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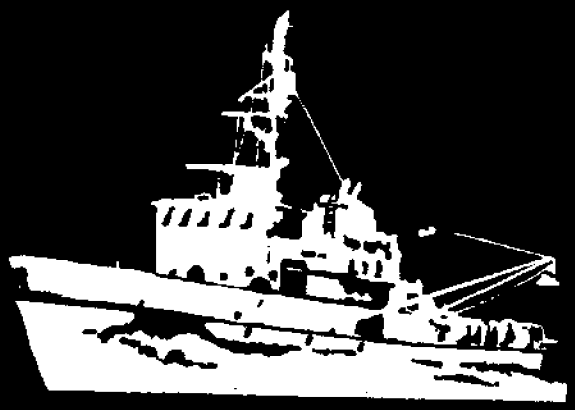

Oceanographic Data Report

Number 3: SALT Cruises

College of Marine Studies
University of Delaware

DEL-SG-10-87

Data from the SALT Cruises

September 1980 - July 1981

by

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University of Delaware Oceanographic Data Report Number 3

April 1987

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CONTENTS

INTRODUCTION

This report contains chemical, physical, and biological data collected during 7 research cruises in the Delaware Estuary that occurred from September 1980 to July 1981. These cruises, designated SALT, covered the entire salinity gradient in the estuary from freshwater in the river near Philadelphia to seawater at the entrance of the bay.

The data tables for each cruise in this report are accompanied by a cruise report outlining the events of the cruise, and by a chart showing station positions occupied during the cruise.

The preceeding data report in this series is that for the 6 SALSX Cruises (May 1978 to July 1980; University of Delaware Oceanographic Data Report No. 2).

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The University of Delaware Sea Grant College Program is supported cooperatively by the National Oceanic and Atmospheric Administration, U.S. Department of Commerce, and by the State of Delaware.

We thank all of the scientific members of the cruises, especially Peter A. Underhill, Mary A. Tyler, Thomas R. Fisher, Luis A. Cifuentes, and Carl L. Merrill who participated on a number of cruises.

Special thanks are due to Timothy Pfeiffer and the crew of the R/V Cape Henlopen for their help in collecting the data, and to the U.S. Coast Guard for the use of the helicopters.

DELAWARE BAY DATABASE

The chemical, biological, and hydrographic data in this report, plus that from 24 other cruises, is available as a sequential file on a set of 5 1/4 inch, double sided, double density floppy disks for use with the IBM PC and compatible microcomputers under MS-DOS.

The database contains 1446 records of discrete water quality observations, collected on 31 oceanographic cruises between May 1978 and July 1984. Each record contains 169 fields, listing the hydrographic, chemical, and biological data measured for each observation.

To obtain a copy of the database plus the 4 Oceanographic Data Reports which provide printed listings of the data, send $40 to,

Delaware Bay Database
Delaware Sea Grant College Program
University of Delaware
Newark, DE 19716.

SEA:
DELU-T-SS-001

A copy of the database only, without the 4 Oceanographic Data Reports, is $25.

Make checks payable to 'University of Delaware'.

GLOSSARY

Each of the measured parameters in the following data tables is associated with a comment field which indicates special characteristics of the variable. The comment field is the single space following the last digit of the parameter and will usually be blank. However, it will contain a character if there is anything unusual about the variable. For instance, temperatures measured with the Neil Brown mark IIIb CTD are indicated by the letter 'C' following the temperature. Definitions of the comment characters are given in the 'Methods' section under the appropriate technique. The mathematical symbols '<' or '>' in any comment field mean that the true value of the parameter is less than or greater than the value given.

Parameter	Description
CAST TYPE	technique used to collect water samples, see discussion of Water Sampling in Methods section for description
DISTANCE TO CAPES	distance in kilometers from designated station to the Delaware River Basin Commission bay mouth position (38°50'32"N, 75°03'18"W)
WATER DEPTH	depth of water in meters
	Inorganics
STA	station name
DEPTH	depth in meters at which sample was taken
SALINITY	salinity in parts per thousand (ppt)
TEMP	water temperature in degrees Celsius
CL	chloride, micromolar
O2	dissolved oxygen, micromolar
% O2 SAT	percent oxygen saturation
pH(25C)	measured pH at 25°C and atmospheric pressure on NBS pH scale
ALK	total alkalinity, microequivalents/liter

Nutrients, Organics, Productivity, Light

PO4	dissolved phosphate, micromolar
NO3	dissolved nitrate, micromolar
NO2	dissolved nitrite, micromolar
NH4	dissolved ammonium, micromolar
SI	dissolved silicate, micromolar
DOC	dissolved organic carbon, micromolar C
DON	dissolved organic nitrogen, micromolar N
DOP	dissolved organic phosphorus, micromolar P
PC	particulate carbon, micromolar C
PN	particulate nitrogen, micromolar N
PP	particulate phosphorus, micromolar P
HUMIC ACID C	humic acid carbon, micromolar carbon
HUMIC ACID N	humic acid nitrogen, micromolar nitrogen
SESTON	total suspended solids, milligrams/liter
Chl-a	chlorophyll-a, micrograms/liter
APROD	areal production, millimoles carbon/m^2/day
VPROD	volume production, micromoles carbon/liter/day
LIGHT ATTEN	negative value of total attenuation coefficient (k) per meter
SECCHI DEPTH	Secchi disk depth, centimeters

Dissolved Trace Metals

Mn	dissolved manganese, nanomolar
Fe-A	dissolved iron by direct injection atomic absorption, nanomolar
Fe-C	dissolved iron by colorimetry, nanomolar
Fe-E	dissolved iron by atomic absorption of extracted sample, nanomolar

Co	dissolved cobalt, nanomolar
Ni	dissolved nickel, nanomolar
Cu	dissolved copper, nanomolar
Zn-A	dissolved zinc by direct injection atomic absorption, nanomolar
Zn-E	dissolved zinc by atomic absorption of extracted sample, nanomolar
Cd	dissolved cadmium, nanomolar
Pb	dissolved lead, nanomolar
As	dissolved arsenic, nanomolar

Particulate Trace Metals

Al	particulate aluminium, micromoles/gram-seston
Mn	particulate manganese, micromoles/gram-seston
Fe	particulate iron, micromoles/gram-seston
Co	particulate cobalt, micromoles/gram-seston
Ni	particulate nickel, micromoles/gram-seston
Cu	particulate copper, micromoles/gram-seston
Zn	particulate zinc, micromoles/gram-seston
Cd	particulate cadmium, micromoles/gram-seston
Ba	particulate barium, micromoles/gram-seston
Pb	particulate lead, micromoles/gram-seston

METHODS

Water Sampling

Water samples aboard the R/V Cape Henlopen were collected in 10 liter PVC Niskin bottles attached to a General Oceanics rosette sampler. Sampling depths were determined from continuous vertical temperature, salinity, and oxygen profiles measured with a Neil Brown mark IIIb CTD.

Water samples taken by small boat were collected by hand using 5 or 10 liter PVC Niskin bottles. Positions of the small boat samples were determined by a battery operated Loran C system. Temperatures of these samples were determined by a hand held thermometer.

The technique used to collect a water sample is listed under the parameter 'Cast Type'.

Cast type = 'CTD' indicates that the water sample was taken with the General Oceanics rosette sampler.

= 'pump' indicates that the sample was taken from the circulating seawater system aboard the R/V Cape Henlopen.

= 'boat' indicates that the sample was collected by hand using 5 or 10 liter Niskin bottles from a small boat.

= 'copter' indicates that the sample was taken with a Niskin bottle suspended from a Coast Guard helicopter.

= 'wire' indicates that the Niskin bottle was attached to the hydrographic wire and tripped by messenger.

Temperature

Temperature was measured with reversing thermometers; 2 or 3 thermometers were used on each Niskin bottle. On small boat samples, temperature was measured with a bucket thermometer. In cases where the reversing thermometers malfunctioned or where 4 minutes could not be allowed to equilibrate the reversing thermometers, temperature was taken from the CTD system. The CTD temperature may differ slightly from the actual temperature of the water sample, since the CTD temperature sensor lies 0.9 meters below the mid-point of the 10 liter Niskin bottles.

The precision (2σ) of the calculated temperatures, based on 146 replicate reversing thermometer readings, was 0.03°C.

A letter 'B' in the temperature comment field means that the temperature was determined with a hand held thermometer; the letter 'C' means that the temperature was taken from the CTD; the letter 'D' means that the temperature was taken from the Beckman Electrodeless Induction Salinometer aboard the R/V Wolverine.

Salinity

Salinity was measured with an Industrial Instruments Model RS-7A portable induction salinometer. Salinity was calculated from the measured conductivity ratio using the equations of Cox, Culkin, and Riley (1967). The agreement between salinities calculated from conductivity and from chloride is within $\pm 0.03\,^{o}/_{oo}$ at salinities $\geq 0.5\,^{o}/_{oo}$. The equations used to calculate salinity from conductivity yield negative salinities at low conductivities. These negative values are included in this data report for consistency.

The conductivity ratio of successive aliquots from the salinity sample was measured until the conductivity ratios of consecutive aliquots differed by less than 0.0001. The reported salinity is the average of salinities calculated from the last 2 conductivity readings. The precision (2σ) of the calculated salinity, based on 197 duplicate conductivity ratio measurements, was $0.002\,^{o}/_{oo}$.

In a few cases where salinity samples were lost before analysis, salinities were taken from the CTD system. The CTD salinity may differ slightly from the actual salinity of the water sample, since the CTD conductivity sensor lies 0.9 meters below the mid-point of the 10 liter Niskin bottles.

A letter 'C' in the salinity comment field means that the salinity was taken from the CTD; the letter 'T' means that the salinity was calculated from the measured chloride concentration; the letter 'D' means that the salinity was taken from the Beckman Electrodeless Induction Salinometer aboard the R/V Wolverine.

Chloride

Chloride was measured by a potentiometric titration using a silver electrode and a double junction reference electrode (Corning #476067; 1 molar potassium nitrate outer filling solution). The potential was measured at 5 points after the endpoint, and the endpoint calculated by linear regression of the silver concentration versus volume of titrant added. Titrant (0.01 M $AgNO_3$) was added with a Metrohm model E535 5 ml digital buret readable to 0.001 ml. The electrode potential was measured to ± 0.1 mv with an Orion model 701A digital pH/mv meter, and recorded automatically by a microcomputer.

The relative precision (2σ) of chloride measurements during the SALT cruises was 0.4% or less.

Oxygen and Percent Oxygen Saturation

Oxygen was measured by Winkler titration using a starch endpoint (Carpenter, 1965). Titrant (0.14 N $Na_2S_2O_3$) was added with a Metrohm model E535 5 ml digital buret readable to 0.001 ml. Oxygen samples were measured in triplicate.

The precision (2σ) of the oxygen measurements, based on 202 replicate analyses, was 1.5 µM.

Percent oxygen saturation was calculated from the measured oxygen concentration using oxygen solubilities from Kester (1975).

Alkalinity

Total alkalinity was measured by a potentiometric titration using a semi-micro combination pH electrode (Corning #476050). A 25 ml sample was titrated with standardized 0.025 M HCl using a Metrohm model E535 5 ml digital buret readable to 0.001 ml. The titrant volume and electrode potential were measured at 5 pH values (3.9, 3.6,. 3.42, 3.3, and 3.2), and the equivalence point calculated from linear regression of hydrogen ion activity, corrected for carbonic acid ionization, versus volume of HCl added. The electrode potential was automatically recorded by a microcomputer interfaced to an Orion model 701A digital pH/mv meter.

The precision (2σ) of the alkalinity measurements, based on 202 replicate analyses, was 8 µequivalents/L.

Alkalinities from cruises SALT-1 through SALT-6 were stored at room temperature for approximately 1 month before analysis. After cruise SALT-6 it was discovered that alkalinity decreased during storage, apparently due to the oxidation of ammonium ion and of organic nitrogen compounds. The oxidation of ammonium ion,

$$NH_4^+ + 2O_2 = NO_3^- + 2H^+ + H_2O \qquad (1)$$

yields 2 protons which is equivalent to titrating the sample with strong acid.

The effect of storage on alkalinity was studied on subsequent cruises by measuring alkalinities immediately after collection and after 1 month of storage. The following relationship was found between the alkalinity change during storage and the ammonium ion concentration for 17 samples with ammonia concentrations between 3 and 65 µmolar.

$$ALK(initial) - ALK(final) = 20 + 2.13(NH_4^+) \quad (\mu eq/L) \qquad (2)$$

correlation coefficient = 0.963.

The slope of the regression line, 2.13, is not significantly different than the theoretical value of 2.0 for ammonium oxidation.

The alkalinity values listed in this data report are the measured values, uncorrected for storage effects. The correct alkalinities for cruises SALT-1 through SALT-6 can be calculated by adding the correction calculated from equation (2) to the reported values. Alkalinities from SALT-7 were measured immediately after collection and need no correction. The accuracy of the alkalinity correction calculated from equation (2) is estimated to be ±20 µeq/L.

A letter 'S' in the alkalinity comment field means that the sample was stored several weeks before analysis.

pH

The reported pH values are the measured values at 25.0°C on the National Bureau of Standards pH Scale. Samples for pH measurement were brought to 25° in a water bath prior to analysis. The pH was calculated from the measured electrode potential by the following equation,

$$pH(25°C) = 7.413 - (E_x - E_{7.413})/59.157$$

where 7.413 is the pH of the NBS blood pH buffer at 25°C;
E_x is the measured electrode potential in the water sample; and
$E_{7.413}$ is the measured electrode potential in the buffer.

The pH was measured with a glass electrode assembly incorporating a free diffusion liquid junction (Culberson, 1981). Potentials were measured to ±0. mv with an Orion model 701A digital pH/mv meter.

The precision (2σ) of pH measurements during the SALT cruises, calculate from 202 replicate pH analyses, was 0.006 pH units.

Inorganic Nutrients

The water sample for dissolved nutrient analysis was filtered through a precombusted Whatman GF/C filter (nominal pore size 1 μm) on board ship. Phosphate, nitrate, nitrite, and silicate were analyzed by manual colorimetry using standard methods (Strickland and Parsons, 1972), as modified in Sharp et. al. (1982). Ammonium was determined by the method of Solorzano (1969), as modified in Sharp et. al. (1982).

Each method was calibrated with standards prepared in pure water. No salt corrections have been applied to the reported values.

Nutrients were analyzed in duplicate. The standard deviation of each method as a function of concentration, based on a statistical analysis of duplicate measurements, is given below.

	Concentration Interval (μM)								Number of
Nutrient	<0.1	.1-.2	.2-.7	.7-2	2-7	7-20	20-70	>70	Duplicates
PO_4 σ(μM)=	.03	.04	.04	.07	.06	--	--	--	198
Si	--	--	.07	.10	.06	.18	.54	1.04	193
NO_3	--	--	--	--	--	.67	.51	1.33	196
TDN	--	--	--	--	--	.19	.77	2.76	213
NO_2	--	--	.02	.03	.08	.19	--	--	182
NH_4	--	--	.11	.25	.39	.55	1.08	2.46	235

Detection limits using the above methods were 0.05 µM for phosphate, nitrate, and nitrite, and 0.1 µM for ammonium and silicate.

Dissolved Organic Carbon

DOC was determined by the method of Menzel and Vaccaro (1964) with modified sample preparation of Sharp (1973). The coefficient of variation of this method ranged from 2.4 to 4.7% based on 186 triplicate analyses.

Dissolved Organic Nitrogen

DON was calculated from measurements of total dissolved nitrogen (Solorzano and Sharp, 1980a). The standard deviation of this method for total dissolved nitrogen is listed in the above table as TDN. The limit of detection was 0.6 µM.

Dissolved Organic Phosphorus

DOP was determined by the method of Solorzano and Sharp (1980b). The precision of this method was ±0.09 µM phosphorus in the range 0-2 µM phosphorus.

Particulate Carbon (PC) and Particulate Nitrogen (PN)

PC and PN were measured by the method of Sharp (1974) using a Hewlett-Packard model 185b CHN analyzer. The precision of these analyses were ±12 µg carbon and ±1.4 µg nitrogen based on analysis of blanks and replicate samples.

Particulate Phosphorus

PP was determined by the method of Solorzano and Sharp (1980b). The precision of this method is estimated to be twice that of the method for inorganic phosphate.

Humic Acid Carbon and Nitrogen

Humic acid carbon and nitrogen were determined by the method of Fox (1983). Filtered seawater (500 ml) was acidified with 4 ml of 1 molar H_2SO_4, and the precipitated humic acids were collected on a 25 mm GF/C filter. The analytical blank for this method was equivalent to 1 µM carbon and 0 µM nitrogen. Background carbon, carbon that adsorbed to the glass fiber filter without acid induced aggregation, varied from 5-20 µM carbon depending on the sample. Humic acid samples from the lower estuary often have low concentrations; 5-10 µM carbon and 0.5-1.0 µM nitrogen. Concentrations this low probably indicate no or very low humic acid content. However, no blank corrections were made to the measured values.

Chlorophyll-a

Chlorophyll-a was measured by fluorometric analysis of acetone extracts (Strickland and Parsons, 1972). The fluorometer (Turner III) was calibrated with spectrophotometric measurements of chlorophyll extracts.

Productivity

Productivity was measured with ^{14}C using a procedure modified from the general procedure of Eppley and Sharp (1975). Within 20 minutes of collection, samples were transferred (under low light conditions) to 65 ml Wheaton bottles and 2 uCi of $[^{14}C]HCO_3$ were added. Time zero (T_0) bottles were filtered immediately and simulated in-situ incubations (Head, 1976) were started at 6 light levels (100, 60, 30, 12, 3.3, and 1.1% of incident photosynthetically available radiation, PAR) using neutral density screens that were calibrated in the field. After 24 hours, incubations were terminated by filtration onto Whatman GF/C filters at reduced (<350 mm Hg) vacuum followed by rinses with filtered seawater. Wet filters were immediately placed in scintillation vials containing 10 ml of toluene/triton-X cocktail and counted on a Packard Tri-Carb liquid scintillation counter using the external standard ratio determination of efficiency.

Daily net phytoplankton areal production (millimoles $C/m^2\text{-}d^1$), APROD, was estimated at each station by integrating productivity (mg $C/m^3\text{-}d^1$) at each light level over the photic depth estimated by the diffuse attenuation coefficient (k).

Maximum production rates per unit volume, VPROD', were estimated by the maximum rate measured in the screen bags at each station.

Light Attenuation Coefficient

Light attenuation coefficients (k) were estimated from light profiles obtained with a Biospherical Instruments QSR-100 submersible probe. The coefficient, k, was calculated from light meter readings, I_z, taken at discrete depths, z, throughout the water column at each station. The coefficient, k, is the slope of the least squares linear regression line fitted to these data,

$$\log(I_z) - \log(I_{z0}) = k(z - z0)$$

where z0 is a reference depth, usually 0.25 or 0.50 m.

Seston

Total suspended seston was determined by passing a known volume of water through an acid rinsed, dried, preweighed Nuclepore filter (47 mm diameter, 0.4 um pore size). After filtration, each filter was rinsed with distilled water, stored in a plastic petri dish, and frozen until analysis. In the laboratory, filters were dried at 70°C for 24 hours and reweighed.

Dissolved Trace Metals

Samples for dissolved trace metal analysis were collected in Go-Flo (General Oceanics) bottles from a Kevlar (DuPont) hydrowire, or pumped with a peristaltic pump through acid washed Tygon and conventional polyethylene tubing. The samples were pressure filtered, in line, successively through 142 mm diameter 1.0 μm and 0.4 μm Nuclepore filters held in all plastic acid cleaned Geo-filters (Leonold Mold & Die Co., Denver, Colorado) under about 3.5 bar of filtered nitrogen gas pressure.

Filters were back flushed after each sampling and reused until the filtering rate slowed sufficiently to indicate irreversible clogging, at which time the filter(s) was replaced.

Filtered seawater samples were collected in acid cleaned and distilled water (from a quartz still) rinsed polyethylene bottles, acidified to pH ≤2, placed in ziplock plastic bags, and frozen until analysis. Samples were acidified on board in a portable plastic hood supplied with filtered air.

The acidified samples were extracted ashore by an APDC-DDDC/freon procedure (Kinrade and VanLoon, 1974; Danielsson et. al., 1978). Analysis for Ni, Cd, Co, Fe (Fe-E), Zn (Zn-E), Pb, and Cu was by graphite furnace atomic absorption spectrometry under filtered clean air conditions. Iron (Fe-C) was also analyzed colorimetrically by a modification of the ferrozine procedure (Murray and Gill, 1978). Manganese, iron (Fe-A), and zinc (Zn-A) were determined by direct injection graphite furnace atomic absorption. The precision (2σ) of the analyses, based on replicate measurements, were:

Fe (direct injection)	1.6	nanomole/liter
Fe (ferrozine)	7	nanomole/liter
Fe (extraction)	11	nanomole/liter
Ni	2.7	nanomole/liter
Cu	2.2	nanomole/liter
Zn (direct injection)	9	nanomole/liter
Zn (extraction)	0.8	nanomole/liter
Cd	0.05	nanomole/liter
Pb	0.07	nanomole/liter
Mn	5%	
Co	8%	

Particulate Trace Metals

After weighing, the seston filters were rinsed with spectrographic grade acetone to remove sediment. The sediment was transferred to a 10 ml test tube and 5.0 ml of 0.1 N HCl was added. The sample was dispersed ultrasonically for 5-10 minutes, shaken on a reciprocal shaker for 18 hours (Duinker and Nolting, 1974), and then centrifuged. The supernatent was analyzed for Fe, Mn, and Zn using flame atomic absorption spectrometry, and for Co, Ni, Cu, Cd, and Pb using graphite furnace atomic absorption. All equipment used for the analyses was acid cleaned (Patterson and Settle, 1976).

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Cruise Report

Salt-1
1-3 October 1980

Area: Delaware River and Bay

Vessel: R/V Cape Henlopen

Chief Scientist: J. H. Sharp
College of Marine Studies
University of Delaware
Lewes, Delaware

Participants: R. Biggs, C. Culberson, A. Frake, S. Pike, J. Tramontano
L. Cifuentes, L. Donovan, K. Eastman, L. Fox, J. Pennock,
C. Roman, P. Underhill, T. Fisher (University of Maryland),
T. Pfeiffer

Supporting Agency: Office of Sea Grant

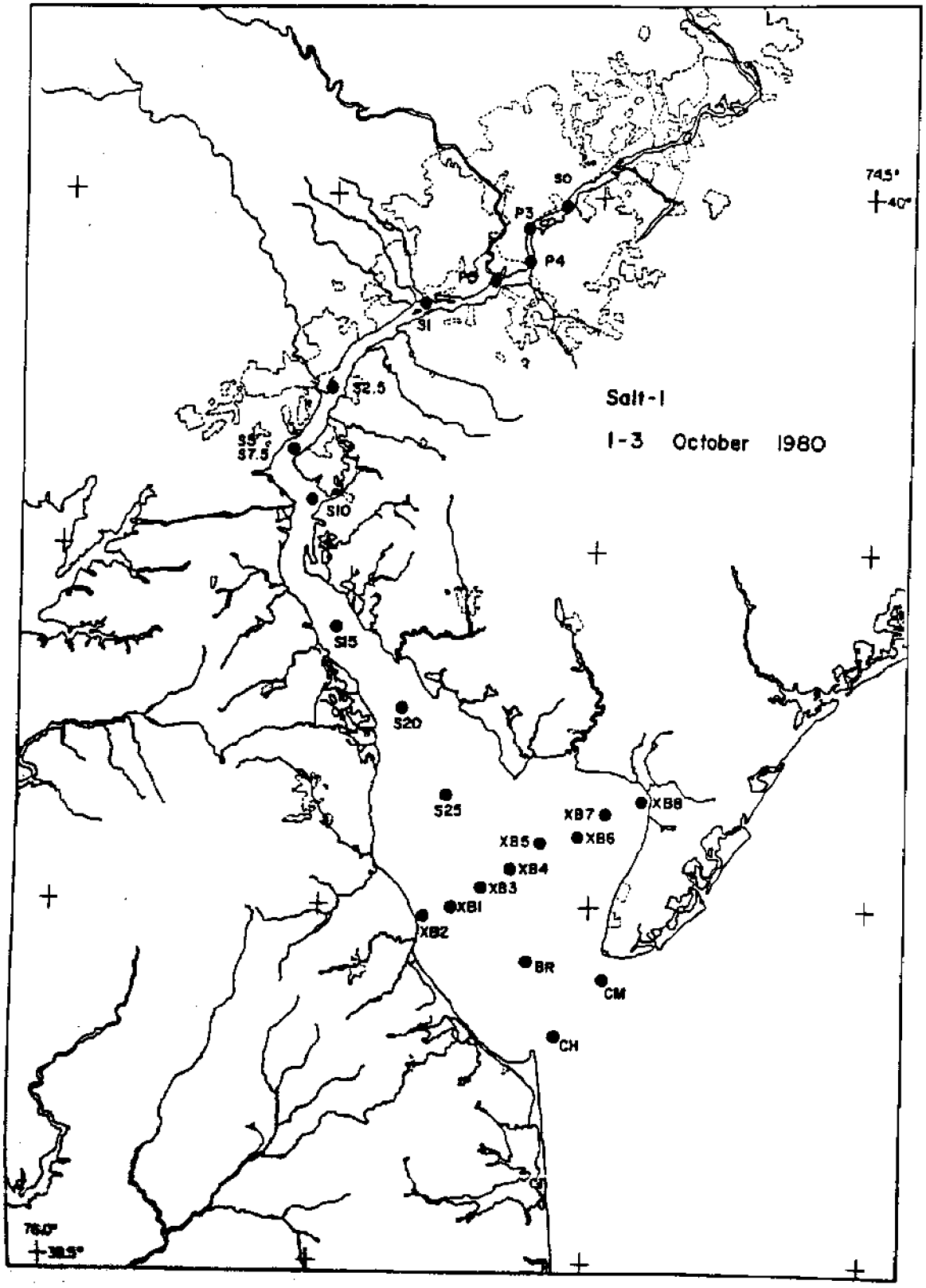
Cruise Summary:

The cruise sampled the salinity gradient in the estuary from freshwater in the river at Philadelphia (station S0) to the bay mouth (stations CH and CM). In addition, a cross bay transect in the lower bay (stations XB1-XB8) was sampled by helicopter and from the R/V Cape Henlopen.

The R/V Cape Henlopen departed Lewes at 1630 hours on 1 October and proceeded to Marcus Hook. Stations S0 through S10 were sampled on 2 October; and the remaining stations on 3 October. The helicopter samples were returned to the R/V Cape Henlopen for processing on 3 October.

The parameters measured at each station are listed in the following tables. Adenosine triphosphate (ATP), ^{15}N uptake, and ^{32}P uptake were measured at many stations but are not listed. In addition, surface temperature, salinity, chlorophyll-a, and water turbidity were continuously recorded during the cruise. Light energy in the visible spectrum was recorded and integrated for the entire cruise with a quantum meter.

Station locations are shown on the following chart.


