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# Sediment processes monitoring data report for calendar year 1989

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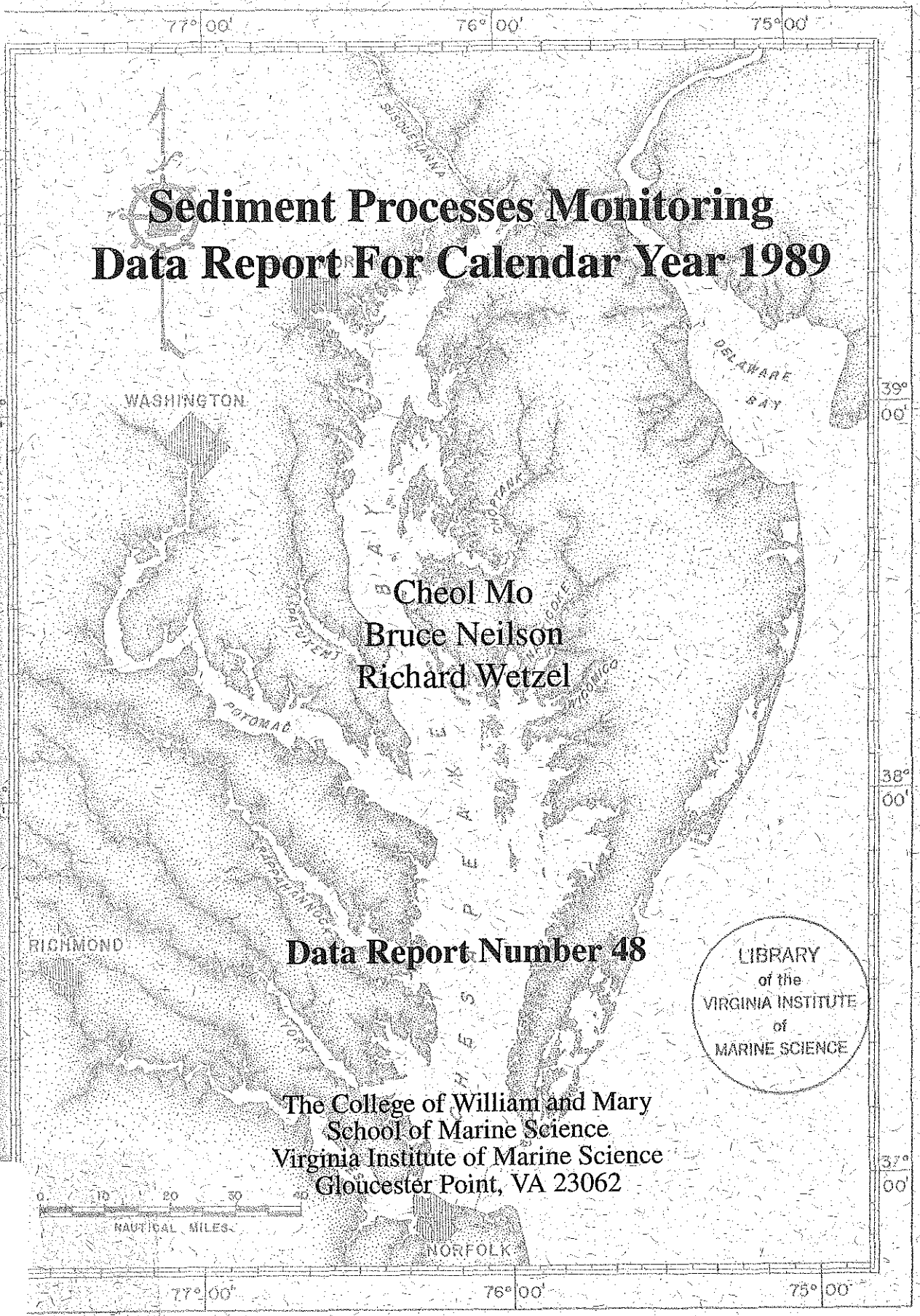


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Cheol Mo
Bruce Neilson
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## Data Report Number 48



The College of William and Mary
School of Marine Science
Virginia Institute of Marine Science
Gloucester Point, VA 23062

# SEDIMENT PROCESSES MONITORING

# DATA REPORT FOR CALENDAR YEAR 1989

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School of Marine Science / Virginia Institute of Marine Science

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# I. INTRODUCTION

During the latter half of the 1980s, the Chesapeake Bay Program developed a three dimensional water quality model of Chesapeake Bay for use in assessing management strategies. Because sediments are known to be a large sink of nutrient materials and they are trapped in estuaries due to the circulation patterns, it was important that the model incorporate sediment-water column interactions. The work detailed in this report was designed to measure the flux of particulates and associated materials from the water column to the bottom sediments. During 1988, measurements were made at two sites - one in the Lower York River and the other in Lower Chesapeake Bay. Measurements in 1989 were made only at the lower Bay station. The data for 1988 have been reported previously (Wetzel & Neilson, 1989).

Pairs of particle interceptor traps were deployed at three depths - 3, 6, and 9 meters with deployment intervals typically lasting about two weeks. At times of deployment and retrieval, profiles of water temperature, salinity and dissolved oxygen content were made and water samples were collected at trap depths. Bottom sediments also were collected and a sub-sample of the surficial sediments taken. Water samples, bottom sediments, and the materials collected in the traps were returned to the Virginia Institute of Marine Sciences for analysis.

The data collected during both 1988 and 1989 are presented in the appendices. Both 1988 and 1989 data sets have been archived in ASCII and IBM PC spreadsheet formats. Individuals desiring the data in ASCII or spreadsheet formats (Lotus or Quattro) should contact one of the authors.

## II. MATERIALS AND METHODS

**Station Location:** The Chesapeake Bay particle trap array was first deployed in April 1988 at a site near the York Spit Channel (PITBA in Fig. 1-b). Subsequently, the U.S. Army Corps of Engineers contracted for dredging of the Baltimore Channel, with the approved spoil disposal site near the station. Because vessel traffic was expected to both endanger the array and affect the measurements, the station was moved to another location (PITB1) that was somewhat removed from the dredging operation but had similar sediment characteristics as the initial site. During 1989, the particle trap array was again deployed at the latter station (PITB1 in Fig. 1-b).

**Deployment Intervals:** The particle trap array was deployed from 9 January through 11 December 1989, with a gap in October when the marker buoy was hit by a vessel and the array sank to the bottom. Deployment intervals in 1989 are listed in Table 1-c.

**Sampling equipment:** A schematic drawing of the trap array is shown in Figure 2. Pairs of traps were located at depths of 3m, 6m, and 9m. Traps were made of PVC pipe and had a width to length ratio of 1:10. In general, the design of the trap array and sampling procedures conformed to those used by the state of Maryland in the Ecosystem Processes component of the Chesapeake Bay water quality monitoring program (Magnien, 1987; Garber *et al.*, 1988).

**Sampling procedures:** On those dates when the trap array was deployed or retrieved (see Table 1 for dates), *in situ* measurements of temperature, salinity and dissolved oxygen concentration were made. In addition, bottom sediments were collected. The C.T.D. profiles were made with an Applied Microsystems miniSTD. A

Yellow Springs Instrument D.O. meter was used for dissolved oxygen concentrations. Water samples were collected to verify the *in situ* readings. One set of samples, which was collected at the surface and bottom and on most occasions also at intermediate depths such as trap depths, was returned to the laboratory for salinity determinations. Other samples were collected, often at one meter intervals from surface to bottom, for D.O. determinations by Winkler titrations.

Water samples to determine ambient concentrations and characteristics of the seston also were collected at trap depths, filtered and placed on ice in a cooler. These water column samples were returned to the laboratory for analysis (see below). Bottom sediments were collected using a corer with one inch inner diameter. The corer was dropped to the bottom and then retrieved. Sediments were pushed up the corer tube until the sediments approached the end of the tube. A subsample of surficial sediments was collected using a syringe and was placed in a 50 ml plastic tube with screwcap. Typically three cores were collected but only the two best (least disturbed) were used. Samples were placed on ice in a cooler and returned to the laboratory for analysis.

Once particle traps had been retrieved, the contents were transferred to a large graduated cylinder, diluted to a fixed volume, and stirred continuously. Aliquots were removed and filtered for laboratory analysis. Water column samples and bottom sediments were treated similarly.

**Nutrient analyses:** Water column samples, trap contents and bottom sediments were analyzed for the following parameters: Particulate phosphorus (PP), particulate nitrogen (PN), particulate carbon (PC), particulate biogenic silica (PSi), total suspended solids (TSS) and volatile suspended solids (VSS). PN, PC, PP, and PSi were measured twice for each sample. Three subsamples were made from each

homogenized sample for TSS, VSS, and NVSS measurements. The values of those duplicates or the triplicates were averaged. Samples were analyzed using standard analytical methods (Salley *et al.*, 1990):

a) suspended solids - each sample was filtered through a glass-fiber filter; the residue retained on the filter was dried to constant weight at 103 - 105°C and weighed for total suspended solids. The filter and residue were then ignited at 550°C in a muffle furnace; the solids remaining after ignition were reported as non-volatile solids. Volatile solids were calculated as the difference between total suspended solids and non-volatile solids.

b) particulate carbon and particulate nitrogen - the sample, packed in a tin cup, was combusted with oxygen in the combustion chamber of a Carlo Erba CN analyzer. Helium gas was used as carrier gas. The gasses first pass through a 3M Porpack QS column to separate the $N_2$ and $CO_2$, then pass to the thermal conductivity detector.

c) particulate phosphorus - a Whatman GF/F glass fiber filter and associated particulates were ashed in a muffle furnace at 550°C for 2 hours and then the phosphorus was extracted overnight by 1 N HCl. Ammonium molybdate and antimony potassium tartrate react in acid medium (5 N $H_2SO_4$) to form an antimony-phospho-molybdate complex, which was reduced to a blue-colored complex by ascorbic acid. Orion Continuous Flow Analyzer with colorimeter was used for this automated procedure.

d) particulate biogenic silica - the particulates were collected by filtration onto a 0.45$\mu$m membrane filter, digested with 0.2 N NaOH in a 100°C water bath, and analyzed for silica on a Technicon AAII Autoanalyzer.

**Plant pigments:** Samples were filtered onto Whatman GF/C or GF/F 4.7 cm diameter glass fiber filters. Chlorophyll-a and pheophytin-a were measured using both

the spectrophotometric method and the fluorometric method after extracting with 90% acetone:

a) Spectrophotometric - Milton Ray #1201 Spectrometer was used to measure absorbance for 1 cm light path length (or width of cuvette) at wave length of 750, 664, 647, and 630 nm before acidification and 750 and 665 nm after acidification. Pigments concentrations were calculated as:

Chlorophyll-a ($\mu$g/l) = 26.7 (*664*b - *665*a) x v/V, and

Pheophytin-a ($\mu$g/l) = 26.7 (1.7 x *665*a - *664*b) x v/V,

where: *664*b is the extinction at 664 nm before acidification

*665*a is the extinction at 665 nm after acidification (with 10% v/v HCl)

v = volume of the acetone extract (ml)

V = volume of water filtered (l).

b) Fluorometric - Turner Design Fluorometer with internal bulb and filters for chlorophyll was used. SIGMA pure chlorophyll was used to determine acidification ratio (r). Pigments were calculated as:

Chlorophyll-a ($\mu$g/l) = Fs (r/r-1) (Rb - Ra), and

Pheophytin-a ($\mu$g/l) = Fs (r/r-1) (rRa - Rb),

where: Fs = calibration factor for sensitivity setting "s". This is 1 for this instrument.

Rb = fluorometer reading before acidification

Ra = fluorometer reading after acidification (with 5% v/v HCl)

r = acidification ratio.

**Data Handling:** All data (*in situ* measurements and laboratory determinations) were entered into a data base using the SIR data base management system. Fluxes of

particulates were determined by adjusting for dilution and then dividing the masses by the deployment period and the opening of the trap. Fluxes, then, have the units of mass per unit area per unit time [$M/L^2/T$]. These fluxes were normalized by dividing by the depth at the trap opening. Normalized fluxes, then, have the units of concentration per unit time [$M/L^3/T$].

Table 1-a. Particle trap deployment dates: York River Bay Station (PITY1) in 1988.

(Station ID: PITY1, Location: Lat. 37°14'23", Lon. 76°25'24")

| Deployment Date | Retrieval Date | Midpoint | Notes |
|---|---|---|---|
| April 4 | April 20 | 12-Apr | |
| April 20 | May 3 | 26-Apr | |
| May 3 | May 16 | 09-May | |
| May 16 | June 6 | 26-May | |
| June 6 | June 14 | 10-Jun | |
| - | - | 21-Jun | (1) |
| June 28 | July 12 | 05-Jul | |
| July 12 | July 21 | 16-Jul | |
| July 21 | July 28 | 24-Jul | |
| July 28 | August 5 | 01-Aug | |
| August 5 | August 11 | 08-Aug | |
| August 11 | August 18 | 14-Aug | |
| August 18 | August 25 | 21-Aug | |
| August 25 | September 1 | 28-Aug | |
| September 1 | September 6 | 03-Sep | |
| September 6 | September 12 | 09-Sep | |
| September 12 | September 26 | 19-Sep | |
| September 26 | October 6 | 01-Oct | |
| October 6 | October 11 | 08-Oct | |
| October 11 | October 20 | 15-Oct | |
| October 20 | November 4 | 20-Oct | |
| November 4 | November 15 | 09-Nov | |
| November 15 | November 29 | 22-Nov | |
| November 29 | December 13 | 06-Dec | (2) |

Notes: (1) New array being fabricated.
(2) Traps hit & dragged about 300' south, returned to station on Dec. 8.

Table 1-b. Particle trap deployment dates: Cheasapeake Bay Station (PITBA and PITB1) in 1988.

(April 4 - May 16, Station ID: PITBA, Location: Lat. 37°16'02", Lon. 76°09'18")
(June 14 - Dec. 14, Station ID: PITB1, Location: Lat. 37°19'16", Lon. 76°07'37" )

| Deployment Date | Retrieval Date | Midpoint | Notes |
|---|---|---|---|
| April 4 | April 20 | 12-Apr | |
| April 20 | May 3 | 26-Apr | |
| May 3 | May 16 | 09-May | |
| May 16 | - | - | (1) |
| - | - | - | (2) |
| June 14 | June 28 | 21-Jun | |
| June 28 | July 13 | 05-Jul | |
| July 13 | July 28 | 20-Jul | |
| July 28 | August 5 | 01-Aug | |
| August 5 | August 11 | 08-August | |
| August 11 | August 18 | 14-August | |
| August 18 | August 25 | 21-August | |
| August 25 | September 1 | 28-Aug | |
| September 1 | September 12 | 06-Sep | |
| September 12 | September 27 | 19-Sep | |
| September 27 | October 6 | 01-Oct | |
| October 6 | October 11 | 08-Oct | |
| October 11 | October 20 | 15-Oct | |
| October 20 | - | 19-Oct | (3) |
| November 3 | November 14 | 08-Nov | |
| November 14 | November 29 | 21-Nov | (4) |
| November 29 | December 14 | 06-Dec | |

Notes: (1) Array run over.
(2) New array being fabricated.
(3) Noted missing on October 28.
(4) Surface and subsurface buoys hit and severely damaged.

Table 1-c. Particle trap deployment dates: Cheasapeake Bay Station (PITB1) in 1989.

(Station ID: PITB1, Location: Lat. 37°19'16", Lon. 76°07'37")

| Deployment Date | Retrieval Date | Midpoint | Notes |
|---|---|---|---|
| January 9 | January 24 | 16-Jan | |
| January 24 | February 8 | 31-Jan | |
| February 8 | February 20 | 14-Feb | |
| February 20 | March 13 | 02-Mar | (1) |
| March 13 | March 21 | 17-Mar | |
| March 21 | April 7 | 29-Mar | |
| April 7 | April 20 | 13-Apr | |
| April 20 | May 9 | 29-Apr | |
| May 9 | May 25 | 17-May | |
| May 25 | June 5 | 30-May | |
| June 5 | June 19 | 12-Jun | |
| June 19 | June 30 | 24-Jun | |
| June 30 | July 14 | 07-Jul | |
| July 14 | July 27 | 20-Jul | |
| July 27 | August 7 | 01-Aug | |
| August 7 | August 25 | 16-Aug | |
| August 25 | August 31 | 28-Aug | |
| August 31 | September 14 | 07-Sep | |
| September 14 | October 2 | 23-Sep | (1) |
| October 2 | October 30 | 16-Oct | (2) |
| October 30 | November 22 | 10-Nov | |
| November 22 | December 11 | 01-Dec | |

Notes: (1) Fish in one of the two cups at 9m depth.

(2) Maker buoy was hit and damaged, causing data loss due to both the damage to the trap array ( and accumulated sediments) and time required to prepare and install a replacement mooring.

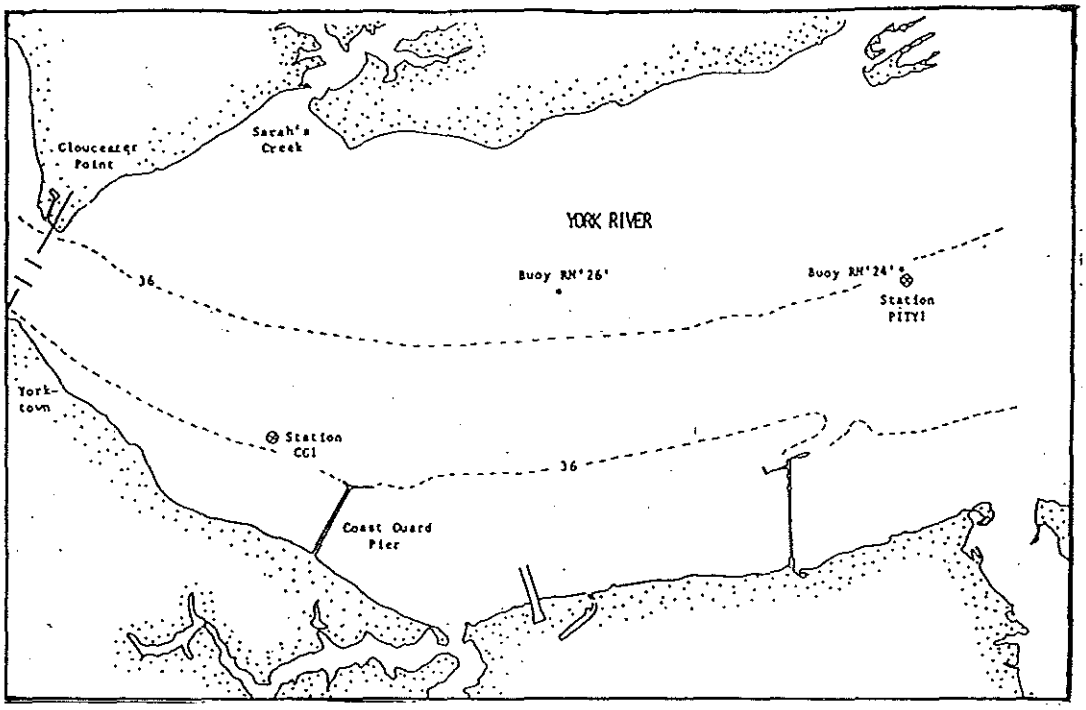



Figure 1-a. Map showing the lower York River station location for 1988 trap deployments.

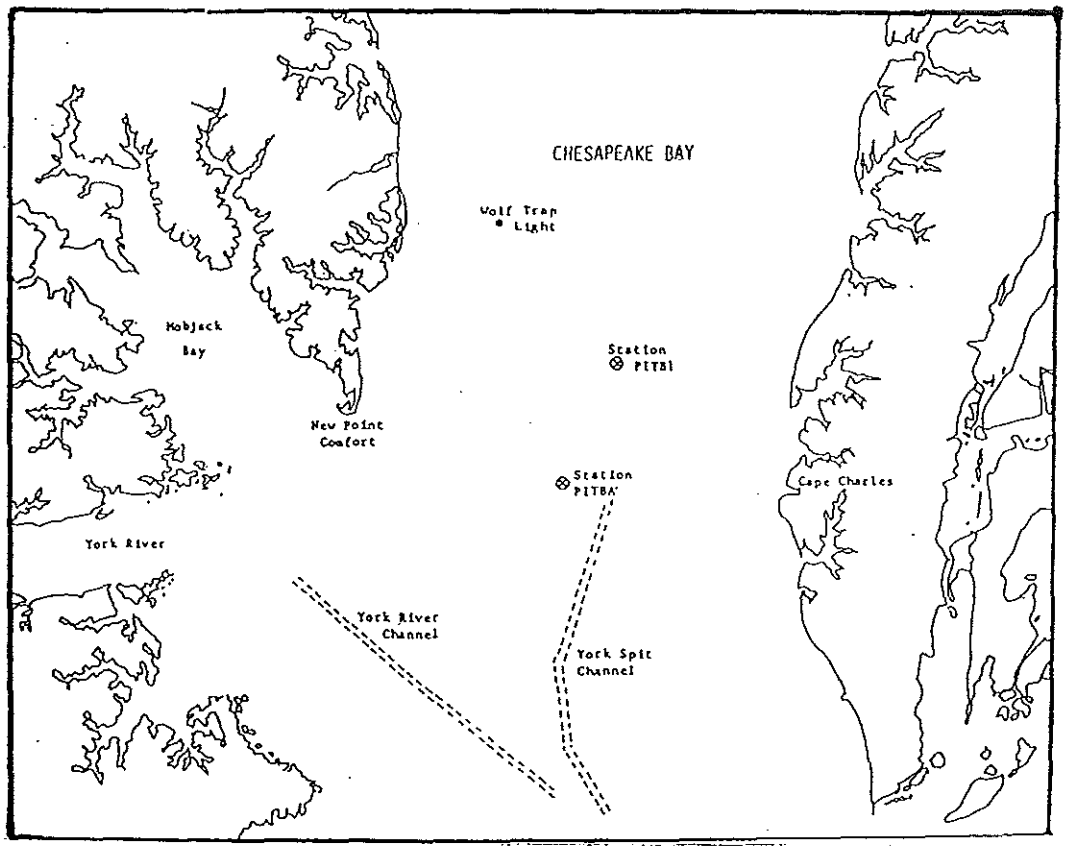



Figure 1-b. Lower Chesapeake Bay map showing the two station locations for 1988 trap deployments. In 1989 only PITB1 was occupied (2.5 nautical miles north of red buoy '32' at the north end of York Spit Channel).

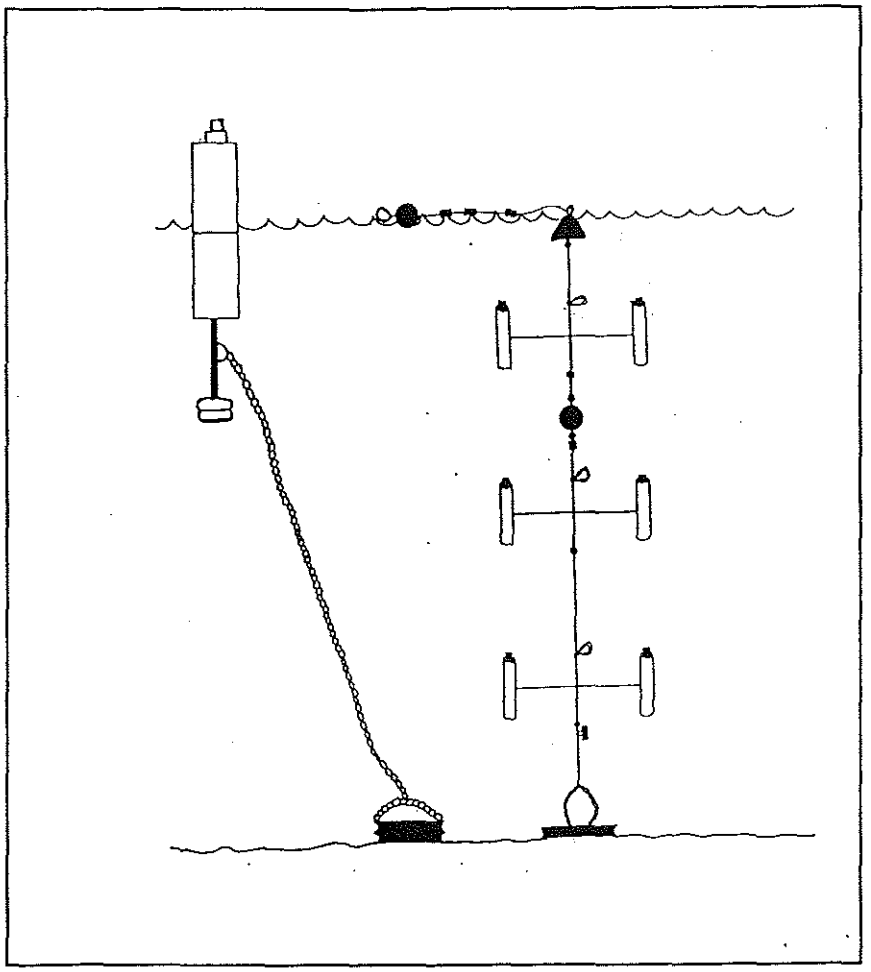


Figure 2. Schematic drawing of trap array.

## III. RESULTS and DISCUSSION

Tabulated data are presented in the Appendices. A blank cell in the tables indicates a missing datum. A "-" denotes that the measurement was less than the detection limit of the method and does not mean an absolute zero concentration. A negative value for pheophytin measurements does not mean a less-than-zero concentration or an upward flux. The negative value is the result of the equation by which the pheophytin-a concentration was calculated. Measurements of the water column and bottom sediment characteristics are given for the sampling date, whereas fluxes are referenced to the mid-point of the deployment period (see Table 1).

Within each appendix, the data are given for (1) the lower York River station in 1988, (2) the lower Chesapeake Bay station in 1988, and (3) the lower Chesapeake Bay station in 1989. In Appendix A, water column profiles for temperature, salinity and dissolved oxygen are presented. Characteristics of the seston and the surficial bottom sediments are given in Appendices B and C respectively. Fluxes of particulate nutrients, plant pigments and suspended solids are presented in Appendix D. Although the data for both years and sites have been included in the appendices, the discussion which follows applies only to the 1989 deployments in lower Chesapeake Bay.

**Water column profiles:** The data from the water column profiles have been organized into 3-dimensional plots (depth, time and value) (Fig. 3). The seasonal variation in water temperature is apparent. Because surface waters adjust to ambient air temperatures, surface waters tend to be warmer (colder) than bottom waters during the spring and summer (fall and winter). Bottom waters always had greater salinities

than surface water. The stratification varied from weak (~2 ppt surface to bottom difference) to strong (~ 10 ppt surface to bottom difference). The saturation concentration of oxygen in water varies inversely with temperature, so dissolved oxygen (D.O.) concentrations show a seasonal variation comparable to that for salinity, but minimum values occurred during the summer months. Bottom water anoxia is a problem in some parts of Chesapeake Bay, but not at this location. D.O. concentrations below the 4 mg/L state standard, however, were observed for all depths below 5 m, with a minimum observed concentration of 3.09 mg/L in 1989 (Table 2-c).

**Seston and bottom sediments:** Concentrations of particulate carbon, nitrogen and phosphorus tended to be highest during the period June through August with lesser peaks in January and early April (Fig. 4). Biogenic silica, however, tended to be low during April through July. Chlorophyll-a tended to be high from early June through August, with concentrations decreasing with depth. Total suspended solids and non-volatile suspended solids were high in January to March, and low in April to September. Most of the solids were non-volatile solids. Volatile suspended solids concentrations were low (< 4 mg/L) throughout the year, except for March 21. The composition of surficial bottom sediments typically showed smaller temporal variation.

The plant pigments in the seston are primarily from living cells (chlorophyll) whereas most of the plant pigments in bottom sediments come from dead cells (pheophytin), as indicated in Fig. 5. The composition of the seston varies significantly over the year, presumably as a result of differing algal classes dominating the community at different times of the year. Cyanobacteria, for example, show extremely large changes in densities over the year (Falkenhayn, 1990; Table 3 & Fig. 6). The ratios of particulate carbon to particulate nitrogen, particulate carbon to particulate

phosphorus, and particulate nitrogen to particulate phosphorus vary appreciably, but with no obvious pattern (Fig. 7). Ratios sometimes were much larger than the Redfield ratio and at other times were far below the Redfield ratio; again this is believed due to the changing nature of the algal community. The surficial bottom sediments were relatively nitrogen poor and phosphorus rich, giving high C to N, and low C to P and low N to P ratios.

**Fluxes:** The flux data presented in Appendix D are the values determined by averaging the results for the two traps at each depth. Data for a trap were lost on two occasions (February 20 and March 13, both at 9 m depth) when fish were found inside of a trap (Table 1-c). The measurements for the duplicate traps were similar, with average differences of 8.4 to 23.3% in 1989 (Table 4). Only 4 pairs showed differences of greater than 50%.

Fluxes tended to increase with depth (Fig. 8). When the fluxes are normalized for trap depth, the results for the 3m and the 6m traps are quite similar and tend to vary together (Fig. 9). [Note that the flux data are plotted using the mid-point of the deployment period.] The normalized nutrient and suspended solid fluxes for the 9m traps usually are significantly higher than those for the traps at shallower depths. This difference is likely due to contamination by resuspended bottom sediments. Resuspension probably affected all of the traps on certain occasions, but the relatively close agreement between the normalized fluxes for 3m and 6m suggests that resuspension had limited influence on measurements at these depths. If both sets (of normalized fluxes) are used, the measurements should provide relatively stable estimates of nutrient and suspended solid fluxes. The normalized fluxes for plant pigments did not show the same pattern; values for the 3m trap often were higher than those for traps at 6m and 9m.

The 9m traps are impacted by resuspension to a greater or lesser degree depending on the climatic conditions during the deployment period. The material caught in the trap comes from both settling of seston and resuspension of bottom sediments. "The concentration of any chemical property in the trapped material could be expressed as a combination of its values in the sediment material and its value in the resuspended material: $Ct = X\ Cs + (1 - X)\ Cr$, where Ct is the chemical composition of the material in the trap, Cs is the chemical composition of the material from the water column, Cr is the chemical composition of the material from the bottom sediments and X is the proportion of sedimented materials in the trap (Taguchi, 1982)". After algebraic manipulations, X is:

$$X = (Ct - Cr) / (Cs - Cr),$$

and (1 - X), the portion of the material due to resuspension is:

$$1 - X = (Cs - Ct) / (Cs - Cr).$$

The seston settling factor, X was calculated using the average percent organic matter (Table 5). For seston and surficial sediments, the values at the beginning and the end of the trap deployments were averaged. We note that the seston settling factors vary widely (0.03 to 0.74) and often do not decrease with depth, casting doubt on this approach. The water column particulates (used to calculate X) could include some resuspended matter, but a more likely explanation is that both the water column and the bottom sediment samples were collected at the times of deployment and retrieval, whereas the values for the trap material result from the entire deployment. Ambient conditions almost certainly varied considerably over the two week deployment; use of instantaneous beginning and end values, rather than average values for the entire deployment period introduces error into the calculations.

Table 2-a. Summary of annual (1988) water column characteristics (temperature, salinity, and D.O.) at the York River Station.

| York R. | Temperature (°C) | | | Salinity (ppt) | | | D.O. (mg/L) | | |
|---|---|---|---|---|---|---|---|---|---|
| Station | mean | min. | max. | mean | min. | max. | mean | min. | max. |
| Depth | | | | | | | | | |
| 0 m | 21.05 | 7.06 | 29.02 | 20.79 | 15.14 | 23.87 | | | |
| 1 m | 20.76 | 7.08 | 29.04 | 21.24 | 17.00 | 24.26 | 7.49 | 5.28 | 10.48 |
| 2 m | 20.76 | 7.07 | 29.00 | 21.34 | 17.48 | 24.30 | 7.40 | 5.28 | 10.43 |
| 3 m | 20.71 | 7.08 | 28.72 | 21.50 | 17.49 | 24.33 | 7.27 | 5.19 | 10.18 |
| 4 m | 20.65 | 7.09 | 28.59 | 21.57 | 17.50 | 24.36 | 7.18 | 5.04 | 10.16 |
| 5 m | 20.61 | 7.10 | 28.55 | 21.64 | 17.51 | 24.37 | 7.08 | 4.91 | 10.10 |
| 6 m | 20.56 | 7.12 | 28.51 | 21.74 | 17.54 | 24.41 | 6.93 | 4.87 | 10.08 |
| 7 m | 20.51 | 7.13 | 28.51 | 21.87 | 17.57 | 24.42 | 6.77 | 4.40 | 9.98 |
| 8 m | 20.38 | 7.07 | 28.50 | 22.02 | 17.62 | 24.44 | 6.51 | 2.79 | 10.02 |
| 9 m | 20.24 | 7.00 | 28.50 | 22.23 | 17.64 | 25.45 | 6.36 | 1.96 | 10.02 |
| 10 m | 20.11 | 6.97 | 28.50 | 22.47 | 17.66 | 25.98 | 6.15 | 1.73 | 10.02 |
| 11 m | 19.84 | 6.93 | 28.50 | 22.87 | 17.71 | 26.88 | 5.90 | 1.38 | 10.01 |
| 12 m | 19.59 | 6.89 | 28.50 | 23.23 | 17.77 | 27.37 | 5.83 | 1.59 | 10.01 |
| 13 m | 19.47 | 6.87 | 28.50 | 23.43 | 17.79 | 27.58 | 5.68 | 1.50 | 10.01 |
| 14 m | 19.41 | 6.86 | 28.49 | 23.60 | 17.81 | 27.66 | 5.58 | 1.71 | 9.96 |
| 15 m | 19.33 | 6.86 | 28.48 | 23.78 | 17.83 | 28.07 | 5.50 | 1.77 | 9.96 |
| 16 m | 19.11 | 6.85 | 28.48 | 23.93 | 17.85 | 28.19 | 5.22 | 1.90 | 8.12 |
| 17 m | 18.50 | 6.84 | 25.23 | 24.36 | 17.87 | 28.21 | 5.82 | 1.85 | 9.96 |

Table 2-b. Summary of annual (1988) water column characteristics (temperature, salinity, and D.O.) at the Chesapeake Bay Station.

| C. Bay Station | Temperature (°C) | | | Salinity (ppt) | | | D.O. (mg/L) | | |
|---|---|---|---|---|---|---|---|---|---|
| | mean | min. | max. | mean | min. | max. | mean | min. | max. |
| Depth | | | | | | | | | |
| 0 m | 20.36 | 6.66 | 27.84 | 19.86 | 6.40 | 24.27 | | | |
| 1 m | 20.12 | 6.51 | 27.83 | 19.22 | 0.06 | 24.46 | 8.40 | 6.33 | 6.33 |
| 2 m | 19.97 | 6.52 | 27.83 | 19.56 | 0.36 | 24.72 | 8.30 | 6.29 | 6.29 |
| 3 m | 19.82 | 6.50 | 27.80 | 20.40 | 1.33 | 24.91 | 8.05 | 5.61 | 5.61 |
| 4 m | 19.66 | 6.53 | 27.77 | 21.16 | 1.87 | 25.04 | 7.87 | 5.70 | 5.70 |
| 5 m | 19.59 | 6.56 | 27.82 | 21.73 | 2.04 | 25.64 | 7.59 | 4.93 | 4.93 |
| 6 m | 19.45 | 6.61 | 27.69 | 22.31 | 3.01 | 25.99 | 7.28 | 4.91 | 4.91 |
| 7 m | 19.30 | 6.63 | 27.50 | 22.88 | 3.39 | 26.77 | 7.07 | 4.06 | 4.06 |
| 8 m | 19.17 | 6.71 | 27.15 | 23.41 | 4.30 | 27.13 | 6.99 | 4.21 | 4.21 |
| 9 m | 19.07 | 6.76 | 26.91 | 23.96 | 5.44 | 27.38 | 6.88 | 4.75 | 4.75 |
| 10 m | 18.98 | 6.78 | 26.48 | 24.43 | 6.30 | 27.63 | 6.91 | 4.71 | 4.71 |
| 11 m | 18.91 | 6.86 | 25.76 | 24.66 | 6.97 | 28.17 | 6.72 | 4.08 | 4.08 |
| 12 m | 18.95 | 6.93 | 25.13 | 25.43 | 7.55 | 28.55 | 5.85 | 3.99 | 3.99 |

Table 2-c. Summary of annual (1989) water column characteristics (temperature, salinity, and D.O.) at the Chesapeake Bay Station.

| C. Bay Station | Temperature (°C) | | | Salinity (ppt) | | | D.O. (mg/L) | | |
|---|---|---|---|---|---|---|---|---|---|
| | mean | min. | max. | mean | min. | max. | mean | min. | max. |
| Depth | | | | | | | | | |
| 1 m | 16.45 | 4.22 | 27.82 | 18.87 | 8.35 | 24.36 | 9.07 | 7.04 | 11.25 |
| 2 m | 16.36 | 4.16 | 27.70 | 19.22 | 12.47 | 24.42 | 9.02 | 7.00 | 11.16 |
| 3 m | 16.28 | 3.93 | 27.65 | 19.70 | 12.92 | 24.49 | 8.88 | 6.87 | 10.96 |
| 4 m | 16.18 | 3.90 | 27.62 | 20.37 | 13.64 | 24.89 | 8.51 | 5.00 | 10.83 |
| 5 m | 16.04 | 3.95 | 27.42 | 21.19 | 14.31 | 26.61 | 8.15 | 3.64 | 10.61 |
| 6 m | 15.98 | 3.90 | 27.00 | 21.74 | 15.56 | 27.00 | 7.80 | 3.40 | 10.61 |
| 7 m | 15.84 | 3.88 | 27.00 | 22.47 | 17.93 | 27.10 | 7.52 | 3.26 | 10.53 |
| 8 m | 15.79 | 3.87 | 27.00 | 23.10 | 18.95 | 27.20 | 7.53 | 3.09 | 13.54 |
| 9 m | 15.49 | 3.87 | 26.09 | 24.02 | 20.09 | 27.79 | 7.55 | 3.62 | 15.29 |
| 10 m | 15.36 | 3.76 | 26.11 | 24.69 | 20.30 | 29.13 | 7.37 | 3.59 | 12.18 |
| 11 m | 15.29 | 3.72 | 26.11 | 25.37 | 20.95 | 30.99 | 7.33 | 3.63 | 13.99 |
| 12 m | 15.97 | 3.73 | 26.12 | 25.58 | 21.23 | 31.04 | 7.34 | 3.81 | 15.29 |

Table 3. Ambient physical conditions and concentrations of nutrients, chlorophyll a, and cyanobacteria at the study site. (from Falkenhyan, 1990).

| Experiment | Cyanobacteria ($\times 10^5$ cells/ml) | Chlorophyll a (µg/L) | % Cyano Chlorophyll | Water temp (°C) | Salinity (ppt) | Dissolved Nutrients (µM) PO4 | NO3 | NO2 | NH4 |
|---|---|---|---|---|---|---|---|---|---|
| 27-Jun | 33.0 | 12.6 | 57% | 25 | 17.4 | 0.03 | 0.32 | ND | 1.68 |
| 26-Jul | 34.7 | 17.0 | 75% | 28 | 15.1 | 0.18 | 0.32 | ND | ND |
| 30-Aug | 9.8 | 13.4 | 36% | 27 | 20.0 | 0.11 | 0.29 | 0.57 | ND |
| 28-Sep | 4.2 | 8.0 | 33% | 22 | 21.7 | 0.74 | 1.07 | 6.07 | ND |

ND = not detectable (detection level = 0.07 (±0.01) µM for nitrite and 0.93 (±0.07) µM for ammonium)

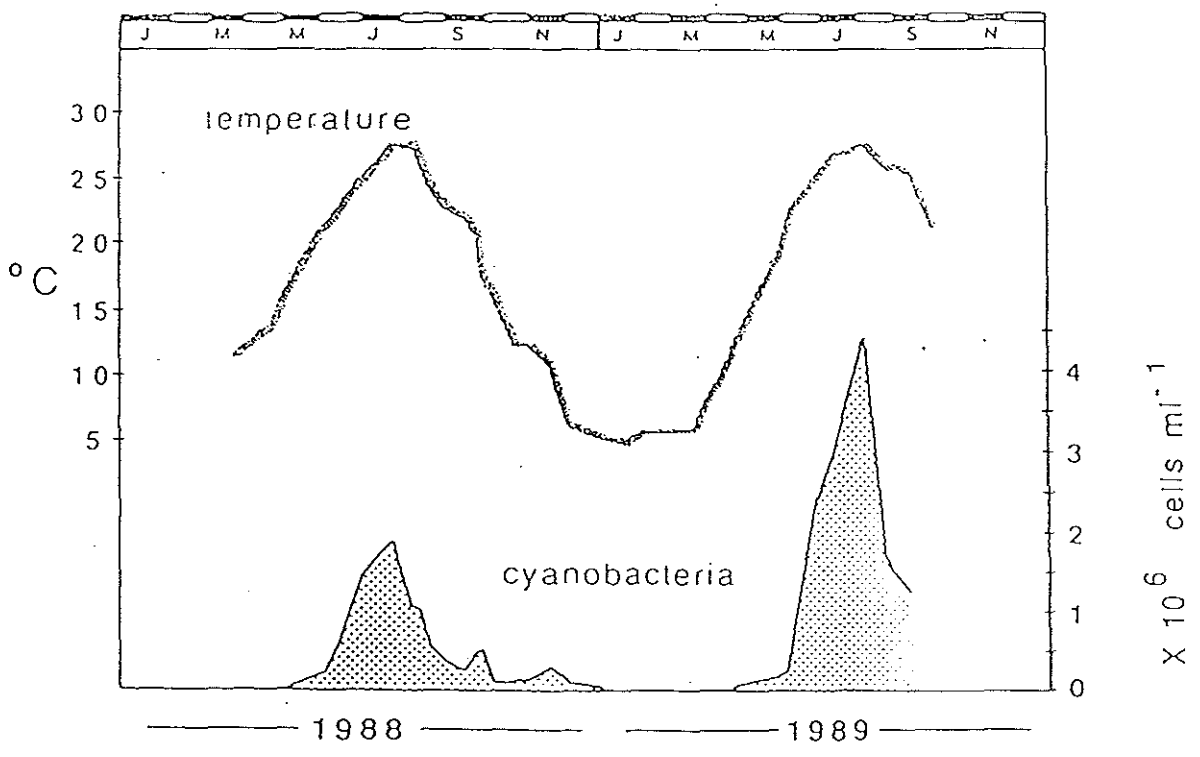



Figure 6. Seasonal cyanobacterial abundance at lower Chesapeake Bay. (from Falkenhayn 1990).

