

#354
C.1

Benthic Microalgal Primary Production and Community Respiration at Intertidal Sites in Minas Basin, and Cumberland Basin, Bay of Fundy

DFO - Library / MPO - Bibliothèque



12031650

B.T. Hargrave, G.A. Phillips, P.A. Neame and N.J. Prouse

Marine Ecology Laboratory
Ocean Science and Surveys, Atlantic
Department of Fisheries and Oceans

Bedford Institute of Oceanography
P.O. Box 1006
Dartmouth, Nova Scotia B2Y 4A2



December 1982

Canadian Data Report of Fisheries and Aquatic Sciences No. 354

QH
90.5
C33
C.1



Government of Canada
Fisheries and Oceans

Gouvernement du Canada
Pêches et Oceans

Canadian Data Report
Fisheries and Aquatic Sciences No. 354

December 1982

BENTHIC MICROALGAL PRIMARY PRODUCTION AND COMMUNITY
RESPIRATION AT INTERTIDAL SITES IN MINAS BASIN AND
CUMBERLAND BASIN, BAY OF FUNDY

by

B.T. Hargrave, G.A. Phillips, P.A. Neame and N.J. Prouse

Marine Ecology Laboratory
Ocean Sciences and Surveys, Atlantic
Department of Fisheries and Oceans

Bedford Institute of Oceanography
P.O. Box 1006
Dartmouth, Nova Scotia B2Y 4A2

This is the thirteenth Data Report from the Marine Ecology Laboratory, Dartmouth.

Minister of Supply and Services Canada 1982

Cat. No. Fs 97-13/354

ISSN 0706-6465

Correct citation for this publication:

Hargrave, B.T., G.A. Phillips, P.A. Neame and N.J. Prouse. 1982. Benthic microalgal primary production and community respiration at intertidal sites in Minas and Cumberland Basins, Bay of Fundy. Can. Data. Rep. of Fish. & Aquat. Sci. 354: 179 p.

TABLE OF CONTENTS

| | |
|--|----|
| ABSTRACT/RESUME | iv |
| INTRODUCTION | 1 |
| METHODS | 1 |
| <u>Study Sites</u> | 1 |
| <u>In Situ Experiments</u> | 1 |
| <u>Sedimentary Organic Matter and Plant Pigments</u> | 2 |
| <u>Productivity Measurements</u> | 2 |
| ACKNOWLEDGEMENTS | 3 |
| REFERENCES | 3 |
| DATA TABLES | 4 |
| Anthony Park (1977-1978) | |
| Pecks Cove (1979-1980) | |

ABSTRACT

Hargrave, B.T., G.A. Phillips, P.A. Neame and N.J. Prouse. 1982. Benthic microalgal primary production and community respiration at intertidal sites in Minas and Cumberland Basins, Bay of Fundy. Can. Data. Rep. of Fish. & Aquat. Sci. 354: 179 p.

This report summarizes the results of a series of in situ measurements of oxygen production and consumption over cores incubated in intertidal sediments at two locations in the Bay of Fundy between May 1977 and October 1980. Measures of organic carbon, nitrogen, chlorophyll a and phaeopigments in surface sediment on each sampling data are also presented.

RESUME

Hargrave, B.T., G.A. Phillips, P.A. Neame et N.J. Prouse. 1982. Production primaire de micro-algues benthiques et respiration des communautés en des emplacements intertidaux des bassins des Mines et de Cumberland de la baie de Fundy. Can. Data Rep. of Fish. & Aquat. Sci. 354: 179 p.

Ce rapport résume les résultats d'un ensemble de mesures de la production et de la consommation d'oxygène dans des carottes incubées dans des sédiments intertidaux en deux emplacements de la baie de Fundy entre mai 1977 et octobre 1980. On présente également des mesures du carbone organique, de l'azote, de la chlorophylle a et des phaeopigments présents dans les sédiments de surface pour chaque échantillon.

INTRODUCTION

The report presents a chronological listing of observations of changes in dissolved oxygen in water over light and dark cores incubated in intertidal sediments under in situ conditions. The measurements were carried out at two separate locations described below which were chosen as sites for preliminary study of primary production on intertidal sediments in the upper reaches of the Bay of Fundy. These observations between 1977 and 1980 represent the first measurements of rates of benthic primary production in these areas. Although the data have been summarized and interpreted elsewhere (Hargrave et al. 1982), it was thought worthwhile to record the primary data in an organized form. Rate measurements of oxygen production and uptake in light and dark cores are presented along with measures of organic carbon, nitrogen, chlorophyll a and phaeopigments in surface sediments, temperature and incident radiation on each sampling date.

METHODS

Study Sites

Experiments were performed at two locations, Anthony Park (1977-78) and Pecks Cove (1979-80) in Minas and Cumberland Basins at the landward end of the Bay of Fundy. Hargrave et al. (1978) and Gordon et al. (1980) have described physical characteristics of these two areas. A generalize description of the macro-tidal environment in the Bay of Fundy is presented in Gordon and Longhurst (1979).

In Situ Experiments

Changes in dissolved oxygen in water enclosed in plexiglass cores (25.4 cm^2) inserted to a depth of 10 cm in the sediment were measured in situ by methods described in Hargrave et al. (1978). Incubations were always carried out during periods of low tide when intertidal sediments were exposed. Continuous measurements of light during experiments and throughout the day on which experiments were performed provided data to calculate estimates of daily production by benthic microalgae from

hourly rates of oxygen change. The calculation necessitates that a linear relationship existed between light and production as described in Hargrave *et al.* (1982). Oxygen uptake, measured as oxygen consumption in water in darkened cores, did not vary through the day and thus hourly rates were multiplied by 24 to calculate daily rates.

Water temperature in each core was measured before and after incubations which varied from a 0.5 hr during summer up to 3 hr during winter. Temperatures usually increased a few degrees during incubations with larger increases (up to 8°C) in light-exposed cores during summer. The average water temperature for all cores is reported for each experiment.

Sedimentary Organic Matter and Plant Pigments

Organic matter and plant pigment analyses were performed by methods described in Hargrave *et al.* (1978). Samples were taken by scrapping the upper 2 mm of surface sediment after in situ experiments were complete. Results are expressed as $\mu\text{g g}^{-1}$ dry sediment and mg m^{-2} (to 2 mm depth).

Productivity Measurements

Hourly rates of gross oxygen production (changes in dissolved oxygen concentration in light cores added to decreases in dark cores) were calculated from average values derived from three or more light and dark cores incubated simultaneously. The standard deviation (SD) was calculated for each average value of oxygen production and uptake. Specific production was calculated as the ratio of hourly rates of gross oxygen production to chlorophyll *a* concentration, both expressed on a m^{-2} basis. Photosynthetic quantum yield was calculated by dividing the hourly rate of gross oxygen production by the average hourly incident radiation received during an experiment.

Photosynthetic efficiency was calculated by conversion of production and light measurements to calories. Gross daily oxygen production was converted to calories by multiplying by the factor 4.275. This assumes a photosynthetic quotient of 1.0 with a calorific conversion of 11.4 calories/mg C. Photosynthetically active

3

incident radiation received at the sediment surface during ebb tide as E/m^{-2} was multiplied by 10.4×10^4 for conversion to calories (Parsons *et al.*, 1977). This assumes that photosynthetically active radiation (PAR) is 50% of total incident radiation with $1E = 52 \times 10^3$ calories. Tabulated values of incident radiation are expressed as PAR corrected for 86% transmission through plexiglass.

ACKNOWLEDGEMENTS

We thank E. MacDormand, D. Gordon, P. Keizer and J. Walker for assistance with experiments performed at Pecks Cove. P. Macpherson and C. Simmons helped to compile and type the data tables.

REFERENCES

GORDON, D.C., JR. and A.R. LONGHURST. 1979. The environmental aspects of a tidal power project in the upper reaches of the Bay of Fundy. Mar. Poll. Bull. 10: 38-45.

GORDON, D.C., JR., P.D. KEIZER, J. DALE and P.J. CRANFORD. 1980. Pecks Cove mudflat ecosystem study: observations in 1978. Can. Tech. Rept. Fish. Aquat. Sci. No. 928, 17 pp.

HARGRAVE, B.T. (Editor). 1978. Geochemical and biological observations in intertidal sediments from Cobequid Bay, Bay of Fundy, Nova Scotia. Fish. Mar. Ser. Tech. Rept. 782, 43 pp.

HARGRAVE, B.T., N.J. Prouse, G.A. PHILLIPS and P.A. NEAME. 1982. Primary production and respiration in pelagic and benthic communities at two intertidal sites in the Upper Bay of Fundy. MS submitted Can. J. Fish. Aquatic Sci.

PARSONS, T.R., M. TAKAHASKI and B.T. HARGRAVE. 1977. Biological Oceanographic Processes. Pergamon Press, Toronto.

Date: 11/5/77

Station: AP-1

Temperature (°C): 5.5

Daylength (h): 14.3

Height of High Tide (m): 6.4

Radiation ($E\ m^{-2}$):

Daily Total: 9

During Ebb Tide (0540-0720
0920-1940): 9

During Incubation (1200-1430): 4

Mean h^{-1} during Incubation: 1.7

| | % dry wt. | $\mu g\ g^{-1}$ | $mg\ m^{-2}$ |
|--------------------------|-----------|-----------------|--------------|
| Organic Carbon : | 0.50 | 5000 | 9300 |
| Surface Nitrogen : | 0.076 | 760 | 1413 |
| Sediment Chlorophyll a : | | 7.8 | 14.5 |
| Phaeopigments : | | 12.5 | 23.2 |

 $mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 20.6 | 4.9 | |
| 1.2 | 7.0 | |
| 1.8 | 5.5 | |
| Mean 7.9 | 5.8 | |
| SD 11.0 | 1.1 | |
| SD/Mean 1.40 | 0.19 | |

| | $mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ | $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$ |
|---|---------------------------------|---------------------------------|
| Gross Oxygen Production: | 13.7 (12.1) | 72.3 (63.8) |
| Respiration: | 1.1 (0.2) | 26.4 (4.8) |
| Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}\ h^{-1}$) | 1.0 | |
| Quantum Yield ($mg\ O_2\ E^{-1}$): | 7.9 | |
| Photosynthetic Efficiency: | 0.03 | |

Date: 11/5/77

Station: AP-2

Temperature (°C): 5.5

Daylength (h): 14.3

Height of High Tide (m): 6.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 9

During Ebb Tide (0540-0650
0950-1910): 9

During Incubation (1200-1430): 4

Mean h^{-1} during Incubation: 1.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.50 | 5000 | 9300 |
| Surface Nitrogen : | 0.073 | 730 | 1358 |
| Sediment Chlorophyll a : | | 5.9 | 11.6 |
| Phaeopigments : | | 10.0 | 19.7 |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 23.8 | 7.6 | |
| 7.5 | 7.3 | |
| 11.0 | 10.5 | |
| Mean 14.1 | 8.5 | |
| SD 8.6 | 1.8 | |
| SD/Mean 0.61 | 0.21 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 22.6 (10.4) | 119.6 (55.0) |
| Respiration: | 4.3 (0.9) | 103.2 (21.6) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 2.0 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 13.0 | |
| Photosynthetic Efficiency: | 0.06 | |

Date: 11/5/77

Station: AP-3

Temperature (°C): 5.5

Daylength (h): 14.3

Height of High Tide (m): 6.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 9

During Ebb Tide (0540-0620
1020-1840): 7

During Incubation (1200-1430): 4

Mean h^{-1} during Incubation: 1.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.63 | 6300 | 14112 |
| Surface Nitrogen : | 0.093 | 930 | 2083 |
| Sediment Chlorophyll a : | | 8.5 | 19.0 |
| Phaeopigments : | | 11.5 | 25.7 |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -5.8 | 31.7 | |
| -21.7 | 31.4 | |
| -30.5 | 28.1 | |
| Mean | 30.4 | |
| SD | 2.0 | |
| SD/Mean | 0.065 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 11.1 (14.5) | 44.6 (58.3) |
| Respiration: | 15.4 (1.0) | 369.6 (24.0) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.6 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 6.9 | |
| Photosynthetic Efficiency: | 0.03 | |

Date: 23/6/77

Station: AP-1

Temperature (°C): 28.0

Daylength (h): 15.3

Height of High Tide (m): 6.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 55

During Ebb Tide (0650-1715
1915-2050): 49

During Incubation (1130-1330): 12

Mean h^{-1} during Incubation: 6.3% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

16.6 (13.7) 30.9 (25.5)

Phaeopigments :

22.5 (21.9) 41.9 (40.8)

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 13.1 | 34.4 | |
| 49.7 | 24.8 | |
| 1.4 | 45.7 | |
| Mean 21.4 | 35.0 | |
| SD 25.2 | 8.5 | |
| SD/Mean 1.2 | 0.2 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 56.4 (33.7) 438.7 (262.1)

Respiration: 6.6 (1.6) 158.4 (38.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.8Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 9.0

Photosynthetic Efficiency: 0.04

Date: 23/6/77

Station: AP-2

Temperature (°C): 28

Daylength (h): 15.3

Height of High Tide (m): 6.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 55

During Ebb Tide (0720-1640 1940-2050): 46

During Incubation (1155-1340): 12

Mean h^{-1} during Incubation: 6.3% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

17.5 (6.7) 34.3 (13.1)
34.3 (13.1) 67.2 (25.7) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 40.7 | 21.1 | |
| 27.7 | 54.1 | |
| 38.2 | 49.2 | |
| Mean 35.5 | 41.5 | |
| SD 5.6 | 14.5 | |
| SD/Mean 0.16 | 0.35 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 77.0 (20.1) 562.2 (146.8)

Respiration: 20.8 (7.3) 499.2 (174.7)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 2.3Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 12.2

Photosynthetic Efficiency: 0.05

Date: 23/6/77

Station: AP-3

Temperature (°C): 28

Daylength (h): 15.3

Height of High Tide (m): 6.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 55

During Ebb Tide (0750-1615 : 2015-2050): 43

During Incubation (1210-1340): 12

Mean h^{-1} during Incubation: 6.3

% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

32.2 (3.8) 72.1 (8.5)
45.7 (14.7) 102.3 (32.9)

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 24.4 | 66.4 | |
| 40.2 | 67.8 | |
| 13.2 | 67.9 | |
| Mean | 67.4 | |
| SD | 0.7 | |
| SD/Mean | 0.01 | |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 93.3 (11.8) 636.8 (80.5)

Respiration: 34.1 (0.3) 818.4 (7.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.3

Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 14.8

Photosynthetic Efficiency: .06

Date: 23/6/77

Station: AP-4

Temperature (°C): 28

Daylength (h): 15.3

Height of High Tide (m): 6.4

Radiation ($E\ m^{-2}$):

Daily Total: 55

During Ebb Tide (0820-1545
2045-2050): 37

During Incubation (1220-1410): 12

Mean h^{-1} during Incubation: 6.3% dry wt. $\mu g\ g^{-1}$ $mg\ m^{-2}$

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

11.4 (3.4) 30.7 (9.2)
19.7 (6.7) 53.1 (18.1) $mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 9.2 | 42.6 | |
| 25.0 | 27.0 | |
| 52.2 | | |
| Mean 28.8 | 34.7 | |
| SD 17.8 | 7.8 | |
| SD/Mean 0.6 | 0.2 | |

 $mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$

Gross Oxygen Production: 63.5 (25.6) 372.9 (150.3)

Respiration: 23.4 (5.1) 561.6 (122.4)

Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}\ h^{-1}$): 2.1Quantum Yield ($mg\ O_2\ E^{-1}$): 10.1

Photosynthetic Efficiency: .04

Date: 25/7/77

Station: AP-1

Temperature (°C): 23

Daylength (h): 15.0

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 28

During Ebb Tide (0535-0655 0855-1940): 23

During Incubation (1045-1235): 7

Mean h^{-1} during Incubation: 3.6% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 29.1 | 20.7 | |
| 22.1 | 23.4 | |
| 32.5 | 18.9 | |
| Mean | 21.0 | |
| SD | 1.9 | |
| SD/Mean | 0.1 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 48.9 (6.2) | 312.4 (39.6) |
| Respiration: | 3.9 (0.4) | 93.6 (9.6) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | - | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 13.6 | |
| Photosynthetic Efficiency: | 0.06 | |

Date: 25/7/77

Station: AP-2

Temperature (°C): 23

Daylength (h): 15.0

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 28

During Ebb Tide (0535-0625
 0925-1910): 22

During Incubation (1110-1250): 7

Mean h^{-1} during Incubation: 3.6% dry wt. ug g⁻¹ mg m⁻²

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

mg O₂ m⁻² h⁻¹

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 6.3 | 23.8 | |
| 5.4 | 21.0 | |
| 2.9 | 25.2 | |
| Mean 4.9 | 23.3 | |
| SD 1.4 | 1.8 | |
| SD/Mean 0.3 | 0.1 | |

mg O₂ m⁻² h⁻¹ (SD) mg O₂ m⁻² d⁻¹ (SD)

Gross Oxygen Production: 28.2 (3.2) 172.3 (19.5)

Respiration: 11.7 (0.9) 280.8 (21.6)

Specific Production(mg O₂ (mg chl a)⁻¹ h⁻¹) -Quantum Yield (mg O₂ E⁻¹): 7.8

Photosynthetic Efficiency: 0.03

Date: 25/7/77

Station: AP-3

Temperature (°C): 23

Daylength (h): 15.0

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 8

During Ebb Tide (0535-0555 0955-1840): 20

During Incubation (1140-1320): 7

Mean h^{-1} during Incubation: 3.6% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 14.6 | 18.7 | |
| 8.2 | 28.5 | |
| 0.0 | 25.1 | |
| Mean | 24.1 | |
| SD | 5.0 | |
| SD/Mean | 0.2 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 31.7 (11.0) | 176.1 (61.1) |
| Respiration: | 12.2 (2.6) | 292.8 (62.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | - | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 8.8 | |
| Photosynthetic Efficiency: | 0.04 | |

Date: 25/7/77

Station: AP-4

Temperature (°C): 23

Daylength (h): 15.0

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 28

During Ebb Tide (1025-1810): 19

During Incubation (1205-1355): 7

Mean h^{-1} during Incubation: 3.6% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
|-----------------------|---------------------|------------------------|

40.4

9.9

45.9

Mean 43.2

SD 2.8

SD/Mean 0.1

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 53.1 (2.8) | 280.3 (14.8) |
| Respiration: | 6.7 | 160.8 |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | - | - |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 14.8 | |
| Photosynthetic Efficiency: | 0.06 | |

Date: 24/8/77

Station: AP-1

Temperature (°C): 23.5-28

Daylength (h): 13.7

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 30

During Ebb Tide (0610-0800 1000-1950): 23

During Incubation (1125-1315): 7

Mean h^{-1} during Incubation: 3.9% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 24.8 | 23.0 | |
| 41.6 | 24.2 | |
| 38.5 | 26.8 | |
| Mean | 24.7 | |
| SD | 1.6 | |
| SD/Mean | 0.1 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 59.7 (8.9) 352.1 (52.5)

Respiration: 4.6 (0.3) 110.4 (7.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 15.3

Photosynthetic Efficiency: 0.06

Date: 24/8/77

Station: AP-2

Temperature (°C): 24.5-29

Daylength (h): 13.7

Height of High Tide (m): 6.8

Radiation ($E\ m^{-2}$):

Daily Total: 30

During Ebb Tide (0610-0730
1030-1920): 21

During Incubation (1145-1330): 7

Mean h^{-1} during Incubation: 3.9% dry wt. $\mu g\ g^{-1}$ $mg\ m^{-2}$

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 32.1 | 41.6 | |
| 64.4 | 39.3 | |
| 16.0 | 42.1 | |
| Mean | 41.0 | |
| SD | 1.2 | |
| SD/Mean | 0.03 | |

| | $mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ | $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$ |
|---|---------------------------------|---------------------------------|
| Gross Oxygen Production: | 78.5 (21.3) | 422.7 (114.7) |
| Respiration: | 20.6 (0.6) | 494.4 (14.4) |
| Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}\ h^{-1}$) | - | |
| Quantum Yield ($mg\ O_2\ E^{-1}$): | 20.1 | |
| Photosynthetic Efficiency: | 0.08 | |

Date: 24/8/77

Station: AP-3

Temperature (°C): 26.5-29

Daylength (h): 13.7

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 30

During Ebb Tide (0610-0700 1100-1850): 19

During Incubation (1230-1415): 7

Mean h^{-1} during Incubation: 3.9% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 11.0 | 45.2 | |
| -0.7 | 41.5 | |
| -7.3 | 33.0 | |
| Mean | 39.9 | |
| SD | 5.1 | |
| SD/Mean | 0.1 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 40.9 (12.7) 199.3 (61.9)

Respiration: 20.2 (2.6) 484.8 (62.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 10.5

Photosynthetic Efficiency: 0.04

Date: 24/8/77

Station: AP-4

Temperature (°C): 27-29

Daylength (h): 13.7

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 30

During Ebb Tide (0610-0630
1130-1720): 16

During Incubation (1245-1435): 7

Mean h^{-1} during Incubation: 3.9% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| - 4.8 | 22.8 | |
| -18.9 | 30.0 | |
| 21.8 | 39.7 | |
| Mean | 31.1 | |
| SD | 6.9 | |
| SD/Mean | 0.2 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 30.5 (23.8) | 125.1 (97.6) |
| Respiration: | 21.6 (4.6) | 518.4 (110.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) - | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 7.8 | |
| Photosynthetic Efficiency: | 0.03 | |

Date: 22/9/77

Station: AP-1

Temperature (°C): 15.2-16.0

Daylength (h): 12.1

Height of High Tide (m): 6.6

Radiation ($E\ m^{-2}$):

Daily Total: 13

During Ebb Tide (0650-0745 0945-1855): 11

During Incubation (1120-1430): 5

Mean h^{-1} during Incubation: 1.5% dry wt. ug g⁻¹ mg m⁻²

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

mg O₂ m⁻² h⁻¹

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 5.7 | 21.3 | |
| 30.3 | 12.7 | |
| 18.8 | 17.8 | |
| Mean | 18.3 | 17.3 |
| SD | 10.1 | 3.5 |
| SD/Mean | 0.6 | 0.2 |

mg O₂ m⁻² h⁻¹ (SD) mg O₂ m⁻² d⁻¹ (SD)

Gross Oxygen Production: 35.6 (13.6) 261.1 (99.8)

Respiration: 3.3 (0.7) 79. (16.8)

Specific Production(mg O₂ (mg chl a)⁻¹ h⁻¹) -Quantum Yield (mg O₂ E⁻¹): 23.7

Photosynthetic Efficiency: 0.1

Date: 22/9/77

Station: AP-2

Temperature (°C): 14.5-15.0

Daylength (h): 12.1

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 13

During Ebb Tide (0650-0715 1015-1855): 11

During Incubation (1140-1450): 4

Mean h^{-1} during Incubation: 1.5% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -16.1 | 22.7 | |
| -26.2 | 24.0 | |
| -12.0 | 24.9 | |
| Mean - 18.1 | 23.9 | |
| SD 6.0 | 0.9 | |
| SD/Mean 0.3 | 0.04 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 5.8 (6.9) 42.5 (50.6)

Respiration: 12.0 (0.5) 288.0 (12.0)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 3.9

Photosynthetic Efficiency: 0.02

Date: 22/9/77

Station: AP-3

Temperature (°C): 14.2-15.0

Daylength (h): 12.9

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 13

During Ebb Tide (1045-1855): 10

During Incubation (1220-1505): 3

Mean h^{-1} during Incubation: 1.5

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--|-----------|--------------------|--------------------|
|--|-----------|--------------------|--------------------|