Salt-1
1-3 October 1980
S0
P3
P4
P5
S1
S2.5
S3
S7.5
S10
S15
S20
S25
XB8
XB7
XB6
XB5
XB4
XB3
XB1
XB2
BR
CM
CH
74.5°
40°
76.0°
38.5°

Cruise Report

Salt-2
17-20 November 1980

Area: Delaware River and Bay

Vessel: R/V Cape Henlopen

Chief Scientist: J. H. Sharp
College of Marine Studies
University of Delaware
Lewes, Delaware

Participants: M. Tyler, S. Pike, A. Frake, J. Scudlark, P. Underhill, J. Pennock, C. Merrill, D. Kieber, R. Stumpf, C. Culberson, R. Biggs, J. Tramontano, T. Pfeiffer, C. Roman

Supporting Agency: Office of Sea Grant

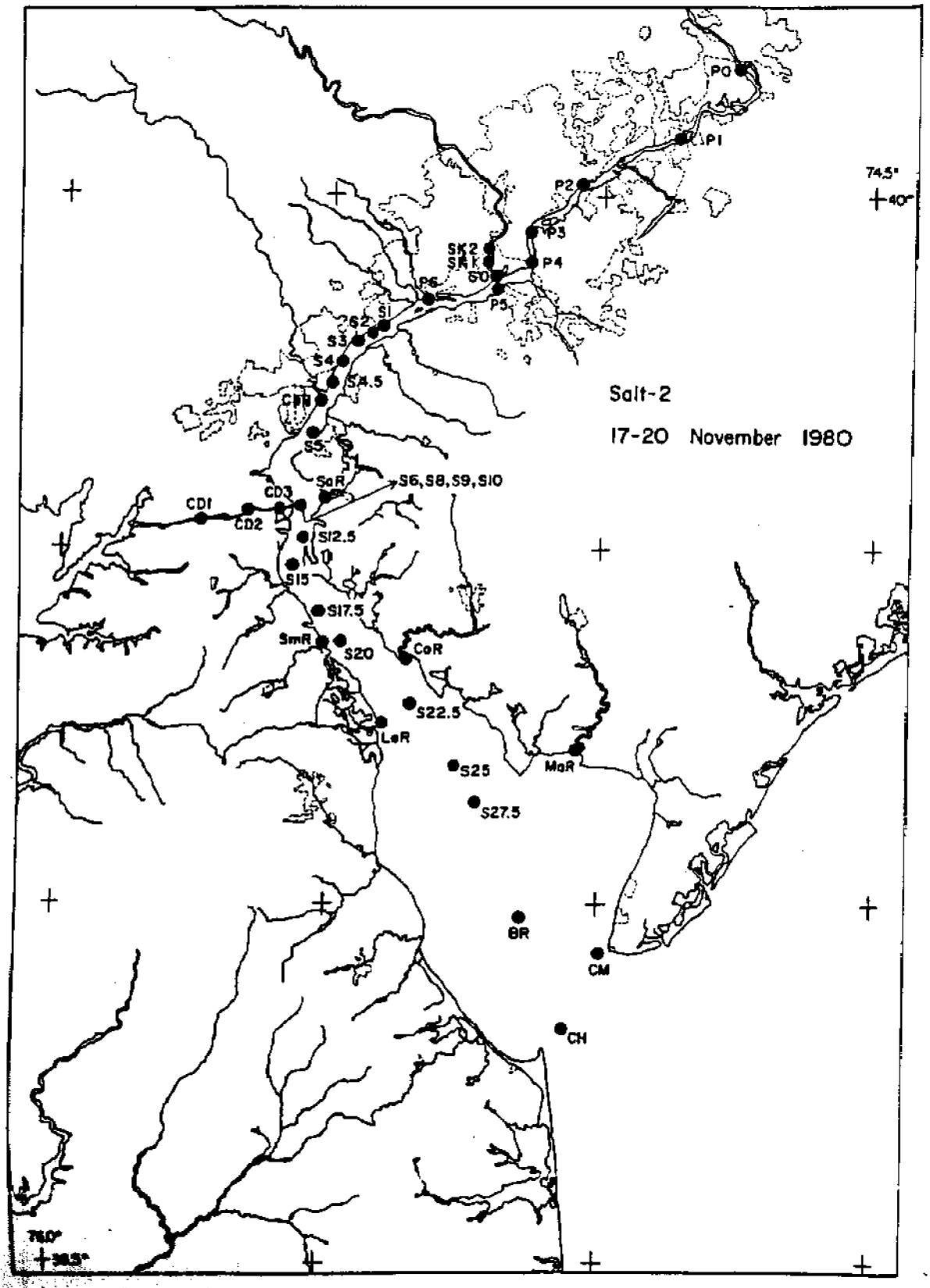
Cruise Summary:

The cruise sampled the salinity gradient in the estuary from freshwater in the river at Trenton (station PO) to the bay mouth (stations CH and CM). In addition, 5 tributaries of the Delaware Estuary, the Maurice, Leipsic, Cohansey, Salem, and Smyrna Rivers, were sampled by helicopter.

The R/V Cape Henlopen departed Lewes at 1612 hours on 17 November and proceeded to Trenton. Stations 01 through P6, including 2 stations in the Schuylkill River, were sampled on 18 November; stations SO through S6, and 3 stations (CD1 - CD3) in the Chesapeake and Delaware Canal were sampled on 19 November; and stations S8 through CM were sampled on 20 November. The helicopter samples were returned to the ship for processing on 19 November.

The parameters measured at each station are listed in the following tables. Adenosine triphosphate (ATP), continuous beam attenuation spectra from 400 to 800 nanometers for unfiltered and filtered (1 micron) water samples, and phytoplankton taxonomy were measured at many stations but are not listed. In addition, surface temperature, salinity, chlorophyll-a, and water turbidity were continuously recorded during the cruise. Light energy in the visible spectrum was recorded and integrated for the entire cruise with a quantum meter.

Station locations are shown on the following chart.


P0
P1
P2
P3
P4
P5
P6
SK2
SK1
S0
S1
S2
S3
S4
S4.5
CPR
S5
SaR
S6, S8, S9, S10
CD1
CD2
CD3
S12.5
S15
S17.5
SmR
S20
CoR
S22.5
LeR
S25
MaR
S27.5
BR
CM
CH
74.5°
40°
Salt-2
17-20 November 1980

Cruise Report

Salt-3
28 January 1981

Area: Delaware River and Bay

Vessel: U.S.C.G. Helicopter

Chief Scientist: J. H. Sharp
College of Marine Studies
University of Delaware
Lewes, Delaware

Participants: S. Pike, A. Frake

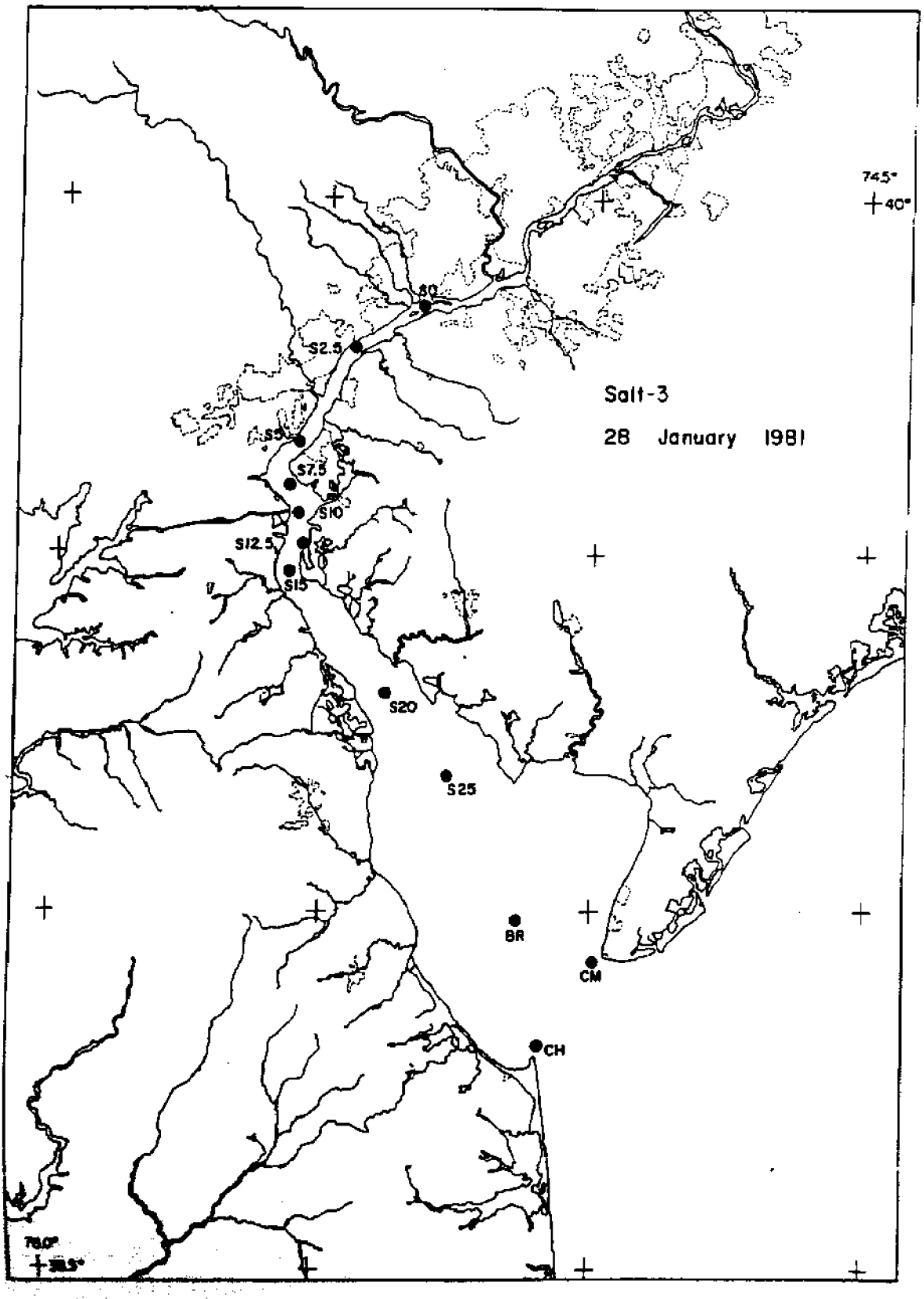
Supporting Agency: Office of Sea Grant

Cruise Summary:

The Coast Guard helicopter departed Lewes at 1000 on 28 January. Stations CM through S15 were sampled first, and the samples returned to Dover Air Base at 1230. These samples were then driven to Lewes for processing. The helicopter then proceeded to sample stations S0 through S12.5 and returned them to Lewes at 1645. Ice on Delaware Bay prevented use of the R/V Cape Henlopen for this cruise.

The parameters measured at each station are listed in the following tables. Continuous beam attenuation spectra from 400 to 800 nanometers for unfiltered and filtered (1 micron) water samples, particulate protein, and amino acids were measured at many stations but are not listed.

Station locations are shown on the following chart.


74.5°
40°
S0
S2.5
S5
S7.5
S10
S12.5
S15
S20
S25
BR
CM
CH
78.0°
38.5°
Salt-3
28 January 1981

Cruise Report

Salt-4
1-3 March 1981

Area: Delaware River and Bay

Vessel: R/V Cape Henlopen

Chief Scientist: J. H. Sharp
College of Marine Studies
University of Delaware
Lewes, Delaware

Participants: M. Tyler, S. Pike, A. Frake, J. Scudlark, C. Roman, J. Pennock, C. Merrill, B. Stahovic, C. Culberson, R. Biggs, J. Tramontano, T. Pfeiffer, T. Fisher (University of Maryland)

Supporting Agency: Office of Sea Grant

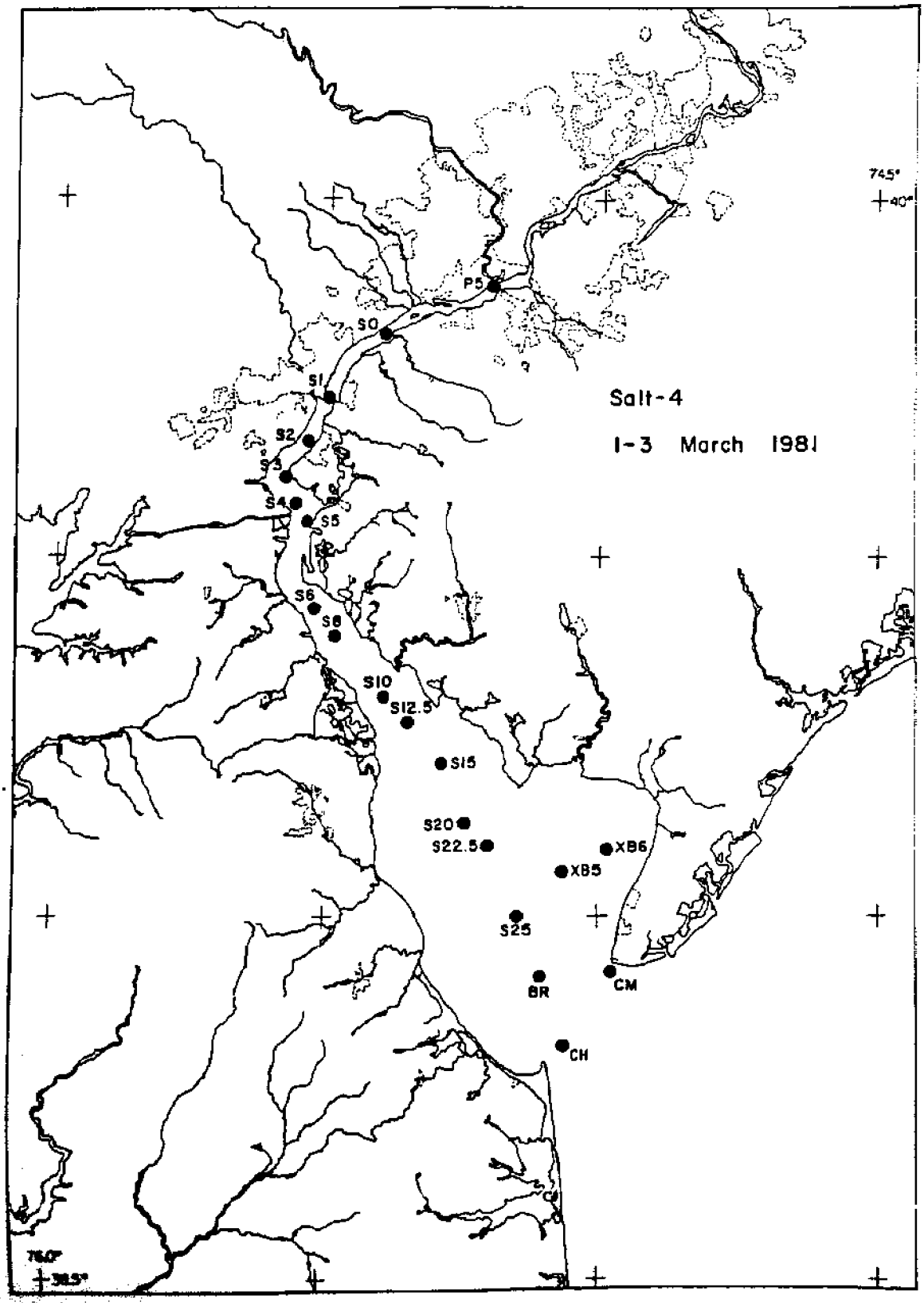
Cruise Summary:

The cruise sampled the salinity gradient in the estuary from freshwater in the river at Philadelphia (station P5) to the bay mouth (stations CH and CM). Two stations (XB5, XB6) in the Maurice River Cove were also sampled.

The R/V Cape Henlopen departed Lewes at 1521 hours on 1 March and anchored overnight near the mouth of the Schuylkill River. Stations P5 through S25 were sampled on 2 March. The ship anchored overnight at Harbor Refuge (Lewes) and stations XB5, XB6, CM, BR, and CH were sampled on 3 March.

The parameters measured at each station are listed in the following tables. Continuous beam attenuation spectra from 400 to 800 nanometers for unfiltered and filtered (1 micron) water samples, phytoplankton taxonomy, ^{15}N uptake, and ^{33}P uptake were measured at many stations but are not listed. In addition, surface temperature, salinity, chlorophyll-a, and water turbidity were continuously recorded during the cruise. Light energy in the visible spectrum was recorded and integrated for the entire cruise with a quantum meter.

Station locations are shown on the following chart.


Salt-4
1-3 March 1981
P5
S0
S1
S2
S3
S4
S5
S6
S8
S10
S12.5
S15
S20
S22.5
XB6
XB5
S25
BR
CM
CH
74.5°
40°
76.0°
38.5°

Cruise Report

Salt-5
23-25 March 1987

Area: Delaware River and Bay

Vessel: R/V Cape Henlopen

Chief Scientist: J. H. Sharp
College of Marine Studies
University of Delaware
Lewes, Delaware

Participants: R. Biggs, C. Culberson, A. Frake, S. Pike, J. Scudlark, J. Tramontano, L. Cifuentes, W. Hoyt, C. Merrill, J. Pennock, S. Rumer, R. Stumpf, P. Underhill, C. Valenti, T. Pfeiffer

Supporting Agency: Office of Sea Grant

Cruise Summary:

The cruise sampled the salinity gradient in the estuary from freshwater in the river at Trenton (station P0) to the bay mouth (stations CH and CM). Four tributaries of the estuary, the Cohansey, Leipsic, Murderkill, and Maurice Rivers were sampled by helicopter.

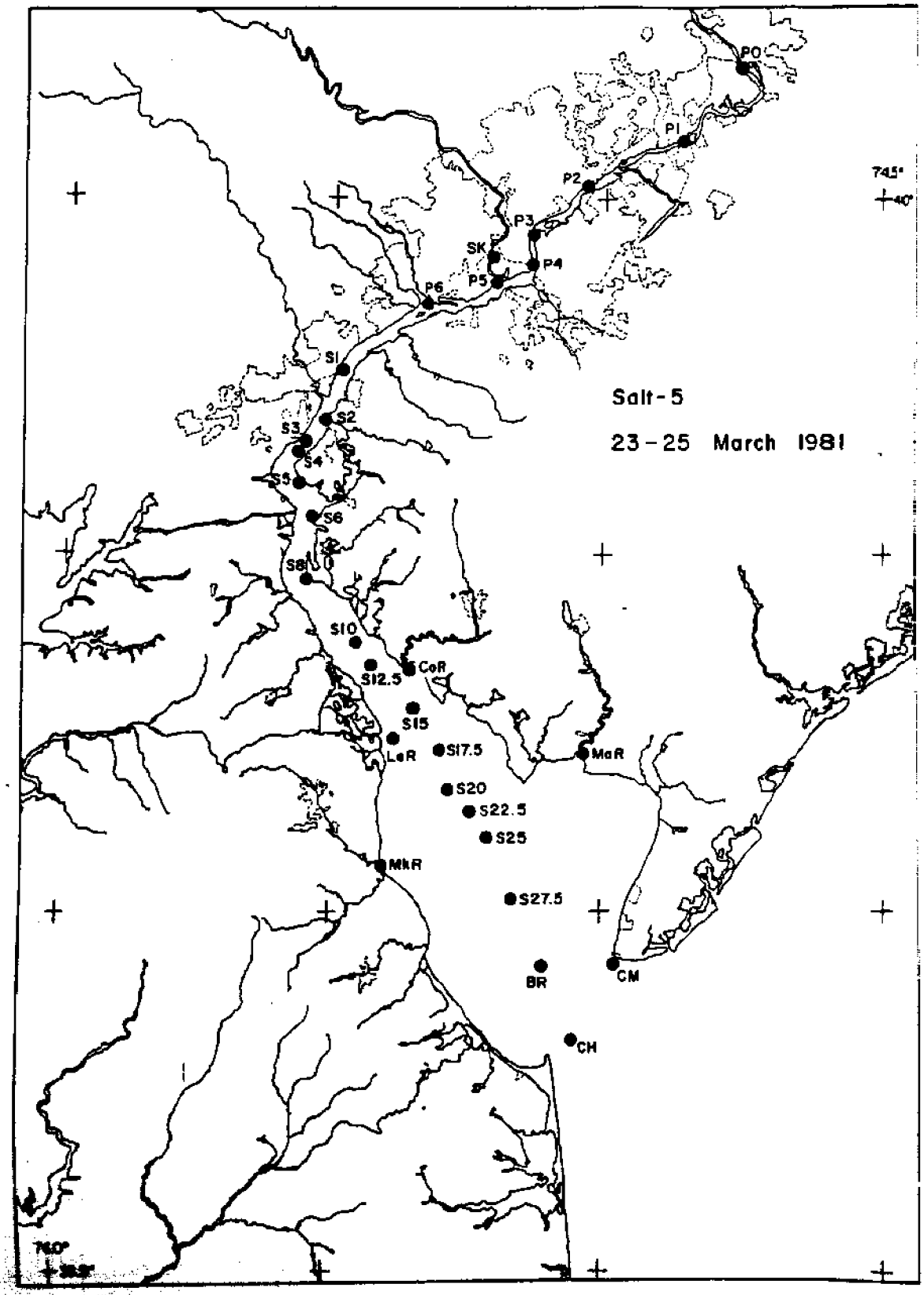
The R/V Cape Henlopen departed Lewes at 1006 hours on 23 March and anchored overnight near Trenton. Stations P0 through S10 were sampled on 24 March, and the ship anchored overnight near Pea Patch Island. Stations S12.5 through CH were sampled on 25 March. The helicopter samples from the 4 tributaries were returned to the R/V Cape Henlopen at 1310 on 25 March.

During the overnight anchorage at Pea Patch Island, L. Cifuentes and R. Stumpf collected samples from the R/V Cape Henlopen's flow through seawater system between 2130 on 24 March and 0330 on 25 March. These samples were collected for the measurement of nutrients, chlorophyll-a, and beam attenuation spectra.

The parameters measured at each station are listed in the following tables. Continuous beam attenuation spectra from 400 to 800 nanometers for unfiltered and filtered (1 micron) water samples and phytoplankton taxonomy were measured at many stations but are not listed. In addition, surface temperature, salinity, chlorophyll-a, and water turbidity were continuously recorded during the cruise. Light energy in the visible spectrum was recorded and integrated for the entire cruise with a quantum meter.

Sediment samples were taken at stations SK and P6 for organic analysis by Dr. David Freeman of the University of Maryland. Sediment samples for the analysis of ^{10}Be were taken at stations P6 and S12.5 for Dr. Thomas Fisher of the University of Maryland's Horn Point Laboratory.

Station locations are shown on the following chart.


P0
P1
P2
P3
SK
P4
P5
P6
S1
S2
S3
S4
S5
S6
S8
S10
S12.5
CoR
S15
LeR
S17.5
MaR
S20
S22.5
S25
MkR
S27.5
BR
CM
CH
Salt-5
23-25 March 1981

Cruise Report

Salt-6
4-6 May 1981

Area: Delaware River and Bay

Vessel: R/V Cape Henlopen

Chief Scientist: J. H. Sharp
College of Marine Studies
University of Delaware
Lewes, Delaware

Participants: R. Biggs, C. Culberson, M. Tyler, A. Frake, S. Pike, J. Scudlark, J. Tramontano, L. Cifuentes, P. Koeb, C. Merrill, J. Pennock, J. Reese, A. Ryan, T. Pfeiffer, R. Pellenbarg and G. Bugg (Office of Naval Research) T. Eichler (Delaware Department of Natural Resources and Environmental Control)

Supporting Agency: Office of Sea Grant

Cruise Summary:

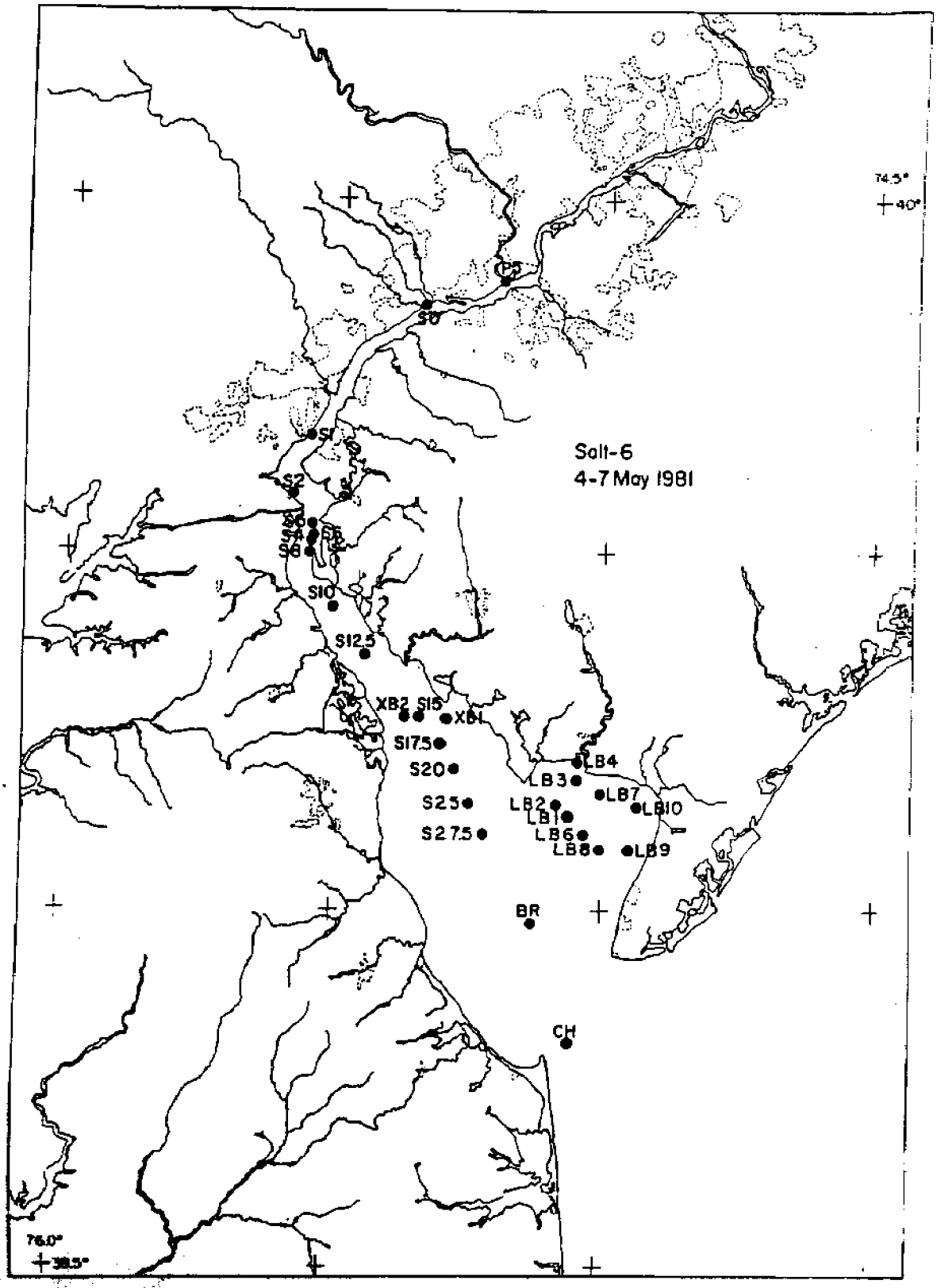
The cruise sampled the salinity gradient in the estuary from freshwater in the river at Philadelphia (station P5) to the bay mouth (station CH). In addition, a survey of the Maurice River Cove (stations LB1 through LB10) was conducted by small boat.

The R/V Cape Henlopen departed Lewes at 1100 hours on 4 May and anchored overnight near the mouth of the Schuylkill River. Stations P5 through S15, XB1, and XB2 were sampled on 5 May. The ship anchored overnight near Ship John Light, and the remaining stations were sampled on 6 May.

Dr. R. Pellenbarg of the Office of Naval Research conducted closely spaced sampling across estuarine fronts on 6 May.

The parameters measured at each station are listed in the following tables. Continuous beam attenuation spectra from 400 to 800 nanometers for unfiltered and filtered (1 micron) water samples and phytoplankton taxonomy were measured at many stations but are not listed. In addition, surface temperature, salinity, chlorophyll-a, and water turbidity were continuously recorded during the cruise. Light energy in the visible spectrum was recorded and integrated for the entire cruise with a quantum meter.

Station locations are shown on the following chart.


