	218	2.25	189	2.41
156	2.22	150	2.14	150	2.04	121	2.69
110	2.35	106	1.87	101	1.96	81	1.84
74	1.83	74	1.57	68	2.06	57	1.46
57	1.41	53	1.23	50	1.43	41	.96
39	1.17	36	1.06	36	.97	29	.72
29	.72	27	.77	27	.68	18	.35
17	.29	12	.13	10	.14	8	.05
8	.06	6	.00	6	.03	4	.01
3	.00	2	.00	2	.00	2	.00
2	.00	1	.00	1	.00		

PARAMETER VALUES

PS : 3.15 ALPHA : .036 BETA : .0025

(2.89, 3.40) (.033, .038) (.0019, .0032)

SAMPLE TEMPERATURE 5.0 C INCUBATION TEMPERATURE 6.5 C

CHLOROPHYLL	:	.30	RNA	:	2.32	PHOSPHATE	: 1.05
CARBON	:	18	DNA	:	2.35	NITRATE	: .04
NITROGEN	:	4	ATP	:	-	SILICATE	: .02
			PROTEIN	:	8.60	AMMONIA	: .22

SCOTIAN SHELF

LAT 43 47.5'N LONG 63 02.5'W STATION NO. E15
DATE 01/05/79 TIME(ADT) 0130 DEPTH 35 M

T	P	T	P	T	P	T	P
1163	.31	1089	.58	983	.83	957	.36
782	.94	740	.34	712	.98	677	.83
524	1.24	473	.97	471	1.78	391	1.35
353	1.87	327	1.46	247	1.71	222	1.99
217	1.85	203	2.03	166	1.84	150	1.90
140	2.06	106	1.81	101	1.97	96	2.05
84	1.93	72	1.62	70	1.77	67	1.61
61	1.60	56	1.26	50	1.27	49	1.48
45	1.59	43	1.00	39	1.18	38	1.15
34	1.17	30	.71	28	.80	28	1.11
23	1.11	18	.52	17	.45	13	.31
12	.21	9	.24	9	.26	7	.10
7	.21	5	.12	4	.03	3	.00
2	.06	2	.00	2	.00	2	.00

PARAMETER VALUES

PS : 2.97 ALPHA : .041 BETA : .0052

(2.73, 3.21) (.039, .043) (.0043, .0061)

SAMPLE TEMPERATURE 3.0 C INCUBATION TEMPERATURE 6.0 C

CHLOROPHYLL	:	.28	RNA	:	1.21	PHOSPHATE	: 1.00
CARBON	:	-	DNA	:	3.56	NITRATE	: .12
NITROGEN	:	6	ATP	:	-	SILICATE	: .03
			PROTEIN	:	8.40	AMMONIA	: .37

SCOTIAN SHELF

LAT 42 49.8'N
DATE 07/05/79

LONG 62 46.6'W
TIME(ADT) 0720

STATION NO. E1
DEPTH 35 M

I	P	I	P	I	P	I	P
1135	.15	1107	.30	959	.28	945	.13
754	.16	719	.17	708	.60	656	.39
519	1.00	462	1.80	460	1.14	381	1.65
351	2.02	311	2.14	279	2.29	237	2.28
220	2.45	208	2.29	199	2.48	161	2.01
153	2.34	138	2.25	135	2.56	114	2.44
100	2.29	99	2.57	80	2.47	70	2.28
68	2.44	65	2.31	58	2.23	54	2.22
49	2.31	48	2.25	44	2.25	41	2.03
38	1.99	38	1.98	34	2.11	29	1.64
28	1.67	28	1.65	23	1.95	18	1.07
17	1.13	13	.72	12	.77	9	.48
9	.50	7	.40	7	.34	5	.23
4	.20	3	.11	3	.14	2	.05
2	.08	2	.07	2	.00		

PARAMETER VALUES

PS : 3.84 ALPHA : .080 BETA : .0095

(3.59, 4.09) (.076, .084) (.0081, .0110)

SAMPLE TEMPERATURE 6.2 C INCUBATION TEMPERATURE 8.2 C

CHLOROPHYLL :	.82	RNA :	5.21	PHOSPHATE :	.99
CARBON :	70	DNA :	6.68	NITRATE :	.97
NITROGEN :	8	ATP :	.13	SILICATE :	1.12
		PROTEIN:	12.40	AMMONIA :	.63

