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PHYTOPLANKTON PRODUCTIVITY EXPERIMENTS AND NUTRIENT MEASUREMENTS
IN THE LABRADOR SEA, DAVIS STRAIT, BAFFIN BAY, AND LANCASTER SOUND
FROM 26 AUGUST TO 14 SEPTEMBER 1978

by

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ABSTRACT

Irwin, B., W.G. Harrison, C.L. Gallegos and T. Platt. 1980. Phytoplankton productivity experiments and nutrient measurements in the Labrador Sea, Davis Strait, Baffin Bay and Lancaster Sound from 26 August to 14 September 1978. Can. Data Rept. Fish. Aquat. Sci. No. 213: 103 p.

Series of primary productivity experiments and related nutrient determinations were made from the Labrador Sea, Davis Strait, Baffin Bay, and Lancaster Sound between 26 August and 14 September 1978. In this report we make available the raw data and also the fitted light saturation parameters with confidence limits.

RESUME

Irwin, B., W.G. Harrison, C.L. Gallegos and T. Platt. 1980. Phytoplankton productivity experiments and nutrient measurements in the Labrador Sea, Davis Strait, Baffin Bay and Lancaster Sound from 26 August to 14 September 1978. Can. Data Rept. Fish. Aquat. Sci. No. 213: 103 p.

Du 26 août au 14 septembre des séries d'expériences sur la détermination de la production primaire et des sels nutritifs furent réalisées de la mer Labrador, au détroit de Davis, de la baie de Baffin, et du détroit de Lancaster. Dans ce rapport nous présentons les données brutes sur ces expériences, ainsi que les paramètres avec leur intervalles de confiance qui furent calculés pour représenter les courbes de production en fonction de la lumière.

1
INTRODUCTION

This is the fourth in a series of data reports giving the results of experiments on photosynthetic production versus light intensity for natural phytoplankton populations in the North Atlantic north of 50°N. During this cruise samples were collected from CSS Hudson in the Gulf of St. Lawrence, Strait of Belle Isle, Labrador Sea, Davis Strait, Baffin Bay, and Lancaster Sound. This was a joint cruise with the Chemical Oceanography Division of the Atlantic Oceanographic Laboratory.

SAMPLING

Water samples were collected while the ship was under-way and at regular stations. Under-way samples were collected off the surface with a plastic bucket. At regular stations, a secchi disc was lowered until it disappeared to estimate the depth of the euphotic zone. From this information, the depth of 50%, 25%, 10%, and 1% light penetration was calculated. Water was collected from the 50% and 1% light depths with 30 l Niskin bottles and from 25% and 10% light depths with 7 L Niskin bottles. The 100% light depth (surface) was sampled with a plastic bucket. The location of the stations is shown in Figures 1 and 2.

METHODS

Productivity

The ^{14}C method as described in Strickland and Parsons (1972) was used. For surface productivity measurements, three light and one dark bottles were filled with surface water and inoculated with 1 ml of sodium bicarbonate ^{14}C having an approximate activity of 10 μCi . The inoculated bottles were placed in a clear plexiglass incubator located on the ship's flight deck. Water from 3 m was pumped continuously through the incubator to maintain temperature control.

The number of light bottles inoculated for light saturation experiments varied between 20 and 60 for each depth along with between 2 and 4 dark bottles. Twenty light and two dark bottles were placed in temperature-controlled incubators illuminated with 150 W floodlights (GTE Sylvania PAR 150). These incubators had a maximum light intensity of ca. 200 W m^{-2} (PAR). The remaining light and dark bottles were placed in temperature-controlled incubators illuminated by a 2000 W tungsten-halogen lamp (New Haline OHS 2000). These incubators had a maximum light intensity of ca. 1000 W m^{-2} (PAR). Temperature control was attained by pumping sea water from 3 m through the incubators.

All incubations were terminated after four hours and samples were immediately filtered onto 2.5 cm diameter, 0.45μ pore size membrane filters. Filters were dried in a desiccator and stored at -20°C until the end of the cruise. In the laboratory the filters were exposed to HCl fumes and then counted in a scintillation counter.

Chlorophyll a

One litre of water was filtered onto 5.5 cm glass fibre filters and stored in a desiccator at -20°C for later analyses. The fluorometric technique of Yentsch and Menzel (1963) as modified by Holm-Hansen *et al.* (1965) was used. Acetone extracts of pure chlorophyll a (Sigma Chemical Co.) were used to calibrate the fluorometer.

Light Intensity

Photosynthetically active radiation in each compartment of the incubators was measured on a Licor Li 185A Quantum meter equipped with a 190s underwater quantum sensor.

Incident Radiation

Total incident radiation was measured with an Eppley 40 Junction pyranometer mounted above the bridge of the ship. The output of the pyranometer was recorded on a Licor Li 550 printing integrator. The chosen time interval was 1 hr.

Nutrients

Four inorganic nutrients were routinely measured from each depth sampled. Three of them, phosphate, nitrate and silicate, were stored frozen at -20°C and later measured on a Technicon II autoanalyzer using the following methods:

Phosphate - industrial method 155-71W
 Nitrate - industrial method 158-71W
 Silicate - industrial method 186-72W

The fourth nutrient, ammonia, was measured immediately after collection using the phenolhypochlorite method of Solorzano (1969).

Nucleic Acids

Replicate 2 l samples were filtered onto 5.5 cm glass fibre filters (Reeve Angel 934H) and stored at -20°C in a desiccator. The frozen filters were homogenized in buffered sodium chloride solution at 0°C and 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 was a measure of Ribonucleic acid (RNA) and Deoxyribonucleic acid (DNA). RNase solution, 0.04 ml, was added to the test tube, mixed and incubated at 50°C for 60 min. The fluorescence was remeasured. This second reading was a measure of DNA concentration only.

Proteins

Replicate 500 ml samples were filtered onto 2.4 cm glass fibre filters (Whatman GF/C) and stored at -20°C in a desiccator. A fluorometric method based on the fluorescamine reaction described by Packard and Dortsch (1975) was used to estimate particulate protein. The frozen filter was transferred to a grinding tube and 5.0 ml of 1% Triton X-100 (Sigma Chemical Co.) solution was added. The filter was homogenized for 60 seconds and homogenate transferred to a 10 ml centrifuge tube. The glass fibres were centrifuged down at 2000 rpm for 5 min 1.0 ml of the clear supernatant was pipetted into a 50 ml boiling tube, containing 3.0 ml of borate buffer, and finally 1.0 ml of Fluram (4 phenylspiro[Furan-2(3H),1'-phthalan]-3,3 dione) was added dropwise with vigorous mixing. After 5 min, the fluorescence was measured on a Turner III fluorometer (Excitation filter Corning 7-60, emission filters Wratten 2A and 48). The method was standardized with solutions of Bovine Serum Albumen.

Adenosine Triphosphate (ATP)

Replicate 250 ml samples were filtered onto 2.4 cm glass fibre filters (Whatman GF/C) and immediately placed into 10 ml test tubes containing 5 ml of boiling tris buffer. After 3 min 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 2000 integrating photometer.

Particulate Carbon

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

ESTIMATION OF PHOTOSYNTHETIC PARAMETERS

Measurements of specific production, P^B , and irradiance, I , were used to estimate parameters in the equation of Platt *et al.* (in press),

$$P^B = P_s (1 - e^{-\alpha I/P_s}) e^{-\beta I/P_s} \quad (1)$$

P_s ($\text{mg C mg Chl}^{-1} \text{ h}^{-1}$) is the light-saturated rate of specific production in the absence of photo-inhibition, $\alpha(\text{mg C} [\text{mg Chl}]^{-1} \text{ h}^{-1} \text{ W}^{-1})$ is the initial slope of the P-I curve, and β (same units as α) is a parameter that characterizes the photo-inhibition. All three parameters were estimated simultaneously using the modified Gauss-Newton method (Bard 1974). The method requires initial or trial estimates of the parameters, which were obtained as follows. The initial slope, α , was estimated by a linear regression of those points with $I \leq 25 \text{ W m}^{-2}$. P_s was estimated as the highest observed value of P^B , and β was initially set to 10^{-5} . All three parameters were then fitted simultaneously.

It is of interest to examine the precision of the fitted parameters. Initially, this was done using a Monte Carlo simulation technique. Representative values of the parameters P_s , α , and β were chosen and were used with Equation (1) and measured values of irradiance from a typical experiment to generate 100 psuedo-experiments. Each psuedo-experiment consisted of 50 values of irradiance and simulated P^B . Each simulated P^B value was corrupted by adding a random, normal deviate with 0 mean and standard deviation of 10% of the simulated value. The error-corrupted values were then used with the fitting routine to estimate the three photosynthetic parameters for each psuedo-experiment; errors in the fitted parameters were then examined (Table 1). Means of

Table 1

| | Mean Error | Standard Deviation of Errors | Coefficient of Variation of Errors | r_{P_s} | r_α | r_β |
|----------|------------|------------------------------|------------------------------------|-----------|------------|-----------|
| P_s | 0.0346 | 0.301 | 4.7% | - | -0.35 | 0.98 |
| α | -0.0002 | 0.0082 | 4.1% | - | - | -0.33 |
| β | 0.0002 | 0.0015 | 10% | - | - | - |

estimation errors of all three parameters were not significantly different from zero ($P < 0.01$); coefficients of variation of the estimation errors were less than 5% for P_s and α , and 10% for β . Errors in β were highly correlated with errors in P_s . Errors in P_s and α were negatively correlated, as were errors in α and β . All correlation coefficients in Table 1 are significantly different from 0.

The above procedure provides a rough indication of the precision of the fitted parameters for a typical experiment. However, the scatter in the data varies considerably from experiment-to-experiment. Also, the Monte Carlo procedure assumes that Equation (1) is an exact description of the photosynthesis and photoinhibition processes. Since this cannot be known for certain, the coefficients of variation in Table (1) are probably too low. Therefore, it is useful to have a separate estimate of the precision of the fitted parameters for each experiment. This can be obtained from the parameter covariance matrix. The parameter covariance, V_p , matrix is obtained from the data by the relation (Smith 1979),

$$\underline{V}_p = \hat{\sigma}^2 (\underline{B}^T \underline{B})^{-1} \quad (2a)$$

$$\text{where } \hat{\sigma}^2 = \frac{1}{n-3} \sum_{j=1}^n [P^B - \hat{P}_s (1 - e^{-\hat{\alpha} I_j / \hat{P}_s}) e^{-\hat{\beta} I_j / \hat{P}_s}]^2, \quad (2b)$$

n is the number of data points, and \hat{P}_s , $\hat{\alpha}$ and $\hat{\beta}$ are the fitted values of the photosynthetic parameters. \underline{B} is the $(n \times 3)$ ($r \times c$) dimensional matrix of partial derivatives with elements,

$$B_{jk} = \frac{\partial f}{\partial p_k} (I_j, \underline{P}) \quad (3)$$

where $f(I_j, \underline{P})$ is given by the right-hand side of Equation (1), and \underline{P} is the vector of parameters with elements $p_1 = P_s$, $p_2 = \alpha$, $p_3 = \beta$. The partial derivations in (3) are evaluated at the fitted values of \underline{P} . The derivation and underlying assumptions of Equation (2) are given in Smith (1979).

The square roots of the diagonal elements of V_p are approximate standard deviations of the parameter estimates. Therefore, approximate $\gamma/2$ confidence limits for the parameters are given by (Smith 1979)

$$\hat{P}_j = \hat{P}_j \pm t_{\gamma/2} \sqrt{(V_p)_{jj}}$$

where $t_{\gamma/2}$ is the $\gamma/2$ critical point of Student's t distribution with $n-3$ degrees of freedom, and $(V_p)_{jj}$ is the appropriate diagonal element of V_p . The number of data points in the experiments reported here varied from 40-60. In computing 90% confidence limits, we used $t = 1.68$ for all experiments.

Because errors in the parameter estimates are correlated, it is preferable to report joint confidence regions for the parameters. The parameters may be viewed as lying somewhere within a solid region in parameter space, with each of the parameters, P_s , α and β forming a principle coordinate axis. The equation for the joint confidence region is [Smith (1979)],

$$(\underline{P} - \hat{P})^T (B^T B) (\underline{P} - \hat{P}) \leq 3 \hat{\sigma}^2 F_{3, n-3}^Y \quad (4)$$

where \underline{P} , B , and $\hat{\sigma}^2$ are as given above, \hat{P} is the vector of the fitted parameters, and $F_{3, n-3}^Y$ is the upper Y point of the F distribution with 3 and $n-3$ degrees of freedom.

Equation (4) defines an ellipsoid in parameter space, centered at $(P_s, \hat{\alpha}, \hat{\beta})$. Expanding Equation (4) we have

$$b_{11} \delta_{P_s}^2 + 2b_{12} \delta_{P_s} \delta_\alpha + 2b_{13} \delta_{P_s} \delta_\beta + b_{22} \delta_\alpha^2 + 2b_{23} \delta_\alpha \delta_\beta + b_{33} \delta_\beta^2 - r \leq 0 \quad (5)$$

where $\delta_{P_s} = P_s - \hat{P}_s$, $\delta_\alpha = \alpha - \hat{\alpha}$, $\delta_\beta = \beta - \hat{\beta}$, r is the right-hand side of Equation (4), and b_{ij} are the elements of $(B^T B)$. In the Results section we report the coefficients in Equation (5) in tabular form as follows:

Table 2
Coefficients in Equation for Parameter Joint Confidence Region

| | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|---|---------------------|---------------------------|-------------------------|---------------------|
| $(P_s - \hat{P}_s)$ | b_{11} | $2b_{12}$ | $2b_{13}$ | |
| $(\alpha - \hat{\alpha})$ | - | b_{22} | $2b_{23}$ | |
| $(\beta - \hat{\beta})$ | - | - | b_{33} | r |
| Sum of Squared Errors - $(n-3)\hat{\sigma}^2$ | | | | No. of Points - n |

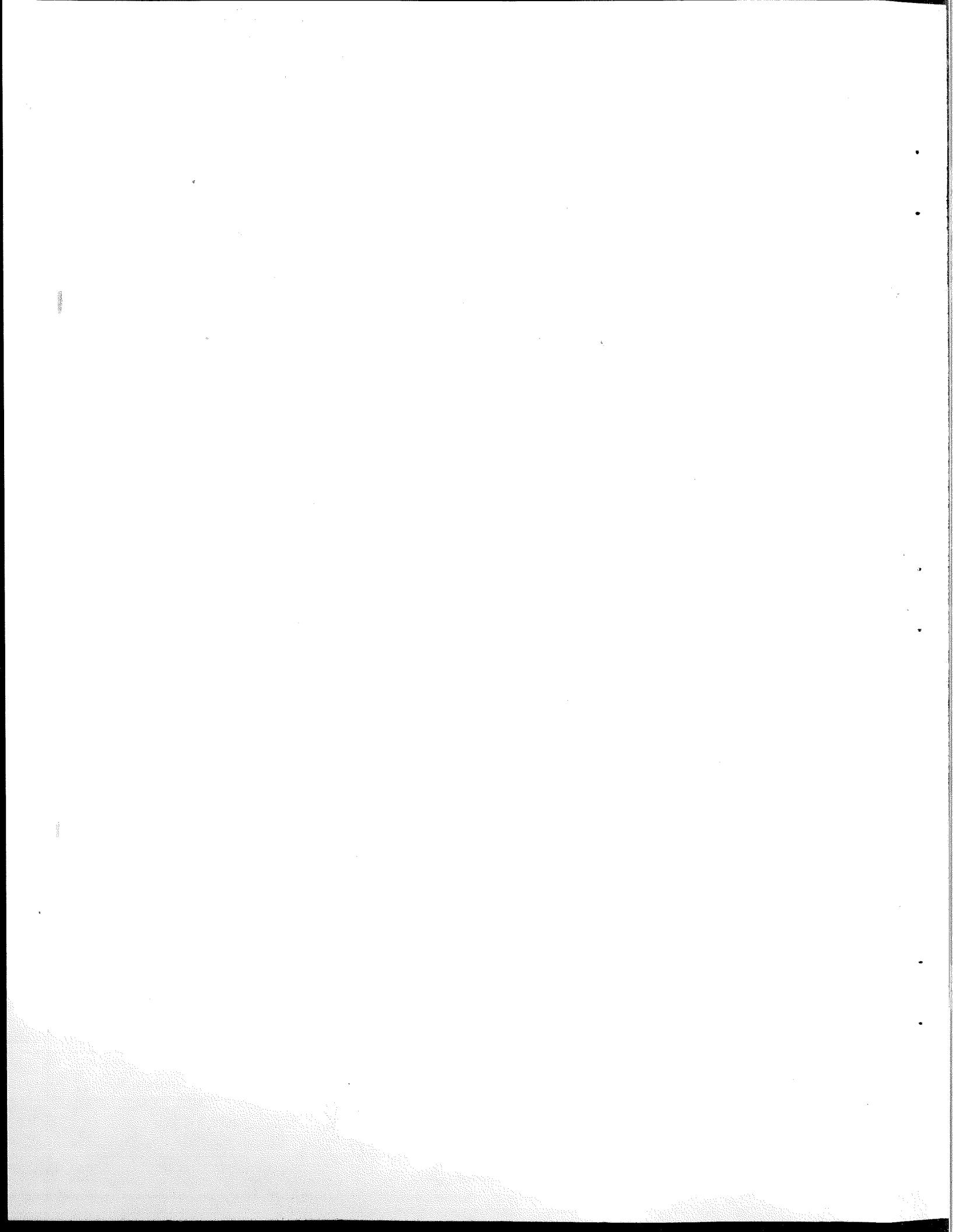
In computing r we have used $F_{3.50}^{.05} = 2.80$. The sum of squared errors and number of points are given at the end of the table so that r for any other significance level may easily be computed using Equations (2b) and (4).