Salt-6
4-7 May 1981
74.5°
40°
76.0°
38.5°
CS
S0
S1
S2
S5
S6
S10
S12.5
XB2
S15
XB1
S17.5
S20
S25
S27.5
LB4
LB3
LB7
LB2
LB10
LB1
LB6
LB8
LB9
BR
CH

Cruise Report

Salt-7
29 June - 1 July 1981

Area: Delaware River and Bay

Vessel: R/V Cape Henlopen

Chief Scientist: J. H. Sharp
College of Marine Studies
University of Delaware
Lewes, Delaware

Participants: R. Biggs, C. Culberson, T. Church, A. Frake, S. Pike, J. Scudlark, J. Tramontano, J. Pennock, J. Scibek, R. Bennett, D. Lopez, E. Rutter, M. Zoellhoffer, T. Pfeiffer

Supporting Agency: Office of Sea Grant

Cruise Summary:

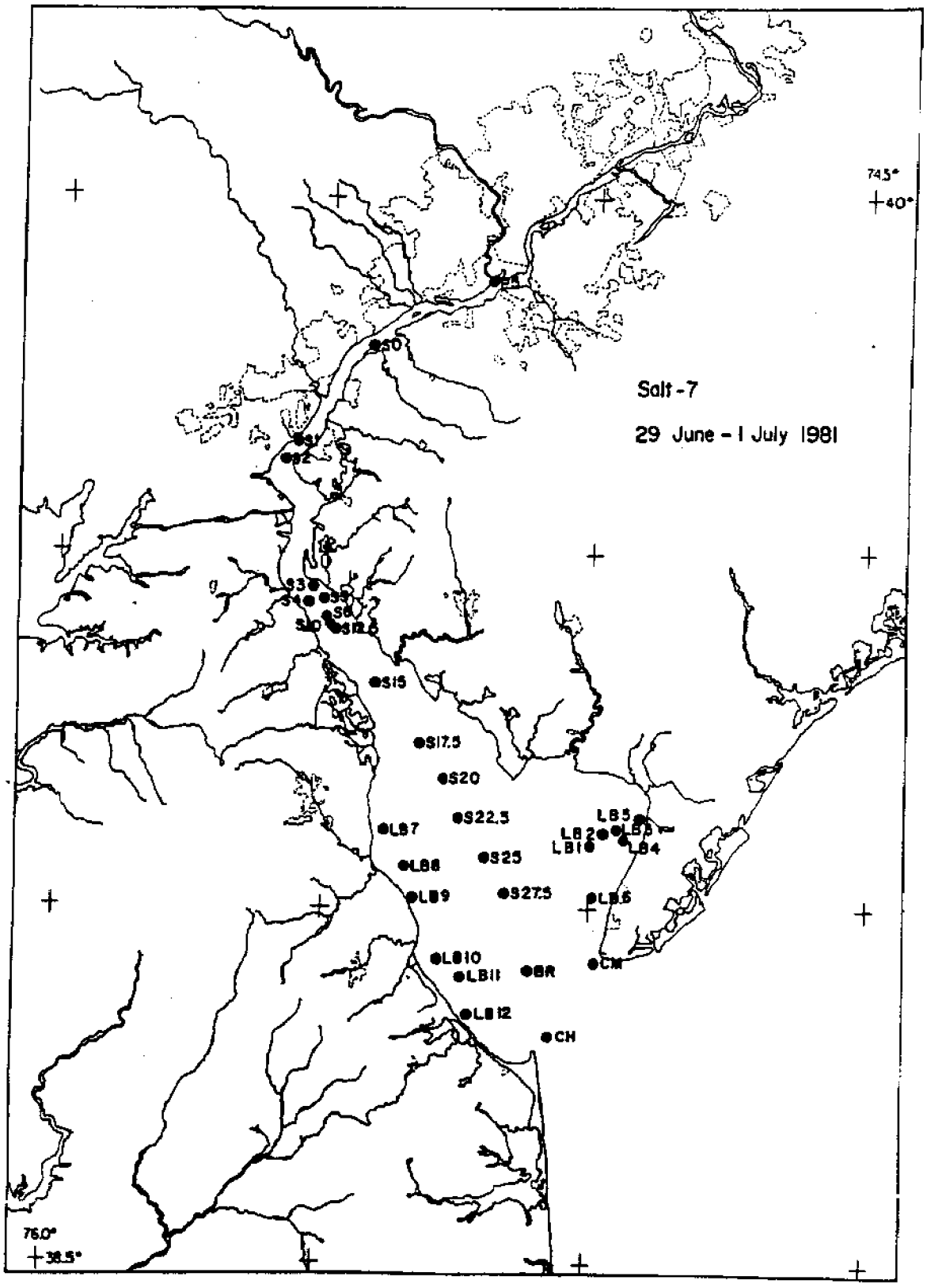
The cruise sampled the salinity gradient in the estuary from freshwater in the river at Philadelphia (station P5) to the bay mouth (stations CH and CM). In addition, a survey of the lower bay was conducted by helicopter (stations LB7-LB12), small boat (LB2-LB5), and by the R/V Cape Henlopen (stations LB1, LB6).

The R/V Cape Henlopen departed Lewes at 0835 hours on 29 June. Stations P5 through S2 were sampled the evening of 29 June. Stations S3 through S25 were sampled on 30 June and the ship anchored overnight near Cape May. The lower bay stations (LB series) were sampled during the morning of 1 July, and the remaining salinity gradient stations (S27.5 through CH) that afternoon.

Dr. R. Biggs conducted a detailed study of the turbidity maximum during the night of 29 June.

The parameters measured at each station are listed in the following tables. Continuous beam attenuation spectra from 400 to 800 nanometers for unfiltered and filtered (1 micron) water samples, ^{15}N uptake, and phytoplankton taxonomy were measured at many stations but are not listed. In addition, surface temperature, salinity, chlorophyll-a, and water turbidity were continuously recorded during the cruise. Light energy in the visible spectrum was recorded and integrated for the entire cruise with a quantum meter.

Station locations are shown on the following chart.


Salt - 7
29 June - 1 July 1981
74.5°
40°
76.0°
38.5°
S0
S1
S2
S3
S4
S5
S6
S12.5
S15
S17.5
S20
S22.5
S25
S27.5
LB1
LB2
LB3
LB4
LB5
LB6
LB7
LB8
LB9
LB10
LB11
LB12
BR
CM
CH

STA	DEPTH (m)	SALINITY (ppt)	CL (uM)	TEMP (C)	O2 (uM)	% O2 SAT	pH (25C)	ALK (ueq/L)	PO4 (uM)	NO3 (uM)	NO2 (uM)	NH4 (uM)	SI (uM)	DOC (uM)	DON (uM)	DOP (uM)
S0	1	0.058	1050	21.54	57.0	21	6.898	825S	4.47	84.70	13.40	47.50	3.02	318	68	.
P3	1	0.135	1938	21.81	19.5	7	6.613	633S	1.74	108.00	12.30	59.70	7.62	334	55	.
P4	1	0.229	3217	21.74	66.5	24	6.615	628S	1.91	140.00	13.00	43.50	10.60	305	80	.
P5	1	0.358	4935	21.80	80.5	33	6.713	688S	2.85	141.00	12.30	34.00	12.30	321	82	.
S1	1	0.894	13088	21.87	161.5	59	6.980	743S	2.15	166.00	5.35	6.97	11.20	330	76	.
S1	4	0.902	13255	21.87	162.5	60	6.969	743S	2.12	194.00	5.10	6.64	11.10	319	78	.
S1	8	0.900	13273	21.84	163.0	60	6.966	747S	2.18	200.00	4.91	6.60	11.30	323	41	.
S1	10	0.904	13322	21.83	167.5	62	6.979	744S	2.91	201.00	4.94	6.34	11.10	300	47	.
S1.5	1	.	.	.	.	.	.	.	.	197.00	.	5.55	.	.	.	.
S2	1	.	.	.	.	.	.	.	.	191.00	.	5.91	.	.	82	.
S2.5	1	2.803	44203	21.83	204.0	76	7.230	836S	2.09	154.00	1.39	8.76	13.80	293	89	.
S3	1	.	.	.	.	.	.	.	.	179.00	.	9.06	.	.	65	.
S3.5	1	.	.	.	.	.	.	.	.	180.00	.	10.20	.	.	80	.
S4	1	.	.	.	.	.	.	.	.	173.00	.	9.76	.	.	86	.
S4.5	1	.	.	.	.	.	.	.	.	168.00	.	9.42	.	.	71	.
S5	1	5.095	.	21.55	222.5	83	7.367	923S	1.91	146.00	1.79	9.49	16.40	286	38	.
S5	5	5.476	.	21.40	216.0	81	7.338	946S	1.97	169.00	1.92	8.86	17.10	282	35	.
S5	6	5.903	.	21.32	216.5	81	7.341	963S	1.88	165.00	1.87	7.50	17.80	275	33	.
S5.5	1	.	.	.	.	.	.	.	.	146.00	.	6.82	.	.	84	.
S6	1	.	.	.	.	.	.	.	.	149.00	.	6.21	.	.	62	.
S6.5	1	.	.	.	.	.	.	.	.	143.00	.	4.30	.	.	58	.
S7	1	.	.	.	.	.	.	.	.	135.00	.	3.00	.	.	58	.
S7.5	1	7.852	.	21.24	223.5	85	7.425	1049S	1.94	.	1.68	1.53	20.00	291	.	.
S8	1	.	.	.	.	.	.	.	.	126.00	.	1.64	.	.	49	.
S8.5	1	.	.	.	.	.	.	.	.	123.00	.	0.45	.	.	56	.
S9	1	.	.	.	.	.	.	.	.	111.00	.	0.79	.	.	51	.
S9.5	1	.	.	.	.	.	.	.	.	108.00	.	0.24	.	.	73	.
S10	1	10.067	.	21.03	225.0	86	7.466	1135S	2.18	.	1.78	0.46	22.50	293	.	.
S15	1	15.975	.	20.49	229.0	90	7.594	1322S	2.09	65.70	2.02	1.37	24.20	259	39	0.53
S15	3	16.027	.	20.53	228.0	89	7.594	1349S	2.06	80.00	2.00	1.51	24.40	299	24	0.47
S15	6	16.425	.	20.65	226.0	89	7.587	1362S	2.11	75.60	2.01	1.87	24.00	284	33	0.42
S15	10	16.505	.	20.67	225.5	89	7.573	1350S	1.84	67.10	2.15	2.15	25.00	300	35	0.69
S20	1	20.617	.	20.37	232.0	93	7.704	1485S	1.86	38.60	2.33	4.90	21.70	259	27	0.48
S25	1	25.552	.	20.40	230.0	95	7.813	1699S	1.38	16.80	1.83	6.98	21.40	222	25	0.53
S25	5	26.332	.	20.57	224.0	93	7.809	1736S	1.26	5.41	1.77	7.73	16.10	218	11	0.50
S25	8	27.252	.	20.70	229.5	96	7.838	1791S	1.16	3.64	1.40	7.15	13.90	207	8	0.46
XB1	1	28.733	.	20.008	222.0	93	7.755	1828S	1.18	11.80	.	9.12	.	.	29	.
XB2	1	28.161	.	20.408	231.5	97	7.821	1826S	1.03	10.60	.	7.87	.	.	18	.
XB3	1	28.243	.	20.38	232.0	97	7.843	1836S	0.85	11.30	.	7.19	.	.	27	.
XB4	1	28.162	.	20.49	227.0	95	7.837	1836S	1.11	8.68	.	6.62	.	.	24	.
XB5	1	25.854	.	19.80	225.0	92	7.812	1736S	1.06	15.20	.	9.55	.	.	24	.
XB6	1	24.495	.	19.808	226.0	92	7.780	1699S	1.18	19.20	.	9.12	.	.	23	.
XB7	1	25.547	.	19.508	216.5	88	7.560	1501S	0.63	14.60	.	15.70	.	.	31	.
XB8	1	24.883	.	19.508	216.5	88	7.468	1574S	2.97	25.60	.	19.60	.	.	46	.
BR	1	30.004	.	20.47	226.0	96	7.811	1913S	1.11	3.17	0.78	8.65	13.00	167	12	0.51
CH	1	32.165	.	20.22	211.0	90	7.832	2116S	1.43	1.33	0.37	6.65	12.20	175	9	0.62
CH	15	32.167	.	20.21	209.0	90	7.821	2120S	1.41	1.34	0.38	5.98	12.80	176	10	0.59

STA	DEPTH (m)	PC (uM)	PN (uM)	PP (uM)	HUMIC ACID C (uM)	HUMIC ACID N (uM)	SESTON (mg/L)	Chl-a (ug/L)	APROD (mmol C/ sq m/day)	VPROD (umol C/ L/day)	LIGHT ATTEN -K(/m)	SECCHI DEPTH (cm)
S0	1	62.5	14.00	2.37	26.2	4.2	6.5	.	109.0	66.5	1.30	.
P3	1	66.2	19.70	2.76	19.3	3.6	5.6	.	.	.	.	.
P4	1	44.5	12.30	2.02	15.9	3.0	6.7	.	.	.	1.10	.
P5	1	68.3	14.90	2.35	13.7	2.8	13.2	.	.	.	1.60	.
S1	1	101.0	16.20	2.38	13.0	2.6	13.4	.	48.3	37.8	1.80	.
S1	4	101.0	16.10	2.23	.	.	23.3	.	.	.	.	.
S1	8	114.0	18.00	2.61	.	.	31.6	.	.	.	.	.
S1	10	97.3	15.40	2.21	.	.	25.3	.	.	67.2	.	.
S1.5	1	113.0	18.00	.	13.3	2.4	.	.	.	.	.	.
S2	1	90.4	13.40	.	8.5	1.8	.	.	.	.	.	.
S2.5	1	75.0	13.70	2.03	10.1	1.6	27.9	.	.	.	2.60	.
S3	1	62.7	10.90	.	8.7	1.6	.	.	.	.	.	.
S3.5	1	62.6	9.72	.	8.3	1.7	.	.	.	.	.	.
S4	1	59.0	9.71	.	6.8	1.7	.	.	.	.	.	.
S4.5	1	42.3	9.57	.	7.8	1.6	.	.	.	.	.	.
S5	1	39.2	7.48	0.97	7.4	1.5	17.6	.	20.1	21.0	1.40	.
S5	5	53.4	9.06	1.29	.	.	23.4	.	.	16.1	.	.
S5	8	87.1	14.10	2.32	.	.	47.6	.	.	.	.	.
S5.5	1	38.3	6.21	.	6.5	1.3	.	.	.	.	.	.
S6	1	73.6	12.90	.	7.0	1.5	.	.	.	.	.	.
S6.5	1	55.7	9.78	.	7.1	1.6	.	.	.	.	.	.
S7	1	58.4	11.30	.	6.9	1.7	.	.	.	.	.	.
S7.5	1	79.0	13.50	1.78	9.3	1.5	77.6	.	.	.	.	.
S8	1	74.5	13.70	.	4.7	1.5	.	.	.	.	.	.
S8.5	1	69.3	11.90	.	6.2	1.8	.	.	.	.	.	.
S9	1	32.5	8.12	.	10.9	1.6	.	.	.	.	.	.
S9.5	1	36.2	8.72	.	5.9	1.6	.	.	.	.	.	.
S10	1	32.3	6.31	0.92	6.3	1.7	18.9	.	9.1	10.3	.	.
S15	1	26.0	3.79	0.75	11.1	1.3	15.6	.	4.9	4.1	1.30	.
S15	3	30.4	5.15	0.77	.	.	.	.	.	.	.	.
S15	6	42.2	6.42	0.99	.	.	.	.	.	.	.	.
S15	10	43.2	7.35	0.97	.	.	.	.	.	3.9	.	.
S20	1	12.6	2.59	0.35	8.9	1.5	5.1	.	14.0	10.6	1.00	.
S25	1	15.4	2.93	0.32	10.1	2.0	2.6	.	17.9	7.6	0.60	.
S25	5	12.6	2.48	0.27	.	.	.	.	.	.	.	.
S25	8	13.5	2.12	0.27	.	.	.	.	.	.	.	.
XB1	1	56.4	10.70	.	.	.	23.9	.	.	17.2	.	.
XB2	1	23.5	4.42	.	.	.	4.9	.	.	7.4	.	.
XB3	1	17.6	3.46	.	.	.	3.0	.	.	12.3	0.60	.
XB4	1	11.1	2.00	.	.	.	2.0	.	.	21.3	0.60	.
XB5	1	14.6	1.99	.	.	.	3.0	.	.	17.6	.	.
XB6	1	34.5	6.51	.	.	.	3.8	.	.	2.9	.	.
XB7	1	42.4	8.13	.	.	.	29.2	.	.	12.4	.	.
XB8	1	108.0	20.40	.	.	.	40.2	.	.	41.1	.	.
BR	1	13.3	2.52	0.30	5.2	1.3	2.8	.	.	4.5	0.60	.
CH	1	16.7	2.35	0.30	5.4	1.2	4.5	.	15.1	4.5	0.70	.
CH	15	21.2	3.14	0.34	.	.	.	.	.	.	.	.

STA	DEPTH (m)	0.4 Micrometer Filtered Dissolved Metals (nanomolar) Mn	Fe-A	Fe-C	Fe-E	Co	Ni	Cu	Zn-A	Zn-E	Cd	Pb	As
S0	1	787.3	462.0	377.8		1.02	65.42	58.86			0.53		
P3	1	3567.7	716.2	811.1		7.79	56.90	37.30			0.37		
P4	1	3640.5	202.3	179.1		8.03	62.01	39.18			0.36		
P5	1	3094.4	182.6	103.9		4.31	63.71	42.80			0.53		
S1	1	1820.2	146.8	146.8		1.19	62.86	46.27			0.48		
S1	4												
S1	8												
S1	10	1620.0	141.5	139.7		1.04	54.17	32.57			0.37		
S1.5	1												
S2	1												
S2.5	1	214.8	202.3	127.1			51.62	42.65			0.44		
S3	1												
S3.5	1												
S4	1												
S4.5	1												
S5	1	63.7	89.5	87.7		0.98	45.66	39.81			0.43		
S5	5												
S5	8	16.4	57.3	23.3		0.15	38.84	31.95			0.43		
S5.5	1												
S6	1												
S6.5	1												
S7	1												
S7.5	1	34.6	53.7	12.5<		0.19	29.64	29.90			0.48		
S8	1												
S8.5	1												
S9	1												
S9.5	1												
S10	1	49.1	73.4	12.5<		0.34	37.31	37.93			0.60		
S15	1	21.8	179.1	198.8		0.29	33.05	32.73			0.60		
S15	3												
S15	6												
S15	10	16.4	71.6	12.5<		0.15	34.75	34.15			0.64		
S20	1	36.4	43.0	12.5<		0.39	34.58	22.35			0.46		
S25	1	58.2	17.9<	12.5<		0.54	24.02	15.26			0.34		
S25	5												
S25	8	36.4		12.5<		0.81	18.57	9.13			0.28		
XB1	1												
XB2	1												
XB3	1	58.2		12.5<		0.25	17.21	10.70			0.43		
XB4	1	52.8		12.5<		0.36	12.44	11.02			0.26		
XB5	1	127.4		12.5<		1.12	27.77	21.87			0.27		
XB6	1												
XB7	1												
XB8	1												
BR	1	16.4		23.3		0.17	11.07	9.28			0.30		
CH	1	21.8		12.5<		0.15<	7.16	9.44			0.29		
CH	15												

STA	DEPTH (m)	PC (uM)	PN (uM)	PP (uM)	HUMIC ACID C (uM)	HUMIC ACID N (uM)	SESTON (mg/L)	Chl-a (ug/L)	APROD (mmol C/ sq m/day)	VPROD (umol C/ L/day)	LIGHT ATTEN -K(/m)	SECCHI DEPTH (cm)
S0	1	62.5	14.00	2.37	26.2	4.2	6.5	.	109.0	66.5	1.30	.
P3	1	66.2	19.70	2.76	19.3	3.6	5.6	.	.	.	.	.
P4	1	44.5	12.30	2.02	15.9	3.0	6.7	.	.	.	1.10	.
P5	1	68.3	14.90	2.35	13.7	2.8	13.2	.	.	.	1.60	.
S1	1	101.0	16.20	2.38	13.0	2.6	13.4	.	48.3	37.8	1.80	.
S1	4	101.0	16.10	2.23	.	.	23.3	.	.	.	.	.
S1	8	114.0	18.00	2.61	.	.	31.6	.	.	.	.	.
S1	10	97.3	15.40	2.21	.	.	25.3	.	.	67.2	.	.
S1.5	1	113.0	18.00	.	13.3	2.4	.	.	.	.	.	.
S2	1	90.4	13.40	.	8.5	1.8	.	.	.	.	.	.
S2.5	1	75.0	13.70	2.03	10.1	1.6	27.9	.	.	.	2.60	.
S3	1	62.7	10.90	.	8.7	1.6	.	.	.	.	.	.
S3.5	1	62.6	9.72	.	8.3	1.7	.	.	.	.	.	.
S4	1	59.0	9.71	.	6.8	1.7	.	.	.	.	.	.
S4.5	1	42.3	9.57	.	7.8	1.6	.	.	.	.	.	.
S5	1	39.2	7.48	0.97	7.4	1.5	17.6	.	20.1	21.0	1.40	.
S5	5	53.4	9.06	1.29	.	.	23.4	.	.	16.1	.	.
S5	8	87.1	14.10	2.32	.	.	47.6	.	.	.	.	.
S5.5	1	38.3	6.21	.	6.5	1.3	.	.	.	.	.	.
S6	1	73.6	12.90	.	7.0	1.5	.	.	.	.	.	.
S6.5	1	55.7	9.78	.	7.1	1.6	.	.	.	.	.	.
S7	1	58.4	11.30	.	6.9	1.7	.	.	.	.	.	.
S7.5	1	79.0	13.50	1.78	9.3	1.5	77.6	.	.	.	.	.
S8	1	74.5	13.70	.	4.7	1.5	.	.	.	.	.	.
S8.5	1	69.3	11.90	.	6.2	1.8	.	.	.	.	.	.
S9	1	32.5	8.12	.	10.9	1.6	.	.	.	.	.	.
S9.5	1	36.2	8.72	.	5.9	1.6	.	.	.	.	.	.
S10	1	32.3	6.31	0.92	6.3	1.7	18.9	.	9.1	10.3	.	.
S15	1	26.0	3.79	0.75	11.1	1.3	15.6	.	4.9	4.1	1.30	.
S15	3	30.4	5.15	0.77	.	.	.	.	.	.	.	.
S15	6	42.2	6.42	0.99	.	.	.	.	.	.	.	.
S15	10	43.2	7.35	0.97	.	.	.	.	.	3.9	.	.
S20	1	12.6	2.59	0.35	8.9	1.5	5.1	.	14.0	10.6	1.00	.
S25	1	15.4	2.93	0.32	10.1	2.0	2.6	.	17.9	7.6	0.60	.
S25	5	12.6	2.48	0.27	.	.	.	.	.	.	.	.
S25	8	13.5	2.12	0.27	.	.	.	.	.	.	.	.
XB1	1	56.4	10.70	.	.	.	23.9	.	.	17.2	.	.
XB2	1	23.5	4.42	.	.	.	4.9	.	.	7.4	.	.
XB3	1	17.6	3.46	.	.	.	3.0	.	.	12.3	0.60	.
XB4	1	11.1	2.00	.	.	.	2.0	.	.	21.3	0.60	.
XB5	1	14.6	1.99	.	.	.	3.0	.	.	17.6	.	.
XB6	1	34.5	6.51	.	.	.	3.8	.	.	2.9	.	.
XB7	1	42.4	8.13	.	.	.	29.2	.	.	12.4	.	.
XB8	1	108.0	20.40	.	.	.	40.2	.	.	41.1	.	.
BR	1	13.3	2.52	0.30	5.2	1.3	2.8	.	.	4.5	0.60	.
CH	1	16.7	2.35	0.30	5.4	1.2	4.5	.	15.1	4.5	0.70	.
CH	15	21.2	3.14	0.34	.	.	.	.	.	.	.	.

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SALT-1: 1-3 October 1980

Dissolved Metals (nanomolar) Versus Filter Size in Micrometers

STA	DEPTH (m)	Mn				Zn-A				Zn-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
SO	1	618.9	609.8	797.3									
P3	1	2939.7	3276.4	3567.7									
P4	1	3149.0	3494.8	3640.5									
P5	1	2803.2	3048.9	3094.4									
S1	1	1592.7	1674.6	1820.2									
S1	4	.	.	.									
S1	8	.	.	.									
S1	10	1519.9	1538.1	1620.0									
S1.5	1	.	.	.									
S2	1	.	.	.									
S2.5	1	216.6	214.8	214.8									
S3	1	.	.	.									
S3.5	1	.	.	.									
S4	1	.	.	.									
S4.5	1	.	.	.									
S5	1	54.6	63.7	63.7									
S5	5	.	.	.									
S5	8	5.5	10.9	16.4									
S5.5	1	.	.	.									
S6	1	.	.	.									
S6.5	1	.	.	.									
S7	1	.	.	.									
S7.5	1	23.7	23.7	34.6									
S8	1	.	.	.									
S8.5	1	.	.	.									
S9	1	.	.	.									
S9.5	1	.	.	.									
S10	1	43.7	56.4	49.1									
S15	1	16.4<	16.4<	21.8									
S15	3	.	.	.									
S15	6	.	.	.									
S15	10	16.4<	16.4<	16.4									
S20	1	16.4<	16.4<	36.4									
S25	1	27.3	36.4	58.2									
S25	5	.	.	.									
S25	8	16.4<	16.4<	36.4									
XB1	1	.	.	.									
XB2	1	.	.	.									
XB3	1	16.4<	27.3	58.2									
XB4	1	30.9	30.9	52.8									
XB5	1	80.1	111.0	127.4									
XB6	1	.	.	.									
XB7	1	.	.	.									
XB8	1	.	.	.									
BR	1	16.4<	16.4<	16.4									
CH	1	16.4<	21.8	21.8									
CH	15	.	.	.									

