Semiannual water column monitoring report

February - July 2000

Massachusetts Water Resources Authority

Environmental Quality Department
Report ENQUAD 2000-19

Citation:

Libby PS, McLeod LA, Mongin CJ, Keller AA, Oviatt CA, Turner JT. 2000. **Semiannual water column monitoring report: February – July 2000**. Boston: Massachusetts Water Resources Authority. Report ENQUAD 2000-19. p. 151 plus appendices.

SEMIANNUAL WATER COLUMN MONITORING REPORT

February – July 2000

Submitted to

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October 27, 2000

Report No. 2000-19

EXECUTIVE SUMMARY

The Massachusetts Water Resources Authority (MWRA) has collected water quality data in Massachusetts and Cape Cod Bays for the Harbor and Outfall Monitoring (HOM) Program since 1992. This monitoring is in support of the HOM Program mission to assess the potential environmental effects of the relocation of effluent discharge from Boston Harbor to Massachusetts Bay. The data are being collected to establish baseline water quality conditions and ultimately to provide the means to detect significant departure from that baseline. The surveys have been designed to evaluate water quality on both a high-frequency basis for a limited area in the vicinity of the outfall site (nearfield) and a low-frequency basis over an extended area throughout Boston Harbor, Massachusetts Bay, and Cape Cod Bay (farfield). This semi-annual report summarizes water column monitoring results for the nine surveys conducted from February through July 2000.

The winter to spring transition in Massachusetts and Cape Cod Bays is characterized by a typical series of physical, biological, and chemical events: seasonal stratification, the winter/spring phytoplankton bloom, and nutrient depletion. This was generally the case in 2000. There was a major winter/spring bloom of *Phaeocystis pouchetii* in March/April that was coincident with very high chlorophyll concentrations and the surface waters were depleted in nutrients following the bloom from April through July. The onset of seasonal stratification was delayed in the bays in 2000 due to mixing events associated with inclement weather.

From February to March, the water column was well mixed and relatively high concentrations of nutrients were measured. Nearfield surface nutrient concentrations decreased over this time period coincident with increasing chlorophyll concentrations, elevated primary production rates, and the initiation of the *Phaeocystis* bloom. By late February, there was an increase in phytoplankton abundance in Cape Cod Bay and southern Massachusetts Bay with a mixed assemblage dominated by microflagellates and centric diatoms. By March, phytoplankton abundance had begun to increase in the nearfield and the assemblage was dominated centric diatoms and *Phaeocystis pouchetii*, which was the winter/spring bloom species for 2000.

The onset of stratification was observed during the April survey in Boston Harbor and at the deep boundary stations. The development of stratification at these stations was primarily driven by a decrease in surface salinity, as surface and bottom water temperatures remained relatively unchanged. By June, surface water temperatures had increased by ~7°C throughout the bays and a strong density gradient was observed at the offshore and boundary stations. Due to storm events and associated mixing, stratification was still weak at the shallower coastal, Cape Cod Bay, nearfield, and Boston Harbor stations. By July, a strong density gradient and stratified conditions had become established in the nearfield.

The nutrient data for February to July 2000 generally followed the "typical" progress of seasonal events in the Massachusetts and Cape Cod Bays. Maximum nutrient concentrations were observed in early February when the water column was well mixed and biological uptake of nutrients was limited. The winter/spring *Phaeocystis* bloom reduced nutrient concentrations in the surface waters from March to April. Nutrient concentrations remained depleted throughout much of the region through June and July. The harbor signal of elevated nutrient concentrations (especially ammonium) was observed throughout this time period. During the *Phaeocystis* bloom, however, even nutrient concentrations in Boston Harbor decreased substantially.

The most significant event during the February to July 2000 time period was the system-wide bloom of *Phaeocystis pouchetii*. Phytoplankton abundance reached unprecedented levels in April with *Phaeocystis* abundance levels approaching 14 million cells L^{-1}. In correlation with the *Phaeocystis* bloom, the mean chlorophyll concentration for the nearfield for winter/spring was higher than any previous winter/spring

mean obtained during the baseline monitoring period and exceeded the provisional chlorophyll threshold value that had been calculated as two times the baseline mean for 1992 to 1998. The elevated chlorophyll concentrations and phytoplankton abundance were concomitant with high production rates in the nearfield and Boston Harbor. The typical primary production pattern at harbor station F23 is for rates to increase from winter through summer, which is distinct from the winter/spring peaks typically observed in the nearfield. In 2000, this was not the case as peak production at station F23 occurred in April. The earlier occurrence of peak production values in the harbor was due to the system-wide *Phaeocystis* bloom. The bloom of *Phaeocystis pouchetii* was the only bloom of harmful or nuisance phytoplankton species in Massachusetts and Cape Cod Bays during February – July, 2000. The dinoflagellate *Alexandrium tamarense* and diatoms of *Pseudo-nitzschia pungens* and *Pseudo-nitzschia* spp. were recorded, but abundance levels were extremely low (tens to hundreds of cells L^{-1}).

Dissolved oxygen concentrations in 2000 were within the range of values observed during previous years and followed the typical trends. In February, DO concentrations were high and consistent across the region. By April, vertical gradients in DO concentration were observed due to the high rates of biological production. Between the April and June surveys, there was a sharp decline in bottom water DO throughout the bays (1-3 mgL^{-1}). The trend of declining bottom water DO concentrations following the establishment of stratification and the cessation of the winter/spring bloom is typical for the bays. The decline observed in 2000 was less than that seen during 1999, which also saw a significant winter/spring bloom. The reason for the difference is likely due to increased mixing caused by April and June storm events and lower respiration rates in 2000. The higher June bottom water DO concentrations in 2000 in comparison to 1999 may be an indication that bottom water DO concentrations this fall may not achieve the very low levels seen the fall of 1999.

Zooplankton abundance generally increased from February through July. Nearfield counts of nearly 300 x 10^3 animals m^{-3} in June were among the highest for the entire 1992-2000 baseline period. The high June abundance observed in the nearfield was due to a very high number of bivalve veligers at station N16 and is indicative of the biological (spawning) and physical (tides and currents) variability associated with meroplankton abundances and distribution in Massachusetts Bay. In general, zooplankton assemblages during the first half of 2000 were comprised of taxa typically present in the bays. In 2000, levels of *Acartia* spp. rebounded from the unusually low values of the previous year, which were possibly due to drought, to more typical levels during the rainy spring and early summer of this year.

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(Note: Hard copies of the appendices are available upon request from the Environment Quality Department at 617-788-4700)

1.0 INTRODUCTION

1.1 Program Overview

The Massachusetts Water Resources Authority (MWRA) has implemented a long-term Harbor and Outfall Monitoring (HOM) Program for Massachusetts and Cape Cod Bays. The objective of the HOM Program is to (1) test for compliance with NPDES permit requirements; (2) test whether the impact of the discharge on the environment is within the bounds projected by the SEIS; and (3) test whether change within the system exceeds the Contingency Plan thresholds. A detailed description of the monitoring and its rationale is provided in the Effluent Outfall Monitoring Plan developed for the baseline period and the post discharge monitoring plan (MWRA, 1997a).

To help establish the present water quality conditions with respect to nutrients, water properties, phytoplankton and zooplankton, and water-column respiration and productivity, the MWRA conducts baseline water quality surveys in Massachusetts and Cape Cod Bays. The surveys have been designed to evaluate water quality on both a high-frequency basis for a limited area (nearfield) and a low-frequency basis for an extended area (farfield). The nearfield stations are located in the vicinity of the outfall site (Figure 1-1) and the farfield stations are located throughout Boston Harbor, Massachusetts Bay, and Cape Cod Bay (Figure 1-2). The stations for the farfield surveys have been further separated into regional groupings according to geographic location to simplify regional data comparisons. This semi-annual report summarizes water column monitoring results for the nine surveys conducted from February through July 2000 (Table 1-1).

Table 1-1. Water Quality Surveys for WF001-WN009 February to July 2000

Survey #	Type of Survey	Survey Dates
WF001	Nearfield/Farfield	February 2 – 5
WF002	Nearfield/Farfield	February 23 – 27
WN003	Nearfield	March 14
WF004	Nearfield/Farfield	March 30 – April 7
WN005	Nearfield	May 1
WN006	Nearfield	May 17
WF007	Nearfield/Farfield	June 8 – 13
WN008	Nearfield	July 6
WN009	Nearfield	July 19

Initial data summaries, along with specific field information, are available in individual survey reports submitted immediately following each survey. In addition, nutrient data reports (including calibration information, sensor and water chemistry data), plankton data reports, and productivity and respiration data reports are each submitted five times annually. Raw data summarized within this or any of the other reports are available from MWRA in hard copy and electronic formats.

1.2 Organization of the Semi-Annual Report

The scope of the semi-annual report is focused primarily towards providing an initial compilation of the water column data collected during the reporting period. Secondarily, integrated physical and biological results are discussed for key water column events and potential areas for expanded discussion in the annual water column report are recommended. The report first provides a summary of the survey and laboratory methods (Section 2). The bulk of the report, as discussed in further detail below, presents results of water column data from the first nine surveys of 2000 (Sections 3-5). Finally, the major findings of the semi-annual period are summarized in Section 6.

Section 3 data are provided in data summary tables. The summary tables include the major numeric results of water column surveys in the semi-annual period by survey. A description of data selection, integration information, and summary statistics are included with that section.

Sections 4 (Results of Water Column Measurements) and 5 (Productivity, Respiration, and Plankton Results) include preliminary interpretation of the data with selected graphic representations of the horizontal and vertical distribution of water column parameters in both the farfield and nearfield. The horizontal distribution of physical parameters is presented through regional contour plots. The vertical distribution of water column parameters is presented using time-series plots of averaged surface and bottom water column parameters and along vertical transects in the survey area (Figure 1-3). The time-series plots utilize average values of the surface water sample (the “A” depth, as described in Section 3), and the bottom water collection depth (the “E” depth). Examining data trends along four farfield transects (Boston-Nearfield, Cohassett, Marshfield and Nearfield-Marshfield), and one nearfield transect, allows three-dimensional analysis of water column conditions during each survey. One offshore transect (Boundary) enables analysis of results in the outer most boundary of the survey area during farfield surveys.

Results of water column physical, nutrient, chlorophyll, and dissolved oxygen data are provided in Section 4. Survey results were organized according to the physical characteristics of the water column during the semi-annual period. The timing of water column vertical stratification, and the physical and biological status of the water column during stratification, significantly effects the temporal response of the water quality parameters, which provide a major focus for assessing effects of the outfall. This report describes the horizontal and vertical characterization of the water column during pre-stratification stage (WF001 – WF004), and then further delineated processes occurring during the early stratification stage (WN005 – WN009). Time-series data are commonly provided for the entire semi-annual period for clarity and context of the data presentation.

Productivity, respiration, and plankton measurements, along with corresponding discussion of chlorophyll and dissolved oxygen results, are provided in Section 5. Discussion of the biological processes and trends during the semi-annual period is included in this section. A summary of the major water column events and unusual features of the semi-annual period is presented in Section 6. References are provided in Section 7.

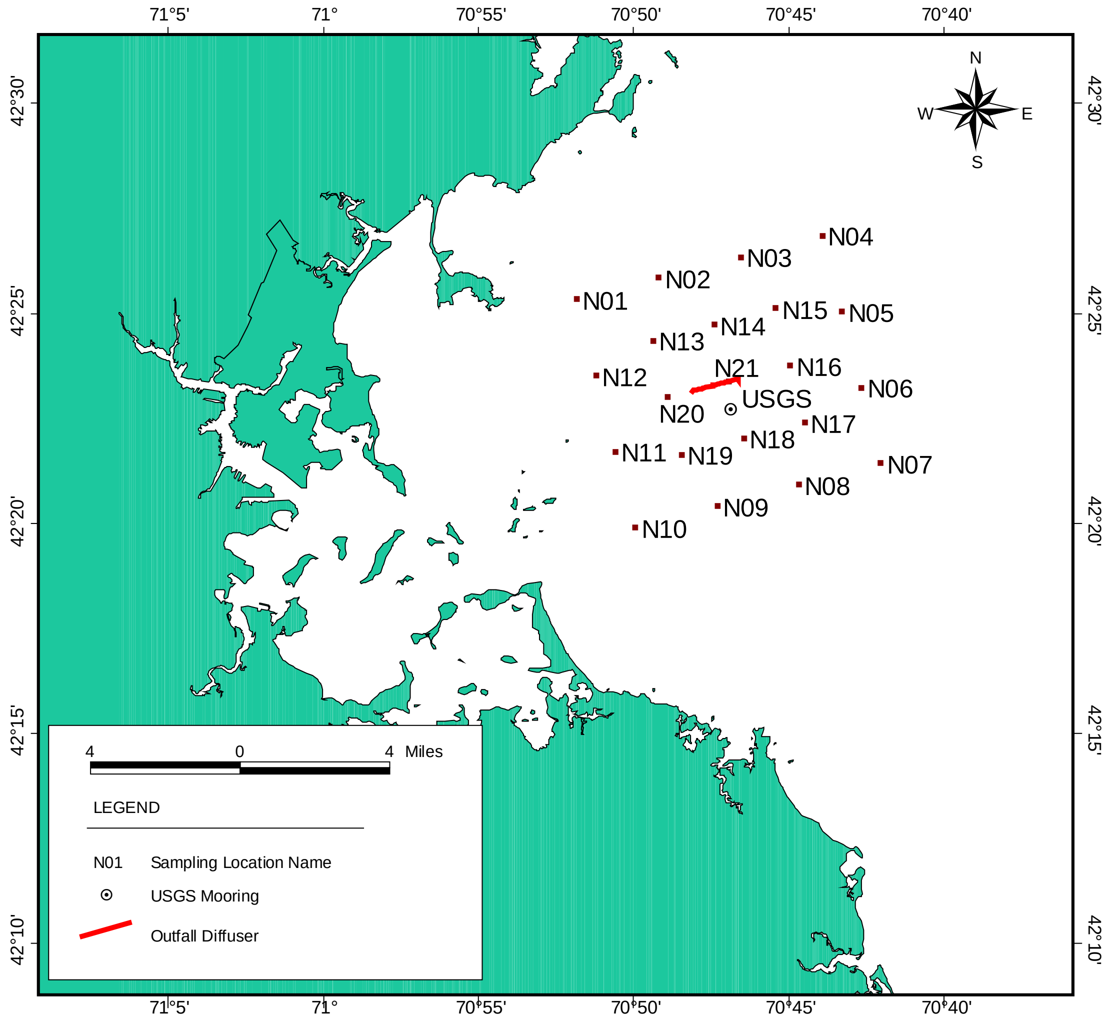


Figure 1-1. Locations of MWRA Offshore Outfall, Nearfield Stations and USGS Mooring

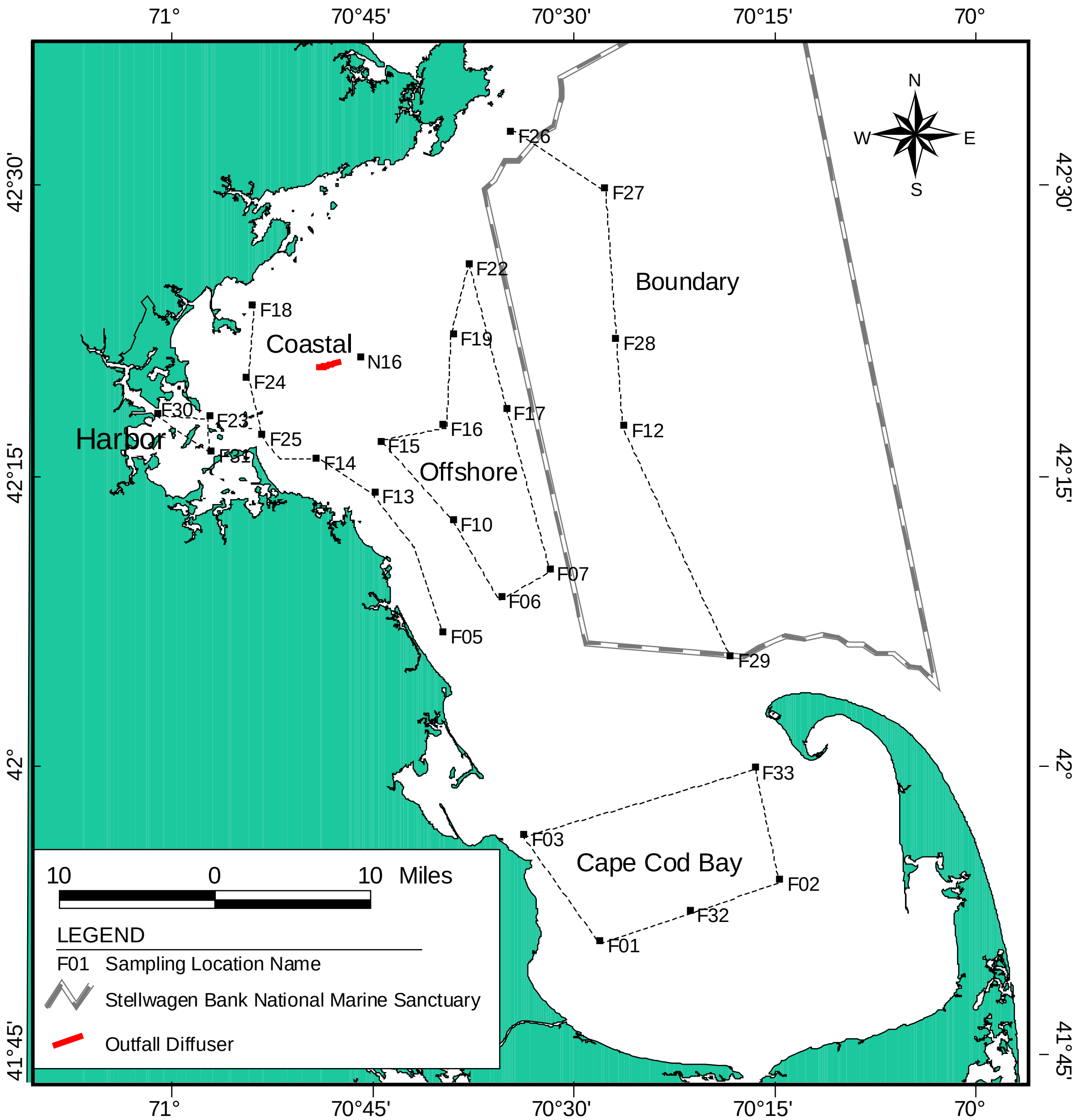


Figure 1-2. Locations of Farfield Stations and Regional Station Groupings

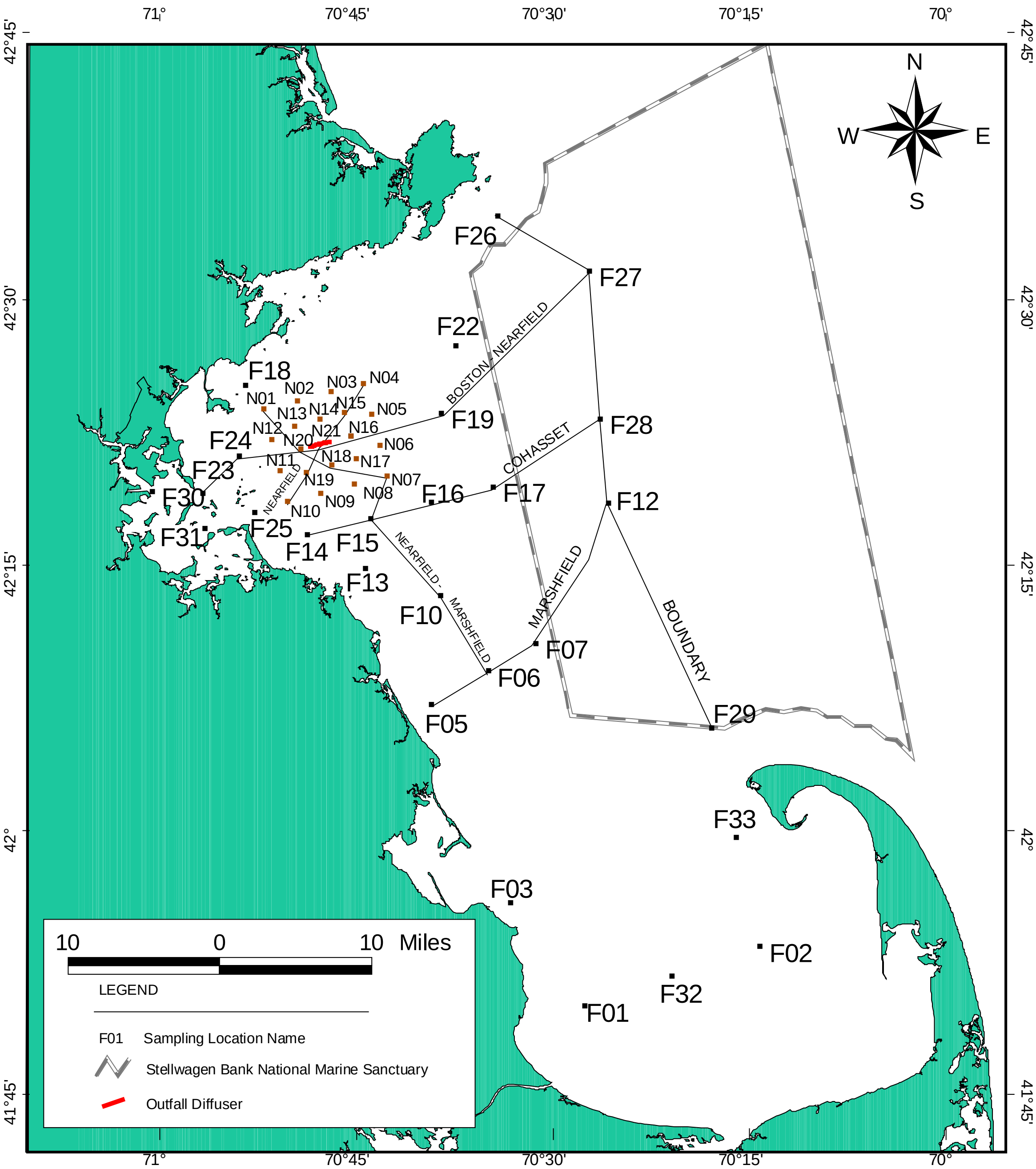


Figure 1-3. Locations of Stations and Selected Transects

2.0 METHODS

This section describes general methods of data collection and sampling for the first nine water column monitoring surveys of 2000. Section 2.1 describes data collection methods, including survey dates, sampling platforms, and analyses performed. Section 2.2 describes the sampling schema undertaken, and Section 2.3 details specific operations for the first 2000 semi-annual period. Specific details of field sampling and analytical procedures, laboratory sample processing and analysis, sample handling and custody, calibration and preventative maintenance, documentation, data evaluation, and data quality procedures are discussed in the Water Quality Monitoring CW/QAPP (Albro *et al*., 1998). Details on productivity sampling procedures and analytical methods are also available in Appendix A.

2.1 Data Collection

The farfield and nearfield water quality surveys for 2000 represent a continuation of the baseline water quality monitoring conducted from 1992 – 1999. The monitoring program has been improved over the years as more data have been collected and evaluated. In 1998, two Cape Cod Bay stations (F32 and F33) were added to better capture the winter/spring variability in zooplankton abundance and species in these Right whale feeding grounds. During the first three farfield surveys of 2000, these two stations were again sampled for zooplankton and hydrographic (CTD) properties. For the 2000 monitoring, a decision was made to collect more data at stations 'upstream' of the nearfield area (stations F22 and F26). Additional nutrient parameters were measured at these stations starting in February (WF001) and during the April survey (WF004) phytoplankton and zooplankton samples were also added to the list of parameters measured at these stations to better define biological conditions at the northeastern boundary of Massachusetts Bay. These additional parameters continue to be measured at stations F22 and F26 during each farfield survey.

Water quality data for this report were collected from the sampling platforms *R/V Aquamonitor* and *F/V Isabel S.* Continuous vertical profiles of the water column and discrete water samples were collected using a CTD/Go-Flo Bottle Rosette system. This system includes a deck unit to control the system, display *in situ* data, and store the data, and an underwater unit comprised of several environmental sensors, including conductivity, temperature, depth, dissolved oxygen, transmissometry, irradiance, and fluorescence. These measurements were obtained at each station by deploying the CTD; in general, one cast was made at each station. Water column profile data were collected during the downcast, and water samples were collected during the upcast by closing the Go-Flo bottles at selected depths, as discussed below.

Water samples were collected at five depths at each station, except at stations F30, F31, F32, and F33. Stations F30 and F31 are shallow and require only three depths while only zooplankton samples are collected at F32 and F33. These depths were selected during CTD deployment based on positions relative to the pycnocline or subsurface chlorophyll maximum. The bottom depth (within 5 meters of the sea floor) and the surface depth (within 3 meters of the water surface) of each cast remained constant and the mid-bottom, middle and mid-surface depths were selected to represent any variability in the water column. In general, the selected middle depth corresponded with the chlorophyll maximum and or pycnocline. When the chlorophyll maximum occurred significantly below or above the middle depth, the mid-bottom or mid-surface sampling event was substituted with the mid-depth sampling event and the "mid-depth" sample was collected within the maximum. In essence, the "mid-depth" sample in these instances was not collected from the middle depth, but shallower or deeper in the water column in order to capture the chlorophyll maximum layer. These nomenclature semantics result from a combination of field logistics and scientific relevance. In the field, the switching of the "mid-depth" sample with the mid-surface or mid-bottom was transparent to everyone except the NAVSAM operator who observed the subsurface chlorophyll structure and marked the events. The samples were processed in a consistent manner and a more comprehensive set of analyses were conducted for the surface, mid-depth/chlorophyll maximum, and bottom samples.

Samples from each depth at each station were collected by subsampling from the Go-Flo bottles into the appropriate sample container. Analyses performed on the water samples are summarized in Table 2-1. Samples for dissolved inorganic nutrients (DIN), dissolved organic carbon (DOC), total dissolved nitrogen (TDN) and phosphorus (TDP), particulate organic carbon (POC) and nitrogen (PON), biogenic silica, particulate phosphorus (PP), chlorophyll *a* and phaeopigments, total suspended solids (TSS), urea, and phytoplankton (screened and rapid assessment) were filtered and preserved immediately after obtaining water from the appropriate Go-Flo bottles. Whole water phytoplankton samples (unfiltered) were obtained directly from the Go-Flo bottles and immediately preserved. Zooplankton samples were obtained by deploying a zooplankton net overboard and making an oblique tow of the upper two-thirds of the water column but with a maximum tow depth of 30 meters. Productivity samples were collected from the Go-Flo bottles, stored on ice and transferred to University of Rhode Island (URI) employees. Incubation was started no more that six hours after initial water collection at URI's laboratory. Respiration samples were collected from the Go-Flo bottles at four stations (F19, F23, N04, and N18). Incubations of the dark bottles were started within 30 minutes of sample collection. The dark bottle samples were maintained at a temperature within 2°C of the collection temperature for five to seven days until analysis.

2.2 Sampling Schema

A synopsis of the sampling schema for the analyses described above is outlined in Tables 2-1, 2-2, and 2-3. Station designations were assigned according to the type of analyses performed at that station (see Table 2-1). Productivity and respiration analyses were also conducted at certain stations and represented by the letters P and R, respectively. Table 2-1 lists the different analyses performed at each station. Tables 2-2 (nearfield stations) and 2-3 (farfield stations) provide the station name and type, and show the analyses performed at each depth. Station N16 is considered both a nearfield station (where it is designated as type A) and a farfield station (where it is designated a type D). Stations F32 and F33 are occupied during the first three farfield surveys of each year and collect zooplankton samples and hydrocast data only (designated as type Z). During 2000, a decision was made to collect more data at stations F22 and F26. Phytoplankton, zooplankton and additional nutrient samples were taken at these stations starting in 2000. Stations F22 and F26 were sampled as type A stations (additional nutrients) during the first two farfield surveys (WF001 and WF002) and as type D stations (addition of plankton samples) during the last two farfield surveys of this time period (WF004 and WF007).

Table 2-1. Station Types and Numbers (Five Depths Collected Unless Otherwise Noted)

Station Type	A	D	E	F	G[1]	P	R[5]	Z
Number of Stations	5	10[4]	24	3	2	3	1	2
Analysis Type								
Dissolved inorganic nutrients (NH_4, NO_3, NO_2, PO_4, and SiO_4)	●	●	●	●	●	●		
Other nutrients (DOC, TDN, TDP, PC, PN, PP, Biogenic Si)[1]	●	●			●	●		
Chlorophyll [1]	●	●			●	●		
Total suspended solids [1]	●	●			●	●		
Dissolved oxygen	●	●		●	●	●		
Phytoplankton, urea [2]		●			●	●		
Zooplankton[3]		●			●	●		●
Respiration [1]						●	●	
Productivity, DIN						●		

[1]Samples collected at three depths (bottom, mid-depth, and surface)
[2]Samples collected at two depths (mid-depth and surface)
[3]Vertical tow samples collected
[4]Stations F22 and F26 accounted as type D stations in this table
[5]Respiration samples collected at type F station F19

2.3 Operations Summary

Field operations for water column sampling and analysis during the first semi-annual period were conducted as described above. Deviations from the CW/QAPP for surveys WF002, WN003, WF004, WN005, WF007, WN008, and WN009 had no effect on the data or data interpretation. The principal deviations for surveys WF001 and WN006 are described below. For additional information about a specific survey, the individual survey reports may be consulted.

During survey WF001, productivity samples were not collected at station F23 during the first visit to that site on the nearfield portion of the survey (February 3). Productivity samples are normally collected at stations F23, N04, and N18 on the same day, but in this instance, productivity samples at station F23 were collected the following morning (February 4) at 7:15 a.m.

During the nearfield survey in mid-May (WN006), the respiration samples were allowed to rise to room temperature over a 12-hour period. The temperature was corrected upon discovery, but the data are qualified as suspect and not included in this report.

Table 2-2. Nearfield Water Column Sampling Plan (3 Pages)

Nearfield Water Column Sampling Plan

StationID	Depth (m)	Station Type	Depths	Total Volume at Depth (L)	Number of 9-L GoFlos	Dissolved Inorganic Nutrients	Dissolved Organic Carbon	Total Dissolved Nitrogen and Phosphorous	Particulate Organic Carbon and Nitrogen	Particulate Phosphorous	Biogenic silica	Chlorophyll a	Total Suspended Solids	Dissolved Oxygen	Rapid Analysis Phytoplankton	Whole Water Phytoplankton	Screened Water Phytoplankton	Zooplankton	Urea	Respiration	Photosynthesis by carbon-14	Dissolved Inorganic Carbon
			Protocol Code			IN	OC	NP	PC	PP	BS	CH	TS	DO	RP	WW	SW	ZO	UR	RE	AP	IC
			Volume (L)			1	0.1	0.1	1	0.6	0.3	0.5	1	1	4	1	4	1	0.1	1	1	1
			1_Bottom	8.5	2	1	1	1	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								
N01	30	A	3_Mid-Depth	10	2	2	1	1	2	2	2	2	2	1								
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	8.5	2	1	1	1	2	2	2	1	2	1								
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N02	40	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N03	44	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	15.5	2	1	1	1	2	2	2	1	2							6	1	1
			2_Mid-Bottom	4.5	1	1						1		1							1	1
N04	50	D+	3_Mid-Depth	22.1	2	2	1	1	2	2	2	2	2			1	1		1	6	1	1
		R+	4_Mid-Surface	4.5	1	1						1		1							1	1
		P	5_Surface	20.6	2	1	1	1	2	2	2	1	2			1	1		1	6	1	1
			6_Net Tow															1				
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N05	55	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N06	52	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	10.5	2	1	1	1	2	2	2	1	2	3								
			2_Mid-Bottom	2.5	1	1						1		1								
N07	52	A	3_Mid-Depth	10	2	2	1	1	2	2	2	2	2	1								
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	10.5	2	1	1	1	2	2	2	1	2	3								
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N08	35	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																

Nearfield Water Column Sampling Plan

StationID	Depth (m)	Station Type	Depths	Total Volume at Depth (L)	Number of 9-L GoFlos	Dissolved Inorganic Nutrients	Dissolved Organic Carbon	Total Dissolved Nitrogen and Phosphorous	Particulate Organic Carbon and Nitrogen	Particulate Phosphorous	Biogenic silica	Chlorophyll a	Total Suspended Solids	Dissolved Oxygen	Rapid Analysis Phytoplankton	Whole Water Phytoplankton	Screened Water Phytoplankton	Zooplankton	Urea	Respiration	Photosynthesis by carbon-14	Dissolved Inorganic Carbon
			Protocol Code			IN	OC	NP	PC	PP	BS	CH	TS	DO	RP	WW	SW	ZO	UR	RE	AP	IC
			5_Surface	1	1	1																
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N09	32	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	8.5	2	1	1	1	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								
N10	25	A	3_Mid-Depth	10	2	2	1	1	2	2	2	2	2	1								
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	8.5	2	1	1	1	2	2	2	1	2	1								
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N11	32	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N12	26	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N13	32	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N14	34	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N15	42	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	8.5	2	1	1	1	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								
N16	40	A	3_Mid-Depth	10.2	2	2	2	2	2	2	2	2	2	1								
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	8.5	2	1	1	1	2	2	2	1	2	1								
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N17	36	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																

Nearfield Water Column Sampling Plan

StationID	Depth (m)	Station Type	Depths	Total Volume at Depth (L)	Number of 9-L GoFlos	Dissolved Inorganic Nutrients	Dissolved Organic Carbon	Total Dissolved Nitrogen and Phosphorous	Particulate Organic Carbon and Nitrogen	Particulate Phosphorous	Biogenic silica	Chlorophyll a	Total Suspended Solids	Dissolved Oxygen	Rapid Analysis Phytoplankton	Whole Water Phytoplankton	Screened Water Phytoplankton	Zooplankton	Urea	Respiration	Photosynthesis by carbon-14	Dissolved Inorganic Carbon
			Protocol Code			IN	OC	NP	PC	PP	BS	CH	TS	DO	RP	WW	SW	ZO	UR	RE	AP	IC
			5_Surface	1	1	1																
			1_Bottom	15.5	2	1	1	1	2	2	2	1	2							6	1	1
		D+	2_Mid-Bottom	4.5	1	1						1		1							1	1
N18	30	R+	3_Mid-Depth	26.1	3	1	1	1	2	2	2	2	2		1	1	1		1	6	1	2
		P	4_Mid-Surface	4.5	1	1						1		1							1	1
			5_Surface	20.6	2	1	1	1	2	2	2	1	2			1	1		1	6	1	1
			6_Net Tow															1				
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N19	24	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
			1_Bottom	8.5	2	1	1	1	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								
N20	32	A	3_Mid-Depth	10	2	2	1	1	2	2	2	2	2	1								
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	8.5	2	1	1	1	2	2	2	1	2	1								
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
N21	34	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1																
				Totals		111	22	22	42	42	42	42	42	33	1	4	4	2	4	36	10	11
Blanks A									1	1	1	1	1									

Table 2-3. Farfield Water Column Sampling Plan (3 Pages)

Farfield Water Column Sampling Plan

StationID	Depth (m)	Station Type	Depths	Total Volume at Depth (L)	Number of 9-L GoFlos	Dissolved Inorganic Nutrients	Dissolved Organic Carbon	Total Dissolved Nitrogen and	Particulate Organic Carbon	Particulate Phosphorous	Biogenic silica	Chlorophyll a	Total Suspended Solids	Dissolved Oxygen	Secchi Disk Reading	Whole Water Phytoplankton	Screened Water Phytoplankton	Zooplankton	Urea	Respiration	Photosynthesis by carbon-14	Dissolved Inorganic Carbon
			Protocol Code			IN	OC	NP	PC	PP	BS	CH	TS	DO	SE	WW	SW	ZO	UR	RE	AP	IC
			Volume (L)			1	0.1	0.1	1	0.3	0.3	0.5	1	1	0	1	4	1	0.1	1	1	1
			1_Bottom	7.9	2	1	1	1	2	2	2	1	2	3								
			2_Mid-Bottom	2.5	1	1						1		1								
F01	27	D	3_Mid-Depth	14	2	1	1	1	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	13	2	1	1	1	2	2	2	1	2	3	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	7.9	2	1	1	1	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								
F02	33	D	3_Mid-Depth	15	2	2	1	1	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	13	2	1	1	1	2	2	2	1	2	1	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F03	17	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F05	18	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	7.9	2	1	1	1	2	2	2	1	2	3								
			2_Mid-Bottom	2.5	1	1						1		1								
F06	35	D	3_Mid-Depth	15	2	2	1	1	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	13	2	1	1	1	2	2	2	1	2	3	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F07	54	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F10	30	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	4	1	1								1								
			2_Mid-Bottom	2	1	1								1								
F12	90	F	3_Mid-Depth	2	1	1								1								
			4_Mid-Surface	2	1	1								1								
			5_Surface	4	1	1								1	1							
			1_Bottom	7.9	2	1	1	1	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								
F13	25	D	3_Mid-Depth	15	2	2	1	1	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								

Farfield Water Column Sampling Plan

StationID	Depth (m)	Station Type	Depths	Total Volume at Depth (L)	Number of 9-L GoFlos	Dissolved Inorganic Nutrients	Dissolved Organic Carbon	Total Dissolved Nitrogen and	Particulate Organic Carbon	Particulate Phosphorus	Biogenic silica	Chlorophyll a	Total Suspended Solids	Dissolved Oxygen	Secchi Disk Reading	Whole Water Phytoplankton	Screened Water Phytoplankton	Zooplankton	Urea	Respiration	Photosynthesis by carbon-14	Dissolved Inorganic Carbon
			Protocol Code			IN	OC	NP	PC	PP	BS	CH	TS	DO	SE	WW	SW	ZO	UR	RE	AP	IC
			5_Surface	13	2	1	1	1	2	2	2	1	2	1	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F14	20	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F15	39	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F16	60	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F17	78	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F18	24	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	7	2	1														6		
			2_Mid-Bottom	2	1	1								1								
F19	81	F	3_Mid-Depth	7	2	1														6		
		+R	4_Mid-Surface	2	1	1								1								
			5_Surface	7	2	1									1					6		
			1_Bottom	7.9	2	1	1	1	2	2	2	1	2	3								
			2_Mid-Bottom	2.5	1	1						1		1								
F22	80	D	3_Mid-Depth	14	2	1	1	1	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	13	2	1	1	1	2	2	2	1	2	3	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	18	3	1	1	1	2	2	2	1	2							6	1	1
		D	2_Mid-Bottom	8.5	1	1						1		1							1	2
F23	25	+R	3_Mid-Depth	24	3	1	1	1	2	2	2	2	2			1	1		1	6	1	1
		+P	4_Mid-Surface	7.5	1	1						1		1							1	1
			5_Surface	23	3	1	1	1	2	2	2	1	2		1	1	1		1	6	1	1
			6_Net Tow															1				
			1_Bottom	7.9	2	1	1	1	2	2	2	1	2	3								
			2_Mid-Bottom	2.5	1	1						1		1								
F24	20	D	3_Mid-Depth	14	2	1	1	1	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	13	2	1	1	1	2	2	2	1	2	3	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	9.9	2	1	1	1	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								

Farfield Water Column Sampling Plan

StationID	Depth (m)	Station Type	Depths	Total Volume at Depth (L)	Number of 9-L GoFlos	Dissolved Inorganic Nutrients	Dissolved Organic Carbon	Total Dissolved Nitrogen and	Particulate Organic Carbon	Particulate Phosphorous	Biogenic silica	Chlorophyll a	Total Suspended Solids	Dissolved Oxygen	Secchi Disk Reading	Whole Water Phytoplankton	Screened Water Phytoplankton	Zooplankton	Urea	Respiration	Photosynthesis by carbon-14	Dissolved Inorganic Carbon
			Protocol Code			IN	OC	NP	PC	PP	BS	CH	TS	DO	SE	WW	SW	ZO	UR	RE	AP	IC
F25	15	D	3_Mid-Depth	15	2	2	1	1	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	15	2	1	1	1	2	2	2	1	2	3	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	7.9	2	1	1	1	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								
F26	56	D	3_Mid-Depth	15	2	1	1	1	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	13	2	1	1	1	2	2	2	1	2	1	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	7.9	2	1	1	1	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								
F27	108	D	3_Mid-Depth	15	2	2	1	1	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	13	2	1	1	1	2	2	2	1	2	1	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	1	1	1																
			2_Mid-Bottom	1	1	1																
F28	33	E	3_Mid-Depth	1	1	1																
			4_Mid-Surface	1	1	1																
			5_Surface	1	1	1									1							
			1_Bottom	2	1	1								1								
			2_Mid-Bottom	2	1	1								1								
F29	66	F	3_Mid-Depth	2	1	1								1								
			4_Mid-Surface	2	1	1								1								
			5_Surface	2	1	1								1	1							
			1_Bottom	9.9	2	1	1	1	2	2	2	1	2	3								
			3_Mid-Depth	14	2	1	1	1	2	2	2	2	2	1		1	1		1			
F30	15	G	5_Surface	15	2	1	1	1	2	2	2	1	2	3	1	1	1		1			
			6_Net Tow															1				
			1_Bottom	9.9	2	1	1	1	2	2	2	1	2	3								
			3_Mid-Depth	14	2	1	1	1	2	2	2	2	2	1		1	1		1			
F31	15	G	5_Surface	15	2	1	1	1	2	2	2	1	2	3	1	1	1		1			
			6_Net Tow															1				
F32	30	Z	5_Surface												1							
			6_Net Tow															1				
F33	30	Z	5_Surface												1							
			6_Net Tow															1				
			1_Bottom	8.1	2	1	2	2	2	2	2	1	2	1								
			2_Mid-Bottom	2.5	1	1						1		1								
N16	40	D	3_Mid-Depth	15	2	2	2	2	2	2	2	2	2	1		1	1		1			
			4_Mid-Surface	2.5	1	1						1		1								
			5_Surface	13	2	1	1	1	2	2	2	1	2	1	1	1	1		1			
			6_Net Tow															1				
					otals	132	41	41	78	78	78	74	78	96	28	26	26	15	26	36	5	6
			Blanks B						1	1	1	1	1									
			Blanks C						1	1	1	1	1									
			Blanks D						1	1	1	1	1									

3.0 DATA SUMMARY PRESENTATION

Data from each survey were compiled from the final HOM Program 2000 database and organized to facilitate regional comparisons between surveys, and to allow a quick evaluation of results for evaluating monitoring thresholds (Table 3-1 Method Detection Limits, Survey Data Tables 3-2 through 3-10). Each table provides summary data from one survey. A discussion of which parameters were selected, how the data were grouped and integrated, and the assumptions behind the calculation of statistical values (average, minimum, and maximum), is provided below. Individual data summarized in this report are available from MWRA either in hard copy or electronic format.

The spatial pattern of data summary follows the sample design over major geographic areas of interest in Massachusetts Bay, Cape Cod Bay, and Boston Harbor (Section 3.1). Compilation of data both horizontally by region and vertically over the entire water column was conducted to provide an efficient way of assessing the status of the regions during a particular survey. Maximum and minimum values are provided because of the need to assess extremes of pre-outfall conditions relative to criteria being developed for contingency planning purposes (MWRA, 1997b).

Regional compilations of nutrient and biological water column data were conducted first by averaging individual laboratory replicates, followed by field duplicates, and then by station visit within a survey. Prior to regional compilation of the sensor data, the results were averaged by station visit. Significant figures for average values were selected based on precision of the specific data set. Detailed considerations for individual data sets are provided in the sections below.

3.1 Defined Geographic Areas

The primary partitioning of data is between the nearfield and farfield stations (Figures 1-1 and 1-2). Farfield data were additionally segmented into five geographic areas: stations in Boston Harbor (F23, F30, and F31), coastal stations (F05, F13, F14, F18, F24, F25), offshore stations (F06, F07, F10, F15, F16, F17, F19, and F22), boundary region stations (F12, F26, F27, F28, F29), and Cape Cod Bay stations (F01, F02, and F03; and F32 and F33 as appropriate). These regions are shown in Figure 1-2.

The data summary tables include data derived from all of the station data collected in each region. Average, maximum, and minimum values are reported from the cumulative horizontal and vertical dataset as described for each data type below.

3.2 Sensor Data

Six CTD profile parameters provided in the data summary tables include temperature, salinity, density (σ_t), fluorescence (chlorophyll a), transmissivity, and dissolved oxygen (DO) concentration. Statistical parameters (maximum, minimum, and average) were calculated from the sensor readings collected at five depths through the water column (defined as A-E). These depths were sampled on the upcast of the hydrographic profile. The five depth values, rather than the entire set of profile data, were selected to reduce the statistical weighting of deep-water data at the offshore and boundary stations. Generally, the samples were collected in an even depth-distributed pattern. The mid-depth sample (C) was typically located at the subsurface fluorescence (chlorophyll) peak in the water column, depending on the relative depth of the chlorophyll maximum. Details of the collection, calibration, and processing of CTD data are available in the Water Column Monitoring CW/QAPP (Albro *et al*., 1998), and are summarized in Section 2.

Following standard oceanographic practice, patterns of variability in water density are described using the derived parameter sigma-t ($\sigma_{t,}$), which is calculated by subtracting 1,000 kg/m^3 from the recorded density. During this semi-annual period, density varied from 1020.1 to 1026.4, meaning σ_t varied from 20.1 to 26.4.

Fluorescence data were calibrated using concomitant extracted chlorophyll *a* data from discrete water samples collected at a subset of the stations (see CW/QAPP or Tables 2-1, 2-2, 2-3). The calibrated fluorescence sensor values were used for all discussions of chlorophyll in this report. The concentrations of phaeopigments are included in the summary data tables as part of the nutrient parameters.

In addition to DO concentration, the derived percent saturation was also provided. Percent saturation was calculated prior to averaging station visits from the potential saturation value of the water (a function of the physical properties of the water) and the calibrated DO concentration (see CW/QAPP).

Finally, the derived beam attenuation coefficient from the transmissometer ("transmittance") was provided on the summary tables. Beam attenuation is calculated from the natural logarithm of the ratio of light transmission relative to the initial light incidence, over the transmissometer path length, and is provided in units of m^{-1}.

3.3 Nutrients

Analytical results for dissolved and particulate nutrient concentrations were extracted from the HOM database, and include: ammonia (NH_4), nitrite (NO_2), nitrate + nitrite (NO_3+NO_2), phosphate (PO_4), silicate (SiO_4), biogenic silica (BSI), dissolved and particulate organic carbon (DOC and POC), total dissolved and particulate organic nitrogen (TDN and PON), total dissolved and particulate phosphorous (TDP and PP), and urea. Total suspended solids (TSS) data are provided as a baseline for total particulate matter in the water column. Dissolved inorganic nutrients (NH_4, NO_2, NO_3+NO_2, PO_4, and SiO_4) were measured from water samples collected from each of the five (A-E) depths during CTD casts. The dissolved organic and particulate constituents were measured from water samples collected from the surface (A), mid-depth (C), and bottom (E) sampling depths (see Tables 2-1, 2-2, and 2-3 for specific sampling depths and stations).

3.4 Biological Water Column Parameters

Four productivity parameters have been presented in the data summary tables. Areal production, which is determined by integrating the measured productivity over the photic zone, and chlorophyll-specific areal production is included for the productivity stations (F23 representing the Harbor, and N04 and N18, representing the nearfield). Because areal production is already depth-integrated, averages were calculated only among productivity stations for the two regions sampled. The derived parameters α (gC[gChla]$^{-1}$h^{-1}[μEm^{-2}s^{-1}]$^{-1}$) and Pmax (gC[gChla]$^{-1}$h^{-1}) are also included. The productivity parameters are discussed in detail in Appendix A.

Respiration rates were averaged over the respiration stations (the same Harbor and nearfield stations as productivity, and additionally one offshore station [F19]), and over the three water column depths sampled (surface, mid- and bottom). The respiration samples were collected concurrently with the productivity samples. Detailed methods of sample collection, processing, and analysis are available in the CW/QAPP (Albro *et al*., 1998).

3.5 Plankton

Plankton results were extracted from the HOM database and include whole water phytoplankton, screened phytoplankton, and zooplankton. Phytoplankton samples were collected for whole-water and screened measurements during the water column CTD casts at the surface (A) and mid-depth (C) sampling events. As discussed in Section 2.1, when a subsurface chlorophyll maximum is observed, the mid-depth sampling event is associated with this layer. The screened phytoplankton samples were filtered through 20-μm Nitrex mesh to retain and concentrate larger dinoflagellate species. Zooplankton samples were collected by oblique tows using a 102-μm mesh at all plankton stations. Detailed methods of sample collection, processing, and analysis are available in the CW/QAPP (Albro *et al*., 1998).

Final plankton values were derived from each station by first averaging analytical replicates, then averaging station visits. Regional results were summarized for total phytoplankton, total centric diatoms, nuisance algae (*Alexandrium tamarense, Phaeocystis pouchetii,* and *Pseudo-nitzschia pungens*), and total zooplankton (Tables 3-2 through 3-10).

Results for total phytoplankton and centric diatoms reported in Tables 3-1 through 3-10 are restricted to whole water surface samples. Results of the nuisance species *Phaeocystis pouchetii* and *Pseudo-nitzschia pungens* include the maximum of both whole water and screened analyses, at both the surface and mid-depth. Although the size and shape of both taxa might allow them to pass through the Nitex screen, both have colonial forms that in low densities might be overlooked in the whole-water samples. For *Alexandrium tamarense*, only the screened samples were reported.

3.6 Additional Data

Two additional data sources were utilized during interpretation of HOM Program semi-annual water column data. Temperature and chlorophyll *a* satellite images collected near survey dates were preliminarily interpreted for evidence of surface water events, including intrusions of surface water masses from the Gulf of Maine and upwelling (Appendix I). U.S. Geological Service continuous temperature and salinity data were collected from a mooring located between nearfield stations N21 and N18 (Figure 1-1). Hourly temperature and salinity data from the mid-depth (~20 m below surface) and near-bottom (1 m above bottom) are plotted in Figure 3-1. Chlorophyll *a* data (as measured by *in situ* fluorescence) from the MWRA Wetlab sensor mounted at mid-depth (~12 m below surface) on the nearfield USGS mooring are plotted in Figure 3-2.

3.7 Data Revisions

Two sets of data were revised based on analytical and sensor issues that were discovered in early 2001 – chlorophyll and irradiance. The data have been corrected and the new data are presented herein and have been used for all applicable calculations included in this report (i.e. areal production and chlorophyll-specific production).

A quality assurance review found analytical errors in the chlorophyll measurement method used by the MWRA monitoring program during 1998-2000. In the fall of 2000, extracted chlorophyll and draft calibrated fluorescence data exhibited unusually high values relative to other fall data collected under HOM. These high values precipitated a major review of HOM3 chlorophyll and fluorescence data the findings of which are summarized in Hunt 2001. In our evaluation of the fluorescence and bottle chlorophyll data, the project team identified two major technical issues requiring action: correction for chlorophyll standard purity (all HOM3 data) and degradation of the chlorophyll standard (limited number of surveys). Each issue had led to an upward bias in the extracted chlorophyll data and calibrated fluorescence.

The irradiance data was corrected based on problems with the MWRA Deer Island light sensor. The problem was discovered when the sensor was replaced on April 20, 2001 and the old unit subsequently post-calibrated. The new calibration values were different from the initial values (used throughout HOM3) and were the result of damage to the unit during installation (10/96). The revised Deer Island surface irradiance data were used to recalculate the productivity data presented in this report.

Table 3-1. Method Detection Limits

Analysis	MDL
Dissolved ammonia (NH_4)	0.02 µM
Dissolved inorganic nitrate (NO_3)	0.01 µM
Dissolved inorganic nitrite (NO_2)	0.01 µM
Dissolved inorganic phosphorus (PO_4)	0.01 µM
Dissolved inorganic silicate (SIO_4)	0.02 µM
Dissolved organic carbon (DOC)	20 µM
Total dissolved nitrogen (TDN)	1.43 µM
Total dissolved phosphorus (TDP)	0.04 µM
Particulate carbon (POC)	5.27 µM
Particulate nitrogen (PON)	0.75 µM
Particulate phosphorus (PARTP)	0.04 µM
Biogenic silica (BIOSI)	0.32 µM
Urea	0.2 µM
Chlorophyll *a* and phaeophytin	0.036 µg L^{-1}
Total suspended solids (TSS)	0.1 mg L^{-1}

Table 3-2. Combined Farfield/Nearfield Survey WF001 (Feb 00) Data Summary

Region		Farfield								
		Boundary			Cape Cod Bay			Coastal		
Parameter	Unit	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
In Situ										
Temperature	°C	2.98	5.48	4.01	0.21	2.52	1.55	0.51	2.99	1.75
Salinity	PSU	32.8	33.4	33.0	32.2	32.6	32.5	32.2	32.8	32.5
Sigma _T		26.1	26.3	26.2	25.9	26.0	26.0	25.8	26.1	26.0
Beam Attenuation	m^{-1}	0.57	0.73	0.65	0.80	1.45	1.00	0.67	1.27	0.84
DO Concentration	mgL^{-1}	9.54	10.38	9.92	11.14	14.72	12.25	10.81	13.14	11.74
DO Saturation	PCT	90.8	98.0	94.1	101.2	126.4	109.3	99.7	113.7	105.4
Fluorescence	μgL^{-1}	0.09	5.76	3.85	0.19	50.23	8.49	0.26	25.57	4.99
Chlorophyll a	μgL^{-1}	0.56	1.13	0.82	0.65	3.89	2.04	0.01	1.77	0.91
Phaeopigment	μgL^{-1}	0.18	0.31	0.23	0.22	0.65	0.40	0.08	0.73	0.24
Nutrients										
NH4	µM	0.26	1.08	0.55	0.44	3.45	1.40	0.50	7.71	3.28
NO2	µM	0.09	0.17	0.13	0.08	0.22	0.12	0.07	0.27	0.14
NO2+NO3	µM	8.91	11.64	10.23	5.64	7.80	6.87	7.11	8.41	7.67
PO4	µM	0.96	1.12	1.03	0.73	1.01	0.90	0.92	1.09	1.02
SIO4	µM	6.90	10.05	8.69	2.84	4.99	4.34	5.19	6.76	5.86
BIOSI	µM	1.00	1.90	1.37	0.26	3.60	1.24	0.90	1.70	1.20
DOC	µM	151.3	382.3	220.2	121.1	233.9	183.8	131.4	258.0	176.5
PARTP	µM	0.05	0.09	0.07	0.13	0.23	0.17	0.11	0.16	0.13
POC	µM	7.17	9.50	8.16	11.70	25.30	15.85	8.92	12.70	10.76
PON	µM	1.22	1.64	1.40	1.75	3.56	2.46	1.40	2.31	1.89
TDN	µM	18.9	22.9	20.9	14.1	21.1	17.7	18.0	25.1	21.6
TDP	µM	1.18	1.30	1.24	0.96	1.15	1.05	1.04	1.49	1.29
TSS	mgL^{-1}	2.63	5.79	4.40	2.94	8.62	5.75	3.17	7.00	5.64
Urea	µM	0.39	0.52	0.46	0.12	4.62	1.28	0.06	1.32	0.61
Productivity										
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$									
Pmax	$mgCm^{-3}h^{-1}$									
Areal Production	$mgCm^{-2}d^{-1}$									
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$									
Respiration	μMO_2h^{-1}									
Plankton										
Total Phytoplankton	10^6Cells L^{-1}	0.260	0.261		0.361	0.588		0.242	0.709	
Centric diatoms	10^6Cells L^{-1}	0.019	0.030		0.046	0.150		0.038	0.090	
Alexandrium spp.	Cells L^{-1}	ND	ND		ND	ND		1.50	1.50	
Phaeocystis pouchetiii	10^6Cells L^{-1}	ND	ND		ND	ND		ND	ND	
Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND		ND	ND		0.001	0.001	

Total Zooplankton	Individuals m^{-3}	5263	5263	10098	16523	924	11135

Table 3-2. Combined Farfield/Nearfield Survey WF001 (Feb 00) Data Summary (continued)

Region		Farfield								
		Harbor			Offshore			Nearfield		
Parameter	Unit	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
In Situ										
Temperature	°C	0.38	1.28	0.83	2.00	4.04	3.19	0.57	3.71	3.21
Salinity	PSU	31.5	32.3	32.0	32.5	32.9	32.7	32.2	32.8	32.8
Sigma _T		25.3	25.9	25.7	25.9	26.1	26.0	25.8	26.1	26.1
Beam Attenuation	m^{-1}	0.92	1.73	1.29	0.66	1.24	0.81	0.64	1.13	0.83
DO Concentration	mgL^{-1}	10.43	13.05	12.17	9.55	11.82	10.57	9.58	12.68	10.38
DO Saturation	PCT	92.0	112.2	105.9	90.1	106.6	98.2	90.2	110.0	96.3
Fluorescence	μgL^{-1}	3.57	4.53	3.97	0.16	5.37	1.68	0.16	5.58	2.04
Chlorophyll a	μgL^{-1}	0.01	0.91	0.62	0.73	1.31	1.16	0.60	1.90	1.25
Phaeopigment	μgL^{-1}	0.21	0.57	0.32	0.20	0.50	0.29	0.11	0.35	0.24
Nutrients										
NH4	µM	6.46	17.09	12.01	0.34	2.49	0.69	0.04	7.63	0.83
NO2	µM	0.01	0.33	0.22	0.05	0.15	0.09	0.05	0.21	0.11
NO2+NO3	µM	5.62	8.70	7.31	5.88	10.41	7.91	7.00	9.56	8.40
PO4	µM	0.84	1.70	1.19	0.84	1.14	0.96	0.70	1.19	0.97
SIO4	µM	4.76	9.32	6.73	3.80	8.72	5.86	4.79	15.74	6.78
BIOSI	µM	1.20	2.20	1.60	1.70	2.40	1.97	1.10	2.90	1.99
DOC	µM	133.8	417.4	231.7	141.3	433.2	259.8	128.5	448.0	196.3
PARTP	µM	0.14	0.30	0.24	0.08	0.25	0.12	0.07	0.19	0.12
POC	µM	13.70	22.60	17.32	6.32	28.20	15.15	6.73	18.50	11.97
PON	µM	2.31	3.14	2.68	0.93	2.71	2.02	1.17	3.33	1.96
TDN	µM	26.3	61.8	35.4	19.0	39.8	24.8	16.7	31.8	20.4
TDP	µM	1.16	1.57	1.41	0.84	1.35	1.09	0.99	25.44	2.49
TSS	mgL^{-1}	4.40	9.13	6.63	1.92	8.58	4.68	1.55	12.22	5.30
Urea	µM	0.46	0.85	0.64	0.39	3.43	1.91	0.19	0.98	0.45
Productivity										
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$	0.014	0.027	0.021				0.018	0.048	0.032
Pmax	$mgCm^{-3}h^{-1}$	2.10	3.08	2.45				2.25	5.60	3.99
Areal Production	$mgCm^{-2}d^{-1}$	131.7	131.7	131.7				448.3	660.6	554.5
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$	152.4	152.4	152.4				320.2	451.9	386.1
Respiration	μMO_2h^{-1}	0.069	0.097	0.082	0.011	0.060	0.030	0.022	0.087	0.053
Plankton										
Total Phytoplankton	$10^6 Cells\ L^{-1}$	0.243	0.745		0.755	0.809		0.298	0.675	
Centric diatoms	$10^6 Cells\ L^{-1}$	0.060	0.105		0.106	0.133		0.059	0.116	
Alexandrium spp.	$Cells\ L^{-1}$	ND	ND		ND	ND		ND	ND	
Phaeocystis pouchetii	$10^6 Cells\ L^{-1}$	ND	ND		ND	ND		ND	ND	
Psuedo-nitzschia pungens	$10^6 Cells\ L^{-1}$	ND	ND		ND	ND		ND	ND	
Total Zooplankton	$Individuals\ m^{-3}$	1980	5556		12718	12718		7590	16521	

Table 3-3. Combined Farfield/Nearfield Survey WF002 (Feb 00) Data Summary

Region		Farfield								
		Boundary			Cape Cod Bay			Coastal		
Parameter	Unit	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
In Situ										
Temperature	°C	3.03	4.96	3.73	1.69	2.88	2.05	2.23	2.76	2.53
Salinity	PSU	32.6	33.4	33.0	32.3	32.5	32.4	32.0	32.8	32.4
Sigma _T		26.0	26.4	26.2	25.8	26.0	25.9	25.5	26.1	25.8
Beam Attenuation	m^{-1}	0.87	1.97	1.19	1.21	1.99	1.47	0.73	1.70	1.12
DO Concentration	mgL^{-1}	10.13	11.35	10.66	11.22	13.14	12.19	10.64	11.82	11.39
DO Saturation	PCT	97.7	105.1	100.6	101.1	119.2	110.0	97.8	107.2	103.9
Fluorescence	μgL^{-1}	0.03	0.98	0.55	1.67	23.52	8.98	0.23	4.96	2.05
Chlorophyll a	μgL^{-1}	0.67	1.38	1.06	4.87	14.72	9.31	1.15	3.25	1.94
Phaeopigment	μgL^{-1}	0.21	0.38	0.31	0.66	1.36	1.00	0.28	0.56	0.36
Nutrients										
NH4	µM	0.43	1.51	0.80	0.28	1.59	1.06	0.97	8.04	3.46
NO2	µM	0.12	0.22	0.18	0.01	0.12	0.08	0.14	0.29	0.21
NO2+NO3	µM	7.12	12.74	11.06	0.24	4.56	2.67	6.80	10.08	9.15
PO4	µM	0.91	1.32	1.12	0.36	0.79	0.58	0.76	1.28	1.06
SIO4	µM	4.39	9.29	7.72	0.16	2.69	1.59	3.91	7.32	5.98
BIOSI	µM	0.80	2.10	1.52	2.60	4.00	3.28	1.20	1.70	1.38
DOC	µM	146.7	355.3	243.5	161.5	432.7	248.0	174.8	400.5	292.4
PARTP	µM				0.17	0.49	0.36	0.08	0.18	0.13
POC	µM	6.28	10.60	8.20	22.80	55.10	35.92	7.54	16.80	12.93
PON	µM	1.06	1.85	1.37	3.55	7.71	5.53	1.39	3.02	2.33
TDN	µM	20.4	26.8	22.9	10.5	25.9	16.5	20.9	26.5	23.9
TDP	µM	1.20	1.33	1.24	0.62	0.92	0.75	1.14	1.46	1.27
TSS	mgL^{-1}	0.09	1.14	0.52	1.03	1.67	1.31	0.15	1.14	0.70
Urea	µM	0.09	0.19	0.14	0.29	0.70	0.43	0.22	1.65	0.69
Productivity										
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$									
Pmax	$mgCm^{-3}h^{-1}$									
Areal Production	$mgCm^{-2}d^{-1}$									
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$									
Respiration	μMO_2h^{-1}									
Plankton										
Total Phytoplankton	10^6Cells L^{-1}	0.135	0.241		1.155	1.500		0.172	0.824	
Centric diatoms	10^6Cells L^{-1}	0.007	0.010		0.360	0.768		0.014	0.180	
Alexandrium ssp.	Cells L^{-1}	ND	ND		ND	ND		ND	ND	
Phaeocystis pouchetii	10^6Cells L^{-1}	ND	ND		ND	ND		ND	ND	

Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND		ND	ND		ND	ND
Total Zooplankton	Individuals m^{-3}	7866	7866		7388	29221		11416	16618

Table 3-3. Combined Farfield/Nearfield Survey WF002 (Feb 00) Data Summary (continued)

Region		Farfield								
		Harbor			Offshore			Nearfield		
Parameter	**Unit**	**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**
In Situ										
Temperature	°C	2.64	3.16	2.83	2.35	4.49	3.19	2.73	3.76	3.17
Salinity	PSU	30.7	31.9	31.6	32.3	33.3	32.8	32.0	33.0	32.7
Sigma _T		24.5	25.5	25.2	25.8	26.4	26.1	25.5	26.3	26.0
Beam Attenuation	m^{-1}	0.97	1.76	1.38	0.78	1.55	1.12	0.74	1.55	1.15
DO Concentration	mgL^{-1}	11.07	11.76	11.28	9.70	11.75	10.92	10.25	11.55	10.95
DO Saturation	PCT	100.7	107.6	103.2	93.1	107.3	101.5	96.4	106.7	101.7
Fluorescence	μgL^{-1}	0.30	2.07	1.10	0.04	7.10	2.30	0.05	8.41	2.05
Chlorophyll a	μgL^{-1}	1.44	2.38	1.79	0.86	5.49	2.58	1.02	2.97	1.81
Phaeopigment	μgL^{-1}	0.35	0.75	0.52	0.27	0.71	0.39	0.18	0.63	0.35
Nutrients										
NH4	µM	5.21	47.65	14.98	0.43	4.76	1.20	0.05	7.77	1.65
NO2	µM	0.32	0.90	0.45	0.11	0.22	0.16	0.12	0.32	0.19
NO2+NO3	µM	9.75	12.82	10.91	7.38	12.52	9.90	8.57	11.19	9.59
PO4	µM	1.01	2.21	1.34	0.87	1.26	1.09	0.11	1.24	1.11
SIO4	µM	6.13	13.47	8.70	4.34	10.91	6.80	5.98	8.40	6.86
BIOSI	µM	1.40	2.30	1.80	0.80	1.80	1.42	0.80	2.80	1.48
DOC	µM	211.1	421.0	311.6	181.5	412.1	304.0	157.9	641.2	262.3
PARTP	µM				0.06	0.21	0.14	0.06	0.20	0.12
POC	µM	15.80	53.40	24.80	8.67	18.30	12.58	5.35	21.10	11.99
PON	µM	2.69	7.50	4.04	1.34	3.41	2.27	1.11	3.52	2.21
TDN	µM	24.6	73.0	37.6	17.7	26.8	21.7	18.8	36.7	22.4
TDP	µM	1.22	2.68	1.58	1.05	1.28	1.16	1.14	1.45	1.25
TSS	mgL^{-1}	0.60	2.96	1.52	0.35	1.01	0.59	0.05	1.28	0.51
Urea	µM	0.29	1.55	0.73	0.60	0.80	0.70	0.09	1.78	0.82
Productivity										
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$	0.018	0.049	0.030				0.011	0.085	0.042
Pmax	$mgCm^{-3}h^{-1}$	3.82	6.64	4.69				1.35	10.91	5.38
Areal Production	$mgCm^{-2}d^{-1}$	471.2	471.2	471.2				682.2	701.5	691.9
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$	236.5	236.5	236.5				250.2	354.3	302.3
Respiration	μMO_2h^{-1}				0.005	0.046	0.030	0.027	0.101	0.049
Plankton										
Total Phytoplankton	10^6Cells L^{-1}	0.369	0.715		0.746	1.105		0.125	0.382	
Centric diatoms	10^6Cells L^{-1}	0.075	0.177		0.244	0.271		0.007	0.064	
Alexandrium spp.	Cells L^{-1}	ND	ND		ND	ND		ND	ND	
Phaeocystis pouchetii	10^6Cells L^{-1}	ND	ND		ND	ND		ND	ND	

Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND		ND	ND		ND	ND	
Total Zooplankton	Individuals m^{-3}	4960	25142		13919	13919		8157	19291	

Table 3-4. Nearfield Survey WN003 (Mar 00) Data Summary

Region		Nearfield		
Parameter	**Unit**	**Min**	**Max**	**Avg**
In Situ				
Temperature	°C	3.96	4.70	4.13
Salinity	PSU	32.1	33.1	32.6
Sigma _T		25.4	26.2	25.8
Beam Attenuation	m^{-1}	0.66	4.78	1.06
DO Concentration	mgL^{-1}	10.07	12.06	11.16
DO Saturation	PCT	95.7	114.9	106.2
Fluorescence	μgL^{-1}	1.00	25.83	10.87
Chlorophyll a	μgL^{-1}	0.31	16.46	10.81
Phaeopigment	μgL^{-1}	0.13	0.75	0.45
Nutrients				
NH4	µM	0.31	6.93	1.24
NO2	µM	0.10	0.29	0.20
NO2+NO3	µM	2.71	10.79	5.96
PO4	µM	0.47	1.05	0.69
SIO4	µM	1.30	9.81	4.03
BIOSI	µM	1.20	8.00	5.50
DOC	µM	124.3	227.9	170.1
PARTP	µM	0.06	0.52	0.34
POC	µM	7.48	57.60	35.61
PON	µM	1.20	8.07	5.61
TDN	µM	13.5	29.9	20.8
TDP	µM	0.70	1.27	0.91
TSS	mgL^{-1}	0.31	1.86	1.24
Urea	µM	0.15	0.44	0.30
Productivity				
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$	0.062	0.424	0.279
Pmax	$mgCm^{-3}h^{-1}$	4.03	42.31	29.62
Areal Production	$mgCm^{-2}d^{-1}$	2546.1	4017.2	3281.7
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$	244.0	259.3	251.7
Respiration	μMO_2h^{-1}	0.018	0.072	0.047
Plankton				
Total Phytoplankton	10^6Cells L^{-1}	1.892	2.271	
Centric diatoms	10^6Cells L^{-1}	0.527	0.657	
Alexandrium spp.	Cells L^{-1}	1.45	1.45	
Phaeocystis pouchetii	10^6Cells L^{-1}	0.941	1.276	
Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND	
Total Zooplankton	Individuals m^{-3}	12984	40896	

Table 3-5. Combined Farfield/Nearfield Survey WF004 (Mar-Apr 00) Data Summary

		Farfield								
Region		**Boundary**			**Cape Cod Bay**			**Coastal**		
Parameter	**Unit**	**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**
In Situ										
Temperature	°C	4.31	5.82	5.07	4.51	6.88	5.66	4.80	6.52	5.55
Salinity	PSU	30.3	33.1	32.0	30.8	32.1	31.7	31.2	32.1	31.7
Sigma _T		23.8	26.1	25.3	24.1	25.4	25.0	24.5	25.4	25.1
Beam Attenuation	m^{-1}	0.54	1.91	1.15	0.88	2.28	1.24	0.99	2.59	1.82
DO Concentration	mgL^{-1}	9.85	12.98	11.47	10.24	10.68	10.44	10.12	12.48	11.28
DO Saturation	PCT	95.1	126.7	111.4	98.3	106.7	101.8	97.5	122.7	109.9
Fluorescence	μgL^{-1}	0.09	13.69	6.37	0.62	13.18	3.53	0.18	15.42	8.39
Chlorophyll a	μgL^{-1}	0.77	21.06	7.19	2.25	9.35	4.90	3.13	14.29	8.11
Phaeopigment	μgL^{-1}	0.42	3.59	1.03	0.27	1.81	0.78	0.10	2.17	1.56
Nutrients										
NH4	µM	0.19	4.51	1.14	0.27	2.88	1.62	0.23	3.50	1.19
NO2	µM	0.01	0.19	0.08	0.03	0.11	0.05	0.03	0.14	0.08
NO2+NO3	µM	0.04	9.47	3.40	0.12	2.81	0.79	0.11	4.85	1.53
PO4	µM	0.23	1.01	0.52	0.42	0.68	0.49	0.28	0.80	0.45
SIO4	µM	4.32	11.02	6.85	1.76	4.46	2.68	1.72	6.55	3.73
BIOSI	µM	1.60	3.60	2.30	0.80	2.10	1.22	1.50	3.00	2.13
DOC	µM	152.3	352.9	243.9	139.0	340.2	230.0	182.7	424.4	275.8
PARTP	µM	0.03	0.17	0.10	0.24	0.44	0.34	0.14	0.53	0.25
POC	µM	8.58	64.10	34.18	32.20	66.20	45.92	24.50	73.80	52.71
PON	µM	2.58	10.20	6.14	5.35	9.57	6.85	5.54	12.90	9.80
TDN	µM	10.0	23.0	18.8	10.7	13.7	12.6	13.8	26.9	19.1
TDP	µM	0.51	1.10	0.88	0.62	0.78	0.69	0.60	0.87	0.74
TSS	mgL^{-1}	0.84	1.52	1.09	0.78	1.56	0.99	1.24	3.47	2.03
Urea	µM	0.02	0.47	0.16	0.08	0.34	0.16	0.15	0.87	0.39
Productivity										
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$									
Pmax	$mgCm^{-3}h^{-1}$									
Areal Production	$mgCm^{-2}d^{-1}$									
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$									
Respiration	μMO_2h^{-1}									
Plankton										
Total Phytoplankton	$10^6 Cells\ L^{-1}$	3.555	7.467		1.386	3.765		4.700	12.682	
Centric diatoms	$10^6 Cells\ L^{-1}$	0.015	0.082		0.011	0.032		0.008	0.159	
Alexandrium spp.	$Cells\ L^{-1}$	ND	ND		3.00	3.00		3.05	3.05	

Phaeocystis pouchetii	10^6Cells L^{-1}	3.233	7.121	0.233	2.138	4.332	11.512
Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND	ND	ND	ND	ND
Total Zooplankton	Individuals m^{-3}	4776	9863	8354	45877	4978	33108

Table 3-5. Combined Farfield/Nearfield Survey WF004 (Mar -Apr 00) Data Summary (continued)

Region		Farfield								
		Harbor			Offshore			Nearfield		
Parameter	Unit	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
In Situ										
Temperature	°C	5.33	7.07	6.23	4.51	6.34	5.02	4.80	6.55	5.16
Salinity	PSU	29.5	33.6	31.4	31.5	32.4	31.9	31.2	32.2	32.0
Sigma _T		23.0	26.4	24.6	24.9	25.6	25.2	24.5	25.5	25.3
Beam Attenuation	m^{-1}	1.69	2.94	2.09	0.58	2.07	1.16	0.72	1.94	1.25
DO Concentration	mgL^{-1}	11.00	12.10	11.60	9.86	12.95	11.22	9.94	13.53	11.53
DO Saturation	PCT	112.6	121.7	115.2	94.3	127.2	108.7	96.1	132.8	112.2
Fluorescence	μgL^{-1}	6.54	13.86	8.89	0.19	15.76	5.56	0.16	12.64	5.30
Chlorophyll a	μgL^{-1}	7.33	19.65	10.50	0.88	11.16	5.74	1.18	10.79	5.19
Phaeopigment	μgL^{-1}	0.60	2.52	1.76	0.27	1.80	1.12	0.30	2.31	1.20
Nutrients										
NH4	µM	0.63	6.81	3.29	0.16	3.43	1.36	0.17	4.36	1.34
NO2	µM	0.07	0.31	0.17	0.00	0.17	0.08	0.00	0.21	0.08
NO2+NO3	µM	0.91	4.76	2.06	0.04	9.09	2.96	0.04	6.70	2.42
PO4	µM	0.18	0.57	0.33	0.27	0.97	0.58	0.16	0.87	0.54
SIO4	µM	2.73	9.18	3.91	2.08	9.29	5.16	1.96	6.82	4.12
BIOSI	µM	2.50	5.20	3.74	0.90	2.00	1.37	1.10	3.30	1.70
DOC	µM	162.1	485.6	276.7	153.8	418.1	295.7	124.5	593.0	227.7
PARTP	µM	0.19	0.34	0.25	0.13	0.37	0.28	0.09	0.65	0.31
POC	µM	50.30	90.00	67.93	7.16	55.00	26.28	11.20	51.90	34.52
PON	µM	8.79	14.50	11.74	2.01	8.57	4.14	2.68	9.50	5.82
TDN	µM	12.8	24.6	19.0	8.2	20.4	13.6	8.0	19.0	14.4
TDP	µM	0.61	0.91	0.72	0.51	1.08	0.72	0.50	1.05	0.76
TSS	mgL^{-1}	1.89	3.87	2.74	0.65	1.42	1.07	0.62	1.94	1.16
Urea	µM	0.15	1.52	0.62	0.08	0.15	0.13	0.08	0.15	0.10
Productivity										
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$	0.460	0.620	0.536				0.073	0.404	0.245
Pmax	$mgCm^{-3}h^{-1}$	53.90	74.80	63.06				5.50	34.90	21.52
Areal Production	$mgCm^{-2}d^{-1}$	4125.34	4125.34	4125.34				2654.12	2882.06	2768.09
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$	419.2	419.2	419.2				579.4	715.6	647.5
Respiration	μMO_2h^{-1}	0.116	0.201	0.158	0.061	0.133	0.085	0.051	0.184	0.121
Plankton										
Total Phytoplankton	10^6Cells L^{-1}	6.698	13.761		1.793	9.175		2.517	11.005	
Centric diatoms	10^6Cells L^{-1}	0.105	0.369		0.000	0.013		0.003	0.010	
Alexandrium spp.	Cells L^{-1}	ND	ND		ND	ND		ND	ND	

Phaeocystis pouchetii	10^6Cells L^{-1}	5.959	12.258	1.605	8.824	2.254	10.706
Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND	ND	ND	ND	ND
Total Zooplankton	Individuals m^{-3}	3640	22916	10419	13174	6210	12639

Table 3-6. Nearfield Survey WN005 (May 00) Data Summary

Region		**Nearfield**		
Parameter	**Unit**	**Min**	**Max**	**Avg**
In Situ				
Temperature	°C	5.89	7.87	6.61
Salinity	PSU	30.3	32.5	31.5
Sigma _T		23.6	25.6	24.7
Beam Attenuation	m^{-1}	0.70	1.39	0.98
DO Concentration	mgL^{-1}	9.20	10.96	10.42
DO Saturation	PCT	91.3	112.1	104.3
Fluorescence	μgL^{-1}	1.08	3.79	2.32
Chlorophyll a	μgL^{-1}	0.28	1.57	0.73
Phaeopigment	μgL^{-1}	0.06	1.54	0.30
Nutrients				
NH4	µM	1.33	7.96	2.71
NO2	µM	0.08	0.44	0.12
NO2+NO3	µM	0.88	3.28	1.63
PO4	µM	0.44	0.78	0.60
SIO4	µM	5.68	11.27	7.99
BIOSI	µM	0.30	2.40	0.78
DOC	µM	136.0	369.4	196.7
PARTP	µM	0.07	0.34	0.15
POC	µM	7.08	34.20	15.63
PON	µM	1.75	5.94	3.20
TDN	µM	14.2	25.9	19.1
TDP	µM	0.64	0.91	0.77
TSS	mgL^{-1}	0.36	1.37	0.64
Urea	µM	0.18	0.31	0.23
Productivity				
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$	0.012	0.060	0.029
Pmax	$mgCm^{-3}h^{-1}$	1.07	7.36	3.07
Areal Production	$mgCm^{-2}d^{-1}$	465.1	627.9	546.5
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$	516.5	572.3	544.4
Respiration	μMO_2h^{-1}	0.020	0.098	0.058
Plankton				
Total Phytoplankton	10^6Cells L^{-1}	0.187	1.001	
Centric diatoms	10^6Cells L^{-1}	0.005	0.010	
Alexandrium spp.	Cells L^{-1}	ND	ND	
Phaeocystis pouchetii	10^6Cells L^{-1}	ND	ND	
Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND	
Total Zooplankton	Individuals m^{-3}	15799	46324	

Table 3-7. Nearfield Survey WN006 (May 00) Data Summary

Region		**Nearfield**		
Parameter	**Unit**	**Min**	**Max**	**Avg**
In Situ				
Temperature	°C	5.89	11.90	8.86
Salinity	PSU	29.8	32.2	30.9
Sigma _T		22.7	25.4	23.9
Beam Attenuation	m^{-1}	0.62	2.21	1.18
DO Concentration	mgL^{-1}	8.82	11.99	10.41
DO Saturation	PCT	88.2	132.9	109.8
Fluorescence	μgL^{-1}	0.06	14.67	4.72
Chlorophyll a	μgL^{-1}	0.42	12.00	5.87
Phaeopigment	μgL^{-1}	0.04	6.22	1.34
Nutrients				
NH4	µM	0.25	6.80	2.10
NO2	µM	0.00	0.22	0.06
NO2+NO3	µM	0.00	3.46	0.97
PO4	µM	0.04	1.04	0.41
SIO4	µM	0.17	18.62	5.03
BIOSI	µM	2.20	5.00	3.42
DOC	µM	123.6	299.2	190.4
PARTP	µM	0.15	0.58	0.38
POC	µM	11.70	70.40	45.20
PON	µM	2.70	10.70	6.73
TDN	µM	8.6	20.2	12.4
TDP	µM	0.30	1.03	0.50
TSS	mgL^{-1}	0.68	1.96	1.22
Urea	µM	0.12	0.91	0.42
Productivity				
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$	0.012	0.190	0.090
Pmax	$mgCm^{-3}h^{-1}$	2.31	17.39	9.46
Areal Production	$mgCm^{-2}d^{-1}$	1401.3	1557.7	1479.5
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$	291.8	295.5	293.7
Respiration	μMO_2h^{-1}			
Plankton				
Total Phytoplankton	10^6Cells L^{-1}	2.071	2.519	
Centric diatoms	10^6Cells L^{-1}	0.616	0.998	
Alexandrium spp.	Cells L^{-1}	2.8	9.6	
Phaeocystis pouchetii	10^6Cells L^{-1}	ND	ND	
Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND	
Total Zooplankton	Individuals m^{-3}	36201	74504	

Table 3-8. Combined Farfield/Nearfield Survey WF007 (Jun 00) Data Summary

Region		Farfield								
		Boundary			Cape Cod Bay			Coastal		
Parameter	Unit	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
In Situ										
Temperature	°C	5.58	13.13	9.22	10.66	14.93	13.42	10.55	13.68	12.41
Salinity	PSU	29.5	32.5	31.3	30.5	31.2	30.8	29.7	31.1	30.5
Sigma _T		22.1	25.6	24.2	22.6	23.9	23.1	22.1	23.8	23.0
Beam Attenuation	m^{-1}	0.57	1.40	0.91	0.82	1.77	1.42	0.76	2.51	1.73
DO Concentration	mgL^{-1}	8.83	10.49	9.90	8.05	9.65	9.29	8.59	9.67	9.12
DO Saturation	PCT	86.9	118.7	105.4	88.4	114.9	107.9	99.3	108.2	103.4
Fluorescence	μgL^{-1}	0.03	7.18	2.70	0.31	9.86	5.79	0.77	7.17	3.76
Chlorophyll a	μgL^{-1}	0.34	4.37	2.05	2.09	7.50	4.31	1.47	7.77	3.88
Phaeopigment	μgL^{-1}	0.32	1.41	0.74	0.73	3.09	1.25	0.79	2.50	1.55
Nutrients										
NH4	µM	0.21	18.61	2.92	0.33	3.53	1.05	0.99	10.58	3.36
NO2	µM	0.02	0.23	0.10	0.00	0.09	0.03	0.06	0.41	0.16
NO2+NO3	µM	0.01	6.92	2.41	0.01	0.53	0.15	0.28	2.89	1.00
PO4	µM	0.20	1.18	0.56	0.18	0.41	0.26	0.29	0.86	0.43
SIO4	µM	0.71	21.90	5.97	3.64	10.19	4.71	2.15	10.29	5.13
BIOSI	µM	0.30	3.10	1.35	0.80	1.80	1.40	1.50	4.50	3.20
DOC	µM	166.6	342.1	253.4	156.4	315.6	207.2	143.8	272.2	190.0
PARTP	µM	0.09	0.25	0.18	0.15	0.26	0.21	0.15	0.40	0.30
POC	µM	9.50	54.20	28.98	14.40	34.50	29.00	17.80	61.20	35.43
PON	µM	1.28	8.79	4.58	2.49	5.36	4.25	2.71	9.29	5.69
TDN	µM	10.8	19.9	13.9	10.4	15.1	12.0	13.8	23.8	17.8
TDP	µM	0.40	1.02	0.64	0.44	0.62	0.52	0.51	0.98	0.70
TSS	mgL^{-1}	0.57	1.73	0.90	0.79	2.56	1.21	1.13	2.32	1.80
Urea	µM	0.39	0.39	0.39	0.33	0.53	0.45	0.33	0.99	0.54
Productivity										
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$									
Pmax	$mgCm^{-3}h^{-1}$									
Areal Production	$mgCm^{-2}d^{-1}$									
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$									
Respiration	μMO_2h^{-1}									
Plankton										
Total Phytoplankton	10^6Cells L^{-1}	0.313	0.807		0.888	2.398		0.804	2.513	
Centric diatoms	10^6Cells L^{-1}	0.004	0.026		0.012	0.032		0.051	0.250	
Alexandrium spp.	Cells L^{-1}	ND	ND		ND	ND		1.8	1.9	
Phaeocystis pouchetii	10^6Cells L^{-1}	ND	ND		ND	ND		ND	ND	

Psuedo-nitzschia pungens	10^6 Cells L^{-1}	ND	ND		ND	ND		ND	ND	
Total Zooplankton	Individuals m^{-3}	92122	135943		81366	96033		118568	144149	

Table 3-8. Combined Farfield/Nearfield Survey WF007 (Jun 00) Data Summary (continued)

		Farfield								
Region		**Harbor**			**Offshore**			**Nearfield**		
Parameter	**Unit**	**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**
In Situ										
Temperature	°C	13.16	14.79	13.82	5.75	13.32	10.30	6.71	14.55	11.36
Salinity	PSU	27.3	29.9	29.0	30.2	32.3	31.0	29.5	31.8	30.8
Sigma _T		20.1	22.3	21.6	22.7	25.5	23.8	21.9	25.0	23.4
Beam Attenuation	m^{-1}	2.23	5.00	3.61	0.62	2.11	1.16	0.63	3.28	1.26
DO Concentration	mgL^{-1}	8.00	8.80	8.35	8.26	10.37	9.60	8.52	10.30	9.61
DO Saturation	PCT	93.4	102.5	96.7	85.8	117.4	104.5	85.8	114.3	106.8
Fluorescence	μgL^{-1}	5.23	13.52	7.99	0.04	9.61	4.02	0.83	16.34	4.19
Chlorophyll a	μgL^{-1}	3.92	11.05	8.31	0.11	7.77	3.80	0.30	10.75	3.06
Phaeopigment	μgL^{-1}	2.67	8.07	4.30	0.54	2.74	1.38	0.06	9.32	1.10
Nutrients										
NH4	µM	4.40	20.62	12.32	0.13	5.38	2.15	0.16	6.22	1.44
NO2	µM	0.28	0.59	0.46	0.01	0.23	0.12	0.00	0.22	0.06
NO2+NO3	µM	2.92	6.82	4.27	0.03	5.65	1.71	0.01	4.41	0.48
PO4	µM	0.54	1.27	0.97	0.17	1.22	0.54	0.14	1.11	0.35
SIO4	µM	5.36	23.78	12.67	1.31	12.36	5.33	1.08	21.88	3.65
BIOSI	µM	4.40	11.40	6.71	0.10	2.00	1.18	0.20	3.50	1.68
DOC	µM	206.9	361.3	265.8	212.1	346.3	272.8	133.9	455.9	238.7
PARTP	µM	0.41	0.89	0.65	0.01	0.39	0.18	0.11	0.55	0.19
POC	µM	27.80	75.50	51.42	16.80	45.50	32.17	10.60	59.80	24.52
PON	µM	4.72	12.50	8.65	2.82	7.29	5.12	1.77	9.07	3.88
TDN	µM	21.1	62.6	35.2	14.8	23.3	19.7	8.7	51.6	16.0
TDP	µM	0.83	1.47	1.16	0.45	1.18	0.62	0.39	1.07	0.57
TSS	mgL^{-1}	2.74	8.44	4.81	0.65	1.56	1.02	0.40	2.37	1.08
Urea	µM	0.46	0.86	0.68	0.26	0.26	0.26	0.13	0.26	0.16
Productivity										
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$	0.066	0.089	0.076				0.006	0.067	0.044
Pmax	$mgCm^{-3}h^{-1}$	10.12	20.72	15.55				0.40	11.91	6.03
Areal Production	$mgCm^{-2}d^{-1}$	414.2	414.2	414.2				961.8	1116.4	1039.1
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$	38.2	38.2	38.2				342.3	348.2	345.2
Respiration	μMO_2h^{-1}	0.181	0.188	0.185	0.047	0.139	0.108	0.050	0.141	0.088
Plankton										
Total Phytoplankton	$10^6 Cells\ L^{-1}$	1.660	3.383		0.429	1.860		0.726	1.495	
Centric diatoms	$10^6 Cells\ L^{-1}$	0.146	0.959		0.002	0.106		0.002	0.216	
Alexandrium spp.	$Cells\ L^{-1}$	1.75	1.75		ND	ND		ND	ND	
Phaeocystis pouchetii	$10^6 Cells\ L^{-1}$	ND	ND		ND	ND		ND	ND	
Psuedo-nitzschia pungens	$10^6 Cells\ L^{-1}$	ND	ND		ND	ND		ND	ND	

Total Zooplankton	Individuals m^{-3}	30403	91262		132443	186991		59395	289816	

Table 3-9. Nearfield Survey WN008 (Jul 00) Data Summary

Region		Nearfield		
Parameter	**Unit**	**Min**	**Max**	**Avg**
In Situ				
Temperature	°C	6.56	18.11	10.20
Salinity	PSU	30.9	32.1	31.7
Sigma _T		22.3	25.2	24.3
Beam Attenuation	m^{-1}	0.57	3.04	1.09
DO Concentration	mgL^{-1}	7.94	12.37	9.64
DO Saturation	PCT	82.1	147.2	105.5
Fluorescence	μgL^{-1}	0.02	21.47	3.76
Chlorophyll a	μgL^{-1}	0.44	20.85	4.71
Phaeopigment	μgL^{-1}	0.19	6.09	1.66
Nutrients				
NH4	µM	0.12	4.05	1.59
NO2	µM	0.01	0.46	0.19
NO2+NO3	µM	0.10	6.57	2.47
PO4	µM	0.13	1.21	0.63
SIO4	µM	1.10	21.37	5.79
BIOSI	µM	0.40	4.80	1.89
DOC	µM	134.3	336.9	207.1
PARTP	µM	0.09	0.74	0.31
POC	µM	6.91	80.30	34.75
PON	µM	1.55	12.40	5.45
TDN	µM	8.6	44.4	18.4
TDP	µM	0.42	1.19	0.73
TSS	mgL^{-1}	0.62	2.49	1.16
Urea	µM	0.11	0.17	0.16
Productivity				
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$	0.010	0.403	0.139
Pmax	$mgCm^{-3}h^{-1}$	0.62	63.30	18.43
Areal Production	$mgCm^{-2}d^{-1}$	1270.1	3762.9	2516.5
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$	538.8	557.0	547.9
Respiration	μMO_2h^{-1}	0.032	0.333	0.143
Plankton				
Total Phytoplankton	10^6Cells L^{-1}	0.546	3.661	
Centric diatoms	10^6Cells L^{-1}	0.027	1.746	
Alexandrium spp.	Cells L^{-1}	ND	ND	
Phaeocystis pouchetii	10^6Cells L^{-1}	ND	ND	
Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND	
Total Zooplankton	Individuals m^{-3}	84356	146097	

Table 3-10. Nearfield Survey WN009 (Jul 00) Data Summary

Region		Nearfield		
Parameter	**Unit**	**Min**	**Max**	**Avg**
In Situ				
Temperature	°C	6.88	17.93	12.82
Salinity	PSU	30.9	32.1	31.5
Sigma _T		22.3	25.1	23.6
Beam Attenuation	m^{-1}	0.57	2.23	1.15
DO Concentration	mgL^{-1}	7.88	10.46	9.14
DO Saturation	PCT	84.4	133.2	105.4
Fluorescence	μgL^{-1}	0.16	4.60	0.98
Chlorophyll a	μgL^{-1}	0.06	4.49	1.21
Phaeopigment	μgL^{-1}	0.10	1.04	0.44
Nutrients				
NH4	µM	0.21	23.14	2.24
NO2	µM	0.01	0.52	0.17
NO2+NO3	µM	0.03	7.48	1.56
PO4	µM	0.08	1.20	0.58
SIO4	µM	1.02	20.67	5.57
BIOSI	µM	0.20	3.80	1.07
DOC	µM	153.5	386.1	224.0
PARTP	µM	0.04	0.60	0.31
POC	µM	3.48	70.40	33.31
PON	µM	0.75	10.50	5.04
TDN	µM	10.5	58.1	17.2
TDP	µM	0.31	1.14	0.66
TSS	mgL^{-1}	0.53	1.91	1.06
Urea	µM	0.11	0.76	0.40
Productivity				
Alpha	$mgCm^{-3}h^{-1}(\mu Em^{-2}s^{-1})^{-1}$	0.003	0.121	0.056
Pmax	$mgCm^{-3}h^{-1}$	0.39	15.59	6.25
Areal Production	$mgCm^{-2}d^{-1}$	928.7	1433.7	1181.2
Chlorophyll Specific Areal Production	$mgC(mg\ Chla)^{-1}m^{-2}d^{-1}$	662.7	913.1	787.9
Respiration	μMO_2h^{-1}	0.033	0.291	0.148
Plankton				
Total Phytoplankton	10^6Cells L^{-1}	1.525	3.050	
Centric diatoms	10^6Cells L^{-1}	0.131	1.150	
Alexandrium spp.	Cells L^{-1}	20.7	20.7	
Phaeocystis pouchetii	10^6Cells L^{-1}	ND	ND	
Psuedo-nitzschia pungens	10^6Cells L^{-1}	ND	ND	
Total Zooplankton	Individuals m^{-3}	273860	274935	

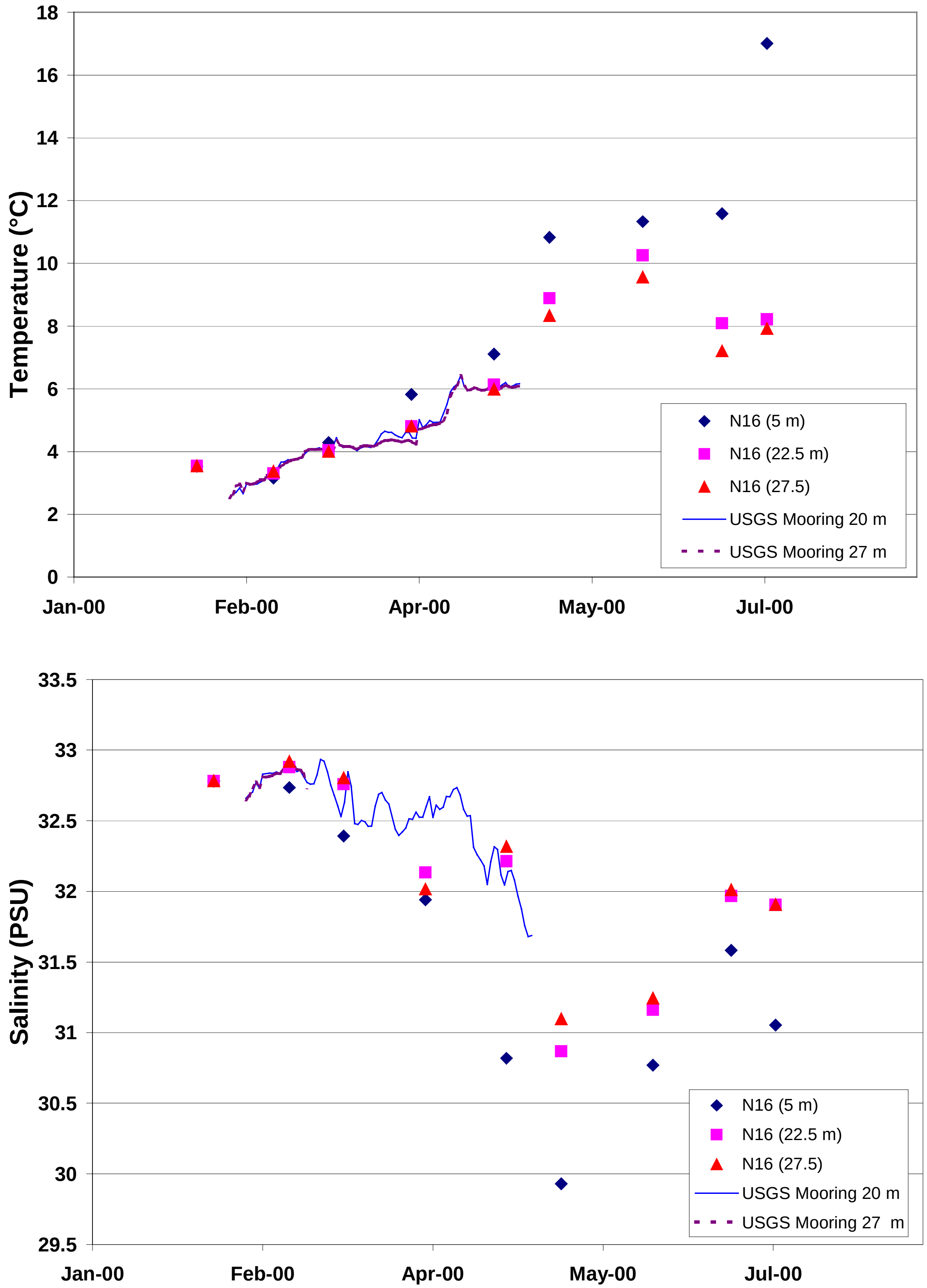


Figure 3-1. USGS Temperature and Salinity Mooring Data Compared with Nearfield Station N16

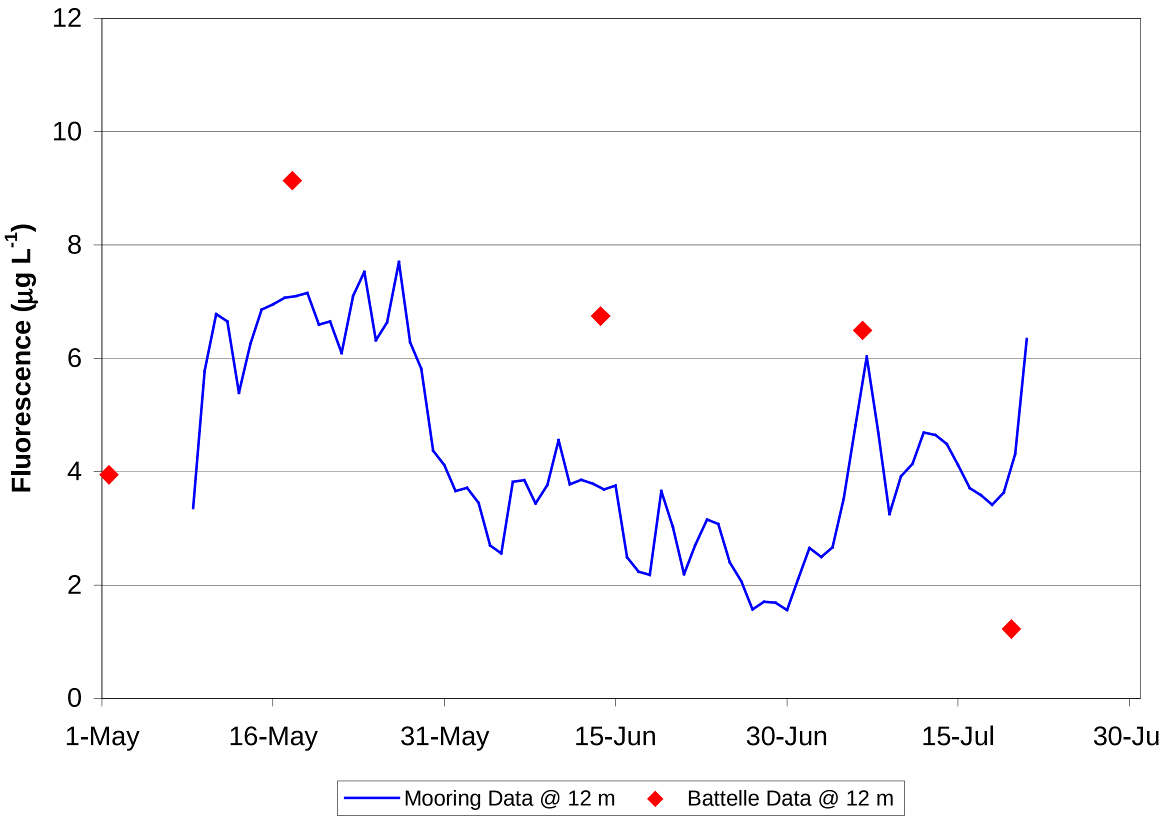


Figure 3-2. MWRA and Battelle *In Situ* Wetstar Fluorescence Data (MWRA Data Acquired at 12 m on USGS Mooring and Battelle Data Acquired at 12 m at Station N16)

4.0 RESULTS OF WATER COLUMN MEASUREMENTS

Data presented in this section are organized by type of data and survey. Physical data, including temperature, salinity, density, and beam attenuation are presented in Section 4.1. Nutrients, chlorophyll *a*, and dissolved oxygen are discussed in Section 4.2. Finally a summary of the major results of water column measurements (excepting biological measurements) is provided in Section 4.3.

Four of the nine surveys conducted during the semi-annual period were combined farfield/nearfield surveys. The first two combined surveys in early and late February (WF001 and WF002) were conducted prior to stratification of the water column. The onset of stratification was observed during the April combined survey (WF004) at the shallow stations in Boston Harbor and at the deep boundary stations. In both of these areas, lower salinity surface waters drove the density gradient. The last combined survey (WF007) was conducted in June and a strong density gradient was observed at the offshore and boundary stations. At the shallower coastal, Cape Cod Bay, Boston Harbor, and western nearfield stations, stratification was still relatively weak in June. Data collected during the farfield surveys were evaluated for trends in regional water masses throughout Boston Harbor, Massachusetts Bay and Cape Cod Bay. The variation of regional surface water properties is presented using contour plots of surface water parameters derived from the surface (A) water sample. Classifying data by regions allows comparison of the horizontal distribution of water mass properties over the farfield area.

The vertical distribution of water column parameters is presented in the following sections along three farfield transects (Boston-Nearfield, Cohassett and Marshfield) in the survey area and one transect across the nearfield area (Figure 1-3). Examining data trends along transects provides a three-dimensional perspective of water column conditions during each survey. Nearfield surveys were conducted more frequently than farfield surveys allowing better temporal resolution of the changes in water column parameters and the onset of stratification. In addition to the nearfield vertical transect (Figure 1-3), vertical variability in nearfield data is examined and presented by comparing surface and bottom water concentrations (A and E depths) and by plotting individual parameters with depth in the water column. A complete set the surface contour maps, vertical transect plots and parameter scatter plots is provided in Appendices B, C and D, respectively.

4.1 Physical Characteristics

4.1.1 Temperature\Salinity\Density

The timing of the annual setup of vertical stratification in the water column is an important determinant of water quality, primarily because of the trend towards continuously decreasing dissolved oxygen in bottom water during the summer and early fall. The pycnocline, defined as a narrow water depth interval over which density increases rapidly, is caused by a combination of freshwater input during spring runoff and warming of surface water in the summer. Above the pycnocline the surface water is well mixed, and below the pycnocline density increases more gradually. For the purposes of this report, the water column is considered stratified when the difference between surface and bottom water density is greater than 1.0 sigma-t units (σ_t). Using this definition, stratification did not set in the nearfield until early May and even then only at the deeper stations in the eastern nearfield (Figure 4-1). The density profiles suggest that although the pycnocline may have been developing across the eastern nearfield in May, strong stratified conditions were not established in the nearfield until July (Figure 4-2).

4.1.1.1 Horizontal Distribution

In early February (WF001), surface water temperatures were cold (2.0°C ± 2°C) across the entire farfield/nearfield area. The surface water temperatures ranged from 0.22°C at station F02 in Cape Cod Bay to 3.75°C at boundary station F29. Colder water temperatures were found in Cape Cod Bay, south shore coastal waters, and Boston Harbor and there was a clear inshore to offshore increase in temperatures (Figure 4-3). Surface water salinity was fairly uniform across the bays (32.5 ± 0.5 PSU) and also exhibited an inshore to offshore increase during WF001 (Figure 4-4). Lower salinity waters (<32 PSU) were only present in Boston Harbor. Surface water temperatures had warmed slightly by late February (WF002; 3°C ± 1.5°C) and continued to be coolest to the south in Cape Cod Bay, along the south shore, and in Boston Harbor. Temperatures ranged from 1.75°C at Cape Cod Bay station F01 to 4.5°C at boundary station F27. The distribution of minimum and maximum surface temperatures followed the general trend of increasing temperatures from south to north and inshore to offshore waters. A similar inshore to offshore pattern was observed for surface salinity data with the lowest surface salinity being observed at harbor station F30 and the highest at boundary station F27.

By early April (WF004), surface water temperature had increased (6°C ± 1°C). The shallow waters in Cape Cod Bay, Boston Harbor, and along coastal areas had become warmer creating a decreasing temperature gradient from inshore to offshore (Figure 4-5). In early April, the highest surface temperature was observed at harbor station F30 (7.07°C) and the lowest at offshore station F07 (4.99°C). Surface salinity values increased from inshore to offshore (Figure 4-6) with the minimum at harbor station F30 (29.45 PSU) and the maximum at nearfield station N16 (32.08 PSU). Lower surface salinity was observed at the stations off of Cape Ann (F26 and F27), which is indicative of the spring freshet of lower salinity surface waters from the Gulf of Maine and rivers to the north. In fact, flow in the Merrimack River increased from February through March reaching maximum flows in April (Figure 4-7). The Charles River followed a similar pattern with increased flow in March reaching a maximum flow rate in late April. Precipitation measured at Boston's Logan airport was correlated to the river flow data as there were four precipitation events with ~1 inch of rain in the March to April time frame.

During the June farfield/nearfield survey (WF007), surface water temperature across the farfield region ranged from a low of 11.18°C in the nearfield at station N16 to a maximum of 14.93°C in Cape Cod Bay at station F03 (Figure 4-8). Surface water temperatures were warmer to the south in Cape Cod Bay, southern Massachusetts Bay, and in Boston Harbor. Surface water salinity ranged from 27.33 at harbor station F30 to 31.01 at nearfield station N01. The surface salinity pattern was similar to that seen in April, with lower salinity in Boston Harbor and off of Cape Ann (Figure 4-9). This is consistent with the precipitation and flow data presented in Figure 4-7. Survey activities were delayed in June due to inclement weather that delivered significant amounts of rainfall to the region (almost 4 inches on June 6 at Logan Airport), which increased flow in the region's rivers. This is in stark contrast to drought conditions that were observed in New England during the same time period in 1999.

The changes that were observed in surface temperatures and salinity from February to April to June are indicative of the onset of seasonal stratification. By examining the temperature-salinity (T-S) plots, there is a clear change in the relationship between these two parameters between WF001 and WF007 (Figures 4-10 and 4-11). In early February, the trend within each of the regions was that increasing temperatures were concurrent with increasing salinity. The surface waters were generally cooler and less saline than bottom waters and thus the density gradient was not significant. By late February, this trend was less pronounced as surface and shallow waters warmed. The April survey occurred during a transition period. There was relatively little difference in water temperatures over the water column, but there was a wide range of salinity. By June, seasonal stratified conditions had been established with a warmer, less saline surface layer and cooler, more saline bottom waters.

4.1.1.2 Vertical Distribution

Farfield. The water column was well mixed throughout the region during the winter and early spring of 2000. As suggested previously, the density gradient ($\Delta\sigma_t$), representing the difference between the bottom and surface water σ_t, can be used as a relative indicator of a mixed or vertically stratified water column. Surface and bottom water density decreased over the course of this period throughout the farfield area (Figure 4-12). The water column was well mixed in each of the areas during the two February surveys. During the April survey (WF004), stratified conditions ($\Delta\sigma_t \geq 1.0$) were only observed at the harbor stations. At the boundary stations, the density gradient between surface and bottom waters was slightly less than 1. The development of stratification at these stations was primarily driven by a decrease in surface salinity (Figure 4-13), as surface and bottom water temperatures remained relatively unchanged during the first three combined surveys (Figure 4-14). There was a wide range of surface salinity at the boundary stations (see Figure 4-6) and the mean data presented in Figure 4-12d and 4-13d reflect the low surface salinity measured at the stations off Cape Ann. By June (WF007), surface water temperatures had increased by ~7°C throughout the bays and the offshore and boundary areas were strongly stratified ($\Delta\sigma_t > 2.0$). At the harbor stations, the water column was still weakly stratified ($\Delta\sigma_t$ ~1.0) and the coastal and Cape Cod Bay stations remained relatively well mixed though June.

The seasonal establishment of stratified conditions was also clearly illustrated in the vertical contour plots of temperature, salinity, and sigma-T for the Boston-Nearfield, Cohassett, and Marshfield transects (Appendix C). In February, there was little variation in these parameters over the water column, though as shown in the transect plots for σ_t, there was an increase in density from inshore to offshore (Figure 4-15). In April (WF004), the physical characteristics of the water column still suggested that the water column was relatively well mixed across each of the transects, except at boundary station F27 where the density gradient between the surface and bottom waters suggests the onset of seasonal stratification (Figure 4-16). By June (WF007), a strong pycnocline had developed throughout the region (Figure 4-17). The onset of stratification in the spring is usually related to a freshening of the surface waters and then as the surface temperatures increase the density gradient or degree of stratification increases. Such was the case in the spring of 2000 as shown in Figures 4-18 and 4-19, the freshening of the surface layer was coincident with the decrease in surface density and the onset of stratification in April at station F27 and in June across the transects. Also in June, the temperature gradient between surface and bottom waters was a contributing factor to the density gradient observed (Figure 4-20). A complete set of farfield transect plots of physical water properties is provided in Appendix C.

Nearfield. The onset of stratification can be observed more clearly from the data collected in the nearfield area. The nearfield surveys are conducted on a more frequent basis and thus provide a more detailed picture of the physical characteristics of the water column. As illustrated in Figure 4-21, the water column was still well mixed in early April (WF004) and did not begin to show signs of stratification until early May (WN005). In June (WF007), the storms that occurred early in the month contributed to the continued presence of relatively weak stratification along the nearfield transect. By July (WN008), a strong density gradient ($\Delta\sigma_t$ >2) was established across the nearfield area. The physical characteristics that led to the establishment of stratified conditions are detailed below.

The gradient between surface and bottom water salinity remained relatively weak (<0.5 PSU) until the early May (Figure 4-22). At the inner nearfield stations, there was little variation in the magnitude of the salinity gradient from February to July. At the other nearfield stations, surface salinity decreased by ~ 1 PSU while bottom salinity increased slightly from early April to early May. The decrease in surface salinity in May resulted from increased runoff to the coastal waters and the resulting salinity gradient that developed initiated the onset of stratification. By mid-May (WN006), surface salinity at the outer nearfield stations reached a minimum for the time period of ~30 PSU. Salinity minima for the surface waters at the inner nearfield stations were reached in June (WF007) and bottom water salinity minima were also observed during this survey (Figure 4-22). The input of fresher water from coastal runoff and the mixing associated with the storms led to a reduction in stratification in June (see Figure 4-1).

The nearfield water column was well mixed with respect to temperature (Figure 4-23) during the first five surveys of 2000. It was not until mid-May (WN006) that temperatures increased more substantially in the surface water than the bottom water. During this survey, there was a 3-4°C gradient between the surface and bottom waters (11-12°C versus 6-9 °C, respectively). The gradient had decreased by June due to the storm mixing events. By July, bottom water temperatures had become relatively stable at ~8°C, while surface water temperatures continued to increase. The increased temperature gradient between surface and bottom waters (Δ of ~8°C) resulted in a stronger density gradient in July.

4.1.2 Transmissometer Results

Water column beam attenuation was measured along with the other *in situ* measurements at all nearfield and farfield stations. The transmissometer determines beam attenuation by measuring the percent transmission of light over a given path length in the water. The beam attenuation coefficient (m^{-1}) is indicative of particulate concentration in the water column. The two primary sources of particles in coastal waters are biogenic material (plankton or detritus) or suspended sediments. Beam attenuation data are often evaluated in conjunction with fluorescence data to ascertain source of the particulate materials (phytoplankton versus detritus or suspended sediments).

During both of the February surveys (WF001 and WF002), surface water beam attenuation was relatively low ranging from 0.65 to 1.73 m^{-1} in early February and 0.92 to 1.76 m^{-1} in late February. The maximum values during each survey were measured in Boston Harbor. Generally, there was a decrease from inshore to offshore with elevated values being observed in the harbor and coastal waters decreasing across the nearfield and offshore. By early April (WF007), beam attenuation had increased in the harbor, coastal and western nearfield waters (Figure 4-24). The relatively high beam attenuation values observed at these stations were concomitant with high surface water fluorescence values associated with the winter/spring *Phaeocystis* bloom (see Sections 4.2.2 and 5.3). In April, the highest surface water beam attenuation values were found at the harbor and nearby coastal stations (2.47 m^{-1} at F25) and values tended to decrease with distance from the harbor. During the June survey (WF007), beam attenuation in the surface water exhibited a similar decrease in values from inshore to offshore stations and was indicative of an increase in water clarity away from Boston Harbor. In June, high surface water beam attenuation values were again observed at the harbor and nearby coastal stations (3.97 m^{-1} at F23) and values decreased further offshore.

The clear inshore to offshore horizontal gradient of decreasing beam attenuation away from Boston Harbor and the effect of the April *Phaeocystis* bloom can also be seen along the Boston-Nearfield transect (Figure 4-25). In February (WF001), elevated beam attenuation values were only present at harbor station F23. Although the harbor signal was still seen, the primary factor affecting beam attenuation in April (WF004) was the occurrence of the system wide winter/spring bloom. The pattern in transect plots of beam attenuation and fluorescence for this survey are nearly identical (see Figure 4-36). By June (WF007), a strong harbor signal dominated the inshore to offshore trends in beam attenuation along the Boston-Nearfield transect.

4.2 Biological Characteristics

4.2.1 Nutrients

Nutrient data were preliminarily analyzed using x/y plots of nutrient depth distribution, nutrient/nutrient relationships, and nutrient/salinity relationships (Appendix D). As with the physical characteristics, surface water contour maps (Appendix B) and vertical contours from select transects (Appendix C) were also produced from the nutrient data to illustrate the spatial variability of these parameters.

The nutrient data for February to July 2000 generally followed the typical progress of seasonal events in the Massachusetts and Cape Cod Bays. Maximum nutrient concentrations were observed in early February when the water column was well mixed and biological uptake of nutrients was limited. The winter/spring 'bloom' reduced nutrient concentrations in the surface waters from March through April and with the onset of stratification nutrient concentrations in the surface waters were depleted throughout much of the region by mid-May. Storm events in April and June added variability to the typical progression from winter to summer conditions. By July, seasonal stratification had resulted in persistent nutrient depleted conditions in the surface waters and ultimately to an increase in nutrient concentrations in bottom waters due to increased rates of respiration and remineralization of organic matter. The harbor signal of elevated nutrient concentrations (especially ammonium) was observed throughout this time period.

4.2.1.1 Horizontal Distribution

During this semi-annual period, the highest nutrient concentrations were consistently measured at the harbor and harbor-influenced coastal and nearfield stations. Dissolved inorganic nutrients were generally at a maximum in surface waters during the two February surveys (WF001 and WF002). As observed in 1998 and 1999, ammonium concentrations remained elevated with respect to other stations and compared to previous baseline monitoring years at station F23 near the Deer Island harbor discharge. Nutrient concentrations were lower in Cape Cod Bay than in Massachusetts Bay during the first two farfield surveys. By April (WF004), nutrient concentrations decreased throughout the region in response to the substantial *Phaeocystis* bloom that occurred in March/April 2000 (see Section 5.3), except for silicate, which remained somewhat elevated. Nitrate and phosphate concentrations remained low to depleted in June (WF007) throughout the region except in Boston Harbor and near-harbor coastal stations. Silicate concentration remained relatively high in June and ammonium concentrations increased from April to June.

In early February (WF001), the highest nutrient values were found in Boston Harbor [dissolved inorganic nitrogen (DIN) = 24.66 µM and phosphate (PO_4) = 1.41 µM at station F23] and along the boundary [nitrate (NO_3) = 10.29 µM and silicate (SiO_4) = 9.71 µM at station F27]. The lowest concentrations were observed in Cape Cod Bay at station F02 (DIN = 6.24 µM; NO_3 = 5.53 µM; SiO_4 = 2.84 µM; and PO_4 = 0.73 µM). Nutrient concentrations generally decreased outside of the harbor and from inshore to offshore.

During the late February survey (WF002), the nutrient concentrations and spatial patterns were similar to WF001 with high concentrations in the harbor and decreasing offshore, except that nutrient concentrations had decreased in Cape Cod Bay and southern Massachusetts Bay. The pattern for surface NO_3 concentrations was representative of nutrient patterns (except NH_4) during survey WF002 (Figure 4-26). The highest nutrient concentrations were again at Boston Harbor station

F23 (DIN = 60.47 μM, PO_4 = 2.21 μM, and SiO_4 = 13.47 μM) and at boundary station F27 (NO_3 = 11.95 μM). The lowest concentrations were at station F02 in Cape Cod Bay (DIN = 1.57 μM; NO_3 = 0.23 μM; SiO_4 = 0.27 μM; and PO_4 = 0.43 μM). Ammonium concentrations in Boston Harbor continued the trend of abnormally high concentrations that had been observed during the fall/winter of 1998 and during all of 1999. During WF002, NH_4 concentrations reached a maximum concentration for the semiannual time period of 47.65 μM at station F23.

The low nutrient concentrations at Cape Cod Bay stations F01 and F02 coincided with elevated chlorophyll concentrations and phytoplankton abundance (centric diatoms dominant) and suggest that a winter/spring bloom of centric diatoms may have occurred or started in Cape Cod Bay and southern Massachusetts Bay by late February (see Figure 5-17). The phytoplankton abundance, though relatively high in comparison to other coincident data, did not achieve abundances that indicate a substantial phytoplankton bloom was occurring. The very low concentrations of nitrate and silicate, however, suggest that a bloom event may have occurred prior to this early February survey. This minor bloom was superceded by the major *Phaeocystis* bloom that occurred later in the spring.

By April (WF004), nutrient concentrations had been drawn down and NO_3 and PO_4 concentrations were generally depleted (near detection limits for NO_3) across the bays (Figure 4-27). Although they had decreased substantially, the highest nutrient concentrations were still found in the harbor (DIN = 8.94 μM, PO_4 = 0.54 μM, and NH_4 = 6.75 μM at station F23 and NO_3 = 4.45 μM at station F30). Surface SiO_4 concentration was highest (11.02 μM) at boundary station F26 off of Cape Ann due to the spring freshet. The low NO_3, PO_4, and NH_4 concentrations observed in the bays in April were coincident with elevated chlorophyll concentrations and highest production rates observed during this semiannual period that were associated with the major winter/spring bloom of *Phaeocystis*. Silicate concentrations did not reach depleted levels due to the dominance of the phytoplankton assemblage by *Phaeocystis* rather than diatoms.

In June (WF007), the highest concentrations were once again found in Boston Harbor (DIN = 25.37 μM, NH_4 = 20.20 μM, and PO4 = 1.18 μM at station F23; NO_3 = 6.23 μM and SiO_4 = 17.53 μM at station F30). Nutrient concentrations outside the harbor and harbor-influenced coastal stations remained relatively low. Surface NH_4 concentrations had increased substantially from April and a strong gradient of decreasing concentrations away from the harbor and nearby coastal waters was evident (Figure 4-28). The low surface water nutrient concentrations found throughout Massachusetts and Cape Cod Bays were coincident with relatively high surface chlorophyll concentrations. Typically, surface waters have low nutrient and low chlorophyll concentrations once stratified, summer conditions are established, but this pattern was not observed in Massachusetts Bay until the nearfield surveys in July (WN008 and WN009).

4.2.1.2 Vertical Distribution

Farfield. The vertical distribution of nutrients was evaluated using vertical contours of nutrient data collected along three transects in the farfield: Boston-Nearfield, Cohassett, and Marshfield (Figure 1-3; Appendix C). During the two surveys in February (WF001 and WF002), the transect contours indicated that the water column was replete with nutrients. Nutrient concentrations decreased from inshore to offshore and there was little variation over depth except for NH_4, which tended to be higher in the surface waters. The inshore/offshore gradient was most pronounced for the NH_4 data that, as expected, clearly showed the harbor/coastal signal (Figure 4-29). The vertical distribution of NH_4 is also evident in Figure 4-29.

From late February to early April, a drastic change in nutrient concentrations and distribution had occurred. By April (WF004), surface water concentrations of NO_3, PO_4 and NH_4 had become depleted along each of the transects as these nutrients were being taken up by the blooming *Phaeocystis* (Figure 4-30). Ammonia concentrations, although not depleted, had declined to <7 µM over the water column at Boston Harbor station F23. The utilization of these nutrients in the surface waters resulted in a strong vertical gradient of increasing concentrations with depth. As mentioned above, the surface water nutrient depletion was coincident with elevated chlorophyll concentrations and high rates of primary production. Silicate concentrations remained relatively high, as this nutrient is not used in substantial quantities by *Phaeocystis* in comparison to other phytoplankton taxa (*i.e.* diatoms).

During the final combined farfield/nearfield survey for this semiannual period, nutrient levels in the surface waters at the non-harbor-influenced stations were depleted. Ammonium concentrations still exhibited a strong harbor/coastal signal with a dominant inshore/offshore horizontal gradient of decreasing concentrations. There was a strong vertical gradient for NO_3 and PO_4 along each of the transects with very low concentrations above the pycnocline (~25 m) and replete concentrations below. High chlorophyll concentrations were observed within the surface layer along each of these transects.

Nutrient-salinity plots are useful in distinguishing water mass characteristics and in examining regional linkages between water masses (Appendix D). Dissolved inorganic nitrogen (DIN) plotted as a function of salinity for each of the combined surveys illustrates the transition from winter to summer conditions that was evident for each of the nutrients. During the February surveys, the DIN-salinity plots exhibited a negative correlation between DIN and salinity (Figure 4-31a). This relationship is indicative of winter conditions when the water column is not stratified and the harbor and coastal waters are a source of low salinity, nutrient rich waters, but there also appears to be a slight increase in DIN concentrations at high salinity values for the deeper bottom waters. By April, high productivity in the surface waters decreased DIN concentrations substantially at lower salinity even at the normally nutrient-rich Boston Harbor stations (Figure 4-31b). The summer relationship between DIN and salinity was more evident in the data from Cape Cod Bay, nearfield, offshore and boundary areas – low concentrations surface waters and concentrations increasing with depth, but usually in the summer the surface and bottom waters more closely correspond to changes in salinity. In early April, the water column across most of the bays was still relatively well mixed and, although the nutrient concentrations were lower in the surface versus bottom waters, there was no sharp trend with salinity, except at the boundary stations that were affected by the spring freshet. In June (WF007), elevated DIN concentrations were still found at lower salinity in Boston Harbor and harbor-influenced stations (coastal and western nearfield), but summer conditions were evident in the rest of Massachusetts and Cape Cod Bays (Figure 4-32a). This is clearer when the NH_4 harbor signal is removed from the figure and only NO_3+NO_2 is presented (Figure 4-32b). The low DIN and NO_3+NO_2 concentrations at intermediate salinity represent the surface waters throughout the bays where biological activity has consumed DIN from both horizontal (harbor/coastal) and vertical (bottom waters) sources.

Nearfield. The nearfield surveys are conducted more frequently and provide a high resolution of the temporal variation in nutrient concentrations over the semi-annual period. In previous sections, the transition from winter to summer physical and nutrient characteristics has been discussed. For the nearfield, the transition from winter to summer nutrient regimes can be demonstrated by examining the variations in surface and bottom water NO_3 concentrations. In Figure 4-33, surface and bottom water NO_3 concentrations from five nearfield stations representing the four corners (N01, N04, N07, and N10) and the center (N21) of the nearfield were plotted for each of the nine surveys conducted this period. The highest surface water NO_3 concentrations were observed during the two surveys in February and generally decreased over the course of this period. By March (WN003), surface water nutrient concentrations had begun to decrease with the beginning of the winter/spring bloom. Bottom water NO_3 concentrations remained high from February through March although there was a slight decrease in concentrations in March at some of the nearfield stations.

By early April, NO_3 concentrations had become depleted and perhaps nutrient limiting in surface waters across the nearfield except at station N10, which is often influenced by tidal flow from Boston Harbor. Bottom water continued to decline, but remained replete at depth (4-6 μM). From early April to early May, there was an increase in surface water NO_3 concentrations, while bottom water concentrations continued to decline. This suggests that a mixing event may have occurred following the April survey after the end of the *Phaeocystis* bloom and prior to establishment of more stratified conditions in May. By mid-May (WN006), surface water nutrient concentrations were again depleted and remained this way through July. Bottom water NO_3 concentrations remained low (<3 μM) from May to June and then increased in July.

The relationship of nutrients to salinity in the nearfield followed the trend discussed above for the whole region (see Appendix D). Although it is a relatively homogeneous area, the relationships between nutrients and salinity in the nearfield exhibited some of the variability seen in the various farfield areas. This variability was associated with the input of nutrients and less saline water from the harbor and coastal waters. In February, nutrient concentrations tended to decrease with increasing salinity. In March and April, nutrient concentrations decreased in the lower salinity surface waters due to biological utilization. In May and June, the nearfield continued the transition from winter to summer nutrient conditions, but because the mixing associated with late spring storms summer nutrient conditions were not established in the nearfield until July. By July, nutrient concentrations started to increase in the bottom more saline waters due to remineralization at depth. The nutrient-salinity plots exhibited the typical summer relationship of increasing nutrient concentrations with increasing salinity (and depth) and the lower salinity surface waters being depleted or nearly depleted of nutrients.

An examination of the nutrient-nutrient plots showed that surface waters were generally depleted in DIN relative to PO_4 and SiO_4 in the nearfield for the entire semi-annual period (Appendix D). The DIN:PO_4 ratio was generally less than the Redfield value of 16 at the nearfield stations from February to June and decreased to approximately 4 in July. For the entire period, the nearfield waters were depleted in DIN versus SiO_4, which did not reach low concentrations until mid-May.

4.2.2 Chlorophyll *a*

Chlorophyll concentrations (based on *in situ* fluorescence measurements) were high in the nearfield during the winter/spring *Phaeocystis* bloom in March and April, high throughout the bays in April, and generally decreased over the remainder of the period though relatively high subsurface maxima were observed through July. The high chlorophyll concentrations in the nearfield during the winter/spring period of 2000 were a continuation of the elevated concentrations observed in 1999. The mean chlorophyll concentration for the nearfield for winter/spring (February through April) of 2000 was 5.03 μgL^{-1}, which is greater than any previous winter/spring mean obtained for the nearfield during the baseline monitoring period. The second highest winter/spring mean was observed during 1999 (3.83 μgL^{-1}). The 2000 winter/spring mean exceeded the chlorophyll threshold value that had been calculated as two times the baseline mean for 1992 to 1998 (4.76 μgL^{-1}; note the threshold will be recalculated based on all data from 1992 through August 2000). These very high winter/spring chlorophyll concentrations were coincident with unprecedented phytoplankton abundances during the *Phaeocystis* bloom. The back-to-back years with winter/spring chlorophyll concentrations that exceeded the proposed threshold level based on 1992-1998 data is a topic that will be discussed in detail in the 2000 Annual Water Column Report.

In Cape Cod Bay, elevated chlorophyll concentrations were found during the two February surveys (mean of 8.49 μgL^{-1} for WF001 and 8.98 μgL^{-1} for WF002). The maximum survey mean chlorophyll values for the other farfield areas were all observed during the April survey (WF004). Chlorophyll concentrations were high during the April survey in the nearfield, but the maximum survey mean concentration (11.24 μgL^{-1}) was during the March survey (WN003).

4.2.2.1 Horizontal Distribution

Surface chlorophyll concentrations were relatively high throughout the region during the two surveys in February. In early February (WF001), surface chlorophyll values were generally <3 μgL^{-1} in the bays with values >3 μgL^{-1} at some offshore and boundary stations to the northeast. The highest surface chlorophyll concentration was at coastal station F05 (8.88 μgL^{-1}). By late February, surface chlorophyll concentrations in Cape Cod Bay had increased to >7 μgL^{-1} with a maximum concentration of 11.09 μgL^{-1} at station F02 (Figure 4-34). This increase correlated with a doubling of phytoplankton abundance in the surface waters (about a 2 to 3 fold increase at mid-depth), which was primarily due to a large increase in the abundance of centric diatoms. These elevated surface chlorophyll concentrations were also coincident with low nutrient concentrations in comparison to Massachusetts Bay, which was due to the biological drawdown of nutrients in this area. Surface chlorophyll concentrations decreased from relatively high values in southern Massachusetts Bay to low values in the northern bay and in Boston Harbor.

During the April survey (WF004), surface chlorophyll concentrations were high in Boston Harbor and near-harbor coastal and nearfield waters (Figure 4-35). The maximum surface chlorophyll concentration was at coastal station F24 (10.65 μgL^{-1}). In Cape Cod Bay, concentrations had decreased from late February to April to <3 μgL^{-1}. Surface chlorophyll concentrations had increased in southern Massachusetts Bay and at the boundary stations, except for station F26 off of Cape Ann. Low chlorophyll concentrations were seen from the Cape Ann station down into the eastern nearfield area (<1 μgL^{-1} for much of northern Massachusetts Bay). The high chlorophyll concentrations were coincident with very high abundances of *Phaeocystis* from 4 to 12 million cells L^{-1} in Boston Harbor and western Massachusetts Bay (see Figure 5-18).

Nearfield surface chlorophyll decreased sharply from April (WF004) to May (WN005). In early May, surface chlorophyll concentrations ranged from 1 to 2.5 μgL^{-1}, but by mid-May (WN006) surface chlorophyll had increased again to 0.29-11.62 μgL^{-1} with the maximum at station N10 and values decreasing further offshore. The decrease in nearfield surface chlorophyll concentrations from April to early May and subsequent increase by mid-May were associated with abrupt changes in the phytoplankton community assemblage. Following the decline of the winter/spring *Phaeocystis* bloom, nearfield surface phytoplankton abundance decreased from 4-6 million cells L^{-1} in April to ~1 million cells L^{-1} in early May. By mid-May, chlorophyll concentrations had again increased and phytoplankton abundance had more than doubled primarily due to an increase in centric diatoms (see Figure 5-14).

By June (WF007), the phytoplankton assemblage throughout the farfield was dominated by microflagellates and the regional pattern in surface chlorophyll was generally an inshore to offshore decrease. The chlorophyll concentrations at the Boston Harbor and near-harbor coastal and nearfield stations were high ranging from 4.41 μgL^{-1} at station F25 to 16.34 μgL^{-1} at station N10. Elevated surface chlorophyll concentrations (5-8.5 μgL^{-1}) were also observed at southern coastal and offshore Massachusetts Bay stations. Chlorophyll values decreased further offshore to <3 μgL^{-1} in the western nearfield, offshore, boundary, and Cape Cod Bay areas. This was coincident with an inshore to offshore decrease in nutrient concentrations and NO_3 depletion in the surface waters throughout the bays. Surface chlorophyll concentrations decreased in the nearfield by July, but an inshore to offshore gradient of decreasing values continued to be observed with the maximum surface chlorophyll concentration being at harbor-influenced station N10 during both July surveys.

4.2.2.2 Vertical Distribution

Farfield. The vertical distribution of chlorophyll was evaluated using vertical contours of *in situ* fluorescence data collected along three east/west transects in the farfield: Boston-Nearfield, Cohassett, and Marshfield (Figure 1-3; Appendix C). In early February (WF001), chlorophyll concentrations along the Boston-Nearfield and Cohassett transects were relatively low (<5 μgL^{-1}) and higher concentrations (>10 μgL^{-1}) were found along the Marshfield transect. There was an inshore to offshore decrease in chlorophyll along all three of the transects. The high chlorophyll concentrations along the Marshfield transect were coincident with elevated chlorophyll concentrations further to the south in Cape Cod Bay and with relatively high phytoplankton abundances at station F06. By late February (WF002), chlorophyll concentrations along the Marshfield transect had decreased to 1-7 μgL^{-1} and concentrations along the other two transects were usually <1 μgL^{-1} except for inshore surface waters and along a subsurface layer (5-20 m) where they ranged from 1 to 3 μgL^{-1}.

In April (WF004), surface and subsurface chlorophyll concentrations had increased substantially along the transects (Figure 4-36). Along the Boston-Nearfield transect, surface chlorophyll concentrations were at a maximum at inshore stations F23 and F24 (>9 μgL^{-1}), while a subsurface chlorophyll maximum at 15-20 m was present further offshore through the nearfield to boundary station F27. The highest chlorophyll concentrations were >15 μgL^{-1} in the subsurface layer at stations F19 and F27. A similar pattern was seen along the Cohassett transect with the highest chlorophyll concentrations (>15 μgL^{-1}) at coastal station F14 at depth. Further to the south along the Marshfield transect, chlorophyll values were somewhat lower (5-11 μgL^{-1}) throughout the upper 25 m. The chlorophyll and phytoplankton data were generally consistent with higher subsurface chlorophyll concentrations and phytoplankton abundance (see Figure 5-18).

Chlorophyll concentrations had decreased by the June survey (WF007). The patterns along the transects did not show the typical progression to summer conditions of elevated chlorophyll concentrations near Boston Harbor and at the pycnocline. Instead concentrations were relatively consistent across each transect, except that they were lower at the furthest offshore station, and were generally at a maximum in the surface waters (Figure 4-37). Phytoplankton abundance, however, was higher in the mid-depth samples in comparison to the surface samples and each was dominated by microflagellates during the June survey.

Nearfield. Chlorophyll concentrations for the surface, mid-depth, and bottom waters of all nearfield stations were averaged and plotted for each of the nearfield surveys (Figure 4-38). The mid-depth sample was collected at the subsurface chlorophyll maximum, if present. The mean chlorophyll concentrations were low (~2 μgL^{-1}) and consistent over depth in early February. By late February, subsurface chlorophyll concentrations had increased at mid-depth (~3 μgL^{-1}). In March, chlorophyll values increased substantially and reached maxima for the time period for each of the depths. The March survey mean chlorophyll values ranged from 8.5 μgL^{-1} in the bottom waters to 13 μgL^{-1} at the subsurface chlorophyll maximum. These high chlorophyll concentrations were coincident with high production and the initiation of the winter/spring *Phaeocystis* bloom. By April, nearfield mean chlorophyll values had decreased considerably in the surface and bottom waters (~2 μgL^{-1}). The mean concentrations at the subsurface chlorophyll maximum had decreased to 9.5 μgL^{-1}. This decrease in chlorophyll concentrations occurred despite a 2-3 fold increase in phytoplankton abundance in surface waters and a 5 fold increase in abundance at mid-depth. Following the decline of the *Phaeocystis* bloom, nearfield chlorophyll concentrations decreased to <3 μgL^{-1} in early May. By mid-May, however, chlorophyll concentrations had increased in the surface and mid-depth waters to 3 and 7.5 μgL^{-1}, respectively. This increase was coincident with a >2-fold increase in phytoplankton abundance from early to mid-May due predominantly to increases in microflagellates and centric diatoms. Nearfield chlorophyll concentrations tended to decline from mid-May through July except for a slight increase in surface chlorophyll in June and an increase at mid-depth in early July.

The vertical distribution of chlorophyll was also examined along a transect from the southwest corner to the northeast corner of the nearfield area (see Figure 1-3). The southwest corner, station N10, often exhibits a harbor chlorophyll signal while an offshore chlorophyll signal is more often observed at the northeast corner, station N04. Chlorophyll concentrations were relatively low (<3 μgL^{-1}) during the first two surveys of 2000 (Figure 4-39). The highest chlorophyll concentrations of this semiannual period were observed during the March survey (WN003). By March, surface chlorophyll concentrations had increased to 7-11 μgL^{-1} at inshore stations (N10 and N19) and to 3-9 μgL^{-1} along the rest of the nearfield transect. A subsurface chlorophyll maximum (>9 μgL^{-1}) was present along the whole nearfield transect except at station N10. The highest concentrations (>13 μgL^{-1}) were at 5-10 m depths in the middle of the nearfield (stations N21 and N15). Phytoplankton data collected from stations N14 and N18 indicate that total abundance and the abundance (and dominance) of *Phaeocystis* and centric diatoms increased from February to March resulting in a concurrent increase in chlorophyll. The surface and mid-depth phytoplankton abundances were similar in March so it is likely that the elevated chlorophyll concentrations at depth were due to an increase in chlorophyll per cell in response to decreasing light at depth in the well-mixed water column.

In April (WF004), chlorophyll concentrations had decreased from the March levels, but concentrations at the subsurface maximum were still >9 μgL^{-1} across most of the nearfield transect (Figure 4-39c). Surface chlorophyll concentrations were highest at station N10 (>5 μgL^{-1}) and decreased sharply to <1 μgL^{-1} at station N21 and the eastern nearfield. This was coincident with a very strong inshore to offshore decrease in nutrient concentrations. The availability of nutrients at depth led to the subsurface chlorophyll maximum that was located just above the pycnocline (~20 m). Phytoplankton abundances in the nearfield chlorophyll maximum samples were almost double that of the surface samples (3-6 million cells L^{-1} versus 7-11 million cells L^{-1}). The elevated chlorophyll concentrations and phytoplankton abundance were concomitant with high production rates during the April survey. Production peaked in March at station N18 (although still high in April) and in April at the more offshore station N04. In comparison to the March survey, the chlorophyll per cell ratio was much lower in April and with the inshore to offshore trends in production may suggest that the survey was conducted towards the end of the *Phaeocystis* bloom.

By early May, chlorophyll concentrations had decreased to <4 μgL^{-1} over all of the nearfield transect. There was an equally severe decrease observed in phytoplankton abundance from 4-11 million cells L^{-1} in early April to ≤1 million cells L^{-1} in early May. By mid-May, the surface chlorophyll concentrations at the harbor-influenced western nearfield stations had increased to >13 μgL^{-1} and there was a gradient of decreasing surface concentrations further offshore (Figure 4-40). The maximum chlorophyll concentrations were at that surface in the western nearfield and subsurface at the offshore stations. The increase in chlorophyll was coincident with an increase in phytoplankton from early to mid-May. A similar pattern and range of chlorophyll concentrations was observed during the June survey (WF007). The main difference was a shallower surface layer at the inshore stations and that the offshore subsurface chlorophyll maximum occurred over a narrower depth interval. By July, the typical summer chlorophyll pattern was observed in the nearfield. Elevated chlorophyll concentrations at the harbor-influenced western nearfield stations and a deepening subsurface chlorophyll maximum across the rest of the nearfield, which is associated with the pycnocline and the nutrients available from the deeper waters.

4.2.3 Dissolved Oxygen

Spatial and temporal trends in the concentration of dissolved oxygen (DO) were evaluated for the entire region (Section 4.2.3.1) and for the nearfield area (Section 4.2.3.2). Due to the relative importance of identifying low DO conditions, bottom water DO minima were examined for the water sampling events. The minimum measured DO concentration was 7.88 mgL^{-1} in the nearfield in July (WN009). Regionally, a DO concentration minimum of 8.00 mgL^{-1} was observed in Boston Harbor in June (WF007). DO concentrations were within the range of values observed during previous years. The June bottom water DO concentration has traditionally been used as an indicator of DO minimum concentrations in September/October. This early warning indicator could be used to alleviate or at least heighten awareness about potentially harmful bottom water DO conditions that could occur in the fall. The June bottom water concentrations in 2000 were slightly higher (~0.5 mgL^{-1}) in each of the regional areas than the values measured in 1999, which ended up having the lowest fall DO minima of the entire baseline period. Although there was an extraordinary *Phaeocystis* bloom in 2000, physical factors likely led to a delay in establishment of stratified conditions and continued ventilation of the bottom waters through June. This biological and physical factors that affect bottom water DO concentrations in Massachusetts Bay will be evaluated in more detail in the 2000 Nutrient Issues Review.

4.2.3.1 Regional Trends of Dissolved Oxygen

The DO of bottom waters was compared between areas and over the course of the four combined surveys. A time series of the average bottom water DO concentration for each area is presented in Figure 4-41a. Average bottom water DO concentrations ranged from 8 to 13 mgL^{-1}. Bottom water DO concentrations remained relatively constant from early February through April for most of the bays. Lower concentrations were consistently observed at the deeper boundary and offshore areas over this period. In Cape Cod Bay, bottom water DO concentrations decreased by almost 2 mgL^{-1} from late February to early April. This was likely related to the decline of the centric diatom bloom that was suggested by phytoplankton data at the Cape Cod Bay stations in late February (see Figure 5-17). Between the April and June surveys, there was a sharp decline in bottom water DO throughout the bays. In Boston Harbor, bottom water DO concentrations declined by ~3 mgL^{-1}. Declines of 1-2 mgL^{-1} were found in the other areas. The trend of declining bottom water DO concentrations following the establishment of stratification and the cessation of the winter/spring bloom is typical for the bays. The decline observed in 2000 was less than that seen during 1999 and may be an indication that bottom water DO concentrations may not achieve the very low levels seen in the fall of 1999.

The trend of decreasing DO in the bottom waters was less apparent in the DO %saturation data (Figure 4-41b). In general, DO %saturation decreased in each of the areas from early February to June, but there were no consistent trends from survey to survey across the region. Boston Harbor bottom water DO %saturation increased from late February to April, while coastal, offshore and boundary values remained relatively stable, and Cape Cod Bay DO %saturation declined. Bottom waters were supersaturated during this time period in the Boston Harbor and the coastal areas and slightly undersaturated in the deep waters of the boundary and offshore areas. In June, bottom waters were undersaturated with respect to DO in all of the areas except coastal waters with average values ranging from about 90% to 98% saturation.

In February, the spatial distribution of DO generally exhibited an inshore to offshore trend of decreasing DO concentrations along three regional transects and there was more variability over depth along the Marshfield transect and along all three transects in late February. By April, the winter/spring bloom led to high DO concentrations in the surface layer and DO concentrations had decreased slightly in the bottom waters along each of the transects, but all bottom water values were still >9 mgL^{-1} (Figure 4-42). In June, DO concentrations had decreased from the April values throughout the water column and reached relatively low levels (8-9 mgL^{-1}) in the harbor and in coastal and some offshore bottom waters. In Figure 4-43, bottom water DO concentrations are presented over the entire region for the June survey. Low DO concentrations (<9 mgL^{-1}) were located in three areas: Boston Harbor, Cape Cod Bay and an area stretching from the eastern nearfield south to the coast off of Marshfield, MA.