SCOTIAN SHELF

LAT 42 46.5'N LONG 62 48.0'W STATION NO. F2
DATE 01/05/79 TIME(ADT) 1210 DEPTH 35 M

I	P	I	P	I	P	I	P
1124	.43	1107	.18	934	.37	932	.20
726	.50	703	.78	698	.38	635	.56
513	.96	453	1.54	447	1.07	370	1.39
349	1.81	295	1.83	265	2.25	226	2.44
218	2.37	199	2.38	194	2.58	155	2.32
155	2.20	135	2.12	133	2.74	110	2.20
97	2.72	95	2.19	94	2.51	76	2.23
68	2.51	65	2.16	63	2.67	54	2.18
53	2.44	48	2.47	48	2.31	43	2.20
39	2.26	38	2.08	38	1.99	33	2.08
29	1.99	27	1.94	27	1.70	23	1.66
18	1.23	17	1.34	13	.77	12	.76
9	.52	9	.56	7	.39	7	.40
5	.25	4	.24	3	.14	3	.14
2	.05	2	.10	2	.05	2	.11

PARAMETER VALUES

PS : 3.59 ALPHA : .091 BETA : .0085

(3.41, 3.77) (.086, .095) (.0074, .0095)

SAMPLE TEMPERATURE 5.4 C INCUBATION TEMPERATURE 8.8 C

CHLOROPHYLL :	.68	RNA :	1.90	PHOSPHATE :	1.12
CARBON :	68	DNA :	4.92	NITRATE :	2.96
NITROGEN :	6	ATP :	.15	SILICATE :	2.18
		PROTEIN:	11.30	AMMONIA :	1.38

SCOTIAN SHELF

LAT 42 49.7'N LONG 62 48.4'W STATION NO. E3
DATE 01/05/72 TIME(ADT) 1600 DEPTH 35 M

T	P	T	P	T	P	T	P
1044	.13	1009	.14	833	.33	806	.24
763	.45	749	.18	726	.17	670	.22
546	.62	496	.88	464	1.94	460	1.15
383	1.89	358	2.16	299	3.02	292	2.31
247	2.77	239	2.88	231	3.00	202	3.07
162	3.06	162	3.01	162	2.96	126	3.41
120	3.14	109	3.07	99	3.33	99	3.12
89	3.44	79	2.75	74	3.18	73	3.19
62	3.08	62	2.78	55	3.12	52	2.93
42	2.76	42	2.59	40	2.79	38	2.60
31	2.31	29	2.37	29	2.07	28	1.99
18	1.56	18	1.82	12	1.10	11	1.17
9	.80	9	.74	6	.54	6	.53
4	.29	4	.33	3	.19	3	.16
2	.10	2	.07	2	.14	2	.07

PARAMETER VALUES

PS : 5.66 ALPHA : .100 BETA : .0179

(5.25, 6.07) (.095, .104) (.0152, .0205)

SAMPLE TEMPERATURE 5.2 C INCUBATION TEMPERATURE 8.5 C

CHLOROPHYLL :	.86	RNA :	2.46	PHOSPHATE :	1.02
CARBON :	41	DNA :	4.68	NITRATE :	1.95
NITROGEN :	5	ATP :	-	SILICATE :	1.75
		PROTEIN:	14.60	AMMONIA :	.58

SCOTIAN SHELF

LAT 42 49.8'N LONG 62 48.3'W STATION NO. F4
DATE 01/05/79 TIME(ADT) 1940 DEPTH 35 M

T	P	T	P	T	P	T	P
1142	.13	1079	.13	920	.18	910	.11
698	.85	698	.47	677	.29	614	.83
508	1.50	444	2.29	434	1.28	360	2.40
347	2.42	279	2.17	250	2.81	216	2.65
216	2.51	190	2.59	190	2.42	157	2.65
150	2.58	133	2.49	131	3.03	106	2.55
95	2.44	93	2.65	89	2.47	72	2.43
67	2.54	66	2.42	63	2.25	51	2.44
51	2.35	47	2.22	47	2.26	42	2.19
38	2.32	37	2.08	37	1.87	32	1.90
28	1.94	27	1.98	27	1.81	23	1.78
18	1.24	17	1.22	13	1.07	12	.88
9	.59	9	.67	7	.46	7	.47
5	.24	4	.27	3	.16	3	.19
2	.07	2	.08	2	.07	2	.06