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 0.5 | 37.1 | |
| 13.0 | 41.9 | |
| 5.4 | 36.1 | |
| Mean 6.3 | 38.4 | |
| SD 5.2 | 2.5 | |
| SD/Mean 0.8 | 0.1 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
|--|--|--|

Gross Oxygen Production: 44.7 (7.7) 298.0 (51.3)

Respiration: 19.4 (1.4) 465.6 (33.6)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 29.8

Photosynthetic Efficiency: 0.12

Date: 22/9/77

Station: AP-4

Temperature (°C): 14.0

Daylength (h): 12.9

Height of High Tide (m): 6.6

Radiation ($E\ m^{-2}$):

Daily Total: 13

During Ebb Tide (1115-1845): 10

During Incubation (1240-1515): 2

Mean h^{-1} during Incubation: 1.5

% dry wt. $\mu g\ g^{-1}$ $mg\ m^{-2}$

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

$mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 23.9 | 2.3 | |
| 22.2 | 5.4 | |
| 39.3 | 3.0 | |
| Mean | 28.5 | 3.6 |
| SD | 7.7 | 1.4 |
| SD/Mean | 0.3 | 0.4 |

$mg\ O_2\ m^{-2}h^{-1}\ (SD)$ $mg\ O_2\ m^{-2}d^{-1}\ (SD)$

Gross Oxygen Production: 32.1 (9.1) 214.0 (60.7)

Respiration: 2.4 (0.9) 57.6 (21.6)

Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}h^{-1}$) -

Quantum Yield ($mg\ O_2\ E^{-1}$): 21.4

Photosynthetic Efficiency: 0.09

Date: 21/10/77

Station: AP-2

Temperature (°C): 8.5-10

Daylength (h): 10.8

Height of High Tide (m): 6.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 2

During Ebb Tide (1005-1805): 2

During Incubation (1130-1400): 2

Mean h^{-1} during Incubation: 0.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--|-----------|--------------------|--------------------|
|--|-----------|--------------------|--------------------|

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

| | |
|-----------|------------|
| 1.8 (0.6) | 3.5 (1.2) |
| 8.4 (1.3) | 16.3 (2.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -10.0 | 17.4 | |
| -15.4 | 9.0 | |
| -13.0 | 26.5 | |
| Mean | 17.6 | |
| SD | 7.2 | |
| SD/Mean | 0.4 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
|--|--|--|

| | | |
|---|-----------|--------------|
| Gross Oxygen Production: | 4.8 (9.4) | 13.7 (26.8) |
| Respiration: | 8.8 (3.6) | 211.2 (86.4) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.4 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 6.9 | |
| Photosynthetic Efficiency: | 0.03 | |

Date: 21/10/77

Station: AP-1

Temperature (°C): 9.5-11.0

Daylength (h): 10.8

Height of High Tide (m): 6.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 2

During Ebb Tide (0720-0735
0935-1805): 2

During Incubation (1115-1350): 2

Mean h^{-1} during Incubation:% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | |
|--------------------------|--|-------------------------|
| Organic Carbon : | | |
| Surface Nitrogen : | | |
| Sediment Chlorophyll a : | | 1.7 (0.6) 3.2 (1.1) |
| Phaeopigments : | | 7.8 (1.5) 14.7 (2.8) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -17.5 | 17.4 | |
| -11.4 | 13.7 | |
| -2.0 | 9.3 | |
| Mean -10.3 | 13.5 | |
| SD 6.4 | 3.3 | |
| SD/Mean 0.7 | 0.2 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 3.2 (9.7) 9.1 (27.6)

Respiration: 2.5 (0.6) 60.0 (14.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) 1.0Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 4.6

Photosynthetic Efficiency: 0.02

Date: 21/10/77

Station: AP-3

Temperature (°C): 8.5-9.5

Daylength (h): 10.8

Height of High Tide (m): 6.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 2

During Ebb Tide (1035-1805): 2

During Incubation (1150-1415): 2

Mean h^{-1} during Incubation: 0.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--|-----------|--------------------|--------------------|
|--|-----------|--------------------|--------------------|

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

| | |
|-----------|------------|
| 2.8 (1.1) | 6.3 (2.5) |
| 8.1 (2.1) | 18.2 (4.8) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| - 2.3 | 27.6 | |
| -24.1 | 29.9 | |
| -19.0 | 19.7 | |
| Mean | 25.7 | |
| SD | 4.4 | |
| SD/Mean | 0.2 | |

| | |
|--|--|
| $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|

Gross Oxygen Production: 10.6 (13.7) 30.3 (39.2)

Respiration: 13.0 (2.2) 312.0 (52.8)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{h}^{-1}$): 1.7Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 15.1

Photosynthetic Efficiency: 0.06

Date: 21/10/77

Station: AP-4

Temperature (°C): 8.5-9.2

Daylength (h): 10.8

Height of High Tide (m): 6.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 2

During Ebb Tide (1105-1805): 2

During Incubation (1225-1430): 2

Mean h^{-1} during Incubation: 0.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

0.6 (0.2) 1.6 (0.5)

Sediment Chlorophyll a :

2.1 (0.8) 5.6 (2.0)

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 5.5 | 3.4 | |
| 7.6 | 4.2 | |
| 4.0 | 5.1 | |
| Mean 5.7 | 4.2 | |
| SD 1.5 | 0.7 | |
| SD/Mean 0.3 | 0.2 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 9.9 (2.2) | 28.3 (6.3) |
| Respiration: | 2.8 (0.5) | 67.2 (12) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 6.2 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 14.1 | |
| Photosynthetic Efficiency: | 0.06 | |

Date: 21/11/77

Station: AP-1

Temperature (°C): 3.5-8.5

Daylength (h): 9.3

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 4

During Ebb Tide (0705-0820
1020-1625): 3

During Incubation (1305-1535): 2

Mean h^{-1} during Incubation: 0.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

5.6 (5.1) 10.4 (9.5)
9.5 (4.9) 17.6 (9.1) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -4.0 | 17.8 | |
| 1.4 | 8.0 | |
| -11.5 | 13.0 | |
| Mean | 12.9 | |
| SD | 4.1 | |
| SD/Mean | 0.3 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 8.2 (9.4) 35.1 (40.2)

Respiration: 3.3 (1.1) 79.2 (26.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.8Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 11.7

Photosynthetic Efficiency: 0.05

Date: 21/11/77

Station: AP-2

Temperature (°C): 4.3-6.0

Daylength (h): 9.3

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 4

During Ebb Tide (0705-0750
1050-1625): 2

During Incubation (1320-1550): 2

Mean h^{-1} during Incubation: 0.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll *a* :

Phaeopigments :

3.9 (1.7) 7.6 (3.3)
9.9 (3.8) 19.3 (7.4) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 6.0 | 27.0 | |
| -1.9 | 4.2 | |
| -3.1 | 23.6 | |
| Mean -0.3 | 18.3 | |
| SD 4.0 | 10.0 | |
| SD/Mean 13.3 | 0.6 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 18.0 (14.0) 51.4 (40.0)

Respiration: 13.6 (7.4) 326.4 (177.6)

Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$): 2.4Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 25.7

Photosynthetic Efficiency: 0.11

Date: 21/11/77

Station: AP-3

Temperature (°C): 3.6-5.5

Daylength (h): 9.3

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 4

During Ebb Tide (0705-0720
1120-1625): 2

During Incubation (1340-1615): 2

Mean h^{-1} during Incubation: 0.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

6.9 (3.8) 15.5 (8.5)
13.3 (6.4) 30.0 (14.3) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| - 5.7 | 20.8 | |
| -16.3 | 18.3 | |
| -19.9 | 19.7 | |
| Mean | 19.6 | |
| SD | 1.0 | |
| SD/Mean | 0.1 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 5.6 (7.0) 16.0 (20.0)

Respiration: 9.9 (0.5) 237.6 (12.0)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.4Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 8.0

Photosynthetic Efficiency: 0.03

Date: 21/11/77

Station: AP-4

Temperature (°C): 3.1-5.0

Daylength (h): 9.3

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 4

During Ebb Tide (1150-1625): 2

During Incubation (1355-1625): 2

Mean h^{-1} during Incubation: 0.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | |
|---------------------------------|-----------|------------|
| Organic Carbon : | | |
| Surface Nitrogen : | | |
| Sediment Chlorophyll <i>a</i> : | 2.9 (1.3) | 7.8 (3.5) |
| Phaeopigments : | 3.9 (2.4) | 10.5 (6.5) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -1.0 | 3.0 | |
| 2.8 | 2.4 | |
| | 3.2 | |
| Mean 0.9 | 2.9 | |
| SD 2.7 | 0.4 | |
| SD/Mean 3.0 | 0.1 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 3.8 (3.1) 10.9 (8.9)

Respiration: 2.0 (0.3) 24.0 (7.2)

Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$, 0.5)Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 5.4

Photosynthetic Efficiency: 0.02

Date: 17/1/78

Station: AP-1

Temperature (°C): -1.2

Daylength (h): 9.2

Height of High Tide (m): 5.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 6

During Ebb Tide (0815-1645): 6

During Incubation (1135-1355): 2

Mean h^{-1} during Incubation: 0.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | | |
|--------------------------|--|-----------|------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 5.6 (1.6) | 10.4 (3.0) |
| Phaeopigments : | | 9.2 (1.3) | 17.1 (2.4) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
|-----------------------|---------------------|------------------------|

ice prevented insertion of cores

Mean

SD

SD/Mean

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production:

- - - -

Respiration:

- - - -

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) : -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): -

Photosynthetic Efficiency: -

Date: 17/1/78

Station: AP-2

Temperature (°C): -1.2

Daylength (h): 9.2

Height of High Tide (m): 5.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 6

During Ebb Tide (0845-1645): 6

During Incubation (1155-1405): 2

Mean h^{-1} during Incubation: 0.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | |
|---------------------------------|------------|------------|
| Organic Carbon : | | |
| Surface Nitrogen : | | |
| Sediment Chlorophyll <i>a</i> : | 4.9 (1.3) | 9.6 (2.5) |
| Phaeopigments : | 11.0 (2.1) | 21.6 (4.0) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -10.4 | 7.6 | |
| - 5.1 | 11.6 | |
| - 8.7 | 8.1 | |
| Mean | -8.1 | 9.1 |
| SD | 2.2 | 1.8 |
| SD/Mean | 0.3 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 1.0 (4.0) | 8.6 (34.4) |
| Respiration: | 4.6 (0.9) | 110.4 (21.6) |
| Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$): 0.1 | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 1.4 | | |
| Photosynthetic Efficiency: 0.01 | | |

Date: 17/1/78

Station: AP-3

Temperature (°C): -1.0

Daylength (h): 9.2

Height of High Tide (m): 5.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 6

During Ebb Tide (0915-1645): 6

During Incubation (-): 2

Mean h^{-1} during Incubation: 0.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | | |
|--------------------------|--|-----------|------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 3.6 (1.9) | 8.1 (4.3) |
| Phaeopigments : | | 7.5 (1.7) | 16.9 (3.9) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| - 0.8 | 16.6 | |
| -10.9 | 11.0 | |
| - 7.1 | 7.6 | |
| Mean -6.0 | 11.8 | |
| SD 4.2 | 3.7 | |
| SD/Mean 0.7 | 0.3 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 5.8 (7.9) 49.7 (67.7)

Respiration: 6.0 (1.9) 144.0 (45.6)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.7Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 8.3

Photosynthetic Efficiency: 0.03

Date: 17/1/78
 Station: AP-4
 Temperature (°C): 1.0
 Daylength (h): 9.2
 Height of High Tide (m): 5.8
 Radiation ($E \text{ m}^{-2}$):

Daily Total: 6

During Ebb Tide (0945-1645): 6

During Incubation (-): 2

Mean h^{-1} during Incubation: 0.7

% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | |
|--------------------------|-----------|-----------|
| Organic Carbon : | | |
| Surface Nitrogen : | | |
| Sediment Chlorophyll a : | 0.9 (0.3) | 2.4 (0.8) |
| Phaeopigments : | 1.3 (0.5) | |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
|-----------------------|---------------------|------------------------|

ice prevented insertion of cores

Mean

SD

SD/Mean

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | - | - |
| Respiration: | - | - |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): - | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): - | | |
| Photosynthetic Efficiency: - | | |

Date: 17/4/78

Station: AP-1

Temperature (°C): 15.5

Daylength (h): 13.6

Height of High Tide (m): 5.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 51

During Ebb Tide (0515-0700 0900-1845): 42

During Incubation (1140-1340): 10

Mean h^{-1} during Incubation: 5.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--|-----------|--------------------|--------------------|
|--|-----------|--------------------|--------------------|

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

| | |
|-----------|-----------|
| 1.3 (0.9) | 2.4 (1.7) |
| 3.7 (1.8) | 6.8 (3.4) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 10.9 | 21.1 | |
| 11.3 | 32.2 | |
| 11.5 | 26.9 | |
| Mean 11.3 | 26.8 | |
| SD 0.2 | 4.5 | |
| SD/Mean 0.02 | 0.2 | |

| $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|
|--|--|

Gross Oxygen Production: 38.1 (4.7) 307.7 (38.0)

Respiration: 5.0 (0.9) 120.0 (21.6)

Specific Production($\text{mg O}_2 (\text{mg chl } \underline{a})^{-1} \text{ h}^{-1}$): 15.9Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 7.3

Photosynthetic Efficiency: 0.03

Date: 17/4/78

Station: AP-2

Temperature (°C): 15.5

Daylength (h): 13.6

Height of High Tide (m): 5.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 51

During Ebb Tide (0515-0630
0930-1845): 40

During Incubation (1205-1355): 10

Mean h^{-1} during Incubation: 5.2% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

2.5 (1.3) 4.9 (2.5)

7.4 (2.3) 14.5 (4.4)

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 11.0 | 28.3 | |
| 23.1 | 23.3 | |
| 52.4 | 24.0 | |
| Mean | 28.8 | 25.2 |
| SD | 17.4 | 2.2 |
| SD/Mean | 0.6 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 54.0 (19.6) | 415.4 (150.8) |
| Respiration: | 12.7 (1.1) | 304.8 (26.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 11.0 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 10.4 | |
| Photosynthetic Efficiency: | 0.04 | |

Date: 17/4/78

Station: AP-3

Temperature (°C): 14.9

Daylength (h): 13.6

Height of High Tide (m): 5.5

Radiation (E m⁻²):

Daily Total: 51

During Ebb Tide (0515-0600 1000-1835): 37

During Incubation (1220-1405): 9

Mean h⁻¹ during Incubation: 5.2

| | % dry wt. | ug g ⁻¹ | mg m ⁻² |
|--------------------------|------------|--------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 4.1 (2.1) | 9.2 (4.7) | |
| Phaeopigments : | 10.4 (8.2) | 23.3 (18.4) | |

mg O₂ m⁻² h⁻¹

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -12.6 | 22.9 | |
| -31.0 | 22.1 | |
| 10.5 | 30.1 | |
| Mean | 26.0 | |
| SD | 5.0 | |
| SD/Mean | 0.2 | |

| | mg O ₂ m ⁻² h ⁻¹ (SD) | mg O ₂ m ⁻² d ⁻¹ (SD) |
|---|--|--|
| Gross Oxygen Production: | 15.0 (22.0) | 106.7 (156.5) |
| Respiration: | 13.2 (2.5) | 316.8 (60.0) |
| Specific Production(mg O ₂ (mg chl a) ⁻¹ h ⁻¹), 1.6 | | |
| Quantum Yield (mg O ₂ E ⁻¹): 2.9 | | |
| Photosynthetic Efficiency: 0.01 | | |

Date: 17/4/78

Station: AP-4

Temperature (°C): 13.5

Daylength (h): 13.6

Height of High Tide (m): 5.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 51

During Ebb Tide (0515-0630
1030-1805): 34

During Incubation (1240-1420): 9

Mean h^{-1} during Incubation: 5.2% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | |
|--------------------------|-----------|------------|
| Organic Carbon : | | |
| Surface Nitrogen : | | |
| Sediment Chlorophyll a : | 1.7 (0.7) | 4.6 (1.9) |
| Phaeopigments : | 5.5 (1.2) | 14.8 (3.3) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -34.3 | 17.0 | |
| -33.9 | 18.4 | |
| -20.5 | 29.8 | |
| Mean | 21.7 | |
| SD | 5.7 | |
| SD/Mean | 0.3 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

| | | |
|--|------------|--------------|
| Gross Oxygen Production: | 0 | 0 |
| Respiration: | 14.6 (3.8) | 350.4 (91.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 0 | |
| Photosynthetic Efficiency: | - | |

Date: 11/5/78

Station: AP-1

Temperature (°C): 16-22

Daylength (h): 14.7

Height of High Tide (m): 6.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 55

During Ebb Tide (0535-1540
1740-2015): 47

During Incubation (0850-1125): 14

Mean h^{-1} during Incubation: 5.5

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|---|--------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 5.8 (1.2) | 10.8 (2.2) |
| Phaeopigments : | | 10.1 (1.7) | 18.8 (3.1) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 62.2 | 36.1 | |
| 71.4 | 47.8 | |
| 33.6 | 44.5 | |
| Mean | 55.7 | 42.8 |
| SD | 16.1 | 4.9 |
| SD/Mean | 0.3 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 98.5 (21.0) | 841.7 (179.5) |
| Respiration: | 8.0 (0.9) | 192.0 (21.6) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{h}^{-1}$) | 9.1 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 17.9 | |
| Photosynthetic Efficiency: | 0.07 | |

Date: 11/5/78

Station: AP-2

Temperature (°C): 17.0-22.0

Daylength (h): 14.7

Height of High Tide (m): 6.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 55

During Ebb Tide (0545-1510 1810-2015): 43

During Incubation (0905-1135): 14

Mean h^{-1} during Incubation: 5.5% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

8.5 (2.8) 16.7 (5.5)
18.4 (3.7) 35.7 (7.3) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 36.0 | 61.0 | |
| 54.4 | 82.3 | |
| 73.4 | 44.4 | |
| Mean | 62.6 | |
| SD | 15.5 | |
| SD/Mean | 0.2 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 117.2 (30.8) | 916.3 (240.8) |
| Respiration: | 31.4 (7.5) | 753.6 (180.0) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 7.0 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 21.3 | |
| Photosynthetic Efficiency: | 0.09 | |

Date: 11/5/78
 Station: AP-3
 Temperature (°C): 16.0-21.0
 Daylength (h): 14.7
 Height of High Tide (m): 6.5
 Radiation ($E \text{ m}^{-2}$):

Daily Total: 55

During Ebb Tide (0615-1440 : 40
 1840-2015)

During Incubation (0920-1150) : 14

Mean h^{-1} during Incubation: 5.5

% dry wt. ug g⁻¹ mg m⁻²

| | | | |
|--------------------------|--|------------|------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 11.5 (2.4) | 25.8 (5.4) |
| Phaeopigments : | | 19.9 (3.8) | 44.7 (8.6) |

mg O₂ m⁻² h⁻¹

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 35.0 | 64.8 | |
| 22.6 | 60.8 | |
| -22.4 | 65.4 | |
| Mean | 63.7 | |
| SD | 1.4 | |
| SD/Mean | 0.02 | |

| | mg O ₂ m ⁻² h ⁻¹ (SD) | mg O ₂ m ⁻² d ⁻¹ (SD) |
|--|--|--|
| Gross Oxygen Production: | 75.4 (26.0) | 548.4 (189.1) |
| Respiration: | 32.2 (0.6) | 772.8 (14.4) |
| Specific Production(mg O ₂ (mg chl a) ⁻¹ h ⁻¹) | 2.9 | |
| Quantum Yield (mg O ₂ E ⁻¹): | 13.7 | |
| Photosynthetic Efficiency: | 0.06 | |

Date: 12/5/78

Station: AP-3

Temperature (°C): 21.0-26.0

Daylength (h): 14.7

Height of High Tide (m): 6.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 55

During Ebb Tide (0615-1440 1840-2015): 44

During Incubation (1200-1255): 5

Mean h^{-1} during Incubation: 5.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | | |
|--------------------------|--|------------|------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 11.5 (2.4) | 25.8 (5.4) |
| Phaeopigments : | | 19.9 (3.8) | 44.7 (8.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 90.6 | 53.2 | |
| 68.6 | 58.5 | |
| 85.4 | 59.7 | |
| Mean | 81.5 | 57.1 |
| SD | 9.4 | 3.5 |
| SD/Mean | 0.1 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 138.7 (12.9) 1070.7 (99.6)

Respiration: 28.9 (1.7) 693.6 (40.8)

Specific Production($\text{mg O}_2 \text{ (mg chl a)}^{-1} \text{ h}^{-1}$): 5.4Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 24.3

Photosynthetic Efficiency: 0.1

Date: 12/5/78

Station: AP-4

Temperature (°C): 21.0-26.0

Daylength (h): 14.7

Height of High Tide (m): 6.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 55

During Ebb Tide (0645-1410
1910-2015): 39

During Incubation (1215-1305): 5

Mean h^{-1} during Incubation: 5.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 3.6 (0.6) | 9.7 (1.6) |
| Phaeopigments : | | 1.9 (0.3) | 5.1 (0.8) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 243.4 | 36.8 | |
| 127.1 | 14.0 | |
| 185.8 | | |
| Mean | 185.4 | 25.4 |
| SD | 47.5 | 11.4 |
| SD/Mean | 0.3 | 0.5 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 210.8 (58.9) 1442.3 (403.0)

Respiration: 17.1 (7.7) 410.4 (184.8)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 21.7Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 37.0

Photosynthetic Efficiency: 0.15

Date: 14/6/78

Station: AP-1

Temperature (°C): 24.0-29.0

Daylength (h): 15.6

Height of High Tide (m): 6.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 55 0515-0525

During Ebb Tide (0725-1750): 52

During Incubation (950-2045 1105-1250): 9

Mean h^{-1} during Incubation: 5.0% dry wt. ug g⁻¹ mg m⁻²

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

mg O₂ m⁻² h⁻¹

1.7 (0.6) 3.2 (1.1)

4.8 (1.1) 9.0 (2.0)

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 17.3 | 23.5 | |
| 51.3 | 22.9 | |
| 29.6 | 37.7 | |
| Mean 32.7 | 28.0 | |
| SD 14.1 | 6.8 | |
| SD/Mean 0.4 | 0.2 | |

mg O₂ m⁻² h⁻¹ (SD) mg O₂ m⁻² d⁻¹ (SD)

Gross Oxygen Production: 60.7 (20.9) 631.3 (217.4)

Respiration: 5.3 (1.3) 127.2 (31.2)

Specific Production (mg O₂ (mg chl a)⁻¹ h⁻¹) 19.0Quantum Yield (mg O₂ E⁻¹): 12.1

Photosynthetic Efficiency: 0.05

Date: 14/6/78

Station: AP-2

Temperature (°C): 25.0-29.0

Daylength (h): 15.6

Height of High Tide (m): 6.2

Radiation ($E\ m^{-2}$):

Daily Total: 55

During Ebb Tide (0755-1620 2020-2045): 46

During Incubation (1125-1310): 7

Mean h^{-1} during Incubation: 5.0% dry wt. $\mu g\ g^{-1}$ $mg\ m^{-2}$

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

4.6 (1.6) 9.0 (3.1)
10.8 (5.7) 21.1 (11.0) $mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 52.9 | 51.0 | |
| 9.3 | 48.9 | |
| -0.7 | 69.5 | |
| Mean | 56.5 | |
| SD | 9.3 | |
| SD/Mean | 0.2 | |

 $mg\ O_2\ m^{-2}h^{-1}\ (SD)$ $mg\ O_2\ m^{-2}d^{-1}\ (SD)$

Gross Oxygen Production: 77.5 (32.6)

713.0 (299.9)

Respiration: 28.4 (4.5)