Table 4. Relative difference, [(trap1 - trap2)/(trap1 + trap2)] x 100, of the flux measurements between the two traps at each depth for the 22 deployments in 1989.

| Nutrient | Trap Depth | Difference | |
|---|---|---|---|
| | | Average | Maximum |
| Carbon | 3 m | 17.4 | 45.3 |
| | 6 m | 12.5 | 47.6 |
| | 9 m | 10.3 | 36.1 |
| Nitrogen | 3 m | 17.4 | 49.1 |
| | 6 m | 23.3 | 112.8 |
| | 9 m | 19.1 | 76.8 |
| Phosphorus | 3 m | 16.5 | 66.7 |
| | 6 m | 13.2 | 66.7 |
| | 9 m | 8.4 | 21.5 |

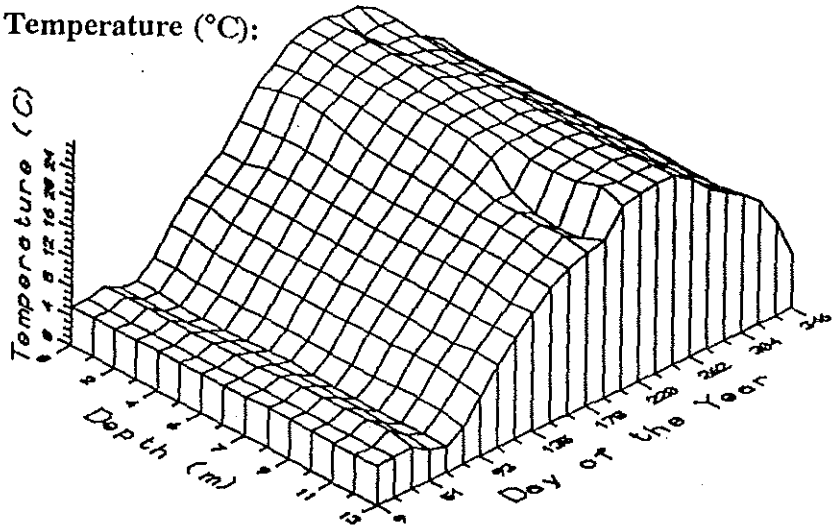
Table 5-a. Seston settling factor [= (Cs - Cr)/(Ct - Cr)] calculated by the use of average percent organic matter for 1988 York River station data.

| Trap Deployment | | Average Percent Oranic Matter | | | | | | | Seston Settling Factor | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | | Seston (Cs) | | | Trap (Ct) | | | Sediment (Cr) | (X) | | |
| START | END | TOP | MID | BOT | TOP | MID | BOT | SURFACE | TOP | MID | BOT |
| 04-Apr | 20-Apr | 25.9 | 25.7 | 26.3 | | | 8.9 | 8.2 | | | 0.039 |
| 20-Apr | 03-May | 20.5 | 26.2 | 21.1 | 14.2 | 13.3 | 9.8 | 6.0 | 0.566 | 0.361 | 0.252 |
| 03-May | 16-May | 23.8 | 25.3 | 21.6 | 13.0 | 12.6 | 10.6 | 4.2 | 0.449 | 0.398 | 0.368 |
| 16-May | 06-Jun | 20.3 | 21.2 | 16.8 | 11.6 | 11.7 | 11.2 | 4.3 | 0.456 | 0.438 | 0.552 |
| 06-Jun | 14-Jun | 20.7 | 22.1 | 18.0 | 13.4 | 11.8 | 11.3 | 4.1 | 0.560 | 0.428 | 0.518 |
| 28-Jun | 12-Jul | 31.1 | 28.3 | 22.0 | 11.1 | 9.3 | 10.4 | 4.1 | 0.259 | 0.215 | 0.352 |
| 12-Jul | 21-Jul | 25.5 | 17.1 | 18.2 | 13.5 | 7.7 | 10.8 | 4.0 | 0.442 | 0.282 | 0.479 |
| 21-Jul | 28-Jul | 29.1 | 23.2 | 19.4 | 16.9 | 5.8 | 12.9 | 4.0 | 0.514 | 0.094 | 0.578 |
| 28-Jul | 05-Aug | 34.9 | 32.5 | 26.5 | 16.8 | 15.3 | 13.2 | 4.1 | 0.412 | 0.394 | 0.406 |
| 05-Aug | 11-Aug | 50.1 | 42.6 | 23.1 | 13.7 | 12.8 | 12.3 | 4.1 | 0.209 | 0.226 | 0.432 |
| 11-Aug | 18-Aug | 19.7 | 13.7 | 11.7 | 11.4 | 9.3 | 10.7 | 4.1 | 0.468 | 0.542 | 0.868 |
| 18-Aug | 25-Aug | 18.6 | 14.9 | 14.0 | 12.9 | 10.4 | 10.6 | 4.0 | 0.610 | 0.587 | 0.660 |
| 25-Aug | 01-Sep | 22.1 | 20.2 | 18.3 | 12.2 | 11.5 | 10.7 | 4.0 | 0.453 | 0.463 | 0.469 |
| 01-Sep | 06-Sep | 22.9 | 20.6 | 21.5 | 10.6 | 9.8 | 9.3 | 2.0 | 0.411 | 0.419 | 0.374 |
| 06-Sep | 12-Sep | 16.2 | 15.9 | 21.5 | 11.5 | 9.9 | 10.0 | 2.0 | 0.669 | 0.568 | 0.410 |
| 12-Sep | 26-Sep | 11.1 | 13.9 | 22.9 | 10.3 | 9.5 | 9.9 | 2.0 | 0.912 | 0.630 | 0.378 |
| 26-Sep | 06-Oct | 16.3 | 19.9 | 22.2 | 9.6 | 9.7 | 9.1 | 4.1 | 0.451 | 0.354 | 0.276 |
| 06-Oct | 11-Oct | 16.5 | 15.8 | 15.9 | 10.6 | 9.6 | 8.2 | 2.0 | 0.593 | 0.551 | 0.446 |
| 11-Oct | 20-Oct | 14.1 | 11.5 | 14.5 | 9.3 | 8.1 | 8.2 | 4.1 | 0.520 | 0.541 | 0.394 |
| 20-Oct | 04-Nov | 18.6 | 19.1 | 15.9 | 7.7 | 8.1 | 9.1 | 6.1 | 0.128 | 0.154 | 0.306 |
| 04-Nov | 15-Nov | 17.0 | 18.4 | 14.9 | 9.8 | 10.1 | 9.6 | 8.0 | 0.200 | 0.202 | 0.232 |
| 15-Nov | 29-Nov | 14.1 | 14.8 | 14.4 | 11.3 | 11.0 | 10.0 | 6.8 | 0.616 | 0.525 | 0.421 |
| 29-Nov | 13-Dec | 11.4 | 12.0 | 12.3 | 11.0 | 10.2 | 9.9 | 7.0 | 0.909 | 0.640 | 0.547 |
| | | | | | | | | mean | 0.737 | 0.501 | 0.399 |
| | | | | | | | | std. | 0.172 | 0.139 | 0.148 |

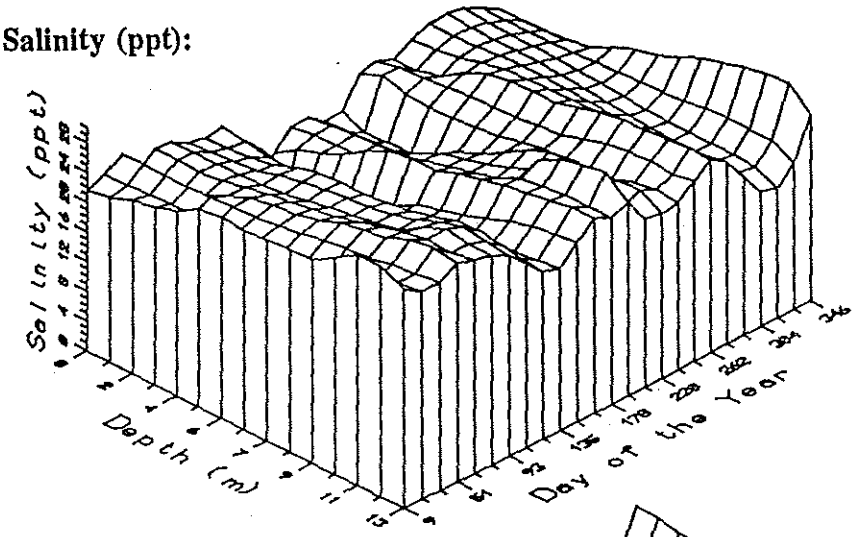
Table 5-b. Seston settling factor [= (Cs - Cr)/(Ct - Cr)] calculated by the use of average percent organic matter for 1988 Chesapeake Bay station data.

| Trap Deployment | | Average Percent Oranic Matter | | | | | | | Seston Settling Factor | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | | Seston (Cs) | | | Trap (Ct) | | | Sediment (Cr) | (X) | | |
| START | END | TOP | MID | BOT | TOP | MID | BOT | SURFACE | TOP | MID | BOT |
| 04-Apr | 20-Apr | 28.0 | 20.5 | 15.7 | 3.9 | 3.6 | 3.2 | 2.0 | 0.073 | 0.086 | 0.088 |
| 20-Apr | 03-May | 27.8 | 23.1 | 15.5 | 4.3 | 4.1 | 5.0 | 3.9 | 0.015 | 0.010 | 0.095 |
| 03-May | 16-May | 30.2 | 23.5 | 17.8 | 8.7 | 6.6 | 7.6 | 4.0 | 0.179 | 0.133 | 0.261 |
| 14-Jun | 28-Jun | 47.1 | 44.1 | 42.5 | 23.2 | 13.3 | 8.0 | 2.0 | 0.470 | 0.268 | 0.148 |
| 28-Jun | 13-Jul | 33.9 | 32.5 | 25.0 | 16.0 | 10.0 | 7.2 | 4.0 | 0.401 | 0.211 | 0.152 |
| 13-Jul | 28-Jul | 21.6 | 17.2 | 10.3 | 10.2 | 8.3 | 7.4 | 6.0 | 0.269 | 0.205 | 0.326 |
| 28-Jul | 05-Aug | 47.6 | 40.2 | 22.8 | 15.1 | 11.3 | 8.2 | 4.1 | 0.253 | 0.199 | 0.219 |
| 05-Aug | 18-Aug | 53.2 | 36.8 | 20.9 | 14.9 | 10.2 | 6.8 | 2.0 | 0.252 | 0.236 | 0.254 |
| 18-Aug | 25-Aug | 25.9 | 16.7 | 15.0 | 15.9 | 10.1 | 6.1 | 2.0 | 0.582 | 0.551 | 0.315 |
| 25-SEp | 01-Sep | 19.7 | 23.9 | 19.3 | 13.2 | 8.9 | 5.8 | 2.0 | 0.633 | 0.315 | 0.220 |
| 01-Sep | 12-Sep | 21.0 | 20.0 | 16.5 | 9.8 | 6.3 | 6.0 | 4.0 | 0.341 | 0.144 | 0.160 |
| 12-Sep | 27-Sep | 19.3 | 14.5 | 10.4 | 10.9 | 7.1 | 6.5 | 4.1 | 0.447 | 0.288 | 0.381 |
| 27-Oct | 06-Oct | 30.5 | 25.6 | 12.5 | 12.6 | 8.8 | 6.3 | 3.1 | 0.348 | 0.255 | 0.344 |
| 06-Oct | 11-Oct | 27.5 | 21.9 | 12.4 | 15.2 | 9.9 | 6.3 | 2.0 | 0.518 | 0.397 | 0.413 |
| 11-Oct | 20-Oct | 23.5 | 18.7 | 10.7 | 9.3 | 7.2 | 6.0 | 6.0 | 0.189 | 0.094 | 0.000 |
| 20-Oct | 03-Nov | 26.4 | 23.1 | 15.1 | 5.4 | 5.2 | 5.8 | 4.1 | 0.058 | 0.058 | 0.155 |
| 03-Nov | 14-Nov | 19.7 | 18.2 | 15.6 | 8.6 | 7.5 | 7.6 | 6.0 | 0.190 | 0.123 | 0.167 |
| 14-Nov | 29-Nov | 15.3 | 14.7 | 15.1 | 8.4 | 8.0 | 7.3 | 6.0 | 0.258 | 0.230 | 0.143 |
| 29-Nov | 14-Dec | 13.0 | 12.6 | 14.8 | 7.7 | 7.1 | 6.1 | 6.0 | 0.243 | 0.167 | 0.011 |
| | | | | | | | | mean | 0.129 | 0.089 | 0.049 |
| | | | | | | | | std. | 0.007 | 0.005 | 0.047 |

(a) Temperature (°C):




(b) Salinity (ppt):




(c) Dissolved Oxygen (mg/L):

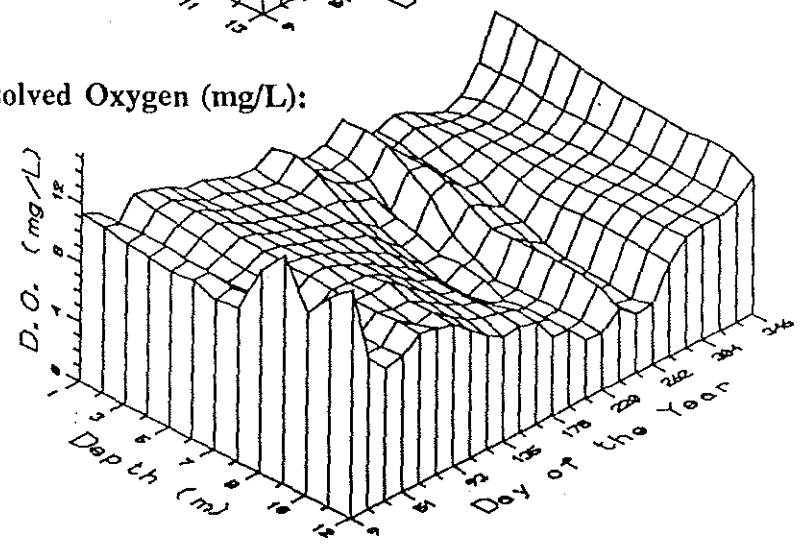



Figure 3. Profiles of water column characteristics as a function of date and depth at the trap site in 1989.

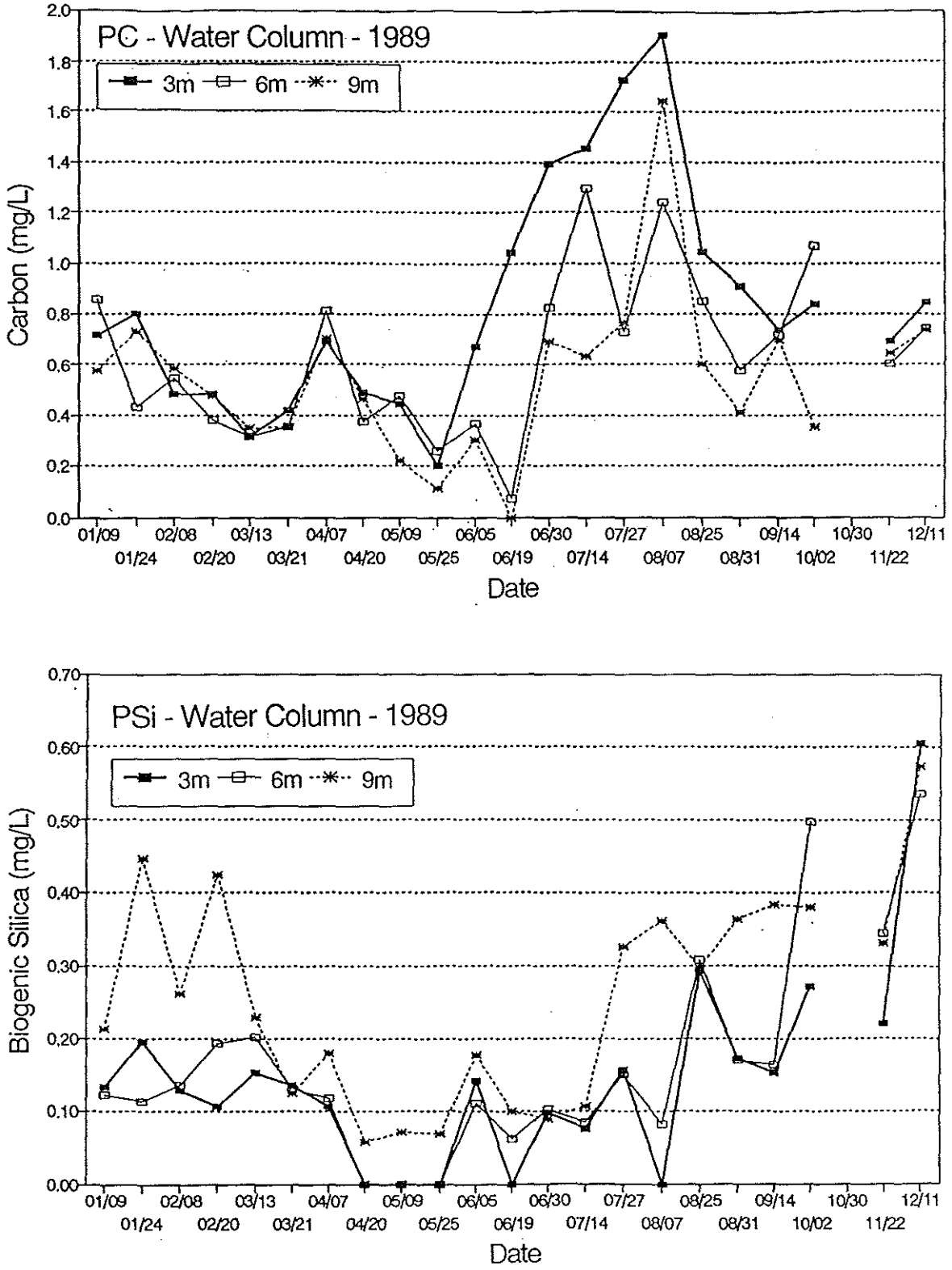
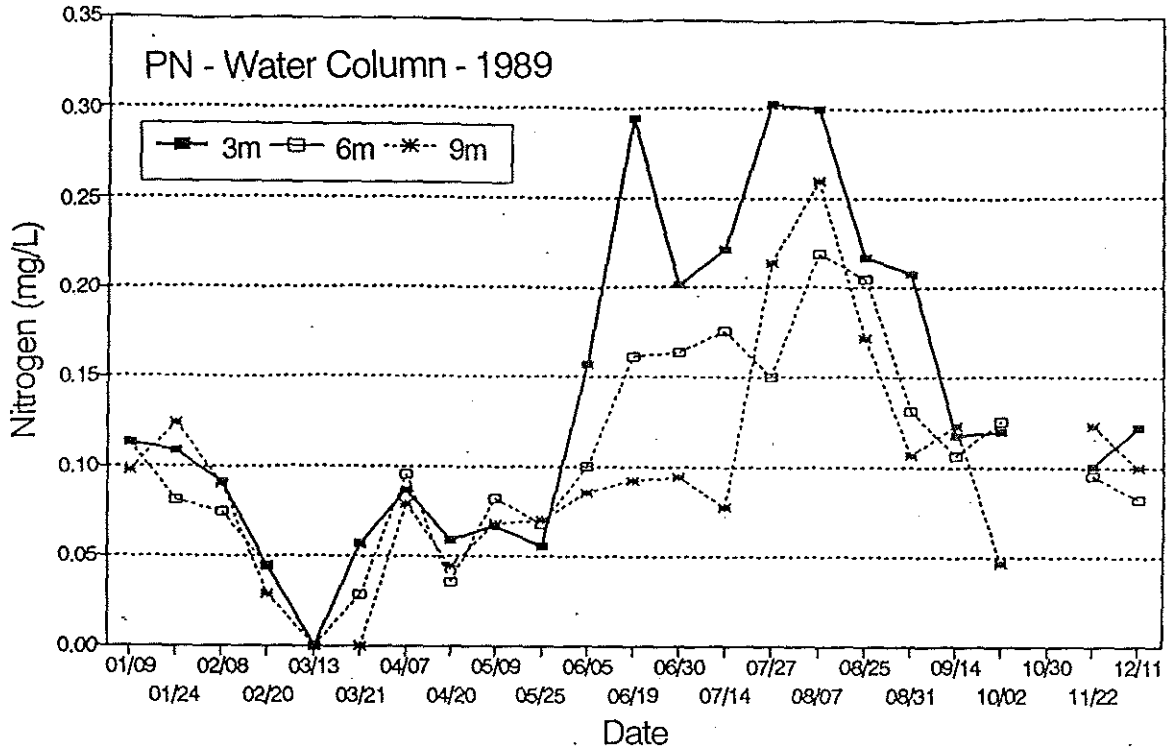



Figure 4. Composition of water column particulates (1989): Particulate carbon and biogenic silica.



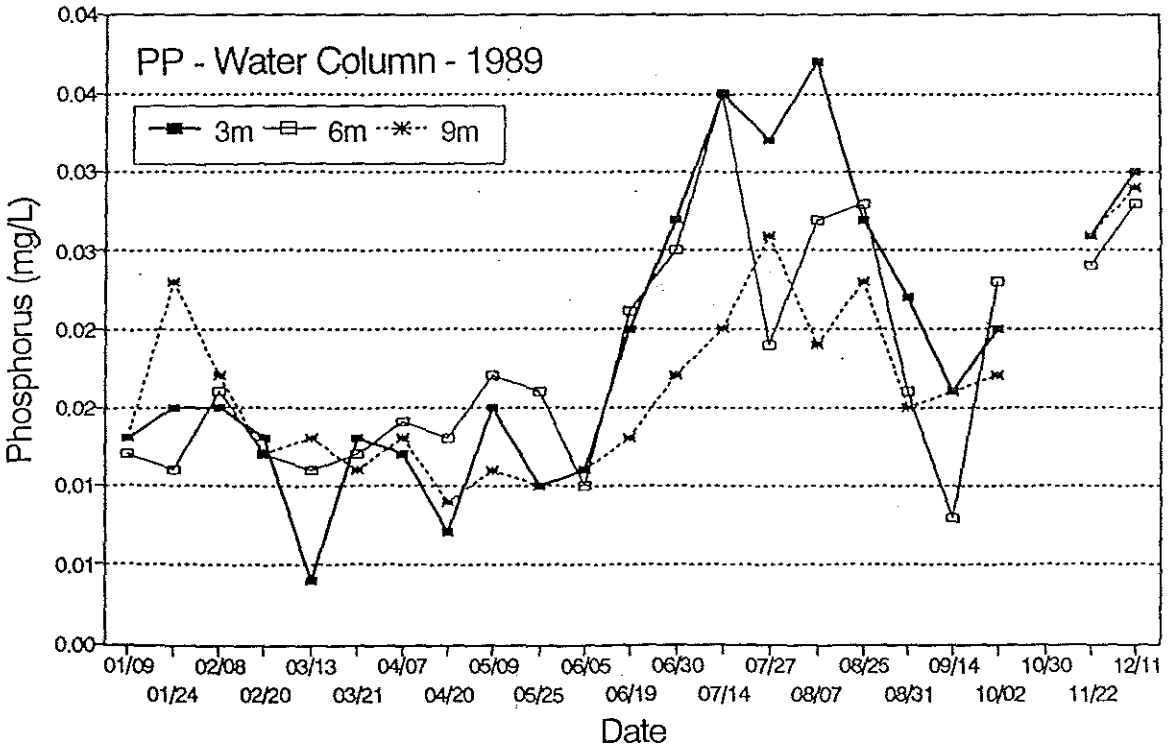
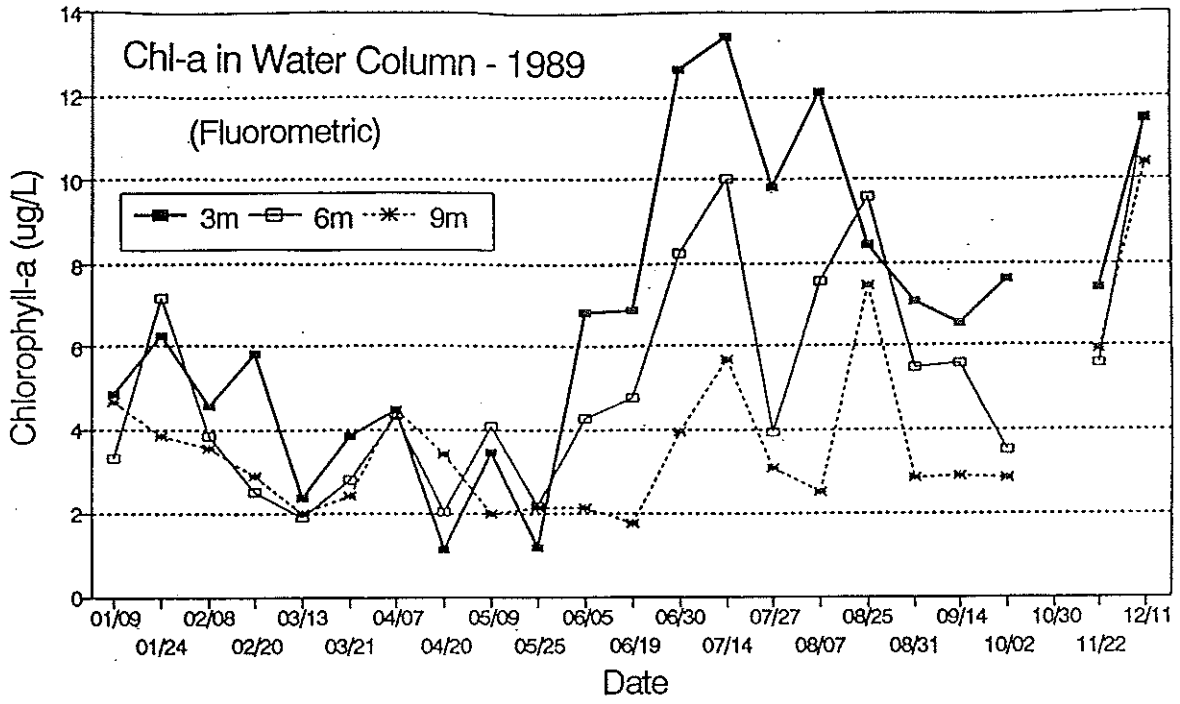




Figure 4 (continued). Composition of water column particulates (1989): Particulate nitrogen and particulate phosphorus.



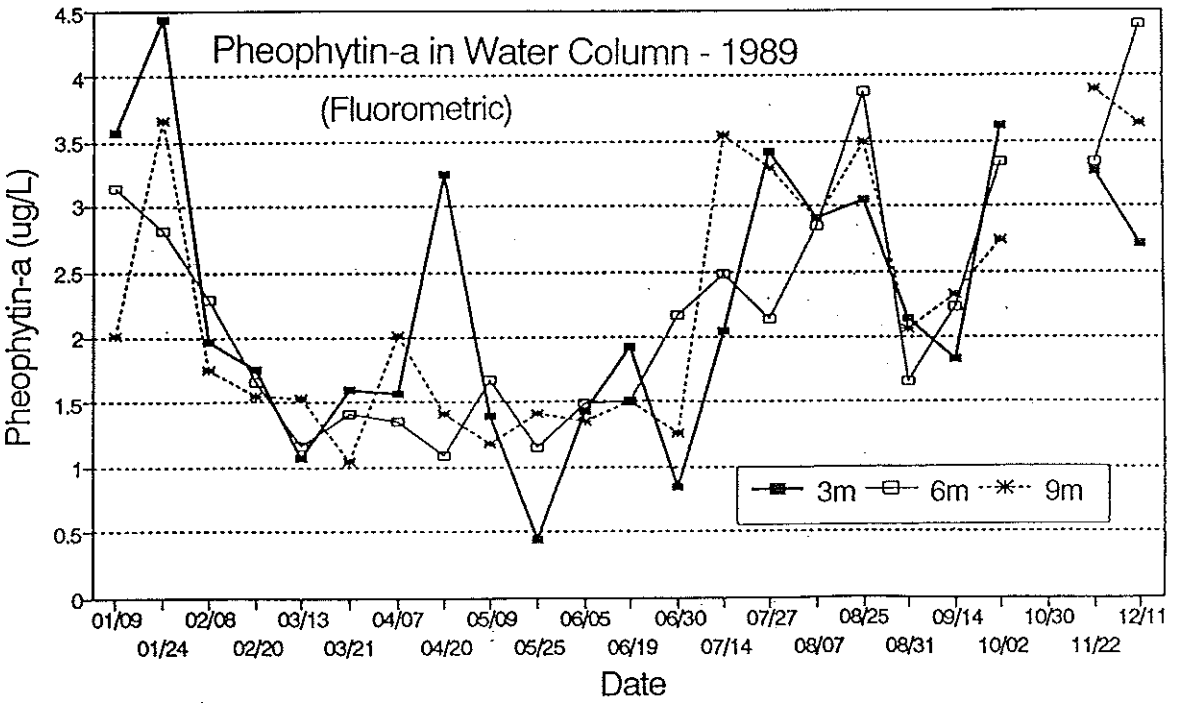




Figure 4 (continued). Composition of water column particulates (1989): Chlorophyll-a and pheophytin-a (fluorometric measurements).

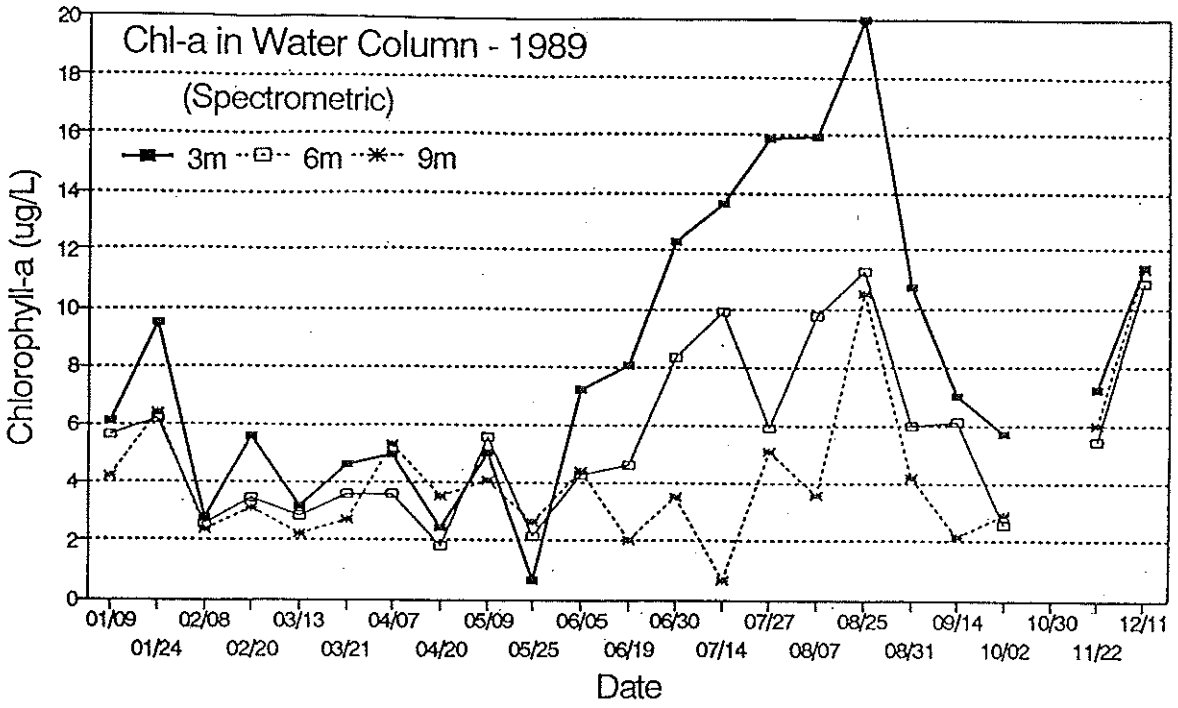



Figure 4 (continued). Composition of water column particulates (1989): Chlorophyll-a (spectrometric measurements).

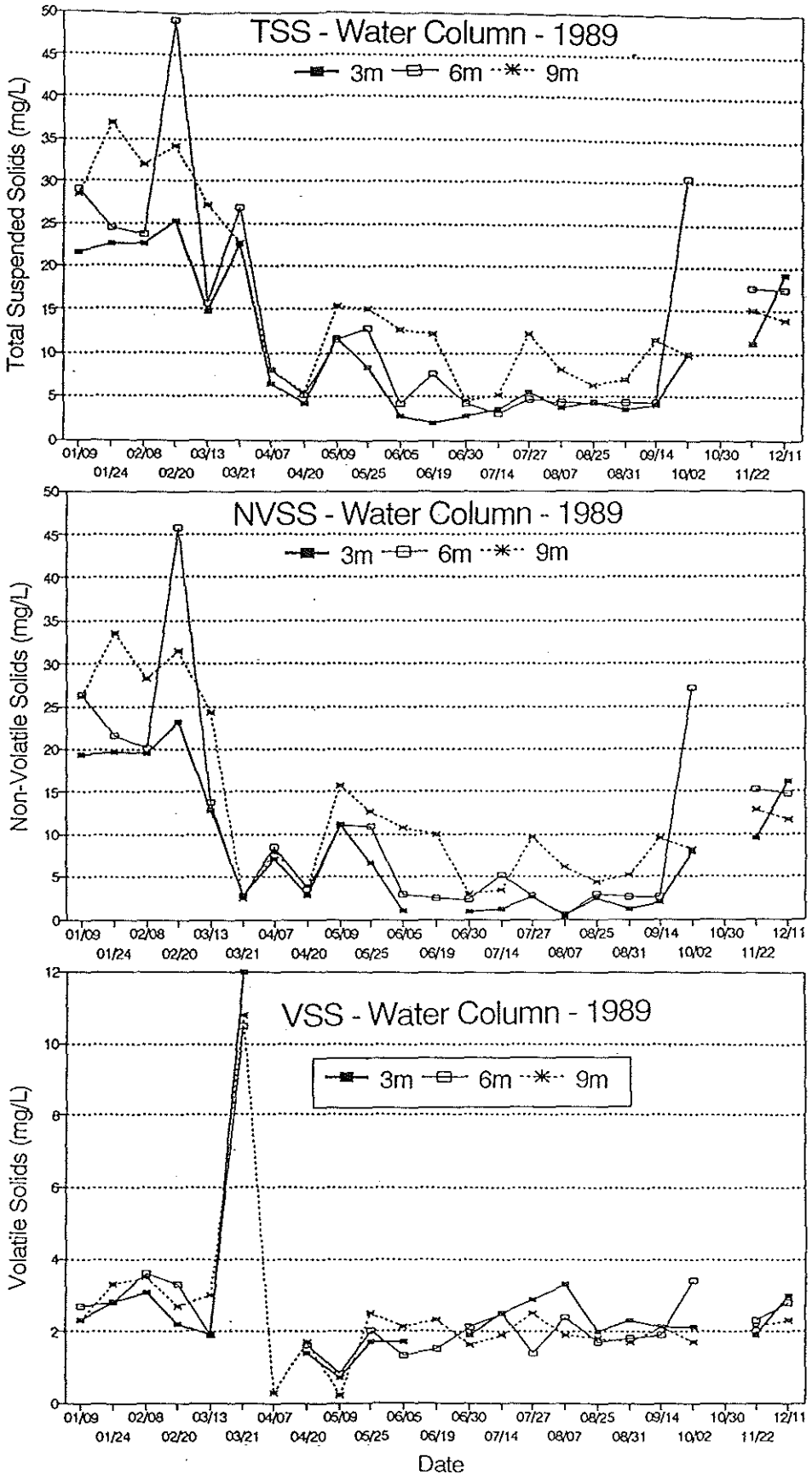
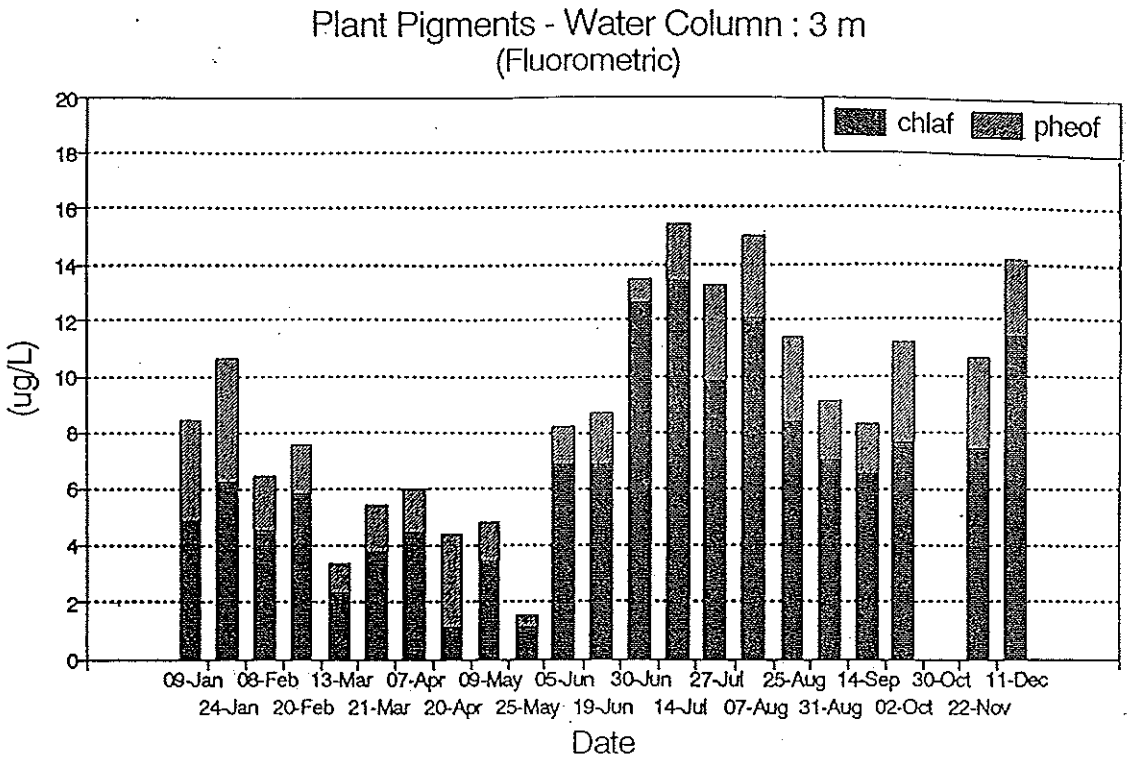



Figure 4 (continued). Composition of water column particulates (1989): Total suspended solids, non-volatile solids, and volatile solids.