PARAMETER VALUES

PS : 4.06 ALPHA : .083 BETA : .0092

(3.79, 4.33) (.078, .088) (.0078, .0106)

SAMPLE TEMPERATURE 5.2 C INCUBATION TEMPERATURE 8.0 C

CHLOROPHYLL :	.93	RNA :	5.91	PHOSPHATE :	1.09
CARBON :	35	DNA :	4.44	NITRATE :	.57
NITROGEN :	6	ATP :	.33	SILICATE :	.41
		PROTEIN:	42.30	AMMONIA :	.27

SCOTIAN SHELF

LAT 42 50.0'N LONG 62 48.3'W STATION NO. F5
DATE 02/05/79 TIME(ADT) 0005 DEPTH 35 M

T	P	T	P	T	P	T	P
1102	.03	1065	.07	938	.06	917	.07
719	.09	698	.12	649	.26	587	.08
518	.40	460	.72	444	.86	364	1.26
355	1.15	304	1.49	258	1.44	231	1.60
225	1.75	204	1.81	197	1.68	165	1.63
159	1.69	145	1.64	138	1.75	110	1.64
96	1.64	96	1.71	92	1.69	79	1.76
67	1.66	65	1.68	65	1.61	55	1.71
52	1.75	51	1.56	49	1.68	44	1.73
39	1.42	37	1.61	35	1.51	34	1.54
28	1.28	28	1.28	26	1.50	26	1.49
18	1.00	18	1.04	13	.77	13	.74
9	.52	9	.53	7	.39	7	.39
5	.22	4	.20	3	.16	3	.12
2	.10	2	.01	2	.11	2	.09

PARAMETER VALUES

PS : 2.74 ALPHA : .068 BETA : .0079

(2.56, 2.92) (.064, .072) (.0067, .0091)

SAMPLE TEMPERATURE 5.9 C INCUBATION TEMPERATURE 9.2 C

CHLOROPHYLL :	1.06	RNA :	5.35	PHOSPHATE :	1.18
CARBON :	46	DNA :	5.36	NITRATE :	1.11
NITROGEN :	9	ATP :	.15	SILICATE :	1.29
		PROTEIN:	11.60	AMMONIA :	.63

SCOTIAN SHELF

LAT 42 50.0'N LONG 62 48.0'W STATION NO. 56
DATE 02/05/79 TIME(ADT) 0320 DEPTH 35 M

I	P	I	P	I	P	I	P
1063	.12	1051	.07	955	.05	924	.11
762	.20	698	.18	599	.35	560	.43
529	.70	486	.51	444	1.22	368	1.39
364	1.50	330	1.84	267	2.20	247	2.19
234	2.12	219	2.34	204	2.35	174	2.24
169	2.21	154	2.49	143	2.34	114	2.18
99	2.37	98	2.43	94	2.15	86	2.45
70	2.33	69	2.47	66	1.68	59	2.21
55	2.31	52	2.39	51	2.09	47	2.07
39	2.11	38	2.09	36	2.10	34	2.14
29	1.83	28	1.93	28	1.78	26	1.91
19	1.45	18	1.38	13	.96	13	1.00
10	.71	10	.70	8	.52	7	.49
5	.29	4	.24	3	.10	3	.19
3	.16	2	.11	2	.13	2	.10

PARAMETER VALUES

PS : 3.85 ALPHA : .086 BETA : .0114

(3.57, 4.12) (.081, .091) (.0096, .0132)

SAMPLE TEMPERATURE 7.1 C INCUBATION TEMPERATURE 9.5 C

CHLOROPHYLL :	.82	RNA :	5.35	PHOSPHATE :	1.08
CARBON :	80	DNA :	3.84	NITRATE :	.69
NITROGEN :	12	ATP :	-	SILICATE :	.73
		PROTEIN:	18.50	AMMONIA :	.42

SCOTIAN SHELF

LAT 42 49.5'N LONG 62 47.7'W STATION NO. 57
DATE 02/05/79 TIME(ADT) 0800 DEPTH 35 M

T	P	I	P	I	P	T	P
1005	.12	974	.30	825	.18	789	.42
762	.39	714	.40	667	.61	592	.78
566	1.84	542	1.28	476	1.66	473	2.25
389	2.41	364	2.66	337	2.99	296	2.87
263	3.13	235	3.13	229	3.25	211	3.37
168	3.34	163	3.30	157	3.28	137	3.50
119	3.26	113	3.32	108	3.33	98	3.38
87	3.17	81	3.19	74	3.29	71	3.05
60	3.03	59	3.16	57	2.99	52	3.32
45	2.56	42	2.72	41	2.82	40	2.70
32	2.37	30	2.31	30	2.23	29	2.49
18	1.60	18	1.74	11	1.28	11	1.33
8	.83	8	.88	6	.62	6	.65
4	.40	4	.34	3	.22	3	.23
2	.11	2	.06	2	.10	1	.08