STA	DEPTH (m)	CAST TYPE	DATE (mm/dd/yy)	LOCAL TIME	LATITUDE (deg min)	LONGITUDE (deg min)	DISTANCE TO CAPES (km)	WATER DEPTH (m)
SO	1	CTD	10/02/80	0728	39 58.8 N	75 3.9 W	168.3	15.0
P3	1	CTD	10/02/80	0841	39 57.4 N	75 7.8 W	161.8	16.0
P4	1	CTD	10/02/80	0946	39 54.2 N	75 7.5 W	155.8	18.0
P5	1	CTD	10/02/80	1047	39 52.8 N	75 12.0 W	148.1	13.0
S1	1	CTD	10/02/80	1221	39 50.9 N	75 19.4 W	136.5	15.0
S1	4	CTD	10/02/80	1221	39 50.9 N	75 19.4 W	136.5	15.0
S1	8	CTD	10/02/80	1221	39 50.9 N	75 19.4 W	136.5	15.0
S1	10	CTD	10/02/80	1221	39 50.9 N	75 19.4 W	136.5	15.0
S1.5	1	Pump	10/02/80	1358	39 47.2 N	75 27.2 W	123.2	.
S2	1	Pump	10/02/80	1412	39 45.5 N	75 28.7 W	119.4	.
S2.5	1	CTD	10/02/80	1445	39 42.9 N	75 29.9 W	114.1	11.6
S3	1	Pump	10/02/80	1513	39 40.1 N	75 31.1 W	108.9	.
S3.5	1	Pump	10/02/80	1526	39 39.7 N	75 32.0 W	107.5	.
S4	1	Pump	10/02/80	1533	39 39.2 N	75 32.6 W	106.2	.
S4.5	1	Pump	10/02/80	1543	39 38.5 N	75 33.4 W	104.5	.
S5	1	CTD	10/02/80	1614	39 38.2 N	75 33.9 W	103.6	11.0
S5	5	CTD	10/02/80	1614	39 38.2 N	75 33.9 W	103.6	11.0
S5	8	CTD	10/02/80	1614	39 38.2 N	75 33.9 W	103.6	11.0
S5.5	1	Pump	10/02/80	1643	39 37.8 N	75 34.2 W	102.8	.
S6	1	Pump	10/02/80	1648	39 37.6 N	75 34.4 W	102.4	.
S6.5	1	Pump	10/02/80	1657	39 37.0 N	75 34.4 W	100.6	.
S7	1	Pump	10/02/80	1705	39 36.5 N	75 34.2 W	99.7	.
S7.5	1	CTD	10/02/80	1819	39 37.8 N	75 34.4 W	102.6	11.0
S8	1	Pump	10/02/80	1847	39 36.3 N	75 34.1 W	99.3	.
S8.5	1	Pump	10/02/80	1856	39 35.2 N	75 33.4 W	97.0	.
S9	1	Pump	10/02/80	1905	39 33.9 N	75 32.6 W	94.4	.
S9.5	1	Pump	10/02/80	1908	39 33.6 N	75 32.4 W	93.8	.
S10	1	CTD	10/02/80	1937	39 33.7 N	75 32.2 W	94.0	14.0
S15	1	CTD	10/03/80	0750	39 23.4 N	75 28.9 W	71.9	13.0
S15	3	CTD	10/03/80	0750	39 23.4 N	75 28.9 W	71.9	13.0
S15	6	CTD	10/03/80	0750	39 23.4 N	75 28.9 W	71.9	13.0
S15	10	CTD	10/03/80	0750	39 23.4 N	75 28.9 W	71.9	13.0
S20	1	CTD	10/03/80	0902	39 16.3 N	75 21.3 W	54.3	10.0
S25	1	CTD	10/03/80	1005	39 9.0 N	75 14.5 W	37.8	11.0
S25	5	CTD	10/03/80	1005	39 9.0 N	75 14.5 W	37.8	11.0
S25	8	CTD	10/03/80	1005	39 9.0 N	75 14.5 W	37.8	11.0
XB1	1	Copter	10/03/80	1015	39 0.0 N	75 15.0 W	24.3	.
XB2	1	Copter	10/03/80	1054	38 59.0 N	75 18.0 W	26.4	.
XB3	1	CTD	10/03/80	1121	39 1.4 N	75 11.2 W	23.1	13.0
XB4	1	CTD	10/03/80	1157	39 3.1 N	75 7.6 W	24.1	6.0
XB5	1	CTD	10/03/80	1229	39 4.8 N	75 4.0 W	26.4	6.0
XB6	1	Copter	10/03/80	1107	39 6.0 N	75 1.0 W	28.8	.
XB7	1	Copter	10/03/80	1115	39 8.0 N	74 58.0 W	33.2	.
XB8	1	Copter	10/03/80	1120	39 9.0 N	74 54.0 W	36.7	.
BR	1	CTD	10/03/80	1354	38 55.3 N	75 6.4 W	9.9	14.0
CH	1	CTD	10/03/80	1618	38 49.2 N	75 3.3 W	-2.5	31.0
CH	15	CTD	10/03/80	1618	38 49.2 N	75 3.3 W	-2.5	31.0

STA	DEPTH (m)	SALINITY (ppt)	CL (uM)	TEMP (C)	O2 (uM)	% O2 SAT	pH (25C)	ALK (ueq/L)	PO4 (uM)	NO3 (uM)	NO2 (uM)	NH4 (uM)	SI (uM)	DOC (uM)	DON (uM)	DOP (uM)
CH	25	32.181	.	20.20	210.5	90	7.825	21165	1.41	2.86	0.36	6.51	12.20	196	11	0.64
CM	1	32.275	.	19.96	207.5	89	7.823	21315	1.51	1.10	0.31	4.58	12.10	216	12	0.68

SUMMARY

SALT-1: 1-3 October 1980

STA	DEPTH (m)	PC (uM)	PN (uM)	PP (uM)	HUMIC ACID C (uM)	HUMIC ACID N (uM)	SESTON (mg/L)	Chl-a (ug/L)	APROD (mmol C/ sq m/day)	VPROD (umol C/ L/day)	LIGHT ATTEN -K(/m)	SECCHI DEPTH (cm)
CH	26	23.4	2.40	0.28						4.2		
CM	1	18.5	3.80	0.43	14.2	2.3	4.7			11.2	0.90	

STA	DEPTH (m)	0.4 Micrometer Filtered Dissolved Metals (nanomolar)											
		Mn	Fe-A	Fe-C	Fe-E	Co	Ni	Cu	Zn-A	Zn-E	Cd	Pb	As
CM	25	27.3	.	17.9	.	0.29	7.84	8.50	.	.	0.36	.	
CM	1	52.8	.	12.5<	.	0.20	8.86	12.12	.	.	0.24	.	.

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SALT-1: 1-3 October 1980

STA	DEPTH (m)	Dissolved Metals (nanomolar) Versus Filter Size In Micrometers											
		Fe-A				Fe-C				Fe-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
CH	25	.	.	.	.	12.5<	12.5<	17.9	.	.	.	.	.
CH	1	.	.	.	.	12.5<	12.5<	12.5<	.	.	.	.	.

STA	DEPTH (m)	Dissolved Metals (nanomolar) Versus Filter Size In Micrometers											
		Mn				Zn-A				Zn-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
CH	25	16.4<	16.4<	27.3	.	.	.	.	.	.	.	.	.
CM	1	27.3	27.3	52.8	.	.	.	.	.	.	.	.	.

STA	DEPTH (m)	CAST TYPE	DATE (mm/dd/yy)	LOCAL TIME	LATITUDE (deg min)	LONGITUDE (deg min)	DISTANCE TO CAPES (km)	WATER DEPTH (m)
CH	25	CTD	10/03/80	1618	38 49.2 N	75 3.3 W	-2.5	31.0
CM	1	CTD	10/03/80	1509	38 52.0 N	74 57.0 W	-9.5	11.0

STA	DEPTH (m)	SALINITY (ppt)	CL (uM)	TEMP (C)	O2 (uM)	% O2 SAT	pH (25C)	ALK (ueq/L)	PO4 (uM)	NO3 (uM)	NO2 (uM)	NH4 (uM)	SI (uM)	DOC (uM)	DON (uM)	DOP (uM)
O1	1	0.148	1979	9.42	171.0	48	6.699	535S	1.87	127.00	4.55	86.20	38.60	433	79	2.11
P0	1	0.000	481	7.02	402.0	106	7.982	969S	3.89	85.90	3.04	20.10	16.10	304	40	0.49
P1	1	0.014	563	8.60	297.0	82	7.394	952S	2.72	98.40	2.68	36.00	47.00	313	46	0.27
P2	1	0.016	638	8.26	248.0	68	7.214	828S	3.89	96.80	2.48	50.60	55.80	364	39	0.39
P3	2	0.053	1005	8.42	172.0	47	6.967	706S	3.07	99.60	2.99	85.20	48.60	435	91	0.76
P4	2	0.077	1188	8.86	137.5	38	6.735	590S	1.72	110.00	3.28	87.20	42.70	376	62	0.58
P5	1	0.147	1897	9.44	167.0	47	6.856	788S	3.04	127.00	5.99	91.10	54.70	389	87	0.64
SK1	2	0.218	1814	9.36	154.5	43	7.235	1603S	11.00	167.00	7.59	110.00	122.00	504	87	1.38
SK2	2	0.211	1445	10.95	181.0	53	7.294	1772S	13.40	203.00	8.55	66.80	119.00	470	98	2.60
P6	1	0.278	4034	9.06	242.0	67	6.923	620S	2.19	154.00	8.83	62.90	34.60	332	71	0.31
S0	1	0.109	1597	8.92	157.0	44	6.641	517S	1.26	119.00	4.34	91.40	42.40	339	66	0.45
S1	2	1.002	15119	8.86	275.5	77	7.119	704S	1.53	178.00	16.40	35.90	35.80	310	52	0.37
S2	2	2.216	33676	8.43	309.5	86	7.276	774S	1.59	176.00	14.40	33.00	33.90	336	22	0.31
S3	1	2.887	44326	8.24	320.0	89	7.352	810S	1.65	162.00	13.80	33.30	32.60	371	54	0.20
S4	2	4.093	63391	8.22	328.5	92	7.433	877S	1.71	158.00	10.80	31.50	31.80	315	54	0.09
S4.5	1	4.600	.	9.72	328.5	96	7.458	891S	1.65	155.00	9.94	32.50	31.30	318	31	0.15
S5	2	5.190	.	7.81	336.0	94	7.507	915S	1.62	149.00	9.81	34.80	29.80	308	56	0.18
MAR	1	16.611	.	5.50B	340.0	97	7.545	1281S	1.00	45.80	0.56	7.59	41.50	273	52	0.41
LER	1	16.504	.	5.20B	344.0	97	7.523	1488S	1.94	71.20	0.60	9.82	46.00	292	60	0.27
COR	1	18.231	.	6.10B	336.0	98	7.700	1455S	1.59	65.40	0.64	5.57	23.90	241	50	0.21
SMR	1	12.320	.	5.80B	343.5	96	7.604	1265S	1.56	93.00	1.55	10.90	35.10	289	34	0.24
SAR	1	6.895	.	6.30B	350.0	95	7.588	1007S	1.50	138.00	5.56	23.70	29.30	323	58	0.26
CHR	2	2.398	.	7.12	338.5	91	7.437	936S	2.44	150.00	8.28	26.40	67.80	345	90	0.50
S6	2	6.185	.	7.59	338.5	95	7.549	973S	1.50	138.00	7.57	27.80	28.70	295	69	0.21
CD3	2	10.693	.	7.09	338.5	96	7.666	1173S	1.35	103.00	3.08	15.80	24.80	280	63	0.21
CD2	2	10.330	.	6.93	341.0	96	7.640	1157S	1.44	87.60	3.01	17.20	25.60	244	58	0.27
CD1	2	10.604	.	7.23	336.0	96	7.641	1178S	1.21	104.00	2.70	16.60	25.60	266	64	0.25
S8	2	7.677	.	6.83C	344.5	95	7.596	1042S	1.24	108.00	5.61	23.50	27.50	286	39	0.52
S9	2	9.432	.	7.03C	342.5	96	7.638	1113S	1.35	112.00	4.12	19.20	25.70	276	49	0.31
S10	2	10.215	.	7.01	342.5	97	7.659	1153S	1.32	109.00	3.64	20.60	25.70	264	38	0.39
S12.5	3	12.727	.	6.92	340.5	98	7.717	1250S	1.35	96.40	2.46	14.80	22.70	223	32	0.26
S15	2	15.407	.	6.85	337.0	98	7.763	1353S	1.30	86.90	1.66	11.20	20.00	231	33	0.36
S17.5	2	17.540	.	6.78	337.0	99	7.800	1444S	1.24	74.60	1.27	8.63	17.90	237	13	0.42
S20	2	20.481	.	7.04	333.5	101	7.848	1559S	1.17	58.30	1.00	5.16	14.00	193	22	0.49
S22.5	2	23.470	.	6.99	333.5	103	7.894	1684S	1.01	45.60	0.91	3.58	9.93	177	20	1.00
S22.5	13	25.098	.	7.25	322.5	101	7.901	1756S	0.85	37.40	0.95	3.22	6.73	169	21	0.31
S25	2	25.122	.	7.48	333.0	105	7.931	1759S	0.88	36.80	0.96	2.93	6.82	167	18	0.23
S27.5	2	27.931	.	7.88	326.5	106	7.959	1880S	0.54	20.10	0.98	1.57	2.60	151	32	0.57
BR	2	30.055	.	8.79	309.0	104	7.949	1976S	0.59	8.05	0.95	2.18	1.36	118	12	0.47
CH	2	30.967	.	8.70	297.5	100	7.947	2059S	0.75	6.52	0.54	4.09	1.83	112	11	0.31
CM	2	30.035	.	7.75	303.0	99	7.963	2003S	0.54	7.73	0.46	2.15	2.56	148	10	0.42

STA	DEPTH (m)	PC (uM)	PN (uM)	PP (uM)	HUMIC ACID C (uM)	HUMIC ACID N (uM)	SESTON (mg/L)	Chl-a (ug/L)	APROD (mmol C/ sq m/day)	VPROD (umol C/ L/day)	LIGHT ATTEN -K(/m)	SECCHI DEPTH (cm)
01	1	83.8	14.00	2.60	.	.	.	24.40	.	.	.	.
P0	1	50.7	8.88	2.07	.	.	15.8	14.70	.	1.3	1.47	.
P1	1	31.6	6.63	2.34	.	.	8.9	29.70	.	.	2.00	.
P2	1	57.6	10.80	2.45	.	.	12.0	26.30	.	11.2	1.29	.
P3	2	93.0	15.30	3.14	.	.	21.0	33.60	.	.	2.59	.
P4	2	148.0	17.60	3.06	.	.	14.6	26.00	.	7.6	1.50	.
P5	1	41.7	11.10	2.42	.	.	.	23.00	.	.	1.71	.
SK1	2	66.9	12.90	2.74	.	.	.	21.70	.	.	.	.
SK2	2	80.6	13.00	2.77	.	.	.	20.50	.	.	.	.
P6	1	51.5	12.20	2.36	.	.	23.0	22.80	.	6.7	.	.
S0	1	55.7	12.50	2.65	.	.	10.0	19.60	6.1	6.8	.	.
S1	2	172.0	21.00	2.53	.	.	44.8	23.90	.	.	3.94	.
S2	2	110.0	18.70	2.99	.	.	55.5	25.80	2.4	5.9	5.00	.
S3	1	93.0	18.10	3.12	.	.	40.2	21.20	2.9	6.5	4.20	.
S4	2	84.2	14.70	2.27	.	.	40.3	24.40	3.0	7.3	4.68	.
S4.5	1	184.0	27.60	2.86	.	.	59.9	24.90	.	.	.	.
S5	2	117.0	13.20	1.63	.	.	28.7	22.10	11.4	15.4	2.81	.
MAR	1	451.0	60.40	7.60	.	.	138.4	73.60	.	34.5	.	.
LER	1	1553.0	182.00	24.40	.	.	671.4	172.00	.	30.1	.	.
CDR	1	309.0	.	4.56	.	.	146.2	61.00	.	47.4	.	.
SMR	1	625.0	73.40	13.10	.	.	306.2	97.20	.	.	.	.
SAR	1	234.0	22.80	3.24	.	.	71.2	55.00	.	.	.	.
CHR	2	53.6	11.60	1.79	.	.	21.5	47.30	.	8.9	2.96	.
S6	2	107.0	17.40	2.36	.	.	54.5	44.60	.	5.2	3.92	.
CD3	2	123.0	20.00	3.02	.	.	52.8	37.80	.	.	.	.
CD2	2	174.0	22.10	3.61	.	.	.	30.90	.	.	.	.
CD1	2	212.0	25.70	3.96	.	.	.	37.30	.	6.0	.	.
S8	2	74.1	9.49	1.33	.	.	30.0	15.60	2.3	4.3	.	.
S9	2	208.0	25.70	4.46	.	.	120.7	26.90	.	.	.	.
S10	2	125.0	18.40	3.06	.	.	79.0	42.80	4.9	8.0	3.60	.
S12.5	3	84.5	10.60	1.77	.	.	43.4	17.60	.	.	2.77	.
S15	2	95.9	11.20	1.50	.	.	40.5	25.60	5.3	20.5	3.83	.
S17.5	2	78.2	8.92	1.07	.	.	29.1	20.30	.	.	2.53	.
S20	2	49.1	7.07	0.55	.	.	19.0	16.30	11.4	11.6	1.81	.
S22.5	2	42.9	6.98	0.68	.	.	11.7	16.30	.	.	1.35	.
S22.5	13	58.3	8.61	0.94	.	.	20.1	35.90	.	.	.	.
S25	2	43.2	7.09	0.61	.	.	11.8	14.70	25.3	18.7	1.26	.
S27.5	2	48.7	7.16	0.66	.	.	14.4	21.30	.	.	1.27	.
BR	2	35.9	5.63	0.47	.	.	8.1	14.40	17.5	10.0	1.08	.
CH	2	34.5	4.48	0.56	.	.	10.0	16.60	9.5	5.9	1.23	.
CM	2	117.0	16.60	1.99	.	.	57.4	36.40	.	.	.	.

STA	DEPTH (m)	0.4 Micrometer Filtered Dissolved Metals (nanomolar) Mn	Fe-A	Fe-C	Fe-E	Co	Ni	Cu	Zn-A	Zn-E	Cd	Pb	As
O1	1	.	.	.	.	.	.	.	.	.	.	.	.
PO	1	1119.4	.	1235.5	.	1.41	85.18	16.21	.	.	0.55	.	.
P1	1	1337.9	.	429.7	.	0.58	52.81	14.16	.	.	0.36	.	.
P2	1	1110.3	.	540.8	.	2.46	55.37	40.92	.	.	0.30	.	.
P3	2	2766.8	.	358.1	.	10.86	79.39	43.75	.	.	0.42	.	.
P4	2	3403.8	.	361.7	.	9.88	89.95	32.89	.	.	2.51	.	.
P5	1	4623.4	.	954.4	.	5.94	104.60	31.47	.	.	0.82	.	.
SK1	2	.	.	.	.	.	.	.	.	.	.	.	.
SK2	2	.	.	447.7	.	8.74	128.62	53.50	.	.	0.44	.	.
P6	1	5042.0	.	175.5	.	2.90	88.59	40.60	.	.	0.55	.	.
SO	1	4204.7	.	1146.0	.	11.96	92.84	37.30	.	.	0.73	.	.
S1	2	3622.3	.	170.1	.	5.57	79.56	42.33	.	.	0.93	.	.
S2	2	2803.2	.	85.9	.	3.00	76.49	42.17	.	.	1.69	.	.
S3	1	105.6	.	62.7	.	1.60	68.65	.	.	.	0.54	.	.
S4	2	777.2	.	32.2	.	1.58	64.57	39.18	.	.	0.55	.	.
S4.5	1	706.3	.	9.0<	.	4.72	128.96	141.94	.	.	0.76	.	.
S5	2	462.3	.	9.0<	.	1.43	61.16	33.52	.	.	0.90	.	.
NAR	1	1581.8	.	71.6	.	0.53	33.39	13.38	.	.	0.73	.	.
LER	1	98.3	.	128.9	.	0.39	49.91	22.82	.	.	2.10	.	.
COR	1	129.2	.	44.8	.	0.49	42.93	16.68	.	.	2.55	.	.
SMR	1	149.3	.	1303.6	.	0.58	45.49	21.72	.	.	1.39	.	.
SAR	1	606.1	.	98.5	.	1.20	62.69	36.82	.	.	1.31	.	.
CHR	2	2078.7	.	533.6	.	28.83	80.07	26.91	.	.	0.48	.	.
S6	2	225.7	.	100.3	.	1.05	52.98	33.83	.	.	0.56	.	.
CD3	2	.	.	14.3	.	1.19	49.40	19.04	.	.	0.60	.	.
CD2	2	.	.	.	.	.	.	.	.	.	.	.	.
CD1	2	.	.	.	.	.	.	.	.	.	.	.	.
S8	2	145.6	.	60.9	.	1.02	46.85	28.48	.	.	0.46	.	.
S9	2	116.5	.	43.0	.	0.63	52.98	25.02	.	.	0.44	.	.
S10	2	81.9	.	51.9	.	0.66	45.14	22.66	.	.	0.49	.	.
S12.5	3	60.1	.	.	.	0.63	33.22	24.39	.	.	0.39	.	.
S15	2	41.9	.	85.9	.	0.61	39.35	21.72	.	.	0.31	.	.
S17.5	2	32.8	.	17.9	.	0.49	33.22	25.49	.	.	0.48	.	.
S20	2	9.1	.	9.0<	.	0.37	31.18	24.23	.	.	0.56	.	.
S22.5	2	20.0	.	9.0<	.	0.56	24.70	18.41	.	.	0.40	.	.
S22.5	13	.	.	.	.	.	.	.	.	.	.	.	.
S25	2	14.6	.	48.3	.	0.54	22.15	15.42	.	.	0.40	.	.
S27.5	2	23.7	.	30.4	.	0.29	14.14	9.44	.	.	0.24	.	.
BR	2	36.4	.	9.0<	.	0.22	11.58	9.76	.	.	0.28	.	.
CM	2	18.2	.	9.0<	.	0.20	11.75	9.13	.	.	0.20	.	.
CM	2	96.5	.	9.0<	.	0.29	12.78	8.97	.	.	0.23	.	.

STA	DEPTH (m)	Dissolved Metals (nanomolar) Versus Filter Size In Micrometers											
		Fe-A				Fe-C				Fe-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
O1	1	.	.	.	.	.	.	.	.	.	.	.	.
PO	1	.	.	.	.	626.7	940.1	1235.5	.	.	.	.	.
P1	1	.	.	.	.	232.8	379.6	429.7	.	.	.	.	.
P2	1	.	.	.	.	157.6	282.9	540.8	.	.	.	.	.
P3	2	.	.	.	.	154.0	229.2	358.1	.	.	.	.	.
P4	2	.	.	.	.	306.2	325.9	361.7	.	.	.	.	.
P5	1	.	.	.	.	367.1	447.7	954.4	.	.	.	.	.
SK1	2	.	.	.	.	.	.	.	.	.	.	.	.
SK2	2	.	.	.	.	393.9	438.7	447.7	.	.	.	.	.
P6	1	.	.	.	.	152.2	161.2	175.5	.	.	.	.	.
SO	1	.	.	.	.	336.6	537.2	1146.0	.	.	.	.	.
S1	2	.	.	.	.	111.0	116.4	170.1	.	.	.	.	.
S2	2	.	.	.	.	9.0	26.9	85.9	.	.	.	.	.
S3	1	.	.	.	.	17.9	35.8	62.7	.	.	.	.	.
S4	2	.	.	.	.	9.0<	9.0<	32.2	.	.	.	.	.
S4.5	1	.	.	.	.	.	.	9.0<	.	.	.	.	.
S5	2	.	.	.	.	9.0<	9.0<	9.0<	.	.	.	.	.
MAR	1	.	.	.	.	50.1	71.6	71.6	.	.	.	.	.
LER	1	.	.	.	.	75.2	.	128.9	.	.	.	.	.
COR	1	.	.	.	.	50.1	.	44.8	.	.	.	.	.
SMR	1	.	.	.	.	1291.0	1208.7	1303.6	.	.	.	.	.
SAR	1	.	.	.	.	.	.	98.5	.	.	.	.	.
CHR	2	.	.	.	.	304.4	336.6	533.6	.	.	.	.	.
S6	2	.	.	.	.	.	.	100.3	.	.	.	.	.
CD3	2	.	.	.	.	.	.	14.3	.	.	.	.	.
CD2	2	.	.	.	.	.	.	.	.	.	.	.	.
CD1	2	.	.	.	.	.	.	.	.	.	.	.	.
S8	2	.	.	.	.	.	.	60.9	.	.	.	.	.
S9	2	.	.	.	.	.	.	43.0	.	.	.	.	.
S10	2	.	.	.	.	.	.	51.9	.	.	.	.	.
S12.5	3	.	.	.	.	9.0<	35.8	.	.	.	.	.	.
S15	2	.	.	.	.	9.0<	9.0<	85.9	.	.	.	.	.
S17.5	2	.	.	.	.	9.0<	9.0<	17.9	.	.	.	.	.
S20	2	.	.	.	.	.	.	9.0<	.	.	.	.	.
S22.5	2	.	.	.	.	.	.	9.0<	.	.	.	.	.
S22.5	13	.	.	.	.	.	.	.	.	.	.	.	.
S25	2	.	.	.	.	.	.	48.3	.	.	.	.	.
S27.5	2	.	.	.	.	.	.	30.4	.	.	.	.	.
BR	2	.	.	.	.	.	.	9.0<	.	.	.	.	.
CH	2	.	.	.	.	.	.	9.0<	.	.	.	.	.
CM	2	.	.	.	.	.	.	9.0<	.	.	.	.	.

STA	DEPTH (m)	Mn		Zn-A				Zn-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
		Dissolved Metals (nanomolar) Versus Filter Size In Micrometers											
O1	1												
PO	1			1118.4									
P1	1			1337.9									
P2	1			1110.3									
P3	2			2766.8									
P4	2			3403.8									
P5	1			4623.4									
SK1	2												
SK2	2												
P6	1			5042.0									
SO	1			4204.7									
S1	2			3622.3									
S2	2			2803.2									
S3	1			105.6									
S4	2			777.2									
S4.5	1			706.3									
S5	2			462.3									
MAR	1	675.3	775.4	1581.8									
LER	1			98.3									
COR	1	120.1	120.1	129.2									
SMR	1			149.3									
SAR	1	648.0	646.2	606.1									
CHR	2	1720.1	2025.9	2078.7									
S6	2			225.7									
CD3	2												
CD2	2												
CD1	2												
S8	2			145.6									
S9	2			116.5									
S10	2			81.9									
S12.5	3			60.1									
S15	2			41.9									
S17.5	2			32.8									
S20	2			9.1									
S22.5	2			20.0									
S22.5	13												
S25	2			14.6									
S27.5	2			23.7									
BR	2			36.4									
CH	2			18.2									
CM	2			96.5									

STA	DEPTH (m)	Particulate Metals (micromole/g-seston)								
		Al	Mn	Fe	Co	Ni	Cu	Zn	Cd	Ba	Pb
O1	1	.	.	.	.	.	.	.	.	.	.
PO	1	.	18.6	190	0.18	1.71	1.65	21.86	0.343	.	0.88
P1	1	.	99.7	887	0.36	3.01	1.74	12.82	0.113	.	1.53
P2	1	.	41.7	494	.	.	2.60	13.76	0.451	.	1.52
P3	2	.	13.5	543	0.18	1.32	2.83	16.63	0.184	.	1.76
P4	2	.	11.3	933	.	.	.	25.41	.	.	.
P5	1	.	.	.	.	.	.	.	.	.	.
SK1	2	.	.	.	.	.	.	.	.	.	.
SK2	2	.	.	.	.	.	.	.	.	.	.
P6	1	.	28.4	382	.	.	0.82	6.04	0.083	.	0.52
SO	1	.	2.7	546	.	.	0.33	7.96	0.141	.	0.17
S1	2	.	57.5	484	0.41	1.91	1.06	5.75	0.023	.	1.10
S2	2	.	22.4	129	0.08	0.45	0.38	1.99	0.003	.	0.27
S3	1	.	57.5	346	0.26	1.07	0.65	5.00	0.038	.	0.63
S4	2	.	42.2	224	0.14	0.69	0.53	3.51	0.302	.	0.53
S4.5	1	.	35.3	230	0.11	0.51	0.66	3.11	0.013	.	0.45
S5	2	.	47.5	330	0.23	1.01	0.63	3.21	0.178	.	0.75
MAR	1	.	19.1	155	0.04	0.17	0.43	2.05	0.010	.	0.22
LER	1	.	21.1	235	0.02	0.05	0.19	1.90	0.003	.	0.09
COR	1	.	51.0	369	0.21	0.80	0.69	3.36	0.061	.	0.67
SMR	1	.	33.7	202	0.04	0.19	0.39	1.69	0.039	.	0.25
SAR	1	.	41.9	307	0.15	0.60	0.76	3.29	0.184	.	0.55
CHR	2	.	15.3	342	0.14	0.54	0.69	8.49	0.000	.	0.61
S6	2	.	38.4	278	0.14	0.57	0.34	2.96	0.000	.	0.37
CD3	2	.	35.5	271	0.12	0.52	0.46	2.98	0.004	.	0.39
CD2	2	.	.	.	.	.	.	.	.	.	.
CD1	2	.	.	.	.	.	.	.	.	.	.
S8	2	.	27.8	217	0.13	0.63	0.36	2.36	0.049	.	0.42
S9	2	.	13.7	202	0.03	0.15	0.18	2.66	0.003	.	0.13
S10	2	.	38.6	278	0.11	0.48	0.50	3.19	0.246	.	0.38
S12.5	3	.	36.8	303	.	.	0.48	3.44	0.017	.	0.39
S15	2	.	30.6	262	0.12	0.56	0.41	3.57	0.014	.	0.38
S17.5	2	.	35.5	299	.	.	0.47	3.67	0.094	.	0.46
S20	2	.	18.7	213	0.08	0.50	0.36	5.41	0.058	.	0.29
S22.5	2	.	12.7	202	0.08	0.46	0.24	3.24	0.018	.	0.22
S22.5	13	.	13.7	196	0.06	0.31	0.24	3.16	0.006	.	0.16
S25	2	.	24.9	426	0.17	0.96	0.29	8.74	0.081	.	0.51
S27.5	2	.	16.4	199	0.10	0.62	0.24	3.69	0.025	.	0.27
BR	2	.	13.5	186	0.08	0.54	0.32	2.95	0.128	.	0.42
CH	2	.	12.9	217	0.09	0.34	0.33	2.38	0.009	.	0.24
CM	2	.	14.2	152	0.03	0.20	0.22	2.25	0.003	.	0.17