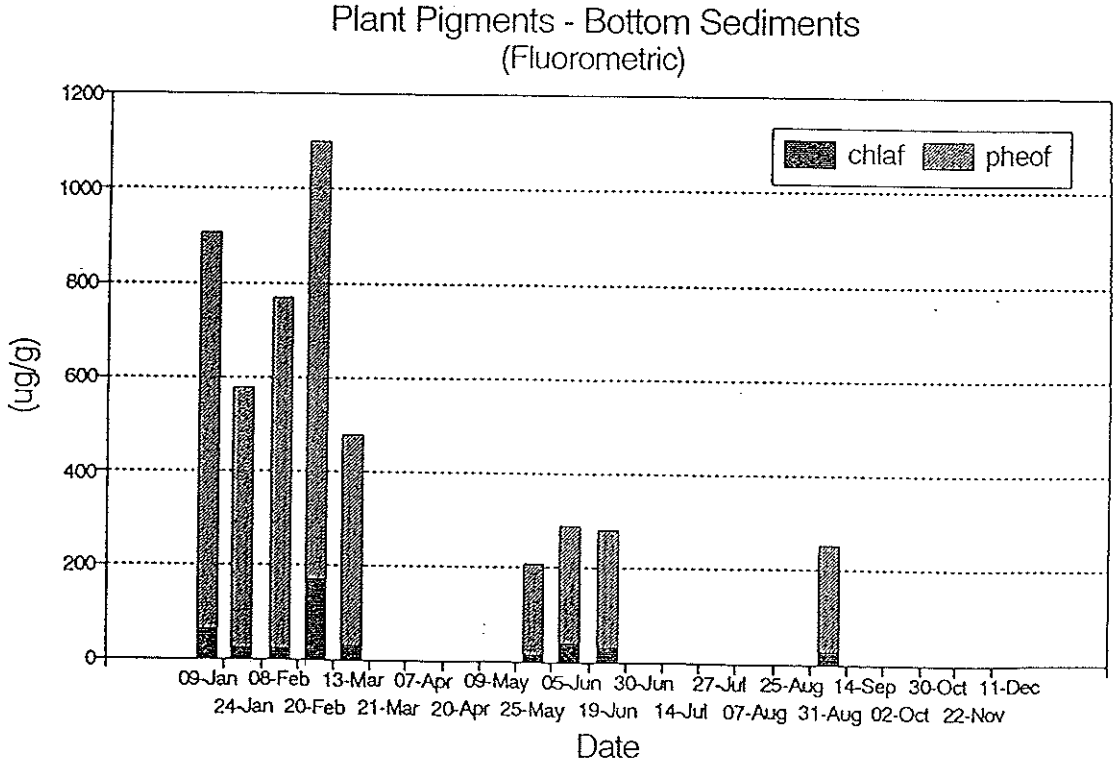




Figure 5. Total plant pigments (chlorophyll-a and pheophytin-a) in seston at 3m depth and in surficial bottom sediments (1989).

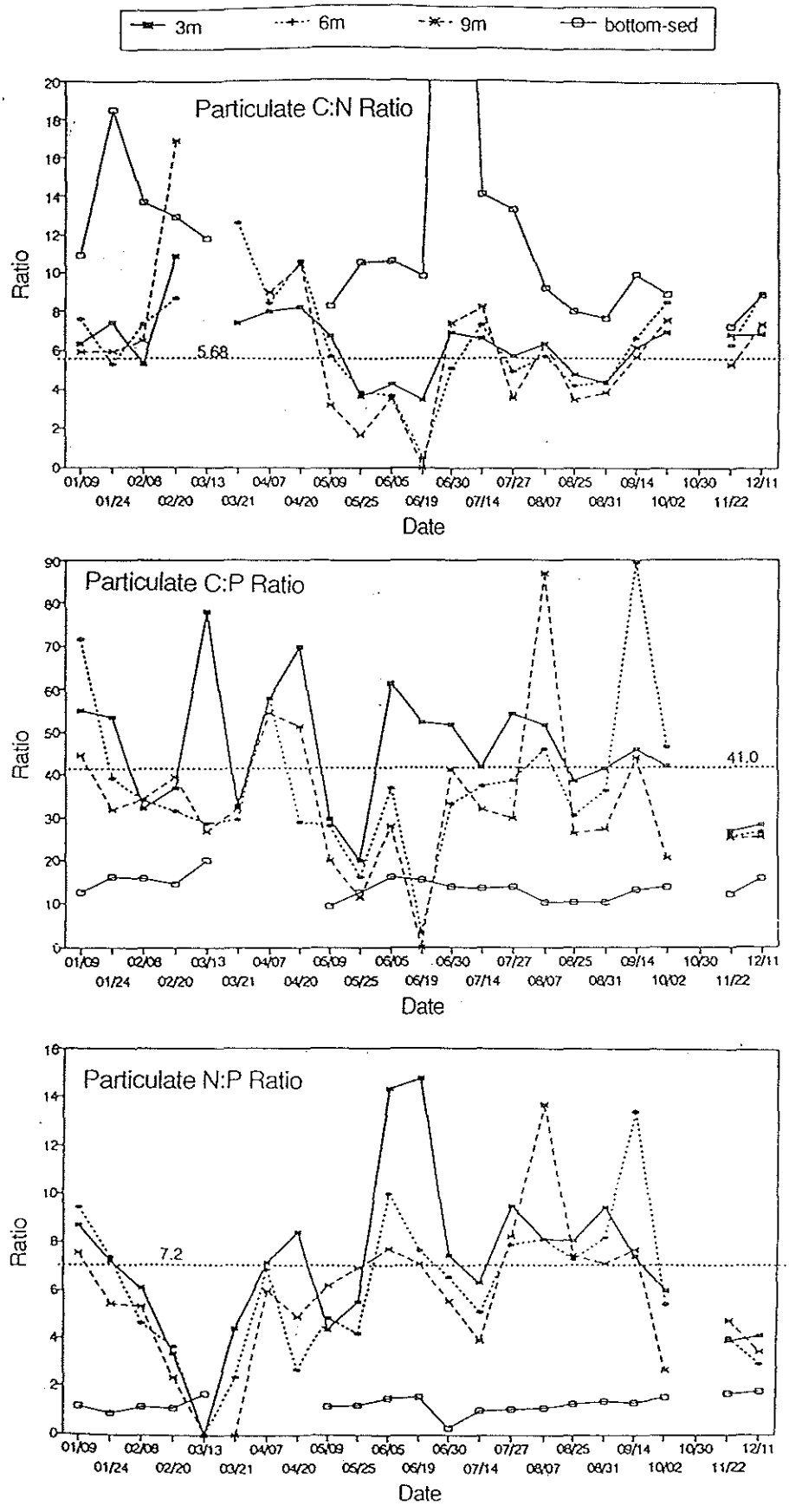
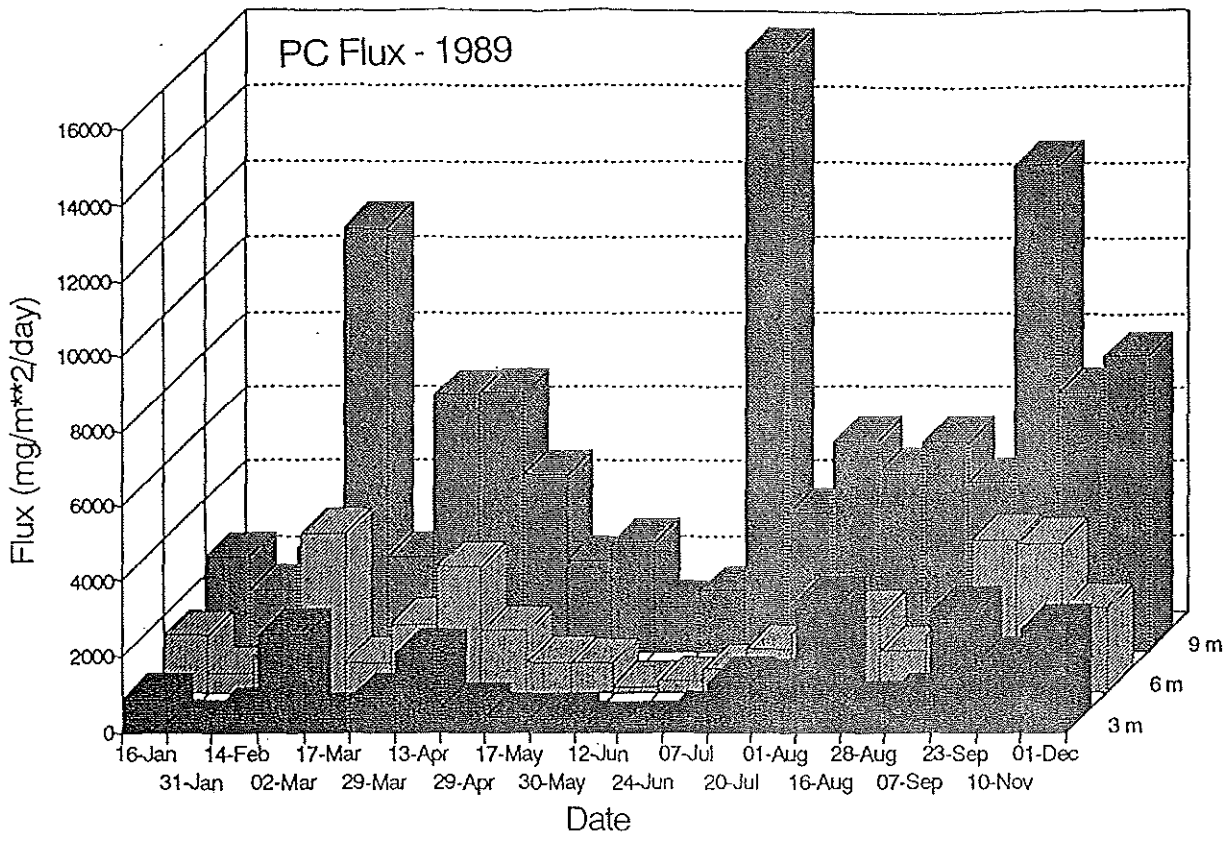



Figure 7. Ratios of water column PC to PN, PC to PP, and PN to PP (1989).



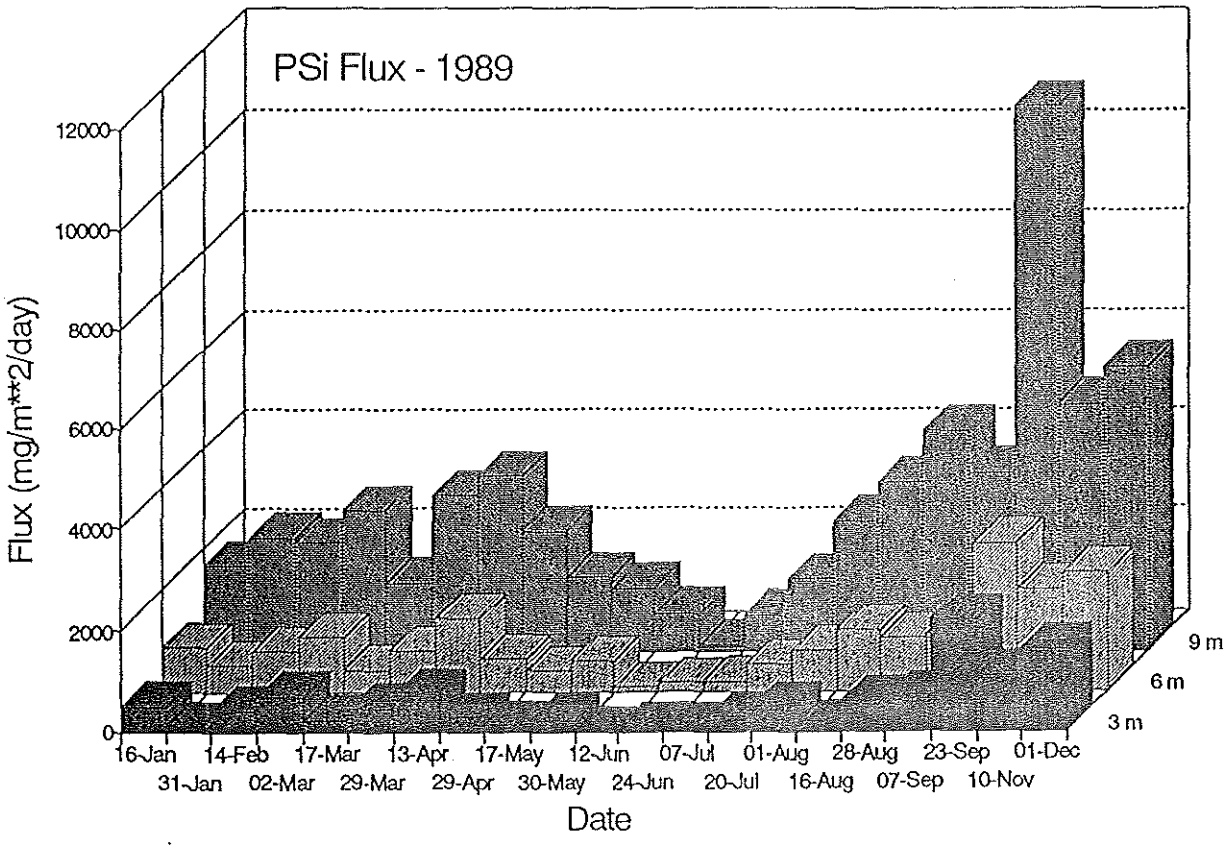
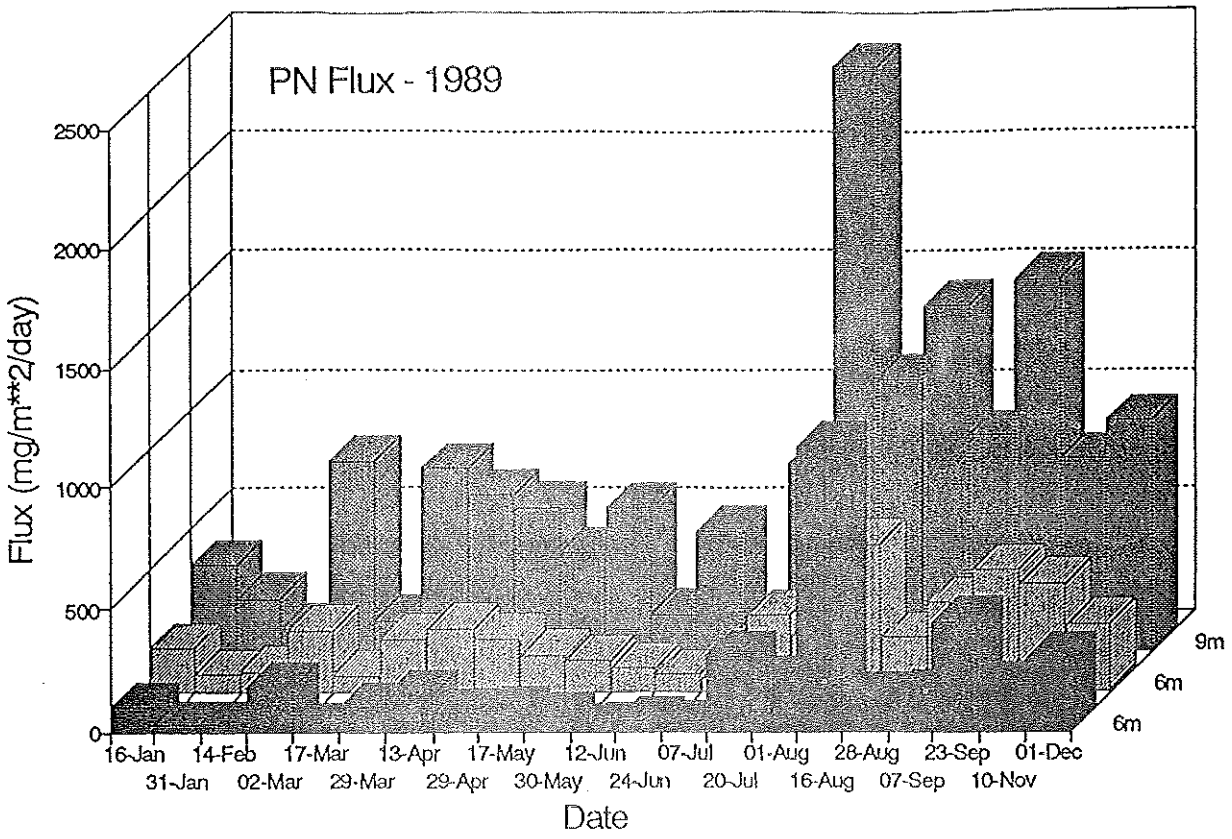




Figure 8. Fluxes of particulates (1989): Particulate carbon and biogenic silica.



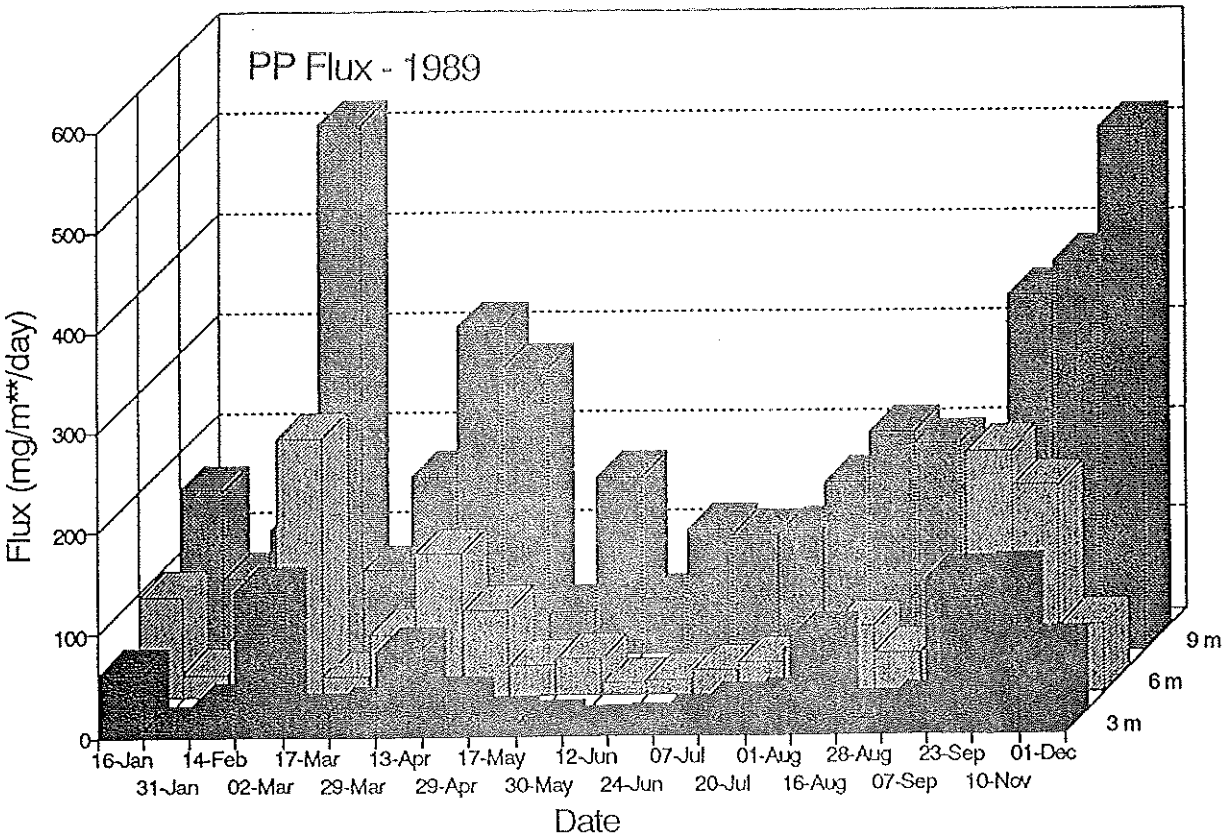
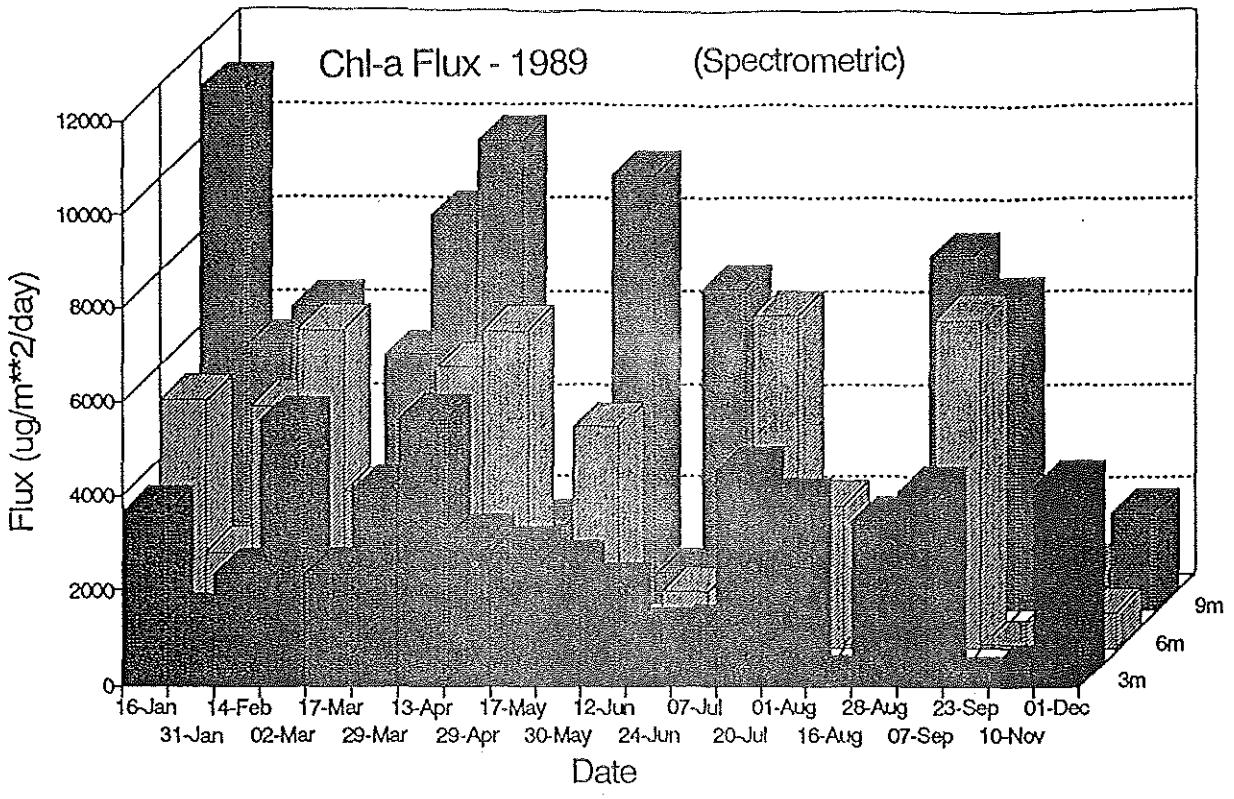




Figure 8 (continued). Fluxes of particulates (1989):
Particulate nitrogen and particulate phosphorus.



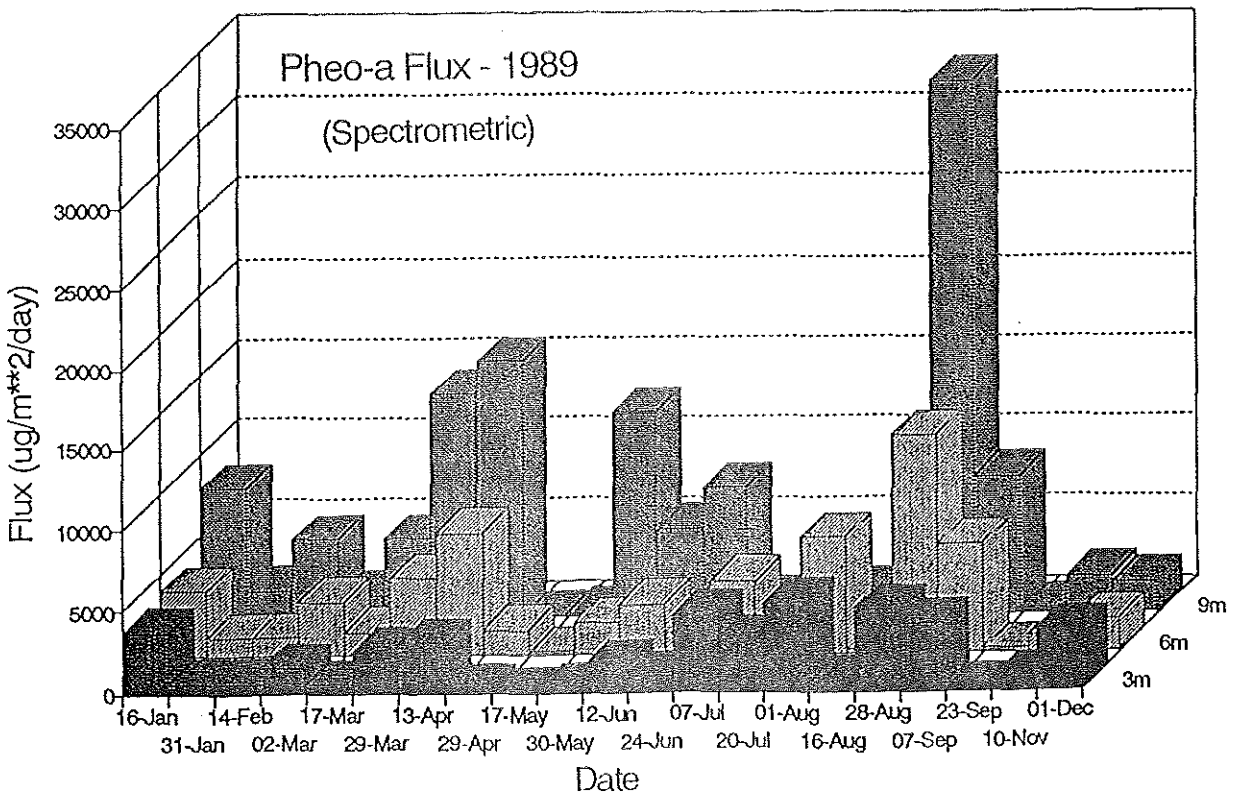
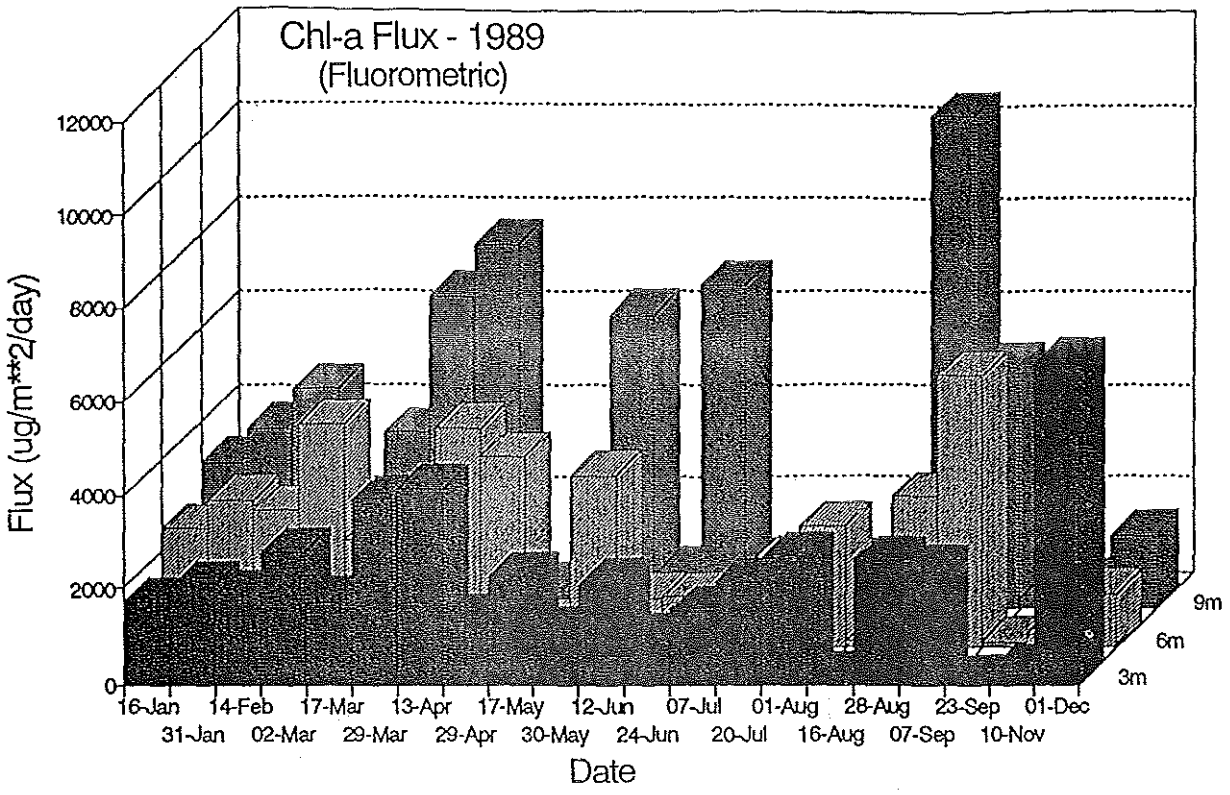




Figure 8 (continued). Fluxes of particulates (1989):
Chlorophyll-a and pheophytin-a (spectrometric measurements).



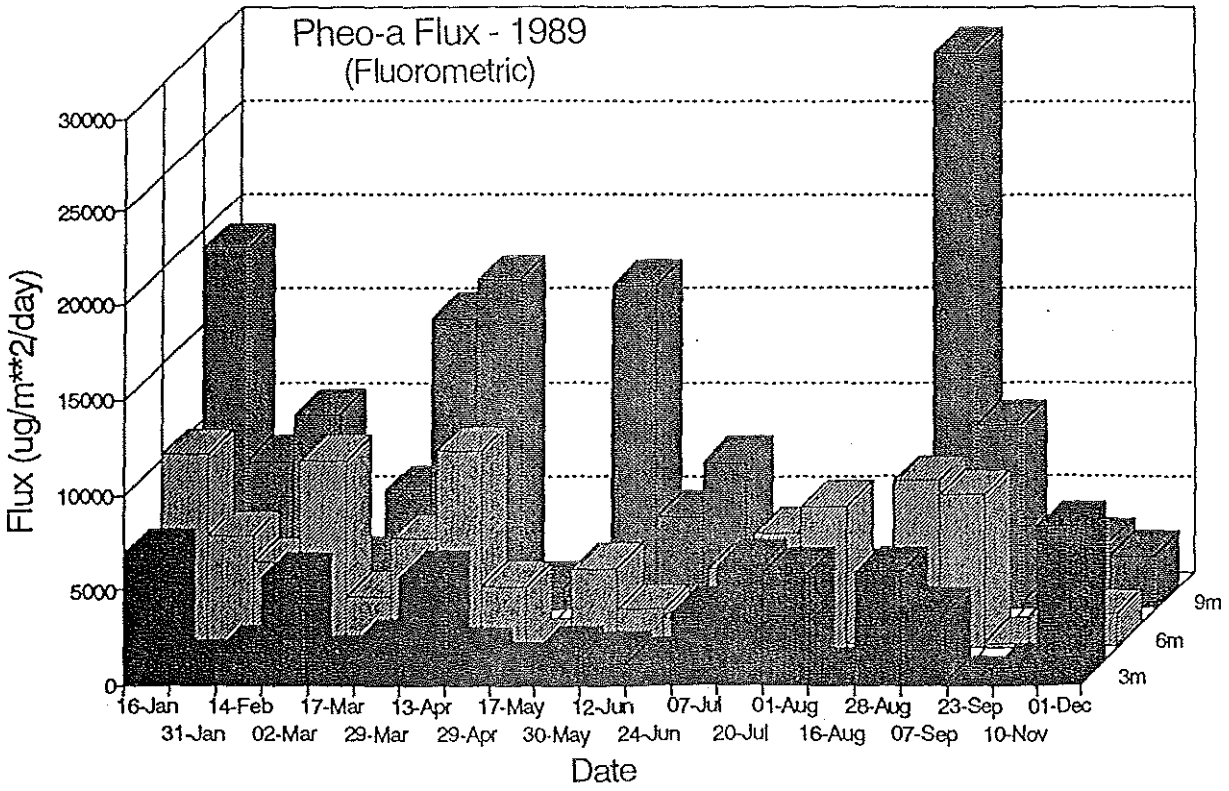




Figure 8 (continued). Fluxes of particulates (1989):
Chlorophyll-a and pheophytin-a (fluorometric measurements).

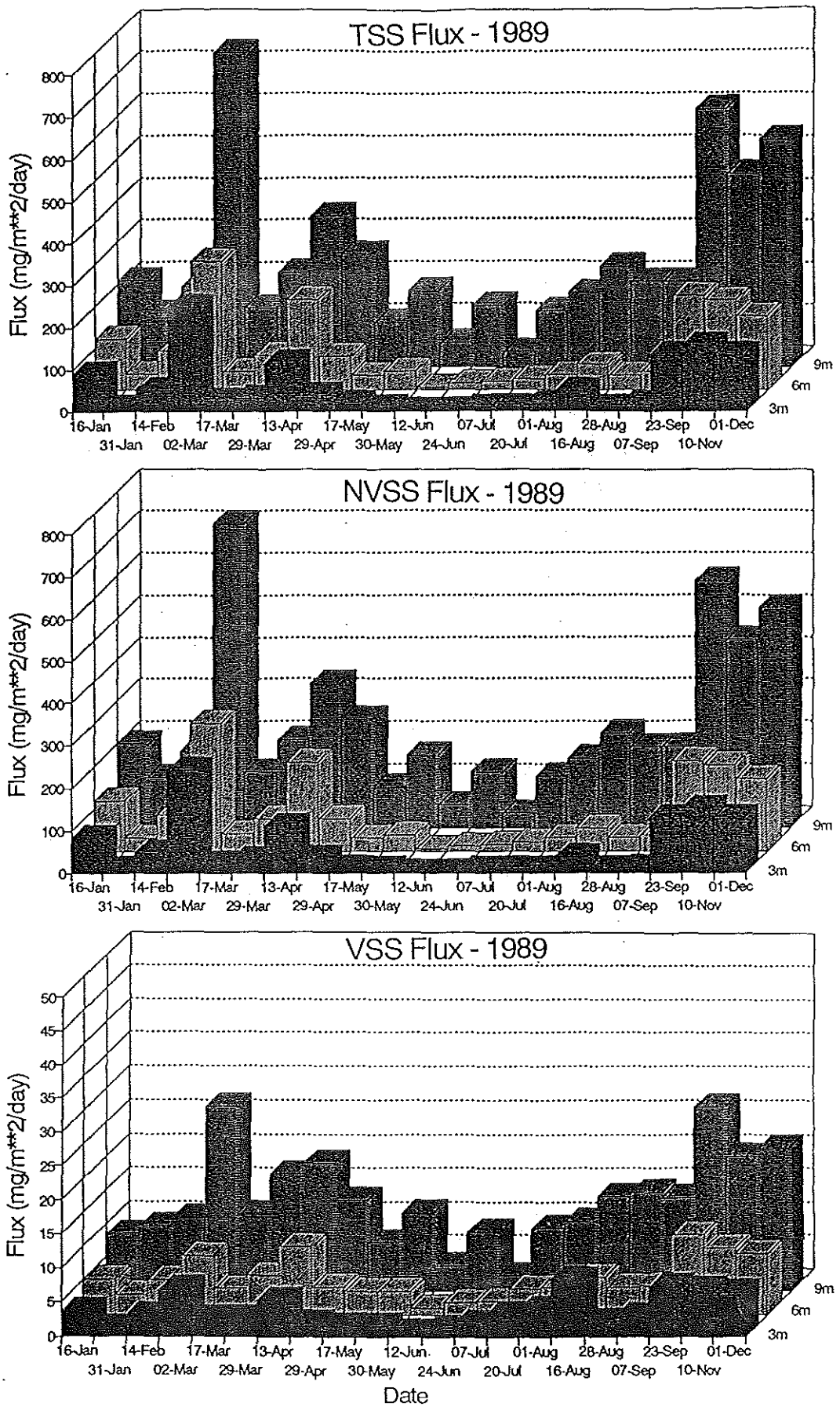



Figure 8 (continued). Fluxes of particulates (1989):
Total suspended solids, non-volatile solids, and volatile solids.