PARAMETER VALUES

PS : 5.47 ALPHA : .101 BETA : .0138

(5.13, 5.81) (.096, .107) (.0119, .0156)

SAMPLE TEMPERATURE 6.2 C INCUBATION TEMPERATURE 9.0 C

CHLOROPHYLL	:	.61	RNA	:	4.94	PHOSPHATE	: .91
CARBON	:	28	DNA	:	2.63	NITRATE	: .77
NITROGEN	:	4	ATP	:	-	SILICATE	: .68
			PROTEIN	:	16.80	AMMONIA	: .30

SCOTIAN SHELF

LAT 42 49.5'N LONG 62 47.5'W STATION NO. F8
DATE 02/05/79 TIME(ADT) 1250 DEPTH 35 M

T	P	T	P	I	P	T	P
1037	.70	1024	.54	973	.61	931	.52
804	.97	698	.94	550	1.35	539	1.70
533	1.83	512	2.00	444	1.99	372	1.95
372	2.18	355	2.23	275	2.12	262	2.13
243	2.00	233	2.34	211	2.28	182	2.11
178	2.34	173	2.13	148	2.22	118	2.20
102	2.01	99	2.19	97	2.27	93	2.19
74	2.09	70	2.25	68	2.13	63	2.08
59	1.92	53	2.12	53	1.97	49	1.72
40	1.81	38	1.54	38	1.26	32	1.85
32	1.07	29	1.50	28	1.65	25	1.22
19	1.10	19	1.02	14	.79	13	.70
10	.54	8	.32	7	.37	5	.19
4	.18	3	.07	3	.00	3	.08
2	.06	2	.05	2	.05		

PARAMETER VALUES

PS : 3.01 ALPHA : .064 BETA : .0039

(2.87, 3.15) (.060, .067) (.0034, .0045)

SAMPLE TEMPERATURE 7.0 C INCUBATION TEMPERATURE 9.0 C

CHLOROPHYLL :	1.04	RNA :	6.87	PHOSPHATE :	1.10
CARBON :	72	DNA :	3.47	NITRATE :	.26
NITROGEN :	12	ATP :	-	SILICATE :	.45
		PROTEIN:	24.30	AMMONIA :	.57

SCOTIAN SHELF

LAT 42 49.5'N
DATE 02/05/79

LONG 62 47.5'W
TIME(ADT) 1250

STATION NO. F8
DEPTH 35 M

I	P	T	P	I	P	T	P
931	1.00	931	1.46	783	1.52	762	1.73
698	1.84	656	1.84	635	1.55	635	3.04
512	2.49	444	1.91	434	2.65	406	2.96
368	3.07	343	2.94	313	3.03	271	3.00
262	3.26	212	3.06	212	3.00	205	3.15
163	3.09	157	2.84	142	3.05	140	2.89
110	2.79	106	2.82	104	2.58	93	3.03
78	2.57	76	2.84	74	2.61	63	2.70
60	2.30	53	2.44	49	2.66	46	1.96
42	2.40	41	1.97	39	1.93	36	2.07
33	1.71	32	1.72	28	1.67	26	1.86
18	1.08	17	1.01	11	.75	11	.85
8	.49	8	.46	6	.39	6	.32
4	.09	3	.00	3	.00	3	.09
2	.00	2	.00	2	.00	1	.00

PARAMETER VALUES

PS : 3.91 (3.72, 4.10)

ALPHA : .073 (.069, .077)

BETA : .0041 (.0034, .0047)