31MAR87

SALT-2: 17-20 November 1980

STA	DEPTH (m)	CAST TYPE	DATE (mm/dd/yy)	LOCAL TIME	LATITUDE (deg min)	LONGITUDE (deg min)	DISTANCE TO CAPES (km)	WATER DEPTH (m)
O1	1	CTD	11/18/80	0706	39 52.8 N	75 11.6 W	148.6	13.0
PO	1	CTD	11/18/80	0959	40 10.7 N	74 43.9 W	209.8	6.5
P1	1	CTD	11/18/80	1117	40 4.9 N	74 51.7 W	190.1	10.0
P2	1	CTD	11/18/80	1351	40 0.7 N	75 2.2 W	172.7	14.0
P3	2	CTD	11/18/80	1450	39 57.0 N	75 7.7 W	161.0	.
P4	2	CTD	11/18/80	1525	39 54.2 N	75 7.4 W	155.9	.
P5	1	CTD	11/18/80	1602	39 53.0 N	75 11.4 W	149.0	.
SK1	2	CTD	11/18/80	1633	39 53.8 N	75 12.6 W	.	.
SK2	2	CTD	11/18/80	1657	39 54.9 N	75 12.2 W	.	.
P6	1	CTD	11/18/80	1822	39 50.9 N	75 19.3 W	136.6	.
SO	1	CTD	11/19/80	0724	39 52.7 N	75 11.7 W	148.3	11.0
S1	2	CTD	11/19/80	0901	39 48.6 N	75 23.9 W	128.6	13.5
S2	2	CTD	11/19/80	0932	39 47.8 N	75 25.5 W	125.9	16.5
S3	1	CTD	11/19/80	1011	39 46.9 N	75 27.3 W	122.7	15.0
S4	2	CTD	11/19/80	1048	39 45.5 N	75 28.6 W	119.5	15.5
S4.5	1	CTD	11/19/80	1126	39 44.0 N	75 29.8 W	116.0	8.5
S5	2	CTD	11/19/80	1248	39 39.4 N	75 31.8 W	107.3	9.5
MAR	1	Copter	11/19/80	1200	39 12.6 N	75 2.4 W	40.9	.
LER	1	Copter	11/19/80	1220	39 14.7 N	75 24.2 W	53.9	.
COR	1	Copter	11/19/80	1236	39 20.7 N	75 21.4 W	61.6	.
SMR	1	Copter	11/19/80	1255	39 22.0 N	75 30.7 W	72.0	.
SAR	1	Copter	11/19/80	1317	39 34.2 N	75 30.5 W	96.2	.
CHR	2	CTD	11/19/80	1506	39 42.3 N	75 31.5 W	112.5	10.5
S6	2	CTD	11/19/80	1614	39 33.3 N	75 33.3 W	94.2	12.5
CD3	2	CTD	11/19/80	1654	39 32.6 N	75 35.6 W	.	11.5
CD2	2	CTD	11/19/80	1723	39 32.3 N	75 39.4 W	.	14.0
CD1	2	CTD	11/19/80	1802	39 31.6 N	75 44.6 W	.	14.5
S8	2	CTD	11/20/80	0657	39 34.0 N	75 33.7 W	95.4	14.0
S9	2	CTD	11/20/80	0724	39 33.3 N	75 33.1 W	94.0	16.0
S10	2	CTD	11/20/80	0747	39 32.9 N	75 32.9 W	92.3	15.0
S12.5	3	CTD	11/20/80	0829	39 30.6 N	75 33.1 W	88.1	15.5
S15	2	CTD	11/20/80	0903	39 28.3 N	75 34.2 W	83.8	12.5
S17.5	2	CTD	11/20/80	0950	39 24.4 N	75 31.3 W	75.6	15.0
S20	2	CTD	11/20/80	1028	39 21.6 N	75 28.6 W	69.2	9.0
S22.5	2	CTD	11/20/80	1126	39 16.4 N	75 21.0 W	54.2	14.0
S22.5	13	CTD	11/20/80	1122	39 16.5 N	75 21.2 W	54.6	14.0
S25	2	CTD	11/20/80	1231	39 11.3 N	75 16.2 W	42.7	15.5
S27.5	2	CTD	11/20/80	1317	39 7.9 N	75 12.6 W	34.8	13.0
BR	2	CTD	11/20/80	1415	38 59.0 N	75 8.0 W	17.1	13.0
CH	2	CTD	11/20/80	1522	38 49.4 N	75 2.6 W	-2.3	29.5
CM	2	CTD	11/20/80	1620	38 55.6 N	74 58.8 W	11.4	11.5

STA	DEPTH (m)	SALINITY (ppt)	CL (uM)	TEMP (C)	O2 (uM)	% O2 SAT	pH (25C)	ALK (ueq/L)	PO4 (uM)	NO3 (uM)	NO2 (uM)	NH4 (uM)	SI (uM)	DOC (uM)	DON (uM)	DOP (uM)
S0	1	0.657	9495	3.00B	235.0	56	6.628	471S	1.83	111.00	2.70	173.00	43.70	443	94	0.28
S2.5	1	2.544	38683	2.80B	346.0	84	6.963	646S	1.30	134.00	2.72	153.00	69.10	429	88	0.61
S5	1	6.103	.	2.80B	379.0	94	7.241	866S	1.15	131.00	2.14	110.00	62.00	369	85	0.51
S7.5	1	8.753	.	2.00B	394.5	97	7.406	1048S	1.37	119.00	1.96	75.40	48.70	306	50	0.29
S10	1	10.647	.	2.00B	400.0	100	7.492	1165S	0.74	106.00	1.82	62.70	42.00	285	61	0.57
S12.5	1	11.374	.	2.10B	402.5	101	7.528	1209S	0.74	107.00	1.76	60.30	40.00	269	17	0.52
S15	1	11.198	.	2.20B	396.0	100	7.524	1196S	0.77	107.00	1.79	62.40	40.00	289	43	0.49
S20	1	19.486	.	2.20B	405.5	108	7.800	1601S	0.59	73.00	1.22	26.20	18.60	315	22	0.37
S25	1	22.801	.	1.60B	414.0	111	7.881	1753S	0.34	56.00	0.93	14.60	11.10	209	20	0.51
BR	1	29.869	.	1.30B	384.0	107	7.897	2042S	0.31	11.20	0.28	0.44	1.77	139	12	0.39
CH	1	30.758	.	1.20B	377.0	106	7.893	2096S	0.36	8.32	0.22	0.58	0.30	142	11	0.39
CM	1	29.692	.	0.00B	368.0	99	7.922	2040S	0.34	11.80	0.40	0.87	1.10	149	10	0.41

31MAR87

SALT-3: 28 January 1981

STA	DEPTH (m)	PC (uM)	PN (uM)	PP (uM)	HUMIC ACID C (uM)	HUMIC ACID N (uM)	SESTON (mg/L)	Chl-a (ug/L)	APROD (mmol C/ sq m/day)	VPROD (umol C/ L/day)	LIGHT ATTEN -K(/m)	SECCHI DEPTH (cm)
S0	1	102.0	14.60	2.15	26.4	3.8	18.5	1.55	1.6	1.3	.	65
S2.5	1	60.9	9.18	2.11	16.5	2.6	13.1	1.29	1.7	1.5	.	65
S5	1	37.3	4.95	0.84	12.0	2.0	9.0	1.74	3.4	2.3	.	80
S7.5	1	37.6	4.54	0.87	10.7	1.7	15.5	2.93	6.8	4.5	.	85
S10	1	95.5	12.00	1.68	11.3	1.8	37.6	7.80	7.7	8.6	.	45
S12.5	1	43.7	6.66	0.65	11.0	1.6	10.5	4.77	17.5	9.1	.	110
S15	1	72.1	9.02	0.99	15.5	2.1	16.3	5.85	5.5	3.6	.	95
S20	1	41.5	6.16	0.70	9.5	1.2	7.6	12.80	22.1	12.3	.	100
S25	1	40.4	6.62	0.64	10.3	1.3	5.8	14.20	39.0	14.4	.	150
BR	1	30.9	4.78	0.35	9.3	1.1	4.3	5.69	10.5	3.8	.	100
CH	1	18.1	2.83	0.17	7.6	1.3	2.6	4.07	9.9	2.0	.	100
CM	1	82.1	11.40	0.79	11.0	1.4	12.8	14.10	16.1	11.8	.	100

10APR87

SALT-3: 28 January 1981

STA	DEPTH (m)	0.4 Micrometer Filtered Dissolved Metals (nanomolar)											
		Mn	Fe-A	Fe-C	Fe-E	Co	Ni	Cu	Zn-A	Zn-E	Cd	Pb	As
S0	1	6880.5	.	232.8	.	21.28	139.52	28.96	.	.	3.87	.	.
S2.5	1	7899.8	.	134.3	.	15.56	210.56	27.22	.	.	2.14	.	.
S5	1	2402.7	.	241.7	.	7.09	142.25	26.12	.	.	.	.	.
S7.5	1	1181.3	.	161.2	.	5.24	114.89	23.92	.	.	.	.	.
S10	1	.	.	80.6	.	3.58	67.63	.	.	.	0.83	.	.
S12.5	1	790.0	.	35.8	.	3.75	63.88	.	.	.	0.71	.	.
S15	1	.	.	152.2	.	3.09	63.37	19.51	.	.	.	.	.
S20	1	103.8	.	116.4	.	1.07	38.86	.	.	.	.	.	.
S25	1	47.3	.	157.6	.	0.34	36.12	15.74	.	.	.	.	.
BR	1	47.3	.	35.8	.	0.15	13.12	13.69	.	.	.	.	.
CH	1	67.3	.	68.0	.	0.17	8.35	9.76	.	.	.	.	.
CM	1	47.3	.	.	.	0.22	12.61	9.60	.	.	.	.	.

10APR87

SALT-3: 28 January 1981

Dissolved Metals (nanomolar) Versus Filter Size In Micrometers

STA	DEPTH (m)	Fe-A				Fe-C				Fe-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
SO	1	.	.	.	.	.	93.1	232.8	.	.	.	.	.
S2.5	1	.	.	.	.	.	116.4	134.3	.	.	.	.	.
S5	1	.	.	.	.	.	9.0<	241.7	.	.	.	.	.
S7.5	1	.	.	.	.	.	17.9	161.2	.	.	.	.	.
S10	1	.	.	.	.	.	9.0<	80.6	.	.	.	.	.
S12.5	1	.	.	.	.	.	9.0<	35.8	.	.	.	.	.
S15	1	.	.	.	.	.	9.0<	152.2	.	.	.	.	.
S20	1	.	.	.	.	.	9.0<	116.4	.	.	.	.	.
S25	1	.	.	.	.	.	9.0<	157.6	.	.	.	.	.
BR	1	.	.	.	.	.	9.0<	35.8	.	.	.	.	.
CH	1	.	.	.	.	.	14.3	68.0	.	.	.	.	.
CM	1	.	.	.	.	.	.	.	.	.	.	.	.

STA	DEPTH (m)	Dissolved Metals (nanomolar) Versus Filter Size In Micrometers											
		Mn				Zn-A				Zn-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
S0	1	.	5606.3	6880.5	.	.	.	.	.	.	.	.	.
S2.5	1	.	6005.0	7899.8	.	.	.	.	.	.	.	.	.
S5	1	.	2602.9	2402.7	.	.	.	.	.	.	.	.	.
S7.5	1	.	895.6	1161.3	.	.	.	.	.	.	.	.	.
S10	1	.	.	.	.	.	.	.	.	.	.	.	.
S12.5	1	.	655.3	790.0	.	.	.	.	.	.	.	.	.
S15	1	.	.	.	.	.	.	.	.	.	.	.	.
S20	1	.	125.6	103.8	.	.	.	.	.	.	.	.	.
S25	1	.	47.3	47.3	.	.	.	.	.	.	.	.	.
BR	1	.	51.0	47.3	.	.	.	.	.	.	.	.	.
CH	1	.	49.1	67.3	.	.	.	.	.	.	.	.	.
CM	1	.	.	47.3	.	.	.	.	.	.	.	.	.

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SALT-3: 28 January 1981

STA	DEPTH (m)	Particulate Metals (micromole/g-seston)								
		Al	Mn	Fe	Co	Ni	Cu	Zn	Cd	Ba	Pb
S0	1	.	15.1	594	0.13	0.75	1.52	11.87	0.054	.	1.12
S2.5	1	.	16.7	300	0.21	1.21	1.12	9.04	0.000	.	0.69
S5	1	.	8.9	208	0.12	0.42	0.36	4.68	0.000	.	0.31
S7.5	1	.	15.8	183	0.12	0.33	0.56	3.66	0.014	.	0.35
S10	1	.	35.6	304	0.18	1.28	0.46	5.75	0.002	.	0.49
S12.5	1	.	16.0	179	0.16	0.42	0.22	3.27	0.000	.	0.50
S15	1	.	35.5	353	0.22	1.45	0.77	7.49	0.003	.	0.50
S20	1	.	10.4	105	0.08	0.45	0.39	4.68	0.000	.	0.35
S25	1	.	11.8	57	0.16	0.22	0.25	4.34	0.282	.	0.48
BR	1	.	10.7	78	0.13	0.00	0.81	3.30	0.000	.	0.34
CH	1	.	15.7	102	0.06	0.00	0.00	6.35	0.000	.	0.56
CM	1	.	16.2	198	0.12	0.47	0.31	4.09	0.000	.	0.42

31MAR87 SALT-3: 28 January 1981 PAGE-6/ 13

STA	DEPTH (m)	CAST TYPE	DATE (mm/dd/yy)	LOCAL TIME	LATITUDE (deg min)	LONGITUDE (deg min)	DISTANCE TO CAPES (km)	WATER DEPTH (m)
$0	1	Copter	01/28/81	1442	39 50.9 N	75 19.3 W	136.6	.
$2.5	1	Copter	01/28/81	1458	39 46.9 N	75 27.3 W	122.7	.
$5	1	Copter	01/28/81	1515	39 38.9 N	75 32.9 W	105.5	.
$7.5	1	Copter	01/28/81	1521	39 35.5 N	75 33.9 W	97.8	.
$10	1	Copter	01/28/81	1530	39 32.9 N	75 32.9 W	92.3	.
$12.5	1	Copter	01/28/81	1539	39 30.6 N	75 33.0 W	88.2	.
$15	1	Copter	01/28/81	1210	39 26.3 N	75 34.2 W	83.8	.
$20	1	Copter	01/28/81	1146	39 18.2 N	75 22.9 W	58.5	.
$25	1	Copter	01/28/81	1126	39 10.9 N	75 16.3 W	42.1	.
BR	1	Copter	01/28/81	1106	38 58.8 N	75 7.3 W	16.4	.
CH	1	Copter	01/28/81	1045	38 49.0 N	75 5.0 W	-3.7	.
CM	1	Copter	01/28/81	1015	38 55.6 N	74 58.8 W	11.4	.

31MAR87 SALT-4: 1-3 March 1981

STA	DEPTH (m)	SALINITY (ppt)	CL (uM)	TEMP (C)	O2 (uM)	% O2 SAT	pH (25C)	ALK (ueq/L)	PO4 (uM)	NO3 (uM)	NO2 (uM)	NH4 (uM)	SI (uM)	DOC (uM)	DON (uM)	DOP (uM)
PB	1	-0.036	435	6.65	322.5	85	6.761	2415	1.49	92.50	0.97	38.80	12.10	327	50	0.25
SO	1	-0.042	426	6.36	340.5	89	6.879	2435	1.48	86.70	1.08	28.60	12.00	328	27	0.70
S1	1	0.305	5265	6.63	340.5	89	6.991	2785	1.49	88.70	1.31	51.50	13.20	332	46	0.19
S2	1	1.565	24379	6.47	341.0	90	7.103	4055	1.47	86.40	1.21	52.90	17.00	326	17	0.16
S3	1	2.875	44758	6.12	348.5	92	7.213	5015	1.23	84.40	1.21	54.50	30.80	298	24	0.35
S4	1	5.052	.	5.83	352.5	94	7.341	6515	1.23	80.50	1.25	60.20	33.50	299	38	0.35
S5	1	5.193	.	5.88	354.5	94	7.369	6625	1.11	78.90	1.22	56.30	42.70	325	36	0.37
S6	1	5.803	.	5.94	359.0	96	7.443	7185	1.13	75.30	1.24	58.70	39.80	289	23	0.35
S8	1	9.938	.	5.40	359.0	97	7.620	9635	1.00	67.90	1.22	58.10	38.50	278	49	0.22
S10	2	10.554	.	5.47	369.5	101	7.716	10145	0.75	71.10	1.22	56.90	34.50	277	19	0.42
S12.5	1	13.213	.	5.28	376.5	104	7.845	11765	0.62	61.70	1.20	51.60	31.10	258	24	0.40
S12.5	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
S15	1	16.699	.	5.03	386.0	109	7.977	13835	0.21	55.10	1.10	41.70	19.80	244	8	0.40
S15	8	26.148	.	3.93	362.5	106	7.955	18745	0.10	18.00	0.42	9.91	1.24	166	28	0.41
S20	1	19.299	.	4.90	421.5	120	8.132	15265	0.15	44.90	0.95	31.30	12.30	219	35	0.46
S20	10	27.444	.	4.01	369.5	109	7.988	19455	0.41	16.10	0.39	6.61	0.25	167	32	0.20
S22.5	1	23.173	.	.	.	.	.	.	.	.	.	.	.	.	.	.
S25	1	26.084	.	4.64	386.0	114	8.060	18835	0.05	20.60	0.52	11.00	2.14	185	31	0.51
XB5	2	27.063	.	4.25C	353.0	104	8.011	19275	0.08	16.00	0.41	3.59	0.70	171	25	0.33
XB6	1	22.711	.	4.55C	365.5	106	8.175	17315	0.54	35.20	0.95	8.60	1.42	175	23	.
CM	2	27.330	.	4.73C	333.5	100	7.945	19305	0.08	11.90	0.33	2.15	0.39	166	12	0.69
BR	2	29.002	.	3.96C	352.5	105	7.944	20195	0.15	9.65	0.30	4.97	0.78	148	10	0.36
CH	2	29.649	.	3.97C	353.0	105	7.949	20555	0.15	7.87	0.23	4.51	2.45	129	8	0.26
CH	30	32.422	.	3.45C	338.0	101	7.894	21965	0.36	1.47	0.06	0.97	0.48	102	8	0.20

STA	DEPTH (m)	PC (uM)	PN (uM)	PP (uM)	HUMIC ACID C (uM)	HUMIC ACID N (uM)	SESTON (mg/L)	Chl-a (ug/L)	APROD (mmol C/ sq m/day)	VPROD (umol C/ L/day)	LIGHT ATTEN -K(/m)	SECCHI DEPTH (cm)
PB	1	104.0	14.10	4.73	19.9	2.6	33.5	2.16	.	.	4.52	.
S0	1	84.1	8.36	2.51	27.6	3.2	20.5	2.06	0.7	1.4	4.72	.
S1	1	75.6	10.10	3.07	18.4	2.0	32.3	3.43	.	.	4.31	.
S2	1	75.7	9.42	2.60	16.8	1.8	24.7	4.73	2.2	3.6	3.93	.
S3	1	88.6	11.20	2.72	16.7	2.3	30.3	7.00	.	.	4.26	.
S4	1	80.1	10.80	2.79	14.4	1.7	32.1	9.89	6.6	12.9	4.36	.
S5	1	86.1	13.90	2.60	15.8	2.2	29.6	4.38	.	.	3.79	.
S6	1	69.2	14.00	2.38	14.7	1.6	24.5	9.37	10.2	17.3	3.37	.
S8	1	98.7	17.70	2.57	13.6	1.5	31.6	15.50	21.8	38.1	3.31	.
S10	2	130.0	19.70	1.65	12.6	1.4	24.3	14.40	21.1	34.3	3.71	.
S12.5	1	82.8	14.50	2.05	18.9	2.0	19.6	20.70	.	33.6	2.79	.
S12.5	8	.	.	.	.	.	.	33.30	.	.	.	.
S15	1	79.2	10.70	1.85	11.4	1.4	15.0	22.00	45.7	52.2	2.30	.
S15	8	124.0	21.90	2.01	8.7	1.3	.	21.00	.	18.9	.	.
S20	1	58.3	12.90	1.04	8.8	1.1	7.3	22.30	77.6	50.3	.	.
S20	10	64.9	12.10	0.92	18.2	1.5	.	24.10	.	.	.	.
S22.5	1	.	.	.	.	.	.	.	.	.	.	.
S25	1	47.7	10.60	1.30	9.2	1.2	3.9	12.20	40.3	16.5	.	.
XBS	2	93.8	16.80	1.47	7.7	1.0	28.5	18.30	.	22.3	.	.
XB6	1	269.0	38.20	2.87	9.8	1.4	71.8	11.40	.	19.7	.	.
CM	2	423.0	56.30	2.09	8.6	1.1	150.0	21.80	33.2	25.2	.	.
BR	2	36.4	7.37	0.56	6.7	1.1	5.4	6.28	49.6	20.5	.	.
CH	2	30.5	5.96	0.39	20.2	0.9	2.9	6.73	46.3	20.9	.	.
CH	30	31.4	6.83	0.37	4.8	0.7	.	3.46	.	.	.	.

STA	DEPTH (m)	0.4 Micrometer Filtered Dissolved Metals (nanomolar)											
		Mn	Fe-A	Fe-C	Fe-E	Co	Ni	Cu	Zn-A	Zn-E	Cd	Pb	As
P5	1	3045.3	1556.0	988.4	1142.4	26.98	60.65	25.18	575.1	361.0	0.73	.	.
S0	1	2102.4	667.9	519.3	657.2	18.02	48.38	31.32	492.5	264.6	0.83	.	.
S1	1	4343.1	762.8	524.6	884.6	16.82	64.91	36.04	784.6	336.5	0.71	.	.
S2	1	5704.6	372.4	220.2	257.8	10.91	64.22	27.07	587.3	325.8	1.29	.	.
S3	1	5686.4	431.5	231.0	284.7	8.65	67.46	27.70	458.9	281.4	1.61	.	.
S4	1	2808.6	315.1	173.7	179.1	7.62	66.10	28.96	383.9	275.3	1.33	.	.
S5	1	2967.0	372.4	247.1	.	6.99	62.01	25.65	492.5	304.4	1.42	.	.
S6	1	2588.4	.	207.7	.	7.08	59.45	21.87	408.4	289.1	0.91	.	.
S8	1	2633.9	218.5	125.3	161.2	6.74	65.08	26.59	276.8	223.3	0.85	.	.
S10	2	2257.1	241.7	141.5	.	5.07	60.65	23.13	243.2	159.1	1.01	.	.
S12.5	1	1205.0	157.6	77.0	.	3.48	56.39	22.66	240.1	125.4	0.89	.	.
S12.5	9	.	.	.	.	.	.	.	.	.	.	.	.
S15	1	1141.3	195.2	93.1	.	2.21	46.17	18.41	85.7	84.1	0.77	.	.
S15	8	.	.	.	.	.	.	.	.	.	.	.	.
S20	1	793.6	.	48.3	57.3	1.88	41.23	19.36	68.8	65.8	0.67	.	.
S20	10	.	.	.	.	.	.	.	.	.	.	.	.
S22.5	1	467.8	.	107.4	77.0	1.02	30.15	16.52	45.9	45.9	0.43	.	.
S25	1	251.2	.	41.2	46.6	0.66	22.83	16.68	64.2	45.9	0.39	.	.
XB5	2	49.1	.	102.1	222.0	0.56	18.74	13.38	.	.	0.45	.	.
XB6	1	76.4	.	100.3	.	0.61	27.60	16.21	.	.	0.44	.	.
CM	2	18.2	.	59.1	.	0.76	27.09	16.21	82.6	18.4	.	.	.
BR	2	45.5	.	43.0	.	0.85	25.04	13.53	32.1	22.9	0.51	.	.
CH	2	30.9	.	1.8	.	0.54	13.97	10.07	13.8	22.9	0.39	.	.
CH	30	16.4	.	68.0	.	0.59	9.54	7.55	.	22.9	0.36	.	.

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SALT-4: 1-3 March 1981

STA	DEPTH (m)	Dissolved Metals (nanomolar) Versus Filter Size In Micrometers											
		Fe-A				Fe-C				Fe-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
PB	1			1556.0			882.8	988.4				1142.4	
S0	1			667.9				519.3				657.2	
S1	1			762.8			381.4	524.6			535.4	884.6	
S2	1			372.4			231.0	220.2			198.8	257.8	
S3	1			431.5			141.5	231.0				284.7	
S4	1			315.1				173.7				179.1	
S5	1			372.4				247.1					
S6	1						204.1	207.7					
S8	1			218.5				125.3				161.2	
S10	2			241.7			98.5	141.5					
S12.5	1			157.6			12.5	77.0					
S12.5	9												
S15	1			195.2			84.9	93.1					
S15	8												
S20	1						43.0	48.3				57.3	
S20	10												
S22.5	1						114.6	107.4				77.0	
S25	1							41.2				46.6	
XBS	2						102 1	102 1				222.0	
XBB	1						89 5	100 3					
CM	2						43.0	58.1					
BR	2							43.0					
CH	2							1 8					
CH	30							68.0					

STA	DEPTH (m)	Dissolved Metals (nanomolar) Versus Filter Size In Micrometers											
		Mn				Zn-A				Zn-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
P5	1	.	2823.2	3045.3	.	.	.	575.1	.	.	.	361.0	.
S0	1	.	2138.8	2102.4	.	.	.	492.5	.	.	.	264.6	.
S1	1	.	.	4343.1	.	.	.	784.6	.	.	.	336.5	.
S2	1	.	5424.3	5704.6	.	.	.	587.3	.	.	.	325.8	.
S3	1	.	5478.9	5686.4	.	.	.	458.9	.	.	.	281.4	.
S4	1	.	2932.4	2808.6	.	.	.	383.9	.	.	.	275.3	.
S5	1	.	2584.7	2967.0	.	.	.	492.5	.	.	.	304.4	.
S6	1	.	2470.1	2588.4	.	.	.	408.4	.	.	.	289.1	.
S8	1	.	.	2633.9	.	.	.	276.8	.	.	.	223.3	.
S10	2	.	1891.2	2257.1	.	.	.	243.2	.	.	.	159.1	.
S12.5	1	.	1057.6	1205.0	.	.	.	240.1	.	.	.	125.4	.
S12.5	9	.	.	.	.	.	.	.	.	.	.	.	.
S15	1	.	1135.8	1141.3	.	.	.	85.7	.	.	.	84.1	.
S15	8	.	.	.	.	.	.	.	.	.	.	.	.
S20	1	.	684.4	793.6	.	.	.	68.8	.	.	.	65.8	.
S20	10	.	.	.	.	.	.	.	.	.	.	.	.
S22.5	1	.	456.9	467.8	.	.	.	45.9	.	.	.	45.9	.
S25	1	.	258.5	251.2	.	.	.	64.2	.	.	.	45.9	.
XB5	2	.	.	49.1	.	.	.	.	.	.	.	.	.
XB6	1	.	67.3	76.4	.	.	.	.	.	.	.	.	.
CM	2	.	12.7	18.2	.	.	.	82.6	.	.	.	18.4	.
BR	2	.	41.9	45.5	.	.	.	32.1	.	.	.	22.9	.
CH	2	.	32.8	30.9	.	.	.	13.8	.	.	.	22.9	.
CH	30	.	16.4	16.4	.	.	.	.	.	.	.	22.9	.