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Light Saturation Data and Fitted Parameters

STATION #: 1

AREA: Eastern Shore

LATITUDE: 44°57'N

LONGITUDE: 61°18'W

DATE: 26/08/78

DEPTH: 10 m

IDENTIFIER #: 784100

| I | P | I | P | I | P | I | P |
|-------|------|------|------|-------|------|-------|------|
| 163.8 | 7.46 | 98.2 | 6.45 | 853.0 | 4.45 | 896.0 | 3.89 |
| 102.5 | 7.53 | 70.6 | 5.39 | 626.0 | 6.49 | 607.6 | 6.03 |
| 41.7 | 4.23 | 32.8 | 3.35 | 405.0 | 9.03 | 387.6 | 6.83 |
| 20.6 | 1.93 | 17.8 | 1.89 | 197.0 | 6.96 | 187.8 | 8.09 |
| 13.0 | 0.88 | 12.4 | 0.90 | 99.7 | 6.74 | 107.4 | 7.91 |
| 9.0 | 0.32 | 9.5 | 0.32 | 60.8 | 5.42 | 58.6 | 5.50 |
| 5.7 | 0.13 | 6.6 | 0.20 | 60.5 | 3.62 | 42.0 | 3.76 |
| 3.4 | 0.05 | 4.2 | 0.09 | 24.4 | 2.32 | 28.8 | 2.70 |
| 2.4 | 0.07 | 2.8 | 0.02 | 16.3 | 1.93 | 18.4 | 1.58 |

Sample Temperature: 18.0 °C

Incubation Temperature: 18.0°C

mg m⁻³mg m⁻³mg at m⁻³

Chlorophyll: 0.56

RNA:

-

Phosphate: 0.38

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.120

Carbon: 216

DNA:

-

Nitrate: 0.12

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 8.22

Nitrogen: 22

ATP:

0.136

Silicate: 0.77

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0094

Protein:

-

Ammonia: -

STATION #: 1

AREA: Eastern Shore

LATITUDE: 44°57'N

LONGITUDE: 61°18'W

DATE: 26/08/78

DEPTH: 66 m

IDENTIFIER #: 784103

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 194.8 | 1.20 | 144.2 | 1.20 | 724.2 | 0.16 | 761.0 | 0.32 |
| 63.8 | 0.96 | 93.6 | 1.20 | 478.7 | 0.48 | 454.1 | 0.64 |
| 36.5 | 1.20 | 43.0 | 0.96 | 283.8 | 0.96 | 274.6 | 1.20 |
| 20.3 | 0.80 | 22.0 | 0.72 | 159.6 | 1.28 | 164.2 | 1.52 |
| 12.0 | 0.48 | 13.0 | 0.40 | 93.6 | 1.36 | 102.8 | 1.60 |
| 6.9 | 0.40 | 8.6 | 0.24 | 62.0 | 1.36 | 61.1 | 1.44 |
| 4.0 | 0.16 | 5.0 | 0.16 | 39.0 | 1.36 | 41.4 | 1.36 |
| 2.5 | 0.16 | 3.3 | 0.08 | 28.4 | 1.04 | 32.8 | 1.20 |
| | | 2.2 | 0.08 | 20.1 | 0.96 | 23.5 | 0.96 |

Sample Temperature: 4.0 °C

Incubation Temperature: 18.0 °C

| | mg m ⁻³ | | mg m ⁻³ | | mg at m ⁻³ | | |
|--------------|--------------------|----------|--------------------|------------|-----------------------|---|--------|
| Chlorophyll: | 0.12 | RNA: | 2.00 | Phosphate: | 2.44 | α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.058 |
| Carbon: | 76 | DNA: | 0.84 | Nitrate: | 6.82 | P_m^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : | 1.33 |
| Nitrogen: | 12 | ATP: | 0.076 | Silicate: | 6.06 | β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.0033 |
| | | Protein: | - | Ammonia: | - | | |

STATION: 1

DEPTH: 66 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.663 | 1.350 | 1.976 | $(P_s - \hat{P}_s)$ | 1.172×10 | 1.054×10^2 | -2.926×10^3 | |
| α | 0.058 | 0.046 | 0.070 | $(\alpha - \hat{\alpha})$ | - | 1.284×10^3 | -7.466×10^3 | |
| β | 0.0033 | 0.0012 | 0.0055 | $(\beta - \hat{\beta})$ | - | - | 2.138×10^5 | 0.325 |

Sum of squared errors: 1.184

No. of points: 34

STATION #: 2

AREA: Gulf of St. Lawrence

LATITUDE: 48°09'N

LONGITUDE: 59°27'W

DATE: 27/08/78

DEPTH: 5 m

IDENTIFIER #: 784115

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 173.4 | 4.62 | 3.5 | 0.04 | 216.9 | 4.27 | 567.7 | 3.61 |
| 109.5 | 4.02 | 981.9 | 1.88 | 141.2 | 3.96 | 411.2 | 4.43 |
| 50.0 | 2.84 | 926.7 | 4.07 | 98.8 | 4.62 | 249.2 | 3.41 |
| 20.3 | 1.41 | 813.2 | 3.93 | 926.7 | 1.16 | 189.6 | 2.21 |
| 10.7 | 0.68 | 579.9 | 4.09 | 840.8 | 2.64 | 158.3 | 3.91 |
| 6.7 | 0.36 | 423.4 | 4.21 | 757.9 | 3.52 | 122.7 | 3.66 |
| 4.8 | 0.14 | 343.7 | 4.04 | 687.3 | 3.78 | | |
| 2.8 | 0.07 | 216.9 | 4.07 | 567.7 | 4.32 | | |
| 1.7 | 0.04 | 141.2 | 4.14 | 411.2 | 3.89 | | |
| 188.7 | 3.96 | 98.8 | 3.59 | 249.2 | 4.21 | | |
| 108.0 | 3.61 | 65.9 | 3.36 | 189.6 | 3.34 | | |
| 53.4 | 2.55 | 981.9 | 1.21 | 158.3 | 4.04 | | |
| 27.9 | 1.48 | 926.7 | 3.25 | 122.7 | 3.74 | | |
| 14.6 | 0.71 | 813.2 | 3.36 | 926.7 | 2.02 | | |
| 9.2 | 0.36 | 579.9 | 3.86 | 840.8 | 2.77 | | |
| 6.6 | 0.14 | 423.4 | 4.46 | 757.9 | 3.20 | | |
| 4.8 | 0.07 | 343.7 | 5.27 | 687.3 | 3.36 | | |

Sample Temperature: 15.3°C

Incubation Temperature: 16.0 °C

mg m⁻³mg m⁻³mg at m⁻³

| | | | | | | | |
|--------------|------|----------|-------|------------|------|---|--------|
| Chlorophyll: | 0.56 | RNA: | 6.64 | Phosphate: | 0.92 | α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.083 |
| Carbon: | 98 | DNA: | 2.08 | Nitrate: | 0.01 | P_m^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : | 4.11 |
| Nitrogen: | 10 | ATP: | 0.316 | Silicate: | 0.62 | β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.0001 |
| | | Protein: | - | Ammonia: | 0.75 | | |

STATION: 2

DEPTH: 5 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|----------------------|
| P_s | 4.163 | 3.647 | 4.679 | $(P_s - \hat{P}_s)$ | 2.196×10^2 | -1.388×10^4 |
| α | 0.083 | 0.064 | 0.102 | $(\alpha - \hat{\alpha})$ | -3.080×10^3 | -3.935×10^4 |
| β | 0.0001 | -0.0012 | 0.0015 | $(\beta - \hat{\beta})$ | - | 2.664×10^6 |

Sum of squared errors: 8.950

No. of points: 43

STATION #: 2

AREA: Gulf of St. Lawrence

LATITUDE: 48°09'N

LONGITUDE: 59°27'W

DATE: 27/08/78

DEPTH: 36 m

IDENTIFIER #: 784118

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|------|------|
| 899.1 | 0.07 | 137.5 | 1.60 | 282.3 | 1.41 | 15.3 | 0.58 |
| 727.2 | 0.20 | 106.5 | 1.78 | 252.2 | 1.27 | 11.4 | 0.36 |
| 589.2 | 0.63 | 76.7 | 1.56 | 184.1 | 1.31 | 7.0 | 0.23 |
| 478.7 | 1.02 | 748.7 | 0.03 | 154.0 | 1.32 | 4.7 | 0.13 |
| 383.6 | 1.38 | 567.7 | 0.19 | 196.4 | 1.52 | 3.1 | 0.08 |
| 247.9 | 1.52 | 509.4 | 0.45 | 133.5 | 1.63 | | |
| 166.3 | 1.53 | 438.8 | 0.78 | 63.8 | 1.22 | | |
| 137.5 | 1.68 | 331.4 | 1.10 | 35.0 | 1.16 | | |
| 106.5 | 1.63 | 282.3 | 1.34 | 21.7 | 0.82 | | |
| 76.7 | 1.60 | 252.2 | 1.35 | 12.6 | 0.53 | | |
| 899.1 | 0.03 | 184.1 | 1.37 | 9.2 | 0.35 | | |
| 727.2 | 0.18 | 154.0 | 1.31 | 6.0 | 0.20 | | |
| 589.2 | 0.50 | 748.7 | 0.04 | 3.8 | 0.12 | | |
| 478.7 | 0.91 | 567.7 | 0.20 | 147.9 | 1.72 | | |
| 383.6 | 1.36 | 509.4 | 0.50 | 98.8 | 1.70 | | |
| 247.9 | 1.50 | 438.8 | 0.94 | 48.2 | 1.45 | | |
| 166.3 | 1.68 | 331.4 | 1.13 | 30.4 | 0.94 | | |

| Sample Temperature: | 6.7 °C | | Incubation Temperature: | 16.0 °C | |
|---------------------|--------|----------|-------------------------|------------|------|
| | mg m⁻³ | | | mg at m⁻³ | |
| Chlorophyll: | 1.03 | RNA: | 5.96 | Phosphate: | 0.98 |
| Carbon: | 76 | DNA: | 1.52 | Nitrate: | 0.76 |
| Nitrogen: | 6 | ATP: | 0.204 | Silicate: | 1.04 |
| | | Protein: | - | Ammonia: | 0.82 |

STATION: 2

DEPTH: 36 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|---------------------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 2.624 | 2.201 | 3.047 | $(P_s - \hat{P}_s)$ | 1.739×10 | 2.568×10^2 | -5.674×10^3 | |
| α | 0.043 | 0.037 | 0.050 | $(\alpha - \hat{\alpha})$ | - | 4.014×10^3 | -3.206×10^4 | |
| β | 0.0068 | 0.0044 | 0.0092 | $(\beta - \hat{\beta})$ | - | - | 4.856×10^5 | 0.253 |

Sum of squared errors: 1.394

No. of points: 50

STATION #: 3

AREA: Strait of Belle Isle

LATITUDE: 51°43'N

LONGITUDE: 55°58'W

DATE: 28/08/78

DEPTH: Surface

IDENTIFIER #: 784134

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 187.2 | 2.88 | 2.8 | 0.03 | 306.8 | 3.47 | 527.8 | 3.28 |
| 148.8 | 2.84 | 825.4 | 3.70 | 251.6 | 3.42 | 402.0 | 3.45 |
| 57.1 | 2.25 | 764.0 | 2.46 | 199.4 | 3.53 | 316.0 | 3.70 |
| 29.2 | 1.41 | 736.4 | 2.96 | 127.3 | 3.26 | 160.2 | 3.25 |
| 17.0 | 0.60 | 595.3 | 3.36 | 969.6 | 3.43 | 102.8 | 3.22 |
| 9.6 | 0.36 | 487.9 | 3.36 | 945.1 | 2.28 | 72.1 | 2.95 |
| 6.7 | 0.14 | 408.1 | 2.75 | 788.6 | 2.66 | | |
| 3.6 | 0.08 | 306.8 | 3.38 | 527.8 | 3.46 | | |
| 2.4 | 0.04 | 251.6 | 3.30 | 402.0 | 3.24 | | |
| 196.4 | 2.60 | 199.4 | 3.76 | 316.0 | 3.57 | | |
| 153.4 | 2.58 | 127.3 | 3.13 | 196.4 | 3.28 | | |
| 68.1 | 2.03 | 825.4 | 3.20 | 160.2 | 3.25 | | |
| 36.8 | 1.05 | 764.0 | 2.66 | 102.8 | 3.16 | | |
| 22.4 | 0.56 | 736.4 | 3.17 | 72.1 | 2.86 | | |
| 13.6 | 0.29 | 595.3 | 3.38 | 969.6 | 3.12 | | |
| 7.3 | 0.25 | 487.9 | 3.46 | 945.1 | 2.70 | | |
| 4.9 | 0.05 | 408.1 | 3.46 | 788.6 | 3.25 | | |

| Sample Temperature: | 7.8°C | | Incubation Temperature: | 8.5 °C | |
|---------------------|--------------------|--------------------|-------------------------|-----------------------|------|
| | mg m ⁻³ | mg m ⁻³ | | mg at m ⁻³ | |
| Chlorophyll: | 0.76 | RNA: | 13.42 | Phosphate: | 0.86 |
| Carbon: | 138 | DNA: | 2.76 | Nitrate: | 0.04 |
| Nitrogen: | 23 | ATP: | 0.370 | Silicate: | 1.77 |
| | | Protein: | 38.7 | Ammonia: | 0.44 |

$\alpha \text{ mg C}(\text{mg Chl } \alpha)^{-1}\text{hr}^{-1}(\text{W m}^{-2})^{-1}$: 0.055
 $P_m^B \text{ mg C}(\text{mg Chl } \alpha)^{-1}\text{hr}^{-1}$: 3.40
 $\beta \text{ mg C}(\text{mg Chl } \alpha)^{-1}\text{hr}^{-1}(\text{W m}^{-2})^{-1}$: 0.0004

STATION: 3

DEPTH: 0 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|
| P_s | 3.550 | 3.118 | 3.982 | $(P_s - \hat{P}_s)$ | 2.196×10 | 3.330×10^2 | -1.501×10^4 |
| α | 0.056 | 0.047 | 0.064 | $(\alpha - \hat{\alpha})$ | - | 6.225×10^3 | -6.752×10^4 |
| β | 0.0004 | -0.0007 | 0.0015 | $(\beta - \hat{\beta})$ | - | - | 2.887×10^6 |

Sum of squared errors: 3.879

No. of points: 45

STATION #: 4

AREA: Labrador Sea

LATITUDE: 56°07'N

LONGITUDE: 55°44'W

DATE: 29/08/78

DEPTH: Surface

IDENTIFIER #: 784136

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 195.8 | 2.87 | 197.9 | 3.11 | 892.9 | 2.33 | 892.9 | 2.48 |
| 122.7 | 2.96 | 138.7 | 2.70 | 764.1 | 2.52 | 764.1 | 2.32 |
| 56.2 | 2.39 | 71.2 | 2.46 | 690.4 | 2.72 | 690.4 | 2.57 |
| 31.9 | 1.44 | 40.5 | 2.11 | 622.9 | 3.18 | 622.9 | 2.94 |
| 18.6 | 0.91 | 23.6 | 1.02 | 503.2 | 3.44 | 503.2 | 3.24 |
| 10.9 | 0.44 | 14.4 | 0.54 | 426.5 | 3.18 | 426.5 | 3.07 |
| 6.4 | 0.26 | 8.1 | 0.32 | 362.1 | 3.43 | 253.2 | 3.02 |
| 3.9 | 0.11 | 4.8 | 0.13 | 253.2 | 3.30 | 173.4 | 2.89 |
| 2.7 | 0.04 | 3.3 | 0.07 | 173.4 | 3.06 | 127.4 | 2.82 |
| | | | | 127.4 | 3.26 | | |

Sample Temperature: 6.5°C Incubation Temperature: 7.5 °C

| | mg m ⁻³ | | mg m ⁻³ | | mg at m ⁻³ | | |
|--------------|--------------------|----------|--------------------|------------|-----------------------|---|-------|
| Chlorophyll: | 0.54 | RNA: | 7.66 | Phosphate: | 0.86 | α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.062 |
| Carbon: | 106 | DNA: | 4.99 | Nitrate: | 1.48 | P_m^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : | 3.18 |
| Nitrogen: | 19 | ATP: | 0.222 | Silicate: | 1.75 | β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0 |
| | | Protein: | 28.4 | Ammonia: | 0.32 | | |

STATION: 4

DEPTH: 0 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|----------------|---------------------------|---------------------------|-------------------------|----------------------|
| P_s | 3.178 | 2.949 | $(P_s - \hat{P}_s)$ | 1.526×10 | 1.437×10^2 | -1.064×10^4 |
| α | 0.062 | 0.055 | $(\alpha - \hat{\alpha})$ | - | 2.518×10^3 | -2.428×10^4 |
| β | 0.0000 | -0.0006 | $(\beta - \hat{\beta})$ | - | - | 2.226×10^6 |

Sum of squared errors: 0.977

No. of points: 32

STATION #: 5

AREA: Labrador Sea

LATITUDE: 60°52'N

LONGITUDE: 56°41'W

DATE: 30/08/78

DEPTH: 4 m

IDENTIFIER #: 784138

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|---|---|
| 176.4 | 2.59 | 2.3 | 0.04 | 300.7 | 2.69 | | |
| 112.9 | 2.66 | 840.8 | 1.68 | 267.0 | 2.58 | | |
| 49.7 | 2.06 | 644.4 | 1.78 | 165.7 | 2.61 | | |
| 25.6 | 1.34 | 613.7 | 2.07 | 129.5 | 2.85 | | |
| 14.4 | 0.82 | 576.9 | 2.59 | 920.6 | 1.86 | | |
| 8.1 | 0.50 | 491.0 | 2.46 | 877.6 | 1.99 | | |
| 4.6 | 0.22 | 414.2 | 2.31 | 724.2 | 2.23 | | |
| 2.9 | 0.12 | 300.7 | 2.28 | 613.7 | 2.72 | | |
| 2.1 | 0.04 | 267.0 | 2.21 | 497.1 | 2.72 | | |
| 198.8 | 2.54 | 165.7 | 2.46 | 352.9 | 2.79 | | |
| 124.3 | 2.41 | 129.5 | 2.60 | 240.9 | 2.82 | | |
| 53.7 | 2.05 | 840.8 | 1.82 | 141.2 | 2.78 | | |
| 26.0 | 1.31 | 644.4 | 1.84 | 106.8 | 2.96 | | |
| 14.4 | 0.90 | 613.7 | 1.97 | 90.5 | 2.94 | | |
| 7.1 | 0.44 | 576.9 | 2.66 | | | | |
| 5.2 | 0.23 | 491.0 | 2.58 | | | | |
| 3.5 | 0.13 | 414.2 | 2.60 | | | | |

Sample Temperature: 6.8 °C

Incubation Temperature: 9.5 °C

mg m⁻³mg m⁻³mg at m⁻³

| | | | | | | | |
|--------------|------|----------|-------|------------|------|---|--------|
| Chlorophyll: | 1.08 | RNA: | 9.44 | Phosphate: | 1.68 | α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.073 |
| Carbon: | 192 | DNA: | 8.26 | Nitrate: | 1.38 | P_m^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : | 2.74 |
| Nitrogen: | 26 | ATP: | 0.524 | Silicate: | 1.21 | β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.0011 |
| | | Protein: | 49.5 | Ammonia: | 0.32 | | |

STATION: 5

DEPTH: 4 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 2.971 | 2.747 | 3.196 | $(P_s - \hat{P}_s)$ | 3.116×10 | 1.491×10^2 | -1.924×10^4 | |
| α | 0.073 | 0.060 | 0.086 | $(\alpha - \hat{\alpha})$ | - | 1.582×10^3 | -1.972×10^4 | |
| β | 0.0011 | 0.0005 | 0.0018 | $(\beta - \hat{\beta})$ | - | - | 3.576×10^6 | 0.574 |