681.6 (108.0)

Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}h^{-1}$): 8.6Quantum Yield ($mg\ O_2\ E^{-1}$): 15.5

Photosynthetic Efficiency: 0.06

Date: 14/6/78

Station: AP-3

Temperature (°C): 23.0-27.0

Daylength (h): 15.6

Height of High Tide (m): 6.2

Radiation ($E\ m^{-2}$):

Daily Total: 55

During Ebb Tide (0825-1650): 46

During Incubation (1145-1325): 8

Mean h^{-1} during Incubation: 5.0% dry wt. $\mu g\ g^{-1}$ $mg\ m^{-2}$

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

4.1 (2.1) 9.2 (4.7)
10.4 (8.2) 23.3 (18.4) $mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 18.2 | 90.9 | |
| -9.6 | 100.8 | |
| -44.2 | 73.1 | |
| Mean | 88.3 | |
| SD | 11.5 | |
| SD/Mean | 0.1 | |

 $mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$

Gross Oxygen Production: 52.7 (37.0) 484.8 (340.4)

Respiration: 44.7 (5.8) 1072.8 (139.2)

Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}\ h^{-1}$) 5.7Quantum Yield ($mg\ O_2\ E^{-1}$): 10.5

Photosynthetic Efficiency: 0.04

Date: 14/6/78

Station: AP-4

Temperature (°C): 24.0-28.0

Daylength (h): 15.6

Height of High Tide (m): 6.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 55

During Ebb Tide (0855-1520): 43

During Incubation (1205-1345): 9

Mean h^{-1} during Incubation: 5.0% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | |
|--------------------------|-----------|------------|
| Organic Carbon : | | |
| Surface Nitrogen : | | |
| Sediment Chlorophyll a : | 5.9 (1.8) | 15.9 (4.9) |
| Phaeopigments : | 7.2 (1.8) | 19.4 (4.9) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 115.5 | 9.6 | |
| 117.9 | 28.5 | |
| 113.9 | 16.5 | |
| Mean | 115.8 | 18.2 |
| SD | 1.6 | 7.8 |
| SD/Mean | 0.01 | 0.4 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 134.0 (9.4) 1152.4 (80.8)

Respiration: 12.3 (5.3) 295.2 (127.2)

Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 8.4Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 26.8

Photosynthetic Efficiency: 0.11

Date: 13/7/78

Station: AP-1

Temperature (°C): 25.0 - 31.0

Daylength (h): 15.4

Height of High Tide (m): 6.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 59 0525-0540

During Ebb Tide (0740-1800 2000-2045): 52

During Incubation (1045-1205): 7

Mean h^{-1} during Incubation: 5.7

% dry wt. ug g^{-1} mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll *a* :

Phaeopigments :

13.8 (3.0) 25.7 (5.6)

11.7 (5.5) 21.8 (10.3)

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 19.5 | 14.2 | 14.0 |
| 19.0 | 18.5 | 11.1 |
| 12.9 | 19.6 | |
| Mean | 17.1 | 12.6 |
| SD | 3.0 | 2.1 |
| SD/Mean | 0.2 | 0.2 |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD)

$\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 34.5 (5.9) 314.7 (53.8)

Respiration: 4.8 (5.0) 115.2 (120.0)

Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$): 11.3

Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 6.1

Photosynthetic Efficiency: 0.03

Date: 13/7/78

Station: AP-2

Temperature (°C): 24.0-30.0

Daylength (h): 15.4

Height of High Tide (m): 6.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 59

During Ebb Tide (0810-1730
2030-2045): 51

During Incubation (1105-1220): 7

Mean h^{-1} during Incubation: 5.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 25.2 (5.3) | 49.4 (10.4) |
| Phaeopigments : | | 31.6 (7.5) | 62.0 (14.7) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -18.2 | 15.8 | 7.0 |
| 7.4 | 14.3 | 8.1 |
| -8.6 | 40.4 | |
| Mean | 23.5 | 7.6 |
| SD | 12.0 | 0.8 |
| SD/Mean | 0.5 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 17.0 (22.5) 152.1 (201.3)

Respiration: 15.9 (12.8) 381.6 (307.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.0Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 3.0

Photosynthetic Efficiency: 0.01

Date: 13/7/78

Station: AP-3

Temperature (°C): 24.0-30.0

Daylength (h): 15.4

Height of High Tide (m): 6.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 59

During Ebb Tide (0840-1700): 48

During Incubation (1125-1235): 7

Mean h^{-1} during Incubation: 5.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ 19.1 (2.3) 42.8 (5.2)
23.6 (5.1) 52.9 (11.5)

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -16.4 | 32.8 | 19.6 |
| 30.3 | 22.3 | 10.8 |
| 16.0 | 31.3 | |
| Mean | 28.8 | 15.2 |
| SD | 4.7 | 4.4 |
| SD/Mean | 0.2 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 38.8 (24.2) | 326.7 (203.8) |
| Respiration: | 13.6 (9.1) | 326.4 (218.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.9 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 6.8 | |
| Photosynthetic Efficiency: | 0.03 | |

Date: 13/7/78

Station: AP-4

Temperature (°C): 23.0-29.0

Daylength (h): 15.4

Height of High Tide (m): 6.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 59

During Ebb Tide (0910-1630): 44

During Incubation (1145-1250): 6

Mean h^{-1} during Incubation: 5.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 6.6 (1.6) | 17.8 (4.3) | |
| Phaeopigments : | 8.6 (1.2) | 23.2 (3.2) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -26.3 | 36.5 | 14.0 |
| -28.2 | 54.4 | 7.5 |
| -36.2 | 43.4 | |
| Mean | 44.8 | 10.8 |
| SD | 7.4 | 4.6 |
| SD/Mean | 0.2 | 0.4 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 14.6 (12.7) | 112.7 (98.0) |
| Respiration: | 34.0 (12.0) | 816.0 (288.0) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.8 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 2.6 | |
| Photosynthetic Efficiency: | 0.01 | |

Date: 10/8/78

Station: AP-1

Temperature (°C): 25.0-30.0

Daylength (h): 14.4

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 33

During Ebb Tide (0655-1700
1900-2015): 28

During Incubation (1045-1230): -

Mean h^{-1} during Incubation: -% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll *a* :

Phaeopigments :

16.0 (6.6) 29.8 (12.3)

16.5 (4.9) 30.7 (9.1)

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
|-----------------------|---------------------|------------------------|

measurements not taken

Mean

SD

SD/Mean

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: - - - -

Respiration: - - - -

Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$): -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): -

Photosynthetic Efficiency: -

Date: 10/8/78

Station: AP-2

Temperature (°C): 25.0-30.0

Daylength (h): 14.4

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 33

During Ebb Tide (0725-1630 1930-2015): 27

During Incubation (1250-1405):

Mean h^{-1} during Incubation:% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

4.1 (4.0) 8.0 (7.8)
11.0 (13.7) 21.5 (26.7) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
|-----------------------|---------------------|------------------------|

measurements not taken

Mean

SD

SD/Mean

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | - | - |
| Respiration: | - | - |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | - | - |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | - | - |
| Photosynthetic Efficiency: | - | - |

Date: 10/8/78

Station: AP-3

Temperature (°C): 25.0-30.0

Daylength (h): 14.4

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 33

During Ebb Tide (0755-1600
2000-2015): 24

During Incubation (1045-1230): 4

Mean h^{-1} during Incubation: 2.3% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

2.2 (1.1) 4.9 (2.5)
7.3 (5.4) 16.3 (12.3) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -11.6 | -20.3 | |
| - 7.8 | -13.7 | |
| -13.4 | - 9.9 | |
| Mean | 14.6 | |
| SD | 5.3 | |
| SD/Mean | 0.4 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 3.7 (8.2) | 38.6 (85.4) |
| Respiration: | 7.4 (2.7) | 177.6 (64.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.8 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 1.6 | |
| Photosynthetic Efficiency: | 0.01 | |

Date: 10/8/78

Station: AP-3

Temperature (°C): 29.0 - 38.0

Daylength (h): 14.4

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 33

During Ebb Tide (0755-1600): 24

2000-2015

During Incubation (1245-1400): 7

Mean h^{-1} during Incubation: 6.0

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 2.2 (1.1) | 4.9 (2.5) |
| Phaeopigments : | | 7.3 (5.4) | 16.3 (12.3) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -23.8 | 41.1 | |
| -27.4 | 35.2 | |
| -18.2 | 47.8 | |
| Mean -23.1 | 41.4 | |
| SD 4.6 | 6.3 | |
| SD/Mean 0.2 | 0.2 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 18.3 (10.9) 73.2 (43.6)

Respiration: 20.9 (3.1) 501.6 (74.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 3.7Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 3.1

Photosynthetic Efficiency: 0.01

Date: 10/8/78

Station: AP-3

Temperature (°C): 26.0 - 30.0

Daylength (h): 14.4

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 33

During Ebb Tide (0755-1600
2000-2015): 24

During Incubation (1435-1550): 7

Mean h^{-1} during Incubation: 6.0% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

2.2 (1.1) 4.9 (2.5)

Sediment Chlorophyll a :

7.3 (5.4) 16.3 (12.3)

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -33.0 | 52.0 | |
| -49.3 | 56.3 | |
| -39.4 | 55.8 | |
| Mean -40.6 | 54.7 | |
| SD 8.2 | 2.4 | |
| SD/Mean 0.2 | 0.04 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 14.1 (10.6) 56.4 (42.4)

Respiration: 27.7 (1.1) 664.8 (26.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 2.9Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 2.4

Photosynthetic Efficiency: 0.01

Date: 10/8/78

Station: AP-3

Temperature (°C): 30.0 - 34.0

Daylength (h): 14.4

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 33

During Ebb Tide (0755-1600
2000-2015): 24

During Incubation (1100-1300): 6

Mean h^{-1} during Incubation: 2.8% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

2.2 (1.1) 4.9 (2.5)
7.3 (5.4) 16.3 (12.3) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -29.6 | 36.8 | |
| -25.6 | 42.0 | |
| -42.9 | 49.0 | |
| Mean | 42.6 | |
| SD | 6.1 | |
| SD/Mean | 0.1 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 9.9 (15.2) | 84.9 (130.4) |
| Respiration: | 21.5 (3.0) | 516.0 (72.0) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 2.0 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 3.5 | |
| Photosynthetic Efficiency: | 0.02 | |

Date: 10/8/78

Station: AP-3

Temperature (°C): 30.0 - 34.0

Daylength (h): 14.4

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 33

During Ebb Tide (0755-1600 2000-2015): 24

During Incubation (1110-1330): 9

Mean h^{-1} during Incubation: 3.9% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

2.2 (1.1) 4.9 (2.5)
7.3 (5.4) 16.3 (12.3) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 1.3 | 12.6 | 19.9 |
| -2.7 | 5.2 | 11.9 |
| - 8.2 | 11.0 | 9.6 |
| | | 1.0 |
| | | 1.9 |
| | | 3.9 |
| Mean | 12.6 | 7.4 |
| SD | 8.3 | 6.0 |
| SD/Mean | 0.7 | 0.8 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 9.4 (13.1) 57.9 (80.7)

Respiration: 5.2 (14.3) 124.8 (343.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.9Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 2.4

Photosynthetic Efficiency: 0.01

Date: 10/8/78

Station: AP-4

Temperature (°C): 28.0 - 32.0

Daylength (h): 14.4

Height of High Tide (m): 6.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 33

During Ebb Tide (0825-1530): 24

During Incubation (-):

Mean h^{-1} during Incubation:

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--|-----------|----------------------|--------------------|
|--|-----------|----------------------|--------------------|

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

1.4 (0.6) 3.8 (1.6)

8.1 (3.2) 2.2 (8.5)

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
|-----------------------|---------------------|------------------------|

measurements not taken

Mean

SD

SD/Mean

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$ |
|--|---|---|
|--|---|---|

Gross Oxygen Production: - -

Respiration: - -

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): - -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): - -

Photosynthetic Efficiency: - -

Date: 16/8/78

Station: AP-1

Temperature (°C): 26.0 - 31.0

Daylength (h): 14.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 46

During Ebb Tide (0600-1015): 36

During Incubation {1215-2005 1335-1435}: 5

Mean h^{-1} during Incubation: 4.7

| % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|-----------|----------------------|--------------------|
|-----------|----------------------|--------------------|

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

| | |
|------------|-------------|
| 16.0 (6.6) | 29.8 (12.3) |
| 16.5 (4.9) | 30.7 (9.1) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -18.0 | 17.3 | 28.8 |
| -8.4 | 26.5 | 20.0 |
| -9.0 | 19.0 | |
| Mean | 20.9 | 24.4 |
| SD | 4.0 | 4.4 |
| SD/Mean | 0.2 | 0.2 |

| | |
|--|--|
| $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|

Gross Oxygen Production: 9.1 (8.4) 69.7 (64.3)

Respiration: 0 0

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.3Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 1.9

Photosynthetic Efficiency: 0.01

Date: 16/8/78

Station: AP-2

Temperature (°C): 25.0 - 30.0

Daylength (h): 14.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 46

During Ebb Tide (0600-0945
1245-2005): 31

During Incubation (1400-1510): 5

Mean h^{-1} during Incubation: 4.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

| | | |
|--------------------------|-------------|-------------|
| Organic Carbon : | | |
| Surface Nitrogen : | | |
| Sediment Chlorophyll a : | 4.1 (4.0) | 8.0 (7.8) |
| Phaeopigments : | 11.0 (13.7) | 21.5 (26.7) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -47.5 | 40.0 | 26.2 |
| -46.9 | 25.2 | 21.6 |
| -26.4 | 40.8 | |
| Mean 40.3 | 35.6 | 23.9 |
| SD 9.8 | 7.2 | 2.3 |
| SD/Mean 0.2 | 0.2 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 75.9 (17.0) 500.6 (112.1)

Respiration: 11.7 (9.5) 280.8 (228.0)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 9.5Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 16.2

Photosynthetic Efficiency: 0.07

Date: 16/8/78

Station: AP-3

Temperature (°C): 25.0 - 29.0

Daylength (h): 14.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 46

During Ebb Tide (0600-0915
1315-2005): 26

During Incubation (1420-1520): 5

Mean h^{-1} during Incubation: 4.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 2.2 (1.1) | 4.9 (2.5) |
| Phaeopigments : | | 7.3 (5.4) | 16.3 (12.3) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -23.1 | 29.9 | 10.3 |
| -21.0 | 21.0 | 2.5 |
| -12.4 | | |
| Mean | 25.9 | 6.4 |
| SD | 3.7 | 3.9 |
| SD/Mean | 0.1 | 0.6 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 7.1 (8.3) | 39.3 (45.9) |
| Respiration: | 19.5 (7.6) | 468.0 (182.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.5 | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 1.5 | | |
| Photosynthetic Efficiency: 0.03 | | |

Date: 16/8/78

Station: AP-4

Temperature (°C): -

Daylength (h): 14.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 46

During Ebb Tide (0600-0845 1445-2005): 23

During Incubation (1455-1555): 5

Mean h^{-1} during Incubation: 4.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

1.4 (0.6) 3.8 (1.6)

8.1 (3.2) 22.0 (8.5)

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -57.0 | 50.4 | 3.2 |
| -51.0 | 50.4 | 4.8 |
| Mean | 50.4 | 4.0 |
| SD | 0 | 1.1 |
| SD/Mean | - | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 0 0

Respiration: 46.4 (1.1) 1113.6 (26.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$, 0)Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 0

Photosynthetic Efficiency: -

Date: 20/9/78

Station: AP-1

Temperature (°C): 15.0 - 19.0

Daylength (h): 12.3

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 43

During Ebb Tide (0645-1515
1715-2005): 36

During Incubation (1055-1220): 5

Mean h^{-1} during Incubation: 4.6% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

6.0 (2.4) 11.2 (4.5)
8.2 (2.6) 15.3 (4.9) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 12.8 | 17.0 | 17.9 |
| 10.3 | 12.3 | 11.6 |
| 3.5 | 5.0 | |
| Mean | 11.4 | 14.8 |
| SD | 6.0 | 4.5 |
| SD/Mean | 0.5 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 20.3 (10.8) 158.9 (84.5)

Respiration: 0 0

Specific Production($\text{mg O}_2 \text{ (mg chl a)}^{-1} \text{ h}^{-1}$): 1.8Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 4.4

Photosynthetic Efficiency: 0.2

Date: 20/9/78

Station: AP-2

Temperature (°C): 16.0 - 21.0

Daylength (h): 12.3

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 43

During Ebb Tide (0645-1445 1745-2005): 33

During Incubation (1025-1200): 6

Mean h^{-1} during Incubation: 4.5

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|---|--------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 5.8 (0.8) | 11.4 (1.6) |
| Phaeopigments : | | 7.3 (0.9) | 14.4 (1.8) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 37.0 | 17.2 | 8.8 |
| 40.7 | 26.9 | 12.9 |
| 47.5 | 13.6 | |
| Mean | 41.7 | 19.2 |
| SD | 4.4 | 5.6 |
| SD/Mean | 0.1 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 60.9 (10.0) | 446.6 (73.3) |
| Respiration: | 8.3 (7.7) | 199.2 (184.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 5.3 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 13.5 | |
| Photosynthetic Efficiency: | 0.06 | |

Date: 20/9/78

Station: AP-3

Temperature (°C): 15.0 - 21.0

Daylength (h): 12.3

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 43

During Ebb Tide (0645-1415 : 32
1815-2005)

During Incubation (1000-1140) : 6

Mean h^{-1} during Incubation: 4.0% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ 3.5 (0.5) 7.8 (1.1)
5.2 (1.9) 11.6 (4.2)

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 19.2 | 15.6 | 14.1 |
| 46.1 | 32.7 | 16.3 |
| 25.9 | 27.2 | |
| Mean | 25.2 | 15.2 |
| SD | 7.1 | 1.1 |
| SD/Mean | 0.3 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 55.6 (18.6) 444.8 (148.8)

Respiration: 10.0 (8.2) 240.0 (196.8)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) 7.1Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 13.9

Photosynthetic Efficiency: 0.06

Date: 20/9/78

Station: AP-4

Temperature (°C): 15.0-19.0

Daylength (h): 12.3

Height of High Tide (m): 6.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 43

During Ebb Tide (0645-1345) : 27
1845-2005

During Incubation (0935-1120) : 6

Mean h^{-1} during Incubation: 3.2% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2} Organic Carbon :
Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

2.6 (0.4) 7.0 (1.1)
4.0 (0.5) 10.8(1.4) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 13.6 | 12.1 | 10.8 |
| 35.9 | 13.5 | 6.4 |
| 30.2 | 16.9 | |
| Mean 26.6 | 14.2 | 8.6 |
| SD 11.6 | 2.0 | 2.2 |
| SD/Mean 0.4 | 0.1 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 40.8 (13.6) 344.3 (114.8)

Respiration: 5.6 (4.2) 134.4 (100.8)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) 5.8Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 12.8

Photosynthetic Efficiency: 0.05

Date: 20/10/78

Station: AP-1

Temperature (°C): 10.0-11.0

Daylength (h): 10.8

Height of High Tide (m): 6.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 15

During Ebb Tide (0720-1515
1715-1805): 11

During Incubation (0935-1130): 4

Mean h^{-1} during Incubation: 1.8

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|---------------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll <u>a</u> : | | 2.5 (0.7) | 4.7 (1.3) |
| Phaeopigments : | | 7.8 (1.5) | 14.7 (2.8) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -5.6 | 17.1 | 9.7 |
| -6.3 | 15.8 | 7.9 |
| -8.0 | 13.4 | |
| Mean -6.7 | 16.6 | 8.8 |
| SD 1.0 | 1.5 | 0.9 |
| SD/Mean 0.2 | 0.1 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 9.9 (2.5) | 60.5 (15.3) |
| Respiration: | 7.8 (2.4) | 187.2 (57.6) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 2.1 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 5.5 | |
| Photosynthetic Efficiency: | 0.02 | |

Date: 20/10/78

Station: AP-2

Temperature (°C): 11.0-12.0

Daylength (h): 10.8

Height of High Tide (m): 6.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 15

During Ebb Tide (0720-1445
1745-1805): 9

During Incubation (0955-1150): 4

Mean h^{-1} during Incubation: 1.8

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 5.8 (0.8) | 11.4 (1.6) |
| Phaeopigments : | | 7.3 (0.9) | 14.3 (1.8) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -0.9 | 24.6 | 8.5 |
| -1.7 | 17.8 | 8.5 |
| -2.1 | 16.8 | |
| Mean -1.6 | 19.7 | 8.5 |
| SD 0.6 | 4.2 | 0 |
| SD/Mean 0.4 | 0.2 | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 18.1 (4.8) 90.5 (24.0)

Respiration: 11.2 (28.8) 268.8 (091.2)

Specific Production($\text{mg O}_2 \text{ (mg chl a)}^{-1} \text{ h}^{-1}$): 1.6Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 10.1

Photosynthetic Efficiency: 0.04

Date: 20/10/78 *

Station: AP-3

Temperature (°C): 11.0-14.0

Daylength (h): 10.8

Height of High Tide (m): 6.5

Radiation ($E\ m^{-2}$):

Daily Total: 15

During Ebb Tide (0720-1415): 8

During Incubation (1020-1215): 4

Mean h^{-1} during Incubation: 2.0

| | % dry wt. | $\mu g\ g^{-1}$ | $mg\ m^{-2}$ |
|--------------------------|-----------|-----------------|--------------|
| Organic Carbon : | | | |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 1.9 (0.6) | 4.3 (1.4) |
| Phaeopigments : | | 6.4 (2.2) | 14.5 (5.1) |

 $mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -0.7 | 15.7 | 5.5 |
| -1.5 | 16.0 | 6.2 |
| 9.8 | 11.0 | |
| Mean | 2.5 | 14.3 |
| SD | 5.1 | 2.3 |
| SD/Mean | 2.0 | 0.2 |

| | $mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ | $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$ |
|--|---------------------------------|---------------------------------|
| Gross Oxygen Production: | 16.8 (7.4) | 67.2 (29.6) |
| Respiration: | 8.4 (2.7) | 201.6 (64.8) |
| Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}\ h^{-1}$): | 3.9 | |
| Quantum Yield ($mg\ O_2\ E^{-1}$): | 8.4 | |
| Photosynthetic Efficiency: | 0.3 | |

Date: 20/10/78

Station: AP-4

Temperature (°C): 10.0-11.0

Daylength (h): 10.8

Height of High Tide (m): 6.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 15

During Ebb Tide (0720-1345): 7

During Incubation (1040-1235): 4

Mean h^{-1} during Incubation:

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--|-----------|----------------------|--------------------|
|--|-----------|----------------------|--------------------|

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

| | |
|-----------|------------|
| 1.0 (0.4) | 2.7 (1.1) |
| 4.7 (1.0) | 12.7 (2.8) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 8.5 | 15.3 | 6.5 |
| -4.6 | 9.6 | 5.3 |
| -0.6 | 16.4 | |
| Mean | 13.8 | 5.9 |
| SD | 3.7 | 0.8 |
| SD/Mean | 0.3 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$ |
|--|---|---|
|--|---|---|

| | | |
|--|-------------|---------------|
| Gross Oxygen Production: | 14.9 (10.4) | 52.2 (36.4) |
| Respiration: | 7.9 (4.5) | 189.6 (108.0) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 5.5 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 7.5 | |
| Photosynthetic Efficiency: | 0.3 | |

Date: 20/4/79

Station: PC-A

Temperature (°C): 2.0-6.0

Daylength (h): 13.7

Height of High Tide (m): 7.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 19

