

DISSOLVED NUTRIENT AND SUSPENDED PARTICULATE MATTER DATA FOR THE SAN  
FRANCISCO BAY ESTUARY, CALIFORNIA, OCTOBER 1991 THROUGH NOVEMBER 1993

By Stephen W. Hager

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U.S. GEOLOGICAL SURVEY

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1994

U.S. DEPARTMENT OF THE INTERIOR

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U.S. GEOLOGICAL SURVEY

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## CONVERSION FACTORS

<u>Multiply</u>	<u>by</u>	<u>to obtain</u>
$\mu\text{m}$ (micrometers)	0.00003937	inches
mm (millimeters)	0.03937	inches
L (liters)	0.2642	gallons (U.S)
kPa (kiloPascals)	0.147	pounds per in <sup>2</sup>
for $\text{NO}_2^-$ , $\text{NO}_3^- + \text{NO}_2^-$ , $\text{NH}_4^+$ and DON;		
$\mu\text{M}$ (microMolar, micromoles per liter)	14.01	$\mu\text{g N}$ per liter
for DRP and DOP;		
$\mu\text{M}$	30.97	$\mu\text{g P}$ per liter
for $\text{SiO}_2$ ;		
$\mu\text{M}$	60.08	$\mu\text{g SiO}_2$ per liter

## TRADE NAMES

The use of brand or trade names in this report is for identification purposes only and does not constitute endorsement by the U.S. Geological Survey.

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ABSTRACT

The U.S. Geological Survey conducted hydrologic investigations in San Francisco Bay between October of 1991 and November of 1993. Dissolved inorganic plant nutrients, nitrate, nitrite, ammonium, silica, and reactive phosphorus were measured in surface and in near-bottom waters at previously established locations in both northern and southern reaches of the bay. Salinity, turbidity, and concentrations of suspended particulate matter also were measured. Additionally, concentrations of dissolved organic nitrogen and phosphorus were occasionally measured in the spring of 1992. This report presents the sampling and analytical methods, and the data from these studies. Data on the variability due to sampling and sample handling procedures, on the precision of the analytical methods, and on recoveries of known additions from samples are also presented.

## INTRODUCTION

As part of a continuing study of the San Francisco Bay estuary, cruises were conducted between October 1991 and November 1993 (table 1). The main objectives of these cruises were to examine the effects of different amounts of freshwater inflow to the bay on phytoplankton dynamics, and thus on the concentrations of the dissolved plant nutrients (nitrite, nitrate, ammonium, reactive phosphorus, silica, organic nitrogen and organic phosphorus). Sampling during this period of variable freshwater inflow will enable comparisons with data collected during the preceeding drought and with other "normal" inflow periods. Salinity and concentrations of suspended particulate matter and turbidity in the surface waters were also routinely measured. The basic hydrologic data for these cruises are given by Wienke and others (1992, 1993), and Caffrey and others (1994).

This report presents the sampling and analytical methods used for these studies and the data.

## METHODS

Data were collected at previously established stations throughout the bay (table 2, fig. 1). At each station, a two-liter sample for dissolved nutrients and suspended particulate matter (SPM) was collected from the vessel's bow pump, simultaneously with the lowering of sensors for conductivity, temperature and depth (CTD, Sea-Bird Electronics model 9/11). Because the bow intake of the R.V. Polaris is about 1.5 meters below the surface, salinities calculated from conductivity and temperature (using Sea-Bird software) for the 1.5- to 2.5-meter interval (2-meter CTD salinities) are usually presented in this report. For stations at which the CTD either was not used or at which there was some malfunction, salinities were estimated from the linear regression of the CTD values for that cruise and readings averaged over one minute intervals from a continuous, on-line, inductive salinometer. Details of the pumping system and the on-line salinometer are found in a report by Schemel and Dedini (1979). As a check on the adequacy of this sampling protocol, salinity bottles also were routinely taken from the bulk nutrient/SPM sample. These samples were analyzed in the laboratory using an Autosol 8400A salinometer. Where available, the bottle salinities are reported. Salinity is given in practical salinity units (psu; Lewis, 1980).

The abundance of light scattering constituents in the water, referred to here as turbidity, was measured by a Turner Designs Model 10 fluorometer, fitted with an on-line nephelometry flow cell. Data were averaged over one minute intervals. Turbidity data are unitless in the data tables.

Concentrations of SPM were determined gravimetrically. An aliquot of water from either the nutrient sample or a Niskin bottle sample (as noted in the data tables) was vacuum filtered through a preweighed, 47 mm-diameter, 0.45  $\mu$ m pore-size, Nuclepore, polycarbonate, membrane filter. The filter was air dried for a minimum of 2 days, then reweighed. After additional drying time, weighings were repeated until there was agreement between consecutive weighings. Weights were corrected for the weight of residual salt on the filter on the basis of

experiments where small quantities of previously filtered saltwater of known salinity were filtered.

Samples for dissolved inorganic nutrient analysis were filtered within 15 minutes of sampling through 47 mm diameter, 0.4  $\mu$ m pore-sized, Nuclepore, polycarbonate, membrane filters under vacuum (less than 14 kPa). Filtered samples were stored in 30 mL, high-density polyethylene bottles (Nalgene 2002-0001), that had been rinsed with acetone, and then rinsed with and stored filled with a 2.5 meq/L solution of sodium bicarbonate. These samples were refrigerated from the time of processing until analysis the next morning, except that the samples from the first day of a two day cruise (see table 1) were refrigerated for an extra day.

Duplicate samples for dissolved organic nutrients were gravity filtered within a half hour of sampling through Gelman type A/E glass fiber filters. Aliquots of filtrate were then placed in quartz irradiation tubes. Later, in the laboratory, 0.3 mL of 800 meq/L sodium bicarbonate solution was added to samples with salinities greater than 10 psu, and 10 mL of concentrated artificial seawater (approximately 140 psu, four times the concentrations used by Strickland and Parsons, 1968, p. 76) to samples with salinities less than 10 psu. Just prior to irradiation, 0.1 mL of 30 percent hydrogen peroxide was added to each sample. Samples were irradiated for 6 hours in a La Jolla Scientific Model PO-14 ultra-violet irradiator. Samples were decanted into 30 mL high-density polyethylene bottles for analysis.

Concentrations of ammonium ( $\text{NH}_4$ ), nitrate plus nitrite (N+N), nitrite ( $\text{NO}_2$ ), dissolved reactive phosphate (DRP), and dissolved silica (DSi) were measured simultaneously on a Technicon AutoAnalyzer II system. Analyzer responses were usually linear over the ranges of concentrations encountered in this study. Blanks and single concentration upscale standards were analyzed at two- to four-hour intervals. Standards were prepared in artificial river water (1.0 meq/L solution of sodium bicarbonate) and artificial seawater (Strickland and Parsons (1972, p. 76), except for  $\text{NH}_4$ , for which natural seawater was used. The analyzer was maintained at constant temperature by circulating 37°C water through tubes inserted through the centers of the glass mixing coils on each manifold.

The  $\text{NH}_4$  method uses a 0.8 mL/min sample pump tube to which is added 0.23 mL/min salicylate reagent (140 g sodium salicylate and 0.90 g sodium nitroferrocyanide to 1 L of distilled water), and 0.32 mL/min air. Immediately thereafter, 0.42 mL/min of oxidizing/complexing reagent (200 mL of stock solution [90 g sodium citrate dihydrate and 6 g sodium hydroxide to 1 L of distilled water], 0.120 g sodium dichloroisocyanurate and 8 drops of Brij-35 surfactant) is added. Following a ten turn mixing coil, the stream enters the 37°C heating bath, followed by two 20-turn coils thermostatted at 37°C. The stream then passes through a 10-turn coil at room temperature before entering the colorimeter. Absorbance is determined at 630 nm in a 15 mm flowcell. Blanks vary non-linearly with salinity and were estimated using a six-point calibration curve consisting of mixtures of natural seawater and artificial river water (0, 20, 40, 60, 80, 100 percent). This method is preliminary, and was based primarily on work by Verdouw and others (1978) and Bower and Holm-Hansen (1980).

The N+N method was the Technicon (1973) method number 100-70W with one twenty-turn coil added to increase reaction time for better color stability. Copper sulfate (0.121 g per 20 liters) was added to the



ammonium chloride reagent, as suggested by Connors and Beland (1976). The pH of this reagent was not adjusted. Preparation of cadmium for the reduction columns was similar to that described by Wood and others (1967). A second order curve fitted using four standards spaced over the expected range of the sample concentrations was used to calculate concentrations of N+N when concentrations exceeded 80  $\mu$ M. Nitrate can be calculated by subtracting the corresponding concentration of NO<sub>2</sub> from the results of this analysis.

The NO<sub>2</sub> method was an adaptation of the Technicon (1973) method number 100-70W with the cadmium column removed.

The DSi method was a modification of the Technicon (1976) method number 105-71W. The acid-molybdate reagent was diluted and its flow rate increased, keeping the acid- and molybdate-to-sample ratios unchanged. Additional mixing coils were added to give more complete color development.

The method for DRP was a modification of that of Atlas and others (1971), using ascorbic acid (70 g plus 50 mL acetone per liter of solution) as a reductant. To increase reaction time for maximum color development, ten-turn coils replaced the five-turn coils and a twenty-turn coil replaced the ten-turn coil in the manifold design.

For dissolved organic nitrogen and phosphorus (DON and DOP), the irradiated samples were analyzed for N+N, NH<sub>4</sub> and DRP using the methods above. The sum of the N+N and NH<sub>4</sub> measurements on the irradiated sample, corrected for appropriate blanks, is the total dissolved nitrogen (TDN) concentration. The DON concentration is the difference between TDN and the dissolved inorganic nitrogen (DIN = N+N plus NH<sub>4</sub> on the un-irradiated sample) concentration. The DOP concentration is the total dissolved phosphorus (TDP = DRP on the irradiated sample) concentration minus the DRP (un-irradiated) concentration.

Sample from the cruise of August 26, 1992 were frozen soon after filtration, and stored frozen at -20°C. At least 14 hours before analysis, samples were removed from the freezer and allowed to thaw at room temperature. After being shaken twice, they were analyzed as above, on September 30, 1992.

## FACTORS AFFECTING THE QUALITY OF THE DATA

### Sampling Error

Nutrient as a function of salinity plots are important to an understanding of the behavior of the nutrients in the estuary. Because the ordinary sampling protocol for the nutrient and SPM samples was to begin sampling as near as possible (+/- 1/2 minute) to the CTD measurements and to use the 2-meter CTD salinity value as the salinity of the sample, comparison of bottle salinities with 2-meter CTD salinities is used as a check on the adequacy of this protocol. In other words, the degree of agreement between the 2-meter CTD salinity and the bottle salinity indicates the amount of the scatter in nutrient / salinity plots that can be expected due to sampling error.

The results are shown in figures 2a and 2b, plotted as the difference between the 2-meter CTD salinity and the corresponding bottle salinity versus the bottle salinity, for the northern and southern parts of San Francisco Bay, respectively. The 2-meter CTD values appear to be slightly higher on the average, with relatively few points below the zero line. This difference is in the right direction to be caused by sampling error. The bow pump intake is actually at about 1.5 m depth,

and thus, in waters where there is significant near-surface salinity gradient, the CTD values for 2 m, averaged from 1.5 m to 2.5 m, would be higher. The cluster of points in figure 2b near 28 psu and -1 salinity difference appears to be due to a CTD malfunction on August 10, 1993.

#### Analytical Precision, Dissolved Inorganic Nutrients

Over the period October 1991 through December 1992, no consistent replication studies were done. However, re-analysis of the filtered nutrient sample was occasionally performed, usually to check a questionable reading for one of the five analyses. The readings for the analyses not in question were considered duplicate analyses. The pooled standard deviations of the duplicate analyses (Ku, 1969) were as follows: DRP,  $0.03 \mu\text{M}$  ( $n = 10$ ); DSi,  $0.94 \mu\text{M}$  ( $n = 10$ ); N+N,  $0.27 \mu\text{M}$  ( $n = 11$ ); NO<sub>2</sub>,  $0.04 \mu\text{M}$  ( $n = 11$ ); NH<sub>3</sub>,  $0.03 \mu\text{M}$  ( $n = 8$ ). The coefficients of variation for these are: DRP, 0.4 percent; DSi, 0.8 percent; N+N, 1.0 percent, NO<sub>2</sub>, 3.8 percent, and NH<sub>4</sub><sup>+</sup>, 0.6 percent.

Between January and November of 1993, a regular program of replication was performed which involved duplicate filtrations from the bulk sample aboard the research vessel, and sometimes re-analysis of previously analyzed samples in the laboratory. Each re-analysis was generally within 4 hours of the original analysis. The results are shown in table 3 for the re-analyzed samples and table 4 for the duplicate filtrations. With the exception of DRP, the data indicate that the filtration procedure is probably not a source of variation in the data. For DRP, on five of six cruises with more than 10 reanalyses, the pooled standard deviation for the duplicate filtrations was larger than that for the reanalyzed samples. However, even in the worst situation, the coefficient of variation did not exceed 3 percent, and on 9 of the 11 cruises it was 1 percent or less.

#### Analytical Precision, Dissolved Organic Nutrients

All concentrations of DON and DOP are averages of the two single analyses of duplicate irradiated samples (TDN and TDP) minus their corresponding dissolved inorganic nutrient (DIN and DRP) concentrations. Thus, the precision of these numbers includes errors associated with the filtration, irradiation and decanting steps involved in the total dissolved nutrient analysis. Additionally, because the DON and DOP concentrations are calculated as the differences TDN - DIN and TDP - DRP, the precision of the DON and DOP is calculated as the square root of the sum of the squares of the precisions for the TDN and DIN, and TDP and DRP data sets.

For these data ( $n = 65$ ), the pooled standard deviation for the total dissolved nutrients were: TDN,  $0.55 \mu\text{M}$  and TDP,  $0.02 \mu\text{M}$ . From the data in table 4, the standard deviation for DIN can be estimated (the square root of the sum of the squares of the means [weighted for the number of replicates] of the standard deviations for NH<sub>4</sub> and N+N) to be  $0.20 \mu\text{M}$ , and that for DRP (the mean of the standard deviations) to be  $0.02 \mu\text{M}$ . Thus, the standard deviation of the DON concentrations is estimated to be  $0.59 \mu\text{M}$ , and that for DOP is estimated to be  $0.03 \mu\text{M}$ .

#### Recoveries of known additions

One way to estimate the capability of an analytical technique to measure a dissolved substance is to add known amounts of the substance to samples. This procedure was performed on selected samples on two cruises, and the results, expressed as percentage of the added amount

that was recovered, are given in table 5. The data of February 24 are thought to represent the ability of the analytical techniques, whereas the data from January 26-27 were influenced by the process of familiarization with the specifics of a new procedure. For example, on the February cruise, all additions were done by weight, whereas in January, volumetric techniques were used.

#### Air leak in pumping system

Turbidity data for December 2, 1992 and August 10, 1993, are known to have been affected by an air leak in the pumping system that introduced bubbles into the turbidimeter. The data were not deleted from the report because they will be referred to in a later report on relations between turbidity and SPM concentrations for the period 1988-1993. The data for the cruises before and after these cruises appear to be free of this problem.

#### DATA TABLES

Table 6 summarizes measurements made, and identifies abbreviations and units used in the data tables. The data for northern San Francisco Bay are presented chronologically in tables 7 through 28, and the data from southern San Francisco Bay in tables 29 through 58. Notes at the end of each table give the specifics of the sampling for that cruise.

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Wood, E.D., Armstrong, F.A.J., and Richards, F.A., 1967, Determination of nitrate in sea water by cadmium-copper reduction to nitrite: Journal of the Marine Biological Association of the United Kingdom, v. 47, p. 23-31.

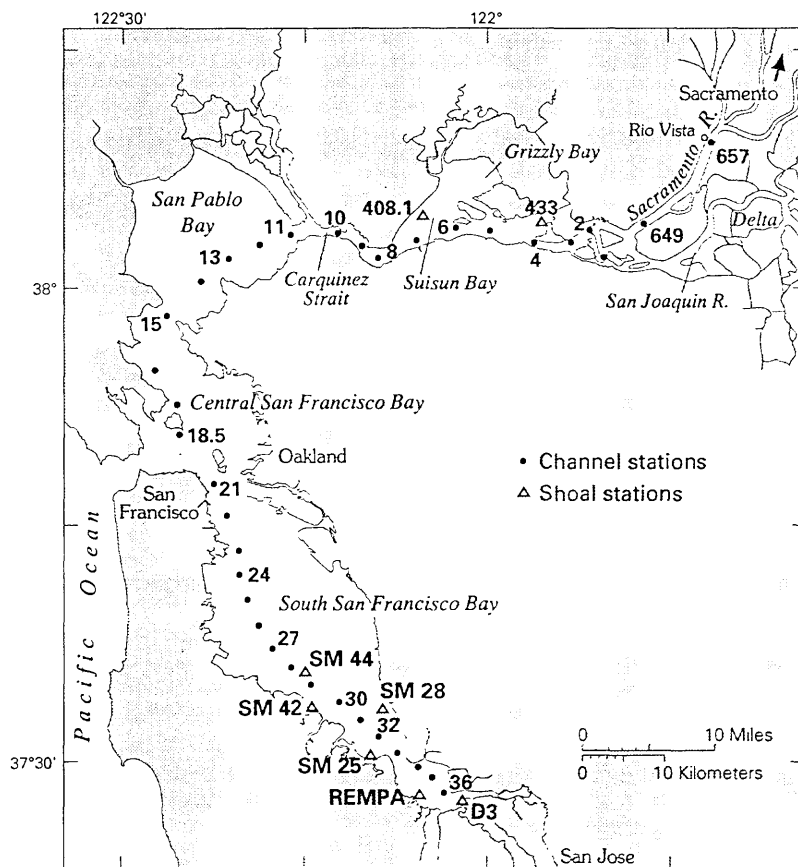


Figure 1. Location map of the San Francisco Bay estuarine system.