Sum of squared errors: 3.169

No. of points: 50

STATION #: 5

AREA: Labrador Sea

LATITUDE: 62°52'N

LONGITUDE: 56°41'W

DATE: 30/08/78

DEPTH: 27 m

IDENTIFIER #: 784141

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 197.0 | 1.58 | 2.7 | 0.15 | 552.3 | 1.32 | 131.9 | 2.00 |
| 141.2 | 1.61 | 905.2 | 0.60 | 506.3 | 1.50 | | |
| 72.4 | 1.64 | 721.1 | 0.82 | 454.1 | 1.75 | | |
| 31.3 | 1.51 | 573.8 | 1.22 | 359.1 | 1.79 | | |
| 18.4 | 0.91 | 506.3 | 1.85 | 257.8 | 1.91 | | |
| 11.0 | 0.54 | 362.1 | 2.06 | 205.6 | 2.02 | | |
| 6.4 | 0.33 | 300.7 | 2.26 | 184.1 | 2.30 | | |
| 3.8 | 0.16 | 222.5 | 2.29 | 131.9 | 1.94 | | |
| 2.7 | 0.08 | 905.2 | 0.55 | 782.5 | 0.64 | | |
| 158.0 | 1.87 | 721.1 | 0.81 | 598.4 | 0.84 | | |
| 99.7 | 1.91 | 573.8 | 1.40 | 552.3 | 1.40 | | |
| 47.6 | 1.51 | 506.3 | 1.66 | 506.3 | 1.69 | | |
| 23.9 | 1.27 | 362.1 | 2.11 | 454.1 | 1.64 | | |
| 14.1 | 0.88 | 300.7 | 1.98 | 359.0 | 1.69 | | |
| 9.2 | 0.60 | 222.5 | 2.16 | 257.7 | 1.72 | | |
| 5.5 | 0.34 | 782.5 | 0.55 | 205.6 | 1.96 | | |
| 3.8 | 0.21 | 598.4 | 0.64 | 184.1 | 2.07 | | |

Sample Temperature: 7.5°C

mg m⁻³mg m⁻³

Incubation Temperature: 9.5°C

mg at m⁻³

Chlorophyll: 1.21

RNA: 15.24

Phosphate: 1.98

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.059

Carbon: 180

DNA: 12.21

Nitrate: 2.42

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 2.08

Nitrogen: 31

ATP: 0.444

Silicate: 1.44

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0027

Protein: 93.0

Ammonia: 0.41

STATION: 5

DEPTH: 27 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|---------------------------|---------------------------|---------------------------|-------------------------|----------------------|
| P_s | 2.515 | 2.262 | $(P_s - \hat{P}_s)$ | 2.659×10 | 1.020×10^2 | -1.258×10^4 |
| α | 0.060 | 0.048 | $(\alpha - \hat{\alpha})$ | - | 1.362×10^3 | -1.306×10^4 |
| β | 0.0027 | 0.0017 | $(\beta - \hat{\beta})$ | - | - | 1.659×10^6 |

Sum of squared errors: 2.176

No. of points: 46

STATION #: 6

AREA: Davis Strait

LATITUDE: 63°39'N

LONGITUDE: 56°36'W

DATE: 31/08/78

DEPTH: Surface

IDENTIFIER #: 784179

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 210.2 | 2.03 | 197.9 | 1.96 | 843.8 | 1.07 | 776.3 | 1.29 |
| 121.2 | 1.86 | 132.0 | 2.00 | 684.3 | 0.94 | 672.0 | 1.28 |
| 52.2 | 1.63 | 64.4 | 1.53 | 632.1 | 1.10 | 613.7 | 1.36 |
| 25.8 | 1.32 | 32.8 | 1.30 | 506.3 | 1.36 | 472.6 | 1.48 |
| 14.4 | 0.90 | 19.6 | 0.85 | 369.8 | 1.43 | 359.0 | 1.75 |
| 8.8 | 0.43 | 10.6 | 0.46 | 285.4 | 1.50 | 283.8 | 1.50 |
| 5.2 | 0.26 | 6.6 | 0.25 | 234.7 | 1.46 | 242.4 | 1.66 |
| 3.2 | 0.11 | 3.6 | 0.10 | 185.6 | 1.48 | 156.5 | 1.63 |
| 2.2 | 0.06 | 2.6 | 0.04 | 136.6 | 1.55 | 112.0 | 1.97 |
| | | | | 98.2 | 1.74 | 85.3 | 1.68 |

Sample Temperature: 5.0°C

mg m⁻³mg m⁻³

Incubation Temperature: 5.5 °C

mg at m⁻³

Chlorophyll: 2.00

RNA: 24.14

Phosphate: -

α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.064

Carbon: 397

DNA: 11.82

Nitrate: 0.10

P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 1.79

Nitrogen: 41

ATP: 0.442

Silicate: 0.79

β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0015

Protein: 69.2

Ammonia: 0.00

STATION: 6

DEPTH: 0 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|
| P_s | 2.005 | 1.847 | 2.162 | $(P_s - \hat{P}_s)$ | 1.835×10 | 7.046×10 | -7.917×10^3 |
| α | 0.064 | 0.054 | 0.074 | $(\alpha - \hat{\alpha})$ | - | 8.268×10^2 | -6.802×10^3 |
| β | 0.0015 | 0.0009 | 0.0022 | $(\beta - \hat{\beta})$ | - | - | 1.042×10^6 |

Sum of squared errors: 0.734

No. of points: 34

STATION #: 8

AREA: Davis Strait

LATITUDE: 67°23'N

LONGITUDE: 58°39'W

DATE: 01/09/78

DEPTH: 8 m

IDENTIFIER #: 784201

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 179.5 | 2.22 | 2.7 | 0.13 | 285.4 | 2.13 | 659.7 | 2.13 |
| 124.3 | 2.04 | 874.5 | 1.22 | 190.2 | 2.09 | 438.8 | 2.04 |
| 46.3 | 2.00 | 819.3 | 1.13 | 138.1 | 2.00 | 313.0 | 2.22 |
| 27.6 | 1.35 | 773.3 | 1.22 | 108.9 | 2.13 | 217.9 | 2.22 |
| 15.0 | 1.04 | 607.6 | 1.74 | 874.5 | 1.44 | 170.3 | 2.13 |
| 8.9 | 0.57 | 420.4 | 1.70 | 853.0 | 1.39 | 139.6 | 2.22 |
| 5.0 | 0.26 | 288.4 | 1.70 | 767.1 | 1.78 | 99.7 | 2.26 |
| 2.8 | 0.09 | 227.1 | 2.17 | 681.2 | 2.13 | | |
| 2.0 | 0.01 | 191.8 | 1.83 | 481.8 | 2.17 | | |
| 203.1 | 2.00 | 141.2 | 1.83 | 337.5 | 2.52 | | |
| 128.9 | 1.74 | 98.2 | 1.87 | 245.5 | 2.17 | | |
| 56.8 | 1.52 | 920.6 | 1.13 | 197.0 | 1.65 | | |
| 33.4 | 1.13 | 899.1 | 1.09 | 132.0 | 2.39 | | |
| 20.1 | 0.87 | 828.5 | 1.61 | 98.2 | 2.17 | | |
| 12.6 | 0.61 | 672.0 | 2.00 | 871.4 | 1.48 | | |
| 6.8 | 0.17 | 484.8 | 1.91 | 834.6 | 1.04 | | |
| 4.1 | 0.04 | 356.0 | 1.96 | 810.1 | 1.52 | | |

Sample Temperature: 4.0 °C

mg m⁻³mg m⁻³

Incubation Temperature: 4.5 °C

mg at m⁻³

Chlorophyll: 0.23

RNA: 7.00

Phosphate: 1.71

α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.065

Carbon: 88

DNA: 4.46

Nitrate: 0.01

P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 2.09

Nitrogen: 8

ATP: 0.236

Silicate: 0.92

β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0005

Protein: 18.6

Ammonia: 0.00

STATION: 8

DEPTH: 8 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|----------------|---------------------------|---------------------------|-------------------------|---------------------------|
| P_s | 2.185 | 2.006 | $(P_s - \hat{P}_s)$ | 2.662×10 | 1.053×10^2 | -1.272×10^4 |
| α | 0.065 | 0.053 | $(\alpha - \hat{\alpha})$ | - | 1.092×10^3 | -1.236×10^4 |
| β | 0.0005 | -0.0001 | $(\beta - \hat{\beta})$ | - | - | 1.862×10^6 0.381 |

Sum of squared errors: 1.790

No. of points: 43

STATION #: 8

AREA: Davis Strait

LATITUDE: 67°23'N

LONGITUDE: 58°39'W

DATE: 01/09/78

DEPTH: 54 m

IDENTIFIER #: 784204

| I | P | I | P | I | P | I | P |
|------|------|-------|------|-------|------|-------|------|
| 97.9 | 0.33 | 165.7 | 0.33 | 653.6 | 0.00 | 570.7 | 0.02 |
| 35.0 | 0.56 | 108.9 | 0.56 | 494.0 | 0.01 | 444.9 | 0.06 |
| 65.1 | 0.67 | 48.2 | 0.56 | 362.1 | 0.08 | 340.6 | 0.07 |
| 35.9 | 0.89 | 26.4 | 0.44 | 300.7 | 0.11 | 254.7 | 0.22 |
| 19.8 | 0.67 | 16.0 | 0.56 | 234.7 | 0.28 | 197.9 | 0.50 |
| 11.4 | 0.56 | 8.0 | 0.56 | 145.8 | 0.49 | 165.7 | 0.47 |
| 5.7 | 0.56 | 5.8 | 0.22 | 110.5 | 0.49 | 127.4 | 0.54 |
| 3.4 | 0.22 | 3.3 | 0.11 | 748.7 | 0.31 | 828.5 | 0.24 |
| 2.6 | 0.22 | 2.2 | 0.11 | 589.2 | 0.02 | 629.0 | 0.00 |
| | | | | 451.1 | 0.10 | 521.6 | 0.06 |
| | | | | 319.1 | 0.16 | 414.2 | 0.18 |
| | | | | 237.8 | 0.77 | 331.4 | 0.20 |

Sample Temperature: 0.5°C Incubation Temperature: 4.5 °C

mg m⁻³mg m⁻³mg at m⁻³

Chlorophyll: 0.09

RNA: 1.89

Phosphate: 2.48

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.078

Carbon: 76

DNA: 1.13

Nitrate: 8.11

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 0.72

Nitrogen: 6

ATP: 0.025

Silicate: 10.66

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0039

Protein: 7.0

Ammonia: 0.00

STATION: 8

DEPTH: 54 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 0.877 | 0.713 | 1.040 | $(P_s - \hat{P}_s)$ | 1.410×10 | 1.858×10 | -2.473×10^3 | |
| α | 0.078 | 0.055 | 0.101 | $(\alpha - \hat{\alpha})$ | - | 1.020×10^2 | -2.642×10^2 | |
| β | 0.0039 | 0.0023 | 0.0056 | $(\beta - \hat{\beta})$ | - | - | 1.264×10^5 | 0.127 |

Sum of squared errors: 0.538

No. of points: 39

STATION #: 13

AREA: Baffin Bay

LATITUDE: 69°34'N

LONGITUDE: 65°23'W

DATE: 02/09/78

DEPTH: 8 m

IDENTIFIER #: 784223

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 172.4 | 1.23 | 2.5 | 0.04 | 226.4 | 0.99 | 573.8 | 0.86 |
| 122.7 | 1.31 | 804.0 | 0.90 | 160.2 | 0.95 | 411.2 | 1.02 |
| 53.7 | 1.03 | 751.8 | 0.35 | 132.0 | 1.20 | 325.3 | 1.16 |
| 31.9 | 0.86 | 696.6 | 0.41 | 98.2 | 1.11 | 242.4 | 1.14 |
| 17.8 | 0.54 | 595.3 | 0.58 | 865.3 | 0.75 | 174.3 | 1.01 |
| 7.3 | 0.34 | 435.7 | 0.68 | 868.5 | 0.50 | 104.3 | 1.34 |
| 5.7 | 0.19 | 319.1 | 0.86 | 687.3 | 0.86 | 81.3 | 1.04 |
| 3.7 | 0.09 | 223.4 | 1.07 | 583.0 | 0.77 | | |
| 3.2 | 0.07 | 148.4 | 0.87 | 441.9 | 1.05 | | |
| 200.1 | 1.04 | 113.5 | 0.97 | 359.0 | 1.36 | | |
| 124.3 | 1.14 | 87.5 | 1.08 | 254.7 | 1.35 | | |
| 56.8 | 1.16 | 905.2 | 0.87 | 198.8 | 1.44 | | |
| 33.4 | 1.10 | 859.2 | 0.55 | 125.2 | 1.20 | | |
| 18.4 | 0.59 | 843.8 | 0.78 | 95.1 | 1.09 | | |
| 9.8 | 0.32 | 622.9 | 0.73 | 785.5 | 0.75 | | |
| 5.4 | 0.22 | 497.1 | 0.87 | 705.8 | 0.35 | | |
| 3.7 | 0.10 | 346.7 | 0.86 | 681.2 | 0.54 | | |

| Sample Temperature: | 2.0 °C | Incubation Temperature: | 3.0 °C |
|---------------------|---------------|-------------------------|---|
| mg m⁻³ | mg m⁻³ | mg at m⁻³ | |
| Chlorophyll: 1.33 | RNA: 15.68 | Phosphate: 2.16 | α mg C(mg Chl α)⁻¹ hr⁻¹ (W m⁻²)⁻¹: 0.045 |
| Carbon: 199 | DNA: 4.70 | Nitrate: 0.04 | P _m ^B mg C(mg Chl α)⁻¹ hr⁻¹: 1.17 |
| Nitrogen: 23 | ATP: 0.493 | Silicate: 6.62 | β mg C(mg Chl α)⁻¹ hr⁻¹ (W m⁻²)⁻¹: 0.0011 |
| | Protein: 30.7 | Ammonia: 0.01 | |

STATION: 13

DEPTH: 8 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|
| P_s | 1.311 | 1.193 | 1.428 | $(P_s - \hat{P}_s)$ | 2.884×10 | 8.751×10 | -1.208×10^4 |
| α | 0.045 | 0.035 | 0.055 | $(\alpha - \hat{\alpha})$ | - | 7.583×10^2 | -8.157×10^3 |
| β | 0.0011 | 0.0006 | 0.0016 | $(\beta - \hat{\beta})$ | - | - | 1.554×10^6 |

Sum of squared errors: 0.913

No. of points: 46

STATION #: 13

AREA: Baffin Bay

LATITUDE: 69°34'N

LONGITUDE: 65°23'W

DATE: 02/09/78

DEPTH: 27 m

IDENTIFIER #: 784226

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 204.1 | 0.34 | 240.0 | 0.20 | 748.7 | 0.00 | 837.7 | 0.01 |
| 141.8 | 0.46 | 138.1 | 0.22 | 622.9 | 0.01 | 696.6 | 0.02 |
| 70.0 | 0.51 | 58.0 | 0.37 | 558.5 | 0.03 | 607.6 | 0.07 |
| 40.8 | 0.60 | 31.9 | 0.22 | 444.9 | 0.10 | 448.0 | 0.14 |
| 20.2 | 0.55 | 18.1 | 0.20 | 389.7 | 0.19 | 374.4 | 0.27 |
| 12.3 | 0.29 | 11.7 | 0.16 | 334.5 | 0.42 | 334.5 | 0.37 |
| 7.2 | 0.19 | 6.8 | 0.11 | 239.3 | 0.52 | 262.4 | 0.66 |
| 4.2 | 0.12 | 3.9 | 0.07 | 182.6 | 0.63 | 196.4 | 0.62 |
| 2.8 | 0.07 | 2.7 | 0.06 | 133.5 | 0.63 | 151.9 | 0.78 |
| | | | | 95.1 | 0.55 | 111.1 | 0.77 |
| | | | | 828.5 | 0.01 | 748.7 | 0.01 |
| | | | | 675.1 | 0.04 | 635.2 | 0.01 |
| | | | | 653.6 | 0.08 | 607.6 | 0.04 |
| | | | | 515.5 | 0.19 | 466.4 | 0.14 |
| | | | | 397.0 | 0.32 | 362.1 | 0.24 |
| | | | | 291.5 | 0.43 | 288.4 | 0.42 |

Sample Temperature: -0.5 °C

Incubation Temperature: 3.0 °C

mg m⁻³mg m⁻³mg at m⁻³

Chlorophyll: 2.08

RNA: 8.78

Phosphate: 2.12

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.016

Carbon: 118

DNA: 3.53

Nitrate: 4.88

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 0.61

Nitrogen: 18

ATP: 0.294

Silicate: 12.06

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0062

Protein: 57.2

Ammonia: 0.05

STATION: 13

DEPTH: 27 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.392 | 0.371 | 2.414 | $(P_s - \hat{P}_s)$ | 6.735 | 1.897×10^2 | -1.754×10^3 | |
| α | 0.016 | 0.011 | 0.021 | $(\alpha - \hat{\alpha})$ | - | 4.556×10^3 | -2.193×10^4 | |
| β | 0.0062 | -0.0012 | 0.0137 | $(\beta - \hat{\beta})$ | - | - | 1.156×10^5 | 0.139 |

Sum of squared errors: 0.652

No. of points: 43

STATION #: 28

AREA: Scott Inlet

LATITUDE: 71°37'N

LONGITUDE: 69°18'W

DATE: 03/09/78

DEPTH: 4 m

IDENTIFIER #: 784285

| I | P | I | P | I | P | I | P |
|------|------|-------|------|-------|------|-------|------|
| 81.0 | 1.24 | 2.4 | 0.05 | 168.8 | 0.95 | 398.9 | 0.89 |
| 07.4 | 0.81 | 837.7 | 1.22 | 145.8 | 0.81 | 297.6 | 0.95 |
| 46.6 | 1.03 | 705.8 | 0.78 | 101.3 | 0.87 | 227.1 | 0.87 |
| 27.8 | 0.81 | 684.3 | 0.57 | 828.5 | 0.54 | 174.3 | 1.14 |
| 16.6 | 0.40 | 604.5 | 0.76 | 804.0 | 0.84 | 125.8 | 0.87 |
| 10.2 | 0.24 | 457.2 | 0.78 | 684.3 | 0.81 | 98.2 | 0.92 |
| 5.7 | 0.14 | 380.5 | 0.81 | 567.7 | 0.92 | | |
| 3.7 | 0.05 | 286.9 | 0.78 | 481.6 | 0.97 | | |
| 2.5 | 0.05 | 207.1 | 0.84 | 398.9 | 1.30 | | |
| 98.8 | 0.89 | 137.5 | 0.73 | 259.3 | 1.05 | | |
| 19.7 | 0.92 | 101.9 | 0.70 | 190.2 | 0.87 | | |
| 48.5 | 0.78 | 865.3 | 1.03 | 151.9 | 0.92 | | |
| 27.3 | 0.76 | 807.0 | 0.73 | 117.2 | 1.16 | | |
| 15.5 | 0.46 | 791.7 | 0.68 | 767.1 | 0.73 | | |
| 9.0 | 0.24 | 653.6 | 0.73 | 705.8 | 0.78 | | |
| 5.1 | 0.19 | 368.2 | 0.76 | 650.5 | 1.11 | | |
| 3.4 | 0.03 | 265.4 | 0.84 | 518.6 | 0.84 | | |

Sample Temperature: 2.0 °C

Incubation Temperature: 3.0 °C

| | mg m ⁻³ | mg m ⁻³ | mg at m ⁻³ | |
|--------------|--------------------|--------------------|-----------------------|--|
| Chlorophyll: | 0.37 | RNA: | 7.82 | Phosphate: 2.28 α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : 0.041 |
| Carbon: | 211 | DNA: | 4.94 | Nitrate: 0.01 P _m ^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : 0.93 |
| Nitrogen: | 22 | ATP: | 0.278 | Silicate: 5.43 β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : 0.0001 |
| | | Protein: | 25.9 | Ammonia: 0.03 |