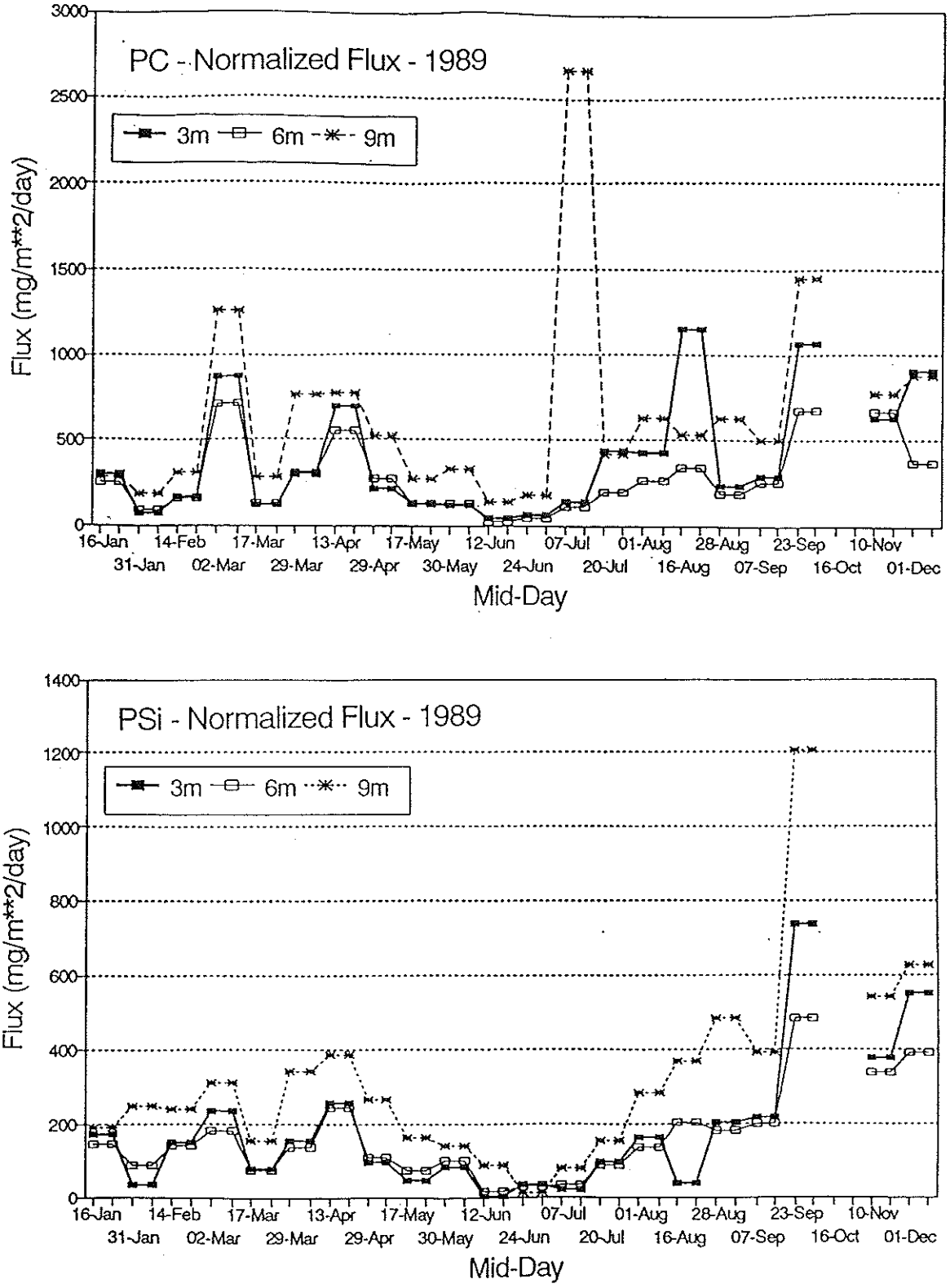
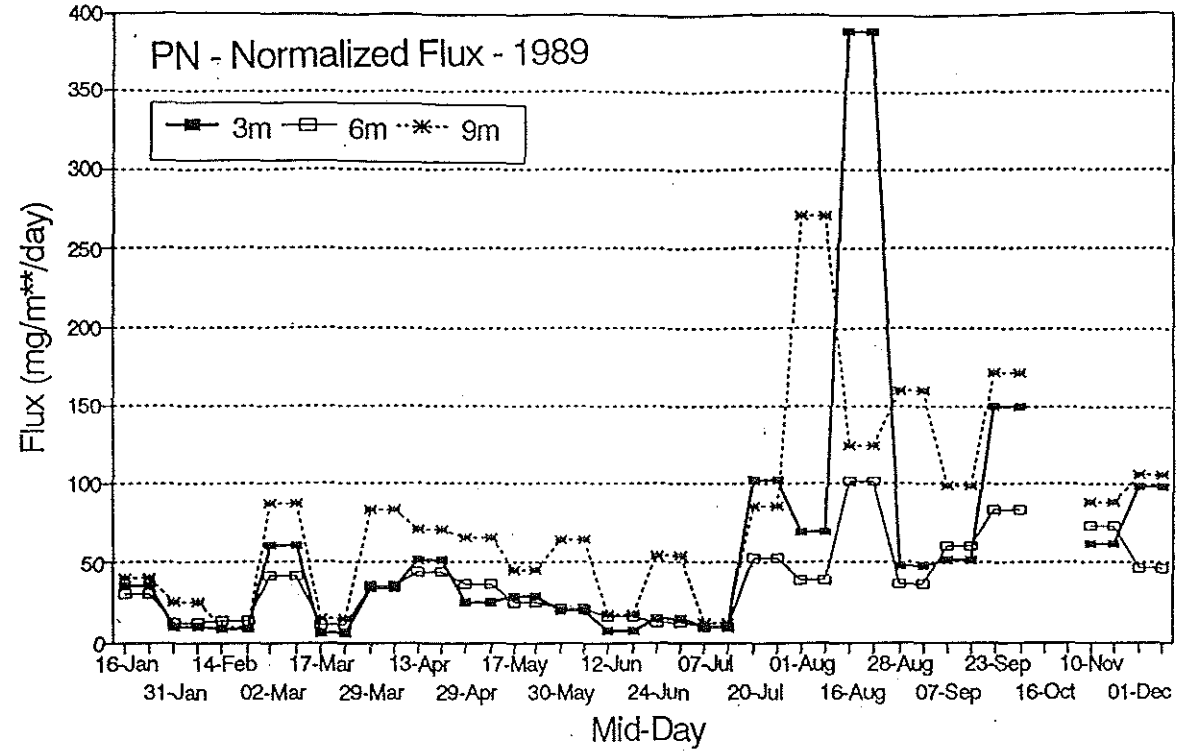



Figure 9. Normalized fluxes of particulates (1989): Particulate carbon and biogenic silica.



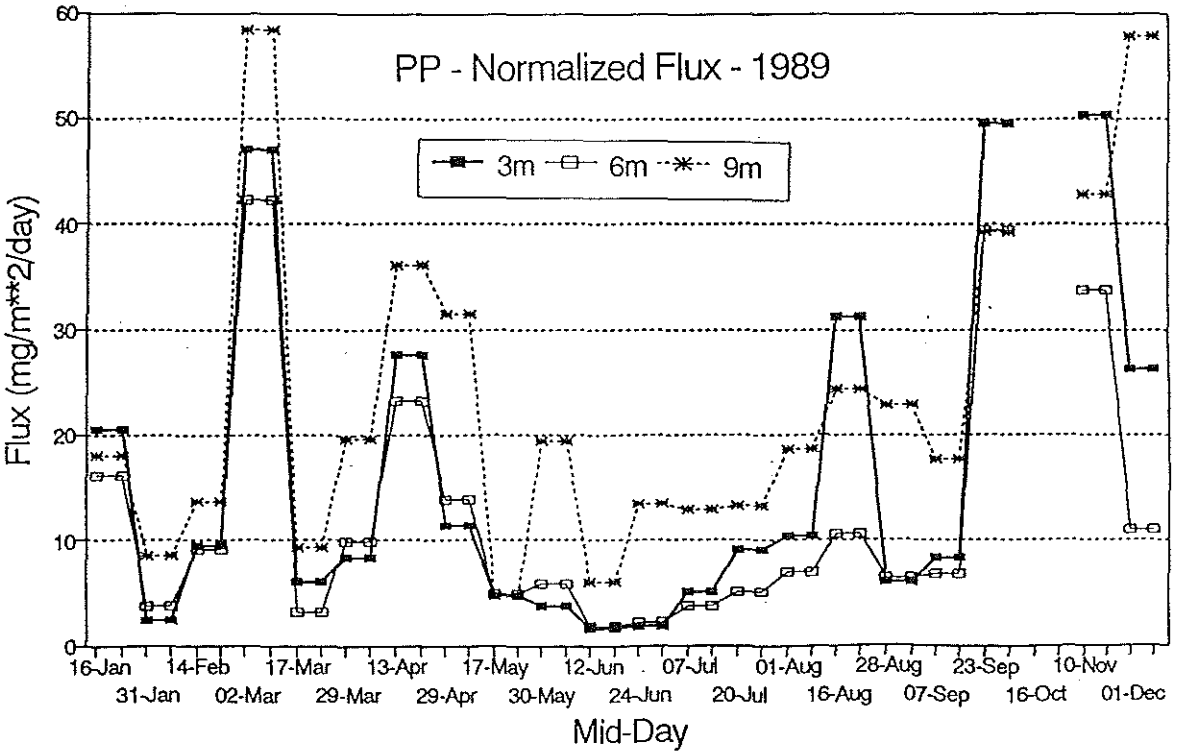
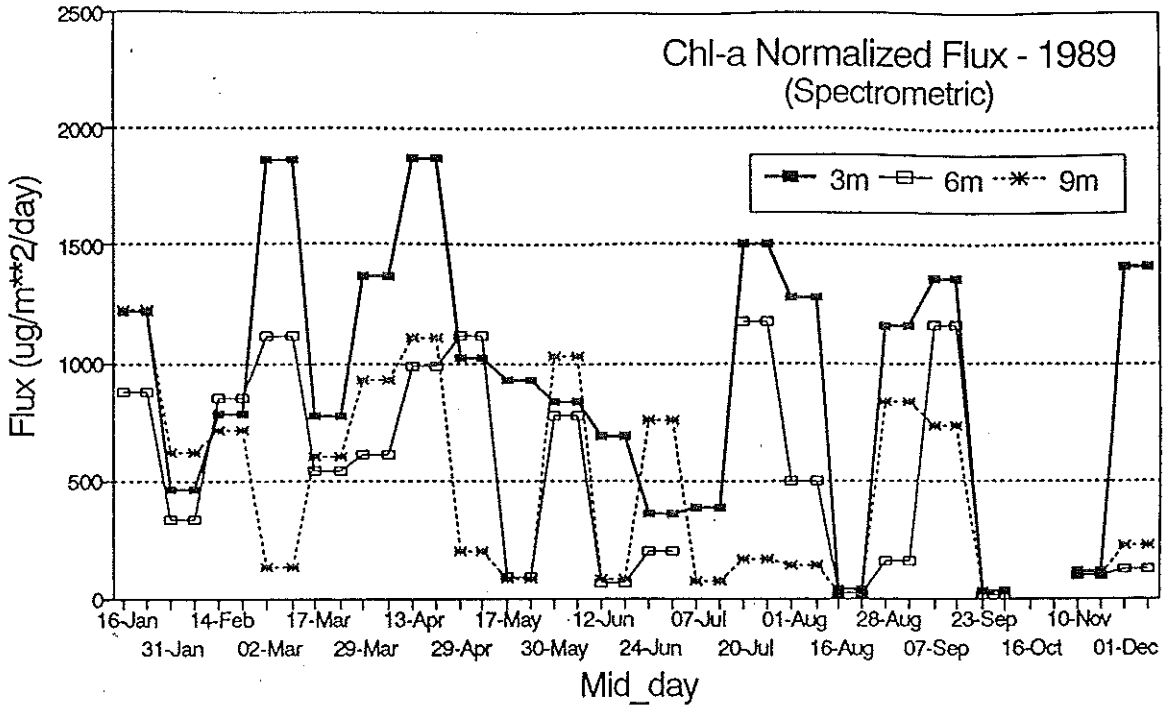




Figure 9 (continued). Normalized fluxes of particulates (1989): Particulate nitrogen and particulate phosphorus.



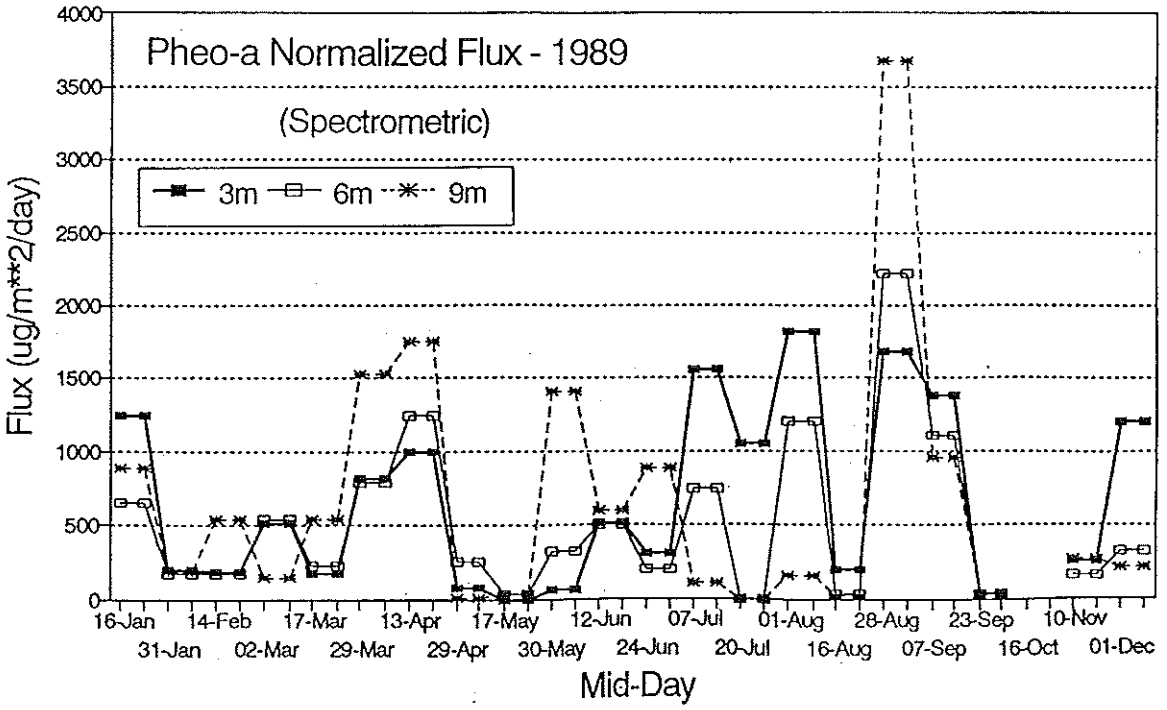
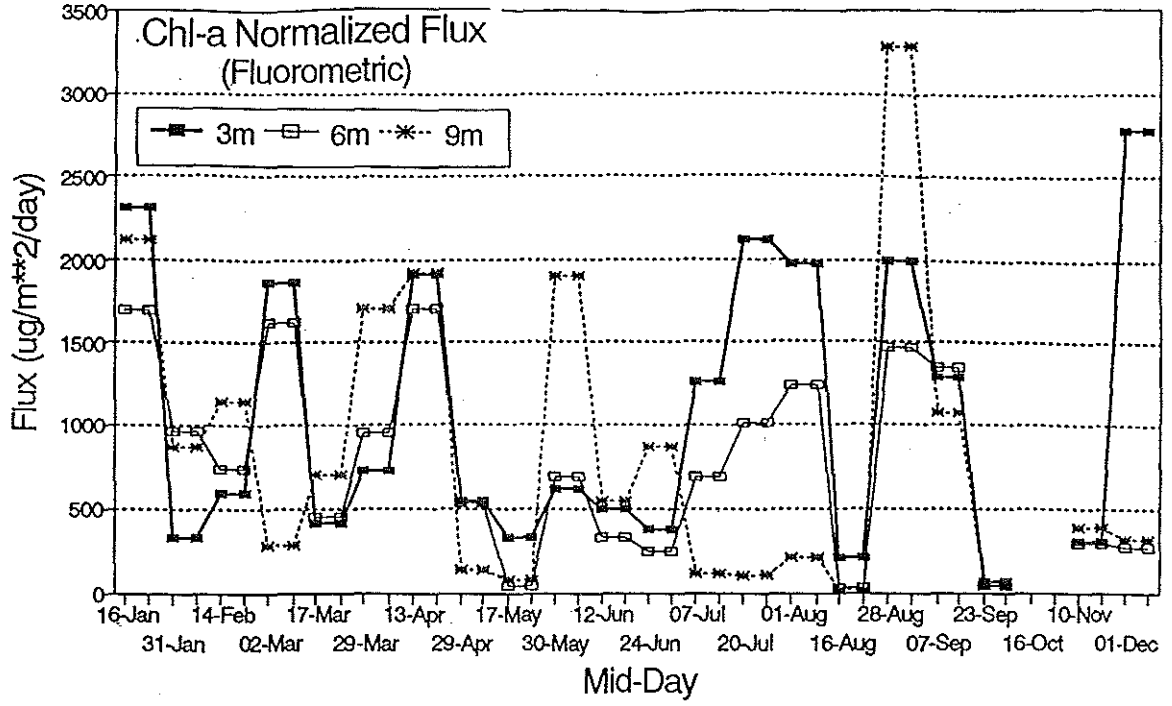




Figure 9 (continued). Normalized fluxes of particulates (1989):
Chlorophyll-a and pheophytin-a (spectrometric measurements).



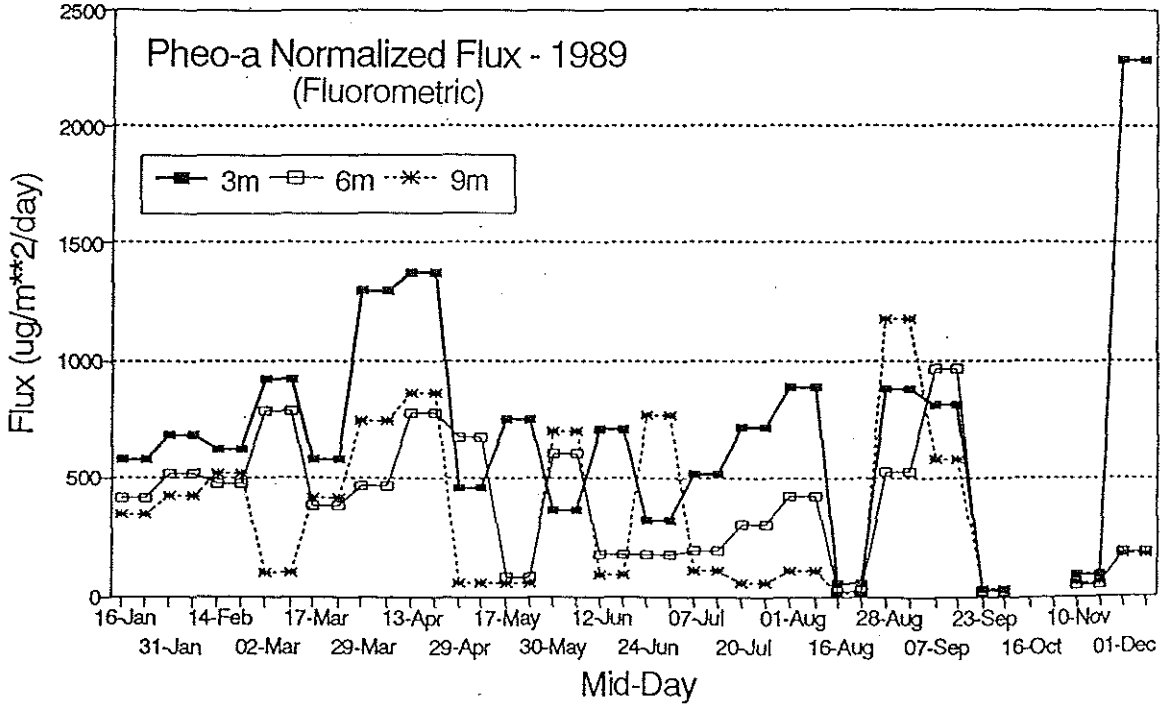




Figure 9 (continued). Normalized fluxes of particulates (1989):
Chlorophyll-a and pheophytin-a (fluorometric measurements).

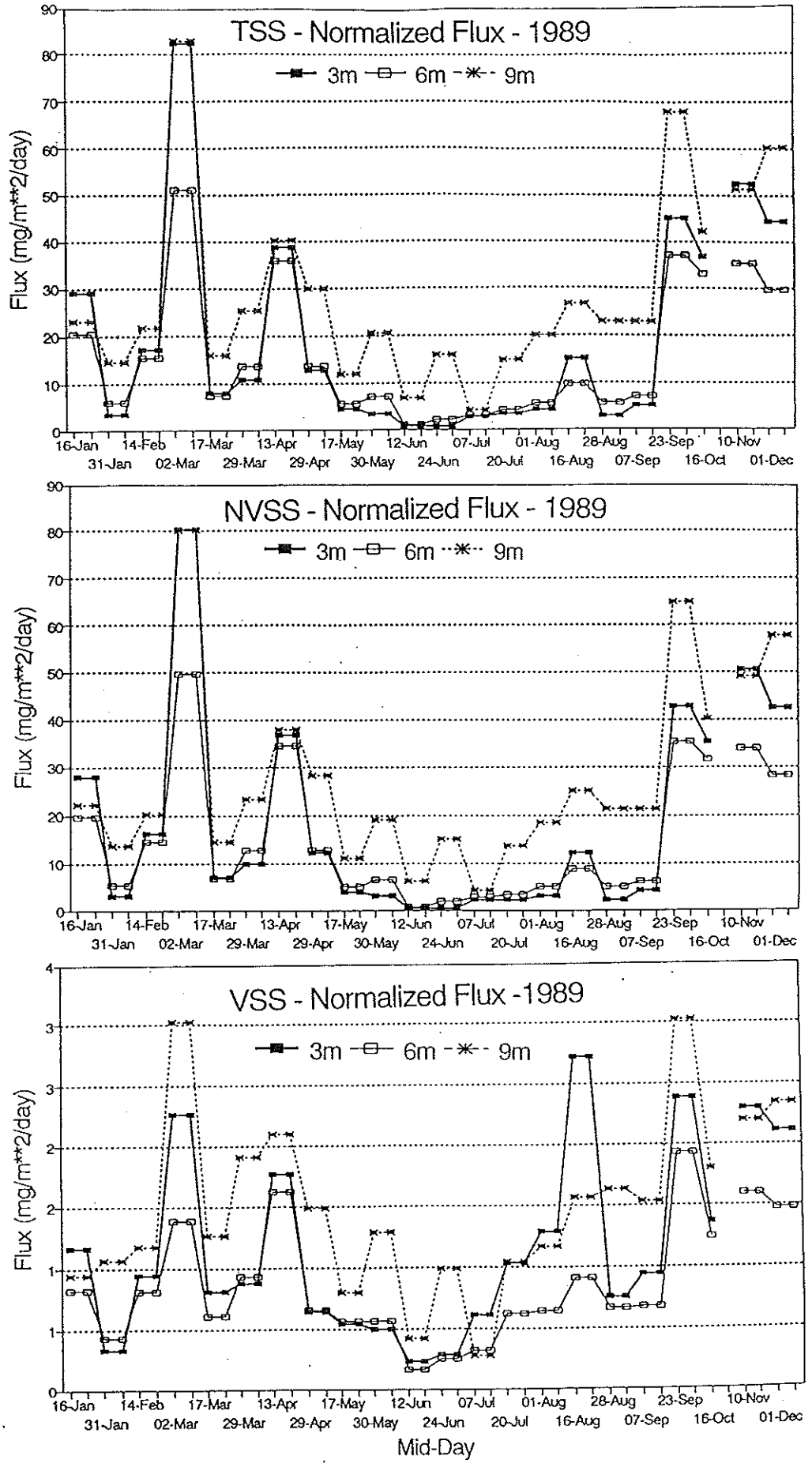



Figure 9 (continued). Normalized fluxes of particulates (1989):
Total suspended solids, non-volatile solids, and volatile solids.

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APPENDIX A. Vertical profiles of water column:

1. York River Station, 1988

   Table A1-a. Temperature
   Table A1-b. Salinity
   Table A1-c. D.O.

2. Cheaspeake Bay Station, 1988

   Table A2-a. Temperature
   Table A2-b. Salinity
   Table A2-c. D.O.

3. Chesapeake Bay Station, 1989

   Table A3-a. Temperature
   Table A3-b. Salinity
   Table A3-c. D.O.

Table A1-a. Vertical profile of water column temperature (°C) at the time of the 1988 trap deployments and retrievals (York River Station).

| Date | Apr. 4 | Apr. 20 | May 3 | May 16 | June 6 | June 6 | June 14 | June 28 | July 12 | July 12 | July 21 | July 28 | Aug. 5 | Aug. 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 14:00 | 14:00 | 07:12 | 06:54 | 08:00 | 09:06 | 07:54 | 08:54 | 07:12 | 09:24 | 07:12 | 13:12 | 14:00 | 11:48 |
| Depth | | | | | | | | | | | | | | |
| 0 m | 15.71 | 12.28 | 14.36 | 18.44 | 20.32 | 20.26 | 21.84 | 23.51 | 25.60 | 25.75 | 25.67 | | 28.53 | 29.02 |
| 1 m | 14.86 | 12.34 | 14.35 | 18.50 | 20.09 | 20.16 | 21.85 | 23.51 | 25.58 | 25.64 | 25.67 | 26.33 | 28.53 | 29.04 |
| 2 m | 14.82 | 12.30 | 14.34 | 18.63 | 20.08 | 20.16 | 21.83 | 23.50 | 25.59 | 25.62 | 25.67 | 26.29 | 28.52 | 29.00 |
| 3 m | 14.75 | 12.16 | 14.33 | 18.68 | 20.08 | 20.14 | 21.70 | 23.50 | 25.58 | 25.61 | 25.67 | 26.35 | 28.52 | 28.72 |
| 4 m | 14.66 | 11.95 | 14.35 | 18.66 | 20.08 | 20.13 | 21.50 | 23.49 | 25.51 | 25.61 | 25.69 | 26.43 | 28.51 | 28.59 |
| 5 m | 14.19 | 11.88 | 14.36 | 18.62 | 20.08 | 20.13 | 21.43 | 23.49 | 25.43 | 25.59 | 25.72 | 26.53 | 28.51 | 28.55 |
| 6 m | 13.99 | 11.87 | 14.37 | 18.60 | 20.08 | 20.13 | 21.39 | 23.48 | 25.33 | 25.55 | 25.52 | 26.60 | 28.51 | 28.38 |
| 7 m | 13.68 | 11.86 | 14.32 | 18.62 | 20.07 | 20.13 | 21.38 | 23.42 | 25.28 | 25.46 | 25.27 | 26.67 | 28.51 | 28.21 |
| 8 m | 13.11 | 11.83 | 14.18 | 18.64 | 20.08 | 20.12 | 21.37 | 23.34 | 25.20 | 25.19 | 24.56 | 26.65 | 28.50 | 27.28 |
| 9 m | 12.63 | 11.80 | 13.97 | 18.64 | 20.09 | 20.11 | 21.34 | 23.25 | 25.04 | 24.65 | 23.44 | 26.41 | 28.50 | 26.79 |
| 10 m | 11.84 | 11.78 | 13.93 | 18.61 | 20.08 | 20.10 | 21.24 | 23.07 | 24.45 | 24.49 | 23.30 | 26.35 | 28.50 | 26.65 |
| 11 m | 10.77 | 11.75 | 13.92 | 18.57 | 20.06 | 20.08 | 21.11 | 22.56 | 24.13 | 24.35 | 23.17 | 25.41 | 28.50 | 25.67 |
| 12 m | 10.16 | 11.69 | 13.87 | 18.57 | 20.05 | 20.05 | 21.08 | 21.85 | 24.01 | 24.09 | 23.09 | 25.01 | 28.50 | 25.20 |
| 13 m | 9.69 | 11.64 | 13.79 | 18.57 | 20.04 | 20.04 | 21.00 | 21.72 | 23.98 | 23.92 | 23.04 | 24.49 | 28.50 | 24.77 |
| 14 m | 9.61 | 11.60 | 13.71 | 18.58 | 20.04 | 20.03 | 20.95 | 21.68 | 23.95 | 23.76 | 22.96 | 24.12 | 28.49 | 24.58 |
| 15 m | 9.50 | 11.56 | 13.72 | 18.58 | 20.04 | 20.03 | 20.86 | 21.54 | 23.91 | 23.71 | 22.94 | 23.63 | 28.48 | 24.35 |
| 16 m | 9.41 | 11.53 | 13.56 | 18.58 | 20.04 | 20.02 | 20.81 | 21.36 | | 23.68 | 22.93 | 23.33 | 28.48 | 24.25 |
| 17 m | 9.31 | 11.50 | 13.28 | | 20.04 | 20.00 | 20.78 | 21.33 | | | 22.92 | 23.26 | | 24.19 |
| 18 m | 9.24 | 11.49 | 13.16 | | 20.04 | 19.98 | 20.77 | 21.31 | | | | | | |
| 19 m | | 11.49 | | | 20.03 | 19.89 | | 21.29 | | | | | | |
| average | 12.21 | 11.82 | 13.99 | 18.59 | 20.08 | 20.08 | 21.28 | 22.61 | 24.91 | 24.86 | 24.29 | 25.52 | 28.51 | 26.85 |

Table A1-a (continued). Vertical profile of water column temperature (°C) (1988, York River Station).

| Date | Aug. 18 | Aug. 25 | Sept. 1 | Sept. 6 | Sept. 12 | Sept. 26 | Oct. 6 | Oct. 11 | Oct. 20 | Nov. 4 | Nov. 15 | Nov. 29 | Dec. 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 13:12 | 12:24 | 12:18 | 13:12 | 15:30 | 11:12 | 09:18 | 14:30 | 07:54 | 09:12 | 09:06 | 08:48 | 11:48 |
| Depth | | | | | | | | | | | | | |
| 0 m | 28.61 | 27.75 | 25.67 | 23.67 | 23.77 | 22.44 | 21.23 | 18.90 | | | 13.05 | 11.78 | 7.06 |
| 1 m | 28.62 | 27.73 | 25.68 | 24.54 | 23.80 | 22.45 | 21.25 | 18.89 | 16.36 | 12.84 | 13.05 | 11.79 | 7.08 |
| 2 m | 28.59 | 27.72 | 25.64 | 24.54 | 23.77 | 22.41 | 21.25 | 18.88 | 16.36 | 12.97 | 13.06 | 11.80 | 7.07 |
| 3 m | 28.44 | 27.29 | 25.55 | 24.54 | 23.72 | 22.39 | 21.25 | 18.87 | 16.37 | 13.10 | 13.07 | 11.80 | 7.08 |
| 4 m | 28.23 | 26.60 | 25.48 | 24.53 | 23.59 | 22.38 | 21.25 | 18.85 | 16.36 | 13.19 | 13.06 | 11.81 | 7.09 |
| 5 m | 28.10 | 26.45 | 25.44 | 24.52 | 23.54 | 22.38 | 21.24 | 18.79 | 16.38 | 13.09 | 13.08 | 11.83 | 7.10 |
| 6 m | 28.02 | 26.05 | 25.42 | 24.51 | 23.40 | 22.36 | 21.22 | 18.77 | 16.38 | 13.08 | 13.11 | 11.86 | 7.12 |
| 7 m | 27.79 | 25.90 | 25.40 | 24.49 | 23.31 | 22.46 | 21.21 | 18.76 | 16.39 | 13.14 | 13.12 | 11.92 | 7.13 |
| 8 m | 27.55 | 25.57 | 25.40 | 24.46 | 23.29 | 22.45 | 21.21 | 18.73 | 16.34 | 13.18 | 13.10 | 11.98 | 7.07 |
| 9 m | 27.35 | 25.18 | 25.39 | 24.41 | 23.28 | 22.44 | 21.42 | 18.69 | 16.38 | 13.23 | 13.10 | 12.07 | 7.00 |
| 10 m | 27.17 | 24.09 | 25.37 | 24.22 | 23.28 | 22.42 | 21.66 | 18.57 | 16.44 | 13.10 | 13.09 | 12.12 | 6.97 |
| 11 m | 26.67 | 23.06 | 25.33 | 23.47 | 23.27 | 22.36 | 21.60 | 18.49 | 16.30 | 13.04 | 13.08 | 12.07 | 6.93 |
| 12 m | 24.64 | 22.52 | 25.30 | 23.18 | 23.28 | 22.17 | 21.51 | 18.38 | 15.96 | 12.95 | 13.04 | 12.01 | 6.89 |
| 13 m | 24.08 | 22.26 | 25.28 | 22.99 | 23.32 | 21.98 | 21.54 | 18.39 | 15.94 | 12.92 | 13.03 | 11.97 | 6.87 |
| 14 m | 23.65 | 22.21 | 25.24 | 22.94 | 23.31 | 21.97 | 21.51 | 18.40 | 15.89 | 13.02 | 13.03 | 11.97 | 6.86 |
| 15 m | 23.32 | 21.72 | 25.22 | 22.92 | 23.26 | 21.95 | 21.52 | 18.33 | 15.85 | 13.26 | 13.01 | 11.95 | 6.86 |
| 16 m | 23.25 | 21.57 | 25.22 | 22.91 | 23.25 | 21.94 | 21.53 | 18.32 | 15.83 | 13.36 | 12.97 | 11.95 | 6.85 |
| 17 m | 23.09 | 21.55 | 25.23 | 22.89 | 23.25 | 21.94 | 21.53 | 18.31 | 15.83 | 13.43 | 12.96 | 11.95 | 6.84 |
| 18 m | 22.56 | | 25.23 | 22.86 | | 21.94 | 21.53 | 18.27 | 15.83 | | | | 6.84 |
| 19 m | | | | | | | | 18.27 | | | | | 6.85 |
| average | 26.30 | 24.73 | 25.39 | 23.82 | 23.43 | 22.25 | 21.39 | 18.59 | 16.18 | 13.11 | 13.06 | 11.92 | 6.98 |

Table A1-b. Vertical profile of water column salinity (ppt) at the time of the 1988 trap deployments and retrievals (York River Station).

| Date | Apr. 4 | Apr. 20 | May 3 | May 16 | June 6 | June 6 | June 14 | June 28 | July 12 | July 12 | July 21 | July 28 | Aug. 5 | Aug. 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 14:00 | 14:00 | 07:12 | 06:54 | 08:00 | 09:06 | 07:54 | 08:54 | 07:12 | 09:24 | 07:12 | 13:12 | 14:00 | 11:48 |
| Depth | | | | | | | | | | | | | | |
| 0 m | 18.69 | 18.43 | 18.86 | 17.96 | 17.51 | 17.42 | 17.81 | 20.33 | 20.48 | 20.57 | 22.26 | | 22.20 | 22.23 |
| 1 m | 19.19 | 18.43 | 18.86 | 18.03 | 17.60 | 17.48 | 17.81 | 20.21 | 20.51 | 20.61 | 22.26 | 22.59 | 22.20 | 22.25 |
| 2 m | 19.20 | 18.42 | 18.87 | 18.10 | 17.61 | 17.48 | 17.81 | 20.09 | 20.50 | 20.62 | 22.26 | 22.71 | 22.21 | 22.26 |
| 3 m | 19.18 | 18.42 | 18.89 | 18.12 | 17.64 | 17.49 | 17.86 | 20.05 | 20.55 | 20.62 | 22.29 | 22.77 | 22.20 | 22.41 |
| 4 m | 19.15 | 18.47 | 18.93 | 18.16 | 17.65 | 17.50 | 17.96 | 20.05 | 20.64 | 20.62 | 22.41 | 22.84 | 22.21 | 22.51 |
| 5 m | 19.15 | 18.56 | 19.00 | 18.18 | 17.72 | 17.51 | 18.02 | 20.09 | 20.78 | 20.62 | 22.60 | 22.90 | 22.21 | 22.58 |
| 6 m | 19.42 | 18.63 | 19.05 | 18.20 | 17.74 | 17.54 | 18.07 | 20.23 | 20.89 | 20.65 | 22.90 | 22.93 | 22.21 | 22.85 |
| 7 m | 19.82 | 18.66 | 19.06 | 18.21 | 17.78 | 17.57 | 18.09 | 20.73 | 20.97 | 20.80 | 23.24 | 23.01 | 22.21 | 22.99 |
| 8 m | 19.93 | 18.76 | 19.15 | 18.23 | 17.81 | 17.62 | 18.12 | 21.21 | 21.11 | 21.09 | 24.17 | 23.20 | 22.22 | 23.53 |
| 9 m | 20.16 | 18.84 | 19.31 | 18.24 | 17.84 | 17.64 | 18.16 | 21.44 | 21.31 | 21.55 | 25.45 | 23.44 | 22.22 | 23.85 |
| 10 m | 20.80 | 18.90 | 19.34 | 18.26 | 17.87 | 17.66 | 18.22 | 21.87 | 21.73 | 21.68 | 25.61 | 23.47 | 22.23 | 24.29 |
| 11 m | 22.37 | 19.00 | 19.35 | 18.28 | 17.88 | 17.71 | 18.29 | 23.25 | 22.01 | 21.83 | 25.78 | 24.22 | 22.27 | 25.05 |
| 12 m | 23.41 | 19.16 | 19.41 | 18.28 | 17.88 | 17.77 | 18.31 | 24.57 | 22.15 | 22.03 | 25.86 | 24.58 | 22.50 | 25.44 |
| 13 m | 24.24 | 19.28 | 19.51 | 18.29 | 17.88 | 17.79 | 18.37 | 24.81 | 22.19 | 22.20 | 25.91 | 25.05 | 22.83 | 25.87 |
| 14 m | 24.40 | 19.39 | 19.72 | 18.29 | 17.88 | 17.81 | 18.42 | 24.84 | 22.23 | 22.36 | 26.00 | 25.38 | 22.86 | 26.09 |
| 15 m | 24.66 | 19.48 | 19.86 | 18.29 | 17.89 | 17.83 | 18.51 | 25.25 | 22.28 | 22.44 | 26.02 | 25.83 | 22.86 | 26.34 |
| 16 m | 24.81 | 19.51 | 20.10 | 18.30 | 17.90 | 17.85 | 18.58 | 25.63 | | 22.48 | 26.03 | 26.11 | 22.86 | 26.43 |
| 17 m | 25.13 | 19.60 | 20.52 | | 17.91 | 17.87 | 18.61 | 25.67 | | | 26.06 | 26.18 | | 26.48 |
| 18 m | 25.24 | 19.62 | 20.71 | | 17.92 | 17.90 | 18.61 | 25.74 | | | | | | |
| 19 m | | 19.62 | | | 17.95 | 17.98 | | 25.79 | | | | | | |
| average | 21.52 | 18.96 | 19.39 | 18.20 | 17.79 | 17.67 | 18.19 | 22.59 | 21.27 | 21.34 | 24.28 | 23.95 | 22.38 | 24.08 |

Table A1-b (continued). Vertical profile of water column salinity (ppt) (1988, York River Station).