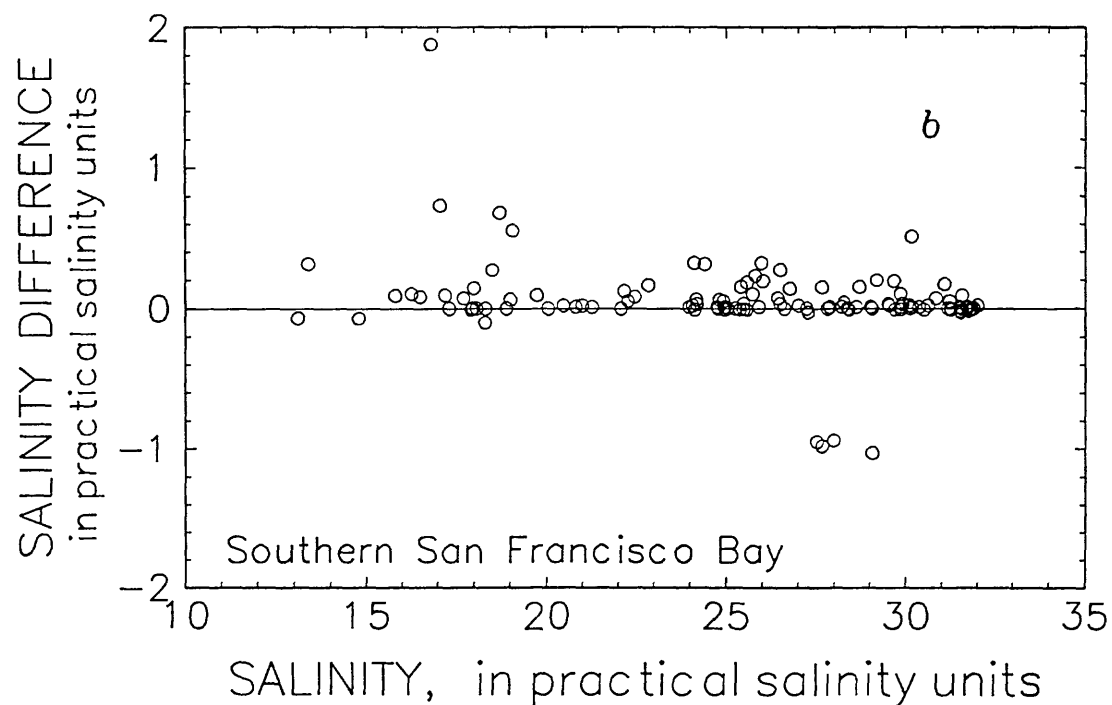
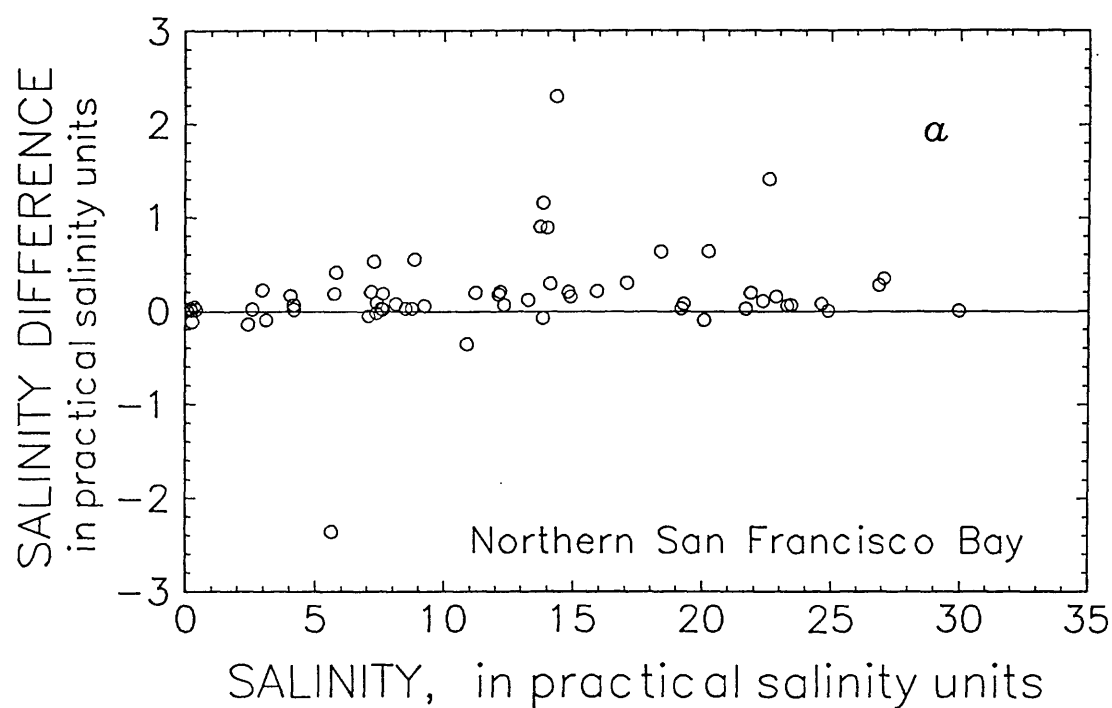


Figure 2. Salinity comparison for the purpose of estimating sampling error: a. northern San Francisco Bay, b. southern San Francisco Bay. The salinity difference is the salinity for two meters depth as measured by the conductivity-temperature-depth (CTD) sensors minus the corresponding bottle salinity from the pumped sample. The salinity shown is the CTD salinity.

Table 1: Cruise dates and station coverage

Date	Station Coverage		Shallows
	North Bay	South Bay	
Water Year 1992			
01 October 91	18.5 to 657	21 to 32	--
19 November 91	18.5 to 657	21 to 30	--
10 December 91	18.5 to 657	21 to 30	--
07 January 92	18.5 to 657	21 to 30	--
05 February 92	18.5 to 657	21 to 30	--
19 February 92	18.5 to 657	21 to 33	--
27 February 92	--	26 to 36	--
04 March 92	18.5 to 657	21 to 33	--
01 April 92	--	21 to 36	--
07 April 92	18.5 to 657	--	--
08 April 92	--	21 to 36	--
14 April 92	--	24 to 36	--
22 April 92	--	21 to 36	--
01 May 92	--	21 to 36	--
16 June 92	18.5 to 657	21 to 36	--
28 July 92	18.5 to 657	21 to 36	--
26 August 92	15 to 657	21 to 36	408, 433
29 September 92	18.5 to 657	21 to 36	408, 433
Water Year 1993			
03 November 92	--	18.5 to 36	--
04 November 92	17 to 657	--	408, 433

continued...



Cruise dates and station coverage - Continued

Date	Station Coverage		Shallows
	North Bay	South Bay	
02 December 92	18.5 to 657	--	408
03 December 92	--	21 to 36	--
26 January 93	--	18.5 to 36	--
27 January 93	17 to 657	--	--
24 February 93	18.5 to 657	21 to 36	408, 433
11 March 93	--	24 to 36	--
18 March 93	--	23 to 36	SM25, SM28, SM42, SM44, REMPA, D3
25 March 93	--	21 to 36	--
30 March 93	--	18.5 to 36	--
31 March 93	17 to 657	--	--
15 April 93	18.5 to 657	21 to 36	--
14 June 93	--	18.5 to 36	--
15 June 93	17 to 657	--	--
10 August 93	18.5 to 657	21 to 36	--
Water Year 1994			
05 October 93	--	18.5 to 36	--
06 October 93	17 to 657	--	--
08 November 93	18.5 to 657	--	408, 433
09 November 93	--	21 to 36	--

Table 2. San Francisco Bay station locations, main channel.  
(N.= north, W.= west, deg.= degrees, min.= minutes).

Area	Station Number	N. Latitude		W. Longitude	
		Deg.	Min.	Deg.	Min.
Sacramento River	657	38	9.2	121	41.3
	655	38	7.2	121	42.3
	653	38	5.8	121	42.0
	651	38	4.7	121	45.8
	649	38	3.6	121	47.8
North Bay					
Chain Island	2	38	3.8	121	51.3
Pittsburgh	3	38	3.0	121	52.7
Simmon's Point	4	38	2.9	121	56.1
Middle Ground	5	38	3.6	121	58.8
Roe Island	6	38	3.9	122	2.1
Avon Pier	7	38	2.9	122	5.8
Martinez	8	38	1.8	122	9.1
Benicia	9	38	3.0	122	10.4
Crockett	10	38	3.6	122	12.5
Mare Island	11	38	3.7	122	15.8
N. of Pinole Point	13	38	1.9	122	21.9
Pt. San Pablo	15	37	58.2	122	26.2
Red Rock	16	37	54.9	122	27.0
Raccoon Strait	17	37	52.9	122	25.6
Angel Island	18.5	37	50.8	122	25.2
Shallows	408.1	38	4.7	122	3.4
	433	38	4.3	121	56.0
South Bay					
Bay Bridge	21	37	48.0	122	22.2
Potrero Point	22	37	45.7	122	21.5
Hunters Point	23	37	43.6	122	20.2
Candlestick Point	24	37	42.0	122	20.3
Oyster Point	25	37	40.3	122	19.5
San Bruno Shoal	26	37	38.2	122	19.0
San Francisco Airport	27	37	37.1	122	17.5
N. San Mateo Bridge	28	37	36.0	122	16.2
S. San Mateo Bridge	29	37	34.9	122	14.8
	29.5	37	34.2	122	13.5
Redwood Creek	30	37	33.3	122	11.5
Coyote Hills	31	37	31.8	122	9.4
Ravenswood Point	32	37	31.1	122	8.1
Dumbarton Bridge	33	37	30.6	122	7.4
Calaveras Point	36	37	28.3	122	3.8
Shallows	SM28	37	32.8	122	8.5
	SM42	37	33.7	122	14.0
	SM44	37	35.1	122	11.0
	REMPA	37	27.7	122	5.0
	D3	37	27.8	122	1.6

Table 3. Precision of analyses as estimated from reanalysis of samples

Date	n	Pooled Standard Deviation / Coefficient of Variation				
		DRP	DSi	N+N	NO2	NH4
		----- microMolar / percent -----				
28 Jan 93	16	<u>0.01</u> 0.3	<u>0.20</u> <0.1	<u>0.63</u> 1.9	<u>0.02</u> 3.6	<u>0.02</u> 0.3
25 Feb 93	10	<u>0.02</u> 0.6	<u>0.20</u> 0.2	<u>0.38</u> 1.1	<u>0.01</u> 1.3	<u>0.04</u> 0.4
12 Mar 93	none	--- --	--- --	--- --	--- --	--- --
19 Mar 93	12	<u>0.03</u> 0.7	<u>0.09</u> 0.1	<u>0.37</u> 1.5	<u>0.02</u> 2.7	<u>0.04</u> 3.4
27 Mar 93	11	<u>0.01</u> 0.3	<u>0.13</u> 0.5	<u>0.10</u> 1.4	<u>0.01</u> 2.7	<u>0.03</u> 11.4
01 Apr 93	13	<u>0.02</u> 0.4	<u>0.36</u> 0.6	<u>0.22</u> 1.1	<u>0.04</u> 6.0	<u>0.06</u> 3.4
16 Apr 93	24	<u>0.02</u> 0.6	<u>0.39</u> 0.3	<u>0.16</u> 1.4	<u>0.03</u> 6.4	<u>0.05</u> 1.8
16 Jun 93	2	<u>0.02</u> 1.2	<u>0.26</u> 0.4	<u>0.05</u> 0.4	<u>0.01</u> 1.6	<u>0.08</u> 2.0
11 Aug 93	13	<u>0.05</u> 1.6	<u>1.08</u> 0.7	<u>0.15</u> 0.7	<u>0.07</u> 7.7	<u>0.14</u> 2.3
07 Oct 93	none	--- --	--- --	--- --	--- --	--- --
10 Nov 93	none	--- --	--- --	--- --	--- --	--- --

Table 4. Precision of data as estimated from duplicate filtrations

Date	n	Pooled Standard Deviation / Coefficient of Variation				
		DRP	DSi	N+N	NO2	NH4
		----- microMolar / percent -----				
28 Jan 93	5	<u>0.10</u> 2.1	<u>0.17</u> <0.1	<u>0.20</u> 0.4	<u>0.03</u> 3.2	<u>0.05</u> 0.5
25 Feb 93	6	<u>0.06</u> 2.7	<u>0.57</u> 0.4	<u>0.44</u> 0.6	<u>0.03</u> 4.1	<u>0.05</u> 0.8
12 Mar 93	5	<u>0.01</u> 0.1	<u>0.08</u> <0.1	<u>0.15</u> 0.3	<u>0.01</u> 0.7	<u>0.06</u> 2.9
19 Mar 93	5	<u>0.04</u> 0.9	<u>0.07</u> <0.1	<u>0.09</u> 0.3	<u>0.01</u> 0.9	<u>0.09</u> 7.0
27 Mar 93	5	<u>0.02</u> 0.6	<u>0.06</u> 0.2	<u>0.08</u> 1.0	<u>&lt;0.01</u> 0.5	<u>0.01</u> 4.0
01 Apr 93	12	<u>0.03</u> 1.0	<u>0.12</u> 0.1	<u>0.24</u> 1.4	<u>0.01</u> 2.1	<u>0.05</u> 2.3
16 Apr 93	11	<u>0.02</u> 0.6	<u>0.14</u> 0.1	<u>0.10</u> 0.8	<u>&lt;0.01</u> 1.0	<u>0.05</u> 1.9
16 Jun 93	11	<u>0.01</u> 0.3	<u>0.13</u> 0.1	<u>0.12</u> 0.7	<u>&lt;0.01</u> 1.0	<u>0.05</u> 1.8
11 Aug 93	11	<u>0.02</u> 0.3	<u>0.20</u> 0.1	<u>0.16</u> 0.7	<u>0.01</u> 1.2	<u>0.09</u> 1.3
07 Oct 93	11	<u>0.06</u> 0.8	<u>0.18</u> 0.1	<u>0.20</u> 0.6	<u>0.02</u> 1.8	<u>0.08</u> 1.1
10 Nov 93	11	<u>0.03</u> 0.4	<u>0.14</u> <0.1	<u>0.04</u> <0.1	<u>0.01</u> 0.6	<u>0.10</u> 1.4

Table 5. Recoveries of known additions from samples

Date	Station	SAL psu	n	DRP	SiO2	N+N percent	NO2	NH4
January 26-27, 1993								
	18.5	16.5	1	94.5	94.7	100.2	100.2	-- <sup>a</sup>
	6	0.1	3	89.8	91.9	98.2	100.0	--
	657	0.1	3	94.6	97.0	95.8	101.3	--
	27	19.4	3	92.9	95.6	101.2	100.0	--
	36	18.2	3	99.3	-- <sup>b</sup>	86.1 <sup>c</sup>	100.8	--
February 24, 1993								
	18.5	22.5	3	100.4	99.9	99.4	100.5	102.2
	13	8.3	3	99.0	99.5	99.9	100.0	101.0
	6	0.1	2	97.2	99.2	99.5	100.1	102.1
	657	0.1	2	96.1	99.3	100.2	100.4	102.7
	27	21.3	3	100.7	100.0	99.4	100.2	101.8
	36	13.0	3	100.6	99.5	96.5	100.6	100.8

Notes:

- a. Test not performed for ammonium on this date.
- b. No value due to an analytical problem.
- c. Addition was only 4.4 percent of ambient concentration.

Table 6. Summary of measurements, abbreviations, and units

Measurement	Column Title	Units
Local time	TIME	hours and minutes
Station	STA	--
Depth	DEP	meters, m
Salinity (2 meter, CTD)	SAL	practical salinity units, scale of 1978, psu
Dissolved reactive phosphorus	DRP	microMolar, $\mu\text{M}$
Dissolved silica	DSi	microMolar, $\mu\text{M}$
Nitrate plus nitrite	N+N	microMolar, $\mu\text{M}$
Nitrite	NO2	microMolar, $\mu\text{M}$
Ammonium	NH4	microMolar, $\mu\text{M}$
Dissolved inorganic nitrogen	DIN	microMolar, $\mu\text{M}$
Dissolved organic nitrogen	DON	microMolar, $\mu\text{M}$
Dissolved organic phosphorus	DOP	microMolar, $\mu\text{M}$
Suspended particulate matter	SPM	milligrams per liter, mg/L
Turbidity	TURB	relative

Data for northern San Francisco Bay

Table 7. Nutrient and suspended matter data for 01 October 1991

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP -----	SPM mg/L	
1044	18.5	1.5	31.92 <sub>1</sub>	2.56	32.85	11.30	0.64	4.72	--	--	4.0	0.288
1044	18.5	30	32.39 <sub>1</sub>	2.24	27.39	10.00	0.58	5.31	--	--	6.7	--
1201	15	1.5	28.69 <sub>1</sub>	3.25	52.30	13.83	0.68	1.73	--	--	5.0	0.313
1240	13	1.5	27.06 <sub>1</sub>	3.46	62.02	16.82	0.85	1.04	--	--	2.7	--
1318	11	1.5	24.23 <sub>1</sub>	4.41	100.0	25.41	1.66	1.80	--	--	6.6	0.395
1358	10	1.5	20.76 <sub>1</sub>	4.68	107.4	27.36	1.85	1.84	--	--	9.5	0.459
1410	9	1.5	19.20 <sub>1</sub>	4.78	118.3	29.25	2.05	1.74	--	--	13.6	0.561
1428	8	1.5	17.95 <sub>1</sub>	4.92	126.4	30.41	2.24	1.34	--	--	11.1	0.528
1449	7	1.5	14.80 <sub>1</sub>	5.17	145.9	33.39	2.65	1.08	--	--	20.2	0.802
1523	6	1.5	11.21 <sub>1</sub>	5.12	167.2	34.39	3.05	0.50	--	--	18.6	0.828
1545	5	1.5	8.30	4.88	181.0	33.28	2.90	0.50	--	--	24.0	0.970
1604	4	1.5	6.23 <sub>1</sub>	4.72	191.2	31.16	2.38	1.25	--	--	23.6	0.969
1634	3	1.5	4.18 <sub>1</sub>	4.50	200.6	29.02	1.73	2.05	--	--	21.0	0.897
1649	2	1.5	3.61	4.52	203.3	28.34	1.53	2.65	--	--	25.4	1.049
1721	649	1.5	2.02 <sub>2</sub>	4.12	217.5	26.68	1.06	2.69	--	--	22.0	0.997
1732	651	1.5	1.10 <sub>2</sub>	3.90	231.3	26.39	1.24	2.85	--	--	23.8	--
1749	653	1.5	0.46 <sub>2</sub>	3.68	240.0	25.34	1.79	3.80	--	--	20.3	0.900
1800	655	1.5	0.20 <sub>2</sub>	3.57	247.6	24.04	2.25	5.86	--	--	19.1	--
1816	657	1.5	0.10	3.63	253.4	22.37	2.21	11.07	--	--	14.3	--

1 Bottle salinity.

2 Calibrated on-line salinity.

Table 8. Nutrient and suspended matter data for 19 November 1991

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
1001	18.5	1.5	32.47 <sub>1</sub>	2.17	29.39	16.38	0.62	2.00	--	--	17.8	0.577
1001	18.5	38	32.55 <sub>1</sub>	2.12	28.56	16.19	0.58	1.85	--	--	18.6	--
1105	15	1.5	29.46 <sub>1</sub>	3.26	52.91	19.71	0.78	4.52	--	--	14.6	0.622
1142	13	1.5	28.25 <sub>1</sub>	3.39	58.84	20.69	0.82	4.07	--	--	10.4	0.486
1218	11	1.5	25.36	3.91	81.85	23.71	0.88	4.36	--	--	16.7	0.722
1239	10	1.5	24.41	3.90	83.67	24.41	0.95	4.53	--	--	16.8	0.705
1253	9	1.5	23.70	3.94	89.89	25.31	1.02	3.69	--	--	22.1	0.798
continued...												

continued...

## Nutrient and suspended matter data for 19 November 1991 - continued

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----		mg/L			
1313	8	1.5	22.34 <sup>1</sup>	4.09	94.63	26.40	0.81	4.21	--	--	14.2	0.645	
1334	7	1.5	19.84	4.52	108.3	28.96	1.27	5.21	--	--	18.2	0.766	
1413	6	1.5	14.61	4.46	137.1	30.95	1.26	5.05	--	--	17.1	--	
1441	5	1.5	12.12 <sup>1</sup>	4.41	150.6	31.75	1.27	4.88	--	--	14.1	0.700	
1504	4	1.5	9.87	4.40	162.9	32.48	1.26	5.02	--	--	18.9	0.832	
1531	3	1.5	8.08 <sup>1</sup>	4.09	179.8	32.05	1.17	6.19	--	--	20.7	--	
1606	2	1.5	7.26 <sup>1</sup>	4.39	181.0	32.42	1.15	5.34	--	--	21.3	0.908	
1630	649	1.5	3.56 <sup>2</sup>	4.24	213.5	32.12	0.93	6.64	--	--	13.9	0.750	
1649	651	1.5	2.7 <sup>2</sup>	4.18	218.0	32.08	0.93	7.03	--	--	11.0	0.629	
1708	653	1.5	1.36 <sup>2</sup>	4.15	236.3	31.99	1.02	9.04	--	--	19.5	0.898	
1730	655	1.5	0.5 <sup>2</sup>	4.37	258.0	29.97	1.38	13.00	--	--	18.3	0.821	
1742	657	1.5	0.24 <sup>1</sup>	4.45	269.3	28.54	1.55	15.20	--	--	37.2	1.220	

1 Bottle salinity. The salinity samples at stations 13 and 8 gave off hydrogen sulfide when opened.

2 Calibrated on-line salinity.

Table 9. Nutrient and suspended matter data for 10 December 1991

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----			mg/L		
941	18.5	1.5	31.12 <sup>1</sup>	3.25	43.17	20.98	0.69	5.23	--	--	6.8	0.412	
941	18.5	38	31.99 <sup>1</sup>	2.77	35.65	19.60	0.64	3.94	--	--	17.2	--	
1104	15	1.5	28.17 <sup>1</sup>	3.81	67.03	25.22	0.60	4.54	--	--	18.1	0.776	
1134	13	1.5	26.87 <sup>1</sup>	3.73	70.56	25.31	0.63	4.90	7.19	0.15	12.4	0.623	
1208	11	1.5	21.76	4.12	98.63	28.75	0.64	6.73	--	--	12.8	0.655	
1229	10	1.5	20.99 <sup>1</sup>	4.20	105.0	29.48	0.60	7.16	--	--	13.7	0.660	
1246	9	1.5	20.07 <sup>1</sup>	4.27	108.0	29.82	0.59	7.38	7.75	0.13	15.1	0.718	
1304	8	1.5	17.88	4.37	125.5	31.20	0.55	8.09	--	--	13.1	0.690	
1328	7	1.5	17.69 <sup>1</sup>	4.37	122.2	30.90	0.55	8.50	--	--	15.0	0.738	
1350	6	1.5	13.26 <sup>1</sup>	4.46	148.4	32.54	0.47	9.10	9.14	0.16	13.2	0.698	
1412	5	1.5	10.36	4.44	170.6	34.15	0.45	8.88	--	--	14.3	0.713	
1430	4	1.5	8.58 <sup>1</sup>	4.38	183.0	33.72	0.44	8.55	--	--	13.3	--	
1449	3	1.5	5.78 <sup>1</sup>	4.41	207.1	34.58	0.45	9.48	7.55	0.28	9.2	0.571	
1502	2	1.5	5.87	4.43	203.9	34.57	0.46	9.22	--	--	11.9	0.653	
1528	649	1.5	5.16 <sup>2</sup>	4.47	214.3	34.80	0.48	9.89	--	--	12.5	0.652	
1541	651	1.5	3.0 <sup>2</sup>	4.44	242.2	34.68	0.58	10.06	--	--	11.4	0.598	

continued...

continued...