During Ebb Tide (0745-1615): 16

During Incubation (0830-1130): 6

Mean h^{-1} during Incubation: 2.1

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.952 | 9520 | 18,469 |
| Surface Nitrogen : | 0.175 | 1750 | 3,395 |
| Sediment Chlorophyll a : | | 28.3 (7.3) | 54.9 (14.2) |
| Phaeopigments : | | 13.1 (2.4) | 25.4 (4.7) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 34.6 | 11.4 | 6.9 |
| 27.3 | 22.1 | 9.2 |
| 30.8 | 17.3 | 8.4 |
| 10.7 | 15.5 | 8.7 |
| -10.4 | 14.5 | 10.2 |
| - 9.6 | 14.5 | 9.4 |
| Mean | 13.9 | 8.8 |
| SD | 20.2 | 1.1 |
| SD/Mean | 1.5 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 29.8 (23.8) | 227.1 (181.4) |
| Respiration: | 7.1 (4.7) | 170.4 (112.8) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.5 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 14.2 | |
| Photosynthetic Efficiency: | 0.06 | |

Date: 20/4/79

Station: PC-A

Temperature (°C): 2.0-6.0

Daylength (h): 13.7

Height of High Tide (m): 7.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 19

During Ebb Tide (0745-1615): 16

During Incubation (1245-1445): 3

Mean h^{-1} during Incubation: 1.6

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.952 | 9520 | 18,469 |
| Surface Nitrogen : | 0.175 | 1750 | 3,395 |
| Sediment Chlorophyll a : | | 28.3 (7.3) | 54.9 (14.2) |
| Phaeopigments : | | 13.1 (2.4) | 25.4 (4.7) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 28.4 | 6.5 | 5.7 |
| 53.3 | 9.1 | 9.2 |
| 42.0 | 11.4 | 8.2 |
| 49.0 | 10.7 | 7.9 |
| 32.7 | 9.9 | 9.1 |
| 1.5 | 8.8 | 8.5 |
| Mean | 34.5 | 9.4 |
| SD | 18.7 | 1.7 |
| SD/Mean | 0.5 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$ |
|---|---|---|
| Gross Oxygen Production: | 43.9 (20.4) | 439.0 (204.0) |
| Respiration: | 1.3 (3.0) | 31.2 (72.0) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.8 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$) | 27.4 | |
| Photosynthetic Efficiency: | 0.11 | |

Date: 27/4/79

Station: PC-A

Temperature (°C): 9.0-18.0

Daylength (h): 14.6

Height of High Tide (m): 8.0

Radiation ($E \text{ m}^{-2}$):

Daily Total: 29

During Ebb Tide (0745-1615): 18

During Incubation (1000-1450): 12

Mean h^{-1} during Incubation: 2.4

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 1.010 | 10,100 | 19,594 |
| Surface Nitrogen : | 0.143 | 1,430 | 2,774 |
| Sediment Chlorophyll a : | | 19.3 (6.5) | 37.4 (12.6) |
| Phaeopigments : | | 22.5 (3.6) | 43.7 (6.9) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 0.6 | 10.0 | 4.6 |
| 0.4 | 9.1 | 3.9 |
| 2.9 | | |
| 1.1 | | |
| Mean | 1.2 | 9.6 |
| SD | 1.2 | 0.7 |
| SD/Mean | 1.0 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 10.8 (1.9) 78.8 (13.9)

Respiration: 5.4 (1.2) 129.6 (28.8)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.3Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 4.5

Photosynthetic Efficiency: 0.02

Date: 18/5/79

Station: PC-A

Temperature (°C): 22.0-30.0

Daylength (h): 14.9

Height of High Tide (m): 7.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 53

During Ebb Tide (0725-1555 1955-2025): 40

During Incubation (1230-1345): 7

Mean h^{-1} during Incubation: 5.8

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.932 | 9,320 | 18,081 |
| Surface Nitrogen : | 0.135 | 1,350 | 2,619 |
| Sediment Chlorophyll a : | | 26.7 (7.6) | 51.8 (14.7) |
| Phaeopigments : | | 15.4 (2.8) | 29.9 (5.4) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 3.8 | 32.7 | 31.6 |
| 29.5 | 42.5 | 36.2 |
| 33.4 | 47.5 | 45.6 |
| 32.5 | 44.0 | 53.9 |
| 16.2 | 40.8 | 51.0 |
| 49.2 | 52.7 | 49.4 |
| Mean | 27.4 | 13.7 |
| SD | 15.7 | 8.9 |
| SD/Mean | 0.6 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 70.8 (22.4) | 488.3 (154.5) |
| Respiration: | 29.7 (15.6) | 712.3 (374.4) |
| Specific Production($\text{mg O}_2 / (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.4 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 12.2 | |
| Photosynthetic Efficiency: | 0.05 | |

Date: 25/5/79

Station: PC-A

Temperature (°C): 10.0

Daylength (h): 15.2

Height of High Tide (m): 7.8

Radiation ($E\ m^{-2}$):

Daily Total: 7

During Ebb Tide (0520-1025 1425-2035): 3

During Incubation (1030-1440): 4

Mean h^{-1} during Incubation: 1.0

| | % dry wt. | $\mu g\ g^{-1}$ | $mg\ m^{-2}$ |
|--------------------------|-----------|-----------------|--------------|
| Organic Carbon : | 0.823 | 8,230 | 15,966 |
| Surface Nitrogen : | 0.121 | 1,210 | 2,347 |
| Sediment Chlorophyll a : | | 12.0 (3.2) | 23.4 (6.2) |
| Phaeopigments : | | 15.7 (1.5) | 30.5 (2.9) |

 $mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -7.4 | 17.1 | 1.3 |
| -9.2 | 7.9 | 1.4 |
| -7.2 | | 3.0 |
| | | 1.9 |
| | | 4.2 |
| Mean -7.9 | 12.5 | 2.4 |
| SD 1.1 | 6.5 | 1.2 |
| SD/Mean 0.1 | 0.5 | 0.5 |

| | $mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ | $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$ |
|--|---------------------------------|---------------------------------|
| Gross Oxygen Production: | 4.6 (7.6) | 13.8 (22.8) |
| Respiration: | 10.1 (7.7) | 242.4 (184.8) |
| Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}\ h^{-1}$): 0.2 | | |
| Quantum Yield ($mg\ O_2\ E^{-1}$): 4.6 | | |
| Photosynthetic Efficiency: 0.02 | | |

Date: 1/6/79

Station: PC-A

Temperature (°C): 12.0-13.0

Daylength (h): 15.4

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 17

During Ebb Tide (0720-1555
1955-2040): 13

During Incubation (1130-1345): 4

Mean h^{-1} during Incubation: 1.8

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.672 | 6,720 | 13,037 |
| Surface Nitrogen : | 0.112 | 1,120 | 2,173 |
| Sediment Chlorophyll a : | | 14.1 (3.7) | 27.4 (7.2) |
| Phaeopigments : | | 15.5 (3.6) | 30.1 (7.0) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 21.3 | 16.7 | 8.7 |
| 34.2 | 14.7 | 10.0 |
| 27.4 | 15.5 | 9.1 |
| 26.9 | 14.0 | |
| 27.1 | 13.6 | |
| 37.1 | 14.6 | |
| 21.6 | | |
| 29.0 | | |
| 26.0 | | |
| Mean | 27.9 | 9.3 |
| SD | 5.2 | 0.6 |
| SD/Mean | 0.2 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 42.5 (6.3) | 306.9 (45.5) |
| Respiration: | 5.3 (1.7) | 127.2 (40.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.6 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 23.6 | |
| Photosynthetic Efficiency: | 0.10 | |

Date: 11/6/79

Station: PC-A

Temperature (°C): 14.0-22.0

Daylength (h): 15.6

Height of High Tide (m): 8.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 41

During Ebb Tide (0515-1115
1515-2045): 18

During Incubation (1120-1545): 24

Mean h^{-1} during Incubation: 5.4

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.821 | 8,210 | 15,927 |
| Surface Nitrogen : | 0.120 | 1,200 | 2,328 |
| Sediment Chlorophyll a : | | 46.4 (12.6) | 90.0 (24.4) |
| Phaeopigments : | | 13.5 (3.3) | 26.2 (6.4) |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 5.6 | 3.6 | 3.6 |
| 4.7 | 4.2 | 1.4 |
| 3.1 | 8.1 | 0.9 |
| -5.9 | 3.7 | 1.4 |
| 5.2 | 3.5 | 0.5 |
| 1.6 | 3.9 | 0.5 |
| | | |
| Mean | 2.4 | 1.4 |
| SD | 4.3 | 1.2 |
| SD/Mean | 1.8 | 0.9 |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 6.7 (6.2) 22.3 (20.6)

Respiration: 2.9 (3.1) 69.6 (74.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.1

Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 1.2

Photosynthetic Efficiency: 0.01

Date: 18/6/79

Station: PC-A

Temperature (°C): 15.0-21.0

Daylength (h): 15.6

Height of High Tide (m): 7.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 10

During Ebb Tide (0915-1755): 10

During Incubation (1300-1450): 2

Mean h^{-1} during Incubation: 1.0

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|---------------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.891 | 8,910 | 17,285 |
| Surface Nitrogen : | 0.132 | 1,320 | 2,560 |
| Sediment Chlorophyll <u>a</u> : | | 39.4 (11.3) | 76.4 (21.9) |
| Phaeopigments : | | 10.0 (5.0) | 19.4 (9.7) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 45.6 | 10.5 | 6.5 |
| 53.3 | 14.8 | 5.9 |
| 68.1 | 14.6 | 8.1 |
| 64.4 | 16.5 | 6.4 |
| 62.8 | 18.8 | 6.7 |
| 55.5 | 18.6 | 6.2 |
| Mean | 58.3 | 6.6 |
| SD | 8.3 | 0.8 |
| SD/Mean | 0.1 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 73.9 (11.4) | 739.0 (114.0) |
| Respiration: | 9.0 (3.9) | 216.0 (93.6) |
| Specific Production ($\text{mg O}_2 (\text{mg chl } \underline{\text{a}})^{-1} \text{ h}^{-1}$) | 1.0 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 73.9 | |
| Photosynthetic Efficiency: | 0.3 | |

Date: 25/6/79

Station: PC-A

Temperature (°C): 12.0-14.0

Daylength (h): 15.6

Height of High Tide (m): 7.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 29

During Ebb Tide (0515-1140
1540-2050): 12

During Incubation (1110-1550): 17

Mean h^{-1} during Incubation: 3.7

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.603 | 6,030 | 11,698 |
| Surface Nitrogen : | 0.113 | 1,130 | 2,192 |
| Sediment Chlorophyll a : | | 16.9 (7.3) | 32.8 (14.2) |
| Phaeopigments : | | 10.1 (3.4) | 19.6 (6.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| - 7.6 | 19.2 | 11.3 |
| -12.4 | 17.4 | 10.6 |
| -12.3 | 27.2 | 9.4 |
| -11.8 | 19.2 | 11.0 |
| -10.8 | 17.8 | 10.5 |
| -18.8 | 26.7 | 10.4 |
| Mean | 21.2 | 10.5 |
| SD | 4.5 | 0.6 |
| SD/Mean | 0.2 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD}) \quad \text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 8.9 (8.2) 28.9 (26.6)

Respiration: 10.7 (5.1) 256.8 (122.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{h}^{-1}$): 0.3Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 2.4

Photosynthetic Efficiency: 0.01

Date: 2/7/79

Station: PC-A

Temperature (°C): 19.0-24.0

Daylength (h): 15.6

Height of High Tide (m): 5.7

Radiation ($E \text{ m}^{-2}$):

Daily Total: 50

During Ebb Tide (0810-1635
 2035-2050): 41

During Incubation (1255-1445): 9

Mean h^{-1} during Incubation: 4.4

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|---------------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 1.232 | 12,320 | 23,900 |
| Surface Nitrogen : | 0.187 | 1,870 | 3,627 |
| Sediment Chlorophyll <u>a</u> : | | 48.2 (6.3) | 93.5 (12.2) |
| Phaeopigments : | | 16.4 (3.5) | 31.8 (6.8) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 75.8 | 30.6 | 24.2 |
| 85.3 | 50.8 | 26.4 |
| 67.9 | 32.7 | 29.8 |
| 76.1 | 37.1 | 30.4 |
| 72.1 | 36.2 | 27.6 |
| 67.7 | 37.8 | 19.9 |
| Mean | 74.1 | 26.4 |
| SD | 6.6 | 3.9 |
| SD/Mean | 0.1 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 111.6 (13.7) | 1,039.9 (127.7) |
| Respiration: | 11.1 (11.0) | 266.4 (264.0) |
| Specific Production($\text{mg O}_2 (\text{mg chl } \underline{\text{a}})^{-1} \text{ h}^{-1}$) | 1.2 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 25.4 | |
| Photosynthetic Efficiency: | 0.1 | |

Date: 9/7/79

Station: PC-A

Temperature (°C): 16.0-18.0

Daylength (h): 15.4

Height of High Tide (m): 7.9

Radiation ($E \text{ m}^{-2}$):

Daily Total: 53

During Ebb Tide (0525-1010 1410-2045): 30

During Incubation (1030-1435): 23

Mean h^{-1} during Incubation: 5.5

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.944 | 9,440 | 18,313 |
| Surface Nitrogen : | 0.095 | 950 | 1,843 |
| Sediment Chlorophyll a : | | 34.2 (13.1) | 66.3 (25.4) |
| Phaeopigments : | | 21.6 (5.0) | 41.9 (9.7) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -7.1 | 4.3 | 3.1 |
| -4.5 | 9.8 | 2.8 |
| -12.8 | 9.3 | 3.0 |
| -3.3 | 8.9 | 3.5 |
| -1.8 | 6.5 | 4.9 |
| -5.6 | 9.4 | 5.3 |
| Mean | -5.8 | 3.8 |
| SD | 3.9 | 1.1 |
| SD/Mean | 0.7 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 2.3 (6.1) | 12.6 (33.4) |
| Respiration: | 4.3 (3.3) | 103.2 (79.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$) | 0.04 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 0.4 | |
| Photosynthetic Efficiency: | 0.002 | |

Date: 16/7/79

Station: PC-A

Temperature (°C): 20.00-24.0

Daylength (h): 15.3

Height of High Tide (m): 7.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 21

During Ebb Tide (0745-1625
2025-2045): 18

During Incubation (1135-1250): 4

Mean h^{-1} during Incubation: 3.3

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.878 | 8,780 | 17,033 |
| Surface Nitrogen : | 0.090 | 900 | 1,746 |
| Sediment Chlorophyll a : | | 51.6 (13.8) | 100.1 (26.8) |
| Phaeopigments : | | 15.6 (3.1) | 30.3 (6.0) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 57.1 | 44.4 | 17.3 |
| 62.5 | 48.1 | 18.0 |
| 99.0 | 44.8 | 19.0 |
| 81.3 | 27.1 | 11.9 |
| 77.9 | 35.6 | 13.1 |
| 80.0 | 32.2 | 15.0 |
| Mean | 76.3 | 15.7 |
| SD | 14.9 | 2.8 |
| SD/Mean | 0.2 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 115.0 (23.2) | 627.3 (126.6) |
| Respiration: | 23.0 (11.1) | 552.0 (266.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.2 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 34.9 | |
| Photosynthetic Efficiency: | 0.1 | |

Date: 23/7/79

Station: PC-A

Temperature (°C): 19.0-26.0

Daylength (h): 15.1

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 40

During Ebb Tide (0535-1045 1445-2040): 20

During Incubation (1130-1520): 19

Mean h^{-1} during Incubation: 4.9

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.766 | 7,660 | 14,860 |
| Surface Nitrogen : | 0.075 | 750 | 1,455 |
| Sediment Chlorophyll a : | | 41.8 (12.1) | 81.1 (23.5) |
| Phaeopigments : | | 15.0 (3.2) | 29.1 (6.3) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -19.9 | 29.5 | 10.1 |
| -19.7 | 29.8 | 9.1 |
| -20.3 | 27.2 | 10.0 |
| -27.7 | 33.3 | 11.6 |
| -17.7 | 32.8 | 11.7 |
| -18.4 | 35.6 | 9.6 |
| Mean | 31.4 | 10.3 |
| SD | 3.1 | 1.1 |
| SD/Mean | 0.1 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 10.8 (6.7) 44.1 (27.4)

Respiration: 21.1 (4.2) 506.4 (100.8)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.1Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 2.2

Photosynthetic Efficiency: 0.01

Date: 1/8/79

Station: PC-A

Temperature (°C): 19.0-20.0

Daylength (h): 14.8

Height of High Tide (m): 6.9

Radiation ($E \text{ m}^{-2}$):

Daily Total: 2

During Ebb Tide (0815-1635): 2

During Incubation (1205-1350): 1

Mean h^{-1} during Incubation: 0.6

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.666 | 6,660 | 12,920 |
| Surface Nitrogen : | 0.061 | 610 | 1,183 |
| Sediment Chlorophyll a : | | 8.7 (2.1) | 16.9 (4.0) |
| Phaeopigments : | | 7.3 (1.9) | 14.2 (3.7) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -10.2 | 18.0 | 8.9 |
| -22.7 | 11.9 | 7.5 |
| -8.4 | 19.0 | 9.3 |
| -25.7 | 20.5 | 10.0 |
| -20.3 | 22.1 | 7.4 |
| -15.9 | 23.2 | 5.2 |
| Mean | 19.1 | 8.0 |
| SD | 4.0 | 1.8 |
| SD/Mean | 0.2 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 1.9 (10.9) | 6.3 (36.1) |
| Respiration: | 11.0 (5.8) | 266.4 (139.2) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.1 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 3.2 | |
| Photosynthetic Efficiency: | 0.01 | |

Date: 8/8/79

Station: PC-A

Temperature (°C): 15.0-18.0

Daylength (h): 14.4

Height of High Tide (m): 8.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 12

During Ebb Tide (0555-1035
1435-2015): 5

During Incubation (1050-1510): 7

Mean h^{-1} during Incubation: 1.6

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.590 | 5,900 | 11,446 |
| Surface Nitrogen : | 0.122 | 1,220 | 2,367 |
| Sediment Chlorophyll a : | | 20.8 (7.6) | 40.4 (14.8) |
| Phaeopigments : | | 10.1 (2.1) | 19.6 (4.1) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -25.5 | 20.0 | 8.6 |
| -15.8 | 20.8 | 7.2 |
| -18.0 | 21.1 | 7.4 |
| -20.8 | 23.8 | 9.6 |
| -17.5 | 22.2 | 9.6 |
| -19.2 | 17.5 | 7.4 |
| Mean | 20.9 | 8.3 |
| SD | 2.1 | 1.1 |
| SD/Mean | 0.1 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 1.5 (5.6) 4.7 (17.5)

Respiration: 12.6 (3.2) 302.4 (76.8)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.04Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 0.9

Photosynthetic Efficiency: 0.004

Date: 15/8/79

Station: PC-A

Temperature (°C): 22.0-23.0

Daylength (h): 14.2

Height of High Tide (m): 7.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 32

During Ebb Tide (0845-1700): 30

During Incubation (1130-1230): 7

Mean h^{-1} during Incubation: 6.9

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-------------|--------------------|--------------------|
| Organic Carbon : | 0.690 | 6,900 | 13,386 |
| Surface Nitrogen : | 0.107 | 1,070 | 2,075 |
| Sediment Chlorophyll a : | 35.9 (10.0) | 69.6 (19.4) | |
| Phaeopigments : | 9.5 (6.1) | 18.4 (11.8) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 154.4 | 12.6 | 0 |
| 135.7 | 16.8 | 3.0 |
| 167.4 | 28.9 | 10.9 |
| 232.9 | 20.0 | |
| 216.0 | 38.7 | |
| 192.9 | 29.1 | |
| Mean | 183.2 | 24.4 |
| SD | 37.4 | 9.7 |
| SD/Mean | 0.2 | 0.4 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 207.6 (47.1) | 902.6 (204.8) |
| Respiration: | 20.1 | 482.4 (393.6) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 3.0 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$) | 30.1 | |
| Photosynthetic Efficiency: | 0.12 | |

Date: 22/8/79

Station: PC-A

Temperature (°C): 19.0-22.0

Daylength (h): 13.8

Height of High Tide (m): 7.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 44

During Ebb Tide (0610-1100
1500-2000): 22

During Incubation (1050-1500): 22

Mean h^{-1} during Incubation: 5.3

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.940 | 9,400 | 18,236 |
| Surface Nitrogen : | 0.150 | 1,500 | 2,910 |
| Sediment Chlorophyll a : | | 66.7 (16.4) | 129.4 (31.8) |
| Phaeopigments : | | 6.4 (8.0) | 12.4 (15.5) |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 19.5 | 26.4 | 11.3 |
| 16.3 | 26.8 | 11.8 |
| 12.7 | 31.6 | 11.2 |
| 17.1 | 28.3 | 12.6 |
| 8.9 | 29.1 | 12.5 |
| 13.4 | 29.6 | 13.4 |
| Mean | 14.7 | 12.1 |
| SD | 3.8 | 0.9 |
| SD/Mean | 0.3 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 43.3 (5.7) | 179.7 (23.7) |
| Respiration: | 16.5 (2.8) | 396.0 (67.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.3 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 8.2 | |
| Photosynthetic Efficiency: | 0.03 | |

Date: 30/8/79

Station: PC-A

Temperature (°C): 18.0-20.0

Daylength (h): 13.4

Height of High Tide (m): 7.0

Radiation ($E \text{ m}^{-2}$):

Daily Total: 16

During Ebb Tide (0740-1600): 11

During Incubation (1300-1500): 5

Mean h^{-1} during Incubation: 2.3

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-------------|--------------------|--------------------|
| Organic Carbon : | 1.272 | 12,720 | 24,677 |
| Surface Nitrogen : | 0.198 | 1,980 | 3,841 |
| Sediment Chlorophyll a : | 85.8 (12.5) | 166.5 (24.3) | |
| Phaeopigments : | 13.1 (5.7) | 25.4 (11.1) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 93.0 | 38.0 | 14.6 |
| 104.4 | 39.0 | 13.5 |
| 111.1 | 38.5 | 14.3 |
| 102.5 | 33.0 | 8.5 |
| 65.8 | 32.1 | 14.7 |
| 78.8 | 34.9 | 12.6 |
| Mean | 92.6 | 35.9 |
| SD | 17.2 | 3.0 |
| SD/Mean | 0.2 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$ |
|---|---|---|
| Gross Oxygen Production: | 128.5 (20.2) | 614.6 (96.6) |
| Respiration: | 22.9 (5.3) | 549.6 (127.2) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.8 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 55.9 | |
| Photosynthetic Efficiency: | 0.23 | |

Date: 6/9/79

Station: PC-A

Temperature (°C): 17.0-21.0

Daylength (h): 13.1

Height of High Tide (m): 8.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 12

During Ebb Tide (0625-1025 1425-1930): 4

During Incubation (1020-1500): 7

Mean h^{-1} during Incubation: 1.6

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 1.163 | 11,630 | 22,562 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 137.6 (12.5) | 266.9 (24.2) |
| Phaeopigments : | | 28.3 (14.0) | 54.9 (27.2) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -11.6 | 18.5 | |
| - 9.3 | 23.3 | |
| -10.7 | 17.8 | |
| - 9.8 | 14.3 | |
| -12.5 | 14.3 | |
| | 16.9 | |
| Mean | 17.5 | (8.75) |
| SD | 3.3 | |
| SD/Mean | 0.2 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 6.7 (4.6) | 16.8 (11.5) |
| Respiration: | 8.8 | 211.2 |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.03 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 4.2 | |
| Photosynthetic Efficiency: | 0.02 | |

Date: 13/9/79

Station: PC-A

Temperature (°C): 23.0-29.0

Daylength (h): 12.6

Height of High Tide (m): 7.0

Radiation ($E \text{ m}^{-2}$):