4.2.3.2 Nearfield Trends of Dissolved Oxygen

Dissolved oxygen concentrations and percent saturation values for both the surface and bottom waters of the 21 nearfield stations were averaged and plotted for each of the nearfield surveys. From February to April, the average surface water DO concentrations for the nearfield area increased from ~10.5 to almost 13 mgL^{-1} (Figure 4-44a). The maximum concentration of almost 13 mgL^{-1} observed in April was coincident with elevated chlorophyll concentrations and high primary production. Following the April survey, surface water DO concentrations decreased reaching average concentrations of about 10±0.5 mgL^{-1} in June and July. Bottom water DO concentrations remained stable (~10.5 mgL^{-1}) from early February through April and then decreased from April to July reaching concentrations of <9 mgL^{-1} in July.

The average DO %saturation for the surface waters followed the same increasing trend as DO concentration from early February to April (Figure 4-44b). The surface waters were slightly under saturated with respect to DO in early February (~95%) and increased steadily until reaching supersaturated levels in April (~125%). Surface water DO %saturation varied by 10-15% from April to July, but remained supersaturated at levels of 110-130% for the rest of the time period. There was little variation in average DO %saturation for the bottom waters for the first five surveys of 2000 ranging from 95 to 100 %saturation. As the water column began to stratify in May (WN006), bottom water DO %saturation began to decrease, but values increased again in June to >100% saturation following the storm induced mixing events. Following the June survey, DO %saturation values decreased to ~90 %saturation in July.

In February and March, the water column was well mixed and DO concentrations were relatively consistent across the nearfield with slightly higher values in the surface waters. By April, large vertical gradients in DO concentration were observed because of a combination of biological factors (Figure 4-45). In the surface water, the increase in DO concentrations was concomitant with an increase in chlorophyll concentrations, phytoplankton abundance and production rates. DO concentrations remained relatively unchanged in the bottom waters. By mid-May, the water column had begun to stratify and bottom water DO concentrations had decreased to <10 mgL^{-1} and to <9 mgL^{-1} at offshore stations. The storm mixing events in June homogenized the water column with respect to DO concentrations and values of 9-10 mgL^{-1} were observed over the entire nearfield transect. By July, the nearfield water column had become strongly stratified. DO concentrations increased from June values in the surface waters and in the subsurface chlorophyll maximum layer while in the bottom waters respiration rates had increased and reduced DO concentrations to less than 9 mgL^{-1} across the entire transect.

4.3 Summary of Water Column Results

- The onset of stratification was observed during the April combined survey in Boston Harbor and at the deep boundary stations. The development of stratification at these stations was primarily driven by a decrease in surface salinity, as surface and bottom water temperatures remained relatively unchanged. By June, surface water temperatures had increased by ~7°C throughout the bays and a strong density gradient was observed at the offshore and boundary stations. Due to storm events and associated mixing, stratification was still weak at the shallower coastal, Cape Cod Bay, and Boston Harbor stations. Boston Harbor usually remains well mixed due to tidal flushing.
- In the nearfield, the water column had begun to stratify in early May at the deeper eastern nearfield stations. The storm events in June remixed the water column and contributed to the relatively weak stratification that was observed. By July a strong density gradient was observed and stratified conditions had become established in the nearfield.
- The nutrient data for February to July 2000 generally followed the "typical" progress of seasonal events in the Massachusetts and Cape Cod Bays.
  - Maximum nutrient concentrations were observed in early February when the water column was well mixed and biological uptake of nutrients was limited.
  - The winter/spring *Phaeocystis* bloom reduced nutrient concentrations in the surface waters from March to April. NO_3 and PO_4 concentrations in the surface waters were depleted throughout much of the region.
  - Seasonal stratification led to persistent nutrient depleted conditions in the surface waters and ultimately to an increase in nutrient concentrations in bottom waters due to increased rates of remineralization of organic matter.
- The harbor signal of elevated nutrient concentrations (especially ammonium) was observed throughout this time period, although harbor nutrient concentrations were reduced substantially during the *Phaeocystis* bloom.
- The mean chlorophyll concentration for the nearfield for winter/spring 2000 was higher than any previous winter/spring mean obtained during the baseline monitoring period and exceeded the provisional chlorophyll threshold value that had been calculated as two times the baseline mean for 1992 to 1998.
- The unprecedented nearfield winter/spring chlorophyll concentrations were directly reflected in the phytoplankton abundance data. *Phaeocystis* counts reached levels of >10 million cells L^{-1} in the nearfield.
- DO concentrations in 2000 were within the range of values observed during previous years and followed the typical trends:
  - In February, the water column was well mixed and DO concentrations were high and consistent across the region.
  - By April, vertical gradients in DO concentration were observed because productivity was high in the surface waters, and the increases in chlorophyll concentrations, phytoplankton abundance and production rates led to increased DO concentrations.
  - The storm events in June served to mix the water column to some degree increasing bottom water DO concentrations from the levels observed in May
  - In July, the nearfield water column had become strongly stratified.
    - DO concentrations remained high in the surface waters and in the subsurface chlorophyll maximum layer.
    - In the bottom waters, increased respiration rates reduced DO concentrations to less than 9 mgL^{-1} at some stations.

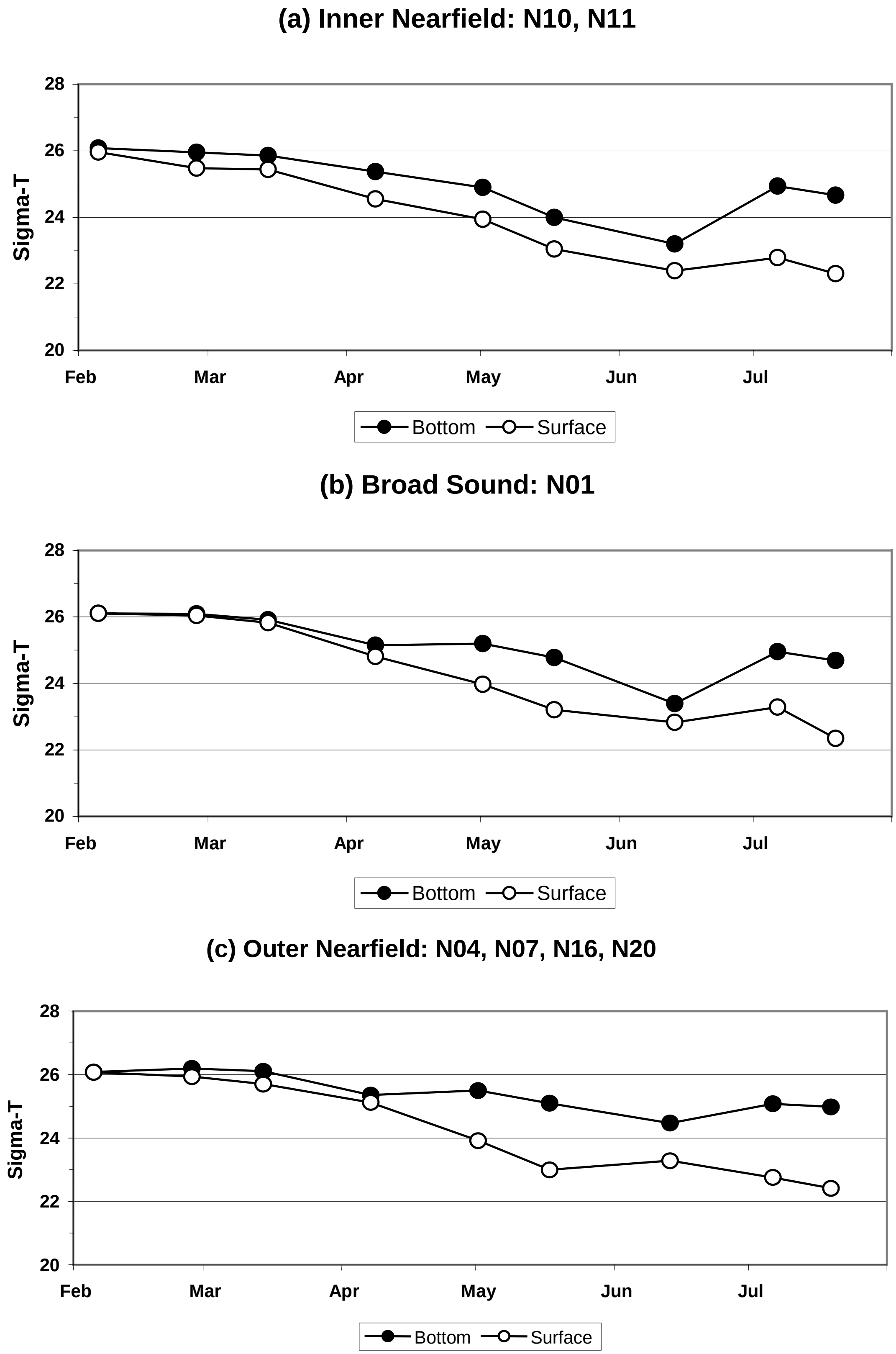


Figure 4-1. Time-Series of Average Surface and Bottom Water Density (σ_t) in the Nearfield

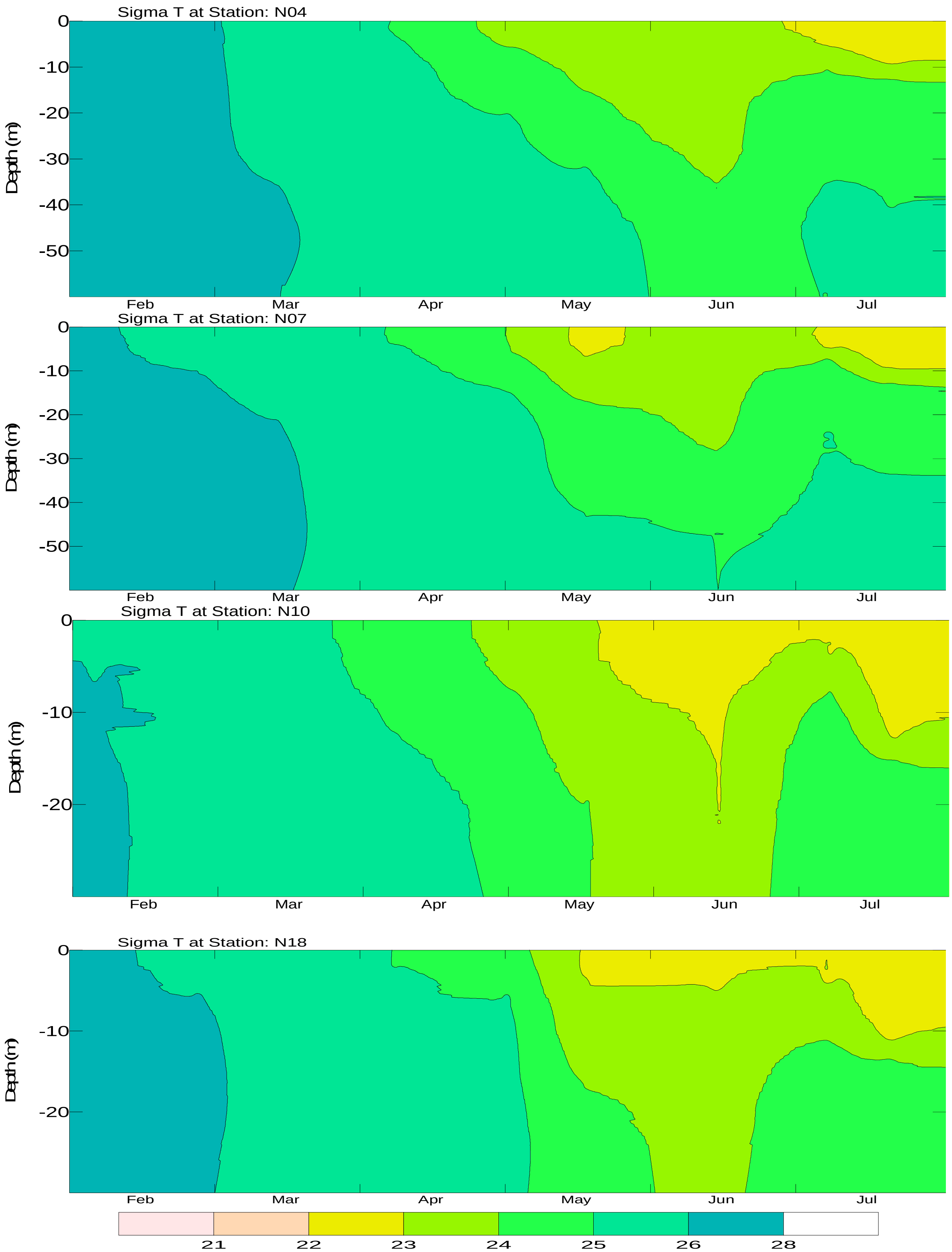


Figure 4-2. Nearfield Depth vs. Time Contour Plots of Sigma-T for Stations N04, N07, N10 and N18

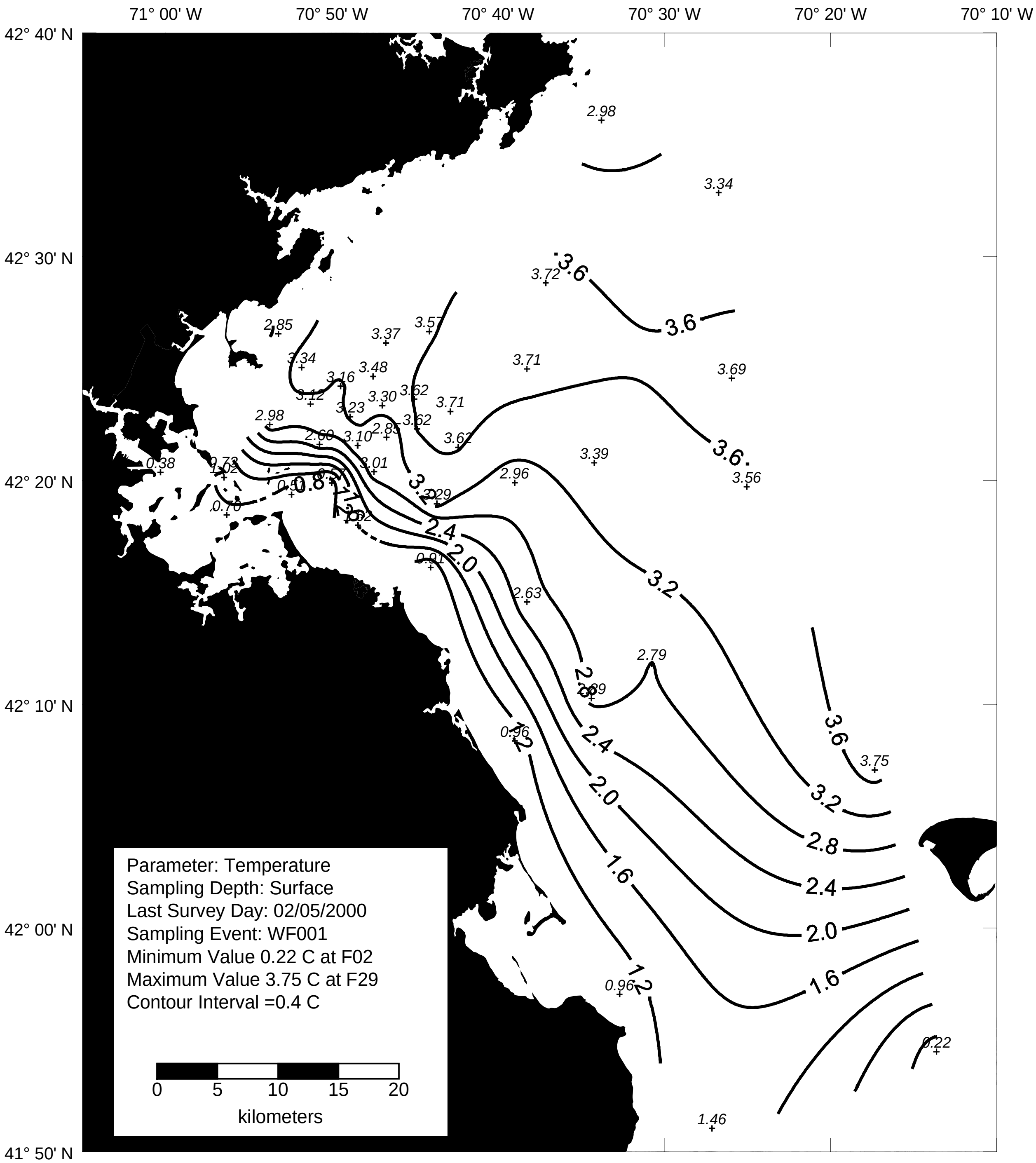


Figure 4-3. Temperature Surface Contour Plot for Farfield Survey WF001 (Feb 00)

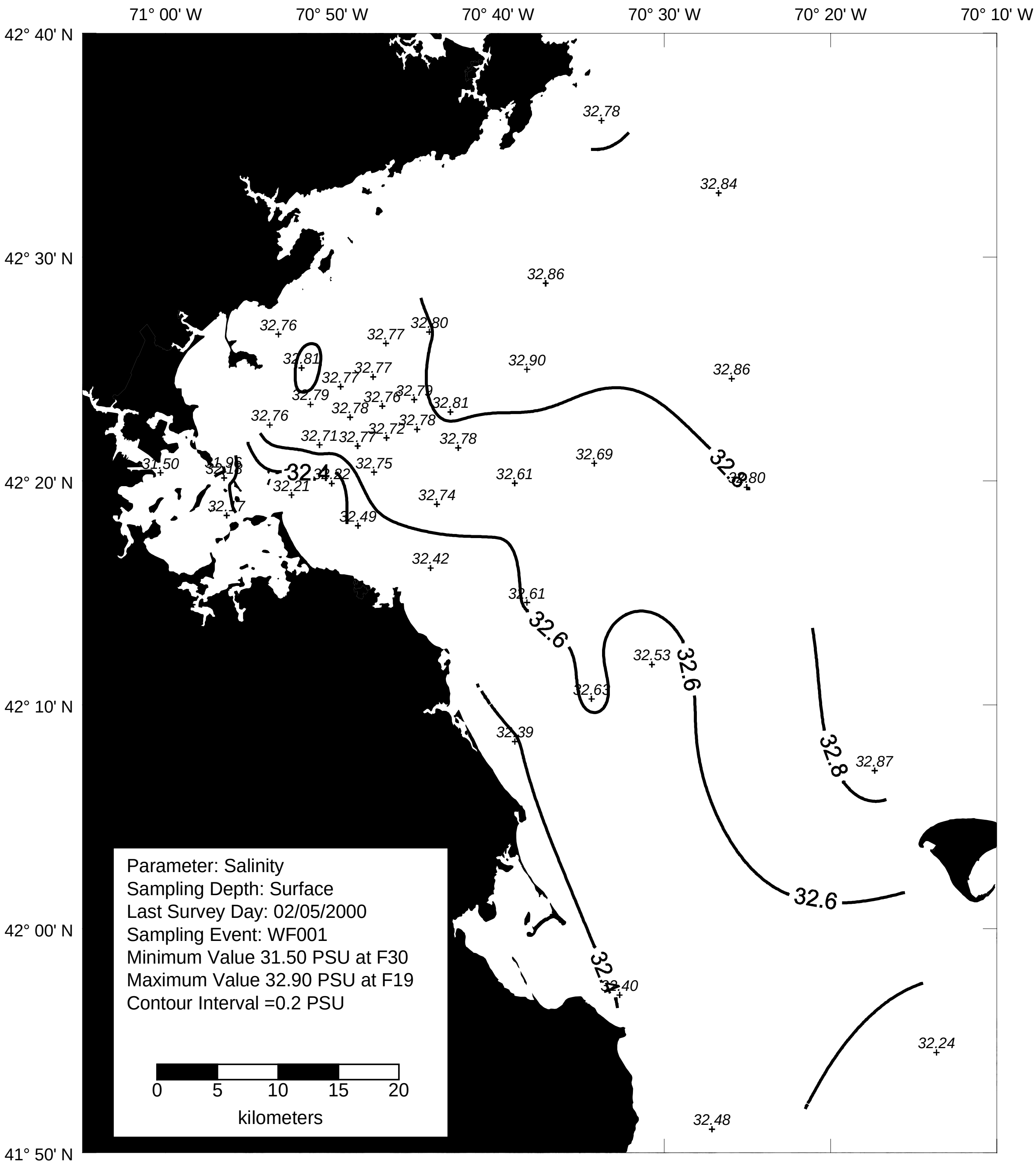


Figure 4-4. Salinity Surface Contour Plot for Farfield Survey WF001 (Feb 00)

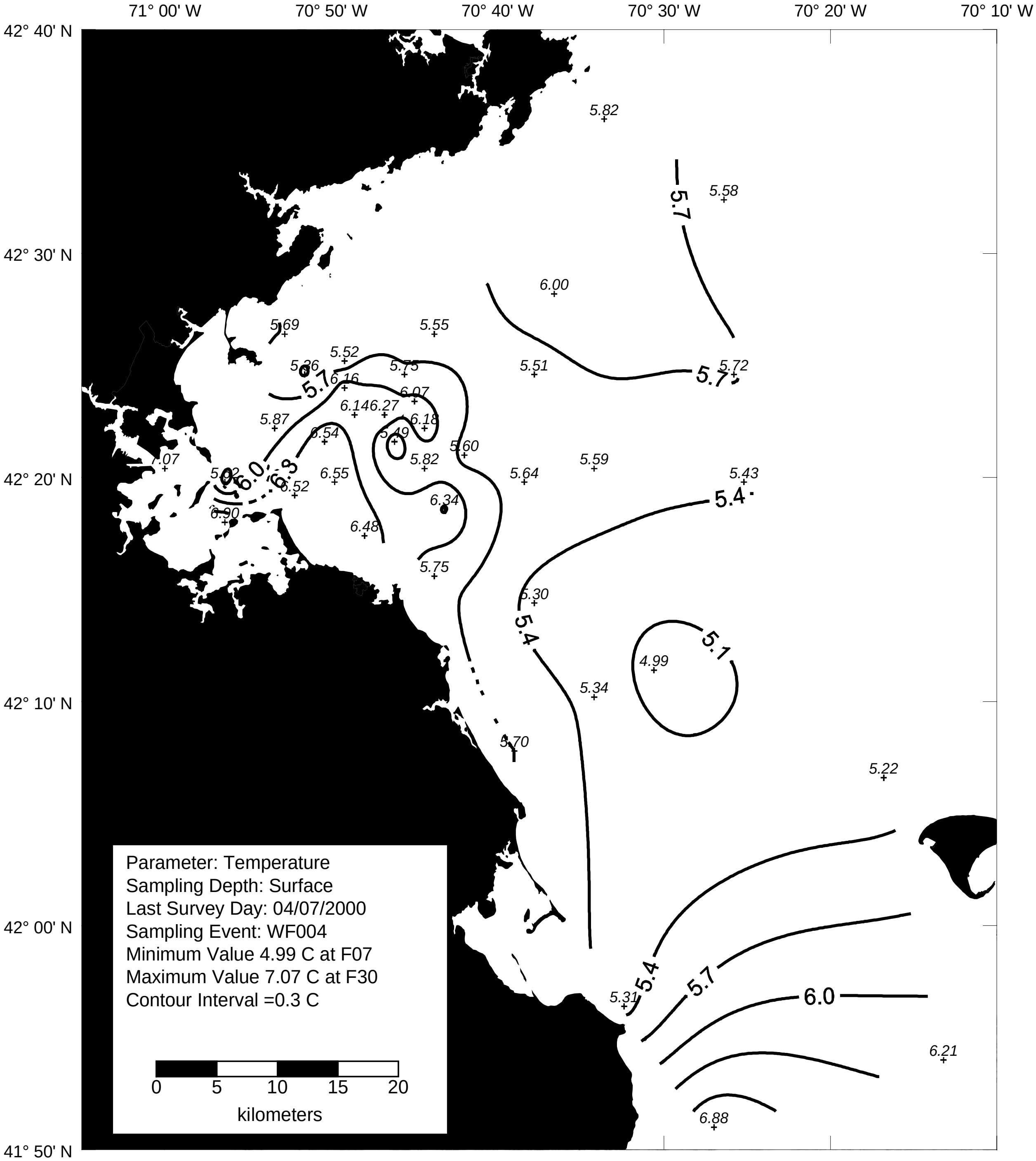


Figure 4-5. Temperature Surface Contour Plot for Farfield Survey WF004 (Apr 00)

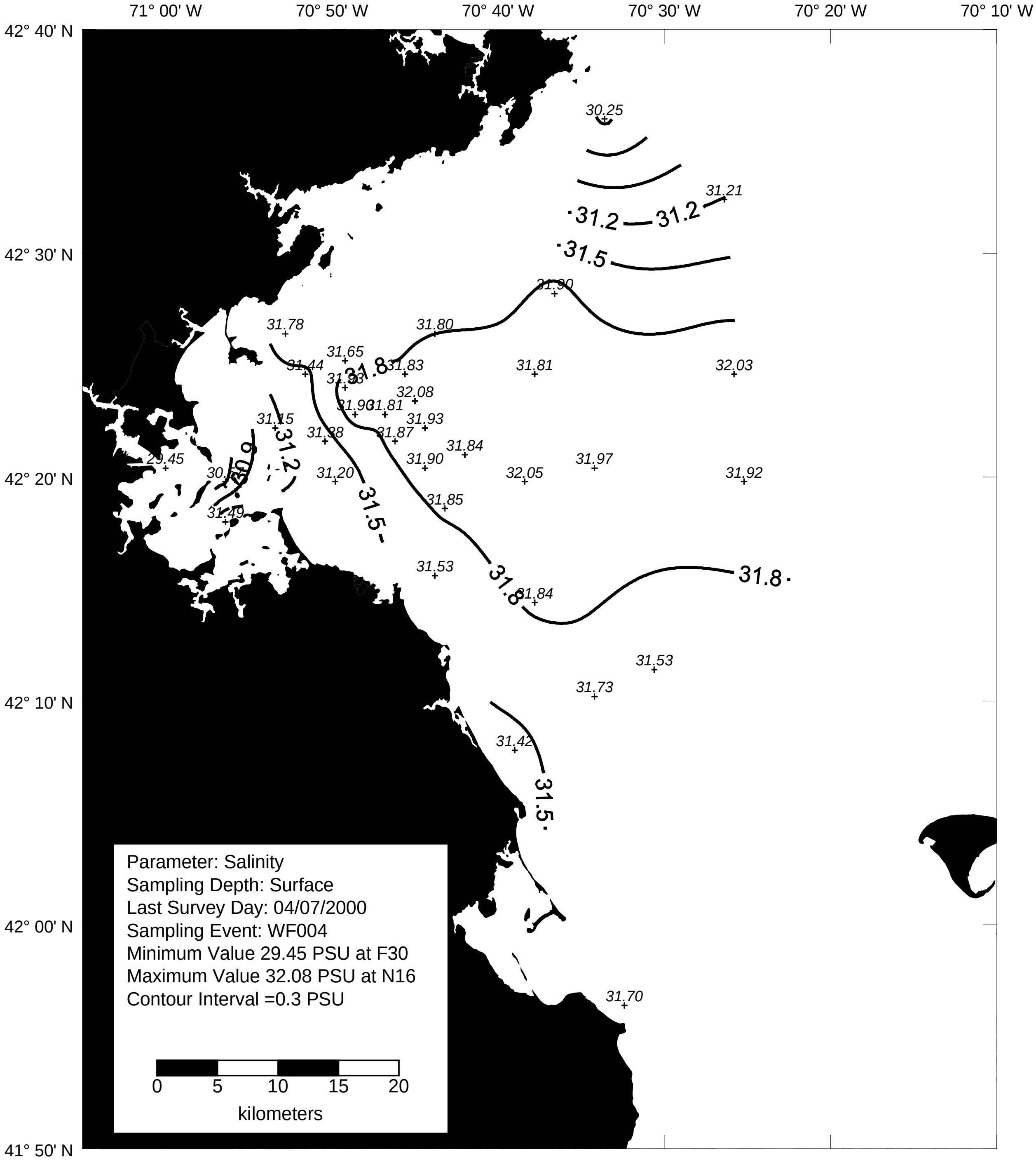


Figure 4-6. Salinity Surface Contour Plot for Farfield Survey WF004 (Apr 00)

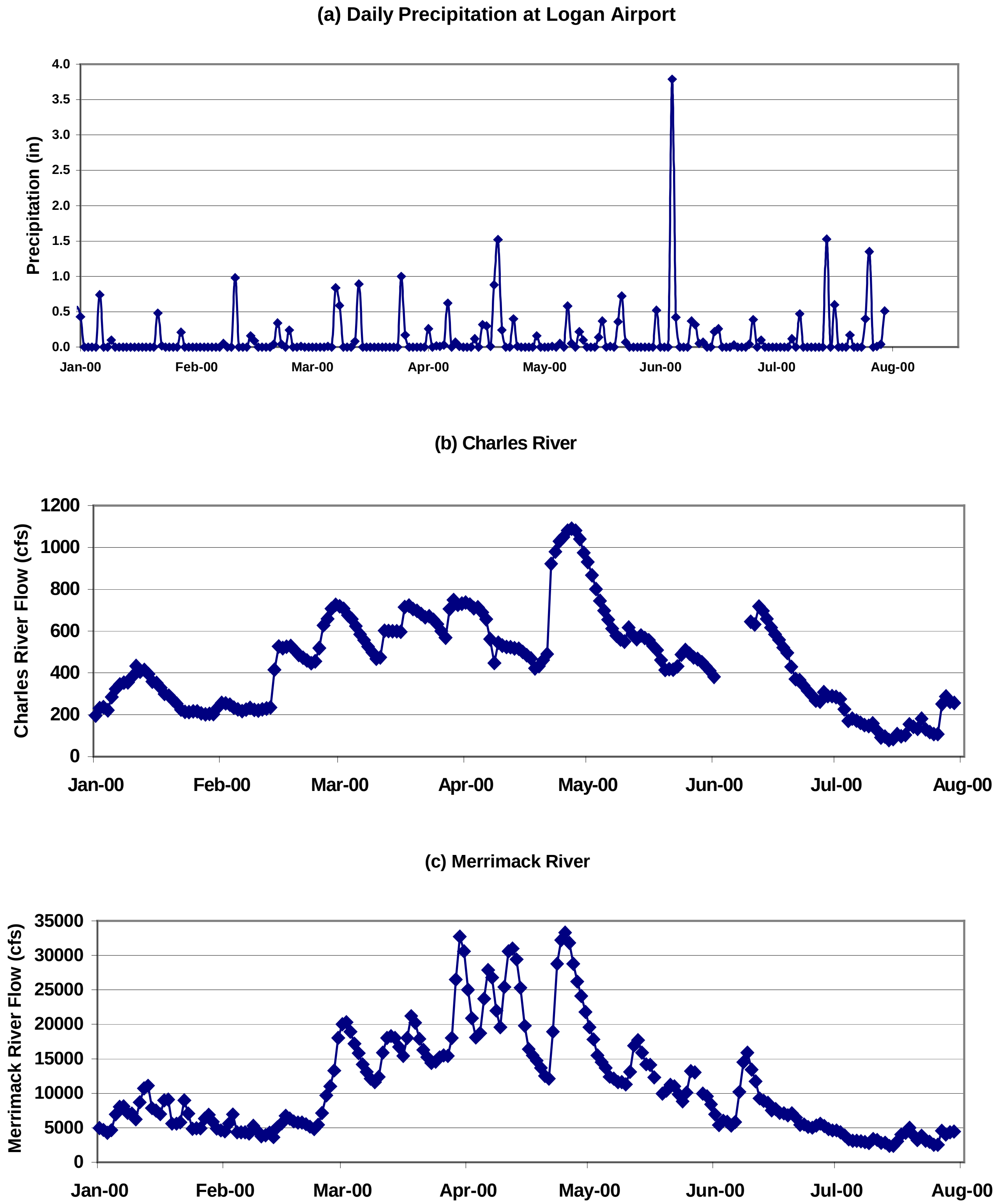


Figure 4-7. Precipitation at Logan Airport and River Discharges for the Charles and Merrimack Rivers

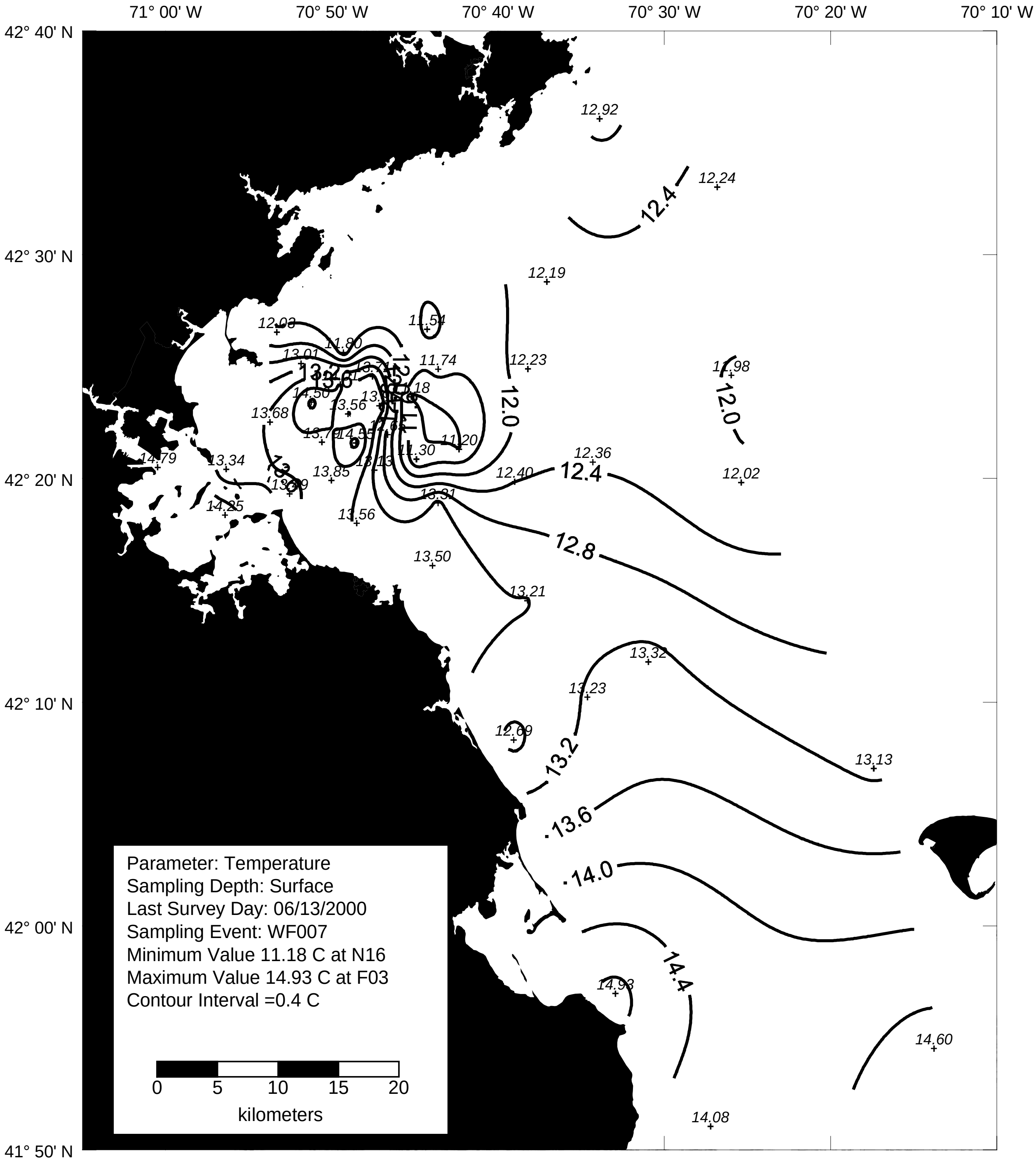


Figure 4-8. Temperature Surface Contour Plot for Farfield Survey WF007 (Jun 00)

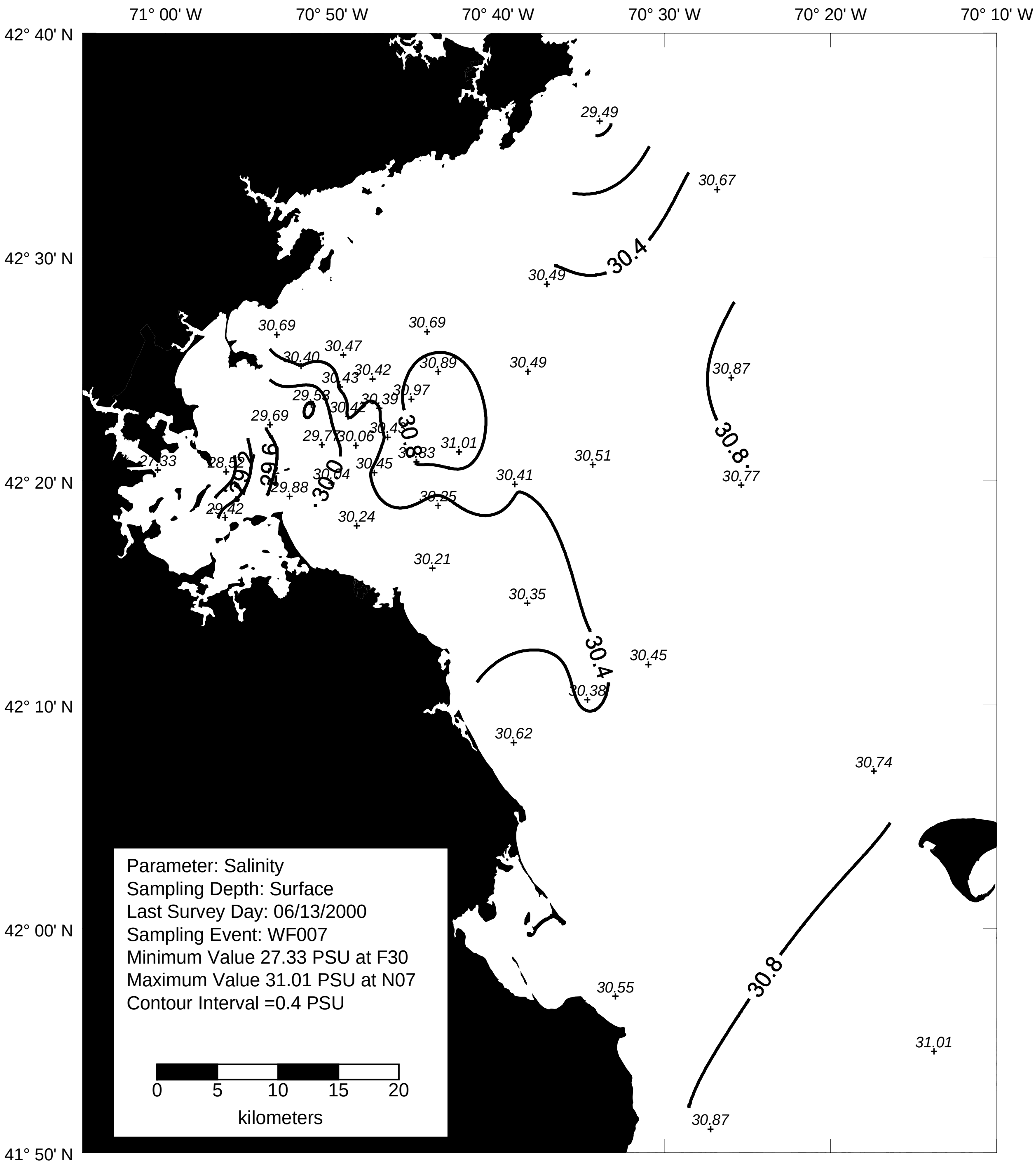
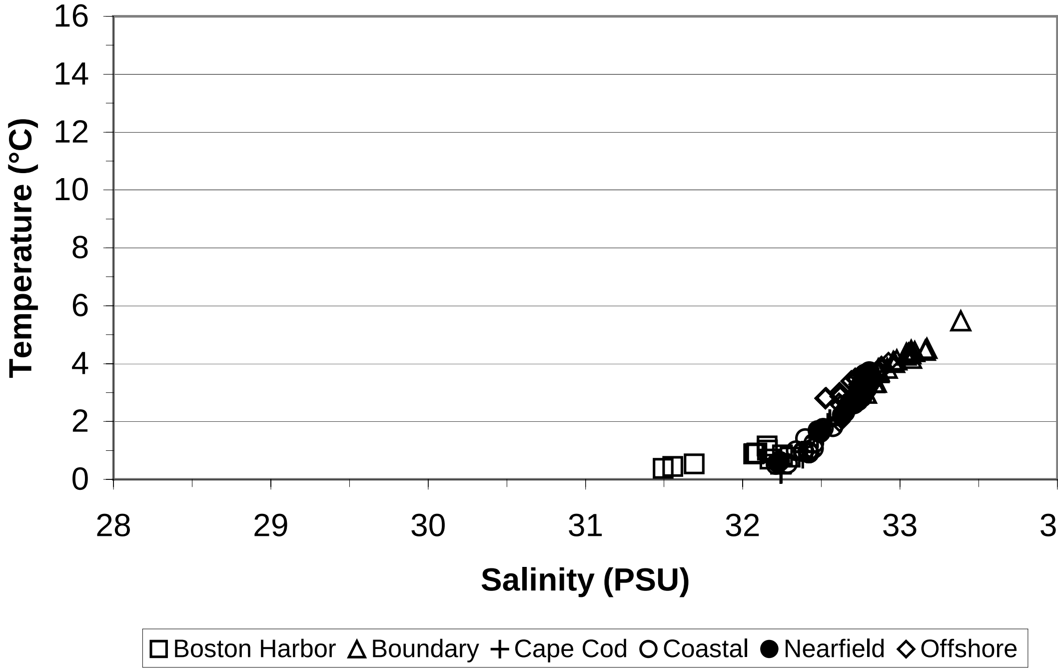


Figure 4-9. Salinity Surface Contour Plot for Farfield Survey WF007 (Jun 00)

(a) WF001: Early February



(b) WF002: Late February

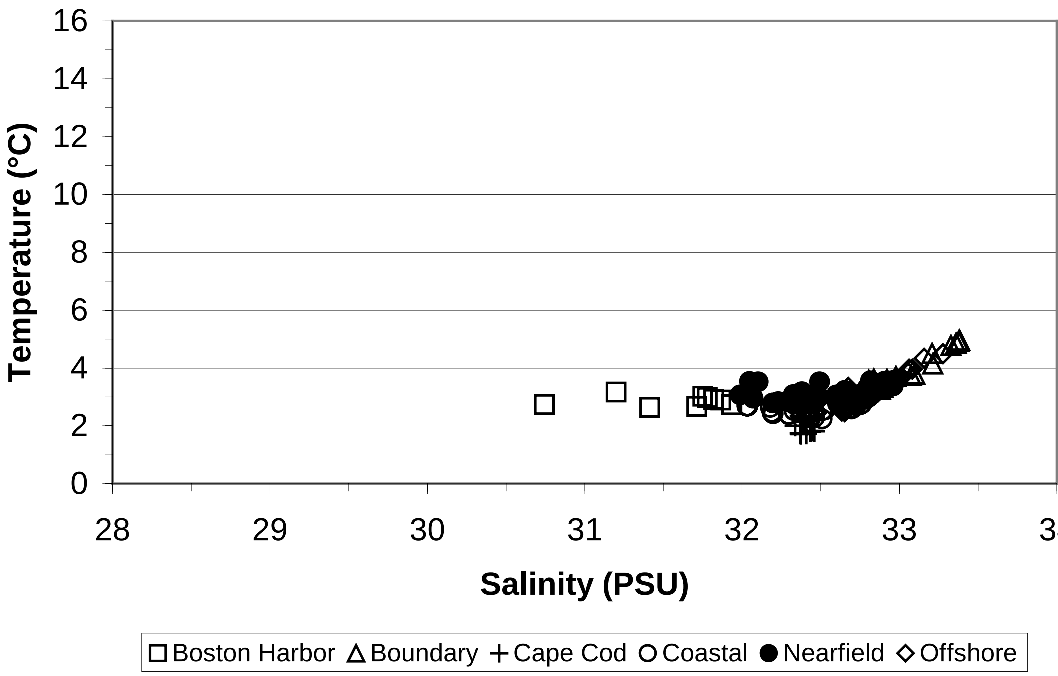
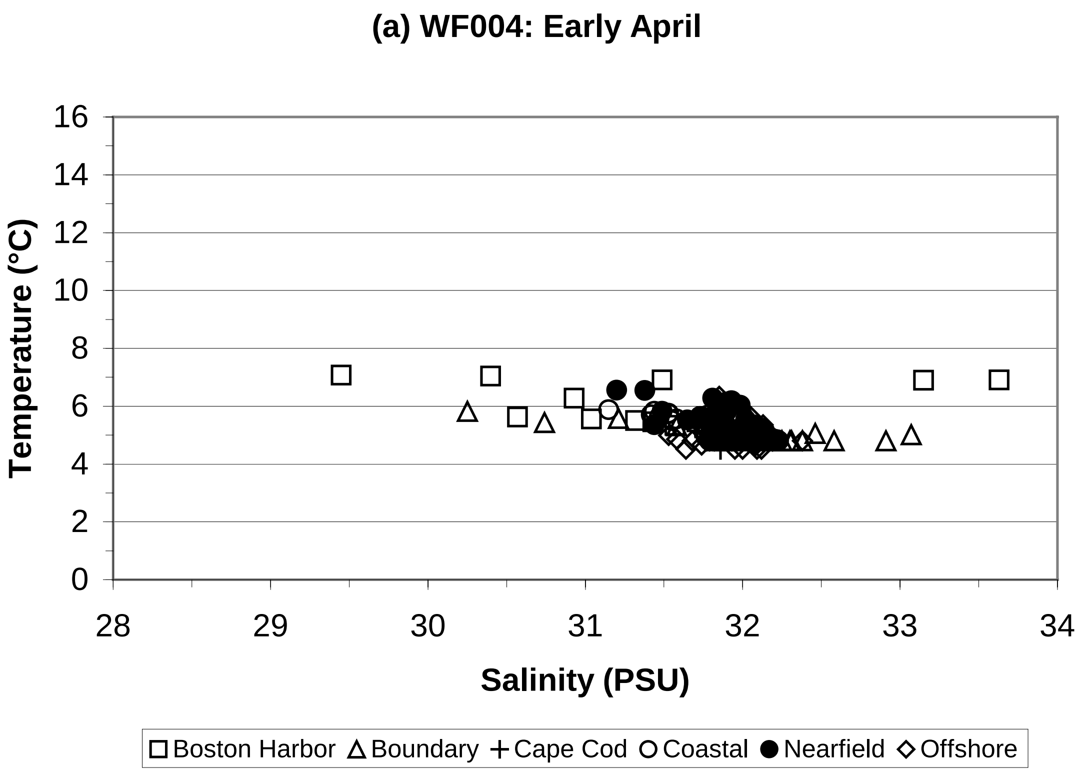


Figure 4-10. Temperature/Salinity Distribution for All Depths during WF001 (Feb 00) and WF002 (Feb 00) Surveys



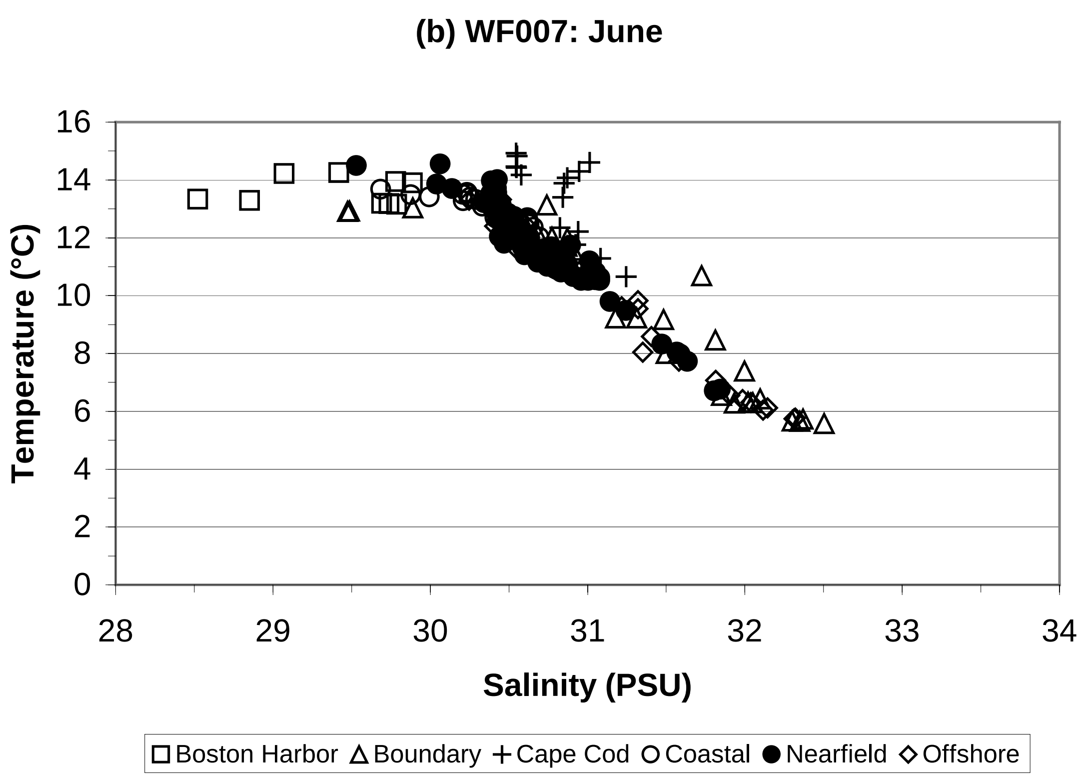


Figure 4-11. Temperature/Salinity Distribution for All Depths during WF004 (Apr 00) and WF007 (Jun 00) Surveys

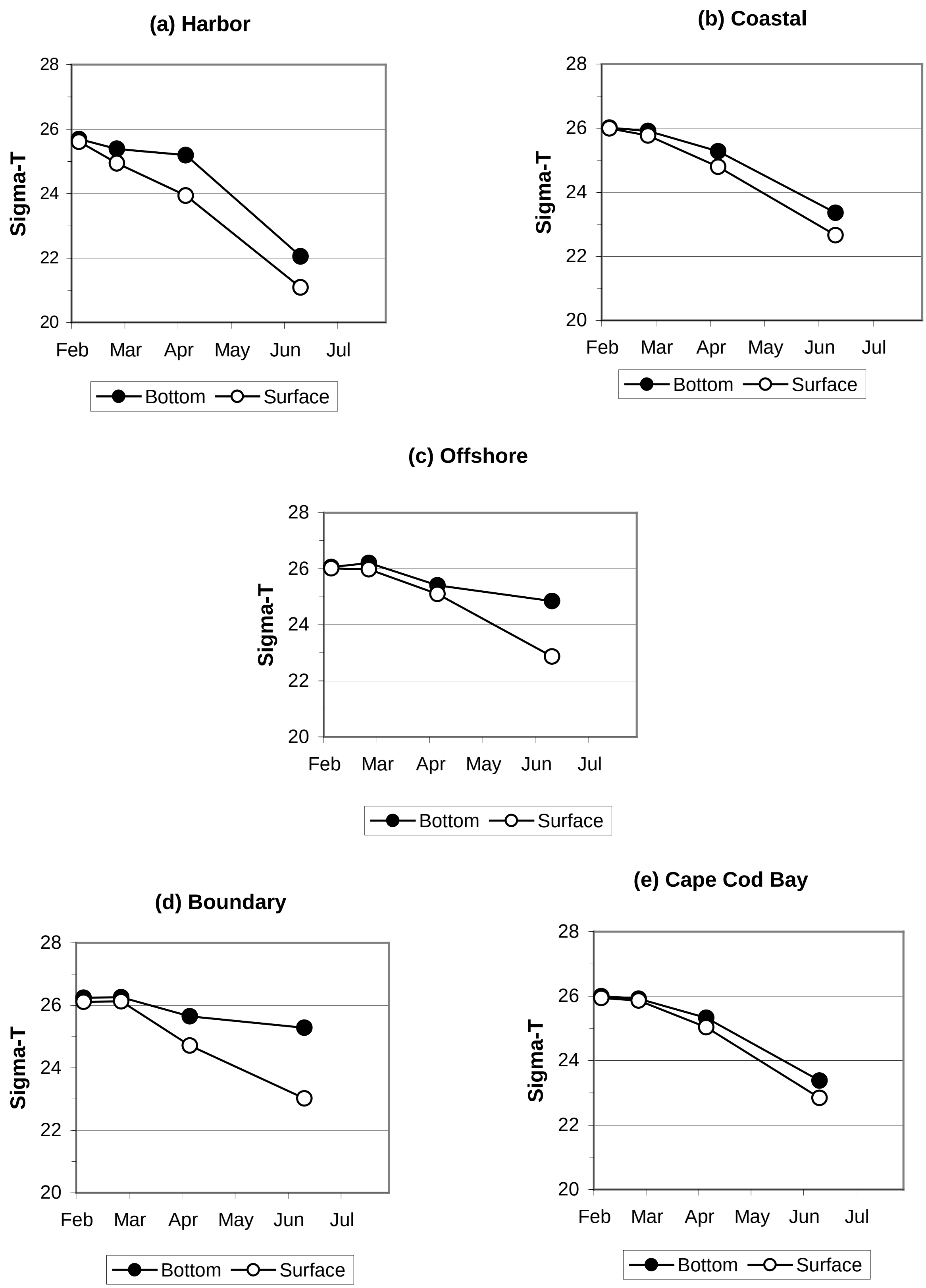


Figure 4-12. Time-Series of Average Surface and Bottom Water Density (σ_T) in the Farfield

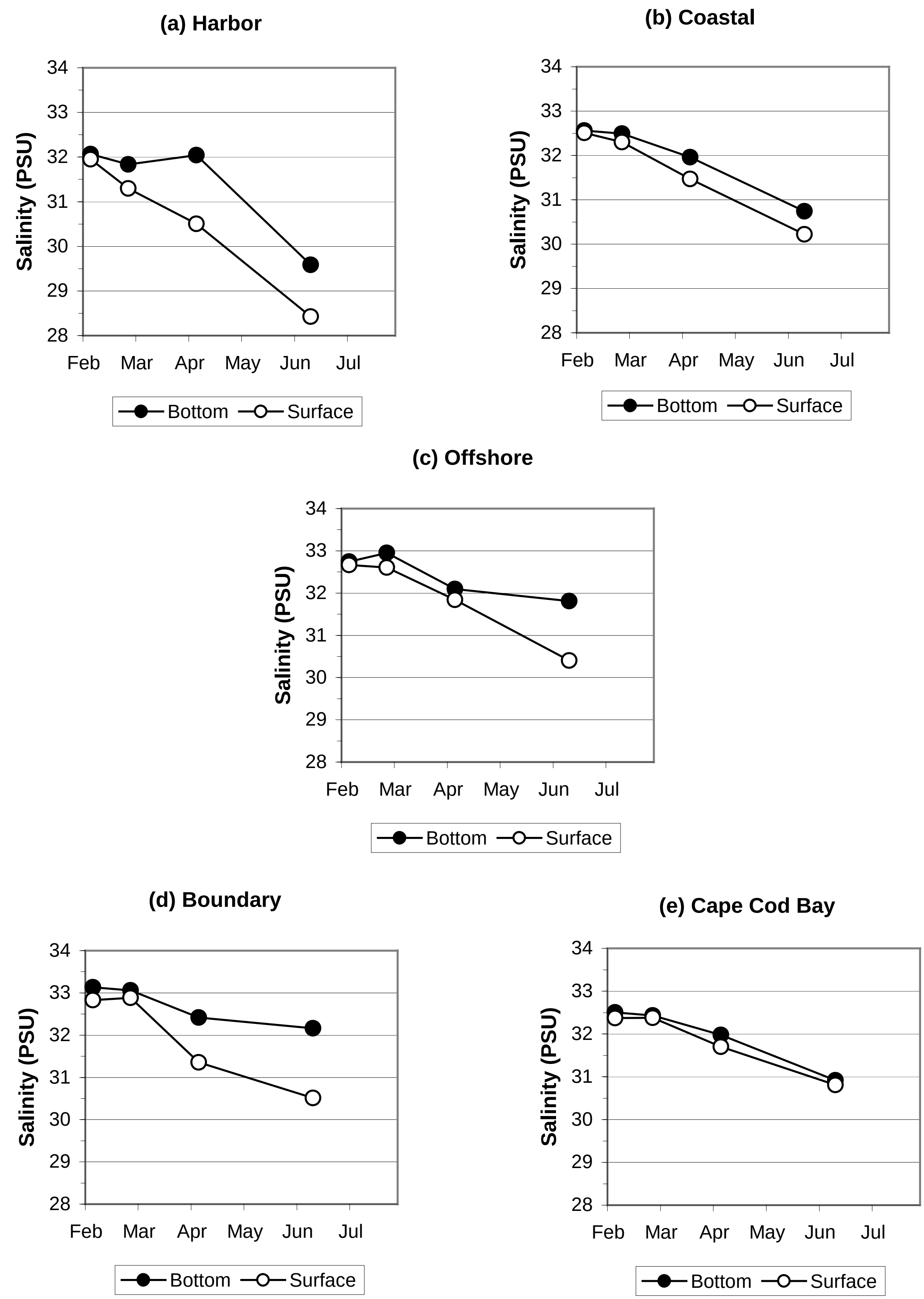


Figure 4-13. Time-Series of Average Surface and Bottom Water Salinity (PSU) in the Farfield

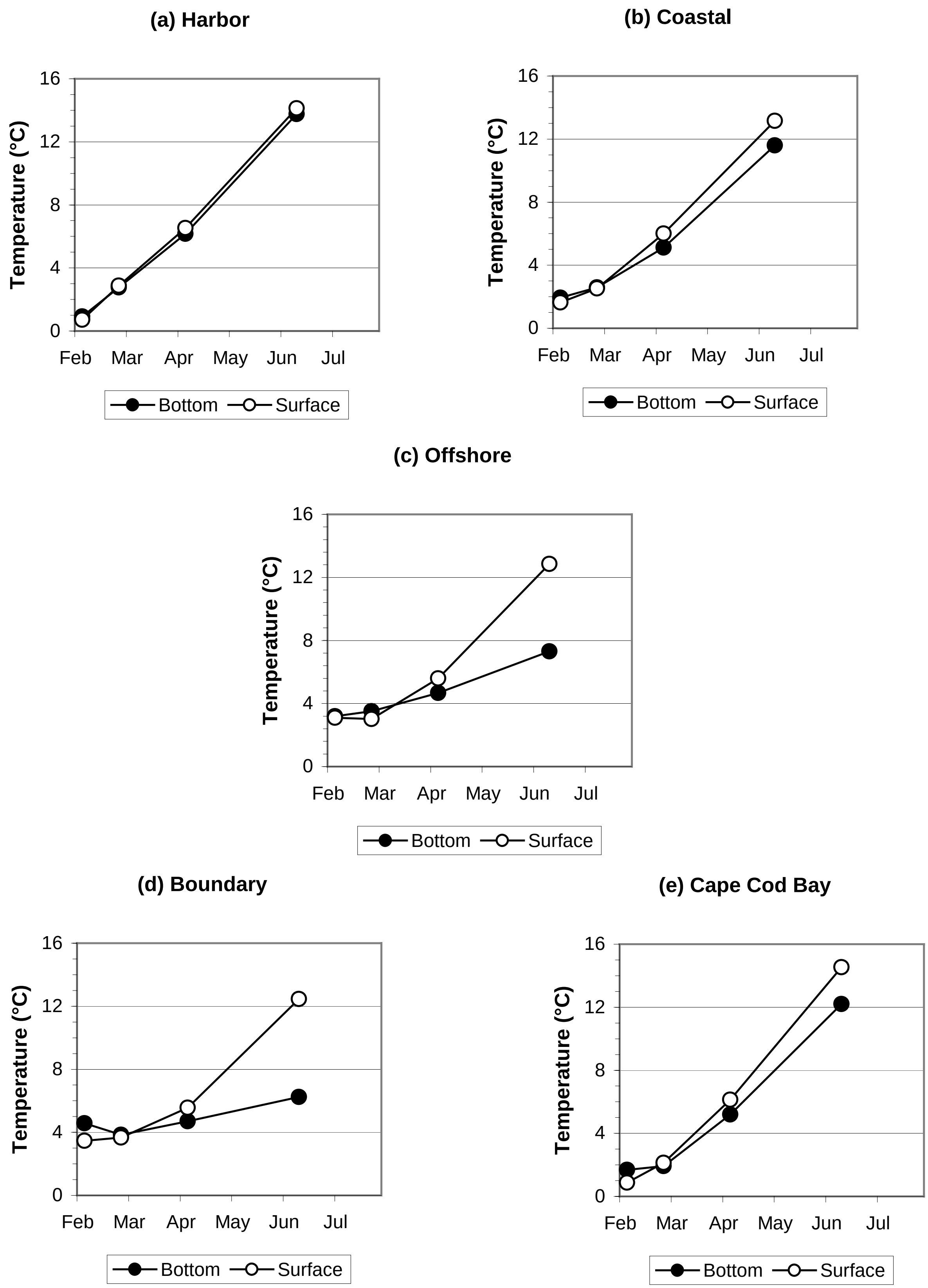


Figure 4-14. Time-Series of Average Surface and Bottom Temperature (°C) in the Farfield

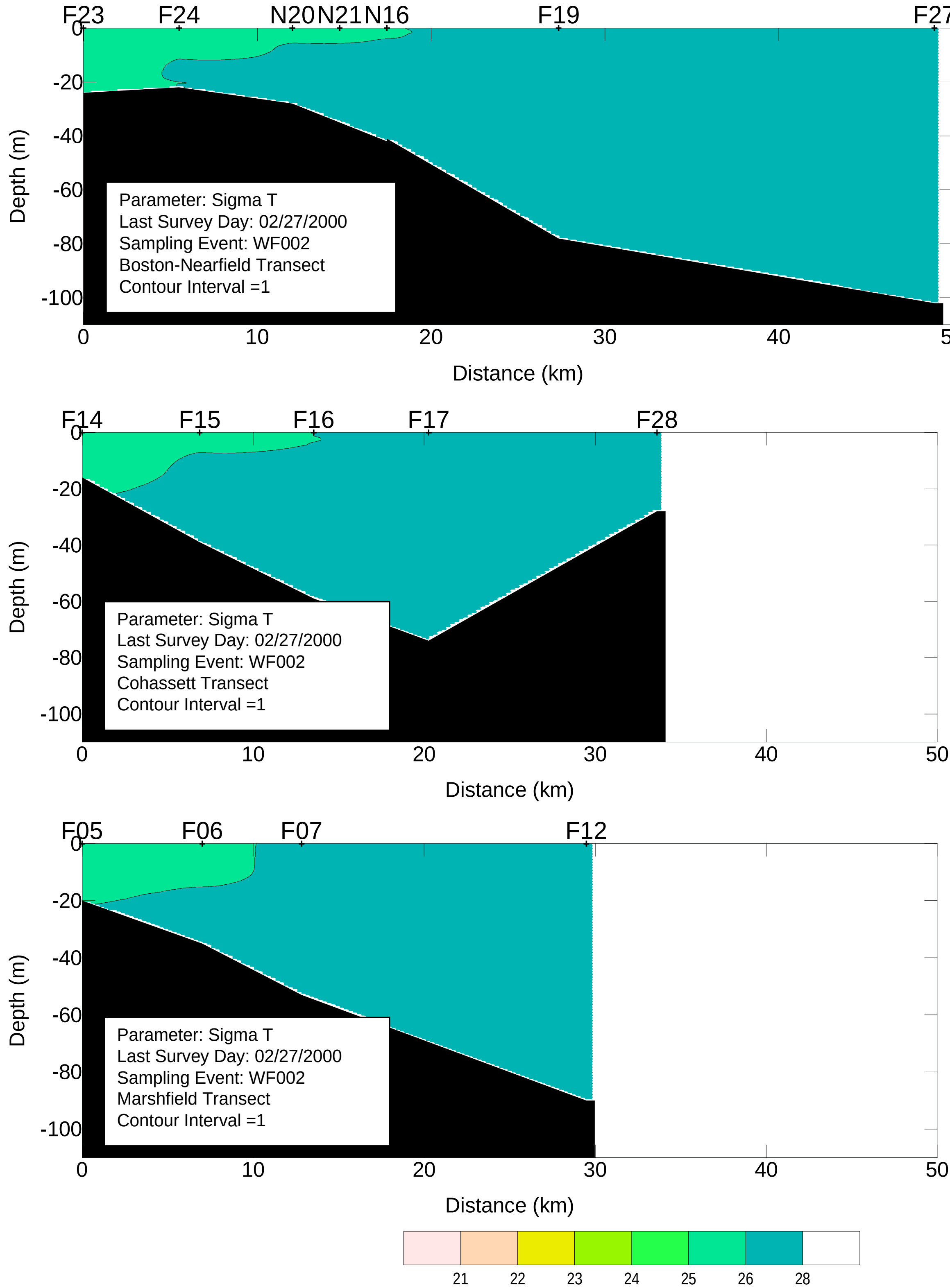


Figure 4-15. Sigma-T Vertical Transects for Farfield Survey WF002 (Feb 00)

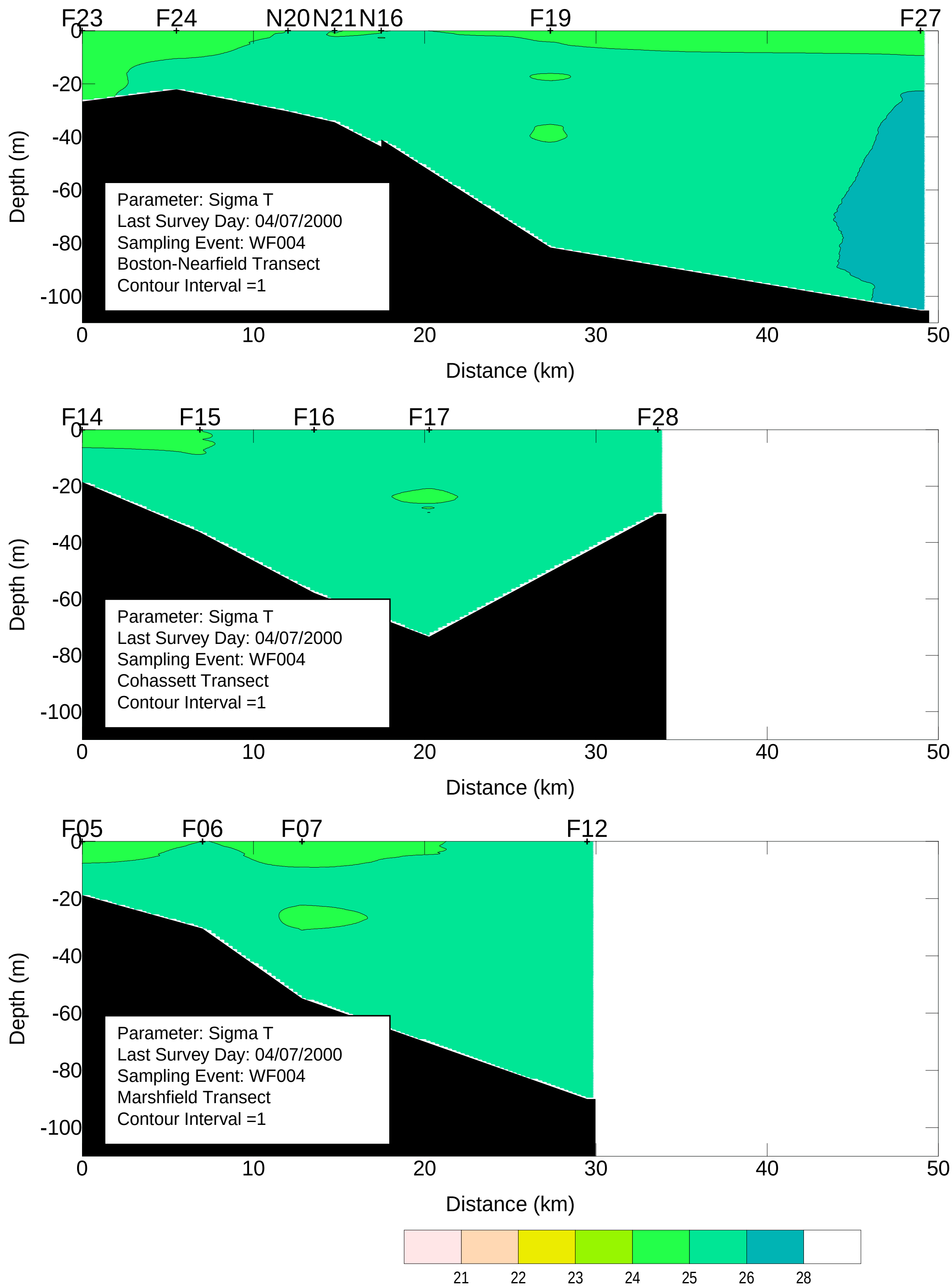


Figure 4-16. Sigma-T Vertical Transect for Farfield Survey WF004 (Apr 00)

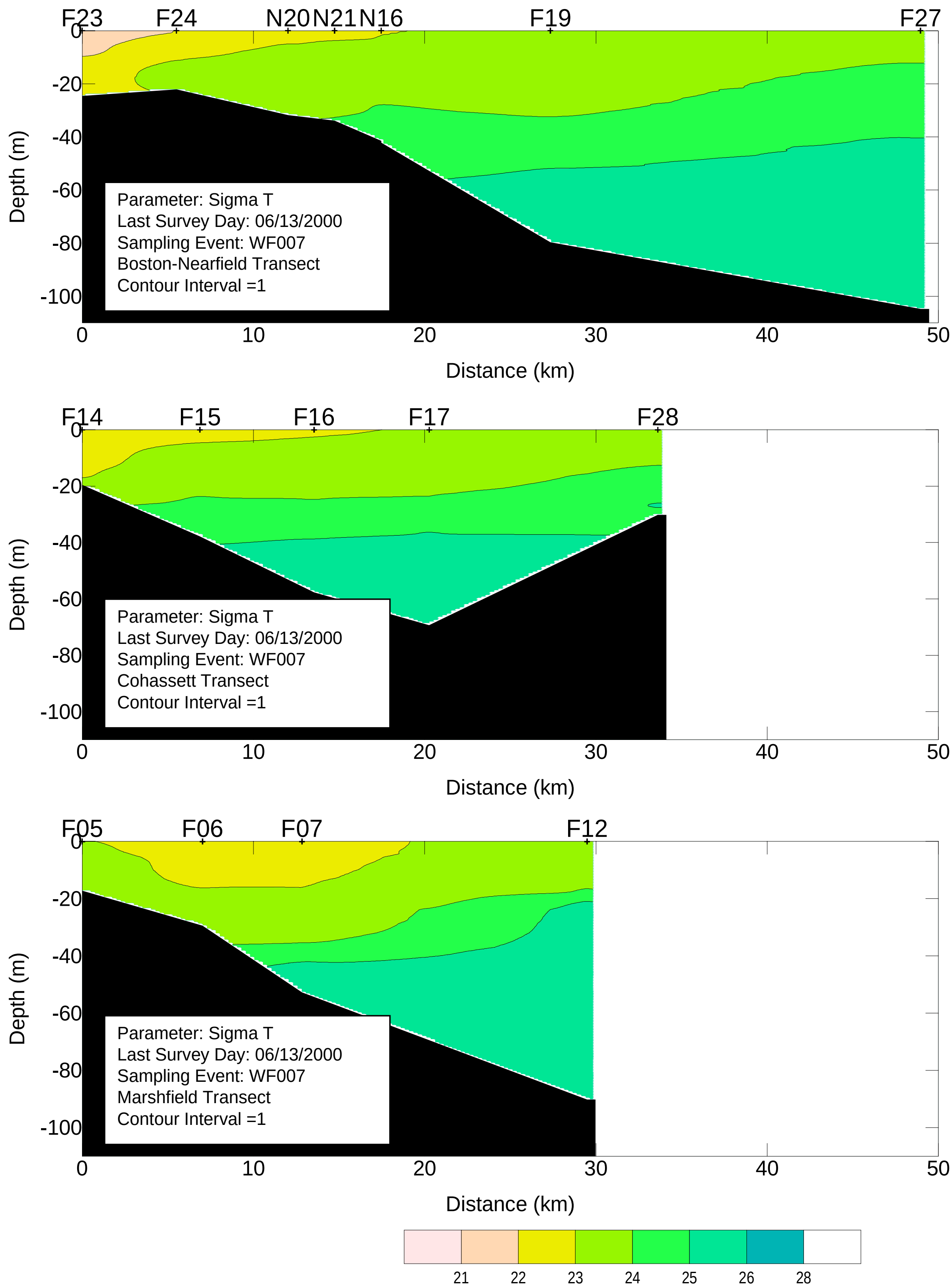


Figure 4-17. Sigma-T Vertical Transect for Farfield Survey WF007 (Jun 00)

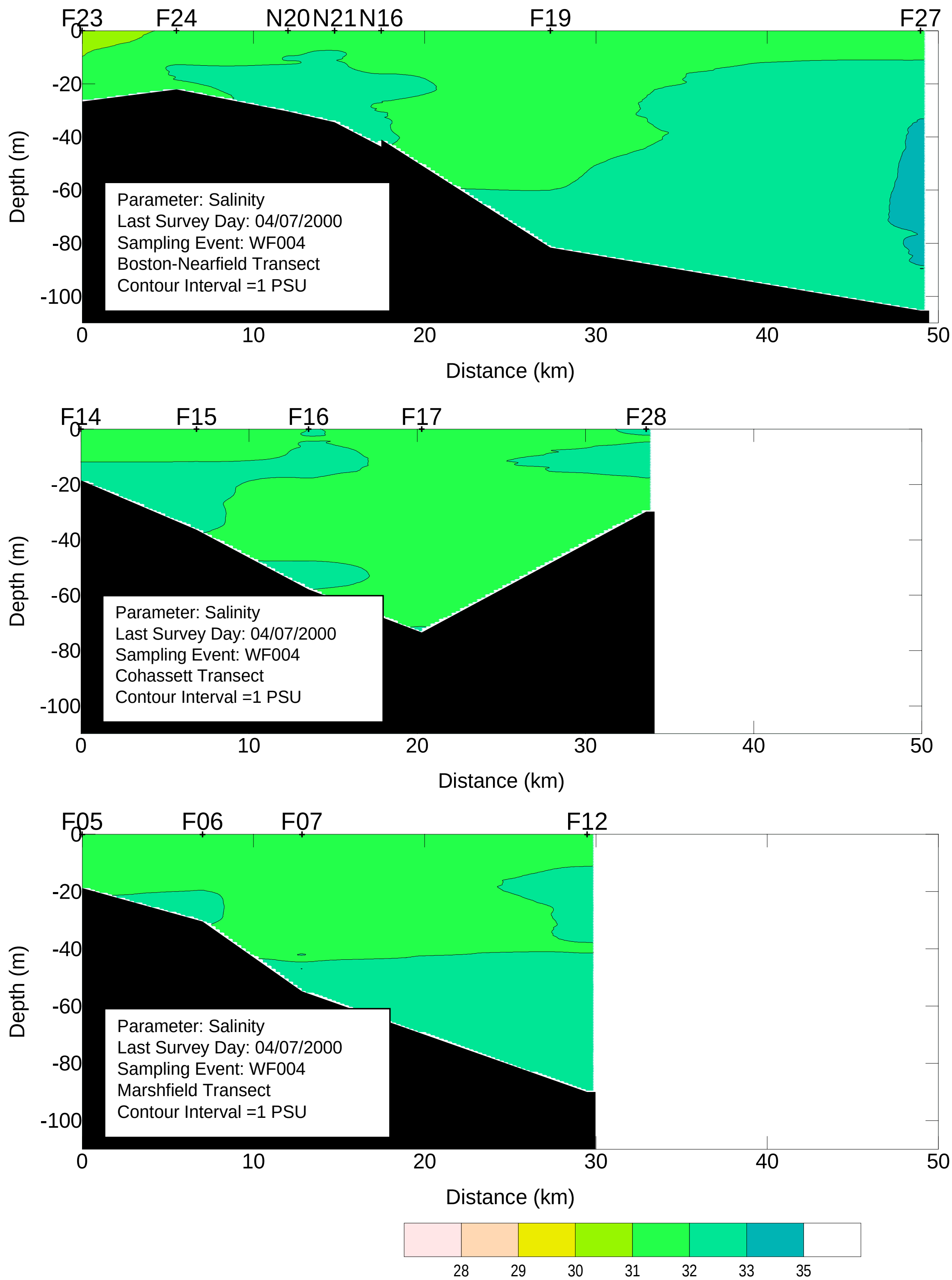


Figure 4-18. Salinity Vertical Transect for Farfield Survey WF004 (Apr 00)

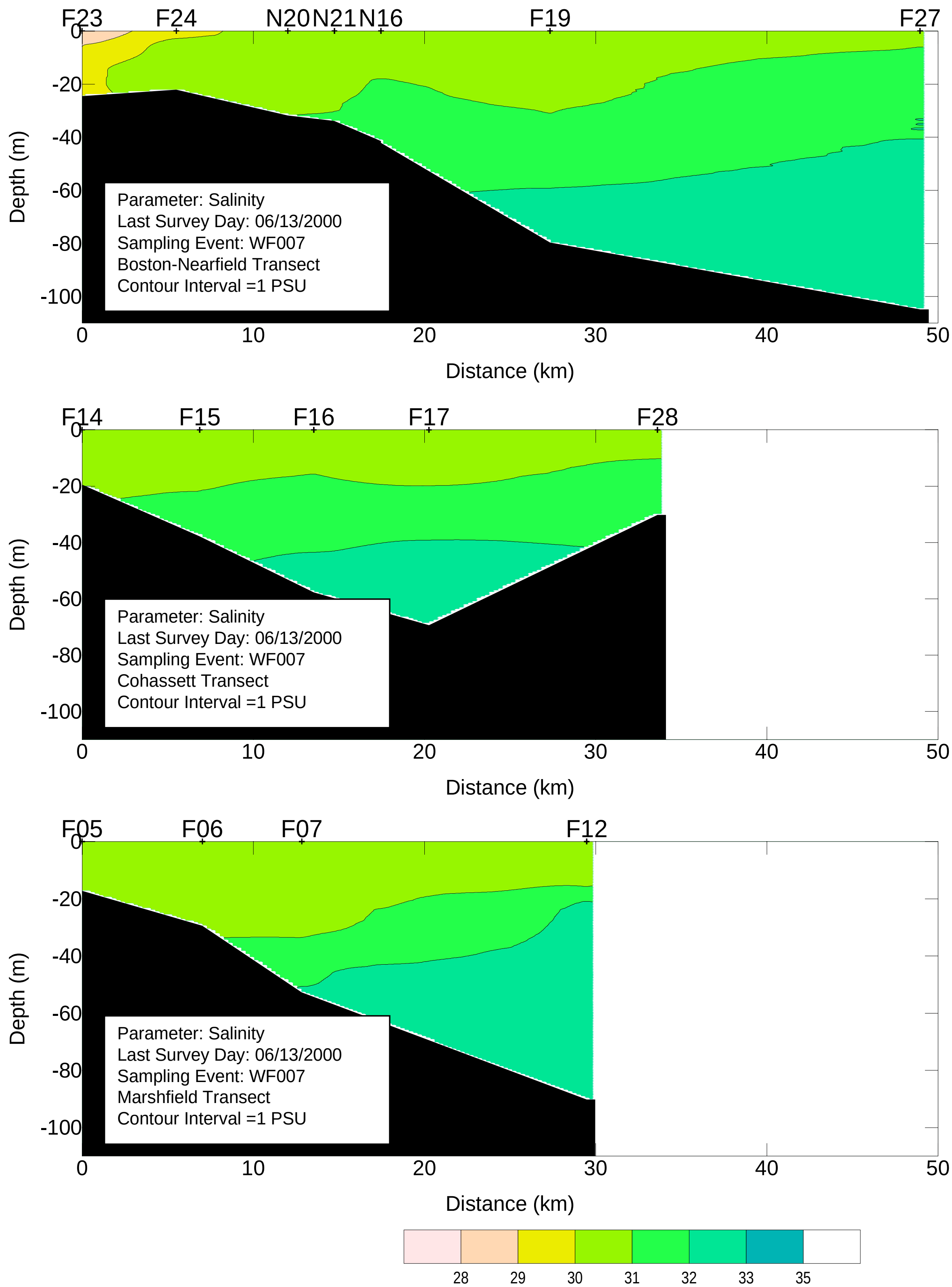


Figure 4-19. Salinity Vertical Transect for Farfield Survey WF007 (Jun 00)

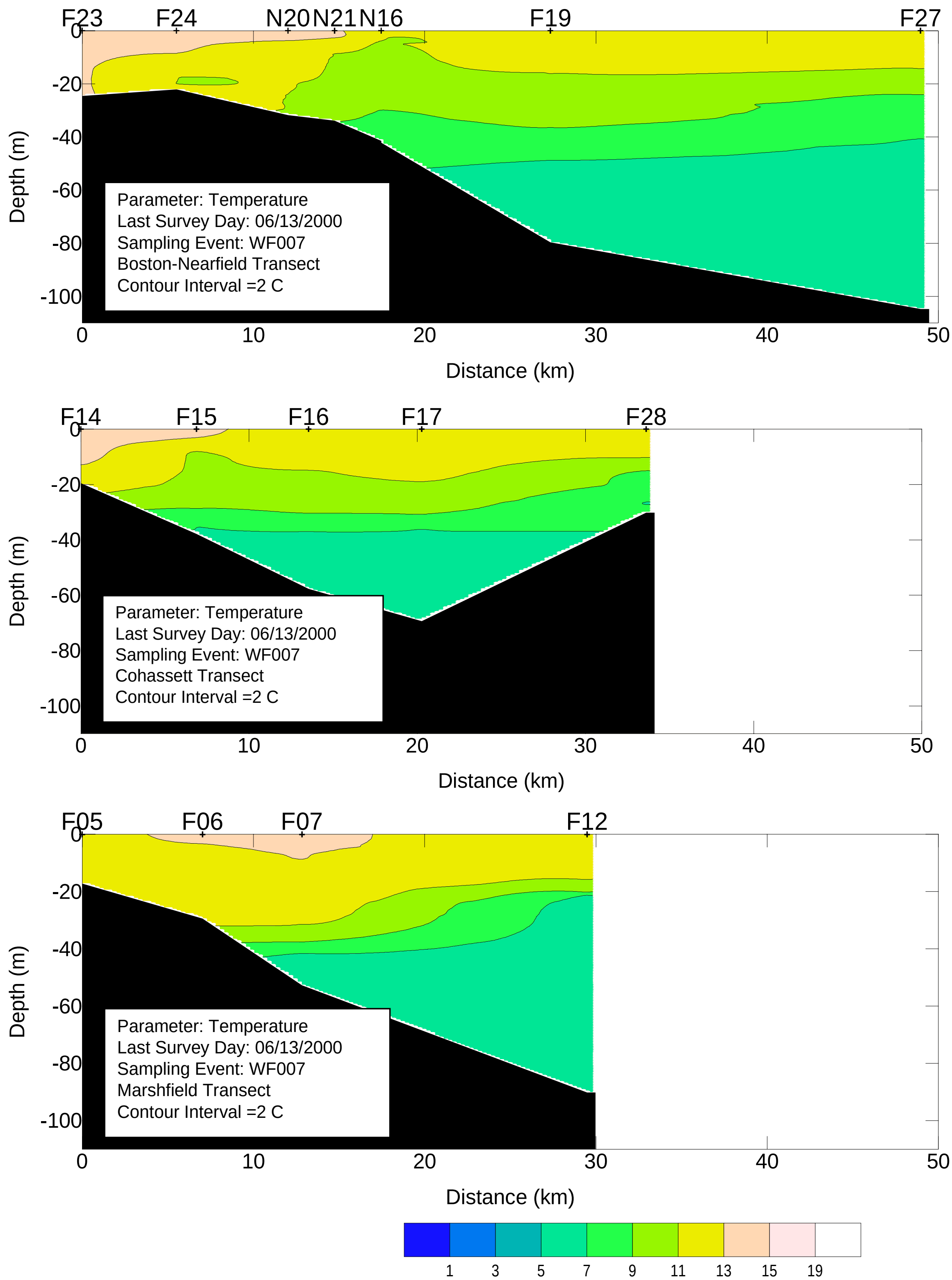


Figure 4-20. Temperature Vertical Transect for Farfield Survey WF007 (Jun 00)

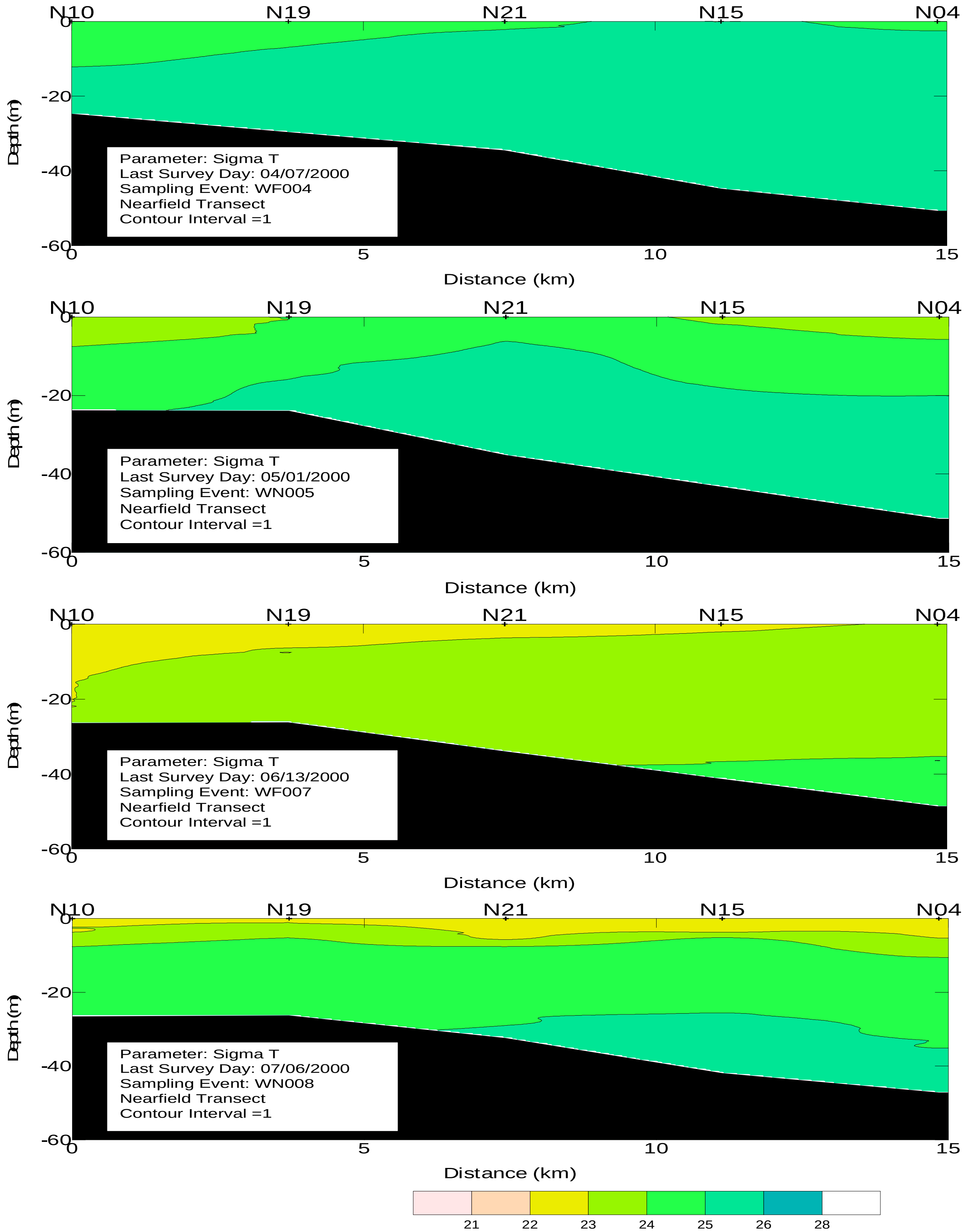


Figure 4-21. Sigma-T Vertical Nearfield Transects for Survey WF004, WN005, WF007 and WN008

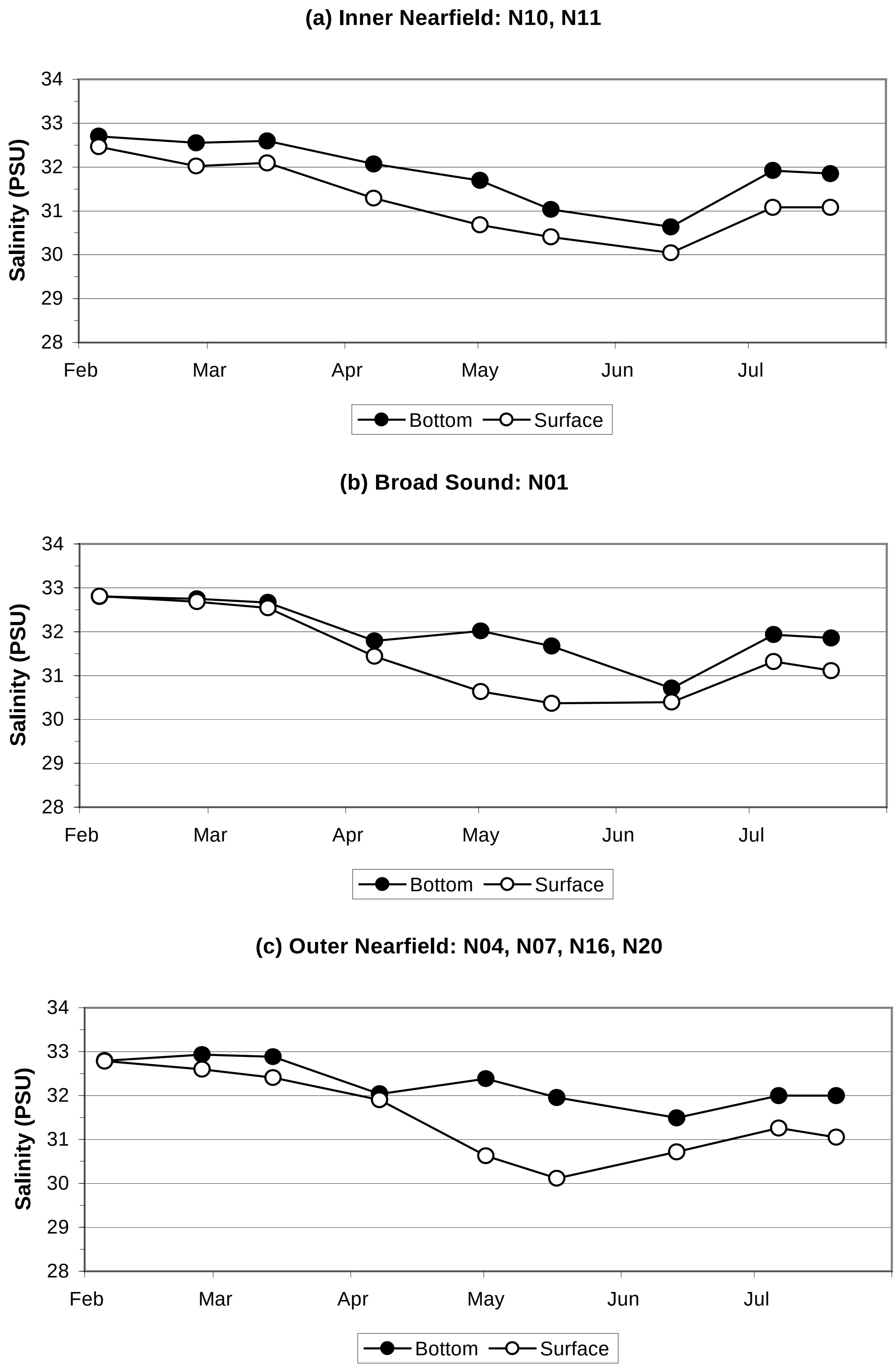


Figure 4-22. Time-Series of Average Surface and Bottom Salinity (PSU) in the Nearfield

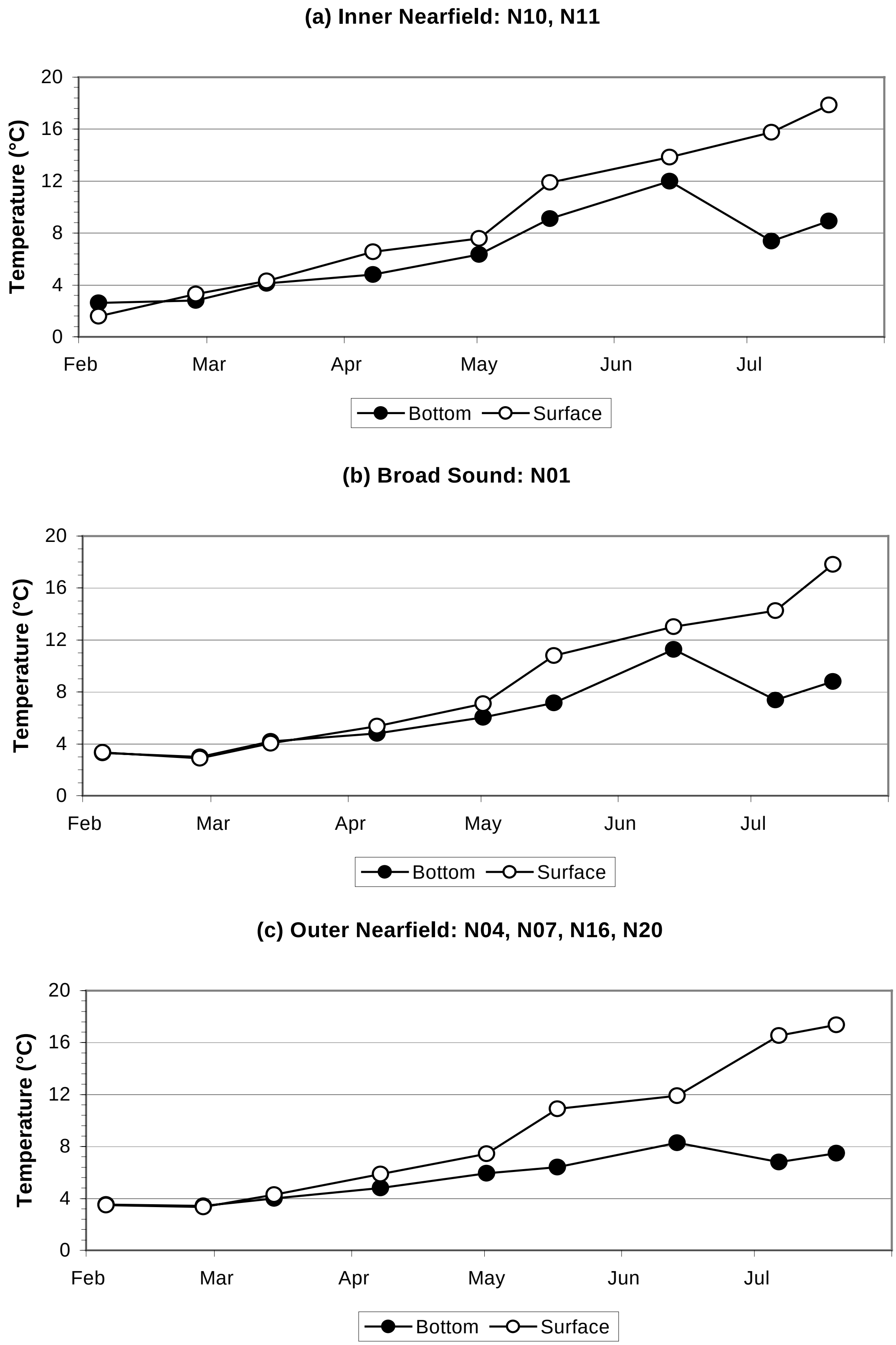


Figure 4-23. Time-Series of Average Surface and Bottom Temperature (°C) in the Nearfield

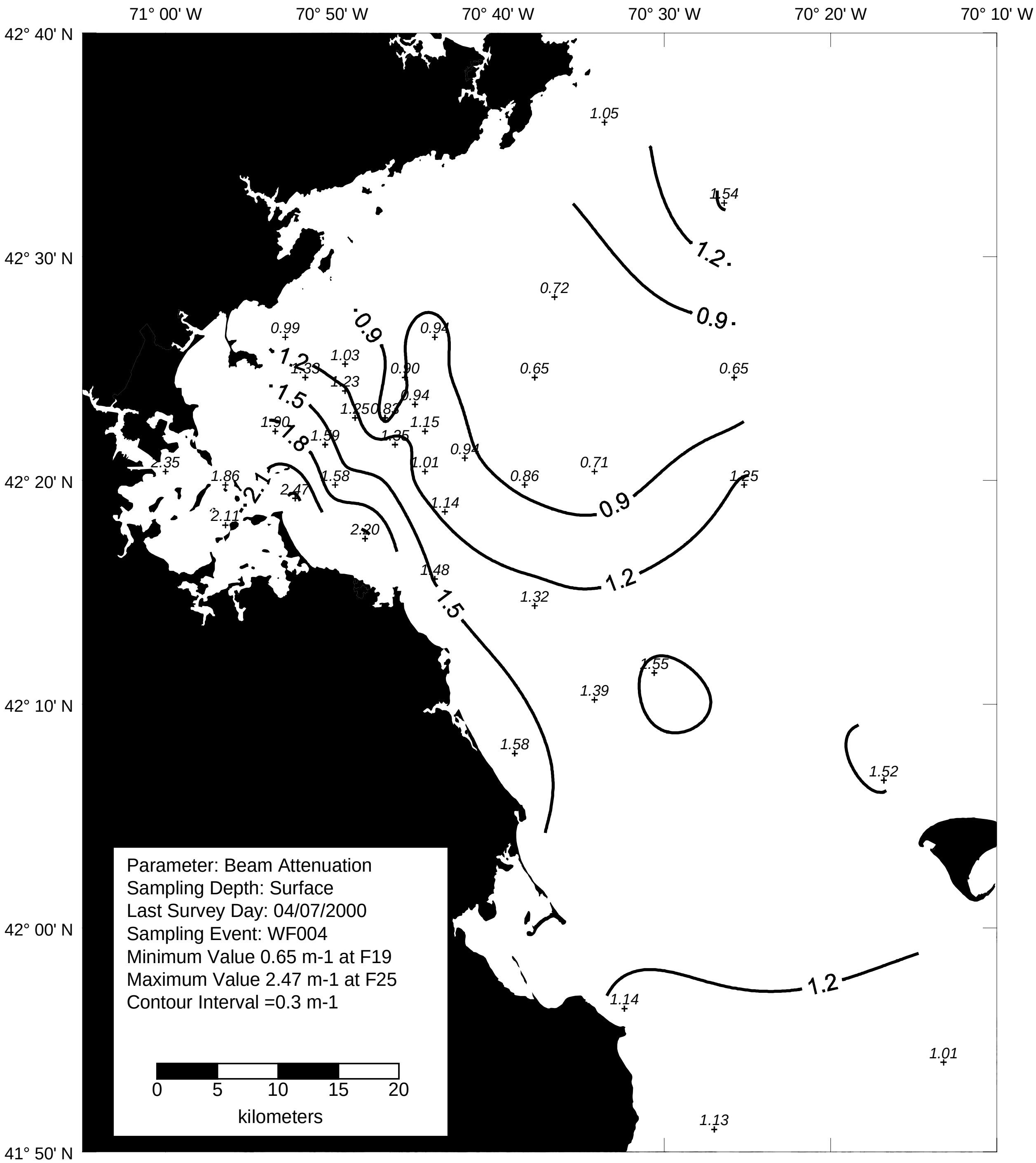


Figure 4-24. Beam Attenuation Surface Contour Plot for Farfield Survey WF004 (Apr 00)

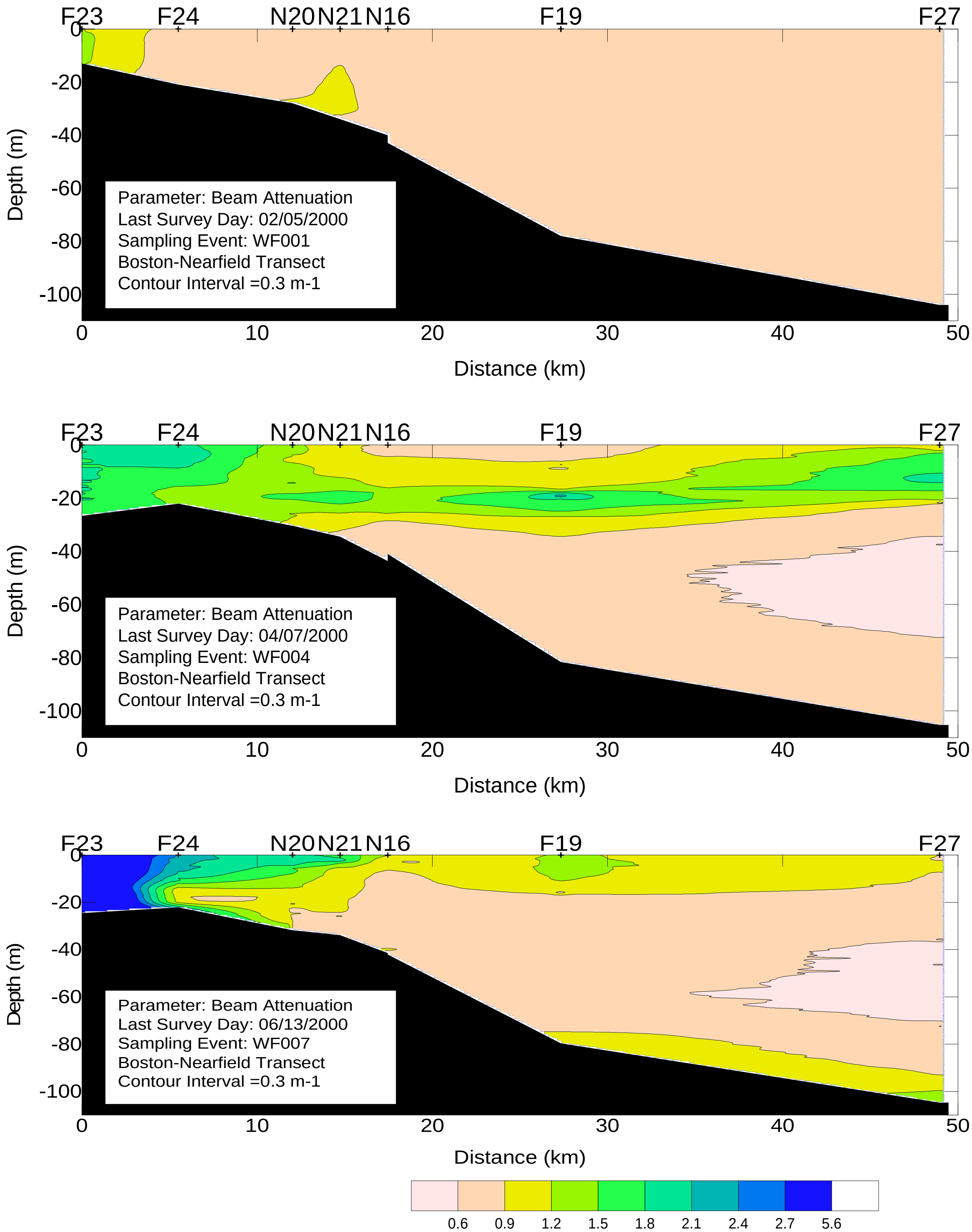


Figure 4-25. Beam Attenuation Vertical Contour Plots along the Boston-Nearfield Transect for Surveys WF001, WF004, and WF007

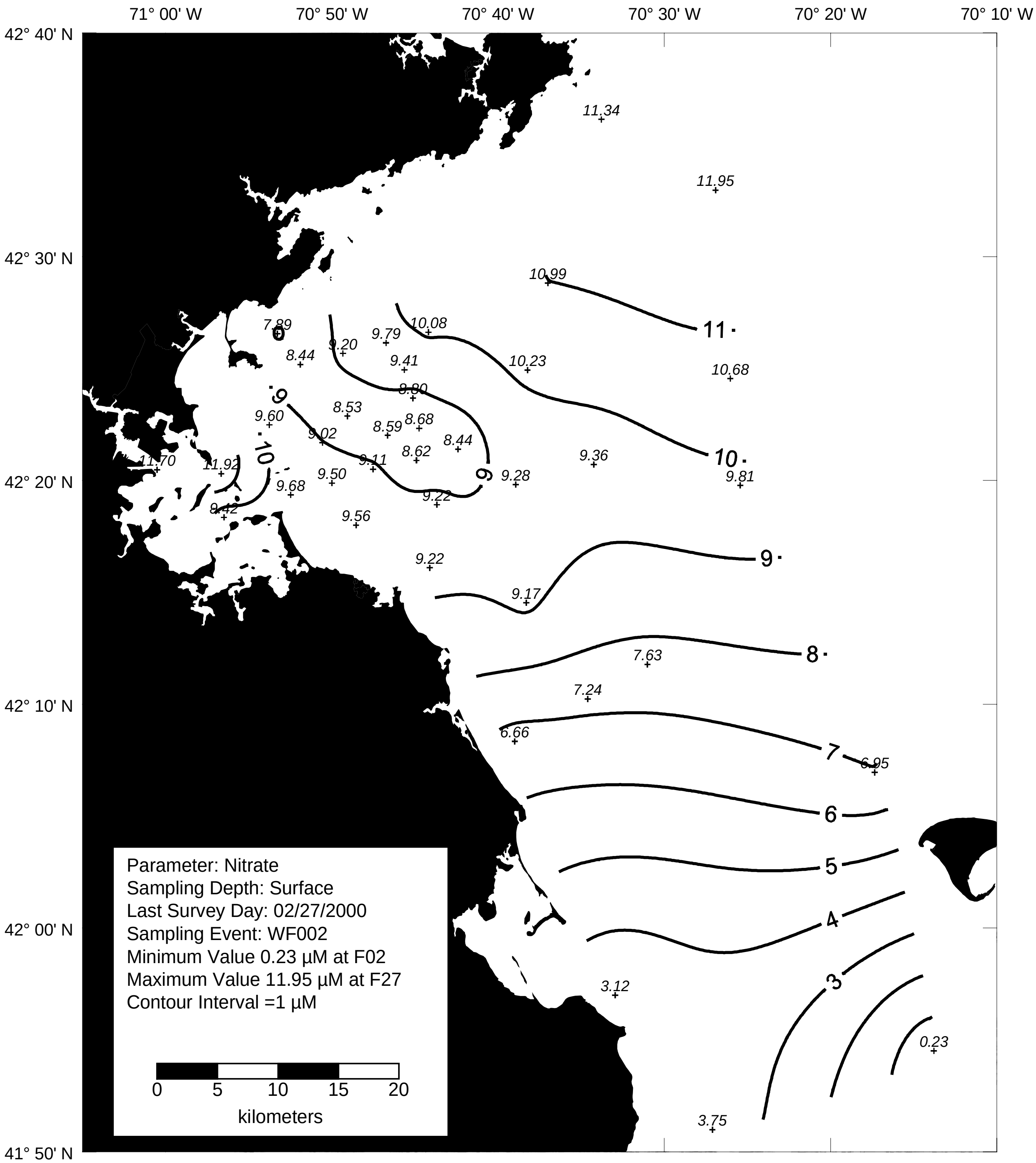


Figure 4-26. Nitrate Surface Contour Plot for Farfield Survey WF002 (Feb 00)

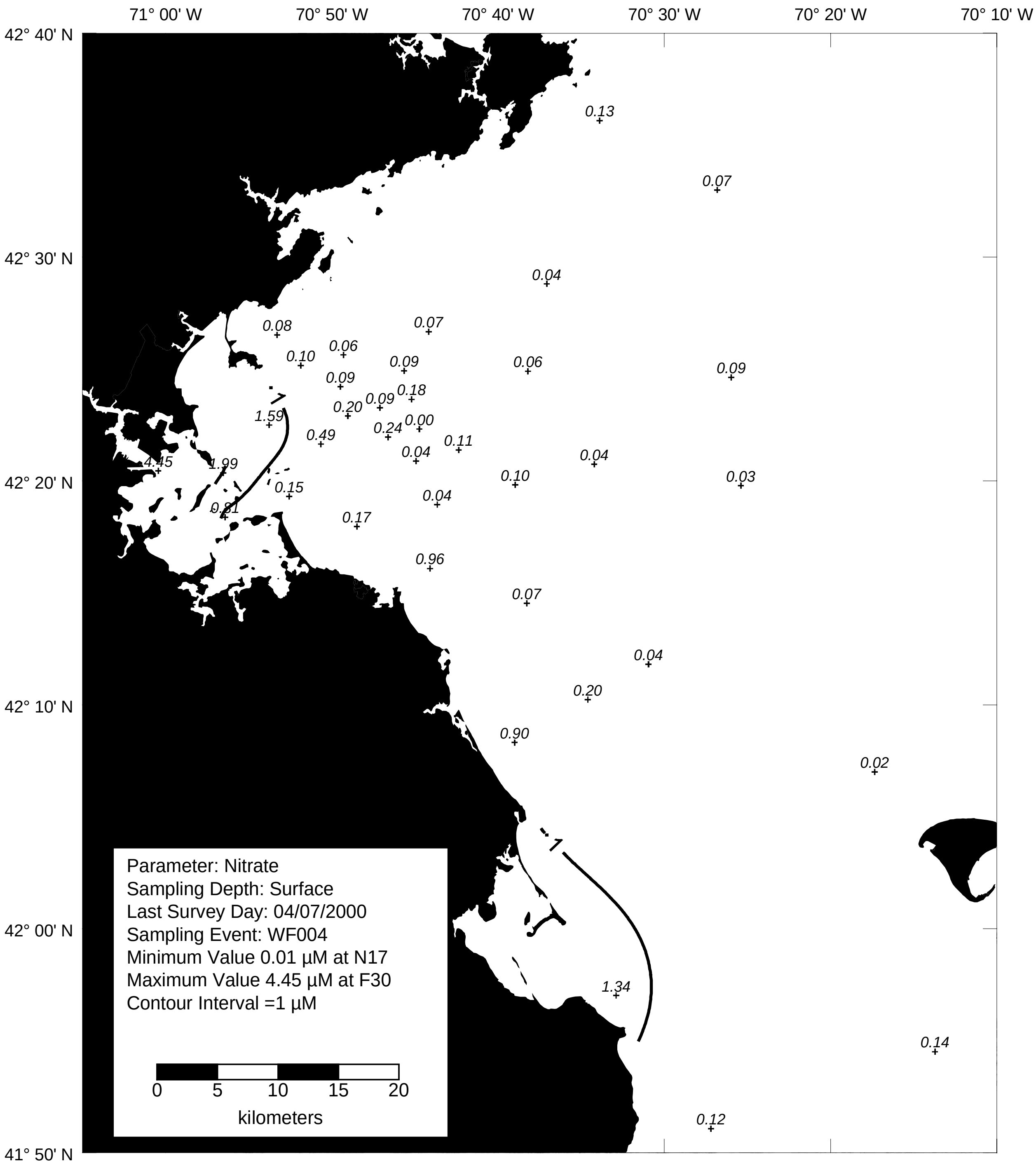


Figure 4-27. Nitrate Surface Contour Plot for Farfield Survey WF004 (Apr 00)

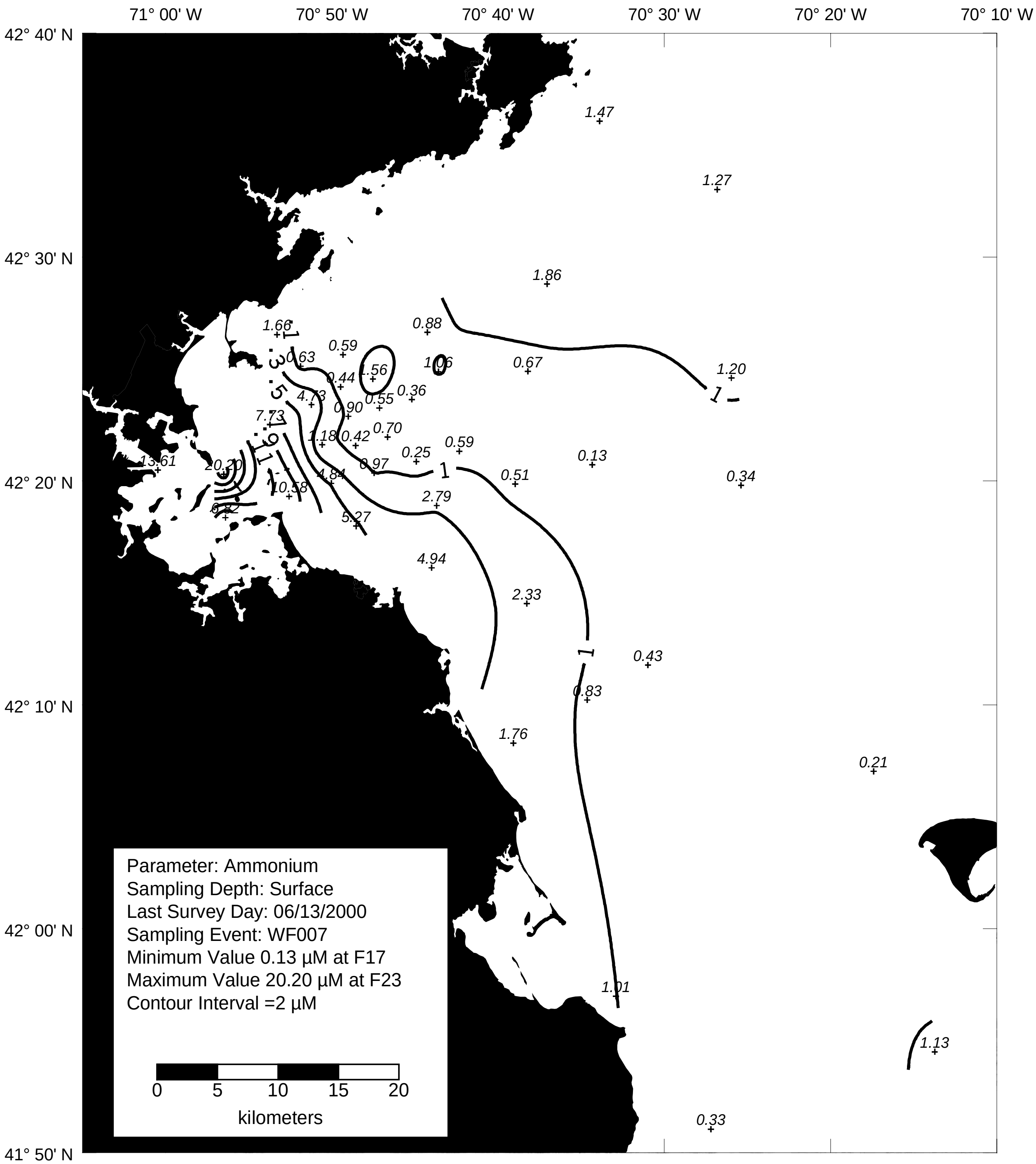


Figure 4-28. Ammonium Surface Contour Plot for Farfield Survey WF007 (Jun 00)

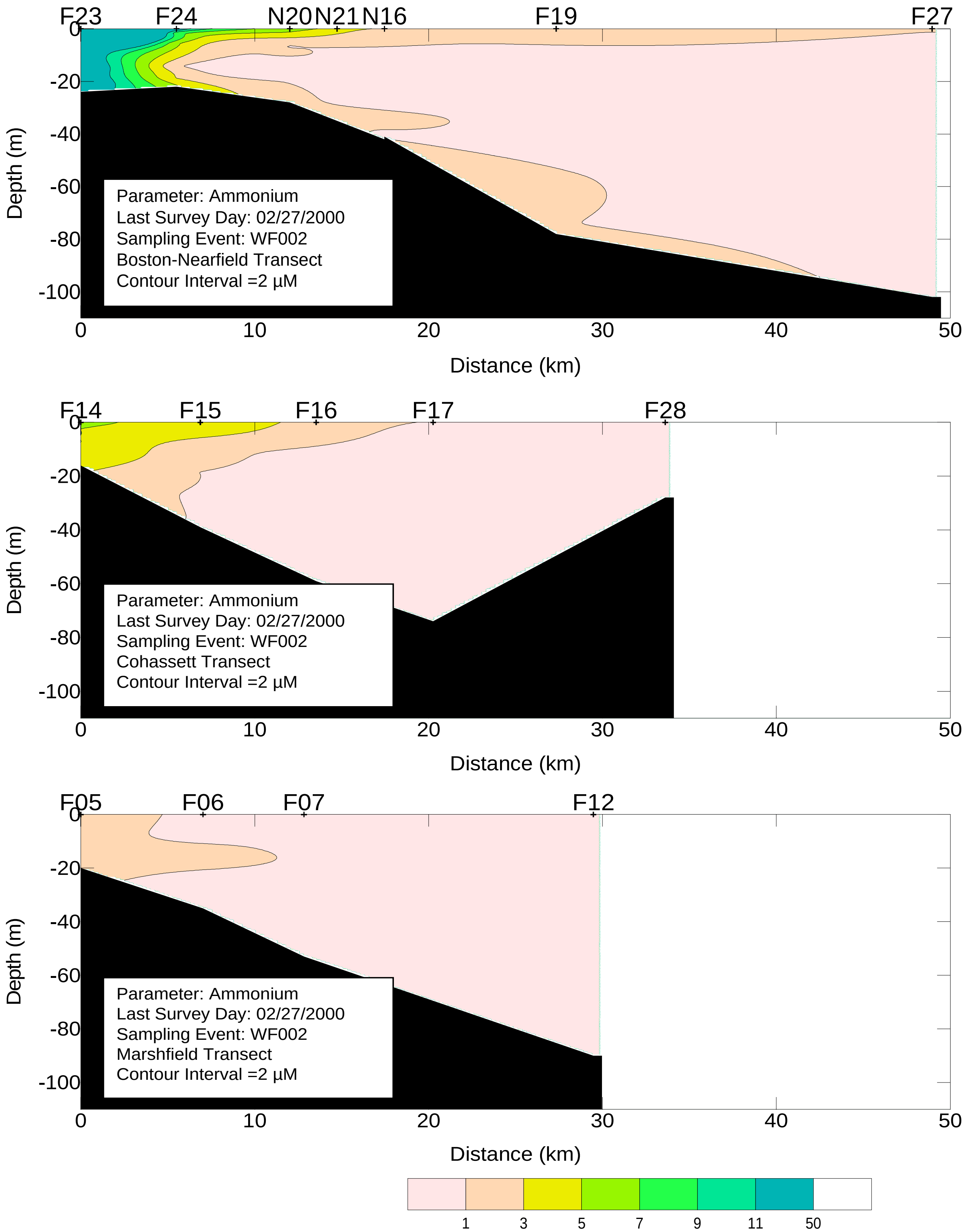


Figure 4-29. Ammonium Vertical Transect for Farfield Survey WF002 (Feb 00)

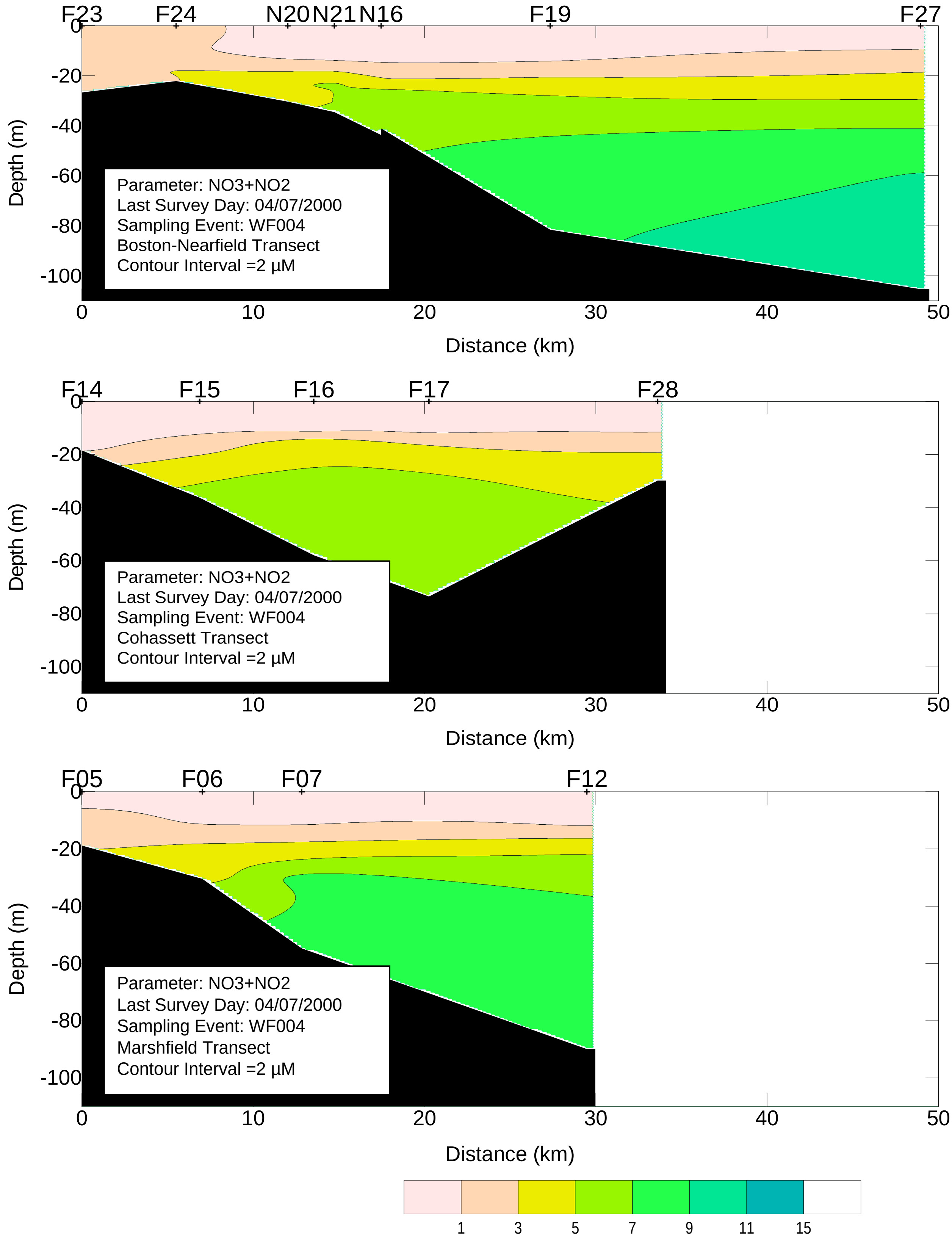


Figure 4-30. Nitrate Plus Nitrite Vertical Transect Plots for Farfield Survey WF004 (Apr 00)

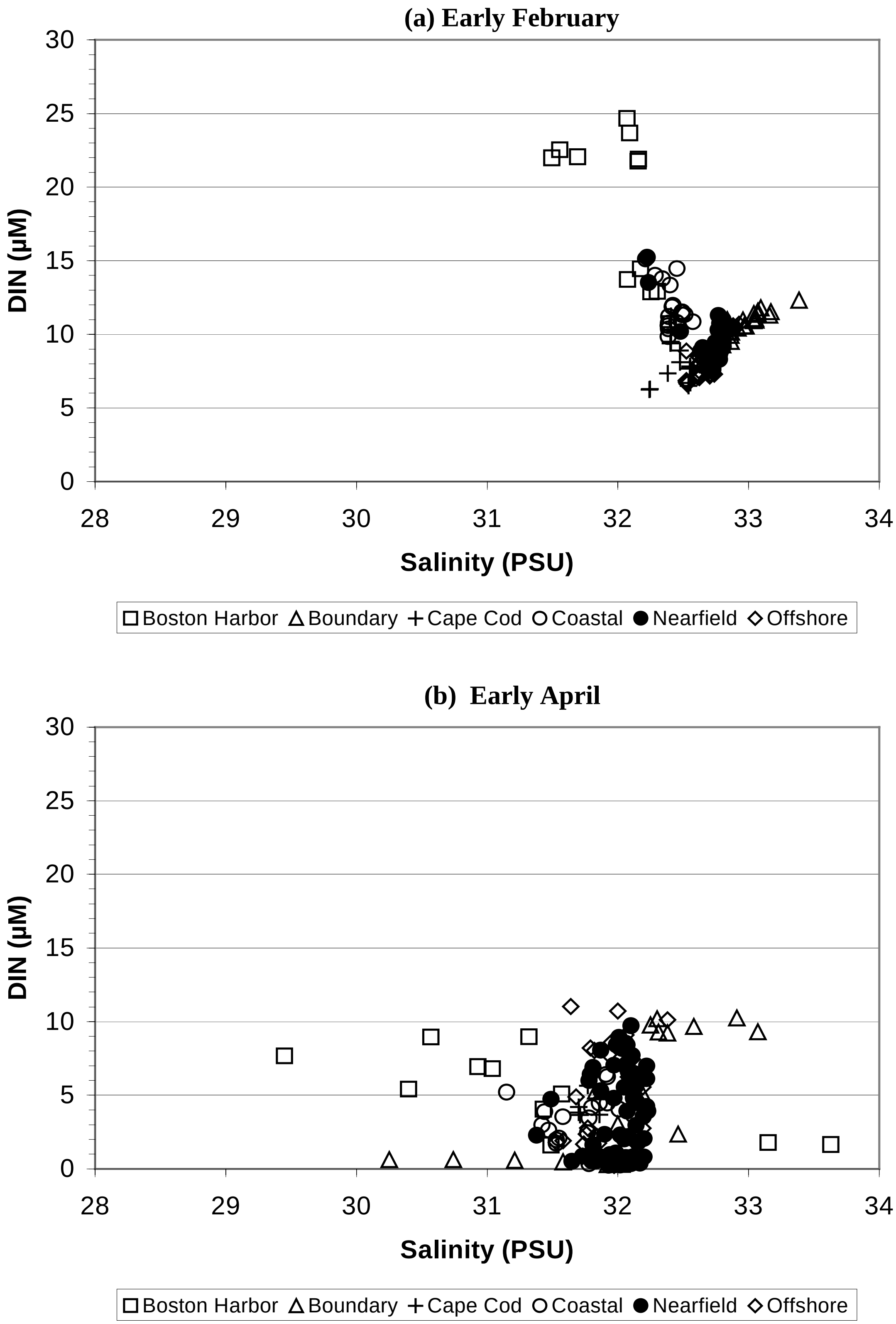
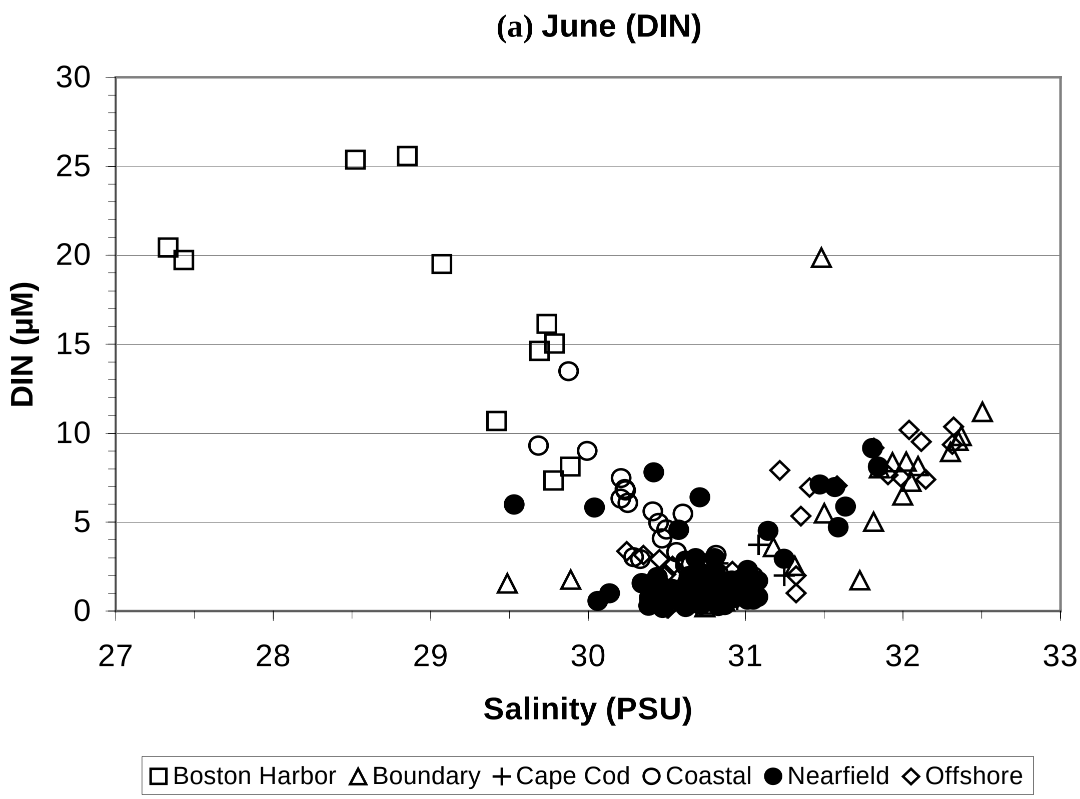


Figure 4-31. DIN vs. Salinity for All Depths during Farfield Surveys WF001 (Feb 00) and WF004 (Apr 00)



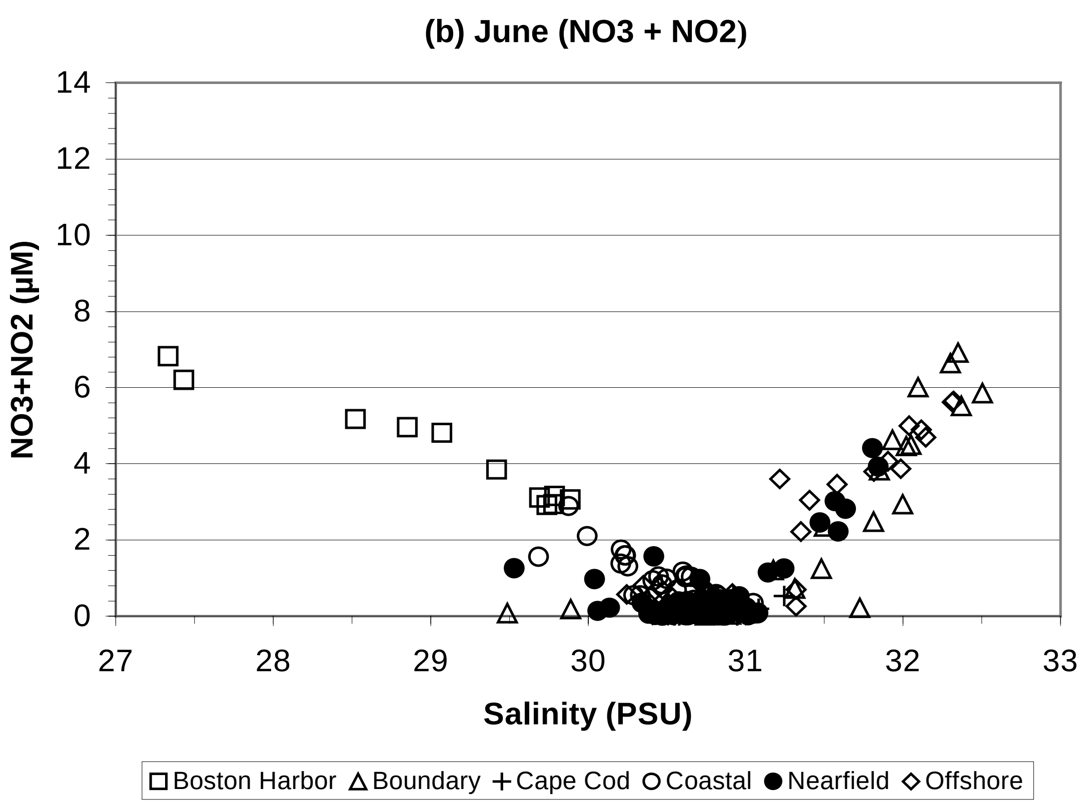


Figure 4-32. DIN vs. Salinity and Nitrate plus Nitrite vs. Salinity for All Depths during Farfield Survey WF007 (Jun 00)

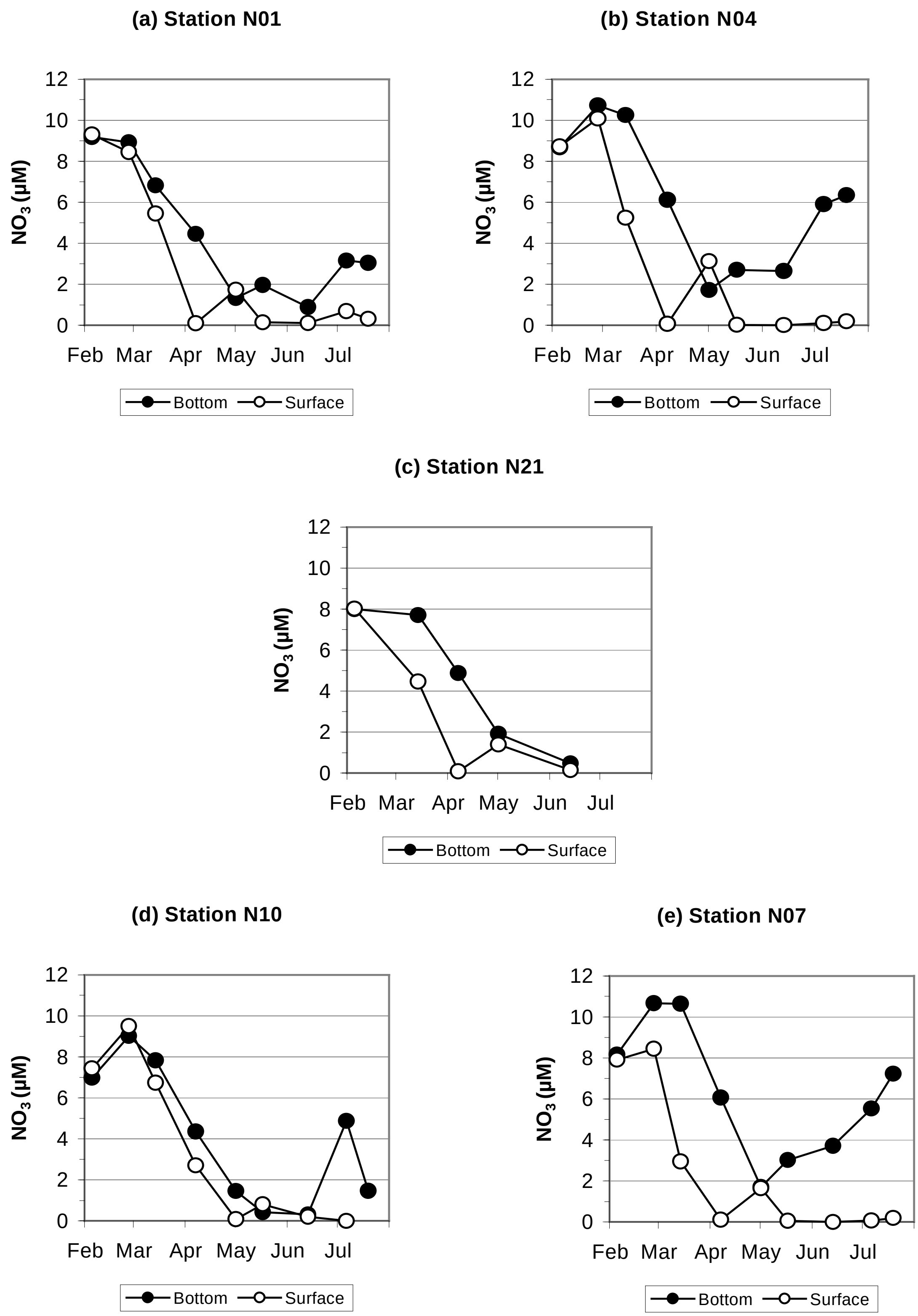


Figure 4-33. Time-Series of Surface and Bottom Water Nitrate Concentration at Five Nearfield Stations

Note: The arrangement of the figures on this page mimic the relative positions of the stations.