Nutrient and suspended matter data for 10 December 1991 - continued

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar	-----				mg/L	
1554	653	1.5	1.40 <sup>2</sup>	4.46	271.3	33.88	0.70	11.79	--	--	10.8	--
1607	655	1.5	1.6	4.49	269.9	34.03	0.75	12.15	--	--	12.7	0.668
1620	657	1.5	0.80	4.63	286.3	31.95	0.77	14.42	6.76	0.21	12.3	0.654
1 Bottle salinity.												
2 Calibrated on-line salinity.												

Table 10. Nutrient and suspended matter data for 07 January 1992

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar	-----				mg/L	
953	18.5	1.5	31.17 <sup>1</sup>	2.44	30.74	16.22	0.58	4.84	--	--	7.6	0.675
953	18.5	39	31.50 <sup>1</sup>	2.19	27.29	14.54	0.54	4.46	--	--	19.8	--
1056	15	1.5	27.39 <sup>1</sup>	3.10	60.62	24.49	0.61	6.07	--	--	29.1	1.457
1125	13	1.5	24.88 <sup>3</sup>	3.40	78.58	27.92	0.64	7.08	4.24	0.27	23.2	1.340
1144	--	1.5	21.9 <sup>3</sup>	3.65	101.4	30.99	0.69	8.73	--	--	20.4	--
1159	11	1.5	20.89	3.67	101.6	31.08	0.67	8.81	--	--	25.7	--
1219	10	1.5	19.68 <sup>1</sup>	3.82	116.8	32.85	0.66	10.19	--	--	19.6	1.321
1231	9	1.5	19.28 <sup>1</sup>	3.84	117.5	33.27	0.65	10.27	3.97	0.32	22.4	1.451
1248	8	1.5	16.21	3.97	140.6	35.29	0.63	11.80	--	--	18.8	1.355
1310	7	1.5	14.50 <sup>1</sup>	4.08	151.5	35.86	0.60	12.95	--	--	21.5	1.379
1330	6	1.5	12.33 <sup>1</sup>	4.06	168.6	36.48	0.56	13.01	4.69	0.32	104.1	2.953
1448	5	1.5	10.43	3.99	188.3	36.63	0.55	13.27	--	--	23.6	1.173
1504	4	1.5	9.11 <sup>1</sup>	4.01	195.4	36.81	0.56	13.51	--	--	22.2	1.084
1603	3	1.5	7.15 <sup>1</sup>	4.08	211.3	36.81	0.58	13.96	3.82	0.36	23.3	1.126
1615	2	1.5	6.32	3.99	220.5	36.67	0.57	14.25	--	--	14.4	0.855
1633	649	1.5	5.05 <sup>3</sup>	3.99	230.7	36.73	0.58	14.65	--	--	22.8	1.066
1645	651	1.5	3.1 <sup>3</sup>	3.85	248.7	35.77	0.63	15.14	--	--	19.7	1.018
1701	653	1.5	1.72 <sup>3</sup>	3.66	262.7	32.87	0.66	16.18	--	--	16.4	0.921
1715	655	1.5	0.9 <sup>3</sup>	3.54	274.5	32.03	0.66	16.47	--	--	14.1	0.873
1725	657	1.5	0.43	3.45	282.8	30.49	0.64	16.87	4.01	0.46	14.0	0.812
1 Bottle salinity.												
2. Near station 12.												
3. Calibrated on-line salinity.												

Table 11. Nutrient and suspended matter data for 05 February 1992

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP			
				-----		microMolar	-----						
958	18.5	1.5	30.14 <sup>1</sup>	2.42	39.02	15.26	0.52	5.53	--	--	6.8	0.520	
958	18.5	39	31.26 <sup>1</sup>	2.03	28.11	11.85	0.46	4.60	--	--	16.6	--	
1053	15	1.5	27.45	2.92	61.92	21.19	0.59	6.72	--	--	14.5	0.812	
1123	13	1.5	26.75	3.04	71.30	23.39	0.63	7.26	3.51	0.17	18.4	0.904	
1153	11	1.5	21.53	3.49	108.3	29.94	0.77	10.54	--	--	22.1	1.111	
1214	10	1.5	20.37 <sup>1</sup>	3.57	117.7	31.75	0.79	11.27	--	--	23.4	1.202	
1227	9	1.5	20.23 <sup>1</sup>	3.60	119.4	31.63	0.76	11.47	3.28	0.16	29.1	1.372	
1245	8	1.5	17.89	3.71	137.2	33.98	0.79	13.14	--	--	27.4	1.281	
1303	7	1.5	15.66 <sup>1</sup>	3.78	160.0	36.36	0.80	14.83	--	--	17.6	1.053	
1351	6	1.5	13.82 <sup>1</sup>	3.85	171.0	37.37	0.77	15.80	4.67	0.25	39.8	1.566	
1414	5	1.5	10.14	3.84	203.6	39.40	0.80	16.19	--	--	24.2	1.102	
1434	4	1.5	8.83 <sup>1</sup>	3.79	220.4	40.52	0.83	16.09	--	--	13.8	0.814	
1455	3	1.5	7.36 <sup>1</sup>	3.81	231.9	40.83	0.84	16.17	2.97	0.38	28.5	1.249	
1512	2	1.5	6.99	3.80	244.4	41.44	0.87	16.17	--	--	15.1	0.850	
1621	649	1.5	5.12 <sup>2</sup>	3.82	259.1	42.23	0.90	16.14	--	--	28.8	1.213	
1636	651	1.5	3.3 <sup>2</sup>	3.77	279.9	42.44	0.91	16.35	--	--	20.8	0.966	
1652	653	1.5	1.36 <sup>2</sup>	3.81	308.4	40.23	0.88	18.13	--	--	14.1	0.806	
1704	655	1.5	1.4 <sup>2</sup>	3.84	308.8	40.07	0.86	18.26	--	--	18.7	0.934	
1718	657	1.5	0.75	3.94	319.2	38.70	0.85	19.93	3.46	0.42	17.8	0.890	

1 Bottle salinity.  
2 Calibrated on-line salinity.

Table 12. Nutrient and suspended matter data for 19 February 1992

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP -----			
1055	18.5	1.5	29.96 <sup>1</sup>	2.34	35.28	13.81	0.65	4.93	--	--	27.4	--	
1123	16	1.5	28.23 <sup>1</sup>	2.86	50.48	18.33	0.73	6.21	--	--	35.2	0.940	
1143	15	1.5	21.34 <sup>1</sup>	3.44	108.7	29.25	0.87	9.09	--	--	22.0	0.847	
1210	13	1.5	18.39 <sup>1</sup>	3.63	130.2	33.38	0.90	10.26	3.60	0.09	18.5	0.806	
1228	12	1.5	10.82	3.85	214.3	39.89	1.20	15.09	--	--	18.0	0.764	
1243	11	1.5	10.93	3.82	196.6	39.51	1.16	14.28	--	--	26.9	1.530	
1259	10	1.5	10.06 <sup>1</sup>	3.83	213.0	40.68	1.19	15.25	--	--	26.9	1.088	
1309	9	1.5	8.12 <sup>1</sup>	3.87	225.1	40.92	1.20	15.72	4.14	0.18	67.5	2.044	
1327	8	1.5	6.17	3.86	250.3	41.65	1.22	16.93	--	--	43.1	1.170	
1342	7	1.5	3.40	3.79	267.9	42.10	1.24	17.44	--	--	89.6	2.728	
continued...													

## Nutrient and suspended matter data for 19 February 1992 - continued

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
				-----		microMolar		-----			mg/L	
1400	6	1.5	1.98	3.85	277.2	42.44	1.26	16.80	6.88	0.07	65.1	2.762
1419	5	1.5	0.67	3.35	276.5	44.79	1.17	14.88	--	--	114.5	4.015
1434	4	1.5	0.45	3.13	275.0	45.53	1.10	14.37	--	--	108.9	4.345
1454	3	1.5	0.26	2.84	266.8	45.95	1.02	12.59	12.63	0.50	129.2	4.458
1505	2	1.5	0.27	2.88	269.4	46.37	1.02	12.71	--	--	113.3	3.971
1522	649	1.5	0.12 <sup>2</sup>	2.50	261.6	41.98	0.83	10.22	--	--	126.9	4.427
1537	651	1.5	0.1	2.55	257.6	38.26	0.75	10.19	--	--	112.8	4.233
1549	653	1.5	0.09 <sup>2</sup>	2.63	258.0	39.23	0.79	10.38	--	--	114.1	4.068
1605	655	1.5	0.1	2.20	263.9	35.38	0.62	6.75	--	--	101.7	3.838
1617	657	1.5	0.09	2.48	260.6	38.84	0.72	7.54	15.70	0.60	110.2	3.802

1 Bottle salinity.

2 Calibrated on-line salinity.

Table 13. Nutrient and suspended matter data for 04 March 1992

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
				-----		microMolar		-----			mg/L	
1113	18.5	1.5	29.71 <sup>1</sup>	1.64	36.22	10.59	0.49	3.08	--	--	11.8	0.530
1113	18.5	39	30.02 <sup>1</sup>	1.57	34.23	10.41	0.47	2.96	--	--	12.6	--
1151	16	1.5	27.55 <sup>1</sup>	2.23	55.87	16.05	0.63	4.77	--	--	14.6	0.576
1213	15	1.5	22.95 <sup>1</sup>	2.65	97.52	24.48	0.77	5.03	--	--	13.5	0.631
1246	13	1.5	22.86 <sup>1</sup>	2.75	96.07	24.04	0.77	5.22	--	--	17.2	0.670
1320	11	1.5	16.06	2.97	154.4	33.69	1.09	8.17	--	--	32.6	1.146
1337	10	1.5	15.54 <sup>1</sup>	2.98	159.1	34.38	1.10	8.34	--	--	19.1	0.840
1350	9	1.5	13.72 <sup>1</sup>	2.99	170.1	35.87	1.16	9.22	3.33	0.29	26.9	1.122
1407	8	1.5	13.63	3.02	171.9	36.17	1.16	9.40	--	--	29.1	1.152
1428	7	1.5	10.08 <sup>1</sup>	3.04	197.2	39.62	1.31	11.18	--	--	32.3	1.322
1455	6	1.5	7.06 <sup>1</sup>	3.10	221.5	41.95	1.39	14.48	5.16	0.47	78.0	2.667
1516	5	1.5	2.99	2.74	261.6	43.26	1.31	11.12	--	--	40.9	1.822
1532	4	1.5	1.20	2.63	273.8	42.74	1.23	10.00	--	--	62.2	2.447
1555	3	1.5	0.73	2.57	280.3	42.52	1.20	9.28	10.09	0.59	54.4	2.216
1618	2	1.5	0.46	2.58	284.3	41.97	1.17	9.25	--	--	46.3	2.025
1637	649	1.5	0.16 <sup>2</sup>	2.64	301.0	37.38	1.00	10.38	--	--	48.5	1.946
1651	651	1.5	0.1	2.73	308.0	34.92	0.92	11.62	--	--	47.3	1.826
1705	653	1.5	0.12 <sup>2</sup>	2.94	317.3	32.28	0.82	14.23	--	--	40.9	1.597
1720	655	1.5	0.1	3.13	321.0	31.44	0.78	15.24	--	--	25.8	1.147

continued...

## Nutrient and suspended matter data for 04 March 1992 - continued

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar					mg/L	
1736	657	1.5	0.12	3.15	321.3	33.11	0.80	15.37	7.38	0.54	27.4	1.179
1 Bottle salinity.												
2 Calibrated on-line salinity.												

Table 14. Nutrient and suspended matter data for 07 April 1992

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
				-----		microMolar			-----		mg/L	
915	18.5	1.5	28.63 <sup>1</sup>	1.80	43.04	9.48	0.52	1.51	--	--	48.7	1.148
915	18.5	38	29.68 <sup>1</sup>	1.62	33.84	8.71	0.50	1.53	--	--	36.2	--
947	17	1.5	26.26	2.09	60.61	11.90	0.60	1.80	--	--	5.9	0.362
1005	16	1.5	23.60	2.31	82.74	15.26	0.70	2.09	--	--	16.8	0.608
1042	15	1.5	20.25 <sup>1</sup>	2.66	110.4	19.89	0.83	2.73	--	--	37.2	1.115
1124	13	1.5	19.19 <sup>1</sup>	2.77	119.8	21.94	0.95	3.29	6.52	0.27	59.5	1.668
1207	11	1.5	13.16	3.23	174.2	31.31	1.41	6.52	--	--	58.8	1.880
1240	10	1.5	9.21 <sup>1</sup>	3.38	208.0	36.35	1.61	7.83	--	--	74.6	2.382
1255	9	1.5	7.61 <sup>1</sup>	3.43	221.9	38.28	1.65	8.00	6.87	0.33	63.2	2.196
1318	8	1.5	5.94	3.32	242.4	39.38	1.64	7.41	--	--	96.9	3.115
1342	7	1.5	4.54 <sup>1</sup>	3.45	251.0	39.78	1.69	7.94	--	--	73.2	2.542
1408	6	1.5	2.42 <sup>1</sup>	3.33	270.8	38.70	1.55	6.28	8.71	0.44	54.8	2.051
1440	5	1.5	1.21	3.36	281.5	37.36	1.48	6.42	--	--	47.7	1.829
1459	4	1.5	0.57 <sup>1</sup>	3.35	288.3	35.96	1.48	7.19	--	--	59.8	2.160
1524	3	1.5	0.40 <sup>1</sup>	3.35	290.0	34.94	1.41	7.89	7.93	0.55	40.6	1.629
1540	2	1.5	0.41	3.42	287.4	37.03	1.37	5.91	--	--	31.0	1.386
1600	649	1.5	0.14 <sup>2</sup>	3.42	300.6	30.77	1.15	13.93	--	--	46.2	1.560
1617	651	1.5	0.1 <sup>2</sup>	3.38	301.6	30.76	1.10	13.71	--	--	32.3	1.212
1630	653	1.5	0.13 <sup>2</sup>	3.58	306.4	28.49	1.05	16.98	--	--	19.0	0.890
1644	655	1.5	0.1 <sup>2</sup>	3.73	309.7	27.79	1.03	18.82	--	--	19.9	0.916
1701	657	1.5	0.12	3.62	313.4	26.85	0.93	18.97	4.48	0.41	21.0	0.927
1 Bottle salinity.												
2 Calibrated on-line salinity.												

Table 15. Nutrient and suspended matter data for 16 June 1992

TIME	STA	DEP	SAL	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
local		m	psu	-----		microMolar		-----			mg/L	
1056	18.5	1.5	31.06 <sup>1</sup>	2.65	34.97	8.31	0.47	4.41	--	--	8.7	0.493
1056	18.5	39	31.07 <sup>1</sup>	2.33	34.00	8.47	0.37	3.62	6.18	0.28	23.0	--
1145	15	1.5	27.49	3.63	68.64	16.38	0.58	3.63	--	--	57.3	1.673
1213	13	1.5	24.00	4.27	94.78	22.81	0.73	3.77	--	--	27.7	1.085
1246	11	1.5	18.94	4.74	125.4	29.19	0.80	5.19	--	--	22.7	0.922
1316	10	1.5	14.90 <sup>1</sup>	4.86	140.3	31.70	0.76	5.48	--	--	28.0	1.084
1328	9	1.5	14.10 <sup>1</sup>	4.93	144.1	32.30	0.74	5.35	9.68	0.30	29.4	1.110
1342	8	1.5	12.42	4.87	153.0	33.33	0.70	4.75	--	--	32.9	1.230
1430	7	1.5	12.27 <sup>1</sup>	5.05	151.8	33.96	0.74	6.37	--	--	69.7	2.092
1448	6	1.5	9.23 <sup>1</sup>	4.68	162.5	33.70	0.73	4.74	9.39	0.44	41.7	1.317
1521	5	1.5	6.79	4.48	170.9	33.41	0.78	4.31	--	--	44.4	1.526
1546	4	1.5	5.10 <sup>1</sup>	4.42	173.4	32.85	0.81	4.65	--	--	35.4	1.291
1621	3	1.5	4.18 <sup>1</sup>	4.34	175.7	32.07	0.82	4.79	9.32	0.38	33.8	1.271
1636	2	1.5	3.45	4.26	177.2	31.55	0.87	4.70	--	--	48.9	1.618
1656	649	1.5	2.31 <sup>2</sup>	4.06	184.4	31.23	1.12	4.40	--	--	33.2	1.252
1712	651	1.5	1.4 <sup>2</sup>	3.81	193.3	31.49	1.46	3.94	--	--	39.2	1.451
1724	653	1.5	0.84 <sup>2</sup>	3.60	198.4	31.37	1.77	3.27	--	--	34.0	1.356
1738	655	1.5	0.4 <sup>2</sup>	3.38	205.1	31.25	2.20	3.38	--	--	34.1	1.284
1751	657	1.5	0.19 <sup>1</sup>	3.17	219.0	31.02	2.61	3.92	7.70	0.32	33.2	1.291

1 Bottle salinity.

2 Calibrated on-line salinity.

Table 16. Nutrient and suspended matter data for 28 July 1992

TIME	STA	DEP	SAL	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
local		m	psu	-----		microMolar		-----			mg/L	
1204	18.5	1.5	32.8 <sup>1</sup>	2.03	27.40	11.87	0.68	2.98	--	--	21.1	0.650
1204	18.5	z <sup>2</sup>	32.45 <sup>3</sup>	2.04	27.79	11.95	0.65	2.98	--	--	--	--
1244	16	1.5	32.1 <sup>1</sup>	2.65	36.60	13.31	0.74	3.25	--	--	24.2	0.720
1307	15	1.5	30.04	3.15	49.84	15.36	0.82	2.54	--	--	20.2	0.840
1339	13	1.5	28.84	3.67	60.48	17.79	1.11	2.11	--	--	28.7	1.000
1414	11	1.5	24.73	4.59	86.44	24.59	2.56	1.72	--	--	44.2	1.320
1433	10	1.5	24.36 <sup>3</sup>	4.58	86.42	24.99	2.60	1.51	--	--	36.6	1.250
1446	9	1.5	23.29 <sup>3</sup>	4.68	90.05	26.47	2.90	1.45	7.87	0.44	59.1	1.700
1507	8	1.5	21.18	4.92	103.4	30.68	3.97	1.04	--	--	26.4	0.960
1529	7	1.5	17.86	5.04	114.7	33.40	4.76	0.71	--	--	42.4	1.360

continued...