Daily Total: 48

During Ebb Tide (0815-1640): 40

During Incubation (1200-1400): 12

Mean h^{-1} during Incubation: 5.8

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|--------------|----------------------|--------------------|
| Organic Carbon : | 1.534 | 15,340 | 29,760 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 260.7 (48.7) | 505.8 (94.5) | |
| Phaeopigments : | 20.7 (17.1) | 40.2 (33.2) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 116.9 | 28.2 | 23.9 |
| 130.2 | 24.8 | 23.4 |
| 114.6 | 29.8 | 25.4 |
| 140.9 | 30.7 | 11.3 |
| 116.4 | 31.0 | 12.0 |
| 147.3 | 25.5 | 11.7 |
| Mean | 28.3 | 18.0 |
| SD | 2.7 | 6.9 |
| SD/Mean | 0.1 | 0.4 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 156.0 (16.7) | 1,075.9 (115.2) |
| Respiration: | 11.3 (9.6) | 271.2 (230.4) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 0.3 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 26.9 | |
| Photosynthetic Efficiency: | 0.11 | |

Date: 13/9/79

Station: PC-A

Temperature (°C): 23.0-29.0

Daylength (h): 12.6

Height of High Tide (m): 7.0

Radiation ($E \text{ m}^{-2}$):

Daily Total: 48

During Ebb Tide (0815-1640): 40

During Incubation (1200-1400): 12

Mean h^{-1} during Incubation: 5.8

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|--------------|----------------------|--------------------|
| Organic Carbon : | 1.534 | 15,340 | 29,760 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 260.7 (48.7) | 505.8 (94.5) | |
| Phaeopigments : | 20.7 (17.1) | 40.2 (33.2) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 109.0 | 61.9 | 14.2 |
| 132.1 | 61.7 | 15.5 |
| 112.4 | 74.6 | 12.1 |
| 131.7 | 65.5 | 16.2 |
| 108.2 | | |
| 107.5 | | |
| Mean | 116.8 | 65.9 |
| SD | 11.8 | 6.0 |
| SD/Mean | 0.1 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 182.7 (17.8) | 1,260.0 (122.8) |
| Respiration: | 51.4 (7.8) | 1,233.6 (187.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 0.4 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 31.5 | |
| Photosynthetic Efficiency: | 0.13 | |

Date: 2/10/79

Station: PC-A

Temperature (°C): 17.0 - 20.0

Daylength (h): 11.7

Height of High Tide (m): 7.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 15

During Ebb Tide (0700-0710 1110-1840): 9

During Incubation (1300-1445): 5

Mean h^{-1} during Incubation: 2.6

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.720 | 7,200 | 13,968 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 121.7 (33.7) | 236.0 (65.4) |
| Phaeopigments : | | -1.8 (3.9) | 0 - |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 92.0 | 55.1 | 14.4 |
| 94.8 | 45.1 | 12.9 |
| 116.4 | 45.8 | 12.8 |
| 85.5 | 42.4 | 13.6 |
| 100.3 | 42.5 | 5.8 |
| 38.5 | 39.2 | 13.2 |
| Mean | 45.0 | 12.1 |
| SD | 5.5 | 3.1 |
| SD/Mean | 0.1 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 132.9 (31.9) | 460.0 (110.4) |
| Respiration: | 32.9 (8.6) | 789.6 (206.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.6 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 51.1 | |
| Photosynthetic Efficiency: | 0.21 | |

Date: 2/10/79

Station: PC-A

Temperature (°C): 17.0-20.0

Daylength (h): 11.7

Height of High Tide (m): . 7.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 15

During Ebb Tide (0700-0710
1110-1840): 9

During Incubation (1300-1445): 5

Mean h^{-1} during Incubation: 2.6% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

121.7 (33.7) 236.1 (65.4)
-1.8 (3.9) 0 - $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 136.0 | 45.6 | |
| 113.7 | 45.7 | |
| 22.5 | 54.9 | |
| 61.3 | 53.5 | |
| Mean | 49.9 | 13.4 |
| SD | 4.9 | 3.5 |
| SD/Mean | 0.1 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 131.9 (54.3) 456.6 (188.0)

Respiration: 36.5 (8.4) 876.0 (201.6)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.6Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 50.7

Photosynthetic Efficiency: 0.21

Date: 5/10/79

Station: PC-A

Temperature (°C): 15.0

Daylength (h): 11.5

Height of High Tide (m): 8.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 11

During Ebb Tide (0700-1000
1400-1835): 5

During Incubation (1000-1440): 6

Mean h^{-1} during Incubation: 1.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.720 | 7200 | 13,968 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 133.9 (32.2) | 259.8 (62.5) |
| Phaeopigments : | | 3.7 (10.7) | 7.2 (20.8) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -7.1 | 11.4 | 5.0 |
| -7.5 | 12.7 | 3.2 |
| -7.6 | 9.5 | 3.7 |
| -7.4 | 8.0 | 4.2 |
| -6.5 | 7.0 | 4.3 |
| -7.0 | 12.7 | 5.8 |
| Mean | 10.2 | 4.4 |
| SD | 2.4 | 0.9 |
| SD/Mean | 0.2 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 3.0 (2.8) | 12.5 (11.7) |
| Respiration: | 5.8 (3.3) | 139.2 (79.2) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.01 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 2.5 | |
| Photosynthetic Efficiency: | 0.01 | |

Date: 12/10/79

Station: PC-A

Temperature (°C): 10.0-13.0

Daylength (h): 11.2

Height of High Tide (m): 7.0

Radiation ($E \text{ m}^{-2}$):

Daily Total: 20

During Ebb Tide (0745-1605): 16

During Incubation (1150-1300): 4

Mean h^{-1} during Incubation: 3.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|--------------|--------------------|--------------------|
| Organic Carbon : | 0.722 | 7220 | 14,007 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 114.6 (30.6) | 222.3 (59.4) | |
| Phaeopigments : | 20.5 (8.7) | 39.8 (16.9) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 88.7 | 20.3 | 1.0 |
| 86.7 | 20.1 | 0.2 |
| 90.0 | 20.0 | 0.5 |
| 77.2 | 16.2 | 3.1 |
| 75.3 | 15.4 | 5.1 |
| 106.2 | 13.5 | 2.6 |
| Mean | 87.4 | 1.7 |
| SD | 11.1 | 2.3 |
| SD/Mean | 0.1 | 1.4 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 105.0 (14.0) | 525.0 (69.9) |
| Respiration: | 15.9 (5.2) | 381.6 (124.8) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 0.5 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 32.9 | |
| Photosynthetic Efficiency: | 0.14 | |

Date: 17/10/79

Station: PC-A

Temperature (°C): 10.0-14.0

Daylength (h): 10.9

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 33

During Ebb Tide (0715-0835
1235-1818): 18

During Incubation (1405-1545): 7

Mean h^{-1} during Incubation: 4.1

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.722 | 7,220 | 14,007 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 84.6 (21.1) | 164.1 (40.9) |
| Phaeopigments : | | 1.2 (2.4) | 2.3 (4.7) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 128.7 | 33.9 | 10.3 |
| 110.0 | 28.4 | 13.4 |
| 91.7 | 29.2 | 14.2 |
| 99.9 | 19.5 | 10.6 |
| 115.4 | 21.6 | 7.3 |
| 102.7 | 22.8 | 12.3 |
| Mean | 108.2 | 11.4 |
| SD | 13.1 | 2.5 |
| SD/Mean | 0.1 | 0.2 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 134.2 (18.7) 589.2 (82.1)

Respiration: 14.6 (8.1) 350.4 (194.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) 0.8Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 32.7

Photosynthetic Efficiency: 0.13

Date: 26/10/79

Station: PC-A

Temperature (°C): 7.0-9.0

Daylength (h): 10.5

Height of High Tide (m): 7.7

Radiation ($E \text{ m}^{-2}$):

Daily Total: 11

During Ebb Tide (0730-1415): 9

During Incubation (0945-1045): 1

Mean h^{-1} during Incubation: 1.4% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

44.7 (16.0) 86.7 (31.0)
2.5 (2.7) 4.9 (5.2) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 59.7 | 30.6 | 7.6 |
| 68.9 | 24.5 | 8.5 |
| 64.7 | 24.1 | 8.4 |
| 67.7 | 23.6 | 11.7 |
| 70.1 | 32.9 | 10.8 |
| 86.6 | 20.6 | 12.9 |
| Mean | 69.6 | 10.0 |
| SD | 9.1 | 2.1 |
| SD/Mean | 0.1 | 0.2 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 95.7 (13.8) 615.2 (88.7)

Respiration: 16.0 (6.8) 386.4 (163.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.1Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 68.4

Photosynthetic Efficiency: 0.28

Date: 6/11/79

Station: PC-A

Temperature (°C): 8.0-9.0

Daylength (h): 9.9

Height of High Tide (m): 8.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 11

During Ebb Tide (0645-1140
1540-1640): 4

During Incubation (1105-1535): 8

Mean h^{-1} during Incubation: 1.2

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.488 | 4,880 | 9,467 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 33.5 (12.2) | 65.0 (23.7) |
| Phaeopigments : | | 7.7 (1.5) | 14.9 (2.9) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -18.5 | 27.4 | 8.5 |
| -28.8 | 31.3 | 7.2 |
| -26.0 | 32.5 | 7.9 |
| -30.0 | 32.0 | 8.6 |
| -29.3 | 20.3 | 7.1 |
| -29.2 | 27.3 | 7.5 |
| Mean | 28.5 | 7.8 |
| SD | 4.6 | 0.7 |
| SD/Mean | 0.2 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 2.3 (8.8) | 7.7 (29.5) |
| Respiration: | 20.7 (5.3) | 496.8 (127.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$), | 0.04 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 1.9 | |
| Photosynthetic Efficiency: | 0.01 | |

Date: 29/11/79

Station: PC-A

Temperature (°C): 6.0-7.0

Daylength (h): 9.1

Height of High Tide (m): 7.6

Radiation ($E\ m^{-2}$):

Daily Total: 14

During Ebb Tide (0940-1620): 13

During Incubation (1040-1150): 4

Mean h^{-1} during Incubation: 3.4

| | % dry wt. | $\mu g\ g^{-1}$ | $mg\ m^{-2}$ |
|--------------------------|-----------|-----------------|--------------|
| Organic Carbon : | 0.496 | 4,960 | 9,622 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 7.2 (1.5) | 14.0 (2.9) | |
| Phaeopigments : | 3.6 (1.4) | 7.0 (2.7) | |

 $mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 9.2 | 2.6 | 0.6 |
| 7.3 | 2.3 | 3.8 |
| 7.0 | 5.1 | 1.0 |
| 7.1 | 3.7 | 1.4 |
| 6.4 | 3.4 | 3.2 |
| 17.4 | 3.0 | |
| Mean | 3.3 | 2.0 |
| SD | 1.0 | 1.4 |
| SD/Mean | 0.3 | 0.7 |

| | $mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ | $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$ |
|--|---------------------------------|---------------------------------|
| Gross Oxygen Production: | 12.4 (5.2) | 47.4 (19.9) |
| Respiration: | 1.3 (2.4) | 31.2 (57.6) |
| Specific Production ($mg\ O_2\ (mg\ chl\ a)^{-1}h^{-1}$) | 0.9 | |
| Quantum Yield ($mg\ O_2\ E^{-1}$) | 3.7 | |
| Photosynthetic Efficiency: | 0.02 | |

Date: 5/12/79

Station: PC-A

Temperature (°C): 3.0-4.0

Daylength (h): 9.0

Height of High Tide (m): 6.9

Radiation ($E \text{ m}^{-2}$):

Daily Total: 12

During Ebb Tide (0720-1055
1455-1620): 3

During Incubation (1040-1530): 9

Mean h^{-1} during Incubation: 2.0

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.670 | 6,700 | 12,998 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 3.5 (2.0) | 6.8 (3.9) |
| Phaeopigments : | | 8.6 (3.8) | 16.7 (7.4) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -7.9 | 9.3 | 6.3 |
| -8.3 | 10.0 | 4.3 |
| -11.4 | 11.8 | 5.9 |
| -9.4 | 9.3 | 8.8 |
| -10.0 | 10.1 | 6.6 |
| -10.5 | 11.1 | 7.5 |
| Mean | 10.3 | 6.6 |
| SD | 1.0 | 1.5 |
| SD/Mean | 0.1 | 0.2 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 0.7 (2.3) 1.1 (3.6)

Respiration: 3.7 (2.5) 88.8 (60.0)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.1Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 0.4

Photosynthetic Efficiency: 0.002

Date: 12/12/79

Station: PC-A

Temperature (°C): 6.0-8.0

Daylength (h): 8.8

Height of High Tide (m): 6.9

Radiation ($E \text{ m}^{-2}$):

Daily Total: 11

During Ebb Tide (0825-1620): 11

During Incubation (1040-1315): 5

Mean h^{-1} during Incubation: 2.1

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.466 | 4660 | 9,040 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 7.0 (0.4) | 13.6 (0.8) |
| Phaeopigments : | | 5.7 (1.0) | 11.1 (1.9) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 8.2 | 8.8 | 2.6 |
| 2.8 | 10.9 | 4.0 |
| 7.6 | 8.1 | 3.3 |
| 9.3 | 8.8 | 2.1 |
| 7.8 | 10.1 | 3.6 |
| 7.0 | 8.3 | 3.5 |
| Mean | 9.2 | 3.2 |
| SD | 1.1 | 0.7 |
| SD/Mean | 0.1 | 0.2 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 16.3 (3.4) 85.4 (17.8)

Respiration: 6.0 (1.8) 144.0 (43.2)

Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.2Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 7.8

Photosynthetic Efficiency: 0.03

Date: 10/1/80

Station: PC-A

Temperature (°C): -3.0

Daylength (h): 9.0

Height of High Tide (m): 7.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 11

During Ebb Tide (0735-1540): 11

During Incubation (1015-1330): 7

Mean h^{-1} during Incubation: 2.2

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|---|----------------------|--------------------|
| Organic Carbon : | 0.70 | 7,000 | 135,800 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 5.6 (1.9) | 10.8 (3.7) |
| Phaeopigments : | | 10.6 (7.9) | 27.3 (20.4) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
|-----------------------|---------------------|------------------------|

no data

| | | | |
|---------|---|---|---|
| Mean | - | - | - |
| SD | - | - | - |
| SD/Mean | - | - | - |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: -

Respiration: -

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): -

Photosynthetic Efficiency: -

Date: 21/2/80

Station: PC-A

Temperature (°C): 2.5

Daylength (h): 10.8

Height of High Tide (m): 8.0

Radiation ($E \text{ m}^{-2}$):

Daily Total: 10

During Ebb Tide (0605-1410
1810-1815): 8

During Incubation (0945-1300): 6

Mean h^{-1} during Incubation: 2.0

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.59 | 5900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 3.5 (0.7) | 6.8 (1.4) |
| Phaeopigments : | | 8.1 (2.8) | 21.0 (7.2) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -0.6 | 0.5 | 0.6 |
| 1.1 | 0.5 | |
| 2.1 | 0.4 | 1.2 |
| 1.3 | 0.9 | |
| 1.8 | 0.4 | 1.4 |
| 0 | 0.5 | |
| <u>-8.1</u> | | |
| Mean | -0.3 | 0.4 |
| SD | 3.6 | 0.5 |
| SD/Mean | 12.0 | 1.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 0.1 (4.1) 0.4 (16.4)

Respiration: 0 0

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.02Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 0.1

Photosynthetic Efficiency: 0.0002

Date: 20/3/80

Station: PC-A

Temperature (°C): 2.0-7.0

Daylength (h): 12.2

Height of High Tide (m): 8.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 25

During Ebb Tide (0605-1255 1655-1815): 12

During Incubation (1035-1200): 7

Mean h^{-1} during Incubation: 5.2

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.64 | 6400 | 12,416 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 2.8 (0.8) | 5.4 (1.5) | |
| Phaeopigments : | 7.3 (1.5) | 14.2 (2.9) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -13.1 | 9.3 | 17.7 |
| - 6.4 | 20.7 | 12.6 |
| - 7.3 | 23.4 | 15.8 |
| - 9.2 | 25.1 | |
| -10.7 | 22.3 | |
| -14.7 | 13.5 | |
| Mean | 19.1 | 15.4 |
| SD | 6.2 | 2.6 |
| SD/Mean | 0.3 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$ |
|--|---|---|
| Gross Oxygen Production: | 8.9 (9.5) | 20.5 (21.9) |
| Respiration: | 3.7 (8.8) | 88.8 (211.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.7 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 1.7 | |
| Photosynthetic Efficiency: | 0.01 | |

Date: 23/4/80

Station: PC-A

Temperature (°C): 5.5-7.0

Daylength (h): 13.9

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 10

During Ebb Tide (0850-1915): 8

During Incubation (1000-1130): 2

Mean h^{-1} during Incubation: 1.3

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 1.05 | 10,500 | 20,370 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 17.2 (13.2) | 141.0 (25.6) |
| Phaeopigments : | | 6.3 (3.9) | 12.2 (7.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 138.1 | 20.6 | 4.1 |
| 117.9 | 10.2 | 3.2 |
| 150.0 | 7.3 | 3.3 |
| Mean | 135.3 | 12.7 |
| SD | 16.2 | 7.0 |
| SD/Mean | 0.1 | 0.6 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 148.0 (23.2) 910.8 (142.8)

Respiration: 9.2 (7.5) 220.8 (180.0)

Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.1Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 113.9

Photosynthetic Efficiency: 0.47

Date: 23/4/80

Station: PC-A

Temperature (°C): 6.5-7.5

Daylength (h): 13.9

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 10

During Ebb Tide (0850-1915): 8

During Incubation (1154-1340): 2

Mean h^{-1} during Incubation: 1.3

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-------------|----------------------|--------------------|
| Organic Carbon : | 1.05 | 10,500 | 20,370 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 72.7 (13.2) | 141.0 (25.6) | |
| Phaeopigments : | 6.3 (3.9) | 12.2 (7.6) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 143.6 | 21.9 | 4.1 |
| 130.6 | 15.3 | 3.2 |
| 133.4 | 6.6 | 3.3 |
| Mean | 135.8 | 14.6 |
| SD | 6.9 | 7.7 |
| SD/Mean | 0.1 | 0.5 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 150.4 (14.6) | 925.5 (89.8) |
| Respiration: | 11.1 (8.2) | 266.4 (196.8) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.1 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 115.7 | |
| Photosynthetic Efficiency: | 0.48 | |

Date: 23/4/80

Station: PC-A

Temperature (°C): 7.8

Daylength (h): 13.

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 10

During Ebb Tide (0850-1915): 8

During Incubation (1350-1450): 1

Mean h^{-1} during Incubation: 1.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 1.05 | 10,500 | 20,370 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 72.7 (13.2) | 141.0 (25.6) |
| Phaeopigments : | | 6.3 (3.9) | 12.2 (7.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 36.7 | 26.6 | 4.1 |
| 129.4 | 19.0 | 3.2 |
| 132.7 | 11.0 | 3.3 |
| Mean | 99.6 | 18.9 |
| SD | 54.5 | 7.8 |
| SD/Mean | 0.6 | 0.4 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 118.5 (62.3) | 790.0 (415.3) |
| Respiration: | 15.4 (8.3) | 369.6 (199.2) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.8 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 98.8 | |
| Photosynthetic Efficiency: | 0.41 | |

Date: 23/4/80

Station: PC-A

Temperature (°C): 7.5

Daylength (h): 13.9

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 10

During Ebb Tide (0850-1915): 8

During Incubation (1500-1620): 1

Mean h^{-1} during Incubation: 0.9

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-------------|--------------------|--------------------|
| Organic Carbon : | 1.05 | 10,500 | 20,370 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 72.7 (13.2) | 141.0 (25.6) | |
| Phaeopigments : | 6.3 (3.9) | 12.2 (7.6) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 17.9 | 15.2 | 4.1 |
| 116.0 | 12.1 | 3.2 |
| 149.4 | 8.7 | 3.3 |
| Mean | 94.4 | 12.0 |
| SD | 64.8 | 3.3 |
| SD/Mean | 0.7 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 106.4 (71.7) | 945.8 (637.4) |
| Respiration: | 8.5 (3.8) | 204.0 (91.2) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.8 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 118.2 | |
| Photosynthetic Efficiency: | 0.49 | |

Date: 23/4/80

Station: PC-C

Temperature (°C): 6.0-8.0

Daylength (h): 13.9

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 10

During Ebb Tide (0850-1915): 8

During Incubation (1100-1315): 3

Mean h^{-1} during Incubation: 1.3

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-------------|----------------------|--------------------|
| Organic Carbon : | 1.05 | 10,500 | 20,370 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 37.0 (12.4) | 95.5 (32.0) | |
| Phaeopigments : | 4.2 (3.5) | 8.2 (6.8) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 124.9 | 11.6 | 6.5 |
| 107.6 | 21.9 | 8.9 |
| 124.0 | 21.4 | 5.0 |
| Mean | 118.8 | 18.3 |
| SD | 9.7 | 5.8 |
| SD/Mean | 0.1 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 137.1 (15.5) 843.7 (95.4)

Respiration: 11.5 (7.8) 276.0 (187.2)

Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 11.4Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 105.5

Photosynthetic Efficiency: 0.43

Date: 24/4/80

Station: PC-A

Temperature (°C): 8.0-9.3

Daylength (h): 14.0

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 17

During Ebb Tide (0500-0550 0950-1825): 13

During Incubation (1100-1150): 2

Mean h^{-1} during Incubation: 2.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 1.05 | 10,500 | 20,370 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 72.7 (13.2) | 141.0 (25.6) |
| Phaeopigments : | | 6.3 (3.9) | 12.2 (7.5) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 167.2 | 17.4 | 13.5 |
| 187.8 | 22.2 | 9.1 |
| 189.4 | 29.4 | 8.3 |
| Mean | 23.0 | 10.3 |
| SD | 6.0 | 2.8 |
| SD/Mean | 0.3 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 204.5(18.4) | 1208.4 (108.7) |
| Respiration: | 12.7 (8.8) | 304.8 (211.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.5 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 92.9 | |
| Photosynthetic Efficiency: | 0.38 | |

Date: 24/4/80

Station: PC-A

Temperature (°C): 8.5-10.7

Daylength (h): 14.0

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 17

During Ebb Tide ($\frac{0500-0550}{0950-1825}$): 13

During Incubation (1200-1300): 2

Mean h^{-1} during Incubation: 2.2

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 1.05 | 10,500 | 20,370 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 72.7 (13.2) | 141.0 (25.6) |
| Phaeopigments : | | 6.3 (3.9) | 12.2 (7.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 162.8 | 17.4 | 13.5 |
| 177.1 | 22.2 | 9.1 |
| 185.7 | 29.4 | 8.3 |
| Mean | 23.0 | 10.3 |
| SD | 6.0 | 2.8 |
| SD/Mean | 0.2 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 198.2 (17.6) 1171.2 (104.0)

Respiration: 12.7 (8.8) 304.8 (211.2)

Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.4Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 90.1

Photosynthetic Efficiency: 0.37

Date: 24/4/80

Station: PC-A

Temperature (°C): 9.0-11.0

Daylength (h): 14.0

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 17

During Ebb Tide (0500-0550 0950-1825): 13

During Incubation (1300-1335): 1

Mean h^{-1} during Incubation: 2.4

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-------------|--------------------|--------------------|
| Organic Carbon : | 1.05 | 10,500 | 20,370 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 72.7 (13.2) | 141.0 (25.6) | |
| Phaeopigments : | 6.3 (3.9) | 12.2 (7.6) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 221.5 | 17.4 | 13.5 |
| 239.3 | 22.2 | 9.1 |
| 260.9 | 29.4 | 8.3 |
| Mean | 240.5 | 23.0 |
| SD | 19.8 | 6.0 |
| SD/Mean | 0.1 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$ |
|--|---|---|
| Gross Oxygen Production: | 263.5 (25.8) | 1427.3 (139.8) |
| Respiration: | 12.7 (8.8) | 304.8 (211.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.9 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 109.8 | |
| Photosynthetic Efficiency: | 0.45 | |