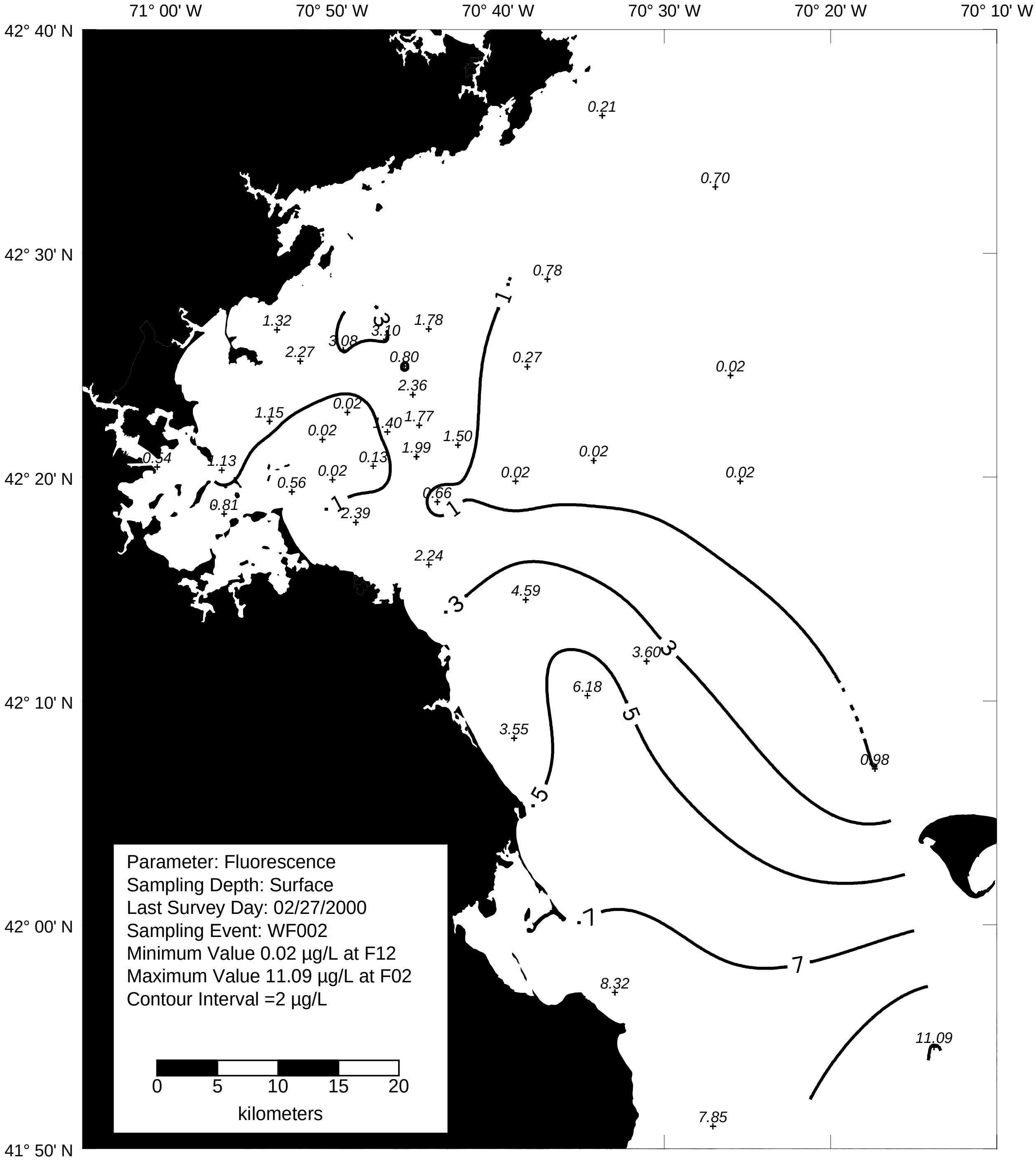


Figure 4-34. Fluorescence Surface Contour Plot for Farfield Survey WF002 (Feb 00)

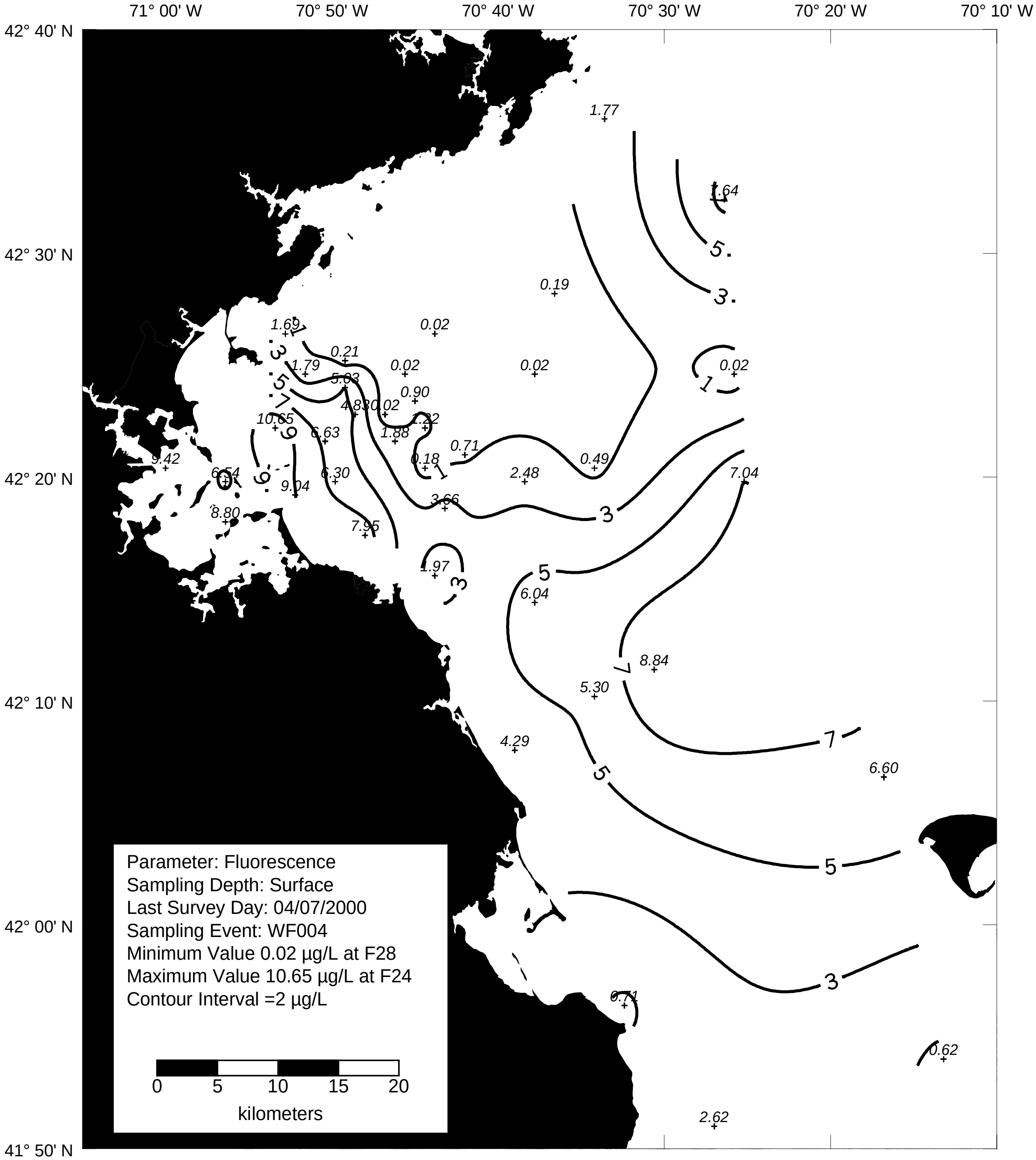


Figure 4-35. Fluorescence Surface Contour Plot for Farfield Survey WF004 (Apr 00)

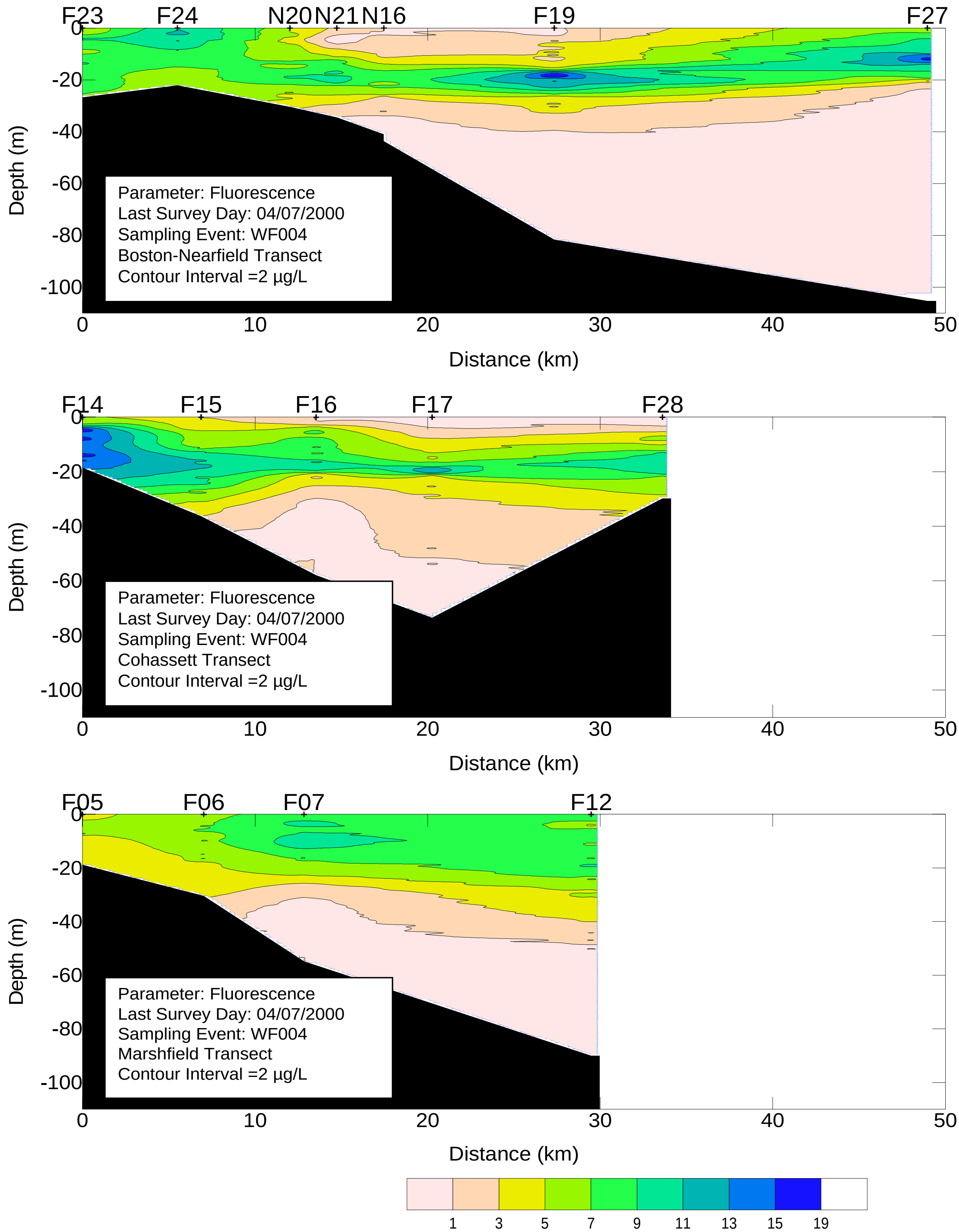


Figure 4-36. Fluorescence Vertical Transect Plots for Farfield Survey WF004 (Apr 00)

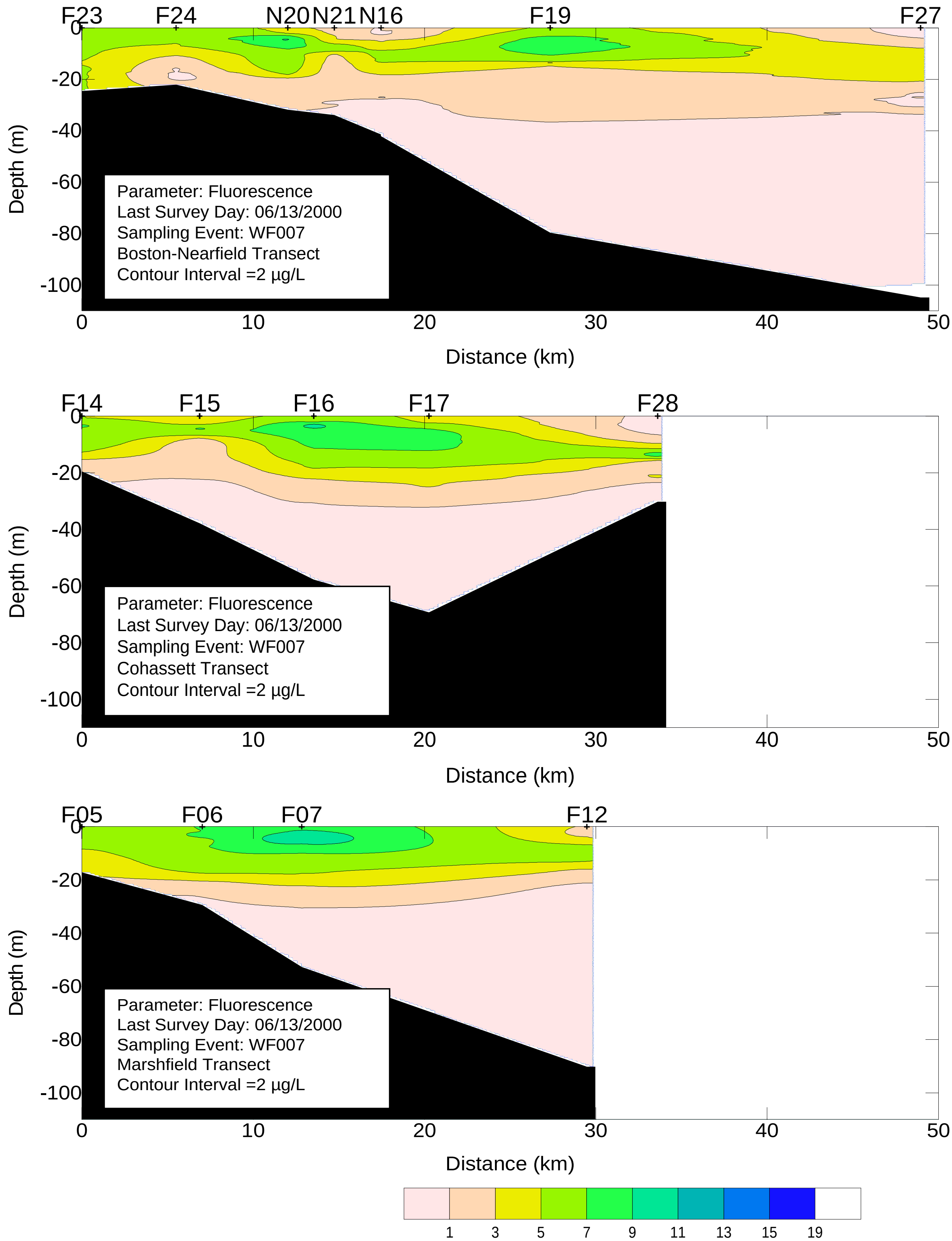


Figure 4-37. Fluorescence Vertical Transect Plots for Farfield Survey WF007 (Jun 00)

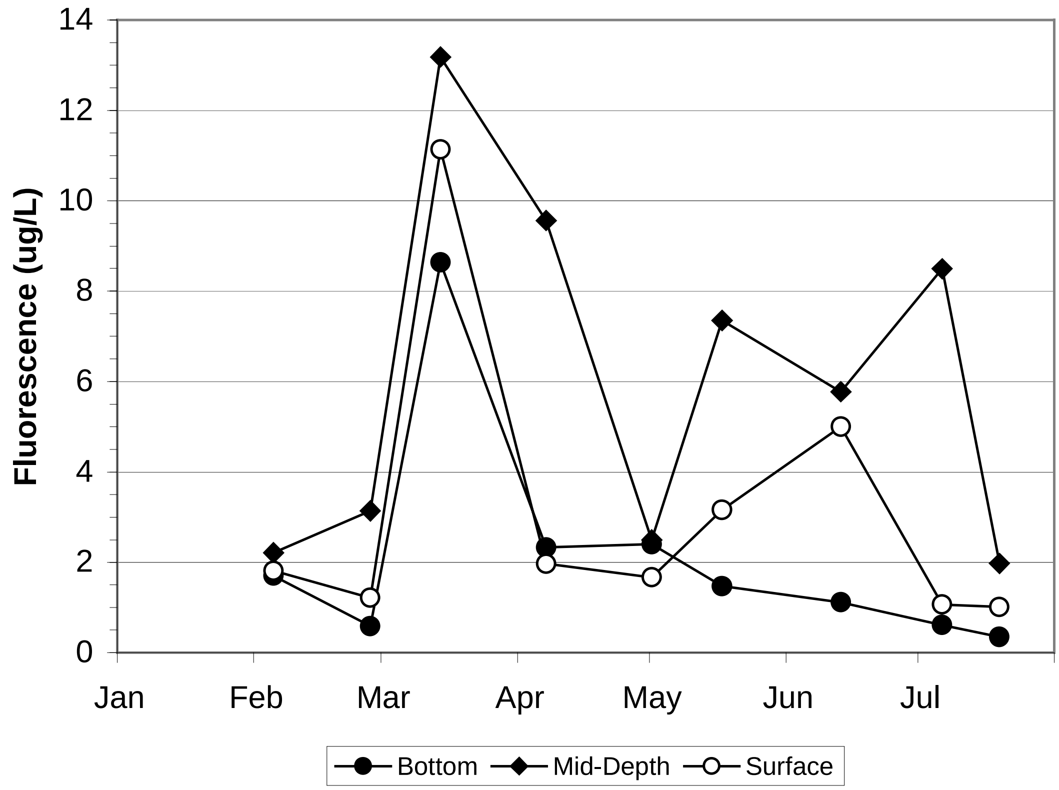


Figure 4-38. Time-Series of Bottom, Mid-Depth, and Surface Survey Mean Chlorophyll Concentration in the Nearfield

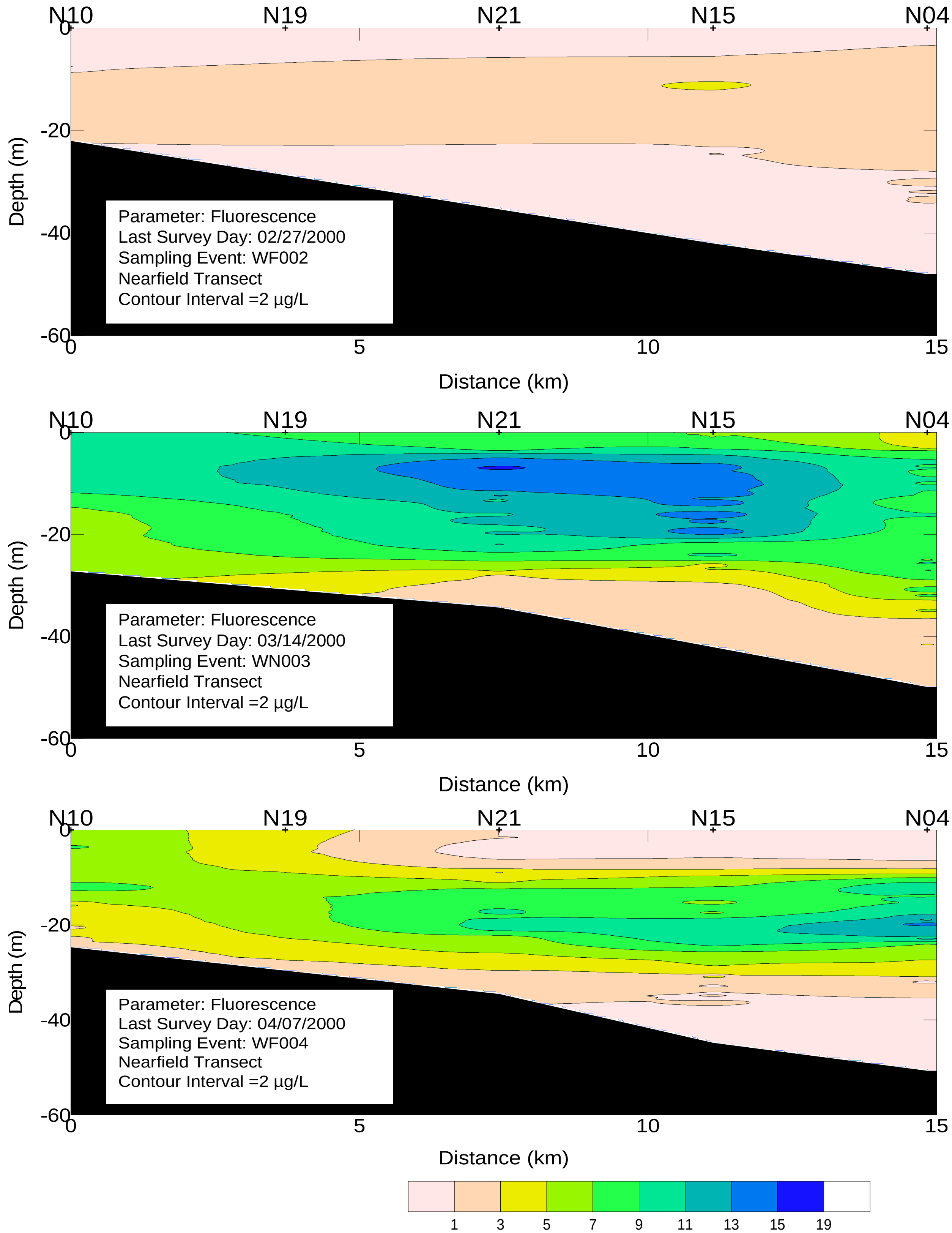


Figure 4-39. Fluorescence Vertical Nearfield Transect Plots for Surveys WF002, WN003, and WF004

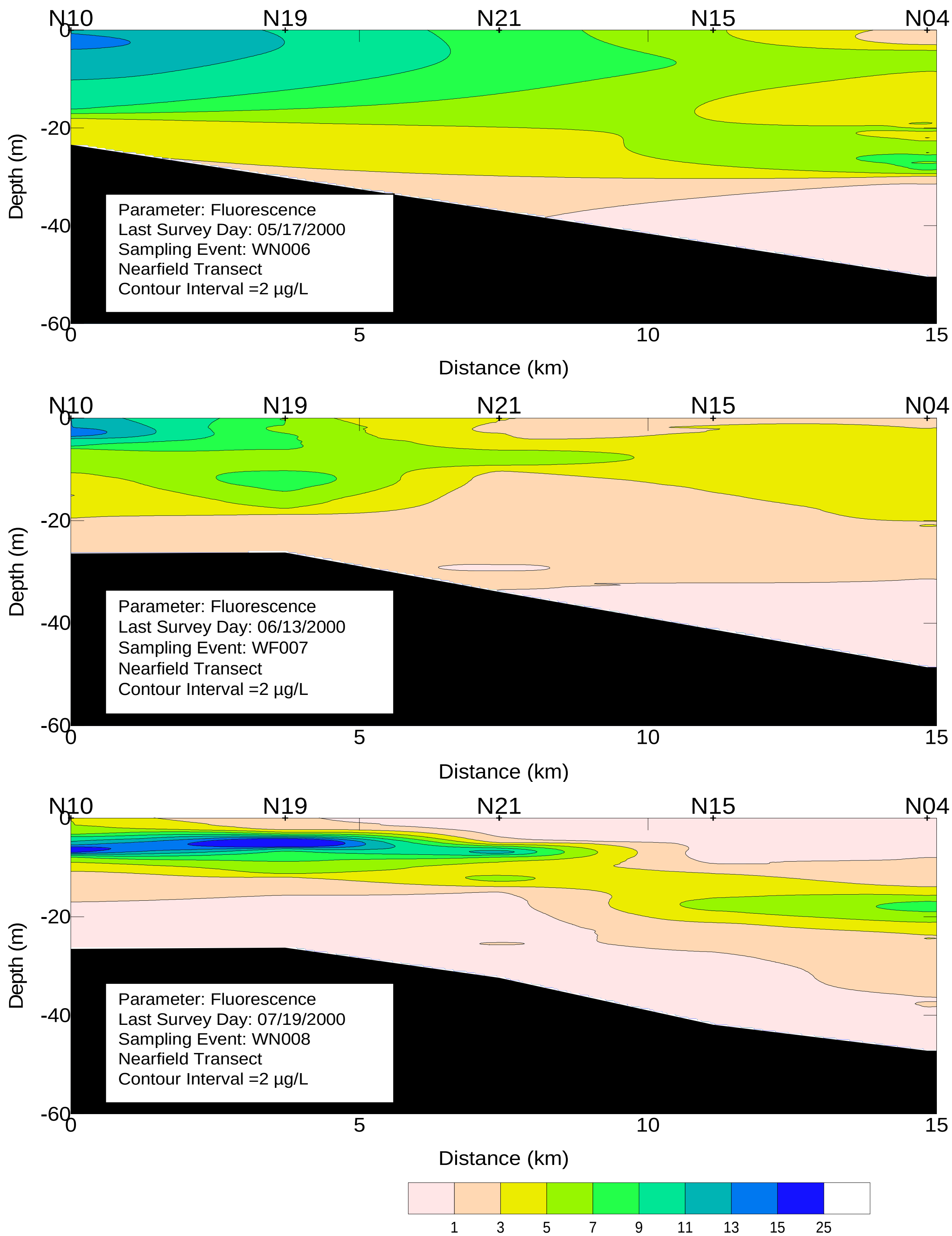
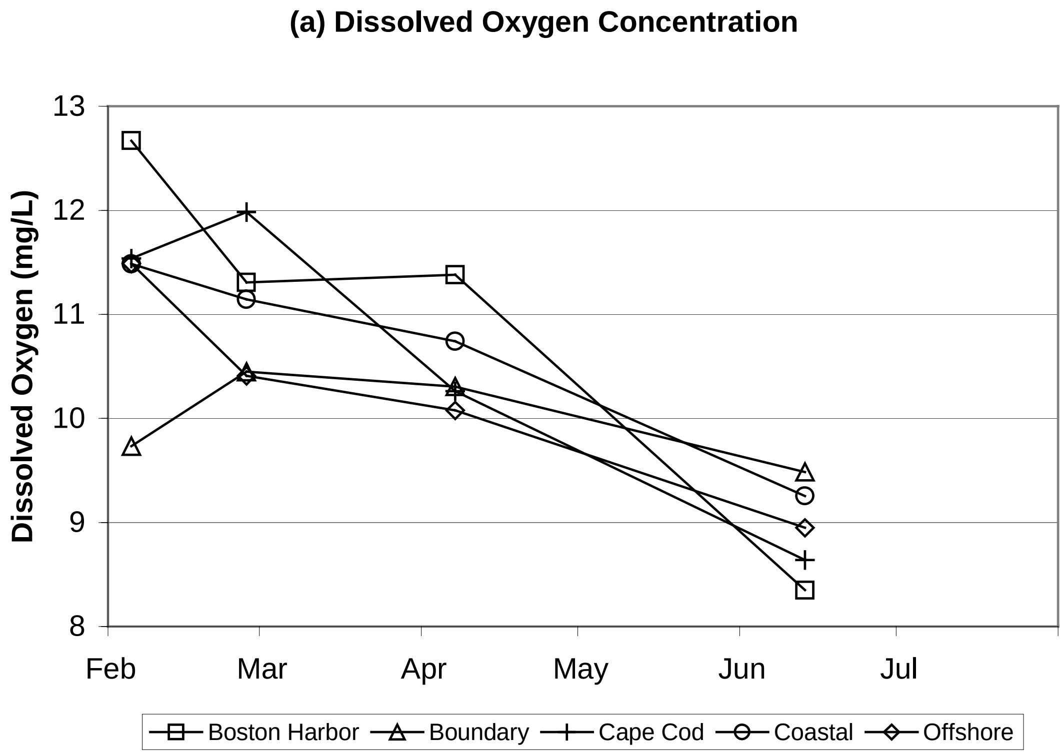


Figure 4-40. Fluorescence Vertical Nearfield Transect Plots for Surveys WN006, WF007, and WN008



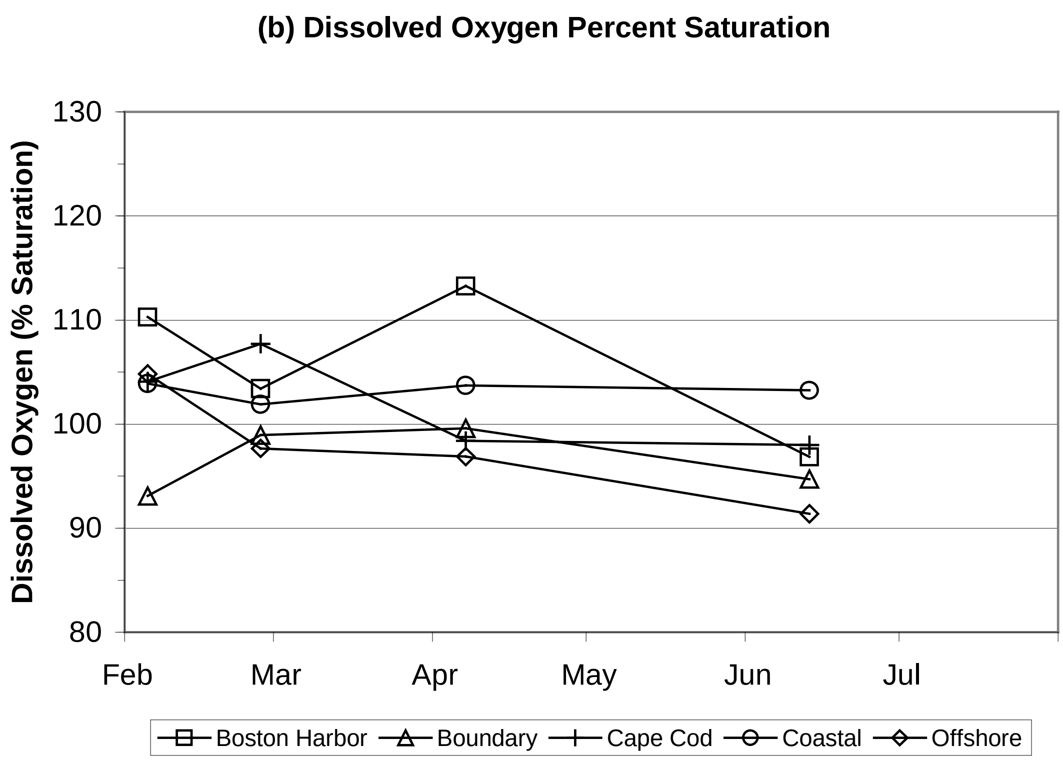


Figure 4-41. Time-Series of Bottom Water Average DO Concentration and Percentage Saturation in the Farfield

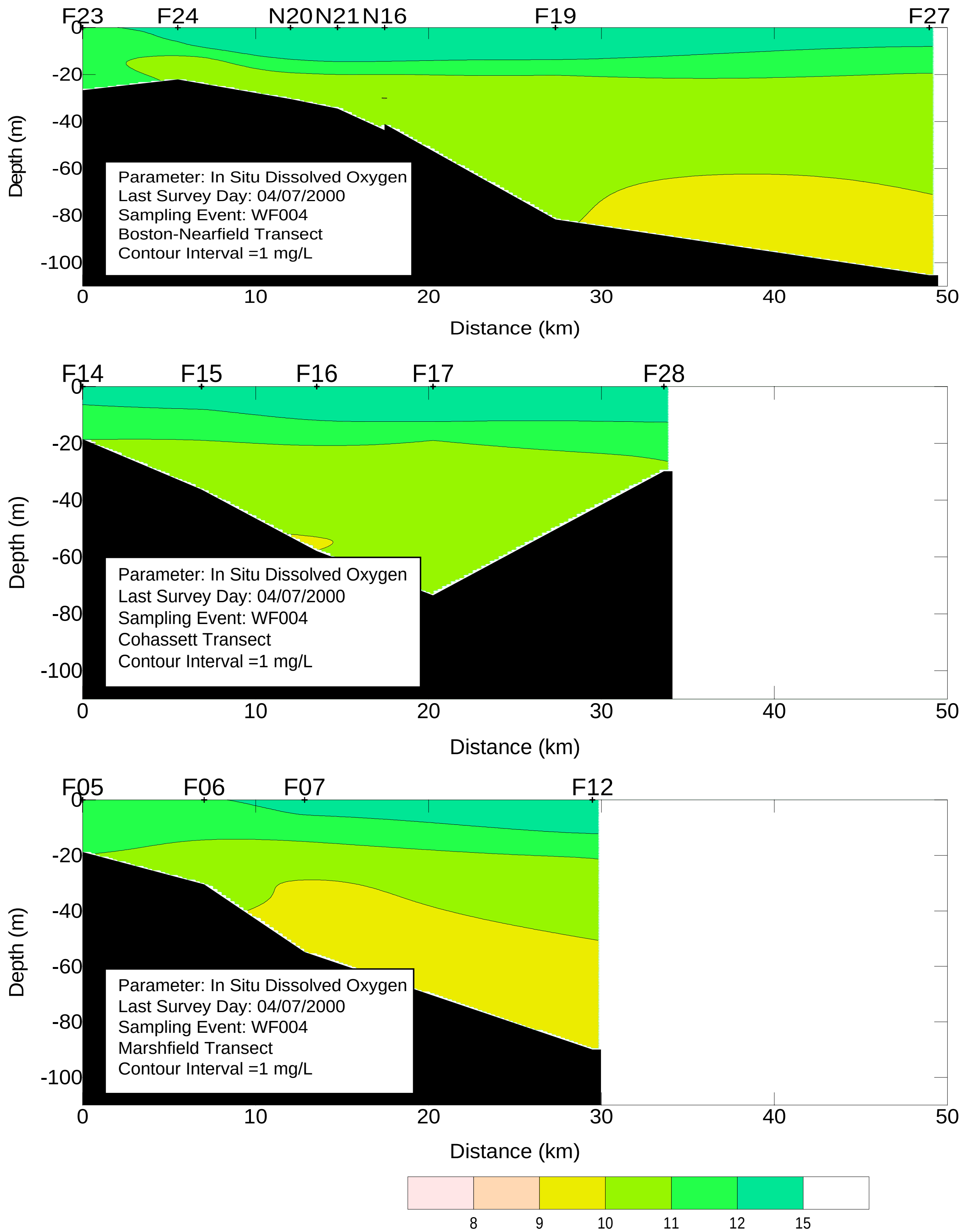


Figure 4-42. Dissolved Oxygen Vertical Transects for Survey WF004 (Apr 00)

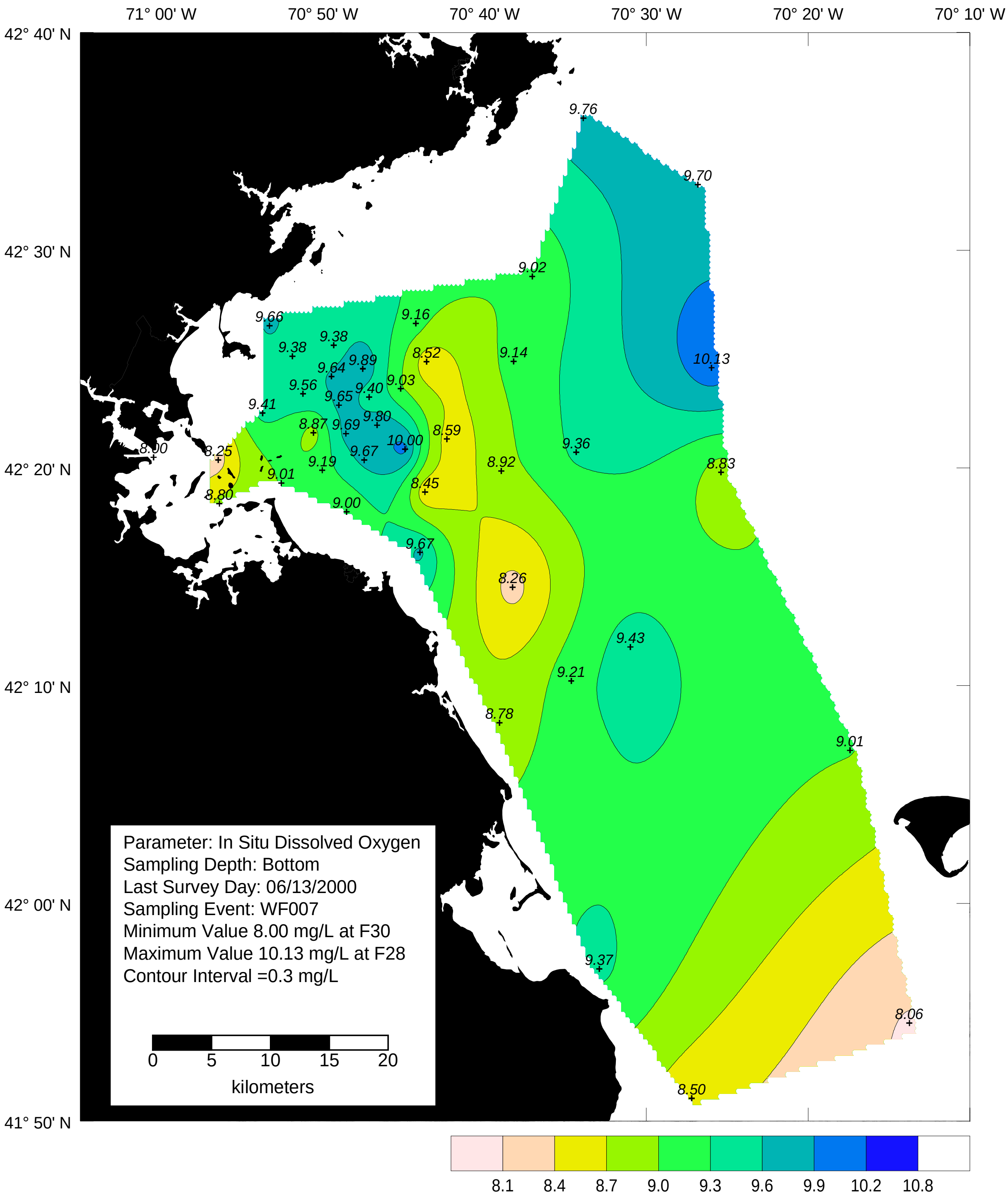
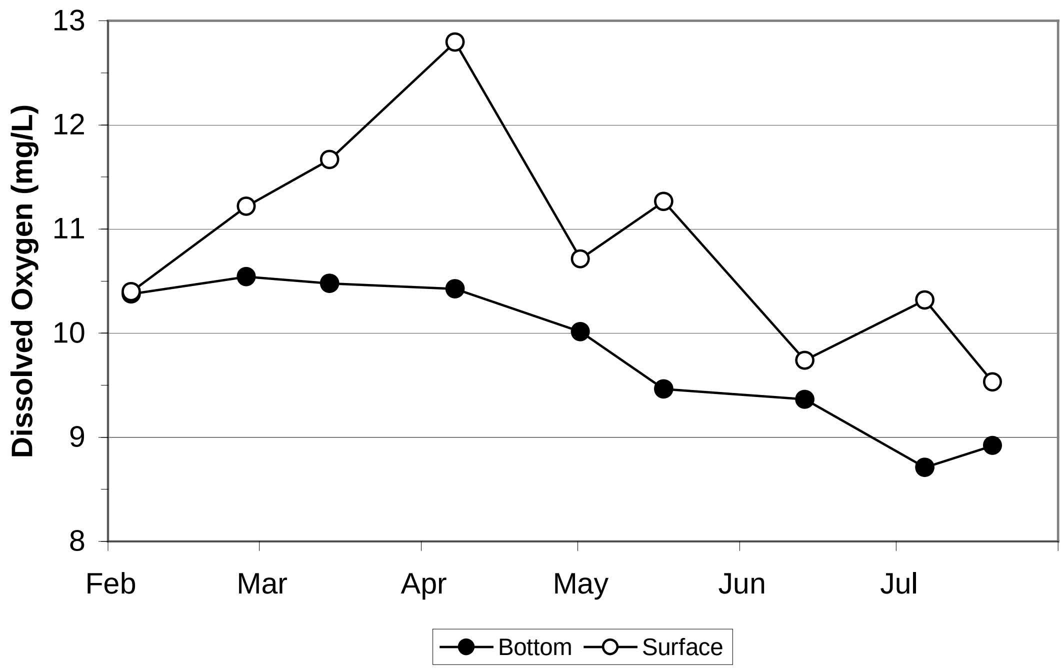


Figure 4-43. Bottom Water Dissolved Oxygen Contour Plot for Farfield Survey WF007 (Jun 00)

(a) Dissolved Oxygen Concentration



(b) Dissolved Oxygen Percent Saturation

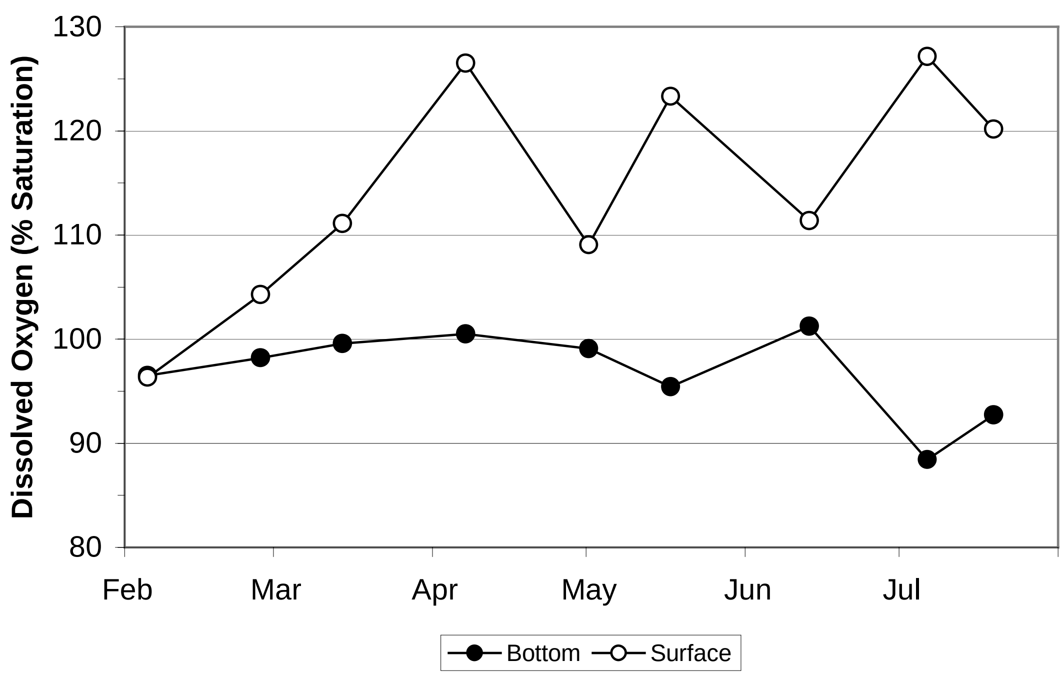


Figure 4-44. Time-Series of Bottom and Surface Average DO Concentration and Percentage Saturation in the Nearfield

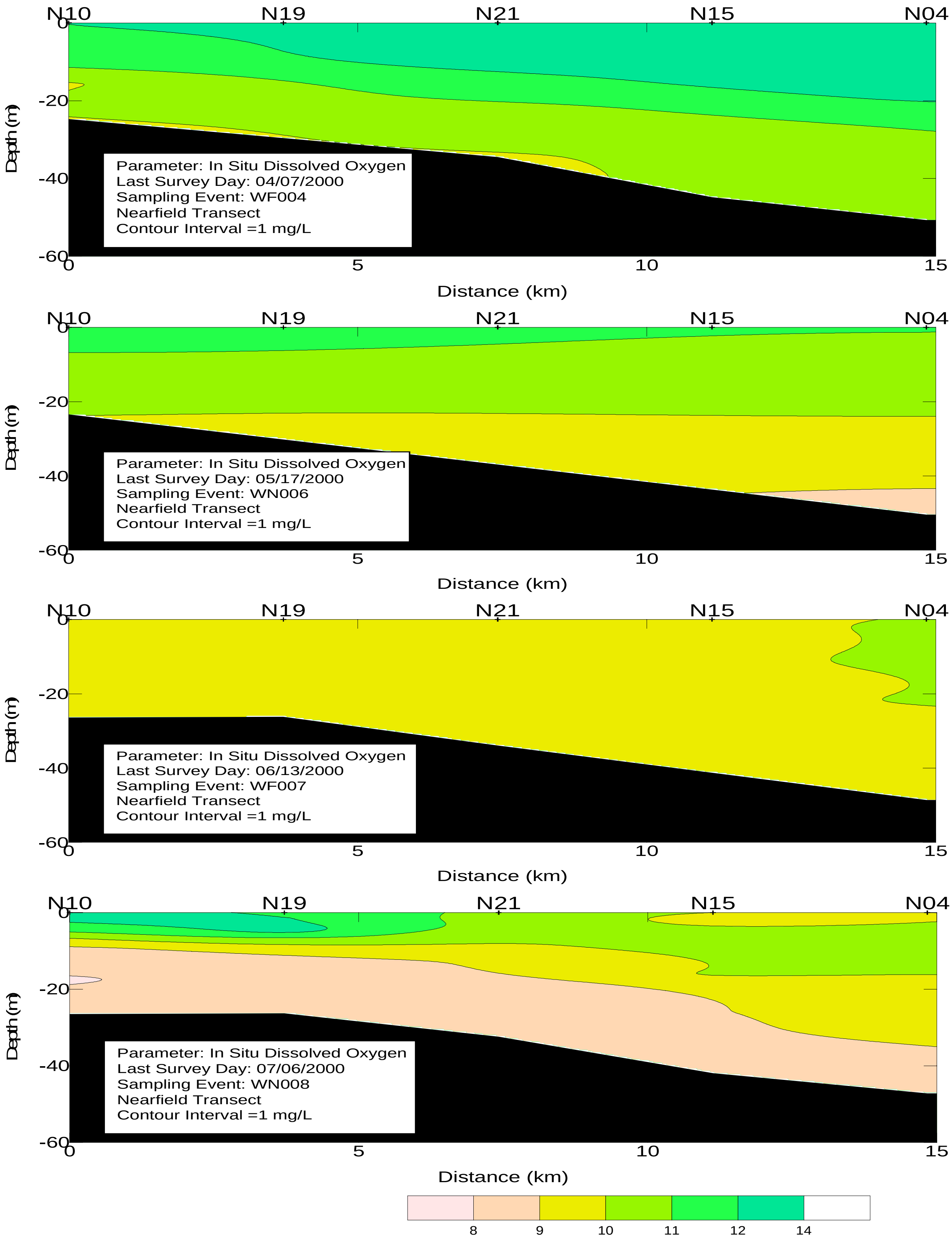


Figure 4-45. Dissolved Oxygen Vertical Nearfield Transects for Surveys WF004, WN006, WF007, and WN008

5.0 PRODUCTIVITY, RESPIRATION, AND PLANKTON RESULTS

5.1 Productivity

Production measurements were taken at two nearfield stations (N04 and N18) and one farfield station (F23) near the entrance of Boston Harbor. All three stations were sampled on February 3-4 (WF001), February 27 (WF002), April 1 (WF004) and June 8 (WF007). Stations N04 and N18 were additionally sampled on March 14 (WN003), May 1 (WN005), May 17 (WN006), July 6 (WN008), and July 19 (WN009). Samples were collected at five depths throughout the euphotic zone. Production was determined by measuring ^{14}C at varying light intensities as summarized below and in Appendix A.

In addition to samples collected from the water column, productivity calculations also utilized light attenuation data from a CTD-mounted 4π sensor, and incident light time-series data from a 2π irradiance sensor located on Deer Island, MA. After collection of the productivity samples, they were returned to the Marine Ecosystems Research Laboratory (MERL) in Rhode Island and incubated in temperature-controlled incubators. The resulting photosynthesis versus light intensity (P-I) curves (Figure 5-1 and comprehensively in Appendix E) were used, in combination with light attenuation and incident light information, to determine hourly production at 15-min intervals throughout the day for each sampling depth.

For this semi-annual report, areal production ($mgCm^{-2}d^{-1}$) and chlorophyll-specific areal production ($mgCmgChl\textit{a}^{-1}d^{-1}$) are presented (Figures 5-2 and 5-3). Areal productions are determined by integrating measured productivity (and chlorophyll-specific productivity) over the depth interval. Chlorophyll-specific productivity for each depth was first determined by normalizing productivity by measured chlorophyll *a*. Productivity, chlorophyll *a* and chlorophyll-specific productivity for each depth are also presented as contour plots (Figures 5-4 to 5-9). As noted in Section 3.7, the chlorophyll and light data have been corrected, and we have used this new data in the calculation of production and chlorophyll-specific production presented in this section.

5.1.1 Areal Production

Areal production at the nearfield stations (N04 and N18) was similar throughout much of the semi-annual sampling period (Figure 5-2). Areal production at the two sites was relatively low (< 750 $mgCm^{-2}d^{-1}$) during the initial cruises on February 3 and February 27 (WF001 and WF002). Values increased at both sites to major production peaks by March 14 (WN003) and remained at elevated levels during the April 1 survey (WF004). At both stations the timing and extent of the winter-spring blooms in production were similar. The bloom peak at station N04 occurred on April 1 (WF004) with a peak production of 3118 $mgCm^{-2}d^{-1}$. Station N18 reached its maximum value (4269 $mgCm^{-2}d^{-1}$) somewhat earlier on March 14, but was characterized by elevated production (2780 $mgCm^{-2}d^{-1}$) on April 1. The peaks in production were coincident with the large *Phaeocystis* bloom that occurred in the bay in March/April (see Section 5.3).

Productivity decreased to levels <650 $mgCm^{-2}d^{-1}$ on May 1 (WN005) then increased to a minor peak on May 17 (WN006). The minor increase in production on May 17 occurred simultaneously at both stations and reached similar values of ~ 1500 $mgCm^{-2}d^{-1}$. Areal production declined at both stations N04 and N18 on June 8 (WF007). The productivity pattern at the nearfield sites diverged during July. At station N04 productivity increased from 1143 $mgCm^{-2}d^{-1}$ on July 6 (WN008) to 1555 $mgCm^{-2}d^{-1}$ on July 19 (WN009). At station N18 an elevated productivity of 4000 $mgCm^{-2}d^{-1}$ was observed on July 6 followed by a decrease in productivity to ~1000 $mgCm^{-2}d^{-1}$ on July 19.

The minimum production (~340 mgC$m^{-2}d^{-1}$) observed at station N04 was recorded on February 3, while the minimum at station N18 (480 mgC$m^{-2}d^{-1}$) was observed on May 1. The patterns observed at the nearfield sites were consistent with those observed during 1999 although the timing of events varied. The patterns were also consistent with patterns seen in chlorophyll distributions (Section 4.3).

Boston Harbor (station F23) displayed a different productivity pattern in comparison with the nearfield sites. At the Boston Harbor productivity/respiration station (F23), areal production was relatively low (~145 mgC$m^{-2}d^{-1}$) during the initial cruise (4 February). Areal production increased somewhat to ~500 mgC$m^{-2}d^{-1}$ by February 27 (WF002). Areal production reached a maximal value 4378 mgC$m^{-2}d^{-1}$ at station F23 during the April survey (WF004) then declined to moderate levels (~430 mgC$m^{-2}d^{-1}$) during the June survey (WF007). The production data are in agreement with the chlorophyll data through WF004. Elevated chlorophyll values during WF004 were associated with increased productivity levels and the *Phaeocystis* bloom. In June (WF007), chlorophyll values remained elevated at station F23, but rapid extinction of light with depth resulted in a reduced areal productivity measurement.

Areal production in 2000 followed patterns typically observed in prior years. A distinct winter-spring phytoplankton bloom was observed at both nearfield stations during the sampling period (Figure 5-2). In general, the nearfield is characterized by the occurrence of a winter-spring bloom. The winter-spring blooms observed at nearfield stations in 1995-1999 generally reached values of 1000 to 4000 mgC$m^{-2}d^{-1}$, with blooms typically lasting 2-3 months. The bloom in 2000 reached peak values of >2800 mgC$m^{-2}d^{-1}$ and lasted from March through April. The absence of a winter-spring phytoplankton bloom during 1998, a major change in the seasonal productivity pattern relative to other years for the nearfield region was not repeated in 1999 or 2000.

In general, the Boston Harbor site (station F23) exhibits a gradual pattern of increasing areal production from winter through summer rather than the distinct winter-spring peaks observed at the nearfield sites. In 2000 the pattern for station F23 did not conform to this description. Production values increased gradually from February through April, but decreased in June (Figure 5-2). During 1995-1999, peak areal productions at station F23 ranged from 2000 to 5000 mgC$m^{-2}d^{-1}$ in June-July. The peak areal production observed in 2000 occurred in April (4378 mgC$m^{-2}d^{-1}$) at station F23. Although the timing of events differed in 2000 the peak value observed at station F23 was similar to those seen in previous years. The earlier occurrence of peak production values in the harbor was likely due to the system wide *Phaeocystis* bloom that occurred in March and April of this year.

5.1.2 Chlorophyll-specific Areal Production

Chlorophyll-specific areal production was very similar at both nearfield sites (station N04 and N18) over time (Figure 5-3). Chlorophyll-specific areal production was relatively low (200-400 mgCmgChl$a^{-1}d^{-1}$) from February through mid-March. Chlorophyll-specific areal production increased at both stations by April 1 (WF004) to values of 725-890 mgCmgChl$a^{-1}d^{-1}$. Values decreased again during May then began a gradual climb to peak seasonal values at both stations on July 19 (WN009). Seasonal maxima at the nearfield sites were greater than 875 mgCmgChl$a^{-1}d^{-1}$. By comparison chlorophyll-specific rates in the harbor at station F23 did not exceed 540 mgCmgChl$a^{-1}d^{-1}$ throughout the sampling cycle (Figure 5-3). The peak chlorophyll-specific rate at station F23 did coincide in time with the initial peak observed at stations N04 and N18 on April 1, although at a lower rate.

Chlorophyll-specific production is an approximate measure for the efficiency of production and frequently reflects nutrient conditions at the sampling sites. The distribution of chlorophyll-specific production indicates that the efficiency of production was high relative to the amount of biomass present at the nearfield stations. At both stations N04 and N18 the peak chlorophyll-specific production occurred well after the cessation of the winter-spring production peak. By contrast, efficiency of production was low at the harbor site relative to biomass availability.

5.1.3 Production at Specified Depths

The spatial and temporal distribution of production, chlorophyll and chlorophyll-specific production on a volumetric basis were summarized by showing contoured values over the sampling period (Figures 5-4 to 5-9). Chlorophyll-specific productions (daily production normalized to chlorophyll concentration at each depth) were calculated to compare production with chlorophyll concentrations. Chlorophyll-specific production can be used as an indicator of the optimal conditions necessary for photosynthesis.

The areal productivity peaks reported during March and early April at stations N04 and N18 were concentrated in the upper 10 m of the water column (Figures 5-4 and 5-5). At station N04, production was highest in the surface water on March 14 while a mid-surface productivity maximum was observed on April 1. At station N04 productivity tended to decrease following the spring peak values. At station N18, productivity also decreased following the spring phytoplankton bloom, but increased again in July. For station N04, the highest production value (205 $mgCm^{-3}d^{-1}$) occurred in the mid-surface waters (~9 m) on April 1. Peak production at station N18 during this period was about twice that observed at N04 and occurred in the surface and mid-surface waters (~2.5 - 6 m) waters on March 14. During the winter-spring period peak production values tended to be correlated with the occurrence of the highest chlorophyll *a* measurements (Figures 5-6 and 5-7).

Subsurface (5-11 m) productivity maxima were measured at station N18 (~530 mg C m^{-3} d^{-1}) and N04 (~ 75 mg C m^{-3} d^{-1}) on July 6 (WN008). Surface (~2 m) production maxima were observed at station N18 (~80 mg C m^{-3} d^{-1}) and N04 (~ 125 mg C m^{-3} d^{-1}) on July 19 (WN009; Figures 5-4 and 5-5). The productivity pattern at specified depths observed in 2000 was similar to that observed in prior years. At station N04 productivity as high as 30 mg C m^{-3} d^{-1} occurred to depths of 20 m. At station N18 productivity >20 mg m^{-3} d^{-1} was rarely observed at depths >20 m. Productivity in the harbor was largely restricted to the upper 10 m of the water column.

Chlorophyll-specific production at N04 and N18 was also concentrated in the upper portions of the water column (Figures 5-8 and 5-9). Chlorophyll-specific production increased throughout the sampling season reaching peak values during July at stations N04 and N18. The efficiency of photosynthesis increased as the season progressed. The increased chlorophyll-specific production observed during July at station N18 lead to elevated phytoplankton biomass (Figure 5-7). Interestingly, similarly high levels of chlorophyll-specific productivity during July at station N04 did not produce elevated phytoplankton biomass (Figure 5-6). When the efficiency of photosynthesis is high but not reflected in higher phytoplankton biomass (measured as total chlorophyll *a*) it suggests that other processes (such as predation by zooplankton) are important in controlling the patterns observed.

5.2 Respiration

Respiration measurements were made at the same nearfield (N04 and N18) and farfield (F23) stations as productivity and at an additional station in Stellwagen Basin (F19). All four stations were sampled during each of the combined farfield/nearfield surveys. Stations N04 and N18 were also sampled during the five nearfield only surveys. Respiration samples were collected from three depths (surface, mid-depth, and bottom) and were incubated in the dark at *in situ* temperatures for 8±1 days.

Both respiration (in units of $\mu MO_2\,hr^{-1}$) and carbon-specific respiration ($\mu MO_2\,\mu MC^{-1}\,hr^{-1}$) rates are presented in the following sections. Carbon-specific respiration was calculated by normalizing respiration rates to the coincident particulate organic carbon (POC) concentrations. Carbon-specific respiration rates provide a relative indication of the biological availability (labile) of the particulate organic material for microbial degradation.

5.2.1 Water Column Respiration

Due to an oversight, station F23 samples were left in the incubators for an extra day at room temperature in February (WF002) and there are only three sets of respiration data for this station. The data for the May survey (WN006) were also qualified as suspect because incubator temperatures increased to room temperature for at least 12 hours. These data are not included in the figures or discussion that follows.

During the surveys conducted in February (WF001 and WF002) and March (WN003), respiration rates were generally low in both the nearfield and farfield areas (<0.10 μMO_2hr^{-1}; Figures 5-10 and 5-11). By April (WF004), respiration rates had doubled in the nearfield (0.1 to 0.2 μMO_2hr^{-1}) and similar increases were observed at harbor station F23 and offshore station F19. Respiration rates were higher at station N04 in comparison to N18 and there was a clear difference in respiration rates over depth at station N04 with maximum rates in the surface waters (~0.2 μMO_2hr^{-1}). The increase in respiration rates in April was coincident with the winter-spring *Phaeocystis* bloom. The delay in peak production values at N04 versus N18 (April 1 versus March 14) likely contributed to the difference in respiration rates observed during WF004. At station N04, respiration rates were higher in the surface and mid-depth waters where the temperatures were warmer and higher rates of primary production were observed.

Respiration rates decreased from the April springtime highs to <0.10 μMO_2hr^{-1} in the nearfield in May (WN005) and remained relatively low in June (WF007). Surface water respiration rates were higher at both nearfield stations (0.12 – 0.14 μMO_2hr^{-1}). There was little change in the respiration rates measured at the two farfield stations from April to June. Respiration rates increased in the nearfield in July (WN008 and WN009). Rates at station N18 were higher and reached a maximum for the time period of 0.33 μMO_2hr^{-1} in the surface waters in early July (WN008). At station N18, the respiration rates remained >0.2 μMO_2hr^{-1} in the surface and mid-depth waters during both of the July surveys. Respiration rates were lower at station N04 and did not change substantially from June to early July. The station maximum for the time period was measured in the mid-depth waters in late July (~0.3 μMO_2hr^{-1}). Although both 1999 and 2000 had a significant winter/spring bloom, the respiration rates measured in 2000 were less than half of the peak rates measured in 1999 (Libby *et al*., 1999). This will be explored in more detail in the annual water column report for 2000.

5.2.2 Carbon-Specific Respiration

Carbon-specific respiration accounts for the effect variations in the size of the particulate organic carbon (POC) pool have on respiration. Differences in carbon-specific respiration result from variations in the quality of the available particulate organic material or from environmental conditions such as temperature. Particulate organic material that is more easily degraded (more labile) will result in higher carbon-specific respiration. In general, newly produced organic material is the most labile. Water temperature is the main physical characteristic that controls the rate of microbial oxidation of organic material – the lower the temperature the lower the rate of oxidation. When stratified conditions exist, the productive, warmer surface and/or mid-depth waters usually exhibit higher carbon-specific respiration rates and bottom waters have lower carbon-specific respiration rates due to both lower water temperature and lower substrate quality due to the degradation of particulate organic material during sinking.

POC concentrations were relatively low (10-20 µMC) in the nearfield during the first two surveys and generally uniform over the water columns (Figure 5-12). In Boston Harbor (station F23), POC concentrations were similarly low in early February, but by the end of February the POC concentration in harbor surface waters had increased to ~55 µMC. By March (WN003), POC concentrations had increased to >40 µMC over the entire water column at station N18 and to ~30 µMC in surface and mid-depth waters at station N04. The carbon-specific respiration rates were low (usually <0.005 $\mu MO_2 \mu MC^{-1} hr^{-1}$) at all three stations during this time period (Figure 5-13).

In April (WF004), POC concentrations had increased at both nearfield stations to approximately 40 µMC (lower in the deeper bottom water at station N04). These elevated concentrations were coincident with the high chlorophyll concentrations and high production rates associated with the *Phaeocystis* bloom. There was a decrease in nearfield carbon-specific respiration rates, however, from February to April coincident with the increase in productivity and POC (Figure 5-12). At harbor station F23, POC concentrations remained higher than the nearfield concentrations in April (50-70 µMC). Carbon-specific respiration rates at station F23, however, were low throughout this period (≤ 0.005 $\mu MO_2 \mu MC^{-1} hr^{-1}$). The disconnect between carbon-specific respiration rates and productivity and the availability of newly formed POC plus the relatively low respiration rates observed the winter/spring of 2000 versus 1999 may be related to the type of phytoplankton that bloomed in 2000 (*Phaeocystis* versus a mixed diatom assemblage). This will be examined in more detail in the 2000 Nutrient Issues Review.

POC concentrations decreased to ~20 µMC at the nearfield stations by early May (WN005) coincident with decreases in chlorophyll concentration and production rates. By mid-May, POC concentrations had increased to levels slightly higher than those observed during the March/April bloom (40-55 µMC). Low concentrations (~20 µMC) were again measured at station N18 in June. Surface water POC concentrations remained elevated at station N04 from June thru July (~30 µMC). Maximum nearfield POC concentrations were measured in the surface and mid-depth waters at station N18 in early July (80 µMC). In Boston Harbor, POC concentrations remained high from April to June (60-80µMC). Overall, carbon-specific respiration in the harbor and nearfield was relatively low during this time period. The only time carbon specific respiration exceeded 0.01 $\mu MO_2 \mu MC^{-1} hr^{-1}$ was in the bottom waters at station N04 in late July. These low numbers suggest that there were limited supplies of labile POC available during the winter/spring of 2000 despite the fact that there was a very substantial *Phaeocystis* bloom (see Section 5.3).

5.3 Plankton Results

Plankton samples were collected on each of the nine surveys conducted during this reporting period. Phytoplankton and zooplankton samples were collected at two stations during each nearfield survey (N04 and N18) and at 11 farfield and the two nearfield stations (total = 13) during the farfield surveys. Two additional stations were sampled for zooplankton in Cape Cod Bay (F32 and F33) during the first three farfield surveys (WF001, WF002 and WF004), but not during the fourth (WF007). Also, two additional "upstream" stations (F22 and F26) were sampled for phytoplankton and zooplankton during WF004 and WF007, but not during WF001 and WF002. These two stations (F22 and F26) will continue to be sampled on a regular basis during all farfield surveys. Phytoplankton samples included both whole-water and 20 µm-mesh screened samples, from the surface and subsurface chlorophyll maximum depths. Zooplankton samples were collected by vertical/oblique tows with 102 µm-mesh nets. Methods of sample collection and analyses are detailed in Albro *et al*. (1998).

In this section, the seasonal trends in plankton abundance and regional characteristics of the plankton assemblages are evaluated. Total abundance and relative abundances of major taxonomic groups are presented for each phytoplankton and zooplankton community. Tables in the appendices provide data on cell and animal densities and relative abundance for all dominant plankton species (>5% abundance): Appendix F – whole water phytoplankton, Appendix G – 20-μm screened phytoplankton, and Appendix H – zooplankton.

5.3.1 Phytoplankton

5.3.1.1 Seasonal Trends in Total Phytoplankton Abundance

Total phytoplankton abundances in nearfield whole water samples (surface and mid-depth) were variable from February through July (Table 5-1). Total abundances were low and varied between approximately 0.13 –2.27 x 10^6 cells L^{-1} in February-early March. However, abundances increased dramatically in late March and April (WF004) to levels of 2.52-11.01 x 10^6 cells L^{-1} during a bloom of *Phaeocystis pouchetii*. Abundances declined thereafter to levels of 0.19-3.66 x 10^6 cells L^{-1} in May – July (WN005-WN009). Total abundances at the surface at stations N04, N16 and N18 (Figure 5-14) were generally < 2-4 x 10^6 cells L^{-1} for all taxa except *Phaeocystis* (labeled as "Other" in these figures), with abundances for *Phaeocystis* scaling total phytoplankton abundances on the ordinates of these figures to maxima of 7 x 10^6 cells L^{-1}. Total abundances at mid-depth for all taxa except *Phaeocystis* were similarly low, < 2 - 4 x 10^6 cells L^{-1} for these same nearfield stations (Figure 5-15), but *Phaeocystis* abundance during WF004 scaled total abundances for these figures to 12.0 x 10^6 cells L^{-1}.

Total phytoplankton abundance in farfield whole water samples (surface and mid-depth) showed similar low abundances in February with levels generally < 0.81 x 10^6 cells L^{-1} during survey WF001 (Table 5-1 and Figure 5-16), and values between 0.14 –1.5 x 10^6 cells L^{-1} during survey WF002 (Figure 5-17). By early April (WF004) farfield abundances jumped to 1.39-13.76 x 10^6 cells L^{-1} throughout the survey area during the bloom of *Phaeocystis* (Figure 5-18). As in the nearfield, *Phaeocystis* concentrations were generally higher at the mid-depth compared to the surface waters. By June (WF007) phytoplankton abundances had declined, back to pre-*Phaeocystis*-bloom levels of < 3.38 x 10^6 cells L^{-1} at all stations (Table 5-1), and levels < 1-2 x 10^6 cells L^{-1} at most stations (Figure 5-19).

Total abundances of dinoflagellates, silicoflagellates and protozoans in 20 μm-mesh-screened water samples were considerably lower than those recorded for total phytoplankton in whole-water samples, due to the screening technique which selects for larger, albeit rarer cells. Dinoflagellates and silicoflagellates in nearfield and farfield screened phytoplankton samples were generally < 10^3 cells L^{-1} from February through early March, decreased to < 0.5 x 10^3 cells L^{-1} during the April *Phaeocystis* bloom, rebounding to values as high as > 16.6 x 10^3 cells L^{-1} by late July (Table 5-2).

Table 5-1. Nearfield and Farfield Averages and Ranges of Abundance (10^6 Cells L^{-1}) of Whole-Water Phytoplankton

Survey	Dates (2000)	Nearfield Mean	Nearfield Range	Farfield Mean	Farfield Range
WF001	2/2-5	0.45	0.30-0.68	0.47	0.24-0.81
WF002	2/23-25,27	0.22	0.13-0.38	0.67	0.14-1.50
WN003	3/14	2.10	1.89-2.27	NA	NA
WF004	3/30,4/1,3,7	6.81	2.52-11.01	6.82	1.39-13.76
WN005	5/1	0.67	0.19-1.00	NA	NA
WN006	5/17	2.29	2.07-2.52	NA	NA
WF007	6/8,9,13	1.18	0.73-1.50	1.54	0.31-3.38
WN008	7/6	2.15	0.55-3.66	NA	NA
WN009	7/19	2.27	1.53-3.05	NA	NA

NA- Data not available because the farfield stations were not sampled during this survey.

Table 5-2. Nearfield and Farfield Average and Ranges of Abundance (Cells L^{-1}) for >20 µM-Screened Phytoplankton

Survey	Dates (2000)	Nearfield Mean	Nearfield Range	Farfield Mean	Farfield Range
WF001	2/2-5	891	660-1040	886	229-3160
WF002	2/23-25,27	253	187-403	147	36-370
WN003	3/14	315	212-394	NA	NA
WF004	3/30,4/1,3,7	100	28-205	157	34-444
WN005	5/1	383	290-500	NA	NA
WN006	5/17	4362	3833-5363	NA	NA
WF007	6/8,9,13	2692	1576-3428	1860	162-3682
WN008	7/6	1905	1214-2661	NA	NA
WN009	7/19	7638	2607-16637	NA	NA

NA- Data not available because the farfield stations were not sampled during this survey.

5.3.1.2 Nearfield Phytoplankton Community Structure

Whole-Water Phytoplankton – In February (WF001and WF002), nearfield whole-water phytoplankton assemblages from both depths were dominated by unidentified microflagellates < 10 µm in diameter, cryptomonads, centric diatoms such as *Thalassiosira* spp. 10 - 20 µm in diameter and unidentified centric diatoms < 10 µm in diameter, probably also a species of *Thalassiosira* (Figures 5-14 and 5-15). Beginning in March (WN003) and particularly in April (WF004), *Phaeocystis pouchetii* became dominant, comprising > 50% of total cells in March, increasing to > 90% of total cells in April. Microflagellates remained at similar abundances to levels in February, but the centric diatoms recorded for February, along with *Thalassiosira nordenskioldii* actually declined in abundance from March through April. By May (WN005) *Phaeocystis* had disappeared, and from May through July there was increasing abundance and dominance of microflagellates < 10 µm in diameter, cryptomonads, and centric diatoms such as *Skeletonema costatum*, *Guinardia delicatula*, *Thalassiosira* sp. in June, joined by the centric diatoms *Dactyliosolen fragilissimus* and *Leptocylindrus minimus* in July (WN008). Also in May through July the dinoflagellates *Gymnodinium* sp. and *Prorocentrum minimum* increased in abundance.

Screened Phytoplankton - In early February (WF001), nearfield screened samples were dominated by the thecate dinoflagellate *Prorocentrum micans*, which comprised 50-91% of cells counted. There were lesser contributions from the dinoflagellates *Ceratium fusus* and *C. tripos*, and the silicoflagellates *Distephanus speculum* and *Dictyocha fibula.* These same taxa dominated during late February (WF002) although *Distephanus speculum* had increased to 18-46% of cells counted. In March (WN003), these same taxa were abundant in varying proportions, with increases in the two *Ceratium* species to levels of up to 26-35% of cells counted. The same taxa were abundant in April (WF004) with additions of *Ceratium longipes, C. macoceros, Gymnodinium* spp. *Prorocentrum minimum* and *Protoperidinium* spp..

By early May (WN005), *Ceratium longipes* comprised approximately 60-80% of cells counted, with lesser contributions by *C. fusus, C. tripos*, and *Prorocentrum minimum*. These taxa were joined in late May (WN006) by *Ceratium lineatum* and *Dinophysis norvegica*. In June (WF007) there was continued dominance by *C. fusus, C. lineatum, C. longipes* and *C. tripos*, and to a lesser extent, *Dinophysis norvegica* and *Prorocentrum minimum*. The *Ceratium* quartet continued to dominate in July (WN008 and WN009) with subdominant abundance by *D. norvegica*.

5.3.1.3 Regional Phytoplankton Assemblages

Whole-Water Phytoplankton - Whole-water phytoplankton assemblages at farfield stations were generally similar to those in the nearfield during the same time periods, in terms of composition, abundance, and the major *Phaeocystis* bloom in April.

During February (WF001 and WF002), most farfield station assemblages were dominated at both depths by the same assemblages that dominated nearfield stations. These included unidentified microflagellates, cryptomonads, and diatoms of the genus *Thalassiosira* (Fig. 5-16 and 5-17). An unidentified species of the dinoflagellate genus *Gymnodinium* was recorded at abundances of approximately 5-10% of total cells at several stations.

In April (WF004), most farfield stations were overwhelmingly dominated by *Phaeocystis pouchetii* (Fig. 5-18) with comparatively minor contributions by unidentified microflagellates and the same assemblage of diatoms recorded for February. The *Phaeocystis* bloom occurred in Cape Cod Bay, but not in as overwhelming numbers as in Massachusetts Bay.

By June (WF007), assemblages at both depths at most farfield stations were dominated by the same microflagellates and cryptomonads that dominated the nearfield, with subdominant contributions by the same diatom taxa recorded for the nearfield during this period (*Skeletonema costatum, Thalassiosira* spp.).

Screened Phytoplankton - Screened-water dinoflagellate assemblages at farfield stations were similar to those in the nearfield during the same time periods.

In February (WF001 and WF002), 20 μm-screened surface phytoplankton samples from the farfield were dominated by *Prorocentrum micans* and *Distephanus speculum*, as in the nearfield, although *Prorocentrum minimum* comprised 70% of cells counted at the surface at F25 during WF001.

In April (WF004), farfield assemblages were dominated by *Ceratium tripos, C. fusus*, and *C. longipes*, the silicoflagellates *Distephanus speculum* and *Dictyocha fibula* with lesser contributions by *Prorocentrum minimum* and *Protoperidinium* spp. at some stations. At stations F23 and F30 in Boston Harbor, the dinoflagellate *Gyrodinium spirale* comprised up to 37 - 65% of total cells counted, and the photosynthetic ciliate *Mesodinium rubrum* comprised 12-55% of total cells counted at several other stations.

Screened farfield samples in June (WF007) were dominated by the same assemblages as in the nearfield, including species of the dinoflagellate genus *Ceratium* (*fusus, lineatum, longipes, tripos*), *Dinophysis norvegica* and *Prorocentrum minimum*.

5.3.1.4 Nuisance Algae

The major bloom of harmful or nuisance phytoplankton species in Massachusetts and Cape Cod Bays during February – July 2000 was the April bloom of *Phaeocystis pouchetii*. At cell concentrations of 0.233-12.258 x 10^6 cells L^{-1} (mean = 6.2 x 10^6 cells L^{-1}) it was the major phytoplankton event of the period. Also, comparison of mean abundances of *Phaeocystis* from the nearfield in 2000 with those of previous "*Phaeocystis*" years such as 1992, 1994, and 1997 (Figure 5-20) reveals that this species appears to bloom in 3-4 year cycles, and that levels in spring of 2000 were higher than those recorded for any previous years since monitoring began in 1992.

The toxic dinoflagellate *Alexandrium tamarense* was only sporadically recorded. There were a few occurrences of "*Alexandrium* spp." in screened samples that were not positively identified as *A. tamarense*. These included single occurrences in February (WF001) and March (WN003), at abundances of 1.5 cells L^{-1}, twice in April (WF004) at abundances of 3.0 – 3.1 cells L^{-1}, at 3 stations during the June survey (WF007) at abundances of 1.8 – 1.9 cells L^{-1}, and at one station in July (WN009) at an abundance of 20.7 cells L^{-1}. Abundance of *Alexandrium tamarense* plus *Alexandrium* spp. in screened samples in 2000 was typically low, as evidenced by mean abundance in the nearfield compared to previous years (Figure 5-21). Levels since 1994 have not approached those of 1993.

Pseudo-nitzschia pungens or *Pseudo-nitzschia* spp. were also found sporadically. In early February (WF001), *Pseudo-nitzschia* spp. cells were seen in 7 whole water samples at trace amounts (hundreds of cells L^{-1}). During the April survey (WF004), *Pseudo-nitzschia* spp. cells were found at station N04, at an abundance of 300 cells L^{-1}. At stations F23 and F24 in June (WF007), a single cell of the potentially toxic species *Pseudo-nitzschia delicatissima* was recorded at each station for abundances of 400 cells L^{-1}.

Abundance of *Pseudo-nitzschia* in 2000 was lower than that recorded in most previous years (Figure 5-22). Due to inconsistent characterization of *Pseudo-nitzschia pungens, Pseudo-nitzschia* cf. *Pungens*, and *Pseudo-nitzschia* sp. in different years over the course of the baseline period, records for all these categories were combined in the baseline figure. In Figure 5-22, it is clear that *Pseudo-nitzschi*a abundance has been much higher in some previous years than in the first half of 2000, and that *Pseudo-nitzschia* usually only becomes abundant in the fall and winter rather than in the spring and summer.

5.3.2 Zooplankton

5.3.2.1 Seasonal Trends in Total Zooplankton Abundance

Total zooplankton abundance at nearfield stations generally increased from February through July (WF001-WN009; Figure 5-23). The maximum nearfield values of 146-290 x 10^3 animals m^{-3} recorded in June and July (WF007, WN008 and WN009; Table 5-3) were among the highest during the entire 1992-2000 baseline period.

Total zooplankton abundance at farfield stations in February was low (< 20 x 10^3 animals m^{-3} for WF001 and < 30 x 10^3 animals m^{-3} for WF002; Figure 5-24). By April (WF004), total zooplankton abundance at farfield stations had increased slightly, with values at two of the stations of

> 30 x 10^3 animals m^{-3}, but most were < 10 x 10^3 animals m^{-3} (Figure 5-25a). The spring-summer increase in farfield zooplankton abundance jumped by June (WF007), from all values < 50 x 10^3 animals m^{-3} in April to all but one value >50 x 10^3 animals m^{-3} and 7 of 15 values >100 x 10^3 animals m^{-3} in June (Figure 5-25b).

Table 5-3. Nearfield and Farfield Average and Ranges of Abundance (10^3 Animals m^{-3}) for Zooplankton

Survey	Dates (2000)	Nearfield Mean	Nearfield Range	Farfield Mean	Farfield Range
WF001	2/2-5	12.8	7.6-16.5	8.1	0.9-16.5
WF002	2/23-25,27	14.5	8.2-19.3	15.4	5.0-29.2
WN003	3/14	26.9	13.0-40.9	NA	NA
WF004	3/30, 4/1,3,7	10.2	6.2-12.6	15.5	3.6-45.9
WN005	5/1	31.1	15.8-46.3	NA	NA
WN006	5/17	55.4	36.2-74.5	NA	NA
WF007	6/8,9,13	139.3	59.4-289.8	108.0	30.4-187.0
WN008	7/6	115.2	84.4-146.1	NA	NA
WN009	7/19	274.4	273.9-274.9	NA	NA

NA- Data not available because the farfield stations were not sampled during this survey.

5.3.2.2 Nearfield Zooplankton Community Structure

During early February (WF001), the nearfield zooplankton assemblages (Figure 5-23) were dominated by copepod nauplii (27-32%), as well as copepodites of *Oithona similis* (21-32%) and *Pseudocalanus* spp. (up to 23%). In late February (WF002), the same patterns occurred with dominance by copepod nauplii (36-45%) and *Oithona similis* (16-28%) and *Pseudocalanus* spp. (6-24%) copepodites. A similar assortment was also found in March (WN003) with nearfield dominance by copepod nauplii (46-68%) and *Oithona similis* copepodites (23-46%).

At nearfield stations during April (WF004), zooplankton assemblages were dominated by copepod nauplii (34-36%) and copepodites of *Oithona similis* (23-26%) and *Calanus finmarchicus* (8-15%) and barnacle nauplii (7-11%). In May, during WN005 and WN006, nearfield zooplankton assemblages continued to be dominated by the combination of copepod nauplii (25-28%), copepodites of *Oithona similis* (6-12% and 16-32%, during WN005 and WN006, respectively) and *Pseudocalanus* spp. (up to 6-7%). However, during WN005 *Calanus finmarchicus* copepodites comprised 28-43% and during WN006, bivalve veligers were 7-33% of total abundance.

At nearfield stations during June (WF007), zooplankton assemblages were dominated by bivalve veligers (7-64%), copepodites of *Oithona similis* (13-17%), *Centropages* spp. (6-14%), *Calanus finmarchicus* (up to 13%) and copepod nauplii (17-47%). In Figure 5-23, the disparity between total zooplankton abundance between nearfield stations N04 and N18, which were sampled on June 8th, and station N16, where the zooplankton sample was collected on June 9th, is due to the very high abundance of bivalve veligers (as "other" in Figure 5-25) at station N16. This is indicative of the biological (spawning) and physical (tides and currents) variability associated with meroplankton abundances and distribution in Massachusetts Bay. Subtracting the bivalve veliger abundance from total abundance at station N16, the total non-veliger abundance was 103.8 x 10^3 animals m^{-3}, which is closer to the total abundances of 59.4 and 68.6 x 10^3 animals m^{-3} at the other nearfield stations. Also, abundances of other major taxa were reasonably close, with values for copepod nauplii of 24.96, 27.97, and 49.29 x 10^3 animals m^{-3}, and for Oithona similis copepodites of 8.78, 9.92, and 13.34 x 10^3 animals m^{-3} at stations N04, N18, and N16, respectively.

Dominance by copepodites and females of *Oithona similis* and *Pseudocalanus* spp. and copepod nauplii continued through July (WN008 and WN009), with the contribution of bivalve veligers declining to 27-38%. During both July surveys, *Temora longicornis* copepodites comprised 7-10% of total abundance at station N04.

5.3.2.3 Regional Zooplankton Assemblages

Zooplankton assemblages at farfield stations during early February (WF001) were generally similar to those in the nearfield (Figure 5-24). Abundant taxa throughout the area included copepod nauplii (28-60%) and *Oithona similis* copepodites and females (9-45%). Copepodites of *Pseudocalanus* spp. and *Centropages* spp. were present at most stations, comprising 6-23% of total abundance. In late February (WF002), dominance by copepod nauplii (26-67%) and *Oithona similis* copepodites and females (8-38%) continued throughout the study area, as did abundance of copepodites and adults of *Pseudocalanus* spp. (7-33%) and *Centropages* spp. (6-14%) at most stations. Barnacle nauplii comprised 15% and 48%, respectively, at stations F30 and F31 in Boston Harbor.

In April (WF004; Figure 5-25), copepod nauplii were dominant at all farfield stations (6-53%), as were *Oithona similis* copepodites (9-34%) at all stations except station F30 and F31 in Boston Harbor. *Pseudocalanus* spp. copepodites comprised up to 6-54% of abundance at all but three stations, two of which were in Boston Harbor. *Calanus finmarchicus* comprised 10-11% of abundance at stations F02 and F32 in Cape Cod Bay. Barnacle nauplii reached as high as 64% of total abundance at stations where present, and polychaete larvae were 13-70% of abundance at stations F23, F30 and F31 in Boston Harbor.

During June (WF007), farfield zooplankton assemblages were again dominated by copepod nauplii (17-50%), copepodites of *Oithona similis* (5-40%), and *Pseudocalanus* spp. (up to 12% at stations where present). Bivalve veligers accounted for up to 49% of abundance at most stations where they were present. *Acartia* spp. adults and copepodites accounted for 22%, 21%, and 6% of total abundance at stations F23, F30, and F31, respectively, in Boston Harbor. Also, *Eurytemora herdmani* adults and copepodites, typically found in low-salinity embayments, comprised 8-10% of abundance at stations F23 and F30 in Boston Harbor. Unlike the abnormally low abundance of *Acartia* spp. during drought conditions during the early part of 1999, *Acartia* abundance in Boston Harbor rebounded to more typical levels during the rainy spring and summer in 2000.

In summary, zooplankton assemblages during the first half of 2000 were comprised of taxa typically recorded for the same time of year in previous years.

5.4 Summary of Production, Respiration and Plankton Results

- There was a system-wide major bloom of *Phaeocystis pouchetii* in April with abundance levels approaching 14 million cells per liter.
- Peaks in production were coincident with the large *Phaeocystis* bloom that occurred in the bay in March/April 2000. At station N18, production reached a maximum value on March 14 (4269 $mgCm^{-2}d^{-1}$) and remained elevated in April (2780 $mgCm^{-2}d^{-1}$). The peak at station N04 occurred on April 1 (3118 $mgCm^{-2}d^{-1}$).
- The productivity peaks reported during March and early April at stations N04 and N18 were concentrated in the upper 10 m of the water column.
- Areal production in 2000 followed patterns typically observed in prior years – a winter-spring bloom at nearfield stations with production rates of 1000 to 4000 $mgCm^{-2}d^{-1}$ that typically last 2-3 months.

- The Boston Harbor station (F23) usually exhibits a pattern of increasing production from winter through summer rather than the distinct winter-spring peaks observed in the nearfield. In 2000, this was not the case as peak production at station F23 occurred in April (4378 $mgCm^{-2}d^{-1}$). The earlier occurrence of peak production values in the harbor was likely due to the system wide *Phaeocystis* bloom that occurred in March and April.
- Respiration rates increased in April coincident with the winter-spring *Phaeocystis* bloom. Maximum nearfield respiration rates were measured in July (~0.30 $\mu MO_2 hr^{-1}$). Although both 1999 and 2000 had significant winter/spring blooms, the respiration rates measured in 2000 were less than half of the peak rates measured in 1999.
- Elevated POC concentrations were coincident with the high chlorophyll concentrations and high production rates associated with the *Phaeocystis* bloom in the nearfield and harbor. Carbon-specific respiration rates, however, were low throughout this period ($\leq 0.01\ \mu MO_2 \mu MC^{-1} hr^{-1}$).
- The relatively low respiration rates and the disconnect between carbon-specific respiration rates and productivity observed during the winter/spring of 2000 versus 1999 may be related to the type of phytoplankton that bloomed in 2000 versus 1999 (*Phaeocystis* versus a mixed diatom assemblage).
- Whole-water phytoplankton assemblages were dominated by unidentified microflagellates and several species of centric diatoms except during the *Phaeocystis* bloom. This is typical for the first half of the year in terms of taxonomic composition.
- As in previous years, screened phytoplankton samples evidenced a bloom of *Ceratium furca /C. tripos/* C. *longipes* which exhibited general increases from February through July.
- There were no blooms of harmful or nuisance phytoplankton species in Massachusetts and Cape Cod Bays during February – July, 2000, other than the April bloom of *Phaeocystis pouchetii*. While the dinoflagellate *Alexandrium tamarense* and diatoms of *Pseudo-nitzschia pungens* and *Pseudo-nitzschia* spp. were recorded in trace amounts, abundance levels were extremely low.
- Total zooplankton abundance generally increased from February through July. Nearfield counts of nearly 300 x 10^3 animals m^{-3} during WF007 were among the highest for the entire 1992-2000 baseline period.
- Zooplankton assemblages during the first half of 2000 were comprised of taxa recorded for the same time of year in previous years, but levels of *Acartia* spp. rebounded from the unusually low values of the previous year, which were possibly due to drought, to more typical levels during a rainy spring and early summer.

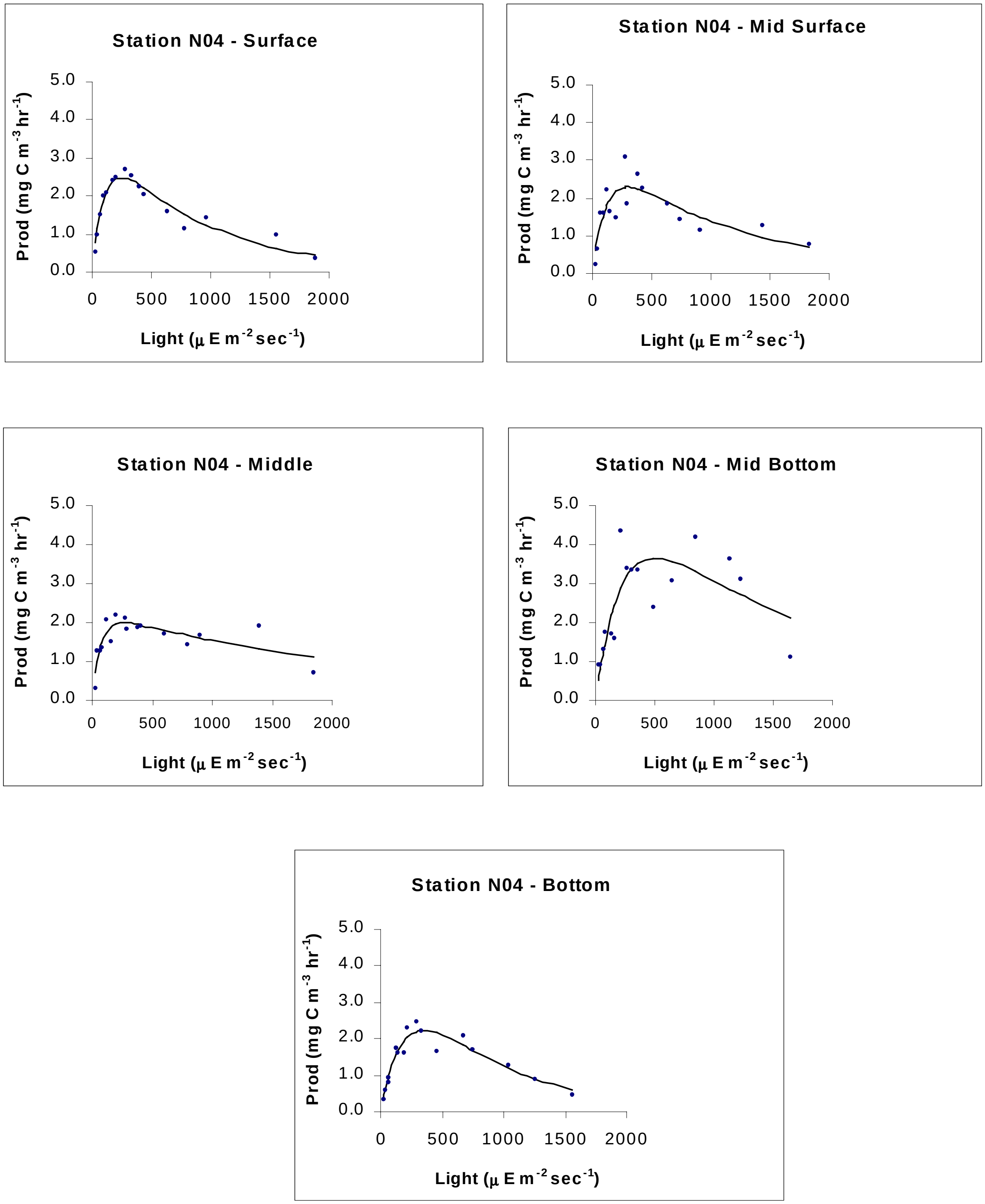


Figure 5-1. An Example Photosynthesis-Irradiance Curve From Station N04 Collected in February 2000

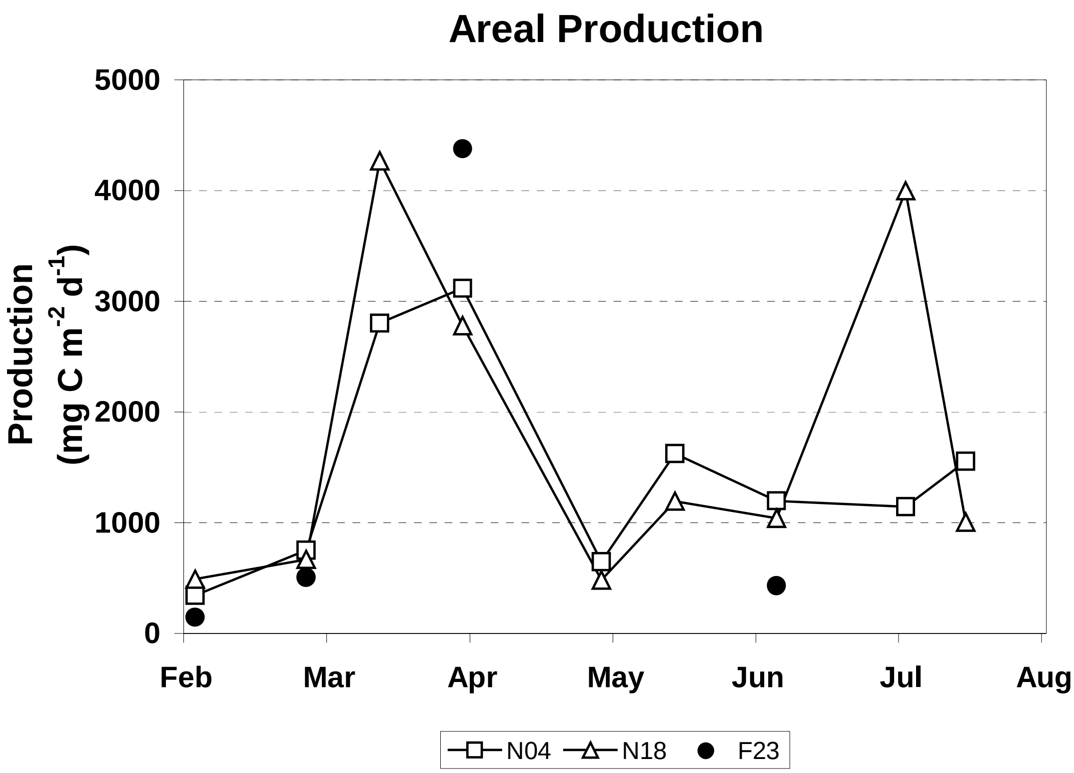


Figure 5-2. Time-Series of Areal Production ($mgCm^{-2}d^{-1}$) for Productivity Stations

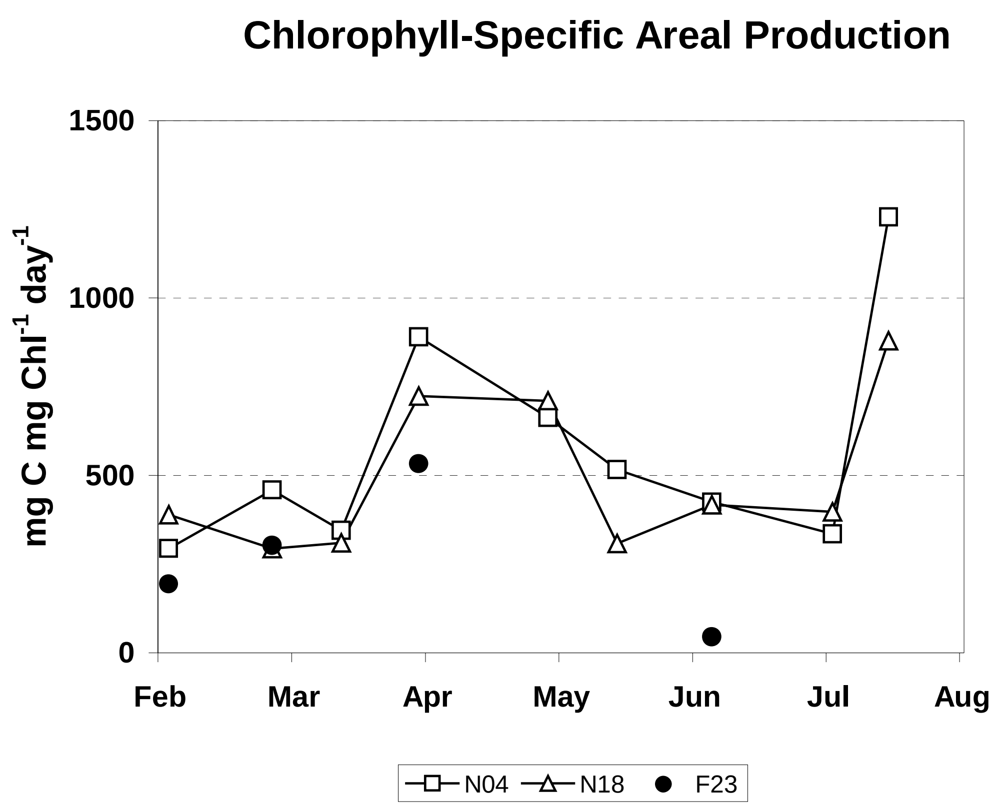


Figure 5-3. Time-Series of Chlorophyll-Specific Areal Production (mgCmgChla^{-1}d^{-1}) for Productivity Stations

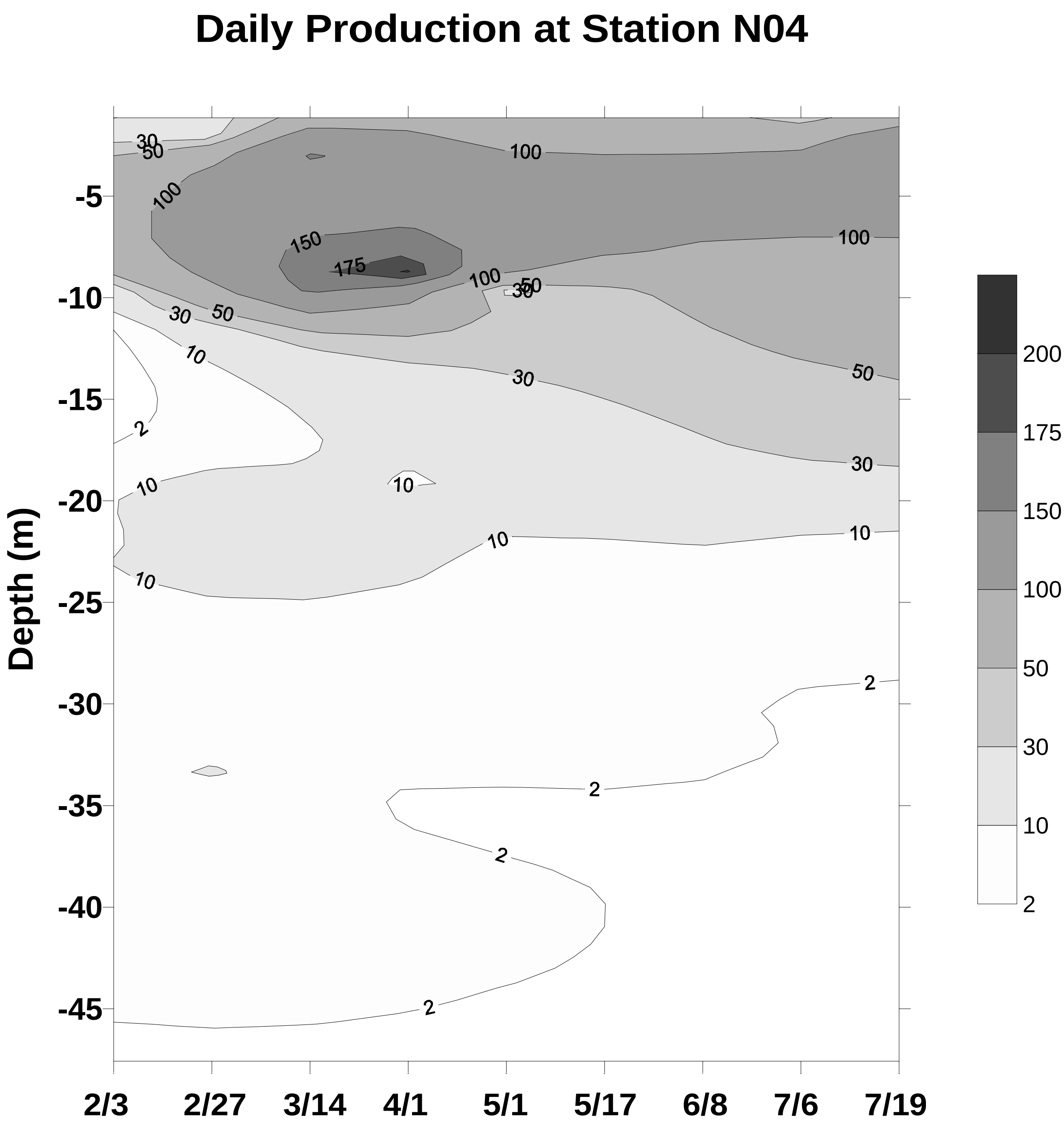


Figure 5-4. Time-Series of Contoured Daily Production ($mgCm^{-3}d^{-1}$) Over Depth at Station N04

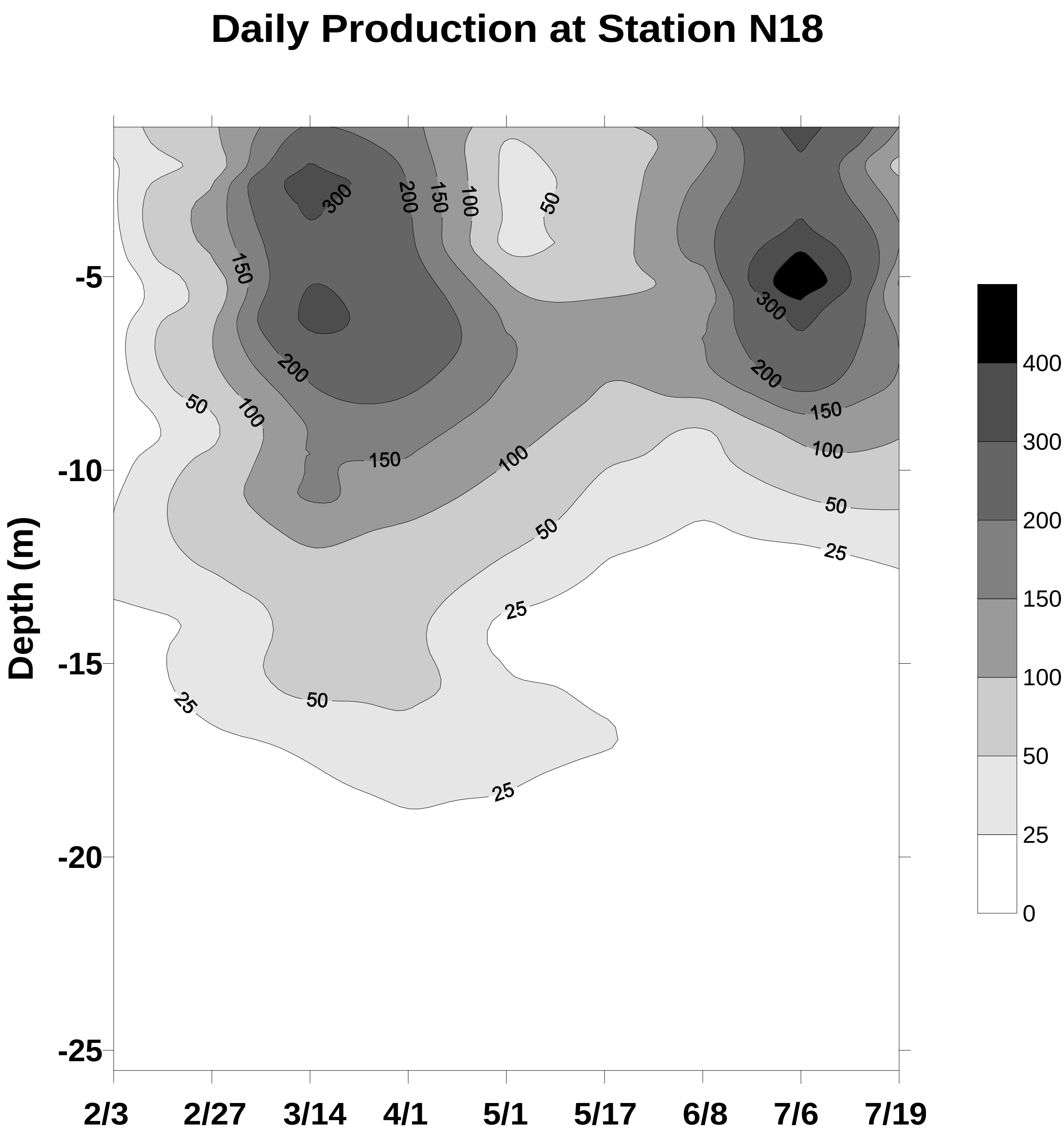


Figure 5-5. Time-Series of Contoured Daily Production ($mgCm^{-3}d^{-1}$) Over Depth at Station N18

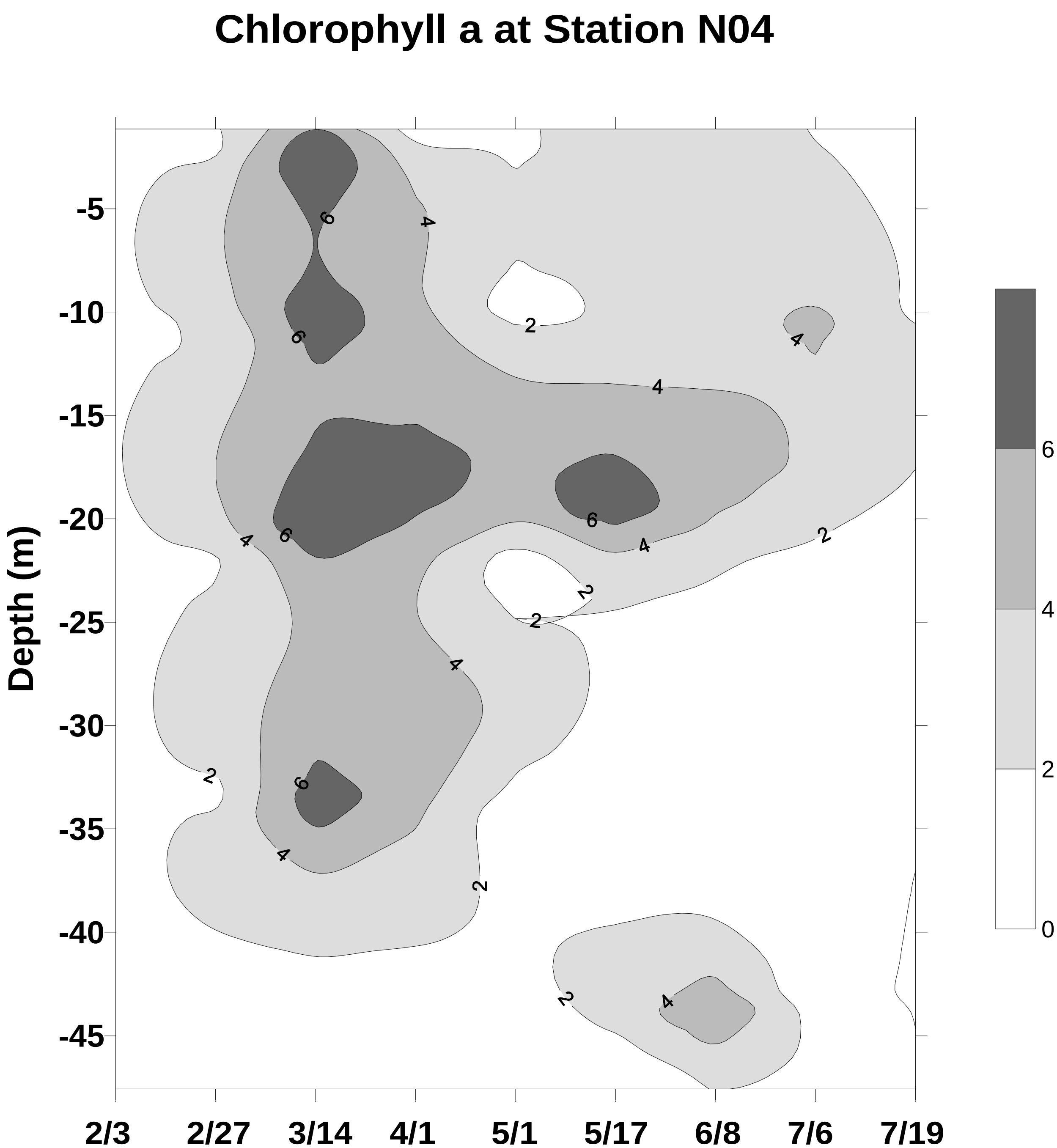


Figure 5-6. Time-Series of Contoured Chlorophyll *a* Concentration (μgL^{-1}) Over Depth at Station N04

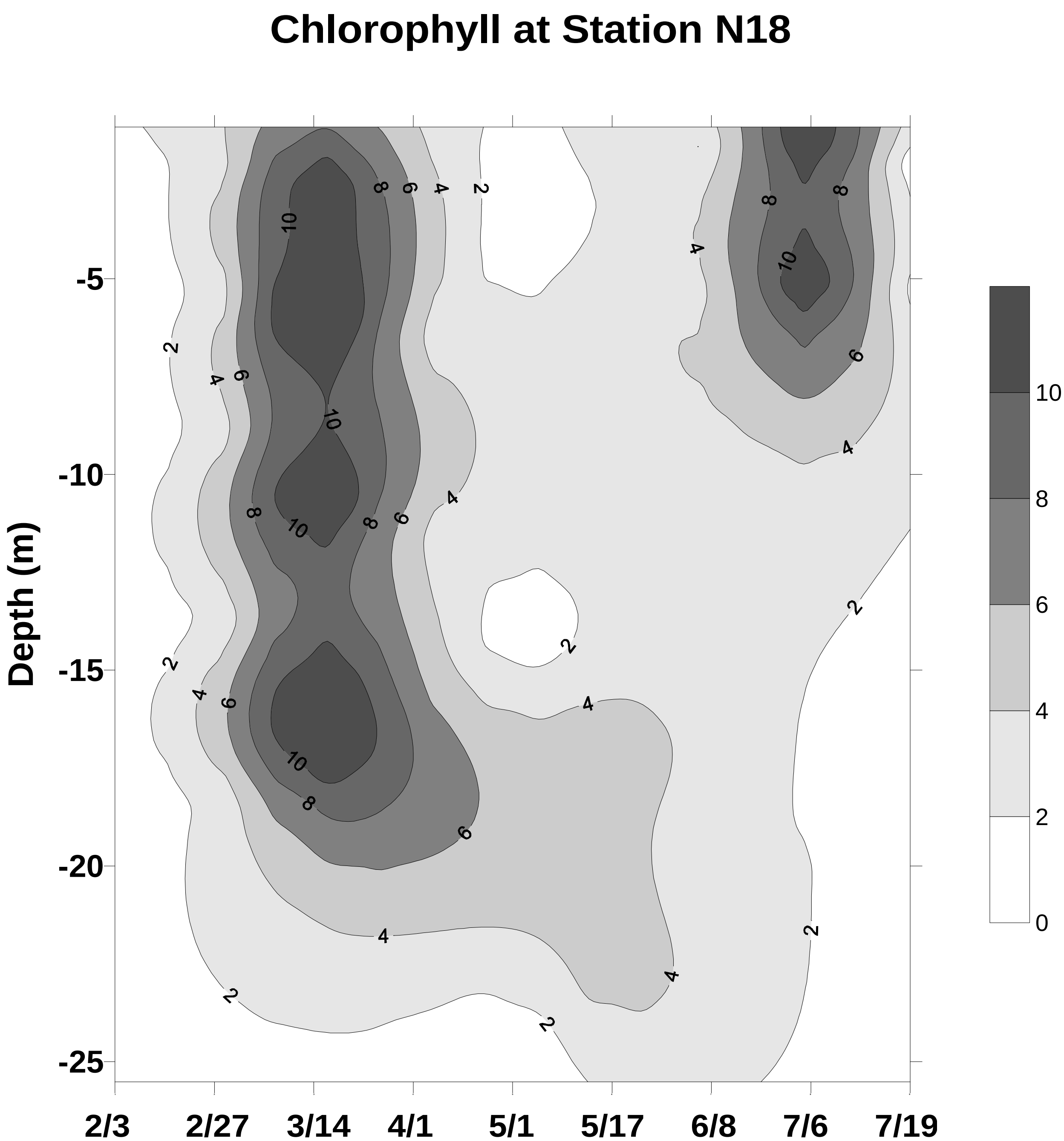


Figure 5-7. Time-Series of Contoured Chlorophyll *a* Concentration (mgL^{-1}) Over Depth at Station N18

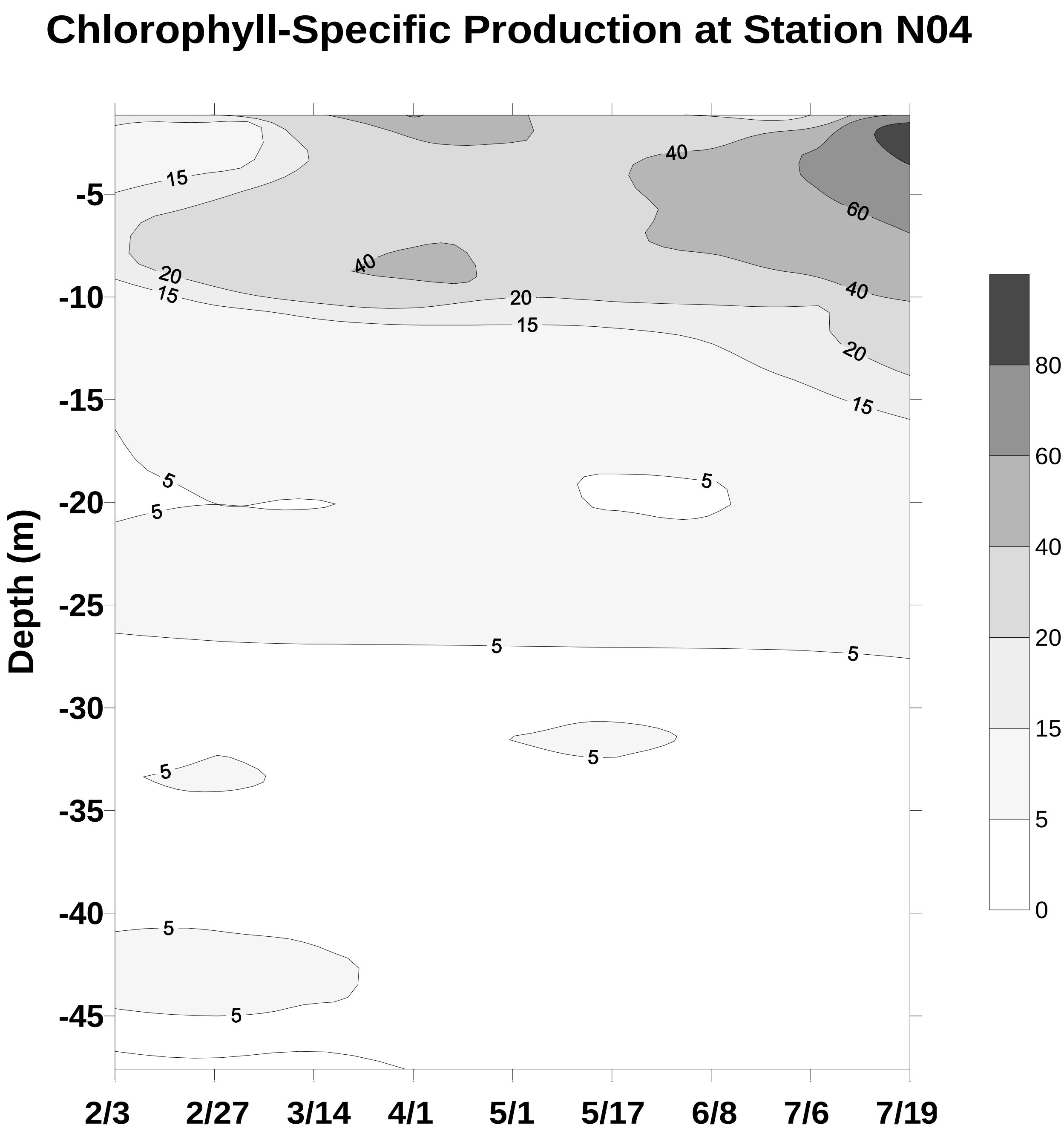


Figure 5-8. Time-Series of Contoured Chlorophyll-Specific Production ($mgCmgChl a^{-1}d^{-1}$) Over Depth at Station N04

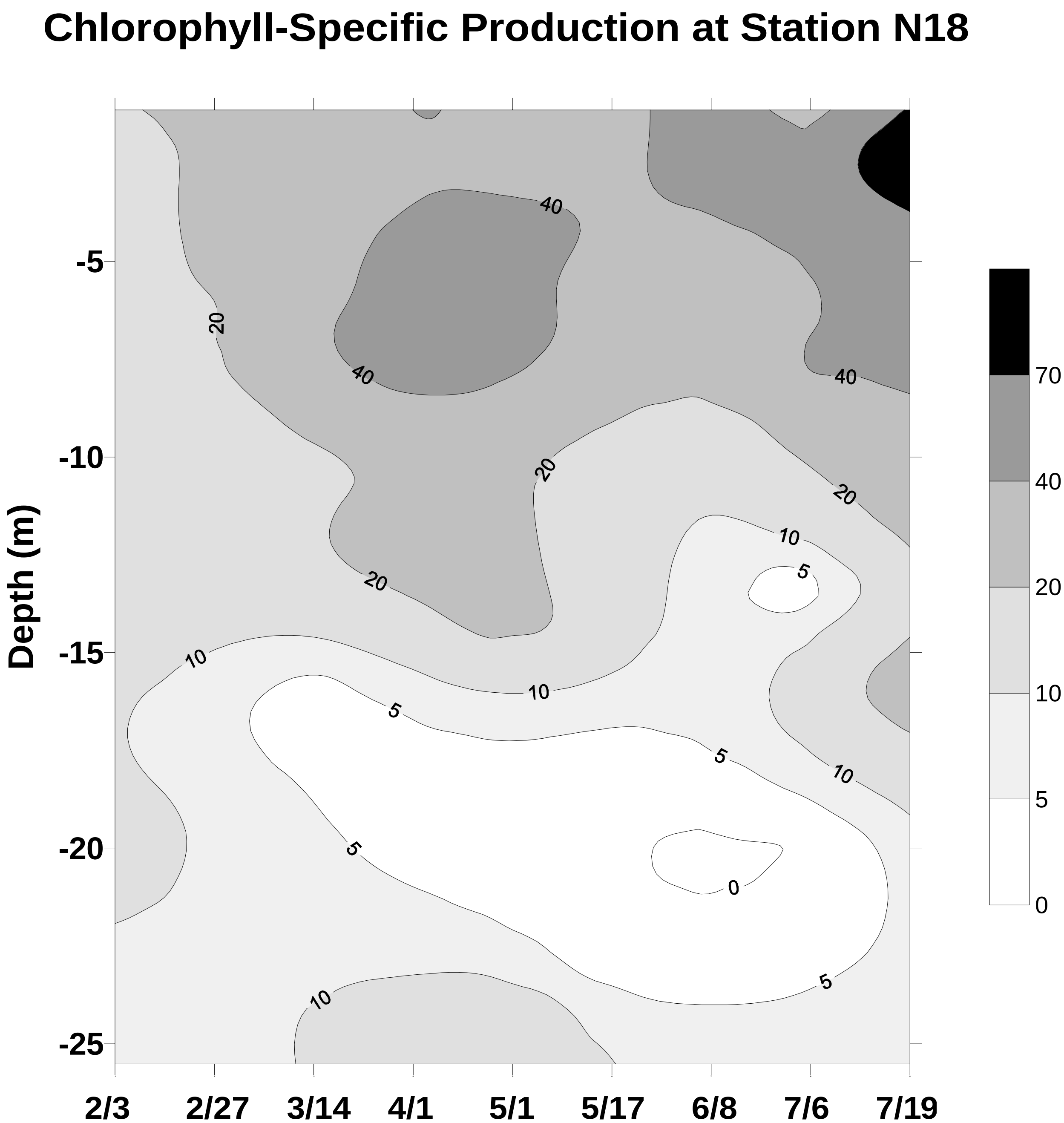
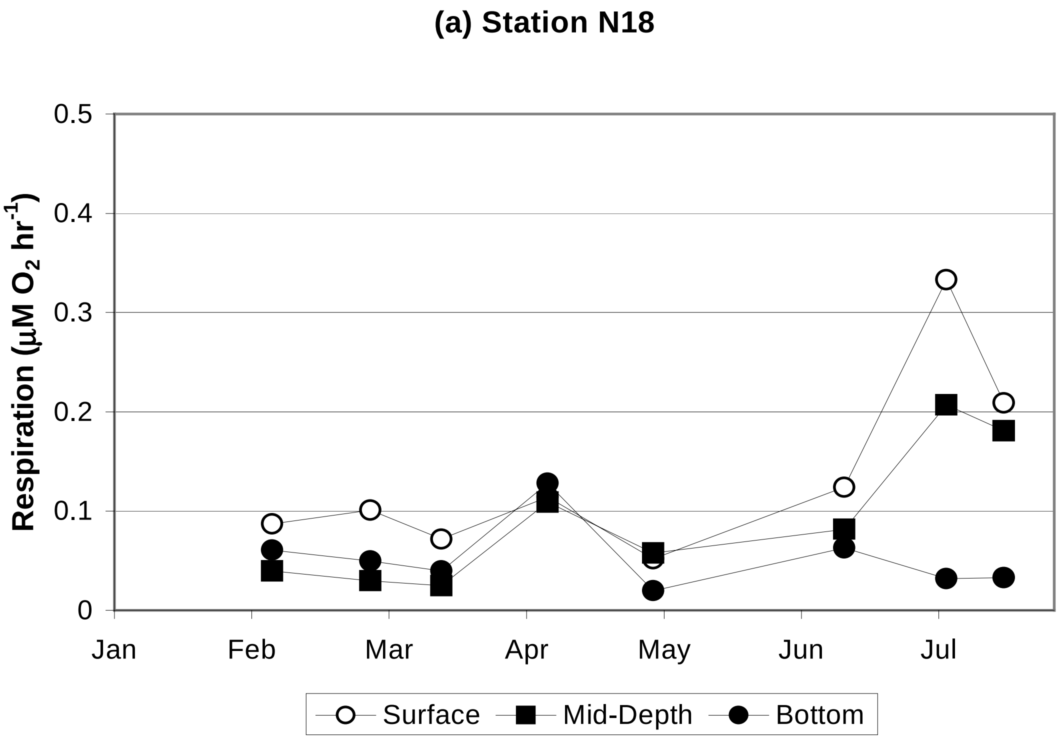


Figure 5-9. Time-Series of Contoured Chlorophyll-Specific Production ($mgCmgChl a^{-1}d^{-1}$) Over Depth at Station N18



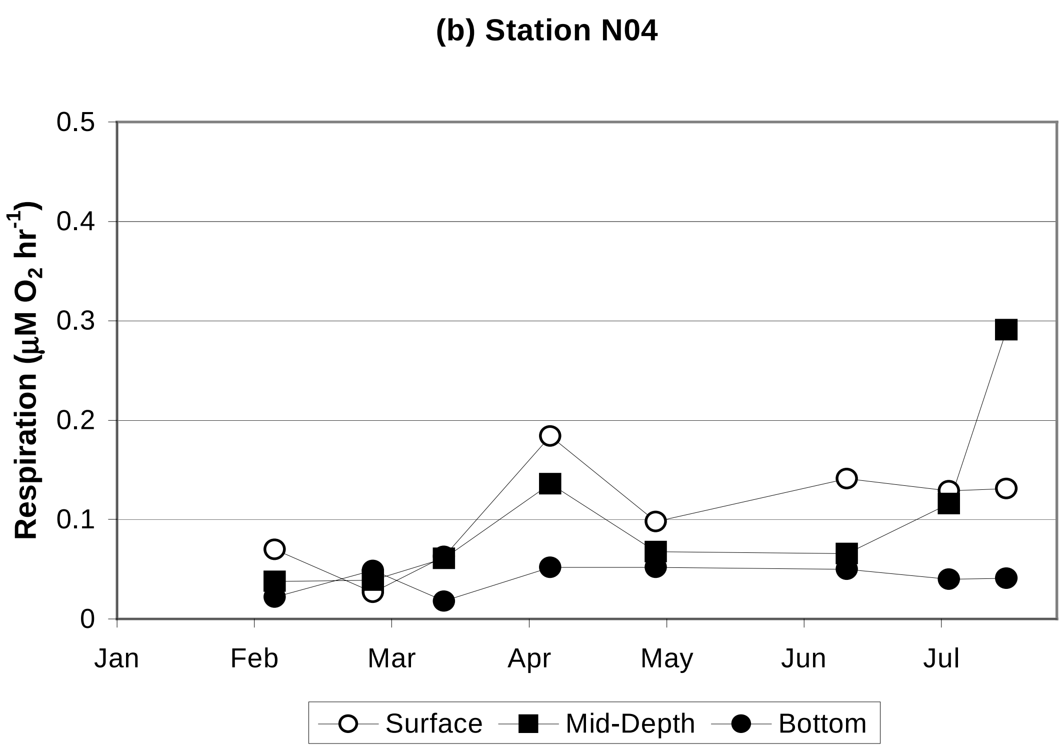
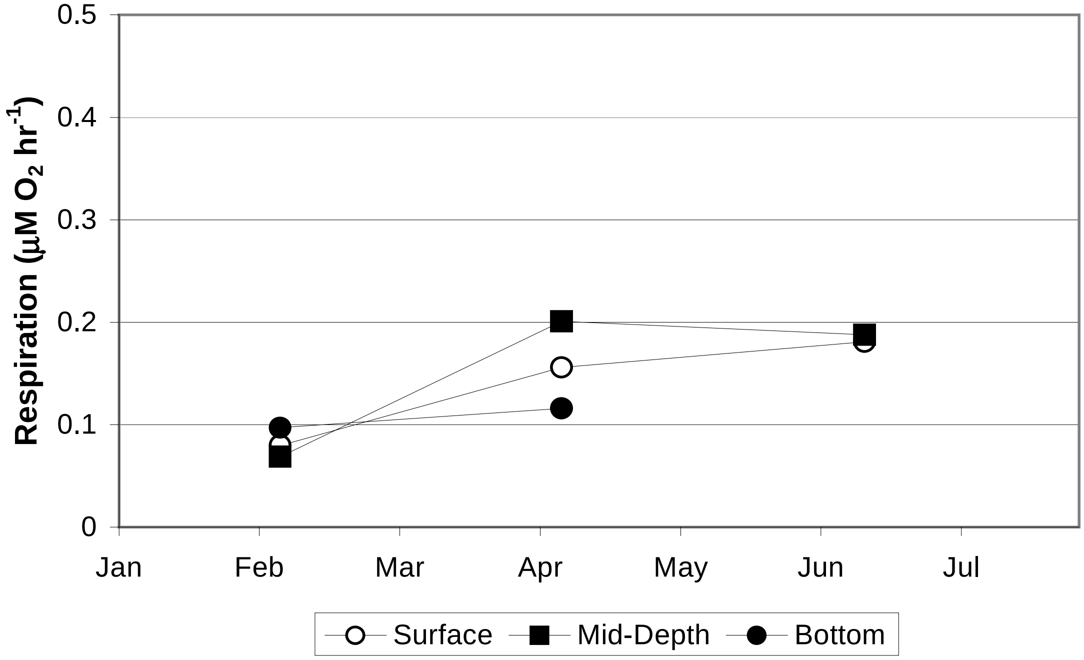


Figure 5-10. Time-Series Plots of Respiration ($\mu MO_2 hr^{-1}$) Stations N18 and N04

(a) Station F23



(b) Station F19

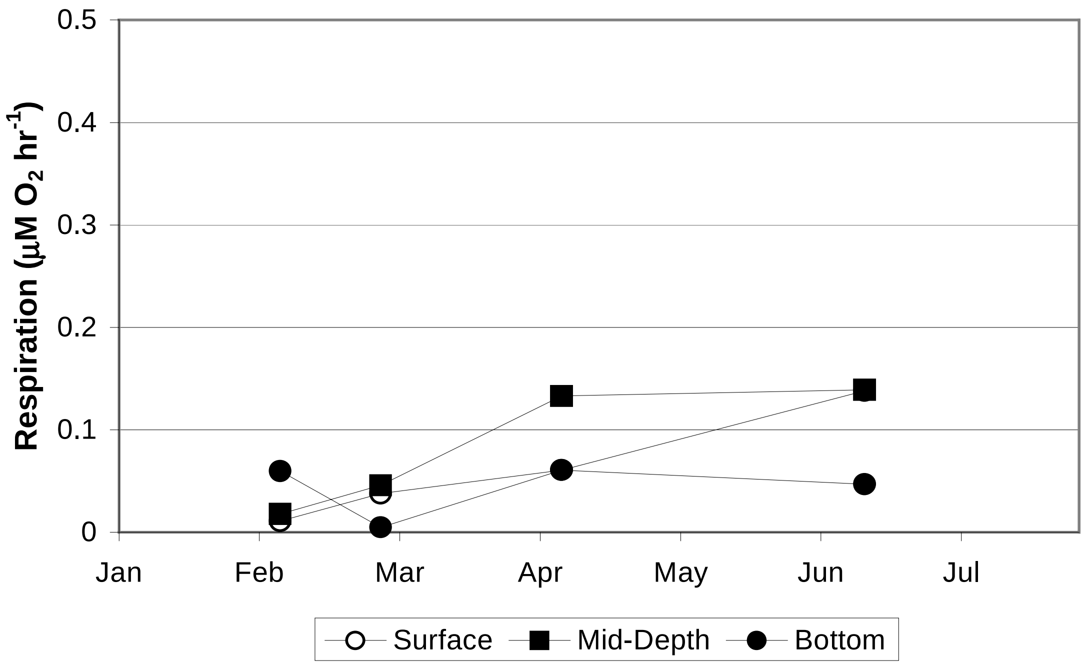
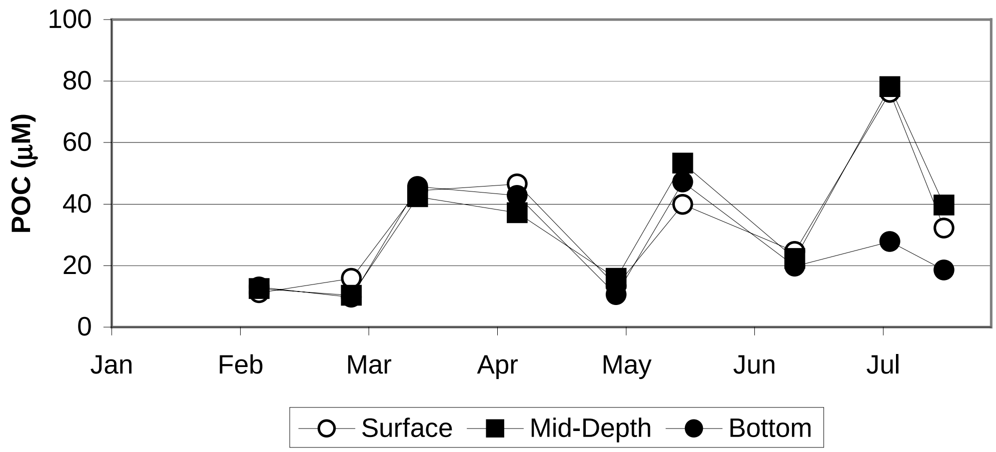
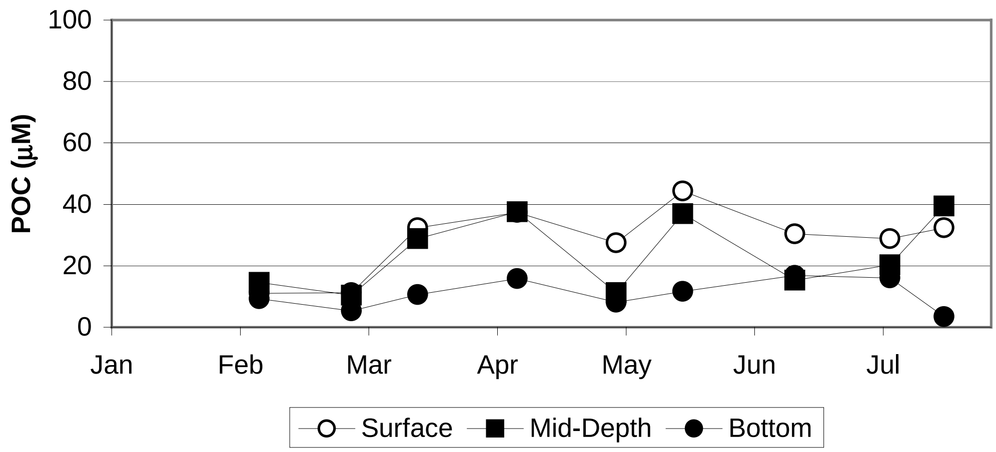


Figure 5-11. Time-Series Plots of Respiration (μMO_2hr^{-1}) Stations F23 and F19

(a) Station N18



(b) Station N04



(c) Station F23

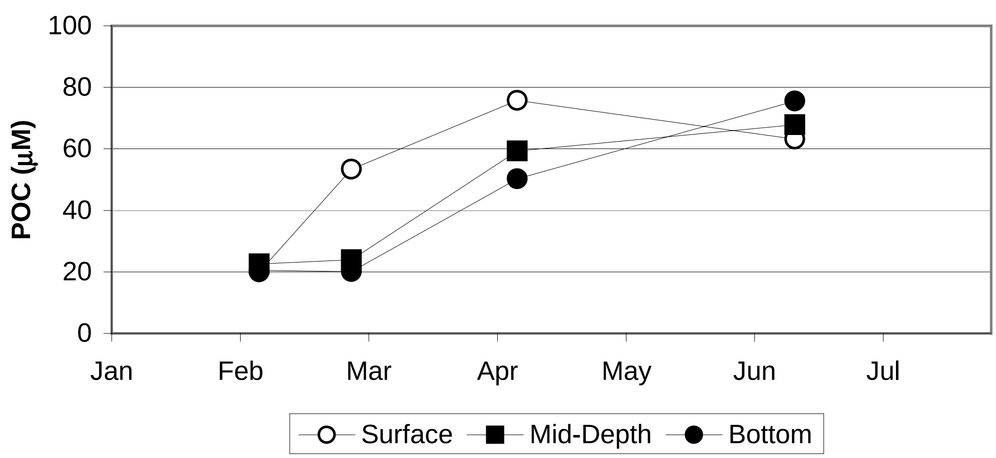


Figure 5-12. Time-Series Plots of POC (µMC) at Stations N18, N04, and F23

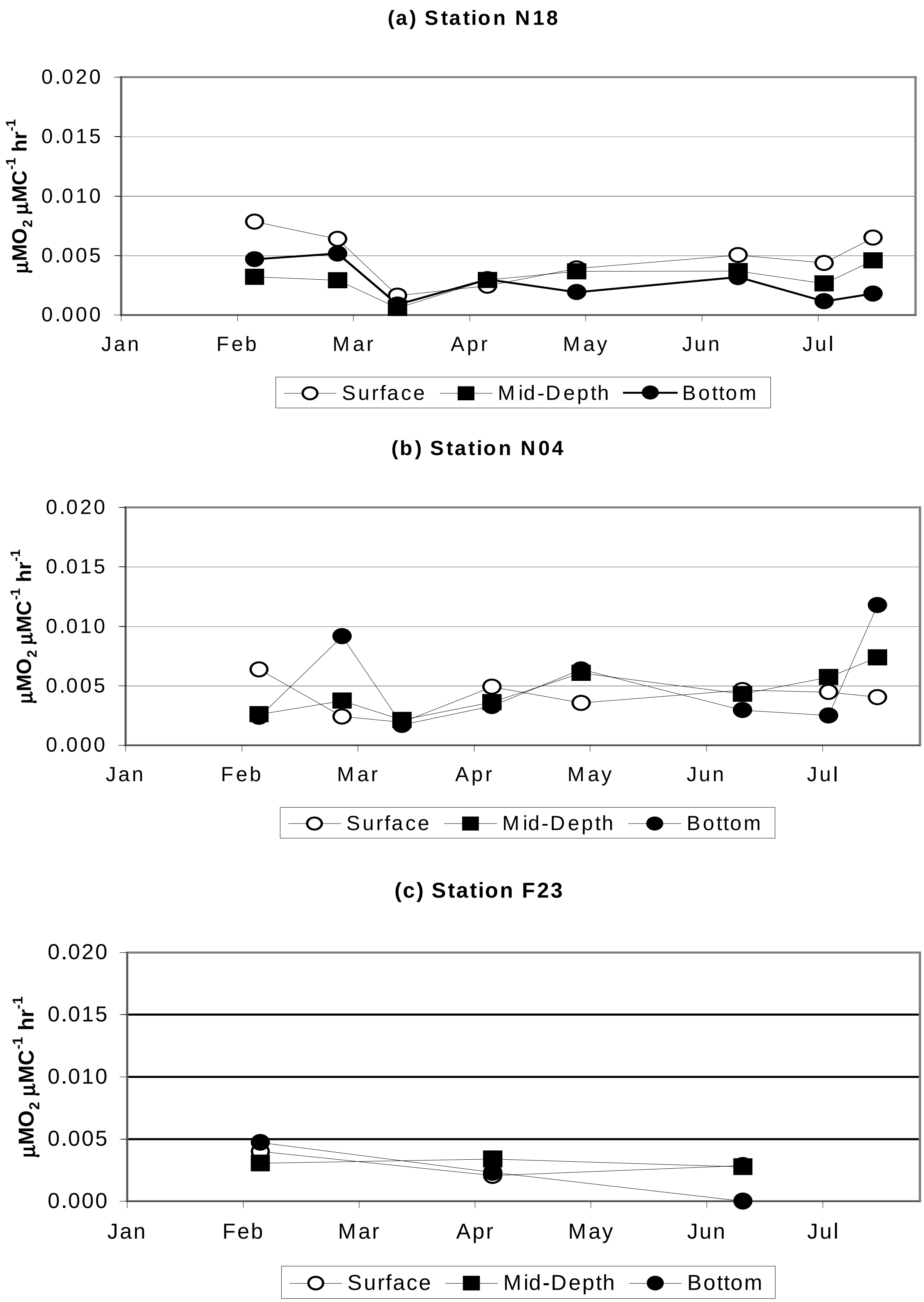


Figure 5-13. Time-Series Plots of Carbon-Specific Respiration ($\mu MO_2 \mu MC^{-1} hr^{-1}$) at Stations N18, N04, and F23

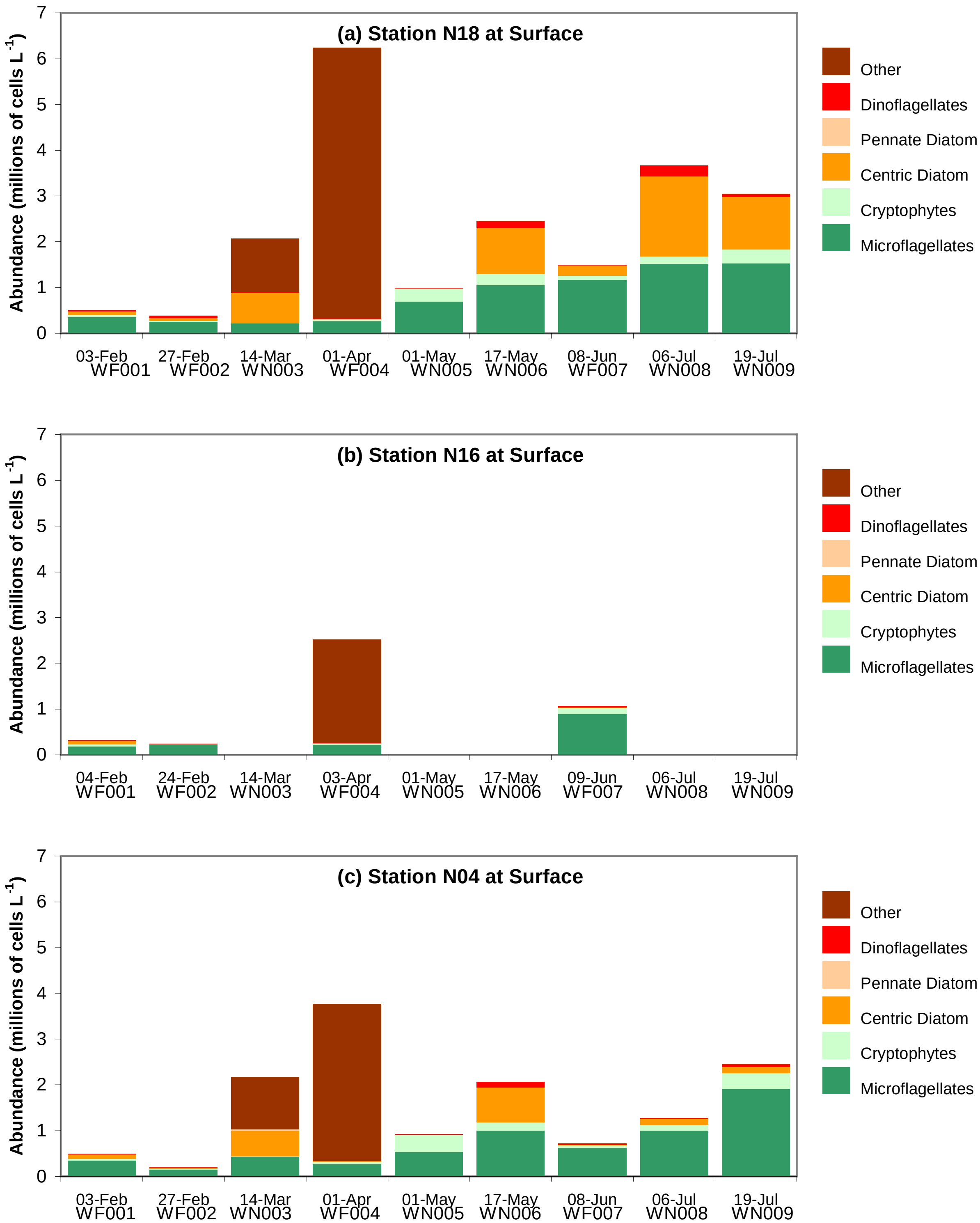


Figure 5-14. Phytoplankton Abundance by Major Taxonomic Group, Nearfield Surface Samples

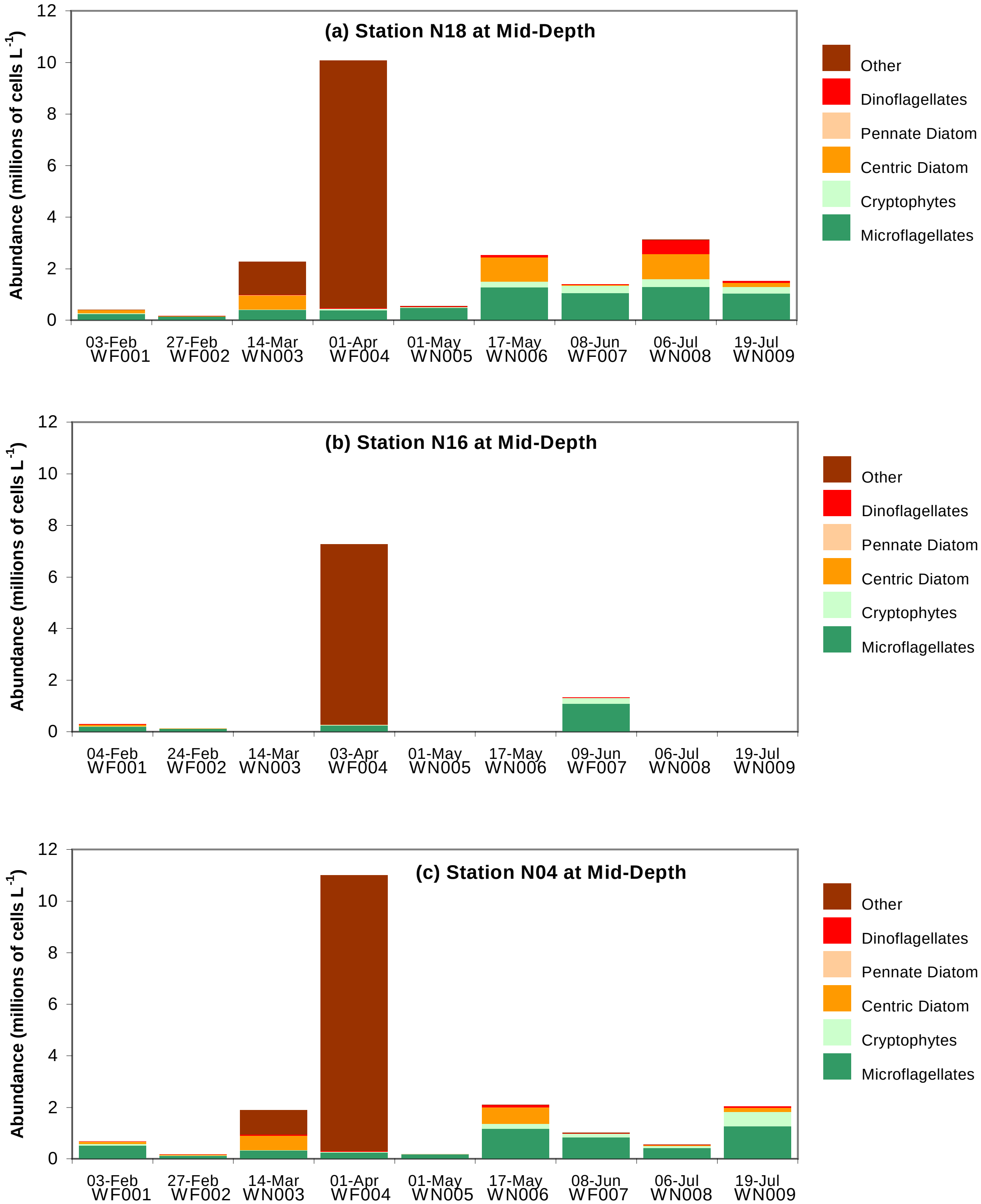


Figure 5-15. Phytoplankton Abundance by Major Taxonomic Group, Nearfield Mid-Depth Samples

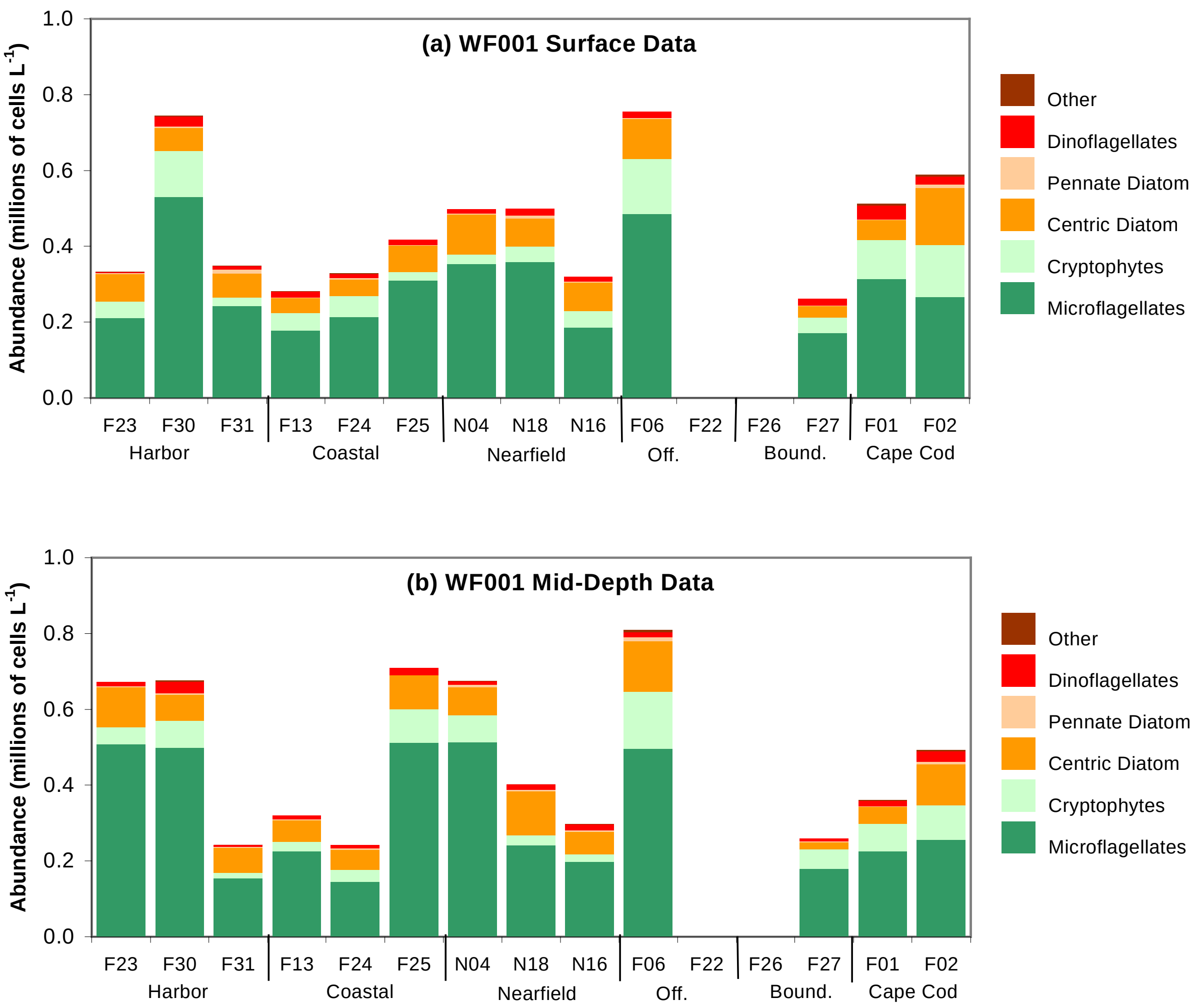
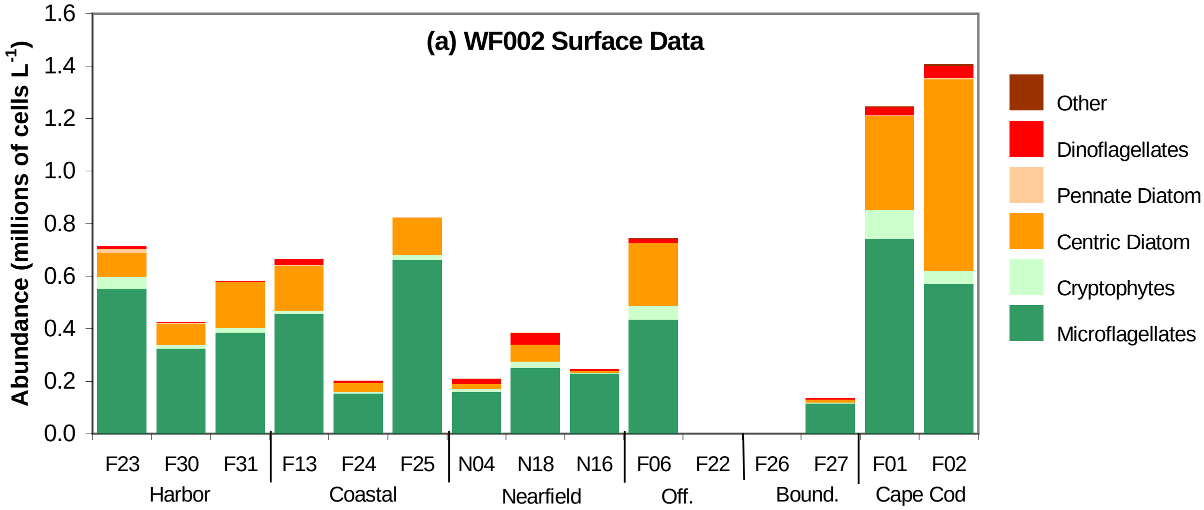


Figure 5-16. Phytoplankton Abundance by Major Taxonomic Group – WF001 Farfield Survey Results (February 2 – 5)



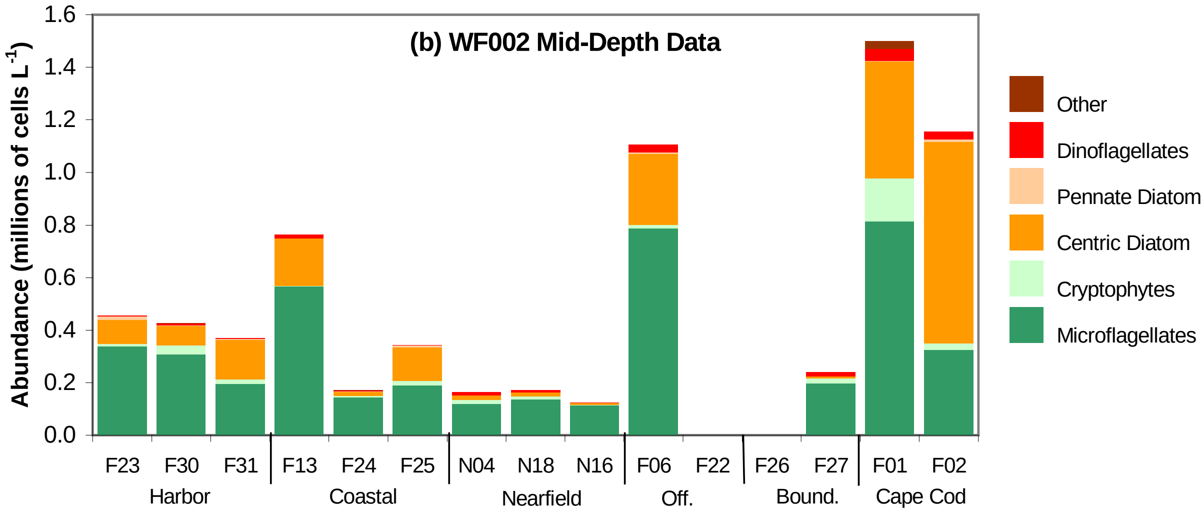


Figure 5-17. Phytoplankton Abundance by Major Taxonomic Group – WF002 Farfield Survey Results (February 23 – 27)

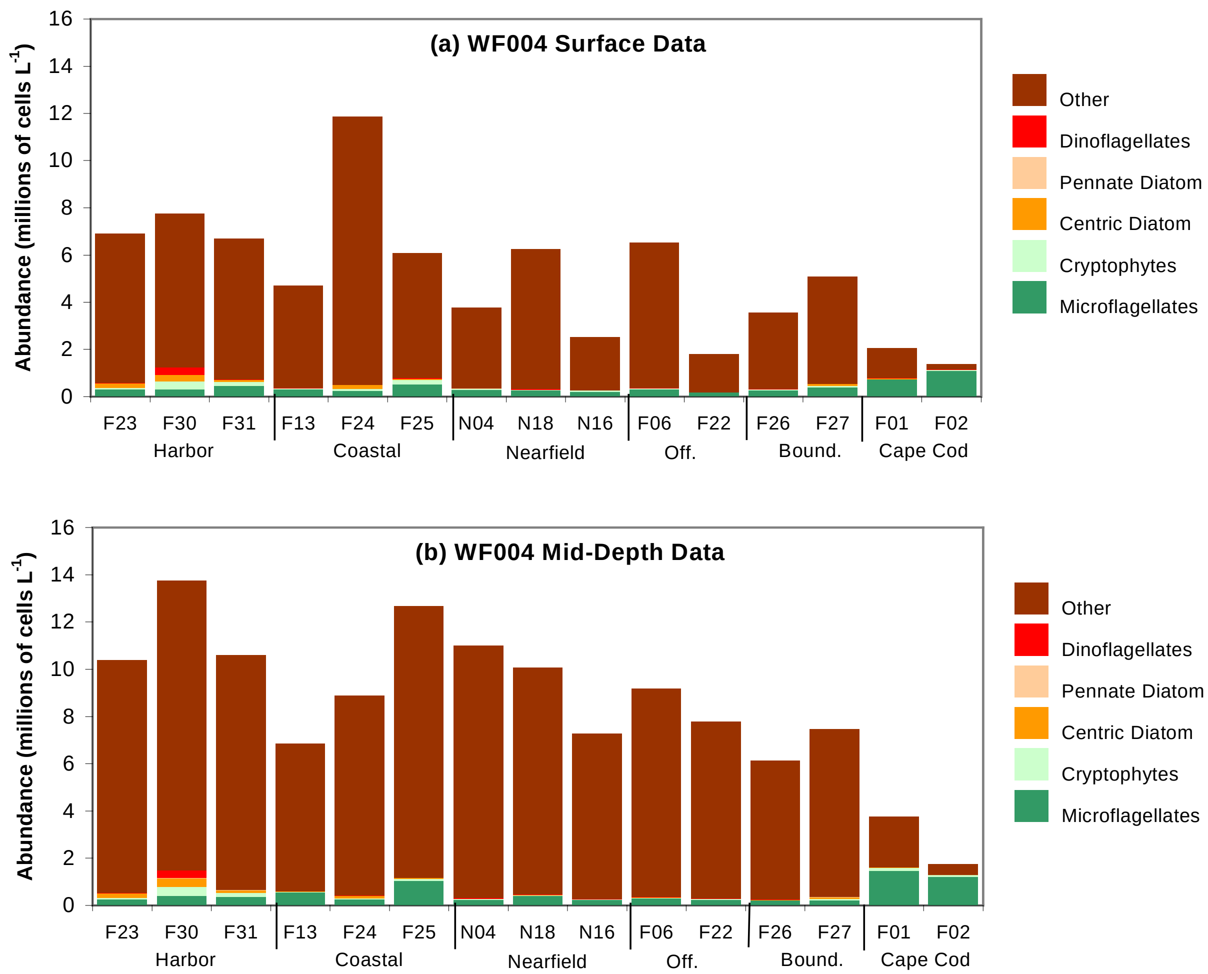
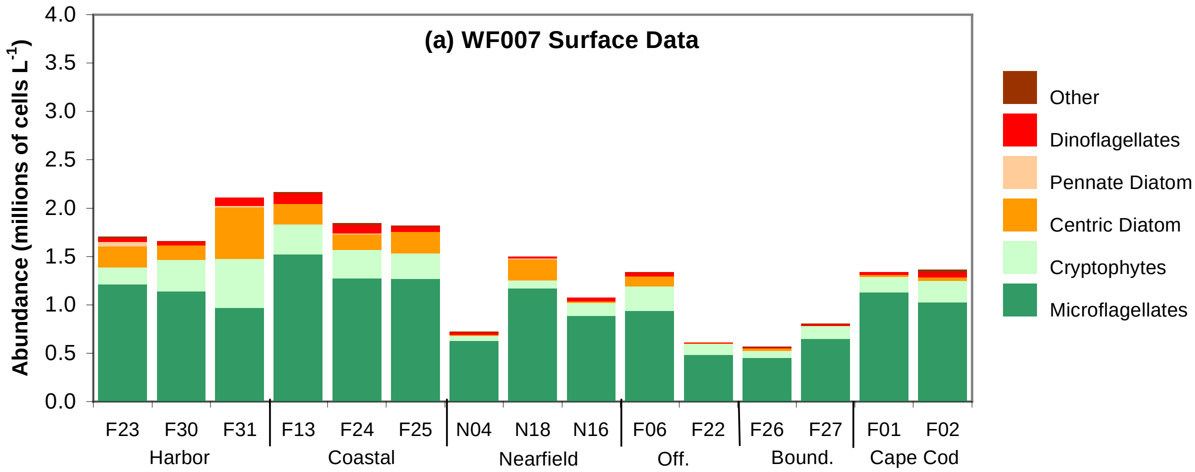


Figure 5-18. Phytoplankton Abundance by Major Taxonomic Group – WF004 Farfield Survey Results (March 30 – April 7)



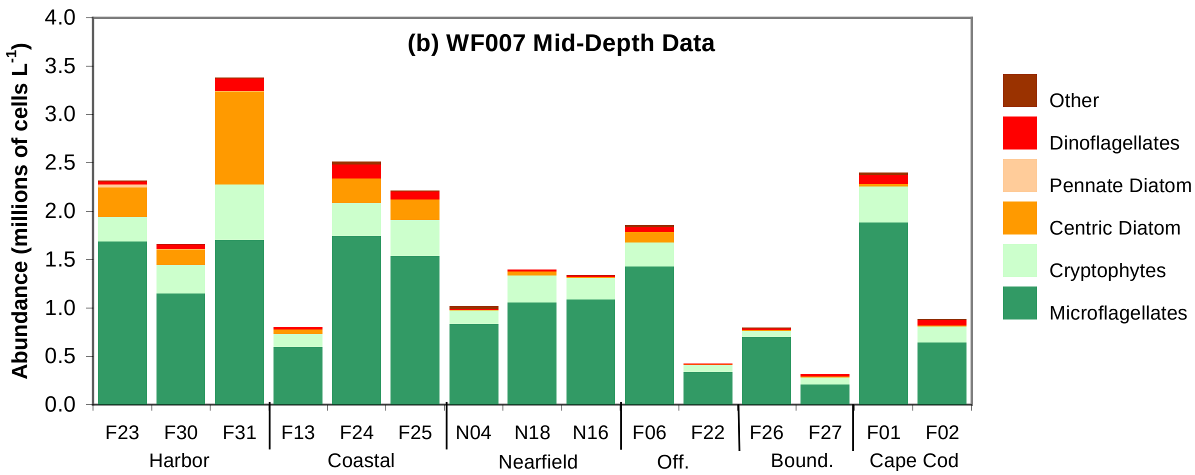


Figure 5-19. Phytoplankton Abundance by Major Taxonomic Group – WF007 Farfield Survey Results (June 8 – 13)

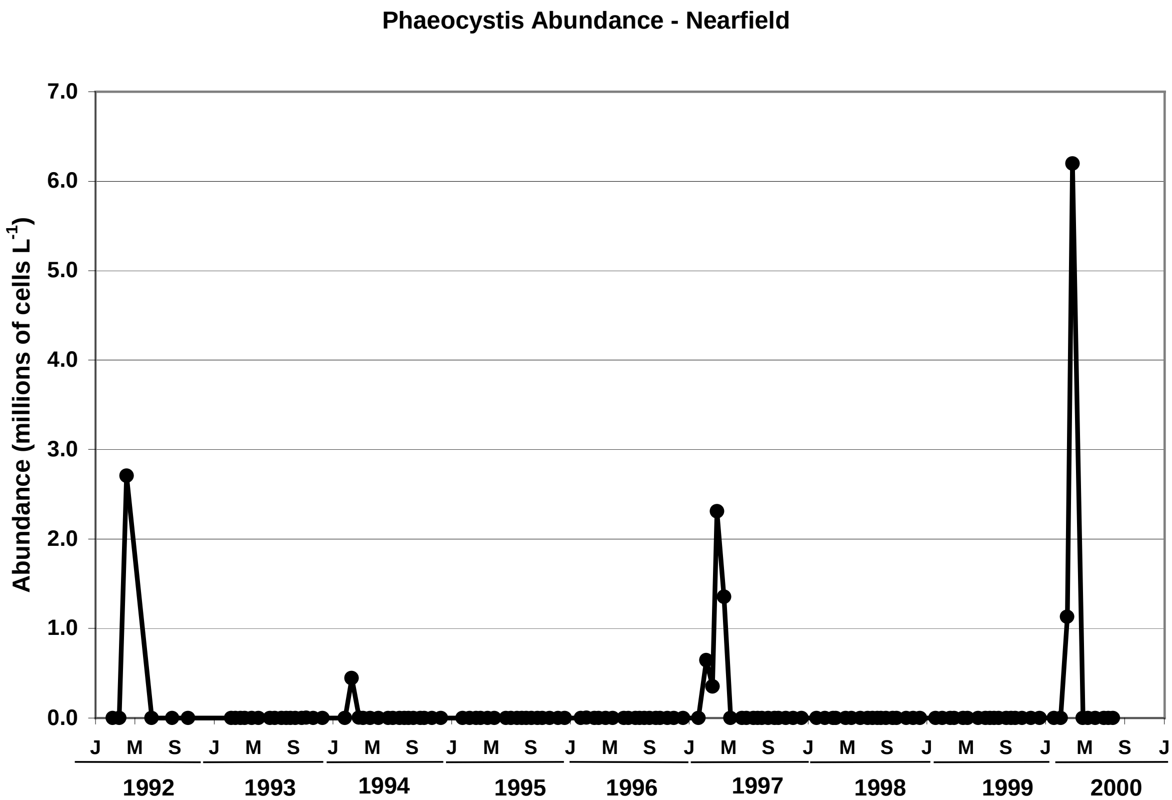


Figure 5-20. Nearfield Average Abundance of *Phaeocystis pouchetii* from 1992 to 2000 (Data Average Includes All Stations and Depths Sampled)

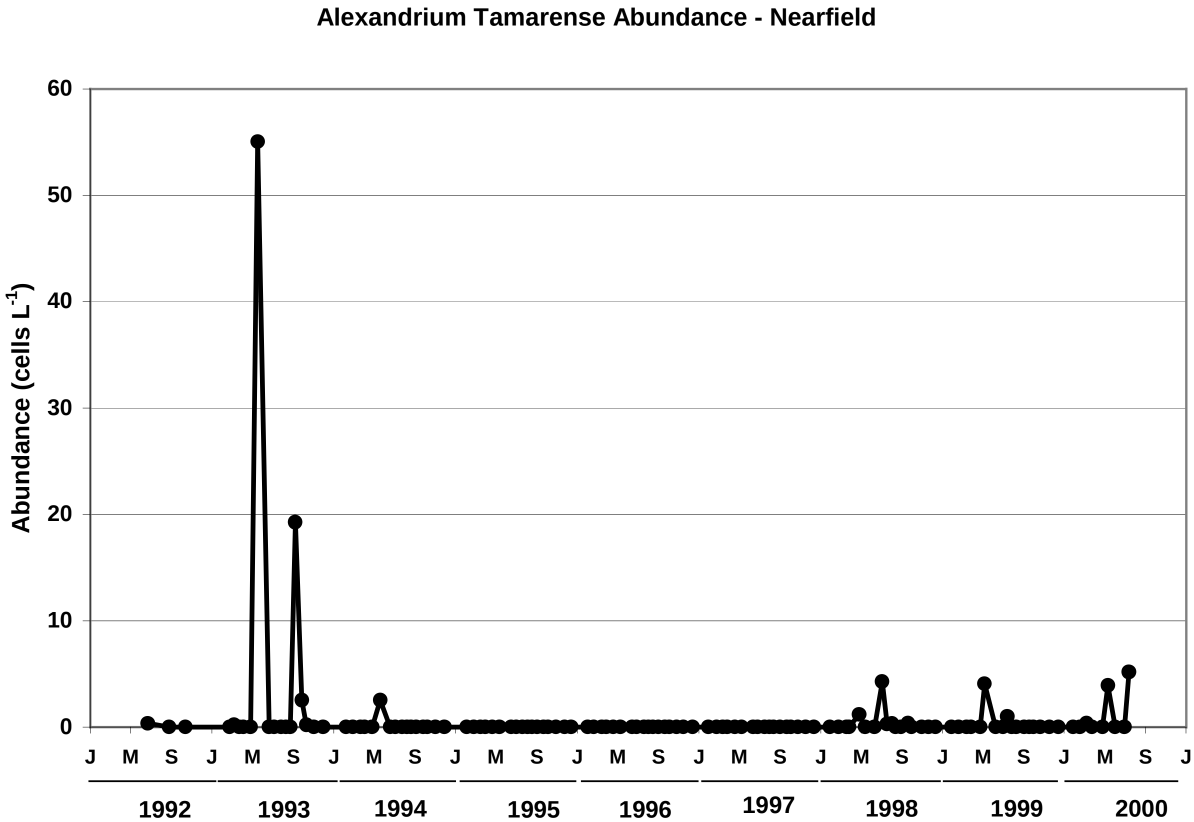


Figure 5-21. Nearfield Average Abundance of *Alexandrium tamarense* from 1992 to 2000 [Data Average Includes All Stations and Depths Sampled (includes counts of *Alexandrium* spp.)]