## Nutrient and suspended matter data for 28 July 1992 - continued

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----			mg/L		
1551	6	1.5	14.00 <sup>3</sup>	4.93	130.2	35.61	5.81	0.21	9.43	0.49	43.6	1.450	
1614	5	1.5	11.33	4.58	144.2	35.43	5.46	0.23	--	--	24.6	0.970	
1628	4	1.5	9.11 <sub>3</sub>	4.52	147.8	35.40	5.53	0.22	--	--	26.7	1.020	
1650	3	1.5	7.55 <sup>3</sup>	4.38	153.2	34.60	5.14	0.18	9.64	0.55	29.5	1.160	
1710	2	1.5	6.94	4.29	155.4	34.12	4.84	0.21	--	--	46.2	1.420	
1729	649	1.5	4.63 <sub>1</sub>	4.02	166.1	31.45	3.25	1.00	--	--	27.2	1.050	
1742	651	1.5	3.6 <sup>1</sup>	3.87	173.5	30.10	2.31	1.51	--	--	33.2	1.170	
1758	653	1.5	2.23 <sub>1</sub>	3.58	189.8	29.32	1.29	1.40	--	--	33.2	1.250	
1811	655	1.5	1.2 <sup>1</sup>	3.31	204.0	28.48	0.78	1.19	--	--	28.7	1.150	
1826	657	1.5	0.42	3.05	214.5	25.99	0.67	1.60	9.18	0.62	29.3	1.110	

1 Calibrated on-line salinity.

2 CTD data lost; depth of sample estimated to be 35 m.

3 Bottle salinity.

Table 17. Nutrient and suspended matter data for 26 August 1992

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
				-----		microMolar		-----			mg/L	
1249	15	1.5	30.88	3.73	50.87	18.49	0.80	2.50	--	--	--	0.990
1314	13	1.5	28.85 <sup>1</sup>	4.17	66.86	22.51	0.94	1.46	--	--	--	0.550
1333	12	1.5	28.2 <sup>1</sup>	4.32	69.46	23.50	1.00	1.12	--	--	--	0.800
1347	11	1.5	25.13	4.81	85.52	28.34	1.66	1.05	--	--	--	0.770
1406	10	1.5	24.38 <sup>2</sup>	4.81	86.97	28.88	1.75	1.00	--	--	--	0.990
1419	9	1.5	23.44 <sup>2</sup>	4.89	91.39	30.44	1.96	1.36	--	--	--	1.000
1440	8	1.5	21.46	5.12	104.1	33.32	2.51	1.34	--	--	--	0.940
1504	7	1.5	19.97 <sup>2</sup>	6.02	115.4	36.11	3.14	11.56	--	--	--	1.820
1526	6	1.5	14.81 <sup>2</sup>	5.21	128.2	36.71	3.86	0.76	--	--	--	1.220
1549	5	1.5	12.09	4.65	138.5	33.66	4.26	0.25	--	--	--	1.130
1604	4	1.5	8.99 <sup>2</sup>	4.51	148.7	33.56	4.85	0.25	--	--	--	1.410
1627	3	1.5	7.61 <sup>2</sup>	4.54	148.6	33.69	5.13	0.21	--	--	--	0.890
1647	2	1.5	6.74	4.36	154.8	32.76	5.22	0.26	--	--	--	0.960
1706	649	1.5	4.27 <sup>1</sup>	4.07	162.4	30.09	5.12	0.27	--	--	--	0.940
1724	651	1.5	3.4 <sup>1</sup>	4.07	177.5	27.90	4.30	0.42	--	--	--	1.110
1739	653	1.5	1.56 <sup>1</sup>	3.50	203.9	24.56	2.28	0.60	--	--	--	1.820
1755	655	1.5	0.9 <sup>1</sup>	3.05	211.0	21.86	1.25	1.19	--	--	--	0.940
1810	657	1.5	0.38	3.18	230.1	20.44	1.10	2.05	--	--	--	1.020

continued...

Nutrient and suspended matter data for 26 August 1992 - continued

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar		-----			mg/L	
--	408 <sup>3</sup>	0	14.70 <sup>2</sup>	--	--	--	--	--	--	--	--	--
--	433	0	9.54 <sup>2</sup>	--	--	--	--	--	--	--	--	--
1 Calibrated on-line salinity.												
2 Bottle salinity.												
3 Station 408.1.												

Table 18. Nutrient and suspended matter data for 29 September 1992

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar		-----			mg/L	
1250	18.5	1.5	32.26 <sup>1</sup>	2.28	30.01	11.04	0.58	2.40	--	--	12.6	1.430
1300	18.5	49	32.29 <sup>1</sup>	2.24	29.87	10.95	0.54	2.42	--	--	27.0	--
1352	15	1.5	30.20	3.17	48.47	13.34	0.62	1.98	--	--	15.6	1.610
1421	13	1.5	29.39	3.45	54.48	14.45	0.65	1.72	--	--	11.8	1.360
1452	11	1.5	24.77	4.22	80.90	21.84	1.24	1.76	--	--	8.7	1.190
1509	10	1.5	25.66 <sup>1</sup>	4.09	76.11	20.64	1.09	1.70	--	--	18.2	1.620
1518	9	1.5	24.63 <sup>1</sup>	4.28	81.55	22.32	1.26	1.92	--	--	21.0	1.760
1535	8	1.5	22.74	4.47	91.13	24.93	1.57	2.11	--	--	15.1	1.500
1602	7	1.5	21.03 <sup>1</sup>	4.67	101.8	27.74	2.02	2.09	--	--	18.8	1.660
1623	6	1.5	14.34 <sup>1</sup>	4.88	139.0	34.02	3.06	1.04	--	--	24.0	2.030
1643	5	1.5	13.21	4.85	147.6	35.31	3.45	1.14	--	--	44.9	1.320
1700	4	1.5	9.74 <sup>1</sup>	4.72	160.0	35.34	3.62	0.91	--	--	48.4	1.440
1723	3	1.5	8.74 <sup>1</sup>	4.55	171.3	34.70	3.52	0.74	--	--	66.7	1.930
1738	2	1.5	8.75	4.55	171.6	34.65	3.61	0.91	--	--	44.4	1.350
1755	649	1.5	5.85 <sup>2</sup>	4.26	192.4	32.20	3.16	1.50	--	--	50.2	1.520
1808	651	1.5	4.5 <sup>2</sup>	4.09	204.1	30.34	2.69	2.05	--	--	37.0	1.220
1821	653	1.5	3.41 <sup>2</sup>	3.94	217.2	28.83	2.23	2.51	--	--	37.8	1.250
1835	655	1.5	1.9 <sup>2</sup>	3.69	249.0	27.48	1.59	2.85	--	--	35.0	1.220
1848	657 <sup>3</sup>	1.5	1.04 <sup>1</sup>	3.55	258.9	26.66	1.43	3.13	--	--	29.1	1.080
--	408 <sup>3</sup>	0	16.98 <sup>1</sup>	--	--	--	--	--	--	--	--	--
--	433	0	10.16 <sup>1</sup>	--	--	--	--	--	--	--	--	--
1 Bottle salinity.												
2 Calibrated on-line salinity.												
3 Station 408.1.												

Table 19. Nutrient and suspended matter data for 04 November 1992

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----			mg/L		
701	17	1.5	30.82 <sup>1</sup>	2.85	39.62	9.59	1.02	4.08	--	--	6.8	0.403	
736	15	1.5	27.1 <sup>2</sup>	3.78	71.84	17.10	1.52	4.53	--	--	6.9	0.472	
806	13	1.5	27.73	3.60	62.84	15.20	1.40	4.29	--	--	6.9	0.442	
935	11	1.5	23.97	4.32	97.67	22.98	2.25	4.39	--	--	24.0	1.002	
954	10	1.5	22.63 <sup>1</sup>	4.33	102.2	24.13	2.64	4.36	--	--	--	0.830	
1005	9	1.5	21.68 <sup>1</sup>	4.39	108.1	25.34	2.92	4.28	6.06	0.26	23.6	0.954	
1022	8	1.5	21.24	4.36	108.9	25.72	3.03	4.16	--	--	--	0.924	
1127	7	1.5	17.10 <sup>1</sup>	5.86	132.2	30.13	3.93	26.14	--	--	23.0	0.964	
1150	6	1.5	13.84 <sup>1</sup>	4.50	151.7	32.93	4.57	3.20	7.42	0.30	21.0	0.927	
1236	5	1.5	10.56	4.40	174.9	34.76	4.81	1.69	--	--	--	0.871	
1335	4	1.5	8.41 <sup>1</sup>	4.28	188.5	34.74	4.49	1.63	--	--	19.1	0.849	
1358	3	1.5	7.39 <sup>1</sup>	4.25	196.4	34.75	4.20	1.81	7.55	0.39	12.9	0.761	
1414	2	1.5	5.14	4.10	216.8	34.21	3.16	2.62	--	--	14.7	0.790	
1437	649	1.5	2.94 <sup>2</sup>	3.95	236.2	34.09	2.14	3.13	--	--	16.5	0.832	
1456	651	1.5	2.1 <sup>2</sup>	3.86	247.9	34.83	1.85	3.29	--	--	--	0.827	
1515	653	1.5	0.93 <sup>2</sup>	3.87	269.4	37.23	2.07	4.37	--	--	17.5	0.878	
1533	655	1.5	0.5 <sup>2</sup>	4.08	280.9	38.43	2.60	7.95	--	--	20.0	0.892	
1552	657 <sup>3</sup>	1.5	0.16	4.18	291.7	37.07	3.14	10.90	7.12	0.56	24.6	0.989	
--	408 <sup>3</sup>	0	--	--	--	--	--	--	--	--	15.2	--	
--	433	0	--	--	--	--	--	--	--	--	13.5	--	

1 Bottle salinity.

2 Calibrated on-line salinity.

3 Station 408.1.

Table 20. Nutrient and suspended matter data for 02 December 1992

TIME	STA	DEP	SAL	Concentrations								TURB <sup>1</sup>
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
local		m	psu	-----		micro	Molar	-----			mg/L	
943	18.5	1.5	31.79	2.50	31.76	12.63	1.00	4.07	--	--	7.6	1.478
1049	17	1.5	31.2 <sup>2</sup>	2.72	36.56	13.89	1.06	4.51	--	--	9.3	1.084
1103	16	1.5	30.2 <sup>2</sup>	2.95	42.86	15.42	1.11	4.72	--	--	6.4	1.438
1138	15	1.5	28.14	3.47	62.29	19.66	1.16	4.84	--	--	10.6	1.783
1213	13	1.5	26.82	3.74	85.53	24.14	1.31	5.63	--	--	16.8	1.902
1254	11	1.5	24.46	3.84	91.50	26.11	1.33	5.66	--	--	17.0	1.900
1320	10	1.5	22.99 <sup>3</sup>	3.91	99.37	26.90	1.43	5.72	--	--	19.4	4.286
1336	9	1.5	21.87 <sup>3</sup>	3.96	105.8	28.04	1.48	6.26	--	--	23.4	2.182
continued...												

continued...



## Nutrient and suspended matter data for 02 December 1992 - continued

TIME local	STA	DEP m	SAL psu	Concentrations									TURB <sup>1</sup>
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	mg/L	
1359	8	1.5	19.58	4.07	121.0	30.51	1.59	7.14	--	--	20.6		1.914
1436	7	1.5	16.54 <sub>3</sub>	4.18	141.0	33.28	1.70	8.02	--	--	18.8		1.747
1505	6	1.5	12.18 <sub>3</sub>	4.16	169.6	36.61	1.78	7.23	--	--	18.0		1.392
1529	5	1.5	10.38	4.16	185.5	37.91	1.76	6.92	--	--	18.1		1.172
1600	4	1.5	8.02 <sub>3</sub>	4.13	201.8	39.16	1.73	6.81	--	--	16.7		1.037
1625	3	1.5	5.72 <sub>3</sub>	3.99	219.2	40.48	1.63	6.68	--	--	16.8		1.154
1640	2	1.5	5.77	4.06	223.0	40.49	1.60	6.73	--	--	10.7		0.853
1706	649	1.5	3.37 <sub>2</sub>	3.93	246.3	41.59	1.52	6.86	--	--	19.6		1.099
1724	651	1.5	1.8 <sub>2</sub>	3.87	259.1	42.63	1.48	7.52	--	--	18.8		1.047
1739	653	1.5	1.16 <sub>2</sub>	3.96	266.1	43.38	1.52	9.76	--	--	13.4		0.919
1752	655	1.5	0.6 <sub>2</sub>	4.12	275.4	41.78	1.63	11.01	--	--	12.5		0.950
1808	657 <sub>4</sub>	1.5	0.20 <sub>3</sub>	4.31	277.9	40.36	1.61	14.86	--	--	12.3		0.909
--	408 <sub>4</sub>	0	15.22 <sub>3</sub>	--	--	--	--	--	--	--	20.7		--

1 All turbidities affected by air leak in pumping system.

2 Calibrated on-line salinity.

3 Bottle salinity.

4 Station 408.1.

Table 21. Nutrient and suspended matter data for 27 January 1993

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	mg/L	
640	17	1.5	11.6 <sub>1</sub>	2.52	166.4	42.25	0.76	8.43	--	--	12.9		0.722
658	16	1.5	14.6 <sub>1</sub>	2.56	145.8	38.36	0.69	8.11	--	--	--		0.782
733	15	1.5	8.53	2.45	182.8	44.15	0.73	8.62	--	--	39.0		1.575
755	14	1.5	12.91	2.59	157.1	40.10	0.71	8.42	--	--	27.1		1.115
814	13	1.5	10.23	2.56	174.2	44.05	0.75	8.72	--	--	13.5		0.822
832	13	1.5	7.04	2.53	194.1	47.55	0.77	9.27	--	--	--		1.463
1053	11	1.5	3.29	2.21	211.2	45.69	0.74	8.62	--	--	104.8		3.535
1126	10	1.5	0.93	2.11	224.7	44.70	0.76	8.03	--	--	181.6		5.170
1142	9	1.5	0.44	2.06	227.3	43.41	0.70	7.71	16.73	0.65	221.1		5.657
1209	8	1.5	0.10	2.12	232.2	47.65	0.77	8.18	--	--	222.7		5.916
1242	7	1.5	0.09	1.92	231.5	44.34	0.69	7.26	--	--	253.8		6.235
1308	6	1.5	0.08	1.71	230.7	38.96	0.58	6.29	14.62	0.87	273.0		6.403
1334	5	1.5	0.08	1.74	234.4	41.15	0.63	6.49	--	--	--		6.261
1354	4	1.5	0.07	1.54	234.7	34.54	0.52	5.60	--	--	251.6		6.300

continued...

## Nutrient and suspended matter data for 27 January 1993 - continued

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----			mg/L		
1515	3	1.5	0.08	1.66	236.6	39.31	0.58	6.08	12.91	0.83	205.7	6.071	
1532	2	1.5	0.09	2.04	238.3	53.47	0.80	8.10	--	--	163.8	5.306	
1553	649	1.5	0.06 <sub>1</sub>	1.23	245.7	25.37	0.32	5.02	--	--	190.5	5.734	
1608	651	1.5	0.1 <sub>1</sub>	1.32	243.5	27.52	0.32	4.38	--	--	198.1	6.050	
1623	653	1.5	0.07 <sub>1</sub>	1.29	245.0	26.43	0.32	3.94	--	--	201.6	6.217	
1637	655	1.5	0.1 <sub>1</sub>	1.34	245.2	23.96	0.32	3.71	--	--	216.2	6.329	
1653	657	1.5	0.07	1.31	245.8	24.27	0.30	3.99	11.35	0.43	273.9	6.116	

1 Calibrated on-line salinity.

Table 22. Nutrient and suspended matter data for 24 February 1993

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----			mg/L		
1213	18.5	1.5	22.46 <sub>1</sub>	2.21	91.81	21.50	0.84	6.20	--	--	12.3	0.693	
1215	18.5	43	27.07 <sub>1</sub>	1.63	53.15	13.65	0.73	3.84	--	--	--	--	
1302	17	1.5	19.9 <sub>2</sub>	2.25	114.6	24.29	0.87	6.50	--	--	10.1	0.639	
1318	16	1.5	9.7 <sub>2</sub>	2.44	191.8	34.15	1.00	8.31	--	--	16.2	0.912	
1343	15	1.5	11.65	2.51	186.0	33.99	1.00	8.30	--	--	18.0	0.932	
1417	13	1.5	8.33 <sub>2</sub>	2.45	211.4	36.95	1.03	8.79	--	--	24.1	1.180	
1433	12	1.5	3.9 <sub>2</sub>	2.48	237.4	39.27	1.09	9.04	--	--	43.7	1.788	
1454	11	1.5	0.82	2.33	264.0	41.99	1.03	9.30	--	--	81.2	2.985	
1513	10	1.5	0.43	2.48	259.4	41.10	1.08	9.20	--	--	--	3.052	
1530	9	1.5	0.28	2.47	260.0	41.21	1.05	9.01	10.61	0.50	79.7	2.861	
1546	8	1.5	0.18	2.20	257.2	40.85	0.93	7.92	--	--	--	3.110	
1607	7	1.5	0.12	2.18	253.8	40.17	0.90	8.04	--	--	89.8	2.999	
1634	6	1.5	0.10	1.90	249.7	34.16	0.73	6.22	13.55	0.74	83.5	2.990	
1654	5	1.5	0.10	1.87	248.6	31.93	0.69	6.19	--	--	--	3.288	
1711	4	1.5	0.09	1.82	246.3	27.62	0.61	5.86	--	--	91.6	3.395	
1733	3	1.5	0.10	1.99	242.2	31.14	0.70	6.28	13.72	0.83	115.5	3.886	
1750	2	1.5	0.10	2.38	239.4	29.69	0.84	6.05	--	--	112.1	4.004	
1812	649	1.5	0.08 <sub>2</sub>	1.58	247.8	23.03	0.48	5.43	--	--	101.1	3.620	
1828	651	1.5	0.1 <sub>2</sub>	--	--	--	--	--	--	--	--	4.915	
1844	653	1.5	0.10 <sub>2</sub>	1.99	231.6	24.50	0.56	5.02	--	--	167.6	5.346	
1901	655	1.5	0.1 <sub>2</sub>	1.79	238.6	24.19	0.58	4.97	--	--	163.9	4.874	
1919	657 <sub>3</sub>	1.5	0.07	1.35	249.8	24.30	0.41	4.64	10.24	0.69	146.4	3.654	
--	408 <sub>3</sub>	0	--	--	--	--	--	--	--	--	89.1	--	

continued...

Nutrient and suspended matter data for 24 February 1993 - continued

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar		-----			mg/L	
--	433	0	--	--	--	--	--	--	--	--	133.6	--
1 Bottle salinity.												
2 Calibrated on-line salinity.												
3 Station 408.1												

Table 23. Nutrient and suspended matter data for 31 March 1993

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar		-----			mg/L	
629	17	1.5	11.7 <sup>1</sup>	1.49	164.9	14.85	0.57	2.65	--	--	4.3	0.411
644	16	1.5	11.1 <sup>1</sup>	1.50	169.4	14.92	0.58	3.14	--	--	6.2	0.470
713	15	1.5	8.34	1.35	191.0	14.82	0.57	1.86	--	--	6.6	0.521
732	14	1.5	7.90	1.44	197.1	15.54	0.58	3.31	--	--	6.1	0.568
749	13	1.5	5.01	1.28	225.9	14.88	0.54	3.30	--	--	18.8	1.068
948	11	1.5	3.24	1.14	249.1	14.25	0.47	3.62	--	--	38.0	1.737
1020	10	1.5	1.30 <sup>2</sup>	1.10	250.8	13.69	0.43	3.94	--	--	58.6	2.284
1038	9	1.5	0.23 <sup>2</sup>	1.02	265.7	13.44	0.44	3.36	--	--	58.7	2.427
1105	8	1.5	0.09	0.92	263.2	12.07	0.36	3.34	--	--	90.5	3.204
1143	7	1.5	0.07 <sup>2</sup>	0.96	251.7	13.54	0.38	3.72	--	--	82.5	2.630
1209	6	1.5	0.07 <sup>2</sup>	0.99	256.2	13.57	0.38	3.30	--	--	72.2	2.565
1236	5	1.5	0.06	1.08	273.9	10.98	0.44	2.76	--	--	100.0	3.210
1257	4	1.5	0.06 <sup>2</sup>	0.87	275.9	10.40	0.30	2.46	--	--	90.3	2.908
1434	3	1.5	0.06 <sup>2</sup>	0.96	257.5	11.54	0.34	3.03	--	--	62.7	2.135
1450	2	1.5	0.06	0.89	257.5	10.72	0.31	2.65	--	--	64.4	2.096
1513	649	1.5	0.06 <sup>1</sup>	0.76	276.3	9.68	0.24	2.73	--	--	74.0	2.295
1532	651	1.5	0.1 <sup>1</sup>	1.22	310.2	9.72	0.46	1.93	--	--	105.2	3.070
1550	653	1.5	0.07 <sup>1</sup>	0.85	312.6	9.30	0.24	1.60	--	--	100.4	2.878
1605	655	1.5	0.1 <sup>1</sup>	0.75	313.0	8.97	0.22	1.45	--	--	99.6	2.782
1625	657	1.5	0.07	0.81	309.8	9.08	0.28	1.54	--	--	76.5	2.522
1 Calibrated on-line salinity.												
2 Bottle salinity.												