Date: 24/4/80

Station: PC-A

Temperature (°C): 10.0-11.0

Daylength (h): 14.0

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (70%)

Daily Total: 12

During Ebb Tide (0500-0550 0950-1825): 9

During Incubation (1245-1345): 2

Mean h^{-1} during Incubation: 1.6% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen : no samples collected

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 32.4 | 17.4 | 13.5 |
| 14.3 | 22.2 | 9.1 |
| 112.4 | 29.4 | 8.3 |
| 120.0 | | |
| Mean | 69.8 | 10.3 |
| SD | 54.2 | 2.8 |
| SD/Mean | 0.8 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 92.8 (60.2) 522.0 (338.6)

Respiration: 12.7 (8.8) 304.8 (211.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 58.0

Photosynthetic Efficiency: 0.24

Date: 24/4/80

Station: PC-A

Temperature (°C): 8.0-10.5

Daylength (h): 14.0

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (70%)

Daily Total: 12

During Ebb Tide (0500-0550) : 9
0950-1825

During Incubation (1115-1245) : 2

Mean h^{-1} during Incubation: 1.6% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen : no samples collected

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 6.4 | 17.4 | 13.5 |
| 2.1 | 22.2 | 9.1 |
| 62.5 | 29.4 | 8.3 |
| 55.1 | | |
| Mean | 31.7 | 10.3 |
| SD | 31.9 | 2.8 |
| SD/Mean | 1.0 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 54.7 (37.9) 307.7 (213.2)

Respiration: 12.7 (8.8) 304.8 (211.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 34.2

Photosynthetic Efficiency: 0.14

Date: 24/4/80

Station: PC-A

Temperature (°C): 8.0-10.5

Daylength (h): 14.0

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (20%)

Daily Total: 3

During Ebb Tide (0500-0550 0950-1825): 3

During Incubation (1110-1305): 1

Mean h^{-1} during Incubation: 0.5% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen : no samples collected

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 55.4 | 17.4 | 13.5 |
| 75.9 | 22.2 | 9.1 |
| 30.6 | 29.4 | 8.3 |
| 50.1 | | |
| Mean 53.0 | 23.0 | 10.3 |
| SD 18.6 | 6.0 | 2.8 |
| SD/Mean 0.4 | 0.3 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 76.0 (24.6) 456.0 (147.6)

Respiration: 12.7 (8.8) 204.8 (211.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 152.0

Photosynthetic Efficiency: 0.62

Date: 24/4/80

Station: PC-A

Temperature (°C): 10.5

Daylength (h): 14.0

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (20%)

Daily Total: 3

During Ebb Tide (0500-0550 0950-1825): 3

During Incubation (1305-1350): 0.4

Mean h^{-1} during Incubation: 0.5% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 84.4 | 17.4 | 13.5 |
| 92.5 | 22.2 | 9.1 |
| 72.9 | 29.4 | 8.3 |
| 88.8 | | |
| Mean | 84.7 | 23.0 |
| SD | 8.5 | 6.0 |
| SD/Mean | 0.1 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 107.7 (14.5) 646.2 (87.0)

Respiration: 12.7 (8.8) 304.8 (211.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 215.4

Photosynthetic Efficiency: 0.89

Date: 24/4/80

Station: PC-C

Temperature (°C): 7.5-11.0

Daylength (h): 14.0

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 17

During Ebb Tide (0500-0550 0950-1825): 11

During Incubation (1115-1310): 4

Mean h^{-1} during Incubation: 2.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.46 | 4,600 | 8,924 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 37.0 (12.4) | 95.5 (32.0) |
| Phaeopigments : | | 4.2 (3.5) | 10.8 (9.0) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 65.2 | 11.7 | 4:3 |
| 99.7 | 15.0 | 4.7 |
| -8.0 | 14.6 | 5.1 |
| Mean | 52.3 | 13.8 |
| SD | 55.0 | 1.8 |
| SD/Mean | 1.1 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 66.0 (56.8) | 330.0 (284.0) |
| Respiration: | 9.1 (2.2) | 218.4 (52.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 0.7 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 30.0 | |
| Photosynthetic Efficiency: | 0.12 | |

Date: 6/5/80

Station: PC-A

Temperature (°C): 6.5

Daylength (h): 14.6

Height of High Tide (m): 7.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 9

During Ebb Tide (0645-1510 1910-2015): 5

During Incubation (1130-1300): 1

Mean h^{-1} during Incubation: 0.7

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|---------------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.98 | 9,800 | 19,012 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll <u>a</u> : | | 35.4 (18.5) | 68.7 (35.8) |
| Phaeopigments : | | 13.0 (4.0) | 25.2 (7.8) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 5.3 | 13.7 | 1.4 |
| 10.1 | 8.0 | 8.8 |
| 11.8 | 15.8 | 7.0 |
| 16.9 | 16.8 | 7.9 |
| 32.4 | 22.4 | 9.0 |
| 7.7 | 17.0 | 7.9 |
| Mean | 14.0 | 7.0 |
| SD | 9.8 | 2.8 |
| SD/Mean | 0.7 | 0.4 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 31.3 (12.7) | 223.6 (90.7) |
| Respiration: | 10.3 (5.7) | 247.2 (136.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$): | 0.5 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 44.7 | |
| Photosynthetic Efficiency: | 0.18 | |

Date: 27/5/80

Station: PC-A

Temperature (°C): 14.5

Daylength (h): 15.3

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 18

During Ebb Tide (0520-0925
1325-2035): 11

During Incubation (1640-1740): 2

Mean h^{-1} during Incubation: 2.0

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|---|--------------------|--------------------|
| Organic Carbon : | 0.59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 19.2 (6.0) | 37.2 (11.7) |
| Phaeopigments : | | 11.4 (1.3) | 22.2 (2.5) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 23.8 | 5.3 | 3.7 |
| 40.7 | 6.2 | 4.2 |
| 45.1 | 6.6 | 4.1 |
| Mean | 36.5 | 4.0 |
| SD | 11.2 | 0.3 |
| SD/Mean | 0.3 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 42.5 (11.9) | 233.8 (65.5) |
| Respiration: | 2.0 (1.0) | 48.0 (24.0) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{h}^{-1}$) | 11.1 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 21.3 | |
| Photosynthetic Efficiency: | 0.09 | |

Date: 28/5/80

Station: PC-A

Temperature (°C): 14.0-20.0

Daylength (h): 15.3

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 38

During Ebb Tide (0520-1005
1405-2035): 21

During Incubation (0915-1000): 4

Mean h^{-1} during Incubation: 4.6

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|---------------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll <i>a</i> : | | 19.2 (6.01) | 37.2 (11.7) |
| Phaeopigments : | | 11.4 (1.3) | 22.2 (2.6) |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 57.1 | 13.6 | 6.6 |
| 30.4 | 10.1 | 6.2 |
| 6.6 | 18.4 | 5.1 |
| | 12.4 | |
| | 22.3 | |
| | 21.2 | |
| Mean | 16.3 | 6.0 |
| SD | 5.0 | 0.8 |
| SD/Mean | 0.3 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 47.7 (30.3) | 217.8 (138.4) |
| Respiration: | 10.3 (5.8) | 247.2 (139.2) |
| Specific Production ($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$) | 11.3 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 10.4 | |
| Photosynthetic Efficiency: | 0.04 | |

Date: 28/5/80

Station: PC-A

Temperature (°C): 13.5-19.0

Daylength (h): 15.3

Height of High Tide (m): 7.3

Radiation ($E\ m^{-2}$):

Daily Total: 38

During Ebb Tide (0520-1005 1405-2035): 21

During Incubation (1500-1630): 5

Mean h^{-1} during Incubation: 3.2

| | % dry wt. | $\mu g\ g^{-1}$ | $mg\ m^{-2}$ |
|--------------------------|-----------|-----------------|--------------|
| Organic Carbon : | 0.59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 19.2 (6.0) | 37.2 (11.7) |
| Phaeopigments : | | 11.4 (1.3) | 22.2 (2.6) |

$mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 30.2 | 15.1 | 7.9 |
| -15.0 | 18.0 | 6.5 |
| -11.0 | 25.6 | 7.6 |
| Mean 1.4 | 19.6 | 7.3 |
| SD 25.0 | 5.4 | 0.7 |
| SD/Mean 17.9 | 0.3 | 0.1 |

$mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$

Gross Oxygen Production: 21.0 (30.4) 137.8 (199.5)

Respiration: 12.3 (6.1) 295.2 (146.4)

Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}h^{-1}$) 0.6Quantum Yield ($mg\ O_2\ E^{-1}$): 6.6

Photosynthetic Efficiency: 0.27

Date: 28/5/80

Station: PC-A

Temperature (°C): 15.5

Daylength (h): 15.3

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 38

During Ebb Tide (0520-1005
1405-2035): 21

During Incubation (1645-1805): 4

Mean h^{-1} during Incubation: 2.6

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|--|--------------------|--------------------|
| Organic Carbon : | 0.59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 19.2 (6.0) | 37.2 (11.7) |
| Phaeopigments : | | 11.4 (1.3) | 22.2 (2.6) |
| | $\text{mg O}_2 \cdot \text{m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 7.3 | 15.1 | 7.9 |
| 8.3 | 18.0 | 6.5 |
| 26.5 | 25.6 | 7.6 |
| Mean | 14.0 | 7.3 |
| SD | 10.8 | 0.7 |
| SD/Mean | 0.8 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{d}^{-1}$ (SD) |
|---|---|---|
| Gross Oxygen Production: | 33.6 (16.2) | 271.4 (130.9) |
| Respiration: | 12.3 (6.1) | 295.2 (146.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{h}^{-1}$) | 0.9 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 12.9 | |
| Photosynthetic Efficiency: | 0.05 | |

Date: 28/5/80

Station: PC-A

Temperature (°C): 16.0-17.0

Daylength (h): 15.3

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$): plexiglass cover (70%)

Daily Total: 27

During Ebb Tide (0520-1005 : 15

1405-2035 : 5

During Incubation (1535-1810 : 5

Mean h^{-1} during Incubation: 2.0% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen : no samples collected

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -22.1 | 15.1 | 7.9 |
| -13.3 | 18.0 | 6.5 |
| -28.8 | 25.6 | 7.6 |
| -12.5 | | |
| Mean -19.2 | 19.6 | 7.3 |
| SD 7.8 | 5.4 | 0.7 |
| SD/Mean 0.4 | 0.3 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 0.4 (13.2) 3.0 (99.0)

Respiration: 12.3 (6.1) 295.2 (146.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 0.2

Photosynthetic Efficiency: 0.001

Date: 28/5/80

Station: PC-A

Temperature (°C): 17.0

Daylength (h): 15.3

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$): plexiglass cover (20%)

Daily Total: 8

During Ebb Tide (0520-1005
1405-2035): 4

During Incubation (1540-1815): 2

Mean h^{-1} during Incubation: 0.6% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen : no samples collected

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -12.9 | 15.1 | 7.9 |
| -21.2 | 18.1 | 6.5 |
| -7.4 | 25.6 | 7.6 |
| -16.5 | | |
| Mean -14.5 | 19.6 | 7.3 |
| SD 5.8 | 5.4 | 0.7 |
| SD/Mean 0.4 | 0.3 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 5.1 (11.2) 34.0 (74.7)

Respiration: 12.3 (6.1) 295.2 (146.4)

Specific Production($\text{mg O}_2 (\text{mg chl } \underline{\text{a}})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 8.5

Photosynthetic Efficiency: 0.04

Date: 28/5/80

Station: PC-A

Temperature (°C): 16.6-15.9

Daylength (h): 15.3

Height of High Tide (m): 7.3

Radiation ($E\ m^{-2}$): plexiglass cover (14%)

Daily Total: 5

During Ebb Tide (0520-1005
1405-2035): 3

During Incubation (1540-1820): 1

Mean h^{-1} during Incubation: 0.4% dry wt. ug g⁻¹ mg m⁻²

Organic Carbon :

Surface Nitrogen : no samples collected

Sediment Chlorophyll a :

Phaeopigments :

mg O₂ m⁻² h⁻¹

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -14.3 | 15.1 | 7.9 |
| -14.0 | 18.0 | 6.5 |
| -14.6 | 25.6 | 7.6 |
| -12.9 | | |
| Mean -14.0 | 19.6 | 7.3 |
| SD 0.7 | 5.4 | 0.7 |
| SD/Mean 0.1 | 0.3 | 0.1 |

mg O₂ m⁻² h⁻¹ (SD) mg O₂ m⁻² d⁻¹ (SD)

Gross Oxygen Production: 5.6 (6.1) 42.0 (45.8)

Respiration: 12.3 (6.1) 295.2 (146.4)

Specific Production(mg O₂ (mg chl a)⁻¹ h⁻¹): -Quantum Yield (mg O₂ E⁻¹): 14.0

Photosynthetic Efficiency: 0.06

Date: 28/5/80

Station: PC-A

Temperature (°C): 16.5 - 15.5

Daylength (h): 15.3

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$): plexiglass cover (1%)

Daily Total: 0.4

During Ebb Tide (0520-1005
1405-2035): 0.2

During Incubation (1545-1825): 0.1

Mean h^{-1} during Incubation: 0.03% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen : no samples collected

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -17.1 | 15.1 | |
| -18.4 | 18.0 | |
| -12.0 | 25.6 | |
| -17.5 | | |
| Mean -16.3 | 19.6 | 7.3 |
| SD 2.9 | 5.4 | 0.7 |
| SD/Mean 0.2 | 0.3 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 3.3 (8.3) 22.0 (55.3)

Respiration: 12.3 (6.1) 295.2 (146.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 110.0

Photosynthetic Efficiency: 0.45

Date: 28/5/80

Station: PC-C

Temperature (°C): 15.5

Daylength (h): 15.3

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 38

During Ebb Tide (0520-1005
1405-2035): 19

During Incubation (1605-1745): 7

Mean h^{-1} during Incubation: 4.1

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 19.9 (5.5) | 51.4 (14.1) |
| Phaeopigments : | | 9.1 (2.0) | 23.3 (5.1) |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -5.9 | 34.6 | 5.4 |
| 24.6 | 43.7 | 7.5 |
| 15.2 | 34.6 | 5.0 |
| Mean 11.3 | 37.6 | 6.0 |
| SD 15.6 | 5.3 | 1.3 |
| SD/Mean 1.4 | 0.1 | 0.2 |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 48.9 (20.9) 226.6 (96.9)

Respiration: 31.6 (6.6) 758.4 (158.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) 1.0

Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 11.9

Photosynthetic Efficiency: 0.05

Date: 29/5/80

Station: PC-A

Temperature (°C): 14.0-22.0

Daylength (h): 15.3

Height of High Tide (m): 7.4

Radiation ($E \text{ m}^{-2}$):

Daily Total: 48

During Ebb Tide (0520-1030 1430-2035): 26

During Incubation (0900-1015): 6

Mean h^{-1} during Incubation: 4.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 19.2 (6.0) | 37.2 (11.7) |
| Phaeopigments : | | 11.4 (1.3) | 22.2 (2.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 71.0 | 21.6 | 5.0 |
| 7.2 | 24.2 | 5.2 |
| 54.3 | 15.9 | 2.8 |
| Mean 44.2 | 20.6 | 4.3 |
| SD 33.1 | 4.3 | 1.3 |
| SD/Mean 0.8 | 0.2 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 64.8 (37.4) | 358.5 (206.9) |
| Respiration: | 16.3 (5.6) | 391.2 (134.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.7 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 13.8 | |
| Photosynthetic Efficiency: | 0.06 | |

Date: 17/6/80

Station: PC-A

Temperature (°C): 14.5-21.0

Daylength (h): 15.6

Height of High Tide (m): 7.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 50

During Ebb Tide (0550-1420 1820-2050): 35

During Incubation (0915-1030): 5

Mean h^{-1} during Incubation: 3.9

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|---------------------------------|---|----------------------|--------------------|
| Organic Carbon : | 0.59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll <i>a</i> : | | 10.2 (4.3) | 19.8 (8.4) |
| Phaeopigments : | | 12.3 (2.3) | 23.9 (4.4) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 87.5 | 54.6 | 8.4 |
| 136.9 | 54.8 | 9.6 |
| 132.0 | 41.2 | 9.0 |
| Mean 118.8 | 50.2 | 9.0 |
| SD 27.2 | 7.8 | 0.6 |
| SD/Mean 0.2 | 0.2 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 169.0 (35.0) | 1516.7 (314.1) |
| Respiration: | 41.2 (8.4) | 988.8 (201.6) |
| Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$): 8.5 | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 43.3 | | |
| Photosynthetic Efficiency: 0.18 | | |

Date: 17/6/80

Station: PC-A

Temperature (°C): 20.0-27.0

Daylength (h): 15.6

Height of High Tide (m): 7.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 50

During Ebb Tide (0550-1420 1820-2050): 35

During Incubation (1030-1220): 10

Mean h^{-1} during Incubation: 5.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | .59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 10.2 (4.3) | 19.8 (8.4) |
| Phaeopigments : | | 12.3 (2.3) | 23.9 (4.4) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 34.1 | 42.4 | 8.4 |
| 65.0 | 47.2 | 9.6 |
| 77.6 | 42.0 | 9.0 |
| Mean 58.9 | 43.9 | 9.0 |
| SD 22.4 | 2.9 | 0.6 |
| SD/Mean 0.38 | 0.1 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 102.8 (25.3) | 691.9 (170.3) |
| Respiration: | 34.9 (3.5) | 837.6 (84.0) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 5.2 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 19.8 | |
| Photosynthetic Efficiency: | 0.08 | |

Date: 17/6/80

Station: PC-A

Temperature (°C): 24.0-29.0

Daylength (h): 15.6

Height of High Tide (m): 7.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 50

During Ebb Tide (0550-1420
1820-2050): 35

During Incubation (1225-1405): 10

Mean h^{-1} during Incubation: 6.0

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|---------------------------------|---|----------------------|--------------------|
| Organic Carbon : | .59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll <u>a</u> : | | 10.2 (4.3) | 19.8 (8.4) |
| Phaeopigments : | | 12.3 (2.3) | 23.9 (4.4) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 65.0 | 41.2 | 8.4 |
| 112.6 | 49.2 | 9.6 |
| 118.3 | 51.1 | 9.0 |
| Mean 98.6 | 47.2 | 9.0 |
| SD 29.3 | 5.3 | 0.6 |
| SD/Mean 0.3 | 0.1 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 145.8 (34.6) | 850.5 (201.8) |
| Respiration: | 38.2 (5.9) | 916.8 (141.6) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 7.4 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 24.3 | |
| Photosynthetic Efficiency: | 0.1 | |

Date: 17/6/80

Station: PC-A

Temperature (°C): 24.0-29.0

Daylength (h): 15.6

Height of High Tide (m): 7.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 50

During Ebb Tide (0550-1420
1820-2050): 35

During Incubation (1335-1420): 5

Mean h^{-1} during Incubation: 6.4

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|---------------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | .59 | 5900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll <u>a</u> : | | 10.2 (4.3) | 19.8 (8.4) |
| Phaeopigments : | | 12.3 (2.3) | 23.9 (4.4) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 21.3 | 41.2 | 8.4 |
| 43.9 | 49.2 | 9.6 |
| 22.0 | 51.1 | 9.0 |
| 31.7 | | |
| -13.9 | | |
| Mean 21.0 | 47.2 | 9.0 |
| SD 21.6 | 5.3 | 0.6 |
| SD/Mean 1.0 | 0.1 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 68.2 (26.9) | 373.0 (147.1) |
| Respiration: | 38.2 (5.9) | 916.8 (141.6) |
| Specific Production($\text{mg O}_2 (\text{mg chl } \underline{\text{a}})^{-1} \text{ h}^{-1}$): 3.4 | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 10.7 | | |
| Photosynthetic Efficiency: 0.04 | | |

Date: 17/6/80

Station: PC-A

Temperature (°C): 23.5-32.0

Daylength (h): 15.6

Height of High Tide (m): 7.8

Radiation ($E \text{ m}^{-2}$): plexiglass cover (70%)

Daily Total: 35

During Ebb Tide (0550-1420 1820-2050): 24

During Incubation (1325-1425): 5

Mean h^{-1} during Incubation: 45% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a : no samples

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 15.1 | 25.3 | 54.6 |
| 7.4 | 31.5 | 54.8 |
| 1.7 | 57.3 | 41.2 |
| 5.1 | 13.9 | 42.4 |
| | 41.2 | 47.2 |
| | 49.2 | 42.0 |
| | 51.1 | |
| Mean | 7.3 | 42.4 |
| SD | 5.7 | 12.6 |
| SD/Mean | 0.3 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 49.7 (18.3) 265.1 (97.6)

Respiration: 33.4 (13.2) 801.6 (316.8)

Specific Production($\text{mg O}_2 (\text{mg chl } \underline{\text{a}})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 11.0

Photosynthetic Efficiency: 0.05

Date: 17/6/80

Station: PC-A

Temperature (°C): 23.5-29.5

Daylength (h): 15.6

Height of High Tide (m): 7.8

Radiation ($E \text{ m}^{-2}$): plexiglass cover (20%)

Daily Total: 10

During Ebb Tide (0550-1420): 7

1820-2050

During Incubation (1320-1430): 2

Mean h^{-1} during Incubation: 1.3% dry wt. ug g^{-1} mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -62.2 | 31.5 | 54.6 |
| -16.3 | 25.3 | 54.8 |
| -13.4 | 57.3 | 41.2 |
| | 13.9 | 42.4 |
| | 41.2 | 47.2 |
| | 49.2 | 42.0 |
| | 51.1 | |
| Mean -24.1 | 42.4 | 9.0 |
| SD 25.9 | 12.6 | 0.6 |
| SD/Mean 1.1 | 0.3 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 18.3 (38.5) 98.5 (207.2)

Respiration: 33.4 (13.2) 801.6 (316.1)

Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 14.1

Photosynthetic Efficiency: 0.06

Date: 17/6/80
 Station: PC-A
 Temperature (°C): 25.0-27.0
 Daylength (h): 15.6
 Height of High Tide (m): 7.8
 Radiation ($E \text{ m}^{-2}$): plexiglass cover (14%)

Daily Total: 7

During Ebb Tide (0550-1420 1820-2050): 5

During Incubation (1310-1435): 1

Mean h^{-1} during Incubation: 0.9

% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

no samples
 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -49.2 | 57.3 | 54.6 |
| -32.0 | 31.5 | 54.8 |
| -79.2 | 25.3 | 41.2 |
| -45.5 | 13.9 | 42.4 |
| | 41.2 | 47.2 |
| | 49.2 | 42.0 |
| | 51.1 | |
| Mean -51.5 | 42.4 | 9.0 |
| SD 19.9 | 12.6 | 0.6 |
| SD/Mean 0.4 | 0.3 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | -9.1 (32.5) | -50.6 (180.7) |
| Respiration: | 33.4 (13.2) | 801.6 (316.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | - | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | - | |
| Photosynthetic Efficiency: | - | |

Date: 17/6/80

Station: PC-C

Temperature (°C): 17.5-23.0

Daylength (h): 15.6

Height of High Tide (m): 7.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 50