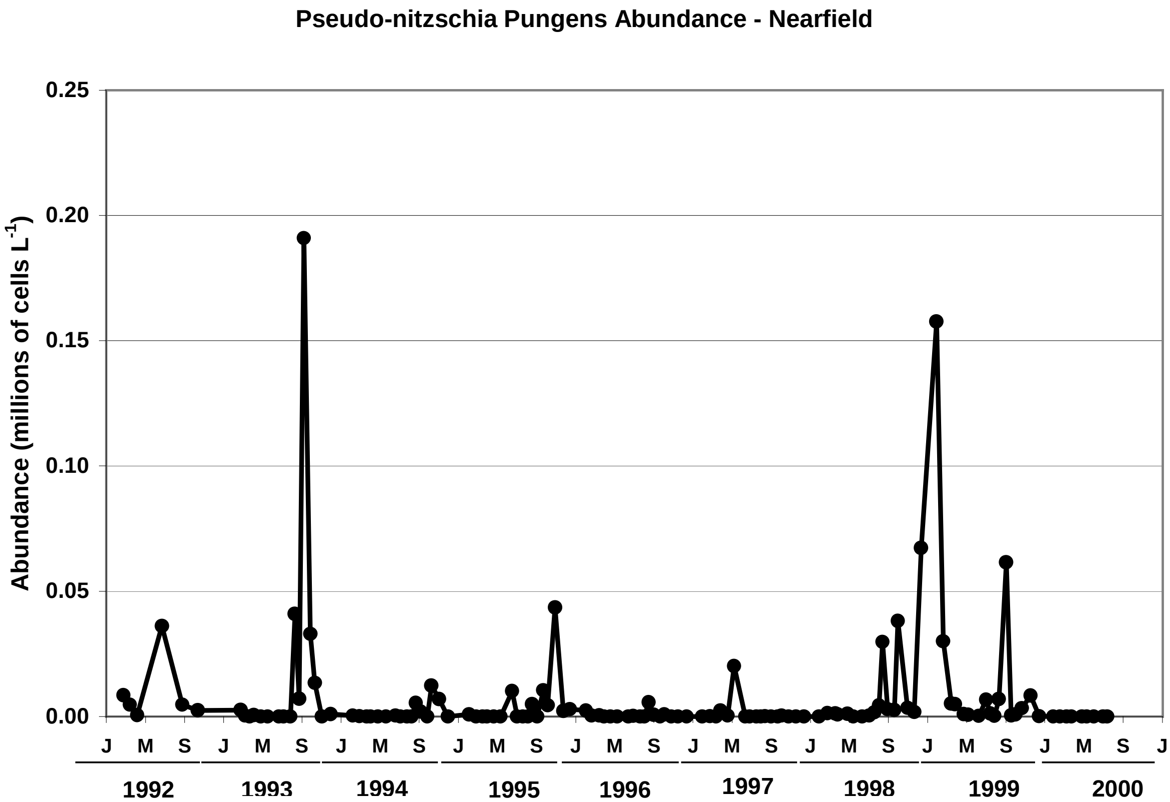


Figure 5-22. Nearfield Average Abundance of *Pseudo-nitzschia pungens* from 1992 to 2000 [Data Average Includes All Stations and Depths Sampled (includes counts of *Pseudo-nitzschia* cf. *Pungens* and *Pseudo-nitzschia* sp.)]

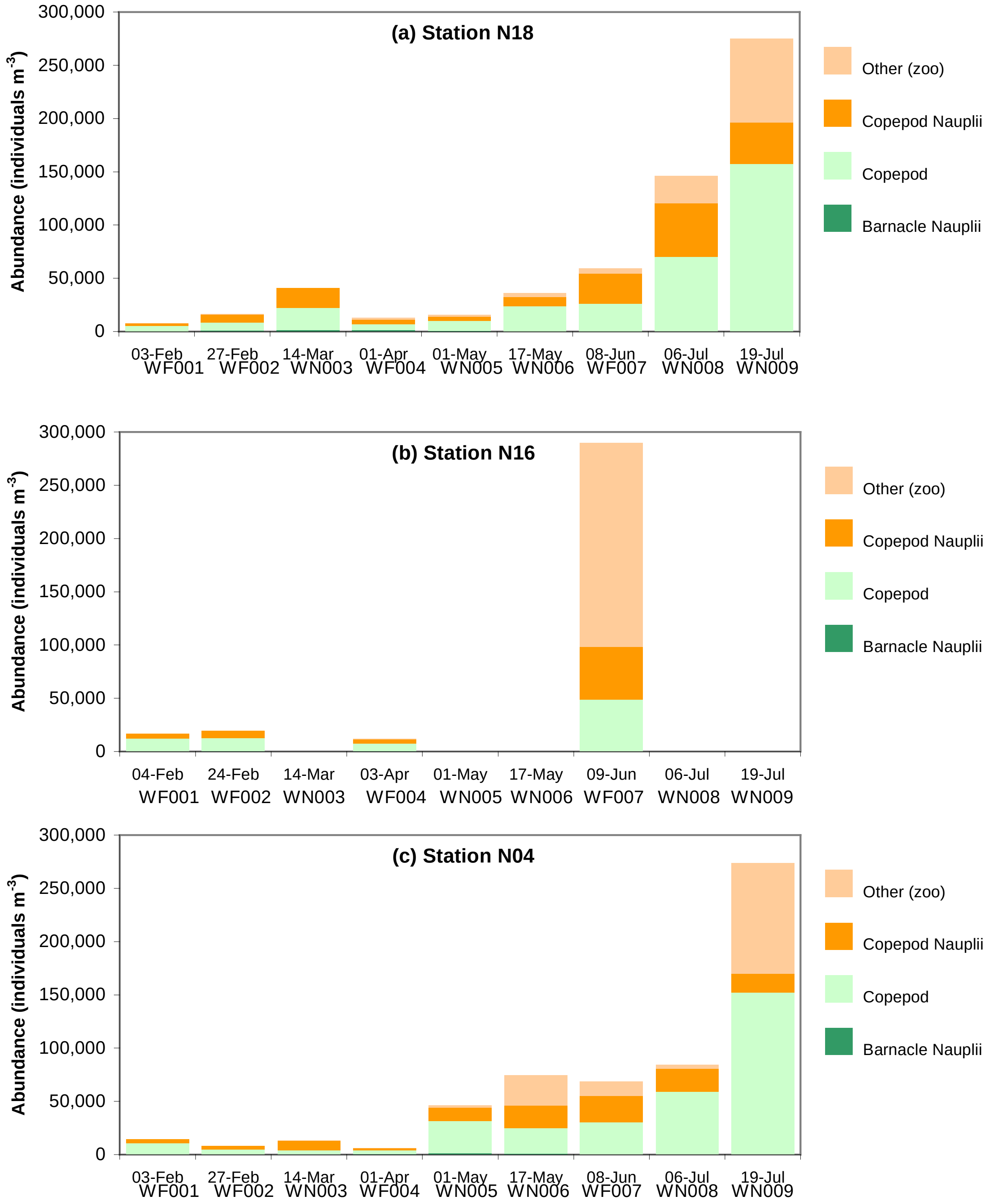


Figure 5-23. Zooplankton Abundance by Major Taxonomic Group, Nearfield Samples

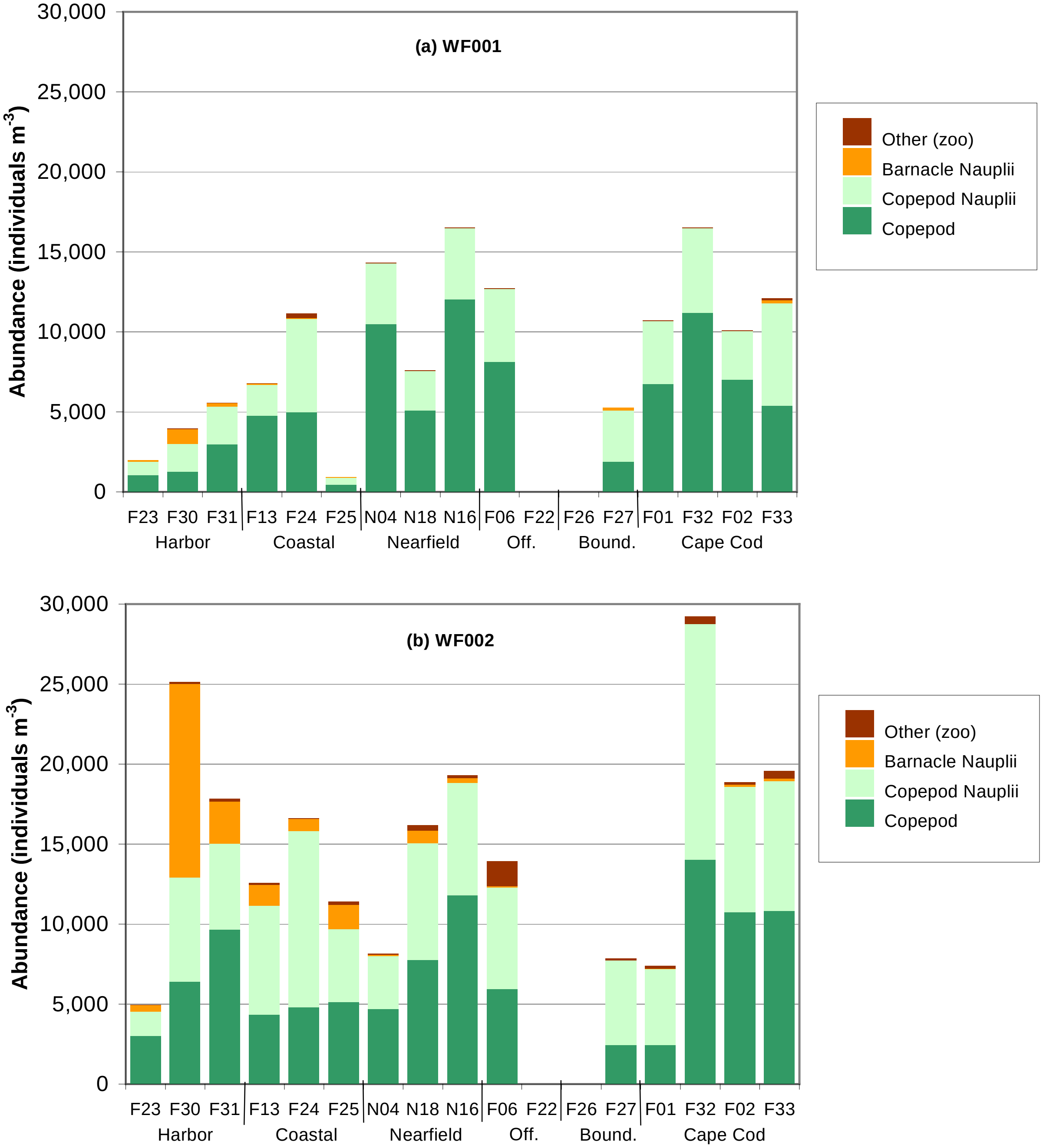


Figure 5-24. Zooplankton Abundance by Major Taxonomic Group – A) WF001 Farfield Survey Results (February 2 – 5) and B) WF002 Farfield Survey Results (February 23 – 27)

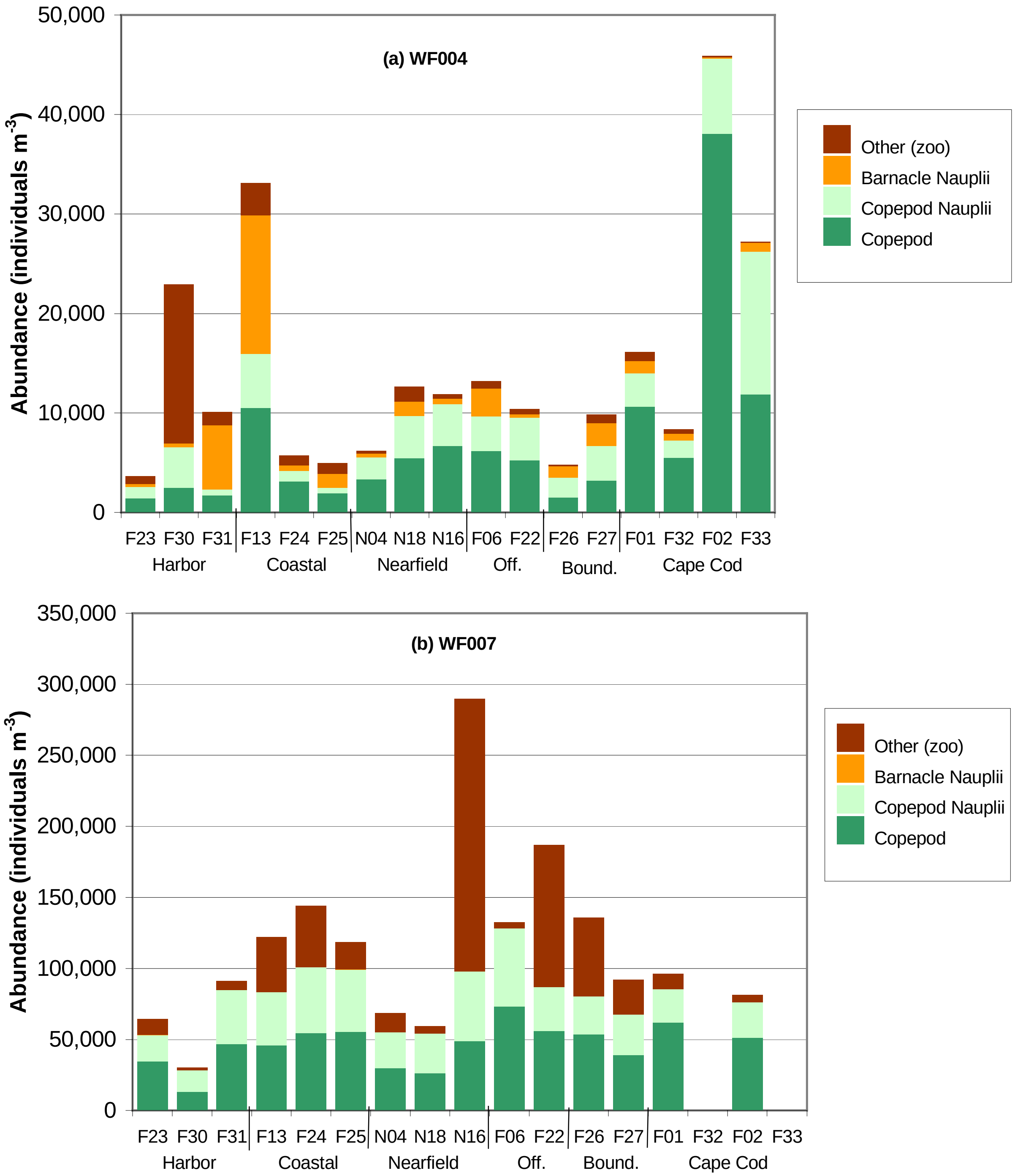


Figure 5-25. Zooplankton Abundance by Major Taxonomic Group – A) WF004 Farfield Survey Results (March 30 – April 7) and B) WF007 Farfield Survey Results (June 8 – 13)

6.0 SUMMARY OF MAJOR WATER COLUMN EVENTS

The winter to spring transition in Massachusetts and Cape Cod Bays is characterized by a typical series of physical, biological, and chemical events: seasonal stratification, the winter/spring phytoplankton bloom, and nutrient depletion. This was generally the case in 2000 although inclement weather resulted in a delay in the establishment of stratified conditions. The winter/spring bloom in 2000 was characterized by unprecedented abundances of *Phaeocystis pouchetii* and very high chlorophyll concentrations. Surface waters across much of the region were depleted in nutrients from April through July following the bloom. This section presents a summary of these events and the integrated physical, biological, and chemical trends discussed in previous sections.

During the first three surveys of 2000 (February through March), the water column was well mixed and relatively high concentrations of nutrients were measured. Nearfield surface nutrient concentrations decreased from February to March coincident with increasing chlorophyll concentrations, elevated primary production rates, and the initiation of the *Phaeocystis* bloom. By late February, there was an increase in phytoplankton abundance in Cape Cod Bay and southern Massachusetts Bay with a mixed assemblage dominated by microflagellates and centric diatoms. By March, phytoplankton abundance had begun to increase in the nearfield and the assemblage was dominated by centric diatoms and *Phaeocystis pouchetii*, which was the winter/spring bloom species for 2000.

The onset of stratification was observed during the April survey in Boston Harbor and at the deep boundary stations. The development of stratification at these stations was primarily driven by a decrease in surface salinity, as surface and bottom water temperatures remained relatively unchanged. By June, surface water temperatures had increased by ~7°C throughout the bays and a strong density gradient was observed at the offshore and boundary stations. Due to storm events and associated mixing, stratification was still weak at the shallower coastal, Cape Cod Bay, and Boston Harbor stations. Boston Harbor usually remains well mixed due to tidal flushing. In the nearfield, the water column had begun to stratify in early May at the deeper eastern nearfield stations. The storm events in June remixed the water column and contributed to the relatively weak stratification that was observed. By July a strong density gradient and stratified conditions had become established in the nearfield.

The nutrient data for February to July 2000 generally followed the “typical” progress of seasonal events in the Massachusetts and Cape Cod Bays. Maximum nutrient concentrations were observed in early February when the water column was well mixed and biological uptake of nutrients was limited. The winter/spring *Phaeocystis* bloom reduced nutrient concentrations in the surface waters from March to April. NO_3 and PO_4 concentrations in the surface waters were depleted throughout much of the region. In July, seasonal stratification led to persistent nutrient depleted conditions in the surface waters and ultimately to an increase in nutrient concentrations in bottom waters due to increased rates of remineralization of organic matter. The typical harbor signal of elevated nutrient concentrations (especially ammonium) was observed throughout this time period. During the *Phaeocystis* bloom, however, even nutrient concentrations in Boston Harbor decreased substantially.

The most significant event during the February to July 2000 time period was the system-wide bloom of *Phaeocystis pouchetii* in March/April. Phytoplankton abundance reached unprecedented levels in April with *Phaeocystis* abundance levels approaching 14 million cells L^{-1}. In correlation with the *Phaeocystis* bloom, the mean chlorophyll concentration for the nearfield for winter/spring was higher than any previous winter/spring mean obtained during the baseline monitoring period and exceeded the provisional chlorophyll threshold value that had been calculated as two times the baseline mean for 1992 to 1998. The elevated chlorophyll concentrations and phytoplankton abundance were concomitant with high production rates. At station N18, production reached a maximum value in March (4269 $mgCm^{-2}\ d^{-1}$) and remained elevated in April (2780 $mgCm^{-2}d^{-1}$). The peak at station N04 occurred in April (3118 $mgCm^{-2}d^{-1}$). Areal production in 2000 followed patterns typically observed in prior years – a winter-spring bloom at nearfield stations with production rates of 1000 to 4000 $mg\ C\ m^{-2}\ d^{-1}$ that typically last 2-3 months. In Boston Harbor, the typical pattern is for production rates to increase from winter through summer rather than the distinct winter-spring peaks observed in the nearfield. In 2000, however, this was not the case as peak production at station F23 occurred in April (4378 $C\ m^{-2}\ d^{-1}$). The earlier occurrence of peak production values in the harbor was likely due to the system-wide *Phaeocystis* bloom.

Dissolved oxygen concentrations in 2000 were within the range of values observed during previous years and followed the typical trends. In February, DO concentrations were high and consistent across the region. By April, vertical gradients in DO concentration were observed due to the high rates of biological production. Between the April and June surveys, there was a sharp decline in bottom water DO throughout the bays (1-3 mgL^{-1}). The trend of declining bottom water DO concentrations following the establishment of stratification and the cessation of the winter/spring bloom is typical for the bays. The decline observed in 2000 was less than that seen during 1999 and may be an indication that bottom water DO concentrations during the fall of 2000 may not achieve the very low levels seen in the fall of 1999.

Two of the major factors affecting bottom water DO concentrations are physical mixing or reventilation of bottom waters and biological respiration/utilization of organic material. Storm events in April and June likely caused a delay in the onset of seasonal stratification in the region in 2000. In June, it appears that bottom waters were reventilated as oxygen-rich surface waters were being mixed down to depth as a result of the storm events. Respiration rates in 2000 were relatively low compared to 1999, which also had a significant winter/spring bloom. The respiration rates measured in 2000 were less than half of the peak rates measured in 1999. The relatively low respiration rates observed during the winter/spring of 2000 versus 1999 may be related to the type of phytoplankton that bloomed in 2000 (*Phaeocystis*) versus 1999 (mixed diatom assemblage). The effect of these physical and biological factors resulted in somewhat higher bottom water DO concentrations in 2000 (~0.5 mgL^{-1}) in comparison to values measured in 1999. This topic will be evaluated in more detail in the 2000 Nutrient Issues Review.

The bloom of *Phaeocystis pouchetii* was the only bloom of harmful or nuisance phytoplankton species in Massachusetts and Cape Cod Bays during February – July, 2000. The dinoflagellate *Alexandrium tamarense* and diatoms of *Pseudo-nitzschia pungens* and *Pseudo-nitzschia* spp. were recorded, but abundance levels were extremely low.

Zooplankton abundance generally increased from February through July. Nearfield counts of nearly 300×10^3 animals m^{-3} in June were among the highest for the entire 1992-2000 baseline period. The high June abundance observed in the nearfield was due to a very high number of bivalve veligers at station N16. Zooplankton abundance at station N16 was 5 to 6 times higher than at the other nearfield stations N04 and N18, which had been sampled on the day prior to sampling at station N16. The June nearfield zooplankton data is indicative of the biological (spawning) and physical (tides and currents) variability associated with meroplankton abundances and distribution in Massachusetts Bay. In general, zooplankton assemblages during the first half of 2000 were comprised of typical taxa for the region: *Oithona similis*, *Pseudocalanus* spp., *Calanus finmarchicus*, and *Centropages* spp..

Levels of *Acartia* spp. rebounded from the unusually low values of the previous year, which were possibly due to drought, to more typical levels during the rainy spring and early summer in 2000.

A number of topics were called out in this report that will be discussed in greater detail in the 2000 annual water column report including the following:

- Year-to-year variability in winter/spring chlorophyll concentrations. The last two years of monitoring (1999-2000) have seen winter/spring nearfield mean chlorophyll concentrations that are substantially higher than levels from 1992 to 1998.
- Effect of physical and biological factors on bottom water DO concentrations in Massachusetts Bay. This will be evaluated in detail in the 2000 Nutrient Issues Review and results will be included in the annual report to describe trends during this monitoring year.
- Continued observation of elevated ammonium concentrations and the effect on biological processes in the nearfield and near-harbor coastal waters.
- The apparently cyclical nature of *Phaeocystis* blooms in Massachusetts Bay and the regional expression of these blooms (*i.e.* Gulf of Maine).

7.0 REFERENCES

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APPENDIX A

Productivity Methods

METHODS

URI conducted a study of the reliability of using reduced sample volumes to measure primary productivity using ^{14}C. The study found that analyses using 5-mL samples could produce results that were comparable to analyses using larger sample volumes. A summary of the study is in Appendix E of the Combined work/quality assurance plan for baseline water quality monitoring: 1998-2000 (Albro *et. al.*, 1998).

URI also measured the effects of sample holding time and increased incubation time on measurements of primary productivity using the photosynthetrons at URI. The results, summarized below, show that sample analysis must begin within 6 h of sample collection and incubation between 0.5 h and 2 h produce comparable results.

Incubation Time	
Time (h)	Productivity ($g/C/m^2/h$)
0.5	0.195
1	0.207
1.5	0.182
2	0.212

Holding Time	
Time (h)	Productivity ($g/C/m^2/h$)
0	0.207
4	0.182
6	0.210
8	0.177

Based on the results of these tests the following method has been used to collect and analyze water samples for productivity.

Primary Analysis by ^{14}C – Field Procedures

From each of 5 depths at each productivity station, samples are obtained by filtration through 300-µm-mesh screen (to remove large zooplankton) from the Rosette sampling bottle into opaque 1-L polyethylene bottles. The bottles are rinsed twice prior to filling. The samples are then placed in a cooler and transferred to the URI laboratory within 5 hours of water sampling. Productivity samples are taken from the same bottles and depths as the other analyses.

Primary Analysis by ^{14}C – Laboratory Procedures

Under subdued green light, each depth is processed separately starting with the surface water sample. Each sample is mixed thoroughly and then poured into a repipette set to deliver 5 mL. The repipette is rinsed twice with sample prior to use. The delivery tip of the repipette is flushed three times and 5 mL of sample will be pipetted into 20 mL borosilicate vials. A total of 16 bottles (14-16 light bottles, 2 dark bottles) are filled for each depth. These vials are incubated in a light and temperature controlled incubator. Light bottles from each depth are incubated at 14 to 16 light intensities (250 w Tungsten-halogen lamps attenuated with neutral density filters, range 0 to 2000 $\mu E\ m^{-2}\ s^{-1}$) and all bottles are incubated within 2°C of the *in situ* temperature.

The 5 mL samples are incubated with 100 µL of 10 µCi/mL (1 µCi for 5 mL sample) Carbon-14 (^{14}C) stock solution. All vials are then placed in the incubator for two hours. Time and temperature are recorded at the start and end of the incubation period. The light intensity within the incubator is measured before and after the incubation period. Temperature is constantly monitored throughout the incubation period and the location of each vial in the incubator is recorded. Upon removal from the incubator, 100 µL of 0.05N HCl, is added to each vial. Vials will remain loosely capped while shaken overnight. The following morning 15 mL Ecolume is added to each vial, which is again loosely capped and shaken overnight. Two days following the cruise, vials are tightly capped and placed on the Beckman LS 3801 to be counted.

Calculation of Primary Production. Volume-specific primary production is calculated using equations similar to that of Strickland and Parsons (1972) as follows:

$$P(i) = \frac{1.05(DPM(i))DIC}{A_{sp}T}$$

$$P(d) = \frac{1.05(DPM(d))DIC}{A_{sp}T}$$

$$A_{sp} = DMP(sa) - DPM(back)$$

where:

$P(i)$ = primary production rate at light intensity i (µgC $L^{-1}h^{-1}$ or mgC $m^{-3}h^{-1}$)
$P(d)$ = dark production, (µgC $L^{-1}h^{-1}$ or mgC $m^{-3}h^{-1}$)
$DPM(i)$ = dpm in sample incubated at light intensity i
$DPM(d)$ = dpm in dark incubated sample
$DPM(back)$ = background dpm in vial containing only scintillation cocktail
$DPM(sa)$ = specific activity added to incubation samples (DPM)
T = incubation time (h)
DIC = concentration of dissolved inorganic carbon (µg/mL)

Table A-1 shows the frequency that primary productivity measurements and calculations are performed per vial, depth, station, and survey.

Table A-1. Measurement frequency for variables involved in calculation of primary production.

Measurement/ Calculation	Vial	Depth	Station	Survey
DPM(i)	✓			
P(i)	✓			
DIC		✓		
P(d)		✓		
DPM(d)		✓		
Asp			✓	
T			✓	
DPM(sa)			✓	
DPM(back)				✓

P–I curves. For each of the 5 depths for each photosynthesis station a P–I curve is obtained from the data P(I) = P(i)-P(d) vs. the irradiance (I, µE $m^{-2}s^{-1}$) to which the incubating sample is exposed. The P-I curves are fit via one of two possible models, depending upon whether or not significant photo-inhibition occurs. In cases where photoinhibition is evident the model of Platt *et al.* (1980) is fit (SAS 1985) to obtain the theoretical maximum production, and terms for light-dependent rise in production and degree of photoinhibition:

$$P(I) = P_{sb}(1-e^{-a})e^{-b}$$

where:

$P(I)$ = primary production at irradiance I, corrected for dark fixation (P(i)-P(d))

P_{sb} = theoretical maximum production without photoinhibition

$a = \alpha I / P_{sb}$ and α is the initial slope, the light-dependent rise in production

$b = \beta I / P_{sb}$ and β is a term relaying the degree of photoinhibition

If ß is not significantly different from zero, an alternative model of Webb *et al.* (1974) is similarly fit to obtain the maximum production and the term for light-dependent rise in production:

$$P(I) = P_{\max}(1-e^{-a'})$$

where:

$P(I)$ = primary production at irradiance I corrected for dark fixation (P(i)-P(d))

$P_{\max}$ = light saturated maximum production

$a' = \alpha I / P_{\max}$ and α is the initial slope the light-dependent rise in production

P_{max} and P_{sb} are not equivalent but they are mathematically related using the equation:

$$P_{max} = P_{sb}\,[\alpha/(\alpha+\beta)][\beta/(\alpha+\beta)]^{\beta/\alpha}$$

Light vs. Depth Profiles. To obtain a numerical representation of the light field throughout the water column averaged CTD light profiles (0.5 m intervals) are fit (SAS 1985) to an empirical sum of exponentials equation of the form:

$$I_Z = A_1 e^{-a_1 Z} + A_2 e^{-a_2 Z} + \ldots.$$

which is an expansion of the standard irradiance vs. depth equation:

$$I_Z = I_0 e^{-kZ}$$

where:

I_Z = light irradiance at depth Z

I_0 = incident irradiance ($Z = 0$)

k = extinction coefficient

$A_1, A_2 \ldots$ = factors relating to incident irradiance ($I_0 = A_1 + A_2 + \ldots$)

$a_1, a_2 \ldots$ = coefficients relating to the extinction coefficient ($k = a_1 + a_2 + \ldots$)

The expanded equation is used in most instances as spectral shifts, pigment layering and other factors result in deviation from the idealized standard irradiance vs. depth equation. The simplest form of the expanded equation is implemented to adequately model the light field, which in the large majority of cases is the sum of two exponentials.

Daily Incident Light Field. Incident light data are collected and recorded at 15 min intervals using a Biospherical scalar sensor located at nearby Deer Island. These data are used as the photoperiod incident light (I_o) time series described in a following section. The light intensity measured in the incubator is collected with a cosine sensor. The cosine values are converted to 4 π readings using an empirically determined equation:

$$4\pi = 17.58 + 1.0529\,(\cos) - 0.00008\,(\cos)^2$$

with both 4 π and cosine light intensity in units of $\mu E\ m^{-2}\ sec^{-1}$. The r^2 for the empirical equation is 0.99. The light data measured in the incubator are converted to 4 π values using the above empirical equation prior to fitting the P-I curves. During normal CTD hydrocasts the incident light field is also routinely measured via a deck light sensor at high temporal resolution.

Calculation of Daily Primary Production. Given the best fit parameters (P_{sb} or P_{max}, α, β) of the P-I curves obtained for each of the five sampling depths, the in situ light intensity (*i.e.*, I_z) at each depth determined from the sum of exponential fits on the in situ light field, and the photoperiod incident light (I_0) time series, it is possible to compute daily volumetric production for each depth. To do this at a given depth, hourly production is determined for the in situ light intensity computed for each 15 min interval of the photoperiod (6 AM to 6 PM), using the appropriate P-I parameters and in situ irradiance. Daily production ($\mu g\ C\ L^{-1}\ d^{-1}$) is obtained by integration of the determined activity throughout the 12-hour photoperiod. An advantage of this approach is that seasonal changes in photoperiod length are automatically incorporated into the integral computation. For example, during winter months computed early morning and late afternoon production contributes minimally to whole day production, whereas during summer months the relative contribution during these hours is more significant. The investigator does not have to decide which factor to employ when converting hourly production to daily production. The primary assumption of the approach is that the P-I relationship obtained at the time of sample procurement (towards the middle of the photoperiod) is representative of the majority of production occurring during the photoperiod, which should be the case.

Calculation of Daily Areal Production. Areal production ($mg\ C\ m^{-2}\ d^{-1}$) is obtained by trapezoidal integration of daily volumetric production vs. depth down to the 1% light level.

Calculation of Chlorophyll-Specific Parameters. Chlorophyll-specific measures of the various parameters (including the P-I parameters) is determined by dividing by the appropriate chlorophyll term obtained from independent measurements.

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APPENDIX B

Surface Contour Plots – Farfield Surveys

Surface Contour Plots – Farfield Surveys

All contour plots were created using data from the surface bottle sample (A) Each plot is labeled with the survey number (WF001 through WN009), and parameter. The minimum and maximum value, and the station where the value was measured are provided for each plot, as well as the contour interval and parameter units.

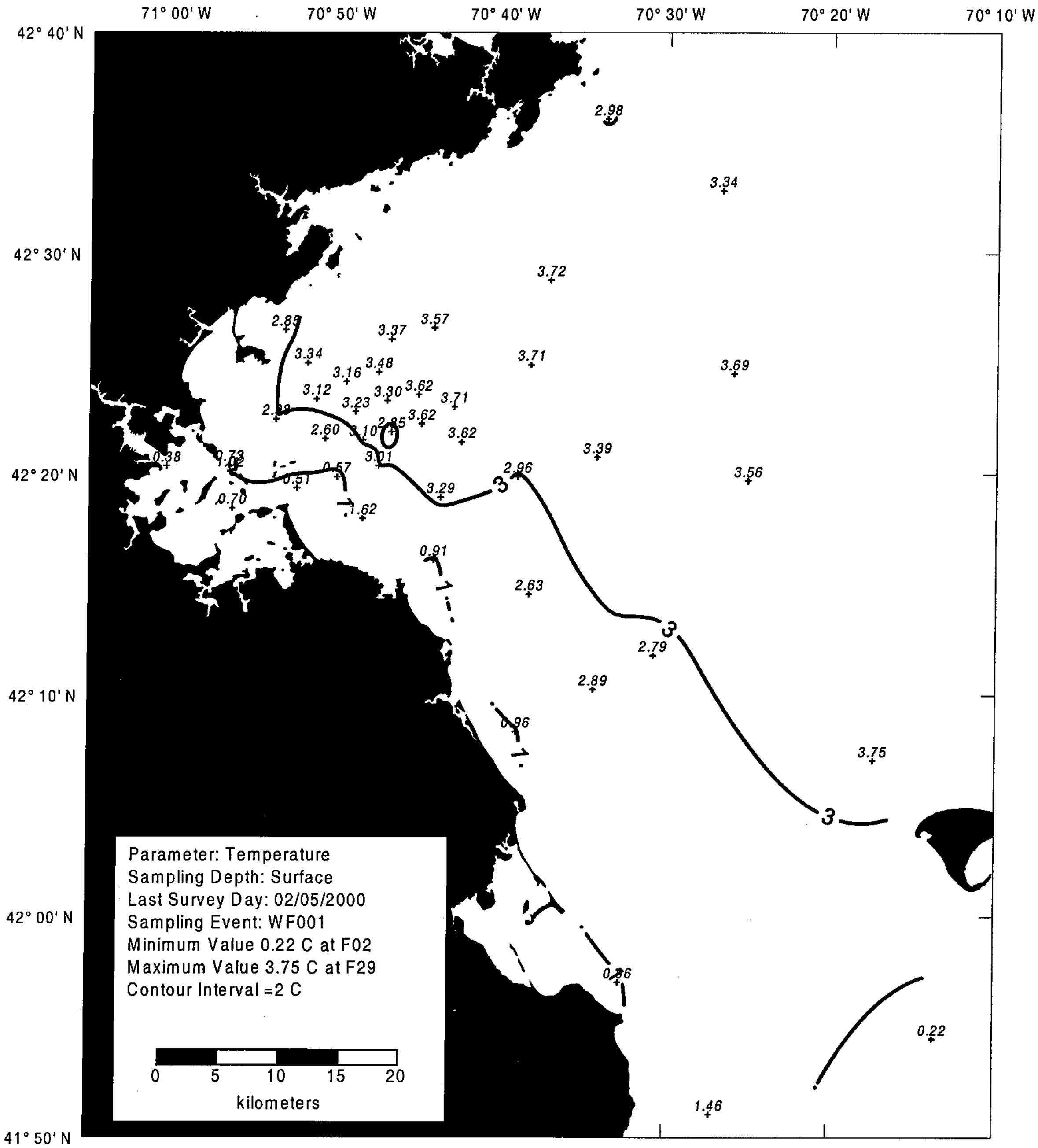


Figure B-1. Temperature Surface Contour Plot for Farfield Survey WF001 (Feb 00)

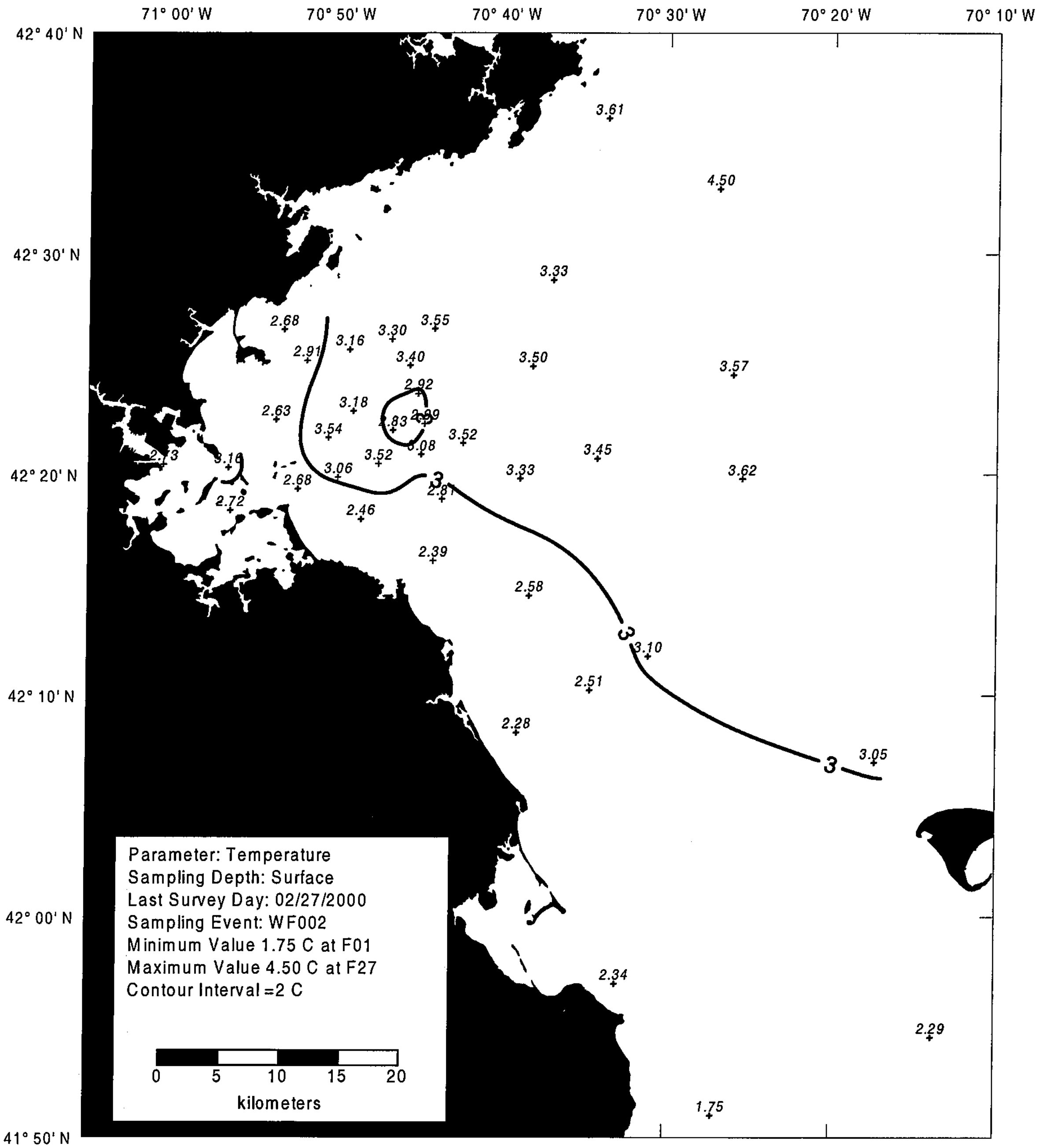


Figure B-2. Temperature Surface Contour Plot for Farfield Survey WF002 (Feb 00)

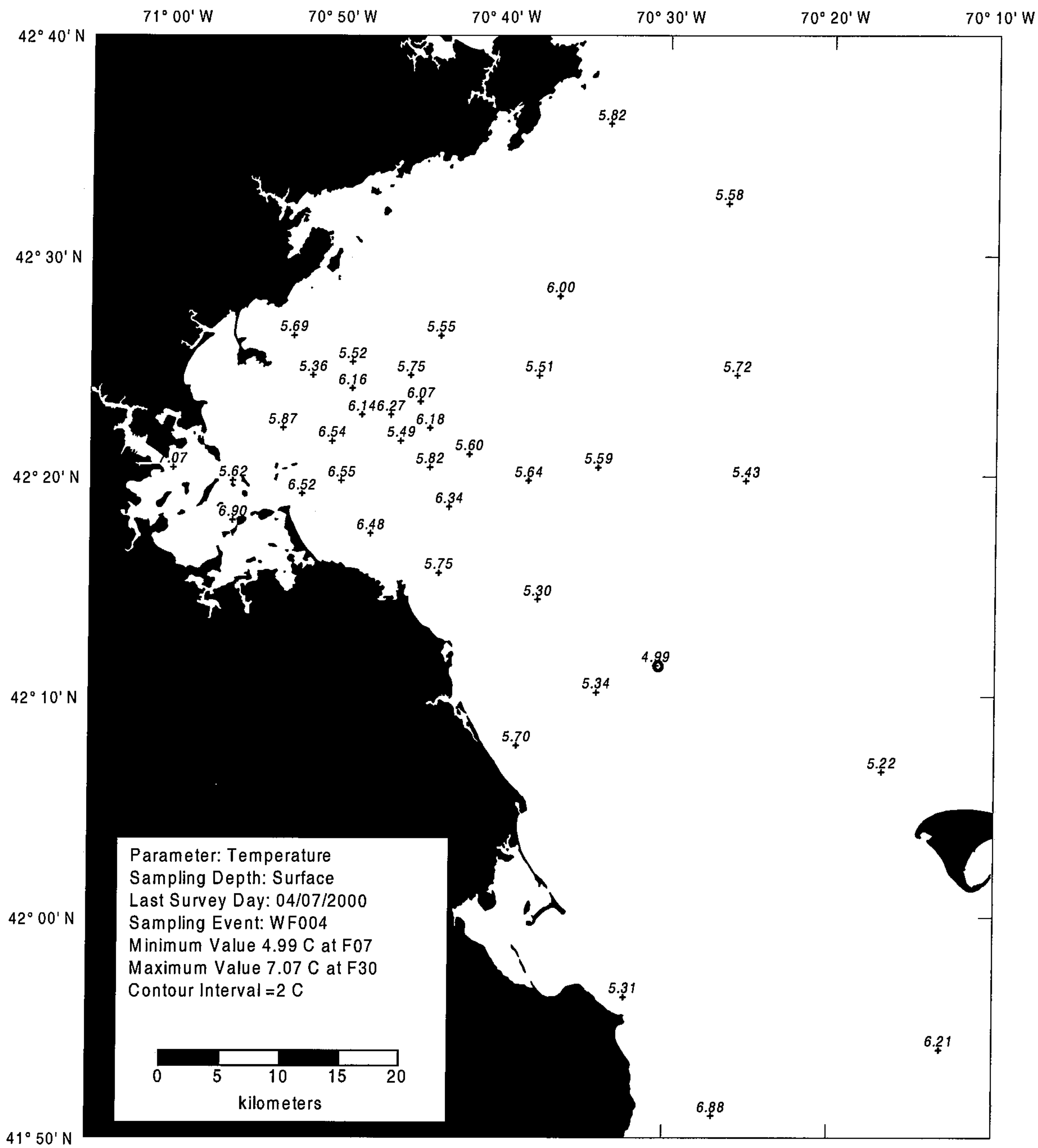


Figure B-3. Temperature Surface Contour Plot for Farfield Survey WF004 (Apr 00)

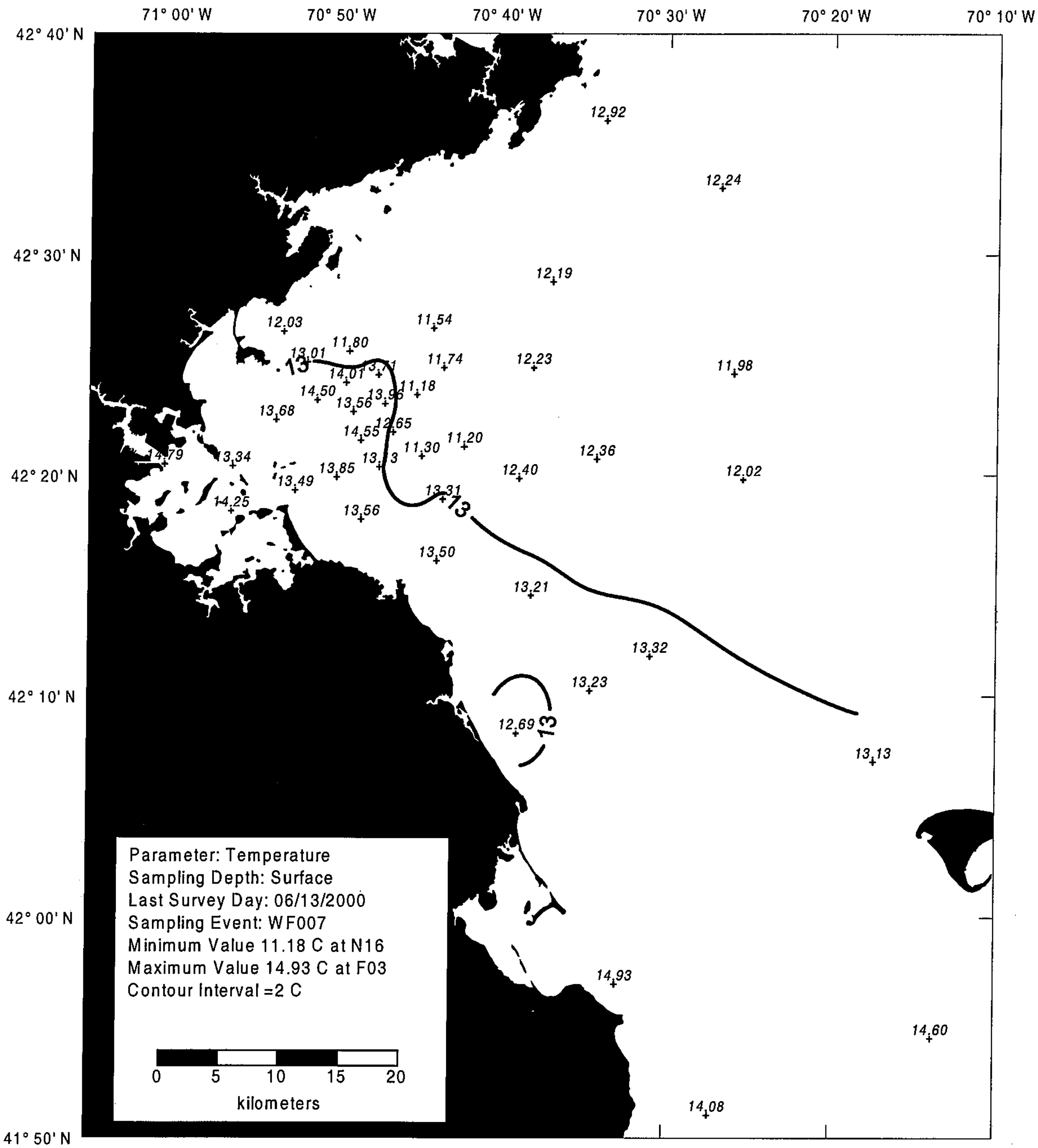


Figure B-4. Temperature Surface Contour Plot for Farfield Survey WF007 (Jun 00)

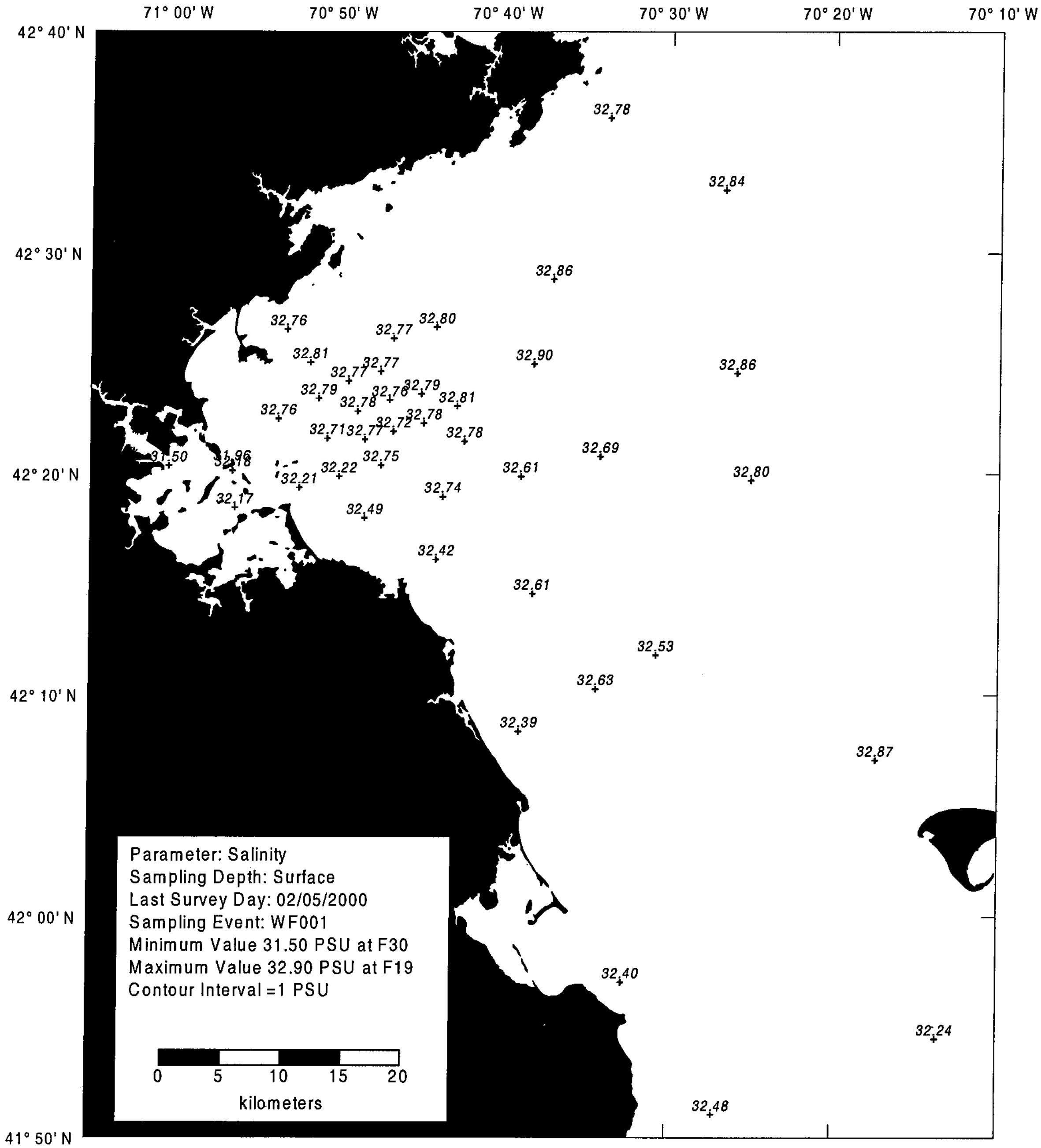


Figure B-5. Salinity Surface Contour Plot for Farfield Survey WF001 (Feb 00)

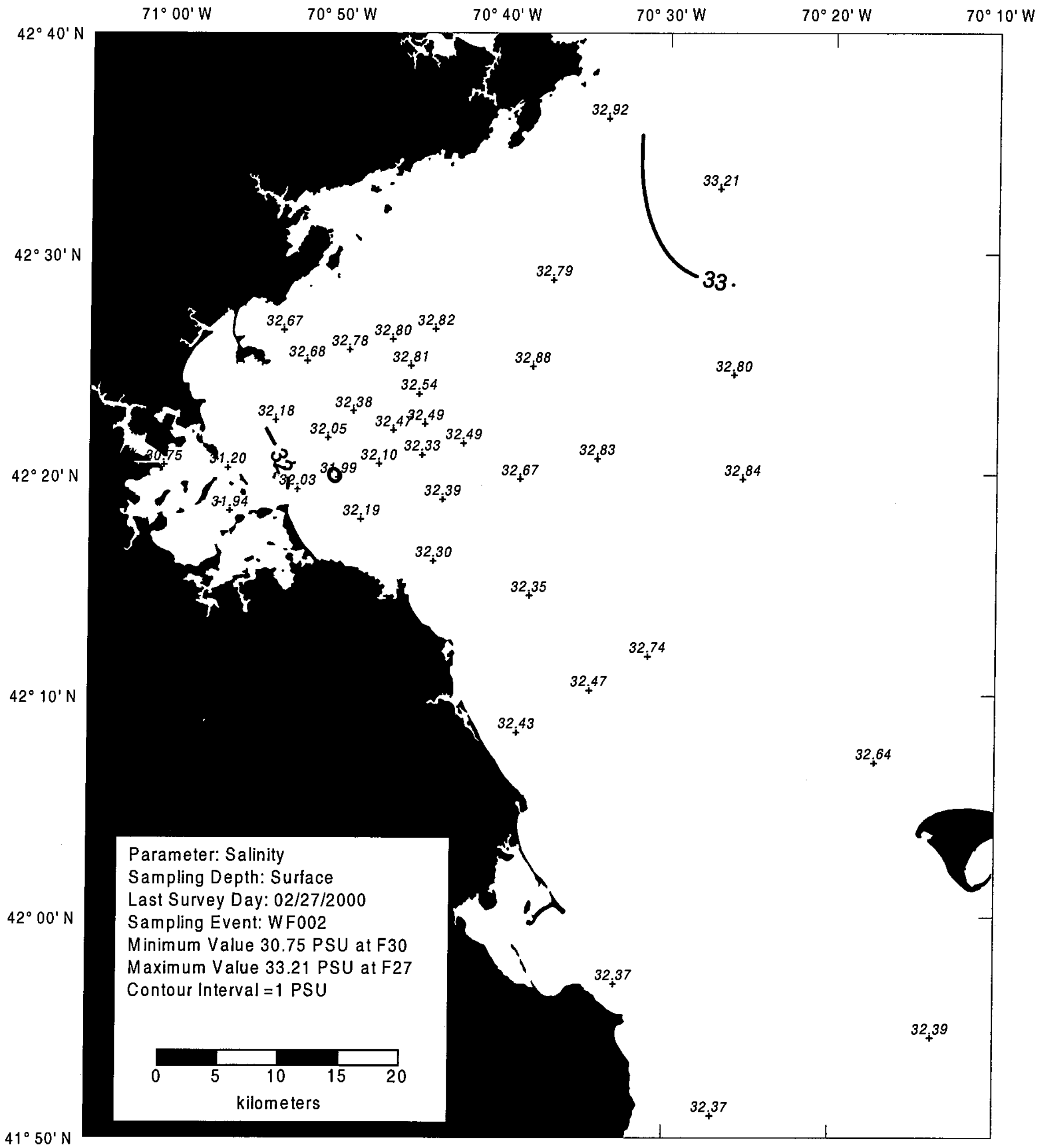


Figure B-6. Salinity Surface Contour Plot for Farfield Survey WF002 (Feb 00)

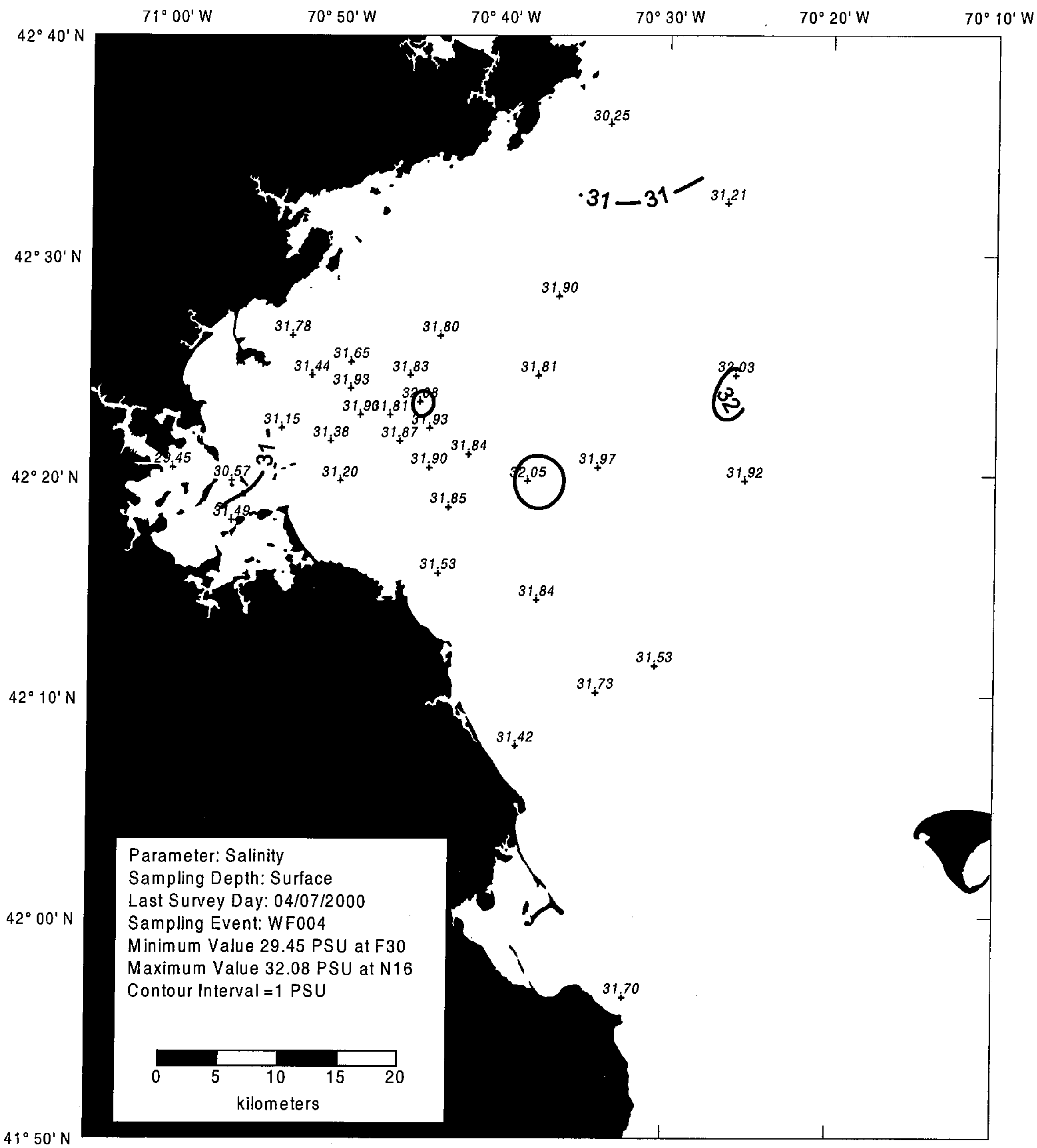


Figure B-7. Salinity Surface Contour Plot for Farfield Survey WF004 (Apr 00)

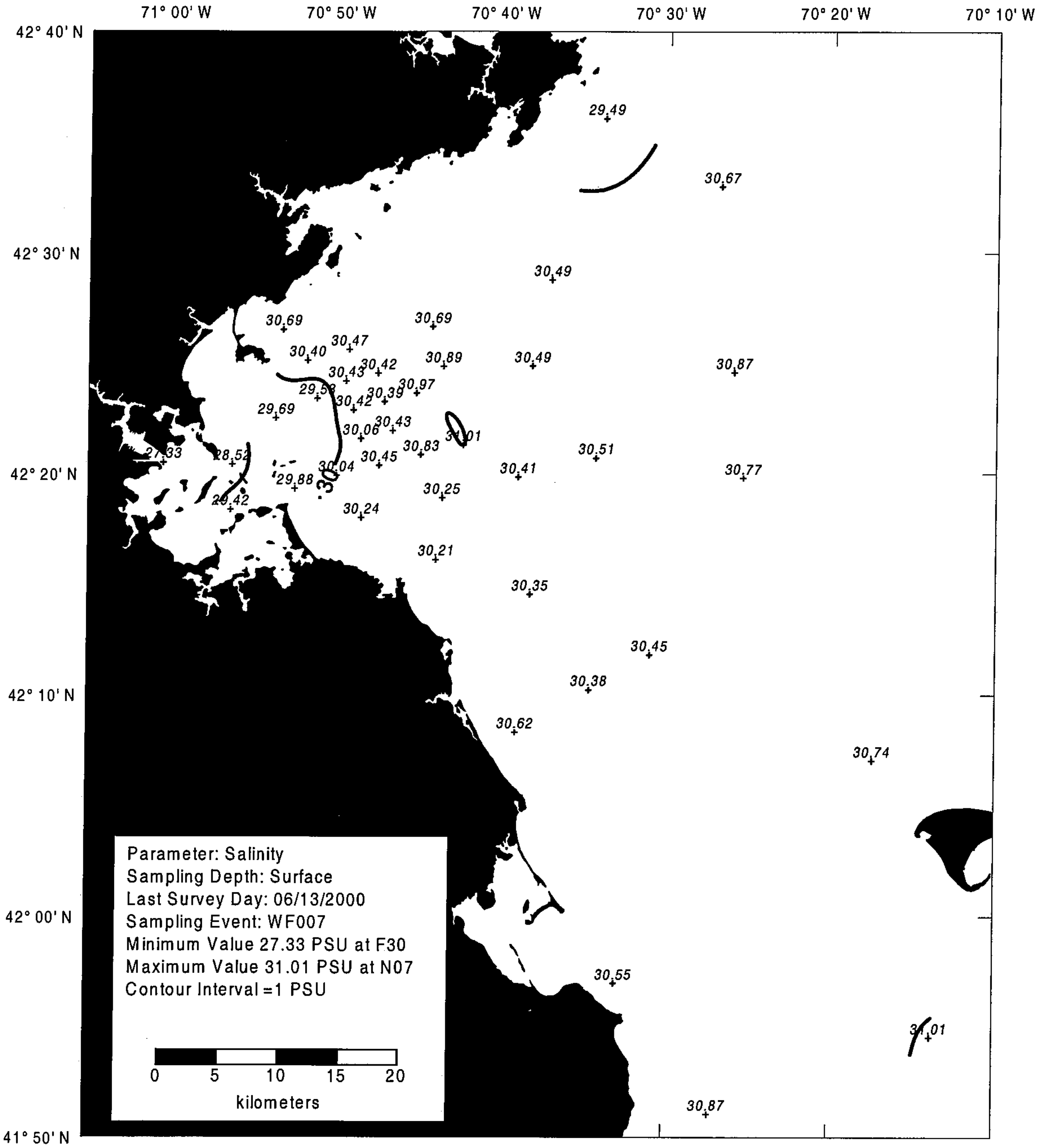


Figure B-8. Salinity Surface Contour Plot for Farfield Survey WF007 (Jun 00)

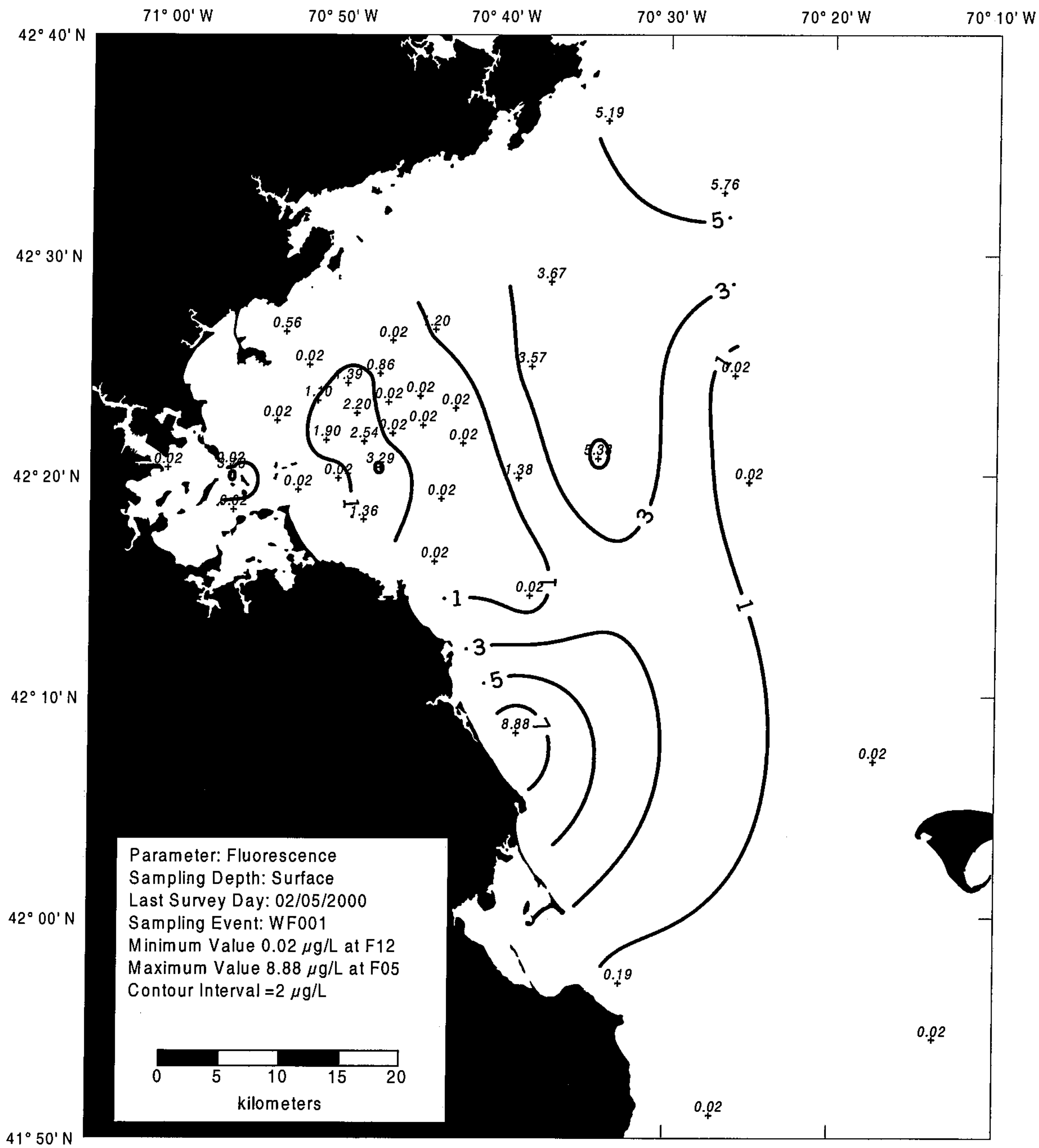


Figure B-9. Fluorescence Surface Contour Plot for Farfield Survey WF001 (Feb 00)

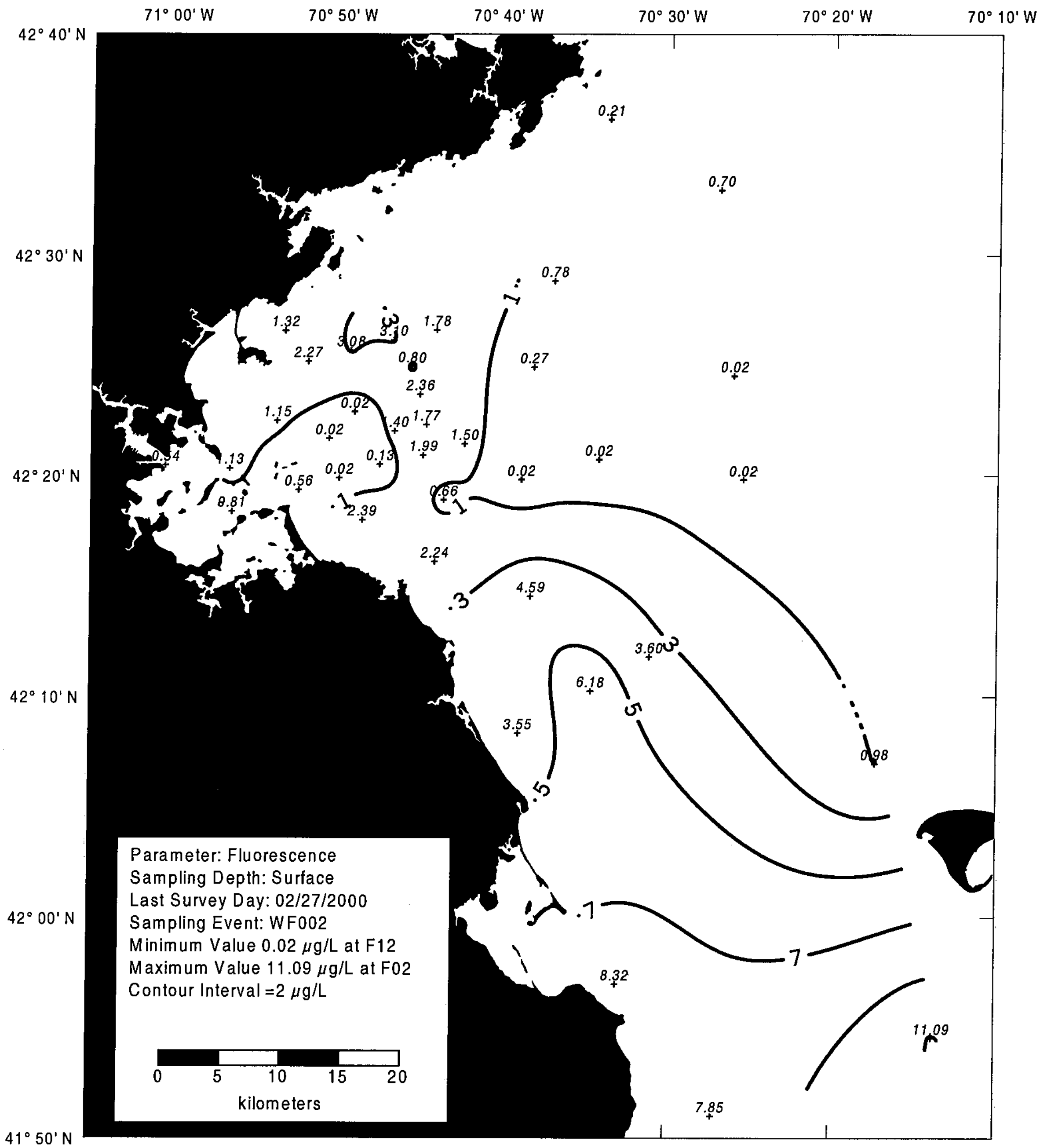


Figure B-10. Fluorescence Surface Contour Plot for Farfield Survey WF002 (Feb 00)

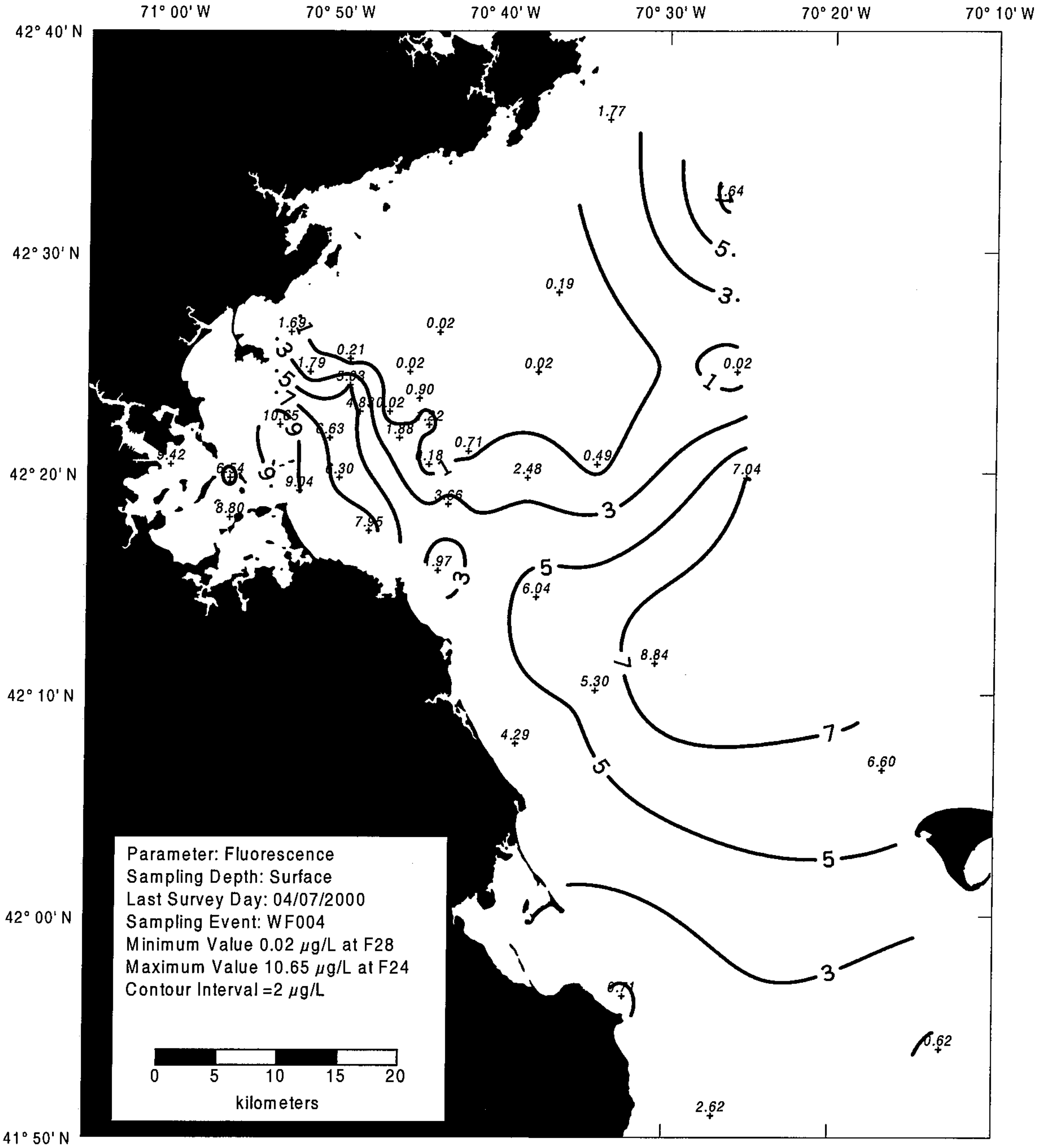


Figure B-11. Fluorescence Surface Contour Plot for Farfield Survey WF004 (Apr 00)

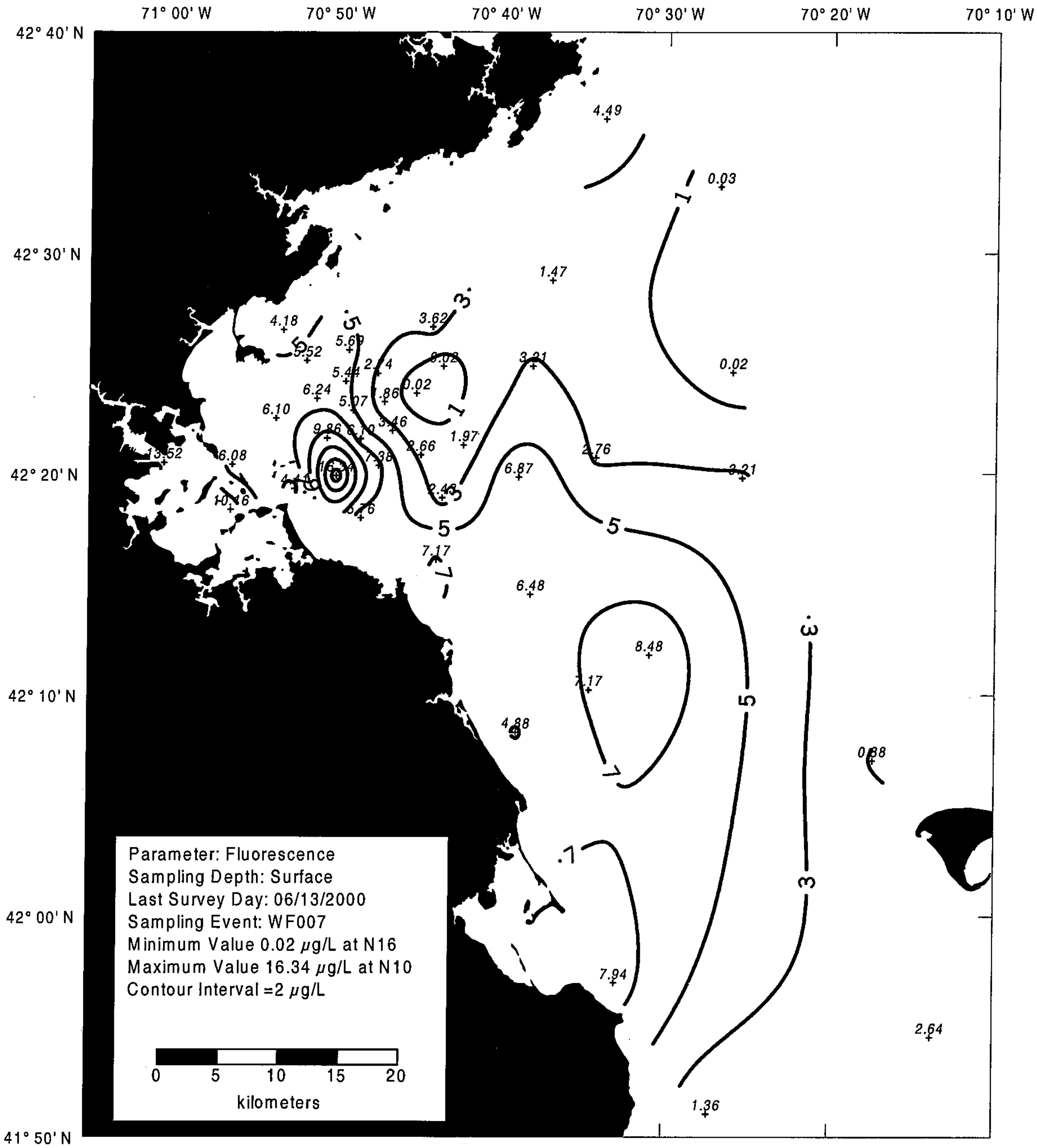


Figure B-12. Fluorescence Surface Contour Plot for Farfield Survey WF007 (Jun 00)

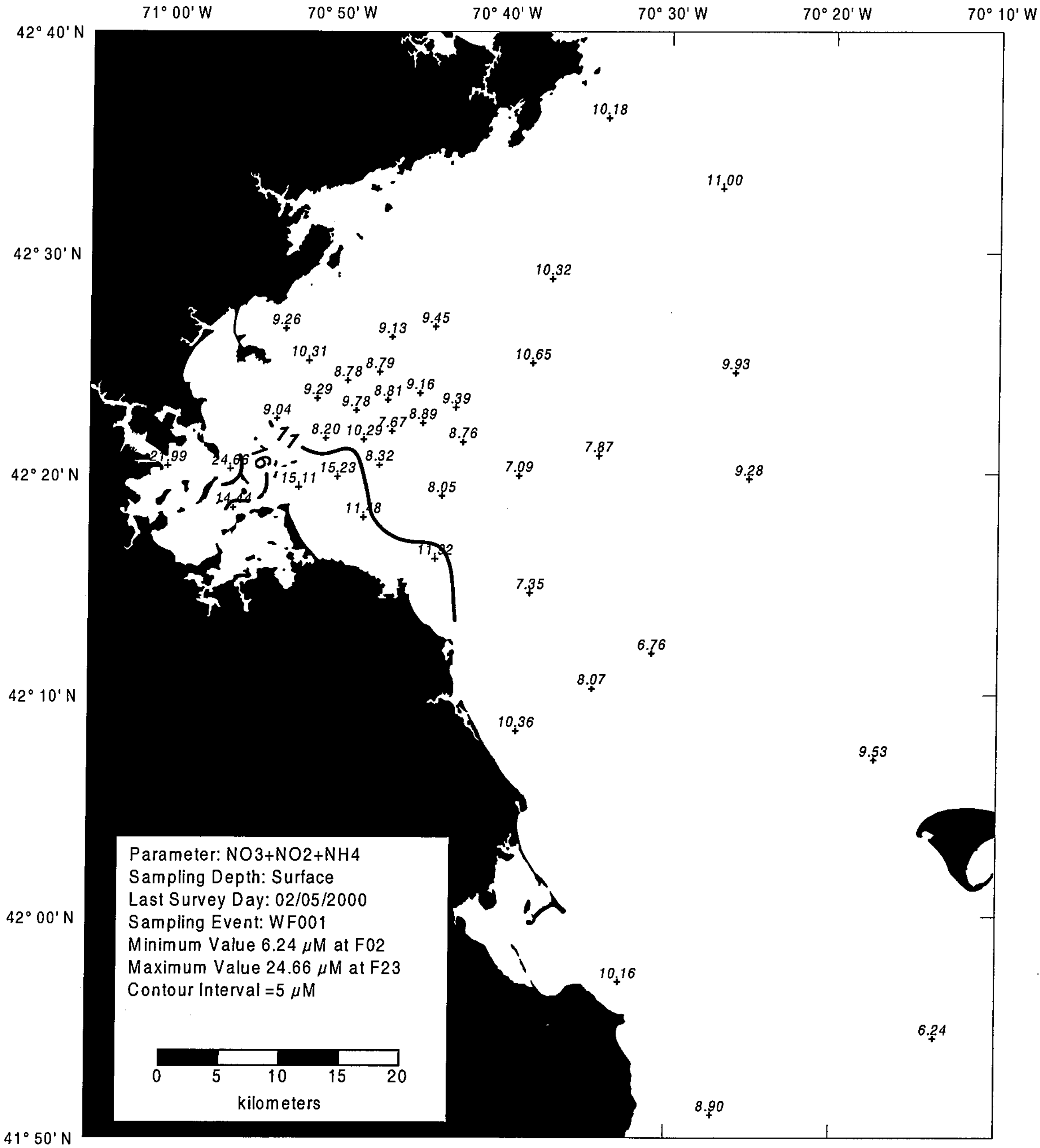


Figure B-13. DIN Surface Contour Plot for Farfield Survey WF001 (Feb 00)

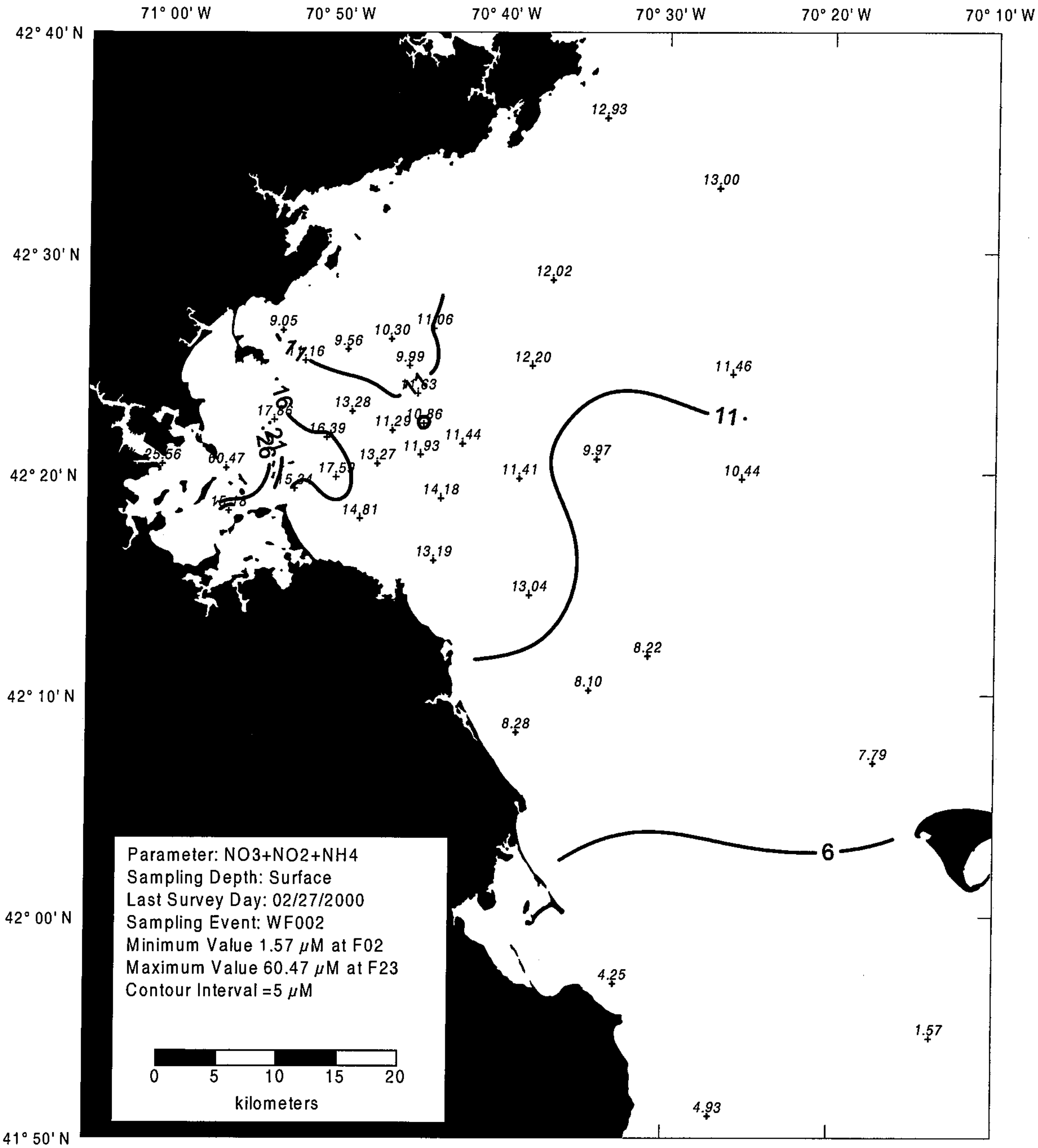


Figure B-14. DIN Surface Contour Plot for Farfield Survey WF002 (Feb 00)

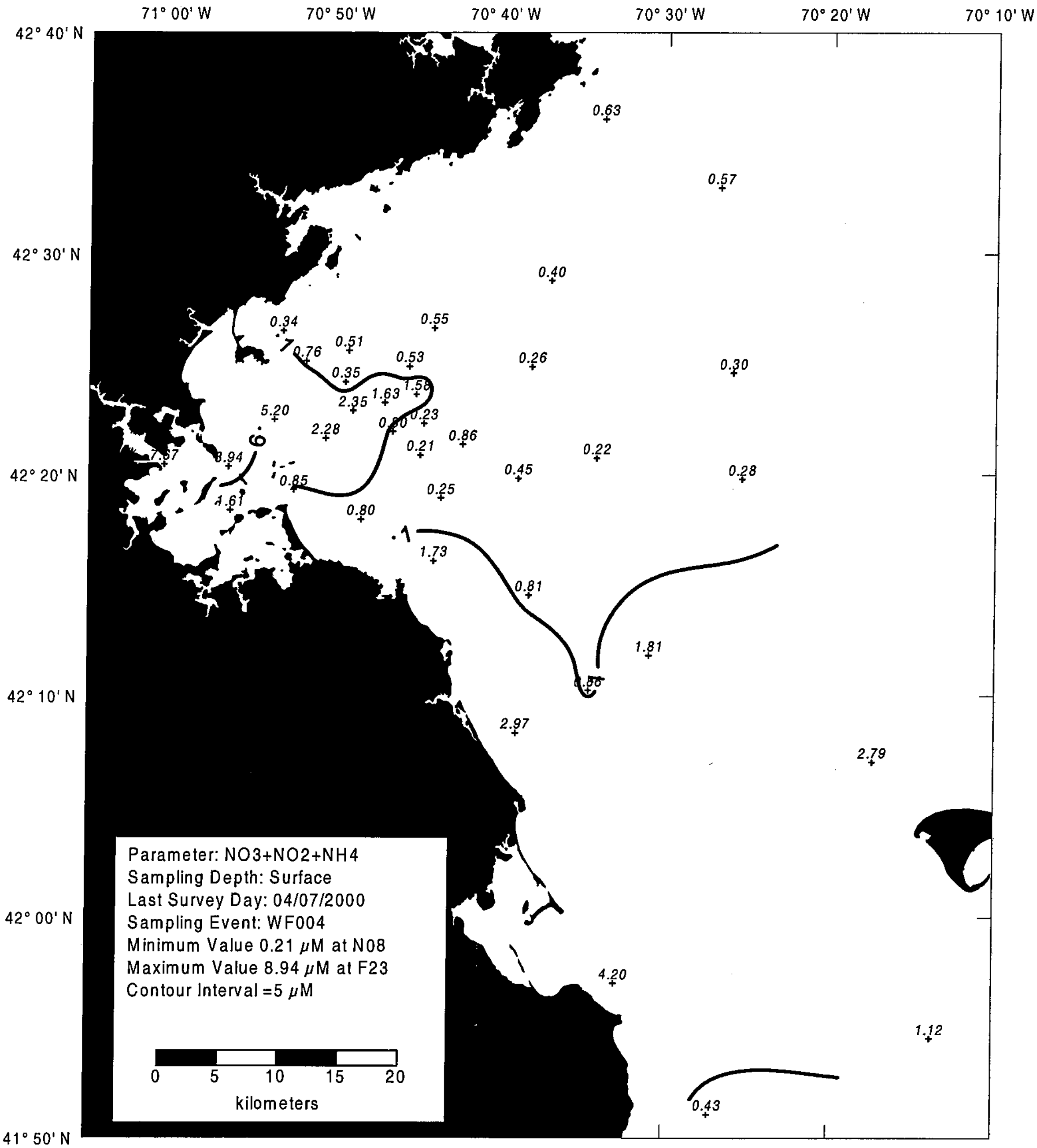


Figure B-15. DIN Surface Contour Plot for Farfield Survey WF004 (Apr 00)

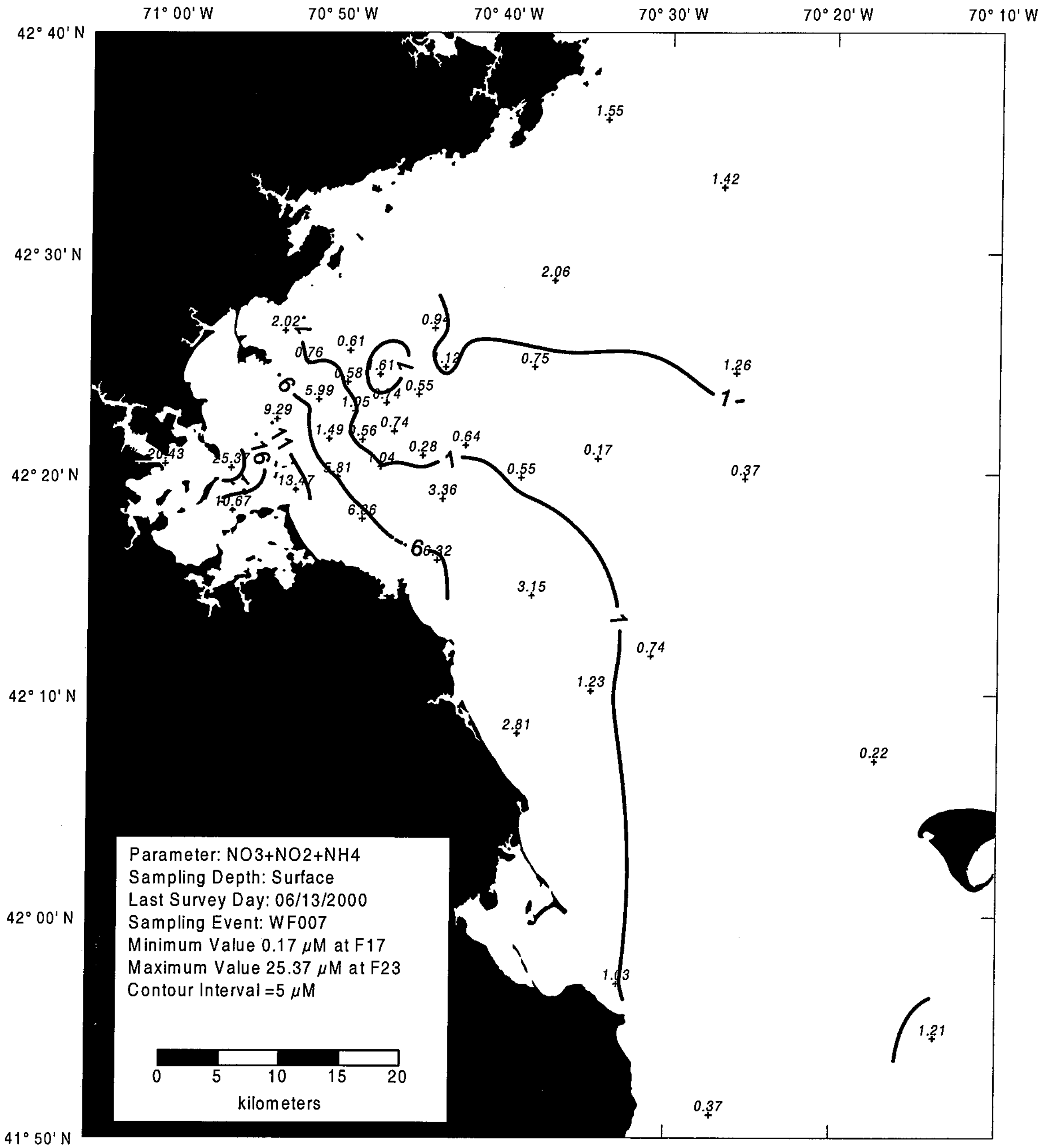


Figure B-16. DIN Surface Contour Plot for Farfield Survey WF007 (Jun 00)

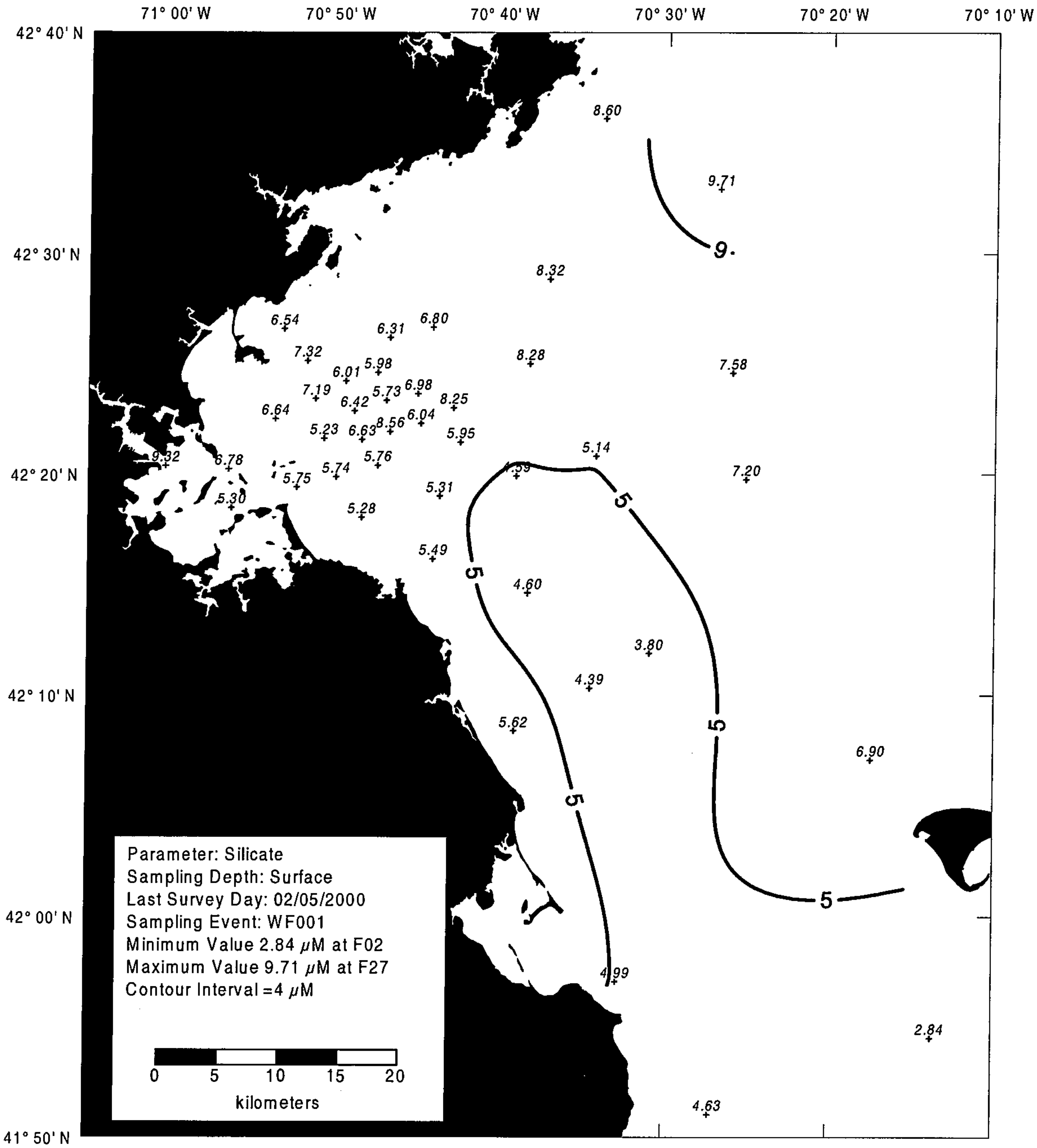


Figure B-17. Silicate Surface Contour Plot for Farfield Survey WF001 (Feb 00)

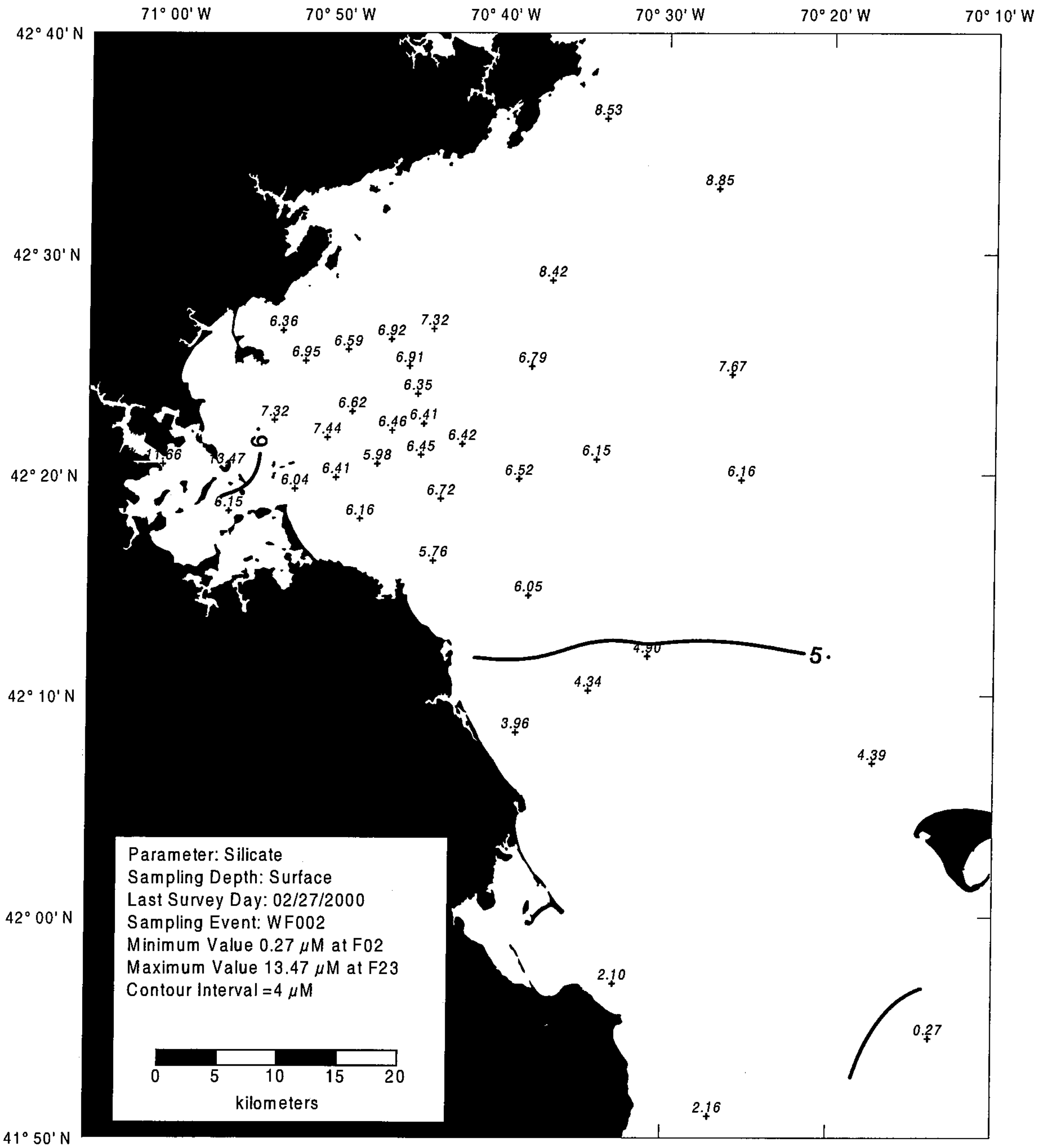


Figure B-18. Silicate Surface Contour Plot for Farfield Survey WF002 (Feb 00)

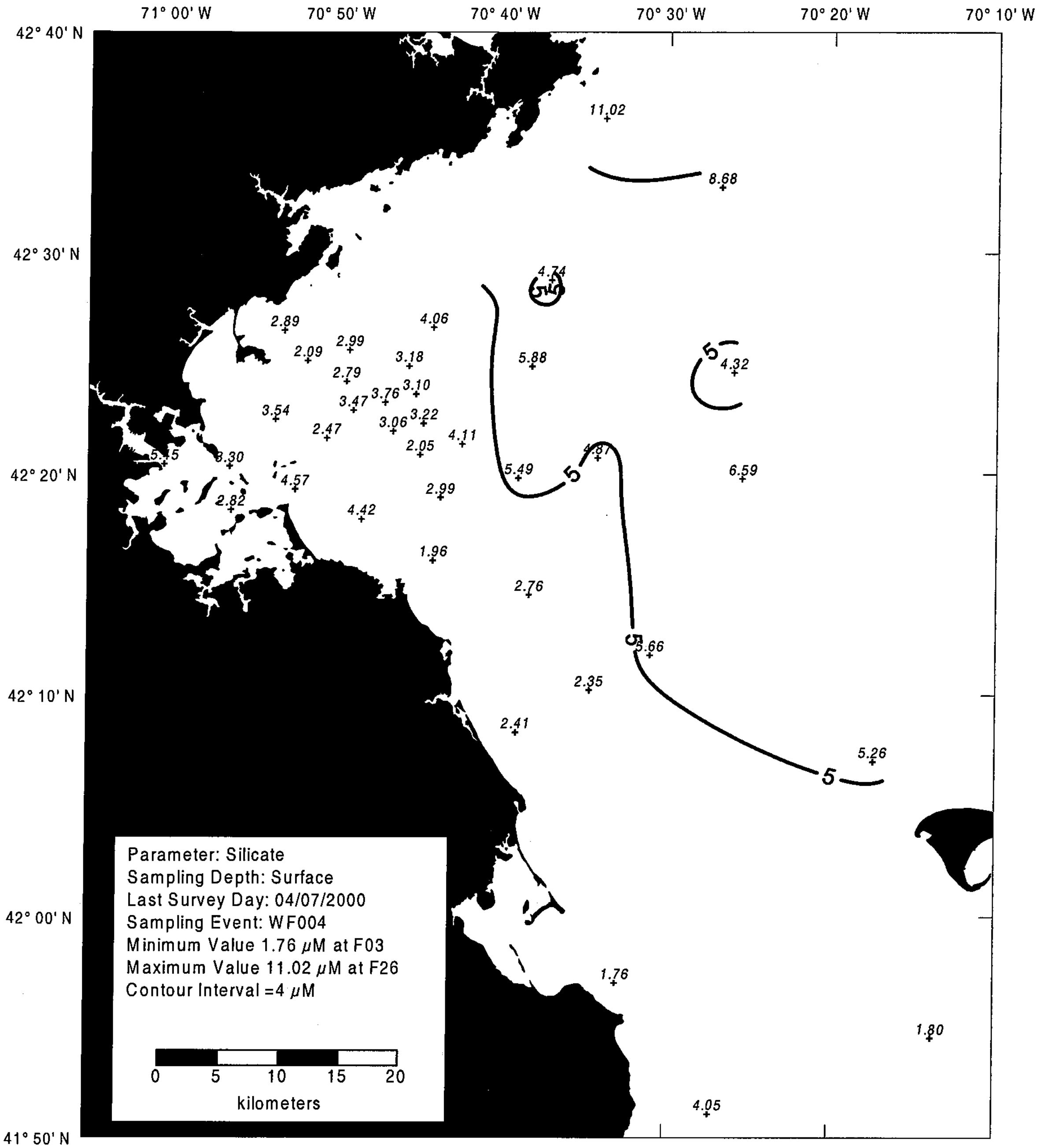


Figure B-19. Silicate Surface Contour Plot for Farfield Survey WF004 (Apr 00)

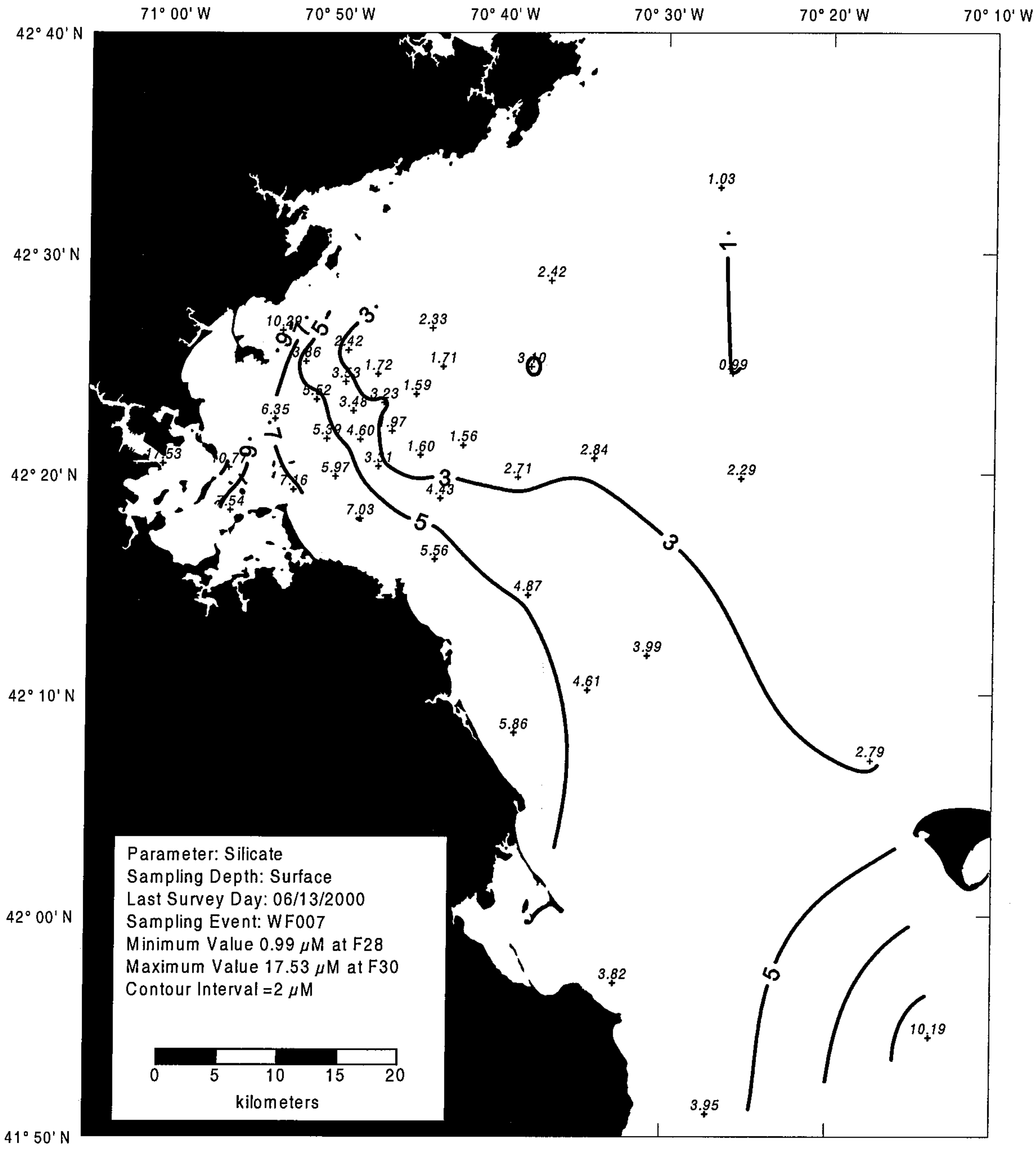


Figure B-20. Silicate Surface Contour Plot for Farfield Survey WF007 (Jun 00)

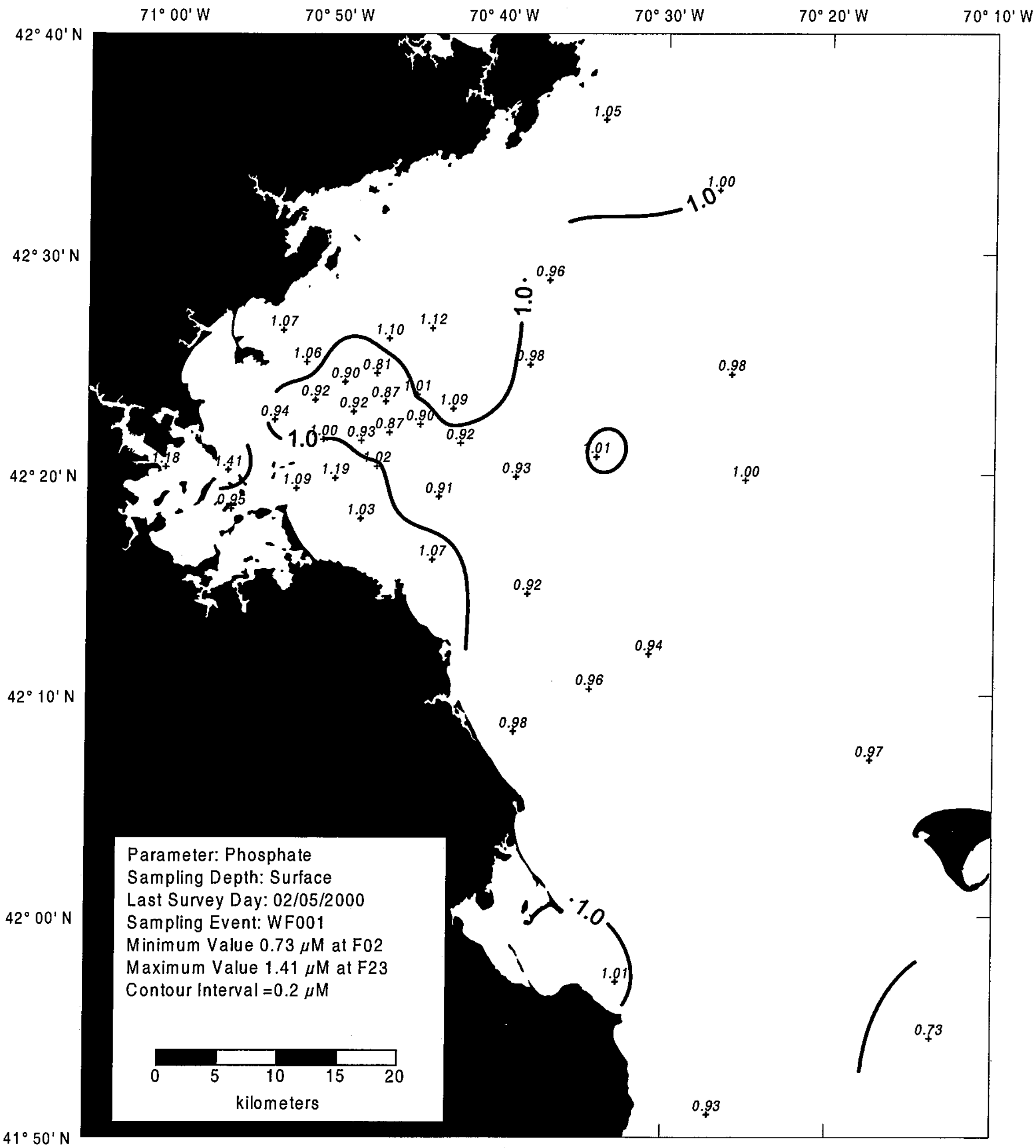


Figure B-21. Phosphate Surface Contour Plot for Farfield Survey WF001 (Feb 00)

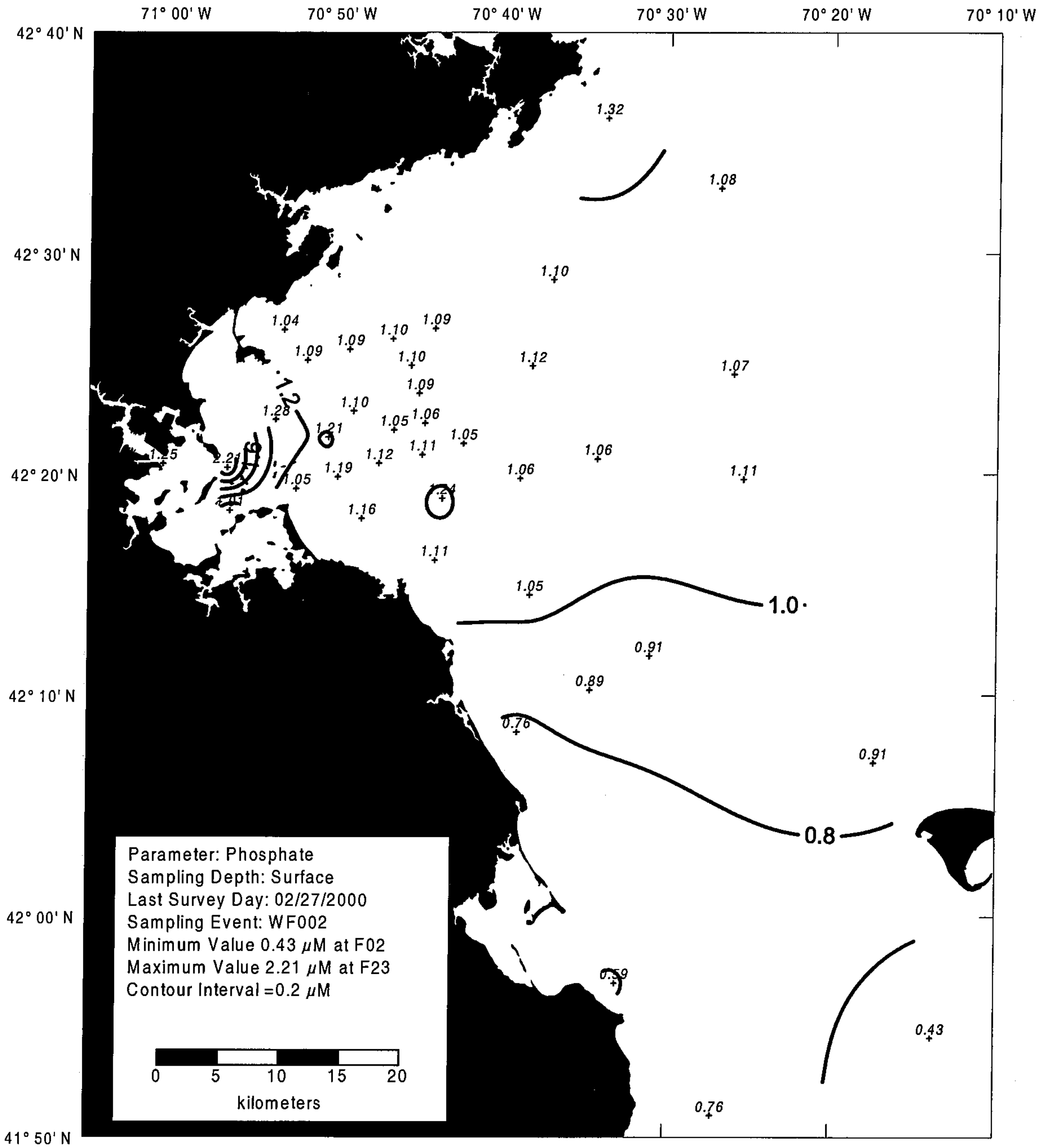


Figure B-22. Phosphate Surface Contour Plot for Farfield Survey WF002 (Feb 00)

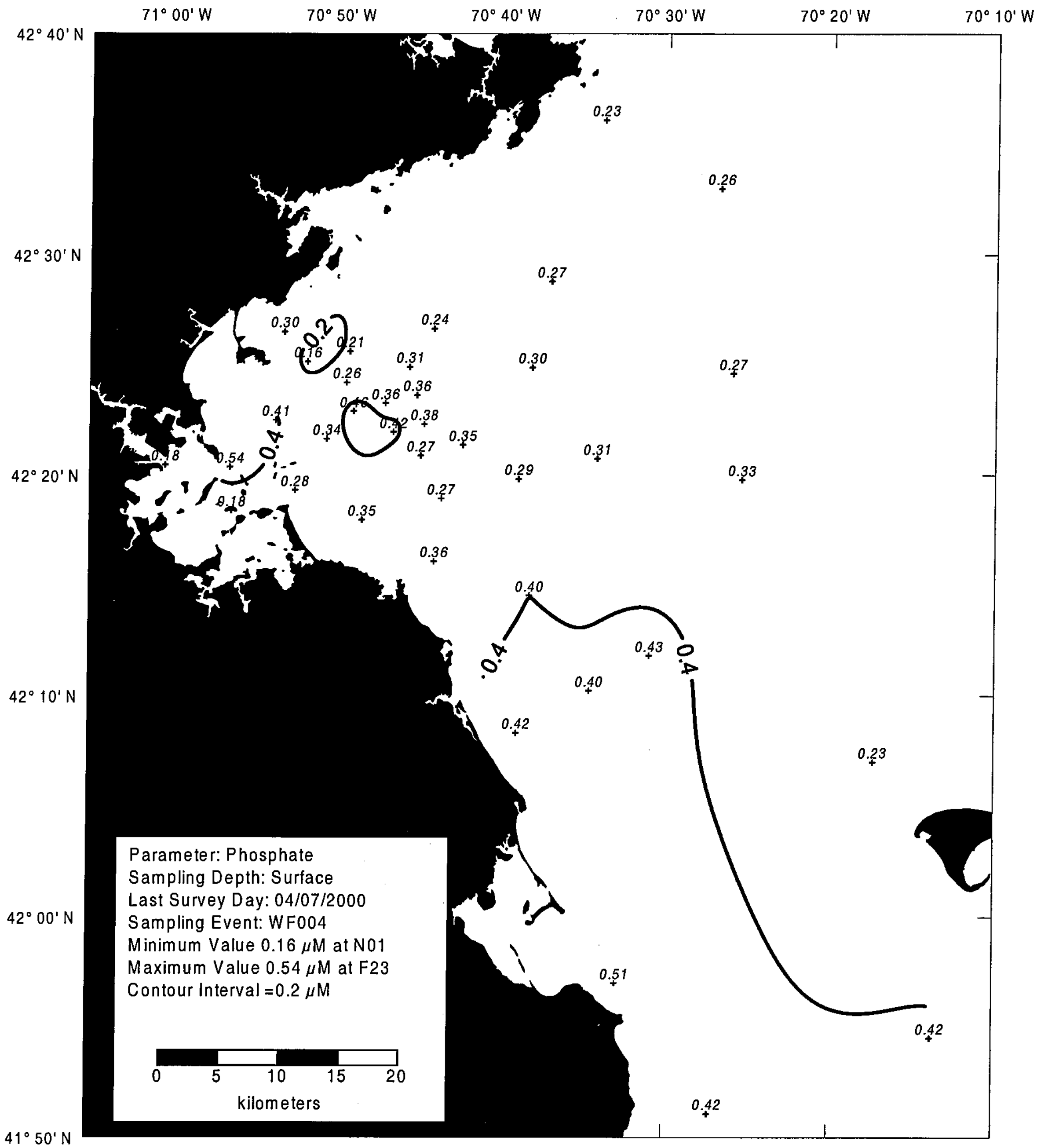


Figure B-23. Phosphate Surface Contour Plot for Farfield Survey WF004 (Apr 00)