Table 24. Nutrient and suspended matter data for 15 April 1993

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP	SPM mg/L		
1207	18.5	1.5	18.82 <sup>1</sup>	1.52	107.2	8.46	0.41	1.42	--	--	2.7	0.456	
1207	18.5	22	29.45 <sup>2</sup>	1.60	45.04	14.97	0.46	1.23	--	--	--	--	
1224	17	1.5	16.0 <sup>2</sup>	1.64	135.6	9.63	0.42	2.05	--	--	3.9	0.512	
1246	16	1.5	18.3 <sup>2</sup>	1.64	119.6	10.24	0.43	2.10	--	--	--	0.520	
1319	15	1.5	11.47	1.71	175.0	10.94	0.47	3.31	--	--	6.9	0.600	
1344	14	1.5	10.06	1.71	187.0	11.32	0.48	3.24	--	--	--	0.566	
1407	13	1.5	9.24	1.72	173.2	6.28	0.36	0.85	--	--	30.2	1.311	
1436	12	1.5	13.32	1.78	196.0	12.23	0.49	3.73	--	--	6.7	0.598	
1509	11	1.5	8.29	1.69	218.6	12.84	0.49	4.83	--	--	12.6	0.786	
1534	10	1.5	5.87 <sup>1</sup>	1.69	233.5	13.35	0.49	4.80	--	--	--	1.012	
1551	9	1.5	5.63 <sup>1</sup>	1.59	254.4	14.16	0.57	4.60	--	--	17.8	1.010	
1618	8	1.5	1.49	1.51	264.8	14.12	0.61	3.37	--	--	35.2	1.424	
1656	7	1.5	0.16	1.43	273.9	14.68	0.45	3.51	--	--	32.7	1.252	
1721	6	1.5	0.09	1.34	275.0	14.59	0.45	3.36	--	--	24.9	1.066	
1745	5	1.5	0.09	1.35	276.2	14.77	0.49	4.07	--	--	--	1.014	
1816	4	1.5	0.09	1.38	274.7	14.85	0.50	3.86	--	--	23.0	0.986	
1830	3	1.5	0.09	1.36	273.2	14.78	0.52	3.80	--	--	--	0.980	
1847	2	1.5	0.09	1.42	269.9	14.11	0.56	3.01	--	--	17.7	0.902	
1907	649	1.5	0.09 <sup>2</sup>	1.32	280.4	14.85	0.54	6.24	--	--	22.9	0.991	
1923	651	1.5	0.1 <sup>2</sup>	1.26	282.2	14.90	0.53	6.67	--	--	--	1.031	
1939	653	1.5	0.08 <sup>2</sup>	1.28	287.8	14.86	0.53	7.25	--	--	23.4	0.979	
1953	655	1.5	0.1 <sup>2</sup>	1.30	284.8	14.86	0.55	7.09	--	--	--	0.998	
2007	657	1.5	0.10	1.38	276.7	15.77	0.54	8.06	--	--	24.7	1.014	

1 Bottle salinity.

2 Calibrated on-line salinity.

Table 25. Nutrient and suspended matter data for 15 June 1993

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
				-----		microMolar		-----			mg/L	
639	17	1.5	24.0 <sup>1</sup>	2.13	59.08	12.92	0.66	4.09	--	--	5.8	0.461
657	16	1.5	18.89	2.08	85.97	10.94	0.62	3.02	--	--	--	0.676
725	15	1.5	16.39	2.01	95.83	10.75	0.52	3.12	--	--	--	0.659
750	14	1.5	17.14 <sub>2</sub>	2.07	87.30	11.30	0.54	4.13	--	--	22.3	0.929
805	13	1.5	14.90 <sup>2</sup>	2.06	93.46	11.04	0.53	3.20	--	--	20.6	0.904
continued...												

continued...

Nutrient and suspended matter data for 15 June 1993 - continued

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP	SPM mg/L		
929	12	1.5	12.23	2.19	105.0	11.20	0.56	5.60	--	--	26.0	1.019	
948	11	1.5	9.70	2.11	117.5	11.61	0.54	6.51	--	--	--	0.949	
1011	10	1.5	4.95 <sub>2</sub>	1.88	134.0	11.17	0.49	4.99	--	--	28.8	1.160	
1025	9	1.5	4.06 <sub>2</sub>	1.81	136.8	10.65	0.50	4.46	--	--	30.0	1.210	
1043	8	1.5	5.10	1.86	136.0	10.77	0.52	4.99	--	--	--	1.231	
1157	7	1.5	2.33	1.62	144.6	9.72	0.45	2.62	--	--	44.5	1.528	
1220	6	1.5	0.33	1.20	168.2	8.64	0.35	0.28	--	--	40.1	1.346	
1338	5	1.5	0.08	1.12	195.3	8.81	0.35	0.20	--	--	33.8	1.160	
1535	3	1.5	0.08	1.13	199.3	8.44	0.38	0.64	--	--	41.6	1.298	
1551	2	1.5	0.07	1.14	212.6	9.08	0.36	1.80	--	--	29.0	1.041	
1609	649	1.5	0.07 <sub>1</sub>	1.12	210.3	8.61	0.34	2.32	--	--	--	0.962	
1625	651	1.5	0.1 <sub>1</sub>	1.21	266.9	10.59	0.36	5.21	--	--	--	0.911	
1640	653	1.5	0.07 <sub>1</sub>	1.24	272.8	10.46	0.34	6.68	--	--	20.1	0.849	
1656	655	1.5	0.1 <sub>1</sub>	1.23	274.8	10.25	0.32	7.28	--	--	--	0.829	
1713	657	1.5	0.07	1.25	272.7	11.11	0.39	6.60	--	--	19.2	0.851	

1 Calibrated on-line salinity.

2 Bottle salinity.

Table 26. Nutrient and suspended matter data for 10 August 1993

TIME	STA	DEP	SAL	Concentrations								TURB <sup>1</sup>
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
local		m	psu	-----		microMolar		-----			mg/L	
1158	18.5	1.5	27.62 <sub>2</sub>	2.61	59.76	14.77	0.77	6.49	--	--	--	0.996
1158	18.5	39	31.34 <sub>3</sub>	1.80	29.90	8.91	0.58	6.76	--	--	5.2	--
1242	17	1.5	24.8	2.74	68.55	16.08	0.76	6.65	--	--	--	1.178
1303	16	1.5	22.26	2.97	84.49	18.55	0.81	6.87	--	--	5.6	1.556
1331	15	1.5	21.03	3.10	94.26	19.83	0.83	6.80	--	--	5.8	1.698
1352	14	1.5	19.39	3.11	101.7	20.49	0.86	7.12	--	--	7.8	1.922
1410	13	1.5	18.26	3.13	107.5	21.05	0.94	8.20	--	--	9.2	1.998
1434	12	1.5	16.59	3.23	125.0	22.18	0.92	8.39	--	--	16.7	2.280
1452	11	1.5	13.72	3.26	135.6	23.00	0.90	7.84	--	--	--	2.049
1513	10	1.5	12.19 <sub>2</sub>	3.25	149.1	23.54	0.86	7.36	--	--	--	2.238
1527	9	1.5	10.88 <sub>2</sub>	3.26	153.8	23.87	0.84	7.39	--	--	19.2	2.237
1545	8	1.5	9.90	3.44	162.0	24.08	0.88	10.22	--	--	--	2.228
1605	7	1.5	6.64 <sub>2</sub>	3.12	179.2	23.64	0.76	6.95	--	--	--	2.257
1634	6	1.5	3.11 <sub>2</sub>	2.68	204.3	21.50	0.68	4.02	--	--	29.1	5.396
continued...												

continued...

Nutrient and suspended matter data for 10 August 1993 - continued

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----			mg/L		
1656	5	1.5	1.01	2.32	219.7	19.12	0.84	2.48	--	--	42.3	6.601	
1716	4	1.5	0.56 <sub>2</sub>	2.16	222.3	17.84	1.06	2.31	--	--	47.3	6.988	
1738	3	1.5	0.33 <sub>2</sub>	2.03	227.4	16.11	1.19	2.77	--	--	42.5	6.517	
1750	2	1.5	0.22	1.88	231.7	14.47	1.06	3.59	--	--	--	6.124	
1806	649	1.5	0.10	1.49	244.0	11.33	0.63	6.10	--	--	28.7	4.885	
1836	653	1.5	0.06	1.28	253.8	9.57	0.34	8.24	--	--	18.1	3.814	
1904	657	1.5	0.06	1.27	253.0	9.16	0.43	8.79	--	--	13.8	3.675	

1 Affected by new source in turbidimeter and by an air leak in the pumping system. See text.

2 Bottle salinity.

3 Calibrated on-line salinity.

Table 27. Nutrient and suspended matter data for 06 October 1993

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----			mg/L		
633	17	1.5	30.7 <sup>1</sup>	2.59	45.91	17.23	1.09	4.46	--	--	6.7	0.384	
734	16	1.5	30.10	2.75	51.28	17.53	1.07	4.55	--	--	11.3	0.484	
806	15	1.5	26.74	3.24	77.70	18.91	0.95	4.63	--	--	--	0.462	
828	14	1.5	27.01	3.21	76.18	18.87	0.97	4.40	--	--	6.1	0.417	
847	13	1.5	25.48	3.37	92.55	19.66	0.95	4.16	--	--	--	0.410	
1012	12	1.5	22.80	3.56	112.1	19.63	0.93	4.72	--	--	14.7	0.653	
1032	11	1.5	20.18	3.55	129.0	23.62	1.05	6.01	--	--	--	0.735	
1057	10	1.5	16.37 <sup>2</sup>	3.65	150.6	25.61	1.11	6.10	--	--	15.0	0.754	
1116	9	1.5	15.92 <sup>2</sup>	3.58	153.1	26.12	1.10	6.38	--	--	20.2	0.935	
1137	8	1.5	15.14	3.54	161.5	26.56	1.09	6.21	--	--	14.8	0.845	
1210	7	1.5	10.75 <sup>2</sup>	3.43	190.0	27.73	1.05	6.17	--	--	20.1	1.002	
1235	6	1.5	8.50 <sup>2</sup>	3.26	206.2	27.76	1.04	6.02	--	--	--	1.011	
1306	5	1.5	5.93	3.01	226.8	27.48	1.02	5.02	--	--	--	1.105	
1409	4	1.5	4.08 <sup>2</sup>	2.80	242.0	26.14	1.08	5.77	--	--	23.1	1.127	
1433	3	1.5	2.58 <sup>2</sup>	2.67	255.5	24.82	1.24	6.92	--	--	--	1.132	
1447	2	1.5	2.08	2.39	260.8	24.24	1.26	7.25	--	--	28.2	1.224	
1506	649	1.5	0.85 <sup>1</sup>	2.01	273.2	21.42	1.53	8.00	--	--	36.1	1.423	
1521	651	1.5	0.2 <sup>1</sup>	1.79	277.2	18.90	1.34	9.48	--	--	22.2	0.993	
1537	653	1.5	0.12 <sup>1</sup>	1.75	275.2	18.04	1.26	11.00	--	--	16.9	0.848	
1550	655	1.5	0.1 <sup>1</sup>	1.76	274.8	17.75	1.15	11.82	--	--	14.6	0.752	

continued...

Nutrient and suspended matter data for 06 October 1993 - continued

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar			-----		mg/L	
	1606	657	1.5	0.08	1.75	275.7	17.01	1.12	14.40	--	--	-- 0.788

1 Calibrated on-line salinity.

2 Bottle salinity.

Table 28. Nutrient and suspended matter data for 08 November 1993

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----			mg/L		
947	18.5	1.5	31.34	2.10	35.82	10.43	0.70	3.73	--	--	6.1	0.447	
950	18.5	40.0	31.77	1.83	29.67	9.07	0.65	3.39	--	--	--	--	
1037	17	1.5	31.02 <sup>1</sup>	2.23	38.38	10.92	0.72	3.77	--	--	--	0.505	
1059	16	1.5	29.71	2.59	53.05	13.50	0.74	3.70	--	--	--	0.509	
1134	15	1.5	27.08	2.94	77.11	17.08	0.89	3.18	--	--	3.7	0.467	
1159	14	1.5	26.73	3.03	79.63	17.57	0.91	3.15	--	--	--	0.485	
1221	13	1.5	22.56 <sup>1</sup>	3.13	109.47	21.17	1.10	3.80	--	--	--	0.468	
1322	12	1.5	22.36	3.15	112.51	21.39	1.13	3.89	--	--	--	0.531	
1349	11	1.5	21.30	3.15	118.55	22.00	1.19	4.26	--	--	7.4	0.513	
1417	10	1.5	20.04 <sup>1</sup>	3.17	127.88	22.94	1.25	4.73	--	--	10.8	0.608	
1433	9	1.5	17.07 <sup>1</sup>	3.22	148.11	24.53	1.32	6.54	--	--	--	0.604	
1505	8	1.5	14.55	2.97	171.00	31.16	1.36	5.85	--	--	--	0.628	
1543	7	1.5	13.10 <sup>1</sup>	3.00	178.38	32.08	1.39	6.85	--	--	11.9	0.651	
1610	6	1.5	8.82 <sup>1</sup>	2.68	207.26	32.97	1.35	6.59	--	--	6.6	0.589	
1642	5	1.5	6.76	2.51	224.62	33.32	1.33	7.34	--	--	--	0.653	
1703	4	1.5	4.74 <sup>1</sup>	2.31	242.01	32.60	1.28	8.89	--	--	13.2	0.703	
1728	3	1.5	2.97 <sup>1</sup>	2.19	252.47	31.77	1.20	10.98	--	--	17.9	0.827	
1742	2	1.5	2.15	2.10	230.89	30.78	1.19	12.27	--	--	--	0.794	
1803	649	1.5	0.88	1.99	271.16	28.32	1.20	15.64	--	--	--	0.819	
1817	651	1.5	0.40	1.94	276.29	25.92	1.11	17.64	--	--	20.0	0.810	
1832	653	1.5	0.14	1.88	278.09	23.41	1.00	19.79	--	--	11.9	0.663	
1846	655	1.5	0.10	1.84	278.84	21.30	0.95	21.90	--	--	--	0.654	
1859	657 <sup>2</sup>	1.5	0.07 <sup>1</sup>	1.84	278.47	20.86	0.92	22.15	--	--	12.0	0.558	
--	408 <sup>2</sup>	0.0	11.04 <sup>1</sup>	2.78	189.38	32.35	1.35	6.63	--	--	--	--	
--	433	0.0	6.13 <sup>1</sup>	2.34	224.12	32.34	1.28	6.64	--	--	--	--	

1 Bottle salinity.

2 Station 408.1.

# Data for southern San Francisco Bay

Table 29. Nutrient and suspended matter data for 01 October 1991

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP	SPM mg/L	
655	32	1.5	32.03	11.39	72.67	14.17	1.39	3.23	--	--	16.6	0.616
713	31	1.5	32.07	10.64	76.31	19.58	1.97	2.83	--	--	21.0	0.726
735	30	1.5	32.09	10.16	75.47	21.45	2.13	2.63	--	--	11.6	0.508
735	30	9	32.12	10.16	75.47	21.54	2.14	2.79	--	--	61.0	--
803	29.5	1.5	32.12	9.90	74.26	22.97	2.35	3.24	--	--	22.7	0.720
813	29	1.5	32.13	9.65	74.14	24.23	2.44	3.21	--	--	17.7	0.694
840	27	1.5	32.15	8.48	78.63	29.68	3.07	0.78	--	--	14.6	0.577
854	26	1.5	32.12	8.27	77.66	29.10	2.96	1.63	--	--	14.9	0.576
911	25	1.5	32.26	9.07	78.40	22.92	1.90	3.29	--	--	16.0	0.615
928	24	1.5	31.90	5.47	55.08	20.34	1.56	5.69	--	--	13.4	0.532
944	23	1.5	31.49	3.28	39.05	14.16	0.88	5.67	--	--	7.0	0.355
1000	22	1.5	31.54	3.15	37.84	13.66	0.84	5.80	--	--	5.5	0.324
1016	21	1.5	31.56	3.10	37.96	13.17	0.73	6.25	--	--	4.7	0.341

Table 30. Nutrient and suspended matter data for 19 November 1991

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP	SPM mg/L	
647	30	1.5	31.53 <sup>1</sup>	11.46	79.07	32.01	3.62	6.53	--	--	18.8	0.755
647	30	10	31.55	11.25	77.62	31.32	3.63	7.02	--	--	156.7	--
712	29	1.5	31.67	10.51	73.55	28.71	3.69	7.49	--	--	34.4	1.052
730	28	1.5	31.81 <sup>1</sup>	9.28	66.49	26.27	3.67	4.40	--	--	34.8	1.096
745	27	1.5	31.78 <sup>1</sup>	8.64	61.81	24.68	3.23	4.46	--	--	36.1	1.098
800	26	1.5	31.67	8.14	59.05	23.64	2.77	5.42	--	--	17.8	0.723
819	25	1.5	31.44 <sup>1</sup>	7.07	53.29	21.25	1.82	7.68	--	--	24.3	--
839	24	1.5	31.24 <sup>1</sup>	3.91	41.79	18.37	0.99	6.58	--	--	22.2	0.764
858	23	1.5	31.26	3.35	40.28	18.16	0.86	5.79	--	--	20.4	0.734
916	22	1.5	31.46	2.86	37.95	17.78	0.72	4.09	--	--	10.2	0.455
932	21	1.5	31.24	2.95	39.37	17.91	0.72	4.67	--	--	12.5	0.528

1 The bottle salinity is presented.



Table 31. Nutrient and suspended matter data for 10 December 1991

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
639	30	1.5	31.48 <sup>1</sup>	10.63	78.53	39.99	4.34	6.11	--	--	38.7	1.286
700	29	1.5	31.47	9.89	73.73	35.86	4.08	6.08	--	--	26.0	--
717	28	1.5	31.52	9.60	72.27	34.59	3.58	5.02	--	--	29.6	1.040
729	27	1.5	31.51 <sup>1</sup>	9.46	71.53	33.60	3.21	5.87	--	--	31.9	1.114
744	26	1.5	31.45	9.39	70.66	32.70	2.72	6.80	--	--	20.2	0.791
801	25	1.5	31.41	9.69	71.46	32.14	2.32	8.62	--	--	31.5	1.071
818	24	1.5	31.25 <sup>1</sup>	5.79	53.58	25.77	1.71	5.85	--	--	28.7	0.971
834	23	1.5	31.11	3.96	44.98	21.66	0.89	6.58	--	--	21.1	0.756
853	22	1.5	31.08	3.62	44.83	21.87	0.90	5.84	--	--	11.1	0.520
908	21	1.5	31.06	3.37	44.09	21.34	0.79	5.44	--	--	13.9	0.595

<sup>1</sup> The bottle salinity is presented.