| Date | Aug. 18 | Aug. 25 | Sept. 1 | Sept. 6 | Sept. 12 | Sept. 26 | Oct. 6 | Oct. 11 | Oct. 20 | Nov. 4 | Nov. 15 | Nov. 29 | Dec. 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 13:12 | 12:24 | 12:18 | 13:12 | 15:30 | 11:12 | 09:18 | 14:30 | 07:54 | 09:12 | 09:06 | 08:48 | 11:48 |
| Depth | | | | | | | | | | | | | |
| 0 m | 23.87 | 22.32 | 23.33 | | 22.72 | 23.33 | 23.30 | 23.47 | | | 23.45 | 22.49 | 15.14 |
| 1 m | 23.86 | 22.31 | 23.34 | 23.66 | 22.71 | 23.36 | 23.30 | 23.58 | 24.26 | 22.22 | 23.43 | 22.52 | 17.00 |
| 2 m | 23.86 | 22.31 | 23.35 | 23.68 | 22.74 | 23.37 | 23.29 | 23.74 | 24.30 | 22.69 | 23.63 | 22.81 | 18.35 |
| 3 m | 23.91 | 22.36 | 23.37 | 23.69 | 22.88 | 23.38 | 23.28 | 23.78 | 24.33 | 22.87 | 23.78 | 23.02 | 21.32 |
| 4 m | 23.92 | 22.62 | 23.38 | 23.69 | 22.95 | 23.40 | 23.27 | 23.81 | 24.36 | 23.30 | 23.84 | 23.05 | 21.65 |
| 5 m | 23.99 | 22.93 | 23.38 | 23.70 | 22.96 | 23.38 | 23.27 | 23.87 | 24.37 | 23.53 | 23.87 | 23.10 | 21.88 |
| 6 m | 24.01 | 23.57 | 23.39 | 23.73 | 23.05 | 23.37 | 23.27 | 23.89 | 24.41 | 23.68 | 23.89 | 23.15 | 22.17 |
| 7 m | 24.13 | 23.80 | 23.39 | 23.80 | 23.14 | 23.41 | 23.27 | 23.92 | 24.42 | 23.75 | 23.91 | 23.29 | 23.03 |
| 8 m | 24.35 | 24.25 | 23.39 | 23.89 | 23.17 | 23.40 | 23.34 | 24.07 | 24.44 | 23.80 | 23.93 | 23.41 | 23.08 |
| 9 m | 24.50 | 24.79 | 23.40 | 24.29 | 23.20 | 23.39 | 23.68 | 24.18 | 24.57 | 23.92 | 23.94 | 23.65 | 23.12 |
| 10 m | 24.62 | 25.98 | 23.39 | 25.18 | 23.24 | 23.39 | 24.24 | 24.66 | 24.74 | 24.12 | 23.95 | 24.13 | 23.14 |
| 11 m | 25.05 | 26.88 | 23.39 | 26.67 | 23.36 | 23.39 | 24.86 | 25.22 | 25.25 | 24.33 | 23.95 | 24.77 | 23.18 |
| 12 m | 26.65 | 27.37 | 23.39 | 27.22 | 23.45 | 23.34 | 25.51 | 25.82 | 26.02 | 24.53 | 23.97 | 25.26 | 23.24 |
| 13 m | 27.06 | 27.58 | 23.38 | 27.57 | 23.61 | 23.31 | 26.21 | 25.98 | 26.22 | 24.68 | 23.99 | 25.64 | 23.28 |
| 14 m | 27.40 | 27.66 | 23.39 | 27.65 | 23.76 | 23.31 | 26.36 | 26.62 | 26.63 | 25.34 | 23.99 | 26.06 | 23.29 |
| 15 m | 27.63 | 28.07 | 23.40 | 27.69 | 23.88 | 23.31 | 26.56 | 26.99 | 27.18 | 26.01 | 24.01 | 26.42 | 23.27 |
| 16 m | 27.69 | 28.19 | 23.40 | 27.71 | 23.89 | 23.30 | 26.57 | 27.23 | 27.30 | 26.37 | 24.03 | 26.55 | 23.27 |
| 17 m | 27.80 | 28.21 | 23.40 | 27.75 | 23.89 | 23.31 | 26.58 | 27.49 | 27.30 | 26.57 | 24.04 | 26.62 | 23.28 |
| 18 m | 28.19 | | 23.40 | 27.85 | | 23.40 | 26.59 | 27.87 | 27.29 | | | | 23.28 |
| 19 m | | | | | | | | 27.93 | | | | | 23.27 |
| average | 25.39 | 25.07 | 23.38 | 25.52 | 23.26 | 23.36 | 24.57 | 25.21 | 25.41 | 24.22 | 23.87 | 24.22 | 21.96 |

Table A1-c. Vertical profile of water column dissolved oxygeni (D.O., mg/L) at the time of the 1988 trap deployments and retrievals (York River Station).

| Date | Apr. 4 | Apr. 20 | May 3 | May 16 | June 6 | June 14 | June 28 | July 12 | July 21 | July 28 | Aug. 5 | Aug. 11 | Aug. 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 14:00 | 14:00 | 07:12 | 06:54 | 08:00 | 07:54 | 08:54 | 07:12 | 07:12 | 13:12 | 14:00 | 11:48 | 13:12 |
| Depth | | | | | | | | | | | | | |
| 0 m | | | | | | | | | | | | | |
| 1 m | 9.35 | 9.32 | 8.59 | 7.59 | 6.42 | 7.01 | 6.26 | 5.87 | 5.28 | 8.16 | 6.82 | 6.77 | 6.74 |
| 2 m | 9.26 | 9.32 | 8.59 | 7.68 | 6.42 | 7.06 | 6.18 | 5.87 | 5.28 | 6.84 | 6.77 | 6.55 | 6.74 |
| 3 m | 9.17 | 9.41 | 8.59 | 7.40 | 6.38 | 6.96 | 6.15 | 5.82 | 5.19 | 6.05 | 6.73 | 6.28 | 6.73 |
| 4 m | 9.22 | 9.32 | 8.58 | 7.58 | 6.33 | 6.78 | 6.15 | 5.78 | 5.19 | 6.05 | 6.77 | 5.76 | 6.38 |
| 5 m | 9.15 | 9.31 | 8.49 | 7.58 | 6.37 | 6.61 | 5.97 | 5.65 | 5.00 | 5.95 | 6.82 | 5.45 | 5.85 |
| 6 m | 9.14 | 9.13 | 8.40 | 7.58 | 6.24 | 6.52 | 6.06 | 5.74 | 4.99 | 5.68 | 6.82 | 5.19 | 5.64 |
| 7 m | 8.62 | 9.13 | 8.22 | 7.53 | 6.24 | 6.43 | 5.95 | 5.65 | 4.44 | 5.68 | 6.82 | 4.40 | 4.89 |
| 8 m | 8.54 | 9.03 | 7.90 | 7.44 | 6.23 | 6.47 | 4.87 | 5.60 | 4.02 | 5.59 | 6.68 | 2.79 | 4.58 |
| 9 m | 8.44 | 9.03 | 7.85 | 7.40 | 6.23 | 6.34 | 4.95 | 5.20 | 3.66 | 5.55 | 6.51 | 1.96 | 4.37 |
| 10 m | 7.68 | 9.11 | 7.80 | 7.31 | 6.23 | 6.29 | 3.70 | 5.23 | 3.62 | 5.24 | 6.60 | 1.73 | 4.20 |
| 11 m | 6.97 | 9.11 | 7.76 | 7.08 | 6.23 | 6.29 | 3.37 | 5.13 | 3.66 | 3.89 | 6.29 | 1.38 | 3.19 |
| 12 m | 6.77 | 9.10 | 7.67 | 7.08 | 6.23 | 6.24 | 3.17 | 5.00 | 3.74 | 3.54 | 5.91 | 1.59 | 3.15 |
| 13 m | 6.73 | 9.09 | 7.48 | 7.08 | 6.19 | 5.65 | 3.12 | 4.91 | 3.65 | 2.83 | 5.09 | 1.50 | 3.01 |
| 14 m | 6.64 | 9.08 | 7.38 | | 6.14 | 5.42 | 3.21 | 4.82 | 3.52 | 2.60 | 4.93 | 1.71 | 2.96 |
| 15 m | 6.57 | 9.08 | 7.38 | | 6.14 | 4.92 | 3.16 | 4.82 | 3.52 | 2.25 | 4.88 | 1.77 | 2.89 |
| 16 m | | | 7.28 | 7.20 | 6.10 | | | | 3.48 | 1.98 | 4.88 | 1.90 | 2.98 |
| 17 m | 6.51 | 9.05 | 6.92 | | 6.05 | 4.78 | 3.16 | | | | | 1.85 | 3.27 |
| 18 m | | 8.96 | | | 6.05 | | 3.25 | | | | | | 3.31 |
| 19 m | | | | | 5.96 | | | | | | | | |
| average | 8.05 | 9.15 | 7.93 | 7.40 | 6.22 | 6.24 | 4.63 | 5.41 | 4.27 | 4.87 | 6.21 | 3.45 | 4.49 |

Table A1-c (continued). Vertical profile of water column dissolved oxygen (D.O., mg/L) (1988, York River Station).

| Date | Aug. 25 | Sept. 1 | Sept. 6 | Sept. 12 | Sept. 26 | Oct. 6 | Oct. 11 | Oct. 20 | Nov. 4 | Nov. 15 | Nov. 29 | Dec. 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 12:24 | 12:18 | 13:12 | 15:30 | 11:12 | 09:18 | 14:30 | 07:54 | 09:12 | 09:06 | 08:48 | 11:48 |
| Depth | | | | | | | | | | | | |
| 0 m | | | | | | | | | | | | |
| 1 m | 8.92 | 5.46 | 6.20 | 9.08 | 5.81 | 6.71 | 7.25 | 7.23 | 8.81 | 8.39 | 8.73 | 10.48 |
| 2 m | 8.74 | 5.42 | 6.11 | 8.99 | 5.81 | 6.73 | 7.24 | 7.23 | 8.70 | 8.38 | 8.71 | 10.43 |
| 3 m | 8.07 | 5.24 | 6.11 | 8.72 | 6.12 | 6.63 | 7.20 | 7.18 | 8.60 | 8.24 | 8.66 | 10.18 |
| 4 m | 7.19 | 5.04 | 5.98 | 8.45 | 5.75 | 6.73 | 7.55 | 7.14 | 8.70 | 8.24 | 8.61 | 10.16 |
| 5 m | 6.96 | 4.91 | 5.90 | 8.28 | 5.92 | 6.73 | 7.54 | 7.14 | 8.60 | 8.20 | 8.61 | 10.10 |
| 6 m | 6.24 | 4.87 | 5.77 | 7.00 | 5.81 | 6.51 | 7.54 | 6.96 | 8.55 | 8.20 | 8.52 | 10.08 |
| 7 m | 5.49 | 4.78 | 5.96 | 6.82 | 6.00 | 6.59 | 7.50 | 6.83 | 8.59 | 8.19 | 8.51 | 9.98 |
| 8 m | 4.48 | 4.74 | 5.65 | 6.65 | 5.85 | 6.43 | 7.40 | 6.79 | 8.37 | 8.19 | 8.51 | 10.02 |
| 9 m | 3.57 | 4.69 | 5.07 | 6.47 | 6.06 | 6.28 | 7.49 | 6.74 | 8.37 | 8.15 | 8.49 | 10.02 |
| 10 m | 2.68 | 4.69 | 4.73 | 6.12 | 6.06 | 5.96 | 7.46 | 6.38 | 8.27 | 8.11 | 8.55 | 10.02 |
| 11 m | 2.22 | 4.65 | 4.58 | 5.94 | 6.02 | 5.26 | 7.33 | 6.06 | 8.21 | 8.15 | 8.60 | 10.01 |
| 12 m | 2.17 | 4.65 | 4.60 | 5.63 | 6.06 | 5.32 | 7.31 | 5.82 | 8.33 | 8.15 | 8.58 | 10.01 |
| 13 m | 2.39 | 4.69 | 4.59 | 5.06 | 5.92 | 4.69 | 7.25 | 5.72 | 8.15 | 8.10 | 9.07 | 10.01 |
| 14 m | 2.51 | 4.78 | 4.59 | 4.84 | 6.14 | 4.79 | 7.18 | 5.58 | 7.95 | 8.10 | 9.00 | 9.96 |
| 15 m | 2.55 | 4.78 | 4.63 | 4.75 | 6.30 | 4.55 | 7.00 | 5.35 | 7.65 | 8.15 | 8.94 | 9.96 |
| 16 m | 2.76 | 4.78 | 4.59 | 4.70 | 6.12 | 4.63 | 6.99 | 5.13 | 7.51 | 8.10 | 8.12 | |
| 17 m | | 4.78 | 4.59 | 4.70 | 6.12 | 4.63 | 7.02 | 5.17 | 7.33 | | 8.80 | 9.96 |
| 18 m | | | 4.59 | | 6.06 | 4.77 | 6.92 | 5.26 | | | | |
| 19 m | | | | | | | | | | | | 9.92 |
| average | 4.81 | 4.88 | 5.24 | 6.60 | 6.00 | 5.77 | 7.29 | 6.32 | 8.28 | 8.19 | 8.65 | 10.08 |

Table A2-a. Vertical profile of water column temperature (°C) at the time of the 1988 trap deployments and retrievals (Chesapeake Bay Station).

| Date | Apr. 4 | May 3 | May 16 | June 14 | June 28 | July 13 | July 13 | July 28 | Aug. 5 | Aug. 11 | Aug. 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 10:36 | 11:30 | 11:06 | 11:36 | 13:24 | 09:54 | 11:30 | 10:12 | 09:48 | 08:24 | 10:12 |
| Depth | | | | | | | | | | | |
| 0 m | 12.39 | 13.99 | 17.54 | 22.18 | 24.59 | | 26.68 | 26.00 | 27.81 | 27.52 | 27.84 |
| 1 m | 11.81 | 14.00 | 16.90 | 22.06 | 24.20 | 25.50 | 26.56 | 26.01 | 27.79 | 27.53 | 27.83 |
| 2 m | 11.80 | 13.99 | 16.40 | 21.72 | 23.38 | 25.31 | 26.30 | 25.82 | 27.74 | 27.53 | 27.83 |
| 3 m | 11.73 | 13.69 | 16.36 | 21.28 | 23.04 | 24.86 | 25.43 | 25.60 | 27.64 | 27.53 | 27.80 |
| 4 m | 11.61 | 13.42 | 16.38 | 20.67 | 22.90 | 24.54 | 24.96 | 24.71 | 27.51 | 27.56 | 27.77 |
| 5 m | 11.66 | 13.51 | 16.47 | 20.47 | 22.81 | 24.41 | 24.77 | 24.01 | 27.47 | 27.82 | 27.73 |
| 6 m | 11.53 | 13.59 | 16.50 | 20.41 | 22.77 | 24.18 | 24.30 | 23.76 | 26.53 | 27.69 | 27.65 |
| 7 m | 11.10 | 13.49 | 16.51 | 20.38 | 22.74 | 24.12 | 23.94 | 22.96 | 25.17 | 27.50 | 27.27 |
| 8 m | 10.79 | 13.23 | 16.51 | 20.34 | 22.55 | 23.99 | 23.53 | 22.68 | 24.81 | 27.15 | 26.54 |
| 9 m | 10.69 | 13.22 | 16.52 | 20.32 | 22.40 | 23.86 | 23.47 | 22.55 | 24.18 | 26.91 | 26.25 |
| 10 m | 10.67 | 13.22 | 16.52 | 20.23 | 22.43 | 23.61 | 23.42 | 22.39 | 23.89 | 26.48 | 25.84 |
| 11 m | 10.67 | 13.22 | 16.52 | 20.13 | 22.45 | 23.41 | 23.41 | 22.36 | 23.86 | 25.76 | 25.33 |
| 12 m | 10.67 | 13.22 | | 20.08 | 22.35 | 23.37 | 23.40 | 22.35 | 23.85 | 25.13 | 24.52 |
| average | 11.32 | 13.52 | 16.59 | 20.79 | 22.97 | 24.26 | 24.63 | 23.94 | 26.02 | 27.09 | 26.94 |

Table A2-a (continued). Vertical profile of water column temperature (°C).

| Date | Aug. 25 | Sept. 1 | Sept. 12 | Sept. 27 | Oct. 6 | Oct. 11 | Oct. 20 | Nov. 3 | Nov. 3 | Nov. 29 | Dec. 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 07:36 | 08:48 | 12:18 | 09:42 | 14:00 | 10:24 | 12:24 | 14:06 | 15:12 | 12:30 | 11:36 |
| Depth | | | | | | | | | | | |
| 0 m | 25.82 | 24.18 | 23.81 | 22.02 | 20.27 | 17.55 | 15.83 | | 13.36 | 11.10 | 6.66 |
| 1 m | 25.82 | 24.19 | 23.33 | 22.00 | 20.29 | 17.55 | 15.84 | 12.86 | 12.88 | 11.07 | 6.51 |
| 2 m | 25.83 | 24.18 | 23.17 | 21.98 | 20.30 | 17.55 | 15.79 | 12.57 | 12.59 | 11.07 | 6.52 |
| 3 m | 25.78 | 24.16 | 22.88 | 21.99 | 20.31 | 17.52 | 15.70 | 12.49 | 12.59 | 11.06 | 6.50 |
| 4 m | 25.58 | 24.14 | 22.68 | 21.96 | 20.31 | 17.49 | 15.61 | 12.53 | 12.61 | 11.06 | 6.53 |
| 5 m | 25.29 | 24.11 | 22.46 | 21.94 | 20.29 | 17.47 | 15.60 | 12.56 | 12.62 | 11.03 | 6.56 |
| 6 m | 24.39 | 24.03 | 22.31 | 21.91 | 20.36 | 17.49 | 15.61 | 12.67 | 12.65 | 11.02 | 6.61 |
| 7 m | 24.23 | 23.96 | 22.31 | 21.97 | 20.41 | 17.62 | 15.66 | 12.88 | 12.68 | 11.03 | 6.63 |
| 8 m | 24.00 | 23.90 | 22.27 | 22.00 | 20.47 | 17.74 | 15.78 | 13.02 | 12.69 | 11.05 | 6.71 |
| 9 m | 23.43 | 23.82 | 22.08 | 22.01 | 20.56 | 17.82 | 15.78 | 13.15 | 12.72 | 11.10 | 6.76 |
| 10 m | 22.91 | 23.74 | 21.99 | 22.01 | 20.59 | 17.75 | 15.81 | 13.24 | 12.76 | 11.17 | 6.78 |
| 11 m | 22.78 | 23.66 | 21.98 | 22.00 | 20.64 | 17.72 | 15.85 | 13.25 | 12.84 | 11.27 | 6.86 |
| 12 m | 22.76 | 23.61 | 21.97 | 22.00 | 20.70 | 17.48 | 15.85 | 13.27 | 12.87 | 11.51 | 6.93 |
| average | 24.51 | 23.98 | 22.56 | 21.98 | 20.42 | 17.60 | 15.75 | 12.87 | 12.76 | 11.12 | 6.66 |

Table A2-b. Vertical profile of water column salinity (ppt) at the time of the 1988 trap deployments and retrievals (Chesapeake Bay Station).

| Date | Apr. 4 | May 3 | May 16 | June 14 | June 28 | July 13 | July 13 | July 28 | Aug. 5 | Aug. 11 | Aug. 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 10:36 | 11:30 | 11:06 | 11:36 | 13:24 | 09:54 | 11:30 | 10:12 | 09:48 | 08:24 | 10:12 |
| Depth | | | | | | | | | | | |
| 0 m | 19.39 | 19.23 | 17.86 | 16.81 | 19.50 | | 17.99 | 20.20 | 19.85 | 20.08 | 6.40 |
| 1 m | 19.69 | 19.24 | 18.74 | 16.93 | 19.53 | 0.06 | 17.99 | 20.21 | 19.93 | 20.07 | 8.33 |
| 2 m | 19.70 | 19.24 | 19.84 | 17.43 | 19.97 | 0.36 | 18.25 | 20.49 | 19.94 | 20.08 | 10.21 |
| 3 m | 21.31 | 19.65 | 20.40 | 20.31 | 20.54 | 1.33 | 21.02 | 23.07 | 19.97 | 20.13 | 12.47 |
| 4 m | 22.95 | 20.40 | 20.74 | 20.83 | 20.88 | 1.87 | 22.69 | 25.04 | 20.04 | 20.57 | 15.40 |
| 5 m | 23.44 | 21.26 | 21.41 | 20.99 | 21.14 | 2.04 | 23.05 | 25.64 | 20.30 | 22.47 | 17.00 |
| 6 m | 24.46 | 21.39 | 21.56 | 21.04 | 21.49 | 3.01 | 23.40 | 25.84 | 22.34 | 23.04 | 17.81 |
| 7 m | 25.36 | 21.99 | 21.61 | 21.12 | 22.33 | 3.39 | 23.63 | 26.77 | 24.31 | 23.56 | 19.69 |
| 8 m | 25.64 | 22.51 | 21.65 | 21.20 | 23.51 | 4.30 | 24.31 | 27.13 | 24.96 | 24.45 | 21.01 |
| 9 m | 25.72 | 22.51 | 21.67 | 21.26 | 24.29 | 5.44 | 24.70 | 27.38 | 26.67 | 24.85 | 22.22 |
| 10 m | 25.73 | 22.53 | 21.68 | 21.55 | 24.40 | 6.30 | 24.91 | 27.63 | 27.23 | 25.14 | 23.50 |
| 11 m | 25.74 | 22.53 | 21.67 | 22.08 | 24.69 | 6.97 | 24.94 | 27.67 | 27.29 | 26.17 | 24.71 |
| 12 m | 25.74 | 22.53 | | 22.78 | 26.21 | 7.55 | 24.96 | 27.68 | 27.31 | 26.93 | 26.79 |
| average | 23.45 | 21.15 | 20.74 | 20.33 | 22.19 | 3.55 | 22.45 | 24.98 | 23.09 | 22.89 | 17.35 |

Table A2-b (continued). Vertical profile of water column salinity (ppt).

| Date | Apr. 4 | May 3 | May 16 | June 14 | June 28 | July 13 | July 13 | July 28 | Aug. 5 | Aug. 11 | Aug. 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 10:36 | 11:30 | 11:06 | 11:36 | 13:24 | 09:54 | 11:30 | 10:12 | 09:48 | 08:24 | 10:12 |
| Depth | | | | | | | | | | | |
| 0 m | 19.39 | 19.23 | 17.86 | 16.81 | 19.50 | | 17.99 | 20.20 | 19.85 | 20.08 | 6.40 |
| 1 m | 19.69 | 19.24 | 18.74 | 16.93 | 19.53 | 0.06 | 17.99 | 20.21 | 19.93 | 20.07 | 8.33 |
| 2 m | 19.70 | 19.24 | 19.84 | 17.43 | 19.97 | 0.36 | 18.25 | 20.49 | 19.94 | 20.08 | 10.21 |
| 3 m | 21.31 | 19.65 | 20.40 | 20.31 | 20.54 | 1.33 | 21.02 | 23.07 | 19.97 | 20.13 | 12.47 |
| 4 m | 22.95 | 20.40 | 20.74 | 20.83 | 20.88 | 1.87 | 22.69 | 25.04 | 20.04 | 20.57 | 15.40 |
| 5 m | 23.44 | 21.26 | 21.41 | 20.99 | 21.14 | 2.04 | 23.05 | 25.64 | 20.30 | 22.47 | 17.00 |
| 6 m | 24.46 | 21.39 | 21.56 | 21.04 | 21.49 | 3.01 | 23.40 | 25.84 | 22.34 | 23.04 | 17.81 |
| 7 m | 25.36 | 21.99 | 21.61 | 21.12 | 22.33 | 3.39 | 23.63 | 26.77 | 24.31 | 23.56 | 19.69 |
| 8 m | 25.64 | 22.51 | 21.65 | 21.20 | 23.51 | 4.30 | 24.31 | 27.13 | 24.96 | 24.45 | 21.01 |
| 9 m | 25.72 | 22.51 | 21.67 | 21.26 | 24.29 | 5.44 | 24.70 | 27.38 | 26.67 | 24.85 | 22.22 |
| 10 m | 25.73 | 22.53 | 21.68 | 21.55 | 24.40 | 6.30 | 24.91 | 27.63 | 27.23 | 25.14 | 23.50 |
| 11 m | 25.74 | 22.53 | 21.67 | 22.08 | 24.69 | 6.97 | 24.94 | 27.67 | 27.29 | 26.17 | 24.71 |
| 12 m | 25.74 | 22.53 | | 22.78 | 26.21 | 7.55 | 24.96 | 27.68 | 27.31 | 26.93 | 26.79 |
| average | 23.45 | 21.15 | 20.74 | 20.33 | 22.19 | 3.55 | 22.45 | 24.98 | 23.09 | 22.89 | 17.35 |

Table A2-c. Vertical profile of water column dissolved oxygen (D.O., mg/L) at the time of the 1988 trap deployments and retrievals (Chesapeake Bay Station).

| Date | Apr. 4 | Apr. 20 | May 3 | May 16 | June 14 | June 28 | July 13 | July 28 | Aug. 5 | Aug. 11 | Aug. 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 10:36 | 14:00 | 11:30 | 11:06 | 11:36 | 13:24 | 09:54 | 10:12 | 09:48 | 08:24 | 10:12 |
| Depth | | | | | | | | | | | |
| 0 m | | | | | | | | | | | |
| 1 m | 10.31 | 10.70 | 10.17 | 9.07 | 7.46 | 7.72 | 9.55 | 7.79 | 7.47 | 6.71 | 7.46 |
| 2 m | 10.13 | 10.70 | 10.22 | 8.01 | 7.53 | 7.94 | 9.48 | 7.74 | 7.43 | 6.66 | 7.38 |
| 3 m | 9.59 | 10.70 | 10.15 | 7.67 | 7.24 | 8.36 | 8.19 | 6.74 | 7.25 | 6.62 | 7.20 |
| 4 m | 9.05 | 10.60 | 9.71 | 7.56 | 7.22 | 7.81 | 7.92 | 6.88 | 6.93 | 6.51 | 7.08 |
| 5 m | 8.68 | 10.50 | 9.38 | 7.27 | 7.00 | 7.08 | 7.42 | 6.28 | 6.53 | 6.35 | 6.92 |
| 6 m | 8.45 | 10.40 | 9.16 | 7.24 | 5.89 | 6.63 | 7.14 | 5.62 | 6.54 | 5.54 | 6.80 |
| 7 m | 8.37 | 10.40 | 9.09 | 7.24 | 5.76 | 6.42 | 7.07 | 5.47 | 4.06 | 5.10 | 6.69 |
| 8 m | 8.36 | 10.20 | 8.62 | 7.15 | | 6.15 | 6.89 | 5.63 | 4.21 | 4.94 | 6.20 |
| 9 m | 8.35 | 10.20 | 8.49 | 7.32 | 5.80 | 6.00 | 6.70 | 6.05 | 5.25 | 4.75 | 5.90 |
| 10 m | 9.21 | 10.20 | 8.44 | 7.41 | 5.65 | 6.00 | 6.38 | 6.39 | 5.53 | 4.71 | 6.29 |
| 11 m | 8.27 | 10.20 | 8.40 | 7.63 | 5.37 | 5.90 | 6.21 | 6.48 | 5.58 | 4.08 | 6.38 |
| 12 m | | | | | 5.26 | | 6.19 | 6.47 | | 3.99 | 6.16 |
| average | 8.98 | 10.44 | 9.26 | 7.60 | 6.38 | 6.91 | 7.43 | 6.46 | 6.07 | 5.50 | 6.71 |

Table A2-c (continued). Vertical profile of water column D.O. (mg/L).

| Date | Aug. 25 | Sept. 1 | Sept. 12 | Sept. 27 | Oct. 6 | Oct. 11 | Oct. 20 | Nov. 3 | Nov. 3 | Nov. 29 | Dec. 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 07:36 | 08:48 | 12:18 | 09:42 | 14:00 | 10:24 | 12:24 | 14:06 | 15:12 | 12:30 | 11:36 |
| Depth | | | | | | | | | | | |
| 0 m | | | | | | | | | | | |
| 1 m | 7.25 | 6.33 | 8.61 | 7.13 | 7.79 | 8.83 | 7.99 | 8.15 | 8.85 | 9.14 | 10.36 |
| 2 m | 7.24 | 6.29 | 7.15 | 7.02 | 7.70 | 8.74 | 8.78 | 8.25 | 8.75 | 9.14 | 10.34 |
| 3 m | 7.00 | 6.24 | 5.61 | 6.99 | 7.65 | 8.78 | 8.43 | 8.38 | 8.83 | 9.10 | 10.35 |
| 4 m | 6.86 | 6.15 | 5.70 | 6.63 | 7.46 | 9.00 | 7.81 | 8.24 | 8.73 | 9.14 | 10.16 |
| 5 m | 6.73 | 6.09 | 4.93 | 6.44 | 7.18 | 8.86 | 7.67 | 8.06 | 8.56 | 9.04 | 9.99 |
| 6 m | 5.82 | 5.91 | 4.91 | 6.31 | 6.65 | 8.64 | 7.62 | 7.79 | 8.37 | 8.94 | 9.85 |
| 7 m | 5.73 | 5.90 | 5.33 | 6.12 | 6.65 | 8.37 | 7.43 | 7.59 | 8.11 | 8.84 | 9.81 |
| 8 m | 5.55 | 5.88 | 5.28 | 6.03 | 6.55 | 8.07 | 7.31 | 7.27 | 7.97 | 8.79 | 9.78 |
| 9 m | 5.19 | 5.60 | 5.30 | 5.94 | 6.40 | 7.80 | 7.12 | 7.13 | 7.86 | 8.65 | 9.66 |
| 10 m | 5.08 | 5.41 | 5.29 | 6.02 | 6.30 | 7.72 | 6.95 | 6.99 | 7.78 | 8.63 | 9.63 |
| 11 m | 5.03 | 5.27 | 5.29 | 6.02 | 6.20 | 7.67 | 6.86 | 6.99 | | 7.69 | 9.61 |
| 12 m | 5.03 | 5.23 | 5.29 | 5.97 | 6.10 | | 6.86 | | 7.65 | | |
| average | 6.04 | 5.86 | 5.72 | 6.39 | 6.89 | 8.41 | 7.57 | 7.71 | 8.31 | 8.83 | 9.96 |

Table A3-a. Vertical profile of water column temperature (°C) at the time of the 1989 trap deployments and retrievals (Chesapeake Bay Station).

| Date | Jan. 9 | Jan. 24 | Feb. 8 | Feb. 20 | March 13 | March 21 | April 7 | April 20 | May 9 | May 25 | June 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 11:48 | 10:36 | 12:00 | 10:48 | 12:24 | 12:24 | 10:42 | 10:18 | 11:36 | 09:24 | 12:00 |
| Depth | | | | | | | | | | | |
| 0 m | 5.26 | 5.15 | 5.79 | 4.44 | 4.22 | 6.25 | 9.52 | 12.32 | 16.21 | | |
| 1 m | 5.29 | 5.11 | 5.90 | 4.42 | 4.22 | 6.24 | 9.52 | 12.30 | 16.22 | 19.55 | 23.73 |
| 2 m | 5.34 | 5.04 | 5.91 | 4.39 | 4.16 | 6.24 | 9.54 | 12.27 | 16.19 | 18.93 | 23.27 |
| 3 m | 5.37 | 5.05 | 5.90 | 4.47 | 3.93 | 6.22 | 9.58 | 12.20 | 16.12 | 18.88 | 22.54 |
| 4 m | 5.39 | 5.05 | 5.90 | 4.80 | 3.90 | 6.19 | 9.68 | 12.12 | 16.04 | 18.72 | 21.51 |
| 5 m | 5.41 | 5.06 | 5.89 | 5.11 | 3.95 | 6.18 | 9.76 | 12.11 | 15.68 | 18.50 | 20.65 |
| 6 m | 5.40 | 5.12 | 5.92 | 5.17 | 3.90 | 6.15 | 9.80 | 12.18 | 15.67 | 18.29 | 20.58 |
| 7 m | 5.40 | 5.20 | 6.09 | 5.12 | 3.88 | 6.00 | 9.87 | 12.22 | 15.64 | 18.10 | 20.53 |
| 8 m | 5.40 | 5.24 | 6.23 | 5.12 | 3.87 | 5.92 | 9.91 | 12.21 | 15.72 | 18.11 | 20.30 |
| 9 m | 5.40 | 5.26 | 6.31 | 5.10 | 3.87 | 5.89 | 9.91 | 12.03 | 15.76 | 18.14 | 20.06 |
| 10 m | 5.41 | 5.27 | 6.35 | 5.08 | 3.76 | 6.12 | 9.92 | 11.57 | 15.81 | 18.22 | 20.01 |
| 11 m | 5.32 | 5.28 | 6.41 | 4.75 | 3.72 | 6.29 | 9.98 | 11.49 | 15.84 | 18.20 | 19.99 |
| 12 m | 5.31 | 5.27 | 6.42 | 4.61 | 3.73 | | | 11.48 | 15.85 | 18.37 | 19.79 |
| 13 m | | | | | | | | | | | 19.78 |
| average | 5.36 | 5.16 | 6.08 | 4.81 | 3.93 | 6.14 | 9.75 | 12.04 | 15.90 | 18.50 | 20.98 |

Table A3-a (continued). Vertical profile of water column temperature (°C).

| Date | June 19 | June 30 | July 14 | July 27 | Aug. 7 | Aug. 25 | Aug. 31 | Sept. 14 | Oct. 2 | Nov. 11 | Dec. 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 09:42 | 10:12 | 10:30 | 09:36 | 09:36 | 09:36 | 12:48 | 10:42 | 09:36 | 11:30 | 12:18 |
| Depth | | | | | | | | | | | |
| 0 m | 24.76 | | | 27.48 | | | | 25.84 | 21.36 | | 5.12 |
| 1 m | 24.72 | 25.53 | 27.00 | 27.47 | 27.82 | 25.85 | 26.09 | 25.82 | 21.36 | 12.55 | 5.12 |
| 2 m | 24.49 | 25.45 | 27.00 | 27.44 | 27.70 | 25.84 | 26.09 | 25.74 | 21.29 | 12.50 | 5.14 |
| 3 m | 24.30 | 25.41 | 27.00 | 27.31 | 27.65 | 25.82 | 26.06 | 25.34 | 21.19 | 12.50 | 5.21 |
| 4 m | 24.13 | 25.24 | 27.00 | 26.80 | 27.62 | 25.81 | 25.99 | 25.01 | 21.16 | 12.50 | 5.37 |
| 5 m | 23.01 | 25.05 | 27.00 | 26.19 | 27.42 | 25.82 | 25.93 | 24.90 | 21.16 | 12.50 | 5.69 |
| 6 m | 22.71 | 24.70 | 27.00 | 26.11 | 26.72 | 25.82 | 25.85 | 24.82 | 21.16 | 12.50 | 6.02 |
| 7 m | 21.78 | 24.04 | 27.00 | 25.94 | 25.68 | 25.83 | 25.80 | 24.56 | 21.16 | 12.50 | 6.18 |
| 8 m | 21.44 | 23.64 | 27.00 | 25.96 | 25.51 | 25.88 | 25.76 | 24.31 | 21.15 | 12.50 | 6.24 |
| 9 m | 21.30 | 22.78 | 22.00 | 26.09 | 25.47 | 25.88 | 25.66 | 24.19 | 21.15 | 12.50 | 6.09 |
| 10 m | 21.04 | 22.83 | 20.50 | 26.11 | 25.48 | 25.87 | 25.64 | 24.15 | 21.14 | 12.00 | 5.58 |
| 11 m | 20.82 | 22.45 | 20.00 | 26.11 | 25.48 | 25.77 | 25.62 | 24.13 | 21.13 | 12.00 | 5.52 |
| 12 m | 20.73 | 22.32 | 20.00 | 26.12 | 25.44 | 25.66 | 25.61 | 24.12 | 21.08 | 12.00 | 5.53 |
| 13 m | 20.70 | | | | 25.42 | | | 24.11 | | | |
| average | 22.57 | 24.12 | 24.88 | 26.55 | 26.42 | 25.82 | 25.84 | 24.79 | 21.19 | 12.38 | 5.60 |

Table A3-b. Vertical profile of water column salinity (ppt) at the time of the 1989 trap deployments and retrievals (Chesapeake Bay Station).

| Date | Jan. 9 | Jan. 24 | Feb. 8 | Feb. 20 | March 13 | March 21 | April 7 | April 20 | May 9 | May 25 | June 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 11:48 | 10:36 | 12:00 | 10:48 | 12:24 | 12:24 | 10:42 | 10:18 | 11:36 | 09:24 | 12:00 |
| Depth | | | | | | | | | | | |
| 0 m | 21.59 | 22.60 | 24.22 | 21.04 | 22.64 | 22.38 | 21.10 | 20.60 | 18.27 | | |
| 1 m | 22.19 | 22.67 | 24.36 | 21.05 | 22.65 | 22.41 | 21.43 | 20.65 | 18.30 | 8.35 | 15.91 |
| 2 m | 23.30 | 22.93 | 24.42 | 21.05 | 22.74 | 22.42 | 21.50 | 20.85 | 18.33 | 12.47 | 16.22 |
| 3 m | 23.88 | 23.09 | 24.49 | 22.02 | 23.16 | 22.48 | 21.67 | 21.33 | 18.34 | 12.92 | 18.75 |
| 4 m | 24.89 | 23.31 | 24.79 | 23.53 | 23.57 | 22.62 | | 22.87 | 18.34 | 13.64 | 21.83 |
| 5 m | 26.61 | 23.53 | 25.08 | 24.86 | 23.92 | 22.77 | | 23.47 | 18.56 | 14.31 | 23.20 |
| 6 m | 27.00 | 24.00 | 25.22 | 25.44 | 24.43 | 23.43 | | 23.63 | 18.93 | 15.56 | 23.27 |
| 7 m | 27.10 | 24.48 | 25.70 | 25.91 | 24.82 | 24.07 | | 23.68 | 19.25 | 17.93 | 23.37 |
| 8 m | 27.20 | 24.67 | 26.18 | 27.18 | 25.43 | 24.68 | | 23.78 | 19.62 | 18.95 | 23.72 |
| 9 m | 27.41 | 24.81 | 26.73 | 27.79 | 26.48 | 24.84 | | 24.58 | 20.09 | 20.34 | 24.43 |
| 10 m | 29.13 | 24.92 | 27.16 | 28.15 | 27.54 | 27.06 | | 25.53 | 20.50 | 21.77 | 24.70 |
| 11 m | 30.99 | 26.35 | 27.56 | 29.63 | 27.99 | 28.90 | | 25.66 | 20.95 | 22.70 | 25.17 |
| 12 m | 31.04 | 27.68 | 27.62 | 30.01 | 28.21 | | | 25.67 | 21.35 | 23.67 | 26.18 |
| 13 m | | | | | | | | | | | 26.24 |
| average | 26.33 | 24.23 | 25.66 | 25.20 | 24.89 | 24.01 | 21.42 | 23.25 | 19.29 | 16.88 | 22.54 |

Table A3-b (continued). Vertical profile of water column salinity (ppt).