SAMPLE TEMPERATURE 8.0 C

INCUBATION TEMPERATURE 9.0 C

CHLOROPHYLL : 1.04

CARBON : 50

NITROGEN : 5

RNA : 7.70

DNA : 4.40

ATP : .17

PROTEIN: 33.30

PHOSPHATE : 1.26

NITRATE : .18

SILICATE : .41

AMMONIA : .90

SCOTIAN SHELF

LAT 42 49.0'N LONG 62 47.5'W STATION NO. F9
DATE 02/05/79 TIME(ADT) 1725 DEPTH 35 M

I	P	I	P	I	P	I	P
1142	.29	1037	.23	984	.31	889	.15
783	.52	772	.80	688	.46	592	1.04
561	1.42	434	1.50	423	1.91	421	2.06
343	2.18	334	1.78	267	2.19	262	1.77
237	2.32	212	1.92	178	2.09	169	1.92
161	2.21	148	1.84	129	2.13	123	2.21
121	1.92	104	1.94	87	2.19	85	2.09
83	1.88	80	1.78	66	2.12	66	1.82
63	2.04	59	1.97	51	1.69	47	2.02
47	1.92	47	1.79	36	1.52	34	1.75
34	1.47	33	1.72	26	1.13	25	1.24
20	1.24	19	1.21	14	.85	13	.81
10	.57	10	.58	7	.43	7	.37
5	.20	4	.17	3	.05	3	.08
3	.00	2	.01	2	.00	2	.02

PARAMETER VALUES

PS : 2.92 ALPHA : .066 BETA : .0049

(2.74, 3.09) (.061, .071) (.0041, .0057)

SAMPLE TEMPERATURE 7.0 C INCUBATION TEMPERATURE 8.5 C

CHLOROPHYLL : 1.01 RNA : 7.70 PHOSPHATE : 1.24

CARBON : 74 DNA : 4.86 NITRATE : .29

NITROGEN : 12 ATP : - SILICATE : .68

PROTEIN: 31.70 AMMONIA : .31

SCOTIAN SHELF

LAT 42 49.8'N LONG 62 47.5'W STATION NO. F9
DATE 02/05/73 TIME(ADT) 1725 DEPTH 35 M

I	P	I	P	I	P	I	P
963	.79	889	.77	762	.98	730	.73
709	1.45	698	1.30	656	1.05	635	1.16
508	1.86	487	2.16	455	2.39	413	2.18
368	2.49	334	2.59	292	2.64	275	2.78
264	2.53	231	2.62	188	2.44	178	2.77
152	2.72	143	2.58	140	2.64	135	2.75
112	2.64	97	2.44	97	2.67	91	2.52
87	2.55	76	2.43	76	2.60	68	2.45
63	2.37	55	2.40	51	2.12	49	1.79
45	2.14	41	2.03	37	1.78	35	1.67
34	1.71	28	1.73	26	1.01	26	1.43
15	.84	14	.77	10	.53	10	.61
7	.38	7	.32	6	.26	5	.23
3	.10	3	.00	3	.08	2	.03
2	.02	2	.02	1	.02	1	.00

PARAMETER VALUES

PS : 3.99 ALPHA : .064 BETA : .0065

(3.78, 4.19) (.061, .067) (.0057, .0073)

SAMPLE TEMPERATURE 8.2 C INCUBATION TEMPERATURE 9.0 C

CHLOROPHYLL :	.99	RNA :	5.90	PHOSPHATE :	1.17
CARBON :	64	DNA :	4.68	NITRATE :	.24
NITROGEN :	10	ATP :	-	SILICATE :	.49
		PROTEIN:	23.00	AMMONIA :	.75

TOTAL SURFACE RADIATION IN WATTS M^{-2}

	18/4	19/4	20/4	21/4	22/4	23/4	24/4	25/4	26/4	27/4	28/4	29/4	30/4	1/5	2/5	3/5
0600	–	12	12	12	12	12	12	23	23	12	12	23	12	12	12	23
0700	–	46	23	128	35	140	35	174	186	105	105	58	47	35	35	116
0800	–	291	93	198	116	395	116	372	384	209	198	186	93	93	70	174
0900	–	348	268	198	268	465	256	128	547	360	337	314	174	151	151	244
1000	–	372	500	221	314	721	163	384	698	593	593	430	279	186	279	186
1100	–	535	628	198	442	791	326	791	814	535	547	488	163	186	186	360
1200	–	697	395	233	477	756	384	837	872	640	570	523	267	198	302	454
1300	–	814	395	198	221	709	279	837	907	779	663	686	256	116	349	500
1400	–	616	197	291	256	663	233	849	837	430	364	675	302	70	581	–
1500	244	523	93	349	360	616	512	779	756	372	244	628	186	70	628	–
1600	186	255	81	186	163	337	466	616	593	209	186	430	140	93	628	–
1700	93	186	70	163	58	163	291	419	407	116	140	174	93	105	419	–
1800	70	81	46	81	35	46	186	233	198	47	81	93	58	46	198	–
1900	23	12	23	35	12	12	46	58	35	12	70	23	23	12	58	–
2000	0	0	0	0	0	0	0	0	0	0	12	0	12	0	12	–