During Ebb Tide (0550-1420
1820-2050): 28

During Incubation (1000-1110): 5

Mean h^{-1} during Incubation: 4.0

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | .39 | 3,900 | 10,062 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 15.9 (8.9) | 41.1 (22.9) |
| Phaeopigments : | | 6.3 (2.9) | 12.2 (5.7) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 73.5 | 47.6 | 9.2 |
| 65.7 | 60.7 | 5.7 |
| 134.0 | 79.5 | 11.0 |
| Mean 91.1 | 62.6 | 8.6 |
| SD 37.4 | 16.0 | 2.7 |
| SD/Mean 0.4 | 0.3 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 153.7 (53.4) | 1075.9 (373.8) |
| Respiration: | 54.0 (18.7) | 1296.0 (448.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 3.7 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 38.4 | |
| Photosynthetic Efficiency: | 0.16 | |

Date: 17/6/80

Station: PC-C

Temperature (°C): 21.0-27.0

Daylength (h): 15.6

Height of High Tide (m): 7.8

Radiation ($E \text{ m}^{-2}$):

Daily Total: 50

During Ebb Tide (0550-1420
1820-2050): 28

During Incubation (1110-1345): 15

Mean h^{-1} during Incubation: 5.9

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|---|----------------------|--------------------|
| Organic Carbon : | 0.39 | 3,900 | 10,062 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 15.9 (8.9) | 41.1 (22.9) |
| Phaeopigments : | | 6.3 (2.9) | 16.2 (7.6) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|---|
| 23.5 | 64.7 | 6.4 |
| 44.5 | 64.6 | |
| 71.8 | 80.7 | 9.2 5.7 11.0 } from previous incubation |
| Mean 46.6 | 70.0 | 8.1 |
| SD 24.2 | 9.3 | 2.5 |
| SD/Mean 0.5 | 0.1 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$
 $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 116.6 (33.5) 553.4 (159.0)

Respiration: 61.9 (11.8) 1485.6 (283.2)

Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 2.8Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 19.8

Photosynthetic Efficiency: 0.08

Date: 18/6/80

Station: PC-A

Temperature (°C): 17.0-23.0

Daylength (h): 15.6

Height of High Tide (m): 7.6

Radiation ($E \text{ m}^{-2}$):

Daily Total: 52

During Ebb Tide (0645-1515
1915-2050): 41

During Incubation (0930-1100): 8

Mean h^{-1} during Incubation: 5.4

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|---------------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll <u>a</u> : | | 10.2 (4.3) | 19.8 (8.4) |
| Phaeopigments : | | 12.3 (2.3) | 23.9 (4.4) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 53.7 | 13.8 | 7.0 |
| 6.1 | 9.0 | 8.2 |
| 12.5 | 16.7 | |
| Mean 24.1 | 13.2 | 7.6 |
| SD 25.8 | 3.9 | 0.9 |
| SD/Mean 1.1 | 0.3 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 37.3 (29.7) | 283.2 (225.5) |
| Respiration: | 5.6 (4.8) | 134.4 (115.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$) | 1.9 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 6.9 | |
| Photosynthetic Efficiency: | 0.4 | |

Date: 18/6/80

Station: PC-A

Temperature (°C): 23.5

Daylength (h): 15.6

Height of High Tide (m): 7.6

Radiation ($E\ m^{-2}$):

Daily Total: 52

During Ebb Tide (0645-1515 1915-2050): 41

During Incubation (1100-1230): 10

Mean h^{-1} during Incubation: 6.6

| | % dry wt. | $\mu g\ g^{-1}$ | $mg\ m^{-2}$ |
|--------------------------|---------------------------|-----------------|--------------|
| Organic Carbon : | 0.59 | 5,900 | 11,446 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 10.2 (4.3) | 19.8 (8.4) |
| Phaeopigments : | | 12.3 (2.3) | 23.9 (4.4) |
| | $mg\ O_2\ m^{-2}\ h^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 2.9 | 13.4 | 7.0 |
| -14.2 | 30.5 | 8.2 |
| 48.0 | | |
| Mean 12.2 | 22.0 | 7.6 |
| SD 32.1 | 12.1 | 0.9 |
| SD/Mean 2.6 | 0.6 | 0.1 |

| | $mg\ O_2\ m^{-2}h^{-1}\ (SD)$ | $mg\ O_2\ m^{-2}d^{-1}\ (SD)$ |
|---|-------------------------------|-------------------------------|
| Gross Oxygen Production: | 34.2 (44.2) | 212.5 (274.6) |
| Respiration: | 14.4 (13.0) | 345.6 (312.0) |
| Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}h^{-1}$) | 1.7 | |
| Quantum Yield ($mg\ O_2\ E^{-1}$): | 5.2 | |
| Photosynthetic Efficiency: | 0.02 | |

Date: 18/6/80

Station: PC-A

Temperature (°C): 17.5 - 26.5

Daylength (h): 15.6

Height of High Tide (m): 7.6

Radiation ($E \text{ m}^{-2}$): plexiglass cover (70%)

Daily Total: 37

During Ebb Tide (0645-1515 1915-2050): 29

During Incubation (0945-1305): 14

Mean h^{-1} during Incubation: 4.2% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a : no samples collected

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 21.8 | 13.8 | 7.0 |
| 15.0 | 9.0 | 8.2 |
| 12.8 | 16.7 | |
| -22.1 | 13.4 | |
| | 30.5 | |
| Mean 6.9 | 16.7 | 7.6 |
| SD 19.7 | 8.2 | 0.8 |
| SD/Mean 2.9 | 0.6 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 23.6 (27.9) 163.0 (192.7)

Respiration: 9.1 (9.0) 218.4 (216.0)

Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 5.6

Photosynthetic Efficiency: 0.02

Date: 18/6/80

Station: PC-A

Temperature (°C): 16.5 - 27.0

Daylength (h): 15.6

Height of High Tide (m): 7.6

Radiation ($E \text{ m}^{-2}$): plexiglass cover (20%)

Daily Total: 11

During Ebb Tide (0645-1515) : 8

During Incubation (1915-2050) : 4

Mean h^{-1} during Incubation: 1.2% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen : no samples collected

Sediment Chlorophyll a :

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| - 2.8 | 13.8 | 7.0 |
| 5.4 | 9.0 | 8.2 |
| 0.2 | 16.7 | |
| -11.2 | 13.4 | |
| | 30.5 | |
| Mean - 2.1 | 16.7 | 7.6 |
| SD 6.9 | 8.2 | 0.8 |
| SD/Mean 3.3 | 0.6 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 14.6 (15.1)

97.3 (100.6)

Respiration: 9.1 (9.0)

218.4 (216.0)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 12.2

Photosynthetic Efficiency: 0.04

Date: 18/6/80

Station: PC-A

Temperature (°C): 16.5-24.0

Daylength (h): 15.6

Height of High Tide (m): 7.6

Radiation ($E \text{ m}^{-2}$): plexiglass cover (14%)

Daily Total: 7

During Ebb Tide (0645-1515 1915-2050): 6

During Incubation (0955-1345): 3

Mean h^{-1} during Incubation: 0.8% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a : no samples collected

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -24.2 | 13.8 | 7.0 |
| -23.6 | 9.0 | 8.2 |
| -23.3 | 16.7 | |
| -13.9 | 13.4 | |
| | 30.5 | |
| Mean | -21.3 | 16.7 |
| SD | 4.9 | 8.2 |
| SD/Mean | 0.2 | 0.5 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: -4.6 (12.8) -34.5 (96.0)

Respiration: 9.1 (9.0) 218.4 (216.0)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) -Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): -

Photosynthetic Efficiency: -

Date: 18/6/80

Station: PC-A

Temperature (°C): 17.5-23.5

Daylength (h): 15.6

Height of High Tide (m): 7.6

Radiation ($E \text{ m}^{-2}$): plexiglass cover (1%)

Daily Total: 1

During Ebb Tide (0645-1515 1915-2050): >1

During Incubation (1005-1400): >1

Mean h^{-1} during Incubation: 0.06% dry wt. ug g^{-1} mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a : no samples,

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -16.1 | 13.8 | 7.0 |
| -17.6 | 9.0 | 8.2 |
| -11.2 | 16.7 | |
| -21.3 | 13.4 | |
| | 30.5 | |
| Mean -16.6 | 16.7 | 7.6 |
| SD 4.2 | 8.2 | 0.8 |
| SD/Mean 0.3 | 0.5 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 0.1 (12.4) 0.7 (86.8)

Respiration: 9.1 (9.0) 218.4 (216.0)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$)Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 1.7

Photosynthetic Efficiency: 0.01

Date: 31/7/80
 Station: PC-A
 Temperature (°C): 16.5
 Daylength (h): 14.8
 Height of High Tide (m): 8.1
 Radiation ($E \text{ m}^{-2}$):

Daily Total: 36

During Ebb Tide (0545-1345 1745-2030): 19

During Incubation (0900-0945): 1.0

Mean h^{-1} during Incubation: 1.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.44 | 4,400 | 8,536 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 13.6 (3.4) | 26.4 (6.5) |
| Phaeopigments : | | 10.1 (2.8) | 19.6 (5.4) |

$\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -37.7 | 43.1 | 10.4 |
| -19.7 | 56.4 | 8.0 |
| -15.6 | 37.3 | 31.2 |
| Mean -24.3 | 45.6 | 16.5 |
| SD 11.8 | 9.8 | 12.8 |
| SD/Mean 0.5 | 0.2 | 0.8 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 21.3 (21.6) | 337.3 (342.1) |
| Respiration: | 29.5 (22.6) | 708.0 (542.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 0.8 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 17.8 | |
| Photosynthetic Efficiency: | 0.06 | |

Date: 31/7/80

Station: PC-A

Temperature (°C): 17.0-22.0

Daylength (h): 14.8

Height of High Tide (m): 8.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 36

During Ebb Tide (0545-1345 1745-2030): 19

During Incubation (1010-1115): 3

Mean h^{-1} during Incubation: 2.8

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|---|----------------------|--------------------|
| Organic Carbon : | 0.44 | 4,400 | 8,536 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 13.6 (3.4) | 26.4 (6.5) |
| Phaeopigments : | | 10.1 (2.8) | 19.6 (5.4) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| - 9.8 | 45.8 | 4.9 |
| -22.9 | 56.7 | 6.7 |
| - 1.1 | 46.9 | 7.2 |
| Mean -11.3 | 49.8 | 6.3 |
| SD 11.0 | 6.0 | 1.2 |
| SD/Mean 1.0 | 0.1 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$ |
|---|---|---|
| Gross Oxygen Production: | 38.5 (17.0) | 261.3 (115.4) |
| Respiration: | 43.5 (7.2) | 1044.0 (172.8) |
| Specific Production($\text{mg O}_2 \text{ (mg chl a)}^{-1} \text{ h}^{-1}$) | 1.5 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 13.8 | |
| Photosynthetic Efficiency: | 0.05 | |

Date: 31/7/80

Station: PC-A

Temperature (°C):

Daylength (h): 14.8

Height of High Tide (m): 8.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 36

During Ebb Tide (0545-1345): 19
 1745-2030

During Incubation (1225-1310): 4

Mean h^{-1} during Incubation: 5.4

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.44 | 4,400 | 8,536 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 13.6 (3.4) | 26.4 (6.5) |
| Phaeopigments : | | 10.1 (2.8) | 19.6 (5.4) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 28.1 | 68.1 | 15.1 |
| -13.5 | 71.1 | 19.1 |
| 16.0 | 72.0 | 16.3 |
| Mean 10.2 | 70.4 | 16.8 |
| SD 21.4 | 2.0 | 2.1 |
| SD/Mean 2.1 | 0.03 | 0.1 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

| | | |
|--|--------------|------------------|
| Gross Oxygen Production: | 80.6 (23.4) | 283.6 (82.3) |
| Respiration: | 53.6 (4.1) | 1,286.4 (98.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 3.1 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 14.9 | |
| Photosynthetic Efficiency: | 0.05 | |

Date: 31/7/80

Station: PC-C

Temperature (°C): 19.0-23.0

Daylength (h): 14.8

Height of High Tide (m): 8.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 36

During Ebb Tide (0545-1345
1745-2030): 16

During Incubation (1030-1115): 2

Mean h^{-1} during Incubation: 3.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|---|--------------------|--------------------|
| Organic Carbon : | 0.31 | 3,100 | 7,998 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 33.7 (5.0) | 86.8 (12.8) |
| Phaeopigments : | | 4.7 (1.7) | 12.0 (4.4) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 144.6 | 49.2 | 2.5 |
| 165.6 | 39.7 | 0.8 |
| 129.9 | 53.6 | 0.9 |
| Mean 146.7 | 47.5 | 1.4 |
| SD 17.9 | 7.1 | 1.0 |
| SD/Mean 0.1 | 0.2 | 0.7 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 194.2 (25.0) | 971.0 (125.0) |
| Respiration: | 46.1 (8.1) | 1106.4 (194.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 2.2 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 60.7 | |
| Photosynthetic Efficiency: | 0.21 | |

Date: 1/8/80

Station: PC-A

Temperature (°C): 18.5-23.0

Daylength (h): 14.7

Height of High Tide (m): 8.0

Radiation ($E\text{ m}^{-2}$):

Daily Total: 46

During Ebb Tide (0555-1420
1820-2025): 30

During Incubation (0855-0945): 2

Mean h^{-1} during Incubation: 2.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.44 | 4,400 | 8,536 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 13.6 (3.4) | 26.4 (6.5) |
| Phaeopigments : | | 10.1 (2.8) | 19.6 (5.4) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 6.02 | 48.2 | 0 |
| -2.5 | 45.5 | |
| 9.9 | 46.4 | |
| Mean 4.5 | 46.7 | 0 |
| SD 6.3 | 1.4 | |
| SD/Mean 1.4 | 0.03 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 51.2 (7.7) | 568.9 (85.6) |
| Respiration: | 46.7 (1.4) | 1120.8 (33.6) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 1.9 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 19.0 | |
| Photosynthetic Efficiency: | 0.07 | |

Date: 1/8/80

Station: PC-C

Temperature (°C): 23.4-27.4

Daylength (h): 14.7

Height of High Tide (m): 8.0

Radiation ($E\ m^{-2}$):

Daily Total: 46

During Ebb Tide (0555-1420
1820-2025): 27

During Incubation (1115-1200): 4

Mean h^{-1} during Incubation: 5.7

| | % dry wt. | $\mu g\ g^{-1}$ | $mg\ m^{-2}$ |
|--------------------------|---------------------------|-----------------|--------------|
| Organic Carbon : | 0.31 | 3,100 | 7,998 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 33.7 (5.0) | 86.8 (12.8) |
| Phaeopigments : | | 4.7 (1.7) | 12.0 (4.4) |
| | $mg\ O_2\ m^{-2}\ h^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
|-----------------------|---------------------|------------------------|

| | | |
|-------|-------|------|
| 171.5 | 107.1 | 11.3 |
| 167.3 | | |

| | | |
|--------------|-------|------|
| Mean 169.4 | 107.1 | 11.3 |
| SD 3.0 | | |
| SD/Mean 0.02 | | |

| | $mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ | $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$ |
|---|---------------------------------|---------------------------------|
| Gross Oxygen Production: | 276.5 (3.0) | 1309.7 (14.2) |
| Respiration: | 95.8 (-) | 2299.2 (-) |
| Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}\ h^{-1}$) 3.2 | | |
| Quantum Yield ($mg\ O_2\ E^{-1}$): 48.5 | | |
| Photosynthetic Efficiency: 0.17 | | |

Date: 1/8/80

Station: PC-C

Temperature (°C): 26.0-29.0

Daylength (h): 14.7

Height of High Tide (m): 8.0

Radiation ($E \text{ m}^{-2}$): plexiglass cover (70%)

Daily Total: 32

During Ebb Tide (0555-1420 1820-2025): 19

During Incubation (1115-1210): 4

Mean h^{-1} during Incubation: 4.0% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

35.0 (7.2) 90.3 (18.6)

3.0 (3.3) 7.7 (8.5)

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 74.2 | 107.1 | 11.3 |
| 113.3 | | |
| .67.5 | | |
| 70.7 | | |
| Mean 81.4 | 107.1 | 11.3 |
| SD 21.4 | | |
| SD/Mean 0.3 | | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 188.5 (21.4) 895.4 (101.7)

Respiration: 95.8 (-) 2299.2 (-)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 2.1Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 47.1

Photosynthetic Efficiency: 0.17

Date: 1/8/80

Station: PC-C

Temperature (°C): 26.0-29.0

Daylength (h): 14.7

Height of High Tide (m): 8.0

Radiation ($E \text{ m}^{-2}$): plexiglass cover (20%)

Daily Total: 9

During Ebb Tide (0555-1420 : 6
1825-2025)

During Incubation (1110-1215) : 1

Mean h^{-1} during Incubation: 1.2% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

55.7 (11.3) 143.7 (29.2)
5.4 (2.3) 13.9 (5.9) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 48.8 | 107.1 | 11.3 |
| 50.1 | | |
| 36.5 | | |
| 41.5 | | |
| Mean 44.2 | 107.1 | 11.3 |
| SD 6.4 | | |
| SD/Mean 0.1 | | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 151.3 (6.4) | 756.5 (32.0) |
| Respiration: | 95.8 (-) | 2299.2 (-) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.1 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 126.1 | |
| Photosynthetic Efficiency: | 0.52 | |

Date: 1/8/80

Station: PC-C

Temperature (°C): 23.0-28.0

Daylength (h): 14.7

Height of High Tide (m): 8.0

Radiation ($E \text{ m}^{-2}$): plexiglass cover (14%)

Daily Total: 6

During Ebb Tide (0555-1420
1820-2025): 4

During Incubation (1100-1220): 1

Mean h^{-1} during Incubation: 0.8% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

108.6 (33.1) 280.2 (85.4)
5.7 (7.0) 14.7 (18.1) $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 19.3 | 107.1 | 11.3 |
| 11.3 | | |
| -24.5 | | |
| 11.4 | | |
| Mean 4.4 | 107.1 | 11.3 |
| SD 19.6 | | |
| SD/Mean 4.5 | | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 111.5 (19.6) 557.5 (98.0)

Respiration: 95.8 (-) 2299.2 (-)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) 0.4Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 139.4

Photosynthetic Efficiency: 0.57

Date: 1/8/80

Station: PC-C

Temperature (°C): 23.0-28.0

Daylength (h): 14.7

Height of High Tide (m): 8.0

Radiation ($E \text{ m}^{-2}$): plexiglass cover (1%)

Daily Total: 1

During Ebb Tide (0555-1420 : 1820-2025) : <1

During Incubation (1055-1230) : <1

Mean h^{-1} during Incubation: 0.1% dry wt. ug g^{-1} mg m^{-2}

Organic Carbon :

Surface Nitrogen :

54.9 (5.1) 141.6 (13.2)

Sediment Chlorophyll a :

4.5 (1.9) 11.6 (4.9)

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -19.7 | 107.1 | 11.3 |
| -51.3 | | |
| -46.1 | | |
| -17.2 | | |
| Mean -33.6 | 107.1 | 11.3 |
| SD 17.6 | | |
| SD/Mean 0.5 | | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 73.5 (17.6) 220.5 (52.8)

Respiration: 95.8 (-) 2299.2 (-)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.5Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 735

Photosynthetic Efficiency: 3.0

Date: 14/8/80

Station: PC-A

Temperature (°C): 19.5

Daylength (h): 14.1

Height of High Tide (m): 7.7

Radiation ($E \text{ m}^{-2}$):

Daily Total: 20

During Ebb Tide (0600-1320
1720-2010): 13

During Incubation (0920-0955): 1

Mean h^{-1} during Incubation: 1.9

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-------------|--------------------|--------------------|
| Organic Carbon : | 0.55 | 5,500 | 10,670 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 49.7 (10.5) | 96.5 (20.4) | |
| Phaeopigments : | 4.5 (1.5) | 8.7 (2.9) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 116.6 | 70.3 | 14.0 |
| 91.0 | 72.4 | 20.0 |
| .86.2 | 72.4 | 18.1 |
| Mean 97.9 | 71.7 | 17.4 |
| SD 16.3 | 1.2 | 3.1 |
| SD/Mean 0.2 | 0.02 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 169.6 (17.5) | 1160.4 (119.7) |
| Respiration: | 54.3 (4.3) | 1303.2 (103.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.8 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 89.3 | |
| Photosynthetic Efficiency: | 0.37 | |

Date: 14/8/80

Station: PC-A

Temperature (°C): 23.2

Daylength (h): 14.3

Height of High Tide (m): 7.7

Radiation ($E\ m^{-2}$):

Daily Total: 20

During Ebb Tide (0600-1320
1720-2010): 13

During Incubation (1130-1215): 3

Mean h^{-1} during Incubation: 3.5

| | % dry wt. | $\mu g\ g^{-1}$ | $mg\ m^{-2}$ |
|--------------------------|-----------|-----------------|--------------|
| Organic Carbon : | 0.55 | 5,500 | 10,670 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 49.7 (10.5) | 96.5 (20.4) |
| Phaeopigments : | | 4.5 (1.5) | 8.7 (2.9) |

 $mg\ O_2\ m^{-2}\ h^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
|-----------------------|---------------------|------------------------|

| | | |
|-------|------|-----|
| 169.7 | 40.0 | 4.4 |
| 156.7 | 54.4 | 0 |
| 142.4 | 55.6 | 0 |

| | | |
|-------------|------|-----|
| Mean 156.3 | 50.0 | 1.5 |
| SD 13.7 | 8.7 | 2.5 |
| SD/Mean 0.1 | 0.2 | 1.7 |

| | $mg\ O_2\ m^{-2}\ h^{-1}\ (SD)$ | $mg\ O_2\ m^{-2}\ d^{-1}\ (SD)$ |
|--|---------------------------------|---------------------------------|
| Gross Oxygen Production: | 206.3 (22.4) | 766.3 (83.2) |
| Respiration: | 48.5 (11.2) | 1236.0 (268.8) |
| Specific Production($mg\ O_2\ (mg\ chl\ a)^{-1}\ h^{-1}$): | 2.1 | |
| Quantum Yield ($mg\ O_2\ E^{-1}$): | 58.9 | |
| Photosynthetic Efficiency: | 0.24 | |

Date: 14/8/80

Station: PC-C

Temperature (°C): 21.0

Daylength (h): 14.3

Height of High Tide (m): 7.7

Radiation ($E \text{ m}^{-2}$):

Daily Total: 20

During Ebb Tide (0600-1320 1720-2010): 10

During Incubation (1030-1105): 1

Mean h^{-1} during Incubation: 1.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.28 | 2800 | 7224 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 76.7 (10.6) | 197.9 (27.3) |
| Phaeopigments : | | 0 | 0 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 82.5 | 58.3 | 0 |
| 178.8 | 55.0 | 0 |
| 170.0 | 50.7 | 0 |
| Mean 143.8 | 54.7 | 0 |
| SD 53.2 | 3.8 | |
| SD/Mean 0.4 | 0.1 | |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 198.5 (57.0) | 1167.7 (335.3) |
| Respiration: | 54.7 (3.8) | 1312.8 (91.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 11.0 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 116.8 | |
| Photosynthetic Efficiency: | 0.48 | |

Date: 15/8/80

Station: PC-A

Temperature (°C): 22.5

Daylength (h): 14.1

Height of High Tide (m): 7.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 22

During Ebb Tide (0600-1355
1755-2010): 18

During Incubation (1100-1140): 2

Mean h^{-1} during Incubation: 3.1

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-------------|--------------------|--------------------|
| Organic Carbon : | 0.55 | 5,500 | 10,670 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 49.7 (10.5) | 96.5 (20.4) | |
| Phaeopigments : | 4.5 (1.5) | 8.7 (2.9) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 118.2 | 60.9 | 15.4 |
| 145.5 | 67.9 | 3.4 |
| 128.4 | 52.5 | 7.8 |
| Mean 130.7 | 60.4 | 8.9 |
| SD 13.8 | 7.7 | 6.1 |
| SD/Mean 0.1 | 0.1 | 0.7 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 191.1 (21.5) 1109.6 (124.8)