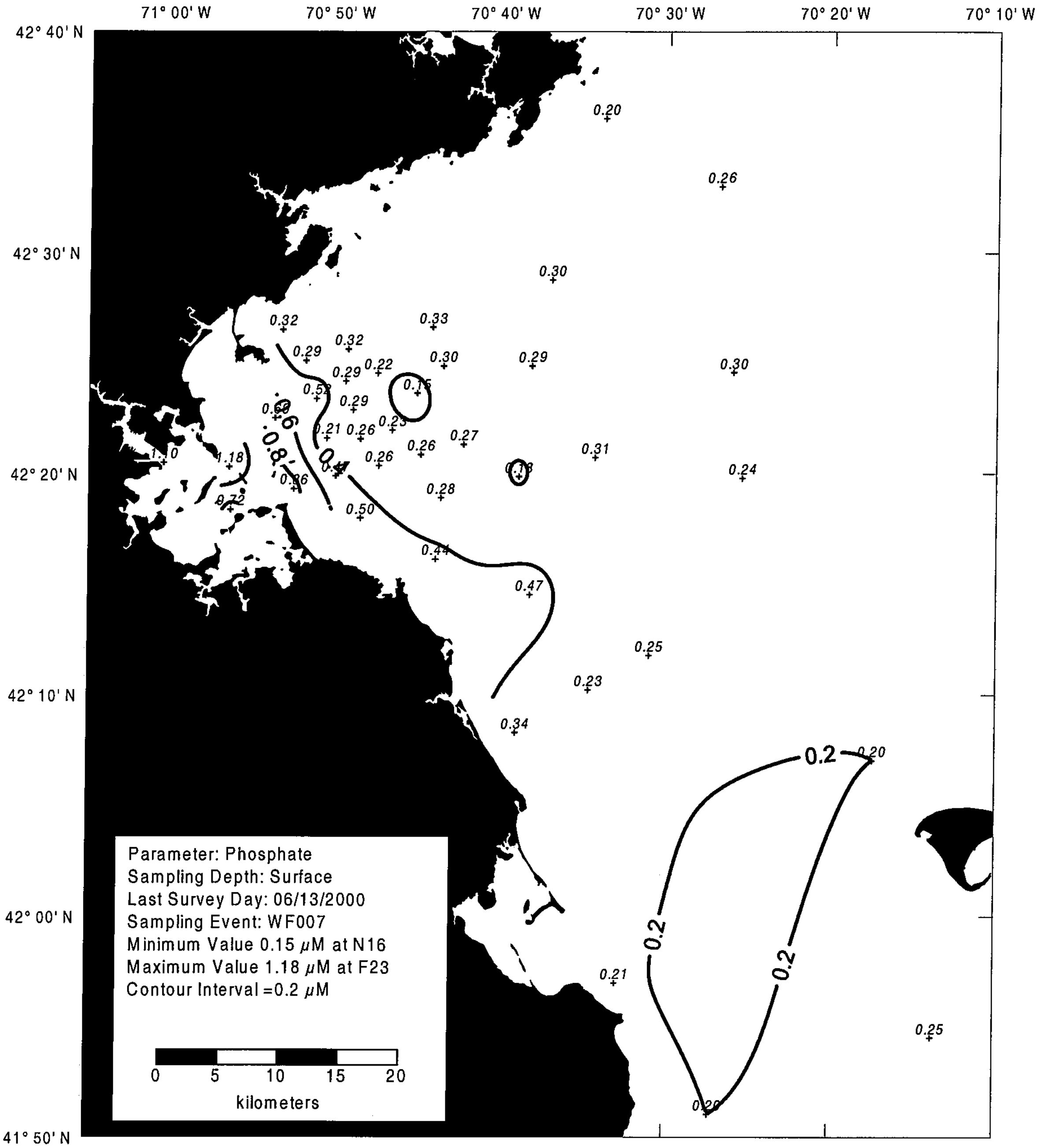


Figure B-24. Phosphate Surface Contour Plot for Farfield Survey WF007 (Jun 00)

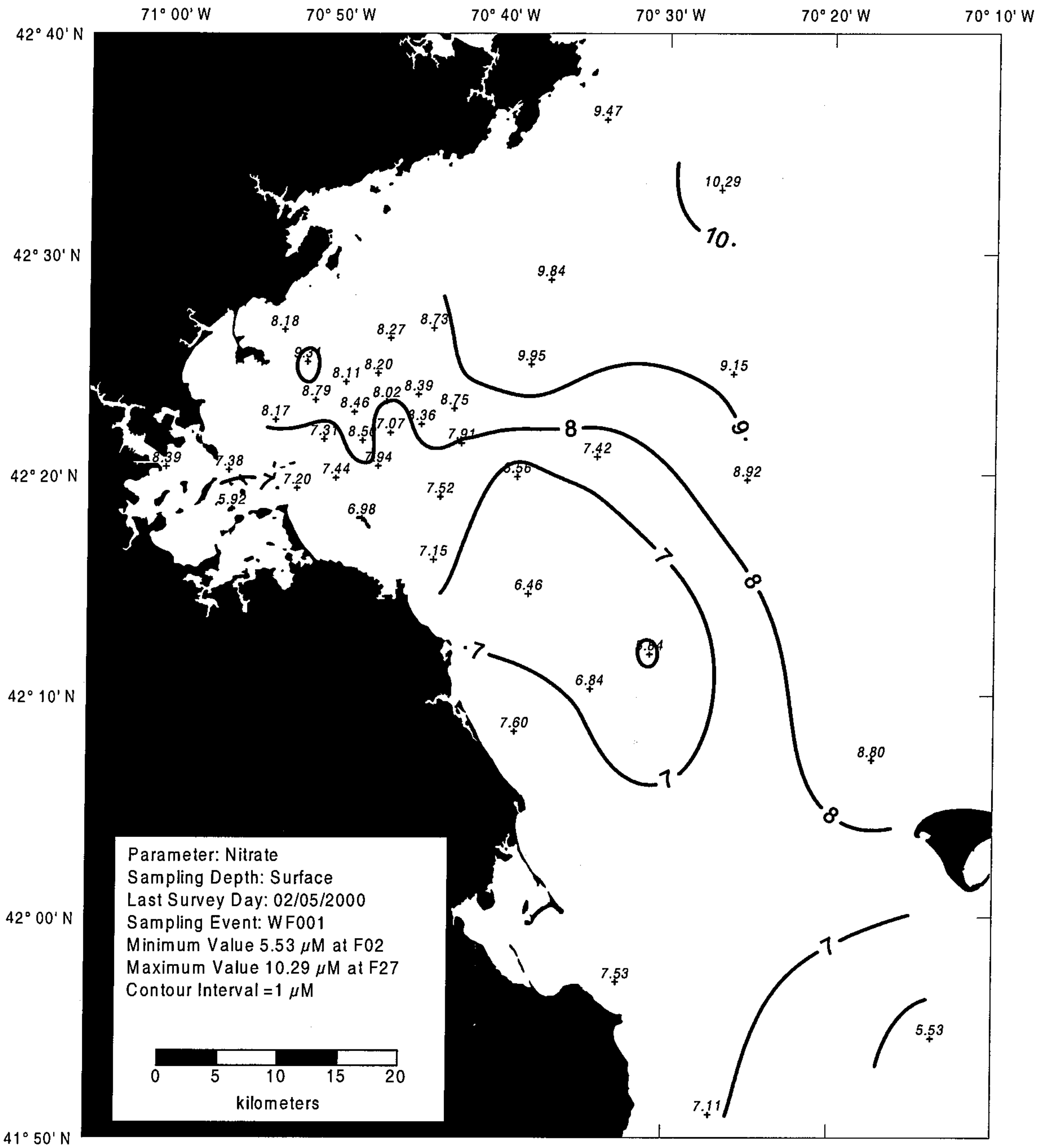


Figure B-25. Nitrate Surface Contour Plot for Farfield Survey WF001 (Feb 00)

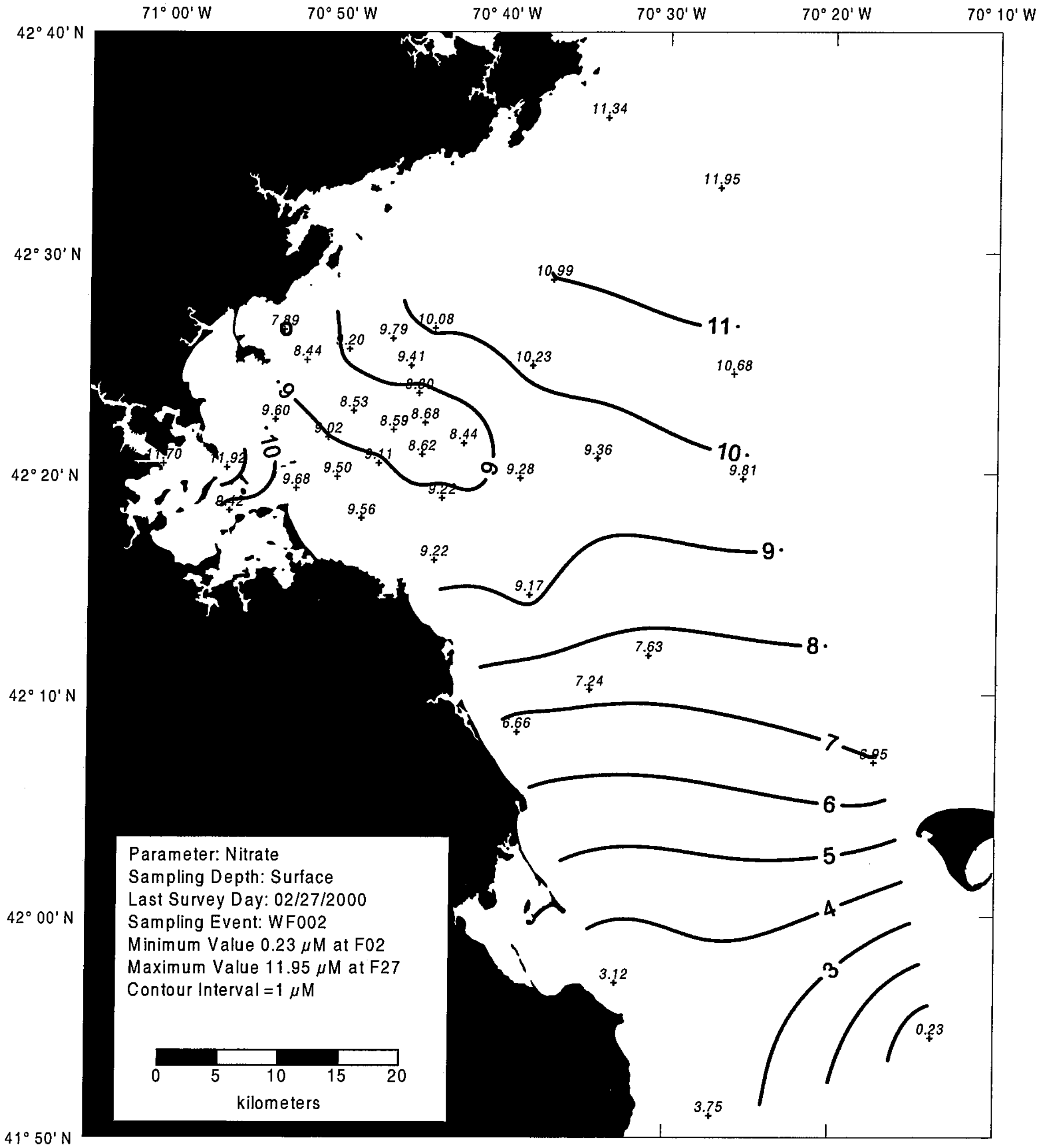


Figure B-26. Nitrate Surface Contour Plot for Farfield Survey WF002 (Feb 00)

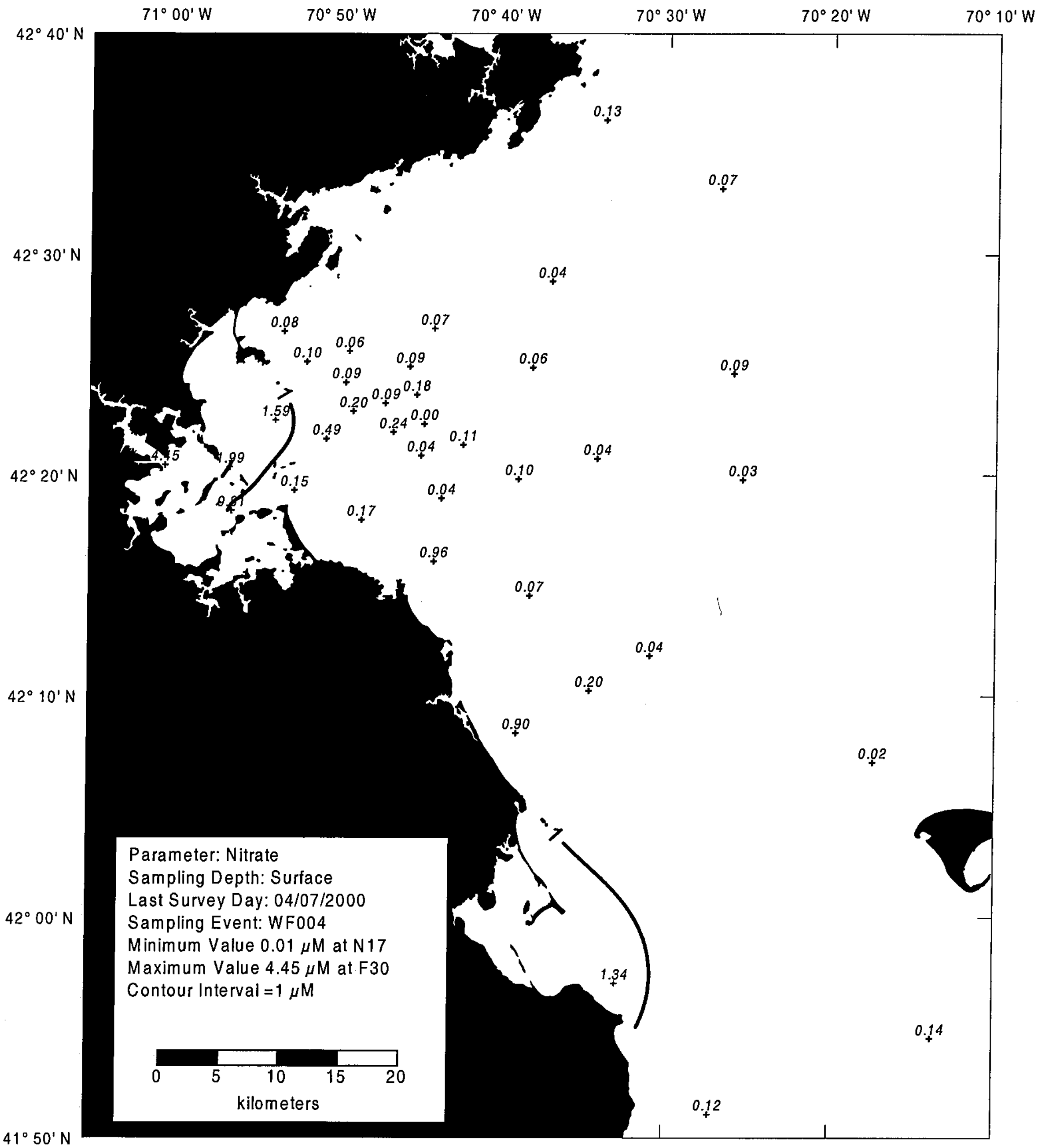


Figure B-27. Nitrate Surface Contour Plot for Farfield Survey WF004 (Apr 00)

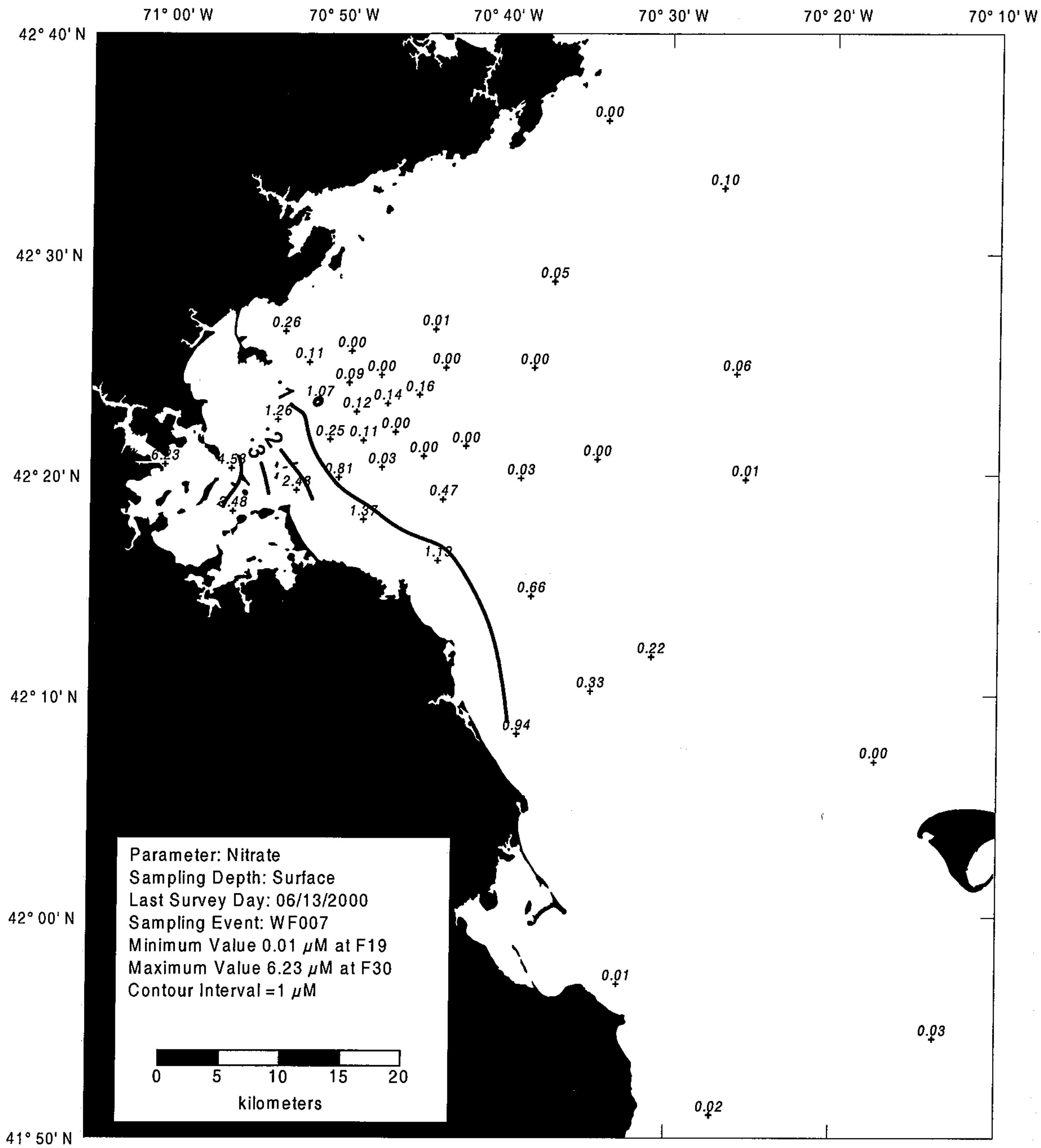


Figure B-28. Nitrate Surface Contour Plot for Farfield Survey WF007 (Jun 00)

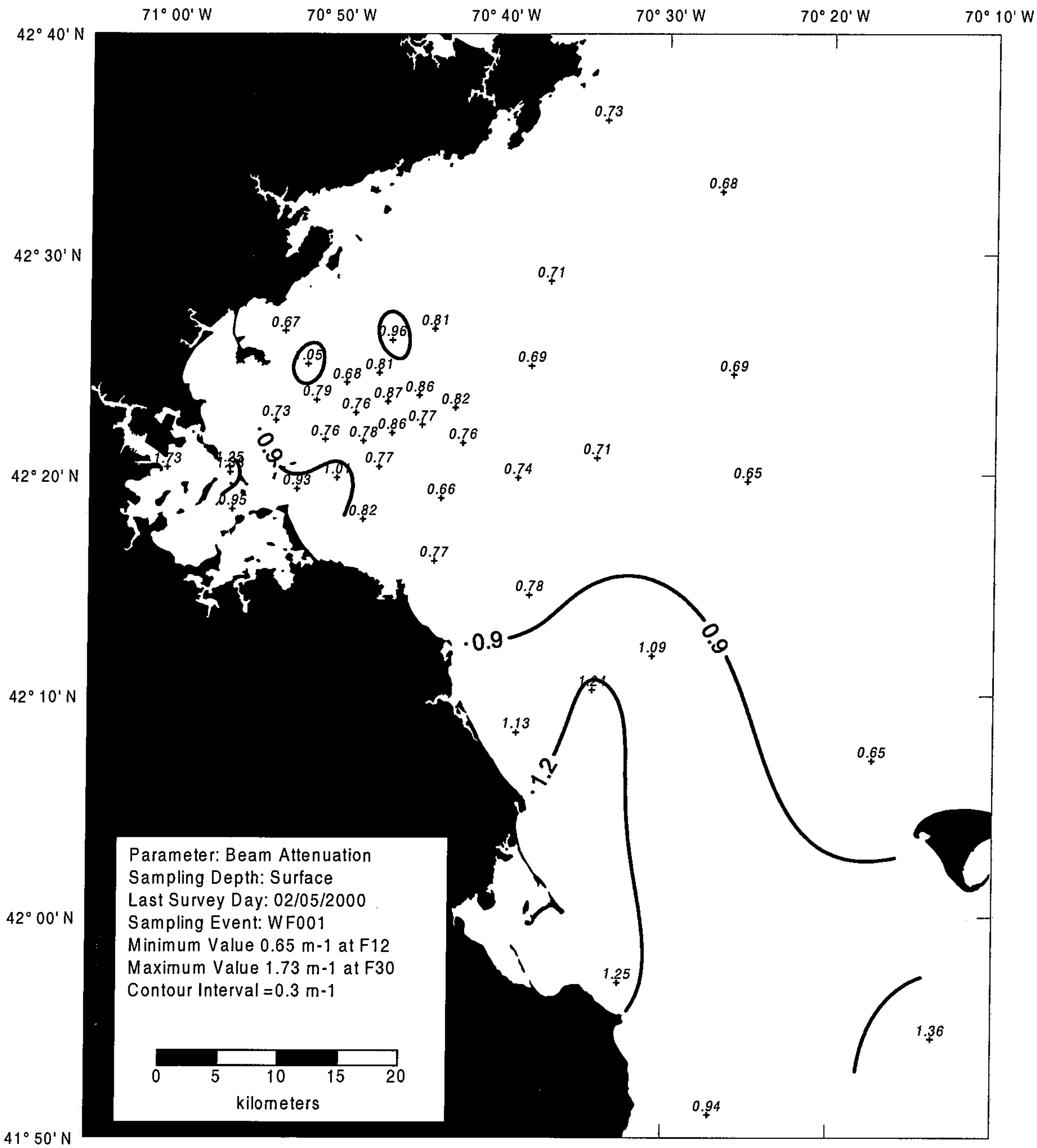


Figure B-29. Beam Attenuation Surface Contour Plot for Farfield Survey WF001 (Feb 00)

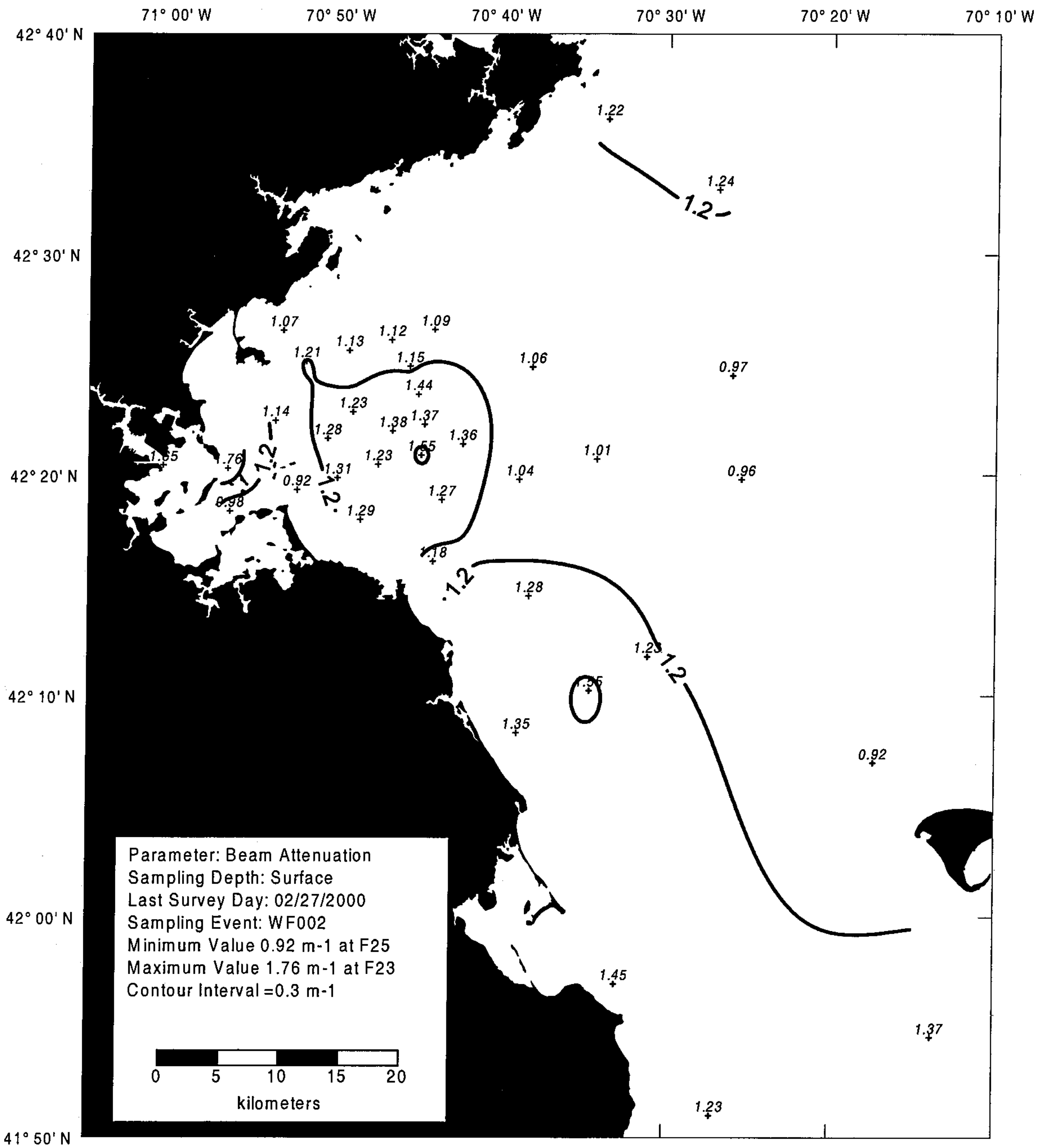


Figure B-30. Beam Attenuation Surface Contour Plot for Farfield Survey WF002 (Feb 00)

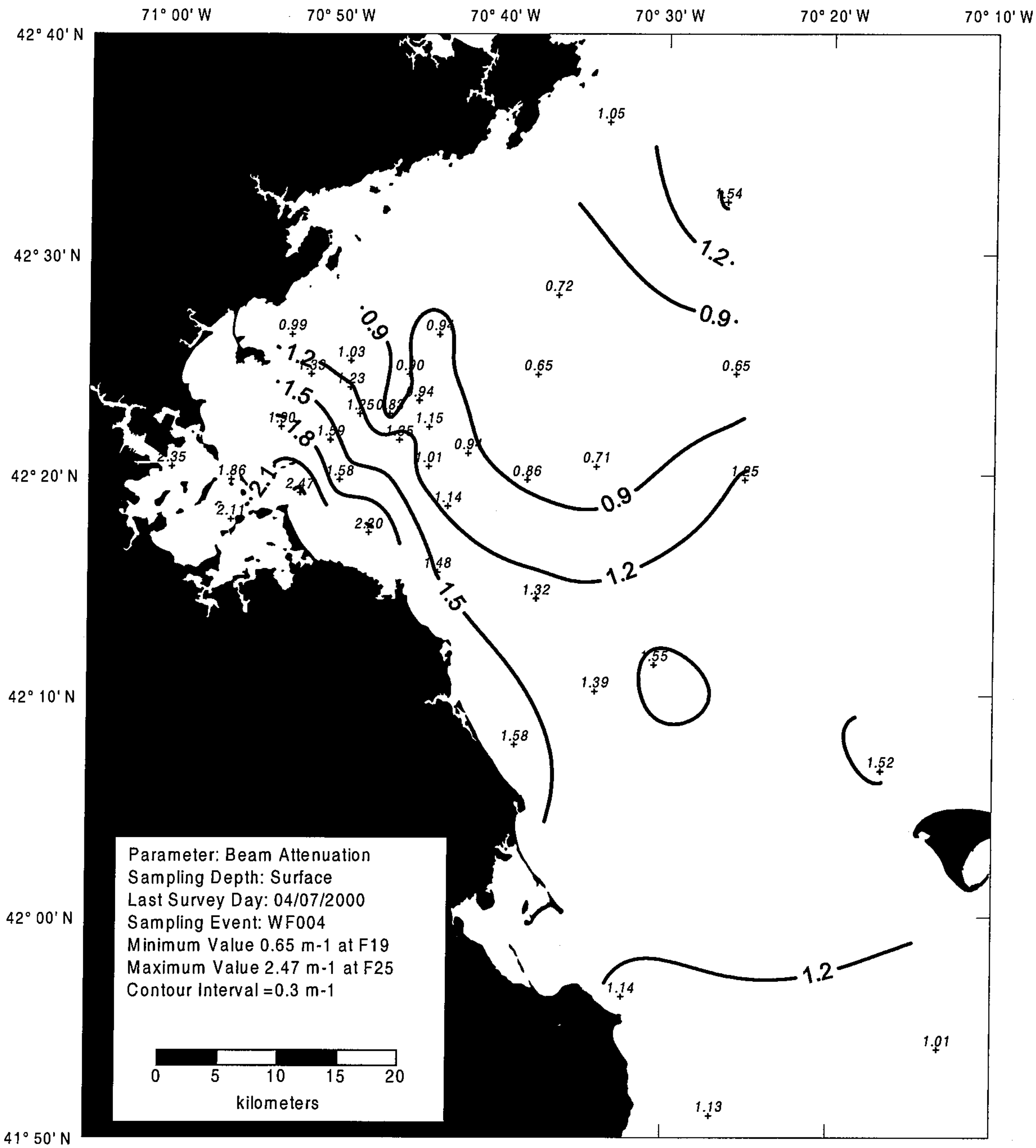


Figure B-31. Beam Attenuation Surface Contour Plot for Farfield Survey WF004 (Apr 00)

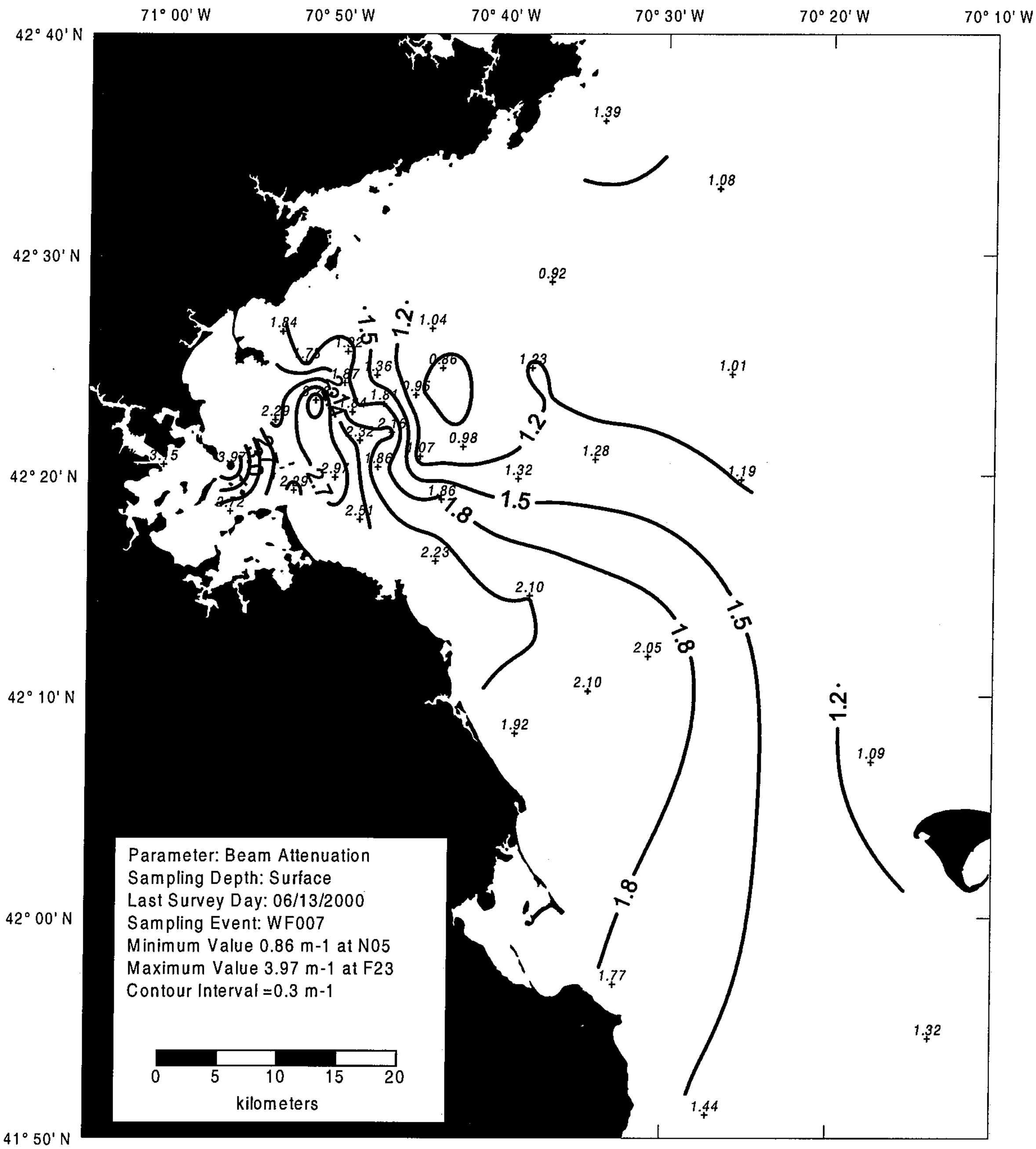


Figure B-32. Beam Attenuation Surface Contour Plot for Farfield Survey WF007 (Jun 00)

APPENDIX C

Transect Plots

Transect Plots – Farfield Surveys

Data were contoured relative to water depth and distance between stations as shown on the transects (Figure 1-3) Distances between stations and water depth at each station is shown on the transect. Water depth is labeled with negative values in meters, with zero depth at the sea surface. The depth to the seabed is shown by the solid shading at the bottom of each plot. Three transects (Boston-Nearfield, Cohasset, and Marshfield) are provided on each plot, as well as shaded contour levels on the scale bar at the bottom of the plot. Contour units are as noted on the plot. Each plot is labeled on the bottom left with the parameter, survey number, and last day of the survey date. The data used for the contours were based on high-resolution *in situ* hydrographic casts and individual data points as noted below.

Parameter	Data Used
Density (Sigma-T)	High-resolution *in situ* data
Temperature	High-resolution *in situ* data
Salinity	High-resolution *in situ* data
Transmissivity	High-resolution *in situ* data
Nitrate plus Nitrite	Individual data points based on discrete water column
Phosphate	Individual data points based on discrete water column
Silicate	Individual data points based on discrete water column
Ammonium	Individual data points based on discrete water column
Fluorescence	High-resolution *in situ* data
Dissolved Oxygen	High-resolution *in situ* data

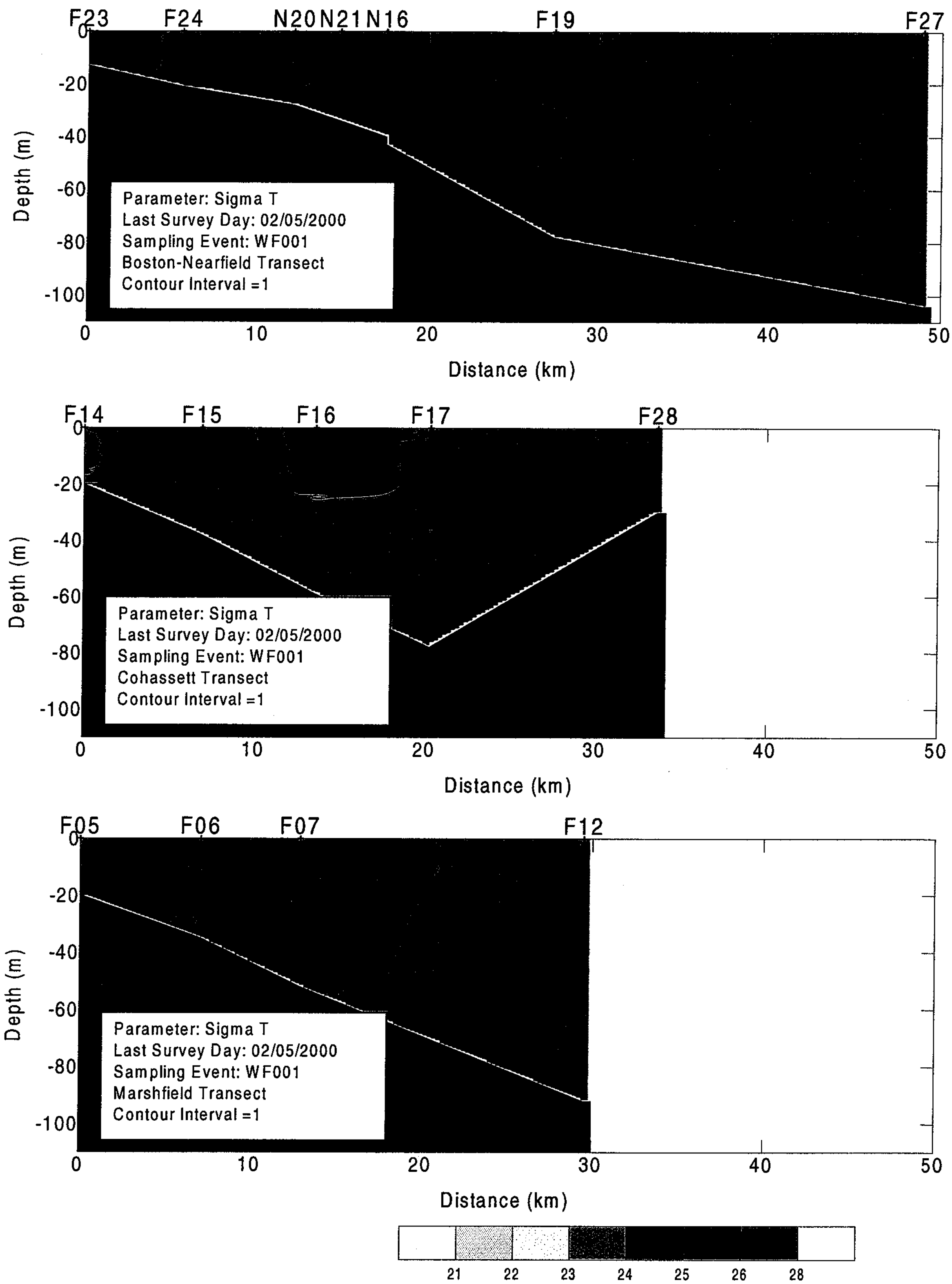


Figure C-1. Density Transect Plots (West - East) for Farfield Survey WF001 (Feb 00)

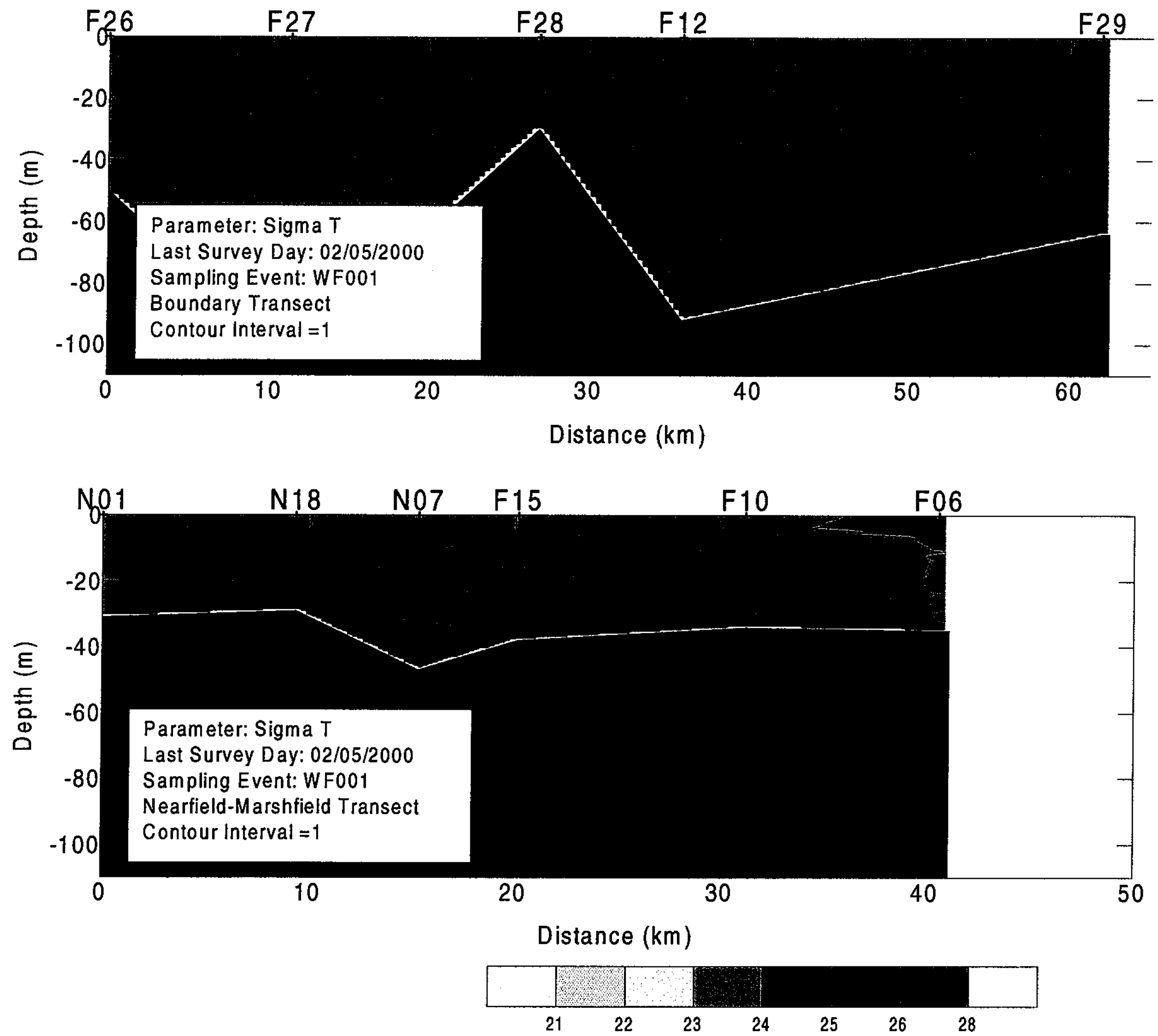


Figure C-2. Density Transect Plots (North - South) for Farfield Survey WF001 (Feb 00)

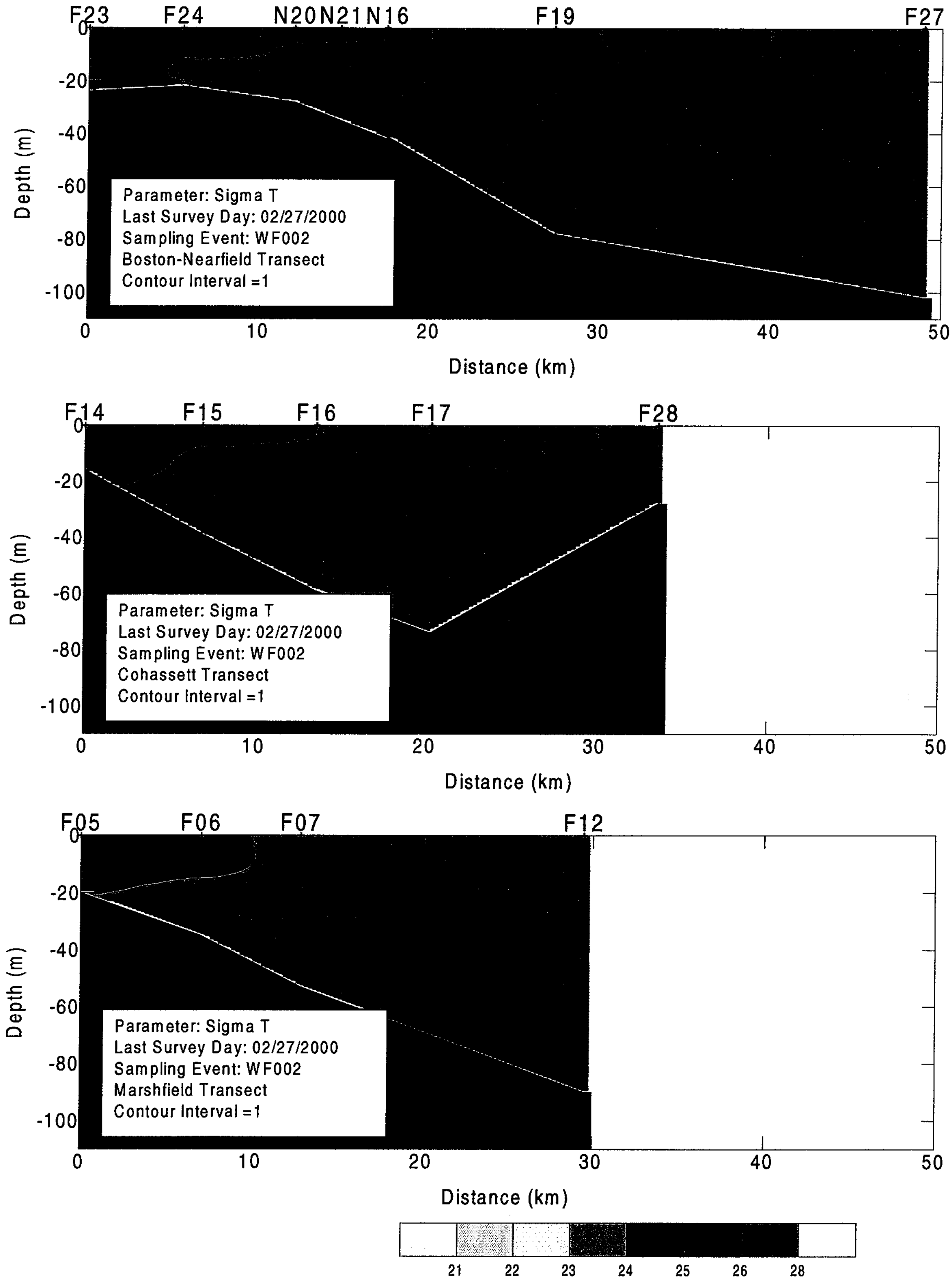


Figure C-3. Density Transect Plots (West - East) for Farfield Survey WF002 (Feb 00)

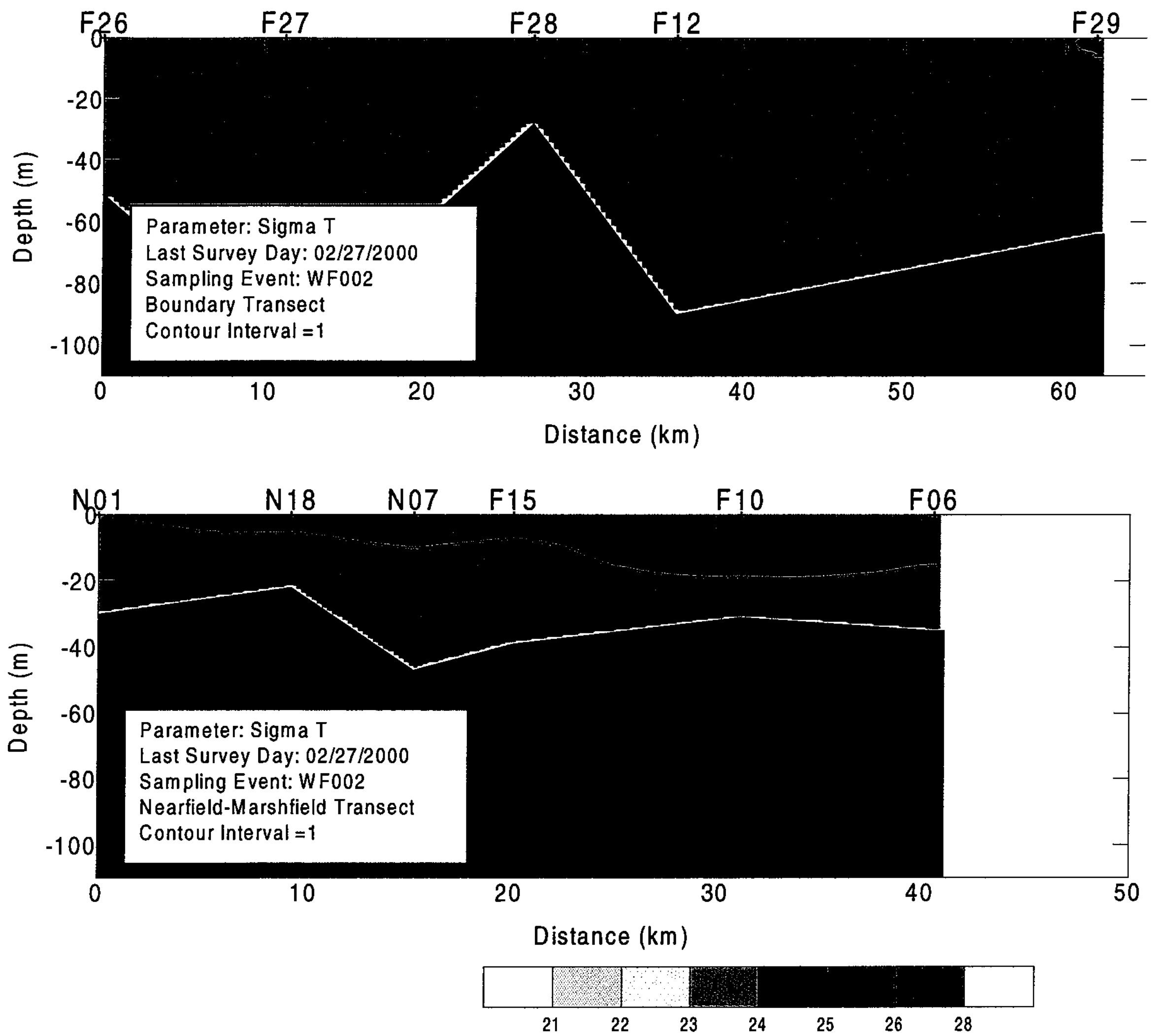


Figure C-4. Density Transect Plots (North - South) for Farfield Survey WF002 (Feb 00)

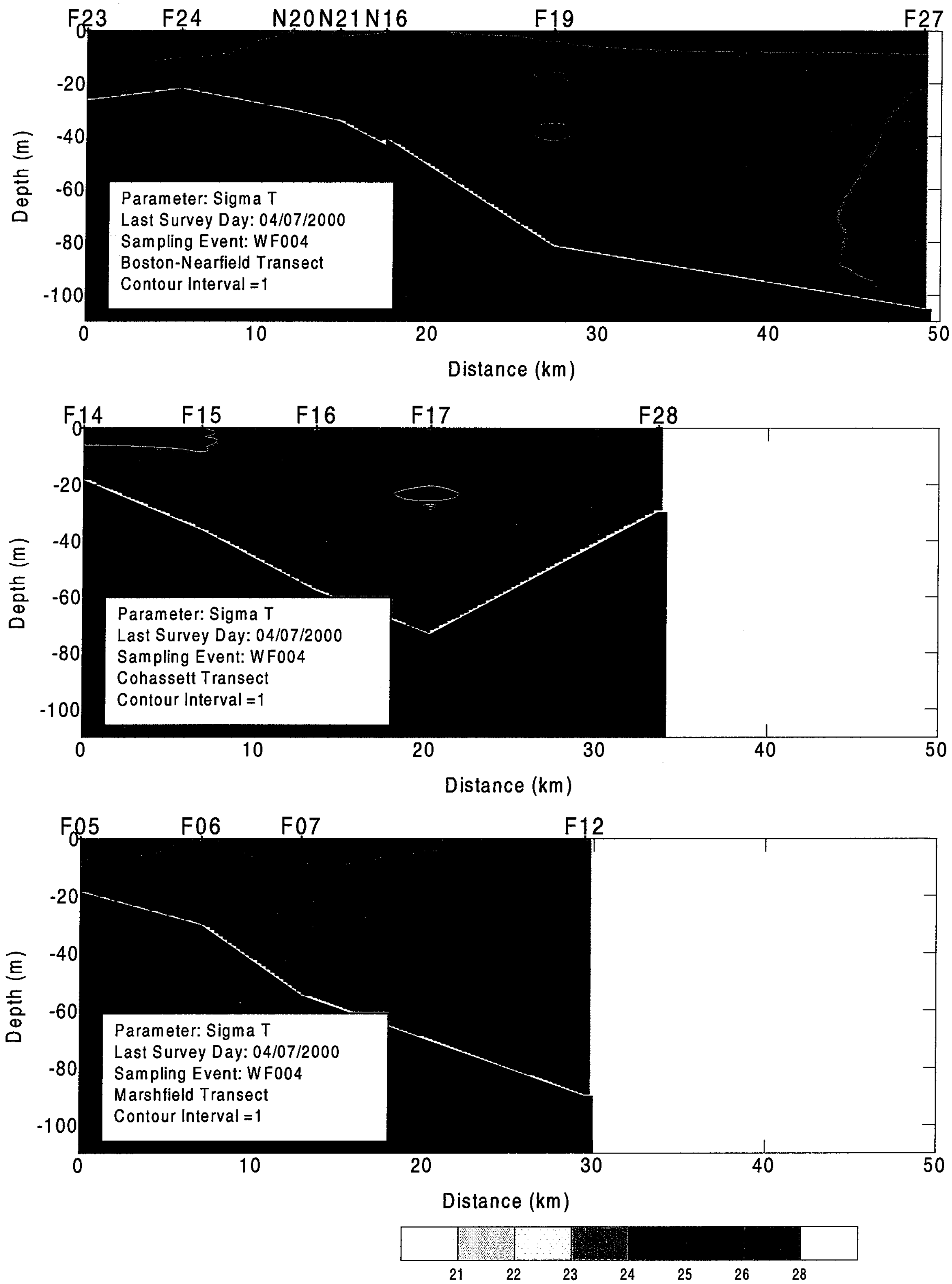


Figure C-5. Density Transect Plots (West - East) for Farfield Survey WF004 (Apr 00)

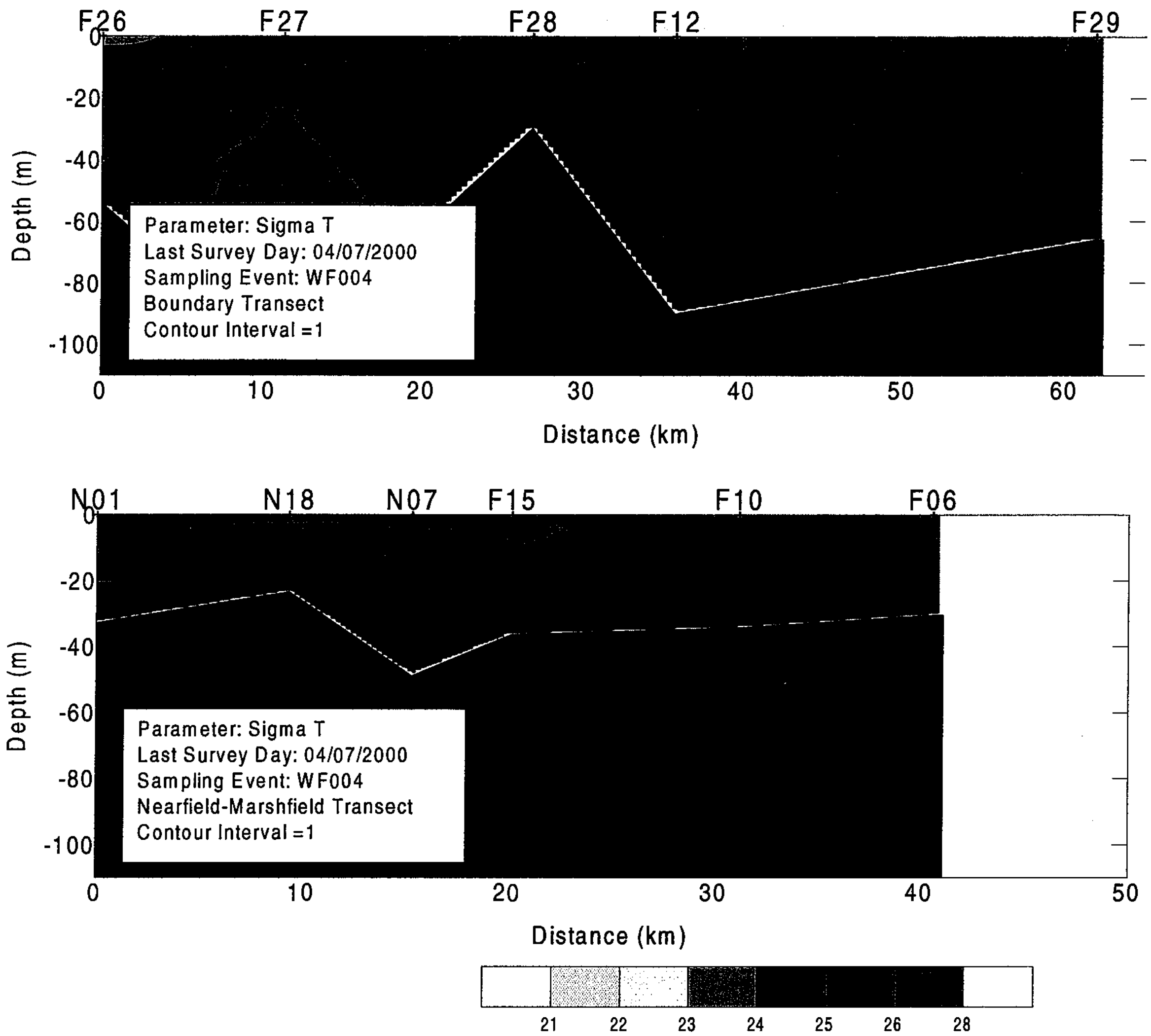


Figure C-6. Density Transect Plots (North - South) for Farfield Survey WF004 (Apr 00)

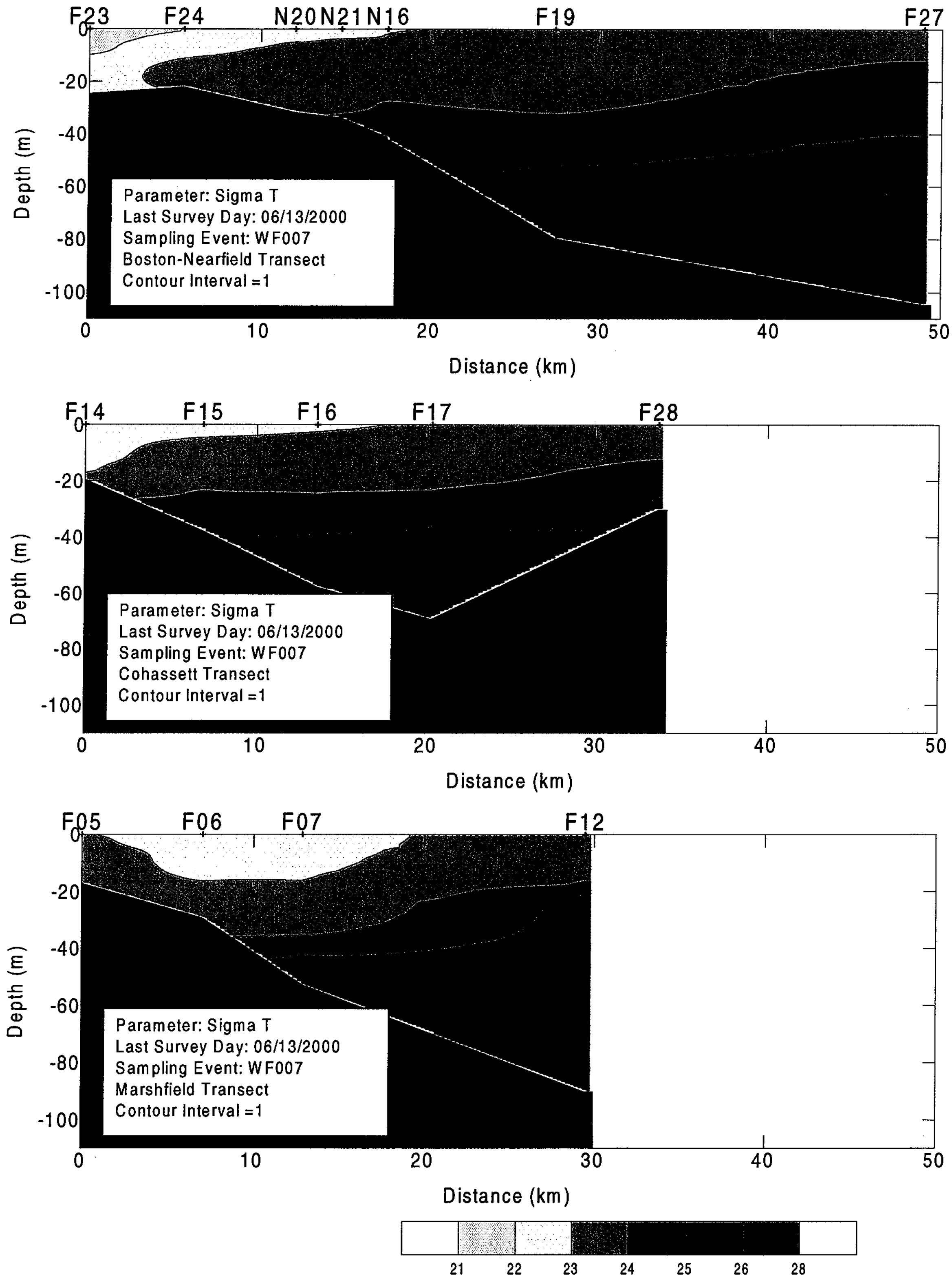


Figure C-7. Density Transect Plots (West - East) for Farfield Survey WF007 (Jun 00)

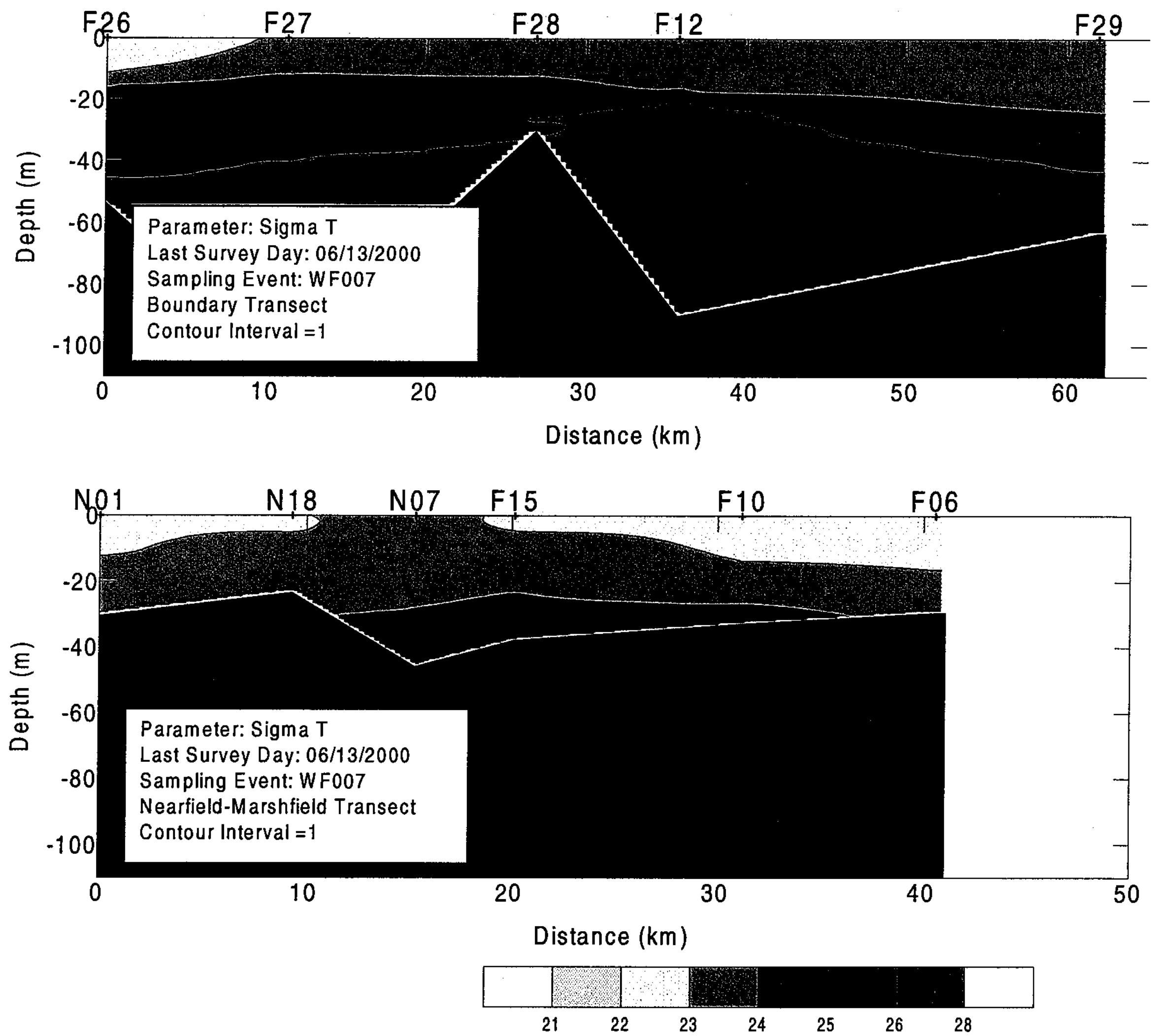


Figure C-8. Density Transect Plots (North - South) for Farfield Survey WF007 (Jun 00)

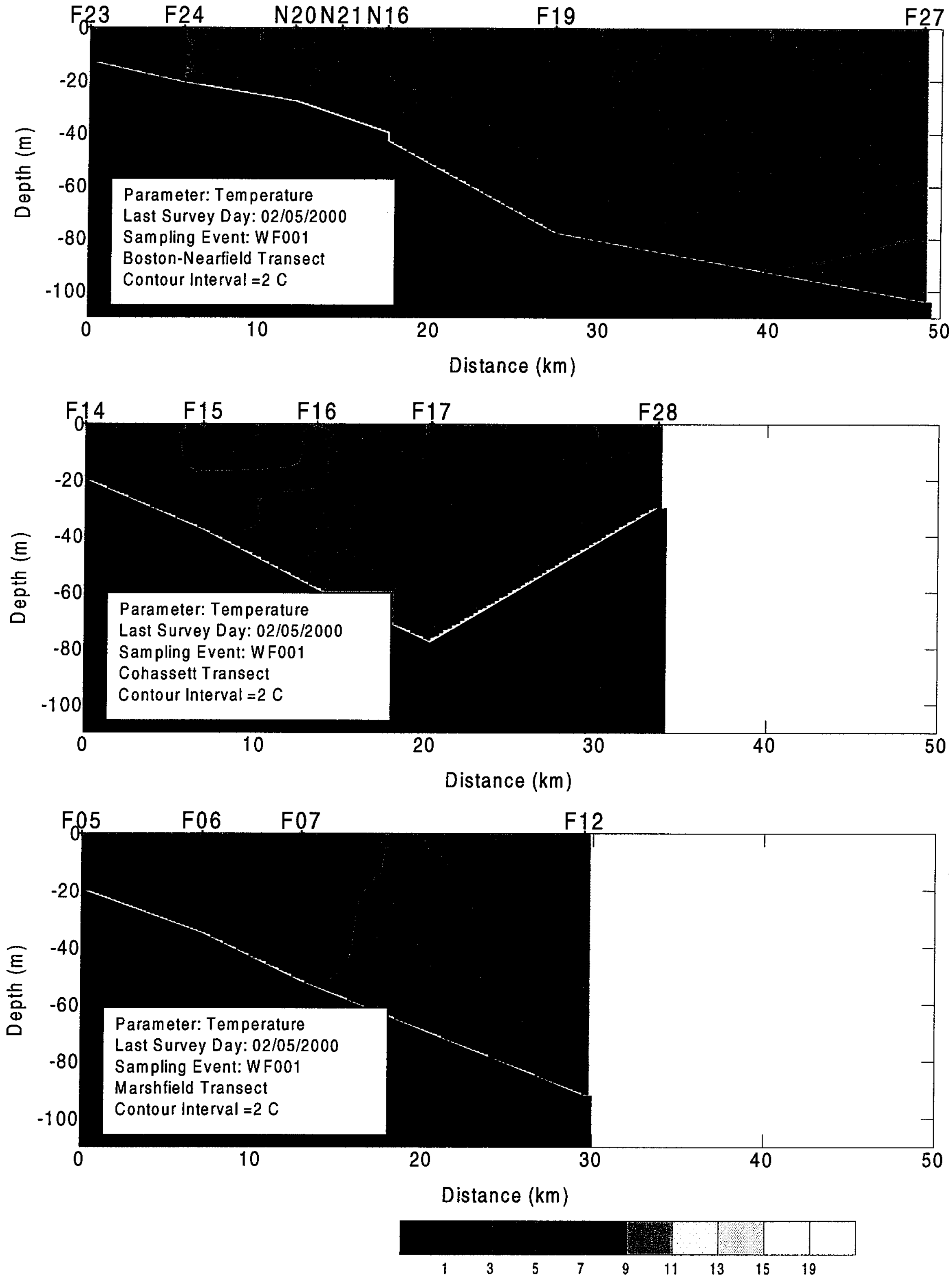


Figure C- 9. Temperature Transect Plots (West - East) for Farfield Survey WF001 (Feb 00)

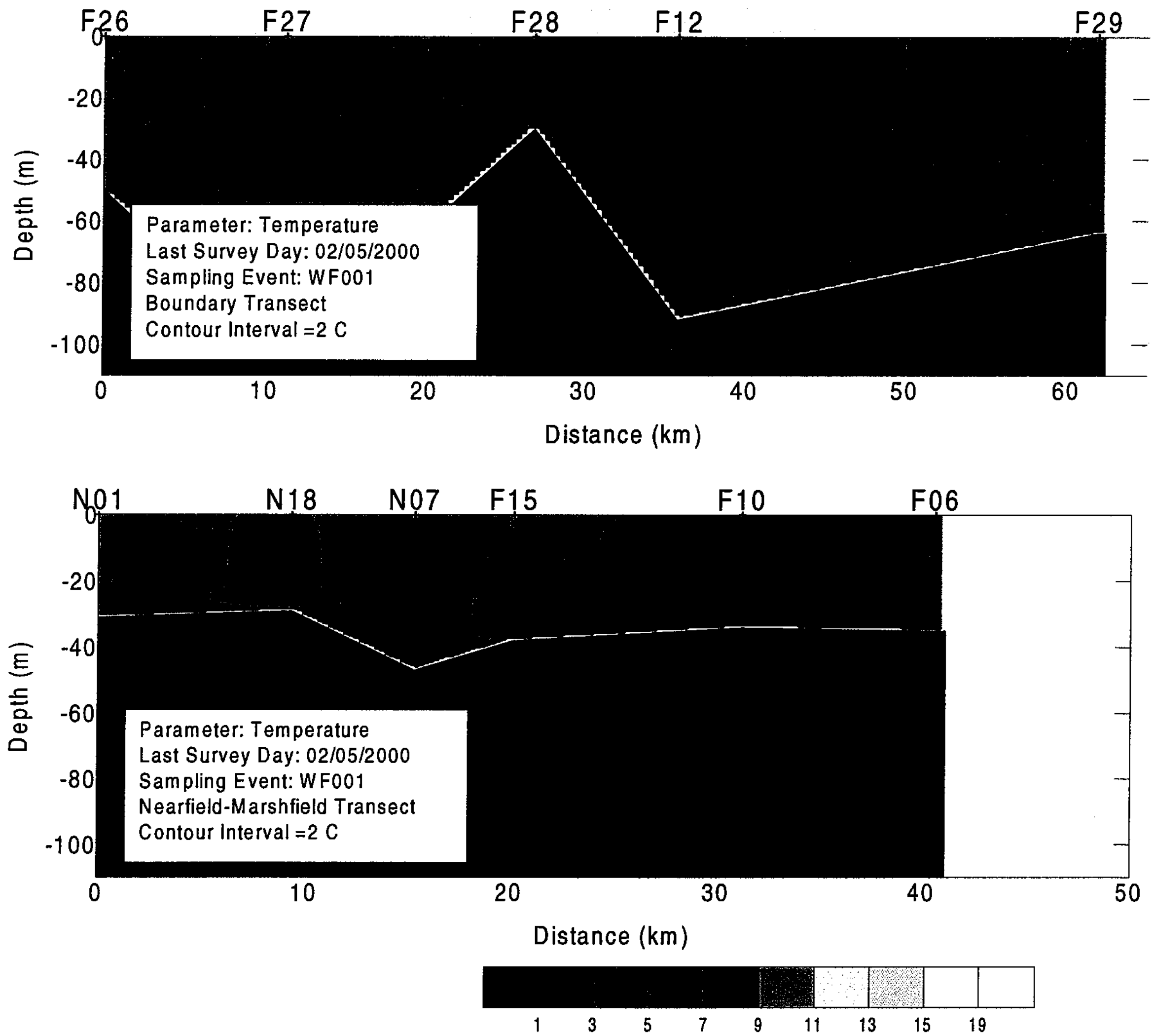


Figure C- 10. Temperature Transect Plots (North - South) for Farfield Survey WF001 (Feb 00)

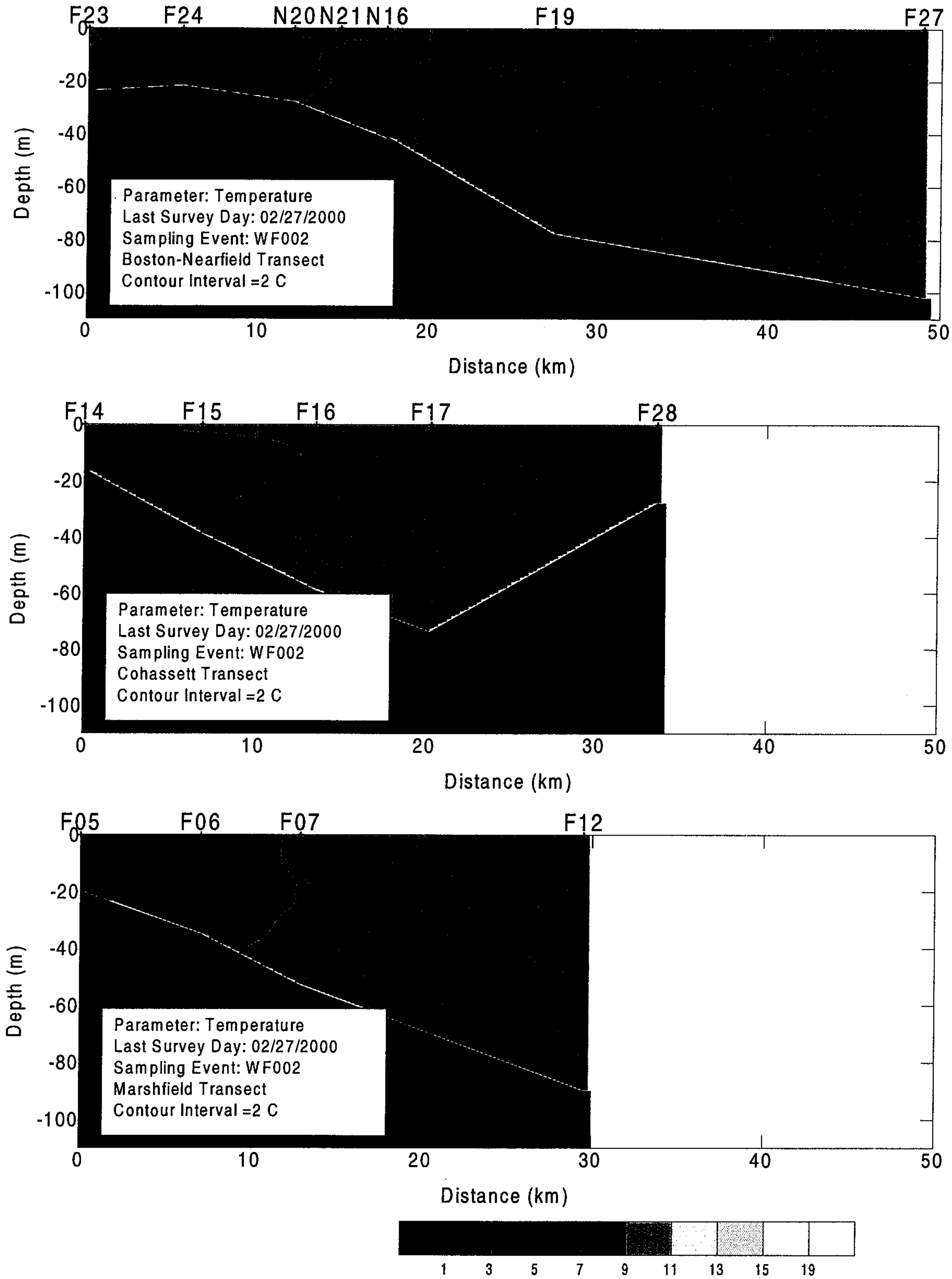


Figure C-11. Temperature Transect Plots (West – East) for Farfield Survey WF002 (Feb 00)

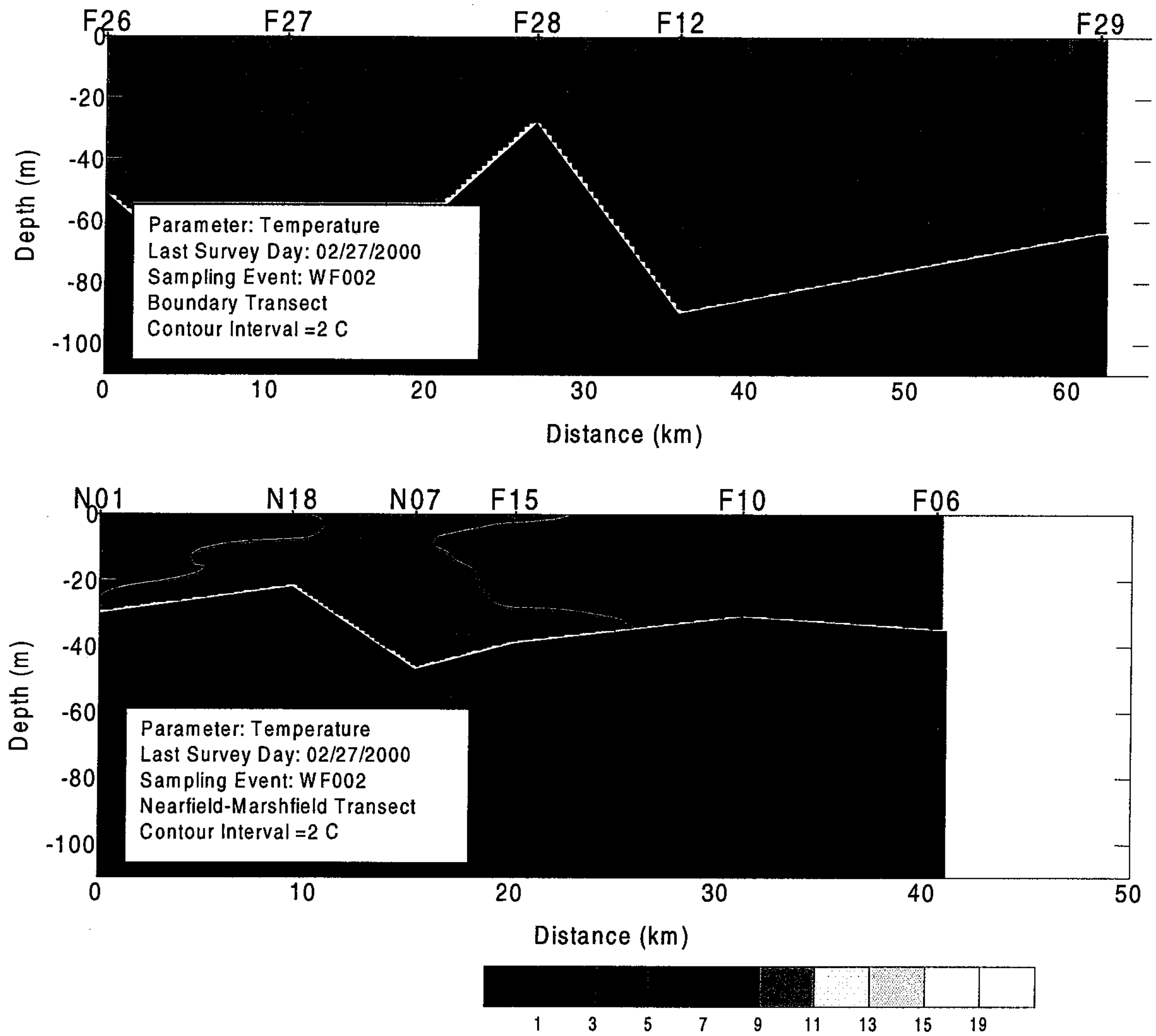


Figure C-12. Temperature Transect Plots (North - South) for Farfield Survey WF002 (Feb 00)

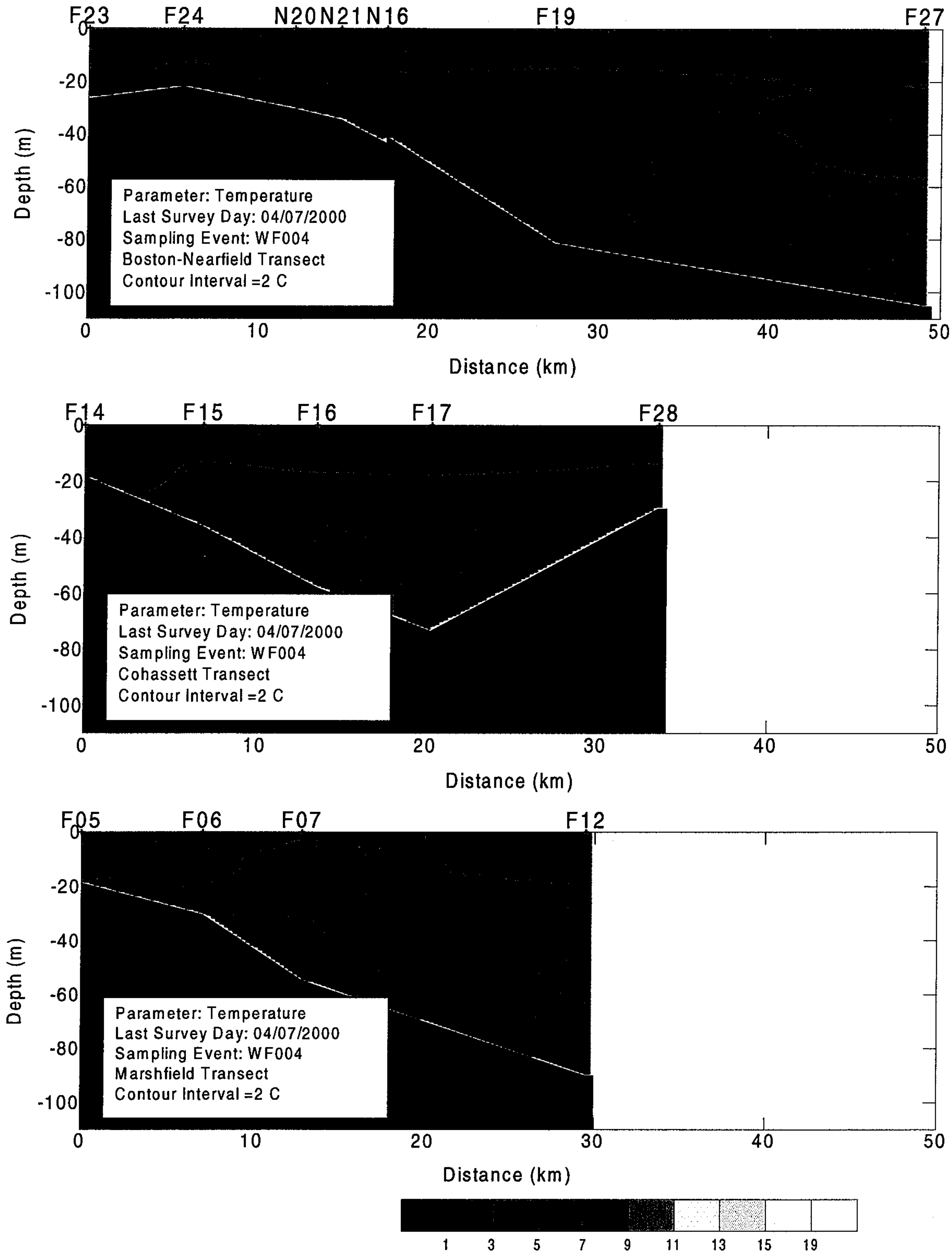


Figure C-13. Temperature Transect Plots (West – East) for Farfield Survey WF004 (Apr 00)

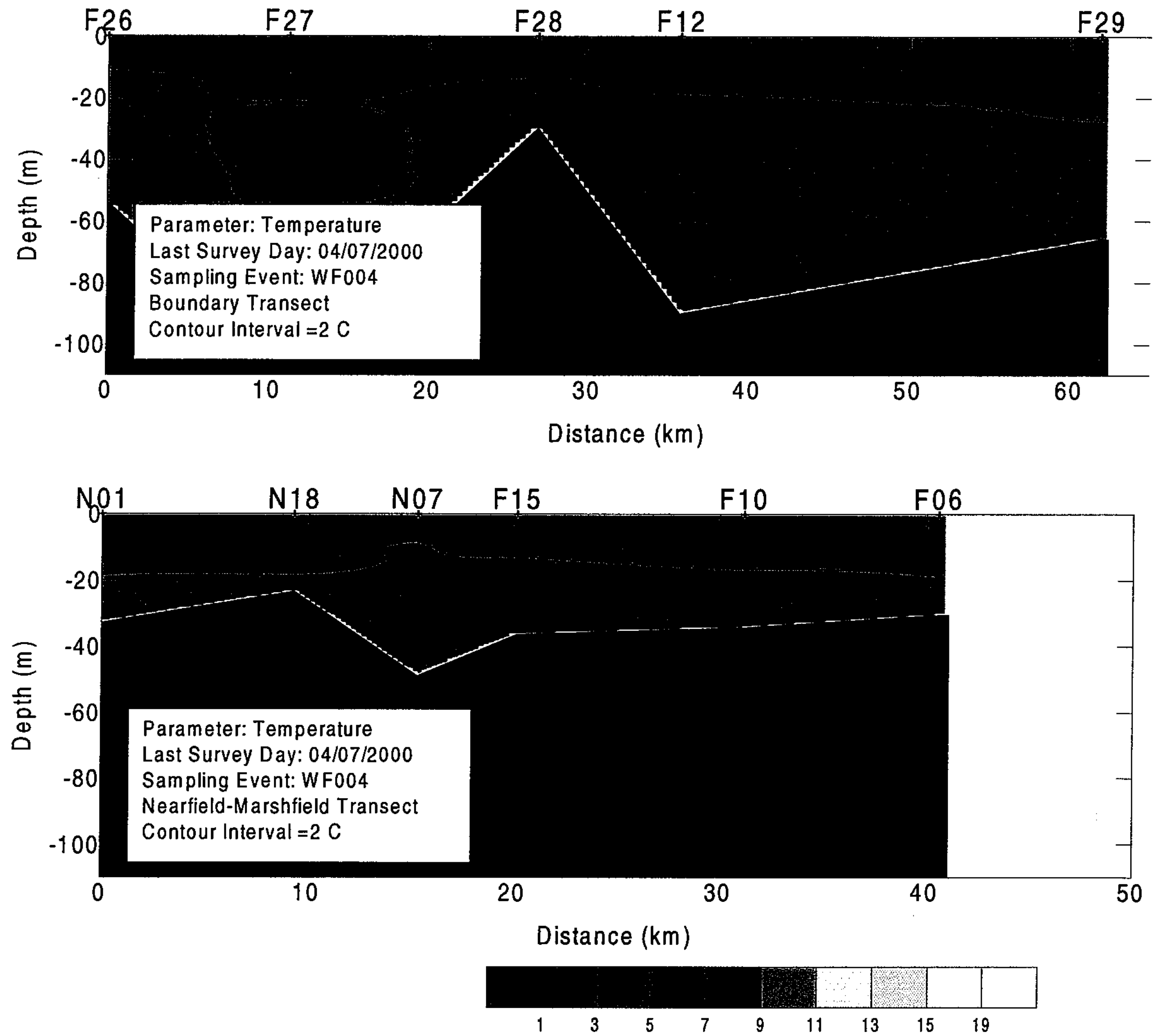


Figure C-14. Temperature Transect Plots (North - South) for Farfield Survey WF004 (Apr 00)

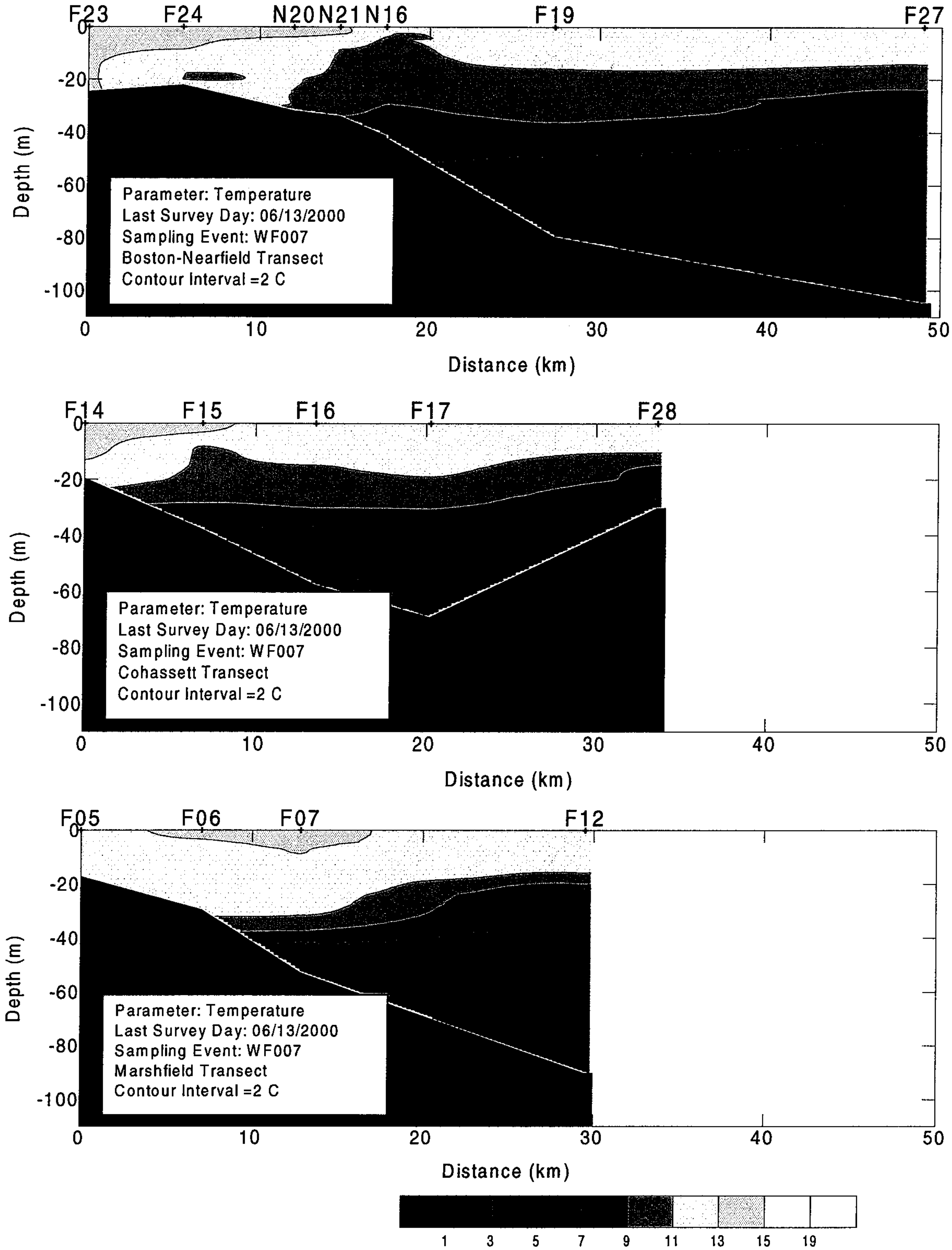


Figure C-15. Temperature Transect Plots (West – East) for Farfield Survey WF007 (Jun 00)

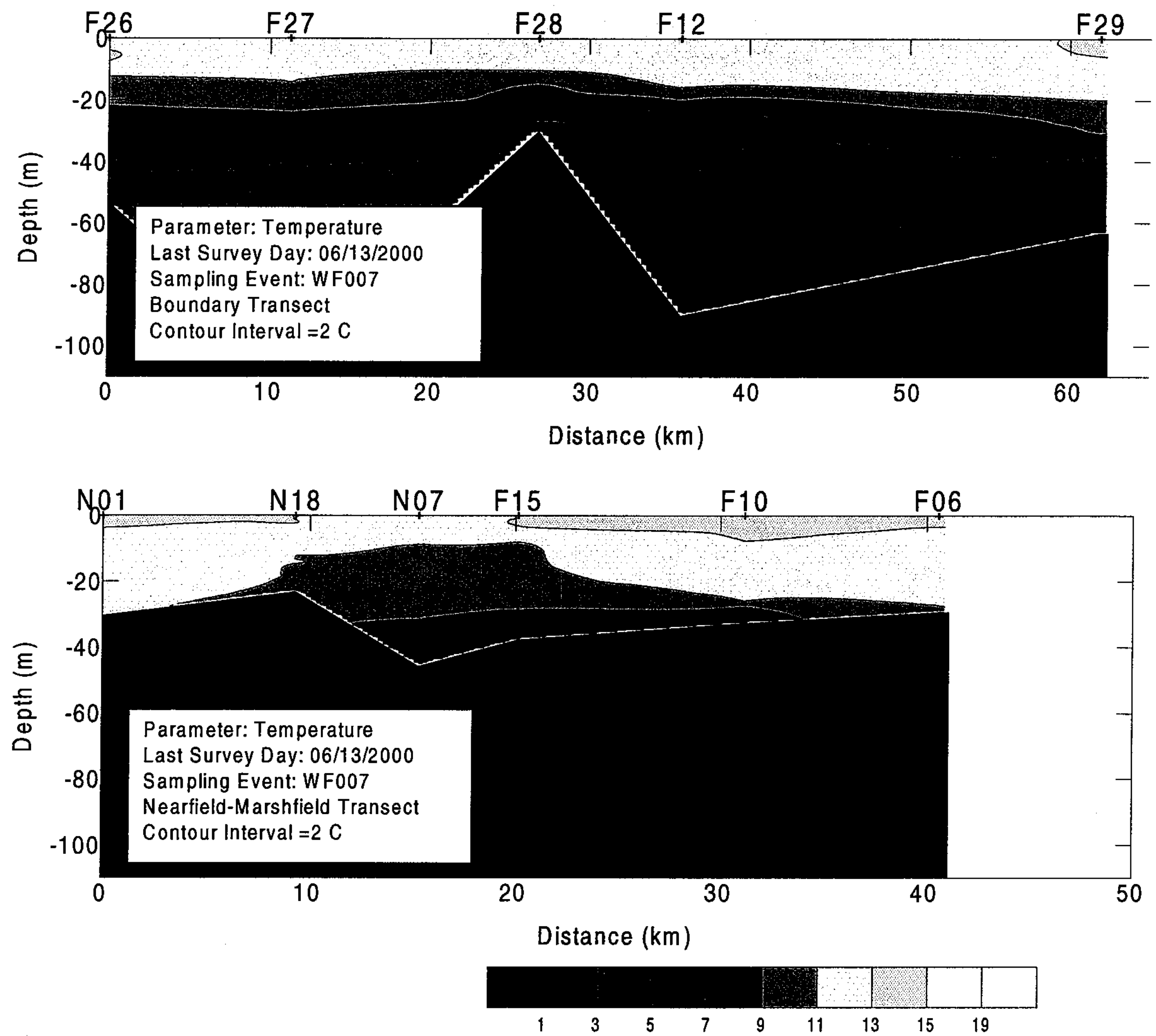


Figure C-16. Temperature Transect Plots (North - South) for Farfield Survey WF007 (Jun 00)

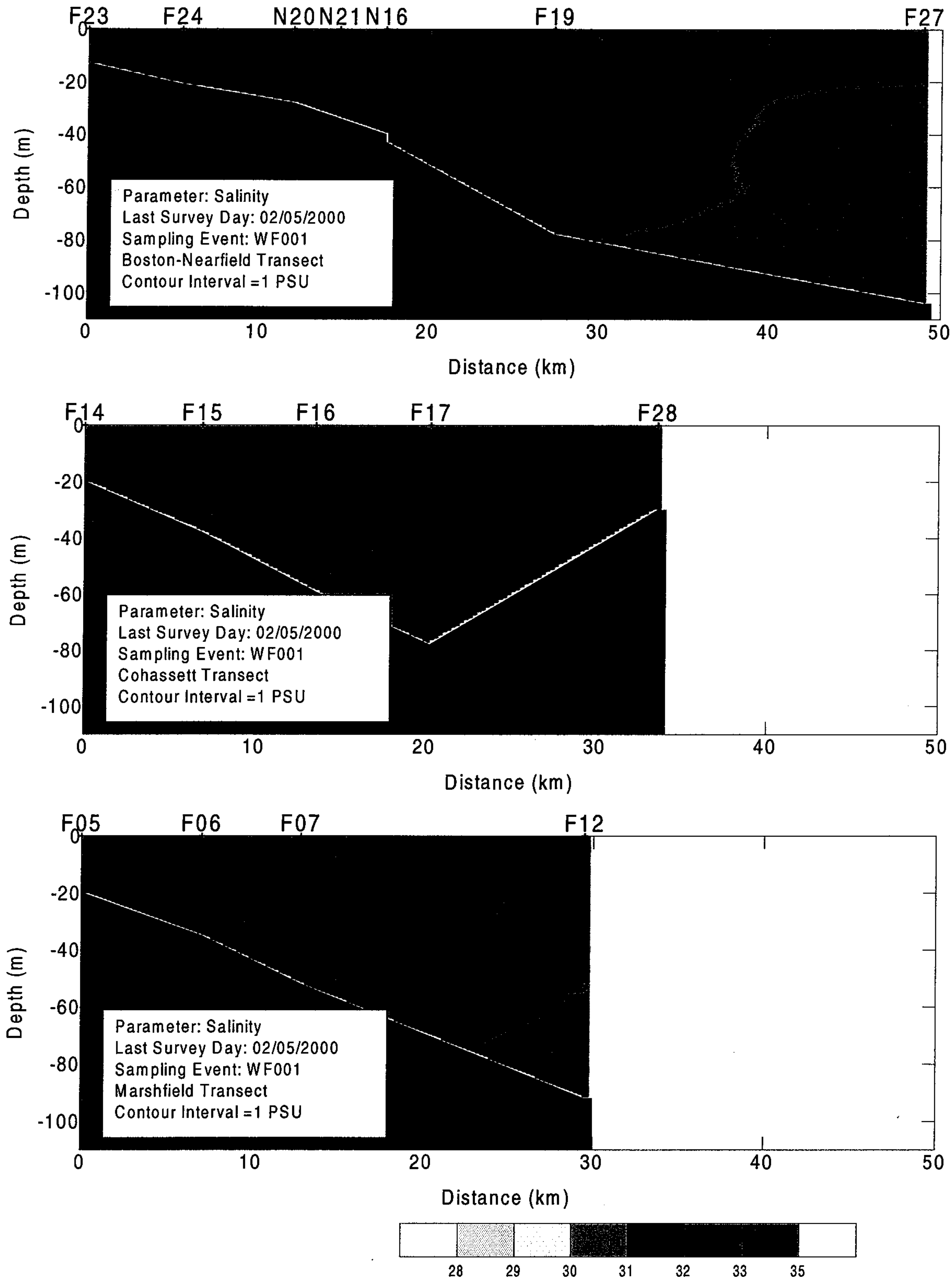


Figure C-17. Salinity Transect Plots (West - East) for Farfield Survey WF001 (Feb 00)

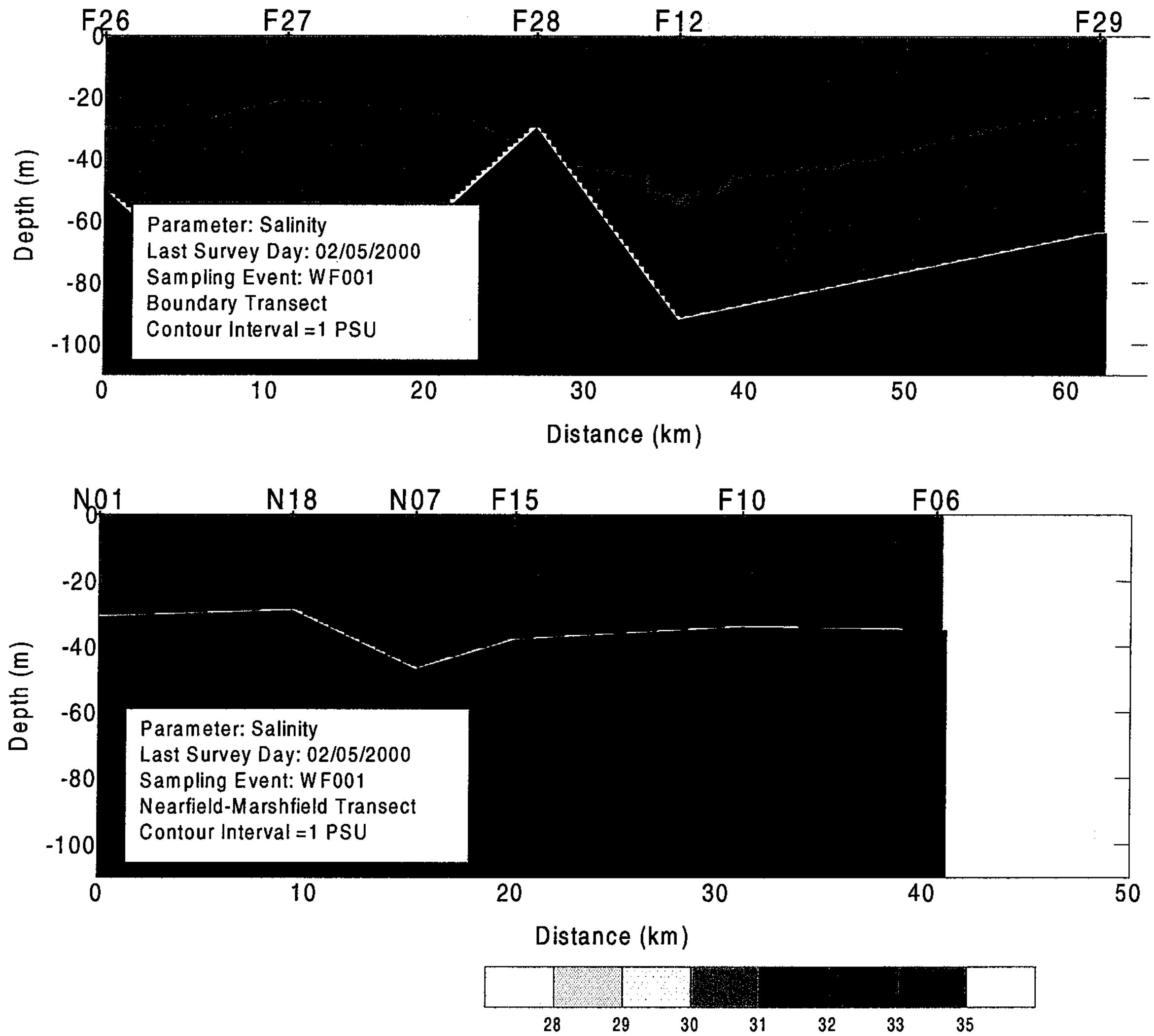


Figure C-18. Salinity Transect Plots (North - South) for Farfield Survey WF001 (Feb 00)

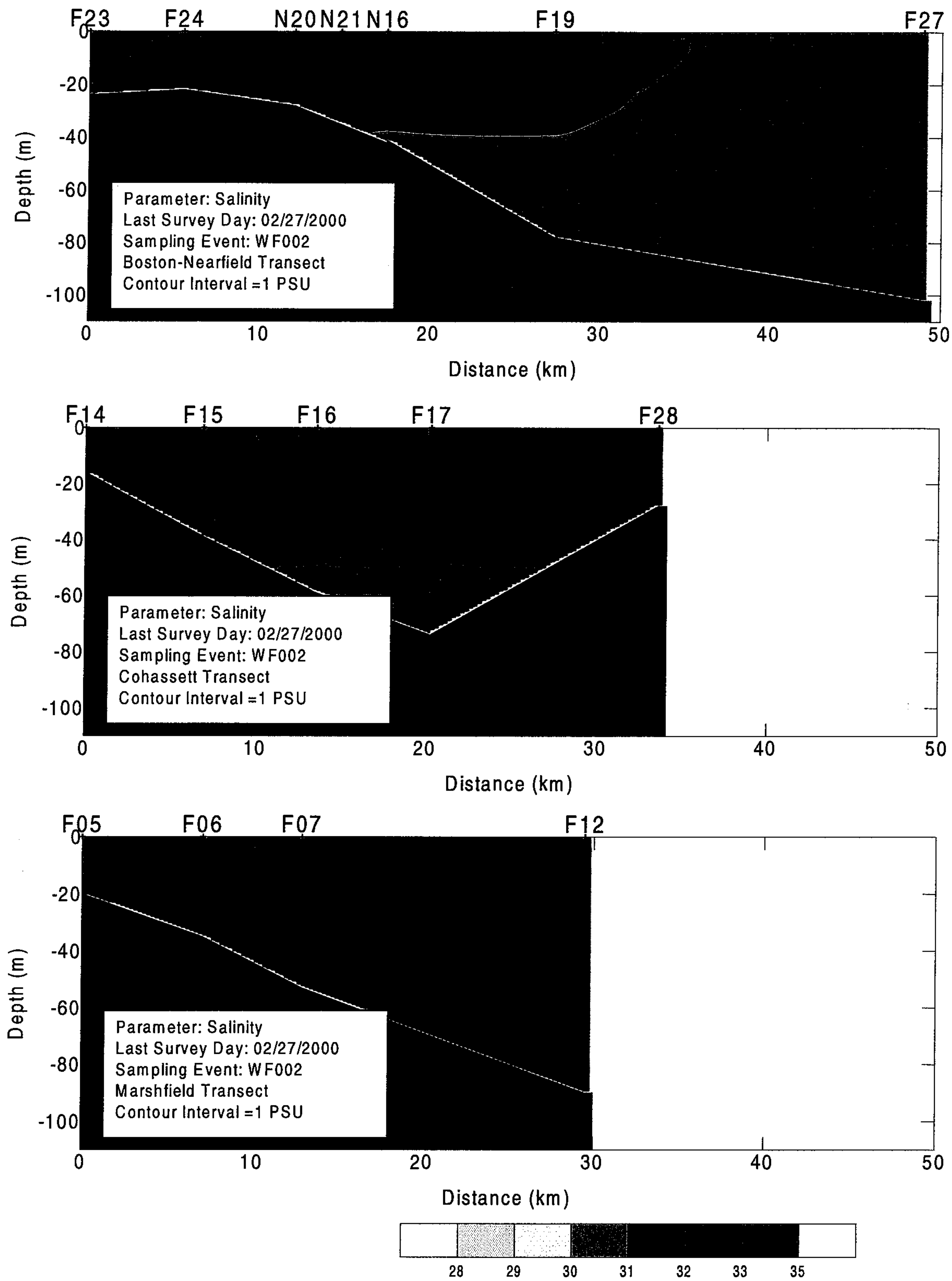


Figure C-19. Salinity Transect Plots (West - East) for Farfield Survey WF002 (Feb 00)

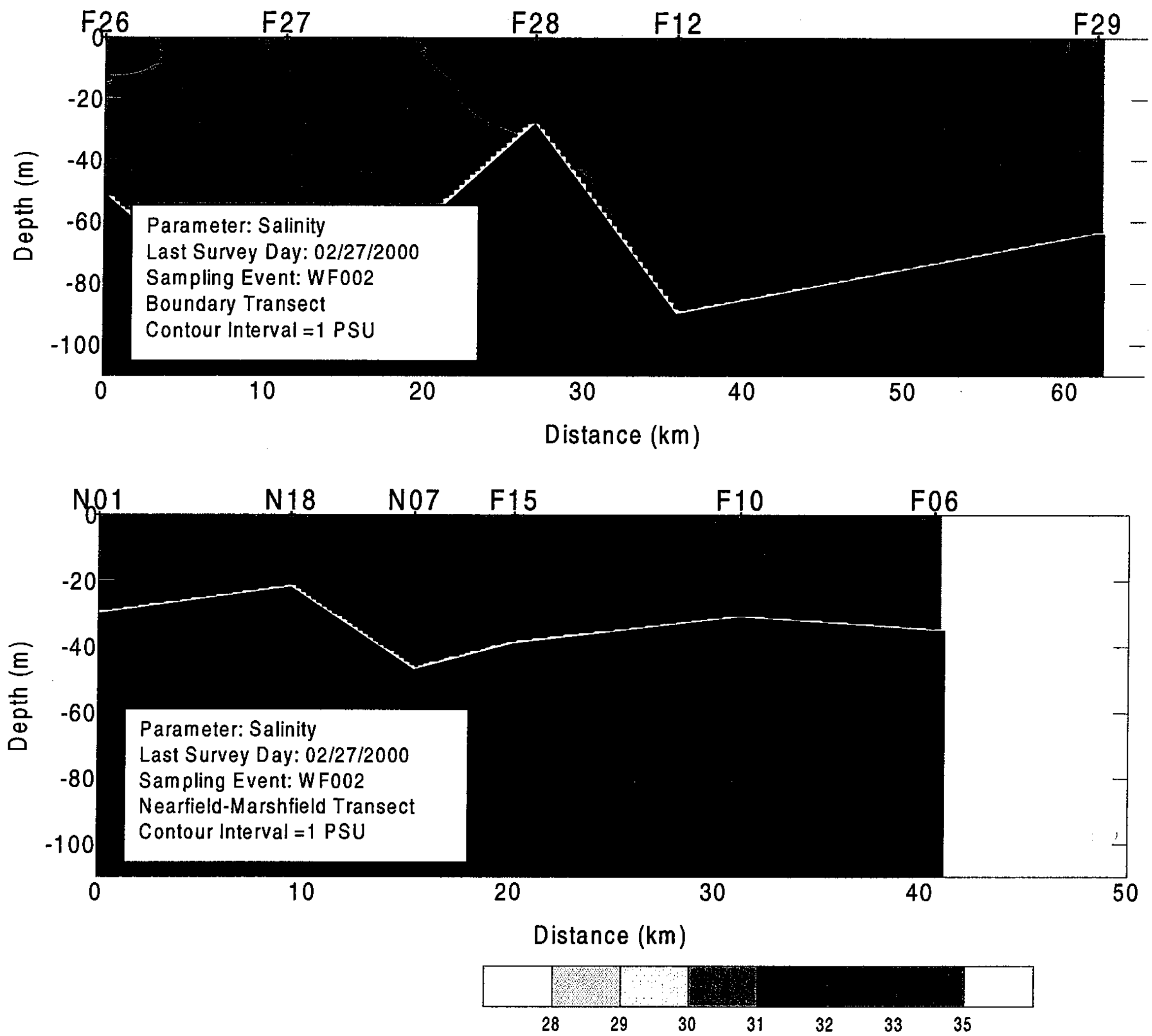


Figure C-20. Salinity Transect Plots (North - South) for Farfield Survey WF002 (Feb 00)

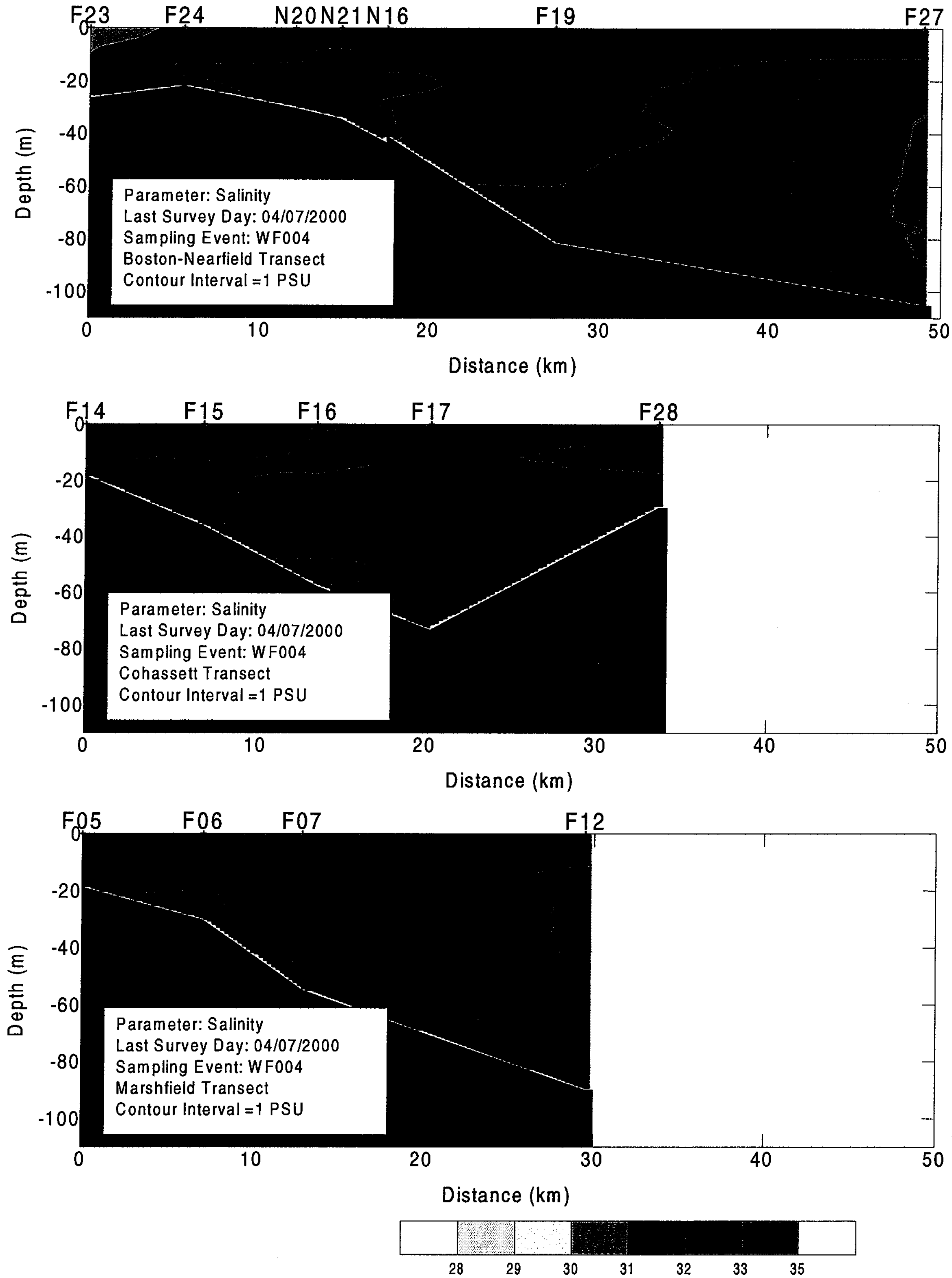


Figure C-21. Salinity Transect Plots (West - East) for Farfield Survey WF004 (Apr 00)

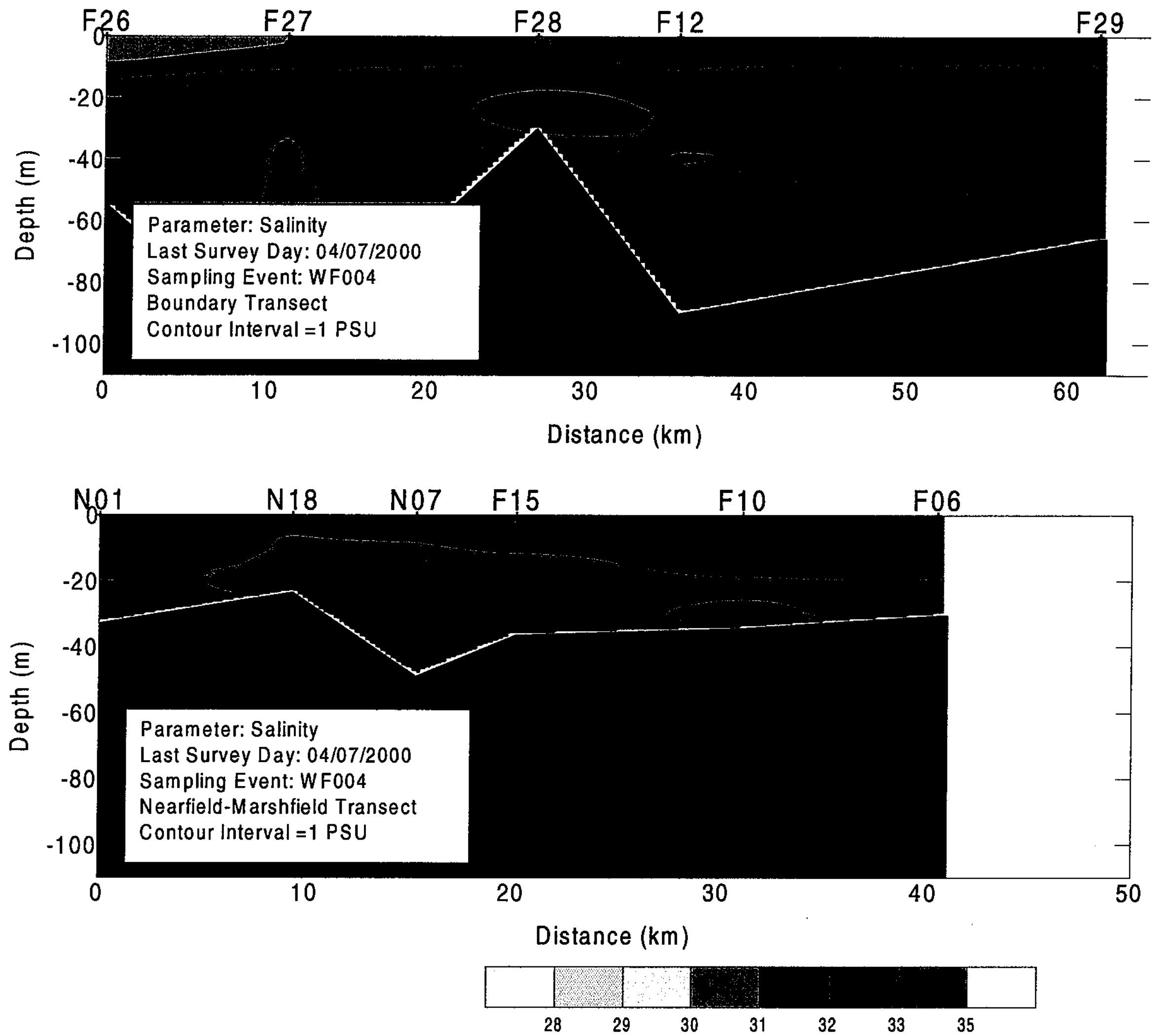


Figure C-22. Salinity Transect Plots (North - South) for Farfield Survey WF004 (Apr 00)

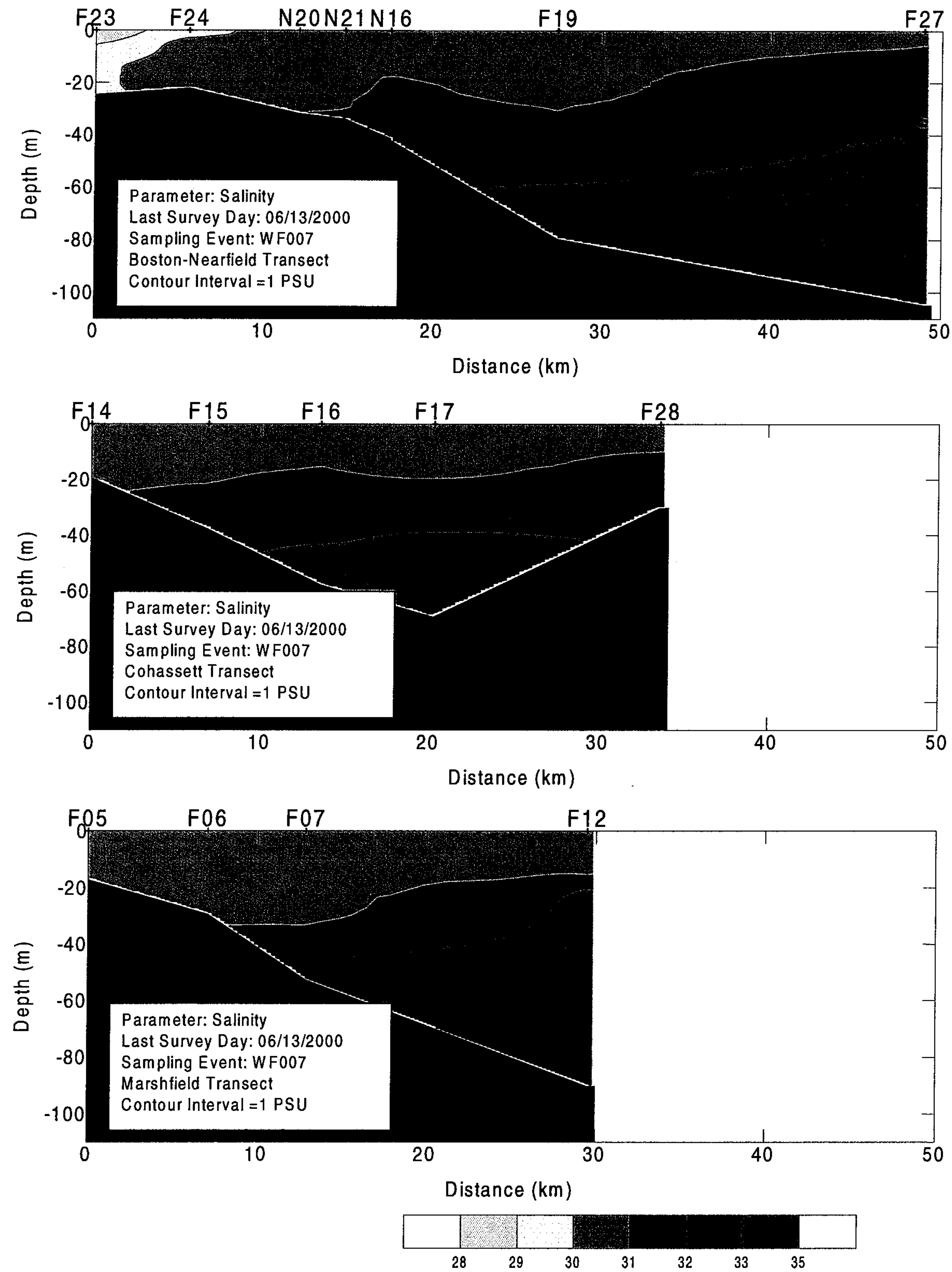


Figure C-23. Salinity Transect Plots (West - East) for Farfield Survey WF007 (Jun 00)

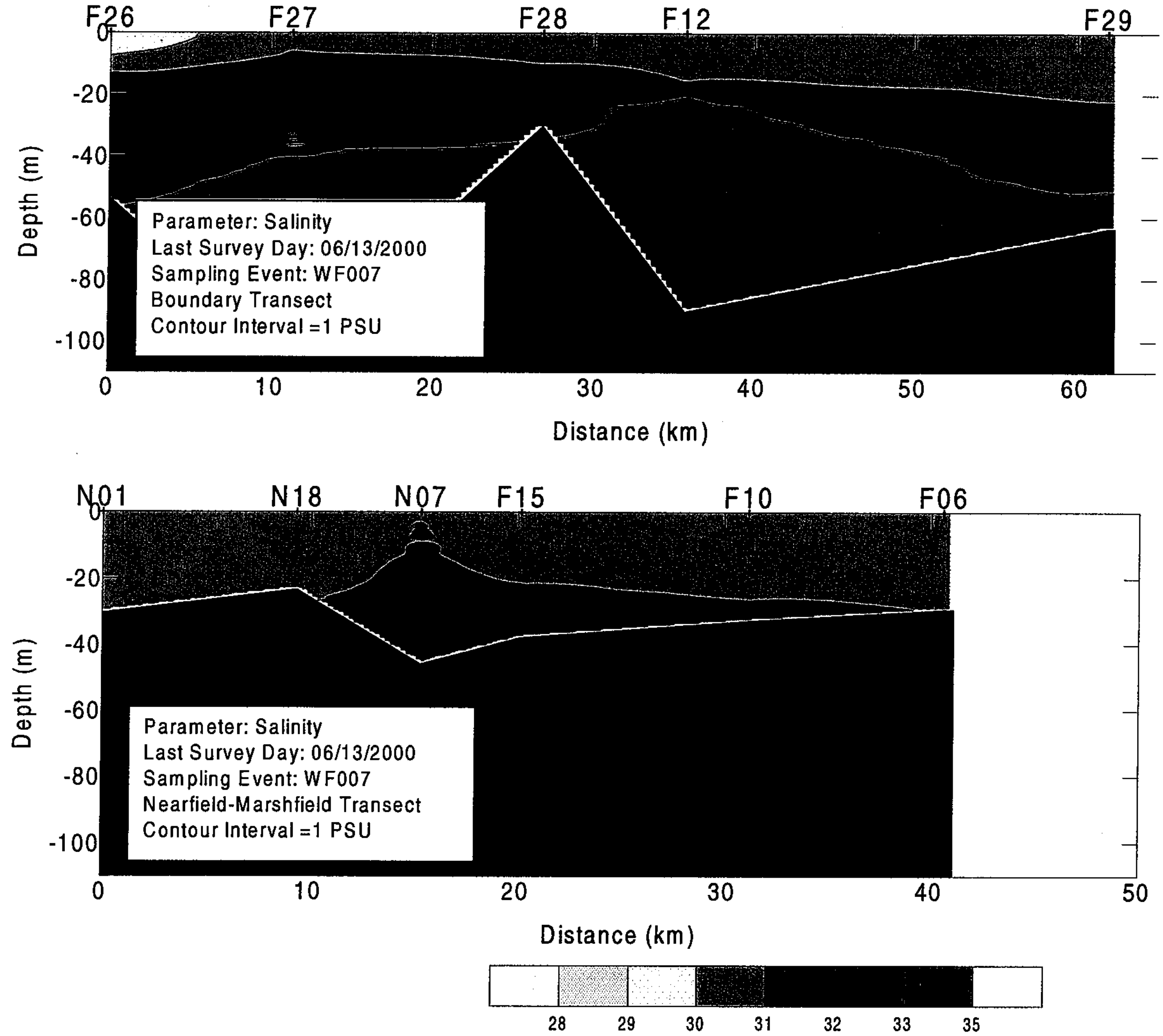


Figure C-24. Salinity Transect Plots (North - South) for Farfield Survey WF007 (Jun 00)

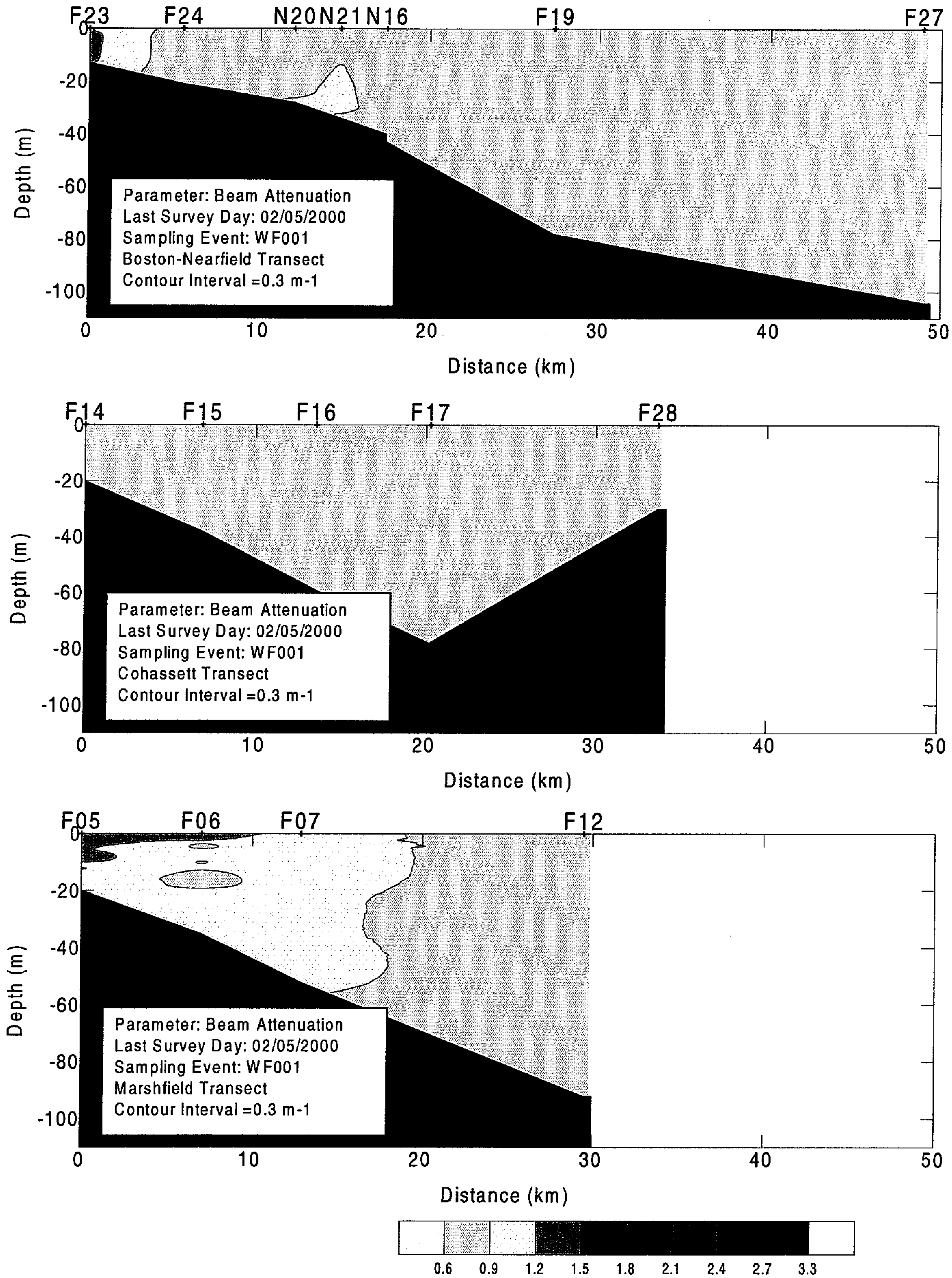


Figure C-25. Beam Attenuation Transect Plots (West - East) for Farfield Survey WF001 (Feb 00)

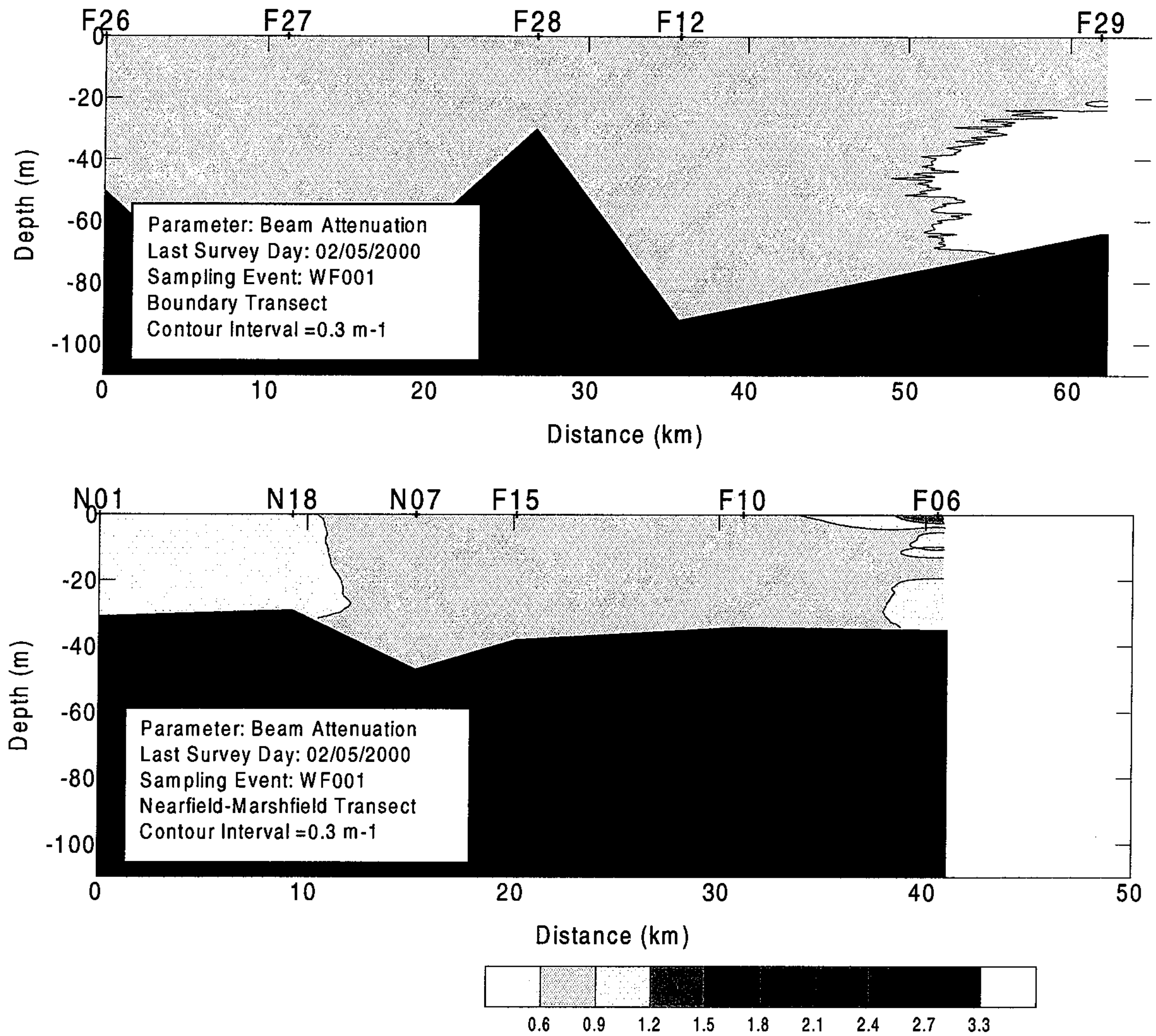


Figure C-26. Beam Attenuation Transect Plots (North - South) for Farfield Survey WF001 (Feb 00)

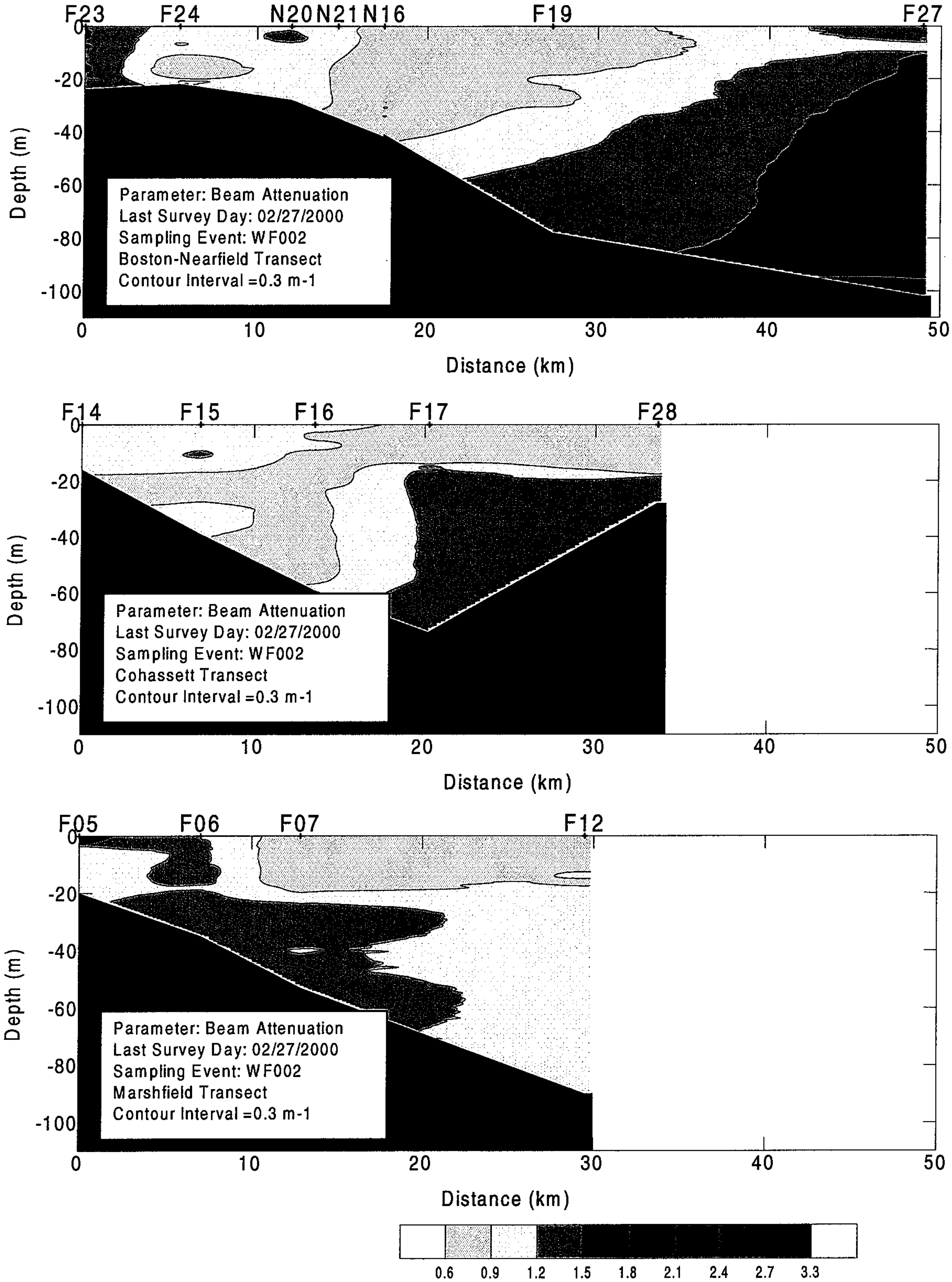


Figure C-27. Beam Attenuation Transect Plots (West - East) for Farfield Survey WF002 (Feb 00)

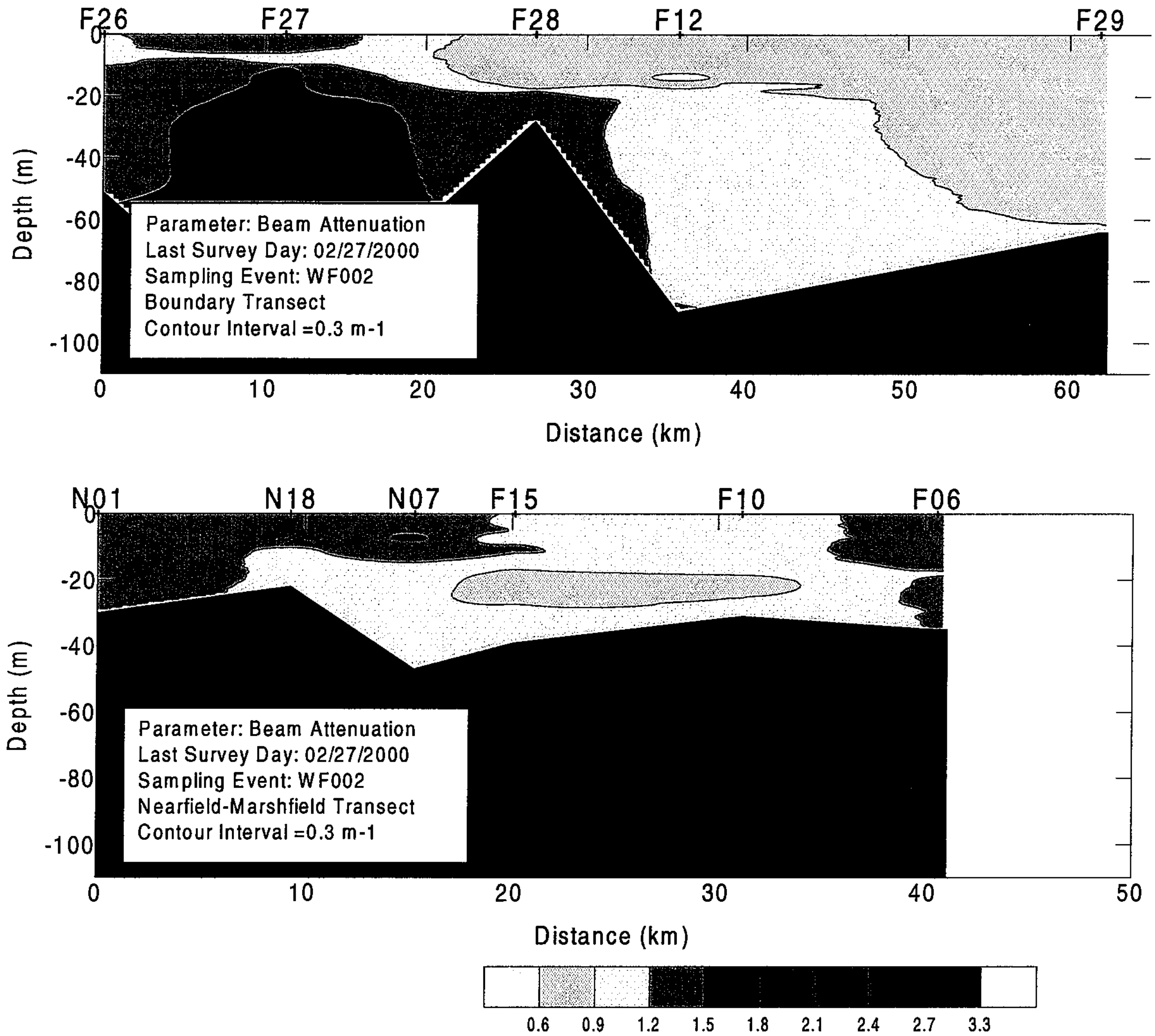


Figure C-28. Beam Attenuation Transect Plots (North - South) for Farfield Survey WF002 (Feb 00)