Table 32. Nutrient and suspended matter data for 07 January 1992

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP			
646	30	1.5	30.10 <sup>1</sup>	8.99	73.05	46.31	2.31	10.41	5.11	0.45	90.3	2.795	
659	29.5	1.5	30.28	8.65	71.18	43.12	2.26	10.52	--	--	70.7	2.274	
710	29	1.5	30.37	8.37	69.77	41.89	2.22	10.66	--	--	55.8	1.941	
724	28	1.5	30.35 <sup>1</sup>	8.17	68.83	40.24	2.11	10.61	--	--	64.6	2.181	
736	27	1.5	30.50 <sup>1</sup>	7.78	66.83	39.25	2.02	8.76	5.21	0.38	35.3	1.461	
748	26	1.5	30.58	7.89	66.48	39.67	2.05	8.79	--	--	26.0	1.196	
807	25	1.5	30.51 <sup>1</sup>	7.78	65.54	39.03	1.94	9.56	--	--	30.9	1.240	
821	24	1.5	30.37 <sup>1</sup>	5.88	54.66	31.25	1.32	8.59	5.52	0.36	27.1	1.188	
840	23	1.5	30.29	4.28	45.80	25.10	0.88	7.36	--	--	23.8	1.081	
900	22	1.5	30.30	3.50	42.38	22.04	0.74	7.09	--	--	16.2	0.899	
915	21	1.5	30.30	3.58	42.26	22.15	0.73	7.00	--	--	13.6	0.896	

<sup>1</sup> The bottle salinity is presented.

Table 33. Nutrient and suspended matter data for 05 February 1992

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP			
				-----		microMolar	-----						
637	30	1.5	29.19 <sup>1</sup>	11.12	83.95	61.72	2.18	10.74	--	--	17.7	0.820	
702	29	1.5	29.72	9.19	76.41	49.55	2.08	12.38	--	--	29.9	1.205	
719	28	1.5	29.78	8.79	74.43	46.84	2.00	12.60	--	--	30.1	1.126	
731	27	1.5	29.85 <sup>1</sup>	7.89	70.59	43.82	1.81	11.22	--	--	42.3	1.369	
745	26	1.5	29.83	7.31	68.24	41.79	1.69	11.00	--	--	45.0	1.490	
803	25	1.5	29.72	7.52	68.74	42.68	1.73	12.22	--	--	33.2	1.174	
822	24	1.5	29.86 <sup>1</sup>	5.51	56.24	31.42	1.25	10.53	--	--	20.7	0.835	
838	23	1.5	29.90	3.85	45.24	21.59	0.82	8.23	--	--	17.9	0.787	
901	22	1.5	30.19	2.98	40.16	17.29	0.64	7.25	--	--	21.4	0.870	
918	21	1.5	30.24	2.79	38.80	15.82	0.58	6.97	--	--	17.0	--	

<sup>1</sup> The bottle salinity is presented.

Table 34. Nutrient and suspended matter data for 19 February 1992

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----	microMolar				-----			
656	33	1.5	23.72	10.70	89.95	72.20	2.31	12.50	3.73	0.58	121.4	3.370
705	32	1.5	23.83	11.37	93.42	77.96	2.25	12.58	--	--	51.1	1.674
716	31	1.5	24.74	10.14	86.31	67.62	2.30	12.49	--	--	75.7	2.241
731	30	1.5	25.79 <sup>1</sup>	9.16	80.70	57.52	2.16	11.94	2.61	0.48	64.0	2.053
754	29	1.5	27.70	7.77	71.60	46.72	2.00	11.62	--	--	56.6	1.682
808	28	1.5	28.15 <sup>1</sup>	7.38	68.64	43.36	1.92	11.93	--	--	35.6	1.293
821	27	1.5	28.41 <sup>1</sup>	7.07	66.29	40.90	1.83	11.72	2.36	0.41	35.0	1.181
834	26	1.5	28.76	6.52	62.69	37.31	1.67	11.06	--	--	39.5	1.162
853	25	1.5	28.74 <sup>1</sup>	6.59	62.45	37.49	1.67	10.92	--	--	39.2	1.200
924	24	1.5	28.21 <sup>1</sup>	5.61	60.07	32.64	1.35	9.60	2.12	0.29	56.1	1.420
941	23	1.5	27.75	4.37	58.81	26.77	1.06	8.34	--	--	70.5	1.831
1001	22	1.5	27.53	3.33	59.92	22.12	0.83	7.42	--	--	38.0	1.204
1018	21	1.5	27.56	3.13	56.57	20.56	0.77	6.94	--	--	34.8	0.964

<sup>1</sup> The bottle salinity is presented.

Table 35. Nutrient and suspended matter data for 27 February 1992

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP			
936	36	1.5	24.77 <sup>1</sup>	14.08	94.43	83.59	2.58	12.40	--	--	9.7	0.517	
946	35	1.5	25.89	11.40	85.80	66.54	2.25	10.98	--	--	14.6	0.651	
956	34	1.5	26.14	10.38	82.69	61.35	2.13	10.18	--	--	8.9	0.502	
1010	33	1.5	26.31 <sup>1</sup>	9.83	80.68	57.29	2.00	9.64	--	--	9.7	0.537	
1019	32	1.5	26.43 <sup>1</sup>	9.10	78.68	52.43	1.89	8.88	--	--	8.0	0.489	
1029	31	1.5	25.72 <sup>1</sup>	5.77	81.72	36.78	1.34	8.26	--	--	4.6	0.363	
1045	30	1.5	24.40 <sup>1</sup>	4.76	88.58	33.02	1.18	7.72	--	--	4.2	0.355	
1056	29.5	1.5	24.05	4.58	93.34	32.49	1.15	8.88	--	--	4.2	0.373	
1107	29	1.5	24.25	4.57	94.32	32.77	1.17	9.43	--	--	5.3	0.399	
1122	28	1.5	24.06 <sup>1</sup>	4.75	91.55	33.39	1.19	9.25	--	--	5.3	0.392	
1133	27	1.5	24.11 <sup>1</sup>	4.78	91.56	33.47	1.20	9.75	--	--	5.7	0.396	
1146	26	1.5	23.37	4.64	94.18	33.19	1.17	9.71	--	--	5.3	0.399	

<sup>1</sup> The bottle salinity is presented.

Table 36. Nutrient and suspended matter data for 04 March 1992

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP			
659	33	1.5	24.17	14.75	95.06	80.93	2.20	8.54	--	--	16.3	0.733	
710	32	1.5	24.73	12.68	90.27	70.20	1.82	7.02	--	--	12.6	0.624	
724	31	1.5	25.10 <sup>1</sup>	10.31	85.60	56.58	1.54	6.91	--	--	17.3	0.730	
743	30	1.5	25.38 <sup>1</sup>	8.34	82.52	46.06	1.39	7.43	--	--	25.7	0.961	
800	29.5	1.5	25.39	7.29	81.28	41.75	1.34	8.43	--	--	26.1	0.942	
815	29	1.5	25.31	6.34	81.65	37.87	1.28	9.54	--	--	27.2	0.936	
834	28	1.5	25.20 <sup>1</sup>	6.05	81.65	35.82	1.25	10.82	--	--	19.8	0.758	
849	27	1.5	25.03 <sup>1</sup>	5.43	84.36	35.60	1.19	9.06	--	--	21.2	0.812	
905	26	1.5	25.12	5.56	86.10	37.49	1.24	9.31	--	--	30.0	0.975	
925	25	1.5	25.12 <sup>1</sup>	5.37	85.24	36.30	1.26	9.81	--	--	37.2	1.164	
942	24	1.5	25.47 <sup>1</sup>	3.82	77.21	27.10	0.97	8.27	--	--	41.3	1.231	
1001	23	1.5	26.14	2.91	69.07	21.31	0.77	6.65	--	--	21.1	0.781	
1020	22	1.5	26.52	2.67	68.83	20.03	0.70	6.00	--	--	8.0	0.475	
1036	21	1.5	26.35	2.78	67.96	20.29	0.71	6.55	--	--	15.3	0.640	

<sup>1</sup> The bottle salinity is presented.

Table 37. Nutrient and suspended matter data for 01 April 1992

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP -----	SiO2 -----	N+N microMolar	NO2 -----	NH3 -----	DON -----	DOP -----			
1056	36	1.5	22.27 <sup>1</sup>	12.87	77.81	49.27	1.31	3.20	--	--	11.0	0.520	
1106	35	1.5	23.03	10.93	72.55	40.05	1.15	3.58	--	--	9.8	0.480	
1117	34	1.5	23.55	9.55	69.61	35.27	1.07	4.72	--	--	12.4	0.560	
1133	33	1.5	23.74 <sup>1</sup>	8.89	69.48	32.84	1.03	4.14	--	--	10.2	0.500	
1147	32	1.5	24.18 <sup>1</sup>	7.87	68.26	30.35	1.01	5.31	--	--	7.2	0.420	
1223	31	1.5	24.42 <sup>1</sup>	7.37	67.89	29.43	1.00	4.74	--	--	8.3	0.450	
1243	30	1.5	24.81 <sup>1</sup>	6.41	68.39	26.72	0.97	5.75	--	--	5.5	0.360	
1245	30	14	25.00	5.91	67.89	25.95	0.95	5.63	--	--	11.7	--	
1304	29.5	1.5	24.92	6.61	68.49	25.45	1.04	11.37	--	--	4.6	0.340	
1343	29	1.5	24.84	6.46	69.33	26.32	0.98	5.76	--	--	5.4	0.360	
1355	28	1.5	25.25 <sup>1</sup>	5.28	66.01	24.62	0.92	4.23	--	--	5.2	0.340	
1406	27	1.5	25.48 <sup>1</sup>	4.66	63.91	23.98	0.90	2.57	--	--	3.5	0.290	
1418	26	1.5	25.48	4.66	64.14	24.94	0.89	2.38	--	--	4.7	0.300	
1434	25	1.5	25.66 <sup>1</sup>	4.37	62.90	24.49	0.89	2.78	--	--	7.6	0.390	
1446	24	1.5	25.90 <sup>1</sup>	3.76	62.40	21.40	0.86	4.62	--	--	4.5	0.320	
1500	23	1.5	26.08	3.56	61.65	19.34	0.85	6.80	--	--	3.7	0.300	
1516	22	1.5	26.66	2.81	56.71	15.08	0.71	5.68	--	--	3.9	0.320	
1526	21	1.5	26.52	2.93	57.81	15.85	0.70	5.79	--	--	2.2	0.270	

<sup>1</sup> The bottle salinity is presented.

Table 38. Nutrient and suspended matter data for 08 April 1992

TIME	STA	DEP	SAL	Concêtrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
local		m	psu	-----		microMolar		-----			mg/L	
1539	21	1.5	27.67	2.13	52.14	10.97	0.55	1.34	--	--	2.4	0.237
1552	22	1.5	27.49	2.08	49.67	10.70	0.56	1.45	--	--	2.5	0.224
1607	23	1.5	27.80	2.46	41.73	12.04	0.63	2.17	--	--	2.3	0.211
1621	24	1.5	27.27 <sup>1</sup>	2.86	41.74	14.31	0.69	2.07	5.42	0.34	3.6	0.238
1636	25	1.5	26.60	3.35	40.13	16.99	0.71	1.61	--	--	4.0	0.260
1653	26	1.5	25.98 <sup>1</sup>	3.75	37.05	18.03	0.78	0.52	--	--	6.0	0.279
1704	27	1.5	25.56 <sup>1</sup>	4.01	34.33	14.09	0.62	0.42	7.04	0.49	6.3	0.319
1714	28	1.5	25.36	4.31	31.38	11.20	0.53	0.53	--	--	11.1	0.423
1729	29	1.5	25.13	5.05	36.09	13.65	0.59	0.72	--	--	8.4	0.361
1740	29.5	1.5	25.08 <sup>1</sup>	5.28	38.57	14.65	0.63	0.98	--	--	9.5	0.381
1754	30	1.5	24.95 <sup>1</sup>	5.89	41.81	16.36	0.67	1.62	8.28	0.63	8.5	0.374
1756	30	15	24.96	5.81	41.92	16.57	0.65	1.60	--	--	11.9	--

continued...

Nutrient and suspended matter data for 08 April 1992 - continued

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
1814	31	1.5	24.53 <sub>1</sub>	7.82	54.54	24.52	0.75	1.30	--	--	10.9	0.484
1829	32	1.5	24.12 <sub>1</sub>	9.03	61.83	28.64	0.81	1.88	7.53	0.70	11.1	0.492
1839	33	1.5	24.04	9.81	63.93	31.35	0.82	0.92	--	--	12.7	0.541
1855	34	1.5	23.62	10.87	66.64	34.17	0.84	0.86	--	--	12.5	0.546
1905	35	1.5	23.36	12.03	70.58	38.38	0.90	0.78	--	--	13.7	0.631
1914	36	1.5	22.57	15.01	77.57	54.55	1.18	1.35	--	--	25.8	1.020

1 The bottle salinity is presented.

Table 39. Nutrient and suspended matter data for 14 April 1992

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
939	36	1.5	23.14	14.65	62.60	43.15	1.05	4.15	--	--	38.4	1.075
939	36	8	23.37	--	--	--	--	--	--	--	116.6	--
954	35	1.5	23.93	10.56	45.96	27.02	0.73	2.46	--	--	22.8	0.836
1006	34	1.5	24.04	11.06	47.43	28.78	0.77	2.37	--	--	11.2	0.544
1023	33	1.5	24.63	7.53	30.87	16.90	0.60	1.54	--	--	9.8	0.435
1023	33	13	24.82 <sub>1</sub>	--	--	--	--	--	--	--	52.1	--
1035	32	1.5	24.75 <sub>1</sub>	7.03	28.89	16.03	0.56	1.18	--	--	7.7	0.387
1054	31	1.5	25.20 <sub>1</sub>	5.59	22.20	11.94	0.51	1.29	--	--	6.4	0.346
1115	30	1.5	25.41 <sub>1</sub>	4.78	18.22	8.59	0.45	0.95	--	--	6.3	0.331
1115	30	13	25.65 <sub>1</sub>	4.43	20.32	9.30	0.47	1.87	--	--	13.4	--
1157	29	1.5	25.59	4.22	15.11	5.93	0.37	0.73	--	--	6.9	0.320
1157	29	16	25.78	4.11	19.93	8.64	0.45	1.83	--	--	6.8	--
1219	28	1.5	26.15 <sub>1</sub>	3.45	19.42	7.27	0.44	0.56	--	--	4.4	0.278
1233	27	1.5	26.49 <sub>1</sub>	2.99	19.65	6.35	0.43	0.30	--	--	4.3	0.263
1233	27	13	26.72	2.89	20.26	7.25	0.45	0.39	--	--	4.1	--
1247	26	1.5	26.87	2.82	20.86	8.01	0.47	0.48	--	--	3.3	0.259
1305	25	1.5	27.36 <sub>1</sub>	2.66	26.93	9.82	0.52	0.99	--	--	4.5	0.282
1320	24	1.5	27.81 <sub>1</sub>	2.47	32.13	9.77	0.50	1.34	--	--	2.8	0.235

1 The bottle salinity is presented.

Table 40. Nutrient and suspended matter data for 22 April 1992

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP	SPM mg/L		
832	36	1.5	22.17 <sup>1</sup>	22.83	90.19	87.21	2.68	8.93	--	--	152.3	3.837	
847	35	1.5	22.87	19.08	79.20	64.26	1.90	7.11	--	--	207.8	4.843	
855	34	1.5	23.35	16.77	73.02	49.69	1.44	5.99	--	--	138.4	3.492	
909	33	1.5	23.94 <sup>1</sup>	14.07	62.10	36.44	1.07	5.28	--	--	57.2	1.773	
919	32	1.5	24.17 <sup>1</sup>	13.08	58.64	31.35	0.92	4.98	--	--	61.3	1.744	
929	31	1.5	24.44 <sup>1</sup>	11.89	53.68	25.39	0.80	4.56	--	--	37.6	1.235	
946	30	1.5	24.94 <sup>1</sup>	9.07	40.76	14.50	0.53	3.78	--	--	53.5	1.610	
946	30	14	24.97	8.64	39.59	13.47	0.49	3.88	--	--	264.9	--	
1004	29.5	1.5	25.10	8.28	36.79	12.55	0.50	3.23	--	--	52.7	1.568	
1014	29	1.5	25.13	8.14	37.05	12.92	0.52	3.22	--	--	61.9	1.742	
1028	28	1.5	25.26 <sup>1</sup>	7.74	35.93	12.10	0.51	3.49	--	--	33.4	1.080	
1039	27	1.5	25.57 <sup>1</sup>	6.70	31.70	9.76	0.45	2.69	--	--	18.9	0.761	
1053	26	1.5	25.86	6.20	30.08	8.71	0.44	2.16	--	--	11.3	0.551	
1108	25	1.5	26.45 <sup>1</sup>	4.80	25.59	5.64	0.37	1.14	--	--	10.9	0.527	
1122	24	1.5	26.99 <sup>1</sup>	2.86	17.21	0.14	0.12	0.10	--	--	6.6	0.375	
1138	23	1.5	27.37	2.70	17.46	0.94	0.21	0.14	--	--	7.1	0.396	
1155	22	1.5	27.13 <sup>1</sup>	3.66	15.47	2.81	0.41	2.57	--	--	11.0	0.512	
1209	21	1.5	26.77 <sup>1</sup>	3.84	19.36	4.26	0.48	3.29	--	--	12.3	0.547	
1209	21	17	27.76 <sup>1</sup>	2.78	27.60	6.05	0.53	1.81	--	--	--	--	

<sup>1</sup> The bottle salinity is presented.

Table 41. Nutrient and suspended matter data for 01 May 1992

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP	SPM mg/L	
1102	36	1.5	23.97 <sup>1</sup>	17.16	84.38	50.60	1.34	5.16	--	--	160.1	3.984
1102	36	7	24.09	--	--	--	--	--	--	--	185.8	--
1122	35	1.5	24.69	13.90	69.54	31.87	0.90	4.55	--	--	103.8	2.750
1133	34	1.5	25.13	11.96	60.94	22.78	0.65	3.61	--	--	33.9	1.141
1159	33	1.5	25.78	8.00	42.12	8.87	0.39	2.20	--	--	28.4	0.918
1159	33	12	25.82 <sup>1</sup>	--	--	--	--	--	--	--	164.1	--
1214	32	1.5	25.73 <sup>1</sup>	8.10	43.23	9.29	0.39	2.56	--	--	18.0	0.739
1233	31	1.5	26.14 <sup>1</sup>	6.97	37.75	6.39	0.31	1.92	--	--	14.1	0.645
1252	30	1.5	26.60 <sup>1</sup>	5.14	28.90	2.39	0.20	2.38	--	--	10.0	0.516
1252	30	14	26.61	5.12	28.64	2.27	0.20	2.38	--	--	45.6	--
continued...												

continued...