Respiration: 51.5 (13.8) 1236.0 (331.2)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 2.0Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 61.7

Photosynthetic Efficiency: 0.25

Date: 15/8/80

Station: PC-C

Temperature (°C): 20.5

Daylength (h): 14.3

Height of High Tide (m): 7.5

Radiation ($E \text{ m}^{-2}$):

Daily Total: 22

During Ebb Tide (0600-1355 1755-2010): 13

During Incubation (0945-1020): 1

Mean h^{-1} during Incubation: 2.1

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|---|----------------------|--------------------|
| Organic Carbon : | 0.28 | 2800 | 7224 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 76.7 (10.6) | 197.9 (27.3) |
| Phaeopigments : | | 0 | 0 |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 147.9 | 63.7 | 4.6 |
| 183.1 | 58.0 | 2.9 |
| 190.3 | 72.6 | 2.9 |
| Mean 173.8 | 64.8 | 3.5 |
| SD 22.7 | 7.4 | 1.0 |
| SD/Mean 0.1 | 0.1 | 0.3 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 238.6 (30.1) | 1477.1 (186.3) |
| Respiration: | 61.3 (8.4) | 1471.2 (201.6) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.2 | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 113.6 | | |
| Photosynthetic Efficiency: 0.47 | | |

Date: 4/9/80

Station: PC-A

Temperature (°C): 19.5-24.0

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 37

During Ebb Tide (0625-0645 1045-1920): 29

During Incubation (1100-1215): 6

Mean h^{-1} during Incubation: 4.7

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|------------|--------------------|--------------------|
| Organic Carbon : | 0.60 | 6000 | 11,640 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 46.1 (8.6) | 89.3 (16.7) | |
| Phaeopigments : | .1.2 (1.1) | 2.3 (2.2) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 180.6 | 66.0 | 15.1 |
| 176.9 | 88.1 | 11.1 |
| 147.2 | 76.8 | 14.3 |
| Mean 168.2 | 77.0 | 13.5 |
| SD 18.3 | 11.1 | 2.1 |
| SD/Mean 0.1 | 0.1 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 245.2 (29.4) | 1512.9 (181.4) |
| Respiration: | 63.5 (13.2) | 1524.0 (316.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): | 2.8 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 52.2 | |
| Photosynthetic Efficiency: | 0.21 | |

Date: 4/9/80

Station: PC-A

Temperature (°C): 23.5

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 37

During Ebb Tide (0625-0645
1045-1920): 29

During Incubation (1530-1645): 4

Mean h^{-1} during Incubation: 3.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.60 | 6,000 | 11,640 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 46.1 (8.6) | 89.3 (16.7) |
| Phaeopigments : | | 1.2 (1.1) | 2.3 (2.2) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 83.3 | 30.6 | 1.8 |
| 109.3 | 31.5 | 1.7 |
| 140.6 | 50.5 | 0 |
| Mean 111.1 | 37.4 | 1.2 |
| SD 28.7 | 11.0 | 1.0 |
| SD/Mean 0.3 | 0.3 | 0.8 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 148.5 (39.7) | 1345.8 (359.8) |
| Respiration: | 36.2 (12.0) | 868.8 (288.0) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 1.7 | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 46.4 | | |
| Photosynthetic Efficiency: 0.19 | | |

Date: 4/9/80

Station: PC-C

Temperature (°C): 21.0-25.5

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 37

During Ebb Tide (0625-0645
1045-1920): 27

During Incubation (1255-1330): 3

Mean h^{-1} during Incubation: 5.6

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.28 | 2,800 | 7,224 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 102.2 (25.1) | 263.5 (64.7) |
| Phaeopigments : | 0 | 0 | 0 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 155.0 | 24.8 | 5.8 |
| 144.7 | 25.7 | 6.9 |
| 134.3 | 43.2 | 1.8 |
| Mean 144.7 | 31.2 | 4.8 |
| SD 10.4 | 10.4 | 2.7 |
| SD/Mean 0.1 | 0.3 | 0.6 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 175.9 (20.8) 848.1 (100.3)

Respiration: 26.4 (13.1) 633.6 (314.4)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.7Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 31.4

Photosynthetic Efficiency: 0.13

Date: 4/9/80

Station: PC-C

Temperature (°C): 21.5-27.5

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 37

During Ebb Tide (0625-0645
1045-1920): 27

During Incubation (1330-1445): 6

Mean h^{-1} during Incubation: 4.9

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.28 | 2800 | 7224 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 102.2 (25.1) | 263.5 (64.7) |
| Phaeopigments : | 0 | 0 | 0 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 105.7 | 27.9 | 5.8 |
| 92.6 | 27.9 | 6.9 |
| 166.8 | 33.9 | 1.8 |
| Mean 121.7 | 29.9 | 4.8 |
| SD 39.6 | 3.5 | 2.7 |
| SD/Mean 0.3 | 0.1 | 0.6 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 151.6 (43.1) | 835.4 (237.5) |
| Respiration: | 25.1 (6.2) | 602.4 (148.8) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.6 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$) | 30.9 | |
| Photosynthetic Efficiency: | 0.13 | |

Date: 4/9/80

Station: PC-C

Temperature (°C): 21.5-28.5

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (70%)

Daily Total: 26

During Ebb Tide (0625-0645): 19

During Incubation (1045-1920): 4

Mean h^{-1} during Incubation: 3.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

69.3 (17.0) 178.8 (43.9)

0 0

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 90.8 | 24.8 | 5.8 |
| 98.6 | 25.7 | 6.9 |
| 69.3 | 43.2 | 1.8 |
| 85.9 | 27.9 | |
| | 27.9 | |
| | 33.9 | |
| Mean 86.2 | 30.6 | 4.8 |
| SD 12.4 | 7.0 | 2.7 |
| SD/Mean 0.1 | 0.2 | 0.6 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD)

Gross Oxygen Production: 116.8 (19.4) 599.8 (99.6)

Respiration: 25.8 (9.7) 619.2 (232.8)

Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$), 0.6Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 31.6

Photosynthetic Efficiency: 0.13

Date: 4/9/80

Station: PC-C

Temperature (°C): 22.0-28.5

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (20%)

Daily Total: 7

During Ebb Tide (0625-0645 1045-1920): 5

During Incubation (1310-1415): 1

Mean h^{-1} during Incubation: 1.0% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

- - - -

Surface Nitrogen :

- - - -

Sediment Chlorophyll a :

98.8 (19.2) 254.9 (49.5)

Phaeopigments :

0 0

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 18.7 | 24.8 | 5.8 |
| 25.4 | 25.7 | 6.9 |
| -5.4 | 43.2 | 1.8 |
| 14.1 | 27.9 | |
| | 27.9 | |
| | 33.9 | |
| Mean 13.2 | 30.6 | 4.8 |
| SD 13.2 | 7.0 | 2.7 |
| SD/Mean 1.0 | 0.2 | 0.6 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 43.8 (20.2) | 219.0 (101.0) |
| Respiration: | 25.8 (9.7) | 619.2 (232.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.2 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 43.8 | |
| Photosynthetic Efficiency: | 0.18 | |

Date: 4/9/80

Station: PC-C

Temperature (°C): 21.0-27.0

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (14%)

Daily Total: 5

During Ebb Tide (0625-0645 1045-1920): 4

During Incubation (1315-1425): 1

Mean h^{-1} during Incubation: 0.7

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|---|----------------------|--------------------|
| Organic Carbon : | - | - | - |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 84.6 (23.2) | 218.3 (59.9) |
| Phaeopigments : | 0 | 0 | 0 |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -15.3 | 24.8 | 5.8 |
| -16.1 | 25.7 | 6.9 |
| -18.9 | 43.2 | 1.8 |
| -29.7 | 27.9 | |
| | 27.9 | |
| | 33.9 | |
| Mean -20.0 | 30.6 | 4.8 |
| SD 6.6 | 7.0 | 2.7 |
| SD/Mean 0.3 | 0.2 | 0.6 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 10.6 (13.6) | 60.6 (77.8) |
| Respiration: | 25.8 (9.7) | 619.2 (232.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.1 | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 15.1 | | |
| Photosynthetic Efficiency: 0.06 | | |

Date: 4/9/80

Station: PC-C

Temperature (°C): 22.0-25.5

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (1%)

Daily Total: 0.4

During Ebb Tide (0625-0645
1045-1920): 0.3

During Incubation (1320-1435): 0.1

Mean h^{-1} during Incubation: 0.05% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

75.0 (29.0) 193.5 (74.8)
0 0 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -40.3 | 24.8 | 5.8 |
| -45.0 | 25.7 | 6.9 |
| -43.9 | 43.2 | 1.8 |
| -41.3 | 27.9 | 1.8 |
| | 27.9 | |
| | 33.9 | |
| Mean -42.6 | 30.6 | 4.8 |
| SD 2.2 | 7.0 | 2.7 |
| SD/Mean 0.1 | 0.2 | 0.6 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | -12.0 (9.2) | -72.0 (55.2) |
| Respiration: | 25.8 (9.7) | 619.2 (232.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$) | - | - |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | - | - |
| Photosynthetic Efficiency: | - | - |

Date: 4/9/80

Station: PC-C

Temperature (°C): 25.0 - 27.5

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$):

Daily Total: 37

During Ebb Tide (0625-0645 1045-1920): 27

During Incubation (1330-1450): 7

Mean h^{-1} during Incubation: 4.9

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|---|----------------------|--------------------|
| Organic Carbon : | 0.28 | 2800 | 7224 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 102.2 (25.1) | 263.5 (64.7) |
| Phaeopigments : | 0 | 0 | 0 |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 97.9 | 27.9 | 5.8 |
| 93.9 | 27.9 | 6.9 |
| 113.9 | 33.9 | 1.8 |
| Mean 101.9 | 29.9 | 4.8 |
| SD 10.6 | 3.5 | 2.7 |
| SD/Mean 0.1 | 0.1 | 0.6 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 131.8 (15.9) | 726.2 (87.6) |
| Respiration: | 25.1 (6.2) | 602.4 (148.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.5 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$) | 26.9 | |
| Photosynthetic Efficiency: | 0.11 | |

Date: 5/9/80

Station: PC-A

Temperature (°C): 22.0-24.5

Daylength (h): 13.1

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$):

Daily Total: 34

During Ebb Tide (0635-0750 1150-1920): 22

During Incubation (1225-1315): 4

Mean h^{-1} during Incubation: 4.8

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|---|----------------------|--------------------|
| Organic Carbon : | 0.60 | 6000 | 11,640 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 46.1 (8.6) | 89.3 (16.7) |
| Phaeopigments : | | 1.2 (1.1) | 2.3 (2.2) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 184.0 | 41.9 | 40.9 |
| 195.0 | 40.0 | 33.3 |
| 168.6 | 39.7 | 35.7 |

*From PC-A 4/9/80

| | | | |
|---------|-------|------|--------|
| Mean | 182.5 | 38.6 | (4.8)* |
| SD | 13.3 | 3.3 | (2.7) |
| SD/Mean | 0.1 | 0.08 | (0.6) |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 223.0 (14.5) | 1022.1 (66.5) |
| Respiration: | 37.4 (4.0) | 897.6 (96.0) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 2.5 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 46.5 | |
| Photosynthetic Efficiency: | 0.19 | |

Date: 5/9/80

Station: PC-A

Temperature (°C): 21.0-24.0

Daylength (h): 13.1

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$): plexiglass cover (70%)

Daily Total: 24

During Ebb Tide (0635-0750
1150-1920): 16

During Incubation (1240-1325): 3

Mean h^{-1} during Incubation: 3.4

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|---|--------------------|--------------------|
| Organic Carbon : | - | - | - |
| Surface Nitrogen : | - | - | - |
| Sediment Chlorophyll a : | 69.3 (17.0) | 134.4 (33.0) | |
| Phaeopigments : | 0 | 0 | |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 120.9 | 41.9 | (1.8)* |
| 133.2 | 40.0 | (1.7) |
| 180.1 | 39.7 | (0) |
| 192.5 | | |

*from PC-A 4/9/80

| | | | |
|---------|-------|------|-------|
| Mean | 156.7 | 40.5 | (1.2) |
| SD | 34.9 | 1.2 | (1.0) |
| SD/Mean | 0.2 | 0.03 | (0.8) |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 197.2 (36.1) | 928.0 (169.9) |
| Respiration: | 39.3 (2.2) | 943.2 (52.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{h}^{-1}$) | 1.5 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 58.0 | |
| Photosynthetic Efficiency: | 0.24 | |

Date: 5/9/80

Station: PC-A

Temperature (°C): 21.5 - 25.0

Daylength (h): 13.1

Height of High Tide (m): 7.3

Radiation ($E \text{ m}^{-2}$): plexiglass cover (20%)

Daily Total: 7

During Ebb Tide (0635-0750 1150-1920): 5

During Incubation (1245-1340): 1

Mean h^{-1} during Incubation: 1.0

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|---|--------------------|--------------------|
| Organic Carbon : | - | - | - |
| Surface Nitrogen : | - | - | - |
| Sediment Chlorophyll a : | | 98.8 (19.2) | 191.7 (37.2) |
| Phaeopigments : | 0 | 0 | 0 |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 89.6 | 41.9 | (1.8)* |
| 72.4 | 40.0 | (1.7) |
| 66.7 | 39.7 | (0) |
| 91.2 | | |

*from PC-A 4/9/80

| | | | |
|---------|------|------|-------|
| Mean | 80.0 | 40.5 | (1.2) |
| SD | 12.3 | 1.2 | (1.0) |
| SD/Mean | 0.2 | 0.03 | (0.8) |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 120.5 (13.5) | 602.5 (67.5) |
| Respiration: | 39.3 (2.2) | 943.2 (52.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{h}^{-1}$): 0.6 | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 120.5 | | |
| Photosynthetic Efficiency: 0.49 | | |

Date: 5/9/80

Station: PC-A

Temperature (°C): 21.6-24.0

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (14%)

Daily Total: 5

During Ebb Tide (0635-0750
1150-1920): 3

During Incubation (1250-1345): 1

Mean h^{-1} during Incubation: 0.7% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

Surface Nitrogen :

Sediment Chlorophyll a :

Phaeopigments :

84.6 (23.2) 164.1 (45.0)

0 0

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 87.6 | 41.9 | (1.8)* |
| 44.2 | 40.0 | (1.7) |
| 49.6 | 39.7 | (0) |

*from PC-A 4/9/80

| | | | |
|---------|------|------|-------|
| Mean | 60.5 | 40.5 | (1.2) |
| SD | 23.7 | 1.2 | (1.0) |
| SD/Mean | 0.4 | 0.03 | (0.8) |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 101.0 (24.9) | 432.9 (106.7) |
| Respiration: | 39.3 (2.2) | 943.2 (52.8) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.6 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 144.3 | |
| Photosynthetic Efficiency: | 0.59 | |

Date: 5/9/80

Station: PC-A

Temperature (°C): 21.0-23.0

Daylength (h): 13.1

Height of High Tide (m): 7.2

Radiation ($E \text{ m}^{-2}$): plexiglass cover (1%)

Daily Total: 0.3

During Ebb Tide (0635-0750 1150-1920): 0.2

During Incubation (1250-1350): 0.1

Mean h^{-1} during Incubation: 0.1% dry wt. $\mu\text{g g}^{-1}$ mg m^{-2}

Organic Carbon :

- - - -

Surface Nitrogen :

75.0 (29.0) 145.5 (56.3)

Sediment Chlorophyll a :

0 0

Phaeopigments :

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| -49.0 | 41.9 | (1.8)* |
| -57.3 | 40.0 | (1.7) |
| | 39.7 | (0) |

*from PC-A 4/9/80

| | | | |
|---------|-------|------|--------|
| Mean | -53.2 | 40.5 | (1.2)* |
| SD | 5.9 | 1.2 | (1.0) |
| SD/Mean | 0.1 | 0.03 | (0.8) |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | -12.7 (7.1) | -25.4 (14.2) |
| Respiration: | 37.4 (4.0) | 897.6 (96.0) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | - | - |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | - | - |
| Photosynthetic Efficiency: | - | - |

Date: 2/10/80

Station: PC-A

Temperature (°C): 17.0-22.0

Daylength (h): 11.7

Height of High Tide (m): 7.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 31

During Ebb Tide (0920-1745): 28

During Incubation (1055-1150): 4

Mean h^{-1} during Incubation: 4.5

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|---------------------------------|---|--------------------|--------------------|
| Organic Carbon : | 0.75 | 7,500 | 14,550 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll <i>a</i> : | | 147.7 (27.4) | 286.6 (53.2) |
| Phaeopigments : | | 6.1 (7.5) | 11.9 (14.6) |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 158.2 | 24.8 | 4.5 |
| 187.9 | 29.3 | 5.7 |
| 163.0 | 35.9 | 0 |
| Mean 169.7 | 30.0 | 3.4 |
| SD 15.9 | 5.6 | 3.0 |
| SD/Mean 0.1 | 0.2 | 0.9 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 199.7 (21.5) | 1242.6 (133.8) |
| Respiration: | 26.6 (8.6) | 638.4 (206.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl } a)^{-1} \text{ h}^{-1}$) | 0.7 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$) | 44.4 | |
| Photosynthetic Efficiency: | 0.18 | |

Date: 2/10/80

Station: PC-A

Temperature (°C): 20.0-24.5

Daylength (h): 11.7

Height of High Tide (m): 7.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 31

During Ebb Tide (0920-1745): 28

During Incubation (1220-1300): 3

Mean h^{-1} during Incubation: 5.1

| | % dry wt. | $\mu\text{g g}^{-1}$ | mg m^{-2} |
|--------------------------|-----------|----------------------|--------------------|
| Organic Carbon : | 0.75 | 7500 | 14,550 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 147.7 (27.4) | 286.6 (53.2) |
| Phaeopigments : | | 6.1 (7.5) | 11.9 (14.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 139.7 | 34.1 | 6.3 |
| 187.2 | 38.5 | 8.0 |
| 136.8 | 36.5 | 8.3 |
| Mean 154.6 | 36.4 | 7.5 |
| SD 28.3 | 2.2 | 1.1 |
| SD/Mean 0.2 | 0.1 | 0.2 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 191.0 (30.5) | 1048.6 (167.5) |
| Respiration: | 28.9 (3.3) | 693.6 (79.2) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.7 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 37.5 | |
| Photosynthetic Efficiency: | 0.15 | |

Date: 2/10/80

Station: PC-A

Temperature (°C): 20.0-25.0

Daylength (h): 11.7

Height of High Tide (m): 7.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 31

During Ebb Tide (0920-1745): 28

During Incubation (1215-1305): 4

Mean h^{-1} during Incubation: 5.0

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.75 | 7500 | 14,550 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 147.7 (27.4) | 286.6 (53.2) |
| Phaeopigments : | | 6.1 (7.5) | 11.9 (14.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 147.7 | 38.9 | 26.7 |
| 196.7 | 38.9 | 26.7 |
| 158.6 | 43.0 | 16.7 |
| Mean 167.7 | 40.3 | 23.4 |
| SD 25.7 | 2.4 | 5.8 |
| SD/Mean 0.2 | 0.1 | 0.3 |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1} (\text{SD})$ $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1} (\text{SD})$

Gross Oxygen Production: 208.0 (28.1) 1164.8 (157.4)

Respiration: 16.9 (8.2) 405.6 (196.8)

Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) 0.7Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 41.6

Photosynthetic Efficiency: 0.17

Date: 2/10/80

Station: PC-A

Temperature (°C): 21.0-25.5

Daylength (h): 11.7

Height of High Tide (m): 7.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 31

During Ebb Tide (0920-1745): 28

During Incubation (1330-1405): 3

Mean h^{-1} during Incubation: 5.1

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|-----------|--------------------|--------------------|
| Organic Carbon : | 0.75 | 7500 | 14,550 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | | 147.7 (27.4) | 286.6 (53.2) |
| Phaeopigments : | | 6.1 (7.5) | 11.9 (14.6) |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 200.0 | 51.1 | 16.6 |
| 203.8 | 55.6 | 15.2 |
| 230.8 | 50.2 | 13.8 |
| Mean 211.5 | 52.3 | 15.2 |
| SD 16.8 | 2.9 | 1.4 |
| SD/Mean 0.1 | 0.1 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 263.8 (19.7) | 1448.3 (108.2) |
| Respiration: | 37.1 (4.3) | 890.4 (103.2) |
| Specific Production ($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 0.9 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$) | 51.7 | |
| Photosynthetic Efficiency: | 0.21 | |

Date: 3/10/80

Station: PC-A

Temperature (°C): 15.0-16.5

Daylength (h): 11.7

Height of High Tide (m): 7.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 16

During Ebb Tide (1030-1835): 13

During Incubation (1040-1150): 3

Mean h^{-1} during Incubation: 2.3

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|--------------|--------------------|--------------------|
| Organic Carbon : | 0.75 | 7500 | 14,550 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 147.7 (27.4) | 286.6 (53.2) | |
| Phaeopigments : | 6.1 (7.5) | 11.9 (14.6) | |

 $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 166.2 | 22.2 | 9.6 |
| 177.4 | 26.3 | 10.8 |
| 168.7 | 31.1 | 10.3 |
| Mean 170.8 | 26.5 | 10.2 |
| SD 5.9 | 4.5 | 0.6 |
| SD/Mean 0.03 | 0.2 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|---|--|--|
| Gross Oxygen Production: | 197.3 (10.4) | 1115.2 (58.8) |
| Respiration: | 16.3 (5.1) | 391.2 (122.4) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$): 0.7 | | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): 85.8 | | |
| Photosynthetic Efficiency: 0.35 | | |

Date: 3/10/80

Station: PC-C

Temperature (°C): 15.5-18.0

Daylength (h): 11.7

Height of High Tide (m): 7.1

Radiation ($E \text{ m}^{-2}$):

Daily Total: 16

During Ebb Tide (1030-1835): 11

During Incubation (1220-1325): 4

Mean h^{-1} during Incubation: 3.2

| | % dry wt. | ug g^{-1} | mg m^{-2} |
|--------------------------|---|--------------------|--------------------|
| Organic Carbon : | 0.28 | 2800 | 7224 |
| Surface Nitrogen : | | | |
| Sediment Chlorophyll a : | 64.0 (16.9) | 164.8 (43.6) | |
| Phaeopigments : | 1.6 (2.1) | 4.2 (5.3) | |
| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ | | |

| Net Oxygen Production | Total Oxygen Uptake | Chemical Oxygen Uptake |
|-----------------------|---------------------|------------------------|
| 157.0 | 30.3 | 10.2 |
| 151.9 | 30.1 | 11.2 |
| 167.7 | 31.9 | 10.7 |
| Mean 158.9 | 30.8 | 10.7 |
| SD 8.1 | 1.0 | 0.5 |
| SD/Mean 0.1 | 0.03 | 0.1 |

| | $\text{mg O}_2 \text{ m}^{-2} \text{ h}^{-1}$ (SD) | $\text{mg O}_2 \text{ m}^{-2} \text{ d}^{-1}$ (SD) |
|--|--|--|
| Gross Oxygen Production: | 189.7 (9.1) | 652.1 (31.3) |
| Respiration: | 20.1 (1.5) | 482.4 (36.0) |
| Specific Production($\text{mg O}_2 (\text{mg chl a})^{-1} \text{ h}^{-1}$) | 1.2 | |
| Quantum Yield ($\text{mg O}_2 \text{ E}^{-1}$): | 59.3 | |
| Photosynthetic Efficiency: | 0.24 | |