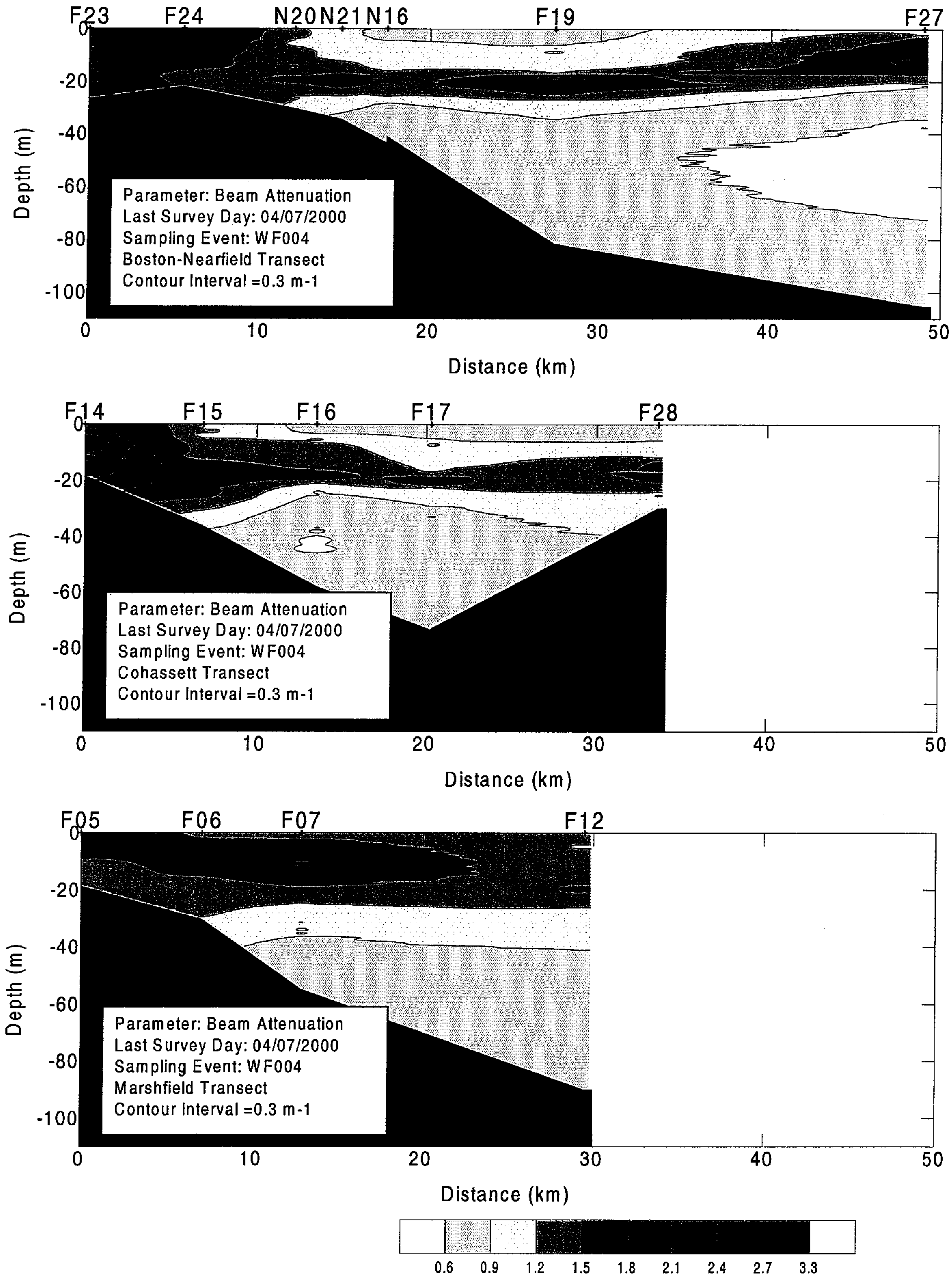


Figure C-29. Beam Attenuation Transect Plots (West - East) for Farfield Survey WF004 (Apr 00)

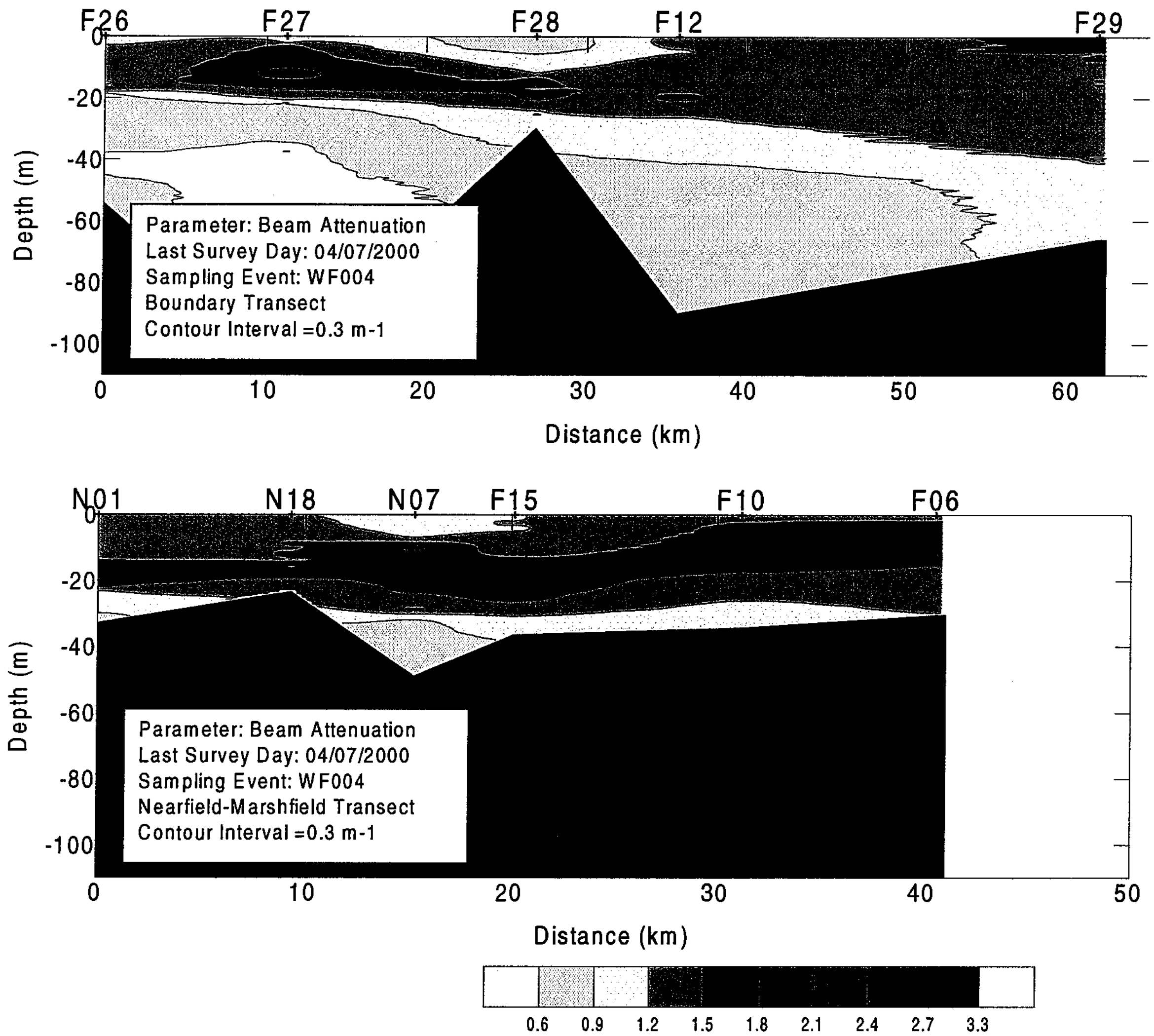


Figure C-30. Beam Attenuation Transect Plots (North - South) for Farfield Survey WF004 (Apr 00)

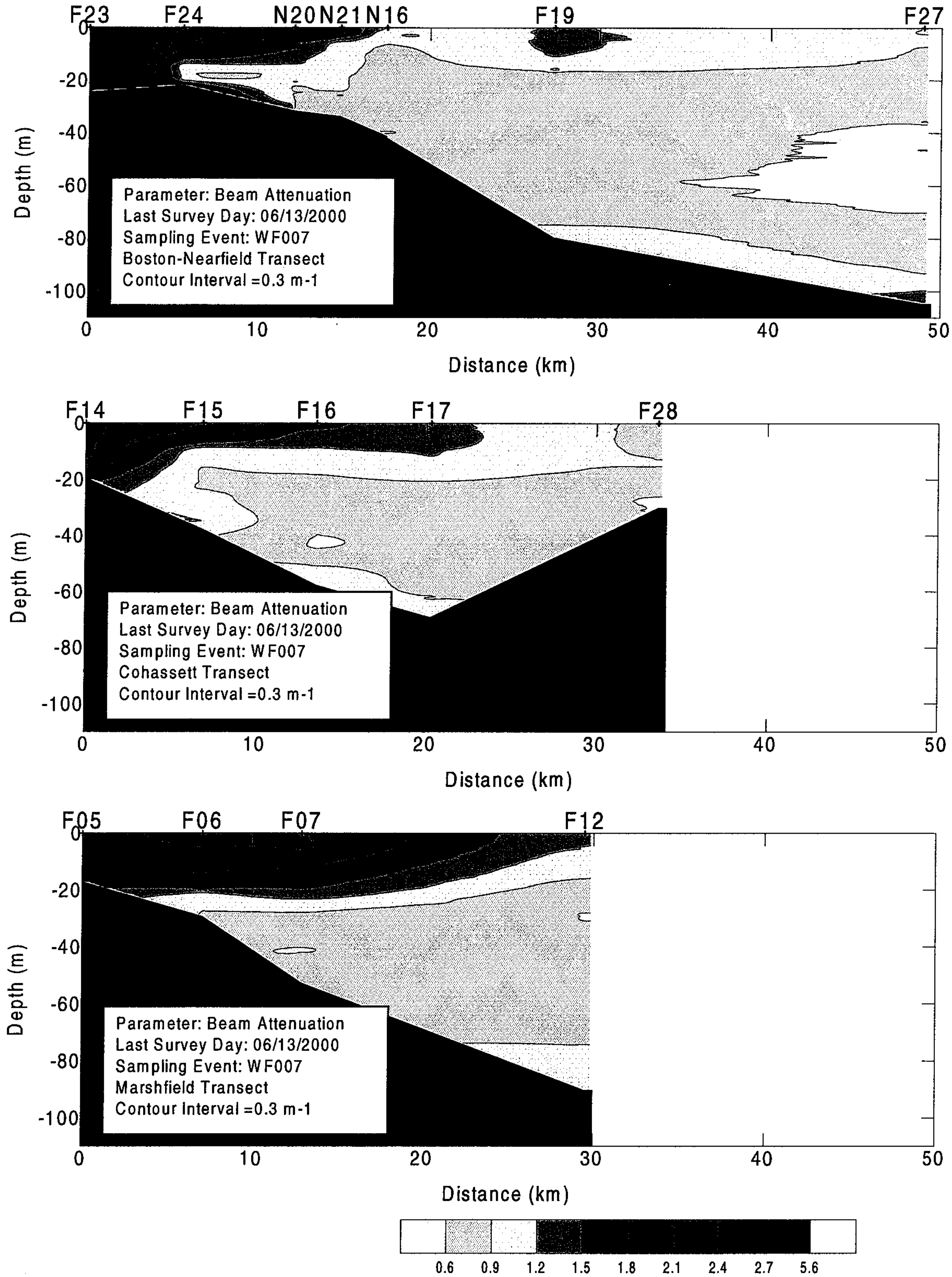


Figure C-31. Beam Attenuation Transect Plots (West - East) for Farfield Survey WF007 (Jun 00)

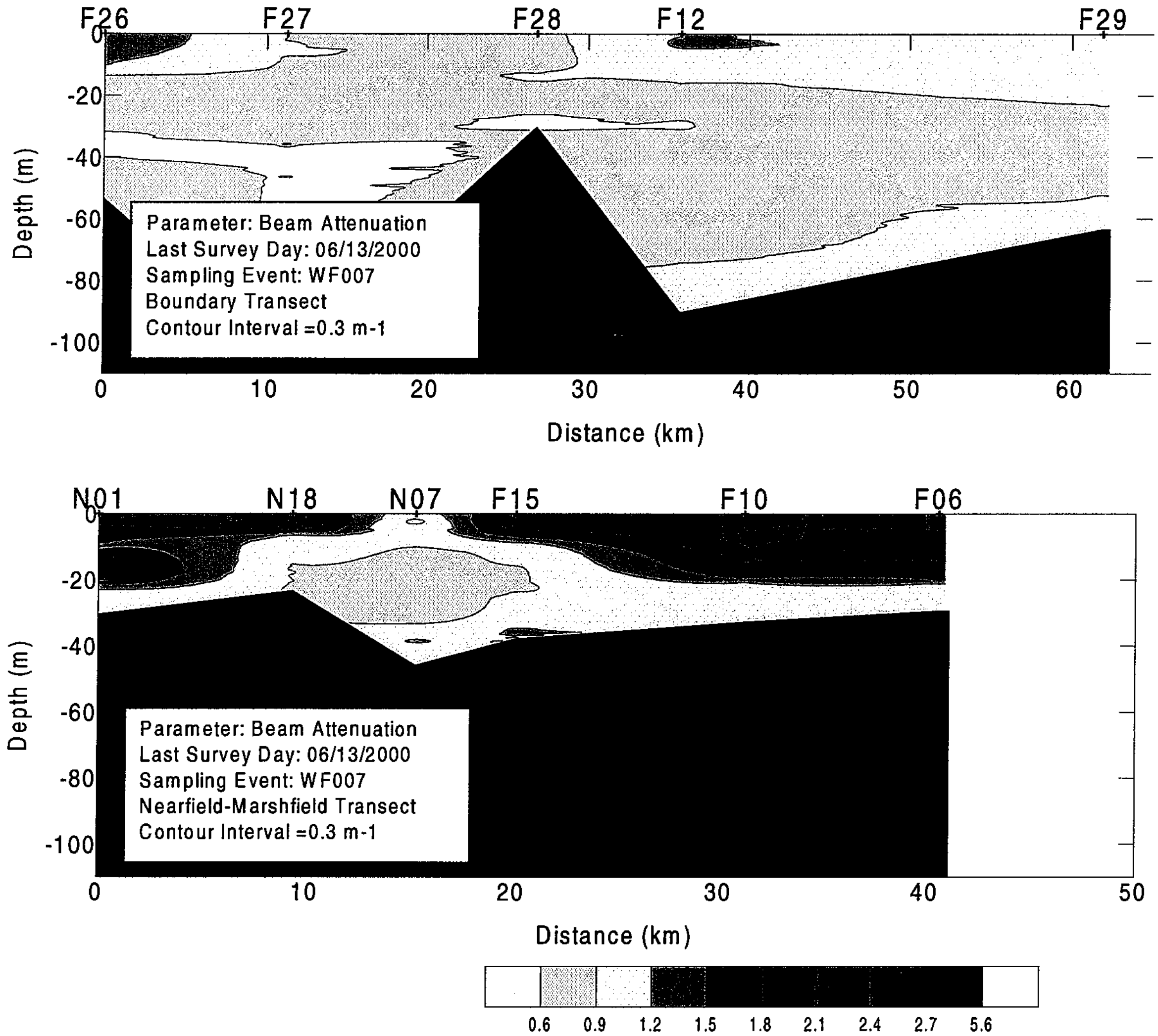


Figure C-32. Beam Attenuation Transect Plots (North - South) for Farfield Survey WF007 (Jun 00)

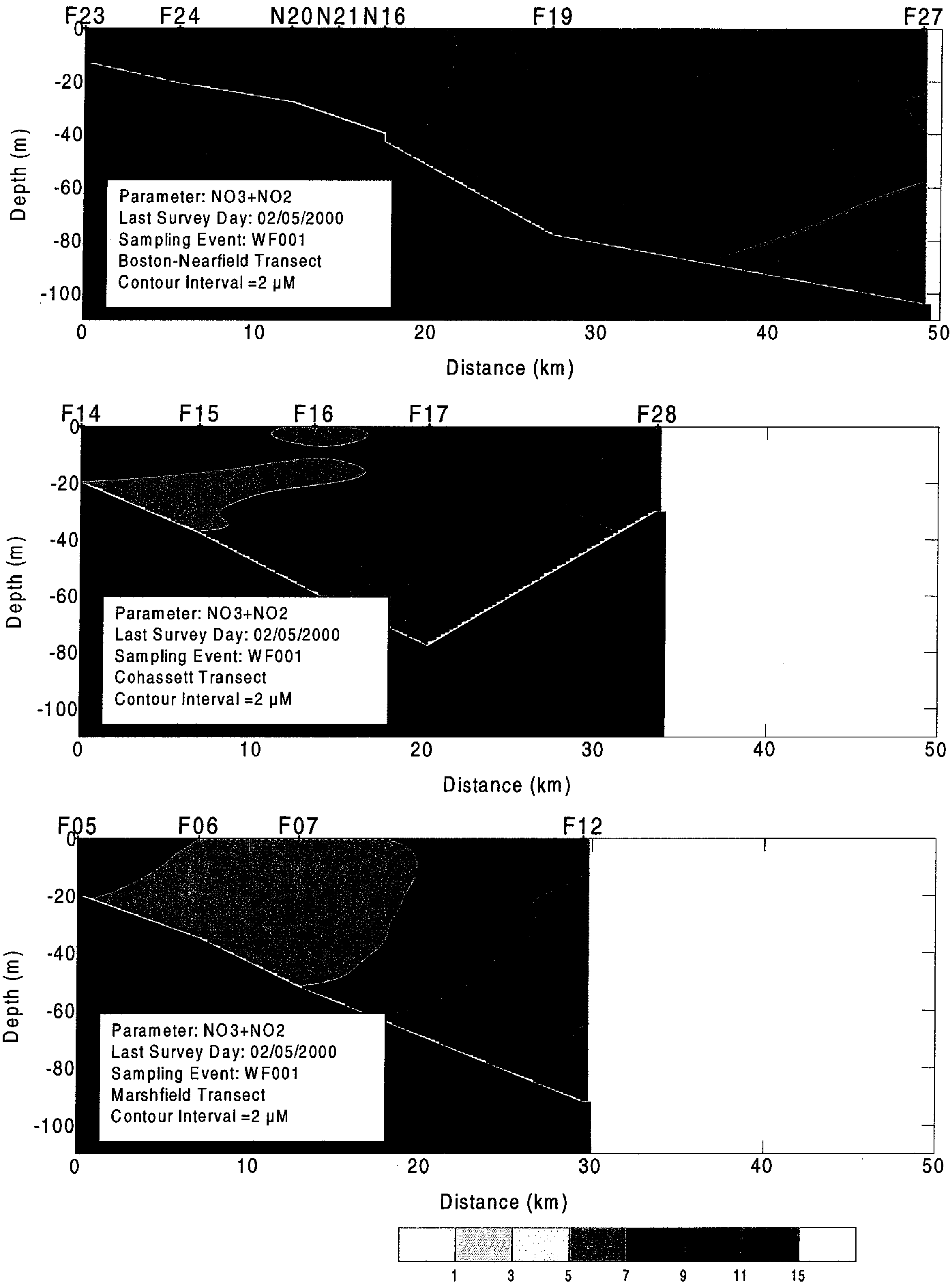


Figure C-33. Nitrate Plus Nitrite Transect Plots (West - East) for Farfield Survey WF001 (Feb 00)

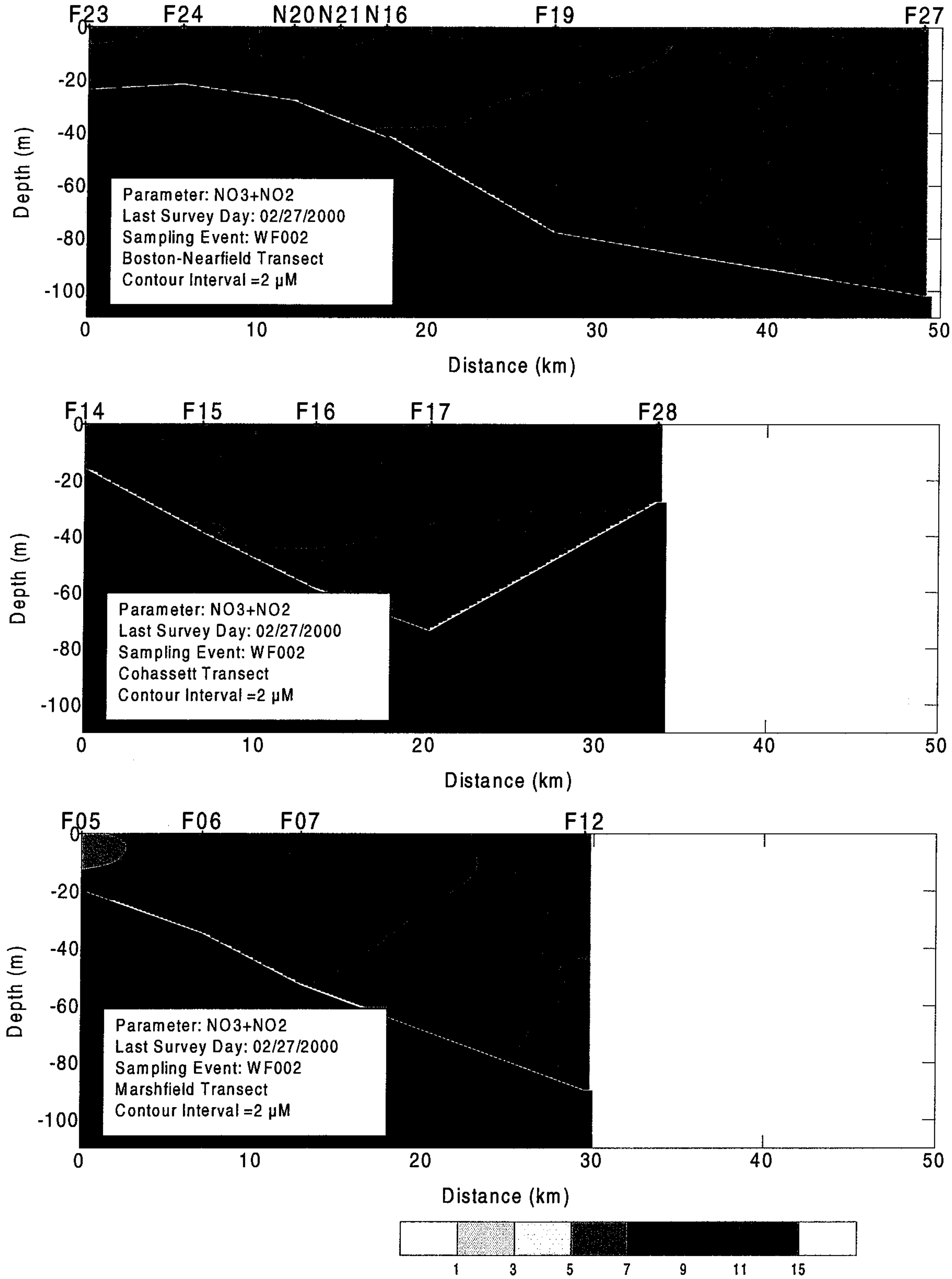


Figure C-34. Nitrate Plus Nitrite Transect Plots (West - East) for Farfield Survey WF002 (Feb 00)

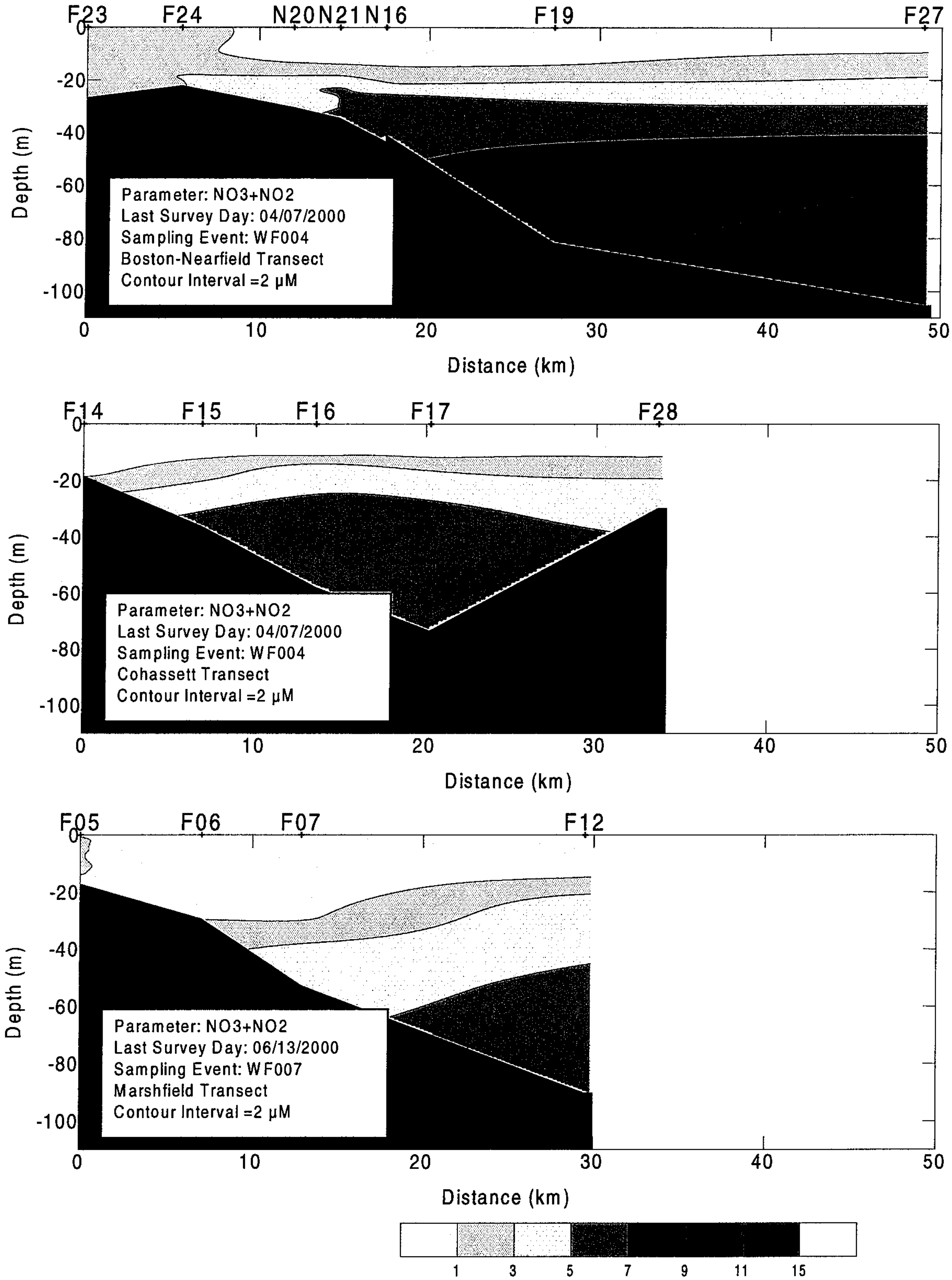


Figure C-35. Nitrate Plus Nitrite Transect Plots (West - East) for Farfield Survey WF004 (Apr 00)

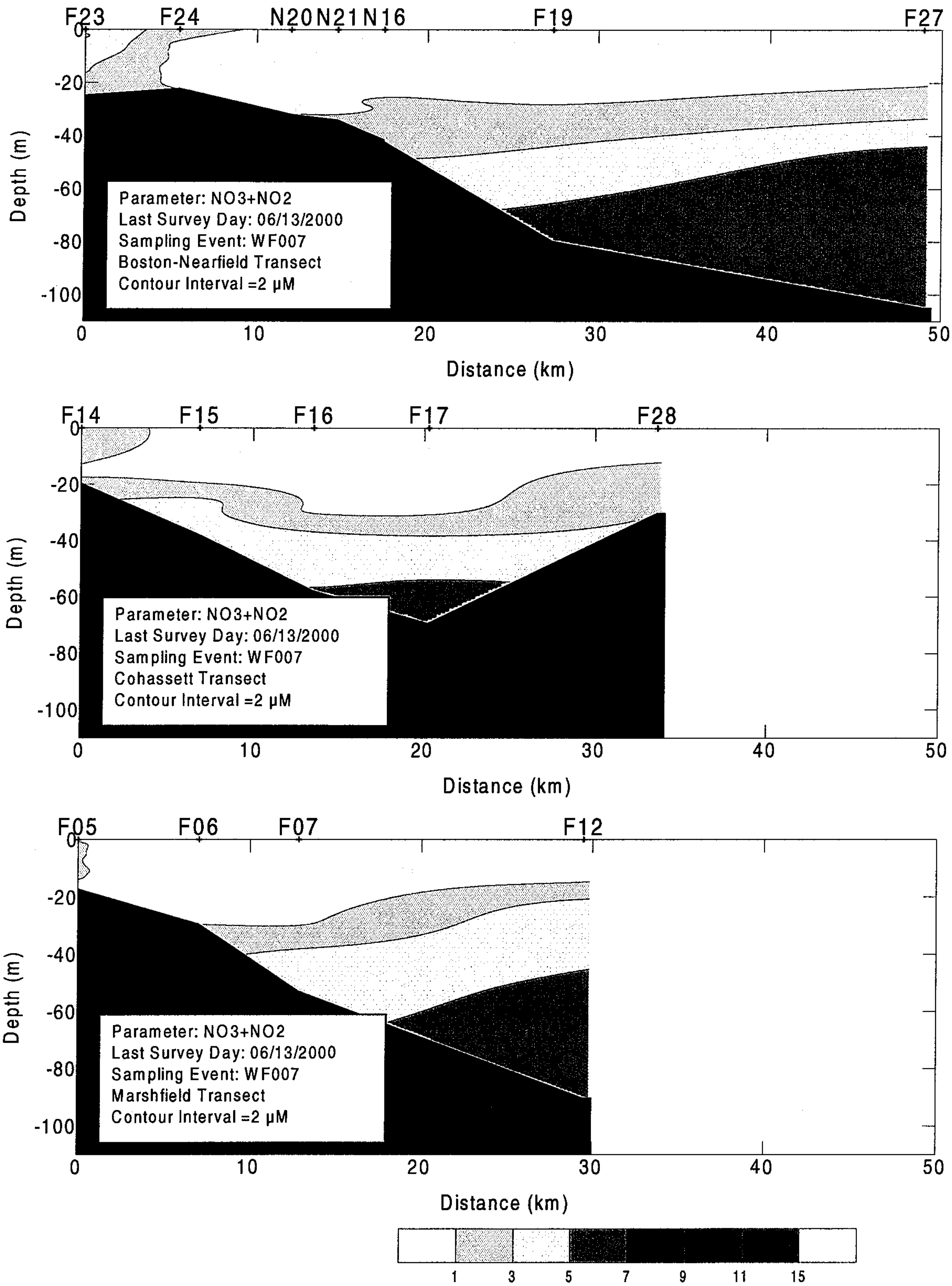


Figure C-36. Nitrate Plus Nitrite Transect Plots (West - East) for Farfield Survey WF007 (Jun 00)

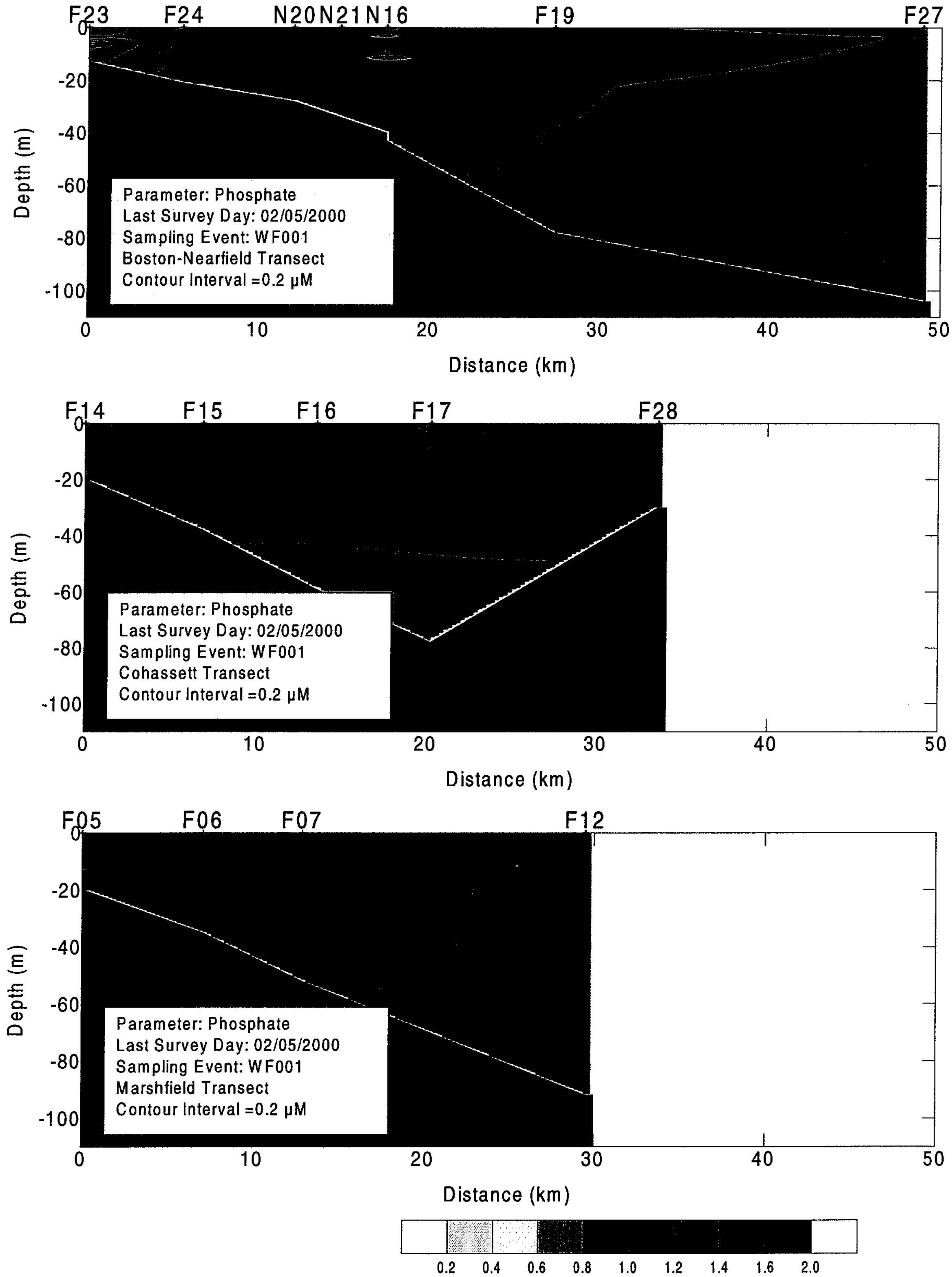


Figure C-37. Phosphate Transect Plots (West - East) for Farfield Survey WF001 (Feb 00)

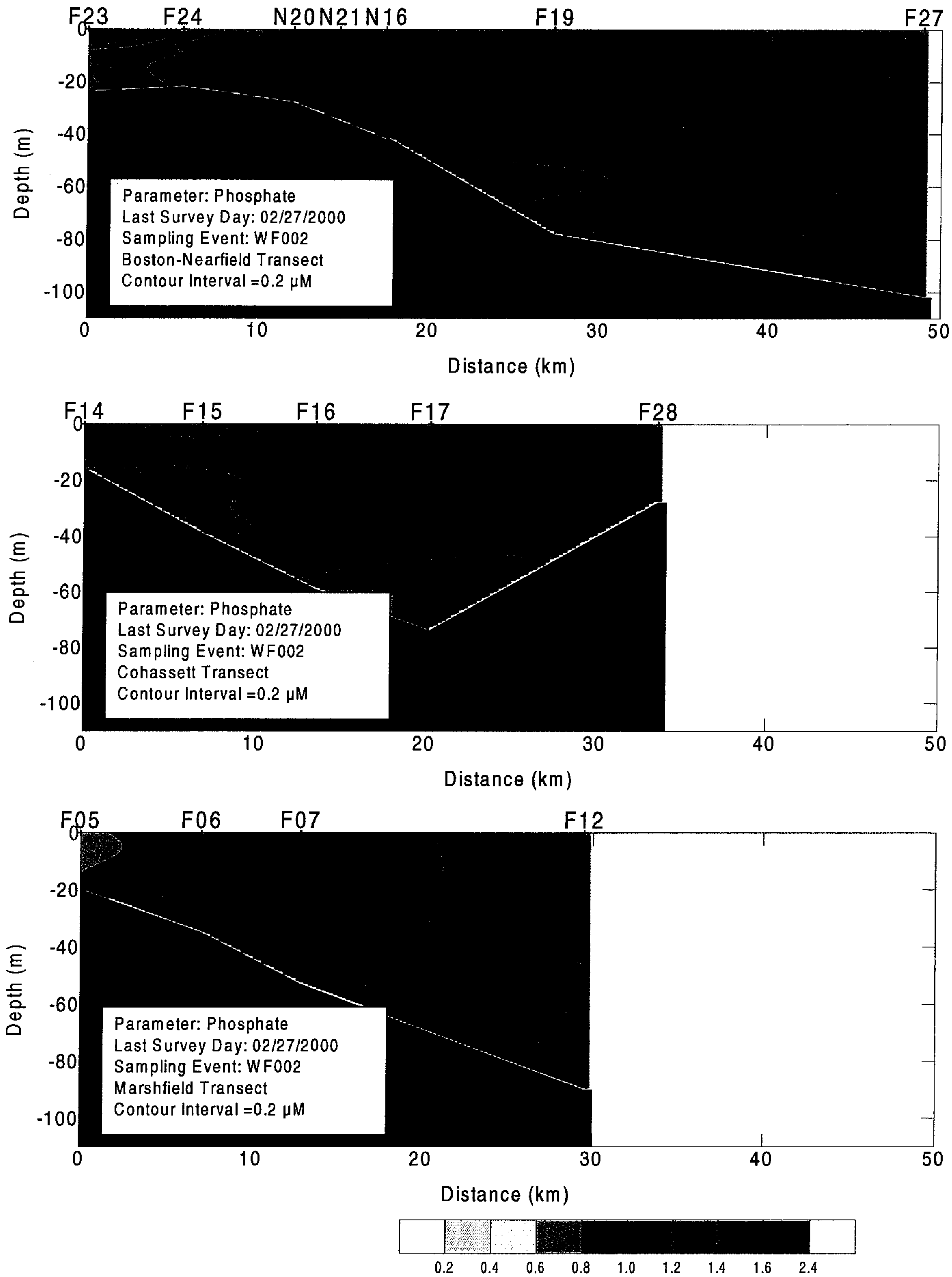
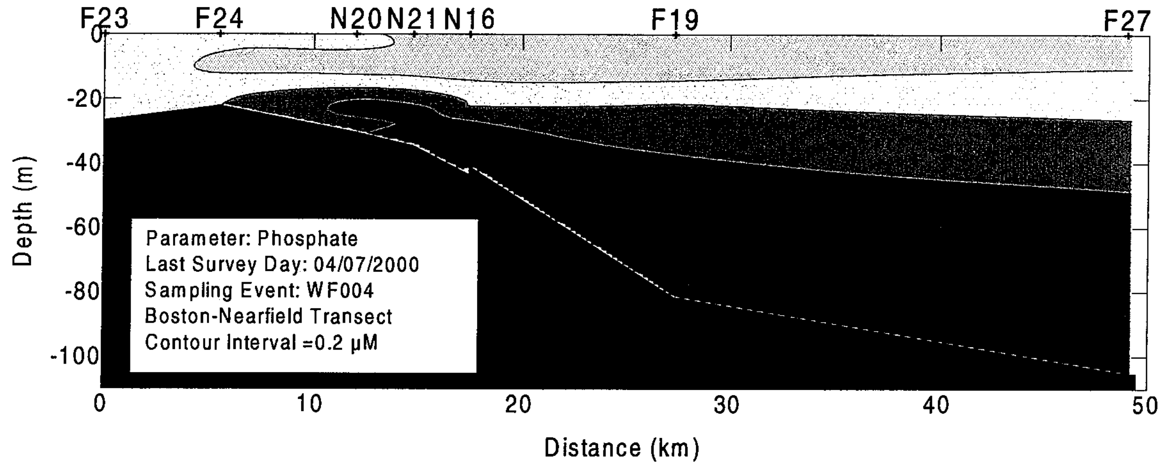
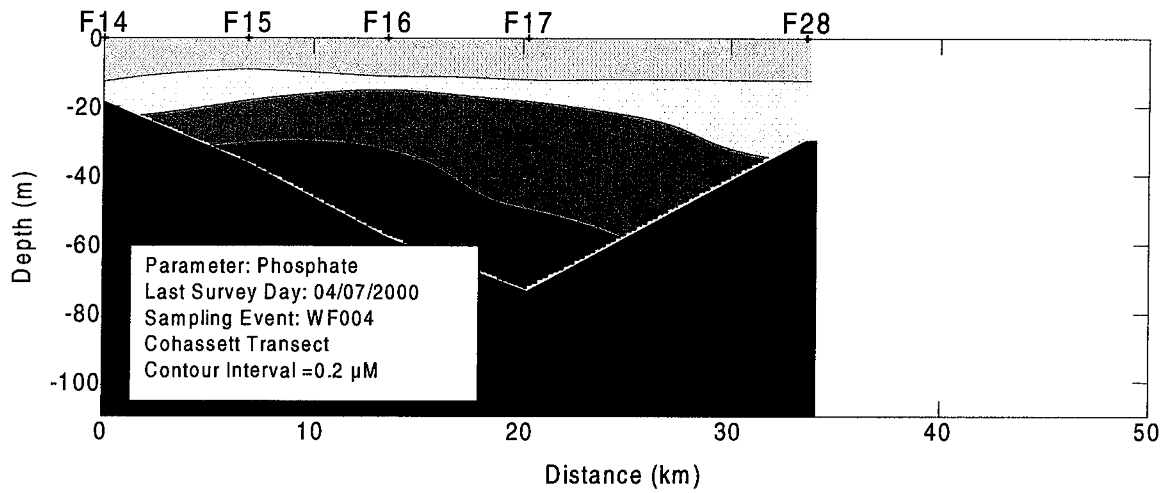


Figure C-38. Phosphate Transect Plots (West - East) for Farfield Survey WF002 (Feb 00)





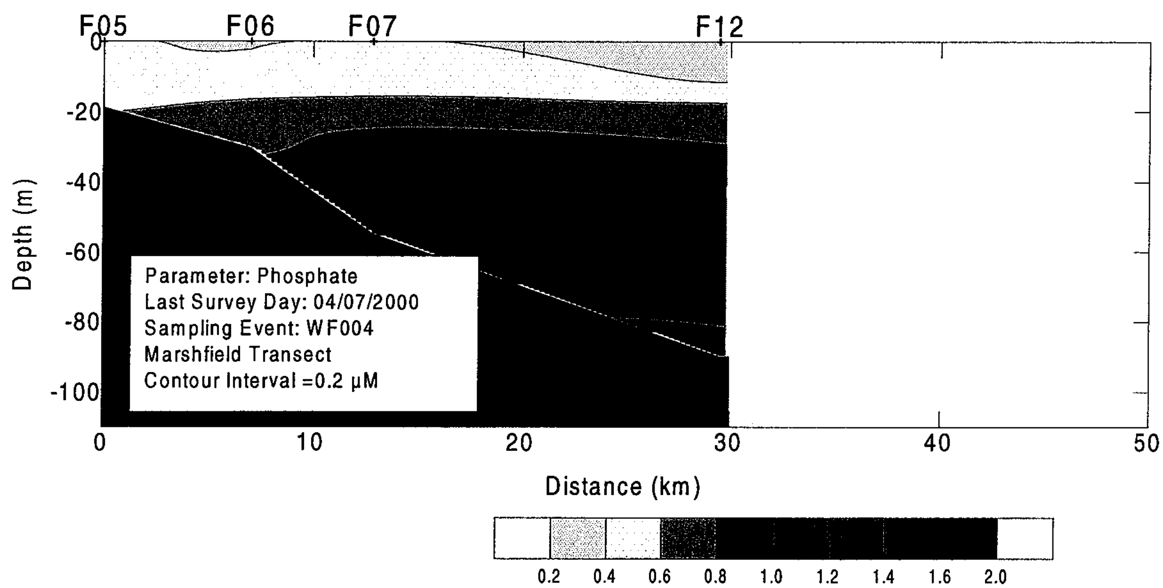


Figure C-39. Phosphate Transect Plots (West - East) for Farfield Survey WF004 (Apr 00)

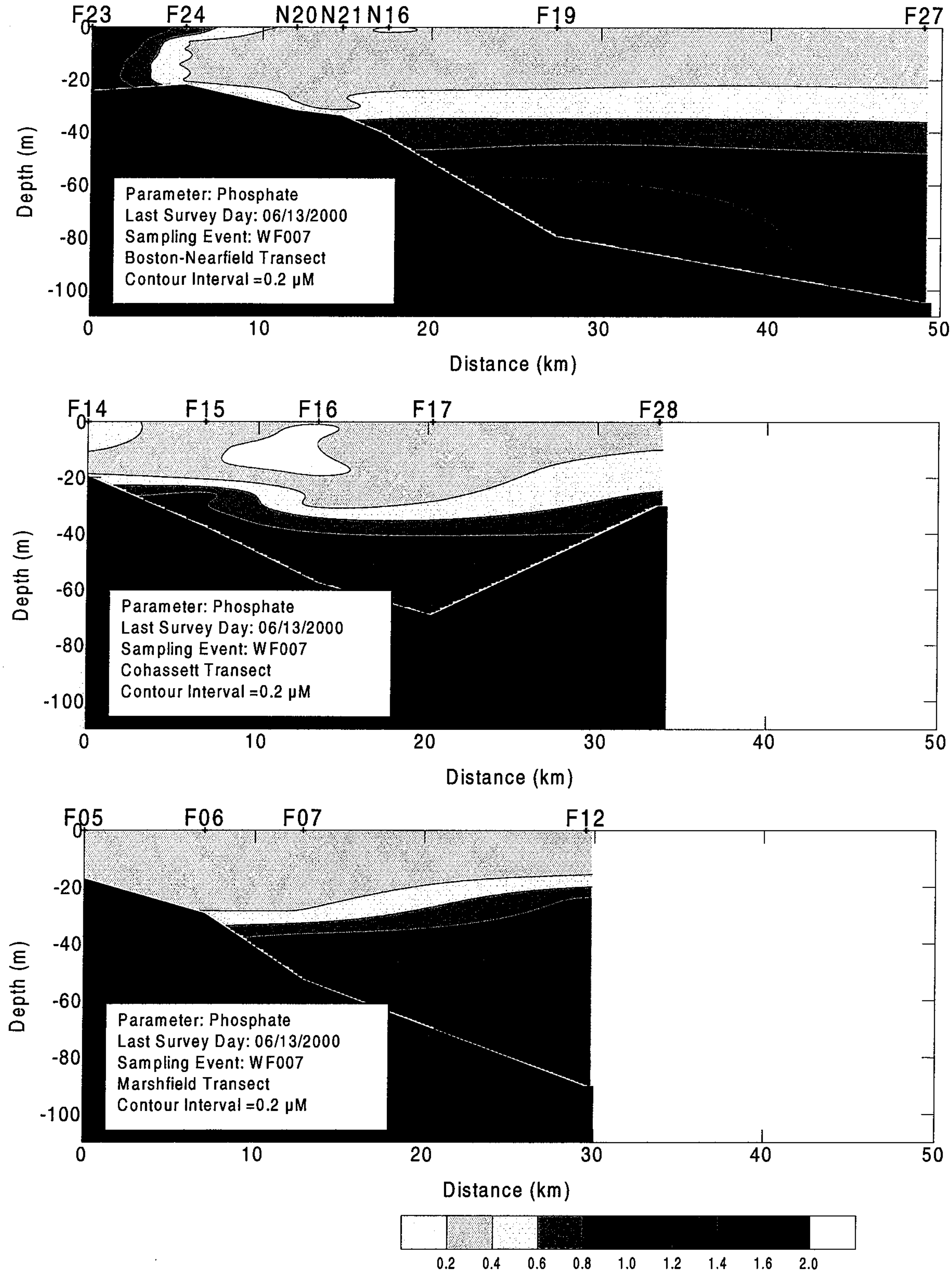


Figure C-40. Phosphate Transect Plots (West - East) for Farfield Survey WF007 (Jun 00)

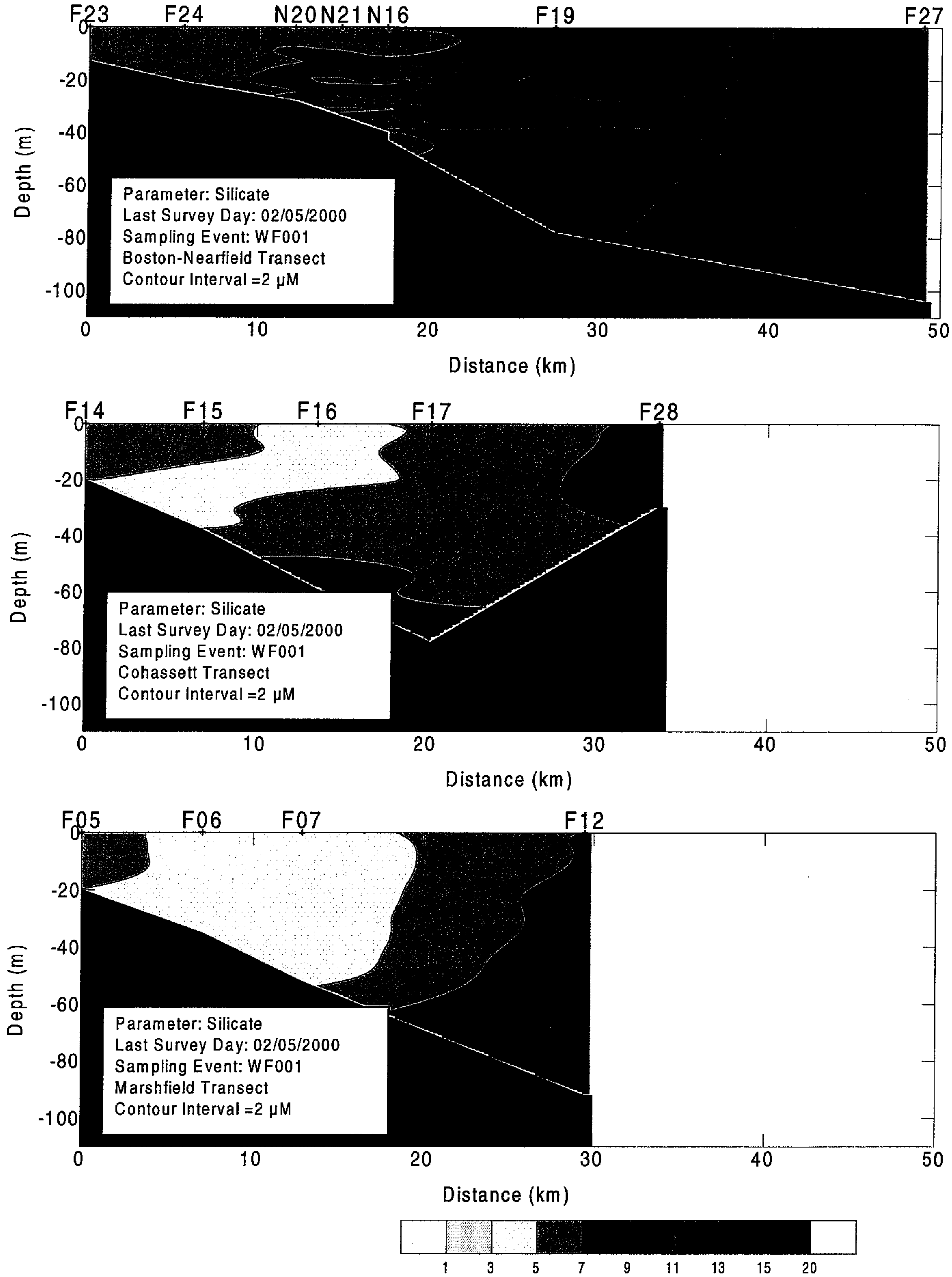


Figure C-41. Silicate Transect Plots (West - East) for Farfield Survey WF001 (Feb 00)

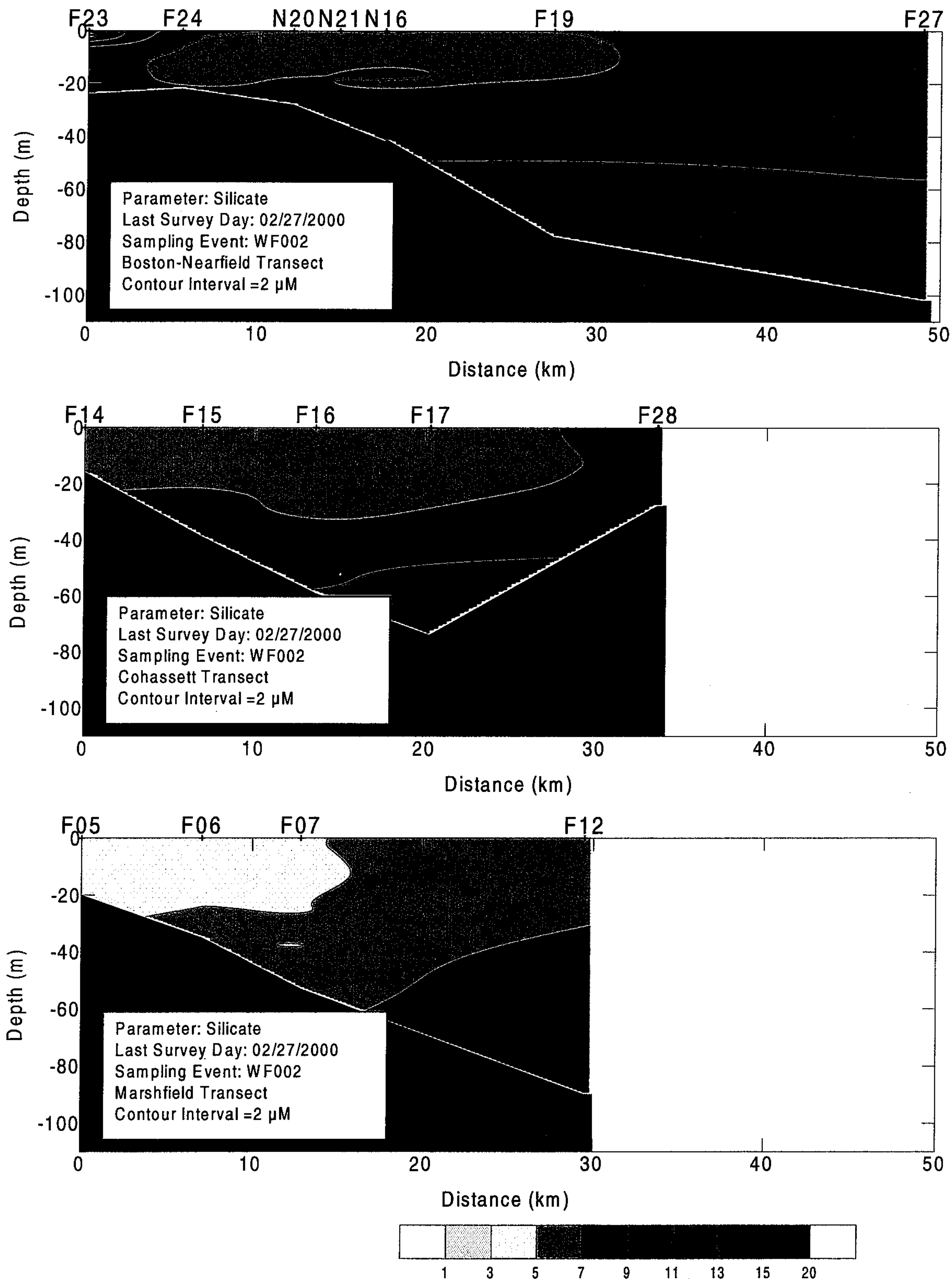


Figure C-42. Silicate Transect Plots (West - East) for Farfield Survey WF002 (Feb 00)

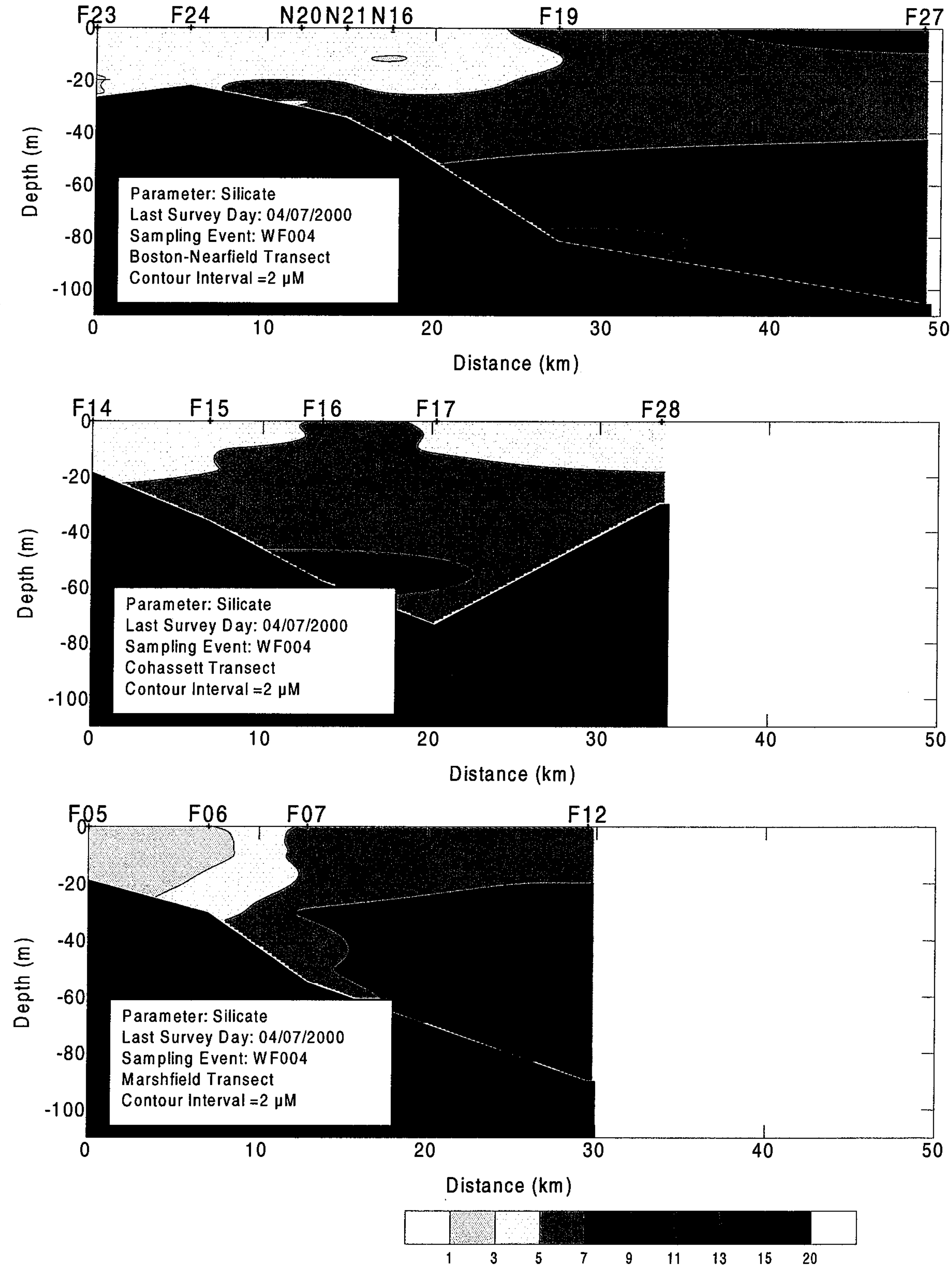


Figure C-43. Silicate Transect Plots (West - East) for Farfield Survey WF004 (Apr 00)

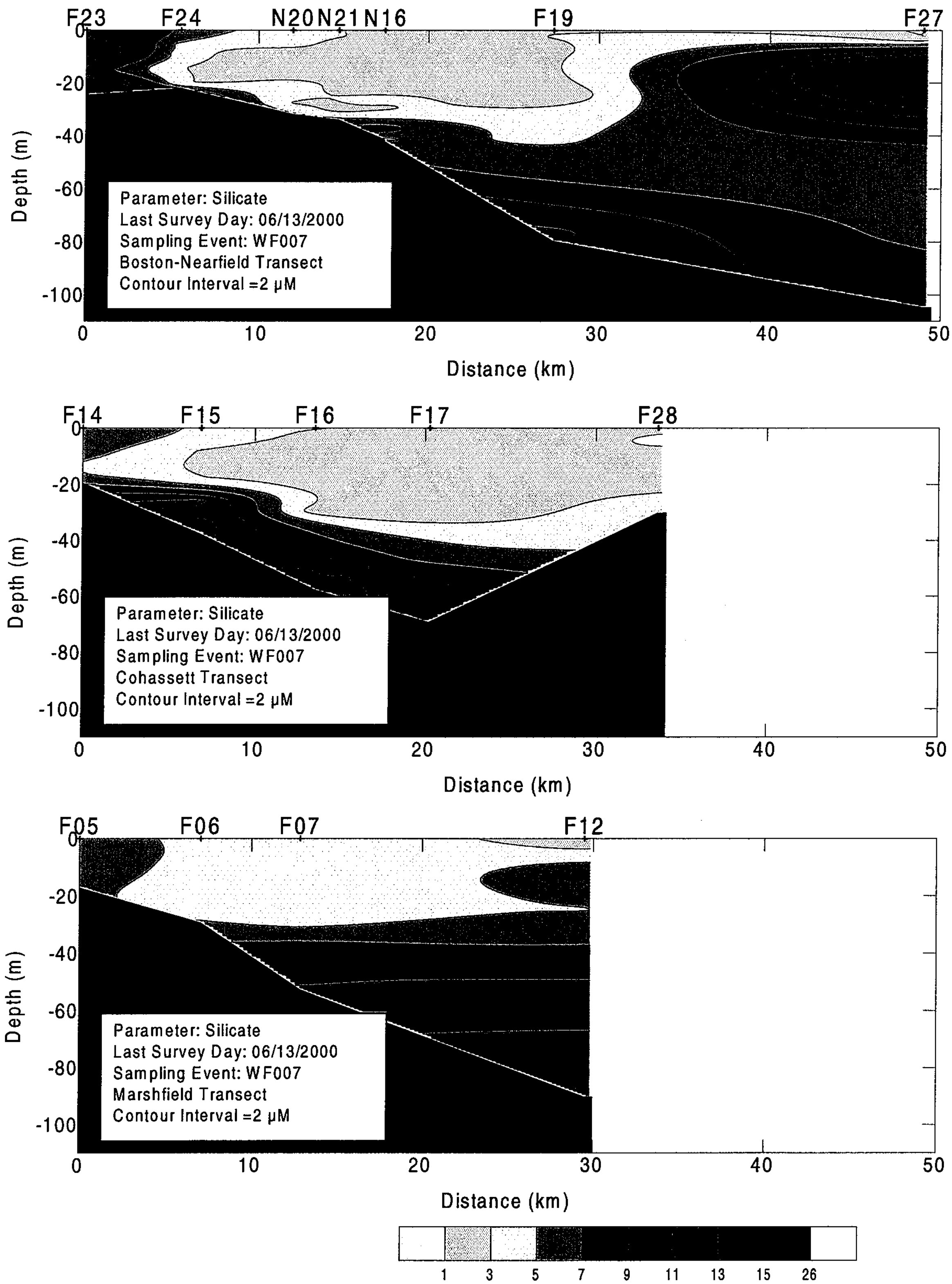


Figure C-44. Silicate Transect Plots (West - East) for Farfield Survey WF007 (Jun 00)

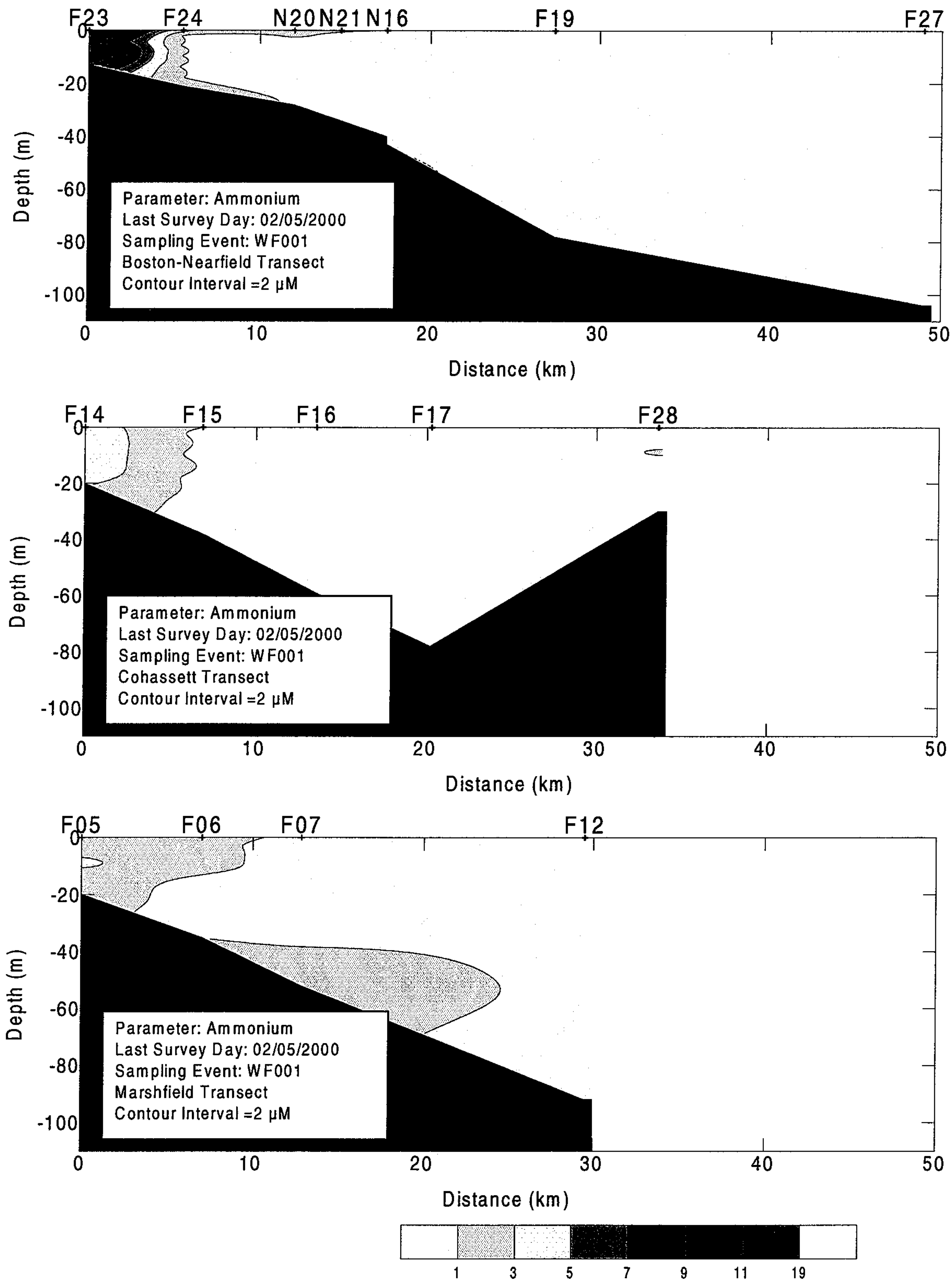


Figure C-45. Ammonium Transect Plots (West - East) for Farfield Survey WF001 (Feb 00)

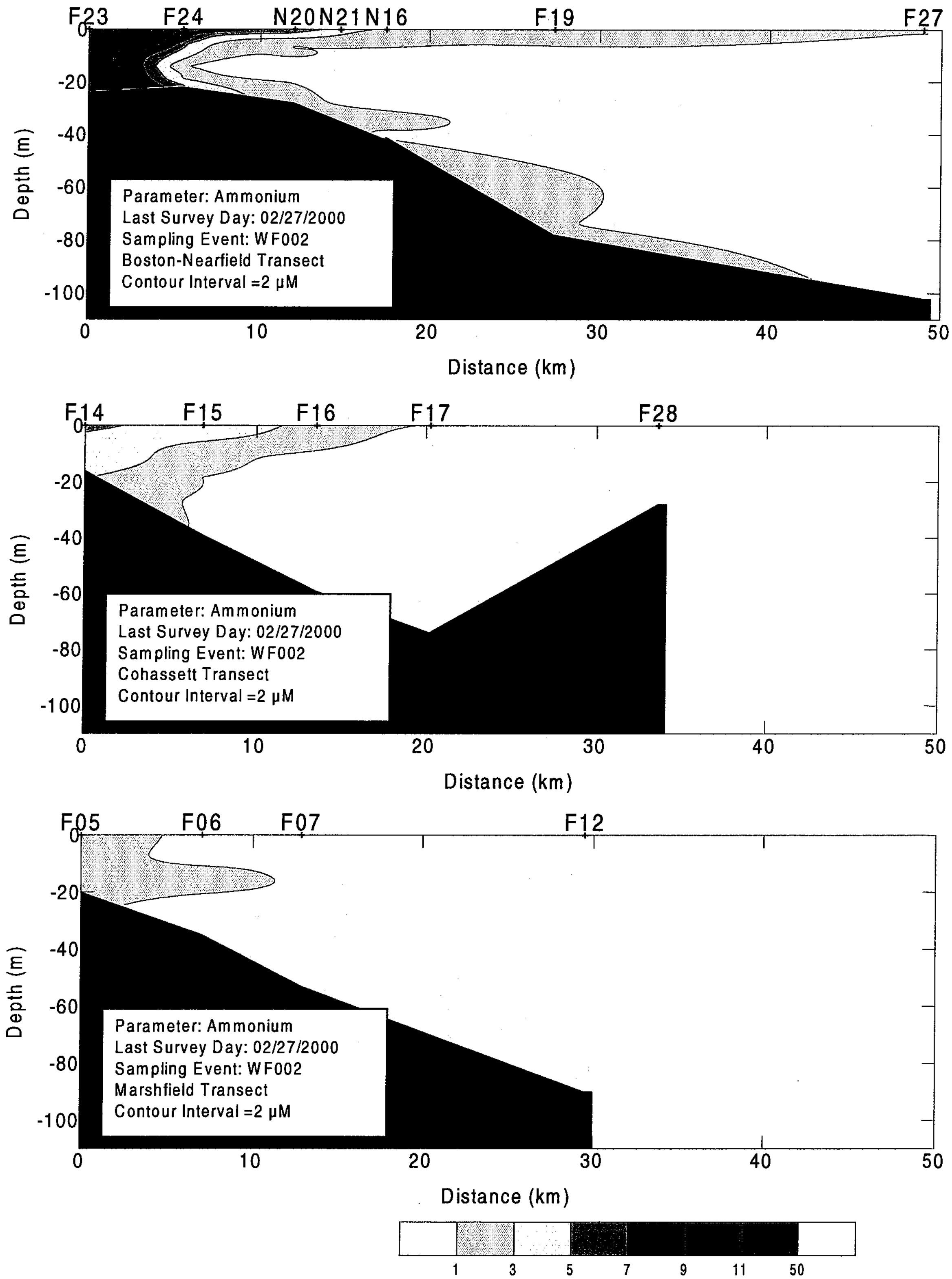


Figure C-46. Ammonium Transect Plots (West - East) for Farfield Survey WF002 (Feb 00)

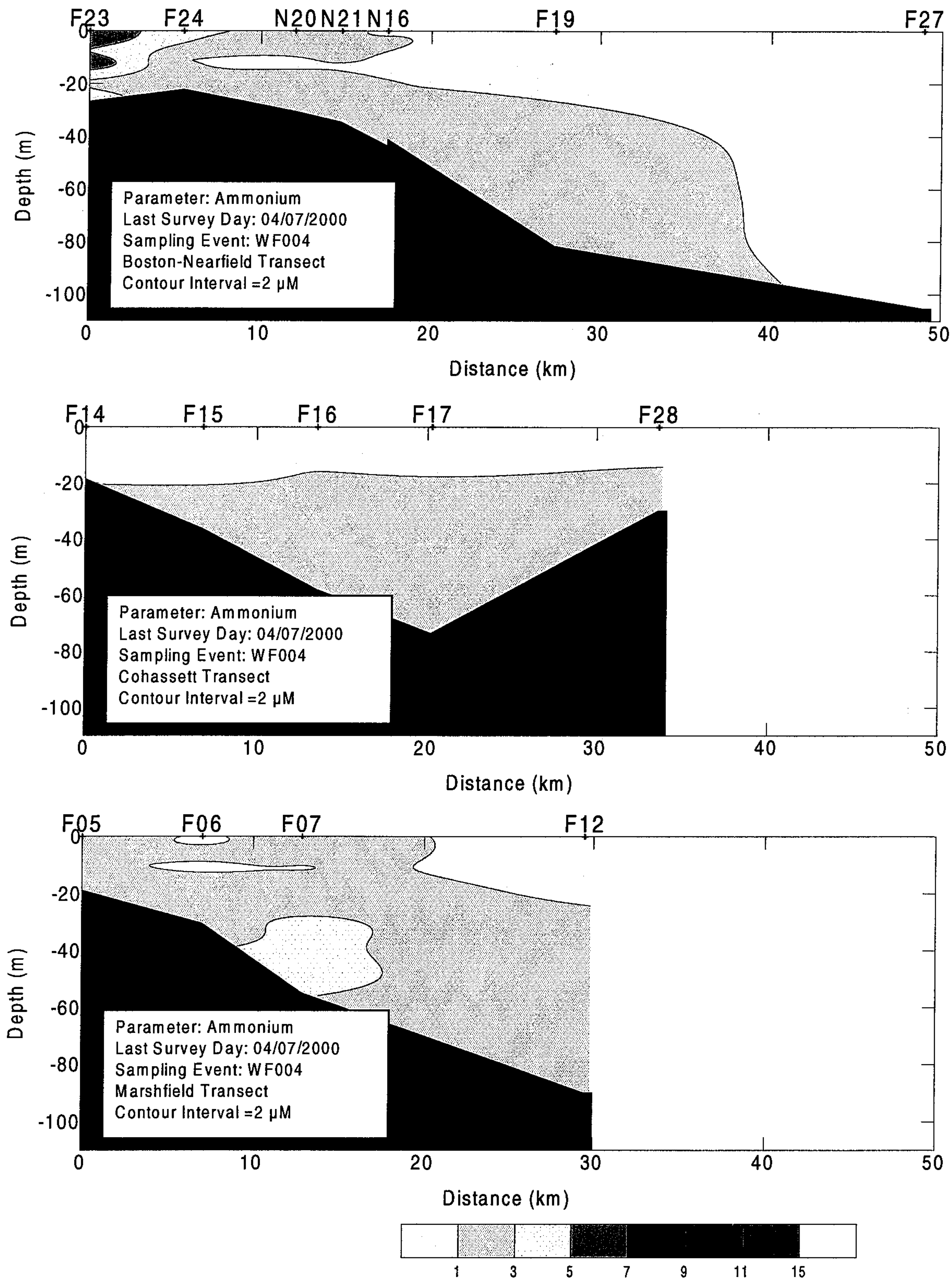


Figure C-47. Ammonium Transect Plots (West - East) for Farfield Survey WF004 (Apr 00)

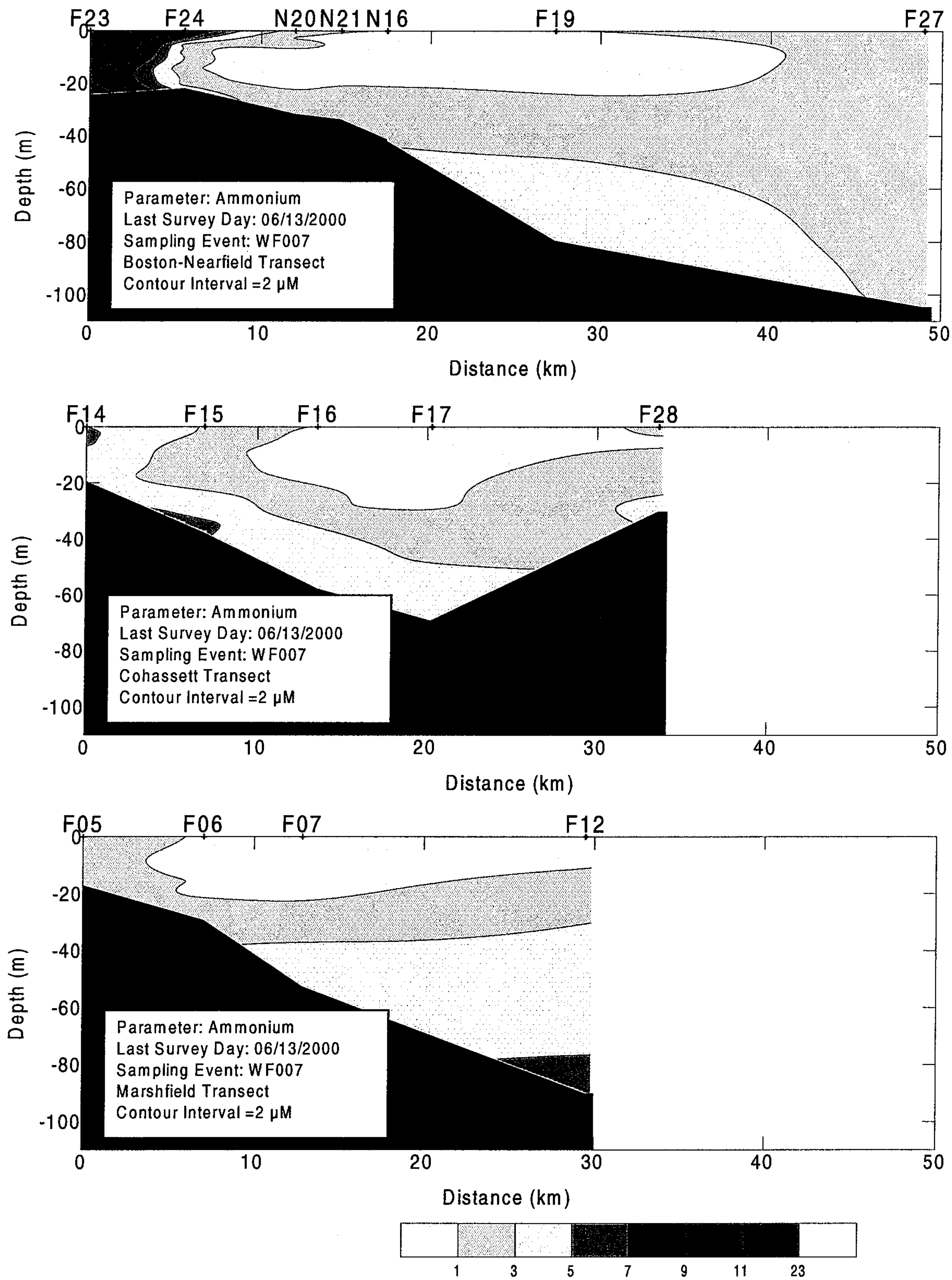


Figure C-48. Ammonium Transect Plots (West - East) for Farfield Survey WF007 (Jun 00)

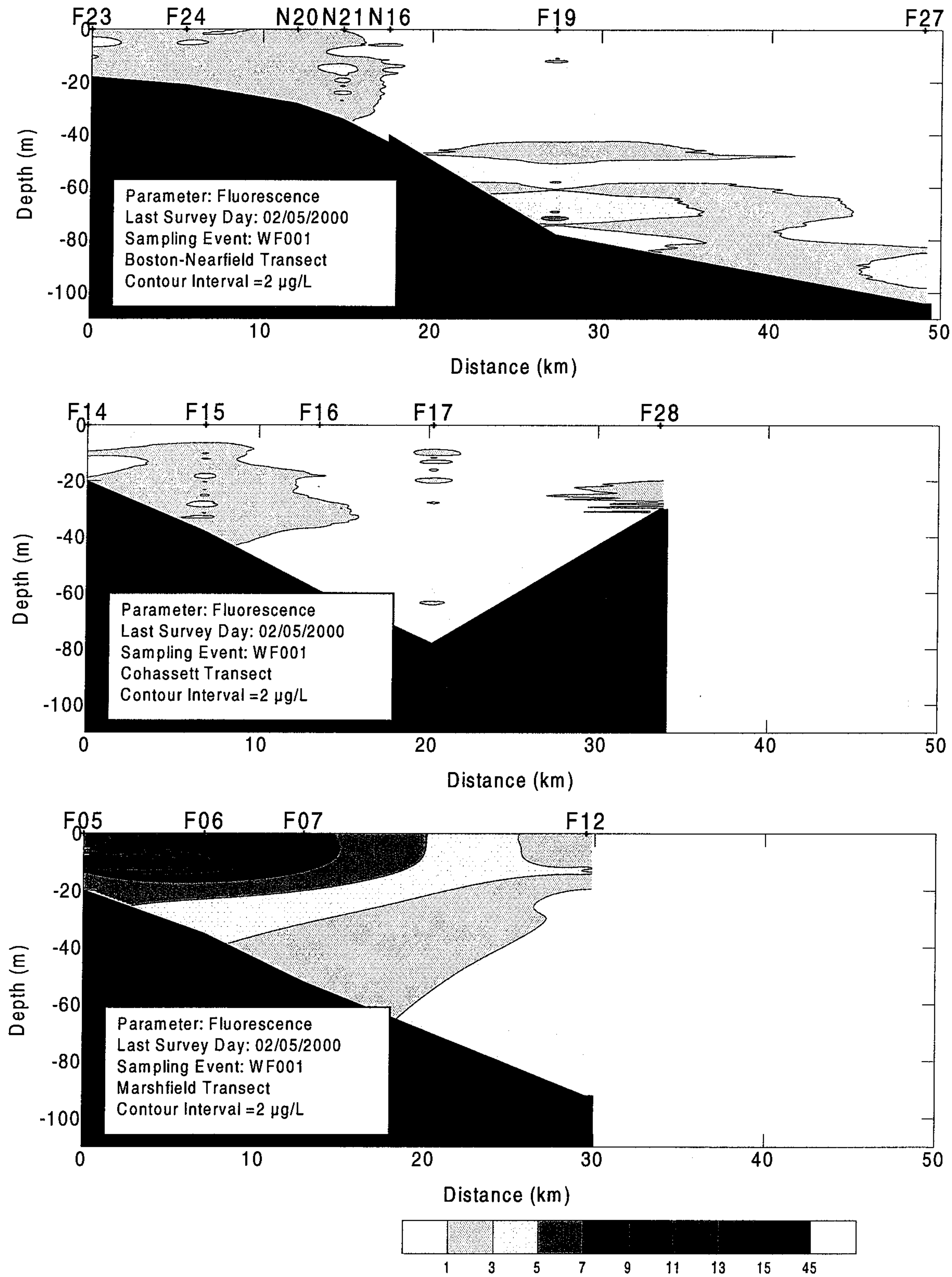


Figure C-49. Fluorescence Transect Plots for Farfield Survey WF001 (Feb 00)

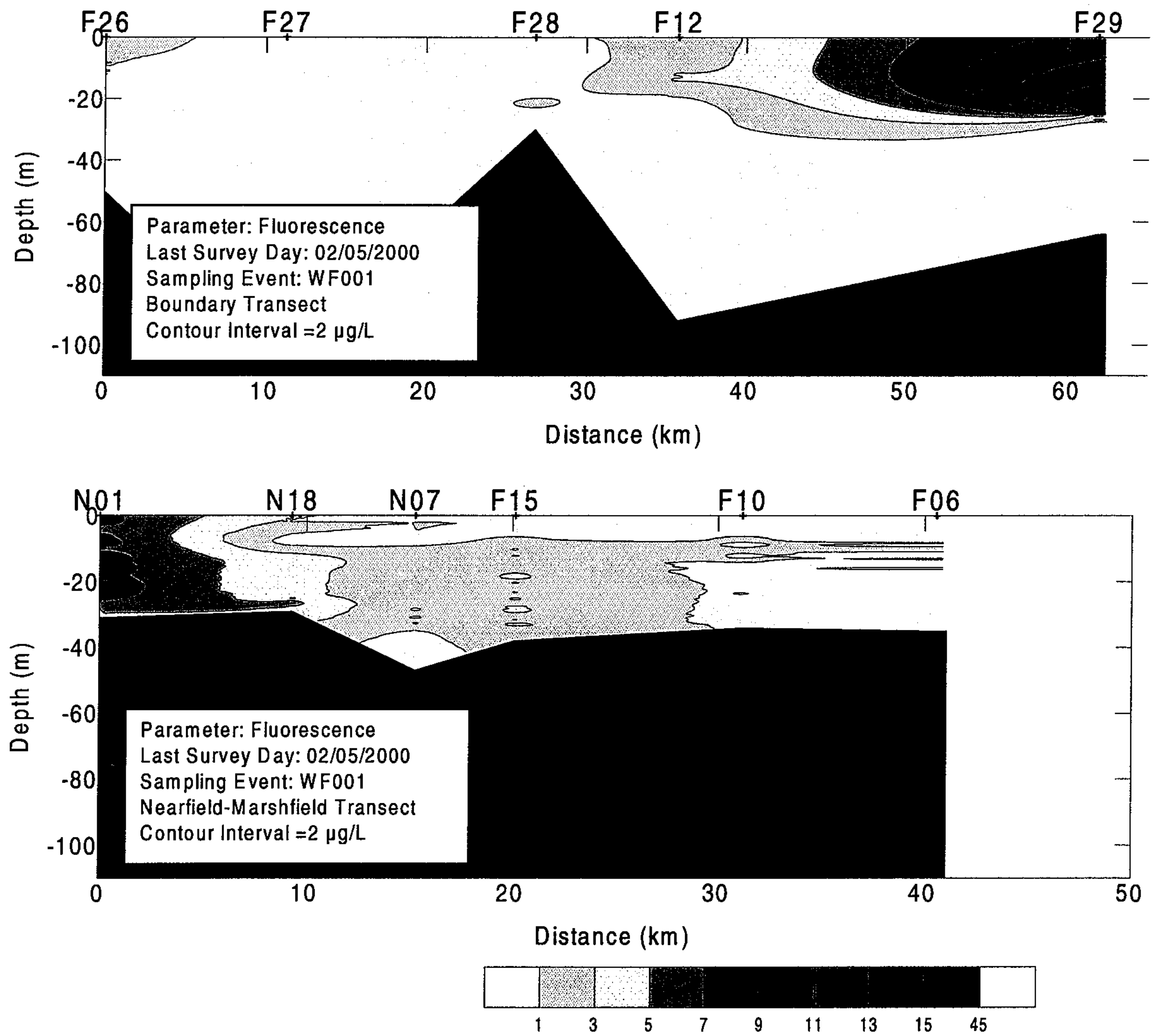


Figure C-50. Fluorescence Transect Plots (North - South) for Farfield Survey WF001 (Feb 00)

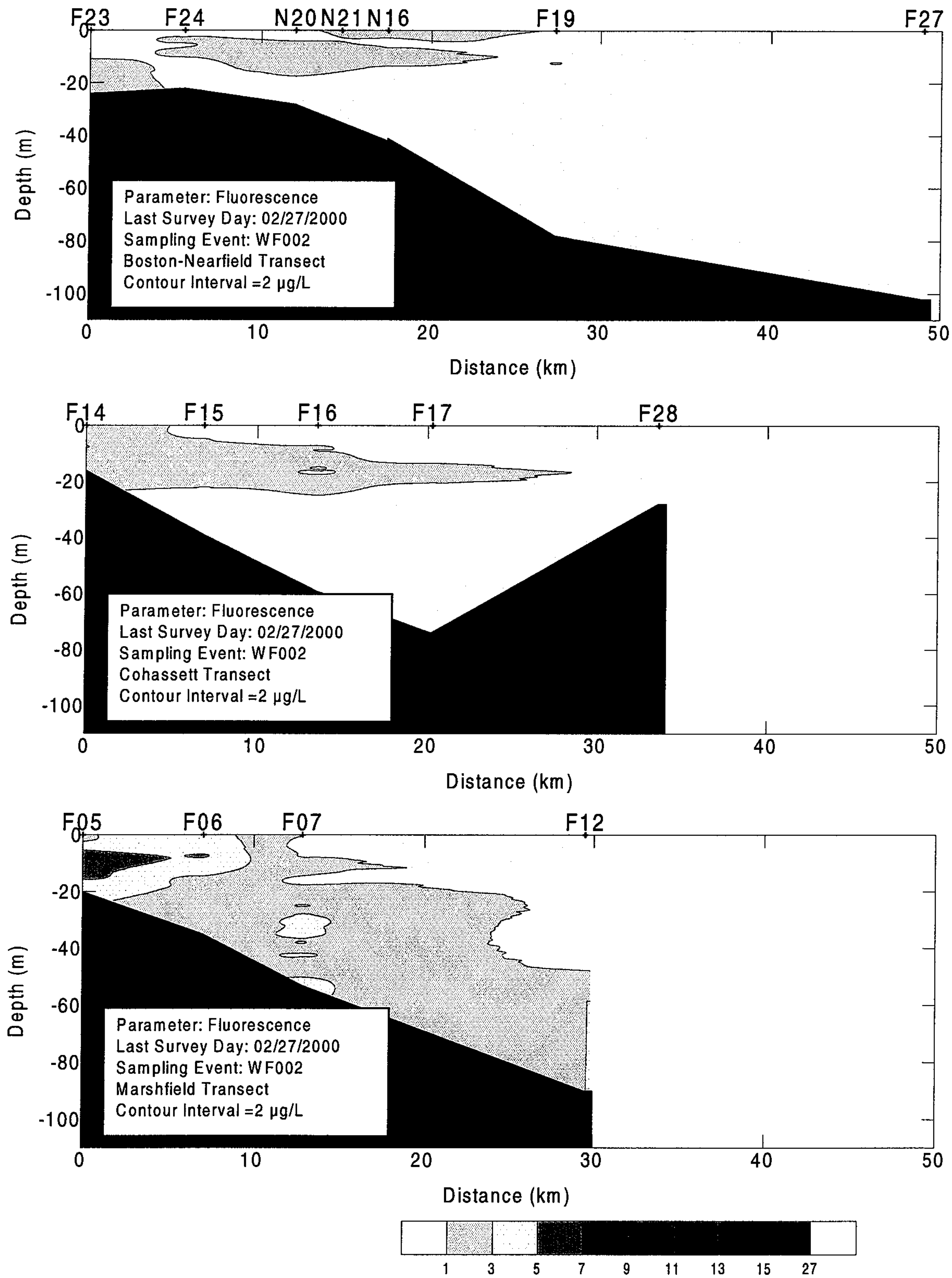


Figure C-51. Fluorescence Transect Plots (West - East) for Farfield Survey WF002 (Feb 00)

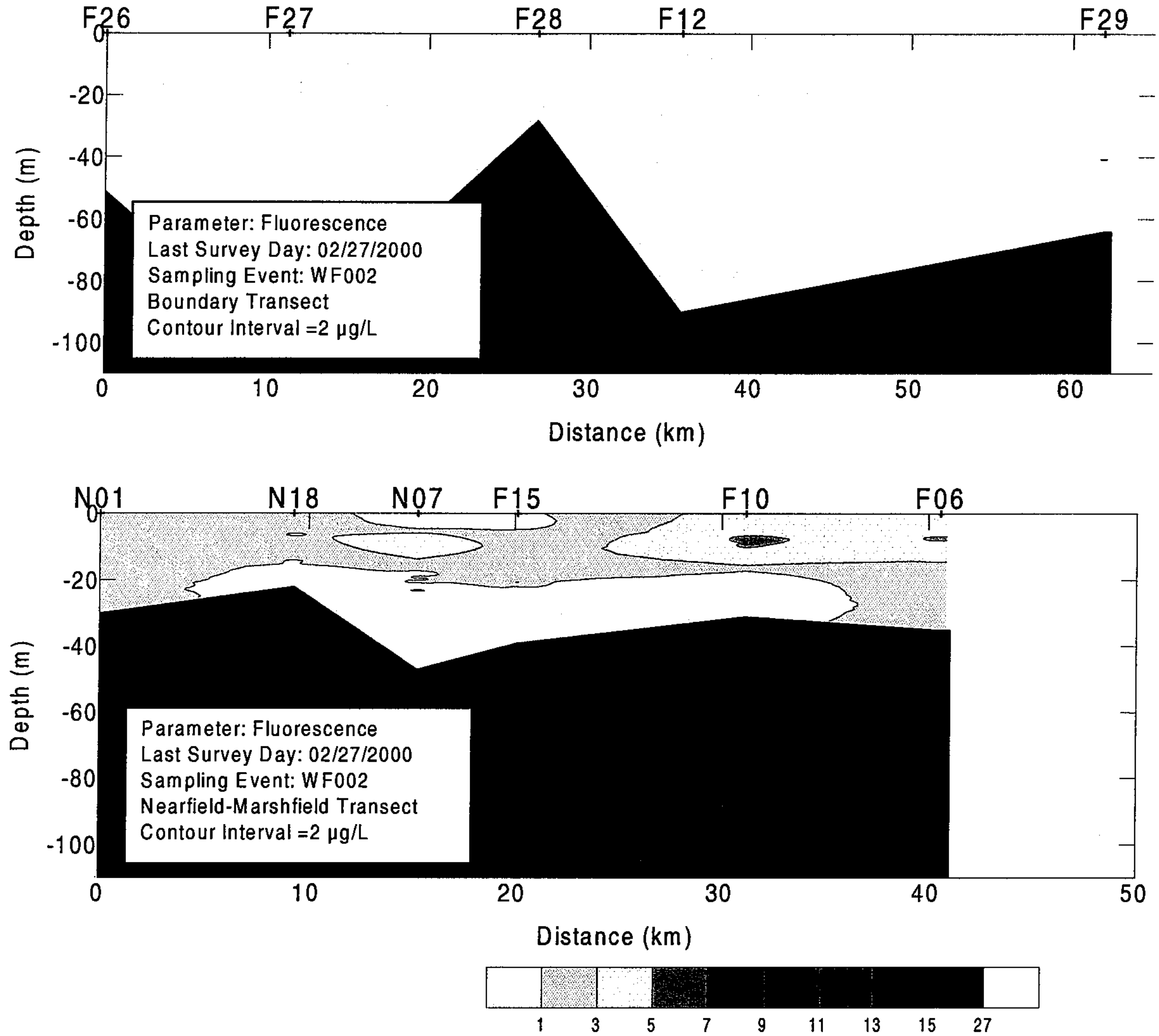


Figure C-52. Fluorescence Transect Plots (North - South) for Farfield Survey WF002 (Feb 00)

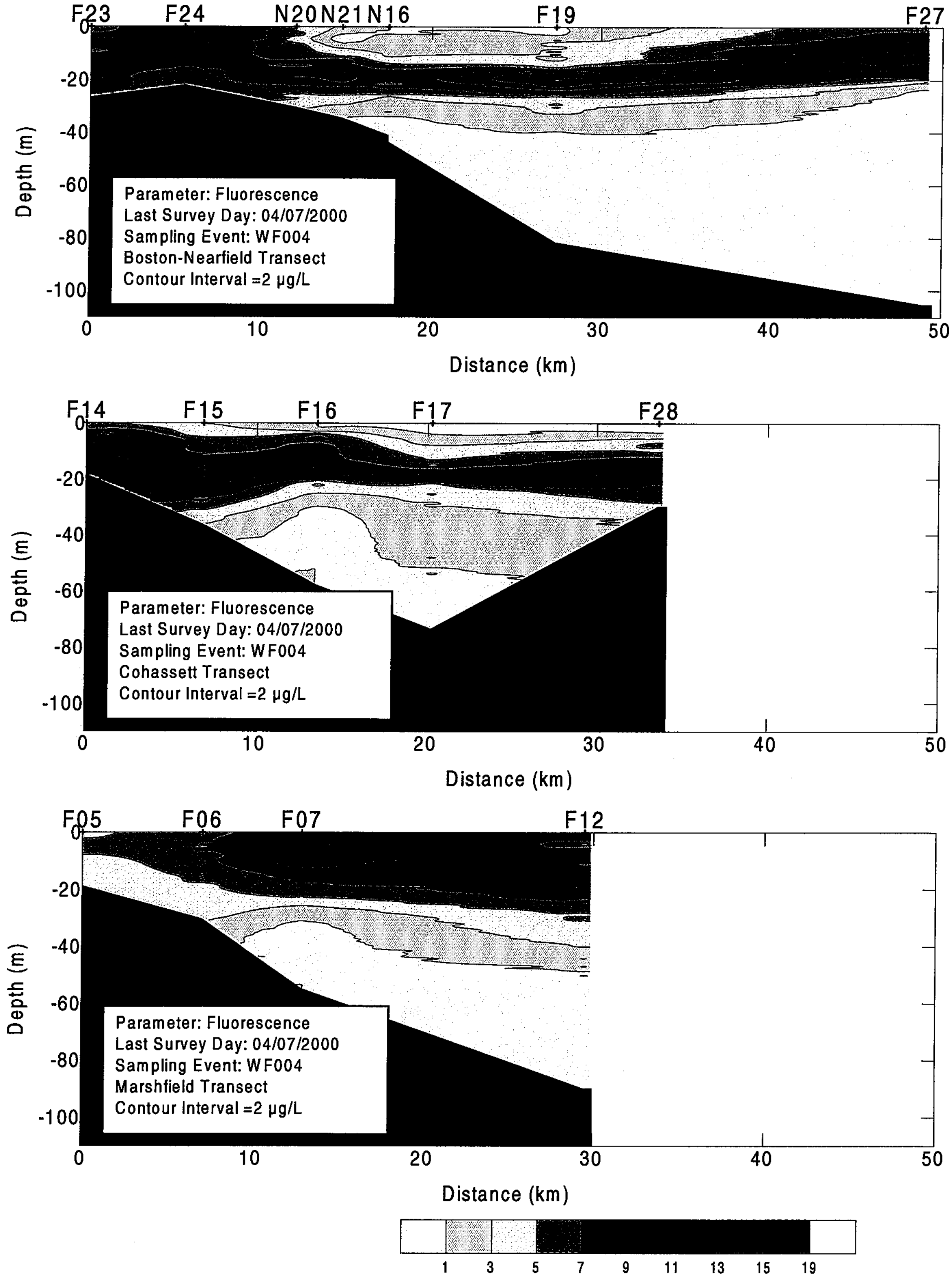


Figure C-53. Fluorescence Transect Plots (West - East) for Farfield Survey WF004 (Apr 00)

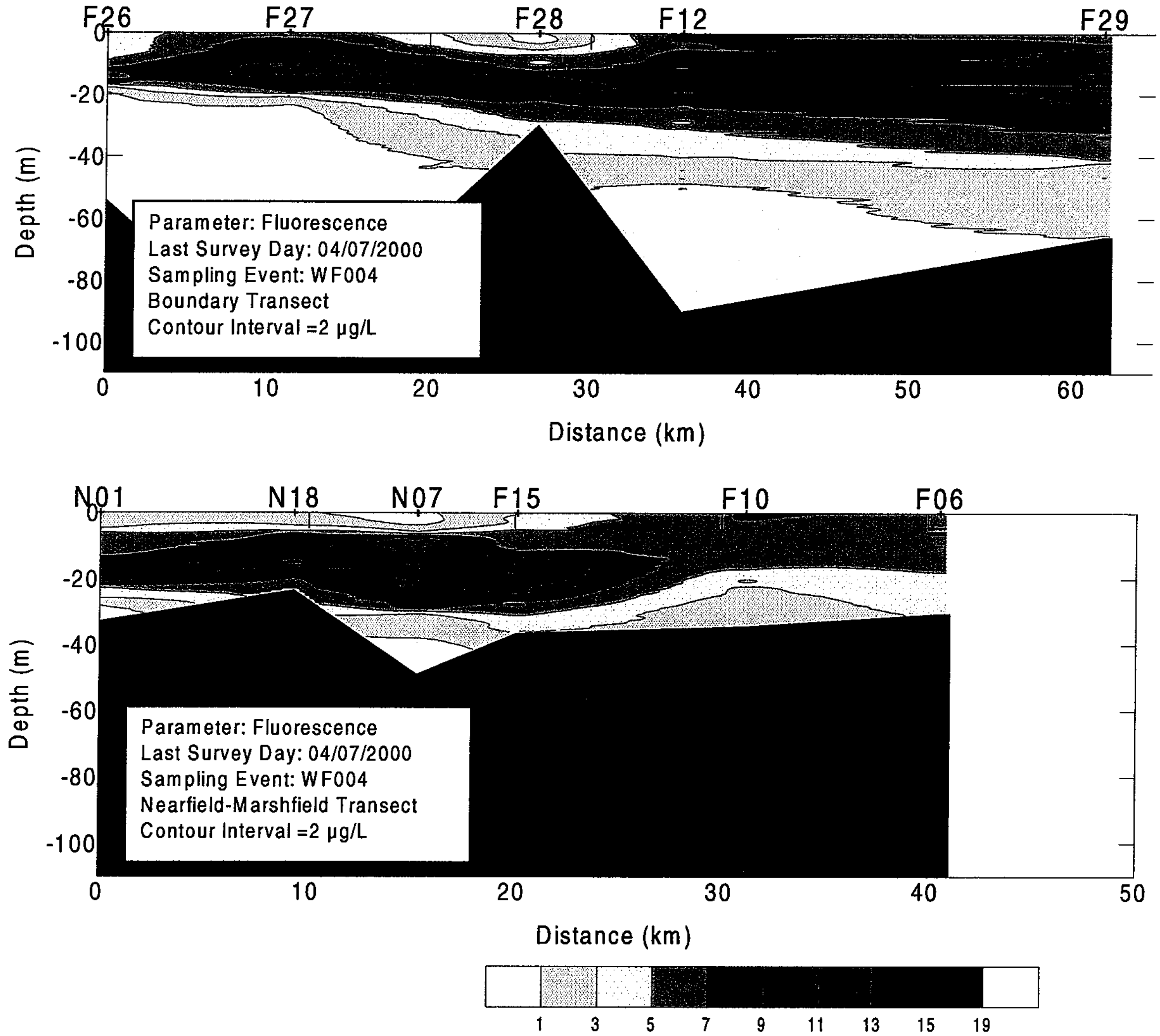


Figure C-54: Fluorescence Transect Plots (North - South) for Farfield Survey WF004 (Jun 00)

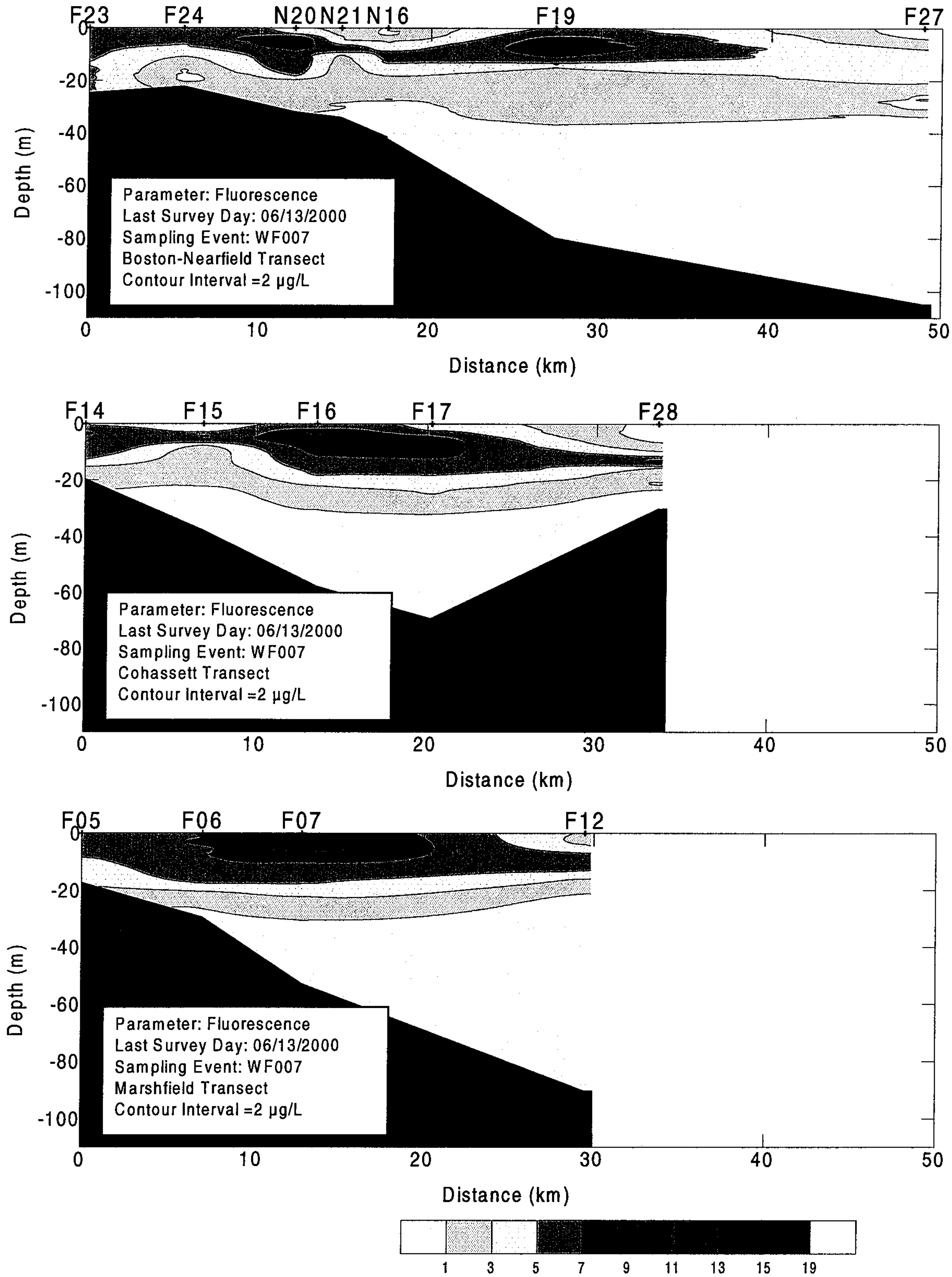


Figure C-55. Fluorescence Transect Plots (West - East) for Farfield Survey WF007 (Jun 00)

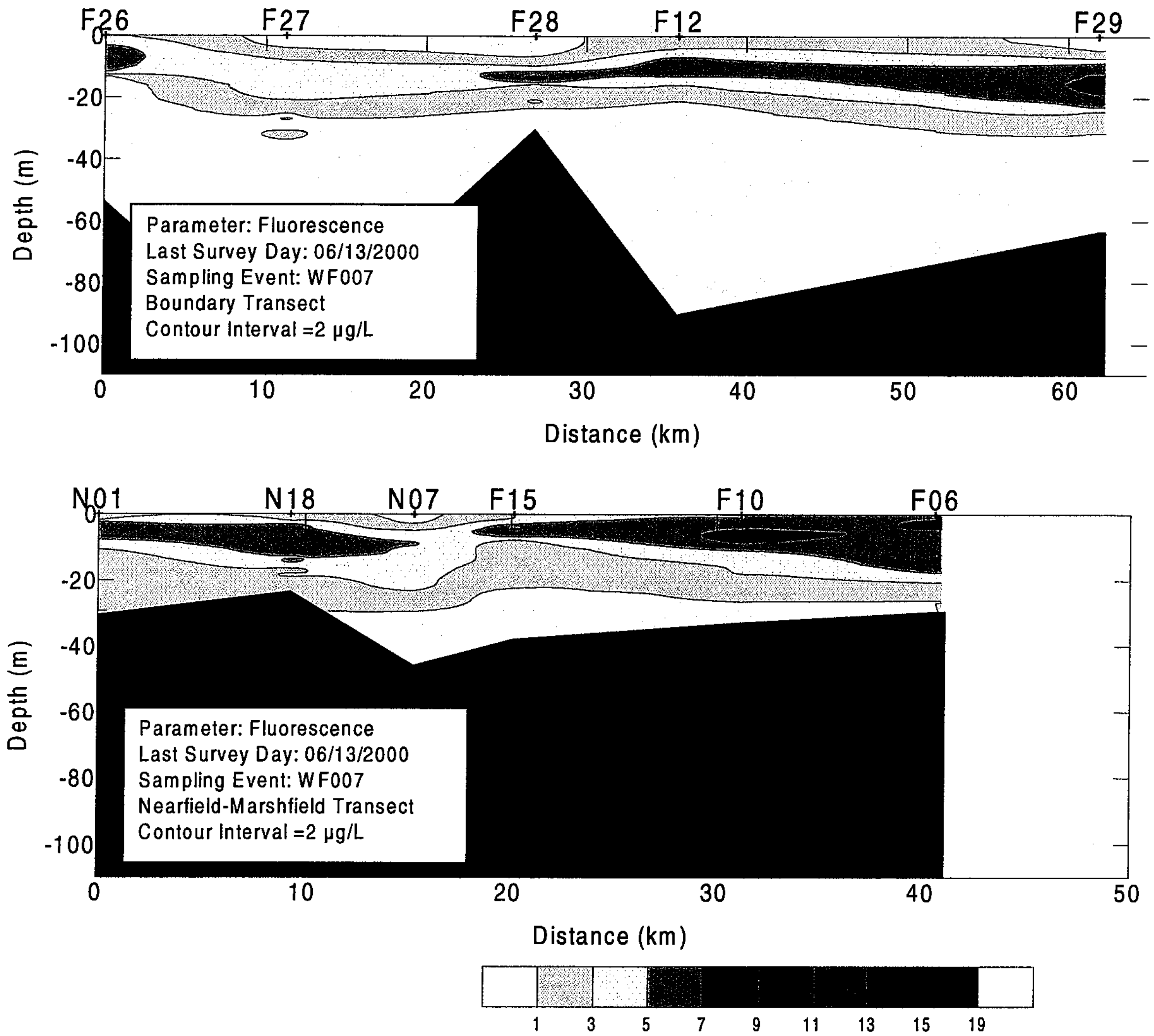


Figure C-56. Fluorescence Transect Plots (North - South) for Farfield Survey WF007 (Jun 00)

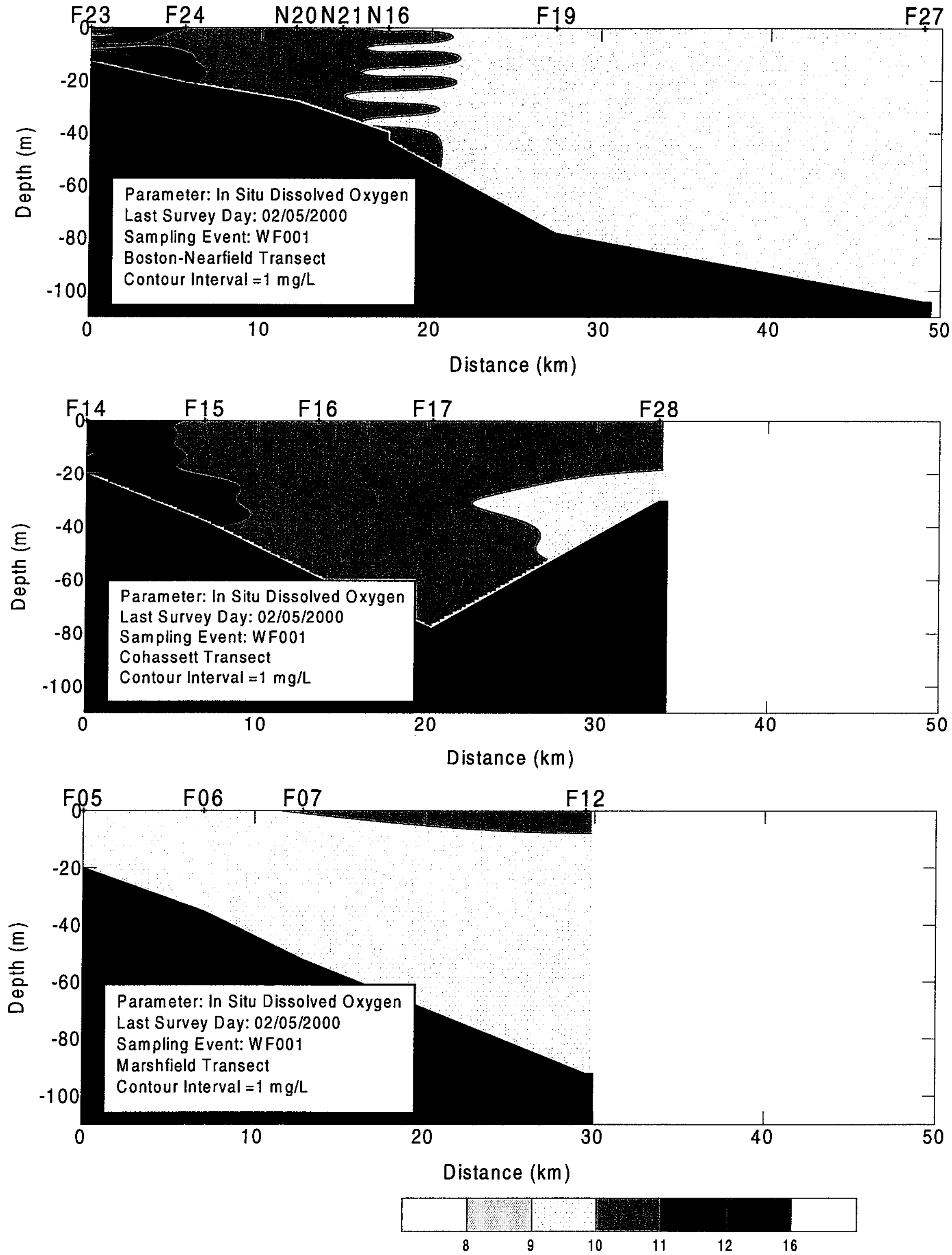


Figure C-57. Dissolved Oxygen Transect Plots (West - East) for Farfield Survey WF001 (Feb 00)

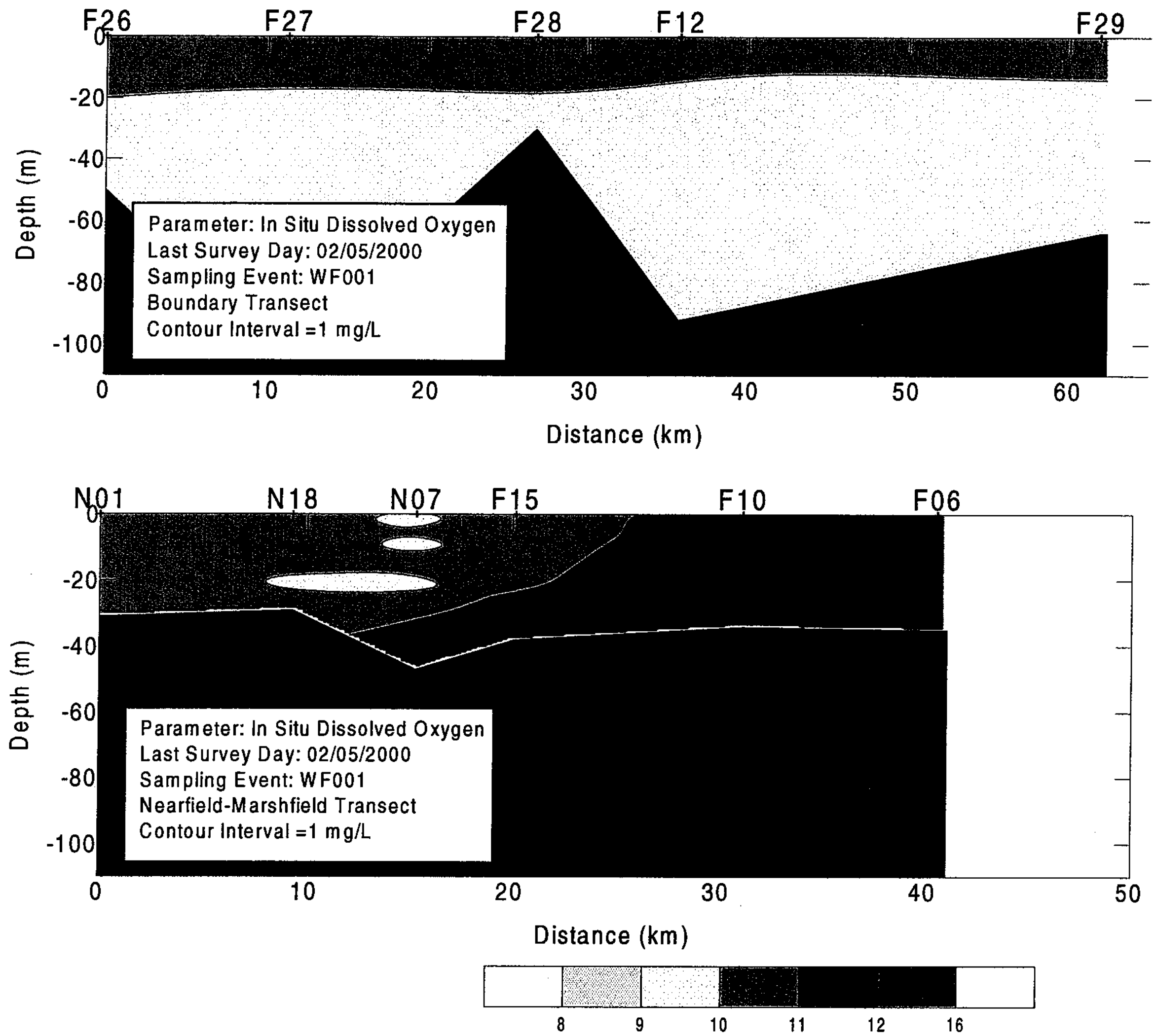


Figure C-58. Dissolved Oxygen Transect Plots (North - South) for Farfield Survey WF001 (Feb 00)

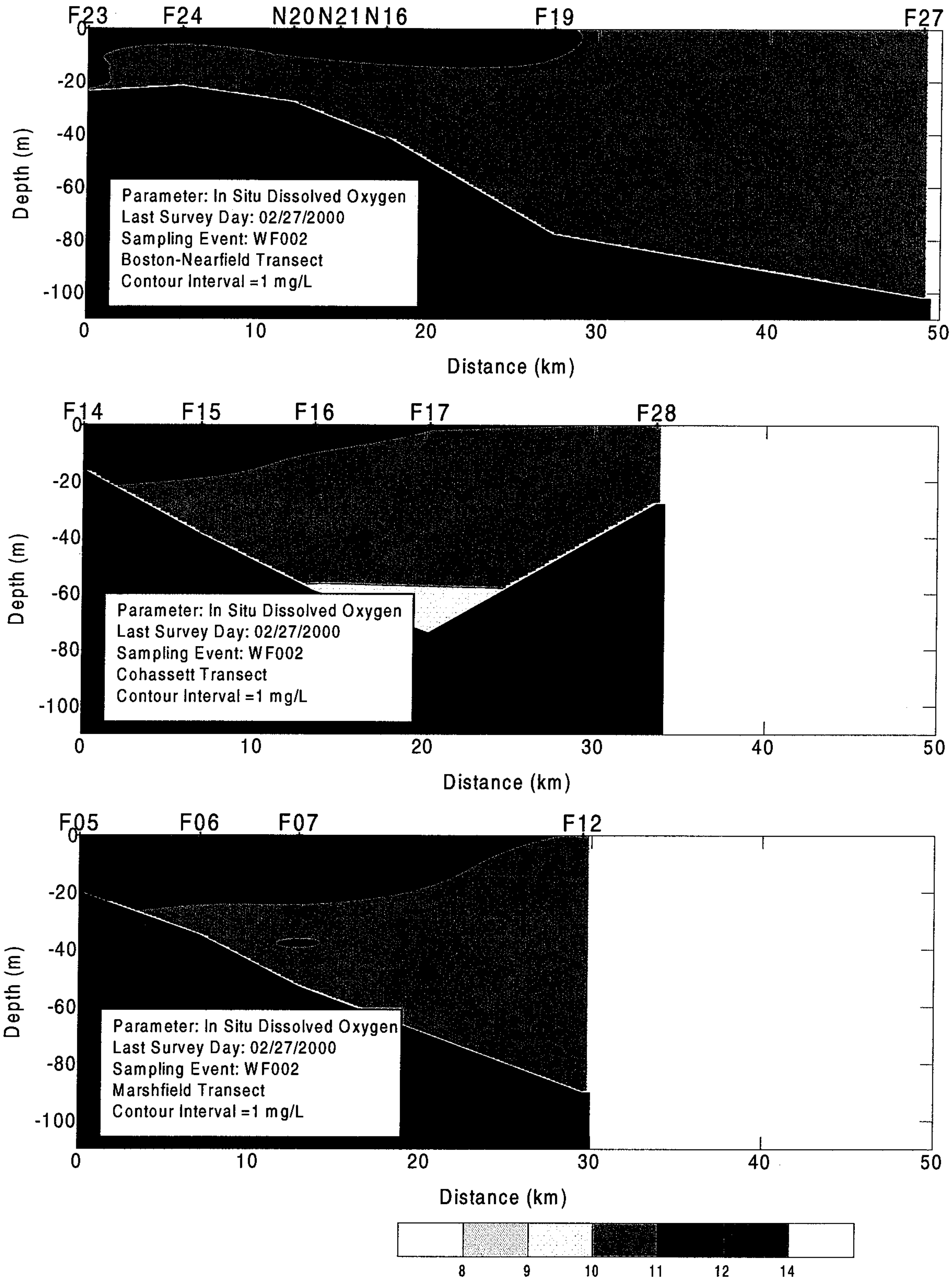


Figure C-59. Dissolved Oxygen Transect Plots (West - East) for Farfield Survey WF002 (Feb 00)

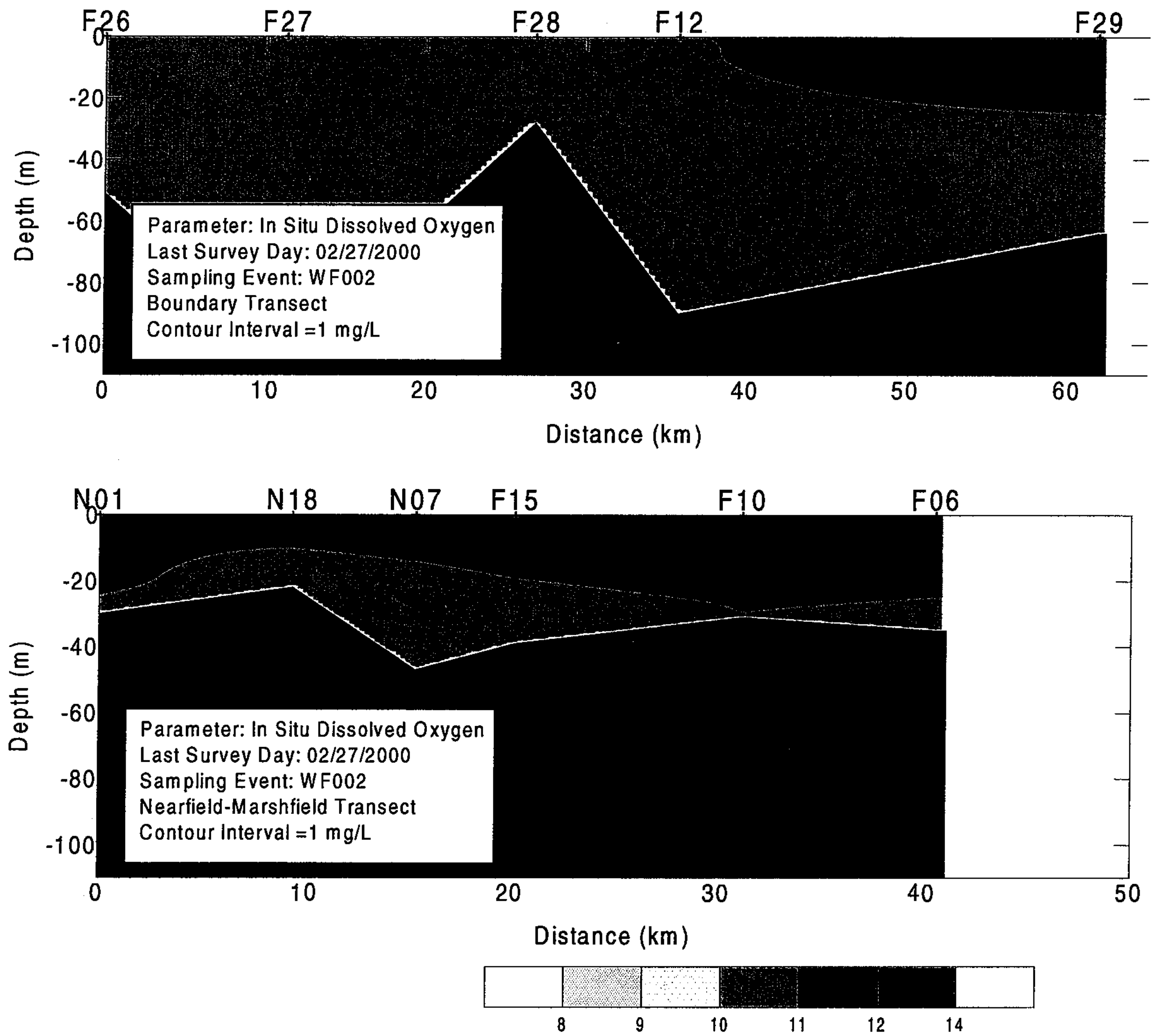


Figure C-60. Dissolved Oxygen Transect Plots (North - South) for Farfield Survey WF002 (Feb 00)

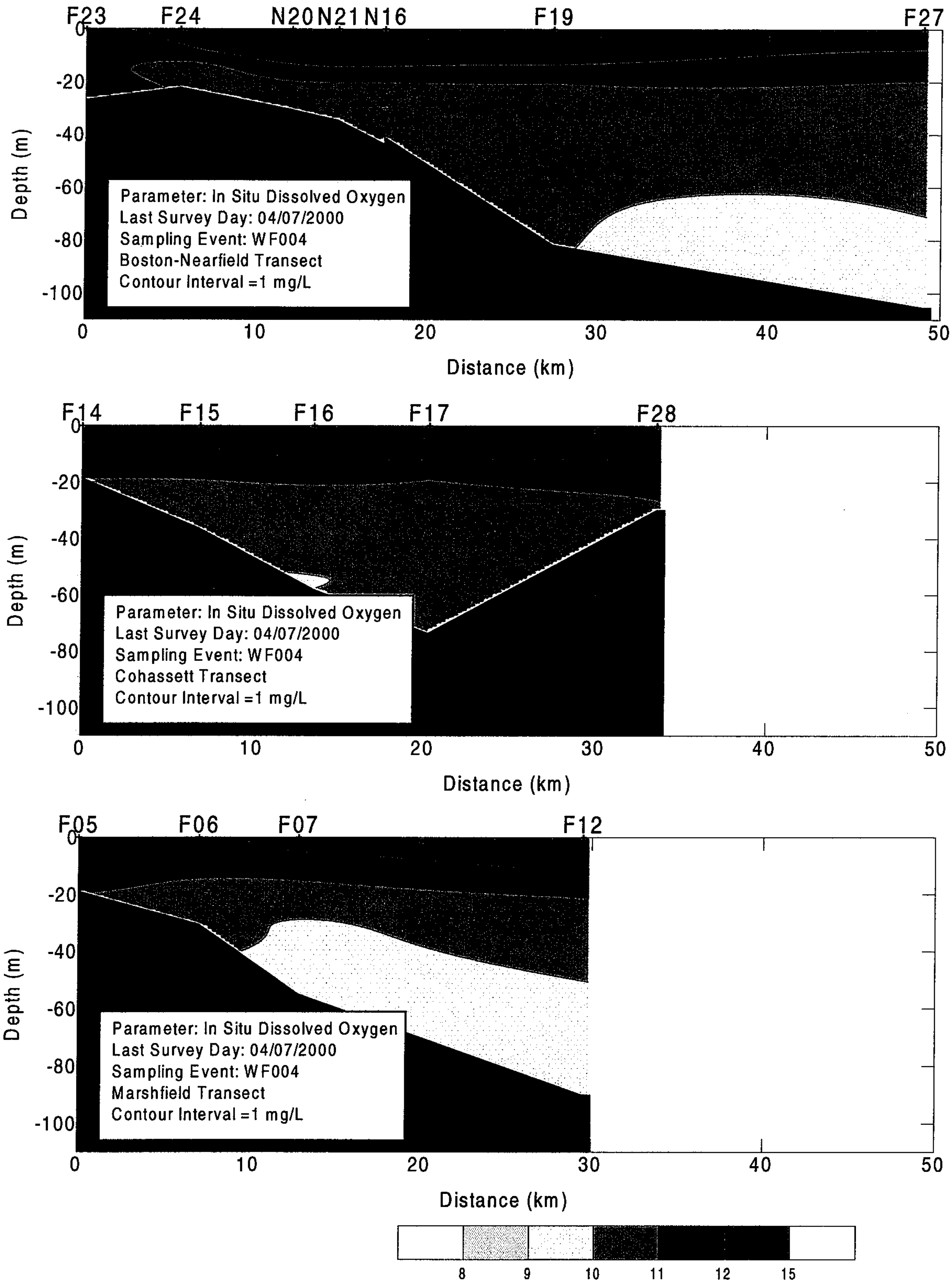


Figure C-61. Dissolved Oxygen Transect Plots (West - East) for Farfield Survey WF004 (Apr 00)

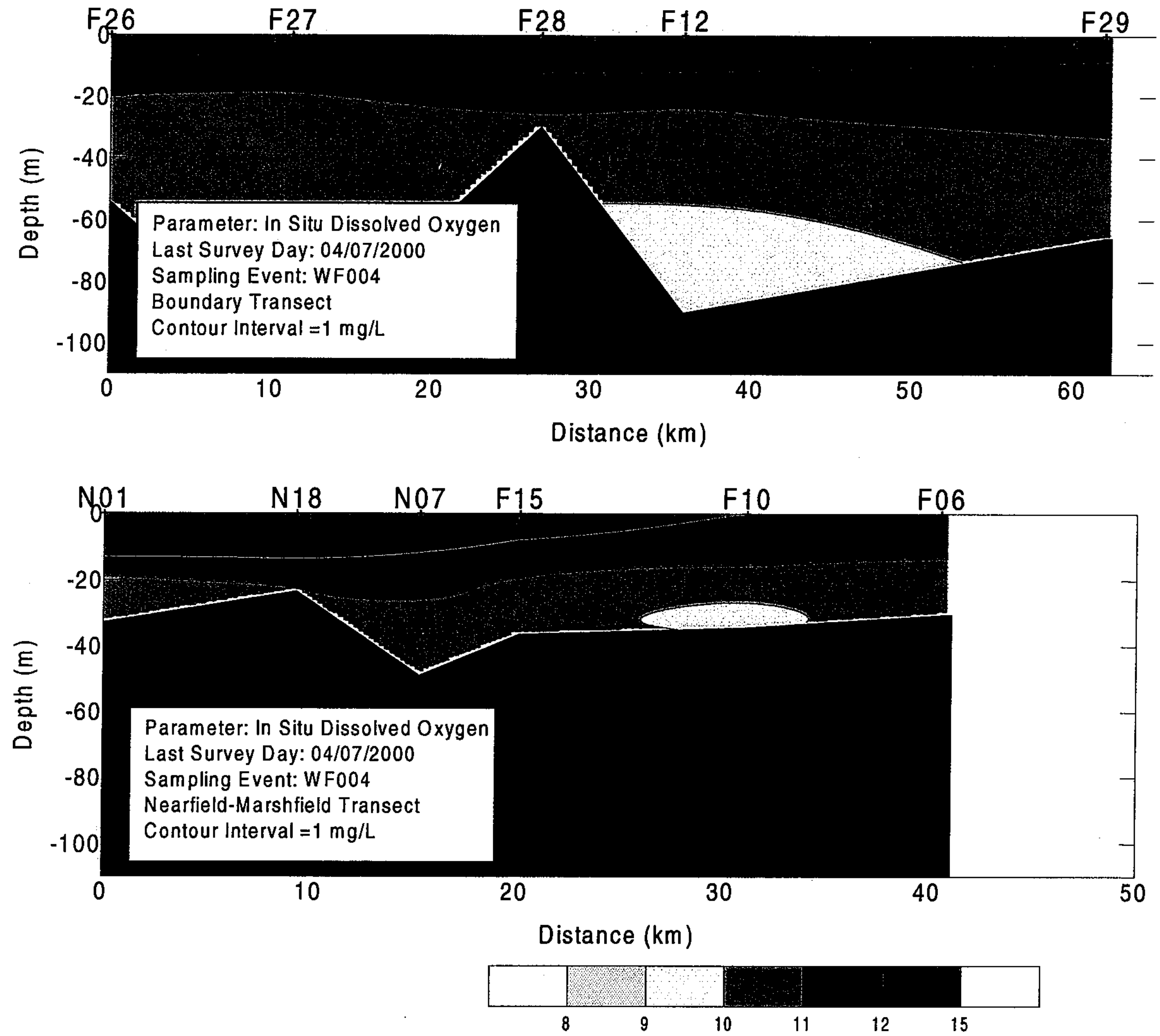


Figure C-62. Dissolved Oxygen Transect Plots (North - South) for Farfield Survey WF004 (Apr 00)

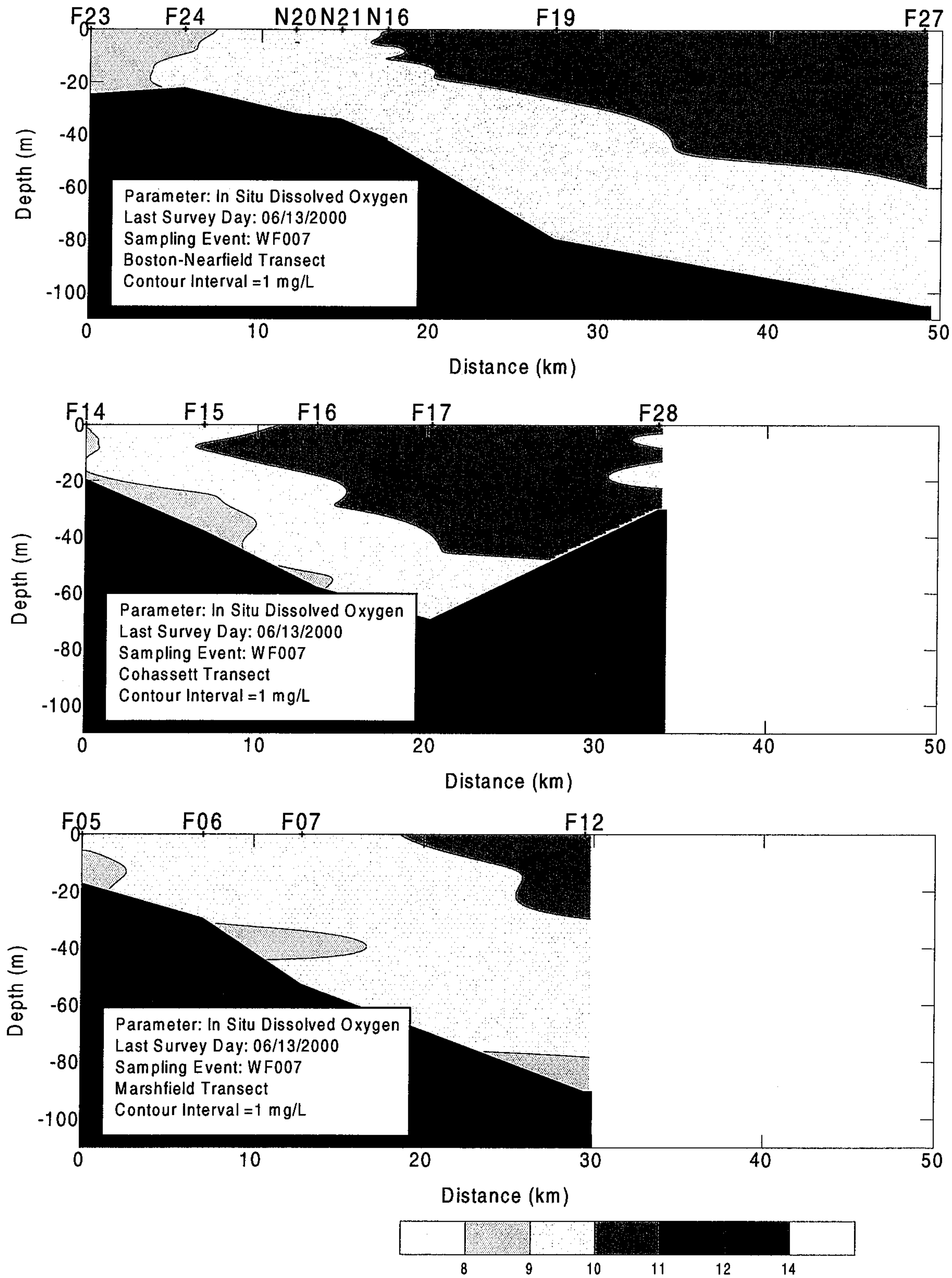


Figure C-63. Dissolved Oxygen Transect Plots (West - East) for Farfield Survey WF007 (Jun 00)

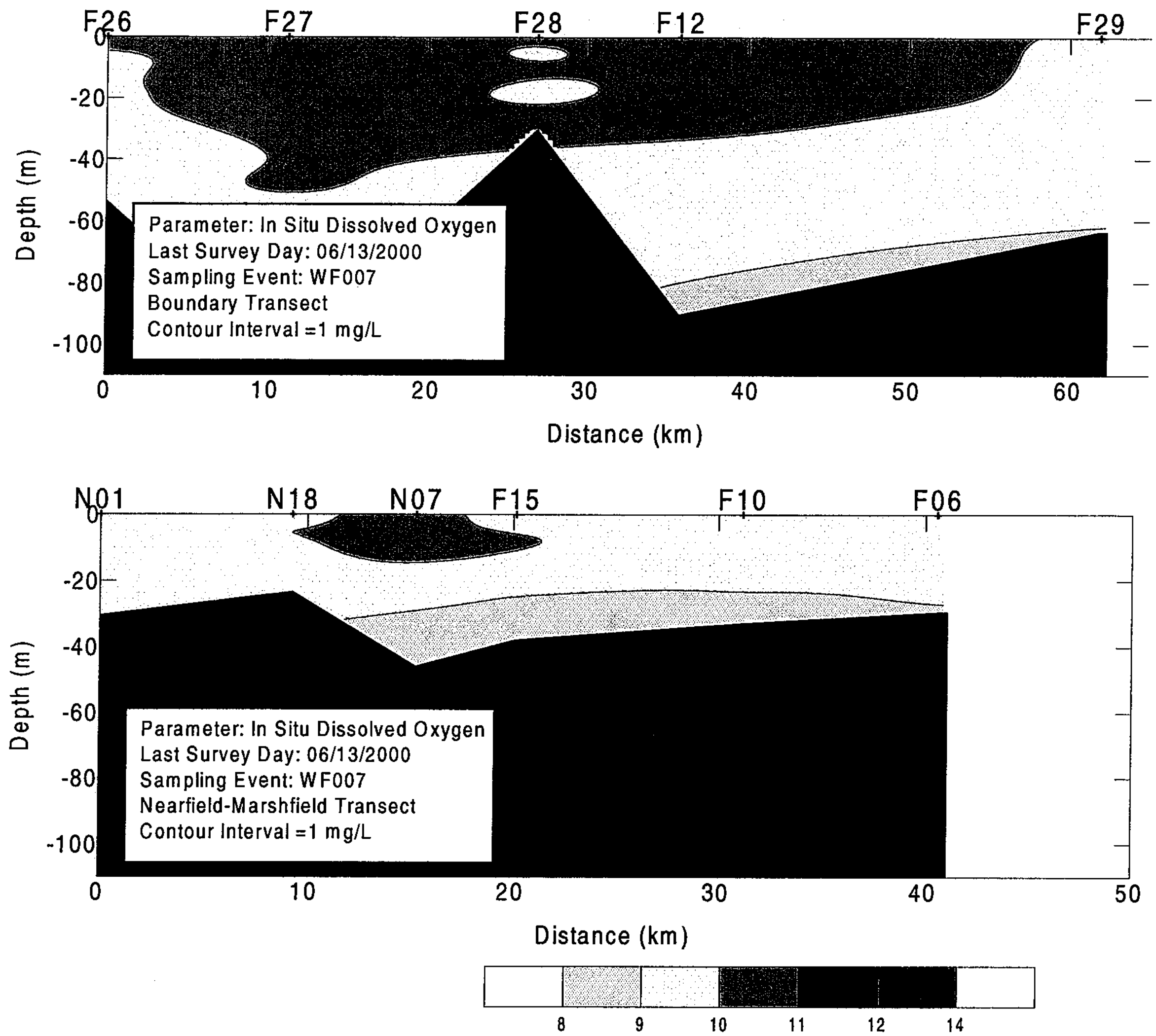


Figure C-64. Dissolved Oxygen Transect Plots (North - South) for Farfield Survey WF007 (Jun 00)