STATION: 28

DEPTH: 4 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|
| P_s | 0.948 | 0.859 | 1.037 | $(P_s - \hat{P}_s)$ | 3.017×10 | 4.816×10 | -1.491×10^4 |
| α | 0.041 | 0.030 | 0.052 | $(\alpha - \hat{\alpha})$ | - | 4.891×10^2 | -3.761×10^3 |
| β | 0.0001 | -0.0002 | 0.0004 | $(\beta - \hat{\beta})$ | - | - | 2.406×10^6 |

Sum of squared errors: 0.730

No. of points: 44

STATION #: 28

AREA: Scott Inlet

LATITUDE: 71°37'N

LONGITUDE: 69°18'W

DATE: 03/09/78

DEPTH: 30 m

IDENTIFIER #: 784288

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 198.8 | 0.48 | 220.9 | 0.35 | 718.0 | 0.00 | 684.3 | 0.00 |
| 135.0 | 0.67 | 122.7 | 0.56 | 530.8 | 0.02 | 564.6 | 0.05 |
| 58.9 | 0.72 | 47.0 | 0.63 | 451.1 | 0.07 | 475.6 | 0.12 |
| 37.7 | 0.72 | 23.9 | 0.73 | 377.4 | 0.22 | 405.0 | 0.29 |
| 22.4 | 0.67 | 15.0 | 0.45 | 276.2 | 0.37 | 297.6 | 0.51 |
| 14.7 | 0.33 | 9.4 | 0.30 | 211.7 | 0.55 | 236.3 | 0.63 |
| 8.9 | 0.22 | 4.8 | 0.18 | 170.3 | 0.70 | 179.5 | 0.67 |
| 5.0 | 0.15 | 3.6 | 0.08 | 153.4 | 0.66 | 150.4 | 0.74 |
| 3.3 | 0.07 | 2.6 | 0.06 | 118.1 | 0.56 | 124.3 | 0.76 |
| | | | | 822.4 | 0.01 | 715.0 | 0.01 |
| | | | | 696.6 | 0.02 | 644.4 | 0.01 |
| | | | | 607.6 | 0.08 | 561.5 | 0.05 |
| | | | | 509.4 | 0.18 | 451.1 | 0.15 |
| | | | | 392.8 | 0.47 | 340.6 | 0.34 |
| | | | | 331.4 | 0.63 | 303.8 | 0.57 |

Sample Temperature: 2.8 °C

mg m⁻³mg m⁻³

Incubation Temperature: 3.0 °C

mg at m⁻³

Chlorophyll: 4.06

RNA: 18.13

Phosphate: 3.05

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.038

Carbon: 289

DNA: 9.18

Nitrate: 3.98

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 0.79

Nitrogen: 40

ATP: 0.566

Silicate: 7.63

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0040

Protein: 41.4

Ammonia: 0.08

STATION: 28

DEPTH: 30 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|----------------|---------------------------|---------------------------|-------------------------|---------------------------|
| P_s | 1.123 | 0.921 | $(P_s - \hat{P}_s)$ | 1.486×10 | 4.907×10 | -3.634×10^3 |
| α | 0.038 | 0.030 | $(\alpha - \hat{\alpha})$ | - | 6.824×10^2 | -3.324×10^3 |
| β | 0.0040 | 0.0025 | $(\beta - \hat{\beta})$ | - | - | 2.391×10^5 0.103 |

Sum of squared errors: 0.484

No. of points: 43

STATION #: 32

AREA: Scott Inlet

LATITUDE: 71°35'N

LONGITUDE: 70°03'W

DATE: 04/09/78

DEPTH: 4 m

IDENTIFIER #: 784380

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 178.0 | 1.23 | 2.4 | 0.10 | 255.3 | 1.28 | 601.4 | 1.08 |
| 111.1 | 1.16 | 810.1 | 1.57 | 197.9 | 1.30 | 497.1 | 1.04 |
| 56.8 | 1.11 | 748.7 | 0.92 | 138.1 | 1.13 | 337.5 | 1.11 |
| 31.9 | 0.87 | 644.4 | 1.04 | 92.1 | 1.18 | 214.8 | 1.04 |
| 18.1 | 0.65 | 567.7 | 1.06 | 828.5 | 1.47 | 163.2 | 1.13 |
| 10.9 | 0.31 | 420.4 | 1.23 | 757.9 | 1.06 | 115.1 | 1.08 |
| 6.4 | 0.17 | 297.6 | 1.20 | 711.9 | 0.96 | 87.5 | 1.28 |
| 3.4 | 0.14 | 218.5 | 1.22 | 650.5 | 1.01 | | |
| 2.4 | 0.05 | 171.8 | 1.20 | 491.0 | 0.99 | | |
| 209.3 | 1.37 | 118.1 | 1.06 | 374.4 | 1.04 | | |
| 130.4 | 1.28 | 90.5 | 1.08 | 240.9 | 1.04 | | |
| 61.4 | 1.08 | 868.4 | 1.76 | 168.2 | 1.23 | | |
| 30.7 | 1.18 | 834.6 | 1.16 | 133.5 | 1.13 | | |
| 17.2 | 0.80 | 804.0 | 1.25 | 104.3 | 1.06 | | |
| 10.1 | 0.41 | 629.0 | 1.52 | 757.9 | 1.52 | | |
| 6.0 | 0.24 | 515.5 | 1.54 | 668.9 | 0.75 | | |
| 3.4 | 0.19 | 331.4 | 1.32 | 638.2 | 0.92 | | |

Sample Temperature: 2.0 °C

mg m⁻³mg m⁻³

Incubation Temperature: 2.5 °C

mg at m⁻³

Chlorophyll: 0.42

RNA: 8.66

Phosphate: 1.59

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.055

Carbon: 191

DNA: 5.54

Nitrate: 0.04

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 1.18

Nitrogen: 18

ATP: 0.316

Silicate: 2.02

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0001

Protein: 26.4

Ammonia: 0.00

STATION: 32

DEPTH: 4 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.195 | 1.119 | 1.272 | $(P_s - \hat{P}_s)$ | 3.369×10 | 4.884×10 | -1.860×10^4 | |
| α | 0.055 | 0.043 | 0.066 | $(\alpha - \hat{\alpha})$ | - | 4.270×10^2 | -3.700×10^3 | |
| β | 0.0001 | -0.0002 | 0.0003 | $(\beta - \hat{\beta})$ | - | - | 3.610×10^6 | 0.155 |

Sum of squared errors: 0.800

No. of points: 47

STATION #: 32

AREA: Scott Inlet

LATITUDE: 71°35'N

LONGITUDE: 70°03'W

DATE: 04/09/78

DEPTH: 30 m

IDENTIFIER #: 784383

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 196.4 | 0.76 | 225.5 | 0.76 | 776.3 | 0.00 | 604.5 | 0.02 |
| 139.6 | 0.89 | 125.8 | 0.86 | 552.3 | 0.01 | 546.2 | 0.09 |
| 69.6 | 0.96 | 52.8 | 1.00 | 460.3 | 0.06 | 420.4 | 0.15 |
| 39.9 | 0.83 | 30.7 | 0.72 | 380.5 | 0.16 | 343.7 | 0.49 |
| 22.4 | 0.60 | 16.0 | 0.56 | 291.5 | 0.46 | 248.6 | 0.77 |
| 12.4 | 0.34 | 10.3 | 0.28 | 228.6 | 0.59 | 177.4 | 0.96 |
| 7.0 | 0.22 | 6.2 | 0.18 | 181.0 | 0.70 | 155.0 | 0.84 |
| 4.1 | 0.12 | 3.6 | 0.11 | 142.7 | 0.94 | 118.1 | 0.83 |
| 2.8 | 0.07 | 2.2 | 0.07 | 110.5 | 0.93 | 757.9 | 0.02 |
| | | | | 834.6 | 0.00 | 595.3 | 0.00 |
| | | | | 687.3 | 0.02 | 543.1 | 0.03 |
| | | | | 619.8 | 0.04 | 478.7 | 0.07 |
| | | | | 521.6 | 0.12 | 359.0 | 0.21 |
| | | | | 408.1 | 0.28 | 285.4 | 0.37 |
| | | | | 291.5 | 0.44 | | |

Sample Temperature: -0.2 °C

Incubation Temperature: 2.5 °C

mg m⁻³mg m⁻³mg at m⁻³

Chlorophyll: 3.90

RNA: 16.26

Phosphate: 2.04

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.033

Carbon: 189

DNA: 5.16

Nitrate: 3.48

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 1.03

Nitrogen: 29

ATP: 0.469

Silicate: 9.66

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0159

Protein: 47.3

Ammonia: 0.29

STATION: 32

DEPTH: 30 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|----------------------|
| P_s | 2.600 | 1.739 | 3.461 | $(P_s - \hat{P}_s)$ | 4.828×10^2 | -9.770×10^2 |
| α | 0.033 | 0.029 | 0.037 | $(\alpha - \hat{\alpha})$ | 2.874×10^3 | -1.219×10^4 |
| β | 0.0159 | 0.0077 | 0.0240 | $(\beta - \hat{\beta})$ | - | 4.987×10^4 |

Sum of squared errors: 0.268

No. of points: 43

STATION #: 40

AREA: Scott Inlet

LATITUDE: 71°18'N

LONGITUDE: 70°38'W

DATE: 05/09/78

DEPTH: 4 m

IDENTIFIER #: 784494

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 184.1 | 1.25 | 2.2 | 0.03 | 233.8 | 1.04 | 589.2 | 1.01 |
| 111.1 | 1.12 | 810.1 | 1.61 | 184.1 | 1.32 | 417.3 | 0.91 |
| 51.6 | 0.96 | 711.9 | 0.73 | 133.5 | 1.27 | 316.1 | 1.07 |
| 28.4 | 0.73 | 705.8 | 0.68 | 93.6 | 1.22 | 147.9 | 1.40 |
| 16.3 | 0.70 | 592.2 | 0.94 | 859.2 | 1.32 | 114.2 | 1.48 |
| 10.1 | 0.36 | 481.8 | 1.01 | 767.1 | 1.27 | 93.6 | 1.53 |
| 5.6 | 0.23 | 306.8 | 1.06 | 745.6 | 1.30 | | |
| 3.3 | 0.13 | 205.6 | 1.04 | 656.7 | 1.04 | | |
| 2.2 | 0.08 | 156.5 | 1.27 | 500.2 | 1.06 | | |
| 205.6 | 0.99 | 110.5 | 1.22 | 337.5 | 1.09 | | |
| 125.2 | 1.06 | 80.4 | 1.61 | 223.4 | 1.09 | | |
| 52.2 | 0.99 | 880.7 | 1.09 | 170.3 | 1.51 | | |
| 27.6 | 0.78 | 797.8 | 0.75 | 138.1 | 1.38 | | |
| 14.0 | 0.39 | 782.5 | 0.49 | 108.9 | 1.27 | | |
| 8.8 | 0.21 | 656.7 | 1.20 | 773.3 | 1.79 | | |
| 5.0 | 0.13 | 475.6 | 1.20 | 727.2 | 0.86 | | |
| 3.1 | 0.08 | 398.9 | 1.22 | 668.9 | 0.68 | | |

Sample Temperature: 1.5°C

mg m⁻³mg m⁻³

Incubation Temperature: 1.9°C

mg at m⁻³

| | | | | | | | |
|--------------|------|----------|-------|------------|------|---|--------|
| Chlorophyll: | 0.38 | RNA: | 7.24 | Phosphate: | 2.07 | α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.042 |
| Carbon: | 223 | DNA: | 4.80 | Nitrate: | 0.02 | P_m^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : | 1.28 |
| Nitrogen: | 27 | ATP: | 0.280 | Silicate: | 4.50 | β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.0010 |
| | | Protein: | 44.3 | Ammonia: | 0.01 | | |

STATION: 40

DEPTH: 4 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.433 | 1.308 | 1.558 | $(P_s - \hat{P}_s)$ | 2.508×10 | 1.134×10^2 | -1.070×10^4 | |
| α | 0.042 | 0.034 | 0.051 | $(\alpha - \hat{\alpha})$ | - | 1.067×10^3 | -1.234×10^4 | |
| β | 0.0010 | 0.0005 | 0.0015 | $(\beta - \hat{\beta})$ | - | - | 1.388×10^6 | 0.163 |

Sum of squared errors: 0.765

No. of points: 43

STATION #: 40

AREA: Scott Inlet

LATITUDE: 71°18'N

LONGITUDE: 70°38'W

DATE: 05/09/78

DEPTH: 30 m

IDENTIFIER #: 784497

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 201.0 | 0.57 | 233.8 | 0.57 | 736.4 | 0.03 | 859.2 | 0.01 |
| 138.7 | 0.82 | 131.9 | 0.82 | 656.7 | 0.02 | 711.9 | 0.03 |
| 66.0 | 0.76 | 57.1 | 0.76 | 629.0 | 0.06 | 622.9 | 0.07 |
| 37.7 | 0.74 | 30.7 | 0.74 | 503.2 | 0.18 | 543.1 | 0.21 |
| 19.9 | 0.47 | 18.4 | 0.47 | 368.2 | 0.42 | 423.4 | 0.36 |
| 11.0 | 0.33 | 10.3 | 0.33 | 313.0 | 0.68 | 349.8 | 0.82 |
| 6.3 | 0.18 | 5.3 | 0.18 | 244.0 | 0.78 | 297.6 | 0.77 |
| 4.0 | 0.12 | 3.7 | 0.12 | 184.1 | 0.68 | 203.1 | 0.86 |
| 2.8 | 0.10 | 2.4 | 0.06 | 138.1 | 0.74 | 155.0 | 1.03 |
| | | | | 103.7 | 1.05 | 105.9 | 1.00 |
| | | | | 776.3 | 0.00 | 782.5 | 0.00 |
| | | | | 659.7 | 0.05 | 613.7 | 0.02 |
| | | | | 546.2 | 0.19 | 497.1 | 0.12 |
| | | | | 423.4 | 0.34 | 377.4 | 0.33 |
| | | | | 297.6 | 0.57 | 306.9 | 0.47 |

Sample Temperature: -0.5 °C

Incubation Temperature: 1.9 °C

 mg m^{-3} mg m^{-3} mg at m^{-3}

| | | | | | | | |
|--------------|------|----------|-------|------------|-------|---|--------|
| Chlorophyll: | 3.78 | RNA: | 16.12 | Phosphate: | 2.56 | $\alpha \text{ mg C(mg Chl } \alpha)^{-1}\text{hr}^{-1}(W \text{ m}^{-2})^{-1}$: | 0.028 |
| Carbon: | 181 | DNA: | 6.01 | Nitrate: | 4.68 | $P_m^B \text{ mg C(mg Chl } \alpha)^{-1}\text{hr}^{-1}$: | 0.91 |
| Nitrogen: | 35 | ATP: | 0.411 | Silicate: | 10.67 | $\beta \text{ mg C(mg Chl } \alpha)^{-1}\text{hr}^{-1}(W \text{ m}^{-2})^{-1}$: | 0.0056 |
| | | Protein: | 63.5 | Ammonia: | 0.20 | | |

STATION: 40

DEPTH: 30 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.564 | 1.116 | 2.012 | $(P_s - \hat{P}_s)$ | 1.072×10 | 1.258×10^2 | -2.923×10^3 | |
| α | 0.028 | 0.021 | 0.034 | $(\alpha - \hat{\alpha})$ | - | 2.121×10^3 | -1.321×10^4 | |
| β | 0.0056 | 0.0025 | 0.0087 | $(\beta - \hat{\beta})$ | - | - | 2.067×10^5 | 0.149 |

Sum of squared errors: 0.664

No. of points: 41

STATION #: 45

AREA: Scott Inlet

LATITUDE: 71°14'N

LONGITUDE: 71°07'W

DATE: 06/09/78

DEPTH: 17.5 m

IDENTIFIER #: 784596

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 179.5 | 1.10 | 211.7 | 0.85 | 779.4 | 0.25 | 846.9 | 0.23 |
| 113.5 | 0.91 | 122.7 | 0.93 | 635.2 | 0.18 | 727.2 | 0.19 |
| 54.9 | 0.88 | 55.2 | 0.99 | 570.7 | 0.18 | 656.7 | 0.27 |
| 32.5 | 0.96 | 30.1 | 0.84 | 500.2 | 0.41 | 533.9 | 0.36 |
| 17.5 | 0.63 | 17.6 | 0.63 | 368.2 | 0.58 | 405.0 | 0.57 |
| 10.1 | 0.37 | 9.9 | 0.39 | 282.3 | 0.79 | 297.6 | 0.88 |
| 5.7 | 0.26 | 5.9 | 0.26 | 231.7 | 0.90 | 251.6 | 0.85 |
| 3.2 | 0.18 | 3.6 | 0.07 | 185.6 | 1.01 | 172.4 | 0.95 |
| 2.4 | 0.07 | 2.4 | 0.07 | 121.2 | 1.04 | 119.7 | 1.12 |

Sample Temperature: 2.0 °C Incubation Temperature: 3.8 °C

mg m⁻³mg m⁻³mg at m⁻³Chlorophyll: 1.26 RNA: 13.23 Phosphate: 0.71 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.044Carbon: 280 DNA: 5.24 Nitrate: 0.06 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 1.11Nitrogen: 31 ATP: 0.403 Silicate: 2.72 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0038

Protein: 88.9 Ammonia: 0.16

STATION: 45

DEPTH: 17.5 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|----------------|---------------------------|---------------------------|-------------------------|----------------------|
| P_s | 1.493 | 1.329 | $(P_s - \hat{P}_s)$ | 1.229×10 | 5.944×10 | -3.523×10^3 |
| α | 0.044 | 0.038 | $(\alpha - \hat{\alpha})$ | - | 8.491×10^2 | -4.931×10^3 |
| β | 0.0038 | 0.0027 | $(\beta - \hat{\beta})$ | - | - | 2.771×10^5 |

Sum of squared errors: 0.234

No. of points: 32

STATION #: 52

AREA: Buchan Gulf

LATITUDE: 72°15'N

LONGITUDE: 72°11'W

DATE: 07/09/78

DEPTH: 5 m

IDENTIFIER #: 784672

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 182.6 | 1.41 | 2.2 | 0.01 | 170.3 | 1.18 | 148.8 | 0.95 |
| 116.3 | 1.48 | 828.5 | 1.38 | 95.1 | 1.25 | 81.3 | 1.08 |
| 4.6 | 1.48 | 736.4 | 0.79 | 896.0 | 1.44 | | |
| 25.3 | 0.79 | 687.3 | 0.72 | 828.5 | 0.95 | | |
| 15.0 | 0.50 | 595.3 | 0.82 | 764.1 | 1.51 | | |
| 8.6 | 0.23 | 420.4 | 0.98 | 592.2 | 1.34 | | |
| 5.5 | 0.16 | 319.1 | 1.18 | 451.1 | 1.28 | | |
| 3.3 | 0.03 | 194.8 | 1.18 | 383.6 | 1.25 | | |
| 2.2 | 0.00 | 142.7 | 1.14 | 162.0 | 1.28 | | |
| 212.3 | 1.48 | 85.3 | 1.08 | 92.1 | 1.41 | | |
| 117.2 | 1.15 | 902.1 | 1.28 | 828.5 | 1.18 | | |
| 53.1 | 1.21 | 813.2 | 0.88 | 736.4 | 0.69 | | |
| 27.3 | 0.75 | 727.2 | 1.31 | 721.1 | 0.95 | | |
| 15.3 | 0.59 | 592.2 | 1.08 | 521.6 | 1.15 | | |
| 9.0 | 0.23 | 506.3 | 1.18 | 405.0 | 1.21 | | |
| 4.9 | 0.13 | 368.2 | 1.38 | 325.3 | 1.31 | | |
| 3.3 | 0.03 | 254.1 | 1.15 | 222.5 | 1.31 | | |