## Nutrient and suspended matter data for 01 May 1992 - continued

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
1319	29.5	1.5	26.64	5.06	28.50	2.17	0.20	1.86	--	--	11.8	0.563
1330	29	1.5	26.89	4.45	25.62	1.23	0.14	1.34	--	--	10.5	0.518
1330	29	15	26.93	--	--	--	--	--	--	--	12.1	--
1351	28	1.5	27.00 <sup>1</sup>	3.89	22.87	0.42	0.09	0.63	--	--	5.9	0.398
1405	27	1.5	27.23 <sup>1</sup>	3.15	19.87	0.04	0.04	0.08	--	--	5.1	0.371
1405	27	13	27.63	--	--	--	--	--	--	--	16.7	--
1421	26	1.5	27.48	2.64	20.84	0.02	0.06	0.18	--	--	5.8	0.382
1438	25	1.5	27.73 <sup>1</sup>	2.44	25.58	0.03	0.07	0.32	--	--	6.9	0.377
1453	24	1.5	28.37 <sup>1</sup>	2.19	33.12	3.95	0.24	0.80	--	--	5.6	0.364
1512	23	1.5	28.23	2.14	31.74	2.32	0.18	0.69	--	--	9.1	0.454
1530	22	1.5	28.75	2.03	35.34	5.92	0.30	0.82	--	--	5.3	0.350
1540	21	1.5	28.70	2.17	34.83	5.06	0.26	0.54	--	--	5.5	0.366
1540	21	17	29.88	1.80	33.30	7.89	0.30	1.30	--	--	34.3	--

1 The bottle salinity is presented.

Table 42. Nutrient and suspended matter data for 16 June 1992

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
626	36	1.5	24.71	29.24	139.8	171.2	3.68	9.97	--	--	314.6	6.185
636	35	1.5	26.34	23.79	125.8	105.2	2.26	7.71	--	--	300.6	5.918
645	34	1.5	26.90	21.55	118.9	82.20	1.86	6.56	--	--	317.9	6.076
659	33	1.5	27.68 <sup>1</sup>	18.20	106.8	54.53	1.27	5.10	--	--	132.8	3.299
708	32	1.5	27.87 <sup>1</sup>	17.23	101.6	48.33	1.12	4.48	16.80	0.95	77.4	2.085
719	31	1.5	28.12 <sup>1</sup>	15.93	96.28	41.26	1.00	4.26	--	--	68.5	2.007
736	30	1.5	28.62 <sup>1</sup>	12.88	81.96	25.11	0.76	4.00	13.56	0.73	99.6	2.607
736	30	12	28.63	12.89	81.59	24.41	0.81	4.13	--	--	181.6	--
759	29.5	1.5	28.81	11.37	75.17	20.53	0.71	4.10	--	--	76.8	2.014
810	29	1.5	28.90	10.98	73.44	19.56	0.72	4.10	--	--	55.7	1.645
823	28	1.5	28.98 <sup>1</sup>	10.41	71.46	18.98	0.74	4.60	--	--	54.9	1.564
835	27	1.5	29.06 <sup>1</sup>	9.79	69.61	18.52	0.77	4.84	11.59	0.70	33.5	1.118
848	26	1.5	29.14	9.64	69.24	18.73	0.85	6.63	--	--	41.4	1.270
905	25	1.5	29.34 <sup>1</sup>	8.67	66.40	18.05	0.87	6.73	--	--	48.0	1.438
920	24	1.5	29.91 <sup>1</sup>	5.91	53.17	14.58	0.95	7.56	--	0.48	21.2	0.781
937	23	1.5	29.86	6.42	55.40	15.31	0.96	7.85	--	--	13.2	0.592
956	22	1.5	29.95	6.23	49.96	14.91	1.17	15.09	--	--	11.0	0.562

continued...

Nutrient and suspended matter data for 16 June 1992 - continued

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar		-----			mg/L	
1011	21	1.5	30.48	4.67	44.14	10.98	0.85	9.66	--	--	13.6	0.602

1 The bottle salinity is presented.

Table 43. Nutrient and suspended matter data for 28 July 1992

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar		-----			mg/L	
639	36	1.5	22.30	49.30	203.1	195.2	6.41	20.50	--	--	173.9	4.250
655	35	1.5	25.89	38.35	190.3	138.7	4.50	12.46	--	--	102.4	2.840
707	34	1.5	27.35	32.76	176.7	96.00	3.28	6.82	--	--	46.5	1.520
722	33	1.5	28.99	24.59	156.3	55.73	2.00	5.11	--	--	39.3	1.330
732	32	1.5	29.67 <sup>1</sup>	21.28	145.0	44.87	1.57	3.72	--	--	22.6	0.870
744	31	1.5	30.30 <sup>1</sup>	17.29	129.3	34.23	1.35	3.94	--	--	20.2	0.810
803	30	1.5	30.62 <sup>1</sup>	14.62	117.0	27.84	1.11	3.89	--	--	25.2	0.920
821	29.5	1.5	30.76	13.48	111.6	25.59	1.08	4.01	--	--	23.3	0.860
838	29	1.5	31.15	12.46	105.6	24.19	1.10	4.25	--	--	31.9	1.080
859	28	1.5	31.19 <sup>1</sup>	11.25	98.08	22.93	1.16	5.06	--	--	22.5	0.830
918	27	1.5	30.98 <sup>1</sup>	9.80	88.13	22.57	1.25	5.71	--	--	61.1	1.610
944	26	1.5	31.42	7.58	75.44	22.88	1.29	4.33	--	--	55.6	1.470
1008	25	1.5	31.35 <sup>1</sup>	7.45	74.19	24.23	1.39	4.85	--	--	95.9	2.350
1028	24	1.5	31.30 <sup>1</sup>	5.03	55.02	20.11	1.28	5.94	--	--	65.6	1.600
1045	23	1.5	31.73	3.63	44.44	15.95	0.99	5.12	--	--	35.6	1.150
1109	22	1.5	31.99	2.84	37.71	14.04	0.88	4.33	--	--	40.7	1.120
1126	21	1.5	31.53	3.34	44.06	14.63	0.88	3.98	--	--	19.7	0.780

1 The bottle salinity is presented.



Table 44. Nutrient and suspended matter data for 26 August 1992

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP -----			
639	36	1.5	22.10	40.00	209.5	207.4	5.98	21.22	--	--	--	4.254	
651	35	1.5	27.56	29.79	176.0	87.80	2.79	6.69	--	--	--	2.837	
707	34	1.5	28.03	29.72	172.1	80.20	2.00	3.43	--	--	--	1.520	
726	33	1.5	29.94	22.58	142.8	36.47	1.28	2.57	--	--	--	1.326	
741	32	1.5	30.83 <sup>1</sup>	17.81	116.7	20.82	0.76	2.14	--	--	--	0.869	
751	31	1.5	31.18 <sup>1</sup>	16.71	109.7	17.16	0.72	1.87	--	--	--	0.807	
812	30	1.5	31.56 <sup>1</sup>	13.57	95.89	12.82	0.58	1.59	--	--	--	0.920	
830	29.5	1.5	31.66	12.42	91.49	14.50	0.70	1.63	--	--	--	0.861	
846	29	1.5	31.69	11.26	88.47	17.93	0.89	1.81	--	--	--	1.075	
908	28	1.5	31.68 <sup>1</sup>	10.97	88.21	20.55	1.06	2.14	--	--	--	0.833	
924	27	1.5	31.68 <sup>1</sup>	9.54	82.30	24.62	1.47	2.49	--	--	--	1.612	
939	26	1.5	31.69	8.19	79.28	28.37	1.78	1.18	--	--	--	1.467	
959	25	1.5	31.67 <sup>1</sup>	7.78	77.26	28.29	1.79	2.96	--	--	--	2.352	
1018	24	1.5	31.71 <sup>1</sup>	5.78	61.56	22.79	1.35	4.24	--	--	--	1.596	
1039	23	1.5	31.78	4.13	48.37	18.78	0.97	4.42	--	--	--	1.150	
1057	22	1.5	32.08	3.02	39.69	15.91	0.69	3.72	--	--	--	1.122	
1114	21	1.5	31.49	3.53	47.84	17.60	0.75	3.22	--	--	--	0.782	

<sup>1</sup> The bottle salinity is presented.

Table 45. Nutrient and suspended matter data for 29 September 1992

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP			
735	36	1.5	30.12 <sup>1</sup>	23.83	139.2	73.40	3.29	9.04	--	--	119.1	6.570	
750	35	1.5	30.04	25.93	145.8	85.80	3.50	9.40	--	--	62.3	3.980	
801	34	1.5	30.60	21.61	131.2	60.58	3.18	7.64	--	--	46.6	3.290	
818	33	1.5	31.13 <sup>1</sup>	19.02	119.9	49.15	3.00	5.56	--	--	40.4	2.750	
827	32	1.5	31.19 <sup>1</sup>	18.37	117.3	46.48	2.95	5.10	--	--	28.4	2.260	
841	31	1.5	31.54 <sup>1</sup>	16.01	107.4	38.12	3.05	3.92	--	--	37.9	2.710	
859	30	1.5	31.70 <sup>1</sup>	14.64	101.2	34.43	3.24	3.33	--	--	36.1	2.540	
913	29.5	1.5	31.84	13.46	95.28	30.94	3.38	3.60	--	--	21.2	1.820	
925	29	1.5	31.91	12.38	90.74	30.17	3.78	2.99	--	--	22.2	1.860	
1003	28	1.5	31.97 <sup>1</sup>	11.34	87.08	30.48	4.34	1.90	--	--	27.0	2.080	
1017	27	1.5	31.99 <sup>1</sup>	10.19	82.41	30.26	4.94	2.05	--	--	19.5	1.730	
1031	26	1.5	32.00	9.47	83.14	33.11	6.02	0.00	--	--	22.3	1.880	
continued...													

continued...

Nutrient and suspended matter data for 29 September 1992 - continued

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
1051	25	1.5	32.02 <sup>1</sup>	9.82	85.12	32.80	5.84	0.15	--	--	35.8	2.490
1110	24	1.5	31.89 <sup>1</sup>	7.31	68.64	27.10	5.03	1.24	--	--	41.6	2.700
1128	23	1.5	31.78	4.80	50.04	17.10	1.80	4.11	--	--	32.1	--
1153	22	1.5	31.81	3.30	39.97	14.00	1.05	3.98	--	--	43.2	2.590
1210	21	1.5	31.69	2.98	38.57	12.67	0.73	3.25	--	--	14.1	1.480

1 The bottle salinity is presented.

Table 46. Nutrient and suspended matter data for 03 November 1992

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
736	36	1.5	30.12	19.73	127.9	83.20	6.54	4.14	--	--	25.1	0.781
903	35	1.5	30.70	18.10	121.3	73.02	6.71	2.53	--	--	12.3	0.641
915	34	1.5	30.86	16.56	114.1	65.07	7.20	1.63	--	--	12.2	0.612
932	33	1.5	31.08 <sup>1</sup>	16.01	112.1	60.66	7.03	1.30	--	--	12.4	0.629
949	32	1.5	31.22 <sup>1</sup>	14.87	105.7	54.75	7.43	0.87	--	--	12.3	0.583
1022	31	1.5	31.60 <sup>1</sup>	13.33	98.00	48.29	8.11	0.23	--	--	8.7	0.553
1040	30	1.5	31.70 <sup>1</sup>	13.33	97.99	48.29	8.12	0.07	--	--	5.7	0.498
1053	29.5	1.5	31.69	11.98	88.25	41.53	8.40	1.22	--	--	8.1	0.551
1106	29	1.5	31.71	11.84	85.33	39.95	8.85	5.40	--	--	7.2	0.539
1217	28	1.5	31.81 <sup>1</sup>	11.09	84.44	40.00	9.20	0.31	--	--	10.7	0.633
1230	27	1.5	31.84 <sup>1</sup>	10.15	80.89	36.51	8.57	0.21	--	--	9.5	0.602
1242	26	1.5	31.83	9.17	75.57	32.98	7.42	0.00	--	--	9.8	0.616
1300	25	1.5	31.89 <sup>1</sup>	9.66	77.95	33.13	6.91	0.15	--	--	12.7	0.632
1316	24	1.5	31.74 <sup>1</sup>	8.48	67.83	23.71	3.49	4.57	--	--	8.5	0.582
1352	23	1.5	31.72	9.77	70.59	23.01	2.85	7.42	--	--	6.2	0.528
1412	22	1.5	31.32	4.96	47.48	12.16	1.36	6.07	--	--	6.5	0.523
1425	21	1.5	31.27	4.74	46.32	11.48	1.24	6.35	--	--	5.3	0.505
1510	18.5	1.5	30.65	3.02	42.38	10.09	1.02	4.17	--	--	4.4	0.501
1530	18.5	38	31.82	2.56	32.16	7.90	0.91	4.17	--	--	6.6	--

1 The bottle salinity is presented.

Table 47. Nutrient and suspended matter data for 03 December 1992

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP	SPM mg/L	
1403	21	1.5	30.86	4.93	44.79	16.83	1.22	6.63	--	--	13.3	0.730
1417	22	1.5	30.89	4.20	47.32	19.53	1.77	5.74	--	--	14.8	0.779
1436	23	1.5	31.05	6.19	56.89	24.69	2.40	6.05	--	--	15.7	0.816
1451	24	1.5	31.16 <sup>1</sup>	7.53	64.32	28.71	2.99	6.11	--	--	12.7	0.735
1507	25	1.5	31.42	10.22	79.04	36.02	4.00	5.28	--	--	7.7	0.639
1523	26	1.5	31.47 <sup>1</sup>	10.04	80.33	38.22	5.09	3.46	--	--	11.5	0.717
1536	27	1.5	31.52 <sup>1</sup>	10.32	82.22	39.33	5.46	3.42	--	--	12.7	0.730
1551	28	1.5	31.57	10.50	83.74	40.62	6.01	2.63	--	--	10.9	0.705
1606	29	1.5	31.44	11.80	88.77	46.35	6.62	5.15	--	--	9.6	0.683
1618	29.5	1.5	31.40 <sup>1</sup>	12.34	92.42	50.16	6.62	4.34	--	--	9.5	0.674
1632	30	1.5	31.07 <sup>1</sup>	13.44	98.33	58.39	6.30	4.58	--	--	11.9	0.734
1650	31	1.5	30.63 <sup>1</sup>	15.19	108.0	74.69	5.88	4.78	--	--	11.8	0.737
1702	32	1.5	30.16 <sup>1</sup>	16.59	114.5	86.70	5.73	5.99	--	--	10.2	0.720
1749	33	1.5	30.33	16.63	114.7	87.51	5.72	6.05	--	--	10.4	0.685
1803	34	1.5	30.23	16.85	115.7	89.74	5.67	6.33	--	--	19.9	0.909
1814	35	1.5	29.84 <sup>1</sup>	17.87	120.1	98.84	5.53	7.34	--	--	17.4	0.853
1823	36	1.5	29.70 <sup>1</sup>	18.01	120.2	101.28	5.58	7.59	--	--	50.4	1.574

<sup>1</sup> The bottle salinity is presented.

Table 48. Nutrient and suspended matter data for 26 January 1993

TIME	STA	DEP	SAL	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
local		m	psu	-----		microMolar		-----			mg/L		
732	36	1.5	18.31 <sup>1</sup>	13.27	135.6	121.8	2.49	16.94	--	--	59.0	2.038	
843	35	1.5	19.16	12.36	130.7	109.6	2.33	15.89	--	--	51.6	1.546	
854	34	1.5	19.69	11.36	126.4	96.92	2.13	14.77	--	--	23.4	0.920	
911	33	1.5	20.59 <sup>1</sup>	10.66	119.5	87.32	1.96	13.78	--	--	17.6	0.788	
920	32	1.5	20.82 <sup>1</sup>	10.22	115.7	81.13	1.88	13.49	--	--	15.0	0.734	
1001	31	1.5	22.03 <sup>1</sup>	9.00	106.8	67.51	1.73	13.33	--	--	16.9	0.718	
1022	30	1.5	22.46 <sup>1</sup>	7.37	102.4	53.96	1.44	13.28	--	--	10.2	0.534	
1044	29.5	1.5	22.24	6.25	103.0	45.44	1.24	12.86	--	--	--	0.550	
1058	29	1.5	19.77	5.01	115.6	41.09	1.02	11.70	--	--	7.7	0.505	
1212	28	1.5	20.88 <sup>1</sup>	4.92	115.9	40.78	1.01	11.68	--	--	--	0.509	
1228	27	1.5	18.72 <sup>1</sup>	4.43	123.5	40.30	0.96	11.38	--	--	6.4	0.507	
1317	26	1.5	19.00	4.12	128.7	40.92	0.93	11.24	--	--	5.8	0.544	

continued...

## Nutrient and suspended matter data for 26 January 1993 - continued

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
1337	25	1.5	19.64 <sub>1</sub>	4.41	122.5	40.15	0.97	11.68	--	--	--	0.574
1355	24	1.5	16.80 <sub>1</sub>	3.32	133.9	37.52	0.80	9.83	--	--	10.4	0.608
1413	23	1.5	16.73	3.07	136.7	37.12	0.76	9.26	--	--	8.2	0.627
1433	22	1.5	16.18	3.02	138.5	37.19	0.77	9.32	--	--	--	0.674
1446	21	1.5	17.48	3.15	130.8 <sub>2</sub>	36.21	0.77	9.62	--	--	12.4	0.706
1519	18.5	1.5	16.51	2.59	131.8 <sub>2</sub>	40.95	0.68	7.73	--	--	8.9	0.626

1 The bottle salinity is presented.

2 Filtered sample inadvertently frozen before analysis.

Table 49. Nutrient and suspended matter data for 24 February 1993

TIME local	STA	DEP m	SAL psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar	-----				mg/L		
631	36	1.5	13.10 <sup>1</sup>	11.52	153.2	125.8	2.03	14.45	--	--	116.0	3.008	
650	35	1.5	15.12	10.48	140.2	106.1	1.87	13.46	--	--	--	3.005	
700	34	1.5	17.19	8.95	126.3	82.25	1.57	11.93	--	--	156.2	3.601	
715	33	1.5	15.78 <sup>1</sup>	6.97	129.8	65.95	1.24	9.32	--	--	94.0	2.533	
727	32	1.5	17.91 <sup>1</sup>	7.54	117.9	67.42	1.36	10.92	--	--	53.0	1.597	
744	31	1.5	18.14 <sup>1</sup>	7.20	115.7	63.64	1.33	10.74	--	--	43.8	1.429	
800	30	1.5	19.01 <sup>1</sup>	6.70	110.7	57.22	1.26	10.68	--	--	57.4	1.632	
813	29.5	1.5	20.00	6.08	106.2	50.30	1.20	11.02	--	--	31.8	1.157	
826	29	1.5	20.56	5.90	103.6	47.90	1.18	11.12	--	--	24.1	0.945	
917	28	1.5	21.03 <sup>1</sup>	5.36	99.73	42.58	1.12	10.92	--	--	26.3	0.978	
934	27	1.5	21.26 <sup>1</sup>	5.12	97.93	40.60	1.10	10.83	--	--	26.3	0.985	
949	26	1.5	21.72	4.43	92.30	33.88	1.01	9.42	--	--	23.2	0.899	
1007	25	1.5	22.29 <sup>1</sup>	3.54	91.61	28.71	1.00	9.45	--	--	18.6	0.799	
1029	24	1.5	21.00 <sup>1</sup>	3.44	101.8	29.54	0.98	9.54	--	--	12.6	0.720	
1046	23	1.5	20.63	3.26	104.7	28.83	0.98	9.21	--	--	18.5	0.853	
1108	22	1.5	17.91	2.44	136.8	27.64	0.90	7.46	--	--	--	0.770	
1133	21	1.5	18.00	2.42	137.6	27.66	0.89	7.35	--	--	11.6	0.724	

1 The bottle salinity is presented.

Table 50. Nutrient and suspended matter data for 11 March 1993

TIME	STA	DEP	SAL	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
local		m	psu	-----		microMolar		-----			mg/L	
842	24	1.5	20.47 <sup>1</sup>	2.98	82.58	25.58	0.85	3.96	--	--	18.8	0.726
900	25	1.5	19.27	3.32	83.36	27.65	0.78	2.55	--	--	48.0	1.252
919	26	1.5	18.62	3.81	84.84	31.00	0.79	2.39	--	--	40.2	1.176
934	27	1.5	18.32 <sup>1</sup>	4.25	86.94	35.60	0.80	2.18	--	--	37.7	1.116
949	28	1.5	18.11	4.73	87.86	39.25	0.81	1.35	--	--	26.1	0.934
1005	29	1.5	17.84	5.16	89.56	42.65	0.78	1.56	--	--	43.1	1.276
1023	29.5	1.5	17.58 <sup>1</sup>	5.61	90.63	46.24	0.81	0.52	--	--	18.1	0.745
1038	30	1.5	17.31 <sup>1</sup>	5.90	91.50	49.76	0.82	0.36	--	--	26.1	0.920
1056	31	1.5	16.75 <sup>1</sup>	7.21	95.64	62.00	0.97	0.36	--	--	23.2	0.877
1112	32	1.5	16.50 <sup>1</sup>	7.76	97.31	66.52	1.03	0.31	--	--	23.5	0.873
1121	33	1.5	16.22	8.68	100.1	75.79	1.15	0.47	--	--	27.7	0.990
1139	34	1.5	15.37	11.42	109.3	103.0	1.66	2.22	--	--	36.1	1.198
1149	35	1.5	14.97 <sup>1</sup>	11.61	109.6	105.4	1.71	2.30	--	--	100.9	2.549
1203	36	1.5	14.78 <sup>1</sup>	12.09	111.4	112.6	1.83	2.98	--	--	163.1	3.669

<sup>1</sup> The bottle salinity is presented.