| Date | June 19 | June 30 | July 14 | July 27 | Aug. 7 | Aug. 25 | Aug. 31 | Sept. 14 | Oct. 2 | Nov. 11 | Dec. 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 09:42 | 10:12 | 10:30 | 09:36 | 09:36 | 09:36 | 12:48 | 10:42 | 09:36 | 11:30 | 12:18 |
| Depth | | | | | | | | | | | |
| 0 m | 16.33 | | | 14.85 | | | | 18.46 | 19.96 | | 18.35 |
| 1 m | 16.25 | 17.17 | 16.84 | 14.85 | 13.56 | 20.11 | 20.03 | 18.45 | 20.08 | 19.45 | 18.34 |
| 2 m | 16.23 | 17.27 | 16.96 | 14.85 | 13.59 | 20.12 | 19.99 | 18.97 | 20.73 | 19.46 | 18.41 |
| 3 m | 16.37 | 17.42 | 17.37 | 15.10 | 13.68 | 20.14 | 20.00 | 21.43 | 21.67 | 19.45 | 18.68 |
| 4 m | 16.61 | 18.22 | 17.71 | 16.78 | 15.27 | 20.15 | 19.97 | 22.97 | 21.95 | 19.58 | 19.18 |
| 5 m | 20.14 | 18.68 | 17.95 | 18.84 | 17.08 | 20.17 | 19.98 | 23.34 | 22.04 | 19.84 | 20.66 |
| 6 m | 22.69 | 19.30 | 18.29 | 19.37 | 18.46 | 20.20 | 19.99 | 23.51 | 22.11 | 19.96 | 21.82 |
| 7 m | 23.84 | 20.22 | 18.95 | 20.02 | 21.76 | 20.23 | 20.08 | 24.28 | 22.13 | 20.25 | 23.75 |
| 8 m | 24.25 | 20.96 | 19.07 | 21.64 | 23.10 | 20.27 | 21.32 | 25.10 | 22.20 | 20.58 | 25.20 |
| 9 m | 24.42 | 22.77 | 25.66 | 22.41 | 23.51 | 20.28 | 22.69 | 25.60 | 22.42 | 21.12 | 26.08 |
| 10 m | 24.73 | 23.58 | 27.42 | 22.49 | 23.67 | 20.30 | 23.16 | 25.81 | 22.60 | 21.22 | 26.98 |
| 11 m | 24.97 | 24.44 | 27.83 | 22.52 | 23.73 | 22.07 | 23.52 | 25.90 | 23.07 | 21.22 | 27.55 |
| 12 m | 25.09 | 25.05 | 28.56 | 22.45 | 23.88 | 22.71 | 23.62 | 25.97 | 23.84 | 21.23 | 27.83 |
| 13 m | 25.13 | | | | 22.17 | | | 25.98 | | | |
| average | 21.22 | 20.42 | 21.05 | 18.94 | 19.50 | 20.56 | 21.20 | 23.27 | 21.91 | 20.28 | 22.53 |

Table A3-c. Vertical profile of water column dissolved oxygen (D.O., mg/L) at the time of the 1989 trap deployments and retrievals (Chesapeake Bay Station).

| Date | Jan. 9 | Jan. 24 | Feb. 8 | Feb. 20 | March 13 | March 21 | April 7 | April 20 | May 9 | May 25 | June 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 11:48 | 10:36 | 12:00 | 10:48 | 12:24 | 12:24 | 10:42 | 10:18 | 11:36 | 09:24 | 12:00 |
| Depth | | | | | | | | | | | |
| 0 m | | | | | | | | | | | |
| 1 m | 11.23 | 10.76 | 9.23 | 10.90 | 10.69 | 10.22 | 9.62 | 9.54 | 8.71 | 8.64 | 9.45 |
| 2 m | 11.14 | 10.83 | 9.14 | 10.64 | 10.68 | 10.22 | 9.53 | 9.44 | 8.66 | 8.45 | 9.76 |
| 3 m | 10.80 | 10.90 | 9.18 | 10.39 | 10.74 | 10.13 | 9.58 | 9.32 | 8.66 | 8.47 | 9.16 |
| 4 m | 10.68 | 10.80 | 9.11 | 10.18 | 10.71 | 10.03 | 9.37 | 9.23 | 8.66 | 8.39 | 8.13 |
| 5 m | 10.43 | 10.61 | 9.01 | 9.74 | 10.60 | 10.02 | 9.51 | 9.28 | 8.52 | 8.37 | 7.60 |
| 6 m | 10.61 | 10.53 | 9.00 | 9.54 | 10.56 | 9.97 | 9.53 | 9.19 | 8.45 | 8.17 | 7.33 |
| 7 m | 10.27 | 10.46 | 8.97 | 9.34 | 10.53 | 10.30 | 9.53 | 9.18 | 8.26 | 7.52 | 7.02 |
| 8 m | 13.54 | 10.36 | 8.98 | 9.09 | 10.40 | 9.80 | 9.57 | 9.18 | 8.02 | 7.52 | 6.71 |
| 9 m | 15.29 | 10.35 | 8.91 | 9.05 | 10.32 | 9.88 | 10.32 | 9.04 | 7.68 | 7.41 | 6.64 |
| 10 m | 12.18 | 10.25 | 8.84 | 8.94 | 10.16 | 9.55 | 9.47 | 8.73 | 7.82 | 7.35 | 6.71 |
| 11 m | 13.99 | 10.15 | | 9.01 | 10.12 | 9.35 | 9.55 | 8.70 | | 7.27 | 6.91 |
| 12 m | 15.29 | 10.06 | 8.85 | | 10.02 | | | | 7.00 | 7.09 | 6.87 |
| 13 m | | | | | | | | | | | |
| average | 12.12 | 10.51 | 9.02 | 9.71 | 10.46 | 9.95 | 9.60 | 9.17 | 8.22 | 7.89 | 7.69 |

Table A3-c (continued). Vertical profile of water column D.O. (mg/L).

| Date | June 19 | June 30 | July 14 | July 27 | Aug. 7 | Aug. 25 | Aug. 31 | Sept. 14 | Oct. 2 | Nov. 11 | Dec. 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| hh:mm | 09:42 | 10:12 | 10:30 | 09:36 | 09:36 | 09:36 | 12:48 | 10:42 | 09:36 | 11:30 | 12:18 |
| Depth | | | | | | | | | | | |
| 0 m | | | | | | | | | | | |
| 1 m | 8.91 | 7.58 | 7.72 | 8.04 | 9.10 | 7.04 | 7.27 | 7.74 | 7.38 | 8.44 | 11.25 |
| 2 m | 8.97 | 7.50 | 7.71 | 7.90 | 9.19 | 7.00 | 7.22 | 7.67 | 7.27 | 8.46 | 11.16 |
| 3 m | 8.78 | 7.44 | 7.42 | 7.11 | 9.05 | 7.66 | 6.87 | 6.95 | 7.31 | 8.46 | 10.96 |
| 4 m | 7.86 | 7.14 | 7.18 | 5.00 | 8.05 | 7.53 | 6.65 | 6.36 | 7.08 | 8.27 | 10.83 |
| 5 m | 6.28 | 6.13 | 6.85 | 3.64 | 7.12 | 7.35 | 6.47 | 6.04 | 6.86 | 8.26 | 10.52 |
| 6 m | 6.32 | 4.86 | 6.66 | 3.40 | 4.63 | 6.95 | 5.93 | 4.60 | 6.72 | 8.25 | 10.35 |
| 7 m | 5.41 | 4.12 | 6.50 | 3.26 | 3.40 | 6.81 | 5.71 | 3.80 | 6.68 | 8.24 | 10.12 |
| 8 m | 5.54 | 4.01 | 6.14 | 3.09 | 3.59 | 6.68 | 4.73 | 3.69 | 6.67 | 8.26 | 10.02 |
| 9 m | 5.45 | 5.30 | 4.40 | 3.62 | 3.69 | 6.63 | 3.73 | 3.64 | 6.62 | 8.24 | 9.96 |
| 10 m | 5.40 | 5.28 | 5.11 | 3.80 | 3.82 | 6.37 | 3.85 | 3.59 | 6.53 | 8.19 | 10.23 |
| 11 m | 5.35 | 5.52 | 5.14 | 3.72 | 3.90 | 5.72 | 3.93 | 3.63 | 6.42 | 8.19 | 10.11 |
| 12 m | 5.30 | | 5.20 | | 3.81 | 4.91 | 3.97 | | 6.26 | 8.19 | |
| 13 m | | | | | | | | | | | |
| average | 6.63 | 5.90 | 6.34 | 4.78 | 5.78 | 6.72 | 5.53 | 5.25 | 6.82 | 8.29 | 10.50 |

APPENDIX B. Characteristics of the Seston:

1. York River Station, 1988

   Table B1-a. PC, PSi, PN, PP
   Table B1-b. Plant Pigments (spectrometric measurements)
   Table B1-c. Plant Pigments (fluorometric measurements)
   Table B1-d. Suspended Solids

2. Cheaspeake Bay Station, 1988

   Table B2-a. PC, PSi, PN, PP
   Table B2-b. Plant Pigments (spectrometric measurements)
   Table B2-c. Plant Pigments (fluorometric measurements)
   Table B2-d. Suspended Solids

3. Chesapeake Bay Station, 1989

   Table B3-a. PC, PSi, PN, PP
   Table B3-b. Plant Pigments (spectrometric measurements)
   Table B3-c. Plant Pigments (fluorometric measurements)
   Table B3-d. Suspended Solids

Table B1-a. Characteristics of seston collected at trap depths at the time of trap deployment and retrieval.

| York Station | Particulate Carbon (mg/L) | | | Biogenic Silica (mg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| Date | | | | | | |
| 04/04/88 | 1.159 | 1.091 | 1.683 | 0.017 | 0.131 | 0.281 |
| 04/20/88 | 0.797 | 0.709 | 1.086 | 0.206 | 0.281 | 0.340 |
| 05/03/88 | 0.815 | 1.261 | 0.922 | 0.235 | 0.230 | 0.380 |
| 05/16/88 | 0.842 | 1.084 | 1.402 | 0.290 | 0.336 | 0.559 |
| 06/06/88 | 0.902 | 2.164 | 1.221 | 0.631 | 0.756 | 0.879 |
| 06/14/88 | 0.688 | 0.689 | 0.836 | 0.409 | 0.488 | 0.552 |
| 06/28/88 | 0.795 | 0.819 | 0.783 | 0.269 | 0.199 | 0.219 |
| 07/12/88 | 0.338 | 0.291 | 0.429 | 0.249 | 0.293 | 0.584 |
| 07/21/88 | 0.163 | 0.698 | 0.723 | 0.258 | 0.396 | 0.414 |
| 07/28/88 | 0.548 | 0.627 | 0.577 | 0.256 | 0.331 | 0.494 |
| 08/05/88 | 1.595 | 1.485 | 0.871 | 0.316 | 0.416 | 0.413 |
| 08/11/88 | 0.656 | 0.560 | 0.551 | 0.242 | 0.184 | 0.110 |
| 08/18/88 | 0.814 | 0.713 | 0.694 | 0.309 | 0.241 | 0.213 |
| 08/25/88 | 0.673 | 0.670 | 1.100 | 0.230 | 0.372 | 0.814 |
| 09/01/88 | 0.707 | 0.742 | 1.011 | 0.314 | 0.412 | 0.438 |
| 09/06/88 | 0.559 | 0.536 | 0.596 | 0.183 | 0.292 | 0.477 |
| 09/12/88 | 0.947 | 0.910 | 0.753 | 0.281 | 0.465 | 0.577 |
| 09/26/88 | 0.701 | 0.739 | 0.707 | 0.286 | 0.345 | 0.361 |
| 10/06/88 | 0.445 | 0.373 | 0.572 | 0.148 | 0.183 | 0.224 |
| 10/11/88 | 0.306 | 0.428 | 0.420 | 0.203 | 0.148 | 0.322 |
| 10/20/88 | 0.480 | 0.491 | 1.129 | 0.162 | 0.150 | 0.201 |
| 11/04/88 | 0.278 | 0.305 | 0.354 | 0.107 | 0.119 | 0.242 |
| 11/15/88 | 0.394 | 0.552 | 0.489 | 0.153 | 0.155 | 0.218 |
| 11/29/88 | 0.401 | 0.417 | 0.418 | 0.378 | 0.232 | 0.239 |
| 12/13/88 | 0.313 | 0.552 | 0.426 | 0.138 | 0.188 | 0.197 |
| average | 0.653 | 0.756 | 0.790 | 0.251 | 0.294 | 0.390 |
| minimum | 0.163 | 0.291 | 0.354 | 0.017 | 0.119 | 0.110 |
| maximum | 1.595 | 2.164 | 1.683 | 0.631 | 0.756 | 0.879 |

Table B1-a (continued). Characteristics of seston collected at trap depths at the time of trap deployment and retrieval.

| York Station | Particulate Nitrogen (mg/L) | | | Particulate Phosphorus (mg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| Date | | | | | | |
| 04/04/88 | 0.128 | 0.144 | 0.226 | 0.019 | 0.020 | 0.027 |
| 04/20/88 | 0.105 | 0.112 | 0.140 | 0.014 | 0.013 | 0.017 |
| 05/03/88 | 0.106 | 0.160 | 0.129 | - | - | - |
| 05/16/88 | 0.131 | 0.101 | 0.119 | 0.019 | 0.024 | 0.026 |
| 06/06/88 | 0.127 | 0.179 | 0.182 | 0.033 | 0.037 | 0.044 |
| 06/14/88 | 0.127 | 0.124 | 0.158 | 0.016 | - | 0.018 |
| 06/28/88 | 0.120 | 0.107 | 0.107 | 0.015 | 0.012 | 0.013 |
| 07/12/88 | 0.050 | 0.060 | 0.058 | 0.039 | 0.037 | 0.024 |
| 07/21/88 | 0.031 | 0.177 | 0.159 | 0.010 | 0.012 | - |
| 07/28/88 | 0.098 | 0.092 | 0.055 | 0.023 | 0.019 | 0.022 |
| 08/05/88 | 0.234 | 0.197 | 0.132 | 0.013 | 0.014 | 0.019 |
| 08/11/88 | 0.111 | 0.100 | 0.086 | 0.016 | 0.014 | 0.019 |
| 08/18/88 | 0.148 | 0.126 | 0.112 | 0.020 | 0.016 | 0.019 |
| 08/25/88 | 0.114 | 0.095 | 0.159 | 0.016 | 0.016 | 0.030 |
| 09/01/88 | 0.125 | 0.143 | 0.182 | 0.018 | 0.018 | 0.023 |
| 09/06/88 | 0.119 | 0.095 | 0.120 | 0.014 | 0.012 | 0.020 |
| 09/12/88 | 0.143 | 0.127 | 0.120 | 0.014 | 0.017 | 0.023 |
| 09/26/88 | 0.118 | 0.120 | 0.092 | 0.017 | 0.019 | 0.018 |
| 10/06/88 | 0.084 | 0.060 | 0.083 | 0.011 | 0.011 | 0.015 |
| 10/11/88 | 0.053 | 0.048 | 0.061 | 0.009 | 0.009 | 0.014 |
| 10/20/88 | 0.124 | 0.114 | 0.185 | 0.015 | 0.014 | 0.011 |
| 11/04/88 | 0.077 | 0.076 | 0.068 | - | - | 0.010 |
| 11/15/88 | 0.064 | 0.078 | 0.080 | - | - | - |
| 11/29/88 | 0.082 | 0.079 | 0.096 | 0.009 | 0.010 | 0.010 |
| 12/13/88 | 0.095 | 0.120 | 0.109 | 0.011 | 0.012 | 0.012 |
| average | 0.109 | 0.113 | 0.121 | 0.015 | 0.014 | 0.017 |
| minimum | 0.031 | 0.048 | 0.055 | - | - | - |
| maximum | 0.234 | 0.197 | 0.226 | 0.039 | 0.037 | 0.044 |

Table B1-b. Spectrometric measurements of chlorophyll-a and pheophytin-a in seston collected at trap depths at the time of trap deployments and retrievals. (see the text for the explanation of the negative numbers in the pheophytin-a measurements.)

| York Station | Chlorophyll-a (μg/L) | | | Pheophytin-a (μg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| Date | | | | | | |
| 04/04/88 | 3.556 | 4.560 | 6.387 | 0.178 | 0.457 | -0.541 |
| 04/20/88 | 9.292 | 10.573 | 20.361 | 1.550 | 4.234 | 0.497 |
| 05/03/88 | 7.252 | 9.740 | 5.981 | 0.363 | 0.061 | 7.425 |
| 05/16/88 | 6.109 | 7.946 | 9.505 | 0.306 | 0.398 | 0.476 |
| 06/06/88 | 5.255 | 8.886 | 7.343 | 3.485 | -0.334 | 2.940 |
| 06/14/88 | 11.620 | 8.250 | 8.806 | -3.011 | -0.551 | 0.259 |
| 06/28/88 | 6.990 | 6.835 | -0.684 | -2.099 | -2.532 | 3.079 |
| 07/12/88 | 10.477 | 7.305 | | -6.410 | -2.194 | |
| 07/21/88 | 7.220 | 3.204 | | -0.222 | -1.711 | |
| 07/28/88 | 9.051 | 10.285 | 5.853 | 0.242 | 0.515 | 1.318 |
| 08/05/88 | 19.299 | 13.457 | 12.015 | -4.236 | 2.638 | 0.134 |
| 08/11/88 | 7.369 | 2.537 | 3.738 | 3.640 | 4.215 | 1.123 |
| 08/18/88 | 9.804 | 6.579 | 4.112 | 4.330 | 3.473 | 2.470 |
| 08/25/88 | 7.081 | 4.187 | 7.567 | 2.072 | 0.419 | -0.233 |
| 09/01/88 | 7.775 | 7.262 | 6.088 | 0.389 | -0.145 | 2.011 |
| 09/06/88 | 9.719 | 2.990 | 4.037 | -1.460 | 4.131 | 1.145 |
| 09/12/88 | 10.653 | 7.983 | 3.850 | 0.730 | 1.476 | 2.698 |
| 09/26/88 | 5.142 | 5.287 | 5.084 | 1.258 | 0.882 | 1.145 |
| 10/06/88 | 2.649 | 1.987 | 1.602 | 0.597 | 1.260 | 1.203 |
| 10/11/88 | 4.101 | 3.151 | 3.813 | -0.753 | -0.063 | -0.255 |
| 10/20/88 | 7.497 | 7.284 | 4.998 | -0.231 | -0.332 | 0.250 |
| 11/04/88 | 4.972 | 4.165 | 6.440 | | -0.278 | -0.430 |
| 11/15/88 | | 3.177 | 3.973 | 6.680 | 1.718 | 0.663 |
| 11/29/88 | 0.678 | 1.922 | 0.652 | 4.549 | 2.117 | 3.913 |
| 12/13/88 | 3.850 | 4.112 | 3.850 | -0.385 | -0.412 | |
| average | 7.392 | 6.147 | 5.886 | 0.482 | 0.778 | 1.422 |
| minimum | 0.678 | 1.922 | -0.684 | -6.410 | -2.532 | -0.541 |
| maximum | 19.299 | 13.457 | 20.361 | 6.680 | 4.234 | 7.425 |

Table B1-c. Fluorometric measurements of chlorophyll-a and pheophytin-a in seston collected at trap depths at the time of trap deployments and retrievals.

| York Station | Chlorophyll-a (μg/L) | | | Pheophytin-a (μg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| Date | | | | | | |
| 04/04/88 | | | | | | |
| 04/20/88 | | | | | | |
| 05/03/88 | 5.149 | 5.728 | 6.024 | 2.883 | 3.082 | 2.735 |
| 05/16/88 | 5.212 | 1.251 | 4.881 | 1.498 | 0.760 | 3.102 |
| 06/06/88 | 4.570 | 4.232 | 4.423 | 2.786 | 4.140 | 4.777 |
| 06/14/88 | 5.209 | 5.831 | 5.492 | 3.329 | -0.146 | 3.432 |
| 06/28/88 | 4.000 | 3.171 | 1.314 | 2.021 | 1.540 | 1.984 |
| 07/12/88 | 4.127 | 4.034 | | 4.046 | 3.727 | |
| 07/21/88 | 4.784 | 2.371 | 1.382 | 4.306 | 3.609 | 2.810 |
| 07/28/88 | 6.238 | 5.604 | 4.605 | 5.406 | 4.831 | 4.848 |
| 08/05/88 | 8.853 | 7.617 | 5.485 | 5.214 | 4.700 | 5.210 |
| 08/11/88 | | | | | | |
| 08/18/88 | | | | | | |
| 08/25/88 | 5.414 | 2.774 | 2.893 | 3.501 | 2.635 | 5.130 |
| 09/01/88 | 5.446 | 4.620 | 4.518 | 3.739 | 3.138 | 3.768 |
| 09/06/88 | 6.072 | 3.567 | 3.255 | 4.572 | 4.161 | 3.816 |
| 09/12/88 | 7.431 | 5.290 | 2.551 | 4.644 | 5.819 | 5.503 |
| 09/26/88 | 4.733 | 4.476 | 4.632 | 3.389 | 3.873 | 3.853 |
| 10/06/88 | 2.633 | 1.975 | 1.327 | 2.216 | 2.304 | 3.158 |
| 10/11/88 | 1.676 | 1.545 | 1.179 | 2.622 | 2.526 | 3.967 |
| 10/20/88 | 4.586 | 3.510 | 2.318 | 3.363 | 3.335 | 2.525 |
| 11/04/88 | 2.259 | 2.024 | 2.181 | 1.412 | 1.325 | 1.764 |
| 11/15/88 | 2.190 | 2.527 | 2.413 | 2.190 | 1.743 | 1.865 |
| 11/29/88 | 3.146 | 3.822 | 3.454 | 2.696 | 2.251 | 3.281 |
| 12/13/88 | 2.041 | 3.503 | 1.822 | 0.991 | 2.569 | 3.863 |
| average | 4.560 | 3.784 | 3.307 | 3.182 | 2.949 | 3.570 |
| minimum | 1.676 | 1.251 | 1.179 | 0.991 | -0.146 | 1.764 |
| maximum | 8.853 | 7.617 | 6.024 | 5.406 | 5.819 | 5.503 |

Table B1-d. Suspended solids concentrations (mg/L) in the water column at trap depths.

| York Station | Total Solids | | | Volatile Solids | | | Non-Volatile Solids | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| Date | | | | | | | | | |
| 04/04/88 | 6.100 | 12.500 | 10.600 | 1.900 | 1.500 | 3.100 | 4.200 | 11.000 | 7.500 |
| 04/20/88 | 10.600 | 5.200 | 12.000 | 2.600 | 1.700 | 2.400 | 8.000 | 3.500 | 9.600 |
| 05/03/88 | 16.000 | 8.421 | 7.053 | 3.300 | 1.368 | 1.263 | 12.700 | 7.053 | 5.790 |
| 05/16/88 | 12.333 | 11.868 | 11.800 | 3.333 | 2.967 | 2.300 | 9.000 | 8.901 | 9.500 |
| 06/06/88 | 34.169 | 21.077 | 32.800 | 3.958 | 2.615 | 3.800 | 30.211 | 18.462 | 29.000 |
| 06/14/88 | 9.239 | 13.400 | 17.067 | 3.696 | 3.900 | 4.667 | 5.544 | 9.500 | 12.400 |
| 06/28/88 | 8.521 | 6.061 | 8.866 | 4.852 | 3.838 | 2.887 | 3.669 | 2.222 | 5.979 |
| 07/12/88 | 12.444 | 7.600 | 20.133 | 1.556 | 0.400 | 3.067 | 10.889 | 7.200 | 17.067 |
| 07/21/88 | 6.700 | 12.400 | 12.111 | 1.800 | 3.200 | 2.333 | 4.900 | 9.200 | 9.778 |
| 07/28/88 | 12.188 | 14.575 | 15.426 | 2.708 | 3.830 | 2.340 | 9.479 | 10.745 | 13.085 |
| 08/05/88 | 10.667 | 10.200 | 12.533 | 4.933 | 3.800 | 4.800 | 5.733 | 6.400 | 7.733 |
| 08/11/88 | 7.100 | 5.729 | 9.700 | 0.000 | 0.000 | 0.800 | | | 8.900 |
| 08/18/88 | 6.900 | 7.400 | 11.700 | 1.200 | 0.600 | 2.300 | 5.700 | 6.800 | 9.400 |
| 08/25/88 | 6.100 | 10.300 | 22.667 | 1.100 | 1.600 | 3.733 | 5.000 | 8.700 | 18.933 |
| 09/01/88 | 9.400 | 10.645 | 12.500 | 2.100 | 2.796 | 2.700 | 7.300 | 7.850 | 9.800 |
| 09/06/88 | 8.200 | 9.300 | 67.200 | 1.900 | 1.600 | 6.100 | 6.300 | 7.700 | 61.100 |
| 09/12/88 | 32.095 | 13.800 | 22.500 | 4.952 | 2.000 | 3.400 | 27.143 | 11.800 | 19.100 |
| 09/26/88 | 24.300 | 11.500 | 9.000 | 2.400 | 1.700 | 2.200 | 21.900 | 9.800 | 6.800 |
| 10/06/88 | 5.800 | 9.625 | 11.500 | 1.900 | 2.750 | 2.600 | 3.900 | 6.875 | 8.900 |
| 10/11/88 | 9.600 | 6.100 | 12.600 | 1.000 | 0.300 | 1.800 | 8.600 | 5.800 | 10.800 |
| 10/20/88 | 7.200 | 6.400 | 9.800 | 1.600 | 1.400 | 1.200 | 5.600 | 5.000 | 8.600 |
| 11/04/88 | 6.429 | 7.900 | 11.700 | 1.122 | 1.300 | 2.000 | 5.306 | 6.600 | 9.700 |
| 11/15/88 | 24.600 | 27.000 | 24.400 | 4.600 | 4.400 | 4.400 | 20.000 | 22.600 | 20.000 |
| 11/29/88 | 25.300 | 25.800 | 26.400 | 3.100 | 3.100 | 3.400 | 22.200 | 22.700 | 23.000 |
| 12/13/88 | 20.200 | 24.500 | 28.500 | 2.300 | 2.500 | 3.300 | 17.900 | 22.000 | 25.200 |
| average | 13.287 | 11.972 | 17.622 | 2.556 | 2.207 | 2.916 | 10.882 | 9.934 | 14.707 |
| minimum | 5.800 | 5.200 | 7.053 | 0.000 | 0.000 | 0.800 | 3.669 | 2.222 | 5.790 |
| maximum | 34.169 | 27.000 | 67.200 | 4.952 | 4.400 | 6.100 | 30.211 | 22.700 | 61.100 |

Table B2-a. Characteristics of seston collected at trap depths at the time of trap deployment and retrieval.

| C. Bay Station | Particulate Carbon (mg/L) | | | Biogenic Silica (mg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Date | | | | | | |
| 04/04/88 | 1.204 | 0.604 | 0.514 | 0.074 | 0.034 | 0.061 |
| 04/20/88 | 1.171 | 1.122 | 1.030 | 0.115 | 0.117 | 0.150 |
| 05/03/88 | 1.603 | 0.969 | 0.854 | 0.113 | 0.116 | 0.150 |
| 05/16/88 | 1.483 | 0.795 | 0.798 | 0.098 | 0.115 | 0.117 |
| 06/14/88 | 0.429 | 0.477 | 0.373 | 0.068 | 0.061 | 0.068 |
| 06/18/88 | 1.077 | 0.676 | 0.557 | 0.133 | 0.122 | 0.115 |
| 07/13/88 | 0.451 | 0.196 | 0.308 | 0.150 | 0.218 | 0.163 |
| 07/28/88 | 0.722 | 0.562 | 1.423 | 0.245 | 0.127 | 0.422 |
| 08/05/88 | 1.088 | 0.831 | 0.764 | 0.117 | 0.118 | 0.264 |
| 08/11/88 | 0.819 | 0.812 | 0.575 | 0.221 | 0.041 | 0.283 |
| 08/18/88 | 0.787 | 0.662 | 0.445 | 0.131 | 0.167 | 0.212 |
| 08/25/88 | 0.785 | 0.715 | 0.904 | 0.188 | 0.201 | 0.359 |
| 09/01/88 | 0.717 | 0.476 | 0.820 | 0.135 | 0.155 | 0.331 |
| 09/12/88 | 0.868 | 0.452 | 0.484 | 0.185 | 0.300 | 0.472 |
| 09/27/88 | 0.490 | 0.585 | 0.910 | 0.157 | 0.208 | 0.567 |
| 10/06/88 | 0.573 | 0.533 | 0.661 | 0.069 | 0.121 | 0.274 |
| 10/11/88 | 0.852 | 0.830 | 0.521 | 0.047 | 0.103 | 0.272 |
| 10/20/88 | 0.663 | 0.606 | 0.388 | 0.125 | 0.150 | 0.143 |
| 11/03/88 | 0.595 | 0.104 | 0.432 | 0.098 | 0.091 | 0.224 |
| 11/14/88 | 0.770 | 0.483 | 0.572 | 0.063 | 0.084 | 0.210 |
| 11/29/88 | 0.713 | 0.666 | 0.392 | 0.091 | 0.117 | 0.129 |
| 12/14/88 | 0.596 | 0.353 | 0.302 | 0.123 | 0.071 | 0.088 |
| avarage | 0.839 | 0.614 | 0.638 | 0.125 | 0.129 | 0.231 |
| minimum | 0.429 | 0.104 | 0.302 | 0.047 | 0.034 | 0.061 |
| maximum | 1.603 | 1.122 | 1.423 | 0.245 | 0.300 | 0.567 |

Table B2-a (continued). Characteristics of seston collected at trap depths at the time of trap deployment and retrieval.

| C. Bay Station | Particulate Nitrogen (mg/L) | | | Particulate Phosphorus (mg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Date | | | | | | |
| 04/04/88 | 0.151 | 0.088 | 0.111 | 0.019 | 0.011 | 0.011 |
| 04/20/88 | 0.181 | 0.158 | 0.137 | 0.012 | 0.015 | 0.012 |
| 05/03/88 | 0.072 | 0.066 | 0.075 | - | - | - |
| 05/16/88 | 0.187 | 0.055 | 0.049 | 0.011 | 0.011 | 0.011 |
| 06/14/88 | 0.074 | 0.080 | 0.063 | - | - | - |
| 06/18/88 | 0.142 | 0.109 | 0.099 | 0.017 | 0.012 | 0.013 |
| 07/13/88 | 0.068 | 0.037 | 0.040 | 0.017 | - | - |
| 07/28/88 | 0.138 | 0.088 | 0.234 | - | - | 0.010 |
| 08/05/88 | 0.120 | 0.081 | 0.153 | - | 0.017 | - |
| 08/11/88 | 0.132 | 0.130 | 0.097 | 0.016 | 0.014 | 0.011 |
| 08/18/88 | 0.127 | 0.112 | 0.080 | 0.015 | 0.017 | - |
| 08/25/88 | 0.121 | 0.120 | 0.130 | 0.017 | 0.015 | 0.019 |
| 09/01/88 | 0.105 | 0.080 | 0.090 | 0.015 | 0.015 | 0.016 |
| 09/12/88 | 0.109 | 0.069 | 0.092 | 0.019 | - | 0.022 |
| 09/27/88 | 0.077 | 0.084 | 0.130 | 0.012 | 0.016 | 0.028 |
| 10/06/88 | 0.092 | 0.079 | 0.104 | 0.015 | 0.014 | 0.019 |
| 10/11/88 | 0.134 | 0.116 | 0.075 | 0.020 | 0.016 | 0.017 |
| 10/20/88 | 0.151 | 0.136 | 0.088 | 0.016 | 0.014 | 0.011 |
| 11/03/88 | 0.096 | 0.439 | 0.085 | 0.011 | 0.008 | 0.013 |
| 11/14/88 | 0.091 | 0.052 | 0.054 | - | - | - |
| 11/29/88 | 0.110 | 0.119 | 0.074 | 0.013 | 0.013 | 0.010 |
| 12/14/88 | 0.131 | 0.103 | 0.089 | 0.014 | 0.011 | 0.010 |
| avarage | 0.119 | 0.109 | 0.098 | 0.012 | 0.010 | 0.011 |
| minimum | 0.068 | 0.037 | 0.040 | - | - | - |
| maximum | 0.187 | 0.439 | 0.234 | 0.020 | 0.017 | 0.028 |

Table B2-c. Fluorometric measurements of chlorophyll-a and pheophytin-a in seston collected at trap depths at the time of trap deployments and retrievals.

| C. Bay Station | Chlorophyll-a (μg/L) | | | Pheophytin-a (μg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Date | | | | | | |
| 04/04/88 | | | | | | |
| 04/20/88 | | | | | | |
| 05/03/88 | 7.950 | 3.263 | 2.539 | 1.390 | 0.784 | 1.049 |
| 05/16/88 | 3.799 | 1.136 | 1.078 | 0.100 | 1.079 | 0.999 |
| 06/14/88 | 2.153 | 1.840 | 1.561 | 1.507 | 1.509 | 1.627 |
| 06/18/88 | 5.255 | 3.694 | 3.121 | 4.106 | 2.709 | 0.936 |
| 07/13/88 | 4.362 | 1.909 | 1.147 | 2.172 | 2.589 | 1.487 |
| 07/28/88 | 8.837 | 2.039 | 4.509 | 3.893 | 1.859 | 2.048 |
| 08/05/88 | 7.863 | 5.785 | 1.962 | 3.753 | 3.741 | 1.499 |
| 08/11/88 | | | | | | |
| 08/18/88 | | | | | | |
| 08/25/88 | 6.447 | 5.792 | 6.454 | 3.525 | 2.650 | 2.985 |
| 09/01/88 | 4.459 | 4.370 | 2.307 | 3.076 | 2.208 | 2.333 |
| 09/12/88 | 5.066 | 1.471 | 1.585 | 2.095 | 1.717 | 2.536 |
| 09/27/88 | 4.968 | 0.000 | 4.607 | 2.836 | 0.000 | 4.805 |
| 10/06/88 | 5.702 | 4.165 | 2.360 | 2.253 | 2.160 | 2.753 |
| 10/11/88 | 5.180 | 2.921 | 1.079 | 2.677 | 2.337 | 2.569 |
| 10/20/88 | 2.760 | 3.809 | 2.229 | 1.932 | 2.542 | 1.828 |
| 11/03/88 | 3.176 | 4.344 | 2.944 | 1.803 | 1.645 | 2.318 |
| 11/14/88 | 3.083 | 1.879 | 2.035 | 1.259 | 1.649 | 1.415 |
| 11/29/88 | 6.341 | 3.726 | 3.510 | 5.435 | 5.962 | 4.475 |
| 12/14/88 | 3.217 | 3.892 | 2.622 | 3.288 | 2.180 | 1.311 |
| avarage | 5.034 | 3.113 | 2.647 | 2.617 | 2.184 | 2.165 |
| minimum | 2.153 | 0.000 | 1.078 | 0.100 | 0.000 | 0.936 |
| maximum | 8.837 | 5.792 | 6.454 | 5.435 | 5.962 | 4.805 |

Table B2-d. Suspended solids concentrations (mg/L) in the water column at trap depths at the time of trap deployments and retrievals.

| C. Bay Station | Total Solids | | | Volatile Solids | | | Non-Volatile Solids | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Date | | | | | | | | | |
| 04/04/88 | 7.500 | 8.700 | 10.000 | 1.700 | 1.300 | 0.800 | 5.800 | 7.400 | 9.200 |
| 04/20/88 | 7.000 | 9.900 | 8.800 | 2.400 | 2.500 | 1.500 | 4.600 | 7.400 | 7.300 |
| 05/03/88 | 3.200 | 5.100 | 7.800 | 0.800 | 1.300 | 0.900 | 2.400 | 3.800 | 6.900 |
| 05/16/88 | 4.632 | 23.474 | 7.000 | 1.684 | 6.000 | 1.700 | 2.947 | 17.474 | 5.300 |
| 06/14/88 | 3.778 | 6.800 | 4.400 | 1.333 | 1.800 | 2.200 | 2.444 | 5.000 | 2.200 |
| 06/18/88 | 6.900 | 7.576 | 11.600 | 3.700 | 3.939 | 3.900 | 3.200 | 3.636 | 7.700 |
| 07/13/88 | 8.133 | 8.118 | 8.765 | 1.600 | 0.353 | 0.247 | 6.533 | 7.765 | 8.519 |
| 07/28/88 | 26.447 | 15.900 | 23.404 | 6.711 | 4.000 | 3.617 | 19.737 | 11.900 | 19.787 |
| 08/05/88 | 5.729 | 5.208 | 10.700 | 4.167 | 2.917 | 3.400 | 1.563 | 2.292 | 7.300 |
| 08/11/88 | 4.778 | 5.000 | 8.000 | | | | | | |
| 08/18/88 | 4.500 | 4.947 | 7.582 | 2.200 | 0.947 | 1.099 | 2.300 | 4.000 | 6.484 |
| 08/25/88 | 5.800 | 6.500 | 10.500 | 0.900 | 0.800 | 1.600 | 4.900 | 5.700 | 8.900 |
| 09/01/88 | 7.100 | 5.900 | 9.800 | 2.100 | 1.600 | 1.900 | 5.000 | 4.300 | 7.900 |
| 09/12/88 | 8.111 | 12.300 | 10.100 | 1.333 | 1.800 | 0.700 | 6.778 | 10.500 | 9.400 |
| 09/27/88 | 3.700 | 3.300 | 19.250 | 1.200 | 0.700 | 1.875 | 2.500 | 2.600 | 17.375 |
| 10/06/88 | 4.200 | 6.600 | 13.800 | 1.400 | 2.100 | 2.500 | 2.800 | 4.500 | 11.300 |
| 10/11/88 | 35.158 | 20.500 | 32.700 | 4.105 | 2.400 | 2.300 | 31.053 | 18.100 | 30.400 |
| 10/20/88 | 7.300 | 6.900 | 8.200 | 2.100 | 1.400 | 1.300 | 5.200 | 5.500 | 6.900 |
| 11/03/88 | 5.700 | 4.500 | 8.800 | 1.300 | 1.100 | 1.300 | 4.400 | 3.400 | 7.500 |
| 11/14/88 | 22.300 | 24.600 | 29.300 | 3.700 | 3.900 | 4.000 | 18.600 | 20.700 | 25.300 |
| 11/29/88 | 21.500 | 21.800 | 22.300 | 2.300 | 3.400 | 2.900 | 19.200 | 18.400 | 19.400 |
| 12/14/88 | 20.900 | 27.375 | 24.316 | 2.800 | 3.000 | 2.737 | 18.100 | 24.375 | 21.579 |
| avarage | 10.198 | 10.954 | 13.505 | 2.359 | 2.250 | 2.023 | 8.098 | 8.988 | 11.745 |
| minimum | 3.200 | 3.300 | 4.400 | 0.800 | 0.353 | 0.247 | 1.563 | 2.292 | 2.200 |
| maximum | 35.158 | 27.375 | 32.700 | 6.711 | 6.000 | 4.000 | 31.053 | 24.375 | 30.400 |

Table B3-a. Characteristics of seston collected at trap depths at the time of trap deployment and retrieval.