Sample Temperature: 1.0 °C

Incubation Temperature: 2.0 °C

| | mg m ⁻³ | mg m ⁻³ | mg at m ⁻³ | |
|--------------|--------------------|--------------------|-----------------------|--|
| Chlorophyll: | 0.30 | RNA: | 8.67 | Phosphate: 0.58 α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : 0.046 |
| Carbon: | 161 | DNA: | 3.94 | Nitrate: 0.04 P _m ^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : 1.28 |
| Nitrogen: | 24 | ATP: | 0.318 | Silicate: 2.70 β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : 0.0004 |
| | | Protein: | 34.5 | Ammonia: 0.00 |

STATION: 52

DEPTH: 5 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.348 | 1.226 | 1.469 | $(P_s - \hat{P}_s)$ | 2.532×10 | 7.574×10 | -1.350×10^4 | |
| α | 0.046 | 0.036 | 0.056 | $(\alpha - \hat{\alpha})$ | - | 7.842×10^2 | -7.349×10^3 | |
| β | 0.0004 | 0.0000 | 0.0008 | $(\beta - \hat{\beta})$ | - | - | 2.268×10^6 | 0.191 |

Sum of squared errors: 0.851

No. of points: 41

STATION #: 52

AREA: Buchan Gulf

LATITUDE: 72°15'N

LONGITUDE: 72°11'W

DATE: 07/09/78

DEPTH: 33 m

IDENTIFIER #: 784675

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 201.0 | 0.48 | 2.1 | 0.06 | 193.3 | 0.57 | 181.0 | 0.61 |
| 137.5 | 0.53 | 764.1 | 0.00 | 121.2 | 0.81 | 90.5 | 0.70 |
| 64.4 | 0.62 | 659.7 | 0.00 | 856.1 | 0.00 | | |
| 29.8 | 0.58 | 567.7 | 0.02 | 733.4 | 0.00 | | |
| 16.3 | 0.69 | 429.6 | 0.08 | 650.5 | 0.02 | | |
| 9.5 | 0.39 | 368.2 | 0.21 | 530.8 | 0.08 | | |
| 6.0 | 0.29 | 282.3 | 0.40 | 395.8 | 0.15 | | |
| 3.6 | 0.16 | 222.5 | 0.40 | 274.6 | 0.31 | | |
| 2.6 | 0.10 | 199.4 | 0.71 | 230.1 | 0.35 | | |
| 227.1 | 0.43 | 112.0 | 0.73 | 168.8 | 0.71 | | |
| 131.9 | 0.73 | 853.0 | 0.00 | 92.1 | 0.83 | | |
| 56.2 | 0.60 | 776.3 | 0.02 | 791.7 | 0.00 | | |
| 26.7 | 0.59 | 622.9 | 0.03 | 610.6 | 0.01 | | |
| 14.9 | 0.46 | 512.4 | 0.12 | 481.8 | 0.06 | | |
| 9.0 | 0.37 | 414.2 | 0.18 | 368.2 | 0.06 | | |
| 5.3 | 0.20 | 316.1 | 0.32 | 280.8 | 0.29 | | |
| 3.4 | 0.14 | 240.9 | 0.70 | 211.7 | 0.43 | | |

Sample Temperature: -0.5 °C

mg m⁻³mg m⁻³

Incubation Temperature: 2.0 °C

mg at m⁻³

Chlorophyll: 3.70

RNA: 17.95

Phosphate: 1.10

α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.039

Carbon: 243

DNA: 3.94

Nitrate: 3.59

P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 0.81

Nitrogen: 42

ATP: 0.573

Silicate: 8.02

β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0060

Protein: 56.3

Ammonia: 0.10

STATION: 52

DEPTH: 33 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.277 | 1.020 | 1.535 | $(P_s - \hat{P}_s)$ | 1.298×10 | 5.740×10 | -2.625×10^3 | |
| α | 0.039 | 0.031 | 0.046 | $(\alpha - \hat{\alpha})$ | - | 6.917×10^2 | -3.953×10^3 | |
| β | 0.0060 | 0.0036 | 0.0084 | $(\beta - \hat{\beta})$ | - | - | 1.390×10^5 | 0.088 |

Sum of squared errors: 0.434

No. of points: 45

STATION #: 59

AREA: Buchan Gulf

LATITUDE: 71°48'N

LONGITUDE: 72°18'W

DATE: 08/09/78

DEPTH: 4 m

IDENTIFIER #: 784788

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 181.0 | 1.54 | 834.6 | 1.93 | 98.2 | 1.05 | 804.0 | 1.34 |
| 119.0 | 1.64 | 742.6 | 1.12 | 865.3 | 2.26 | 730.3 | 1.02 |
| 52.8 | 1.51 | 684.3 | 1.18 | 788.6 | 1.77 | 592.2 | 1.48 |
| 28.2 | 1.28 | 595.3 | 1.15 | 721.1 | 1.31 | 475.6 | 1.31 |
| 16.0 | 0.56 | 429.6 | 1.28 | 601.4 | 1.71 | 423.4 | 1.67 |
| 8.8 | 0.26 | 306.8 | 1.21 | 478.7 | 1.77 | 237.8 | 1.44 |
| 2.4 | 0.10 | 213.7 | 1.21 | 386.6 | 1.80 | 174.9 | 1.54 |
| 212.3 | 1.44 | 164.2 | 1.28 | 273.7 | 1.38 | 76.7 | 1.48 |
| 122.7 | 1.44 | 90.5 | 1.15 | 187.2 | 1.90 | | |
| 55.2 | 1.34 | 920.6 | 2.10 | 105.9 | 1.44 | | |
| 30.4 | 1.12 | 889.9 | 1.05 | | | | |
| 16.1 | 0.92 | 736.4 | 1.12 | | | | |
| 9.8 | 0.39 | 595.3 | 1.05 | | | | |
| 6.3 | 0.16 | 497.1 | 0.92 | | | | |
| 3.9 | 0.03 | 374.4 | 1.25 | | | | |
| 2.6 | 0.07 | 236.3 | 1.44 | | | | |
| | | 153.4 | 1.21 | | | | |

Sample Temperature: 2.3°C

Incubation Temperature: 1.8 °C

mg m⁻³mg m⁻³mg at m⁻³

Chlorophyll: 0.30

RNA: 9.08

Phosphate: 0.62

α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.062

Carbon: 144

DNA: 3.32

Nitrate: 0.06

P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 1.44

Nitrogen: 22

ATP: 0.254

Silicate: 3.46

β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0002

Protein: 35.2

Ammonia: 0.00

STATION: 59

DEPTH: 4 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.473 | 1.315 | 1.630 | $(P_s - \hat{P}_s)$ | 2.810×10 | 5.165×10 | -1.595×10^4 | |
| α | 0.062 | 0.043 | 0.080 | $(\alpha - \hat{\alpha})$ | - | 4.835×10^2 | 4.090×10^3 | |
| β | 0.0002 | -0.0003 | 0.0007 | $(\beta - \hat{\beta})$ | - | - | 2.969×10^6 | 0.436 |

Sum of squared errors: 1.895

No. of points: 40

STATION #: 59

AREA: Buchan Gulf

LATITUDE: 71°48'N

LONGITUDE: 72°18'W

DATE: 08/09/78

DEPTH: 30 m

IDENTIFIER #: 784791

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 201.0 | 0.38 | 2.4 | 0.10 | 837.7 | 0.01 | 751.8 | 0.01 |
| 138.1 | 0.80 | 650.5 | 0.00 | 699.6 | 0.01 | 665.9 | 0.01 |
| 61.4 | 0.71 | 583.0 | 0.01 | 607.6 | 0.03 | 589.2 | 0.02 |
| 36.2 | 0.85 | 481.8 | 0.04 | 552.3 | 0.08 | 512.4 | 0.06 |
| 22.7 | 0.69 | 392.8 | 0.09 | 417.3 | 0.15 | 386.6 | 0.12 |
| 13.0 | 0.36 | 273.1 | 0.30 | 316.1 | 0.40 | 285.4 | 0.46 |
| 7.6 | 0.24 | 226.4 | 0.44 | 252.2 | 0.52 | 220.9 | 0.38 |
| 4.4 | 0.16 | 169.4 | 0.61 | 190.2 | 0.53 | 173.4 | 0.62 |
| 3.2 | 0.11 | 113.5 | 0.64 | 99.7 | 0.73 | 104.3 | 0.65 |
| 238.7 | 0.55 | 638.2 | 0.01 | | | | |
| 147.9 | 0.59 | 530.8 | 0.06 | | | | |
| 52.8 | 0.65 | 420.4 | 0.13 | | | | |
| 28.8 | 0.74 | 313.0 | 0.34 | | | | |
| 17.5 | 0.58 | 247.0 | 0.48 | | | | |
| 11.1 | 0.38 | 184.1 | 0.58 | | | | |
| 6.1 | 0.27 | 136.6 | 0.89 | | | | |
| 3.5 | 0.17 | | | | | | |

Sample Temperature: 0.0 °C Incubation Temperature: 1.8 °C

mg m⁻³mg m⁻³mg at m⁻³

| | | | | | | | |
|--------------|------|----------|-------|------------|-------|---|--------|
| Chlorophyll: | 2.75 | RNA: | 10.53 | Phosphate: | 1.07 | α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.042 |
| Carbon: | 140 | DNA: | 2.57 | Nitrate: | 4.19 | P_m^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : | 0.84 |
| Nitrogen: | 26 | ATP: | 0.313 | Silicate: | 10.72 | β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.0062 |
| | | Protein: | 33.6 | Ammonia: | 0.04 | | |

STATION: 59

DEPTH: 30 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|---------------------------|---------------------------|---------------------------|-------------------------|----------------------|
| P_s | 1.301 | 1.092 | $(P_s - \hat{P}_s)$ | 1.301×10 | 5.416×10 | -2.595×10^3 |
| α | 0.042 | 0.036 | $(\alpha - \hat{\alpha})$ | - | 6.868×10^2 | -3.473×10^3 |
| β | 0.0062 | 0.0042 | $(\beta - \hat{\beta})$ | - | - | 1.361×10^5 |

Sum of squared errors: 0.317

No. of points: 46

STATION #: 70

AREA: Baffin Bay

LATITUDE: 72°45'N

LONGITUDE: 73°39'W

DATE: 09/09/78

DEPTH: 4 m

IDENTIFIER #: 784852

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 184.1 | 1.23 | 2.5 | 0.05 | 162.6 | 1.16 | 209.3 | 1.05 |
| 114.2 | 1.30 | 840.8 | 1.05 | 92.1 | 1.11 | 164.2 | 0.98 |
| 52.2 | 1.11 | 773.3 | 0.52 | 868.4 | 0.70 | 79.8 | 0.91 |
| 26.7 | 0.98 | 659.7 | 0.52 | 782.5 | 0.70 | | |
| 15.0 | 0.68 | 533.9 | 0.68 | 650.5 | 0.80 | | |
| 9.0 | 0.39 | 411.2 | 0.84 | 604.5 | 0.86 | | |
| 5.4 | 0.18 | 313.0 | 0.89 | 549.3 | 0.98 | | |
| 3.4 | 0.07 | 237.8 | 0.93 | 398.9 | 1.09 | | |
| 2.3 | 0.02 | 167.2 | 1.25 | 256.2 | 1.25 | | |
| 207.1 | 0.91 | 90.5 | 0.93 | 188.7 | 1.07 | | |
| 122.7 | 1.07 | 899.1 | 0.86 | 89.0 | 1.18 | | |
| 58.3 | 1.02 | 816.2 | 0.52 | 819.3 | 0.48 | | |
| 27.6 | 0.77 | 690.4 | 0.57 | 721.1 | 0.61 | | |
| 15.0 | 0.59 | 604.5 | 0.84 | 656.7 | 0.64 | | |
| 9.4 | 0.39 | 497.1 | 0.91 | 570.7 | 0.75 | | |
| 6.1 | 0.14 | 383.6 | 1.14 | 451.1 | 0.73 | | |
| 3.7 | 0.11 | 282.3 | 1.39 | 331.4 | 1.00 | | |

Sample Temperature: 1.0 °C

mg m⁻³mg m⁻³

Incubation Temperature: 1.8 °C

mg at m⁻³

Chlorophyll: 0.44

RNA: 9.60

Phosphate: 0.66

α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.050

Carbon: 185

DNA: 6.80

Nitrate: 0.01

P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 1.14

Nitrogen: 23

ATP: 0.236

Silicate: 2.78

β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0008

Protein: 38.8

Ammonia: 0.02

STATION: 70

DEPTH: 4 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | |
|--------------------|-------------------------------|---------------------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|
| P_s | 1.236 | 1.132 | 1.340 | $(P_s - \hat{P}_s)$ | 2.678×10 | 5.388×10 | -1.252×10^4 |
| α | 0.050 | 0.040 | 0.060 | $(\alpha - \hat{\alpha})$ | - | 5.289×10^2 | -4.222×10^3 |
| β | 0.0008 | 0.0004 | 0.0012 | $(\beta - \hat{\beta})$ | - | - | 1.817×10^6 |

Sum of squared errors: 0.670

No. of points: 42

STATION #: 70

AREA: Baffin Bay

LATITUDE: 72°45'N

LONGITUDE: 73°39'W

DATE: 09/09/78

DEPTH: 30 m

IDENTIFIER #: 784855

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 209.3 | 0.44 | 2.3 | 0.06 | 191.8 | 0.46 | 217.9 | 0.34 |
| 134.4 | 0.63 | 751.8 | 0.04 | 130.4 | 0.54 | 162.0 | 0.39 |
| 60.8 | 0.71 | 656.7 | 0.02 | 850.0 | 0.03 | 89.6 | 0.50 |
| 33.8 | 0.53 | 573.8 | 0.02 | 715.0 | 0.02 | | |
| 19.3 | 0.48 | 463.3 | 0.09 | 665.9 | 0.04 | | |
| 11.7 | 0.38 | 359.0 | 0.19 | 515.5 | 0.07 | | |
| 7.2 | 0.24 | 294.6 | 0.31 | 405.0 | 0.16 | | |
| 3.9 | 0.18 | 225.5 | 0.38 | 316.1 | 0.21 | | |
| 2.8 | 0.10 | 173.4 | 0.47 | 228.6 | 0.40 | | |
| 230.8 | 0.40 | 104.3 | 0.50 | 161.4 | 0.40 | | |
| 127.4 | 0.68 | 828.5 | 0.02 | 96.7 | 0.47 | | |
| 54.6 | 0.55 | 736.4 | 0.02 | 791.7 | 0.02 | | |
| 26.1 | 0.42 | 592.2 | 0.04 | 650.5 | 0.02 | | |
| 15.6 | 0.34 | 487.9 | 0.09 | 586.1 | 0.03 | | |
| 9.7 | 0.30 | 408.1 | 0.20 | 491.0 | 0.06 | | |
| 6.0 | 0.22 | 303.8 | 0.35 | 374.4 | 0.15 | | |
| 3.7 | 0.12 | 248.6 | 0.47 | 294.6 | 0.20 | | |

Sample Temperature: -0.5 °C

Incubation Temperature: 1.8 °C

mg m^{-3}

mg m^{-3}

mg at m⁻³

Chlorophyll: 2.02

RNA: 10.86

Phosphate: 1.12

$$\alpha \text{ mg C(mg Chl } \alpha)^{-1} \text{ hr}^{-1} (\text{W m}^{-2})^{-1}: 0.034$$

Carbon: 220

DNA: 5.32

Nitrate: 4.38

$$P_m^B \text{ mg C}(\text{mg Chl } a)^{-1}\text{hr}^{-1}: \quad 0.63$$

Nitrogen: 27

ATP: 0.416

Silicate: 8.05

$$\beta \text{ mg C}(\text{mg Chl } \alpha)^{-1} \text{hr}^{-1} (\text{W m}^{-2})^{-1}: 0.0036$$

Protein: 38.4

Ammonia: 0.26

STATION: 70

DEPTH: 30 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|
| P_s | 0.890 | 0.773 | 1.007 | $(P_s - \hat{P}_s)$ | 1.599×10 | 4.580×10 | -3.442×10^3 |
| α | 0.034 | 0.029 | 0.040 | $(\alpha - \hat{\alpha})$ | - | 5.095×10^2 | -2.766×10^3 |
| β | 0.0036 | 0.0026 | 0.0046 | $(\beta - \hat{\beta})$ | - | - | 1.995×10^5 |

Sum of squared errors: 0.184

No. of points: 45

STATION #: 79

AREA: Lancaster Sound

LATITUDE: 73°47'N

LONGITUDE: 79°59'W

DATE: 10/09/78

DEPTH: 3 m

IDENTIFIER #: 784910

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 179.8 | 1.28 | 2.1 | 0.07 | 168.8 | 0.86 | 227.1 | 1.03 |
| 101.9 | 1.20 | 828.5 | 0.75 | 104.3 | 0.87 | 158.0 | 1.11 |
| 44.2 | 0.95 | 785.5 | 0.17 | 889.9 | 0.51 | 90.5 | 1.18 |
| 24.7 | 0.97 | 767.1 | 0.28 | 868.4 | 0.21 | | |
| 14.7 | 0.69 | 527.8 | 0.67 | 730.3 | 0.28 | | |
| 8.4 | 0.29 | 392.8 | 0.77 | 558.5 | 0.56 | | |
| 5.1 | 0.15 | 282.3 | 0.97 | 530.8 | 0.72 | | |
| 2.7 | 0.09 | 195.8 | 0.76 | 417.3 | 1.38 | | |
| 1.9 | 0.05 | 144.8 | 0.86 | 251.0 | 1.08 | | |
| 195.8 | 0.79 | 90.5 | 1.01 | 168.8 | 1.26 | | |
| 121.2 | 1.32 | 902.1 | 0.66 | 92.1 | 1.16 | | |
| 54.0 | 1.00 | 883.7 | 0.27 | 810.1 | 0.36 | | |
| 27.5 | 0.99 | 822.4 | 0.47 | 724.2 | 0.17 | | |
| 16.6 | 0.63 | 592.2 | 0.69 | 656.7 | 0.23 | | |
| 9.5 | 0.38 | 438.8 | 1.10 | 527.8 | 0.48 | | |
| 4.9 | 0.23 | 301.3 | 0.88 | 448.0 | 0.89 | | |
| 2.7 | 0.11 | 203.1 | 0.71 | 356.0 | 0.92 | | |