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SALT-4: 1-3 March 1981

Dissolved Metals (nanomolar) Versus Filter Size In Micrometers

STA	DEPTH (m)	Co 0.1	Co 0.2	Co 0.4	Co 1.0	Ni 0.1	Ni 0.2	Ni 0.4	Ni 1.0	Cu 0.1	Cu 0.2	Cu 0.4	Cu 1.0	Cd 0.1	Cd 0.2	Cd 0.4	Cd 1.0
P8	1	.	.	26.98	.	.	.	60.65	.	.	21.24	25.18	.	.	.	0.73	.
S0	1	.	14.92	18.02	.	.	45.49	48.38	.	.	28.64	31.32	.	.	0.77	0.83	.
S1	1	.	12.30	16.82	.	.	50.77	64.91	.	.	25.49	36.04	.	.	0.60	0.71	.
S2	1	.	.	10.91	.	.	.	64.22	.	.	26.44	27.07	.	.	.	1.29	.
S3	1	.	7.87	8.65	.	.	60.31	67.46	.	.	22.03	27.70	.	.	1.28	1.61	.
S4	1	.	.	7.62	.	.	.	66.10	.	.	.	28.96	.	.	.	1.33	.
S5	1	.	.	6.99	.	.	.	62.01	.	.	.	25.65	.	.	.	1.42	.
S6	1	.	6.97	7.08	.	.	60.14	58.45	.	.	22.82	21.87	.	.	0.93	0.91	.
S8	1	.	6.01	6.74	.	.	.	65.08	.	.	.	26.59	.	.	.	0.85	.
S10	2	.	4.56	5.07	.	.	59.63	60.65	.	.	21.24	23.13	.	.	1.07	1.01	.
S12.5	1	.	3.65	3.48	.	.	54.86	56.39	.	.	21.40	22.66	.	.	0.87	0.89	.
S12.5	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
S15	1	.	.	2.21	.	.	.	46.17	.	.	.	18.41	.	.	.	0.77	.
S15	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
S20	1	.	1.54	1.88	.	.	41.74	41.23	.	.	17.00	19.36	.	.	.	0.67	.
S20	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
S22.5	1	.	0.97	1.02	.	.	30.49	30.15	.	.	15.42	16.52	.	.	0.41	0.43	.
S25	1	.	0.68	0.66	.	.	23.51	22.83	.	.	11.96	16.68	.	.	0.39	0.39	.
XBS	2	.	.	0.56	.	.	.	18.74	.	.	.	13.38	.	.	.	0.45	.
XB6	1	.	0.68	0.61	.	.	27.26	27.60	.	.	14.95	16.21	.	.	0.52	0.44	.
CM	2	.	0.83	0.76	.	.	21.64	27.09	.	.	16.68	16.21	.	.	.	.	.
BR	2	.	0.95	0.85	.	.	24.87	25.04	.	.	12.27	13.53	.	.	0.46	0.51	.
CH	2	.	.	0.54	.	.	.	13.97	.	.	.	10.07	.	.	.	0.39	.
CH	30	.	0.48	0.59	.	.	9.88	9.54	.	.	5.67	7.55	.	.	0.31	0.36	.

31MAR87

SALT-4: 1-3 March 1981

STA	DEPTH (m)	CAST TYPE	DATE (mm/dd/yy)	LOCAL TIME	LATITUDE (deg min)	LONGITUDE (deg min)	DISTANCE TO CAPES (km)	WATER DEPTH (m)
P5	1	CTD	03/02/81	0650	39 52.7 N	75 11.9 W	148.1	12.0
S0	1	CTD	03/02/81	0811	39 48.4 N	75 23.5 W	128.9	14.0
S1	1	CTD	03/02/81	0918	39 42.8 N	75 29.8 W	114.0	12.0
S2	1	CTD	03/02/81	0955	39 39.5 N	75 32.3 W	106.9	13.0
S3	1	CTD	03/02/81	1030	39 36.4 N	75 34.4 W	99.6	11.0
S4	1	CTD	03/02/81	1058	39 34.4 N	75 33.0 W	95.4	11.0
S5	1	CTD	03/02/81	1129	39 33.0 N	75 32.3 W	92.7	15.0
S6	1	CTD	03/02/81	1320	39 25.4 N	75 31.6 W	77.2	10.0
S8	1	CTD	03/02/81	1352	39 22.9 N	75 28.7 W	71.0	7.0
S10	2	CTD	03/02/81	1445	39 18.3 N	75 23.5 W	58.1	13.0
S12.5	1	CTD	03/02/81	1517	39 16.2 N	75 21.0 W	53.9	10.0
S12.5	8	CTD	03/02/81	1517	39 16.2 N	75 21.0 W	53.9	10.0
S15	1	CTD	03/02/81	1603	39 12.6 N	75 17.2 W	45.5	11.0
S15	8	CTD	03/02/81	1603	39 12.6 N	75 17.2 W	45.5	11.0
S20	1	CTD	03/02/81	1705	39 7.9 N	75 13.6 W	35.4	14.0
S20	10	CTD	03/02/81	1705	39 7.9 N	75 13.6 W	35.4	14.0
S22.5	1	CTD	03/02/81	1744	39 5.7 N	75 11.3 W	30.4	15.0
S25	1	CTD	03/02/81	1808	39 0.1 N	75 7.8 W	18.9	14.0
XB5	2	CTD	03/03/81	0802	39 3.6 N	75 0.7 W	24.5	5.0
XB6	1	CTD	03/03/81	0857	39 5.4 N	74 58.4 W	28.4	5.0
CM	2	CTD	03/03/81	1010	38 55.4 N	74 58.3 W	-11.5	14.0
BR	2	CTD	03/03/81	1108	38 55.1 N	75 5.6 W	9.1	14.0
CH	2	CTD	03/03/81	1249	38 49.4 N	75 2.9 W	-2.2	33.0
CH	30	CTD	03/03/81	1249	38 49.4 N	75 2.9 W	-2.2	33.0

31MAR87

SALT-S: 23-25 March 1981

STA	DEPTH (m)	SALINITY (ppt)	CL (uM)	TEMP (C)	O2 (uM)	% O2 SAT	pH (25C)	ALK (ueq/L)	PO4 (uM)	NO3 (uM)	NO2 (uM)	NH4 (uM)	SI (uM)	DOC (uM)	DON (uM)	DOP (uM)
P0	1	-0.012	438	6.21	427.0	111	8.095	751S	2.84	72.10	1.16	18.50	49.00	352	43	0.54
P1	1	-0.016	457	5.25	365.0	92	7.407	649S	2.25	75.10	1.18	30.70	60.20	317	51	0.28
P2	1	-0.019	489	5.10	351.0	89	7.295	559S	2.35	82.40	1.33	33.00	66.90	326	54	0.63
P3	1	-0.005	594	5.61	242.0	62	6.981	496S	3.16	84.00	1.86	59.80	74.00	450	133	1.39
P4	1	0.003	676	5.63	217.5	56	6.745	391S	1.96	82.20	1.95	66.50	75.50	414	83	1.07
SK	1	0.099	940	6.38	364.5	95	7.545	1129S	7.14	225.00	5.88	52.80	88.20	342	87	1.25
P5	1	0.040	877	6.11	241.5	63	6.740	462S	2.69	120.00	2.96	71.80	78.20	402	130	1.00
P6	1	0.020	830	5.78	298.0	76	6.773	310S	2.69	99.10	2.30	75.80	77.90	382	102	0.24
S1	1	0.865	10459	6.25	345.0	90	7.072	310S	1.91	107.00	1.62	78.90	74.40	371	90	0.36
S2	1	2.073	32116	5.57	365.5	95	7.215	389S	1.31	106.00	1.88	61.10	69.40	340	65	.
S3	1	3.074	.	5.61	373.0	97	7.325	466S	1.08	99.50	1.84	54.10	67.90	321	76	0.48
S4	1	3.754	.	5.48	377.5	99	7.393	518S	1.00	103.00	1.84	48.40	67.90	331	58	0.41
S6	1	6.483	.	5.26	380.5	103	7.656	699S	0.66	91.60	1.68	36.70	59.50	282	38	0.35
S8	1	8.928	.	4.97	399.0	106	7.842	849S	0.32	80.60	1.53	28.30	46.60	274	80	0.34
S10	1	10.615	.	5.14	420.5	114	8.061	953S	0.11	74.00	1.46	22.20	37.30	272	48	0.39
S12.5	1	13.889	.	4.42	418.0	114	8.104	1163S	0.05<	61.90	1.36	11.70	13.40	259	44	0.65
S15	1	15.915	.	4.35	426.5	117	8.190	1287S	0.03	56.00	1.09	4.70	4.24	226	45	0.42
S17.5	1	17.983	.	4.33	439.5	122	8.268	1407S	0.11	48.90	1.02	2.44	2.52	226	31	0.29
S17.5	8	21.046	.	4.29C	421.0	120	8.237	1592S	0.01	33.60	0.84	0.28	0.45	216	28	0.30
S20	1	19.803	.	4.28	435.5	123	8.278	1519S	0.05<	38.20	0.88	0.65	0.59	239	31	0.40
S22.5	1	22 676	.	4.39	421.5	121	8.241	1695S	0 03	30.20	0.77	0.55	0.41	204	19	0.42
S25	1	25 697	.	4.69	386.0	114	8.143	1870S	0.05<	21 70	0.67	0.18	0.37	204	39	0.50
S27.5	1	28 680	.	4.40	360.0	108	8.016	2037S	0.03	11.80	0.29	0.45	0.98	191	11	0.42
BR	1	29 697	.	4.68	341.5	104	7.984	2100S	0.08	9.21	0.21	1.87	2.43	164	12	0.47
CM	1	31 541	.	4.65	338.5	104	8.020	2188S	0.08	2 37	0.13	0.96	1.11	136	12	0.22
CH	1	31.379	.	4.41	342.5	105	8.019	2180S	0.06	2.75	0.10	0.79	0.50	150	12	0.44
COR	1	16.083	.	5.808	478.5	137	8.553	1304S	0.16	98.00	1.60	0.45	1.99	296	56	0.29
LER	1	17.999	.	5.308	448.0	128	8.307	1430S	0.06	63 10	0.78	0 52	1 03	267	48	0.39
MKR	1	22.307	.	6.608	420.5	127	8.474	1705S	0.31	1.40	0.27	0.31	1.77	258	57	0.04
MAR	1	18.017	.	5.408	441.0	126	8.538	1420S	0.01	58.30	0.92	0.45	0 41	316	60	0.39

STA	DEPTH (m)	PC (uM)	PN (uM)	PP (uM)	HUMIC ACID C (uM)	HUMIC ACID N (uM)	SESTON (mg/L)	Chl-a (ug/L)	APROD (mmol C/ sq m/day)	VPROD (umol C/ L/day)	LIGHT ATTEN -K(/m)	SECCHI DEPTH (cm)
P0	1	28.2	3.09	0.86	16.2	2.0	4.1	2.35	3.6	2.2	1.68	250
P1	1	38.2	5.43	1.39	19.5	2.6	10.4	2.43	.	.	2.06	125
P2	1	37.4	5.85	1.17	16.9	1.8	8.3	5.10	7.7	5.4	1.64	145
P3	1	84.9	10.90	1.81	48.1	6.0	10.6	3.67	.	.	1.92	100
P4	1	77.8	8.44	2.21	37.8	4.1	10.2	3.02	5.6	3.9	1.69	.
SK	1	52.1	9.25	2.48	25.5	3.5	10.0	14.40	.	3.8	1.83	95
P5	1	79.1	10.60	2.93	35.5	4.3	14.6	9.79	.	.	2.36	95
P6	1	72.1	8.59	2.59	26.3	3.4	20.8	2.92	2.5	3.3	3.51	60
S1	1	148.0	17.10	4.31	24.0	2.4	74.0	5.75	.	.	7.02	25
S2	1	159.0	17.90	4.52	13.4	1.6	74.4	15.50	2.1	5.6	7.78	25
S3	1	88.9	10.80	3.19	14.5	1.6	48.8	17.10	.	.	5.00	.
S4	1	104.0	17.10	2.32	12.9	1.5	38.3	20.40	5.9	10.7	5.08	40
S6	1	91.2	17.80	2.15	10.9	1.3	28.0	26.50	12.8	21.0	4.08	.
S8	1	121.0	18.50	2.37	10.5	1.3	40.1	48.00	33.2	52.0	.	.
S10	1	122.0	17.70	2.13	9.2	1.4	25.0	46.90	26.0	36.3	.	.
S12.5	1	108.0	19.90	1.61	31.9	1.2	25.6	50.50	44.3	65.9	3.80	60
S15	1	94.5	17.50	1.47	10.1	1.3	19.1	49.70	63.5	67.4	2.81	75
S17.5	1	86.8	15.10	1.16	8.5	1.4	14.2	48.70	60.0	62.8	2.56	80
S17.5	8	90.2	13.40	1.13	.	.	.	44.20	.	.	.	.
S20	1	60.9	10.40	0.77	12.6	1.5	10.5	39.00	79.9	37.8	1.91	125
S22.5	1	39.9	5.85	0.35	7.4	1.2	4.7	19.70	38.8	16.5	1.11	260
S25	1	21.0	3.01	0.46	6.7	1.2	2.6	5.22	12.7	5.0	0.85	300
S27.5	1	28.7	4.73	0.36	6.0	1.0	2.5	10.90	37.8	13.5	0.83	.
BR	1	26.1	3.75	0.28	7.1	1.1	3.9	6.53	26.3	9.0	0.74	.
CN	1	45.6	7.69	0.49	8.5	1.4	6.2	12.20	13.1	10.1	1.06	.
CH	1	33.9	5.87	0.39	7.7	1.5	4.3	13.50	32.8	8.3	0.68	.
COR	1	239.0	44.30	4.83	9.4	1.3	31.9	154.00	.	.	.	.
LER	1	517.0	89.20	.	7.2	1.0	108.5	280.00	.	.	.	.
MKR	1	438.0	71.60	5.46	9.5	1.4	95.0	205.00	.	.	.	.
MAR	1	346.0	56.40	2.94	8.3	1.1	49.2	156.00	.	.	.	.

10APR87

SALT-5: 23-25 March 1981

STA	DEPTH (m)	0.4 Micrometer Filtered Dissolved Metals (nanoMolar)											
		Mn	Fe-A	Fe-C	Fe-E	Co	Ni	Cu	Zn-A	Zn-E	Cd	Pb	As
P0	1	1601.8	1278.5	737.7	.	4.04	35.43	20.93	393.1	382.4	2.33	.	.
P1	1	3567.7	.	440.5	.	4.24	25.21	18.25	322.7	272.3	0.77	.	.
P2	1	2879.6	311.6	148.6	.	3.60	26.92	18.88	305.9	221.8	0.60	.	.
P3	1	3826.1	390.4	188.8	.	4.85	47.19	17.94	423.7	359.4	0.53	.	.
P4	1	4889.1	433.3	241.7	.	6.86	43.78	19.67	513.9	400.7	0.69	.	.
SK	1	.	.	.	.	.	.	.	.	.	.	.	.
P5	1	6856.9	1274.9	719.8	.	17.09	66.27	28.48	541.4	469.6	1.02	.	.
P6	1	6145.1	250.7	171.9	.	12.76	75.13	27.07	506.3	446.6	1.47	.	.
S1	1	4659.8	186.2	125.3	.	3.65	83.30	26.59	382.4	305.9	1.45	.	.
S2	1	3305.5	.	103.9	.	2.77	72.91	27.38	351.8	194.2	.	.	.
S3	1	560.6	.	290.1	.	2.43	67.63	28.48	409.8	208.0	1.23	.	.
S4	1	.	164.7	107.4	.	2.04	67.46	30.06	292.1	183.5	1.20	.	.
S6	1	436.9	82.4	66.3	.	1.61	61.84	24.55	119.3	81.1	0.87	.	.
S8	1	149.3	.	69.8	.	1.56	56.90	23.92	108.6	61.2	0.81	.	.
S10	1	69.2	114.6	69.8	.	0.97	45.14	21.40	100.9	.	0.66	.	.
S12.5	1	51.0	71.6	62.7	.	0.92	29.64	20.46	73.4	35.2	0.54	.	.
S15	1	27.3	85.9	60.9	.	0.98	28.28	18.41	42.8	.	0.47	.	.
S17.5	1	43.7	82.4	75.2	.	0.81	26.06	19.99	21.4	26.0	0.43	.	.
S17.5	8	.	.	.	.	.	.	.	.	.	.	.	.
S20	1	43.7	57.3	53.7	.	0.78	21.81	19.04	55.1	.	0.48	.	.
S22.5	1	21.8	60.9	55.5	.	0.75	21.98	15.42	32.1	15.3	0.48	.	.
S25	1	18.2	60.9	48.3	.	0.34	20.61	10.39	41.3	15.3	0.44	.	.
S27.5	1	21.8	.	43.0	.	0.34	16.87	9.44	27.5	22.9	0.45	.	.
BR	1	3.6	.	69.8	.	0.34	13.97	12.12	18.4	18.4	0.40	.	.
CM	1	32.8	.	41.2	.	.	10.05	7.08	27.5	27.5	0.41	.	.
CH	1	10.9	.	51.9	.	0.34	9.88	6.29	9.2<	13.8	0.38	.	.
COR	1	29.1	243.5	78.8	.	0.71	19.76	31.47	246.3	99.4	1.48	.	.
LER	1	51.0	311.6	229.2	.	0.80	13.63	26.12	39.8	30.6	0.93	.	.
MKR	1	29.1	691.2	401.1	.	1.09	11.58	17.47	15.3	32.1	1.33	.	.
MAR	1	21.8	476.3	198.8	.	1.19	11.93	21.87	82.6	36.7	0.89	.	.

Dissolved Metals (nanomolar) Versus Filter Size In Micrometers

STA	DEPTH (m)	Fe-A 0.1	Fe-A 0.2	Fe-A 0.4	Fe-A 1.0	Fe-C 0.1	Fe-C 0.2	Fe-C 0.4	Fe-C 1.0	Fe-E 0.1	Fe-E 0.2	Fe-E 0.4	Fe-E 1.0
P0	1	.	.	1278.5	.	343.8	608.8	737.7	.	.	.	.	.
P1	1	.	.	.	.	.	.	440.5	.	.	.	.	.
P2	1	.	.	311.6	.	.	.	148.6	.	.	.	.	.
P3	1	.	.	390.4	.	.	.	198.8	.	.	.	.	.
P4	1	.	.	433.3	.	.	.	241.7	.	.	.	.	.
SK	1	.	.	.	.	.	.	.	.	.	.	.	.
P5	1	.	.	1274.9	.	200.5	234.6	719.8	.	.	.	.	.
P6	1	.	.	250.7	.	.	109.2	171.9	.	.	.	.	.
S1	1	.	.	186.2	.	.	102.1	125.3	.	.	.	.	.
S2	1	.	.	.	.	93.1	93.1	103.9	.	.	.	.	.
S3	1	.	.	.	.	68.0	94.9	290.1	.	.	.	.	.
S4	1	.	.	164.7	.	.	.	107.4	.	.	.	.	.
S6	1	.	.	82.4	.	.	66.3	66.3	.	.	.	.	.
S8	1	.	.	.	.	.	69.8	69.8	.	.	.	.	.
S10	1	.	.	114.6	.	.	55.5	69.8	.	.	.	.	.
S12.5	1	.	.	71.6	.	.	.	62.7	.	.	.	.	.
S15	1	.	.	85.9	.	.	41.2	60.9	.	.	.	.	.
S17.5	1	.	.	82.4	.	.	53.7	75.2	.	.	.	.	.
S17.5	8	.	.	.	.	.	.	.	.	.	.	.	.
S20	1	.	.	57.3	.	.	41.2	53.7	.	.	.	.	.
S22.5	1	.	.	60.9	.	.	43.0	55.5	.	.	.	.	.
S25	1	.	.	60.9	.	.	43.0	48.3	.	.	.	.	.
S27.5	1	.	.	.	.	.	41.2	43.0	.	.	.	.	.
BR	1	.	.	.	.	.	34.0	69.8	.	.	.	.	.
CM	1	.	.	.	.	.	44.8	41.2	.	.	.	.	.
CH	1	.	.	.	.	.	51.9	51.9	.	.	.	.	.
COR	1	.	.	243.5	.	.	66.3	78.8	.	.	.	.	.
LER	1	.	.	311.6	.	.	60.9	229.2	.	.	.	.	.
MKR	1	.	.	691.2	.	.	35.8	401.1	.	.	.	.	.
MAR	1	.	.	476.3	.	.	62.7	198.8	.	.	.	.	.

SALT-5: 23-25 March 1981

Dissolved Metals (nanomolar) Versus Filter Size In Micrometers

STA	DEPTH (m)	Co				Ni				Cu				Cd			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
P0	1	.	.	4.04	.	.	.	35.43	.	.	.	20.93	.	.	.	2.33	.
P1	1	.	.	4.24	.	.	.	25.21	.	.	.	18.25	.	.	.	0.77	.
P2	1	.	.	3.60	.	.	.	26.82	.	.	.	18.88	.	.	.	0.60	.
P3	1	.	.	4.95	.	.	.	47.19	.	.	.	17.94	.	.	.	0.53	.
P4	1	.	.	6.96	.	.	.	43.78	.	.	.	19.67	.	.	.	0.69	.
SK	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
P5	1	.	.	17.09	.	.	.	66.27	.	.	.	28.48	.	.	.	1.02	.
P6	1	.	11.56	12.76	.	.	.	75.13	.	.	.	27.07	.	.	.	1.47	.
S1	1	.	.	3.65	.	.	.	83.30	.	.	.	26.59	.	.	.	1.45	.
S2	1	.	.	2.77	.	.	.	72.91	.	.	.	27.38	.	.	.	.	.
S3	1	.	2.39	2.43	.	.	.	67.63	.	.	.	28.48	.	.	.	1.23	.
S4	1	.	.	2.04	.	.	.	67.46	.	.	.	30.06	.	.	.	1.20	.
S6	1	.	1.64	1.61	.	.	.	61.84	.	.	.	24.55	.	.	.	0.87	.
S8	1	.	1.22	1.56	.	.	.	56.90	.	.	.	23.92	.	.	.	0.81	.
S10	1	.	0.98	0.97	.	.	.	45.14	.	.	.	21.40	.	.	.	0.66	.
S12.5	1	.	.	0.92	.	.	.	29.64	.	.	.	20.46	.	.	.	0.54	.
S15	1	.	0.71	0.96	.	.	.	28.28	.	.	.	18.41	.	.	.	0.47	.
S17.5	1	.	0.81	0.81	.	.	.	26.06	.	.	.	19.99	.	.	.	0.43	.
S17.5	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
S20	1	.	0.81	0.78	.	.	.	21.81	.	.	.	19.04	.	.	.	0.48	.
S22.5	1	.	0.87	0.75	.	.	.	21.98	.	.	.	15.42	.	.	.	0.48	.
S25	1	.	0.31	0.34	.	.	.	20.61	.	.	.	10.39	.	.	.	0.44	.
S27.5	1	.	.	0.34	.	.	.	16.87	.	.	.	9.44	.	.	.	0.45	.
BR	1	.	.	0.34	.	.	.	13.97	.	.	.	12.12	.	.	.	0.40	.
CM	1	.	.	.	.	.	.	10.05	.	.	.	7.08	.	.	.	0.41	.
CH	1	.	0.34	0.34	.	.	.	9.88	.	.	.	6.29	.	.	.	0.38	.
COR	1	.	0.68	0.71	.	.	.	19.76	.	.	.	31.47	.	.	.	1.48	.
LER	1	.	0.81	0.80	.	.	.	13.63	.	.	.	26.12	.	.	.	0.93	.
MKR	1	.	.	1.09	.	.	.	11.58	.	.	.	17.47	.	.	.	1.33	.
MAR	1	.	0.53	1.19	.	.	.	11.93	.	.	.	21.87	.	.	.	0.89	.

31MAR87

SALT-5: 23-25 March 1981

STA	DEPTH (m)	Particulate Metals (micromole/g-seston)								
		Al	Mn	Fe	Co	Ni	Cu	Zn	Cd	Ba	Pb
P0	1	.	.	.	.	.	.	.	.	.	.
P1	1	.	.	.	.	.	.	.	.	.	.
P2	1	.	.	.	.	.	.	.	.	.	.
P3	1	.	.	.	.	.	.	.	.	.	.
P4	1	.	.	.	.	.	.	.	.	.	.
SK	1	.	13.8	145	0.21	0.80	1.22	21.89	0.054	.	0.69
P5	1	.	.	.	.	.	.	.	.	.	.
P6	1	.	.	.	.	.	.	.	.	.	.
S1	1	.	28.0	261	0.10	0.88	0.60	5.61	0.013	.	0.46
S2	1	.	23.3	278	0.11	0.45	0.47	5.16	0.038	.	0.30
S3	1	.	16.4	202	0.10	0.79	0.34	4.07	0.002	.	0.40
S4	1	.	17.7	233	0.11	0.87	0.38	4.42	0.003	.	0.46
S6	1	.	18.9	253	0.13	0.52	0.54	5.08	0.008	.	0.48
S8	1	.	22.0	200	0.04	0.26	0.21	4.02	0.004	.	0.28
S10	1	.	.	.	.	.	.	.	.	.	.
S12.5	1	.	17.8	169	0.09	0.33	0.33	4.57	0.005	.	0.26
S15	1	.	18.4	184	0.10	0.48	0.19	5.49	0.006	.	0.25
S17.5	1	.	13.8	110	0.14	0.62	0.50	3.64	0.024	.	0.31
S17.5	8	.	.	.	.	.	.	.	.	.	.
S20	1	.	11.1	95	0.07	0.17	0.46	3.57	0.000	.	0.16
S22.5	1	.	4.4	63	0.04	0.00	0.02	1.90	0.000	.	0.04
S25	1	.	13.8	110	0.00	0.00	1.77	2.43	0.002	.	0.04
S27.5	1	.	11.8	91	0.00	0.00	0.00	2.72	0.173	.	0.01
BR	1	.	8.0	99	0.02	0.17	0.16	1.29	0.000	.	0.11
CM	1	.	7.8	141	0.05	0.00	0.00	2.21	0.015	.	0.23
CH	1	.	8.4	109	0.01	0.09	0.29	2.74	0.009	.	0.17
COR	1	.	18.0	178	0.09	0.81	0.23	10.78	0.000	.	0.42
LER	1	.	16.6	226	0.06	0.39	0.39	5.12	0.005	.	0.21
MKR	1	.	16.7	202	0.07	0.52	0.27	4.89	0.003	.	0.31
MAR	1	.	14.9	167	0.05	0.40	0.72	7.24	0.010	.	0.30

31MAR87

SALT-B: 23-28 March 1981

STA	DEPTH (m)	CAST TYPE	DATE (mm/dd/yy)	LOCAL TIME	LATITUDE (deg min)	LONGITUDE (deg min)	DISTANCE TO CAPES (km)	WATER DEPTH (m)
P0	1	CTD	03/24/81	0715	40 10.7 N	74 43.9 W	209.8	7.0
P1	1	CTD	03/24/81	0827	40 5.0 N	74 51.6 W	190.3	15.0
P2	1	CTD	03/24/81	0920	40 0.8 N	75 2.1 W	172.8	15.0
P3	1	CTD	03/24/81	1002	39 57.0 N	75 8.1 W	160.8	15.0
P4	1	CTD	03/24/81	1030	39 54.2 N	75 7.8 W	155.6	12.0
SK	1	CTD	03/24/81	1123	39 55.1 N	75 12.1 W	.	12.0
P5	1	CTD	03/24/81	1217	39 52.7 N	75 11.9 W	148.1	11.0
P6	1	CTD	03/24/81	1311	39 51.0 N	75 19.6 W	136.2	13.0
S1	1	CTD	03/24/81	1432	39 44.6 N	75 29.4 W	117.8	8.5
S2	1	CTD	03/24/81	1507	39 41.1 N	75 31.0 W	110.4	15.0
S3	1	CTD	03/24/81	1537	39 38.9 N	75 32.9 W	105.5	16.0
S4	1	CTD	03/24/81	1622	39 38.3 N	75 33.8 W	103.8	10.0
S6	1	CTD	03/24/81	1718	39 33.1 N	75 32.4 W	82.8	15.0
S8	1	CTD	03/24/81	1820	39 27.5 N	75 33.1 W	82.7	12.0
S10	1	CTD	03/24/81	1904	39 21.9 N	75 27.5 W	68.5	10.0
S12.5	1	CTD	03/25/81	0647	39 20.4 N	75 25.8 W	64.1	11.0
S15	1	CTD	03/25/81	0727	39 16.6 N	75 21.2 W	54.7	14.0
S17.5	1	CTD	03/25/81	0801	39 13.3 N	75 17.7 W	47.0	11.0
S17.5	8	CTD	03/25/81	0801	39 13.3 N	75 17.7 W	47.0	11.0
S20	1	CTD	03/25/81	0834	39 11.0 N	75 16.3 W	42.3	11.0
S22.5	1	CTD	03/25/81	0912	39 7.9 N	75 13.7 W	35.5	9.0
S25	1	CTD	03/25/81	0938	39 6.2 N	75 12.2 W	31.7	.
S27.5	1	CTD	03/25/81	1026	39 1.1 N	75 8.9 W	21.2	13.0
BR	1	CTD	03/25/81	1108	38 55.4 N	75 5.8 W	9.7	14.0
CM	1	CTD	03/25/81	1151	38 55.5 N	74 58.3 W	11.7	12.0
CH	1	CTD	03/25/81	1249	38 49.3 N	75 2.5 W	-2.6	31.0
COR	1	Copter	03/25/81	1214	39 20.1 N	75 21.7 W	60.8	.
LER	1	Copter	03/25/81	1223	39 13.9 N	75 22.2 W	51.1	.
MKR	1	Copter	03/25/81	1235	39 3.5 N	75 23.6 W	37.8	.
MAR	1	Copter	03/25/81	1253	39 12.8 N	75 1.6 W	41.3	.