| C. Bay Station | Particulate Carbon (mg/L) | | | Biogenic Silica (mg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Date | | | | | | |
| 01/09/89 | 0.713 | 0.858 | 0.576 | 0.133 | 0.121 | 0.213 |
| 01/24/89 | 0.799 | 0.429 | 0.730 | 0.195 | 0.114 | 0.448 |
| 02/08/89 | 0.478 | 0.541 | 0.582 | 0.129 | 0.136 | 0.262 |
| 02/20/89 | 0.479 | 0.379 | 0.472 | 0.106 | 0.193 | 0.424 |
| 03/13/89 | 0.312 | 0.312 | 0.344 | 0.153 | 0.203 | 0.229 |
| 03/21/89 | 0.421 | 0.353 | 0.352 | 0.136 | 0.130 | 0.123 |
| 04/07/89 | 0.694 | 0.811 | 0.705 | 0.105 | 0.118 | 0.180 |
| 04/20/89 | 0.486 | 0.373 | 0.459 | - | - | 0.057 |
| 05/09/89 | 0.443 | 0.470 | 0.217 | - | - | 0.069 |
| 05/25/89 | 0.200 | 0.255 | 0.113 | - | - | 0.068 |
| 06/05/89 | 0.674 | 0.368 | 0.306 | 0.141 | 0.111 | 0.178 |
| 06/19/89 | 1.040 | 0.069 | - | - | 0.062 | 0.100 |
| 06/30/89 | 1.392 | 0.826 | 0.695 | 0.097 | 0.102 | 0.088 |
| 07/14/89 | 1.456 | 1.295 | 0.635 | 0.075 | 0.084 | 0.105 |
| 07/27/89 | 1.728 | 0.729 | 0.770 | 0.157 | 0.149 | 0.327 |
| 08/07/89 | 1.910 | 1.238 | 1.650 | - | 0.082 | 0.362 |
| 08/25/89 | 1.040 | 0.851 | 0.603 | 0.293 | 0.308 | 0.299 |
| 08/31/89 | 0.909 | 0.577 | 0.410 | 0.173 | 0.170 | 0.364 |
| 09/14/89 | 0.733 | 0.715 | 0.697 | 0.152 | 0.163 | 0.385 |
| 10/02/89 | 0.835 | 1.067 | 0.351 | 0.271 | 0.497 | 0.380 |
| 10/30/89 | | | | | | |
| 11/22/89 | 0.688 | 0.603 | 0.646 | 0.221 | 0.344 | 0.331 |
| 12/12/89 | 0.843 | 0.742 | 0.732 | 0.606 | 0.536 | 0.574 |
| average | 0.831 | 0.630 | 0.548 | 0.143 | 0.165 | 0.253 |
| minimum | 0.200 | 0.069 | - | - | - | 0.057 |
| maximum | 1.910 | 1.295 | 1.650 | 0.606 | 0.536 | 0.574 |

Table B3-a (continued). Characteristics of seston collected at trap depths at the time of trap deployment and retrieval.

| C. Bay Station | Particulate Nitrogen (mg/L) | | | Particulate Phosphorus (mg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Date | | | | | | |
| 01/09/89 | 0.113 | 0.113 | 0.098 | 0.013 | 0.012 | 0.013 |
| 01/24/89 | 0.108 | 0.081 | 0.124 | 0.015 | 0.011 | 0.023 |
| 02/08/89 | 0.091 | 0.074 | 0.090 | 0.015 | 0.016 | 0.017 |
| 02/20/89 | 0.044 | 0.044 | 0.028 | 0.013 | 0.012 | 0.012 |
| 03/13/89 | - | - | - | 0.004 | 0.011 | 0.013 |
| 03/21/89 | 0.057 | 0.028 | - | 0.013 | 0.012 | 0.011 |
| 04/07/89 | 0.086 | 0.096 | 0.078 | 0.012 | 0.014 | 0.013 |
| 04/20/89 | 0.059 | 0.035 | 0.044 | 0.007 | 0.013 | 0.009 |
| 05/09/89 | 0.066 | 0.082 | 0.068 | 0.015 | 0.017 | 0.011 |
| 05/25/89 | 0.055 | 0.067 | 0.069 | 0.010 | 0.016 | 0.010 |
| 06/05/89 | 0.157 | 0.100 | 0.085 | 0.011 | 0.010 | 0.011 |
| 06/19/89 | 0.295 | 0.161 | 0.092 | 0.020 | 0.021 | 0.013 |
| 06/30/89 | 0.201 | 0.163 | 0.094 | 0.027 | 0.025 | 0.017 |
| 07/14/89 | 0.221 | 0.176 | 0.077 | 0.035 | 0.035 | 0.020 |
| 07/27/89 | 0.303 | 0.150 | 0.214 | 0.032 | 0.019 | 0.026 |
| 08/07/89 | 0.301 | 0.219 | 0.260 | 0.037 | 0.027 | 0.019 |
| 08/25/89 | 0.217 | 0.204 | 0.171 | 0.027 | 0.028 | 0.023 |
| 08/31/89 | 0.208 | 0.131 | 0.107 | 0.022 | 0.016 | 0.015 |
| 09/14/89 | 0.118 | 0.107 | 0.123 | 0.016 | 0.008 | 0.016 |
| 10/02/89 | 0.119 | 0.125 | 0.046 | 0.020 | 0.023 | 0.017 |
| 10/30/89 | | | | | | |
| 11/22/89 | 0.101 | 0.095 | 0.123 | 0.026 | 0.024 | 0.026 |
| 12/11/89 | 0.122 | 0.082 | 0.099 | 0.03 | 0.028 | 0.029 |
| average | 0.138 | 0.106 | 0.095 | 0.019 | 0.018 | 0.017 |
| minimum | - | - | - | 0.004 | 0.008 | 0.009 |
| maximum | 0.303 | 0.219 | 0.260 | 0.037 | 0.035 | 0.029 |

Table B3-b. Spectrometric measurements of chlorophyll-a and pheophytin-a in seston collected at trap depths at the time of trap deployments and retrievals. (see the text for the explanation of the negative numbers in the pheophytin-a measurements.)

| C. Bay Station | Chlorophyll-a (μg/L) | | | Pheophytin-a (μg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Date | | | | | | |
| 01/09/89 | 6.141 | 5.623 | 4.229 | 0.307 | -2.127 | -0.282 |
| 01/24/89 | 9.484 | 6.194 | 6.403 | 0.475 | 0.310 | 0.524 |
| 02/08/89 | 2.755 | 2.606 | 2.323 | 1.586 | 1.044 | 0.930 |
| 02/20/89 | 5.607 | 3.471 | 3.161 | | 0.417 | -0.396 |
| 03/13/89 | 3.204 | 2.820 | 2.211 | -0.401 | 0.635 | 1.402 |
| 03/21/89 | 4.614 | 3.578 | 2.713 | -0.308 | -0.072 | 0.136 |
| 04/07/89 | 4.972 | 3.605 | 5.345 | 0.498 | 1.443 | |
| 04/20/89 | 2.414 | 1.794 | 3.524 | 0.544 | 1.557 | 0.588 |
| 05/09/89 | 5.046 | 5.596 | 4.069 | -1.010 | 0.280 | -0.272 |
| 05/25/89 | 0.619 | 2.163 | 2.649 | 1.116 | 0.866 | 0.133 |
| 06/05/89 | 7.225 | 4.277 | 4.374 | 0.592 | 1.380 | |
| 06/19/89 | 8.010 | 4.635 | 2.019 | -0.067 | 0.928 | 0.808 |
| 06/30/89 | 12.303 | 8.330 | 3.524 | 0.616 | 1.876 | 1.411 |
| 07/14/89 | 13.596 | 9.895 | 0.609 | 0.430 | 0.699 | 10.056 |
| 07/27/89 | 15.853 | 5.927 | 5.073 | 1.086 | 1.335 | 0.965 |
| 08/07/89 | 15.949 | 9.804 | 3.621 | -0.599 | 1.097 | 1.027 |
| 08/25/89 | 19.977 | 11.278 | 10.493 | -10.827 | 3.034 | -0.210 |
| 08/31/89 | 10.712 | 6.008 | 4.197 | -3.217 | 1.470 | 1.681 |
| 09/14/89 | 6.990 | 6.104 | 2.118 | -0.318 | 0.543 | 2.333 |
| 10/02/89 | 5.719 | 2.563 | 2.937 | 1.400 | 2.823 | 1.176 |
| 10/30/89 | | | | | | |
| 11/22/89 | 7.209 | 5.425 | 5.959 | 0.361 | 1.697 | 1.922 |
| 12/11/89 | 11.454 | 10.894 | 11.342 | 0.209 | 3.464 | 1.009 |
| average | 8.175 | 5.572 | 4.222 | 0.439 | 1.223 | 1.305 |
| minimum | 0.619 | 1.794 | 0.609 | -10.827 | -2.127 | -0.396 |
| maximum | 19.977 | 11.278 | 11.342 | 1.586 | 3.464 | 10.056 |

Table B3-c. Fluorometric measurements of chlorophyll-a and pheophytin-a in seston collected at trap depths at the time of trap deployments and retrievals.

| C. Bay Station | Chlorophyll-a (μg/L) | | | Pheophytin-a (μg/L) | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Date | | | | | | |
| 01/09/89 | 4.883 | 3.312 | 4.671 | 3.581 | 3.146 | 2.008 |
| 01/24/89 | 6.284 | 7.183 | 3.857 | 4.438 | 2.822 | 3.664 |
| 02/08/89 | 4.565 | 3.885 | 3.592 | 1.963 | 2.288 | 1.745 |
| 02/20/89 | 5.839 | 2.530 | 2.880 | 1.752 | 1.656 | 1.545 |
| 03/13/89 | 2.389 | 1.868 | 1.953 | 1.062 | 1.168 | 1.538 |
| 03/21/89 | 3.849 | 2.814 | 2.425 | 1.595 | 1.407 | 1.043 |
| 04/07/89 | 4.469 | 4.330 | 4.477 | 1.564 | 1.340 | 2.009 |
| 04/20/89 | 1.119 | 2.012 | 3.428 | 3.257 | 1.092 | 1.412 |
| 05/09/89 | 3.465 | 4.083 | 2.002 | 1.406 | 1.681 | 1.183 |
| 05/25/89 | 1.148 | 2.178 | 2.137 | 0.434 | 1.148 | 1.410 |
| 06/05/89 | 6.855 | 4.308 | 2.145 | 1.425 | 1.488 | 1.356 |
| 06/19/89 | 6.875 | 4.774 | 1.709 | 1.925 | 1.500 | 1.506 |
| 06/30/89 | 12.672 | 8.246 | 3.969 | 0.845 | 2.164 | 1.258 |
| 07/14/89 | 13.413 | 9.992 | 5.685 | 2.034 | 2.478 | 3.545 |
| 07/27/89 | 9.854 | 3.968 | 3.100 | 3.415 | 2.137 | 3.295 |
| 08/07/89 | 12.115 | 7.564 | 2.527 | 2.916 | 2.843 | 2.892 |
| 08/25/89 | 8.419 | 9.583 | 7.445 | 3.046 | 3.891 | 3.506 |
| 08/31/89 | 7.053 | 5.500 | 2.834 | 2.137 | 1.650 | 2.065 |
| 09/14/89 | 6.545 | 5.588 | 2.909 | 1.833 | 2.235 | 2.327 |
| 10/02/89 | 7.636 | 3.520 | 2.823 | 3.622 | 3.344 | 2.743 |
| 10/30/89 | | | | | | |
| 11/22/89 | 7.425 | 5.588 | 5.911 | 3.267 | 3.353 | 3.910 |
| 12/11/89 | 11.440 | 11.440 | 10.384 | 2.717 | 4.400 | 3.634 |
| average | 6.741 | 5.194 | 3.767 | 2.283 | 2.238 | 2.254 |
| minimum | 1.119 | 1.868 | 1.709 | 0.434 | 1.092 | 1.043 |
| maximum | 13.413 | 11.440 | 10.384 | 4.438 | 4.400 | 3.910 |

Table B3-d. Suspended solids concentrations (mg/L) in the water column at trap depths at the time of trap deployments and retrievals.

| C. Bay Station | Total Solids | | | Volatile Solids | | | Non-Volatile Solids | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Date | | | | | | | | | |
| 01/09/89 | 21.6 | 29.1 | 28.4 | 2.3 | 2.7 | 2.3 | 19.3 | 26.4 | 26.2 |
| 01/24/89 | 22.5 | 24.4 | 36.8 | 2.8 | 2.8 | 3.3 | 19.7 | 21.6 | 33.5 |
| 02/08/89 | 22.5 | 23.7 | 31.9 | 3.1 | 3.6 | 3.5 | 19.4 | 20.1 | 28.3 |
| 02/20/89 | 25.3 | 49.2 | 34.2 | 2.2 | 3.3 | 2.7 | 23.1 | 45.9 | 31.5 |
| 03/13/89 | 14.8 | 15.7 | 27.2 | 1.9 | 1.9 | 3 | 12.9 | 13.8 | 24.3 |
| 03/21/89 | 22.5 | 26.8 | 22.6 | 12 | 10.5 | 10.8 | 2.7 | 2.8 | 2.4 |
| 04/07/89 | 6.4 | 8.1 | 8.1 | | | 0.3 | 7.1 | 8.5 | 7.8 |
| 04/20/89 | 4.1 | 5.2 | 5.5 | 1.4 | 1.6 | 1.7 | 2.7 | 3.6 | 3.9 |
| 05/09/89 | 11.7 | 11.5 | 15.4 | 0.7 | 0.8 | 0.2 | 11 | 11.1 | 15.8 |
| 05/25/89 | 8.4 | 12.9 | 15.1 | 1.7 | 2 | 2.5 | 6.6 | 10.9 | 12.6 |
| 06/05/89 | 2.7 | 4.2 | 12.7 | 1.7 | 1.3 | 2.1 | 0.9 | 2.9 | 10.7 |
| 06/19/89 | 2 | 7.6 | 12.2 | | 1.5 | 2.3 | | 2.4 | 9.9 |
| 06/30/89 | 2.7 | 4.2 | 4.5 | 1.9 | 2.1 | 1.6 | 0.8 | 2.2 | 2.9 |
| 07/14/89 | 3.6 | 3 | 5.2 | 2.5 | 2.5 | 1.9 | 1.2 | 5.1 | 3.3 |
| 07/27/89 | 5.5 | 4.7 | 12.2 | 2.9 | 1.4 | 2.5 | 2.5 | 2.8 | 9.7 |
| 08/07/89 | 3.7 | 4.3 | 8 | 3.3 | 2.4 | 1.9 | 0.3 | 0.5 | 6.1 |
| 08/25/89 | 4.4 | 4.4 | 6.2 | 2 | 1.7 | 1.8 | 2.4 | 2.9 | 4.4 |
| 08/31/89 | 3.5 | 4.3 | 6.9 | 2.3 | 1.8 | 1.7 | 1.2 | 2.5 | 5.2 |
| 09/14/89 | 4 | 4.4 | 11.6 | 2.1 | 1.9 | 2.1 | 1.9 | 2.5 | 9.5 |
| 10/02/89 | 9.9 | 30.5 | 9.8 | 2.1 | 3.4 | 1.7 | 7.8 | 27.1 | 8.2 |
| 10/30/89 | | | | | | | | | |
| 11/22/89 | 11.3 | 17.5 | 15 | 1.9 | 2.3 | 2.1 | 9.4 | 15.2 | 12.9 |
| 12/11/89 | 19.2 | 17.4 | 13.9 | 3 | 2.8 | 2.3 | 16.2 | 14.7 | 11.7 |
| average | 10.6 | 14.2 | 15.6 | 2.7 | 2.6 | 2.5 | 8.1 | 11.2 | 12.8 |
| minimum | 2.0 | 3.0 | 4.5 | 0.7 | 0.8 | 0.2 | 0.3 | 0.5 | 2.4 |
| maximum | 25.3 | 49.2 | 36.8 | 12.0 | 10.5 | 10.8 | 23.1 | 45.9 | 33.5 |

APPENDIX C. Compositions of Surficial Bottom Sediments:

1. York River Station, 1988

   Table C1-a. C, N, P, and volatile *vs.* non-volatile
   Table C1-b. Plant Pigments (spectrometric & fluorometric)

2. Cheaspeake Bay Station, 1988

   Table C2-a. C, N, P, and volatile *vs.* non-volatile
   Table C2-b. Plant Pigments (spectrometric & fluorometric)

3. Chesapeake Bay Station, 1989

   Table C3-a. C, N, P, and volatile *vs.* non-volatile
   Table C3-b. Plant Pigments (spectrometric & fluorometric)

Table C1-a. Composition of surficial bottom sediments (in dry weight).

| York Station | Carbon (mg/g) | Nitrogen (mg/g) | Phosporus (mg/g) | Volatile (%) | Non-Vol. (%) |
|---|---|---|---|---|---|
| Date | | | | | |
| 04/04/88 | | | | | |
| 04/20/88 | 1.758 | 0.197 | 0.061 | 8.2 | 91.8 |
| 05/03/88 | 0.778 | 0.091 | 0.048 | 6.0 | 94.0 |
| 05/16/88 | 0.825 | 0.080 | 0.030 | 4.2 | 95.8 |
| 06/06/88 | 1.787 | 0.191 | 0.063 | 4.3 | 95.7 |
| 06/14/88 | 1.092 | 0.099 | 0.023 | 4.1 | 95.9 |
| 06/28/88 | 0.842 | 0.083 | 0.043 | 6.1 | 93.9 |
| 07/12/88 | 1.201 | 0.151 | 0.032 | 4.1 | 95.9 |
| 07/21/88 | 1.021 | 0.098 | 0.032 | 4.0 | 96.0 |
| 07/28/88 | 0.811 | 0.148 | 0.049 | 10.0 | 90.0 |
| 08/05/88 | 0.847 | 0.100 | 0.033 | 4.1 | 95.9 |
| 08/11/88 | 0.829 | 0.109 | 0.043 | 0.1 | 99.9 |
| 08/18/88 | 0.671 | 0.091 | 0.043 | 4.1 | 95.9 |
| 08/25/88 | 0.150 | 0.018 | 0.018 | | 100.0 |
| 09/01/88 | 0.552 | 0.094 | 0.048 | 4.0 | 96.0 |
| 09/06/88 | 0.455 | 0.031 | 0.032 | 2.0 | 98.0 |
| 09/12/88 | 0.701 | 0.068 | 0.056 | 2.0 | 98.0 |
| 09/26/88 | 0.776 | 0.091 | 0.042 | 2.0 | 98.0 |
| 10/06/88 | 1.280 | 0.078 | 0.062 | 4.1 | 95.9 |
| 10/11/88 | 1.430 | 0.079 | 0.043 | 2.0 | 98.0 |
| 10/20/88 | 1.862 | 0.117 | 0.046 | 4.1 | 95.9 |
| 11/04/88 | 0.860 | 0.096 | 0.039 | 6.1 | 93.9 |
| 11/15/88 | 1.090 | 0.147 | 0.058 | 8.0 | 92.0 |
| 11/29/88 | 1.090 | 0.124 | 0.057 | 6.8 | 93.2 |
| 12/13/88 | | | | | |
| average | 0.987 | 0.104 | 0.044 | 4.6 | 95.6 |

Table C1-b. Plant pigments ($\mu$g/g-dry weight) in surficial bottom sediments.

| York River | Spectrometric | | Fluorometric | |
|---|---|---|---|---|
| Station | Chlorophyll-a | Pheophytin-a | Chlorophyll-a | Pheophytin-a |
| Date | | | | |
| 04/04/88 | | | | |
| 04/20/88 | | 1260.240 | | |
| 05/03/88 | 731.754 | 598.080 | 353.846 | 731.754 |
| 05/16/88 | 835.077 | 491.280 | 268.923 | 835.077 |
| 06/06/88 | 621.000 | 384.480 | 230.000 | 621.000 |
| 06/14/88 | 406.923 | 234.960 | 53.077 | 406.923 |
| 06/28/88 | 418.423 | 160.734 | 76.077 | 418.423 |
| 07/12/88 | 592.338 | 277.680 | 134.462 | 592.338 |
| 07/21/88 | 771.385 | 395.160 | 148.615 | 771.385 |
| 07/28/88 | 493.262 | 96.120 | 95.539 | 493.262 |
| 08/05/88 | 416.123 | 117.480 | 99.077 | 416.123 |
| 08/11/88 | 551.292 | 213.600 | 120.308 | 551.292 |
| 08/18/88 | 693.539 | 192.240 | 134.462 | 693.539 |
| 08/25/88 | 323.415 | 42.720 | 35.385 | 323.415 |
| 09/01/88 | 497.508 | 74.760 | 63.692 | 497.508 |
| 09/06/88 | 980.154 | 331.080 | 123.846 | 980.154 |
| 09/12/88 | 598.000 | 96.120 | 92.000 | 598.000 |
| 09/26/88 | 647.539 | 64.080 | 88.462 | 647.539 |
| 10/06/88 | 716.539 | 117.480 | 88.462 | 716.539 |
| 10/11/88 | 840.738 | 32.040 | 134.462 | 840.738 |
| 10/20/88 | 768.908 | 10.680 | 109.692 | 768.908 |
| 11/04/88 | 1351.692 | | 212.308 | 1351.692 |
| 11/15/88 | 1059.769 | | 159.231 | 1059.769 |
| 11/29/88 | 916.462 | 192.240 | 141.539 | 916.462 |
| 12/13/88 | | | | |
| average | 692.356 | 256.345 | 134.703 | 692.356 |

Table C2-a. Composition of surficial bottom sediments (in dry weight).

| C. Bay Station | Carbon (mg/g) | Nitrogen (mg/g) | Phosporus (mg/g) | Volatile (%) | Non-Vol. (%) |
|---|---|---|---|---|---|
| Date | | | | | |
| 04/04/88 | | | | | |
| 04/20/88 | 0.532 | 0.041 | 0.061 | 2.0 | 98.0 |
| 05/03/88 | 1.020 | 0.118 | 0.069 | 3.9 | 96.1 |
| 05/16/88 | 0.849 | 0.077 | 0.051 | 4.0 | 96.0 |
| | | | | | |
| 06/14/88 | 0.757 | 0.068 | 0.025 | 4.1 | 95.9 |
| 06/18/88 | 0.607 | 0.051 | 0.056 | 2.0 | 98.0 |
| 07/13/88 | 0.790 | 0.085 | 0.042 | 4.0 | 96.0 |
| 07/28/88 | 0.819 | 0.120 | 0.032 | 6.0 | 94.0 |
| 08/05/88 | 0.837 | 0.093 | 0.046 | 4.1 | 95.9 |
| 08/11/88 | 0.779 | 0.091 | 0.058 | 2.0 | 98.0 |
| 08/18/88 | 1.447 | 0.111 | 0.043 | 2.0 | 98.0 |
| 08/25/88 | 0.843 | 0.060 | 0.049 | 2.0 | 98.0 |
| 09/01/88 | 0.862 | 0.081 | 0.052 | 2.0 | 98.0 |
| 09/12/88 | 0.000 | 0.128 | 0.079 | 4.0 | 96.0 |
| 09/27/88 | 0.563 | 0.039 | 0.052 | 4.1 | 95.9 |
| 10/06/88 | 0.910 | 0.072 | 0.052 | 14.0 | 86.0 |
| 10/11/88 | 1.610 | 0.001 | 0.053 | 2.0 | 98.0 |
| 10/20/88 | 1.499 | 0.168 | 0.059 | 6.0 | 94.0 |
| 11/03/88 | 0.781 | 0.073 | 0.024 | 4.1 | 95.9 |
| 11/14/88 | 0.905 | 0.100 | 0.029 | 6.0 | 94.0 |
| 11/29/88 | 0.905 | 0.124 | 0.061 | 6.0 | 94.0 |
| 12/14/88 | 0.824 | 0.073 | 0.065 | 8.0 | 92.0 |
| avarage | 0.864 | 0.084 | 0.050 | 4.4 | 95.6 |

Table C2-b. Plant pigments ($\mu$g/g-dry weight) in surficial bottom sediments.

| Chesapeake Bay | Spectrometric | | Fluorometric | |
|---|---|---|---|---|
| Station | Chlorophyll-a | Pheophytin-a | Chlorophyll-a | Pheophytin-a |
| Date | | | | |
| 04/04/88 | | | | |
| 04/20/88 | 224.280 | 426.611 | | |
| 05/03/88 | 320.400 | 884.228 | 198.154 | 629.846 |
| 05/16/88 | 160.200 | 625.482 | 14.154 | 648.246 |
| 06/14/88 | 267.000 | 443.718 | 176.923 | 329.077 |
| 06/18/88 | 80.367 | 249.418 | 34.235 | 272.355 |
| 07/13/88 | 21.360 | 360.320 | 35.385 | 231.415 |
| 07/28/88 | 170.880 | 764.478 | 46.000 | 745.200 |
| 08/05/88 | 64.080 | 527.116 | 49.539 | 410.462 |
| 08/11/88 | 85.440 | 632.966 | 46.000 | 593.400 |
| 08/18/88 | 117.480 | 376.358 | 46.000 | 423.200 |
| 08/25/88 | 149.520 | 875.675 | 70.769 | 784.831 |
| 09/01/88 | 224.280 | 1047.816 | 70.769 | 941.231 |
| 09/12/88 | 128.160 | 485.417 | 74.308 | 956.092 |
| 09/27/88 | 85.440 | 34.214 | 63.692 | 617.108 |
| 10/06/88 | 96.120 | 1.069 | 35.385 | 470.615 |
| 10/11/88 | 10.680 | 94.090 | 106.154 | 606.846 |
| 10/20/88 | 32.040 | 110.128 | 106.154 | 767.846 |
| 11/03/88 | | | 176.923 | 1341.077 |
| 11/14/88 | | | 141.539 | 962.462 |
| 11/29/88 | 202.920 | 739.886 | 141.539 | 1146.461 |
| 12/14/88 | 213.600 | 691.773 | 42.462 | 785.539 |
| avarage | 139.697 | 493.198 | 83.804 | 683.165 |

Table C3-a. Composition of surficial bottom sediments (in dry weights).

| C. Bay Station | Carbon (mg/g) | Nitrogen (mg/g) | Phosporus (mg/g) | Volatile (%) | Non-Vol. (%) |
|---|---|---|---|---|---|
| Date | | | | | |
| 01/09/89 | 0.896 | 0.082 | 0.072 | 6.0 | 94.0 |
| 01/24/89 | 0.964 | 0.052 | 0.060 | 6.0 | 94.0 |
| 02/08/89 | 0.905 | 0.066 | 0.058 | 8.0 | 92.0 |
| 02/20/89 | 0.851 | 0.066 | 0.059 | 8.0 | 92.0 |
| 03/13/89 | 1.010 | 0.086 | 0.051 | 8.0 | 92.0 |
| 03/21/89 | | | | 0.0 | 0.0 |
| 04/07/89 | | | | 0.0 | 0.0 |
| 04/20/89 | | | | 0.0 | 0.0 |
| 05/09/89 | 0.699 | 0.084 | 0.074 | 4.0 | 96.0 |
| 05/25/89 | 0.720 | 0.068 | 0.058 | 6.0 | 94.0 |
| 06/05/89 | 0.972 | 0.091 | 0.060 | 4.0 | 96.0 |
| 06/19/89 | 0.781 | 0.079 | 0.051 | 5.9 | 94.1 |
| 06/30/89 | 0.799 | 0.016 | 0.058 | 2.0 | 98.0 |
| 07/14/89 | 0.777 | 0.055 | 0.057 | 4.0 | 96.0 |
| 07/27/89 | 0.811 | 0.061 | 0.059 | 2.0 | 98.0 |
| 08/07/89 | 0.727 | 0.079 | 0.070 | 4.0 | 96.0 |
| 08/25/89 | 0.657 | 0.082 | 0.064 | 0.0 | 100.0 |
| 08/31/89 | 0.686 | 0.089 | 0.066 | 2.3 | 97.7 |
| 09/14/89 | 0.795 | 0.080 | 0.060 | 3.5 | 96.5 |
| 10/02/89 | 0.830 | 0.093 | 0.060 | 3.5 | 96.5 |
| 10/30/89 | | | | | |
| 11/22/89 | 0.702 | 0.097 | 0.059 | 2.4 | 97.6 |
| 12/11/89 | 1.066 | 0.119 | 0.068 | 4.1 | 95.9 |
| average | 0.824 | 0.076 | 0.061 | 3.8 | 82.6 |

Table C3-b. Plant pigments ($\mu$g/g-dry weight) in surficial bottom sediments.

| Chesapeake Bay | Spectrometric | | Flourometric | |
|---|---|---|---|---|
| Station | Chlorophyll-a | Pheophytin-a | Chlorophyll-a | Pheophytin-a |
| Date | | | | |
| 01/09/89 | 202.920 | 934.481 | 63.692 | 847.108 |
| 01/24/89 | 138.840 | 467.240 | 21.231 | 558.369 |
| 02/08/89 | 181.560 | 566.676 | 21.231 | 751.569 |
| 02/20/89 | 277.680 | 889.574 | 169.846 | 934.154 |
| 03/13/89 | 32.040 | 791.208 | 28.308 | 450.092 |
| 03/21/89 | | | | |
| 04/07/89 | | | | |
| 04/20/89 | | | | |
| 05/09/89 | 234.960 | 505.732 | | |
| 05/25/89 | 21.360 | 240.570 | 14.667 | 196.533 |
| 06/05/89 | 64.080 | 459.756 | 36.667 | 253.733 |
| 06/19/89 | 96.120 | 405.227 | 29.333 | 252.267 |
| 06/30/89 | 106.800 | 409.504 | | |
| 07/14/89 | 85.440 | 460.825 | | |
| 07/27/89 | 117.480 | 511.078 | | |
| 08/07/89 | 138.840 | 70.567 | | |
| 08/25/89 | 106.800 | 267.300 | | |
| 08/31/89 | 64.080 | 512.147 | 25.667 | 229.533 |
| 09/14/89 | 128.160 | 717.433 | | |
| 10/02/89 | 202.920 | 507.870 | | |
| 10/30/89 | | | | |
| 11/22/89 | 128.160 | 552.776 | | |
| 12/11/89 | 96.120 | 547.430 | | |
| average | 127.598 | 516.705 | 45.627 | 497.040 |

APPENDIX D. Fluxes of Nutrients, Plant Pigments and Suspended Solids:

1. York River Station, 1988

   Table D1-a. PC, PSi, PN, PP
   Table D1-b. Plant Pigments (spectrometric measurements)
   Table D1-c. Plant Pigments (fluorometric measurements)
   Table D1-d. Suspended Solids

2. Cheaspeake Bay Station, 1988

   Table D2-a. PC, PSi, PN, PP
   Table D2-b. Plant Pigments (spectrometric measurements)
   Table D2-c. Plant Pigments (fluorometric measurements)
   Table D2-d. Suspended Solids

3. Chesapeake Bay Station, 1989

   Table D3-a. PC, PSi, PN, PP
   Table D3-b. Plant Pigments (spectrometric measurements)
   Table D3-c. Plant Pigments (fluorometric measurements)
   Table D3-d. Suspended Solids

Table D1-a. Particulate fluxes (mg per $m^2$/day) calculated from the trapped solids (1988).

| York Station | Particulate Carbon | | | Biogenic Silica | | |
|---|---|---|---|---|---|---|
| Depth | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| Mid-Day | | | | | | |
| 12-Apr | 2342.37 | 2729.00 | 5381.94 | 5764.99 | 2160.49 | 4392.64 |
| 26-Apr | 2083.84 | 2243.25 | 4842.29 | 746.17 | 1261.70 | 2696.38 |
| 09-May | 1794.53 | 2577.33 | 6125.70 | 1170.13 | 1743.32 | 3235.65 |
| 26-May | 1639.79 | 2267.57 | 4008.15 | 1379.44 | 1977.83 | 3924.16 |
| 10-Jun | 549.09 | 881.98 | 1514.99 | 429.16 | 728.98 | 1194.89 |
| 21-Jun | | | | | | |
| 05-Jul | 1688.08 | 2755.73 | 5095.74 | 1785.71 | 2686.45 | 4680.02 |
| 16-Jul | 1029.79 | 902.51 | 4828.53 | 927.40 | 1386.44 | 4325.89 |
| 24-Jul | 2825.65 | 3268.46 | 5571.30 | 599.02 | 1524.31 | 3533.64 |
| 01-Aug | 2468.31 | 3935.74 | 7219.47 | 1807.76 | 3345.46 | 6591.71 |
| 08-Aug | 1670.71 | 1758.52 | 4744.64 | 835.54 | 1734.27 | 2939.45 |
| 14-Aug | 1343.54 | 1703.52 | 5372.26 | 699.17 | 1397.08 | 4491.06 |
| 21-Aug | 2191.99 | 1986.65 | 5508.94 | 1014.11 | 1499.12 | 4491.06 |
| 28-Aug | 2086.80 | 4448.22 | 6674.54 | 2084.91 | 3130.51 | 5845.30 |
| 03-Sep | 2721.34 | 4007.05 | 6424.60 | 2283.95 | 3315.70 | 5440.92 |
| 09-Sep | 2317.02 | 3845.53 | 5876.69 | 1359.49 | 2410.35 | 3115.81 |
| 19-Sep | 2799.82 | 3670.64 | 6561.79 | 1820.36 | 2503.78 | 4223.36 |
| 01-Oct | 1906.08 | 2941.14 | 7201.28 | 2186.95 | 2768.96 | 7147.27 |
| 08-Oct | 1746.03 | 2257.05 | 3978.84 | 1174.60 | 1734.57 | 2018.52 |
| 15-Oct | 1733.54 | 2298.40 | 4351.12 | 1072.90 | 1582.40 | 1998.82 |
| 20-Oct | 1499.12 | 2147.27 | 3389.18 | 752.50 | 1025.87 | 1222.81 |
| 09-Nov | 1252.00 | 1868.69 | 3012.87 | 1058.20 | 1026.13 | 1595.32 |
| 22-Nov | 2604.56 | 3749.06 | 6723.36 | 1802.19 | 1735.04 | 3509.26 |
| 06-Dec | 1718.00 | 3432.85 | 5023.31 | 1023.84 | 1208.55 | 2786.28 |
| average | 1913.57 | 2681.57 | 5192.67 | 1468.63 | 1908.14 | 3713.05 |
| minimum | 549.09 | 881.98 | 1514.99 | 429.16 | 728.98 | 1194.89 |
| maximum | 2825.65 | 4448.22 | 7219.47 | 5764.99 | 3345.46 | 7147.27 |

Table D1-a (continued). Nutrient fluxes (mg per $m^2$/day) (1988).

| York Station | Particulate Nitrogen | | | Particulate Phosphorus | | |
|---|---|---|---|---|---|---|
| Depth | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| Mid-Day | | | | | | |
| 12-Apr | 306.71 | 346.40 | 690.31 | 55.42 | 75.04 | 142.42 |
| 26-Apr | 98.70 | 156.09 | 369.42 | 25.68 | 38.43 | 97.88 |
| 09-May | 163.45 | 161.82 | 295.55 | 45.08 | 66.34 | 119.39 |
| 26-May | 130.39 | 223.61 | 474.30 | 39.20 | 57.15 | 168.62 |
| 10-Jun | 76.57 | 114.49 | 186.36 | 7.23 | 10.63 | 20.15 |
| 21-Jun | | | | | | |
| 05-Jul | 156.53 | 240.93 | 509.57 | 46.20 | 80.06 | 174.64 |
| 16-Jul | 77.80 | 109.20 | 757.89 | 26.75 | 40.66 | 135.66 |
| 24-Jul | 507.06 | 570.67 | 840.26 | 25.13 | 61.60 | 118.67 |
| 01-Aug | 277.50 | 385.80 | 638.50 | 52.25 | 132.94 | 301.42 |
| 08-Aug | 268.23 | 270.80 | 689.67 | 38.36 | 55.78 | 122.13 |
| 14-Aug | 211.01 | 311.16 | 705.47 | 33.51 | 57.26 | 147.01 |
| 21-Aug | 346.75 | 293.21 | 747.04 | 38.05 | 47.12 | 146.57 |
| 28-Aug | 346.44 | 793.02 | 1043.71 | 51.21 | 103.93 | 196.84 |
| 03-Sep | 458.11 | 625.22 | 1091.27 | 82.89 | 84.66 | 214.82 |
| 09-Sep | 291.01 | 407.85 | 399.69 | 30.94 | 76.65 | 101.85 |
| 19-Sep | 354.47 | 475.88 | 807.82 | 74.17 | 100.91 | 184.93 |
| 01-Oct | 242.50 | 352.73 | 850.31 | 98.77 | 135.98 | 284.08 |
| 08-Oct | 218.70 | 248.68 | 475.31 | 46.91 | 59.44 | 95.86 |
| 15-Oct | 229.77 | 327.75 | 605.04 | 48.65 | 75.54 | 135.61 |
| 20-Oct | 175.49 | 244.78 | 421.08 | 45.09 | 61.73 | 95.14 |
| 09-Nov | 165.75 | 239.50 | 405.84 | 33.39 | 47.34 | 82.45 |
| 22-Nov | 405.96 | 460.44 | 863.25 | 23.65 | 33.13 | 38.23 |
| 06-Dec | 228.49 | 461.07 | 713.03 | 61.60 | 104.18 | 129.69 |
| average | 249.45 | 340.05 | 633.94 | 44.79 | 69.85 | 141.48 |
| minimum | 76.57 | 109.20 | 186.36 | 7.23 | 10.63 | 20.15 |
| maximum | 507.06 | 793.02 | 1091.27 | 98.77 | 135.98 | 301.42 |

Table D1-b. Fluxes of plant pigments ($\mu$g per $m^2$/day) measured by spectrometric method (1988). (see the text for the explanation of the negative numbers in the pheophytin-a fluxes.)

| York Station | Chlorophyll-a | | | Pheophytin-a | | |
|---|---|---|---|---|---|---|
| Depth | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| Mid-Day | | | | | | |
| 12-Apr | 24123.78 | 20344.32 | 33360.28 | 2221.61 | 5666.72 | 14163.48 |
| 26-Apr | 11977.75 | 12007.94 | 26940.88 | 318.21 | 19596.01 | 8478.46 |
| 09-May | 10791.44 | 6266.58 | 15757.02 | 3691.04 | 16953.30 | 14861.33 |
| 26-May | 11167.04 | 10258.88 | 9810.40 | 3053.62 | 1806.02 | 17882.85 |
| 10-Jun | 4617.43 | 5033.39 | 5648.83 | 2641.05 | 3738.03 | 4116.95 |
| 21-Jun | | | | | | |
| 05-Jul | 5408.62 | 11936.46 | 9048.00 | 586.59 | 5375.13 | 8508.44 |
| 16-Jul | -2720.75 | -1499.90 | 2596.49 | 4630.48 | 9763.81 | 11265.18 |
| 24-Jul | 14866.97 | 17737.21 | 21224.11 | 744.18 | -62.86 | 37.04 |
| 01-Aug | 11080.85 | 12733.91 | 15627.97 | 12326.38 | 18677.41 | 43579.15 |
| 08-Aug | 9143.30 | 8188.42 | 13979.82 | 7827.68 | 17377.38 | 25845.09 |
| 14-Aug | 6603.81 | 5847.00 | 15808.77 | 14288.77 | 20122.14 | 33755.96 |
| 21-Aug | 8590.55 | 8128.62 | 15186.50 | 11223.36 | 13665.82 | 34072.50 |
| 28-Aug | 12041.57 | 9289.05 | 15825.58 | 7179.18 | 20101.94 | 30659.13 |
| 03-Sep | 9373.72 | 15346.61 | 27892.94 | 6673.54 | 26886.04 | 29946.71 |
| 09-Sep | 9111.90 | 14035.42 | 18208.11 | 16051.36 | 17408.81 | 26431.43 |
| 19-Sep | 6357.14 | 5709.66 | 9064.81 | 8379.64 | 15023.84 | 25539.64 |
| 01-Oct | 6898.68 | 8387.90 | 17081.87 | 12171.69 | 17775.80 | 32778.43 |
| 08-Oct | 10202.82 | 17305.55 | 16881.74 | 1225.71 | -470.25 | -1126.72 |
| 15-Oct | 12117.81 | 16302.71 | 10065.48 | 217.91 | -459.64 | 8847.80 |
| 20-Oct | 8256.44 | 11488.64 | 15877.16 | 94.29 | -1832.55 | -16.50 |
| 09-Nov | 17901.31 | 19353.25 | 28232.56 | -10703.93 | -7927.50 | -14674.28 |
| 22-Nov | 3119.71 | 5078.99 | 9649.23 | 11997.86 | 14165.30 | 19642.15 |
| 06-Dec | 4650.13 | 6446.84 | 6542.14 | 5409.64 | 10261.99 | 15006.58 |
| average | 9377.48 | 10683.80 | 15665.68 | 5315.21 | 10591.86 | 16939.16 |
| minimum | -2720.75 | -1499.90 | 2596.49 | -10703.93 | -7927.50 | -14674.28 |
| maximum | 24123.78 | 20344.32 | 33360.28 | 16051.36 | 26886.04 | 43579.15 |