Sample Temperature: 0.0 °C

Incubation Temperature: 1.0 °C

mg m⁻³mg m⁻³mg at m⁻³

Chlorophyll: 4.44

RNA: 22.13

Phosphate: 0.76

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.058

Carbon: 287

DNA: 4.38

Nitrate: 0.46

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 1.10

Nitrogen: 51

ATP: 0.710

Silicate: 2.76

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0010

Protein: 198.3

Ammonia: 0.04

STATION: 79

DEPTH: 3 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|
| P_s | 1.202 | 1.069 | 1.335 | $(P_s - \hat{P}_s)$ | 2.701×10 | 3.972×10 | -1.103×10^4 |
| α | 0.058 | 0.042 | 0.074 | $(\alpha - \hat{\alpha})$ | - | 3.692×10^2 | -2.530×10^3 |
| β | 0.0011 | 0.0005 | 0.0016 | $(\beta - \hat{\beta})$ | - | - | 1.402×10^6 |

Sum of squared errors: 1.147

No. of points: 42

STATION #: 79

AREA: Lancaster Sound

LATITUDE: 73°47'N

LONGITUDE: 79°59'W

DATE: 10/09/78

DEPTH: 24 m

IDENTIFIER #: 784911

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 193.3 | 1.08 | 2.2 | 0.09 | 184.1 | 1.12 | 231.7 | 0.96 |
| 127.4 | 1.17 | 779.4 | 0.09 | 125.8 | 1.45 | 168.8 | 0.80 |
| 57.7 | 0.91 | 644.4 | 0.09 | 850.0 | 0.07 | 89.0 | 1.19 |
| 34.4 | 0.97 | 570.7 | 0.16 | 727.2 | 0.10 | | |
| 20.9 | 0.58 | 491.0 | 0.43 | 592.2 | 0.20 | | |
| 11.1 | 0.37 | 349.8 | 0.59 | 478.7 | 0.38 | | |
| 6.5 | 0.23 | 288.4 | 0.82 | 435.7 | 0.56 | | |
| 4.0 | 0.15 | 207.1 | 0.90 | 306.8 | 0.62 | | |
| 2.8 | 0.09 | 163.2 | 1.37 | 250.1 | 0.78 | | |
| 227.7 | 0.90 | 121.2 | 0.96 | 191.8 | 0.82 | | |
| 124.3 | 0.97 | 850.0 | 0.15 | 102.8 | 1.10 | | |
| 50.6 | 0.80 | 709.0 | 0.09 | 785.5 | 0.08 | | |
| 27.9 | 1.17 | 586.1 | 0.12 | 632.1 | 0.07 | | |
| 14.6 | 0.58 | 527.8 | 0.34 | 558.5 | 0.22 | | |
| 8.9 | 0.41 | 405.0 | 0.62 | 451.1 | 0.37 | | |
| 5.5 | 0.29 | 316.1 | 0.86 | 368.2 | 0.59 | | |
| 3.4 | 0.15 | 232.3 | 0.93 | 303.8 | 0.78 | | |

Sample Temperature: -0.5 °C

Incubation Temperature: 1.0 °C

mg m⁻³mg m⁻³mg at m⁻³

Chlorophyll: 5.64

RNA: 22.80

Phosphate: 0.71

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.041

Carbon: 275

DNA: 4.62

Nitrate: 0.42

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 1.20

Nitrogen: 53

ATP: 0.652

Silicate: 2.28

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0063

Protein: 158.4

Ammonia: 0.03

0.0063

STATION: 79

DEPTH: 24 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|---------------------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.890 | 1.574 | 2.206 | $(P_s - \hat{P}_s)$ | 1.578×10 | 1.165×10^2 | -4.312×10^3 | |
| α | 0.041 | 0.033 | 0.048 | $(\alpha - \hat{\alpha})$ | - | 1.580×10^3 | -1.147×10^4 | |
| β | 0.0063 | 0.0041 | 0.0084 | $(\beta - \hat{\beta})$ | - | - | 3.099×10^5 | 0.167 |

Sum of squared errors: 0.881

No. of points: 48

STATION #: 83

AREA: Lancaster Sound

LATITUDE: 74°46'N

LONGITUDE: 78°02'W

DATE: 11/09/78

DEPTH: 5 m

IDENTIFIER #: 784985

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 184.7 | 0.93 | 2.3 | 0.04 | 170.3 | 0.98 | 210.2 | 0.96 |
| 116.6 | 0.85 | 754.8 | 0.96 | 118.1 | 0.96 | 156.5 | 0.91 |
| 49.7 | 0.93 | 650.5 | 0.60 | 813.2 | 0.76 | 90.5 | 1.04 |
| 31.9 | 0.78 | 533.9 | 0.67 | 699.6 | 0.62 | | |
| 16.9 | 0.47 | 444.9 | 0.87 | 610.6 | 0.78 | | |
| 9.0 | 0.24 | 359.0 | 0.87 | 509.4 | 0.95 | | |
| 5.8 | 0.16 | 279.2 | 1.07 | 429.6 | 0.85 | | |
| 3.2 | 0.05 | 230.1 | 1.07 | 306.8 | 0.98 | | |
| 2.2 | 0.04 | 178.6 | 0.91 | 227.7 | 0.80 | | |
| 199.4 | 1.07 | 107.4 | 0.91 | 162.6 | 0.96 | | |
| 126.4 | 0.76 | 816.2 | 0.80 | 104.3 | 0.95 | | |
| 51.6 | 0.98 | 687.3 | 0.71 | 767.1 | 0.67 | | |
| 23.6 | 0.62 | 567.8 | 0.84 | 653.6 | 0.53 | | |
| 13.4 | 0.47 | 491.0 | 0.89 | 589.2 | 0.60 | | |
| 8.0 | 0.29 | 405.0 | 1.05 | 472.6 | 0.64 | | |
| 4.8 | 0.16 | 306.8 | 1.13 | 349.8 | 0.82 | | |
| 3.1 | 0.09 | 234.7 | 1.02 | 276.2 | 0.80 | | |

Sample Temperature: 0.5°C

 mg m^{-3}

Chlorophyll: 0.55

 mg m^{-3}

RNA: 14.35

Incubation Temperature: 1.2 °C

 mg at m^{-3}

Phosphate: 0.34

 $\alpha \text{ mg C(mg Chl } \alpha)^{-1}\text{hr}^{-1}(W \text{ m}^{-2})^{-1}: 0.041$

Carbon: 210

DNA: 5.54

Nitrate: 0.02

 $P_m^B \text{ mg C(mg Chl } \alpha)^{-1}\text{hr}^{-1}: 0.98$

Nitrogen: 25

ATP: 0.346

Silicate: 0.30

 $\beta \text{ mg C(mg Chl } \alpha)^{-1}\text{hr}^{-1}(W \text{ m}^{-2})^{-1}: 0.0005$

Protein: 25.8

Ammonia: 0.03

STATION: 83

DEPTH: 5 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | |
|--------------------|-------------------------------|---------------------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|
| P_s | 1.047 | 0.972 | 1.122 | $(P_s - \hat{P}_s)$ | 3.126×10 | 5.154×10 | -1.570×10^4 |
| α | 0.041 | 0.033 | 0.049 | $(\alpha - \hat{\alpha})$ | - | 5.477×10^2 | -4.306×10^3 |
| β | 0.0005 | 0.0002 | 0.0008 | $(\beta - \hat{\beta})$ | - | - | 2.407×10^6 |

Sum of squared errors: 0.427

No. of points: 46

STATION #: 83

AREA: Lancaster Sound

LATITUDE: 74°46'N

LONGITUDE: 78°02'W

DATE: 11/09/78

DEPTH: 36 m

IDENTIFIER #: 784988

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 205.0 | 0.44 | 2.3 | 0.06 | 153.4 | 0.61 | 227.1 | 0.47 |
| 136.6 | 0.50 | 853.0 | 0.05 | 98.2 | 0.64 | 171.8 | 0.47 |
| 63.8 | 0.56 | 742.6 | 0.01 | 920.6 | 0.02 | 85.9 | 0.57 |
| 35.3 | 0.56 | 705.8 | 0.03 | 834.6 | 0.02 | | |
| 20.2 | 0.50 | 696.6 | 0.07 | 785.5 | 0.04 | | |
| 12.4 | 0.37 | 466.4 | 0.18 | 687.3 | 0.11 | | |
| 7.2 | 0.22 | 316.1 | 0.31 | 518.6 | 0.18 | | |
| 4.7 | 0.15 | 204.1 | 0.42 | 368.2 | 0.34 | | |
| 2.9 | 0.07 | 141.2 | 0.57 | 260.8 | 0.40 | | |
| 227.7 | 0.49 | 85.9 | 0.66 | 174.9 | 0.50 | | |
| 128.9 | 0.55 | 920.6 | 0.02 | 94.5 | 0.69 | | |
| 60.4 | 0.56 | 889.9 | 0.01 | 828.5 | 0.01 | | |
| 28.8 | 0.63 | 828.5 | 0.04 | 724.2 | 0.00 | | |
| 14.4 | 0.42 | 675.1 | 0.09 | 684.3 | 0.04 | | |
| 9.0 | 0.23 | 494.0 | 0.22 | 632.1 | 0.07 | | |
| 5.5 | 0.19 | 349.8 | 0.38 | 472.6 | 0.19 | | |
| 3.5 | 0.09 | 237.8 | 0.47 | 306.8 | 0.26 | | |

Sample Temperature: -0.5 °C

 mg m^{-3} mg m^{-3}

Incubation Temperature: 1.2 °C

 mg at m^{-3}

Chlorophyll: 4.90

RNA: 33.93

Phosphate: 0.72

 $\alpha \text{ mg C(mg Chl } \alpha)^{-1}\text{hr}^{-1}(W \text{ m}^{-2})^{-1}: 0.038$

Carbon: 319

DNA: 8.11

Nitrate: 2.00

 $P_m^B \text{ mg C(mg Chl } \alpha)^{-1}\text{hr}^{-1}: 0.64$

Nitrogen: 45

ATP: 0.873

Silicate: 2.04

 $\beta \text{ mg C(mg Chl } \alpha)^{-1}\text{hr}^{-1}(W \text{ m}^{-2})^{-1}: 0.0022$

Protein: 102.4

Ammonia: 0.12

STATION: 83

DEPTH: 36 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|---------------------------|---------------------------|---------------------------|-------------------------|----------------------|
| P_s | 0.809 | 0.749 | $(P_s - \hat{P}_s)$ | 1.891×10 | 3.918×10 | -4.601×10^3 |
| α | 0.038 | 0.033 | $(\alpha - \hat{\alpha})$ | - | 3.596×10^2 | -2.218×10^3 |
| β | 0.0022 | 0.0018 | $(\beta - \hat{\beta})$ | - | - | -3.174×10^5 |

Sum of squared errors: 0.085

No. of points: 39

STATION #: 87

AREA: Baffin Bay

LATITUDE: 74°32'N

LONGITUDE: 76°04'W

DATE: 12/09/78

DEPTH: 3 m

IDENTIFIER #: 785072

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 173.4 | 1.64 | 2.3 | 0.04 | 165.7 | 1.35 | 191.8 | 1.50 |
| 109.8 | 1.48 | 699.6 | 1.32 | 99.7 | 1.58 | 150.4 | 1.50 |
| 49.7 | 1.48 | 662.8 | 0.71 | 767.1 | 1.29 | 89.0 | 1.55 |
| 25.8 | 1.09 | 604.5 | 0.78 | 745.7 | 0.88 | | |
| 16.3 | 0.64 | 515.5 | 1.30 | 622.9 | 1.43 | | |
| 9.8 | 0.33 | 359.0 | 1.39 | 540.1 | 1.60 | | |
| 5.7 | 0.24 | 270.0 | 1.11 | 441.9 | 1.58 | | |
| 3.5 | 0.10 | 208.0 | 1.12 | 334.5 | 1.53 | | |
| 1.9 | 0.06 | 150.4 | 1.32 | 207.1 | 1.63 | | |
| 203.4 | 1.27 | 95.1 | 1.50 | 135.0 | 1.38 | | |
| 119.7 | 1.32 | 754.8 | 0.97 | 87.5 | 1.48 | | |
| 54.3 | 1.15 | 705.8 | 0.91 | 773.3 | 1.03 | | |
| 28.5 | 0.87 | 619.8 | 1.19 | 638.2 | 0.89 | | |
| 16.0 | 0.58 | 589.2 | 1.21 | 555.4 | 1.11 | | |
| 8.8 | 0.35 | 423.4 | 1.46 | 506.3 | 1.36 | | |
| 5.3 | 0.19 | 306.8 | 1.44 | 405.0 | 1.63 | | |
| 3.2 | 0.09 | 227.7 | 1.10 | 297.6 | 1.40 | | |

Sample Temperature: 0.5°C

mg m⁻³mg m⁻³

Incubation Temperature: 1.0 °C

mg at m⁻³

Chlorophyll: 1.44

RNA: 17.46

Phosphate: 0.47

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.053

Carbon: 255

DNA: 7.08

Nitrate: 0.06

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 1.46

Nitrogen: 33

ATP: 0.572

Silicate: 1.30

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0006

Protein: 73.1

Ammonia: 0.14

STATION: 87

DEPTH: 3 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper 90% confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|-----------------|----------------------------|----------------------------|---------------------------|---------------------------|-------------------------|---------------------------|
| P_s | 1.559 | 1.431 | $(P_s - \hat{P}_s)$ | 3.108×10^2 | 7.710×10 | -1.730×10^4 |
| α | 0.053 | 0.041 | $(\alpha - \hat{\alpha})$ | - | 7.832×10^2 | -7.550×10^3 |
| β | 0.0006 | 0.0002 | $(\beta - \hat{\beta})$ | - | - | 3.020×10^6 0.264 |

Sum of squared errors: 1.362

No. of points: 47

STATION #: 87

AREA: Baffin Bay

LATITUDE: 74°32'N

LONGITUDE: 76°04'W

DATE: 12/09/78

DEPTH: 24 m

IDENTIFIER #: 785073

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 197.9 | 0.70 | 2.2 | 0.09 | 181.0 | 0.86 | 181.0 | 0.65 |
| 127.4 | 0.79 | 684.3 | 0.31 | 122.7 | 0.84 | 141.2 | 0.77 |
| 55.2 | 0.73 | 583.0 | 0.22 | 733.4 | 0.30 | 104.3 | 0.66 |
| 32.8 | 0.78 | 500.2 | 0.32 | 622.5 | 0.25 | | |
| 20.3 | 0.49 | 451.1 | 0.44 | 506.3 | 0.33 | | |
| 10.4 | 0.34 | 368.2 | 0.55 | 454.1 | 0.41 | | |
| 6.6 | 0.23 | 263.9 | 0.67 | 377.4 | 0.60 | | |
| 4.3 | 0.14 | 201.0 | 0.58 | 300.7 | 0.64 | | |
| 2.7 | 0.08 | 165.7 | 0.66 | 196.4 | 0.66 | | |
| 226.4 | 0.59 | 111.1 | 0.83 | 156.5 | 0.81 | | |
| 126.4 | 0.77 | 736.4 | 0.27 | 105.9 | 0.77 | | |
| 56.2 | 0.71 | 622.5 | 0.24 | 650.5 | 0.23 | | |
| 26.7 | 0.54 | 521.6 | 0.32 | 570.7 | 0.22 | | |
| 16.0 | 0.48 | 457.2 | 0.50 | 512.4 | 0.25 | | |
| 9.7 | 0.30 | 389.7 | 0.62 | 420.4 | 0.34 | | |
| 5.4 | 0.17 | 270.0 | 0.68 | 328.3 | 0.50 | | |
| 3.4 | 0.12 | 197.9 | 0.73 | 251.6 | 0.49 | | |

Sample Temperature: -1.0 °C Incubation Temperature: 1.0 °C

| | mg m ⁻³ | | mg m ⁻³ | | mg at m ⁻³ | | |
|--------------|--------------------|----------|--------------------|------------|-----------------------|--|--------|
| Chlorophyll: | 1.39 | RNA: | 14.06 | Phosphate: | 1.02 | α mg C(mg Chl a) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.036 |
| Carbon: | 162 | DNA: | 8.17 | Nitrate: | 4.35 | P_m^B mg C(mg Chl a) ⁻¹ hr ⁻¹ : | 0.82 |
| Nitrogen: | 23 | ATP: | 0.396 | Silicate: | 5.51 | β mg C(mg Chl a) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : | 0.0021 |
| | | Protein: | 42.2 | Ammonia: | 0.00 | | |

STATION: 87

DEPTH: 24 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.027 | 0.949 | 1.105 | $(P_s - \hat{P}_s)$ | 2.649×10 | 5.753×10 | -8.638×10^3 | |
| α | 0.036 | 0.031 | 0.042 | $(\alpha - \hat{\alpha})$ | - | 6.406×10^2 | -4.520×10^3 | |
| β | 0.0021 | 0.0017 | 0.0026 | $(\beta - \hat{\beta})$ | - | - | 7.914×10^5 | 0.046 |

Sum of squared errors: 0.253

No. of points: 50

STATION #: 90

AREA: Baffin Bay

LATITUDE: 75°58'N

LONGITUDE: 74°21'W

DATE: 13/09/78

DEPTH: 5 m

IDENTIFIER #: 785115

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 153.4 | 0.93 | 2.2 | 0.04 | 124.3 | 1.29 | 150.4 | 0.94 |
| 105.9 | 0.74 | 675.1 | 1.49 | 79.8 | 1.27 | 124.3 | 1.30 |
| 46.6 | 1.04 | 665.9 | 0.93 | 641.3 | 1.13 | 73.6 | 1.36 |
| 22.4 | 0.64 | 546.2 | 0.93 | 576.9 | 1.07 | | |
| 13.5 | 0.49 | 444.9 | 0.94 | 497.1 | 1.31 | | |
| 8.1 | 0.29 | 343.7 | 1.37 | 414.2 | 1.19 | | |
| 4.6 | 0.16 | 257.8 | 1.24 | 325.3 | 1.34 | | |
| 3.4 | 0.04 | 188.7 | 1.17 | 230.4 | 1.33 | | |
| 2.0 | 0.01 | 135.0 | 1.14 | 176.4 | 1.46 | | |
| 190.2 | 1.10 | 76.7 | 1.09 | 114.2 | 1.37 | | |
| 111.1 | 1.14 | 745.6 | 1.26 | 79.8 | 1.41 | | |
| 48.5 | 0.91 | 647.4 | 0.80 | 613.7 | 1.49 | | |
| 24.6 | 0.76 | 533.9 | 1.17 | 527.8 | 1.11 | | |
| 14.0 | 0.56 | 478.7 | 1.21 | 491.0 | 1.21 | | |
| 8.3 | 0.36 | 414.2 | 1.47 | 392.8 | 1.17 | | |
| 5.0 | 0.21 | 306.8 | 1.53 | 293.0 | 1.30 | | |
| 3.1 | 0.10 | 203.1 | 1.27 | 199.4 | 1.37 | | |

Sample Temperature: 0.5°C

Incubation Temperature: 2.0 °C

mg m⁻³mg m⁻³mg at m⁻³

| | | | |
|-------------------|---------------|-----------------|---|
| Chlorophyll: 0.70 | RNA: 15.90 | Phosphate: 0.40 | α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : 0.044 |
| Carbon: 236 | DNA: 6.84 | Nitrate: 0.06 | P_m^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : 1.24 |
| Nitrogen: 26 | ATP: 0.390 | Silicate: 1.52 | β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : 0.0002 |
| | Protein: 43.5 | Ammonia: 0.00 | |