31MAR87

SALT-6: 4-6 May 1981

STA	DEPTH (m)	SALINITY (ppt)	CL (uM)	TEMP (C)	O2 (uM)	% O2 SAT	pH (25C)	ALK (ueq/L)	PO4 (uM)	NO3 (uM)	NO2 (uM)	NH4 (uM)	SI (uM)	DOC (uM)	DON (uM)	DOP (uM)
P5	1	0.019	717	15.60	115.0	37	6.734	544S	1.72	57.20	4.01	56.40	12.60	353	20	0.68
S0	1	0.025	779	15.77	149.5	48	6.764	532S	1.72	63.90	5.21	58.00	18.70	360	35	0.52
S1	1	0.344	5265	15.72	156.5	51	6.838	610S	1.43	110.00	11.50	15.30	27.30	342	47	0.44
S2	1	1.492	22841	15.74	185.5	61	6.904	636S	1.43	107.00	12.00	15.50	30.90	353	182	0.38
S3	1	2.857	.	15.70	214.5	71	7.012	670S	1.27	101.00	10.90	15.20	34.30	330	85	0.38
S4	1	4.629	.	15.40	229.0	76	7.116	768S	1.30	92.80	9.87	14.60	35.90	332	54	0.41
S5	1	5.538	.	15.42	238.0	79	7.194	798S	1.06	82.10	9.06	15.40	34.20	308	52	0.49
S6	1	6.432	.	15.22	244.0	81	7.260	840S	1.00	78.60	8.35	15.50	34.10	318	32	0.33
S8	1	8.248	.	15.12	257.0	86	7.416	929S	0.84	70.30	7.27	15.00	30.70	289	52	0.49
S10	1	10.803	.	15.48	266.5	92	7.606	1045S	0.68	47.10	5.17	10.30	25.80	268	41	0.44
S12.5	1	14.131	.	15.02	334.0	116	8.186	1200S	0.31	40.40	3.70	5.80	19.70	293	32	0.54
S15	1	16.382	.	14.84	328.0	115	8.221	1317S	0.15	29.80	2.84	2.25	15.90	280	39	0.60
XB1	1	18.284	.	14.78C	376.0	133	8.539	1420S	0.04	19.30	1.50	0.17	0.95	271	39	0.49
XB2	1	15.204	.	14.50C	288.5	100	8.021	1252S	0.28	53.00	3.47	5.36	21.90	265	46	0.57
S17.5	1	18.129	.	14.26	302.5	106	8.187	1410S	0.08	30.30	2.12	2.42	15.70	264	35	0.67
S20	1	20.976	.	13.94	306.5	109	8.262	1556S	0.05	16.20	1.18	1.38	7.09	231	38	0.54
S25	1	25.224	.	13.54	330.5	119	8.314	1817S	0.08	0.62	0.17	0.72	1.01	208	16	0.56
S27.5	1	27.398	.	13.16	302.5	110	8.209	1935S	0.13	0.20	0.02	0.30	2.18	195	12	0.51
LB1	1	23.407	.	14.62	361.0	132	8.558	1724S	0.16	0.25	0.03	0.46	0.47	314	23	0.91
LB2	1	22.416	.	.	382.0	.	8.630	1658S	0.16	0.48	0.02	0.00	0.78	382	34	0.53
LB3	1	20.976	.	.	320.0	.	8.444	1558S	0.21	0.14	0.02	0.07	0.62	318	31	0.64
LB4	1	17.138	.	.	269.0	.	7.977	1336S	0.26	4.88	0.27	2.06	16.40	337	38	0.75
LB6	1	21.900	.	14.90B	348.5	127	8.504	1609S	0.10	0.27	0.03	0.29	0.86	328	28	0.70
LB7	1	20.278	.	15.30B	283.0	103	8.222	1490S	0.26	0.25	0.03	0.33	2.41	350	33	0.86
LB8	1	21.934	.	14.90B	292.0	106	8.333	1607S	0.18	0.14	0.02	1.41	0.62	334	27	0.78
LB9	1	23.098	.	14.50B	272.0	99	7.952	1660S	0.16	0.04	0.02	0.29	2.88	272	27	0.75
LB10	1	19.579	.	15.60B	260.5	95	7.667	1476S	0.16	0.27	0.11	3.34	8.96	381	36	0.80
BR	1	28.034	.	13.21	285.0	104	8.145	1945S	0.21	0.93	0.02	1.30	0.96	207	9	0.48
CH	1	32.387	.	11.77	268.0	97	7.946	2198S	0.47	0.18	0.08	0.48	1.97	131	8	.

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SALT-6: 4-6 May 1981

STA	DEPTH (m)	PC (uM)	PN (uM)	PP (uM)	HUMIC ACID C (uM)	HUMIC ACID N (uM)	SESTON (mg/L)	Chl-a (ug/L)	APROD (mmol C/ sq m/day)	VPROD (umol C/ L/day)	LIGHT ATTEN -K(/m)	SECCHI DEPTH (cm)
PS	1	33.9	8.66	2.03	17.0	2.6	8.7	32.80	52.2	49.4	2.32	.
S0	1	70.6	17.50	2.08	13.3	1.7	13.0	39.20	64.6	63.7	2.38	.
S1	1	166.0	21.70	3.62	16.8	2.3	51.5	26.10	17.3	44.3	5.80	.
S2	1	119.0	16.80	2.21	12.3	1.7	31.4	14.70	17.0	30.0	3.53	.
S3	1	63.5	9.58	1.83	11.6	1.6	30.6	11.00	.	.	3.04	.
S4	1	128.0	16.50	2.81	9.0	1.3	54.9	10.90	7.7	26.0	6.00	.
S5	1	60.0	10.30	1.84	10.0	1.6	38.2	10.20	.	.	3.36	.
S6	1	101.0	17.10	2.13	13.0	2.1	40.0	12.20	19.8	33.7	3.28	.
S8	1	84.8	14.70	1.52	10.6	1.5	32.6	14.30	14.1	53.3	6.28	.
S10	1	71.2	12.20	1.87	12.0	1.7	25.1	27.50	49.1	100.0	3.12	.
S12.5	1	82.3	17.10	1.61	14.8	1.9	14.7	43.30	99.4	95.3	1.83	.
S15	1	103.0	18.50	1.53	16.3	3.0	17.1	46.90	64.7	103.0	2.26	.
XB1	1	145.0	27.20	1.74	15.2	2.5	15.1	63.70	48.7	62.1	2.70	.
XB2	1	183.0	30.40	3.88	12.5	1.2	87.5	55.30	11.6	82.7	9.34	.
S17.5	1	80.8	13.10	1.22	14.7	2.6	20.2	33.60	59.9	87.6	2.40	.
S20	1	76.2	16.60	1.18	14.6	1.9	16.9	38.40	72.1	85.2	2.10	.
S28	1	48.6	7.77	0.57	16.2	2.0	7.4	18.60	35.6	21.4	1.21	.
S27.5	1	27.4	4.62	0.38	15.0	1.5	3.3	10.40	31.1	13.3	0.90	.
LB1	1	109.0	17.40	0.98	20.2	3.4	13.8	57.70	78.1	49.5	1.44	.
LB2	1	158.0	25.90	1.05	17.1	2.0	22.7	58.90	38.0	38.6	1.73	.
LB3	1	112.0	18.60	1.19	21.6	2.2	15.3	32.60	42.2	44.7	1.90	.
LB4	1	182.0	23.80	2.40	17.2	2.7	24.5	60.70	76.2	108.0	2.64	.
LB6	1	138.0	15.60	0.80	20.8	2.2	9.8	33.00	23.4	12.2	1.47	.
LB7	1	171.0	29.30	1.62	25.1	4.8	21.3	62.50	59.5	71.2	2.80	.
LB8	1	122.0	19.60	1.04	27.5	2.8	10.6	38.40	22.1	17.5	1.90	.
LB9	1	119.0	17.90	1.90	14.4	1.8	9.5	48.10	48.3	63.5	2.78	.
LB10	1	125.0	24.90	1.60	20.1	2.6	18.6	38.40	.	.	3.98	.
BR	1	62.7	9.79	0.45	11.3	1.9	6.5	16.80	45.9	19.3	.	.
CH	1	37.2	3.77	0.73	7.2	1.2	6.7	2.69	34.9	11.5	.	.

STA	DEPTH (m)	0.4 Micrometer Filtered Dissolved Metals (nanomolar)											
		Mn	Fe-A	Fe-C	Fe-E	Co	Ni	Cu	Zn-A	Zn-E	Cd	Pb	As
P5	1	3181.8	1464.7	485.3	501.4	4.99	68.48	26.44	255.4	186.6	1.02	.	.
S0	1	4346.7	218.5	146.8	171.9	4.89	74.11	27.22	295.2	166.7	0.81	.	.
S1	1	5355.1	154.0	78.8	82.4	1.80	75.30	28.33	301.3	183.5	0.73	.	.
S2	1	5449.8	.	80.6	100.3	1.39	80.75	23.60	287.5	189.7	0.72	.	.
S3	1	4783.6	.	96.7	82.4	1.20	80.41	23.29	354.8	201.9	.	.	.
S4	1	3338.3	300.8	80.6	80.6	0.68	66.61	21.24	227.9	169.8	0.73	.	.
S5	1	2016.8	229.2	73.4	80.6	0.85	65.08	23.13	180.5	165.2	0.62	.	.
S6	1	557.0	200.5	68.0	89.5	0.76	57.41	17.78	134.6	128.5	0.53	.	.
S8	1	469.6	193.4	60.9	55.5	1.56	58.26	19.20	122.4	117.8	0.48	.	.
S10	1	91.0	68.0	80.6	98.5	0.71	41.74	18.41	119.3	61.2	0.32	.	.
S12.5	1	29.1	77.0	59.1	43.0	0.76	35.43	17.94	48.9	26.0	0.32	.	.
S15	1	40.0	32.2	19.7	30.4	1.49	34.41	18.10	18.4	27.5	0.33	.	.
XB1	1	32.8	21.5	25.1	25.1	0.87	30.15	18.73	15.3	22.9	0.36	.	.
XB2	1	32.8	154.0	100.3	107.4	1.31	32.37	22.50	33.5	33.6	0.26	.	.
S17.5	1	54.6	111.0	75.2	64.5	1.37	29.30	15.58	21.4	19.9	0.28	.	.
S20	1	18.2	103.9	51.9	55.5	1.26	12.10	11.33	67.3	18.4	0.28	.	.
S25	1	.	.	64.5	55.5	1.22	10.05	10.54	45.9	13.8	0.15	.	.
S27.5	1	51.0	.	71.6	85.9	1.34	8.86	8.50	68.8	15.3	0.16	.	.
LB1	1	81.0	39.4	51.9	23.3	0.75	10.56	15.26	27.5	13.8	0.68	.	.
LB2	1	40.0	103.9	100.3	73.4	0.46	10.05	6.92	32.1	12.2	0.20	.	.
LB3	1	149.3	93.1	77.0	64.5	1.56	16.87	15.26	.	13.8	0.47	.	.
LB4	1	1321.5	121.8	120.0	150.4	3.82	39.18	15.42	33.6	32.1	0.37	.	.
LB6	1	.	.	.	.	.	.	.	.	.	.	.	.
LB7	1	138.3	100.3	98.5	94.9	1.36	24.87	15.89	45.9	27.5	0.30	.	.
LB8	1	51.0	100.3	77.0	48.3	0.92	18.57	15.26	.	18.4	0.19	.	.
LB9	1	21.8	179.1	150.4	150.4	0.17	18.57	12.27	45.9	35.2	0.35	.	.
LB10	1	284.0	.	127.1	114.6	1.60	30.49	11.49	30.6	41.3	0.29	.	.
BR	1	51.0	.	44.8	59.1	1.27	9.71	9.13	9.2	12.2	0.10	.	.
CH	1	36.4	.	68.0	64.5	0.29	5.79	6.14	9.2	15.3	0.19	.	.

10APR87 SALT-6: 4-6 May 1981

STA	DEPTH (m)	Dissolved Metals (nanomolar) Versus Filter Size In Micrometers											
		Fe-A				Fe-C				Fe-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
PS	1	.	.	1464.7	.	231.0	.	485.3	.	247.1	.	501.4	.
S0	1	.	.	218.5	.	109.2	.	146.8	.	112.8	.	171.9	.
S1	1	.	.	154.0	.	71.6	.	78.8	.	53.7	.	82.4	.
S2	1	.	.	.	.	60.9	.	80.6	.	80.6	.	100.3	.
S3	1	.	.	.	.	98.5	.	96.7	.	82.4	.	82.4	.
S4	1	.	.	300.8	.	53.7	.	80.6	.	46.6	.	80.6	.
S5	1	.	.	228.2	.	64.5	.	73.4	.	35.8	.	80.6	.
S6	1	.	.	200.5	.	69.8	.	68.0	.	80.6	.	89.5	.
S8	1	.	.	193.4	.	37.6	.	60.9	.	35.8	.	55.5	.
S10	1	.	.	68.0	.	62.7	.	80.6	.	50.1	.	98.5	.
S12.5	1	.	.	77.0	.	59.1	.	59.1	.	35.8	.	43.0	.
S15	1	.	.	32.2	.	14.3	.	19.7	.	35.8	.	30.4	.
XB1	1	.	.	21.5	.	12.5	.	25.1	.	12.5	.	25.1	.
XB2	1	.	.	154.0	.	48.3	.	100.3	.	25.1	.	107.4	.
S17.5	1	.	.	111.0	.	59.1	.	75.2	.	25.1	.	64.5	.
S20	1	.	.	103.9	.	46.6	.	51.9	.	35.8	.	55.5	.
S25	1	.	.	.	.	53.7	.	64.5	.	43.0	.	55.5	.
S27.5	1	.	.	.	.	71.6	.	71.6	.	.	.	85.9	.
LB1	1	.	.	39.4	.	.	.	51.9	.	26.9	.	23.3	.
LB2	1	.	.	103.9	.	48.3	.	100.3	.	19.7	.	73.4	.
LB3	1	.	.	93.1	.	50.1	.	77.0	.	55.5	.	64.5	.
LB4	1	.	.	121.8	.	64.5	.	120.0	.	59.1	.	150.4	.
LB6	1	.	.	.	.	.	.	.	.	.	.	.	.
LB7	1	.	.	100.3	.	.	.	98.5	.	48.3	.	94.9	.
LB8	1	.	.	100.3	.	51.9	.	77.0	.	25.1	.	48.3	.
LB9	1	.	.	179.1	.	64.5	.	150.4	.	55.5	.	150.4	.
LB10	1	.	.	.	.	43.0	.	127.1	.	17.9	.	114.6	.
BR	1	.	.	.	.	25.1	.	44.8	.	25.1	.	59.1	.
CH	1	.	.	.	.	.	.	68.0	.	.	.	64.5	.

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SALT-6: 4-6 May 1981

Dissolved Metals (nanomolar) Versus Filter Size In Micrometers

STA	DEPTH (m)	Mn				Zn-A				Zn-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
P5	1	.	.	3181.8	.	.	.	255.4	.	154.5	.	186.6	.
S0	1	.	.	4346.7	.	.	.	295.2	.	169.8	.	166.7	.
S1	1	.	.	5355.1	.	.	.	301.3	.	185.1	.	183.5	.
S2	1	.	.	5449.8	.	.	.	287.5	.	191.2	.	189.7	.
S3	1	.	.	4783.6	.	.	.	354.8	.	212.6	.	201.9	.
S4	1	.	.	3338.3	.	.	.	227.9	.	160.6	.	169.8	.
S5	1	.	.	2016.8	.	.	.	180.5	.	156.0	.	165.2	.
S6	1	.	.	557.0	.	.	.	134.6	.	107.1	.	128.5	.
S8	1	.	.	469.6	.	.	.	122.4	.	93.3	.	117.8	.
S10	1	.	.	91.0	.	.	.	119.3	.	62.7	.	61.2	.
S12.5	1	.	.	29.1	.	.	.	48.9	.	29.1	.	26.0	.
S15	1	.	.	40.0	.	.	.	18.4	.	.	.	27.5	.
XB1	1	.	.	32.8	.	.	.	15.3	.	19.9	.	22.9	.
XB2	1	.	.	32.8	.	.	.	33.6	.	.	.	33.6	.
S17.5	1	.	.	54.6	.	.	.	21.4	.	.	.	19.9	.
S20	1	.	.	18.2	.	.	.	67.3	.	.	.	18.4	.
S25	1	.	.	.	.	.	.	45.9	.	.	.	13.8	.
S27.5	1	.	.	51.0	.	.	.	68.8	.	16.8	.	15.3	.
LB1	1	.	.	91.0	.	.	.	27.5	.	10.7	.	13.8	.
LB2	1	.	.	40.0	.	.	.	32.1	.	10.7	.	12.2	.
LB3	1	.	.	149.3	.	.	.	.	.	10.7	.	13.8	.
LB4	1	.	.	1321.5	.	.	.	33.6	.	29.1	.	32.1	.
LB6	1	.	.	.	.	.	.	.	.	.	.	.	.
LB7	1	.	.	138.3	.	.	.	45.9	.	26.0	.	27.5	.
LB8	1	.	.	51.0	.	.	.	.	.	13.8	.	18.4	.
LB9	1	.	.	21.8	.	.	.	45.9	.	29.1	.	35.2	.
LB10	1	.	.	284.0	.	.	.	30.6	.	.	.	41.3	.
BR	1	.	.	51.0	.	.	.	9.2	.	.	.	12.2	.
CH	1	.	.	36.4	.	.	.	9.2	.	.	.	15.3	.

Dissolved Metals (nanomolar) Versus Filter Size In Micrometers

STA	DEPTH (m)	Co				Ni				Cu				Cd			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
P5	1	3.99	.	4.99	.	.	.	68.48	.	24.08	.	26.44	.	.	.	1.02	.
S0	1	.	.	4.89	.	.	.	74.11	.	23.13	.	27.22	.	.	.	0.81	.
S1	1	.	.	1.80	.	.	.	75.30	.	29.90	.	28.33	.	.	.	0.73	.
S2	1	0.68	.	1.39	.	.	.	80.75	.	23.29	.	23.60	.	.	.	0.72	.
S3	1	1.12	.	1.20	.	.	.	80.41	.	24.39	.	23.29	.	.	.	.	.
S4	1	0.17	.	0.68	.	.	.	66.61	.	20.61	.	21.24	.	.	.	0.73	.
S5	1	0.51	.	0.85	.	.	.	65.08	.	20.14	.	23.13	.	.	.	0.62	.
S6	1	0.59	.	0.76	.	.	.	57.41	.	17.78	.	17.78	.	.	.	0.53	.
S8	1	1.90	.	1.56	.	.	.	58.26	.	19.20	.	19.20	.	.	.	0.48	.
S10	1	.	.	0.71	.	.	.	41.74	.	17.47	.	18.41	.	.	.	0.32	.
S12.5	1	0.71	.	0.76	.	.	.	35.43	.	19.20	.	17.94	.	.	.	0.32	.
S15	1	1.04	.	1.49	.	.	.	34.41	.	.	.	18.10	.	.	.	0.33	.
XB1	1	.	.	0.87	.	.	.	30.15	.	11.02	.	18.73	.	.	.	0.36	.
XB2	1	0.34	.	1.31	.	.	.	32.37	.	.	.	22.50	.	.	.	0.26	.
S17.5	1	.	.	1.37	.	.	.	29.30	.	17.78	.	15.58	.	.	.	0.28	.
S20	1	1.14	.	1.26	.	.	.	12.10	.	10.39	.	11.33	.	.	.	0.28	.
S25	1	.	.	1.22	.	.	.	10.05	.	10.54	.	10.54	.	.	.	0.15	.
S27.5	1	.	.	1.34	.	.	.	8.86	.	.	.	8.50	.	.	.	0.16	.
LB1	1	0.17	.	0.75	.	.	.	10.56	.	15.26	.	15.26	.	.	.	0.68	.
LB2	1	0.32	.	0.46	.	.	.	10.05	.	6.29	.	6.92	.	.	.	0.20	.
LB3	1	.	.	1.56	.	.	.	16.87	.	13.06	.	15.26	.	.	.	0.47	.
LB4	1	4.29	.	3.82	.	.	.	39.18	.	17.94	.	15.42	.	.	.	0.37	.
LB6	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LB7	1	1.49	.	1.36	.	.	.	24.87	.	12.75	.	15.89	.	.	.	0.30	.
LB8	1	0.41	.	0.92	.	.	.	18.57	.	13.22	.	15.26	.	.	.	0.19	.
LB9	1	.	.	0.17	.	.	.	18.57	.	11.49	.	12.27	.	.	.	0.35	.
LB10	1	.	.	1.60	.	.	.	30.49	.	.	.	11.49	.	.	.	0.29	.
BR	1	1.09	.	1.27	.	.	.	9.71	.	.	.	9.13	.	.	.	0.10	.
CH	1	.	.	0.29	.	.	.	5.79	.	.	.	6.14	.	.	.	0.19	.

31MAR87

SALT-6: 4-6 May 1981

STA	DEPTH (m)	CAST TYPE	DATE (mm/dd/yy)	LOCAL TIME	LATITUDE (deg min)	LONGITUDE (deg min)	DISTANCE TO CAPES (km)	WATER DEPTH (m)
P5	1	CTD	05/05/81	0652	39 52.7 N	75 12.0 W	148.0	11.2
S0	1	CTD	05/05/81	0744	39 51.0 N	75 19.7 W	136.0	9.1
S1	1	CTD	05/05/81	0923	39 39.6 N	75 32.3 W	107.0	12.2
S2	1	CTD	05/05/81	1005	39 35.6 N	75 34.0 W	98.0	11.8
S3	1	CTD	05/05/81	1046	39 32.8 N	75 32.7 W	92.2	11.5
S4	1	CTD	05/05/81	1123	39 31.1 N	75 32.9 W	89.1	15.8
S5	1	CTD	05/05/81	1234	39 31.9 N	75 32.7 W	90.6	15.7
S6	1	CTD	05/05/81	1301	39 31.3 N	75 32.8 W	89.5	15.8
S8	1	CTD	05/05/81	1342	39 30.0 N	75 33.4 W	86.9	12.8
S10	1	CTD	05/05/81	1450	39 24.9 N	75 31.0 W	76.0	14.5
S12.5	1	CTD	05/05/81	1536	39 21.3 N	75 26.8 W	66.2	12.5
S15	1	CTD	05/05/81	1649	39 16.3 N	75 20.6 W	53.8	14.0
XB1	1	CTD	05/05/81	1719	39 16.2 N	75 17.6 W	51.8	3.9
XB2	1	CTD	05/05/81	1810	39 16.3 N	75 22.4 W	55.1	5.0
S17.5	1	CTD	05/06/81	1007	39 13.7 N	75 18.4 W	48.1	11.6
S20	1	CTD	05/06/81	1049	39 11.6 N	75 16.6 W	43.5	17.4
S25	1	CTD	05/06/81	1135	39 8.6 N	75 14.2 W	37.0	14.0
S27.5	1	CTD	05/06/81	1218	39 6.5 N	75 12.4 W	32.4	15.4
LB1	1	CTD	05/06/81	1408	39 7.7 N	75 3.3 W	31.8	4.8
LB2	1	Boat	05/06/81	1330	39 9.0 N	75 4.4 W	34.2	.
LB3	1	Boat	05/06/81	1345	39 10.7 N	75 2.4 W	37.4	.
LB4	1	Boat	05/06/81	1400	39 12.4 N	75 2.7 W	40.5	.
LB6	1	Boat	05/06/81	1547	39 6.4 N	75 2.0 W	29.4	.
LB7	1	Boat	05/06/81	1715	39 10.0 N	75 0.0 W	36.4	.
LB8	1	Boat	05/06/81	1554	39 5.2 N	75 0.0 W	27.6	.
LB9	1	Boat	05/06/81	1616	39 5.2 N	74 56.5 W	28.9	.
LB10	1	Boat	05/06/81	1644	39 9.0 N	74 56.0 W	35.8	.
BR	1	CTD	05/06/81	2103	38 59.1 N	75 7.2 W	16.8	15.0
CH	1	CTD	05/06/81	2221	38 48.7 N	75 2.7 W	-3.5	31.0

31MAR87

SALT-7: 29 June-1 July 1981

STA	DEPTH (m)	SALINITY (ppt)	CL (uM)	TEMP (C)	O2 (uM)	% O2 SAT	pH (25C)	ALK (ueq/L)	PO4 (uM)	NO3 (uM)	NO2 (uM)	NH4 (uM)	SI (uM)	DOC (uM)	DON (uM)	DOP (uM)
PS	1	0.038	737	25.39	50.0	20	6.811	871	3.75	98.10	7.61	47.60	6.61	414	124	0.71
S0	1	0.035	752	25.51	64.0	25	6.755	648	2.86	156.00	6.36	7.33	3.14	367	115	0.52
S1	1	1.044	15983	25.22	177.5	70	7.020	565	2.43	156.00	0.70	5.83	35.80	321	130	0.14
S2	1	2.084	32402	25.22	195.5	77	7.129	602	2.10	139.00	0.50	2.90	43.10	329	88	0.41
S3	1	3.561	55529	24.84	200.0	79	7.217	665	1.86	128.00	0.43	1.42	46.00	763	46	0.39
S4	1	4.372	.	24.74	205.0	81	7.261	702	2.02	125.00	0.50	2.50	46.30	295	45	0.49
S5	1	5.782	.	24.73	206.5	82	7.315	783	1.81	116.00	0.50	1.60	45.10	301	59	0.44
S6	1	7.453	.	24.58	214.5	86	7.428	875	1.97	111.00	0.52	2.25	45.30	302	39	0.44
S10	1	10.134	.	24.61	207.5	85	7.460	1014	1.94	98.40	0.59	1.63	43.60	286	32	0.57
S10	6	10.736	.	24.44C	204.5	84	7.480	1042	2.07	95.60	0.65	2.44	41.80	282	26	0.61
S12.5	1	12.767	.	24.46	212.5	88	7.594	1151	1.88	86.60	0.72	2.34	38.60	266	28	0.30
S15	1	15.043	.	24.27	223.5	93	7.704	1275	1.67	78.40	0.78	2.28	33.10	267	18	0.79
S15	11	16.781	.	23.89C	203.0	85	7.650	1362	1.51	69.70	0.85	3.39	29.40	255	33	0.63
S17.5	1	17.574	.	24.17	231.0	98	7.799	1404	1.40	64.80	1.02	2.96	27.00	257	36	0.90
S20	1	19.972	.	23.75	223.0	95	7.812	1529	1.24	55.70	1.15	3.39	22.20	238	32	0.63
S22.5	1	22.758	.	23.29	232.5	100	7.889	1674	0.97	41.80	1.16	2.71	16.10	222	29	0.57
S25	1	25.066	.	22.77	233.5	101	7.913	1793	0.84	29.40	1.08	1.76	11.70	221	50	0.76
S27.5	1	27.415	.	22.05	227.0	98	7.896	1918	0.57	17.80	0.91	3.92	8.28	161	13	0.71
CM	1	29.831	.	20.34	219.5	93	7.850	2039	0.57	9.83	0.85	4.20	6.79	164	10	1.30
BR	1	29.195	.	20.80	225.5	96	7.885	2013	0.57	11.10	0.75	4.20	6.75	151	13	1.14
CH	1	32.318	.	17.00	243.5	98	7.934	2190	0.54	1.60	0.18	1.03	4.49	117	10	0.79
LB1	1	25.307	.	22.57	215.0	92	7.828	1808	0.46	28.30	1.47	5.71	8.91	216	64	0.60
LB2	1	24.827	.	24.40B	219.5	97	7.813	1773	0.40	30.00	1.79	6.33	7.43	232	45	0.77
LB3	1	23.857	.	24.40B	220.5	97	7.815	1722	0.40	36.60	1.99	4.64	7.61	217	33	0.82
LB4	1	24.198	.	23.90B	208.5	91	7.777	1741	0.40	35.10	1.93	5.16	7.97	216	51	0.88
LB5	1	24.371	.	22.80B	209.5	90	7.718	1722	0.60	38.50	1.93	5.50	6.16	230	62	0.84
LB6	1	26.550	.	22.30	214.5	92	7.805	1859	0.60	24.40	1.59	5.54	7.79	210	31	0.94
LB7	1	25.199	.	23.70B	229.5	101	7.775	1800	1.36	37.90	3.76	4.64	19.20	320	96	0.89
LB8	1	26.992	.	23.20B	228.5	100	7.860	1889	0.80	20.50	1.37	4.58	14.20	270	43	0.91
LB9	1	28.145	.	23.30B	228.0	101	7.892	1948	1.16	16.00	0.80	2.10	16.90	253	26	0.38
LB10	1	28.446	.	22.90B	207.5	91	7.687	1783	0.60	5.87	1.98	7.47	20.10	333	38	1.48
LB11	1	29.486	.	22.20B	229.5	100	7.957	2015	0.60	5.72	0.56	1.41	9.10	207	39	0.89
LB12	1	29.631	.	23.10B	213.0	95	7.942	2022	0.68	1.73	0.32	1.58	15.90	231	31	0.81