Table D1-c. Fluxes of plant pigments ($\mu$g per $m^2$/day) measured by fluorometric method (1988).

| York Station | Chlorophyll-a ($\mu$g) | | | Pheophytin-a ($\mu$g) | | |
|---|---|---|---|---|---|---|
| DEPTH | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| 12-Apr | | | | | | |
| 26-Apr | 8677.94 | 9012.97 | 13466.65 | 4411.88 | 4802.32 | 9107.42 |
| 09-May | 4995.94 | 3738.40 | 6164.16 | 6565.69 | 4507.09 | 15161.38 |
| 26-May | 6253.67 | 5291.57 | 5328.72 | 8991.77 | 9384.04 | 13970.75 |
| 10-Jun | 2635.82 | 2236.24 | 1941.11 | 3017.28 | 3399.95 | 5000.47 |
| 21-Jun | | | | | | |
| 05-Jul | 1980.52 | 3350.74 | 5516.31 | 4938.31 | 12857.99 | 17503.97 |
| 16-Jul | 2878.22 | 2459.87 | 2598.98 | 8608.26 | 9680.15 | 15409.91 |
| 24-Jul | 4599.52 | 4667.87 | 5850.07 | 11067.02 | 13811.13 | 22810.10 |
| 01-Aug | 6238.07 | 5951.39 | 5892.07 | 14551.17 | 16405.49 | 28679.55 |
| 08-Aug | | | | | | |
| 14-Aug | | | | | | |
| 21-Aug | 4604.73 | 4067.58 | 8792.66 | 13400.06 | 16914.82 | 32568.51 |
| 28-Aug | 4029.69 | 5934.21 | 5700.19 | 13314.48 | 16999.15 | 25283.27 |
| 03-Sep | 4645.00 | 4479.24 | 9714.65 | 10808.73 | 20143.33 | 40111.92 |
| 09-Sep | 5366.98 | 6411.86 | 8294.89 | 19478.70 | 28819.99 | 39740.08 |
| 19-Sep | 2774.87 | 3083.84 | 4744.03 | 14957.56 | 17984.28 | 30713.58 |
| 01-Oct | 4031.08 | 3910.17 | 7451.36 | 17627.75 | 23683.74 | 40739.11 |
| 08-Oct | 2210.76 | 2908.93 | 1862.84 | 10708.99 | 21425.63 | 22374.37 |
| 15-Oct | 2045.55 | 1828.58 | 1507.73 | 10096.71 | 16179.75 | 21611.71 |
| 20-Oct | 1206.53 | 1413.69 | 1924.21 | 3931.62 | 6362.28 | 9095.78 |
| 09-Nov | 2581.84 | 3976.07 | 4663.48 | 7248.87 | 9324.13 | 13793.30 |
| 22-Nov | 2232.53 | 4829.09 | 6031.72 | 15553.02 | 17894.20 | 30458.10 |
| 06-Dec | 2267.82 | 2135.94 | 2630.00 | 6055.12 | 12303.04 | 17391.42 |
| average | 3812.85 | 4084.41 | 5503.79 | 10266.65 | 14144.12 | 22576.24 |
| minimum | 1206.53 | 1413.69 | 1507.73 | 3017.28 | 3399.95 | 5000.47 |
| maximum | 8677.94 | 9012.97 | 13466.65 | 19478.70 | 28819.99 | 40739.11 |

Table D1-d. Flux of suspended solids (g per $m^2$/day) (1988).

| York Station | Total Solids | | | Volatile Solids | | | Non-Volatile Solids | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m | 6 m | 9 m | 13 m |
| Mid-Day | | | | | | | | | |
| 12-Apr | | 70.33 | 129.52 | | 6.17 | 11.13 | | 64.15 | 118.39 |
| 26-Apr | 22.52 | 32.52 | 97.94 | 3.14 | 4.16 | 10.26 | 19.38 | 28.36 | 87.68 |
| 09-May | 36.90 | 52.34 | 118.84 | 4.46 | 6.29 | 13.09 | 32.44 | 46.05 | 105.76 |
| 26-May | 39.43 | 75.12 | 148.86 | 4.37 | 8.86 | 17.34 | 35.06 | 66.26 | 131.52 |
| 10-Jun | 15.27 | 28.75 | 71.67 | 2.21 | 3.47 | 7.26 | 13.05 | 25.28 | 64.41 |
| 21-Jun | | | | | | | | | |
| 05-Jul | 61.59 | 78.04 | 182.67 | 6.72 | 5.83 | 18.02 | 54.87 | 72.20 | 164.65 |
| 16-Jul | 32.62 | 64.28 | 157.70 | 5.19 | 10.78 | 18.11 | 27.43 | 53.50 | 139.59 |
| 24-Jul | 40.42 | 63.51 | 181.84 | 6.81 | 9.47 | 26.09 | 33.60 | 54.04 | 155.75 |
| 01-Aug | 52.21 | 113.87 | 218.25 | 7.77 | 16.65 | 26.24 | 44.44 | 97.22 | 192.02 |
| 08-Aug | 60.35 | 63.23 | 116.11 | 7.48 | 7.41 | 8.48 | 52.87 | 55.82 | 107.63 |
| 14-Aug | 31.62 | 53.93 | 167.95 | 3.44 | 4.26 | 16.15 | 28.18 | 49.66 | 151.80 |
| 21-Aug | 26.33 | 42.66 | 118.36 | 3.65 | 5.34 | 14.80 | 22.68 | 37.32 | 103.55 |
| 28-Aug | 76.79 | 105.89 | 276.27 | 7.85 | 11.00 | 24.57 | 68.94 | 94.90 | 251.70 |
| 03-Sep | 43.87 | 126.10 | 391.89 | 5.19 | 11.55 | 35.45 | 38.68 | 114.55 | 356.44 |
| 09-Sep | 47.69 | 73.41 | 95.53 | 5.81 | 7.42 | 9.85 | 41.89 | 65.99 | 85.69 |
| 19-Sep | 71.20 | 108.15 | 182.54 | 6.52 | 9.39 | 17.39 | 64.68 | 98.77 | 165.16 |
| 01-Oct | | | | | | | | | |
| 08-Oct | 86.60 | 131.33 | 100.18 | 8.64 | 10.94 | 7.58 | 77.95 | 120.40 | 92.59 |
| 15-Oct | 78.88 | 83.87 | 148.34 | 6.66 | 5.29 | 13.72 | 72.21 | 78.58 | 134.63 |
| 20-Oct | 54.50 | 55.12 | 89.74 | 4.29 | 4.79 | 8.35 | 50.21 | 50.32 | 81.39 |
| 09-Nov | 73.67 | 86.10 | 141.33 | 8.34 | 10.10 | 13.79 | 65.34 | 76.00 | 127.55 |
| 22-Nov | 129.13 | 140.02 | 261.65 | 13.48 | 14.30 | 26.33 | 115.65 | 125.72 | 235.32 |
| 06-Dec | 83.14 | 108.72 | 182.29 | 9.57 | 10.83 | 17.95 | 73.57 | 97.88 | 164.34 |
| average | 55.46 | 79.88 | 162.70 | 6.27 | 8.38 | 16.45 | 49.20 | 71.50 | 146.25 |
| minimum | 15.27 | 28.75 | 71.67 | 2.21 | 3.47 | 7.26 | 13.05 | 25.28 | 64.41 |
| maximum | 129.13 | 140.02 | 391.89 | 13.48 | 16.65 | 35.45 | 115.65 | 125.72 | 356.44 |

Table D2-a. Particulate fluxes (mg per $m^2$/day) calculated from the trapped solids (1988).

| C. Bay Station | Particulate Carbon | | | Biogenic Silica | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Mid-Day | | | | | | |
| 12-Apr | 1006.39 | 1500.50 | 3788.58 | 570.44 | 870.81 | 2546.30 |
| 26-Apr | 699.02 | 1754.85 | 3609.42 | 232.33 | 351.72 | 708.86 |
| 09-May | 1069.56 | 1746.03 | 3269.91 | 143.13 | 456.52 | 1153.17 |
| 21-Jun | 393.05 | 644.37 | 2598.26 | 22.36 | 273.05 | 1562.11 |
| 05-Jul | 519.99 | 933.57 | 4356.26 | 283.36 | 811.29 | 2613.17 |
| 20-Jul | 944.59 | 1938.13 | 3624.63 | 330.10 | 432.10 | 2228.10 |
| 01-Aug | 589.18 | 1253.86 | 4096.40 | 238.65 | 605.16 | 3720.24 |
| 08-Aug | 507.79 | 930.34 | 4528.95 | - | 81.42 | 1851.85 |
| 14-Aug | 548.63 | 946.08 | 2671.33 | - | 502.65 | 2166.79 |
| 21-Aug | 1027.02 | 1031.75 | 3631.58 | 243.13 | 450.37 | 2683.30 |
| 28-Aug | 1009.70 | 2702.82 | 6831.70 | 515.87 | 2097.51 | 5952.38 |
| 06-Sep | 829.73 | 974.03 | 2619.45 | 498.64 | 634.92 | 1843.84 |
| 19-Sep | 1216.93 | 1879.78 | 4876.54 | 621.99 | 1202.23 | 3350.97 |
| 01-Oct | 671.17 | 818.39 | 1511.86 | 291.99 | 403.19 | 1140.02 |
| 08-Oct | 937.39 | 757.06 | 2446.65 | 261.91 | 263.67 | 1341.27 |
| 15-Oct | 551.15 | 1047.18 | 2751.57 | 211.15 | 412.01 | 1224.77 |
| 19-Oct | | | | | | |
| 08-Nov | 556.76 | 1406.73 | 1879.51 | 523.89 | 986.05 | 1763.67 |
| 21-Nov | 1584.66 | 1047.33 | 1836.57 | 1006.14 | 841.15 | 977.37 |
| 06-Dec | 1258.08 | 2332.45 | 4663.43 | 587.07 | 1069.58 | 1530.63 |
| average | 837.94 | 1349.75 | 3452.24 | 346.43 | 670.81 | 2124.15 |
| minimum | 393.05 | 644.37 | 1511.86 | - | 81.42 | 708.86 |
| maximum | 1584.66 | 2702.82 | 6831.70 | 1006.14 | 2097.51 | 5952.38 |

Table D2-a (continued). Nutrient fluxes (mg per $m^2$/day) (1988).

| C. Bay Station | Particulate Nitrogen | | | Particulate Phosphorus | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Mid-Day | | | | | | |
| 12-Apr | 123.73 | 175.27 | 445.33 | 24.58 | 42.71 | 175.32 |
| 26-Apr | 124.47 | 179.25 | 239.96 | 21.78 | 25.61 | 62.37 |
| 09-May | 86.35 | 85.37 | 229.68 | 16.25 | 26.52 | 81.40 |
| 21-Jun | 48.63 | 77.95 | 272.74 | 6.58 | 22.39 | 121.88 |
| 05-Jul | 55.53 | 73.49 | 289.83 | 12.52 | 34.42 | 130.10 |
| 20-Jul | 148.15 | 289.98 | 462.08 | 20.43 | 21.93 | 84.10 |
| 01-Aug | 57.10 | 142.69 | 621.14 | 11.52 | 23.75 | 207.45 |
| 08-Aug | 82.53 | 150.57 | 533.14 | 11.17 | 24.03 | 118.46 |
| 14-Aug | 93.66 | 150.54 | 387.06 | 23.18 | 32.25 | 106.20 |
| 21-Aug | 135.30 | 143.61 | 443.12 | 15.75 | 21.29 | 131.77 |
| 28-Aug | 162.51 | 387.06 | 1021.67 | 37.10 | 110.04 | 313.87 |
| 06-Sep | 129.07 | 131.07 | 260.34 | 14.55 | 26.30 | 90.03 |
| 19-Sep | 169.17 | 226.78 | 504.26 | 37.10 | 62.88 | 189.27 |
| 01-Oct | 87.94 | 96.37 | 151.87 | 16.51 | 31.55 | 111.60 |
| 08-Oct | 128.31 | 93.21 | 264.46 | 12.61 | 18.87 | 77.43 |
| 15-Oct | 88.92 | 171.96 | 360.57 | 12.93 | 28.56 | 99.99 |
| 19-Oct | | | | | | |
| 08-Nov | 75.04 | 184.18 | 237.49 | 25.21 | 51.67 | 91.83 |
| 21-Nov | 186.95 | 119.93 | 194.30 | 151.47 | 83.39 | 81.69 |
| 06-Dec | 158.00 | 311.14 | 619.05 | 46.53 | 91.83 | 157.00 |
| average | 112.70 | 167.92 | 396.74 | 27.25 | 41.05 | 127.99 |
| minimum | 48.63 | 73.49 | 151.87 | 6.58 | 18.87 | 62.37 |
| maximum | 186.95 | 387.06 | 1021.67 | 151.47 | 110.04 | 313.87 |

Table D2-b. Fluxes of plant pigments ($\mu$g per $m^2$/day) measured by spectrometric method (1988). (see the text for the explanation of the negative numbers in the pheophytin-a fluxes.)

| C. Bay Station | Chlorophyll-a | | | Pheophytin-a | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Mid-Day | | | | | | |
| 12-Apr | 8196.59 | 8932.37 | 11055.10 | 339.82 | 1725.87 | 9160.44 |
| 26-Apr | 332.04 | 12282.63 | 13022.18 | 19890.66 | 4083.00 | 7705.59 |
| 09-May | 6462.79 | 7772.86 | 12764.09 | 5052.44 | 3112.64 | 2614.16 |
| 21-Jun | 632.35 | 1977.78 | 3596.21 | 837.80 | 674.14 | 1789.74 |
| 05-Jul | 5267.80 | 7568.40 | 3610.23 | -3786.51 | -7576.90 | 2683.21 |
| 20-Jul | 5695.27 | 4469.62 | 11599.82 | 935.00 | 1866.86 | 1389.14 |
| 01-Aug | 3110.88 | 7441.19 | 15414.60 | 2788.50 | 4519.82 | 10256.52 |
| 08-Aug | | 1360.38 | 4493.16 | 5339.58 | 6285.71 | 26398.03 |
| 14-Aug | 2208.74 | 7422.27 | 5928.29 | 5441.63 | 1463.67 | 10093.62 |
| 21-Aug | 5485.98 | 7655.48 | 9525.62 | 1918.71 | 496.35 | 17943.24 |
| 28-Aug | 3538.47 | 7366.21 | 14354.03 | 5537.27 | 13054.87 | 26084.30 |
| 06-Sep | 5308.32 | 3381.20 | 6892.25 | 1765.71 | 2086.00 | 5025.00 |
| 19-Sep | 5546.15 | 4018.34 | 8083.77 | 2110.95 | 7241.14 | 13351.64 |
| 01-Oct | 2842.84 | 4011.37 | 5886.24 | 1945.08 | 4417.46 | 8223.81 |
| 08-Oct | -2825.40 | 5854.85 | 7408.82 | 8768.57 | -383.43 | 2675.36 |
| 15-Oct | 1928.07 | 4504.94 | 8345.38 | 1334.93 | 353.83 | 897.46 |
| 19-Oct | | | | | | |
| 08-Nov | 6501.62 | 12560.89 | 28682.06 | -276.43 | -4875.00 | -15814.28 |
| 21-Nov | 2130.04 | 2888.58 | 3337.50 | 8075.57 | 3125.18 | 8687.25 |
| 06-Dec | 1781.57 | 4423.84 | 4701.15 | 3578.93 | 2966.86 | 9736.57 |
| average | 3563.56 | 6099.64 | 9405.29 | 3768.33 | 2349.37 | 7836.88 |
| minimum | -2825.40 | 1360.38 | 3337.50 | -3786.51 | -7576.90 | -15814.28 |
| maximum | 8196.59 | 12560.89 | 28682.06 | 19890.66 | 13054.87 | 26398.03 |

Table D2-c. Fluxes of plant pigments ($\mu$g per $m^2$/day) measured by fluorometric method (1988).

| C. Bay Station | Chlorophyll-a ($\mu$g) | | | Pheophytin-a ($\mu$g) | | |
|---|---|---|---|---|---|---|
| DEPTH | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| 12-Apr | | | | | | |
| 26-Apr | 7241.78 | 8481.31 | 8643.03 | 2865.51 | 3293.80 | 6029.57 |
| 09-May | 5376.98 | 5267.57 | 5134.15 | 2672.97 | 2719.19 | 7857.37 |
| 21-Jun | 674.88 | 812.40 | 1006.68 | 1362.61 | 1376.63 | 4095.26 |
| 05-Jul | 1746.14 | 1044.97 | 1167.53 | 2311.92 | 3420.95 | 7033.24 |
| 20-Jul | 1960.61 | 1892.22 | 1536.77 | 5854.79 | 7140.11 | 10111.97 |
| 01-Aug | 2739.46 | 3232.80 | 5027.15 | 5004.53 | 8232.55 | 19599.22 |
| 08-Aug | | | | | | |
| 14-Aug | | | | | | |
| 21-Aug | 4361.56 | 3990.02 | 5798.48 | 4072.93 | 5400.63 | 13063.96 |
| 28-Aug | 3206.81 | 4161.19 | 6340.97 | 5761.39 | 12035.58 | 29587.47 |
| 06-Sep | 3144.16 | 1982.74 | 2744.48 | 5822.77 | 4964.96 | 11508.37 |
| 19-Sep | 3838.01 | 2974.72 | 4225.46 | 5640.53 | 9897.71 | 18676.51 |
| 01-Oct | 1866.42 | 2525.16 | 3094.33 | 5224.83 | 7841.29 | 13897.63 |
| 08-Oct | 620.43 | 1227.85 | 3246.71 | 2758.59 | 5993.96 | 11073.86 |
| 15-Oct | 1213.46 | 962.28 | 1812.11 | 3270.25 | 5402.95 | 11599.68 |
| 19-Oct | | | | | | |
| 08-Nov | 1928.58 | 2516.84 | 3937.30 | 3775.78 | 7559.11 | 14206.04 |
| 21-Nov | 1321.98 | 1657.42 | 2527.47 | 9309.94 | 7073.39 | 11893.16 |
| 06-Dec | 2413.06 | 2019.55 | 936.10 | 3603.99 | 8286.05 | 15201.76 |
| average | 2728.40 | 2796.81 | 3573.67 | 4332.08 | 6289.93 | 12839.69 |
| minimum | 620.43 | 812.40 | 936.10 | 1362.61 | 1376.63 | 4095.26 |
| maximum | 7241.78 | 8481.31 | 8643.03 | 9309.94 | 12035.58 | 29587.47 |

Table D2-d. Flux of suspended solids (g per $m^2$/day) (1988).

| C. Bay Station | Total Solids | | | Volatile Solids | | | Non-Volatile Solids | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Mid-Day | | | | | | | | | |
| 12-Apr | 49.18 | 80.84 | 257.79 | 1.80 | 2.43 | 8.12 | 47.38 | 78.41 | 249.67 |
| 26-Apr | 20.09 | 29.89 | 79.50 | 0.69 | 1.24 | 5.43 | 19.40 | 28.65 | 74.07 |
| 09-May | 18.36 | 42.67 | 92.92 | 2.33 | 3.49 | 8.87 | 16.03 | 39.17 | 84.05 |
| 21-Jun | 4.64 | 23.33 | 114.83 | 1.13 | 3.14 | 8.76 | 3.50 | 20.19 | 106.07 |
| 05-Jul | 14.83 | 43.86 | 139.04 | 1.14 | 3.03 | 9.41 | 13.69 | 40.83 | 129.63 |
| 20-Jul | 21.94 | 43.67 | 158.14 | 2.57 | 3.90 | 13.87 | 19.37 | 39.77 | 144.27 |
| 01-Aug | 15.36 | 38.65 | 200.72 | 2.90 | 4.88 | 15.98 | 12.46 | 33.77 | 184.73 |
| 08-Aug | 13.67 | 36.20 | 163.51 | 2.16 | 2.38 | 9.15 | 12.58 | 33.82 | 154.36 |
| 14-Aug | 11.12 | 33.40 | 177.12 | 1.26 | 2.55 | 10.08 | 9.86 | 30.85 | 167.05 |
| 21-Aug | 8.44 | 20.07 | 147.20 | 1.80 | 2.48 | 10.27 | 6.65 | 17.60 | 136.94 |
| 28-Aug | 48.20 | 134.92 | 327.87 | 3.21 | 6.51 | 16.55 | 44.98 | 128.41 | 311.33 |
| 06-Sep | 13.42 | 30.94 | 113.28 | 1.86 | 2.17 | 7.50 | 11.56 | 28.76 | 105.78 |
| 19-Sep | 33.61 | 34.25 | 134.63 | 2.79 | 2.67 | 8.00 | 30.82 | 31.59 | 126.63 |
| 01-Oct | | | | | | | | | |
| 08-Oct | 25.32 | 23.41 | 145.50 | 2.53 | 1.82 | 10.36 | 22.78 | 21.59 | 135.15 |
| 15-Oct | 31.65 | 71.23 | 128.55 | 1.91 | 3.14 | 7.25 | 29.74 | 68.10 | 121.30 |
| 19-Oct | | | | | | | | | |
| 08-Nov | 72.03 | 133.00 | 194.32 | 6.05 | 9.70 | 13.55 | 65.98 | 123.30 | 180.78 |
| 21-Nov | 111.70 | 86.36 | 183.13 | 8.88 | 7.35 | 11.99 | 102.82 | 79.01 | 171.14 |
| 06-Dec | 66.43 | 140.15 | 208.94 | 4.59 | 7.58 | 10.99 | 61.85 | 132.57 | 197.94 |
| average | 32.22 | 58.16 | 164.83 | 2.76 | 3.91 | 10.34 | 29.52 | 54.24 | 154.49 |
| minimum | 4.64 | 20.07 | 79.50 | 0.69 | 1.24 | 5.43 | 3.50 | 17.60 | 74.07 |
| maximum | 111.70 | 140.15 | 327.87 | 8.88 | 9.70 | 16.55 | 102.82 | 132.57 | 311.33 |

Table D3-a. Particulate fluxes (mg per $m^2$/day) calculated from the trapped solids (1989).

| C. Bay Station | Particulate Carbon | | | Biogenic Silica | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Mid-Day | | | | | | |
| 16-Jan | 884.77 | 1519.69 | 2523.52 | 513.32 | 873.57 | 1693.06 |
| 31-Jan | 211.49 | 506.47 | 1635.80 | 104.79 | 533.72 | 2228.90 |
| 14-Feb | 511.10 | 951.28 | 2770.43 | 448.08 | 821.43 | 2136.13 |
| 02-Mar | 2621.36 | 4224.41 | 11304.27 | 701.37 | 1081.55 | 2774.12 |
| 17-Mar | 349.70 | 786.49 | 2497.80 | 230.16 | 428.35 | 1367.78 |
| 29-Mar | 922.94 | 1822.28 | 6823.84 | 456.71 | 802.60 | 3077.76 |
| 13-Apr | 2074.01 | 3313.66 | 6888.48 | 768.01 | 1449.36 | 3465.03 |
| 29-Apr | 634.57 | 1624.43 | 4703.89 | 290.22 | 657.69 | 2355.66 |
| 17-May | 384.01 | 771.74 | 2423.67 | 140.96 | 421.85 | 1466.68 |
| 30-May | 363.56 | 764.99 | 2902.04 | 243.15 | 601.29 | 1228.92 |
| 12-Jun | 137.31 | 157.47 | 1212.21 | 3.84 | 87.33 | 751.95 |
| 24-Jun | 175.97 | 268.16 | 1607.34 | 92.07 | 174.48 | 123.02 |
| 07-Jul | 428.01 | 621.54 | 24029.98 | 62.30 | 195.48 | 706.10 |
| 20-Jul | 1302.57 | 1150.79 | 3705.06 | 283.17 | 526.15 | 1400.56 |
| 01-Aug | 1281.27 | 1565.86 | 5596.44 | 488.78 | 808.48 | 2551.19 |
| 16-Aug | 3456.30 | 2018.42 | 4741.08 | 116.75 | 1212.13 | 3294.73 |
| 28-Aug | 707.60 | 1080.32 | 5597.44 | 611.99 | 1069.30 | 4362.65 |
| 07-Sep | 865.46 | 1483.06 | 4508.38 | 650.32 | 1171.42 | 3502.74 |
| 23-Sep | 3200.32 | 4036.60 | 12999.70 | 2205.96 | 2908.34 | 10861.31 |
| 16-Oct | | | | | | |
| 10-Nov | 1889.04 | 3941.80 | 6928.15 | 1121.41 | 2014.67 | 4871.85 |
| 01-Dec | 2717.33 | 2195.77 | 7888.70 | 1650.91 | 2343.87 | 5624.13 |
| average | 1196.13 | 1657.39 | 5870.87 | 532.58 | 961.10 | 2849.73 |
| minimum | 137.31 | 157.47 | 1212.21 | 3.84 | 87.33 | 123.02 |
| maximum | 3456.30 | 4224.41 | 24029.98 | 2205.96 | 2908.34 | 10861.31 |

Table D3-a (continued). Nutrient fluxes (mg per $m^2$/day) (1989).

| C. Bay Station | Particulate Nitrogen | | | Particulate Phosphorus | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Mid-Day | | | | | | |
| 16-Jan | 102.88 | 181.07 | 353.03 | 61.29 | 97.33 | 162.49 |
| 31-Jan | 30.86 | 70.69 | 216.05 | 6.91 | 21.84 | 75.84 |
| 14-Feb | 26.09 | 78.01 | 92.59 | 28.29 | 54.49 | 122.69 |
| 02-Mar | 182.25 | 247.23 | 781.05 | 141.66 | 253.80 | 526.62 |
| 17-Mar | 14.39 | 63.82 | 122.85 | 18.02 | 18.08 | 83.06 |
| 29-Mar | 99.21 | 214.49 | 751.12 | 24.85 | 59.16 | 175.54 |
| 13-Apr | 154.32 | 259.63 | 640.86 | 82.79 | 139.03 | 324.62 |
| 29-Apr | 75.42 | 214.89 | 589.44 | 33.84 | 82.50 | 282.77 |
| 17-May | 84.60 | 149.36 | 403.16 | 13.94 | 28.69 | 41.67 |
| 30-May | 59.08 | 127.06 | 584.42 | 11.22 | 34.59 | 174.04 |
| 12-Jun | 19.37 | 97.00 | 150.54 | 4.82 | 10.24 | 53.13 |
| 24-Jun | 43.49 | 68.54 | 488.62 | 5.69 | 12.71 | 121.61 |
| 07-Jul | 26.83 | 54.11 | 100.81 | 14.83 | 22.55 | 115.14 |
| 20-Jul | 306.95 | 311.19 | 773.64 | 27.41 | 30.19 | 119.46 |
| 01-Aug | 208.07 | 229.88 | 2433.86 | 30.78 | 41.01 | 168.27 |
| 16-Aug | 1170.88 | 601.36 | 1123.60 | 94.01 | 64.33 | 218.13 |
| 28-Aug | 142.05 | 219.06 | 1434.08 | 17.86 | 38.29 | 205.10 |
| 07-Sep | 153.57 | 359.66 | 886.87 | 25.01 | 40.75 | 158.79 |
| 23-Sep | 447.53 | 497.99 | 1542.23 | 148.76 | 237.41 | 353.91 |
| 16-Oct | | | | | | |
| 10-Nov | 185.95 | 441.68 | 790.97 | 151.14 | 202.29 | 386.95 |
| 01-Dec | 296.92 | 274.41 | 954.24 | 78.72 | 65.28 | 520.21 |
| average | 182.41 | 226.72 | 724.48 | 48.66 | 74.02 | 209.05 |
| minimum | 14.39 | 54.11 | 92.59 | 4.82 | 10.24 | 41.67 |
| maximum | 1170.88 | 601.36 | 2433.86 | 151.14 | 253.80 | 526.62 |

Table D3-b. Fluxes of plant pigments ($\mu$g per $m^2$/day) measured by spectrometric method. (see the text for the explanation of the negative numbers in the pheophytin-a fluxes.)

| C. Bay Station | Chlorophyll-a | | | Pheophytin-a | | |
|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Mid-Day | | | | | | |
| 16-Jan | 3669.88 | 5250.53 | 11125.00 | 3708.10 | 3956.07 | 7920.00 |
| 31-Jan | 1412.70 | 2014.40 | 5631.17 | 565.71 | 1061.50 | 1658.25 |
| 14-Feb | 2346.65 | 5130.84 | 6450.34 | 554.71 | 1018.81 | 4838.04 |
| 02-Mar | 5593.33 | 6738.35 | 1183.98 | 1516.34 | 3216.94 | 1303.84 |
| 17-Mar | 2339.78 | 3260.98 | 5418.29 | 529.62 | 1321.33 | 4888.13 |
| 29-Mar | 4108.83 | 3684.10 | 8400.02 | 2421.85 | 4702.50 | 13758.78 |
| 13-Apr | 5614.57 | 5949.63 | 10015.67 | 2997.20 | 7465.80 | 15789.23 |
| 29-Apr | 3069.52 | 6741.30 | 1798.09 | 207.06 | 1518.50 | 27.05 |
| 17-May | 2795.97 | 533.29 | 724.13 | -55.98 | 158.28 | 292.56 |
| 30-May | 2518.24 | 4657.62 | 9289.56 | 159.88 | 1911.64 | 12570.00 |
| 12-Jun | 2060.19 | 389.61 | 762.41 | 1557.68 | 3008.16 | 5365.31 |
| 24-Jun | 1093.77 | 1192.23 | 6828.04 | 920.25 | 1227.43 | 7946.78 |
| 07-Jul | 1177.25 | | 667.11 | 4678.93 | 4472.68 | 968.39 |
| 20-Jul | 4505.24 | 7077.08 | 1485.14 | 3136.81 | -47.14 | -446.04 |
| 01-Aug | 3852.81 | 2996.63 | 1290.69 | 5442.86 | 7200.00 | 1449.86 |
| 16-Aug | 118.25 | 103.34 | 167.95 | 605.05 | 187.59 | 111.26 |
| 28-Aug | 3470.92 | 933.95 | 7534.39 | 5033.68 | 13359.50 | 33129.64 |
| 07-Sep | 4090.94 | 6945.77 | 6554.75 | 4127.95 | 6605.89 | 8497.08 |
| 23-Sep | 91.83 | 68.80 | 200.92 | 98.74 | 181.92 | 362.06 |
| 16-Oct | | | | | | |
| 10-Nov | 349.42 | 589.90 | 866.73 | 754.01 | 948.24 | 2318.71 |
| 01-Dec | 4225.70 | 764.59 | 2032.30 | 3576.65 | 1906.68 | 1873.31 |
| average | 2584.91 | 3213.22 | 4114.45 | 1855.40 | 3022.93 | 5845.61 |
| minimum | 91.83 | 68.80 | 200.92 | -55.98 | -47.14 | -446.04 |
| maximum | 5614.57 | 7077.08 | 11125.00 | 5442.86 | 13359.50 | 33129.64 |

Table D3-c. Fluxes of plant pigments ($\mu$g per $m^2$/day) measured by fluorometric method (1989).

| C. Bay Station | Chlorophyll-a ($\mu$g) | | | Pheophytin-a ($\mu$g) | | |
|---|---|---|---|---|---|---|
| DEPTH | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| 16-Jan | 1719.31 | 2475.47 | 3120.34 | 6946.60 | 10180.62 | 19037.95 |
| 31-Jan | 2038.10 | 3123.80 | 3851.02 | 1004.23 | 5811.63 | 7784.20 |
| 14-Feb | 1867.00 | 2875.48 | 4701.63 | 1793.93 | 4435.97 | 10300.85 |
| 02-Mar | 2776.73 | 4712.08 | 882.61 | 5588.47 | 9792.10 | 2559.57 |
| 17-Mar | 1741.37 | 2256.42 | 3740.53 | 1247.63 | 2721.59 | 6308.08 |
| 29-Mar | 3904.07 | 2765.89 | 6659.73 | 2176.17 | 5703.06 | 15375.67 |
| 13-Apr | 4141.23 | 4633.70 | 7772.58 | 5745.49 | 10274.72 | 17380.72 |
| 29-Apr | 1380.91 | 4029.83 | 447.57 | 1663.51 | 3232.03 | 1239.65 |
| 17-May | 2264.05 | 477.81 | 452.84 | 983.49 | 226.32 | 688.14 |
| 30-May | 1099.35 | 3630.22 | 6288.95 | 1858.94 | 4170.49 | 17160.79 |
| 12-Jun | 2126.15 | 1034.11 | 776.01 | 1475.85 | 1957.93 | 4970.19 |
| 24-Jun | 968.47 | 1049.24 | 6907.70 | 1140.08 | 1445.30 | 7810.11 |
| 07-Jul | 1564.15 | 1168.64 | 939.03 | 3795.19 | 4171.31 | 1012.32 |
| 20-Jul | 2146.79 | 1825.62 | 482.73 | 6374.45 | 6060.25 | 891.96 |
| 01-Aug | 2674.90 | 2527.92 | 977.81 | 5931.80 | 7489.71 | 1913.73 |
| 16-Aug | 168.50 | 118.69 | 101.13 | 611.18 | 180.50 | 201.21 |
| 28-Aug | 2628.75 | 3167.38 | 10563.76 | 6021.87 | 8796.17 | 29544.85 |
| 07-Sep | 2430.82 | 5791.24 | 5158.99 | 3888.15 | 8107.73 | 9706.53 |
| 23-Sep | 85.24 | 106.30 | 252.92 | 200.60 | 237.74 | 381.68 |
| 16-Oct | | | | | | |
| 10-Nov | 270.39 | 263.15 | 524.26 | 917.82 | 1716.42 | 3488.67 |
| 01-Dec | 6858.19 | 1099.78 | 1565.64 | 8335.34 | 1603.51 | 2824.96 |
| average | 2135.93 | 2339.66 | 3150.85 | 3223.85 | 4681.67 | 7646.75 |
| minimum | 85.24 | 106.30 | 101.13 | 200.60 | 180.50 | 201.21 |
| maximum | 6858.19 | 5791.24 | 10563.76 | 8335.34 | 10274.72 | 29544.85 |

Table D3-d. Flux of suspended solids (g per $m^2$/day) (1989).

| C. Bay Station | Total Solids | | | Volatile Solids | | | Non-Volatile Solids | | |
|---|---|---|---|---|---|---|---|---|---|
| Depth | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m | 3 m | 6 m | 9 m |
| Mid-Day | | | | | | | | | |
| 16-Jan | 87.35 | 122.54 | 206.90 | 3.49 | 4.91 | 8.41 | 83.86 | 117.63 | 198.49 |
| 31-Jan | 9.93 | 34.77 | 130.67 | 0.97 | 2.57 | 9.53 | 8.96 | 32.20 | 121.14 |
| 14-Feb | 51.30 | 91.85 | 193.93 | 2.81 | 4.88 | 10.64 | 48.48 | 86.97 | 183.30 |
| 02-Mar | 247.93 | 306.33 | 747.12 | 6.81 | 8.31 | 27.19 | 241.12 | 298.02 | 719.92 |
| 17-Mar | 23.55 | 43.86 | 143.06 | 2.41 | 3.65 | 11.35 | 21.13 | 40.21 | 131.72 |
| 29-Mar | 32.06 | 81.66 | 227.79 | 2.61 | 5.56 | 17.28 | 29.45 | 76.10 | 210.51 |
| 13-Apr | 116.29 | 216.67 | 361.17 | 5.31 | 9.75 | 18.93 | 110.98 | 206.92 | 342.24 |
| 29-Apr | 38.37 | 80.74 | 269.16 | 1.94 | 3.89 | 13.43 | 36.42 | 76.85 | 255.72 |
| 17-May | 13.05 | 33.85 | 105.98 | 1.62 | 3.41 | 7.20 | 11.43 | 30.44 | 98.78 |
| 30-May | 10.11 | 41.79 | 183.61 | 1.48 | 3.35 | 11.56 | 8.63 | 38.44 | 172.05 |
| 12-Jun | 1.62 | 5.78 | 59.75 | 0.68 | 1.00 | 3.77 | 0.94 | 4.78 | 55.97 |
| 24-Jun | 2.19 | 13.06 | 144.38 | 0.84 | 1.54 | 8.85 | 1.35 | 11.52 | 135.53 |
| 07-Jul | 8.18 | 17.18 | 38.02 | 1.83 | 1.91 | 2.40 | 6.34 | 15.27 | 35.62 |
| 20-Jul | 9.95 | 23.94 | 133.06 | 3.09 | 3.68 | 9.38 | 6.86 | 20.26 | 123.68 |
| 01-Aug | 12.52 | 33.15 | 177.47 | 3.87 | 3.85 | 10.49 | 8.64 | 29.31 | 166.99 |
| 16-Aug | 44.85 | 57.72 | 239.12 | 8.18 | 5.43 | 14.07 | 36.67 | 52.29 | 225.05 |
| 28-Aug | 8.48 | 33.87 | 205.17 | 2.25 | 3.96 | 14.67 | 6.23 | 29.91 | 190.50 |
| 07-Sep | 14.70 | 41.57 | 205.48 | 2.81 | 4.08 | 13.72 | 11.89 | 37.49 | 191.76 |
| 23-Sep | 135.61 | 223.25 | 612.04 | 7.19 | 11.63 | 27.29 | 128.41 | 211.62 | 584.75 |
| 16-Oct | 110.86 | 197.93 | 379.32 | 4.09 | 7.46 | 16.27 | 106.77 | 190.47 | 363.06 |
| 10-Nov | 158.33 | 212.67 | 463.65 | 6.91 | 9.64 | 19.85 | 151.42 | 203.03 | 443.81 |
| 01-Dec | 134.04 | 177.61 | 542.88 | 6.34 | 8.84 | 21.13 | 127.70 | 168.77 | 521.75 |
| average | 57.78 | 95.08 | 262.26 | 3.52 | 5.15 | 13.52 | 54.26 | 89.93 | 248.74 |
| minimum | 1.62 | 5.78 | 38.02 | 0.68 | 1.00 | 2.40 | 0.94 | 4.78 | 35.62 |
| maximum | 247.93 | 306.33 | 747.12 | 8.18 | 11.63 | 27.29 | 241.12 | 298.02 | 719.92 |