STATION: 90

DEPTH: 5 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper 90% confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|-------------------------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.286 | 1.173 | 1.399 | $(P_s - \hat{P}_s)$ | 3.432×10 | 9.205×10 | -2.060×10^4 | |
| α | 0.044 | 0.033 | 0.054 | $(\alpha - \hat{\alpha})$ | - | 8.335×10^2 | -9.274×10^3 | |
| β | 0.0002 | -0.0001 | 0.0005 | $(\beta - \hat{\beta})$ | - | - | 3.948×10^6 | 0.234 |

Sum of squared errors: 1.319

No. of points: 51

STATION #: 90

AREA: Baffin Bay

LATITUDE: 75°58'N

LONGITUDE: 74°21'W

DATE: 13/09/78

DEPTH: 36 m

IDENTIFIER #: 785118

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 187.2 | 0.20 | 2.3 | 0.03 | 150.4 | 0.37 | 197.0 | 0.18 |
| 140.2 | 0.34 | 684.3 | 0.00 | 113.5 | 0.37 | 147.3 | 0.32 |
| 64.1 | 0.38 | 583.0 | 0.01 | 730.3 | 0.00 | | |
| 35.0 | 0.36 | 478.7 | 0.03 | 641.3 | 0.01 | | |
| 20.4 | 0.29 | 392.8 | 0.07 | 521.6 | 0.03 | | |
| 11.0 | 0.16 | 319.1 | 0.12 | 405.0 | 0.07 | | |
| 6.3 | 0.08 | 251.6 | 0.17 | 334.5 | 0.08 | | |
| 3.4 | 0.07 | 193.9 | 0.40 | 263.9 | 0.18 | | |
| 2.5 | 0.05 | 151.9 | 0.34 | 209.3 | 0.21 | | |
| 227.1 | 0.24 | 101.9 | 0.45 | 159.6 | 0.25 | | |
| 132.0 | 0.46 | 730.3 | 0.00 | 102.8 | 0.49 | | |
| 56.8 | 0.26 | 619.8 | 0.01 | 644.4 | 0.01 | | |
| 25.5 | 0.36 | 500.2 | 0.03 | 592.2 | 0.01 | | |
| 15.0 | 0.29 | 408.1 | 0.05 | 503.2 | 0.00 | | |
| 8.4 | 0.17 | 319.1 | 0.10 | 389.7 | 0.04 | | |
| 5.3 | 0.09 | 250.1 | 0.26 | 291.5 | 0.07 | | |
| 3.4 | 0.05 | 184.1 | 0.28 | 270.0 | 0.14 | | |

Sample Temperature: -1.0 °C Incubation Temperature: 2.0 °C

| | mg m ⁻³ | mg m ⁻³ | mg at m ⁻³ | |
|--------------|--------------------|--------------------|-----------------------|---|
| Chlorophyll: | 0.76 | RNA: | 14.97 | Phosphate: 1.27 α mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : 0.017 |
| Carbon: | 106 | DNA: | 7.54 | Nitrate: 7.52 P_m^B mg C(mg Chl α) ⁻¹ hr ⁻¹ : 0.44 |
| Nitrogen: | 17 | ATP: | 0.258 | Silicate: 6.62 β mg C(mg Chl α) ⁻¹ hr ⁻¹ (W m ⁻²) ⁻¹ : 0.0076 |
| | | Protein: | 33.0 | Ammonia: 0.53 |

STATION: 90

DEPTH: 36 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|----------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.067 | 0.625 | 1.510 | $(P_s - \hat{P}_s)$ | 6.277 | 1.096×10^2 | -1.077×10^3 | |
| α | 0.017 | 0.014 | 0.020 | $(\alpha - \hat{\alpha})$ | - | 1.771×10^3 | -8.561×10^3 | |
| β | 0.0076 | 0.0026 | 0.0126 | $(\beta - \hat{\beta})$ | - | - | 4.659×10^4 | 0.020 |

Sum of squared errors: 0.110

No. of points: 50

STATION #: 93

AREA: Baffin Bay

LATITUDE: 74°59'N

LONGITUDE: 68°01'W

DATE: 14/09/78

DEPTH: 7 m

IDENTIFIER #: 785172

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 165.7 | 1.58 | 2.6 | 0.03 | 152.8 | 1.44 | 263.9 | 1.46 |
| 114.2 | 1.44 | 810.1 | 1.94 | 98.8 | 1.49 | 165.7 | 1.55 |
| 52.8 | 1.61 | 675.1 | 0.99 | 886.8 | 1.89 | 86.5 | 1.44 |
| 23.4 | 0.84 | 650.5 | 1.21 | 767.1 | 1.27 | | |
| 15.3 | 0.65 | 589.2 | 1.41 | 742.6 | 1.41 | | |
| 9.4 | 0.34 | 466.4 | 1.35 | 641.3 | 1.63 | | |
| 5.0 | 0.17 | 325.3 | 1.38 | 503.2 | 1.44 | | |
| 3.4 | 0.11 | 230.8 | 1.41 | 365.2 | 1.52 | | |
| 2.1 | 0.03 | 164.2 | 1.61 | 256.2 | 1.80 | | |
| 192.7 | 1.63 | 79.8 | 1.44 | 185.7 | 1.75 | | |
| 117.2 | 1.35 | 853.0 | 2.20 | 98.2 | 1.80 | | |
| 51.2 | 1.27 | 764.1 | 1.36 | 819.3 | 1.07 | | |
| 25.8 | 1.01 | 696.6 | 1.55 | 705.8 | 1.07 | | |
| 14.4 | 0.68 | 665.9 | 1.35 | 681.2 | 1.30 | | |
| 7.8 | 0.42 | 466.4 | 1.44 | 583.0 | 1.89 | | |
| 5.3 | 0.14 | 334.5 | 1.41 | 491.0 | 1.41 | | |
| 3.5 | 0.08 | 256.2 | 1.63 | 319.1 | 1.38 | | |

Sample Temperature: 0.0 °C

mg m⁻³

mg m⁻³

Incubation Temperature: 0.4 °C

mg at m⁻³

Chlorophyll: 0.36

RNA: 14.79

Phosphate: 0.57

α mg C(mg Chl a)⁻¹ hr⁻¹ (W m⁻²)⁻¹: 0.056

Carbon: 125

DNA: 5.62

Nitrate: 0.10

P_m^B mg C(mg Chl a)⁻¹ hr⁻¹: 1.55

Nitrogen: 23

ATP: 0.380

Silicate: 3.88

β mg C(mg Chl a)⁻¹ hr⁻¹ (W m⁻²)⁻¹: 0.0001

Protein: 34.6

Ammonia: 0.01

STATION: 93

DEPTH: 7 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant | | |
|--------------------|-------------------------------|---------------------------|---------------------|---------------------------|-------------------------|---------------------|----------------------|-------|
| P_s | 1.576 | 1.472 | 1.680 | $(P_s - \hat{P}_s)$ | 2.593×10 | 6.776×10 | -1.481×10^4 | |
| α | 0.056 | 0.046 | 0.066 | $(\alpha - \hat{\alpha})$ | - | 7.028×10^2 | -6.499×10^3 | |
| β | 0.0001 | -0.0002 | 0.0004 | $(\beta - \hat{\beta})$ | - | - | 2.752×10^6 | 0.166 |

Sum of squared errors: 0.742

No. of points: 41

STATION #: 93

AREA: Baffin Bay

LATITUDE: 74°59'N

LONGITUDE: 68°01'W

DATE: 14/09/78

DEPTH: 45 m

IDENTIFIER #: 785175

| I | P | I | P | I | P | I | P |
|-------|------|-------|------|-------|------|-------|------|
| 194.8 | 0.24 | 2.6 | 0.10 | 141.2 | 0.49 | 785.5 | 0.00 |
| 134.4 | 0.41 | 776.3 | 0.00 | 822.4 | 0.01 | 626.0 | 0.00 |
| 66.0 | 0.51 | 665.9 | 0.04 | 727.2 | 0.02 | 595.3 | 0.01 |
| 35.9 | 0.49 | 610.6 | 0.01 | 650.7 | 0.02 | 481.8 | 0.04 |
| 19.0 | 0.51 | 503.2 | 0.04 | 533.9 | 0.06 | 386.6 | 0.06 |
| 11.8 | 0.37 | 408.1 | 0.08 | 414.2 | 0.09 | 280.8 | 0.14 |
| 7.2 | 0.29 | 325.3 | 0.12 | 291.5 | 0.19 | 214.8 | 0.24 |
| 4.8 | 0.24 | 240.9 | 0.29 | 247.0 | 0.21 | 173.4 | 0.29 |
| 3.1 | 0.18 | 184.1 | 0.36 | 196.4 | 0.34 | | |
| 231.7 | 0.18 | 113.5 | 0.50 | 106.8 | 0.42 | | |
| 130.7 | 0.33 | 846.9 | 0.01 | | | | |
| 60.4 | 0.47 | 656.7 | 0.01 | | | | |
| 31.3 | 0.45 | 521.6 | 0.06 | | | | |
| 16.0 | 0.43 | 374.4 | 0.04 | | | | |
| 10.1 | 0.33 | 316.1 | 0.17 | | | | |
| 6.9 | 0.29 | 265.4 | 0.28 | | | | |
| 4.4 | 0.14 | 210.2 | 0.42 | | | | |

Sample Temperature: -1.5 °C

Incubation Temperature: 0.3 °C

mg m⁻³mg m⁻³mg at m⁻³

Chlorophyll: 0.51

RNA: 3.52

Phosphate: 1.01

 α mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.048

Carbon: 75

DNA: 2.62

Nitrate: 6.40

 P_m^B mg C(mg Chl α)⁻¹hr⁻¹: 0.55

Nitrogen: 12

ATP: 0.286

Silicate: 7.32

 β mg C(mg Chl α)⁻¹hr⁻¹(W m⁻²)⁻¹: 0.0033

Protein: 25.2

Ammonia: 0.06

STATION: 93

DEPTH: 45 m

Parameters and approximate 90%
confidence limits

Coefficients in equation for 90% joint confidence region

| Parameter value | Lower 90% confidence limit | Upper 90% confidence limit | $(P_s - \hat{P}_s)$ | $(\alpha - \hat{\alpha})$ | $(\beta - \hat{\beta})$ | Constant |
|--------------------|-------------------------------|-------------------------------|---------------------------|---------------------------|-------------------------|----------------------|
| P_s | 0.711 | 0.628 | $(P_s - \hat{P}_s)$ | 1.498×10 | 2.360×10 | -2.760×10^3 |
| α | 0.048 | 0.041 | $(\alpha - \hat{\alpha})$ | - | 1.824×10^2 | -8.230×10^2 |
| β | 0.0033 | 0.0025 | $(\beta - \hat{\beta})$ | - | - | 1.415×10^5 |

Sum of squared errors: 0.116

No. of points: 44

Nutrient Data and Organic Particulates

Station: #1

Date: 26/08/78

AREA: Eastern Shore

LATITUDE: 44° 57' N

LONGITUDE: 61° 18' W

| 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 | 186 | 26 | - | 3.94 | 3.96 |
| 10 | 0.56 | 216 | 22 | - | - | - |
| 20 | 0.63 | 158 | - | - | - | - |
| 32 | 0.97 | 148 | 16 | - | - | - |
| 66 | 0.12 | 76 | 12 | - | 2.00 | 0.84 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 18.0 | 0.68 | 0.30 | 0.72 | - | 0.317 |
| 10 | 18.0 | 0.38 | 0.12 | 0.77 | - | 0.136 |
| 20 | 17.7 | 1.09 | 0.25 | 0.93 | - | - |
| 32 | 8.0 | 1.35 | 1.02 | 2.81 | - | - |
| 66 | 4.0 | 2.44 | 6.82 | 6.06 | - | 0.076 |

Secchi depth (m): 20

Surface production (mg c m⁻³ hr⁻¹): 3.64

Average total radiation during incubation (langleys): 60.2

Station: #2

Date: 27/08/78

AREA: Gulf of St. Lawrence LATITUDE: 48°09'N LONGITUDE: 59°27'W

| 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 | 312 | 22 | - | 5.54 | 2.73 |
| 5 | 0.56 | 98 | 10 | - | 6.64 | 2.08 |
| 11 | 0.55 | 118 | 10 | - | - | - |
| 17 | 1.05 | 148 | 18 | - | - | - |
| 36 | 1.03 | 76 | 6 | - | 5.96 | 1.52 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 15.4 | 0.82 | 0.08 | 0.60 | 0.19 | 0.270 |
| 5 | 15.3 | 0.92 | 0.01 | 0.62 | 0.75 | 0.316 |
| 11 | 15.3 | 0.63 | 0.03 | 0.62 | - | - |
| 17 | 15.3 | 0.85 | 0.01 | 0.57 | 0.58 | - |
| 36 | 6.7 | 0.98 | 0.76 | 1.04 | 0.82 | 0.204 |

Secchi depth (m): 12

Surface production (mg c m⁻³ hr⁻¹): 2.82

Average total radiation during incubation (langleys): 17.8

Station: #3

Date: 28/08/78

AREA: Strait of Belle Isle

LATITUDE: 51°43'N

LONGITUDE: 55°58'W

| 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 | 0.76 | 138 | 23 | 38.7 | 13.42 | 2.76 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 7.8 | 0.86 | 0.04 | 1.77 | 0.44 | 0.370 |

Secchi depth (m): -

Surface production (mg c m⁻³ hr⁻¹): -

Average total radiation during incubation (langleys): -

Station: #4

Date: 29/08/78

AREA: Labrador Sea

LATITUDE: 56°07'N

LONGITUDE: 55°44'W

| 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 | 106 | 19 | 28.4 | 7.66 | 4.99 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 6.5 | 0.86 | 1.48 | 1.75 | 0.32 | 0.222 |

Secchi depth (m): -

Surface production (mg c m⁻³ hr⁻¹): 1.48

Average total radiation during incubation (langleys): 35.6

Station: #5

Date: 30/08/78

AREA: Labrador Sea

LATITUDE: 60°52'N

LONGITUDE: 56°41'W

| 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 | 1.32 | 217 | 33 | 53.4 | 13.01 | 10.58 |
| 4 | 1.08 | 192 | 26 | 49.5 | 9.44 | 8.26 |
| 8 | 1.02 | - | 34 | - | - | - |
| 13 | 1.09 | 178 | 32 | - | - | - |
| 27 | 1.21 | 180 | 31 | 93.0 | 15.24 | 12.21 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 6.8 | 1.62 | 1.16 | 1.25 | 0.22 | 0.390 |
| 4 | 6.8 | 1.68 | 1.38 | 1.21 | 0.32 | 0.524 |
| 8 | 6.8 | 1.11 | 1.31 | 1.17 | 0.46 | - |
| 13 | 6.8 | 1.18 | 1.17 | 1.02 | 0.39 | - |
| 27 | 7.5 | 1.98 | 2.42 | 1.44 | 0.41 | 0.444 |

Secchi depth (m): 9

Surface production (mg c m⁻³ hr⁻¹): 3.42

Average total radiation during incubation (langleys): 32.0

Station: #6

Date: 31/08/78

AREA: Davis Strait

LATITUDE: $63^{\circ}39'N$ LONGITUDE: $56^{\circ}36'W$

| 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 | 2.00 | 397 | 41 | 69.2 | 24.14 | 11.82 |
| 0 | 5.0 | | 0.10 | 0.79 | 0.00 | 0.442 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 5.0 | | 0.10 | 0.79 | 0.00 | 0.442 |

Secchi depth (m): -

Surface production (mg c m⁻³hr⁻¹): 4.73

Average total radiation during incubation (langleyes): 8.2

Station: #8

Date: 01/09/78

AREA: Davis Strait

LATITUDE: $67^{\circ}23'N$ LONGITUDE: $58^{\circ}39'W$

| 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 | 170 | 23 | 22.0 | 5.44 | 3.84 |
| 8 | 0.23 | 88 | 8 | 18.6 | 7.00 | 4.46 |
| 16 | 0.12 | 140 | 20 | - | - | - |
| 26 | 1.38 | 140 | 24 | - | - | - |
| 54 | 0.09 | 76 | 6 | 7.0 | 1.89 | 1.13 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 3.0 | 1.70 | 0.04 | 0.83 | 0.06 | 0.182 |
| 8 | 3.0 | 1.71 | 0.01 | 0.92 | 0.00 | 0.236 |
| 16 | - | 1.46 | 0.05 | 0.80 | 0.00 | - |
| 26 | - | 2.22 | 5.94 | 8.77 | 0.08 | - |
| 54 | 0.5 | 2.48 | 8.11 | 10.66 | 0.00 | 0.025 |

Secchi depth (m): 18

Surface production (mg c m⁻³ hr⁻¹): 0.63

Average total radiation during incubation (langleys): 16.0

Station: #13

Date: 02/09/78

AREA: Baffin Bay

LATITUDE: $69^{\circ}34'N$ LONGITUDE: $65^{\circ}23'W$

| 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 | 1.40 | 242 | 27 | 29.7 | 16.56 | 4.30 |
| 8 | 1.33 | 199 | 23 | 30.7 | 15.68 | 4.70 |
| 13 | 1.41 | 288 | 24 | - | - | - |
| 18 | 8.30 | 308 | 50 | - | - | - |
| 27 | 2.08 | 118 | 18 | 57.2 | 8.78 | 3.53 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 1.2 | 1.74 | 0.02 | 6.84 | 0.12 | 0.376 |
| 8 | 1.0 | 2.16 | 0.04 | 6.62 | 0.01 | 0.493 |
| 13 | -1.2 | 2.19 | 0.05 | 6.79 | 0.08 | - |
| 18 | -1.4 | 1.64 | 0.15 | 5.72 | 0.15 | - |
| 27 | -1.6 | 2.12 | 4.88 | 12.06 | 0.05 | 0.294 |

Secchi depth (m): 9

Surface production (mg c m⁻³ hr⁻¹): 1.52

Average total radiation during incubation (langleys): 1.2

Station: #28

Date: 03/09/78

AREA: Scott Inlet

LATITUDE: 71°37'W

LONGITUDE: 69°18'W

| 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 | 0.34 | 198 | 25 | 29.4 | 6.30 | 4.28 |
| 4 | 0.37 | 211 | 22 | 25.9 | 7.82 | 4.94 |
| 9 | 0.35 | 212 | 22 | - | - | - |
| 14 | 0.46 | 296 | 28 | - | - | - |
| 30 | 4.06 | 289 | 40 | 41.4 | 18.13 | 9.18 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 2.1 | 2.40 | 0.04 | 5.40 | 0.13 | 0.214 |
| 4 | 2.0 | 2.28 | 0.01 | 5.43 | 0.03 | 0.278 |
| 9 | 2.2 | 1.84 | 0.07 | 5.20 | 0.17 | - |
| 14 | 1.7 | 2.42 | 0.08 | 5.48 | 0.14 | - |
| 30 | -1.4 | 3.05 | 3.98 | 7.63 | 0.08 | 0.566 |