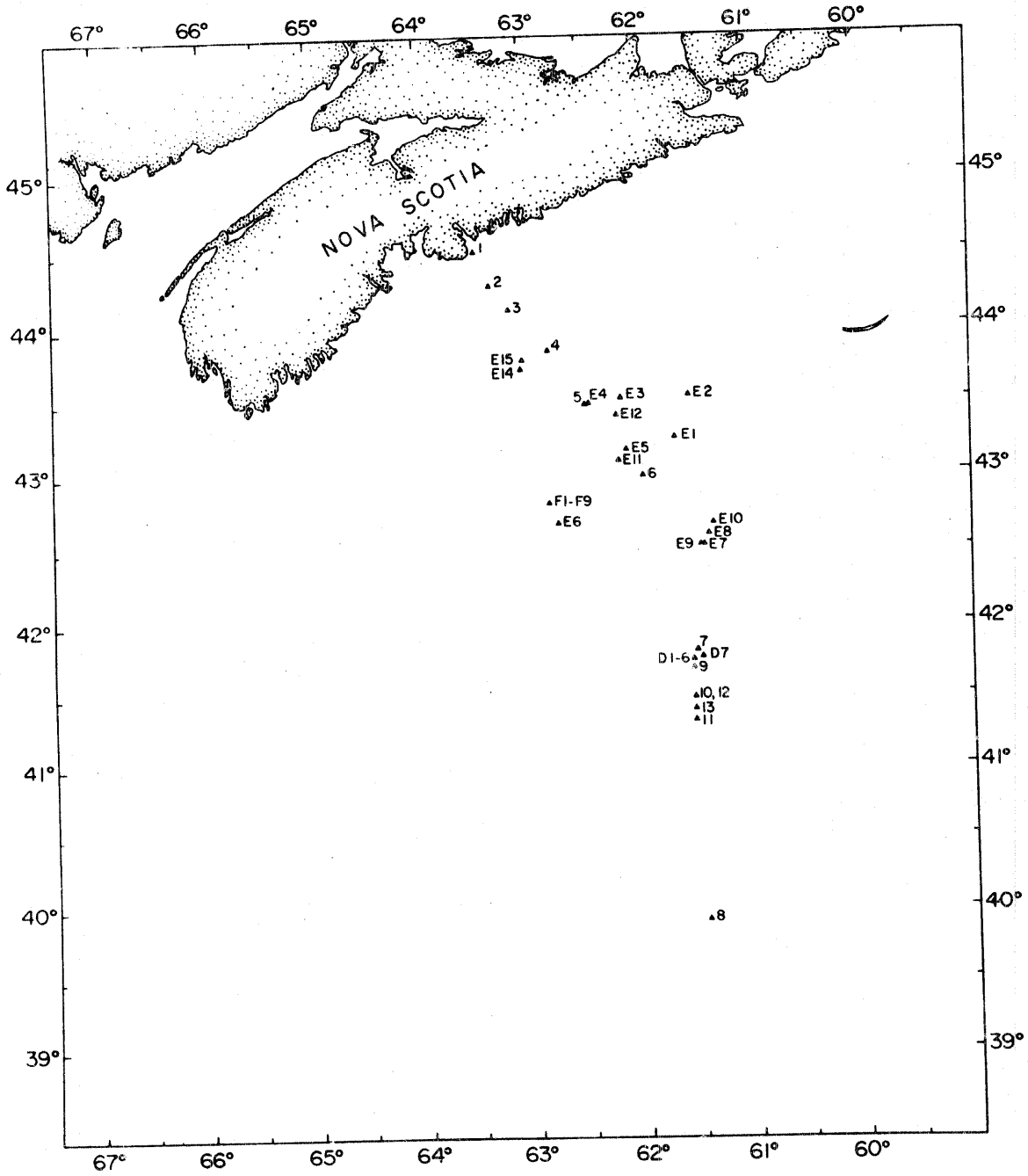

Fig. 1. Location of Sampling stations on the Scotian Shelf.