APPENDIX D

Nutrient Scatter Plots for Each Survey

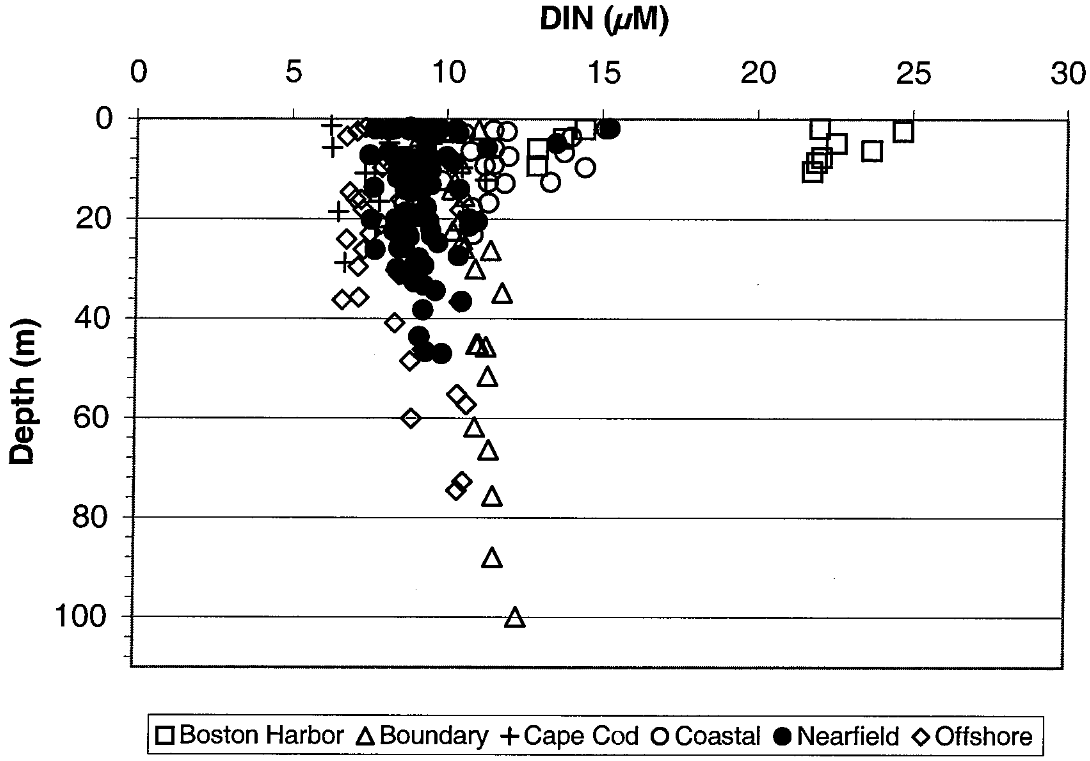
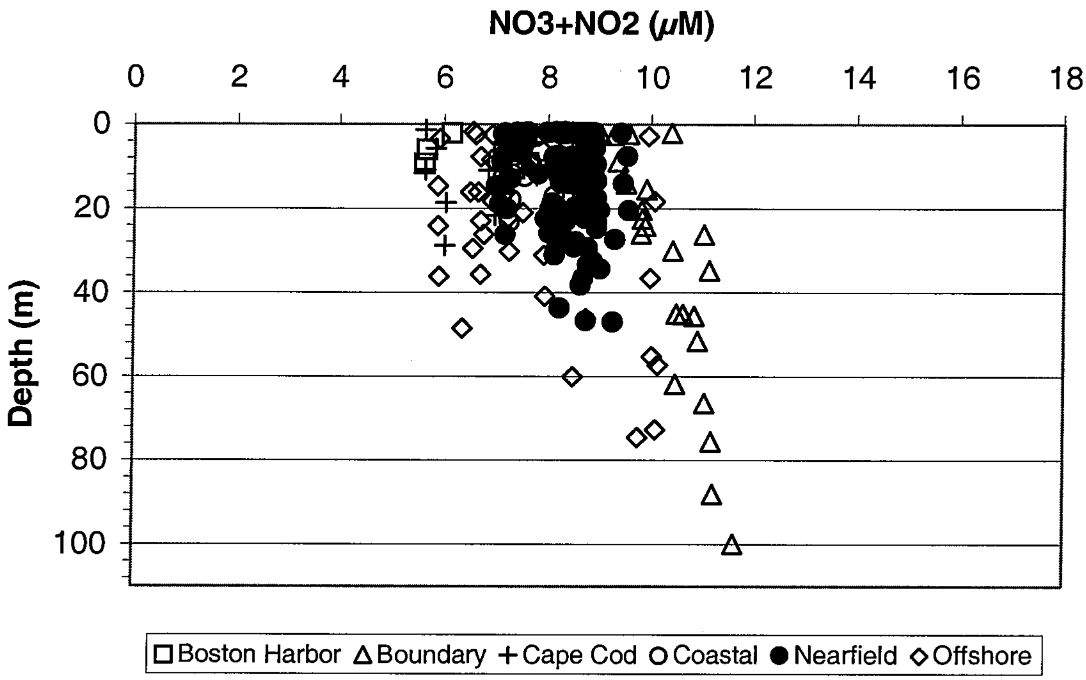


Figure D-1. Depth vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

(a)



(b)

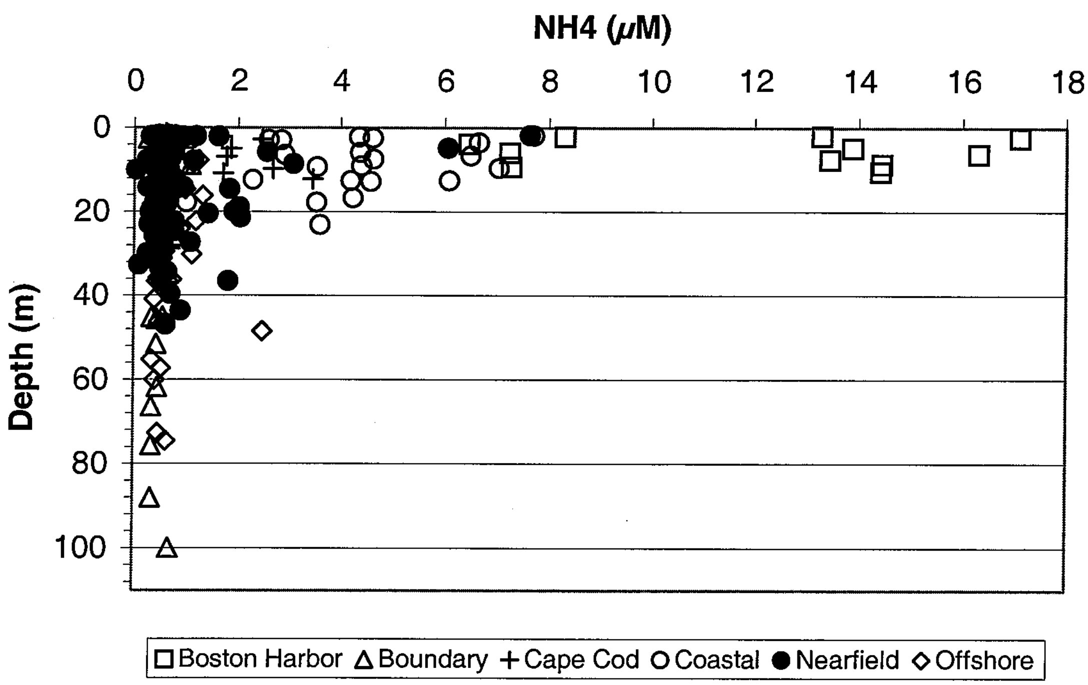


Figure D-2. Depth vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

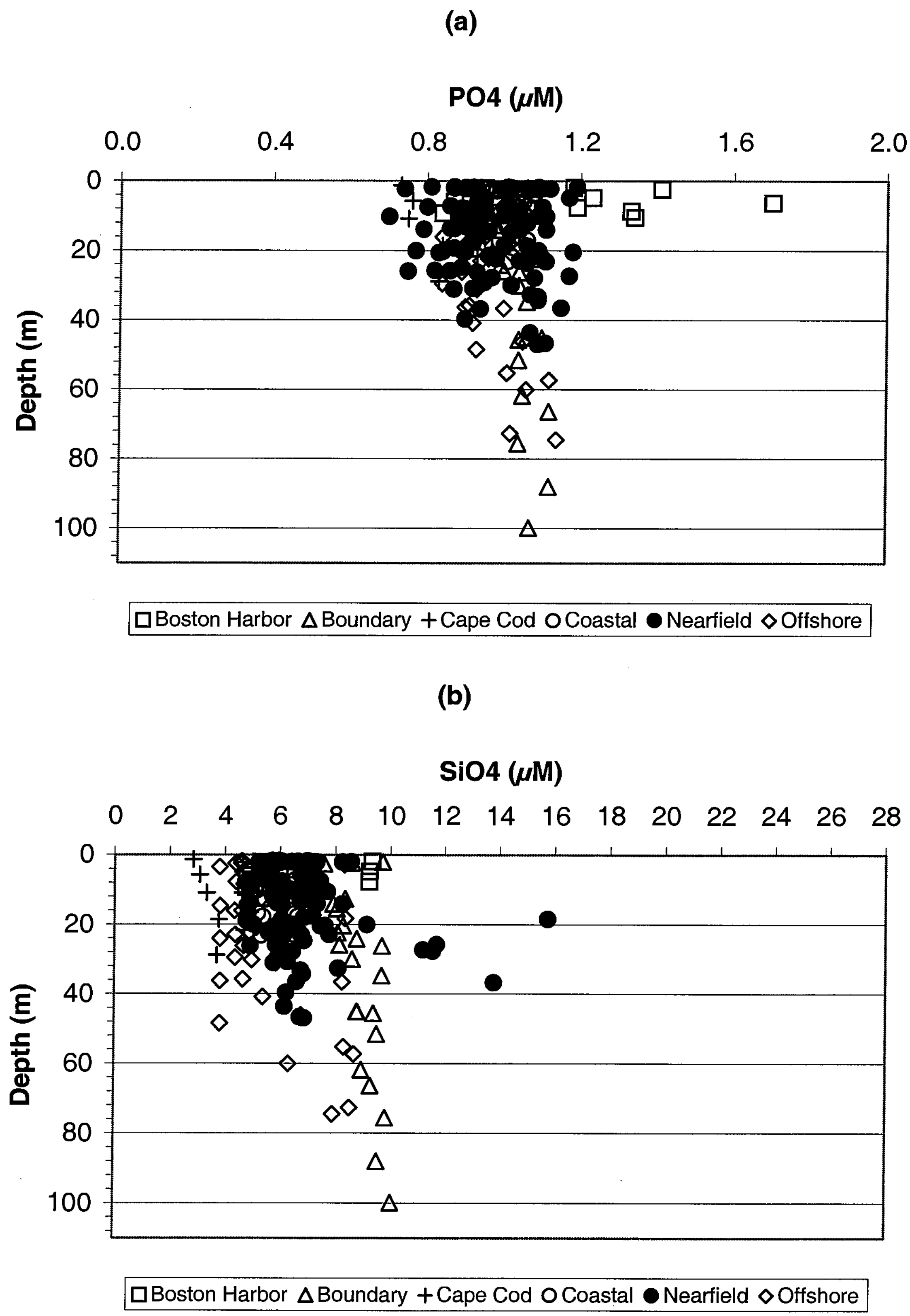
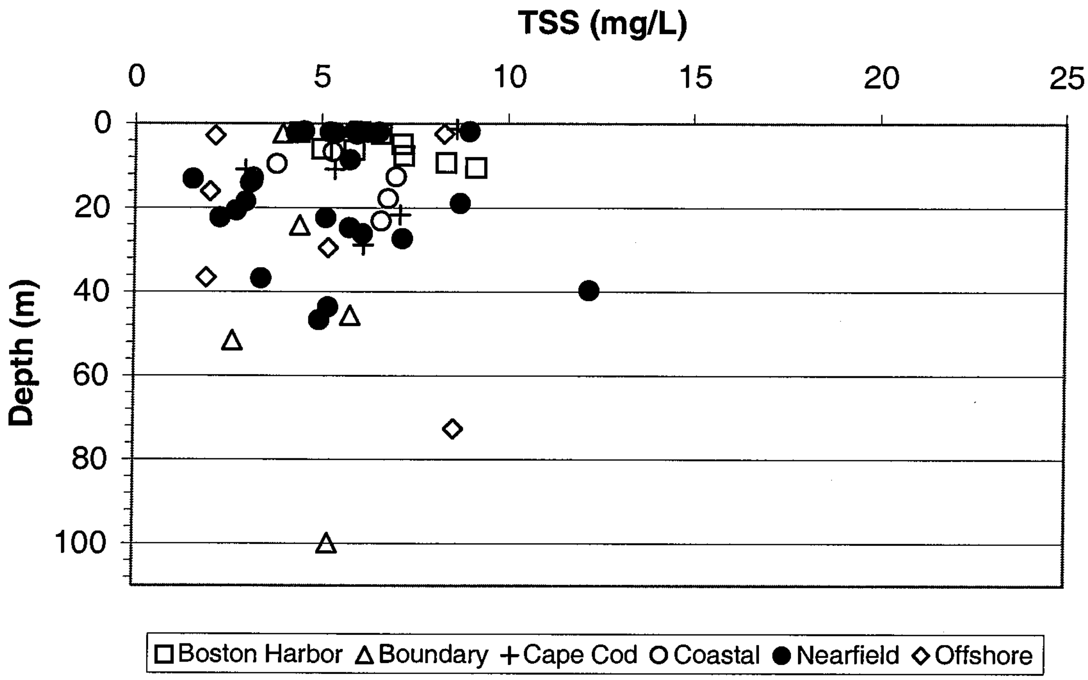


Figure D-3. Depth vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

(a)



(b)

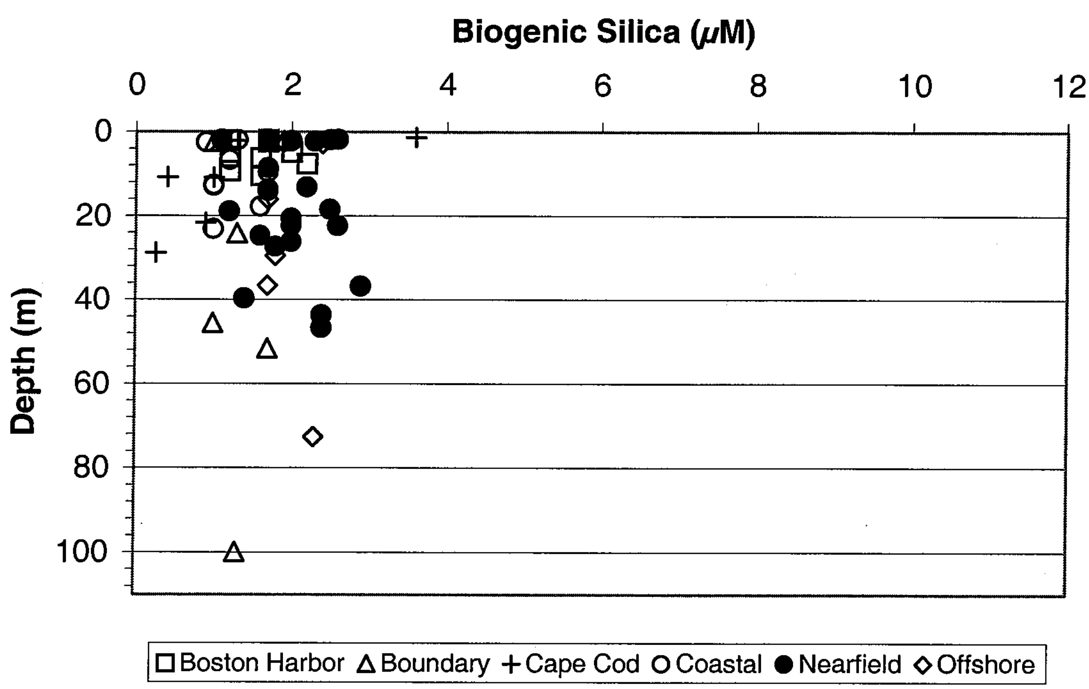


Figure D-4. Depth vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

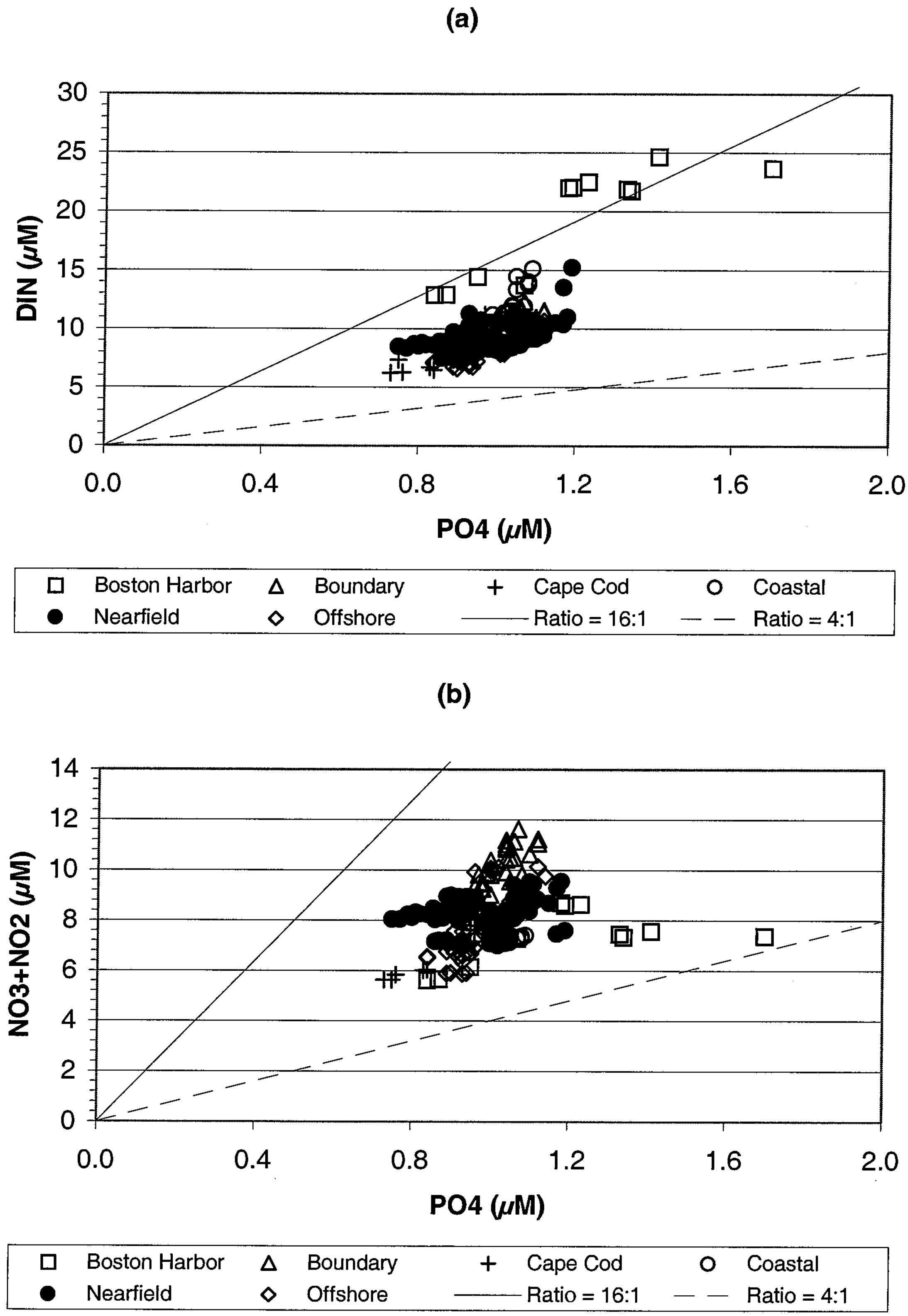
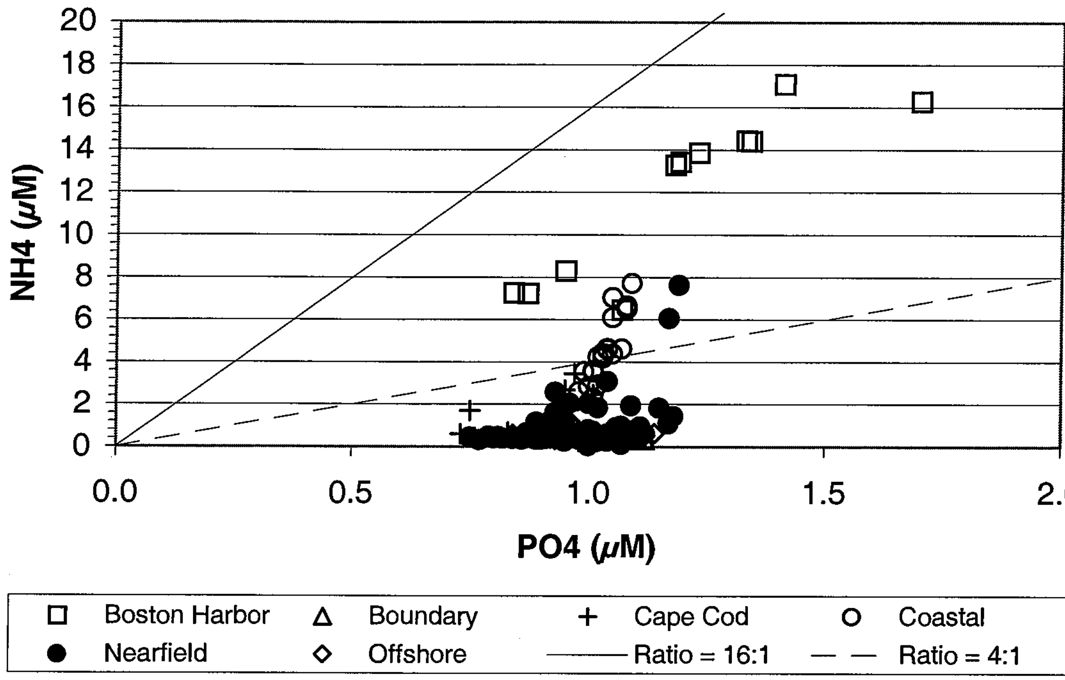


Figure D-5. Nutrient vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

(a)



(b)

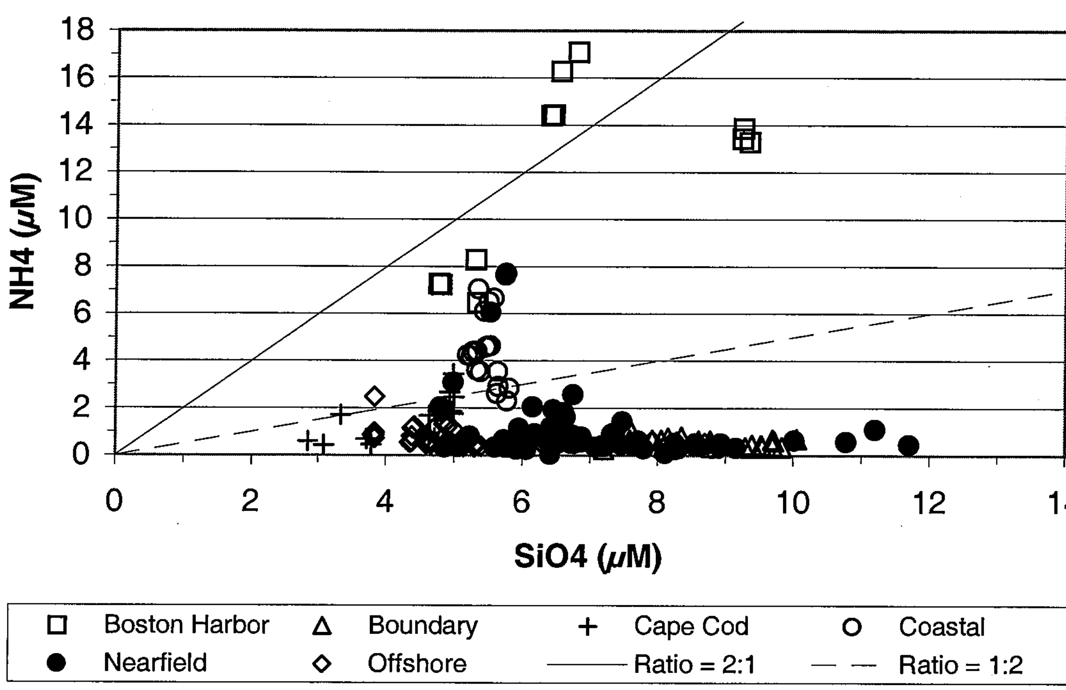
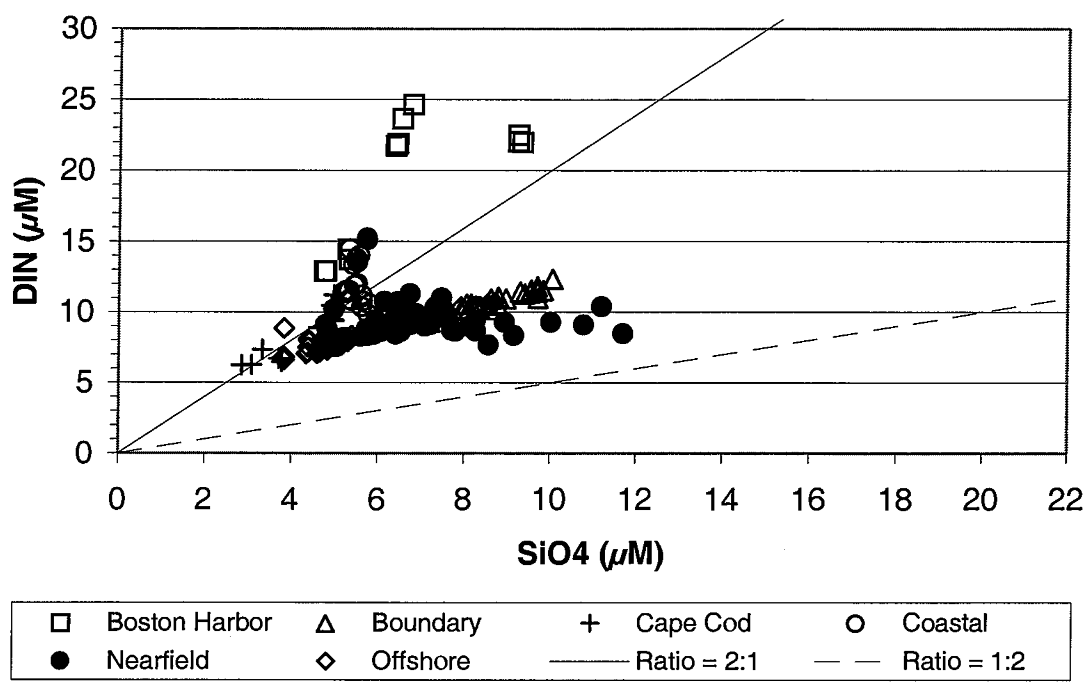


Figure D-6. Nutrient vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

(a)



(b)

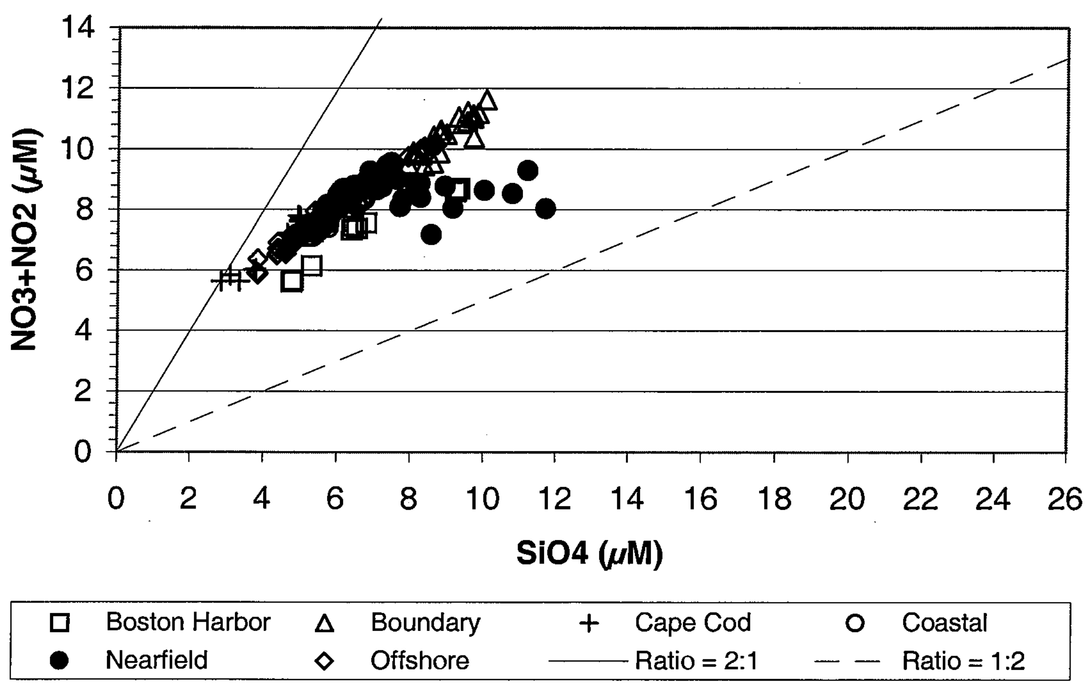
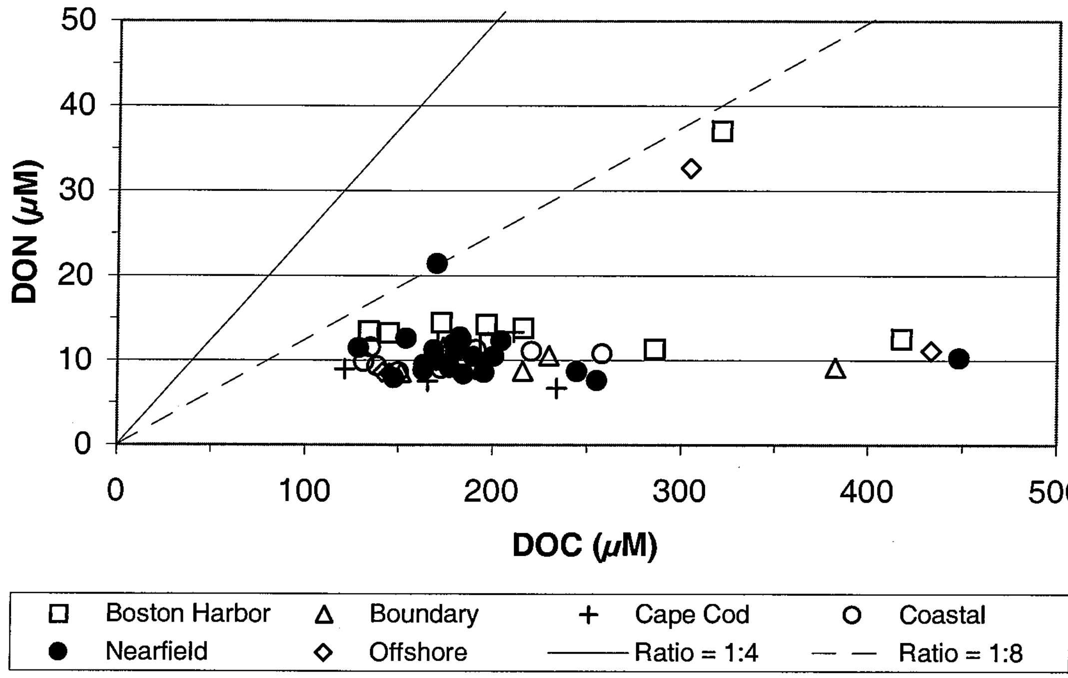


Figure D-7. Nutrient vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

(a)



(b)

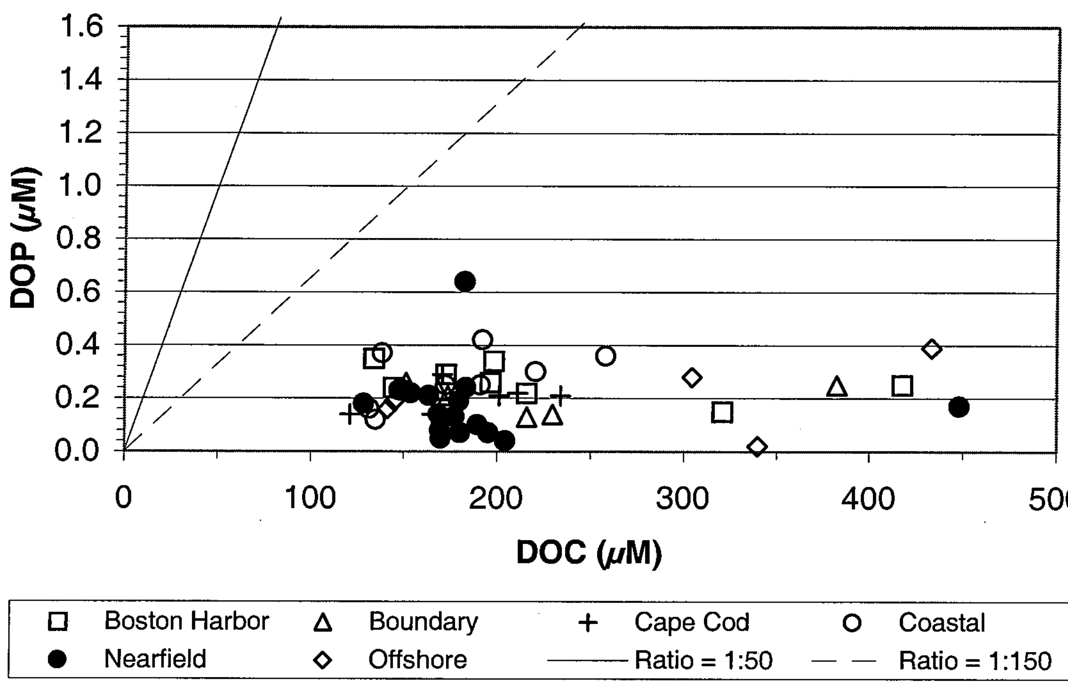


Figure D-8. Nutrient vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

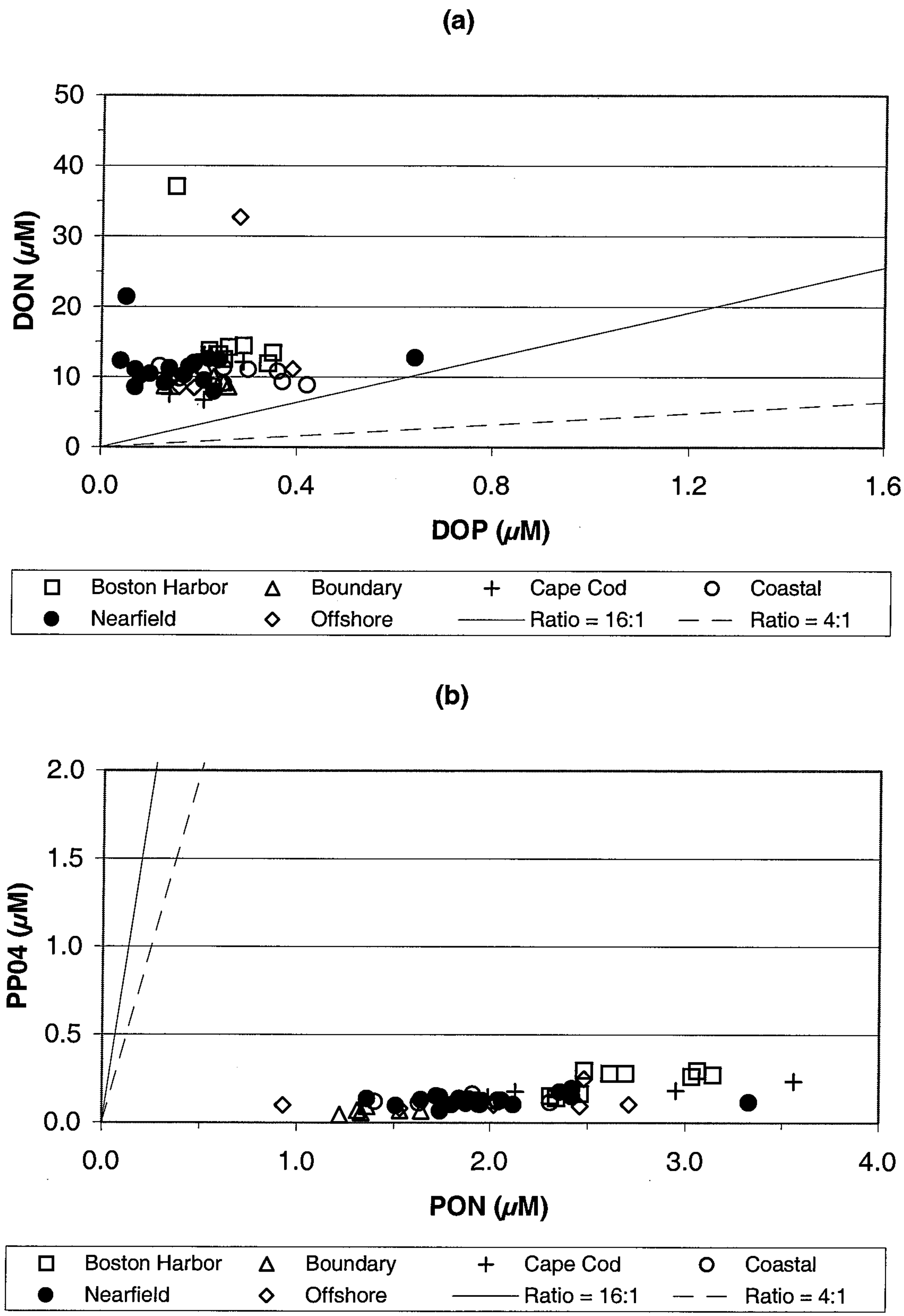
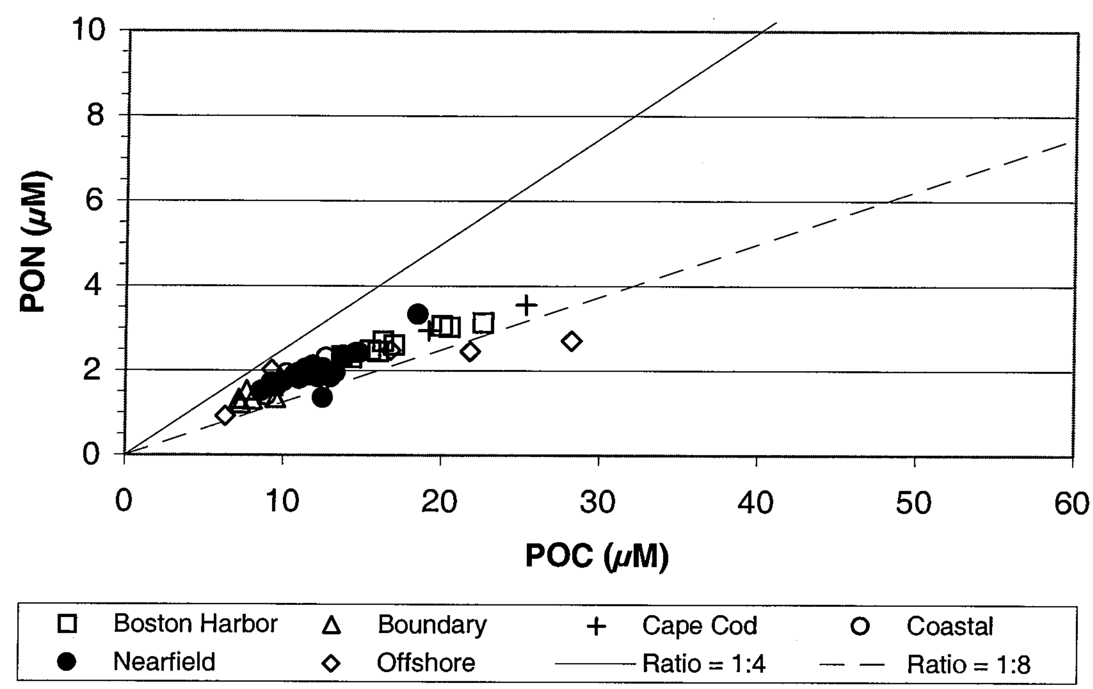


Figure D-9. Nutrient vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

(a)



(b)

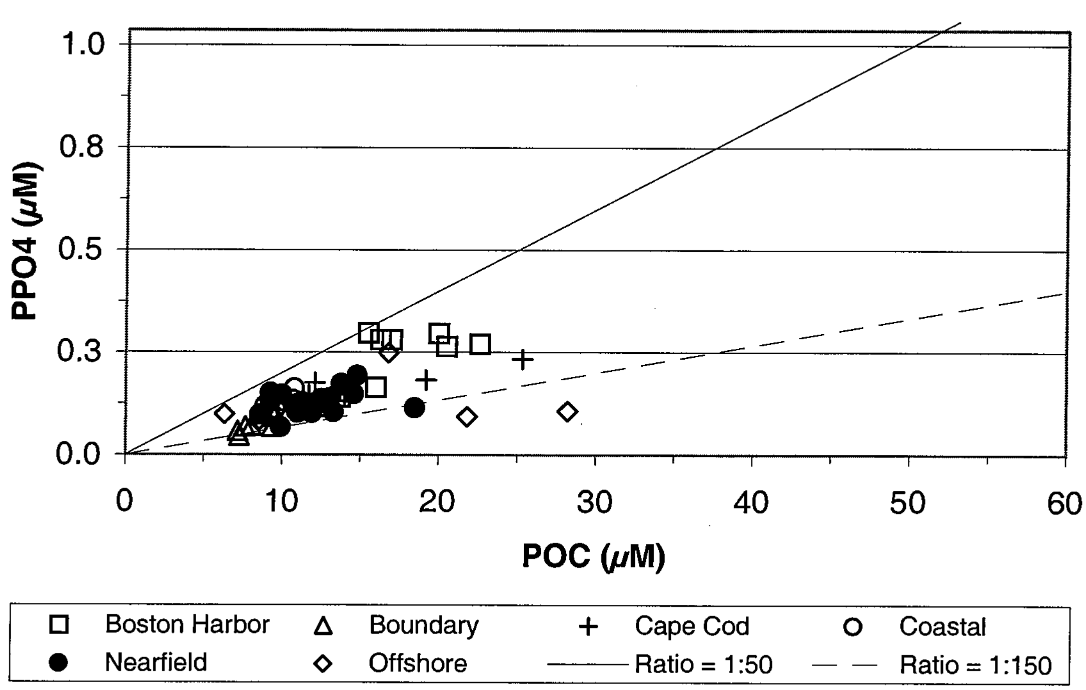
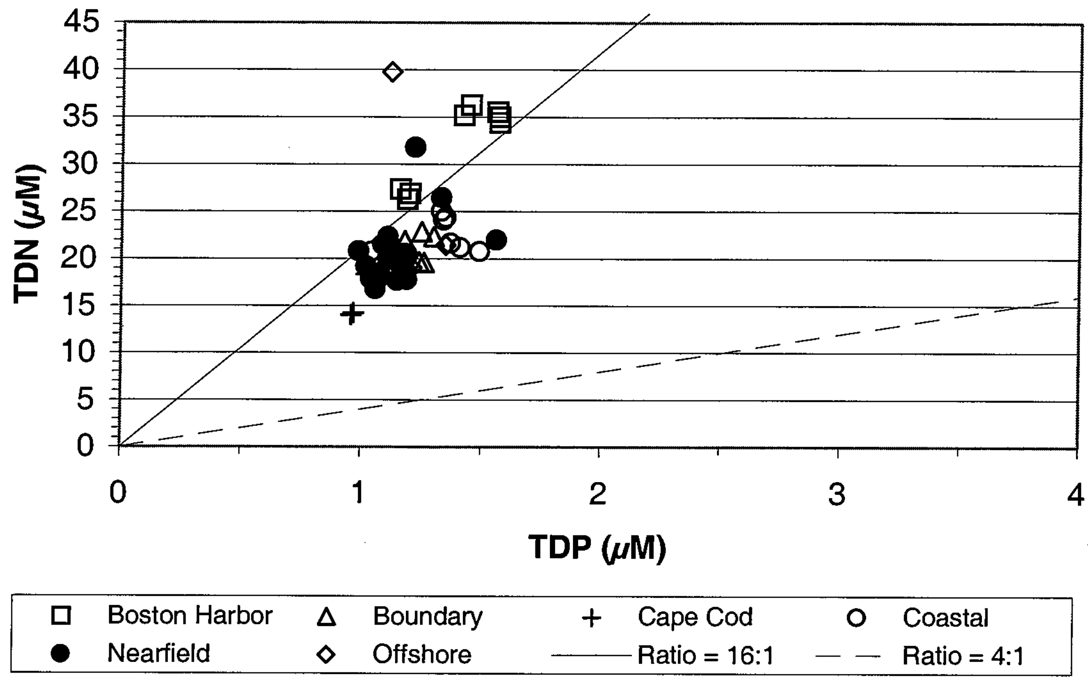


Figure D-10. Nutrient vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

(a)



(b)

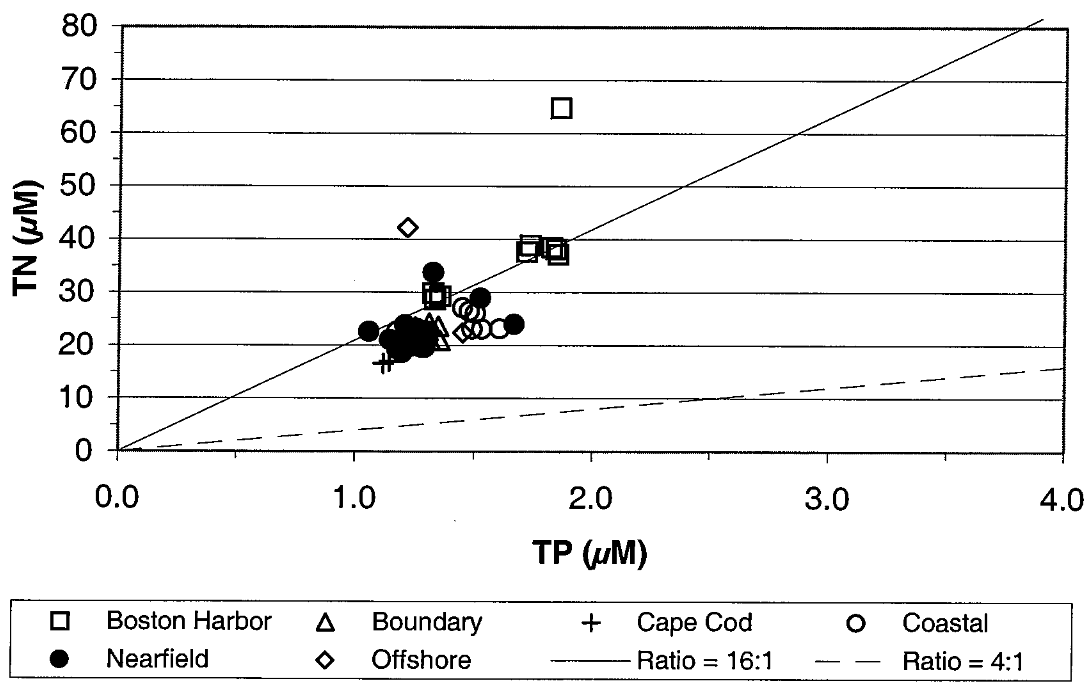
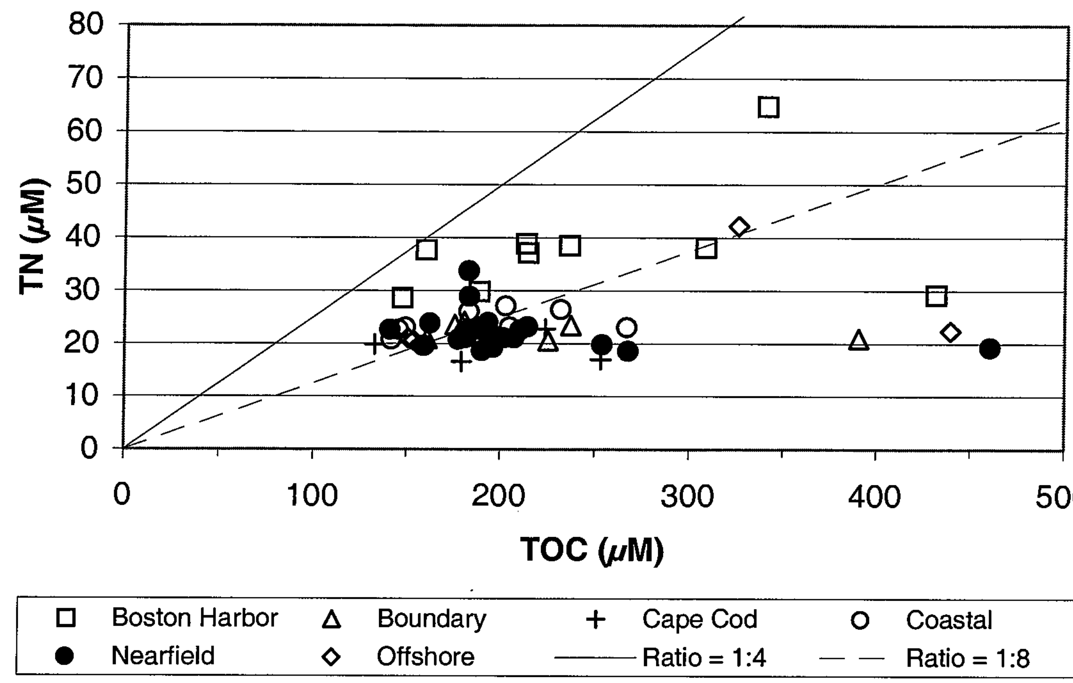


Figure D-11. Nutrient vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

(a)



(b)

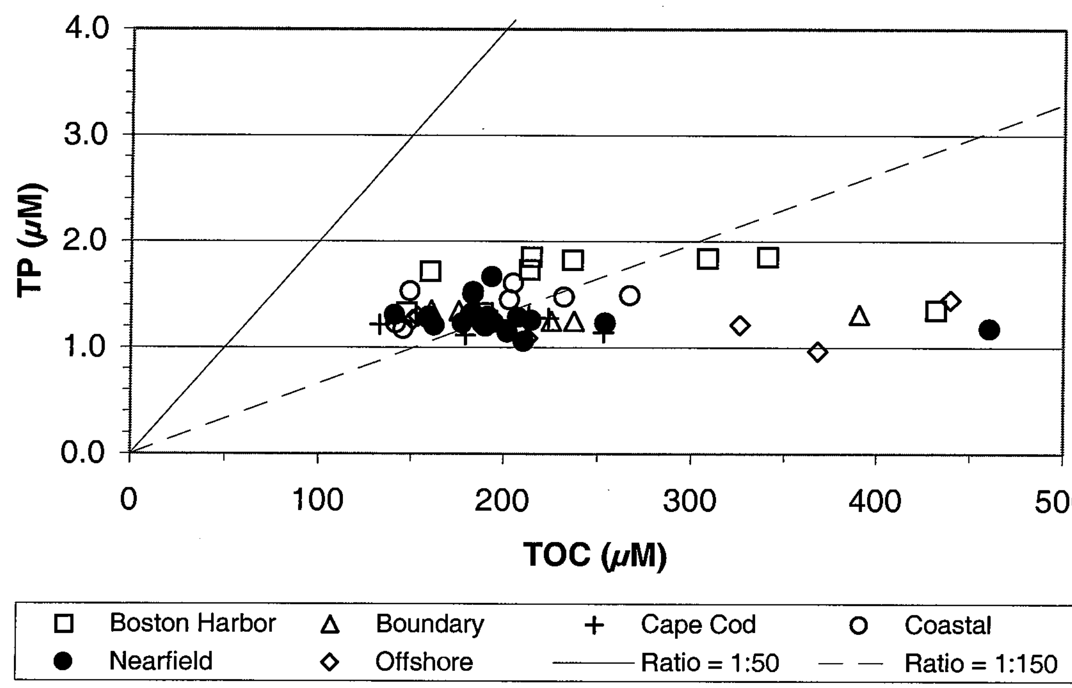


Figure D-12. Nutrient vs. Nutrient Plots for Farfield Survey WF001, (Feb 00)

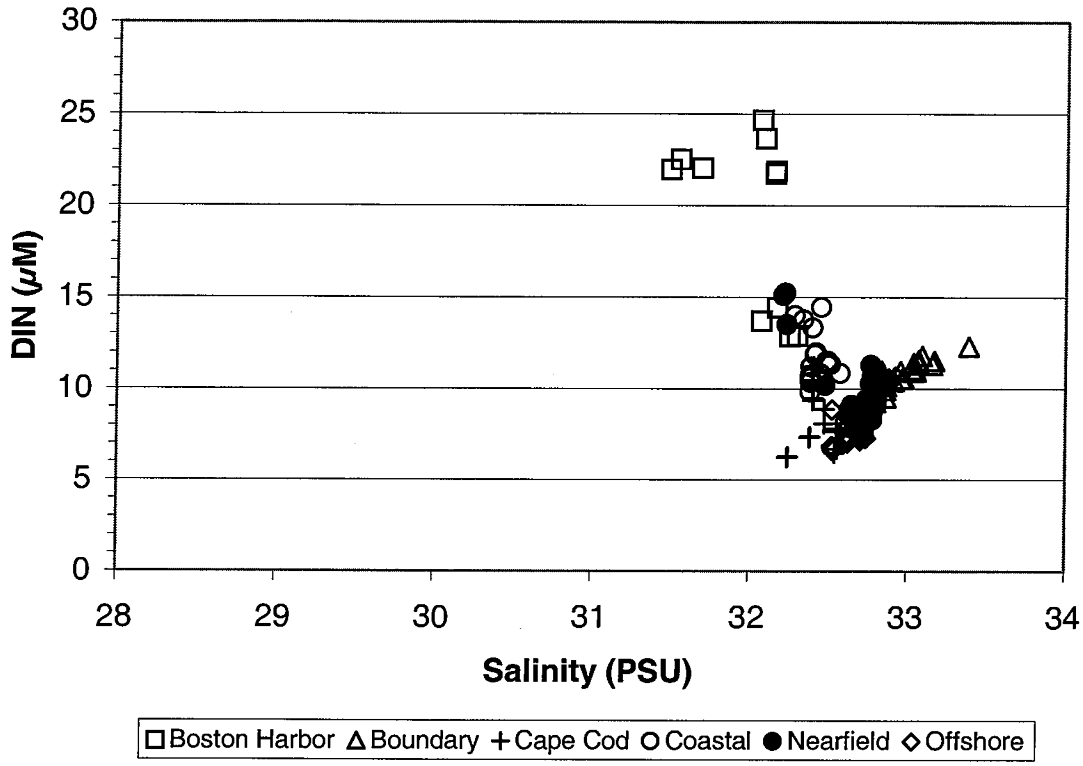


Figure D-13. Nutrient vs. Salinity Plots for Farfield Survey WF001, (Feb 00)

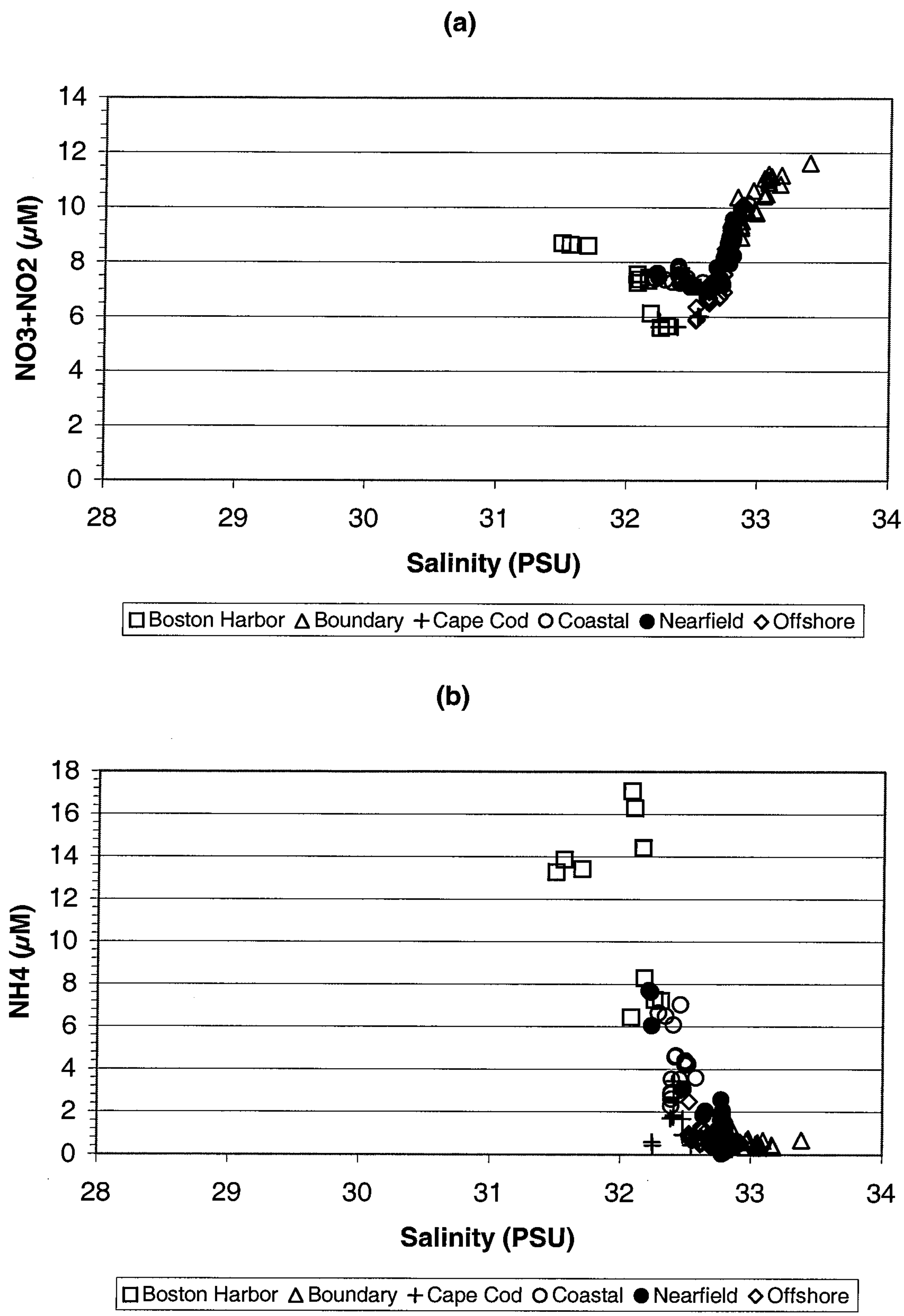
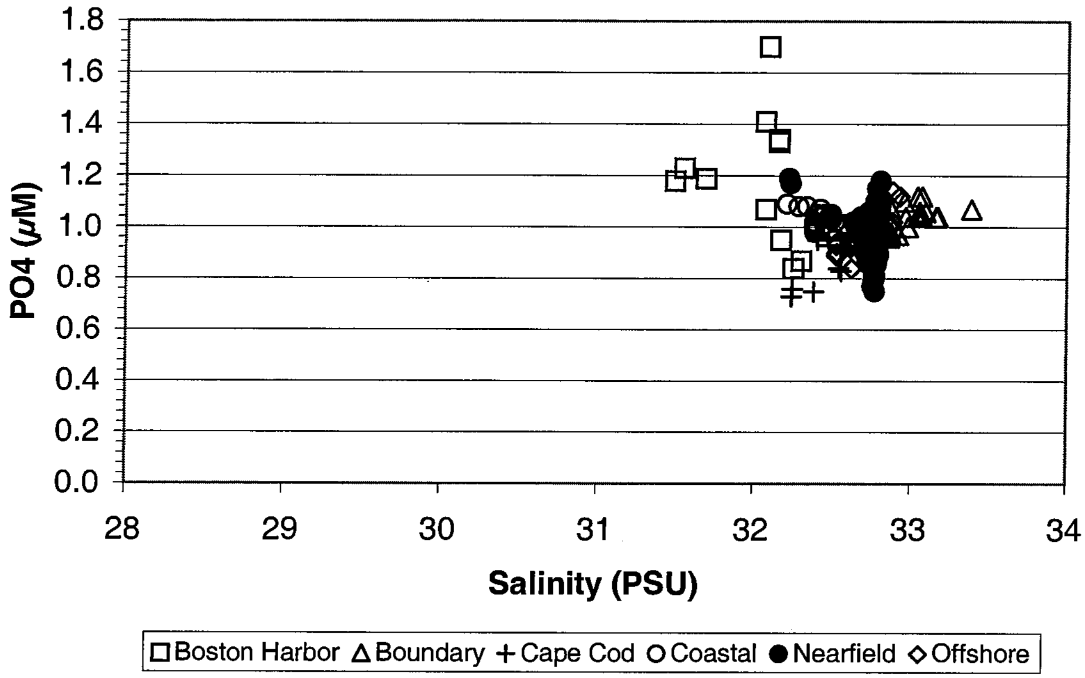


Figure D-14. Nutrient vs. Salinity Plots for Farfield Survey WF001, (Feb 00)

(a)



(b)

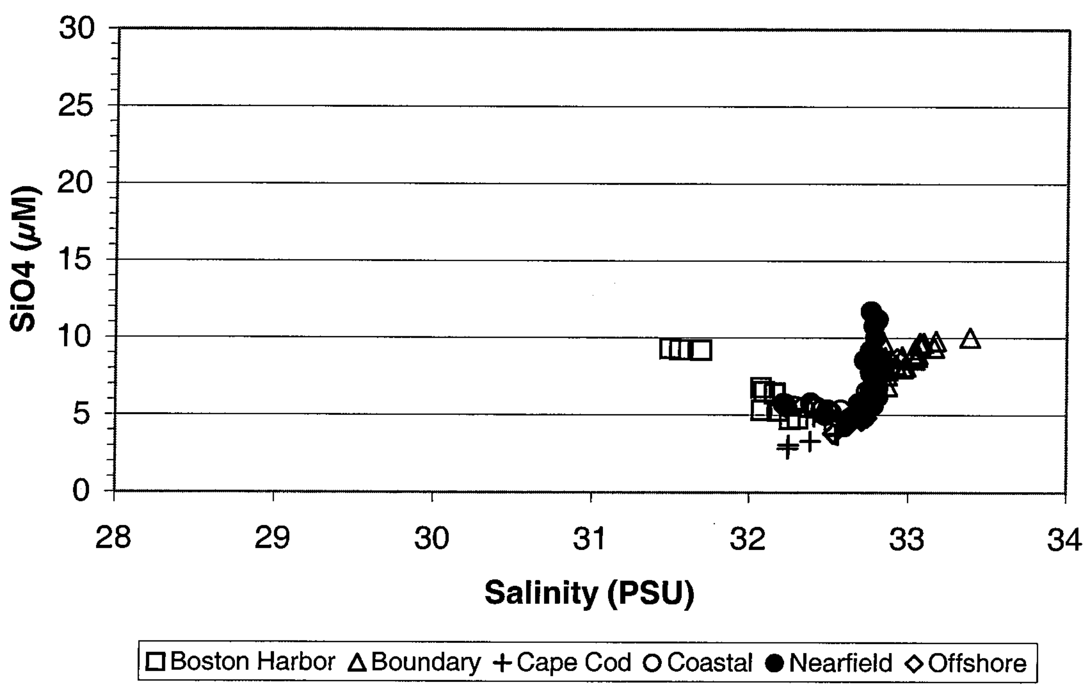


Figure D-15. Nutrient vs. Salinity Plots for Farfield Survey WF001, (Feb 00)

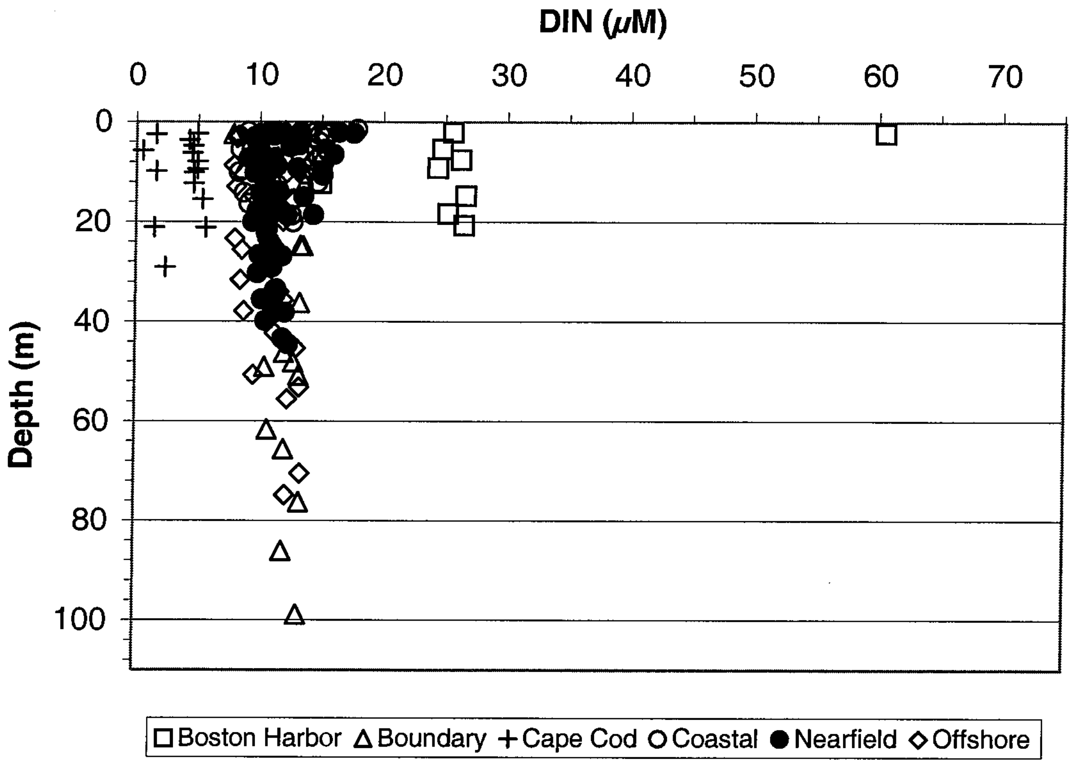
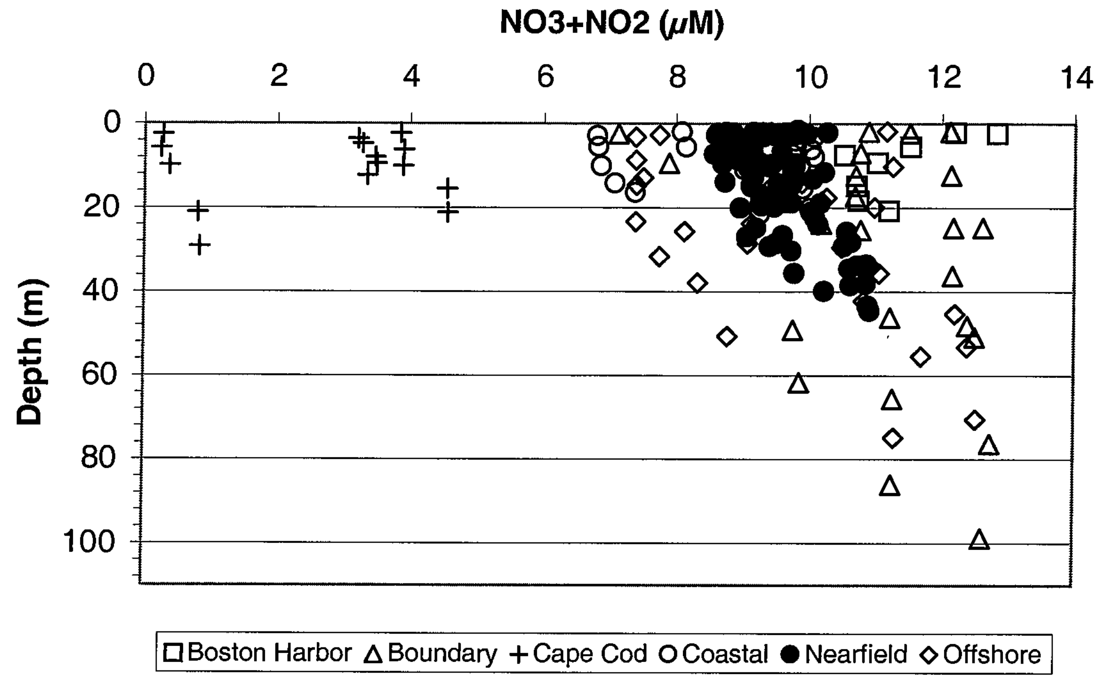


Figure D-16. Depth vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)

(a)



(b)

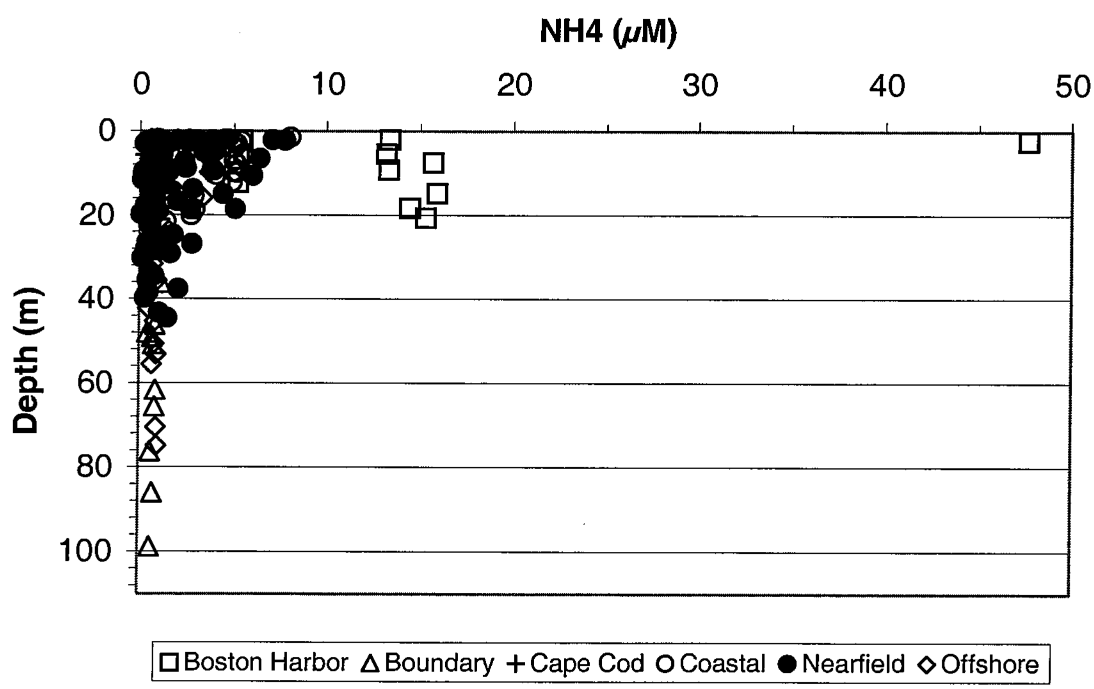
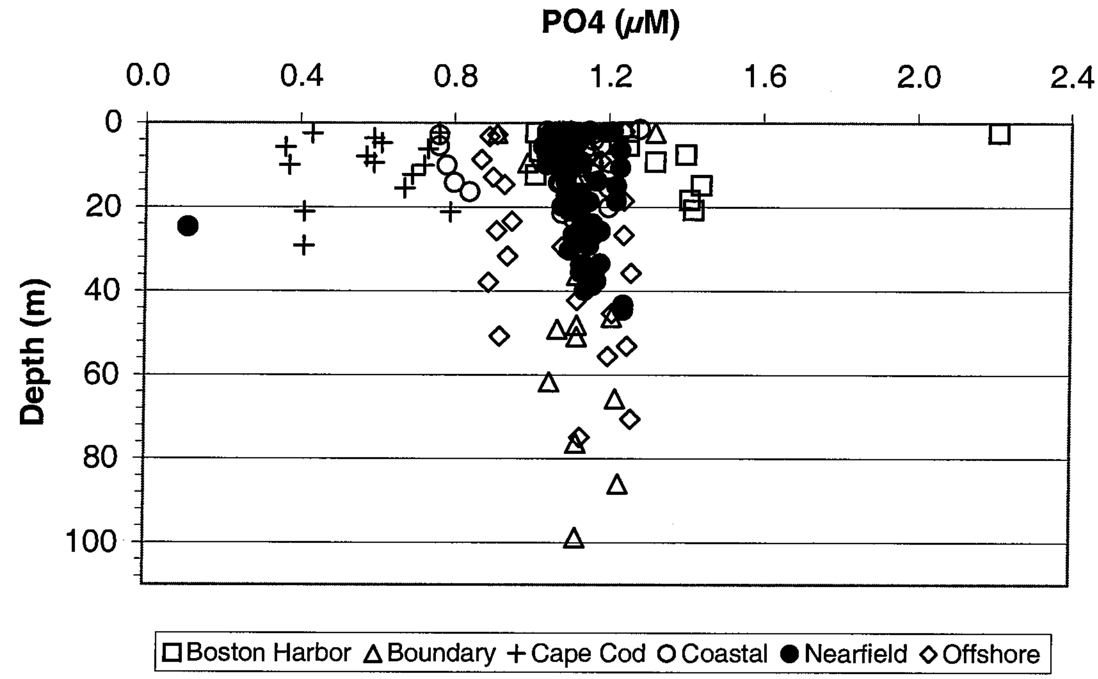


Figure D-17. Depth vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)

(a)



(b)

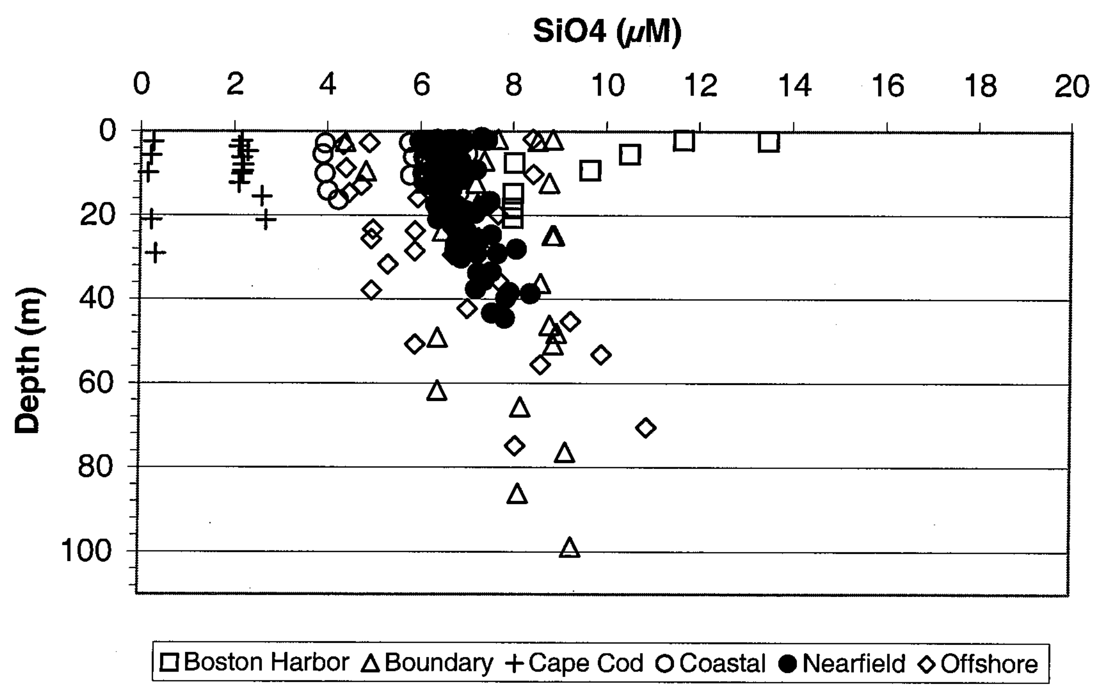
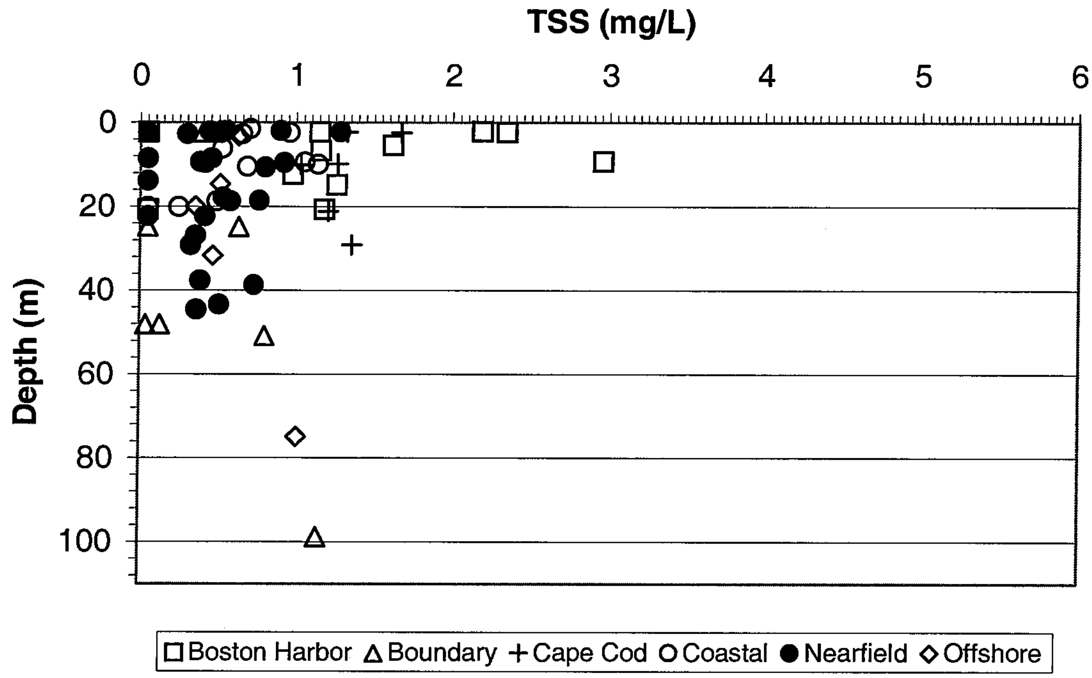


Figure D-18. Depth vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)

(a)



(b)

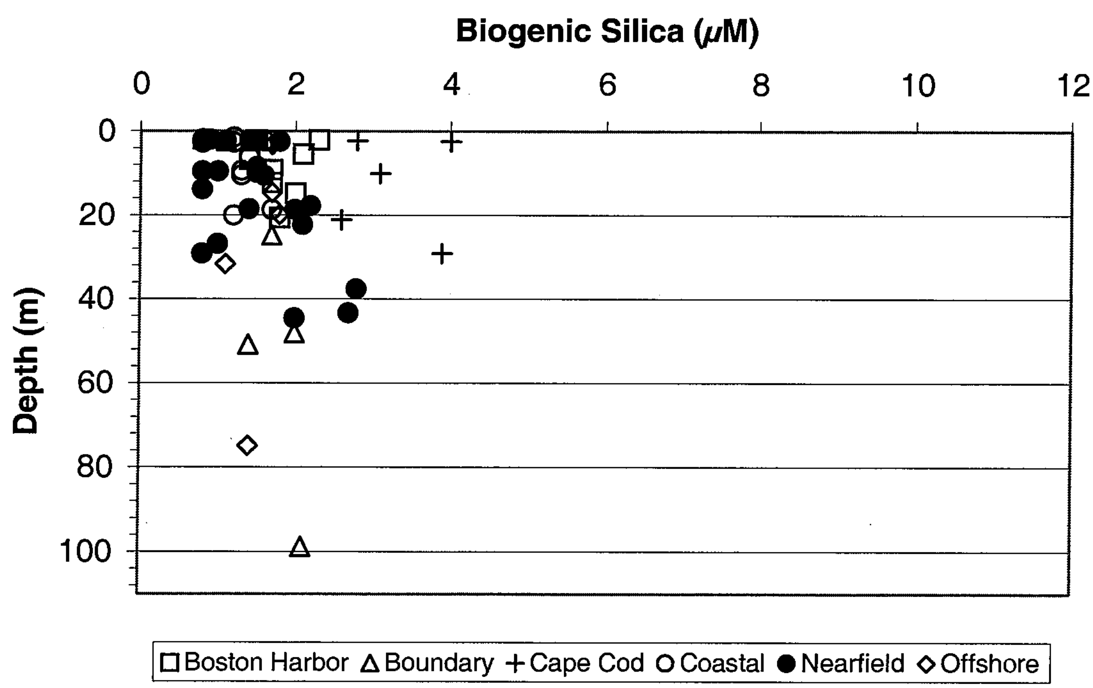
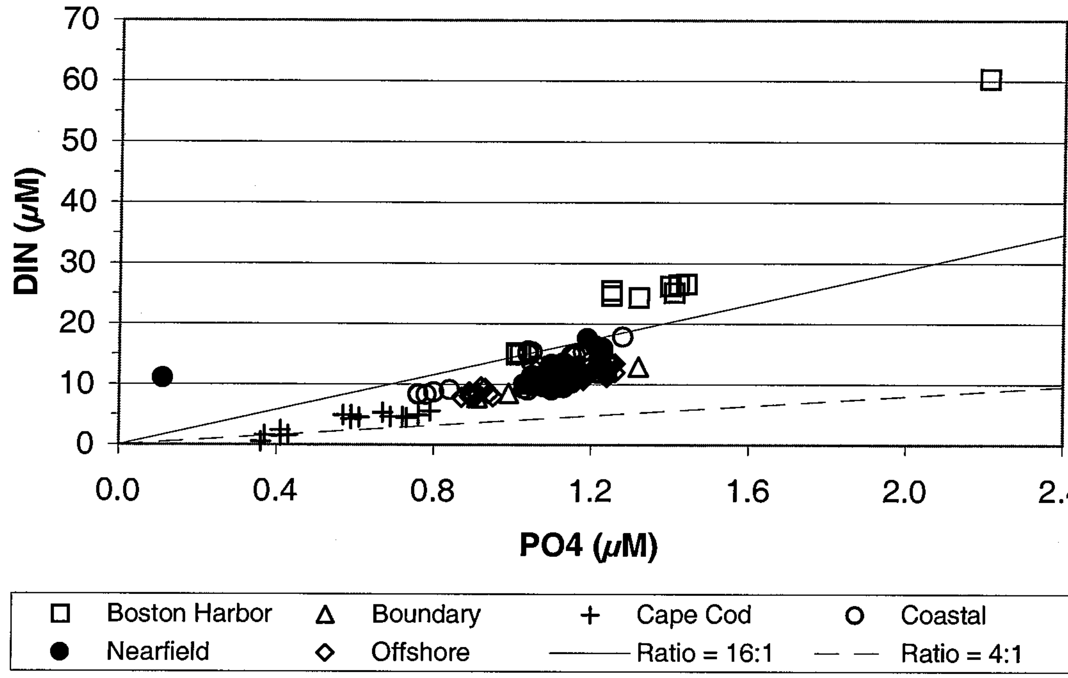


Figure D-19. Depth vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)

(a)



(b)

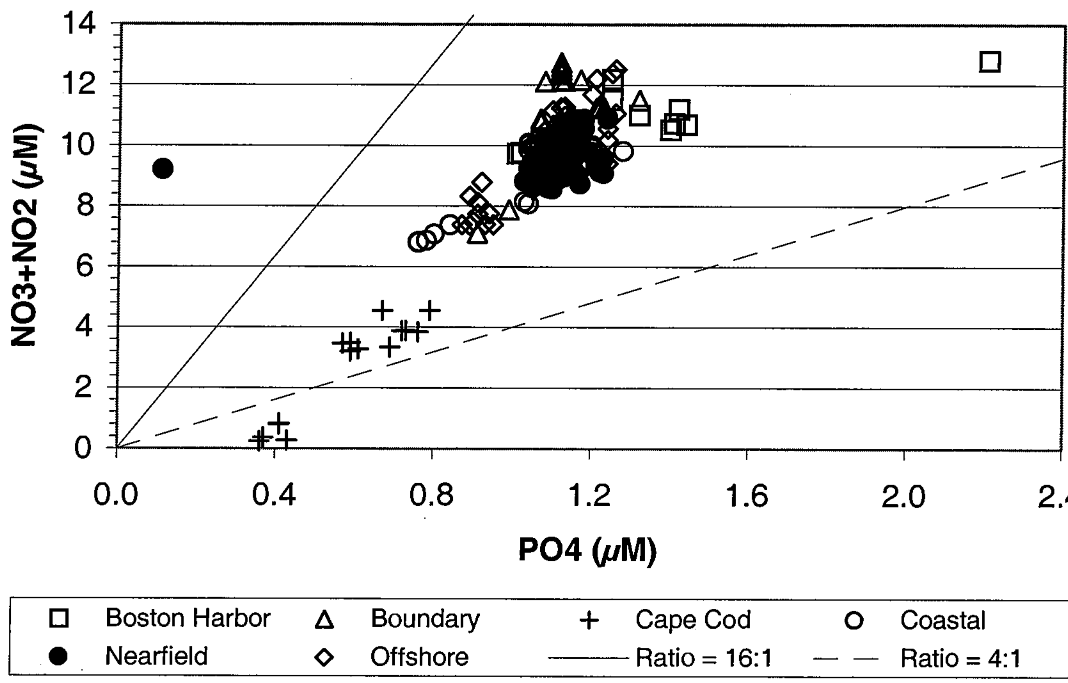
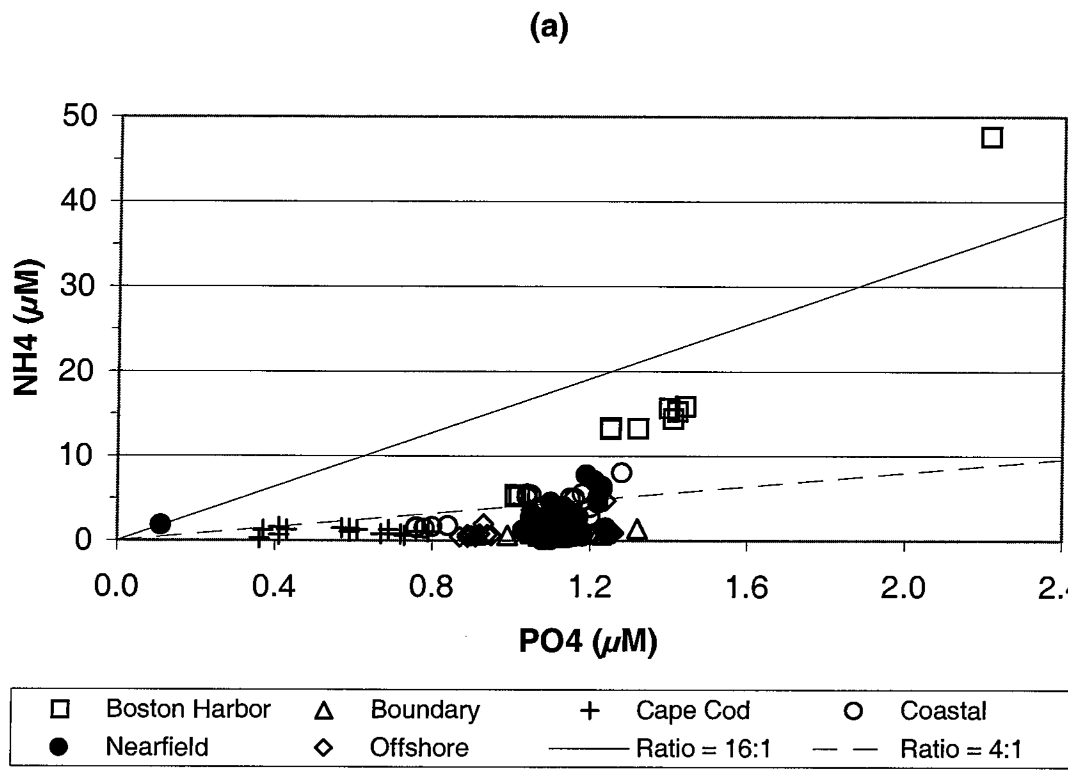


Figure D-20. Nutrient vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)



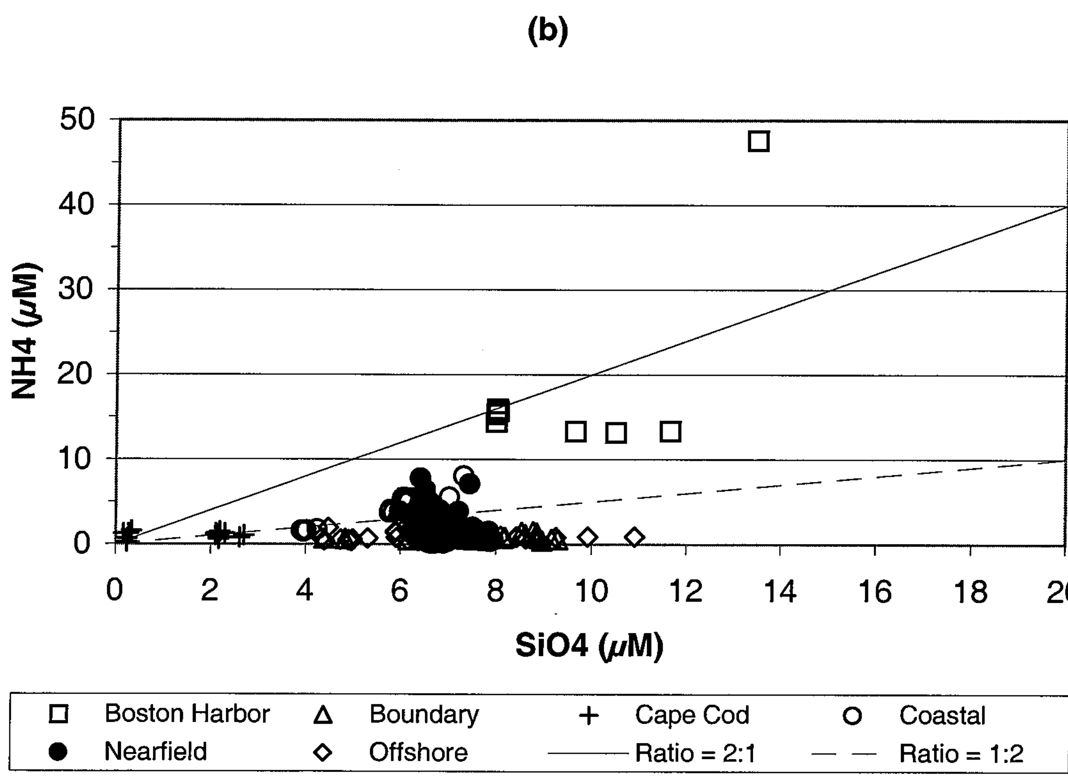


Figure D-21. Nutrient vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)

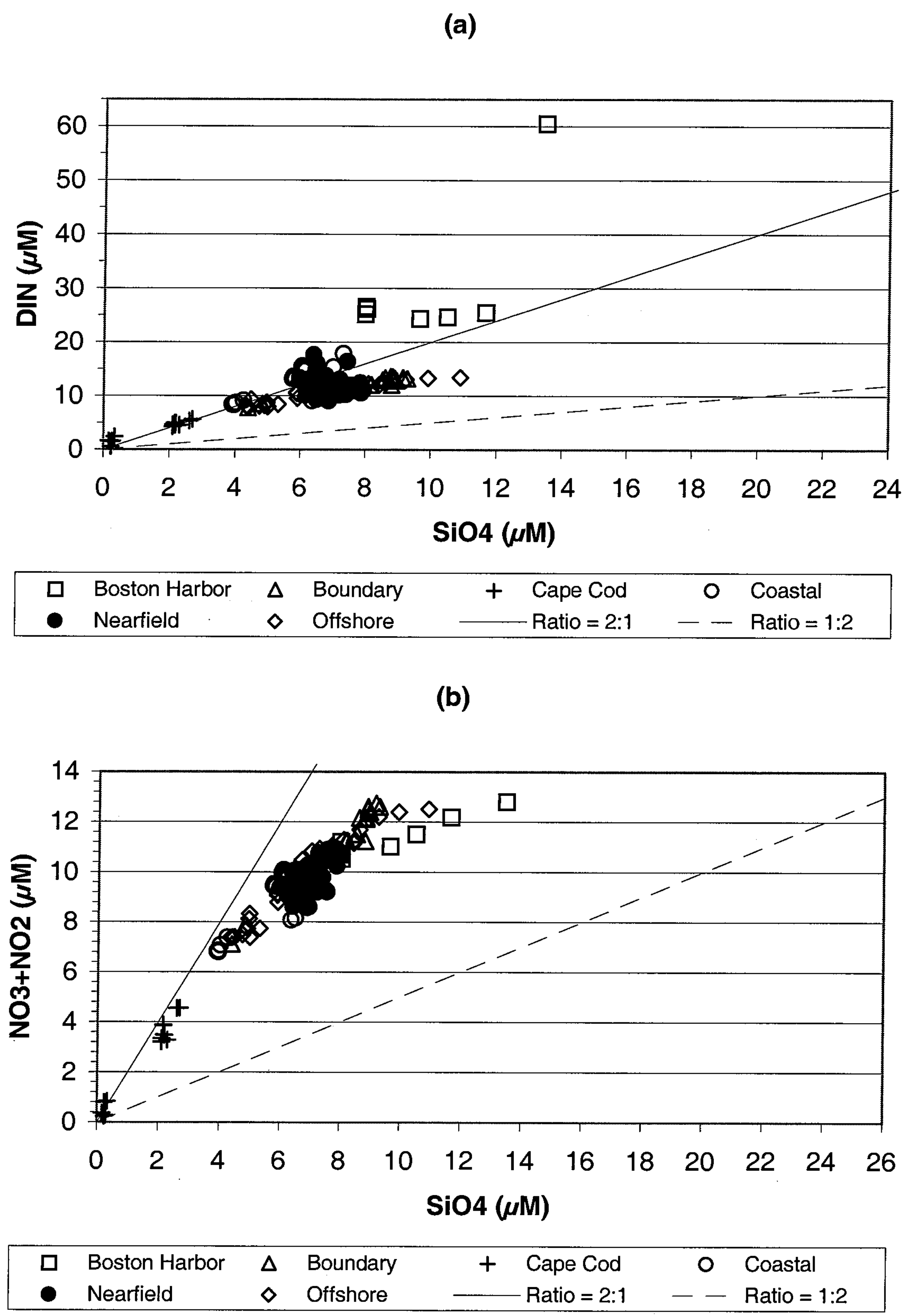
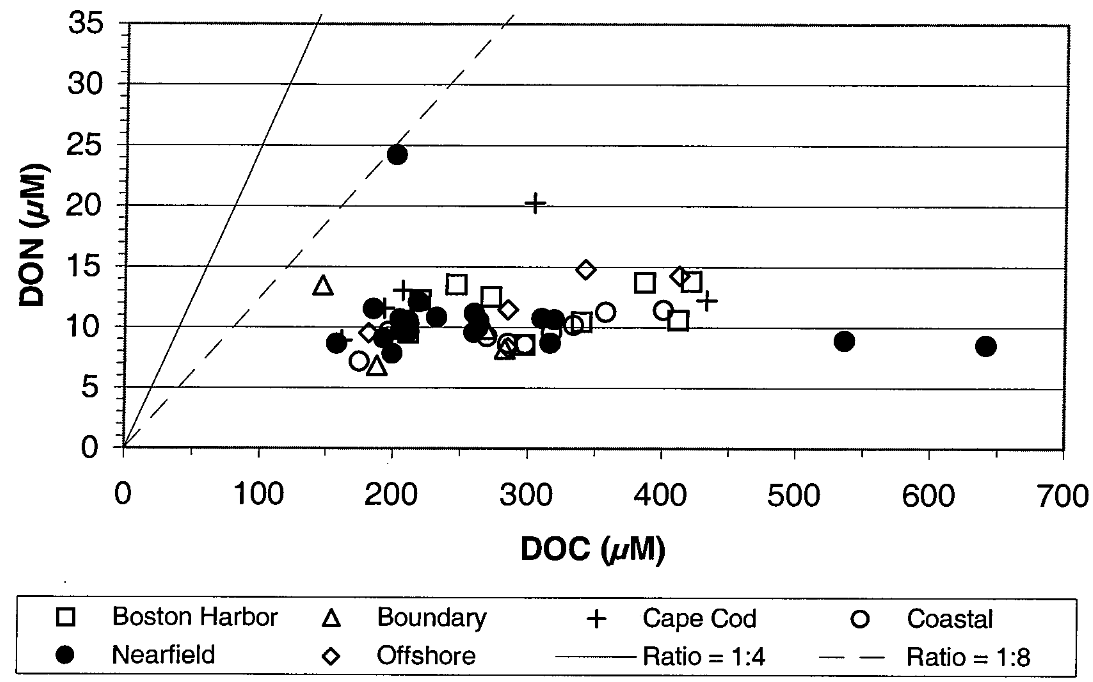


Figure D-22. Nutrient vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)

(a)



(b)

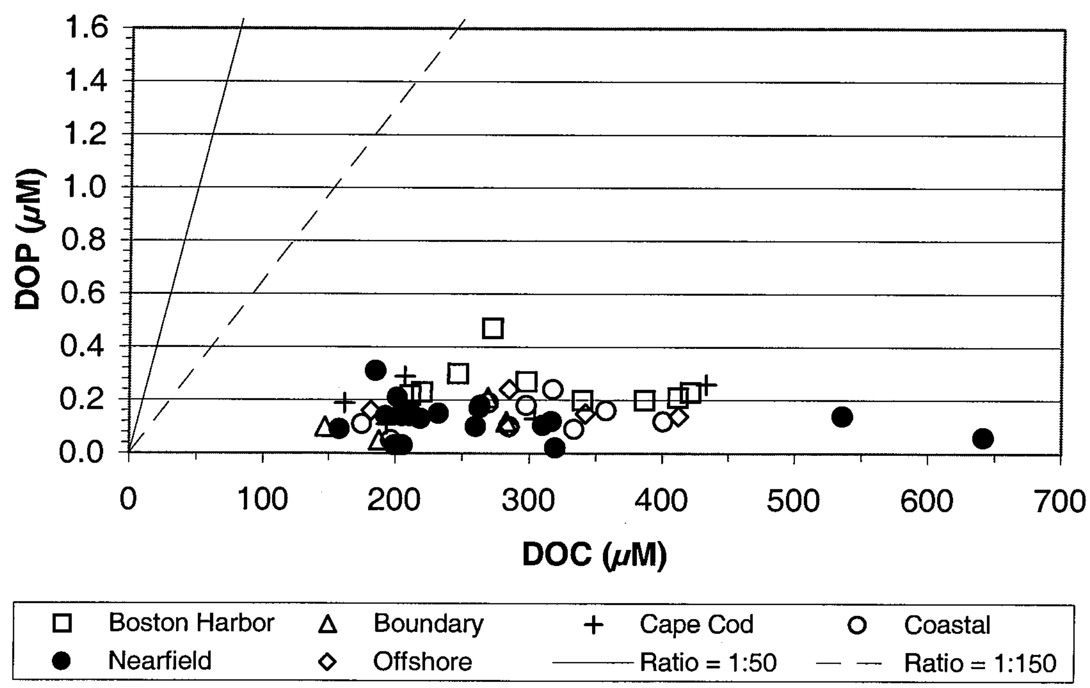
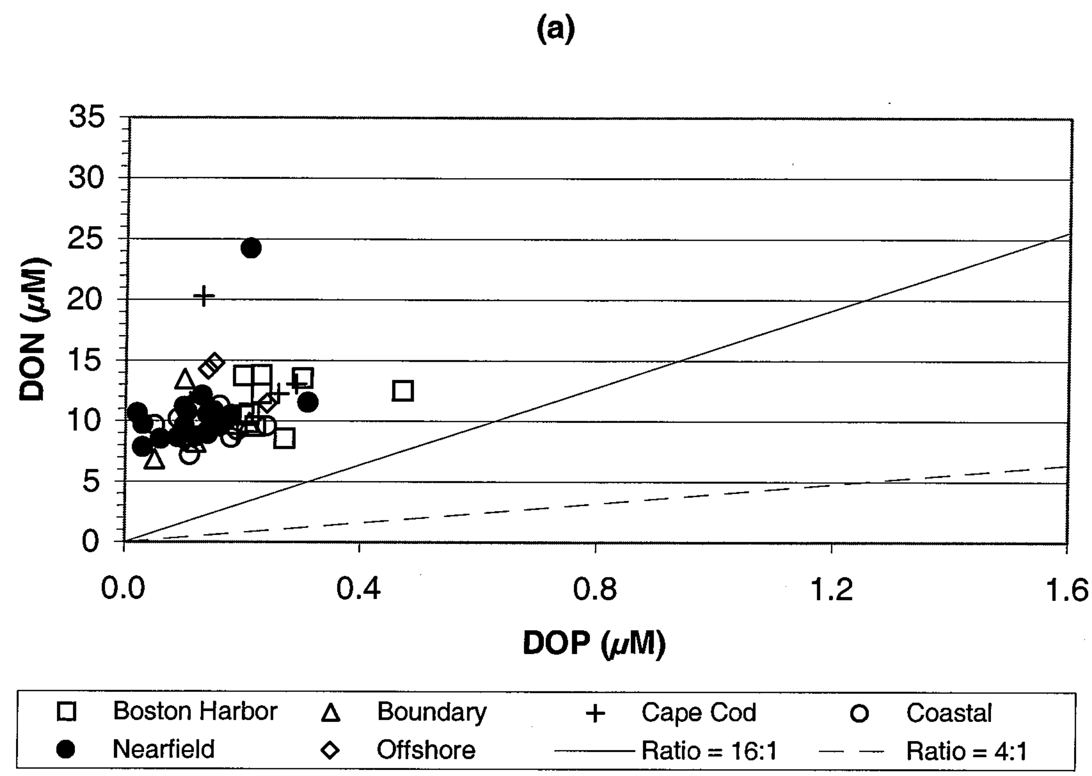


Figure D-23. Nutrient vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)



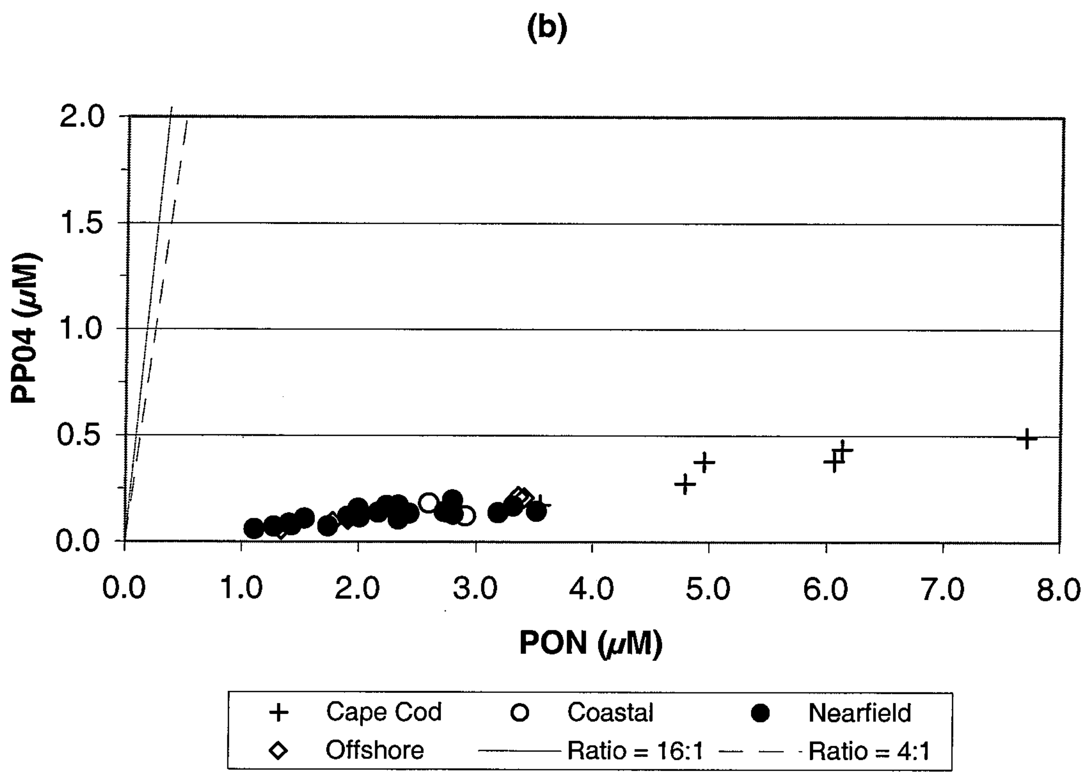
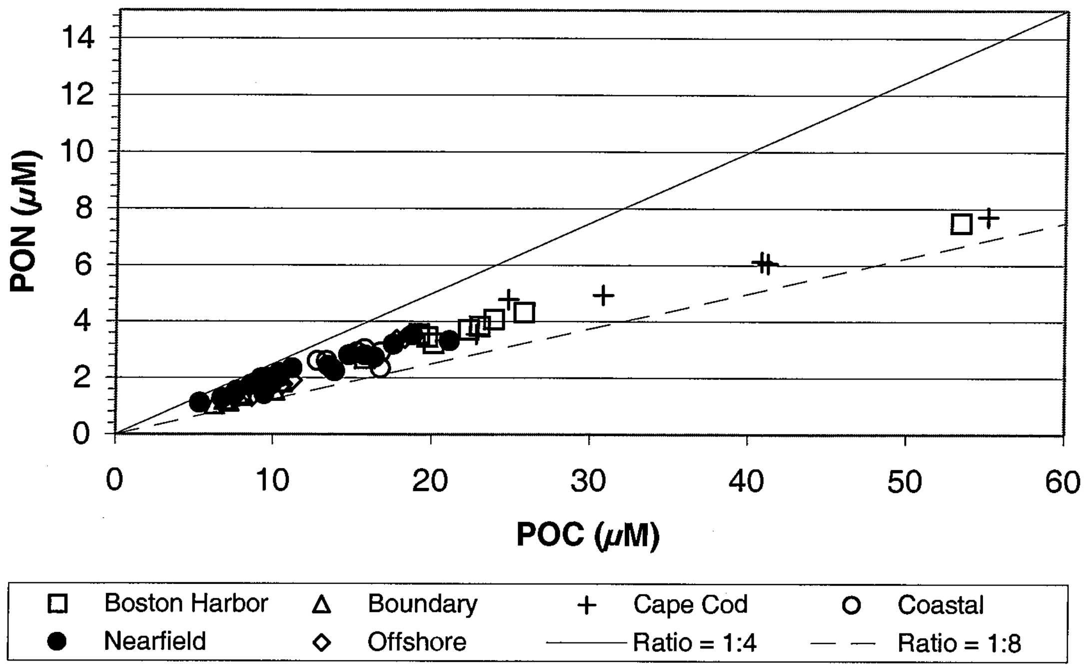


Figure D-24. Nutrient vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)

(a)



(b)

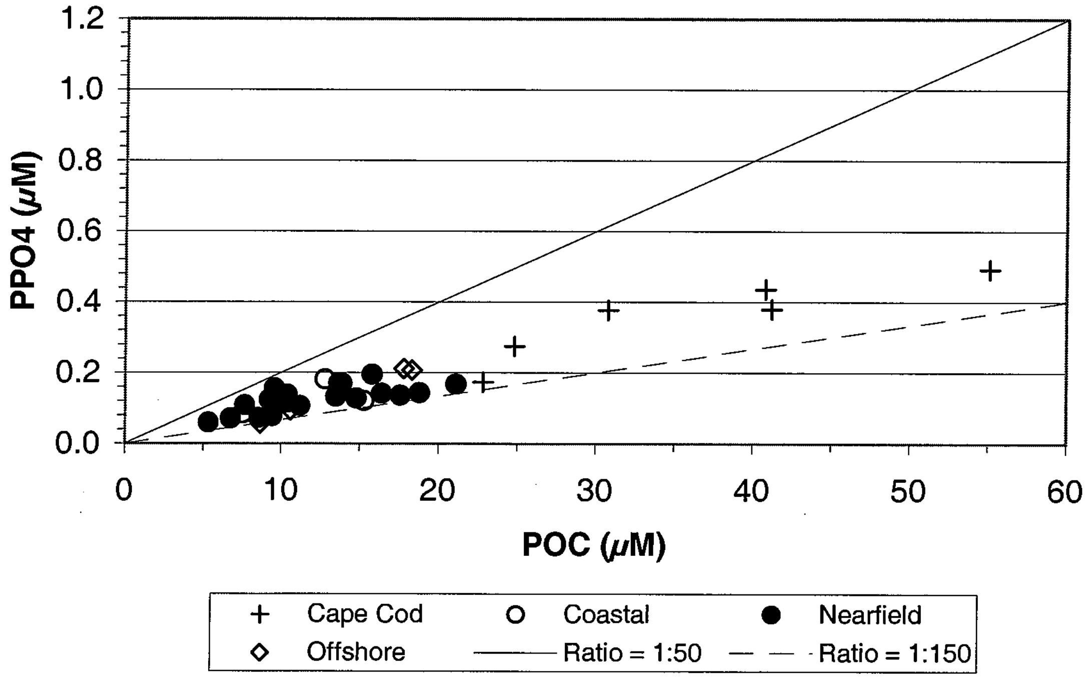
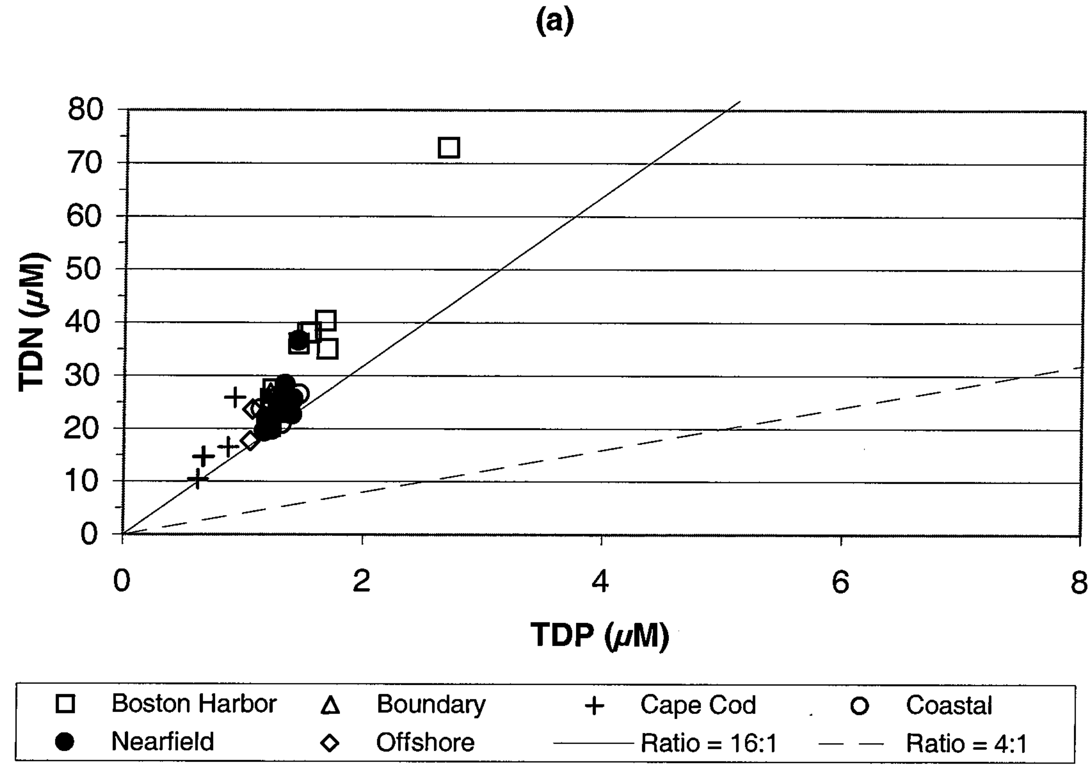


Figure D-25. Nutrient vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)



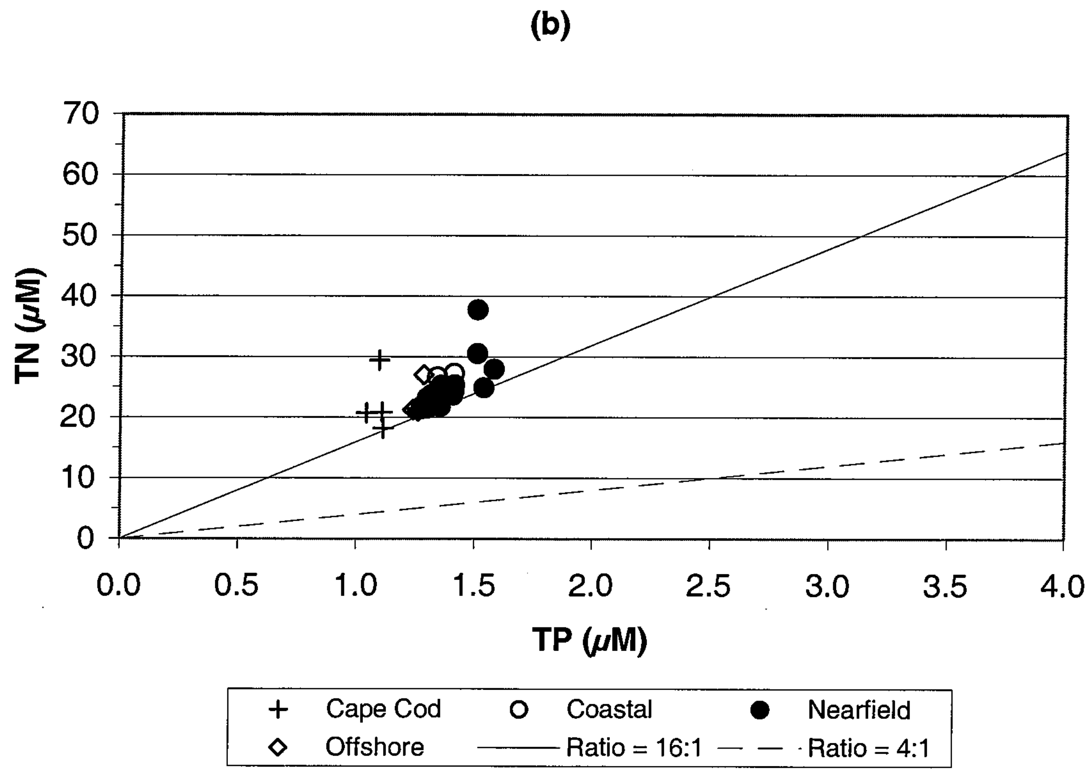
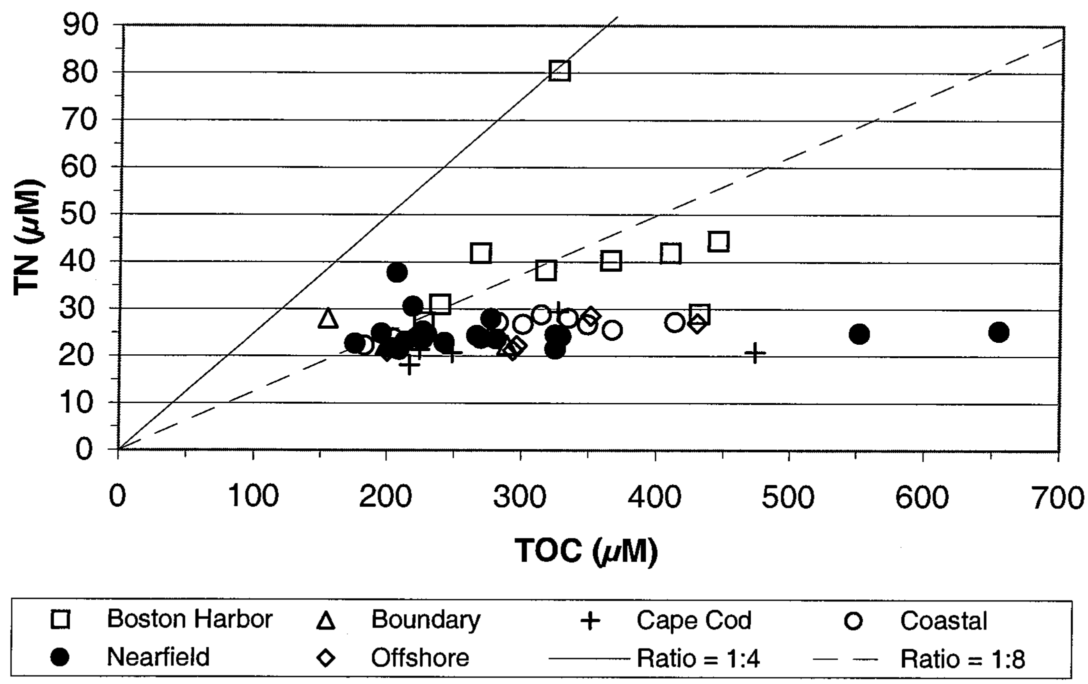


Figure D-26. Nutrient vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)

(a)



(b)

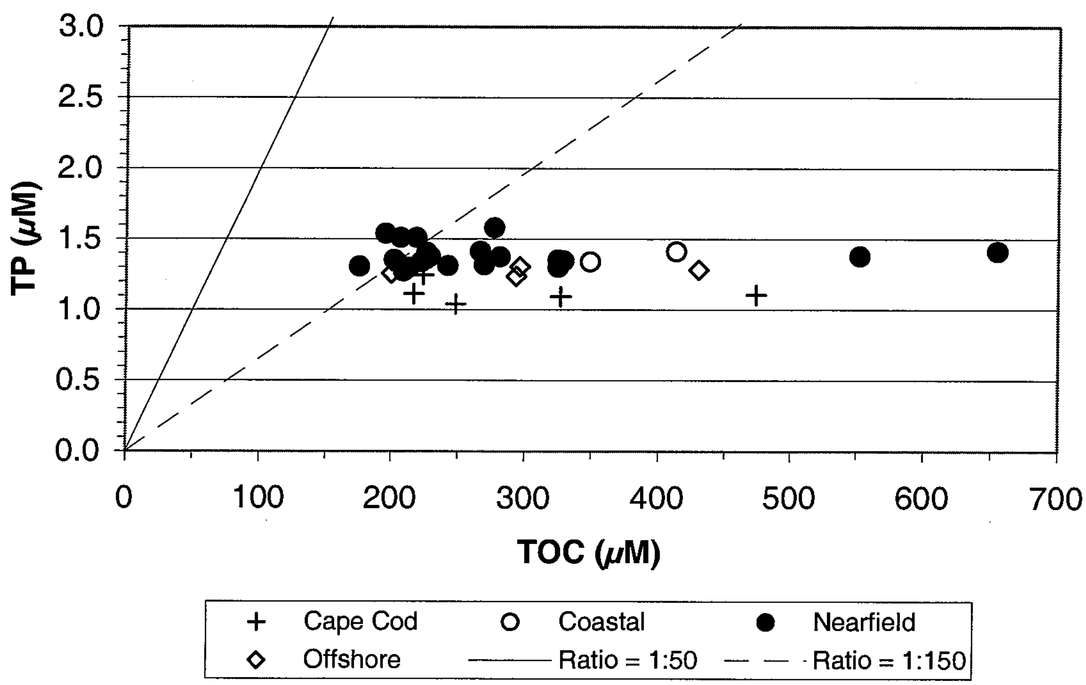


Figure D-27. Nutrient vs. Nutrient Plots for Farfield Survey WF002, (Feb 00)

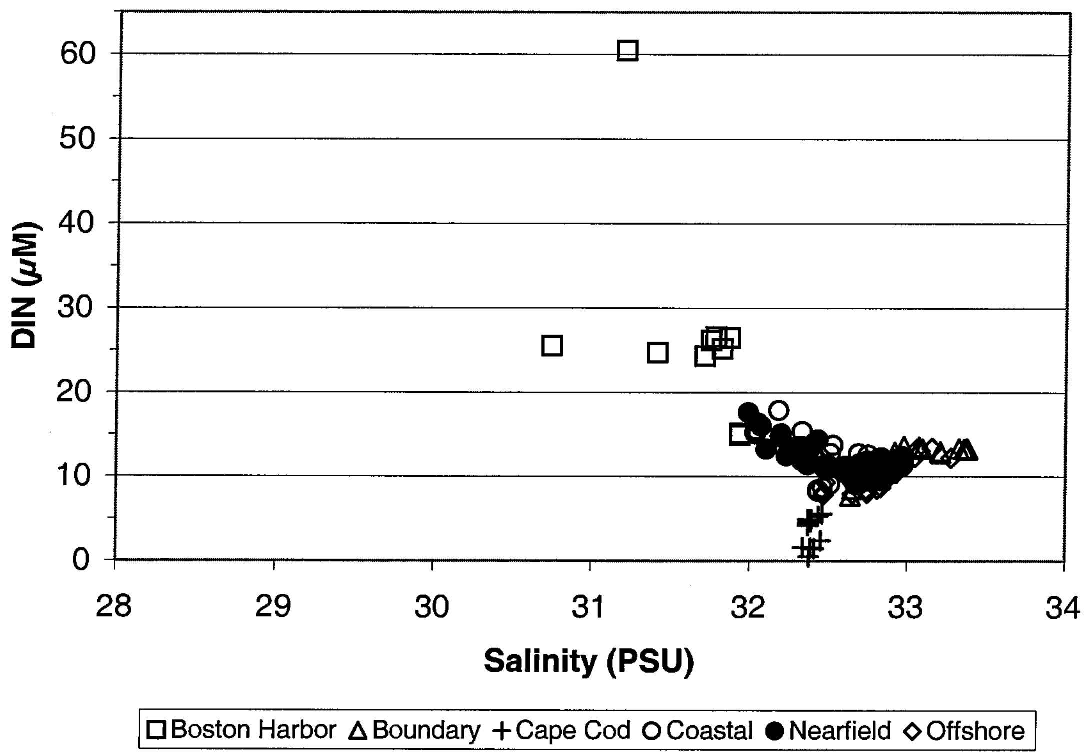
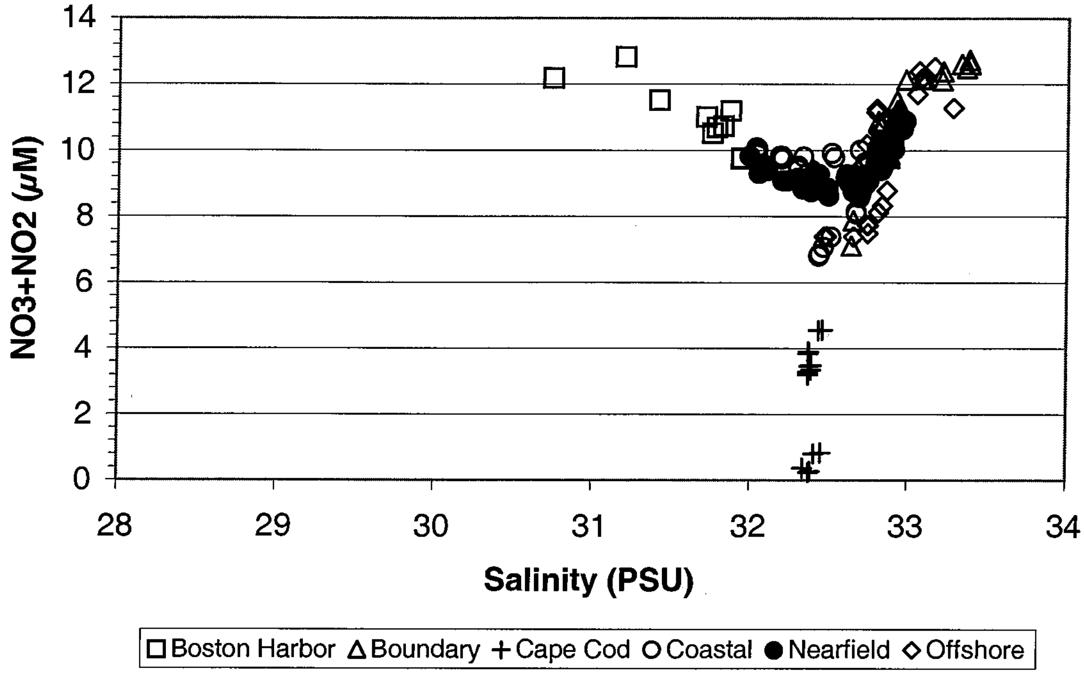


Figure D-28. Nutrient vs. Salinity Plots for Farfield Survey WF002, (Feb 00)

(a)



(b)

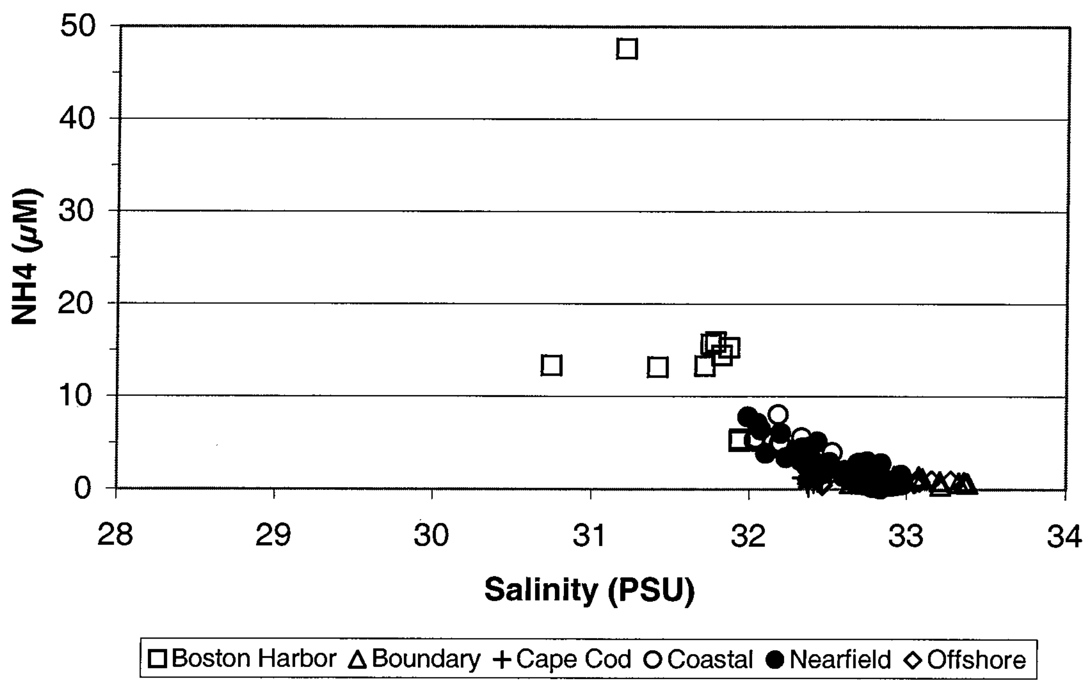
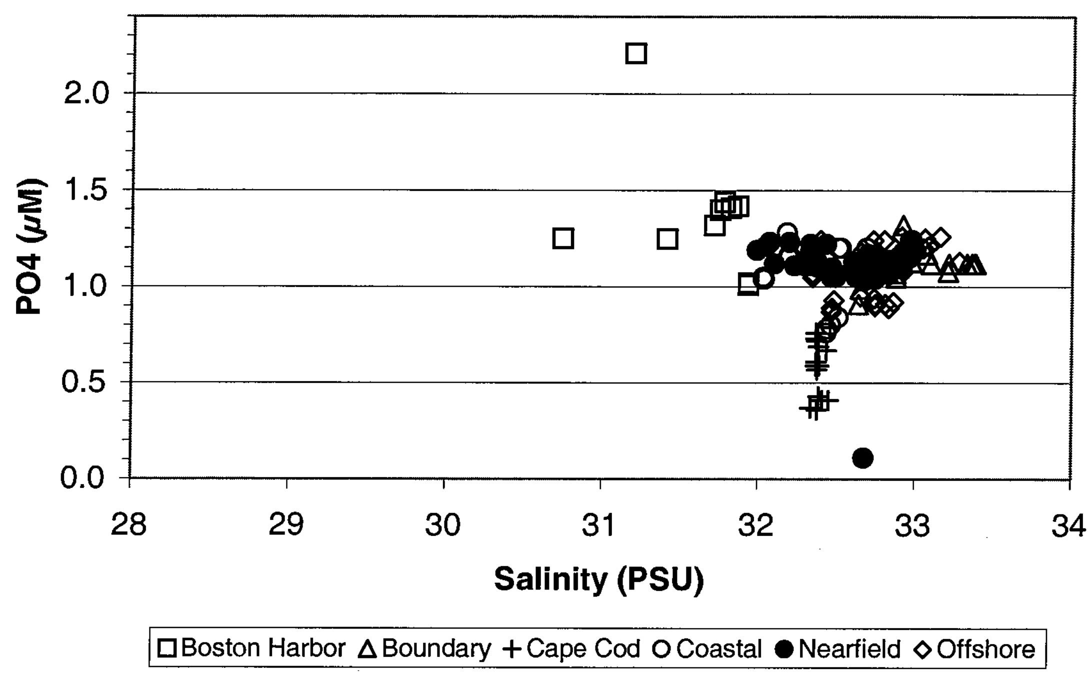


Figure D-29. Nutrient vs. Salinity Plots for Farfield Survey WF002, (Feb 00)

(a)



(b)

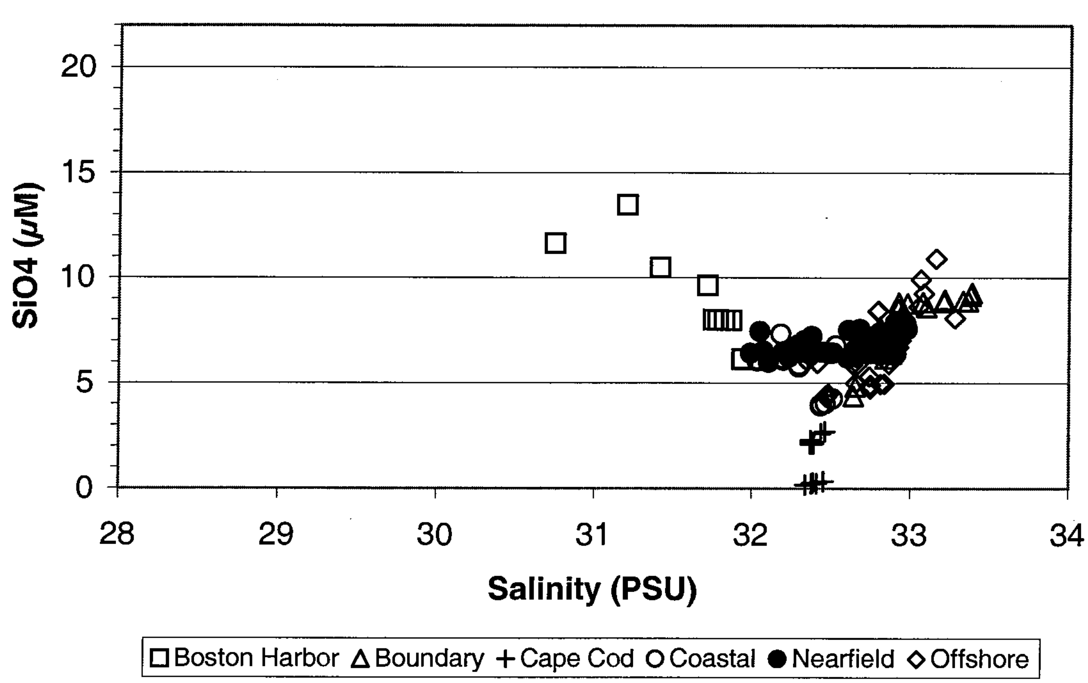


Figure D-30. Nutrient vs. Salinity Plots for Farfield Survey WF002, (Feb 00)

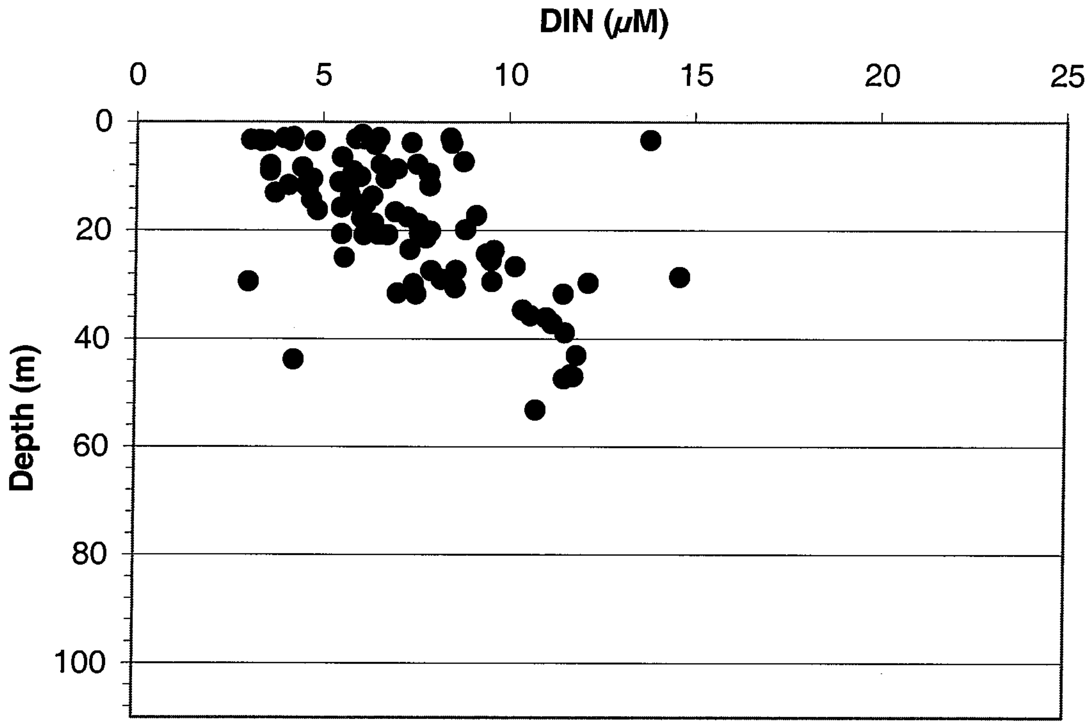
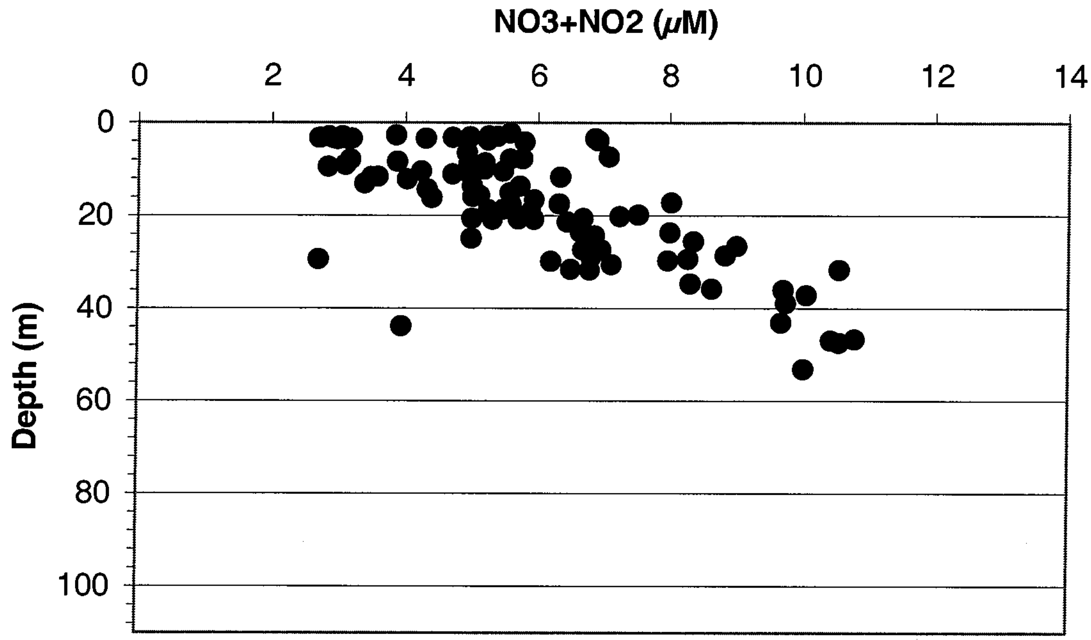


Figure D-31. Depth vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

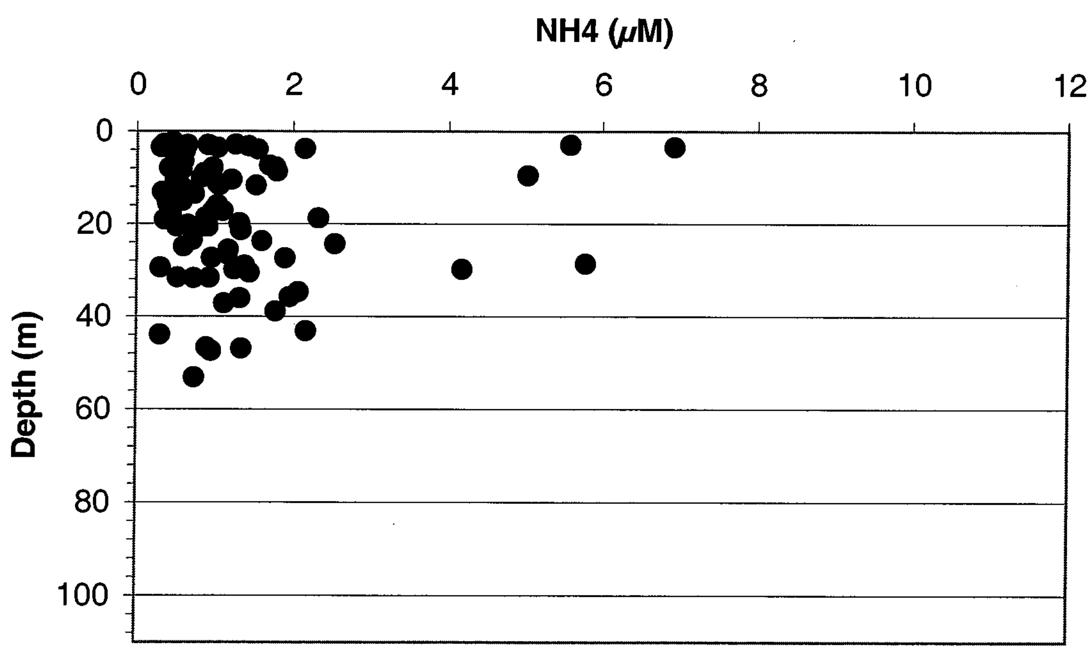


Figure D-32. Depth vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)

(b)