STA	DEPTH (m)	PC (uM)	PN (uM)	PP (uM)	HUMIC ACID C (uM)	HUMIC ACID N (uM)	SESTON (mg/L)	Chl-a (ug/L)	APROD (mmol C/ sq m/day)	VPROD (umol C/ L/day)	LIGHT ATTEN -K(/m)	SECCHI DEPTH (cm)
P5	1	47.8	8.58	1.30	29.4	4.6	8.8	21.10	65.3	74.7	2.38	125
S0	1	94.7	13.80	2.62	17.3	2.2	36.5	8.97	24.7	23.9	2.34	50
S1	1	160.0	16.10	3.69	13.5	1.4	71.3	8.16	28.4	47.4	.	.
S2	1	118.0	5.80	2.86	13.8	0.9	57.5	11.40	31.2	50.9	.	.
S3	1	83.9	5.30	1.62	9.7	1.0	39.1	9.38	.	.	5.27	40
S4	1	75.4	6.47	1.24	10.5	1.1	28.8	2.86	24.5	48.0	4.41	45
S5	1	115.0	7.40	1.40	13.8	0.8	34.2	1.38	.	.	3.23	50
S6	1	60.3	5.77	0.90	15.1	1.0	21.4	1.51	45.3	58.1	2.70	70
S10	1	152.0	11.40	2.56	9.8	0.8	63.7	2.22	16.4	53.0	5.07	35
S10	5	197.0	17.70	3.54	13.6	1.1	.	4.70	15.2	38.3	.	.
S12.5	1	108.0	7.06	0.77	8.4	1.0	21.5	5.44	58.5	60.1	1.94	70
S15	1	86.5	6.06	0.79	10.4	1.0	16.1	5.30	104.0	79.5	1.52	80
S15	11	88.6	7.12	1.33	12.6	0.8	.	2.61	81.4	68.9	.	.
S17.5	1	84.3	6.42	0.60	12.2	0.9	9.9	8.56	112.0	99.2	1.54	100
S20	1	48.3	7.55	0.61	16.3	1.6	11.1	4.08	108.0	88.0	.	125
S22.5	1	45.0	5.45	0.62	9.5	0.7	10.4	7.89	133.0	131.0	.	125
S25	1	68.4	11.20	0.72	11.5	1.4	9.7	7.75	108.0	82.6	1.29	.
S27.5	1	40.5	8.43	0.52	10.0	1.5	7.3	7.96	67.9	74.4	.	125
CM	1	66.9	9.99	0.96	8.1	0.6	21.7	4.90	36.8	76.6	.	80
BR	1	36.8	6.23	0.49	10.7	1.2	8.0	5.06	64.8	53.8	.	175
CH	1	30.0	3.70	0.34	4.9	0.9	6.1	3.26	26.9	25.6	.	200
LB1	1	79.8	8.98	1.10	16.0	2.7	23.1	8.16	68.6	105.0	.	.
LB2	1	157.0	15.00	1.06	14.8	1.1	20.8	6.57	32.1	51.7	.	75
LB3	1	118.0	11.90	1.55	12.1	1.0	27.9	13.10	51.0	121.0	.	50
LB4	1	148.0	18.60	1.67	14.9	1.0	32.6	11.80	55.4	100.0	.	75
LB5	1	135.0	15.70	1.53	13.7	1.2	29.7	12.20	50.6	87.1	.	70
LB6	1	127.0	13.30	1.35	9.8	1.2	27.9	8.97	58.7	118.0	.	70
LB7	1	299.0	47.90	4.65	.	.	108.7	22.80	15.9	133.0	.	20
LB8	1	135.0	18.80	1.30	28.2	1.8	27.9	10.30	15.0	35.9	.	60
LB9	1	231.0	39.30	4.11	.	.	84.2	18.80	12.1	67.4	.	30
LB10	1	785.0	101.00	6.60	37.3	1.5	232.3	48.90	38.5	253.0	.	20
LB11	1	144.0	14.70	1.58	18.5	2.3	24.6	12.00	20.7	48.4	.	50
LB12	1	889.0	91.10	9.31	16.7	1.3	216.4	26.10	17.3	12.0	.	25

STA	DEPTH (m)	0.4 Micrometer Filtered Dissolved Metals (nanomolar)											
		Mn	Fe-A	Fe-C	Fe-E	Co	Ni	Cu	Zn-A	Zn-E	Cd	Pb	As
P5	1	1883.9	1396.7	750.3	863.1	2.27	54.51	39.34	146.8	84.1	0.79	.	.
S0	1	1862.1	268.6	66.3	89.5	0.66	50.77	32.73	189.7	108.6	0.60	.	.
S1	1	546.1	69.8	28.6	26.9	0.59	39.86	28.64	175.9	79.5	0.36	.	.
S2	1	213.0	112.8	21.5	25.1	0.76	38.84	24.55	148.4	71.9	0.39	.	.
S3	1	284.9	123.6	39.4	37.6	0.41	37.99	.	120.8	76.5	0.58	.	.
S4	1	136.5	48.3	30.4	14.3	0.17<	36.87	24.39	94.8	61.2	0.52	.	.
S5	1	163.8	48.3	28.6	17.9	.	36.97	24.86	93.3	68.8	0.55	.	.
S6	1	49.1	59.1	12.5	21.5	0.68	32.37	25.65	58.1	56.6	0.68	.	.
S10	1	54.6	21.5	28.6	28.6	1.58	40.55	21.72	81.1	59.7	0.68	.	.
S10	5	.	.	.	.	.	.	.	.	.	.	.	.
S12.5	1	29.1	59.1	53.7	43.0	1.07	.	.	82.6	50.5	.	.	.
S15	1	25.5	41.2	39.4	48.3	1.46	36.80	19.04	84.1	44.4	0.65	.	.
S15	11	.	.	.	.	.	.	.	.	.	.	.	.
S17.5	1	29.1	43.0	12.5	7.2	0.34	29.13	13.22	35.2	36.7	0.50	.	.
S20	1	32.8	75.2	21.5	17.9	0.37	27.60	11.02	42.8	38.2	0.39	.	.
S22.5	1	21.8	75.2	73.4	50.1	0.34	19.42	8.50	30.6	32.1	0.37	.	.
S25	1	29.1	12.5	10.7	14.3	0.85	19.76	8.18	26.0	27.5	0.36	.	.
S27.5	1	49.1	28.6	46.6	17.9	0.25	16.70	6.61	26.0	16.8	0.24	.	.
CM	1	20.0	34.0	30.4	25.1	0.71	14.31	4.88	15.3	16.8	0.24	.	.
BR	1	29.1	9.0	28.6	10.7	0.25	14.99	5.67	7.6	13.8	0.23	.	.
CH	1	40.0	12.5	59.1	12.5	0.63	10.39	3.78	16.8	12.2	0.27	.	.
LB1	1	45.5	39.4	50.1	28.6	0.17<	20.61	8.18	.	15.3	0.20	.	.
LB2	1	38.2	69.8	111.0	73.4	2.97	23.85	16.21	.	19.9	0.52	.	.
LB3	1	38.2	161.2	195.2	145.0	0.73	28.11	17.31	33.6	39.8	0.47	.	.
LB4	1	38.2	179.1	205.9	150.4	0.29	23.68	11.49	53.5	39.8	3.72	.	.
LB5	1	27.3	154.0	43.0	134.3	0.90	24.36	16.05	48.9	22.9	0.55	.	.
LB6	1	49.1	173.7	227.4	157.6	0.90	24.87	10.07	19.9	16.8	0.41	.	.
LB7	1	109.2	100.3	93.1	87.7	0.90	29.13	19.04	24.5	24.5	0.82	.	.
LB8	1	38.2	.	48.3	43.0	1.12	26.06	14.48	18.4	24.5	1.89	.	.
LB9	1	43.7	.	127.1	103.9	1.31	26.41	17.00	27.5	26.0	2.13	.	.
LB10	1	158.4	216.7	372.4	286.5>	2.60	32.20	20.30	21.4	26.0	1.84	.	.
LB11	1	41.9	186.2	168.3	132.5	1.87	17.89	16.52	48.9	18.4	1.60	.	.
LB12	1	47.3	168.3	200.5	180.9	0.73	18.91	19.04	10.7	15.3	4.52	.	.

Dissolved Metals (nanomolar) Versus Filter Size In Micrometers

STA	DEPTH (m)	Fe-A 0.1	Fe-A 0.2	Fe-A 0.4	Fe-A 1.0	Fe-C 0.1	Fe-C 0.2	Fe-C 0.4	Fe-C 1.0	Fe-E 0.1	Fe-E 0.2	Fe-E 0.4	Fe-E 1.0
P5	1	467.3	859.5	1396.7	2003.7	152.2	338.4	750.3	970.5	173.7	343.8	863.1	918.6
S0	1	94.9	166.5	268.6	510.3	.	37.6	66.3	130.7	32.2	77.0	89.5	173.7
S1	1	.	75.2	69.8	268.6	.	19.7	28.6	35.8	14.3	25.1	26.9	105.6
S2	1	.	37.6	112.8	274.0	28.6	28.6	21.5	53.7	3.6	12.5	25.1	39.4
S3	1	.	.	123.6	.	.	.	39.4	.	.	.	37.6	.
S4	1	.	43.0	48.3	134.3	12.5	26.9	30.4	26.9	7.2	9.0	14.3	14.3
S5	1	.	.	48.3	.	.	.	28.6	.	.	.	17.9	.
S6	1	17.9	80.6	59.1	118.2	14.3	10.7	12.5	26.9	17.9	32.2	21.5	26.9
S10	1	16.1	16.1	21.5	62.7	14.3	14.3	28.6	32.2	17.9	26.9	28.6	32.2
S10	5	.	.	.	.	.	.	.	.	.	.	.	.
S12.5	1	.	.	59.1	.	.	.	53.7	.	.	.	43.0	.
S15	1	25.1	28.6	41.2	59.1	7.2	7.2	39.4	39.4	21.5	19.7	48.3	48.3
S15	11	.	.	.	.	.	.	.	.	.	.	.	.
S17.5	1	.	.	43.0	.	.	.	12.5	.	.	.	7.2	.
S20	1	28.6	53.7	75.2	100.3	26.9	21.5	21.5	100.3	14.3	17.9	17.9	80.6
S22.5	1	.	.	75.2	.	.	.	73.4	.	.	.	50.1	.
S25	1	.	12.5	12.5	17.9	35.8	.	10.7	19.7	28.6	14.3	14.3	30.4
S27.5	1	.	.	28.6	.	.	.	46.6	.	.	.	17.9	.
CM	1	28.6	28.6	34.0	46.6	.	.	30.4	.	21.5	21.5	25.1	43.0
BR	1	.	.	9.0	.	.	.	28.6	.	.	.	10.7	.
CH	1	17.9	12.5	12.5	32.2	44.8	41.2	59.1	91.3	25.1	.	12.5	50.1
LB1	1	.	.	39.4	.	.	.	50.1	.	.	.	28.6	.
LB2	1	.	.	69.8	.	.	.	111.0	.	.	.	73.4	.
LB3	1	.	.	161.2	.	.	.	195.2	.	.	.	145.0	.
LB4	1	.	.	179.1	.	.	.	205.9	.	.	.	150.4	.
LB5	1	.	.	154.0	.	.	.	43.0	.	.	.	134.3	.
LB6	1	.	.	173.7	.	.	.	227.4	.	.	.	157.6	.
LB7	1	.	.	100.3	.	.	.	93.1	.	.	.	87.7	.
LB8	1	.	.	.	.	.	.	48.3	.	.	.	43.0	.
LB9	1	.	.	.	.	.	.	127.1	.	.	.	103.9	.
LB10	1	.	.	216.7	.	.	.	372.4	.	.	.	286.5>	.
LB11	1	.	.	186.2	.	.	.	168.3	.	.	.	132.5	.
LB12	1	.	.	168.3	.	.	.	200.5	.	.	.	180.9	.

Dissolved Metals (nanomolar) Versus Filter Size In Micrometers

STA	DEPTH (m)	Mn				Zn-A				Zn-E			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
P8	1	1916.7	1987.7	1883.9	1954.9	148.4	146.8	146.8	159.1	79.5	82.6	84.1	88.7
S0	1	1791.1	1911.2	1862.1	2004.1	137.7	201.9	189.7	221.8	107.1	108.6	108.6	113.2
S1	1	671.7	540.6	546.1	622.5	119.3	119.3	175.9	160.6	84.1	82.6	79.5	85.7
S2	1	185.7	174.7	213.0	311.3	94.8	82.6	148.4	169.8	74.9	73.4	71.9	81.1
S3	1	.	.	294.9	.	.	.	120.8	.	.	.	76.5	.
S4	1	163.8	152.9	136.5	174.7	94.8	85.7	94.8	123.9	61.2	58.1	61.2	62.7
S5	1	.	.	163.8	.	.	.	93.3	.	.	.	68.8	.
S6	1	32.8	60.1	49.1	81.9	42.8	42.8	58.1	116.2	55.1	56.6	56.6	88.7
S10	1	51.0	47.3	54.6	60.1	47.4	79.5	81.1	128.5	61.2	59.7	59.7	64.2
S10	5	.	.	.	.	.	.	.	.	.	.	.	.
S12.5	1	.	.	29.1	.	.	.	82.6	.	.	.	50.5	.
S15	1	21.8	25.5	25.5	29.1	38.2	42.8	84.1	44.4	41.3	44.4	44.4	45.9
S15	11	.	.	.	.	.	.	.	.	.	.	.	.
S17.5	1	.	.	29.1	.	.	.	35.2	.	.	.	36.7	.
S20	1	40.0	29.1	32.8	36.4	.	.	42.8	42.8	38.2	38.2	38.2	38.2
S22.5	1	.	.	21.8	.	.	.	30.6	.	.	.	32.1	.
S25	1	25.5	29.1	29.1	25.5	.	27.5	26.0	29.1	32.1	24.5	27.5	27.5
S27.5	1	.	.	49.1	.	.	.	26.0	.	.	.	16.8	.
CM	1	10.9	21.8	20.0	40.0	19.9	18.4	15.3	18.4	.	.	16.8	16.8
BR	1	.	.	29.1	.	.	.	7.6	.	.	.	13.8	.
CH	1	.	40.0	40.0	54.6	9.2	16.8	16.8	12.2	13.8	15.3	12.2	13.8
LB1	1	.	.	45.5	.	.	.	.	.	.	.	15.3	.
LB2	1	.	.	38.2	.	.	.	.	.	.	.	19.9	.
LB3	1	.	.	38.2	.	.	.	33.6	.	.	.	39.8	.
LB4	1	.	.	38.2	.	.	.	53.5	.	.	.	39.8	.
LB5	1	.	.	27.3	.	.	.	48.9	.	.	.	22.9	.
LB6	1	.	.	49.1	.	.	.	19.9	.	.	.	16.8	.
LB7	1	.	.	109.2	.	.	.	24.5	.	.	.	24.5	.
LB8	1	.	.	38.2	.	.	.	18.4	.	.	.	24.5	.
LB9	1	.	.	43.7	.	.	.	27.5	.	.	.	26.0	.
LB10	1	.	.	158.4	.	.	.	21.4	.	.	.	26.0	.
LB11	1	.	.	41.9	.	.	.	48.9	.	.	.	18.4	.
LB12	1	.	.	47.3	.	.	.	10.7	.	.	.	15.3	.

STA	DEPTH (m)	Dissolved Metals (nanomolar) Versus Filter Size In Micrometers															
		Co				Ni				Cu				Cd			
		0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0	0.1	0.2	0.4	1.0
P5	1	1.61	2.21	2.27	2.55	48.38	48.38	54.51	57.24	37.77	35.09	39.34	36.82	0.66	0.80	0.79	0.71
S0	1	0.17<	0.25	0.66	0.92	51.28	49.23	50.77	51.79	33.05	29.90	32.73	37.30	.	0.53	0.60	0.50
S1	1	0.66	0.66	0.59	0.59	37.99	36.80	39.86	39.52	26.59	25.49	28.64	32.57	0.34	0.36	0.36	0.30
S2	1	0.93	0.59	0.76	0.76	39.86	40.55	38.84	43.95	23.45	22.66	24.55	31.79	0.48	0.46	0.39	0.39
S3	1	.	.	0.41	.	.	.	37.99	.	.	.	.	.	.	.	0.58	.
S4	1	0.34	0.17<	0.17<	0.34	38.16	38.33	36.97	35.26	23.13	22.03	24.39	28.17	0.59	0.46	0.52	0.47
S5	1	.	.	.	.	.	.	36.97	.	.	.	24.86	.	.	.	0.55	.
S6	1	0.66	0.81	0.68	0.66	39.01	30.49	32.37	33.90	22.50	20.93	25.65	31.00	0.56	0.53	0.68	0.83
S10	1	1.07	1.02	1.58	1.61	36.80	37.65	40.55	39.52	21.09	21.24	21.72	23.45	0.50	0.60	0.68	0.66
S10	5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
S12.5	1	.	.	1.07	.	.	.	.	.	.	.	.	.	.	.	.	.
S15	1	1.85	1.24	1.46	1.53	35.09	37.82	36.80	35.78	19.83	19.67	19.04	19.51	0.69	0.68	0.65	0.67
S15	11	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
S17.5	1	.	.	0.34	.	.	.	29.13	.	.	.	13.22	.	.	.	0.50	.
S20	1	0.17<	0.54	0.37	0.37	27.09	26.75	27.60	25.72	11.49	10.39	11.02	10.39	0.52	0.41	0.39	0.35
S22.5	1	.	.	0.34	.	.	.	19.42	.	.	.	8.50	.	.	.	0.37	.
S25	1	1.02	0.98	0.85	0.85	17.89	18.23	19.76	20.10	6.45	7.08	8.18	8.50	0.36	0.46	0.36	0.36
S27.5	1	.	.	0.25	.	.	.	16.70	.	.	.	6.61	.	.	.	0.24	.
CM	1	0.71	0.46	0.71	0.66	15.50	12.78	14.31	16.35	4.41	4.41	4.88	6.77	0.28	0.24	0.24	0.28
BR	1	.	.	0.25	.	.	.	14.99	.	.	.	5.67	.	.	.	0.23	.
CH	1	0.80	0.51	0.63	0.63	11.58	12.95	10.39	10.90	3.15	2.20	3.78	3.62	0.26	0.29	0.27	0.28
LB1	1	.	.	0.17<	.	.	.	20.61	.	.	.	8.18	.	.	.	0.20	.
LB2	1	.	.	2.97	.	.	.	23.85	.	.	.	16.21	.	.	.	0.52	.
LB3	1	.	.	0.73	.	.	.	28.11	.	.	.	17.31	.	.	.	0.47	.
LB4	1	.	.	0.29	.	.	.	23.68	.	.	.	11.49	.	.	.	3.72	.
LB5	1	.	.	0.90	.	.	.	24.36	.	.	.	16.05	.	.	.	0.55	.
LB6	1	.	.	0.90	.	.	.	24.87	.	.	.	10.07	.	.	.	0.41	.
LB7	1	.	.	0.90	.	.	.	29.13	.	.	.	19.04	.	.	.	0.82	.
LB8	1	.	.	1.12	.	.	.	26.06	.	.	.	14.48	.	.	.	1.89	.
LB9	1	.	.	1.31	.	.	.	26.41	.	.	.	17.00	.	.	.	2.13	.
LB10	1	.	.	2.60	.	.	.	32.20	.	.	.	20.30	.	.	.	1.84	.
LB11	1	.	.	1.87	.	.	.	17.89	.	.	.	16.52	.	.	.	1.60	.
LB12	1	.	.	0.73	.	.	.	18.91	.	.	.	19.04	.	.	.	4.52	.

STA	DEPTH (m)	Particulate Metals (micromole/g-seston)								
		Al	Mn	Fe	Co	Ni	Cu	Zn	Cd	Ba	Pb
P5	1	.	52.2	354	0.34	0.92	1.00	8.03	0.084	.	0.66
S0	1	.	64.4	326	0.19	0.83	0.75	5.04	0.030	.	0.80
S1	1	.	33.3	226	0.11	0.77	0.50	2.56	0.007	.	0.27
S2	1	.	27.8	216	0.09	0.64	0.35	4.51	0.053	.	0.28
S3	1	.	23.8	203	0.12	0.55	0.18	4.04	0.011	.	0.24
S4	1	.	24.0	215	0.10	0.68	0.03	3.30	0.000	.	0.16
S5	1	.	34.2	263	0.00	0.00	0.25	3.79	0.007	.	0.29
S6	1	.	20.8	168	0.08	0.71	0.25	5.15	0.001	.	0.19
S10	1	.	28.9	193	0.10	0.66	0.22	3.22	0.009	.	0.16
S10	5	.	.	.	.	.	.	.	.	.	.
S12.5	1	.	19.8	141	0.07	0.42	0.16	2.53	0.013	.	0.15
S15	1	.	23.5	155	0.13	0.70	0.25	4.01	0.029	.	0.21
S15	11	.	.	.	.	.	.	.	.	.	.
S17.5	1	.	14.6	140	0.11	1.39	0.25	3.03	0.001	.	0.17
S20	1	.	17.7	146	0.09	0.42	0.31	3.31	0.247	.	0.38
S22.5	1	.	32.1	130	0.22	2.74	0.24	3.05	0.000	.	0.46
S25	1	.	32.7	128	0.33	6.10	0.43	2.84	0.082	.	0.60
S27.5	1	.	17.3	120	0.10	0.65	0.27	2.30	0.022	.	0.23
CM	1	.	22.2	335	0.12	0.67	0.50	6.50	0.000	.	0.40
BR	1	.	23.4	165	0.12	0.92	0.49	2.99	0.062	.	0.45
CH	1	.	11.5	178	0.05	1.83	0.40	2.44	0.006	.	0.19
LB1	1	.	20.0	213	0.02	0.32	0.34	3.46	0.020	.	0.29
LB2	1	.	17.7	200	0.04	0.60	0.38	3.44	.	.	0.24
LB3	1	.	18.7	204	0.12	0.93	0.47	2.95	0.143	.	0.27
LB4	1	.	16.9	197	0.05	0.25	0.25	2.54	0.008	.	0.27
LB5	1	.	25.1	404	0.12	0.84	0.96	3.97	0.033	.	0.38
LB6	1	.	17.8	249	0.08	0.67	0.34	2.61	0.003	.	0.27
LB7	1	.	19.7	210	0.07	0.39	0.34	4.47	0.040	.	0.21
LB8	1	.	18.0	185	0.08	0.68	1.87	5.36	0.038	.	0.62
LB9	1	.	15.8	182	0.07	0.24	0.38	3.99	0.016	.	0.19
LB10	1	.	13.1	183	0.05	0.20	0.38	3.23	0.019	.	0.15
LB11	1	.	12.6	134	0.06	0.43	0.82	4.94	0.041	.	0.47
LB12	1	.	22.2	184	0.05	0.22	0.41	3.39	0.007	.	0.13

31MAR87

SALT-7: 29 June-1 July 1981

STA	DEPTH (m)	CAST TYPE	DATE (mm/dd/yy)	LOCAL TIME	LATITUDE (deg min)	LONGITUDE (deg min)	DISTANCE TO CAPES (km)	WATER DEPTH (m)
P5	1	CTD	06/29/81	1835	39 52.7 N	75 12.6 W	147.4	11.0
S0	1	CTD	06/29/81	2006	39 47.4 N	75 25.3 W	125.9	12.0
S1	1	CTD	06/29/81	2132	39 39.3 N	75 33.2 W	105.8	14.5
S2	1	CTD	06/29/81	2211	39 37.5 N	75 35.5 W	102.2	9.0
S3	1	CTD	06/30/81	0641	39 26.7 N	75 32.2 W	79.6	11.4
S4	1	CTD	06/30/81	0716	39 26.0 N	75 33.0 W	79.5	11.0
S5	1	CTD	06/30/81	0802	39 25.7 N	75 31.5 W	77.6	12.0
S6	1	CTD	06/30/81	0847	39 24.5 N	75 30.7 W	75.2	12.1
S10	1	CTD	06/30/81	0939	39 24.0 N	75 30.4 W	74.2	12.0
S10	5	CTD	06/30/81	0939	39 24.0 N	75 30.4 W	74.2	12.0
S12.5	1	CTD	06/30/81	1058	39 23.0 N	75 29.7 W	72.2	11.0
S15	1	CTD	06/30/81	1251	39 19.1 N	75 25.0 W	61.4	15.3
S15	11	CTD	06/30/81	1251	39 19.1 N	75 25.0 W	61.4	15.3
S17.5	1	CTD	06/30/81	1359	39 14.1 N	75 19.5 W	49.5	8.0
S20	1	CTD	06/30/81	1443	39 10.8 N	75 16.7 W	42.2	12.0
S22.5	1	CTD	06/30/81	1541	39 7.6 N	75 13.8 W	35.0	15.1
S25	1	CTD	06/30/81	1641	39 4.4 N	75 11.3 W	28.2	12.0
S27.5	1	CTD	07/01/81	1707	39 1.4 N	75 8.7 W	21.6	11.0
CM	1	CTD	07/01/81	1455	38 55.5 N	74 59.0 W	11.1	11.0
BR	1	CTD	07/01/81	1602	38 55.2 N	75 6.4 W	9.7	13.0
CH	1	CTD	07/01/81	1922	38 49.0 N	75 3.8 W	-2.9	30.0
LB1	1	CTD	07/01/81	0842	39 5.4 N	74 59.6 W	28.1	6.0
LB2	1	Boat	07/01/81	0934	39 5.9 N	74 58.2 W	29.4	2.8
LB3	1	Boat	07/01/81	0955	39 6.6 N	74 56.5 W	31.3	2.3
LB4	1	Boat	07/01/81	0912	39 5.7 N	74 56.1 W	29.9	2.5
LB5	1	Boat	07/01/81	0825	39 7.5 N	74 53.8 W	34.3	2.0
LB6	1	CTD	07/01/81	1354	39 0.7 N	74 59.4 W	18.6	7.0
LB7	1	Copter	07/01/81	1020	39 6.5 N	75 22.5 W	40.5	.
LB8	1	Copter	07/01/81	1031	39 3.5 N	75 20.0 W	34.0	.
LB9	1	Copter	07/01/81	1039	39 0.7 N	75 19.3 W	28.8	.
LB10	1	Copter	07/01/81	1053	38 56.0 N	75 16.4 W	21.4	.
LB11	1	Copter	07/01/81	1104	38 54.0 N	75 14.0 W	16.7	.
LB12	1	Copter	07/01/81	1108	38 51.3 N	75 13.1 W	14.2	.