Secchi depth (m): 10

Surface production (mg c m⁻³ hr⁻¹): 0.63

Average total radiation during incubation (langleys): 13.2

Station: #32

Date: 04/09/78

AREA: Scott Inlet

LATITUDE: $71^{\circ}35'N$ LONGITUDE: $70^{\circ}03'W$

| 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 | 0.38 | 229 | 27 | 29.1 | 6.48 | 5.18 |
| 4 | 0.42 | 191 | 18 | 26.4 | 8.66 | 5.54 |
| 9 | 1.21 | 374 | 36 | - | - | - |
| 14 | 3.54 | 456 | 42 | - | - | - |
| 30 | 3.90 | 189 | 29 | 47.3 | 16.26 | 5.16 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 1.2 | 1.84 | 0.18 | 2.09 | 0.10 | 0.322 |
| 4 | 1.2 | 1.59 | 0.04 | 2.02 | 0.00 | 0.316 |
| 9 | 1.2 | 2.10 | 0.03 | 1.60 | 0.13 | - |
| 14 | 1.1 | 2.25 | 0.01 | 1.24 | 0.22 | - |
| 30 | -0.9 | 2.04 | 3.48 | 9.66 | 0.29 | 0.469 |

Secchi depth (m): 10

Surface production (mg c m⁻³ hr⁻¹): 0.67

Average total radiation during incubation (langleys): 7.2

Station: #40

Date: 05/09/78

AREA: Scott Inlet

LATITUDE: $71^{\circ}18'N$ LONGITUDE: $70^{\circ}38'W$

| 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 | 0.39 | 196 | 16 | 39.8 | 7.65 | 3.83 |
| 4 | 0.38 | 223 | 27 | 44.3 | 7.24 | 4.80 |
| 9 | 0.89 | 294 | 32 | - | - | - |
| 14 | 5.61 | 408 | 51 | - | - | - |
| 30 | 3.78 | 181 | 35 | 63.5 | 16.12 | 6.01 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | -0.5 | 1.67 | 0.25 | 4.56 | 0.00 | 0.197 |
| 4 | -0.7 | 2.07 | 0.02 | 4.50 | 0.01 | 0.280 |
| 9 | -0.9 | 0.13 | 0.13 | 3.45 | 0.04 | - |
| 14 | -1.2 | 0.69 | 0.69 | 3.86 | 0.04 | - |
| 30 | -1.5 | 2.56 | 4.68 | 10.67 | 0.20 | 0.411 |

Secchi depth (m): 10

Surface production (mg c m⁻³hr⁻¹): 0.80

Average total radiation during incubation (langleys): 10.0

Station: #52

Date: 07/09/78

AREA: Buchan Gulf

LATITUDE: $72^{\circ}15'N$ LONGITUDE: $72^{\circ}11'W$

| 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 | 0.34 | 203 | 31 | 42.3 | 5.72 | 3.97 |
| 5 | 0.30 | 161 | 24 | 34.5 | 8.67 | 3.94 |
| 10 | 0.38 | 410 | 38 | - | - | - |
| 16 | 0.58 | 282 | 42 | - | - | - |
| 33 | 3.70 | 243 | 42 | 56.3 | 17.95 | 3.94 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 0.0 | 0.68 | 0.15 | 2.84 | 0.00 | 0.316 |
| 5 | -0.4 | 0.58 | 0.04 | 2.70 | 0.00 | 0.318 |
| 10 | -0.8 | 0.63 | 0.04 | 2.97 | 0.04 | - |
| 16 | -0.9 | 0.48 | 0.06 | 2.82 | 0.07 | - |
| 33 | -1.2 | 1.10 | 3.59 | 8.02 | 0.10 | 0.573 |

Secchi depth (m): 11

Surface production (mg c m⁻³hr⁻¹): 0.81

Average total radiation during incubation (langleys): 15.8

Station: #59

Date: 08/09/78

AREA: Buchan Gulf

LATITUDE: $71^{\circ}48'N$ LONGITUDE: $72^{\circ}18'W$

| 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 | 0.30 | 162 | 24 | 47.3 | 11.88 | 3.86 |
| 4 | 0.30 | 144 | 22 | 35.2 | 9.08 | 3.32 |
| 9 | 0.64 | 270 | 32 | - | - | - |
| 14 | 2.66 | 282 | 50 | - | - | - |
| 30 | 2.75 | 140 | 26 | 33.6 | 10.53 | 2.57 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 0.8 | 0.50 | 0.06 | 3.36 | 0.00 | 0.216 |
| 4 | 0.7 | 0.62 | 0.06 | 3.46 | 0.00 | 0.254 |
| 9 | 0.3 | 0.70 | 0.11 | 3.24 | 0.04 | - |
| 14 | -0.8 | 0.84 | 0.01 | 3.89 | 0.00 | - |
| 30 | -1.4 | 1.07 | 4.19 | 10.72 | 0.04 | 0.313 |

Seachi depth (m): 10

Surface production (mg c m⁻³ hr⁻¹): 0.80

Average total radiation during incubation (langleys): 15.5

Station: #70

Date: 09/09/78

AREA: Baffin Bay

LATITUDE: 72°45'N

LONGITUDE: 73°39'W

| 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 | 0.38 | 168 | 24 | 47.9 | 9.00 | 5.60 |
| 4 | 0.44 | 185 | 23 | 38.8 | 9.60 | 6.80 |
| 9 | 0.46 | 160 | 24 | - | - | - |
| 14 | 0.46 | 148 | 22 | - | - | - |
| 30 | 2.02 | 220 | 27 | 38.4 | 10.86 | 5.32 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 0.3 | 0.55 | 0.04 | 2.76 | 0.00 | 0.344 |
| 4 | 0.3 | 0.66 | 0.01 | 2.78 | 0.02 | 0.236 |
| 9 | 0.3 | - | 0.04 | 2.79 | 0.02 | - |
| 14 | 0.3 | 0.45 | 0.05 | 2.80 | 0.08 | - |
| 30 | -1.3 | 1.12 | 4.38 | 8.05 | 0.26 | 0.416 |

Secchi depth (m): 10

Surface production (mg c m⁻³ hr⁻¹): 0.74

Average total radiation during incubation (langleys): 24.5

Station: #79

Date: 10/09/78

AREA: Lancaster Sound

LATITUDE: $73^{\circ}47'N$ LONGITUDE: $79^{\circ}59'W$

| 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 | 4.28 | 302 | 48 | 155.6 | 22.13 | 3.47 |
| 3 | 4.44 | 287 | 51 | 198.3 | 22.13 | 4.38 |
| 24 | 5.64 | 275 | 53 | 158.4 | 22.80 | 4.62 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 0.0 | 0.64 | 0.40 | 2.34 | 0.04 | 0.651 |
| 3 | 0.0 | 0.76 | 0.46 | 2.76 | 0.04 | 0.710 |
| 24 | -0.5 | 0.71 | 0.42 | 2.28 | 0.03 | 0.652 |

Secchi depth (m): 8

Surface production (mg c m⁻³ hr⁻¹): 5.64

Average total radiation during incubation (langleys): 23.5

Station: #83

Date: 11/09/78

AREA: Lancaster Sound

LATITUDE: $74^{\circ}46'N$ LONGITUDE: $78^{\circ}02'W$

| 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 | 0.62 | 216 | 28 | 42.7 | 13.90 | 6.16 |
| 5 | 0.55 | 210 | 25 | 25.8 | 14.35 | 5.54 |
| 11 | 0.58 | 220 | 26 | - - | - | - |
| 17 | 0.67 | 209 | 28 | - | - | - |
| 36 | 4.90 | 319 | 45 | 102.4 | 33.93 | 8.11 |

| Depth m | Temperature °C | Phosphate , mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|--------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | 0.0 | 0.41 | 0.07 | 0.26 | 0.16 | 0.305 |
| 5 | 0.0 | 0.34 | 0.02 | 0.30 | 0.03 | 0.346 |
| 11 | 0.0 | 0.58 | 0.01 | 0.26 | 0.20 | - |
| 17 | -0.2 | 1.04 | 0.02 | 0.25 | 0.22 | - |
| 36 | -0.5 | 0.72 | 2.00 | 2.04 | 0.12 | 0.873 |

Secchi depth (m): 11

Surface production (mg c m⁻³hr⁻¹): 0.73

Average total radiation during incubation (langleys): 16.5

Station: #87

Date: 12/09/78

AREA: Baffin Bay

LATITUDE: 74°32'N

LONGITUDE: 76°04'W

| 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 | 2.16 | 364 | 44 | 80.2 | 25.47 | 6.94 |
| 3 | 1.44 | 255 | 33 | 73.1 | 17.46 | 7.08 |
| 24 | 1.39 | 162 | 23 | 42.2 | 14.06 | 8.17 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | -0.2 | 0.55 | 0.95 | 2.04 | 0.20 | 0.624 |
| 3 | -0.5 | 0.47 | 0.06 | 1.30 | 0.14 | 0.572 |
| 24 | -1.0 | 1.02 | 4.35 | 5.51 | 0.00 | 0.396 |

Seachi depth (m): 8

Surface production (mg c m⁻³ hr⁻¹): 2.90

Average total radiation during incubation (langleys): 12.8

Station: #90

Date: 13/09/78

AREA: Baffin Bay

LATITUDE: 75° 58' N

LONGITUDE: 74° 21' W

| 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 | 0.76 | 249 | 32 | 47.8 | 17.68 | 7.17 |
| 5 | 0.70 | 236 | 26 | 43.5 | 15.90 | 6.84 |
| 11 | 0.78 | 203 | 30 | - | - | - |
| 17 | 0.94 | 267 | 28 | - | - | - |
| 36 | 0.76 | 106 | 17 | 33.0 | 14.97 | 7.54 |

| Depth m | Temperature °C | Phosphate mg at m ⁻³ | Nitrate mg at m ⁻³ | Silicate mg at m ⁻³ | Ammonia mg at m ⁻³ | ATP mg m ⁻³ |
|------------|-------------------|------------------------------------|----------------------------------|-----------------------------------|----------------------------------|---------------------------|
| 0 | -0.4 | 0.45 | 0.09 | 1.76 | 0.00 | 0.130 |
| 5 | -0.4 | 0.40 | 0.06 | 1.52 | 0.00 | 0.390 |
| 11 | -0.4 | 0.49 | 0.04 | 1.46 | 0.06 | - |
| 17 | -0.4 | 0.54 | 0.03 | 1.39 | 0.07 | - |
| 36 | -1.3 | 1.27 | 7.52 | 6.62 | 0.53 | 0.258 |

Secchi depth (m): 12

Surface production (mg C m⁻³ hr⁻¹): 1.06

Average total radiation during incubation (langleys): 19.2

Station: #93

Date: 14/09/78

AREA: Baffin Bay

LATITUDE: $74^{\circ}59'N$ LONGITUDE: $68^{\circ}01'W$

| Depth | Chlorophyll | Carbon | Nitrogen | Protein | RNA | DNA |
|-------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| m | mg m ⁻³ |
| 0 | 0.38 | 200 | 22 | 43.8 | 14.34 | 6.94 |
| 7 | 0.36 | 125 | 23 | 34.6 | 14.79 | 5.62 |
| 14 | 1.38 | 232 | 40 | - | - | - |
| 22 | 3.84 | - | - | - | - | - |
| 45 | 0.51 | 75 | 12 | 25.2 | 3.52 | 2.62 |

| Depth | Temperature | Phosphate | Nitrate | Silicate | Ammonia | ATP |
|-------|-------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------|
| m | °C | mg at m ⁻³ | mg m ⁻³ |
| 0 | -0.8 | 0.52 | 0.04 | 3.70 | 0.00 | 0.262 |
| 7 | -0.6 | 0.57 | 0.10 | 3.88 | 0.01 | 0.380 |
| 14 | -0.7 | 0.53 | 0.04 | 2.64 | 0.09 | - |
| 22 | -1.3 | 0.62 | 0.98 | 3.76 | 0.03 | - |
| 45 | -1.6 | 1.01 | 6.40 | 7.32 | 0.06 | 0.286 |

Secchi depth (m): 15

Surface production (mg c m⁻² hr⁻¹): 0.76

Average total radiation during incubation (langleys): 13.0

Incident Surface Radiation

Langleys in each hour ending at hour indicated

| DATE | | | | | | | | | | | | | | | | | | | | |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| TIME A.D.T. | 20/08 | 27/08 | 28/08 | 29/08 | 30/08 | 31/08 | 01/09 | 02/09 | 03/09 | 04/09 | 05/09 | 06/09 | 07/09 | 08/09 | 09/09 | 10/09 | 11/09 | 12/09 | 13/09 | 14/09 |
| 0600 | | | | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | | | | | | | | |
| 0700 | - | 3 | 3 | 3 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0800 | - | 1 | 10 | 12 | 6 | 2 | 8 | 1 | 4 | 2 | 3 | 2 | 2 | 2 | 4 | 3 | 1 | 1 | 2 | 2 |
| 0900 | 21 | 6 | 22 | 19 | 10 | 6 | 13 | 1 | 6 | 4 | 5 | 4 | 6 | 4 | 9 | 8 | 1 | 4 | 4 | 5 |
| 1000 | 38 | 10 | 35 | 39 | 18 | 8 | 14 | 2 | 11 | 6 | 7 | 4 | 10 | 8 | 14 | 16 | 4 | 6 | 8 | 9 |
| 1100 | 51 | 26 | 42 | 42 | 30 | 10 | 12 | 5 | 19 | 8 | 12 | 9 | 13 | 19 | 18 | 16 | 19 | 9 | 16 | 7 |
| 1200 | 57 | 15 | 38 | 29 | 40 | 9 | 25 | 7 | 17 | 11 | 16 | 12 | 20 | 18 | 29 | 17 | 19 | 18 | 20 | 10 |
| 1300 | 72 | 20 | 53 | 32 | 40 | 8 | 17 | 11 | 16 | 12 | 20 | 13 | 20 | 17 | 37 | 19 | 16 | 18 | 19 | 13 |
| 1400 | 57 | 11 | 56 | 34 | 23 | 5 | 28 | 12 | 15 | 12 | 15 | 14 | 18 | 32 | 39 | 26 | 12 | 22 | 22 | 14 |
| 1500 | 55 | 26 | 46 | 29 | 20 | 4 | 24 | 10 | 16 | 12 | 14 | 18 | 18 | 32 | 39 | 32 | 13 | 23 | 15 | 15 |
| 1600 | 64 | 49 | 45 | 15 | 11 | 7 | 10 | 11 | 15 | 11 | 10 | 16 | 20 | 39 | 35 | 35 | 10 | 15 | 17 | 12 |
| 1700 | 51 | 39 | 31 | 6 | 8 | 7 | 6 | 7 | 10 | 10 | 10 | 12 | 14 | 31 | 31 | 29 | 8 | 20 | 13 | 16 |
| 1800 | 36 | 20 | 20 | 4 | 6 | 4 | 4 | 5 | 12 | 7 | 8 | 5 | 12 | 17 | 22 | 19 | 8 | 13 | 10 | 10 |
| 1900 | 20 | 20 | 10 | 2 | 3 | 3 | 2 | 4 | 6 | 4 | 8 | 2 | 7 | 16 | 15 | 15 | 8 | 11 | 5 | 8 |
| 2000 | 4 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 4 | 2 | 4 | 2 | 4 | 8 | 5 | 10 | 4 | 8 | 3 | 3 |
| 2100 | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 2 | 4 | 2 | 4 | 1 | 1 |
| 2200 | | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 2300 | | | | | | | | | | | | | | | 1 | | | | | |

FIGURES

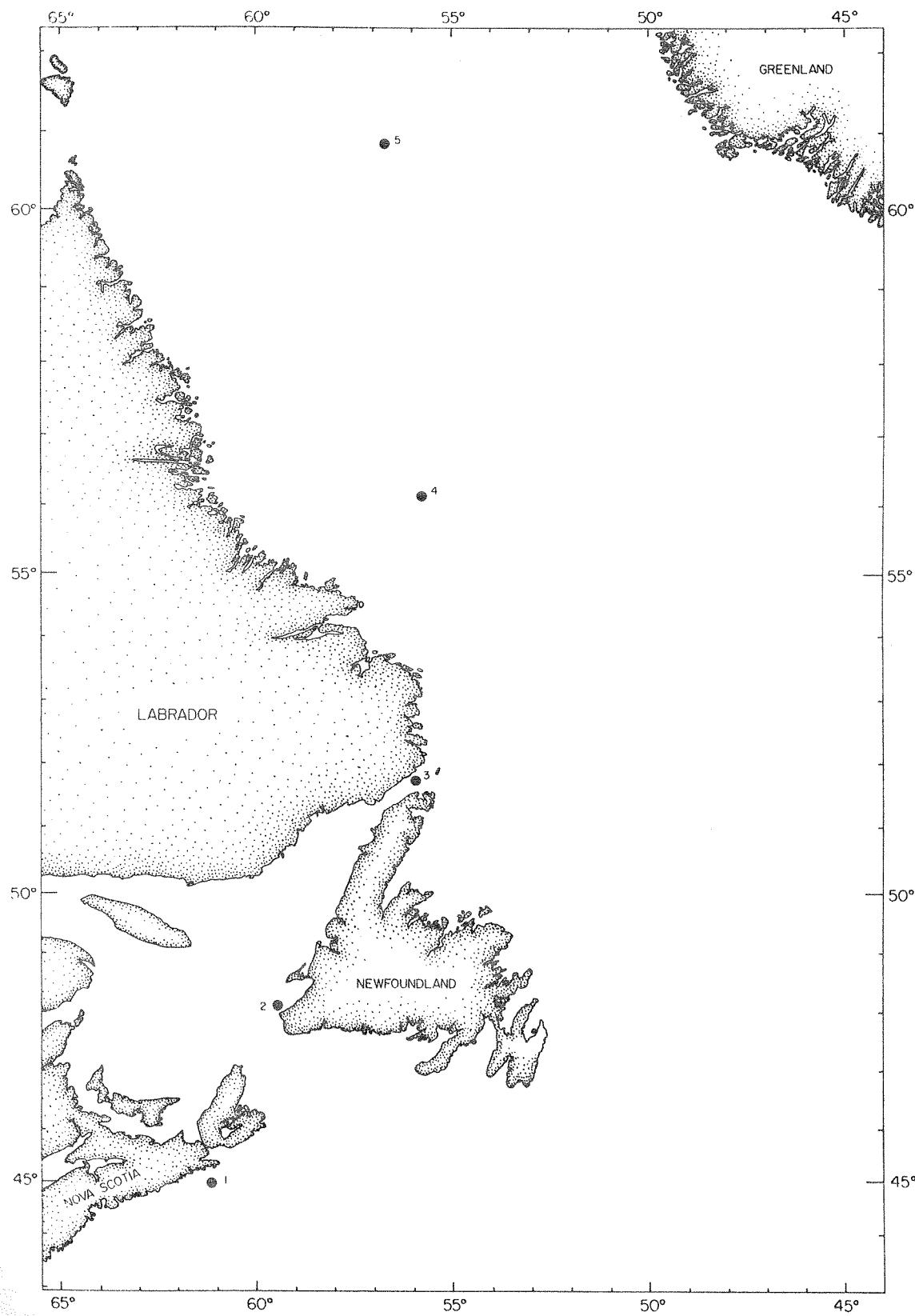


Fig. 1. Station locations in Gulf of St. Lawrence and Labrador Sea.



Fig. 2. Station locations in Davis Strait and Baffin Bay.