Table 51. Nutrient and suspended matter data for 18 March 1993

TIME	STA	DEP	SAL	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
local		m	psu	-----		microMolar		-----			mg/L	
1044	36	1.5	17.20 <sup>1</sup>	7.54	90.77	50.11	1.06	3.02	--	--	25.9	0.942
1129	35	1.5	17.79	7.69	91.00	52.18	1.14	1.26	--	--	21.1	0.819
1150	34	1.5	17.74	6.79	88.87	43.02	1.03	0.85	--	--	23.8	0.869
1204	33	1.5	17.60 <sup>1</sup>	6.62	87.74	41.59	0.98	1.13	--	--	22.4	0.841
1219	32	1.5	17.71 <sup>1</sup>	6.29	86.78	38.32	0.95	0.88	--	--	21.9	0.829
1228	31	1.5	19.26 <sup>1</sup>	5.02	84.06	29.27	0.82	2.12	--	--	17.9	0.758
1245	30	1.5	18.51 <sup>1</sup>	4.56	81.09	23.12	0.85	0.42	--	--	14.1	0.657
1259	29.5	1.5	19.18	3.42	75.59	14.58	0.70	0.50	--	--	18.8	0.737
1329	29	1.5	19.39	2.98	75.72	12.20	0.75	0.27	--	--	11.6	0.582
1343	28	1.5	20.01 <sup>1</sup>	2.94	75.70	14.65	0.75	1.58	--	--	12.6	0.616
1404	27	1.5	19.75 <sup>1</sup>	2.68	74.14	10.18	0.71	0.51	--	--	12.6	0.585
1427	26	1.5	20.42	2.16	72.58	7.42	0.67	0.46	--	--	11.4	0.536
1443	25	1.5	21.44 <sup>1</sup>	2.16	72.35	10.40	0.66	1.15	--	--	12.2	0.574
1503	24	1.5	22.07 <sup>1</sup>	2.02	72.30	11.96	0.65	1.37	--	--	9.7	0.523
1542	23	1.5	22.36	1.92	71.50	11.56	0.66	1.31	--	--	8.5	0.508

continued...

Nutrient and suspended matter data for 18 March 1993 - continued

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
----- microMolar -----												
--	SM25	0	16.68	3.74	80.47	21.26	0.74	2.17	--	--	--	--
--	SM28	0	16.78	6.72	85.37	38.36	0.96	0.27	--	--	--	--
--	SM42	0	20.30	2.77	75.10	14.34	0.66	1.99	--	--	--	--
--	SM44	0	19.12	2.63	72.30	10.85	0.74	0.17	--	--	--	--
--	REMPA	0	15.38	11.0	105.0	94.5	1.98	1.49	--	--	--	--
--	D3	0	12.40	21.8	137.7	227.5	4.48	13.40	--	--	--	--

1 The bottle salinity is presented.

2 Concentration from analysis of sample diluted 1:10 with distilled water.

Table 52. Nutrient and suspended matter data for 25 March 1993

TIME local	STA	DEP m	SAL <sup>1</sup> psu	Concentrations									TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM		
				-----		microMolar		-----			mg/L		
1044	21	1.5	22.05	1.87	67.83	10.48	0.57	2.51	--	--	6.4	0.475	
1055	22	1.5	18.52	1.95	110.1	17.00	0.77	2.84	--	--	6.8	0.508	
1111	23	1.5	20.03	1.89	90.44	13.86	0.68	2.34	--	--	6.0	0.477	
1123	24	1.5	21.94	1.70	55.58	6.76	0.48	1.34	--	--	13.2	0.608	
1136	25	1.5	22.04	1.07	35.64	0.37	0.13	0.01	--	--	12.5	0.559	
1151	26	1.5	21.96	1.04	28.09	0.12	0.07	0.03	--	--	12.4	0.563	
1204	27	1.5	21.12	1.33	20.51	0.03	0.05	0.02	--	--	9.9	0.474	
1217	28	1.5	20.69	1.59	18.17	0.04	0.06	0.03	--	--	12.5	0.528	
1240	29	1.5	20.64	1.68	18.56	0.04	0.07	0.01	--	--	14.4	0.550	
1253	29.5	1.5	20.61	1.62	18.56	0.04	0.06	0.01	--	--	9.9	0.508	
1302	30	1.5	20.41	1.90	16.42	0.05	0.06	0.01	--	--	19.9	0.705	
1323	31	1.5	19.66	2.61	12.82	0.19	0.08	0.05	--	--	28.5	0.946	
1334	32	1.5	18.92	2.86	6.94	0.06	0.06	0.05	--	--	--	0.652	
1343	33	1.5	18.86	3.44	6.21	0.60	0.09	0.02	--	--	28.1	0.867	
1357	34	1.5	18.59	4.07	11.12	3.45	0.28	0.22	--	--	38.9	1.194	
1407	35	1.5	17.72	5.47	12.16	10.22	0.60	0.02	--	--	36.8	1.239	
1418	36	1.5	16.62	7.61	23.44	29.88	1.36	0.05	--	--	47.3	1.408	

1 All bottle salinities except those for stations 31 and 33.

Table 53. Nutrient and suspended matter data for 30 March 1993

TIME local	STA	DEP m	SAL psu	Concentrations								SPM mg/L	TURB
				DRP -----	SiO2	N+N microMolar	NO2	NH3	DON	DOP			
823	36	1.5	13.38 <sup>1</sup>	10.82	54.06	80.94	2.38	5.66	--	--	38.2	1.219	
835	35	1.5	15.41	8.13	30.28	40.52	1.57	1.14	--	--	32.4	1.053	
845	34	1.5	14.89	9.08	34.00	51.98	1.79	0.80	--	--	32.8	1.074	
900	33	1.5	15.85 <sup>1</sup>	6.13	19.17	22.28	0.98	0.40	--	--	29.6	0.992	
910	32	1.5	15.80 <sup>1</sup>	6.33	17.78	22.70	0.85	0.33	--	--	26.4	0.915	
954	31	1.5	16.57 <sup>1</sup>	5.25	10.67	9.76	0.67	0.48	--	--	33.3	1.041	
1010	30	1.5	17.06 <sup>1</sup>	4.15	3.05	0.83	0.16	0.28	--	--	30.5	0.932	
1023	29.5	1.5	18.16 <sup>1</sup>	3.78	1.23	0.60	0.14	0.12	--	--	22.5	0.786	
1106	29	1.5	18.00 <sup>1</sup>	3.64	0.86	0.29	0.14	0.23	--	--	24.5	0.787	
1202	28	1.5	18.58 <sup>1</sup>	3.36	1.22	0.21	0.12	0.30	--	--	--	0.800	
1216	27	1.5	19.07 <sup>1</sup>	3.00	1.47	0.00	0.10	0.15	--	--	19.1	0.732	
1304	26	1.5	19.49	1.90	31.09	0.94	0.23	0.38	--	--	7.4	0.475	
1321	25	1.5	17.64 <sup>1</sup>	1.67	89.23	8.79	0.54	0.98	--	--	--	0.402	
1339	24	1.5	18.90 <sup>1</sup>	1.51	71.19	5.63	0.44	1.23	--	--	4.4	0.421	
1357	23	1.5	19.11 <sup>2</sup>	1.64	70.78	6.67	0.46	1.62	--	--	--	0.423	
1421	22	1.5	11.6 <sup>2</sup>	1.66	160.6	15.35	0.55	3.32	--	--	7.2	0.584	
1441	21	1.5	14.88	1.75	124.2	12.84	0.50	3.15	--	--	7.1	0.528	
1529	18.5	1.5	17.20 <sup>1</sup>	1.66	122.0 <sup>3</sup>	13.39	0.52	2.92	--	--	5.0	0.485	
1540	18.5	44	30.35 <sup>1</sup>	0.34	32.05 <sup>3</sup>	10.64	0.38	1.19	--	--	--	--	

1 The bottle salinity is presented.

2 Calibrated on-line salinity.

3 Filtered sample probably frozen before analysis.

Table 54. Nutrient and suspended matter data for 15 April 1993

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
644	36	1.5	16.26 <sup>1</sup>	13.26	36.70	53.92	1.88	4.95	--	--	80.3	2.208
658	35	1.5	17.00	10.45	27.70	29.70	1.17	3.50	--	--	59.9	1.740
709	34	1.5	17.38	9.26	24.47	20.90	0.89	2.89	--	--	34.6	1.186
727	33	1.5	17.81 <sup>1</sup>	6.93	10.41	7.54	0.45	1.30	--	--	13.9	0.676
741	32	1.5	17.96 <sup>1</sup>	6.19	8.38	4.97	0.36	0.90	--	--	29.1	1.018
754	31	1.5	17.96 <sup>1</sup>	6.01	6.92	4.10	0.32	0.60	--	--	--	0.642
822	30	1.5	18.07 <sup>1</sup>	4.72	2.82	0.61	0.13	0.48	--	--	8.2	0.484
848	29	1.5	18.18	4.02	3.79	0.45	0.15	0.63	--	--	--	0.411
continued...												

continued...

## Nutrient and suspended matter data for 15 April 1993 - continued

TIME	STA	DEP	SAL	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
local		m	psu	-----		microMolar		-----			mg/L	
956	28	1.5	18.27 <sup>1</sup>	3.68	4.87	0.27	0.11	0.53	--	--	--	0.411
1009	27	1.5	18.31 <sup>1</sup>	3.53	6.56	0.31	0.11	0.81	--	--	4.7	0.405
1021	26	1.5	18.66	2.59	12.88	0.10	0.14	0.25	--	--	--	0.403
1039	25	1.5	20.13 <sup>1</sup>	1.60	30.69	0.11	0.07	0.21	--	--	--	0.405
1055	24	1.5	20.05 <sup>1</sup>	1.32	61.99	2.24	0.24	0.56	--	--	1.9	0.386
1109	23	1.5	20.74	1.38	65.17	3.45	0.30	1.02	--	--	--	0.392
1123	22	1.5	20.78	1.29	64.77	2.90	0.28	0.99	--	--	--	0.402
1136	21	1.5	20.22	1.37	62.73	2.70	0.28	0.70	--	--	2.5	0.404

<sup>1</sup> The bottle salinity is presented.

Table 55. Nutrient and suspended matter data for 14 June 1993

TIME	STA	DEP	SAL	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	
local		m	psu	-----		microMolar		-----			mg/L	
840	36	1.5	22.83 <sup>1</sup>	13.89	106.4	58.28	1.61	0.68	--	--	23.8	--
913	35	1.5	23.47	12.24	101.9	44.56	1.26	0.40	--	--	12.2	2.298
925	34	1.5	24.16	10.73	99.14	33.70	1.02	1.14	--	--	16.3	2.686
942	33	1.5	24.50 <sup>1</sup>	9.34	94.43	28.02	0.90	0.62	--	--	--	2.220
953	32	1.5	24.92 <sup>1</sup>	7.88	90.62	23.17	0.83	0.57	--	--	--	2.126
1022	31	1.5	25.05 <sup>1</sup>	7.57	90.07	22.11	0.79	0.48	--	--	6.4	0.487
1041	30	1.5	24.98 <sup>1</sup>	7.45	89.15	22.26	0.85	1.24	--	--	4.7	0.448
1057	29.5	1.5	25.05	7.10	87.58	22.81	0.93	3.45	--	--	--	0.440
1124	29	1.5	25.12	6.58	85.15	22.35	1.03	5.32	--	--	--	0.459
1222	28	1.5	25.21 <sup>1</sup>	5.78	82.08	21.26	1.07	5.67	--	--	--	0.472
1241	27	1.5	25.25 <sup>1</sup>	5.87	83.08	21.64	1.09	6.40	--	--	--	0.499
1310	26	1.5	25.32	4.06	77.82	17.57	1.05	4.24	--	--	2.2	0.418
1325	25	1.5	25.12 <sup>1</sup>	3.98	78.18	17.17	1.05	3.33	--	--	0.7	0.399
1341	24	1.5	24.07 <sup>1</sup>	3.32	73.34	14.20	0.88	1.69	--	--	1.7	--
1357	23	1.5	23.24	2.77	68.90	12.37	0.76	1.83	--	--	--	0.407
1416	22	1.5	22.27	2.34	66.95	11.68	0.67	3.83	--	--	1.6	0.420
1430	21	1.5	21.72	2.27	67.69	11.74	0.63	3.45	--	--	--	0.422
1506	18.5	1.5	22.50 <sup>1</sup>	2.10	63.89	12.20	0.64	4.01	--	--	3.7	0.464
1525	18.5	39	31.34 <sup>1</sup>	1.86	33.45	17.12	0.60	3.54	--	--	--	--

<sup>1</sup> The bottle salinity is presented.



Table 56. Nutrient and suspended matter data for 10 August 1993

TIME local	STA	DEP m	SAL psu	Concentrations								TURB <sup>1</sup>
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
657	36	1.5	25.97 <sup>2</sup>	20.33	183.4	60.91	2.80	12.52	--	--	26.9	1.011
710	35	1.5	26.47	17.97	173.5	48.60	2.27	10.70	--	--	--	1.062
721	34	1.5	27.09	15.22	158.7	33.57	1.61	7.95	--	--	31.8	1.246
737	33	1.5	26.32	13.03	147.6	23.80	1.15	5.77	--	--	--	0.933
748	32	1.5	27.52 <sup>2</sup>	12.06	142.2	22.62	1.02	4.64	--	--	15.3	0.873
801	31	1.5	26.57 <sup>2</sup>	11.82	139.6	24.63	1.10	5.18	--	--	--	0.819
822	30	1.5	27.66 <sup>2</sup>	11.22	133.8	23.22	1.08	5.53	--	--	2.6	0.744
845	29	1.5	26.86	10.30	123.8	26.13	1.25	7.50	--	--	5.3	1.015
930	28	1.5	27.04 <sup>2</sup>	9.76	119.7	25.90	1.34	7.52	--	--	--	0.798
946	27	1.5	27.98 <sup>2</sup>	9.06	114.1	25.18	1.32	7.42	--	--	5.3	1.078
1000	26	1.5	27.44	6.99	97.77	23.44	1.20	6.39	--	--	--	1.030
1017	25	1.5	27.82 <sup>2</sup>	5.44	82.35	21.61	1.27	7.14	--	--	4.8	0.883
1034	24	1.5	29.08 <sup>2</sup>	4.20	67.73	19.25	1.39	9.49	--	--	4.1	0.944
1048	23	1.5	28.06	4.23	67.90	19.08	1.32	9.71	--	--	--	0.972
1122	22	1.5	27.54	3.07	57.02	15.45	1.00	7.57	--	--	--	0.947
1158	21	1.5	27.20	2.82	56.49	14.80	0.90	7.42	--	--	2.7	0.968

1 Affected by an air leak in the pumping system. See text.

2 The bottle salinity is presented.

Table 57. Nutrient and suspended matter data for 05 October 1993

TIME local	STA	DEP m	SAL psu	Concentrations								TURB
				DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM mg/L	
				-----		microMolar		-----				
746	36	1.5	26.48 <sup>1</sup>	21.72	186.1	86.25	2.70	10.76	--	--	41.2	1.247
855	35	1.5	26.54	22.00	188.1	89.49	2.81	11.21	--	--	44.6	1.459
905	34	1.5	27.19	19.62	176.8	72.93	2.25	9.60	--	--	22.9	0.925
921	33	1.5	27.86 <sup>1</sup>	17.83	166.9	60.32	1.90	8.46	--	--	--	0.940
934	32	1.5	28.27 <sup>1</sup>	16.08	156.2	50.76	1.63	7.38	--	--	18.5	0.804
1004	31	1.5	28.70 <sup>1</sup>	14.44	145.3	43.06	1.44	6.40	--	--	--	0.725
1023	30	1.5	29.02 <sup>1</sup>	12.48	132.1	37.06	1.38	6.30	--	--	9.0	0.552
1106	29	1.5	29.24	11.16	122.5	33.94	1.37	6.65	--	--	--	0.530
1135	29	1.5	29.31	10.63	118.1	32.45	1.38	9.95	--	--	--	0.516
1221	28	1.5	29.39 <sup>1</sup>	9.94	114.5	31.82	1.35	6.82	--	--	6.6	0.497
1239	27	1.5	29.54 <sup>1</sup>	8.61	104.3	31.37	1.38	6.08	--	--	--	0.518
1321	26	1.5	29.69	7.36	93.62	30.08	1.49	7.18	--	--	11.2	0.589
1340	25	1.5	29.86	6.03	79.23	25.89	1.46	8.89	--	--	19.5	0.738

continued...

## Nutrient and suspended matter data for 05 October 1993 - continued

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar		-----			mg/L	
1358	24	1.5	30.18 <sup>1</sup>	3.80	58.22	20.55	1.23	8.02	--	--	--	0.553
1416	23	1.5	30.22	3.47	55.39	19.30	1.21	7.94	--	--	--	0.511
1438	22	1.5	30.35	3.17	52.20	18.39	1.15	7.62	--	--	--	0.457
1459	21	1.5	30.13	3.06	52.49	17.58	1.06	7.81	--	--	--	0.513
1533	18.5	1.5	31.96 <sup>1</sup>	2.15	33.48	16.44	1.12	3.25	--	--	5.6	0.419
1533	18.5	37	32.07 <sup>1</sup>	2.08	32.32	16.32	1.14	3.34	--	--	9.1	--

<sup>1</sup> The bottle salinity is presented.

Table 58. Nutrient and suspended matter data for 09 November 1993

Concentrations												
TIME	STA	DEP	SAL	DRP	SiO2	N+N	NO2	NH3	DON	DOP	SPM	TURB
local		m	psu	-----		microMolar		-----			mg/L	
1353	21	1.5	30.07	4.85	64.86	20.68	1.21	10.78	--	--	--	0.501
1408	22	1.5	30.08	4.82	65.74	21.97	1.27	9.57	--	--	9.3	0.484
1429	23	1.5	29.77 <sup>1</sup>	0.00	90.62	31.47	1.89	8.62	--	--	--	0.523
1446	24	1.5	29.87 <sup>1</sup>	6.92	85.92	30.69	1.84	6.63	--	--	--	0.466
1501	25	1.5	29.81	7.57	93.33	33.33	2.16	5.17	--	--	10.7	0.512
1519	26	1.5	29.70 <sup>1</sup>	8.46	95.75	31.48	2.10	5.05	--	--	7.3	0.456
1532	27	1.5	29.51 <sup>1</sup>	9.27	102.19	34.55	2.19	5.82	--	--	--	0.485
1545	28	1.5	29.44	9.85	107.48	36.98	2.15	4.48	--	--	--	0.465
1600	29	1.5	29.16	11.14	116.38	42.54	2.09	4.29	--	--	6.3	0.452
1612	30	13	29.11 <sup>1</sup>	11.71	119.60	44.29	2.00	4.01	--	--	--	0.469
1624	30	1.5	28.71 <sup>1</sup>	11.83	126.56	51.17	2.06	4.11	--	--	--	0.477
1642	31	1.5	28.16 <sup>1</sup>	14.74	141.78	67.19	2.20	4.08	--	--	8.8	0.497
1653	32	1.5	27.65 <sup>1</sup>	15.81	148.78	76.63	2.34	4.40	--	--	--	0.486
1701	33	1.5	27.52	16.20	151.52	80.58	2.43	4.44	--	--	--	0.490
1726	35	1.5	26.64 <sup>1</sup>	18.40	166.91	104.4	2.86	5.86	--	--	17.4	0.755
1735	36	1.5	26.01 <sup>1</sup>	19.54	174.22	117.9	3.20	7.92	--	--	19.2	0.807

<sup>1</sup> The bottle salinity is presented.