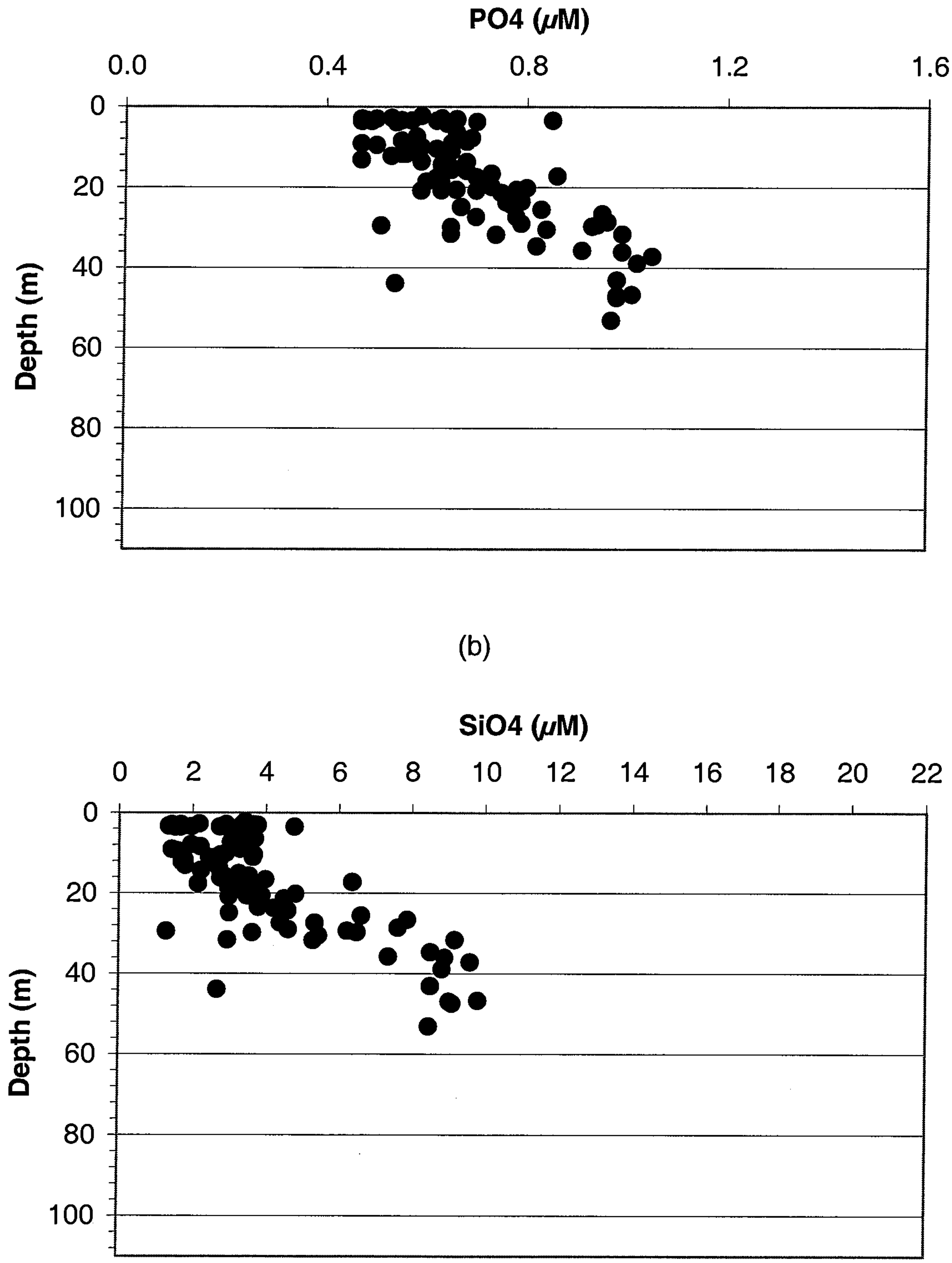
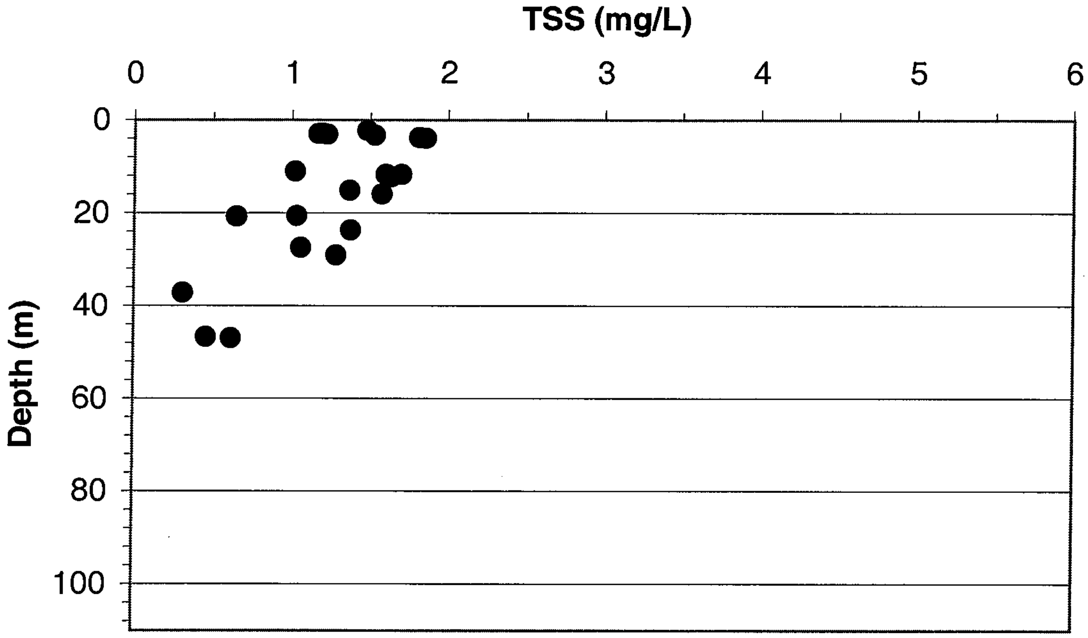


Figure D-33. Depth vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

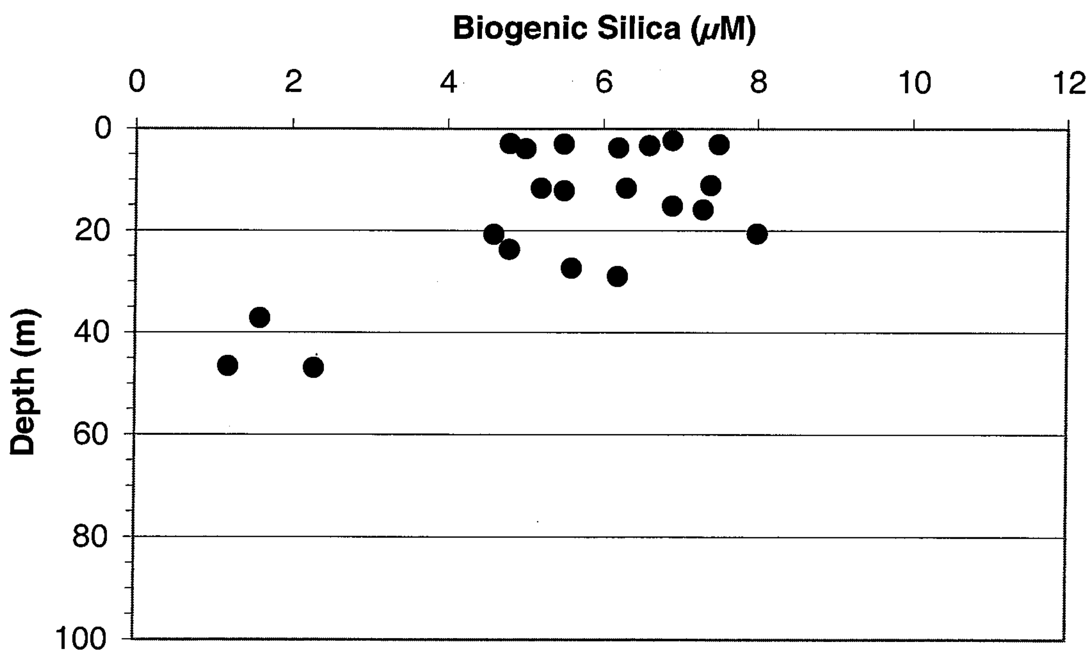


Figure D-34. Depth vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

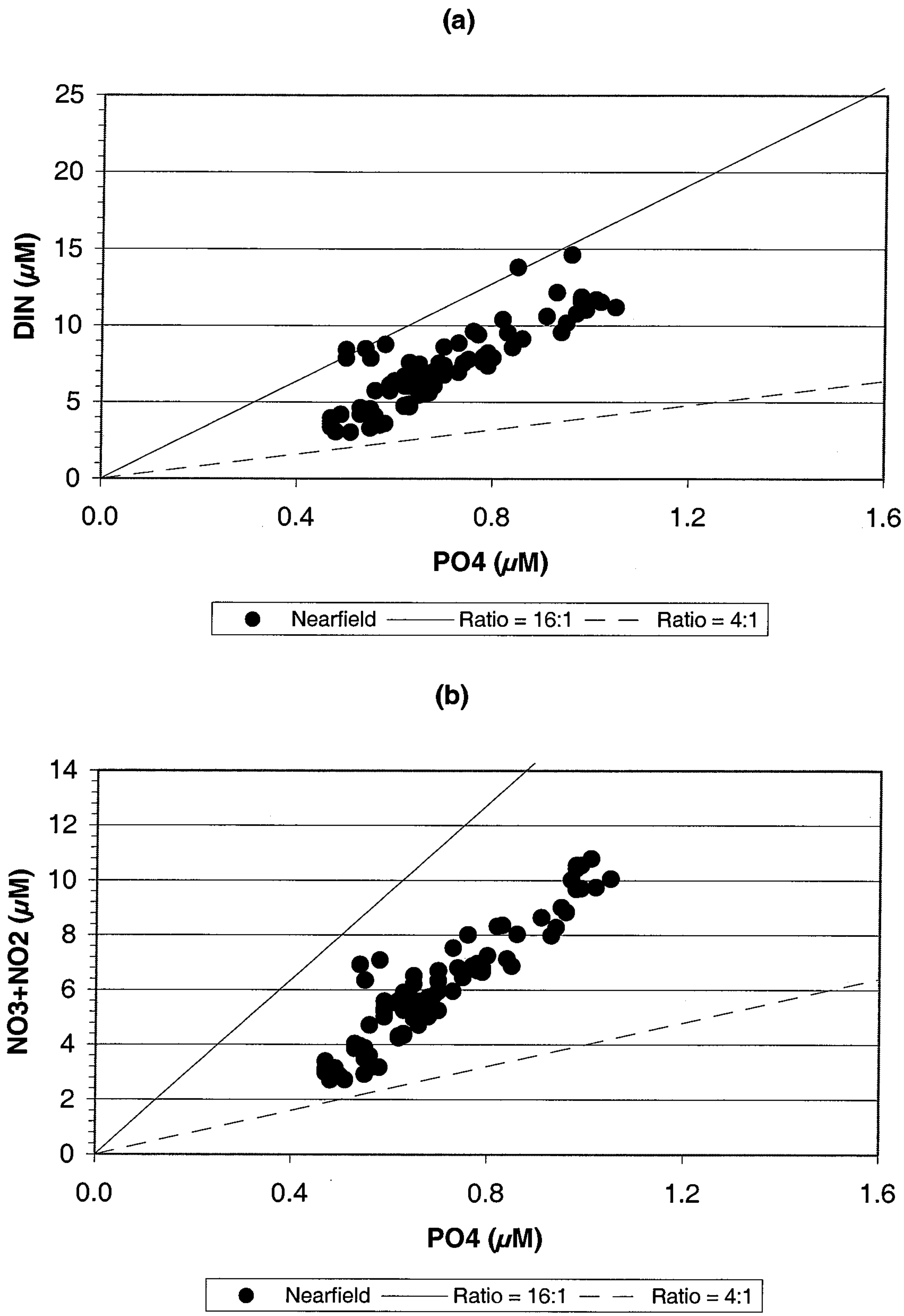
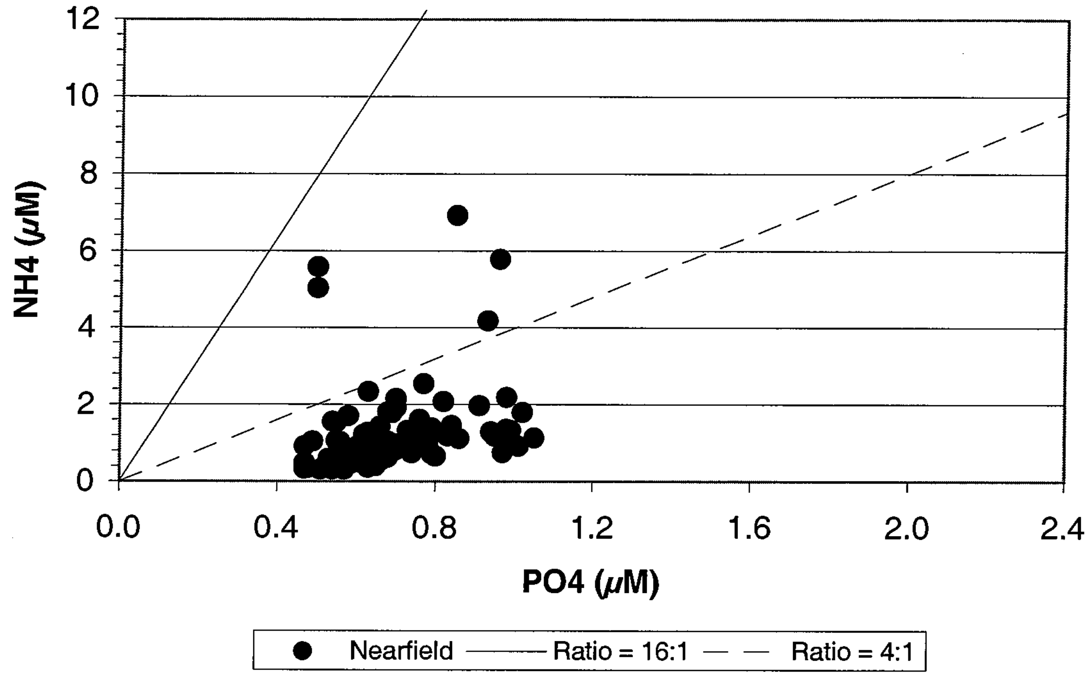


Figure D-35. Nutrient vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

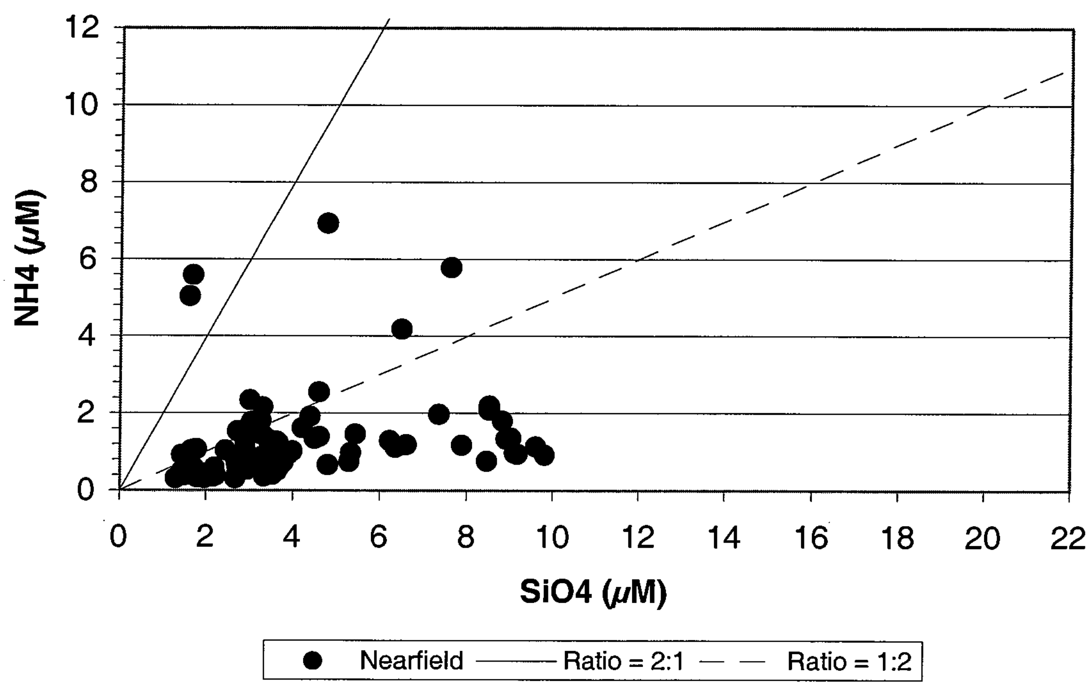
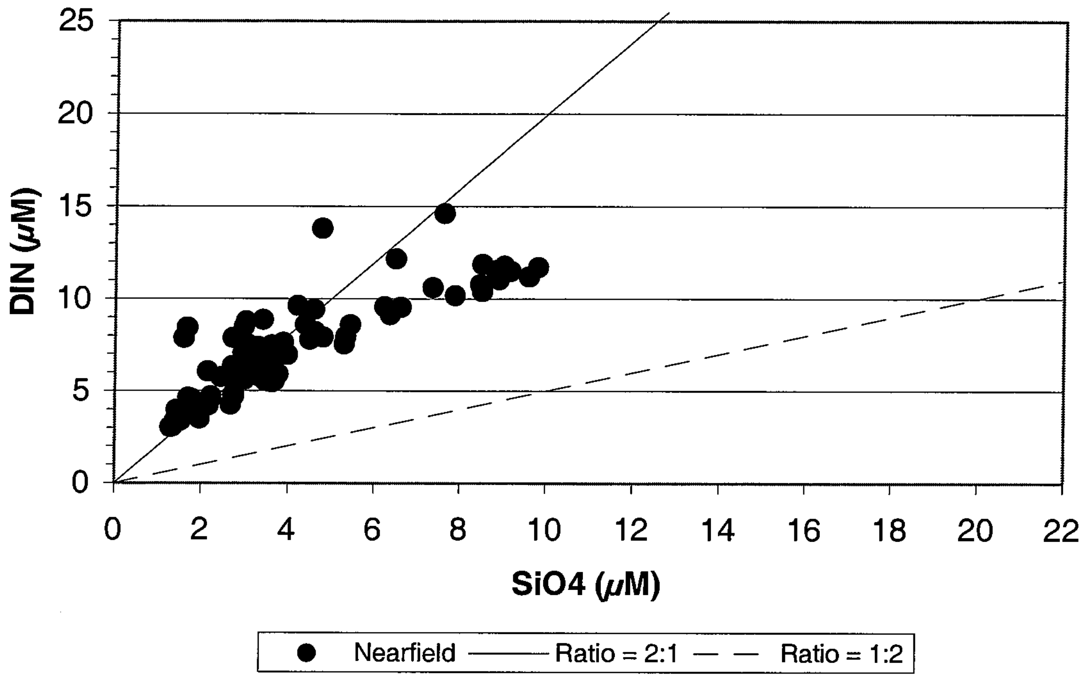


Figure D-36. Nutrient vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

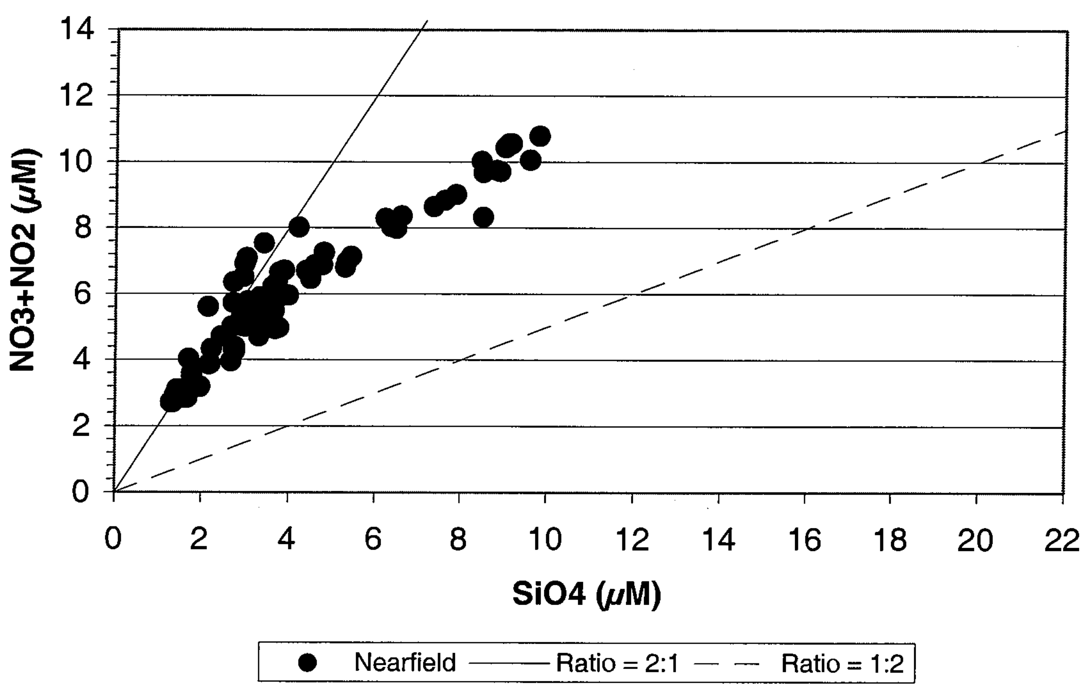
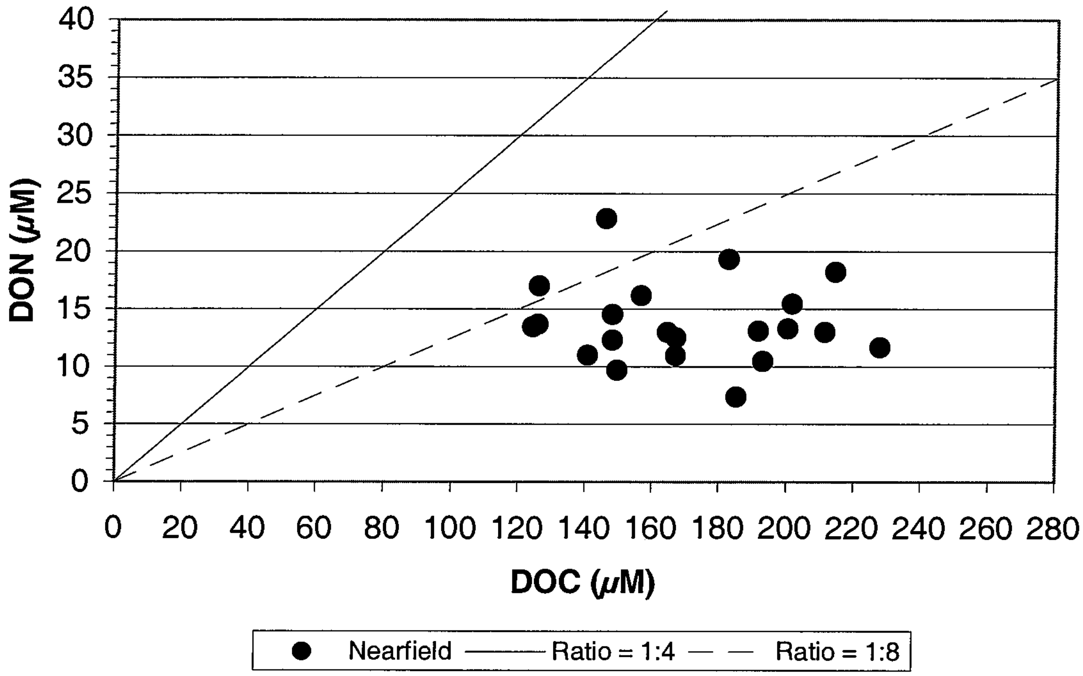


Figure D-37. Nutrient vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

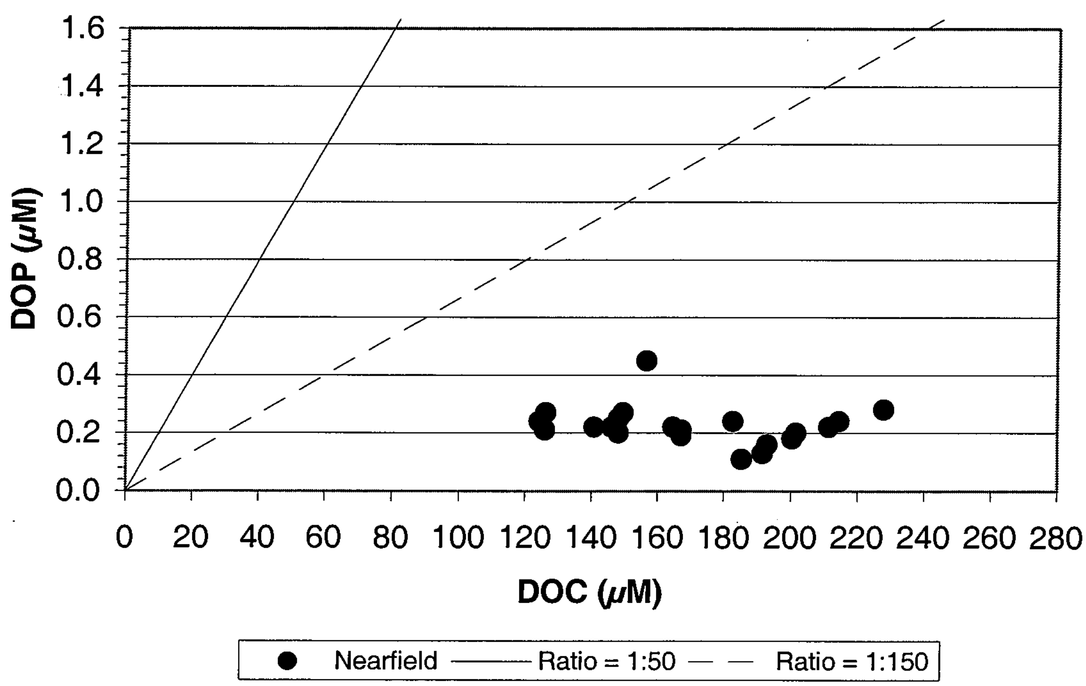
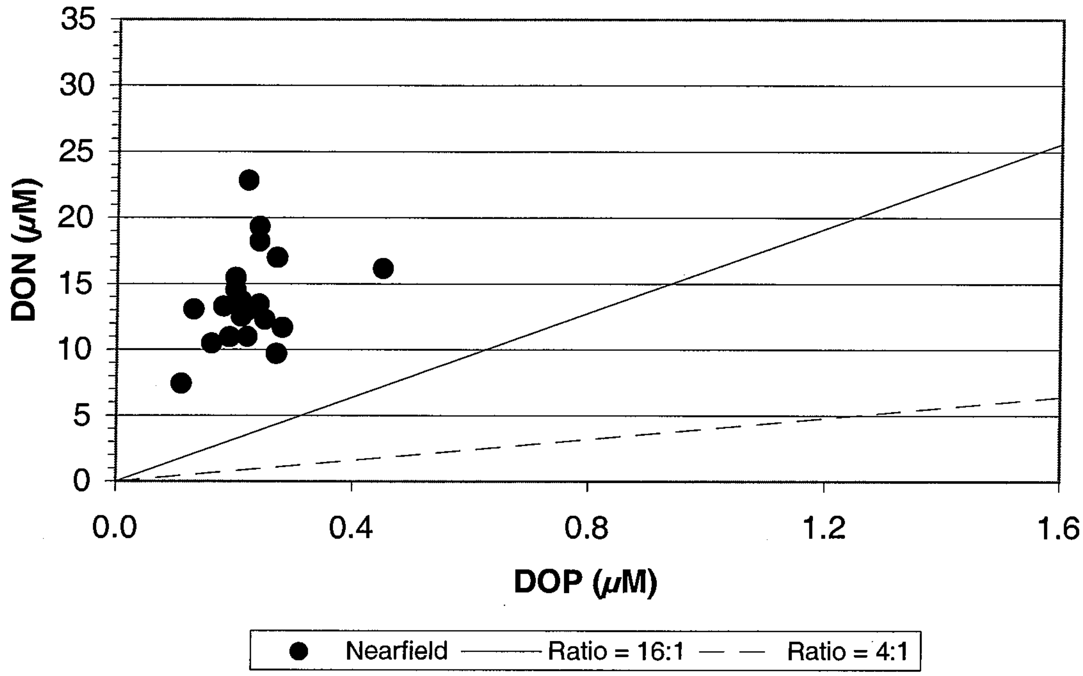


Figure D-38. Nutrient vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

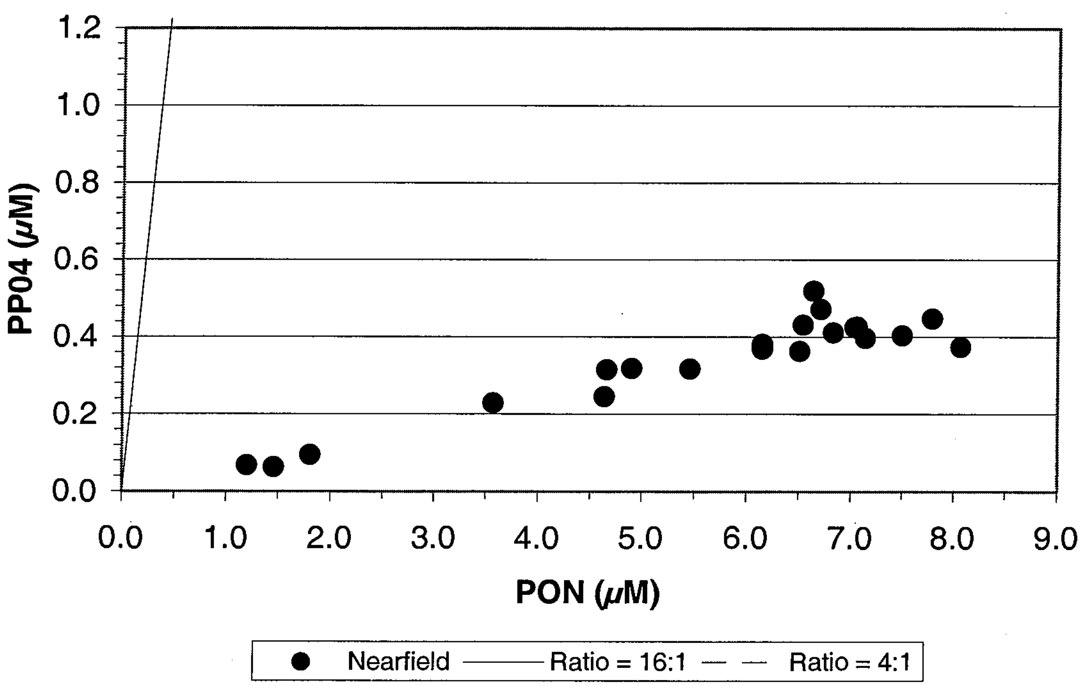
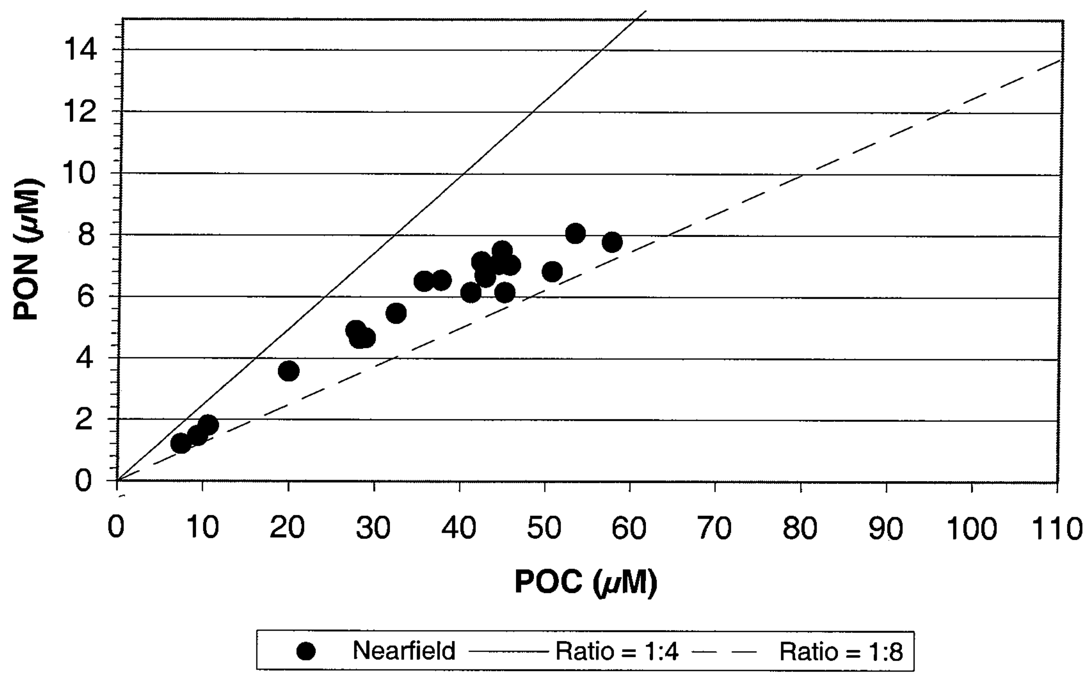


Figure D-39. Nutrient vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

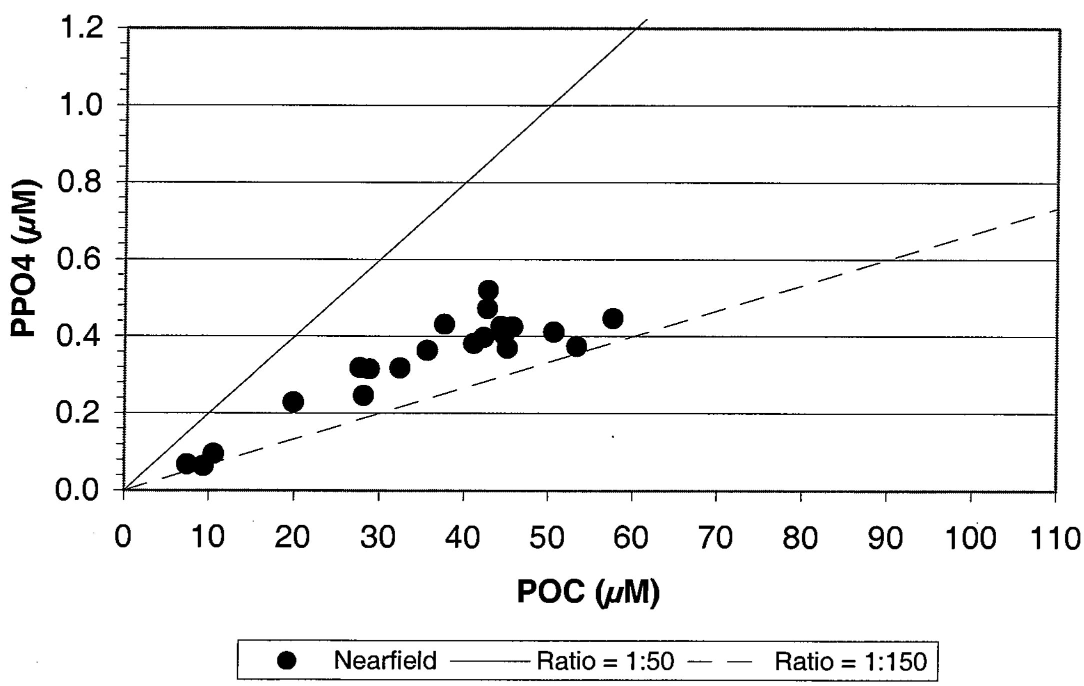
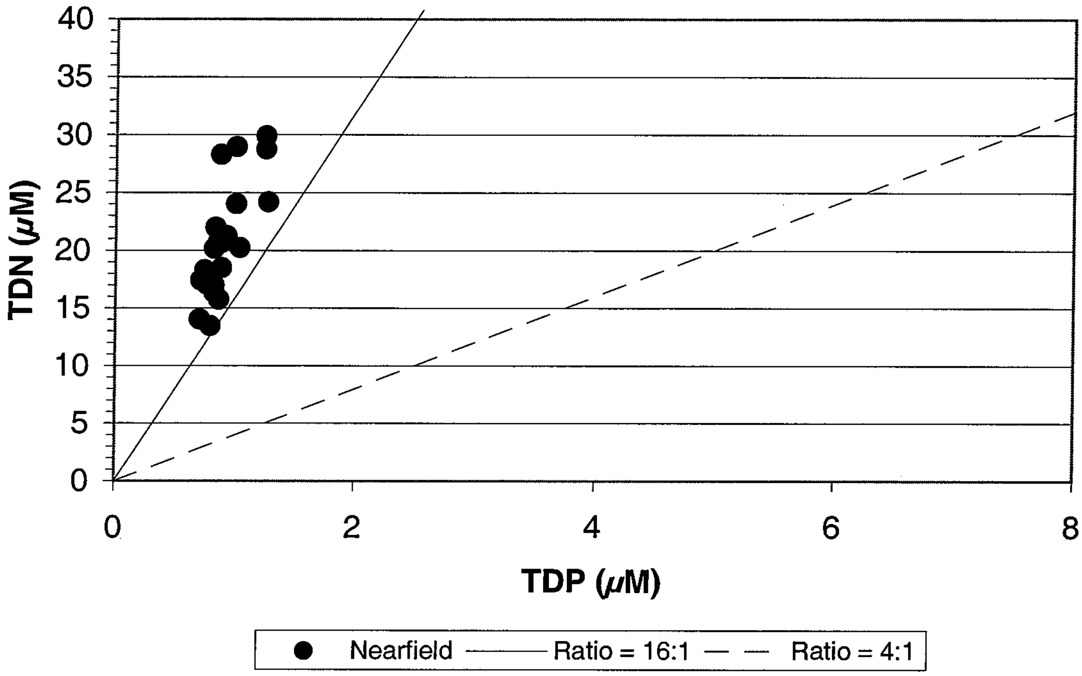


Figure D-40. Nutrient vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

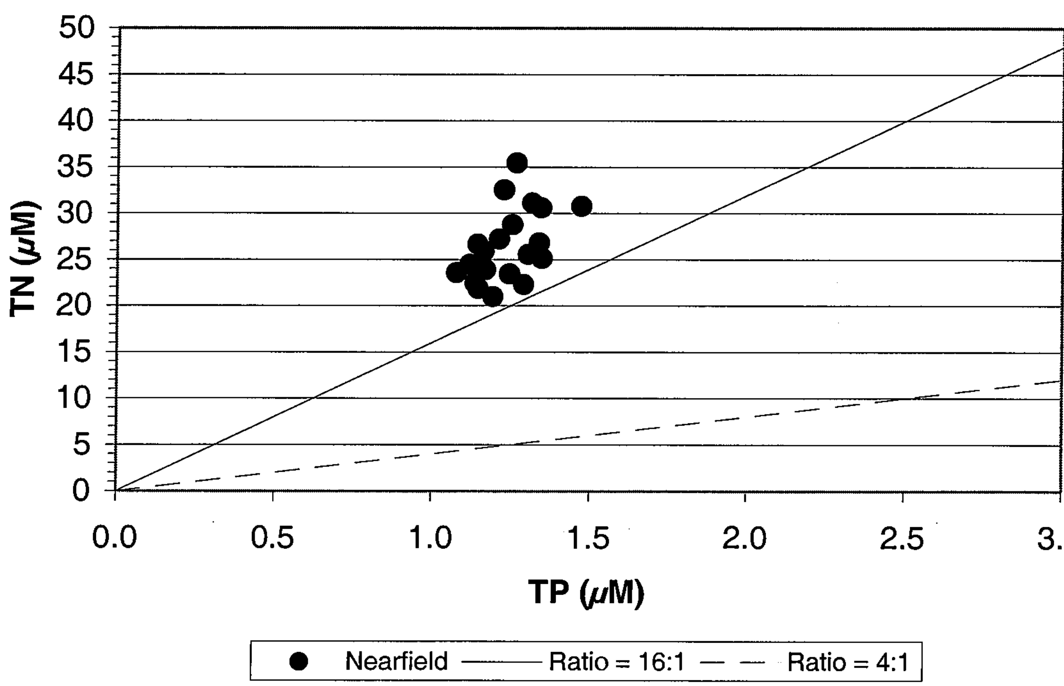
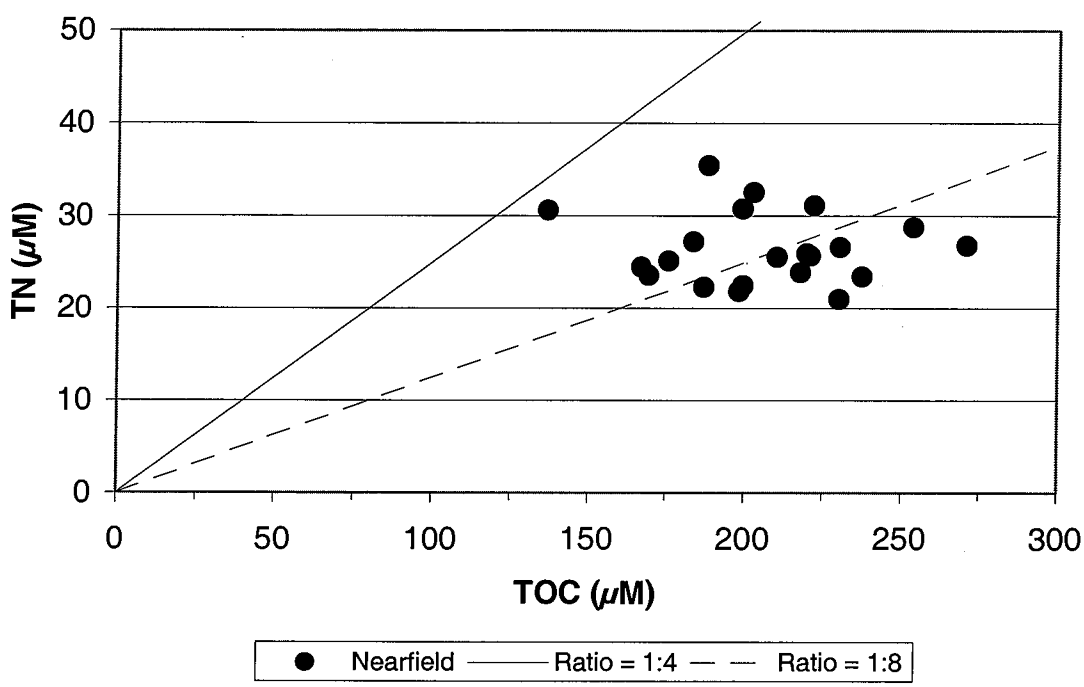


Figure D-41. Nutrient vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

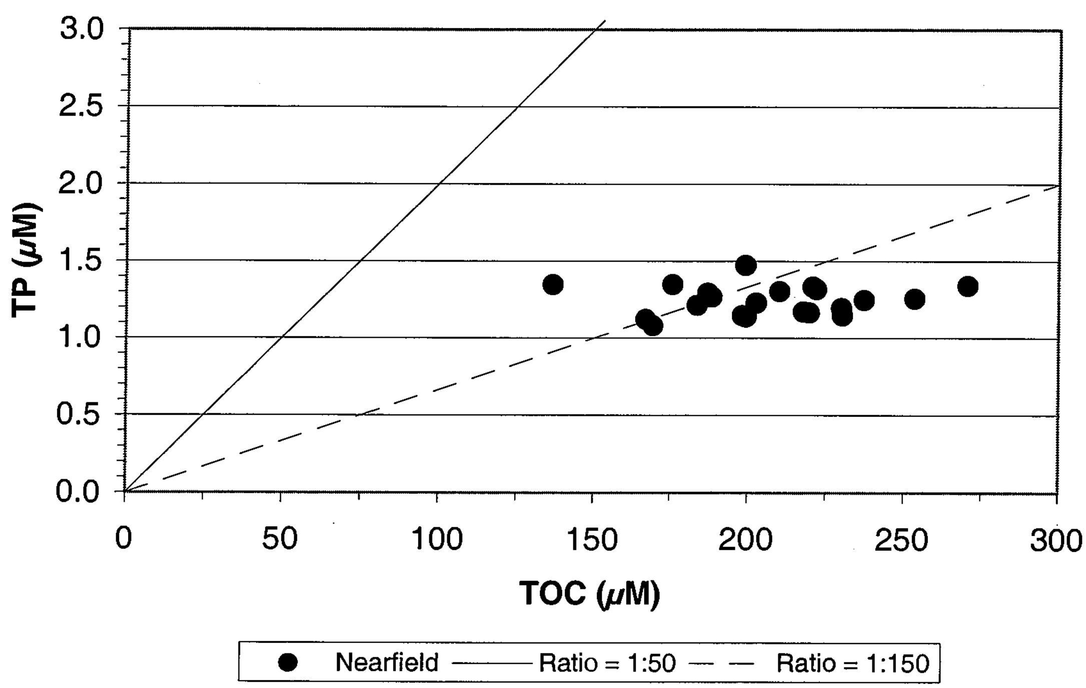


Figure D-42. Nutrient vs. Nutrient Plots for Nearfield Survey WN003, (Mar 00)

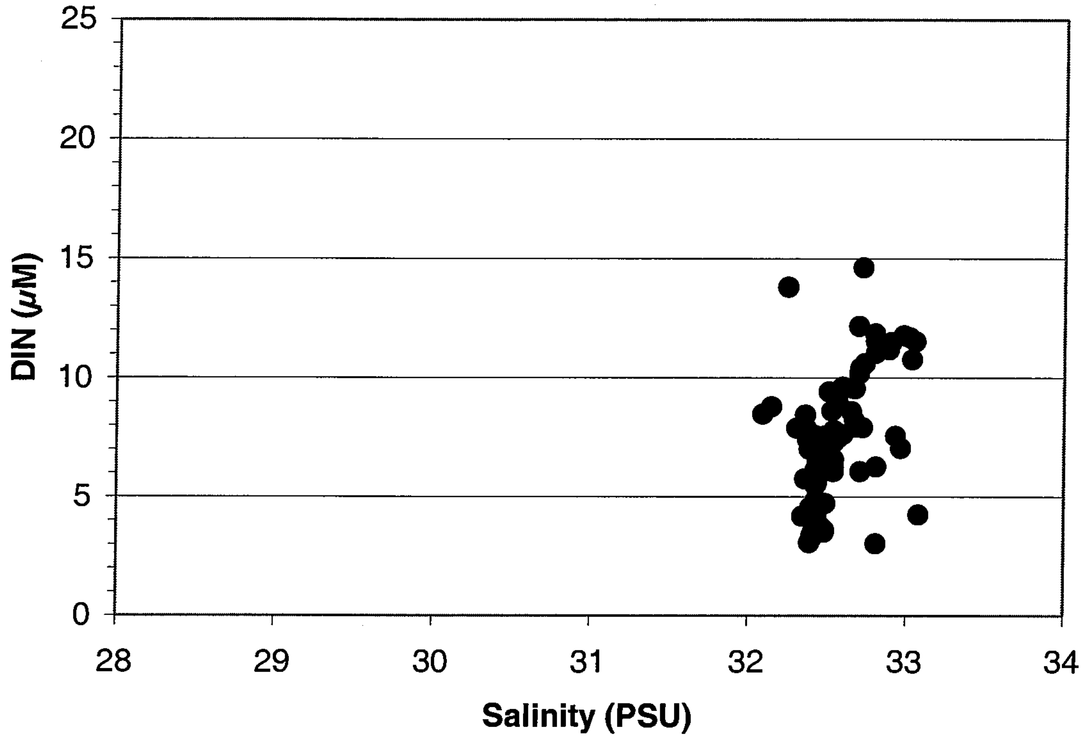
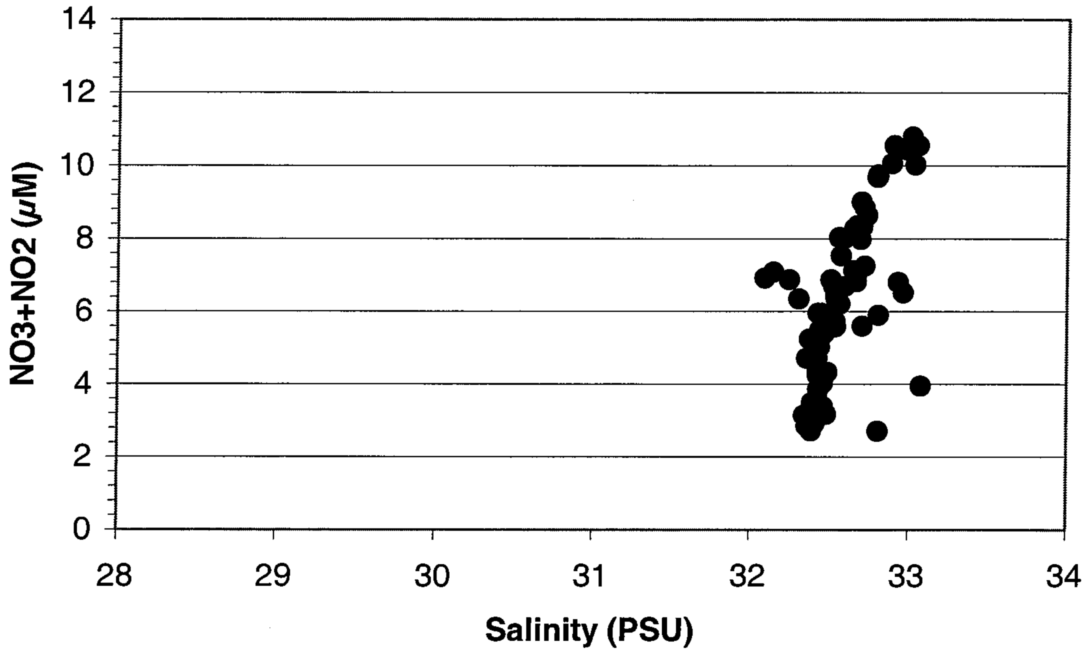


Figure D-43. Nutrient vs. Salinity Plots for Nearfield Survey WN003, (Mar 00)

(a)



(b)

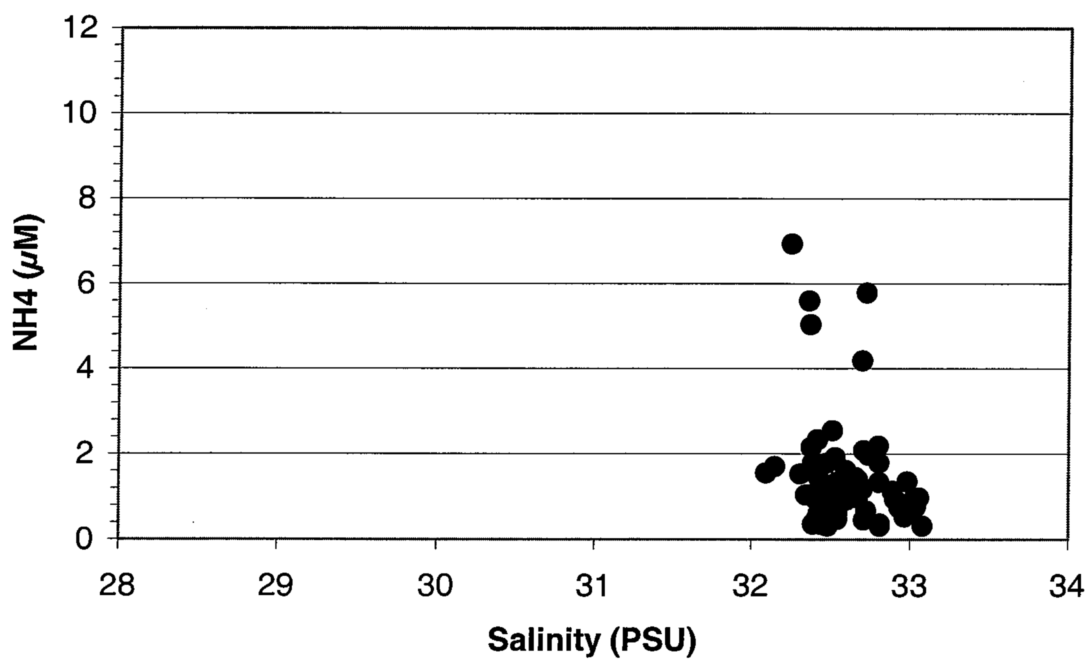


Figure D-44. Nutrient vs. Salinity Plots for Nearfield Survey WN003, (Mar 00)

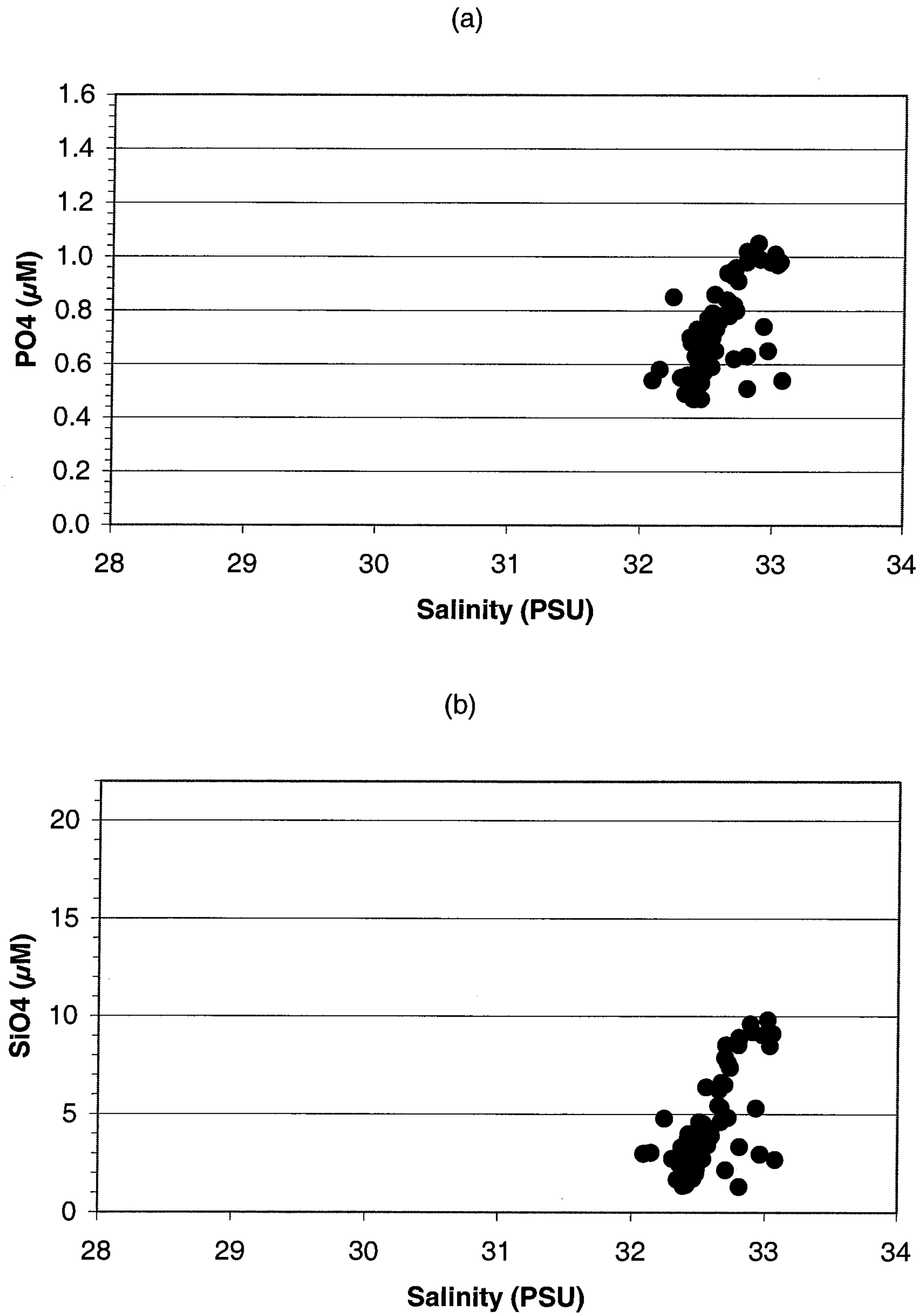


Figure D-45. Nutrient vs. Salinity Plots for Nearfield Survey WN003, (Mar 00)

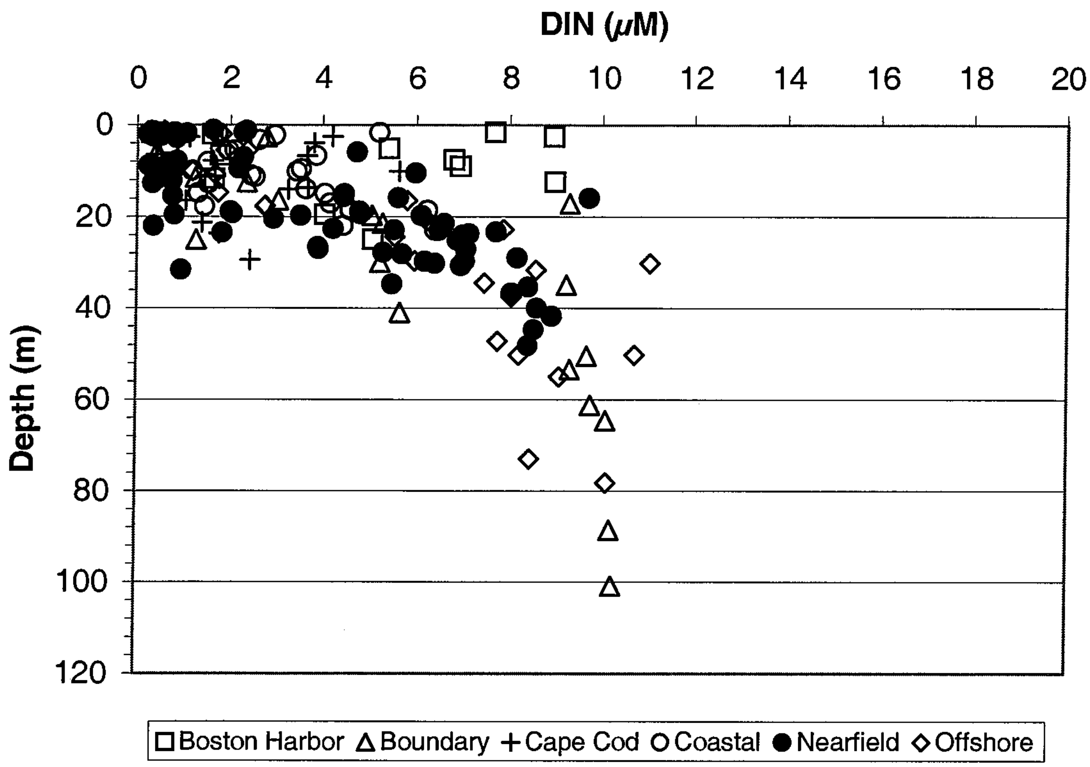
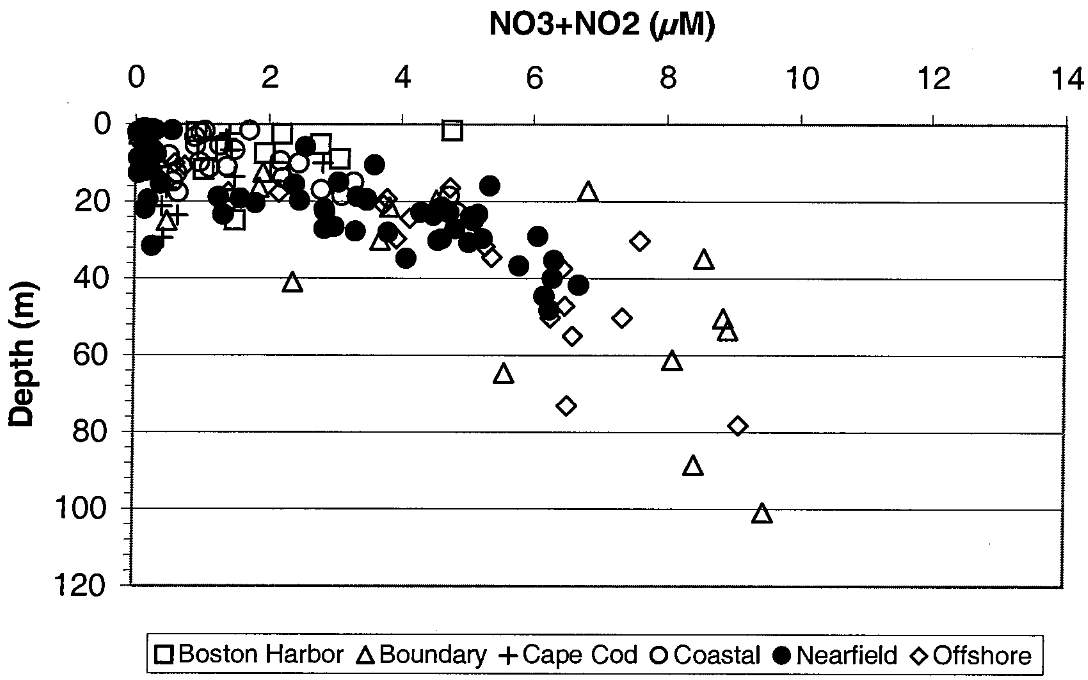


Figure D-46. Depth vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

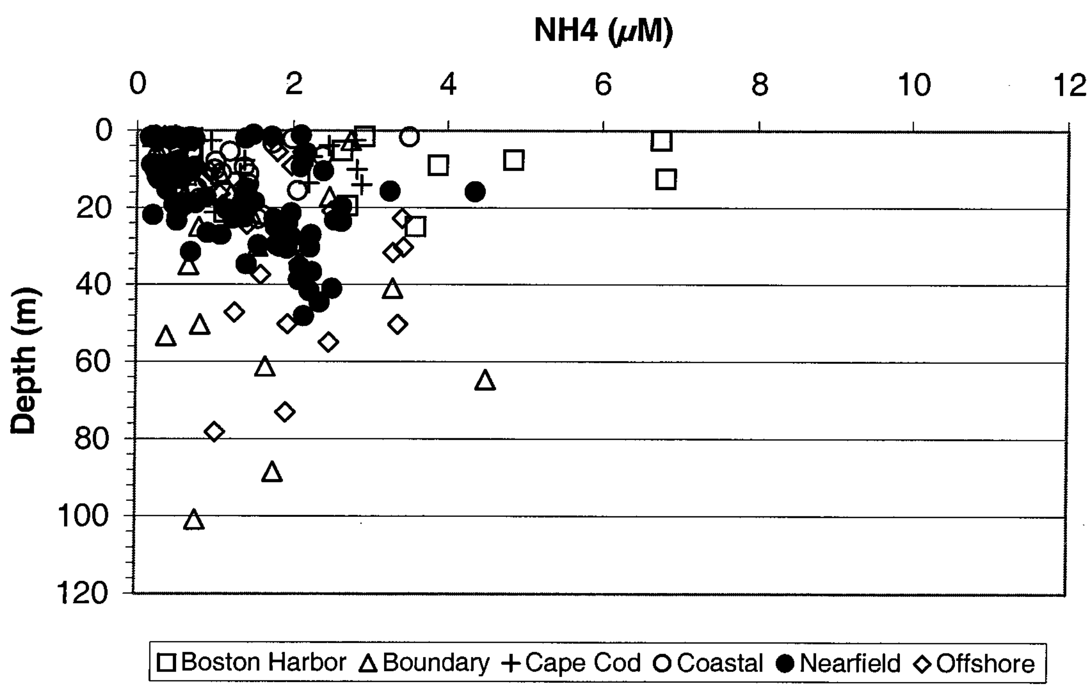
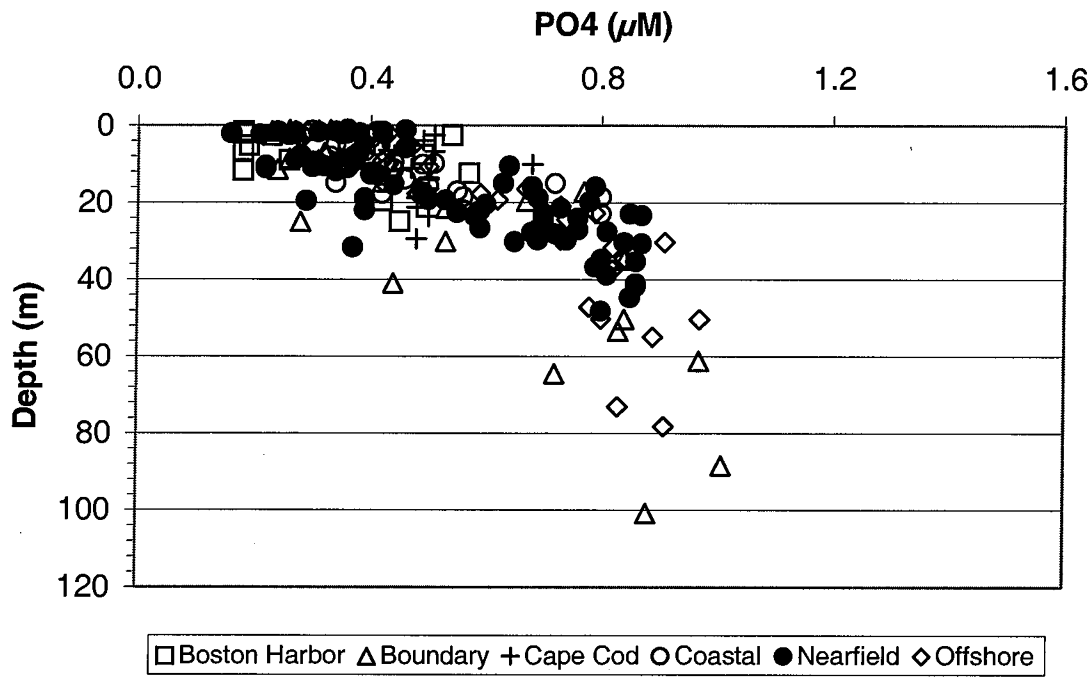


Figure D-47. Depth vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

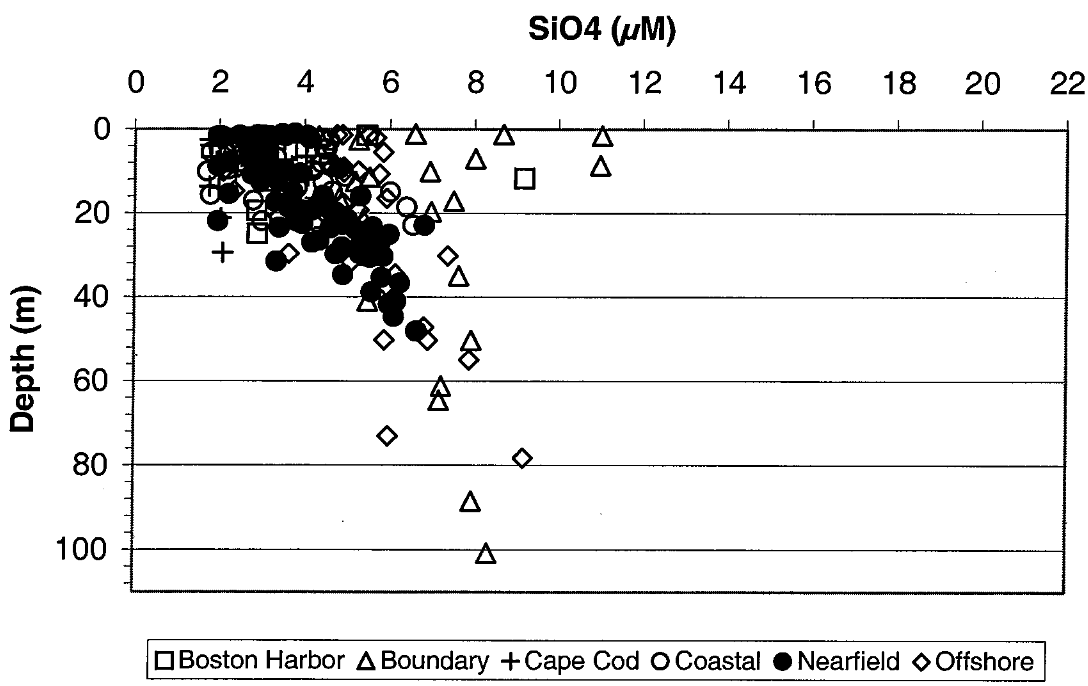
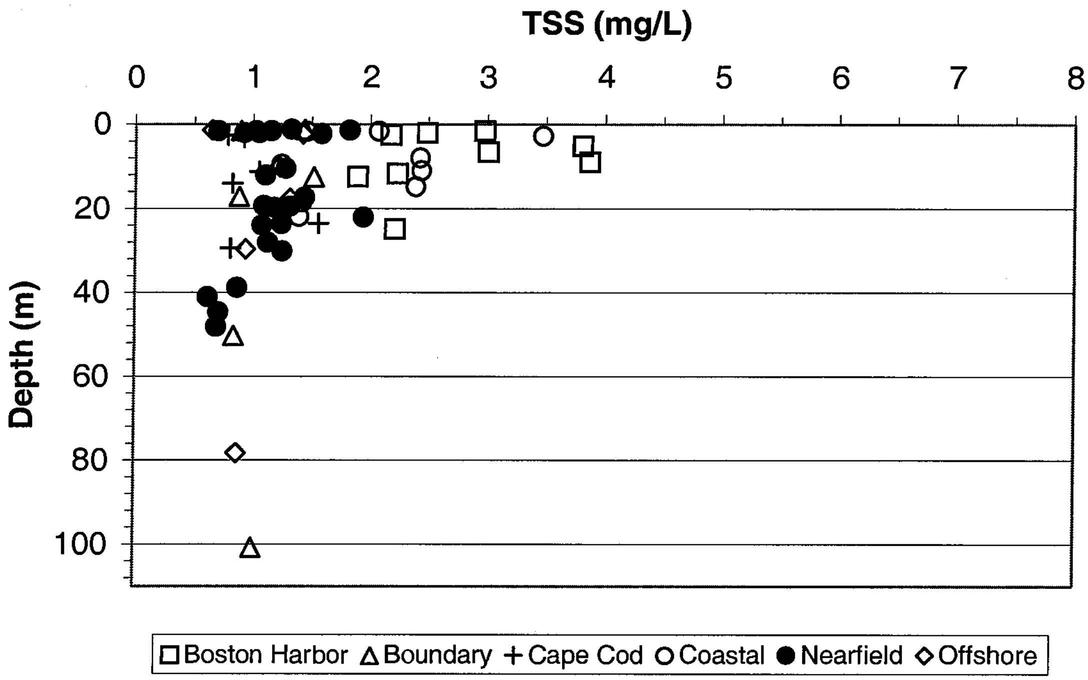


Figure D-48. Depth vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

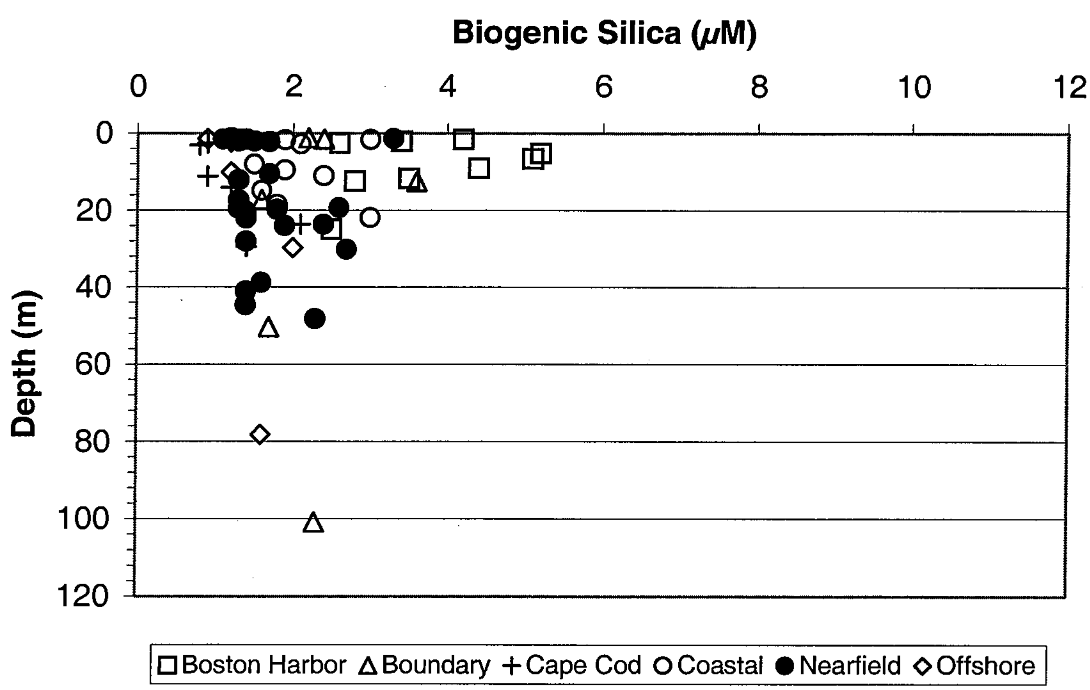
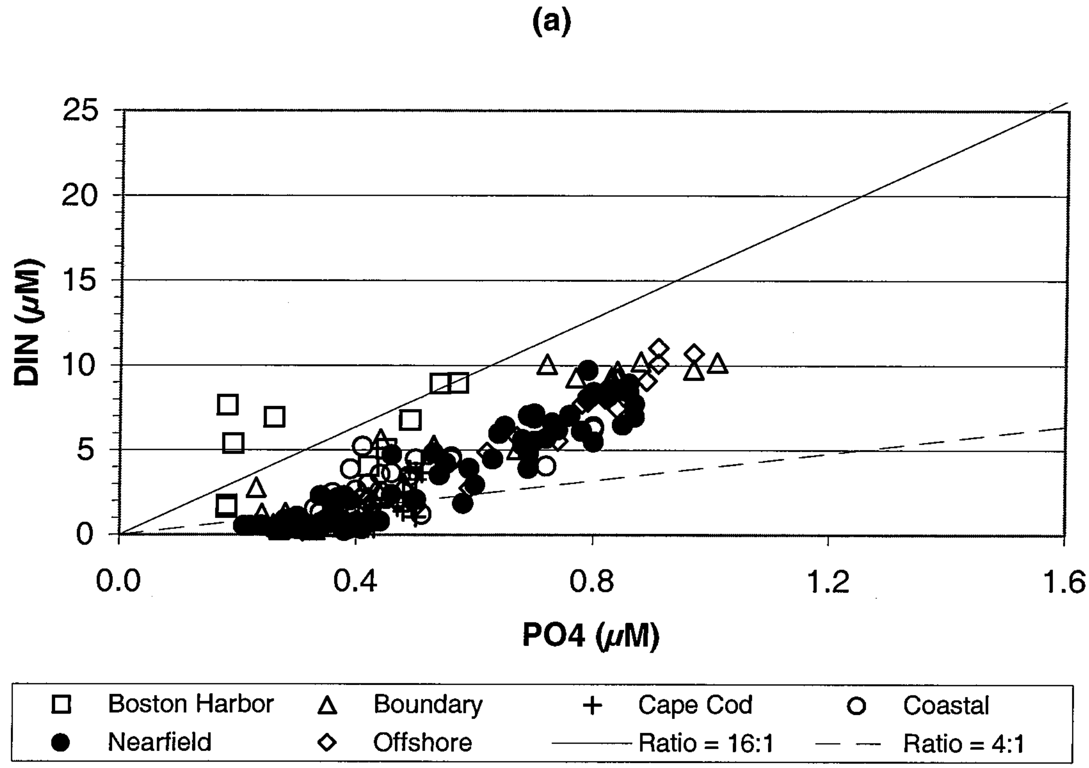


Figure D-49. Depth vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)



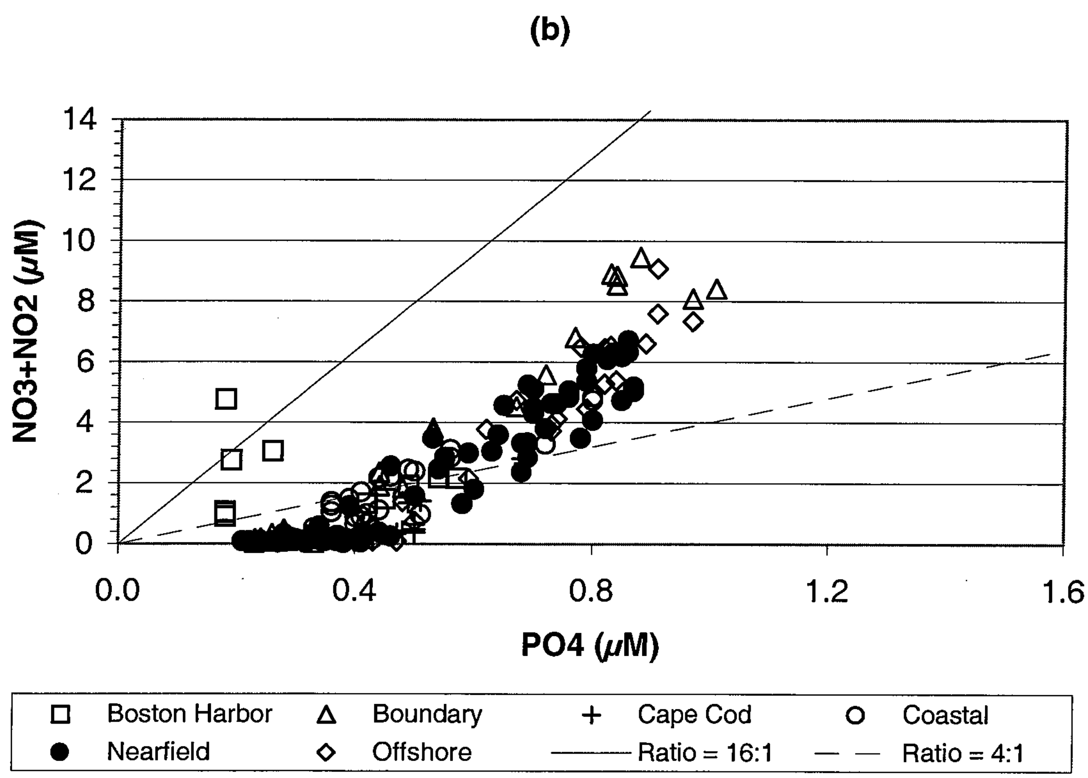
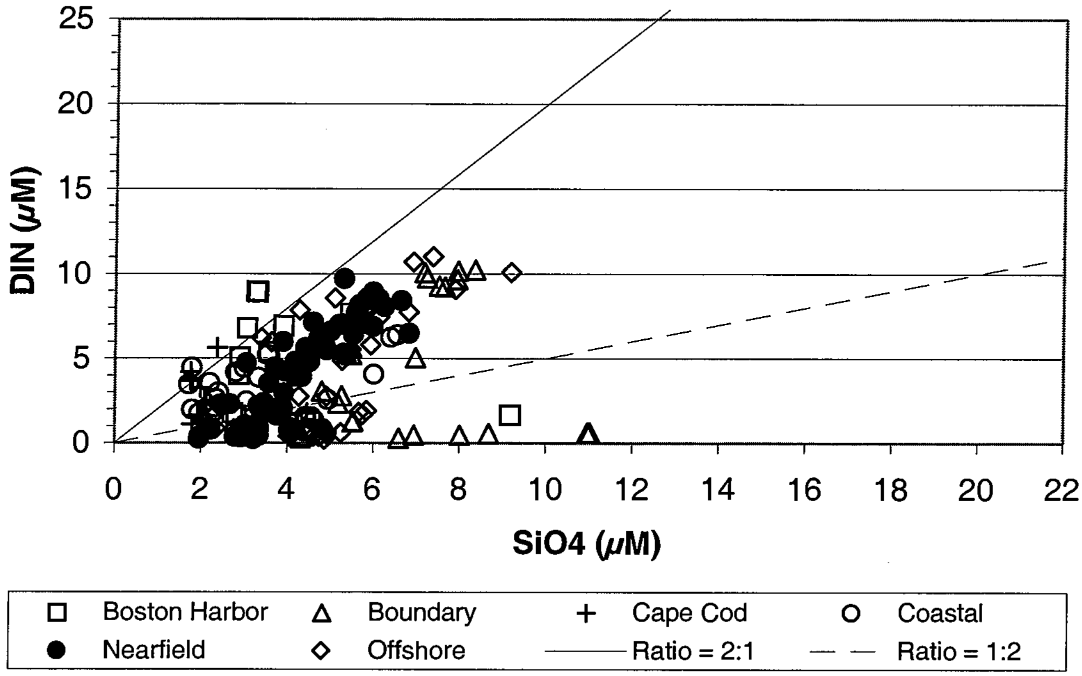


Figure D-50. Nutrient vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

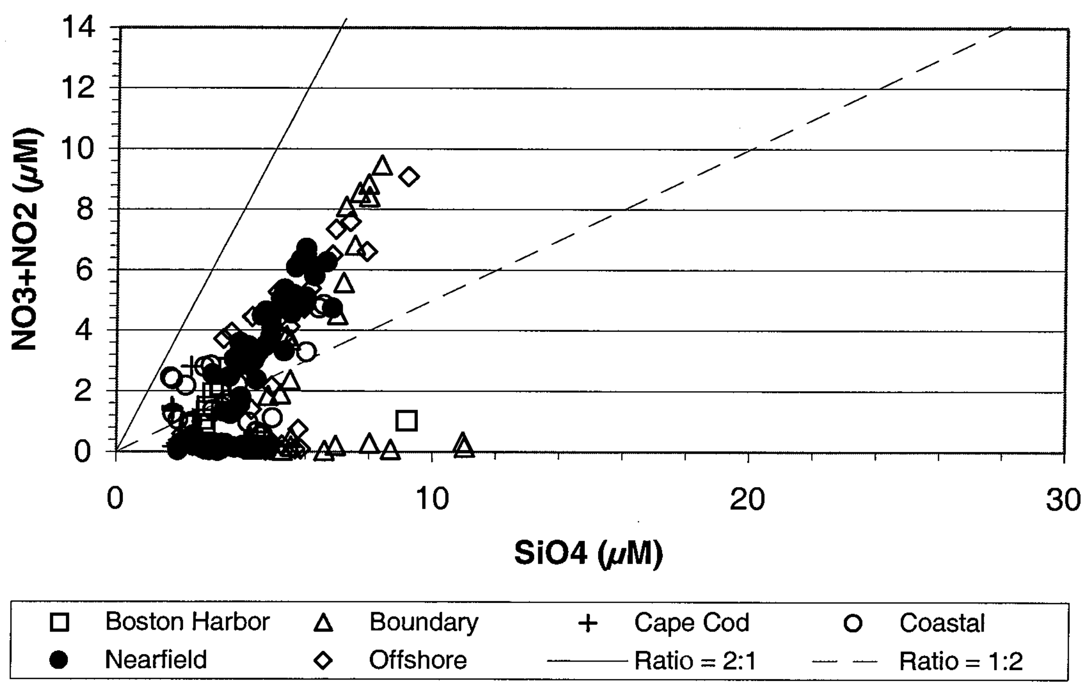
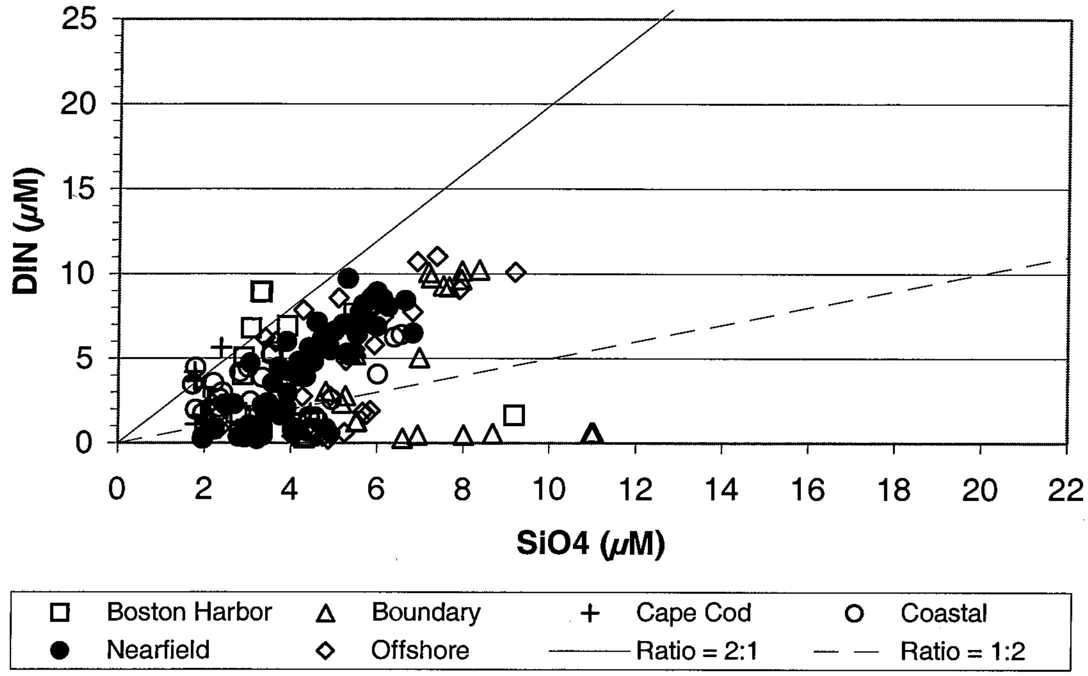


Figure D-51. Nutrient vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

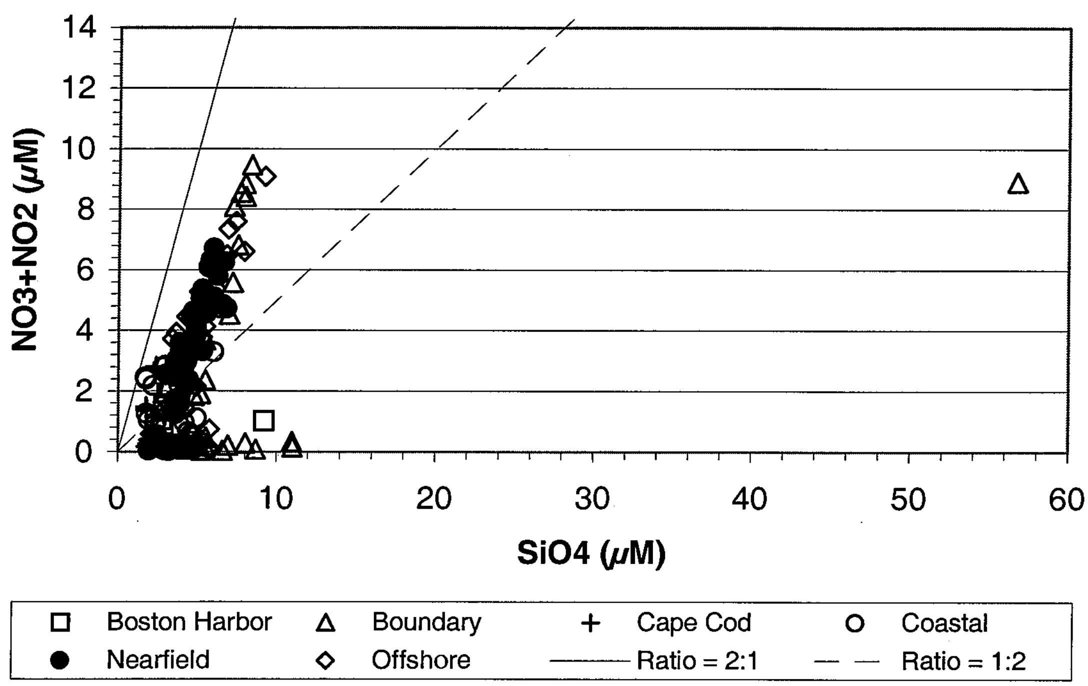
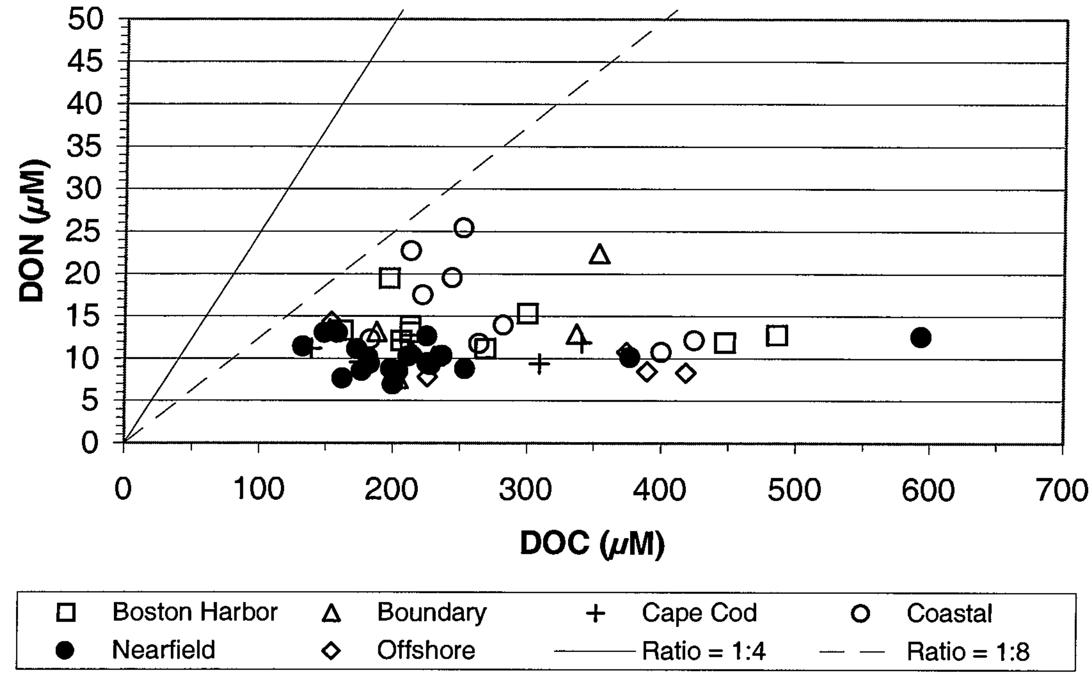


Figure D-52. Nutrient vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

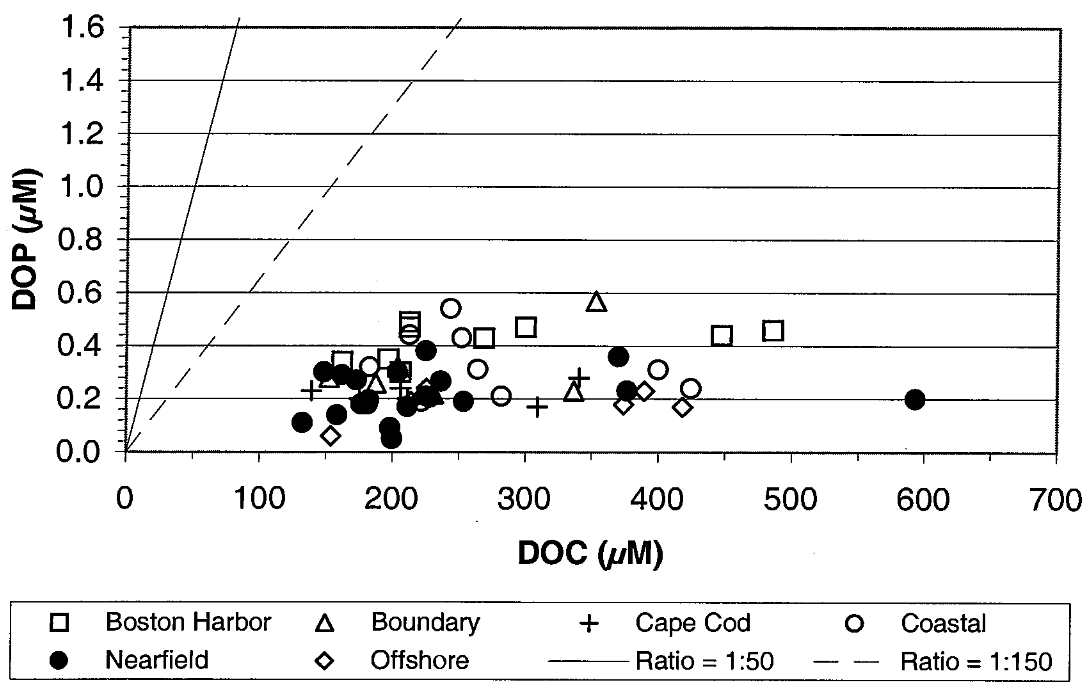
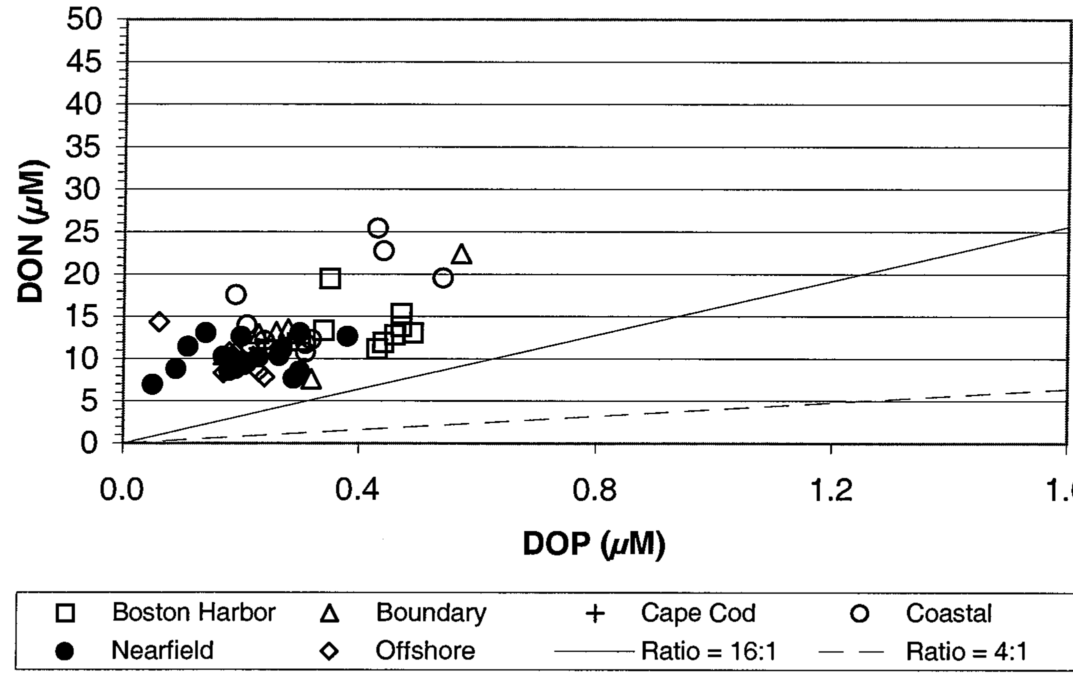


Figure D-53. Nutrient vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

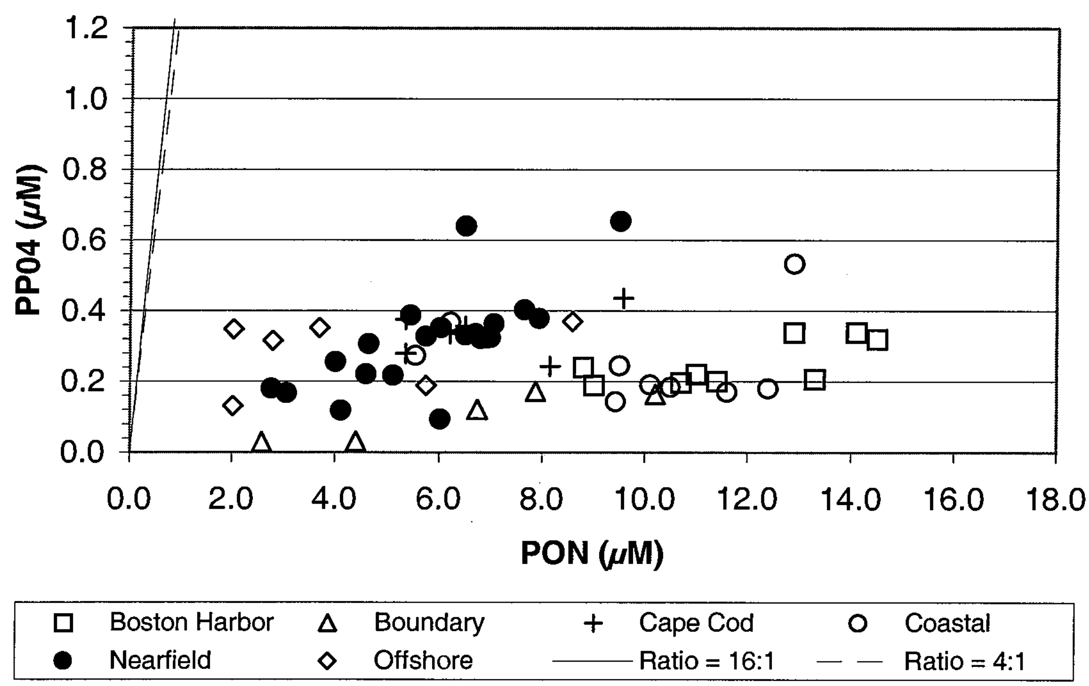


Figure D-54. Nutrient vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

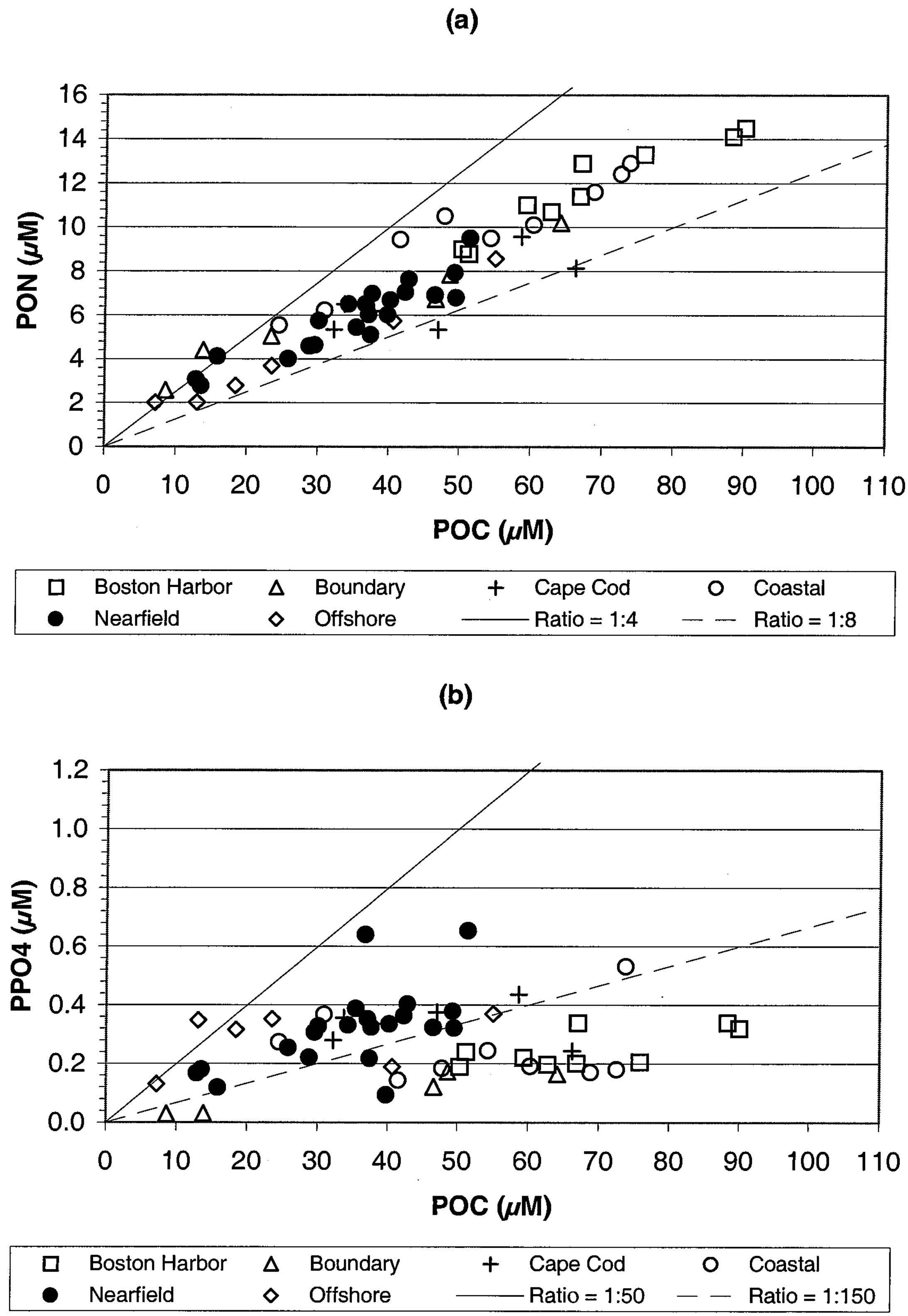
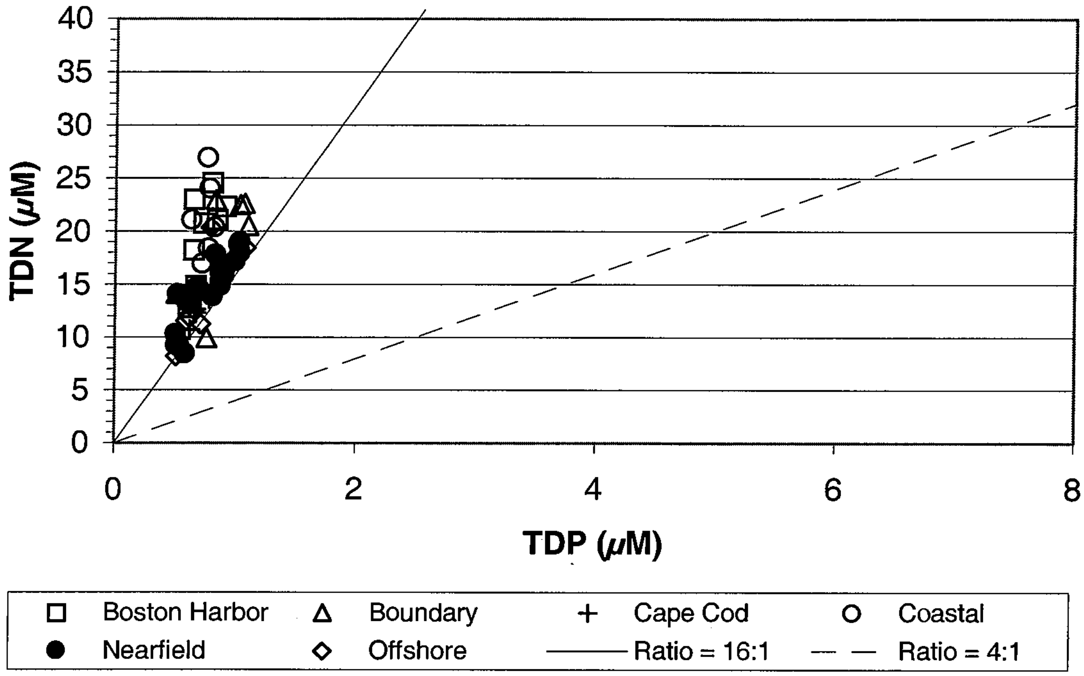


Figure D-55. Nutrient vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

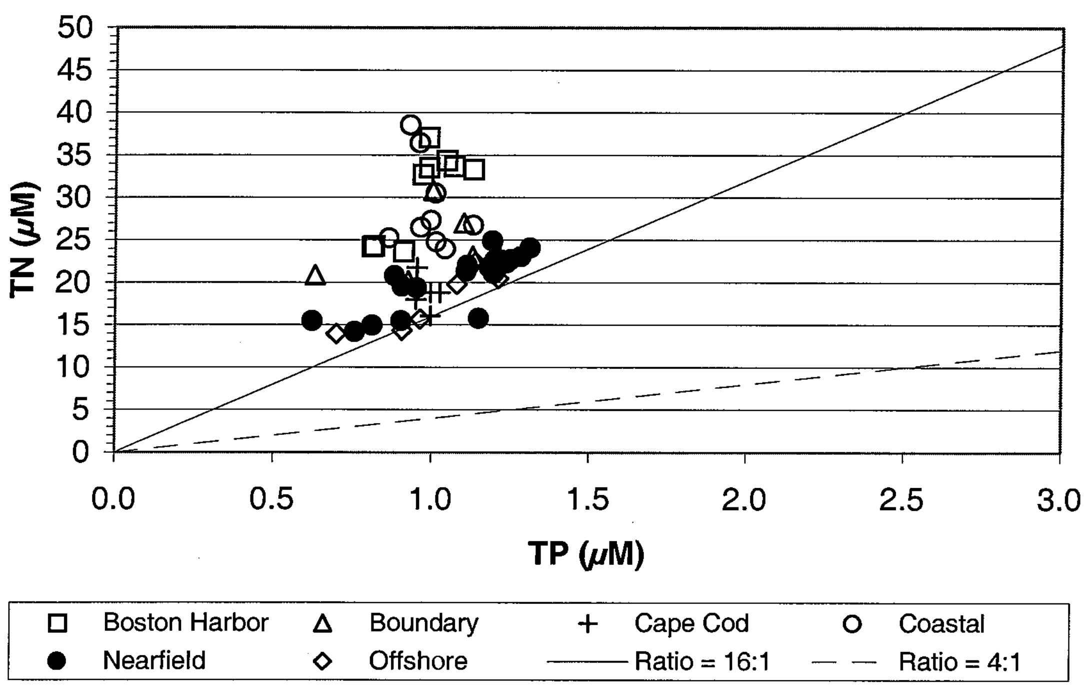
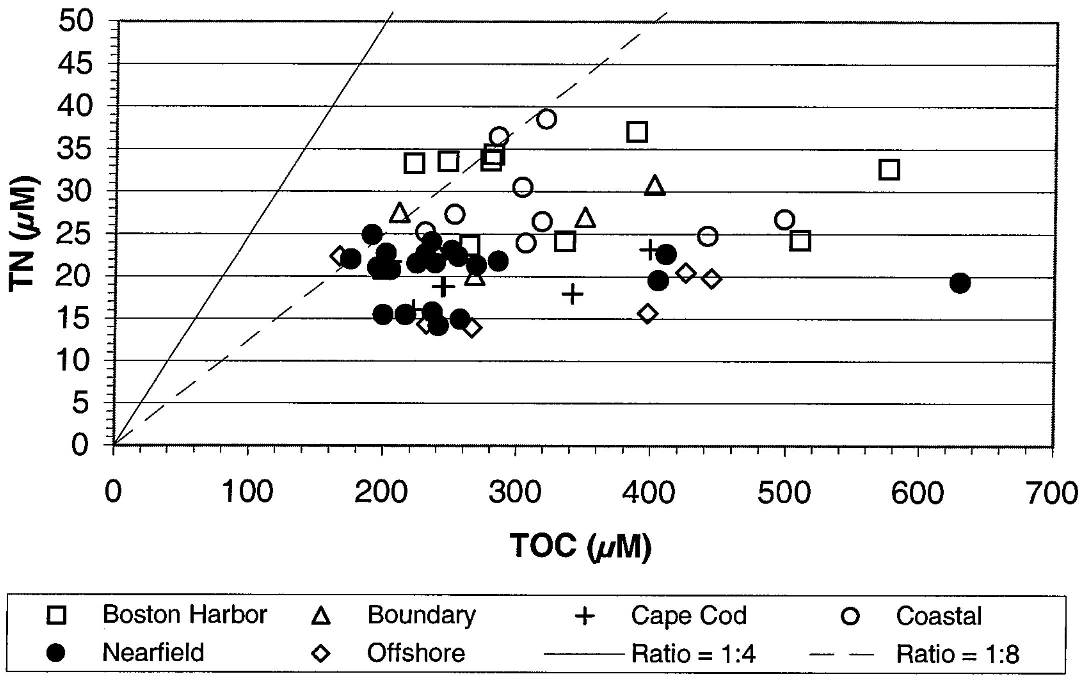


Figure D-56. Nutrient vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

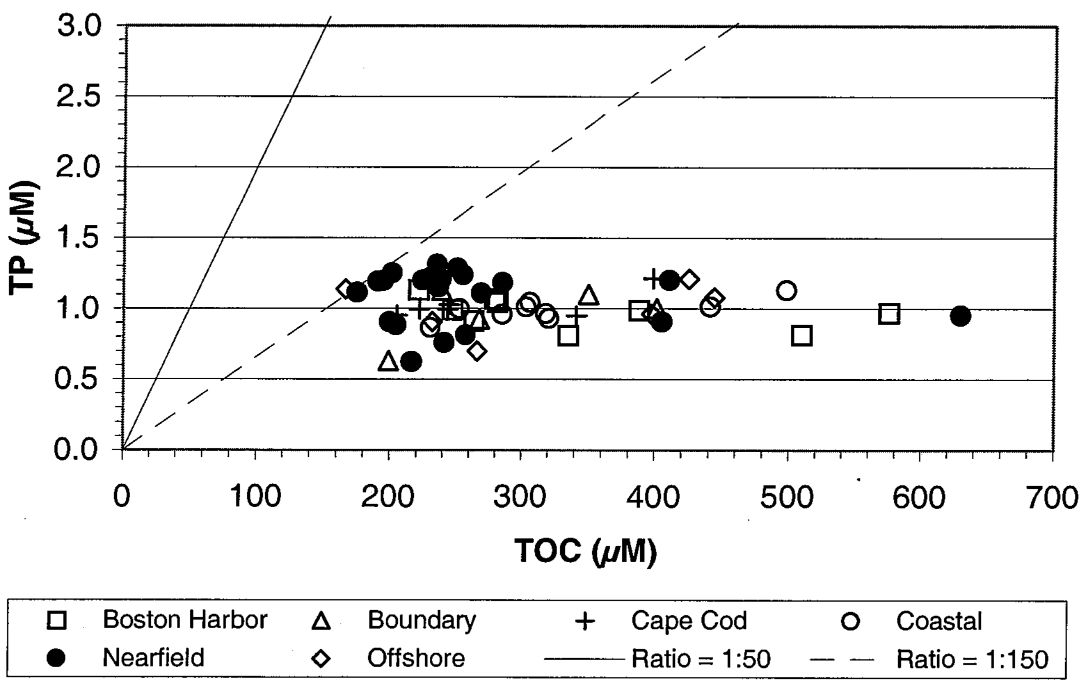


Figure D-57. Nutrient vs. Nutrient Plots for Farfield Survey WF004, (Apr 00)

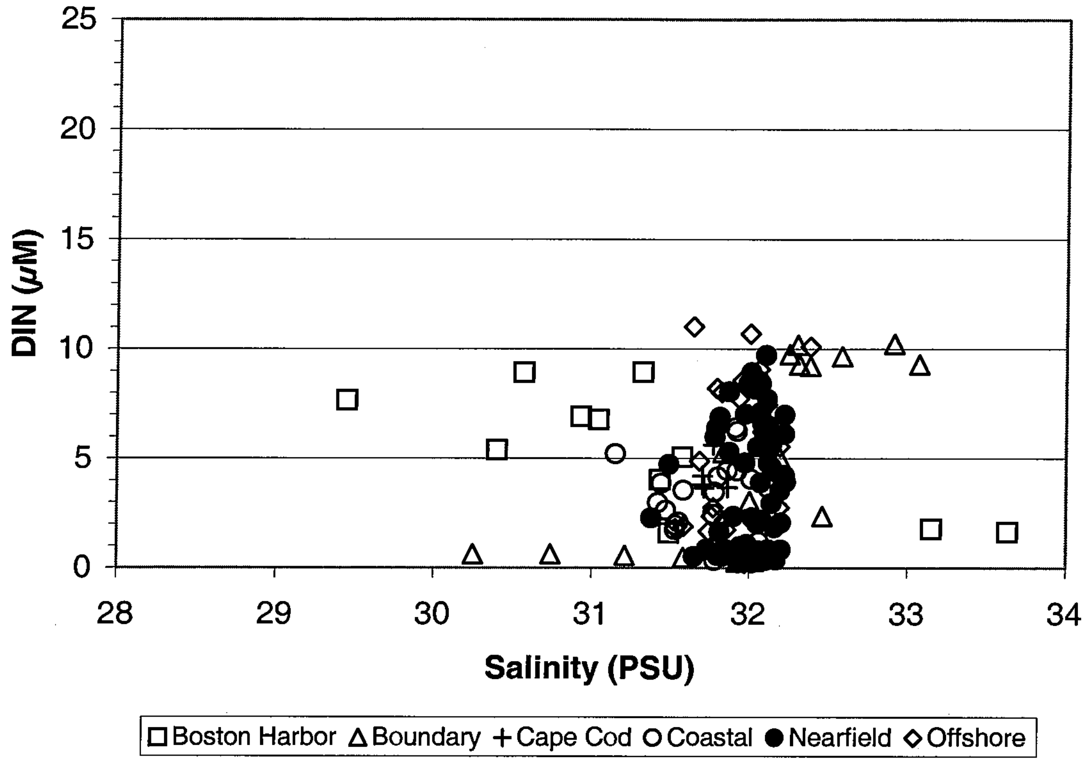
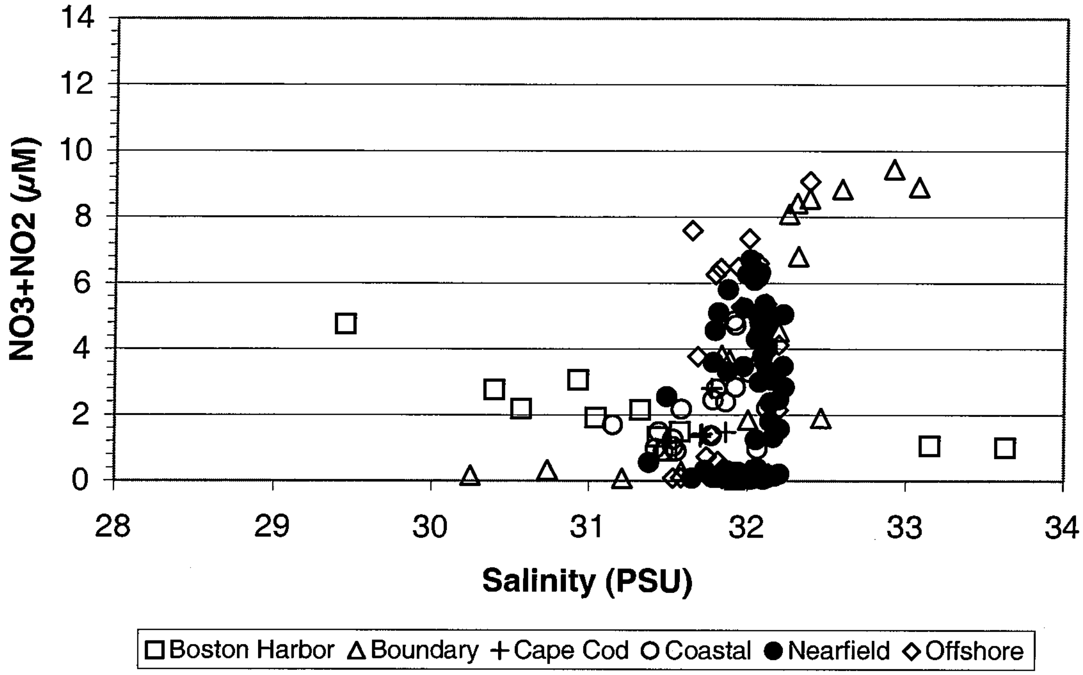


Figure D-58. Nutrient vs. Salinity Plots for Farfield Survey WF004, (Apr 00)

(a)



(b)

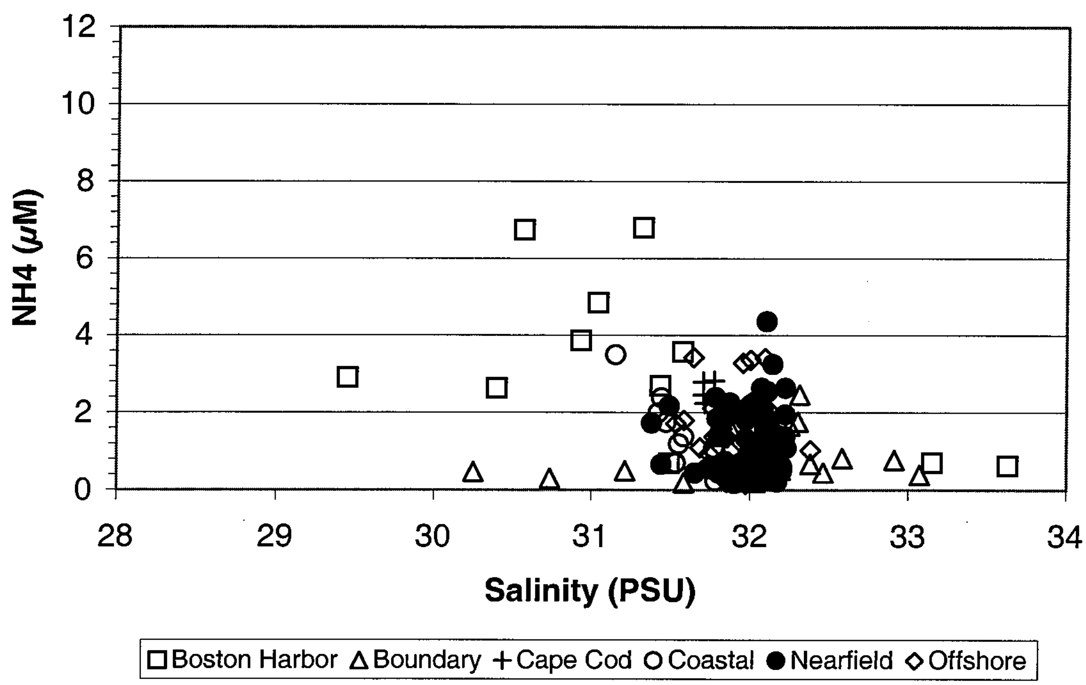
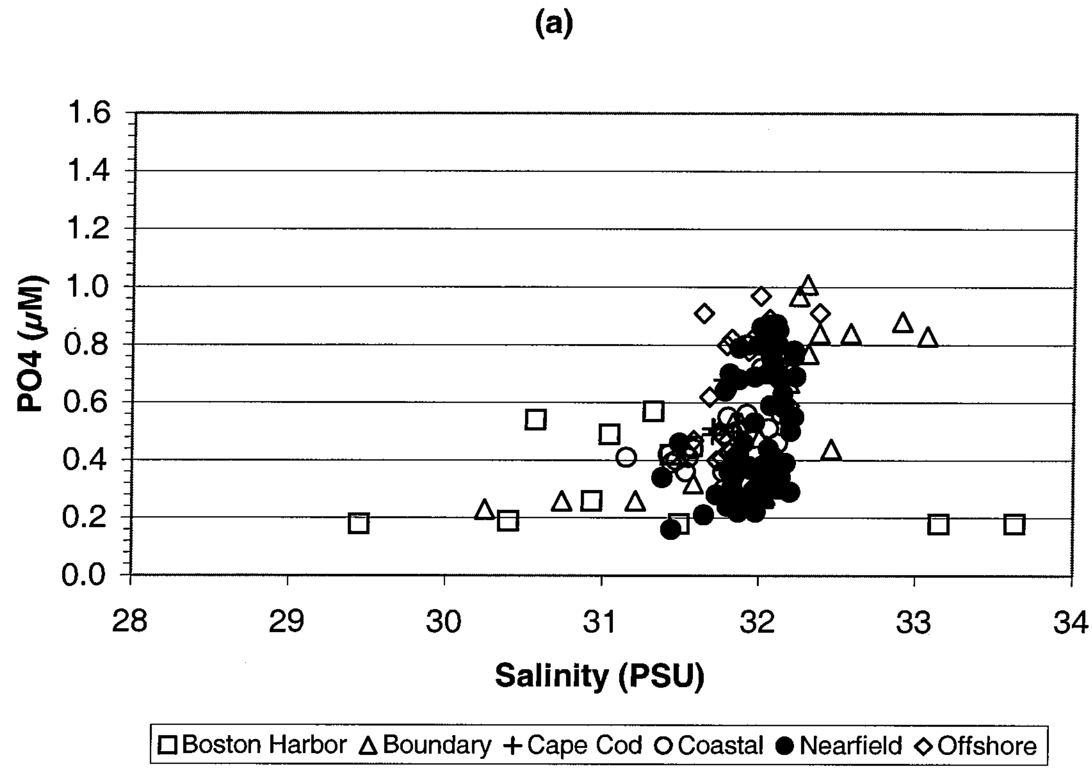


Figure D-59. Nutrient vs. Salinity Plots for Farfield Survey WF004, (Apr 00)



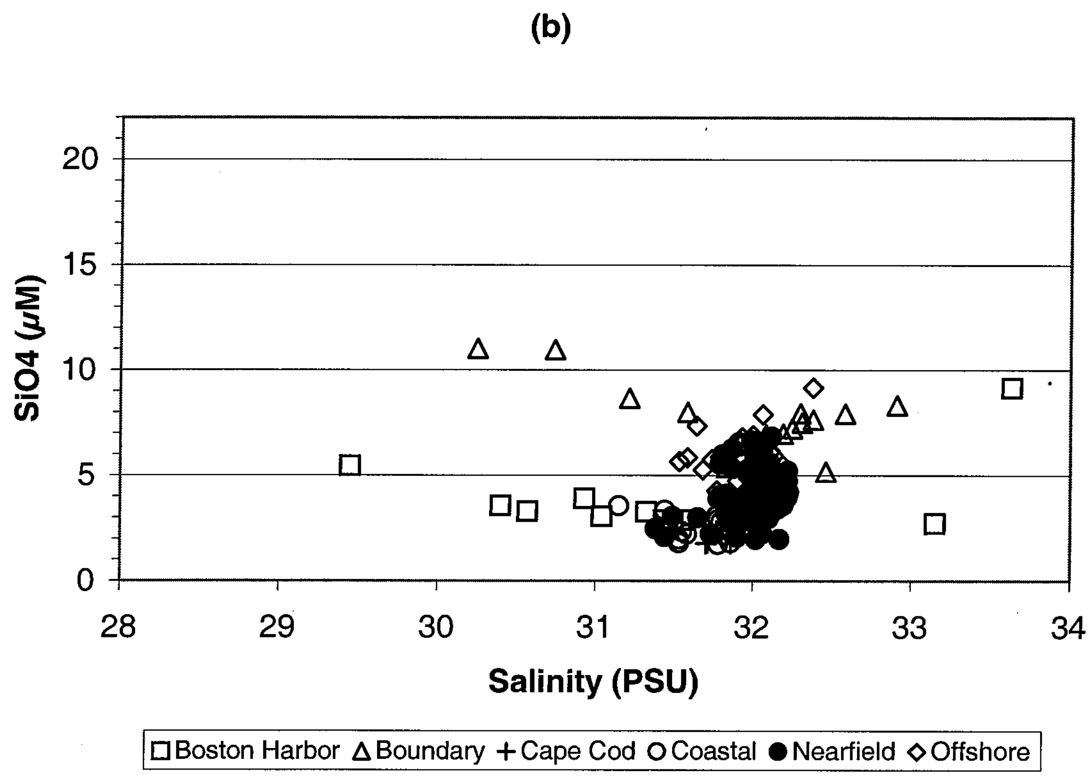


Figure D-60. Nutrient vs. Salinity Plots for Farfield Survey WF004, (Apr 00)

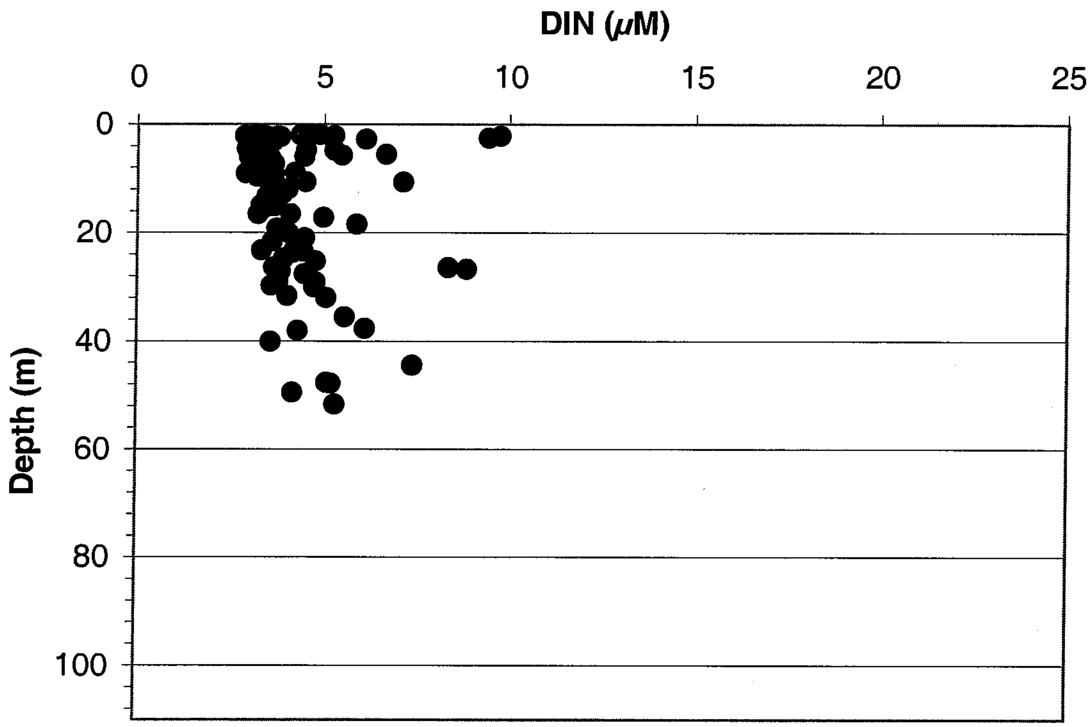
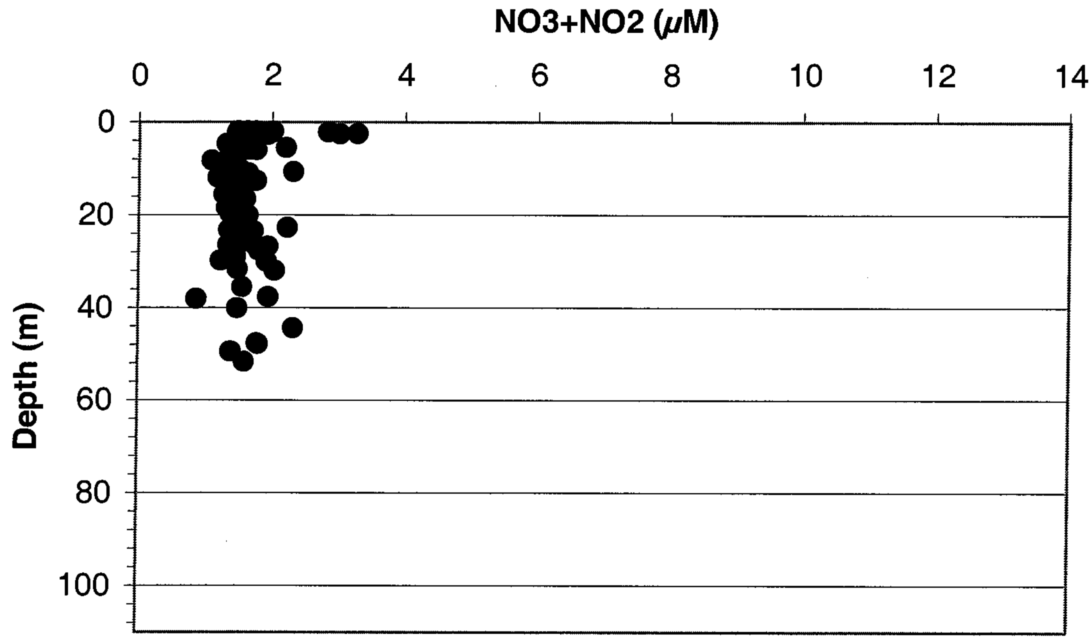


Figure D-61. Depth vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

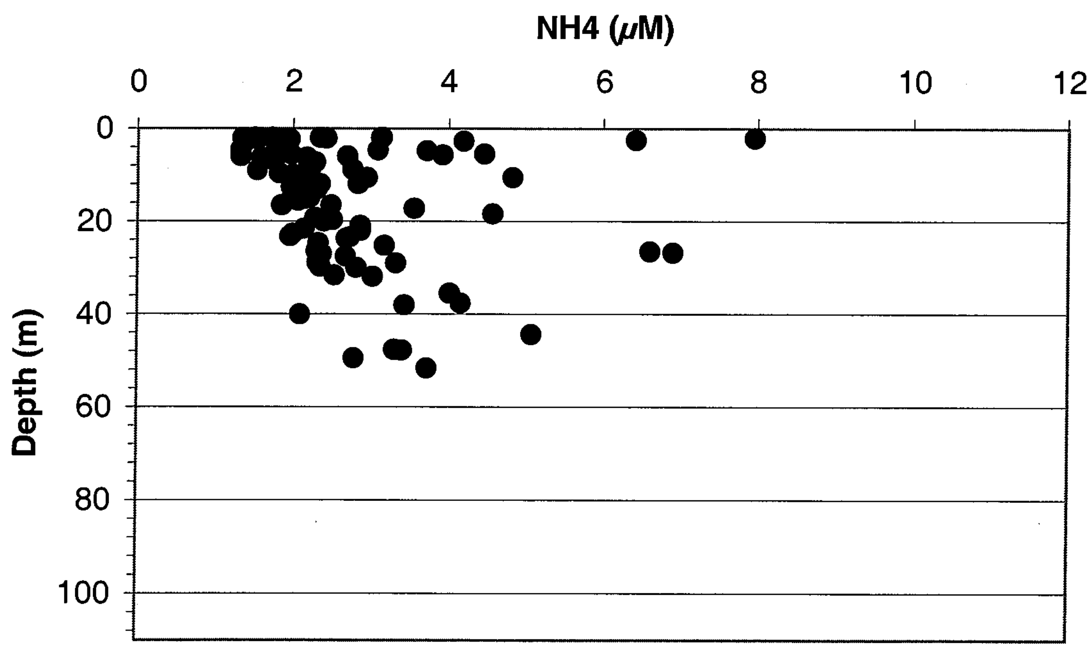
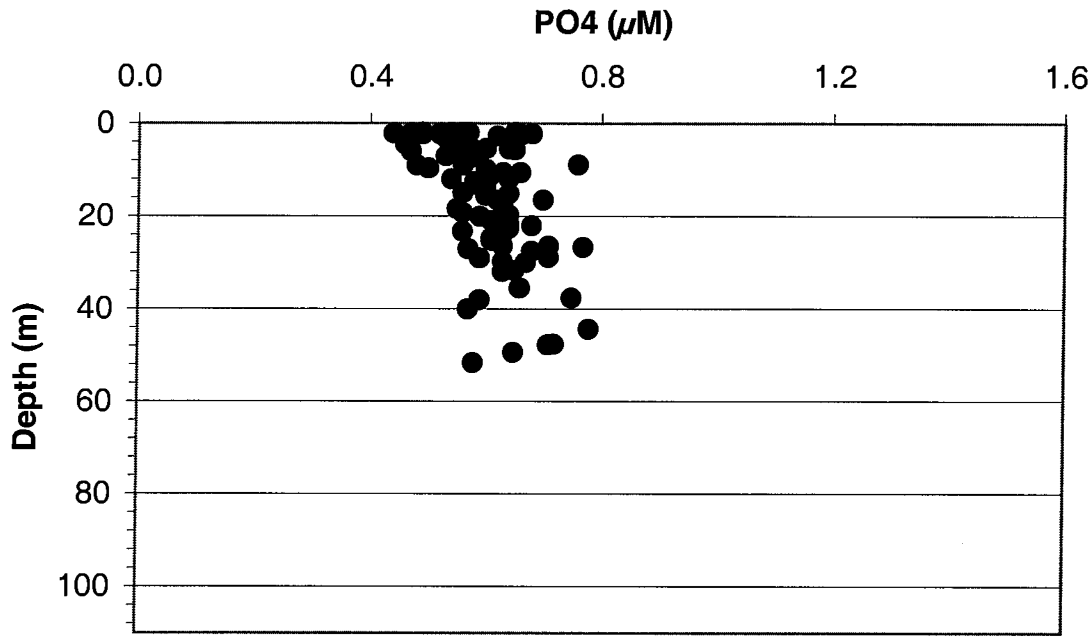


Figure D-62. Depth vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

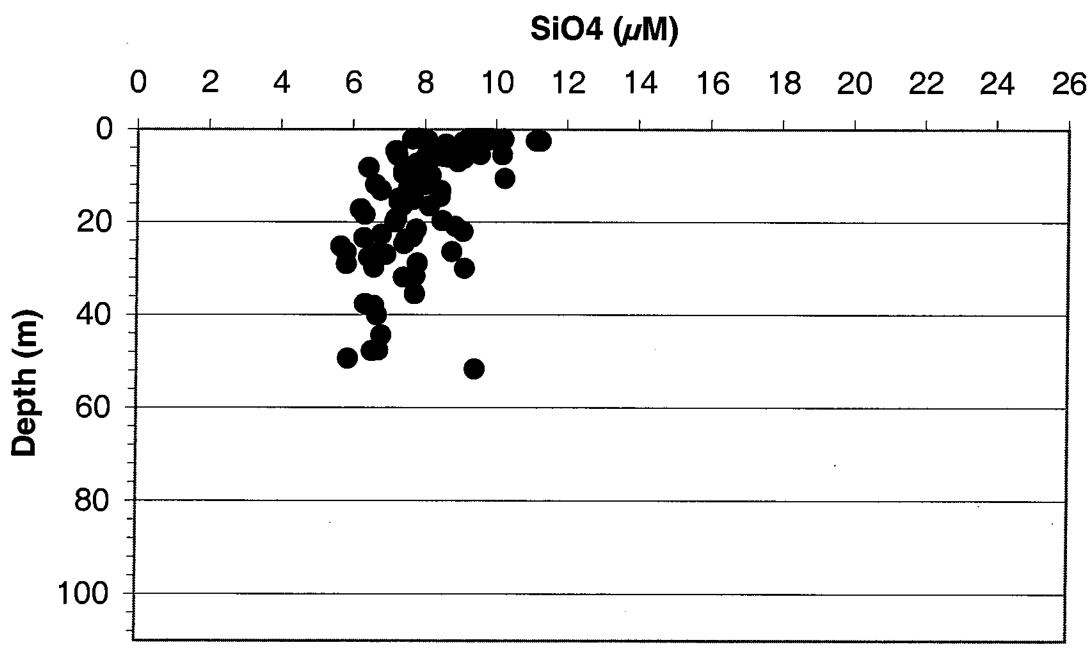
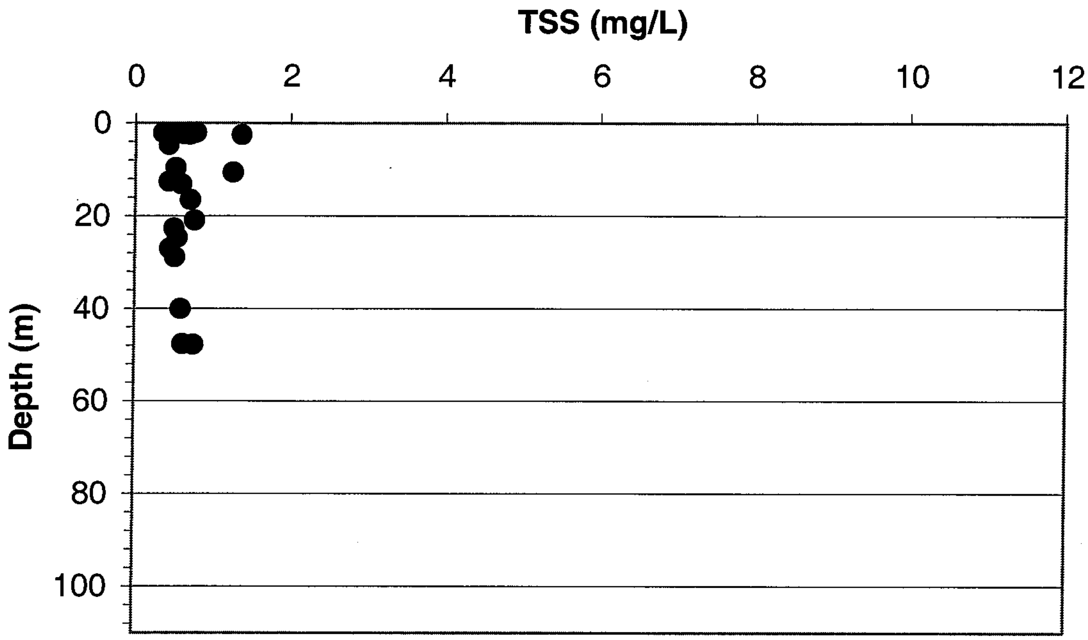


Figure D-63. Depth vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

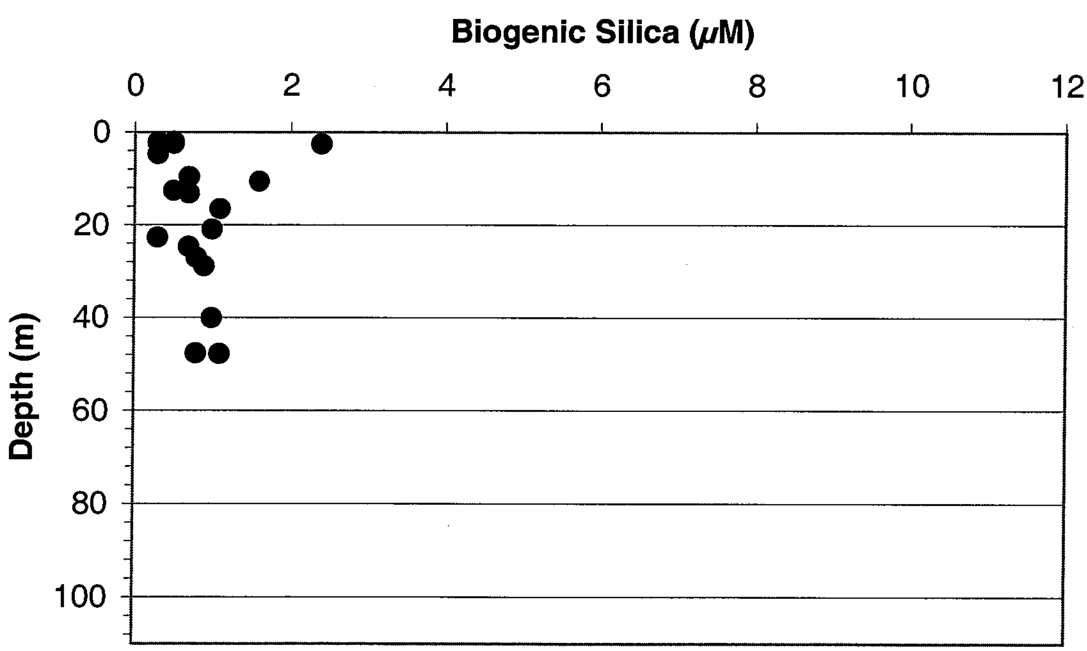
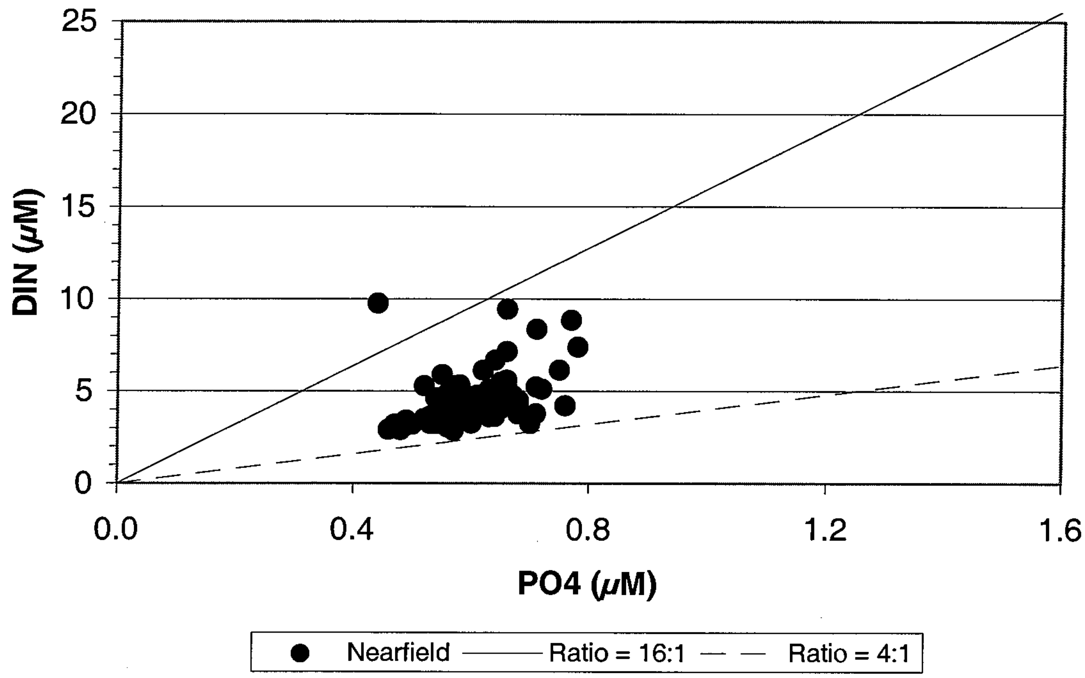


Figure D-64. Depth vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

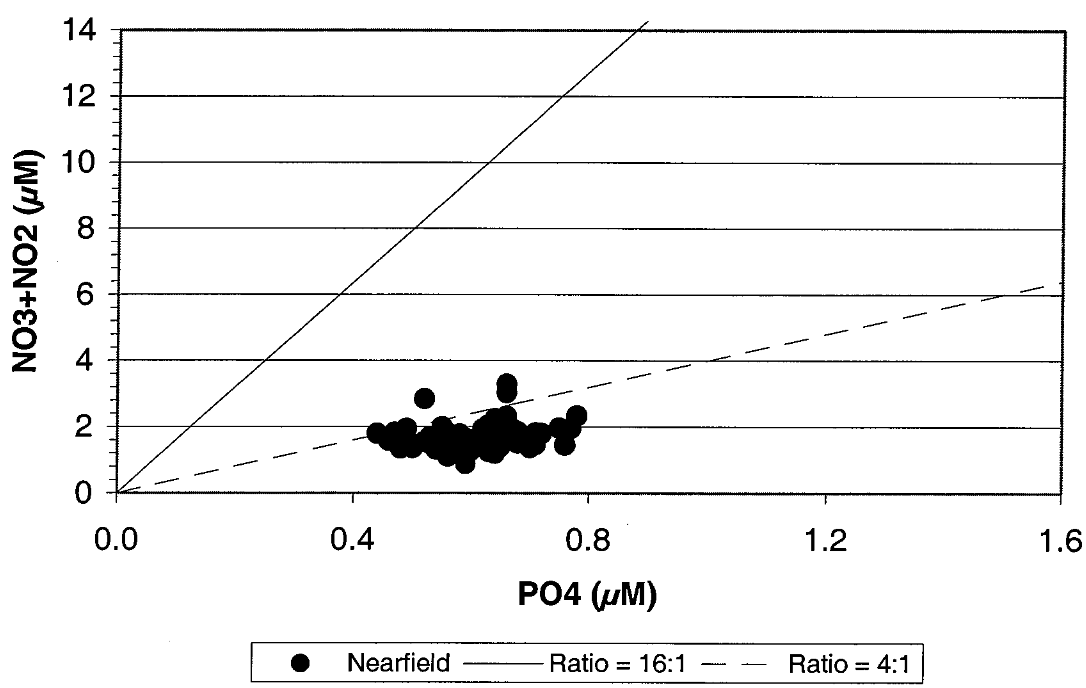
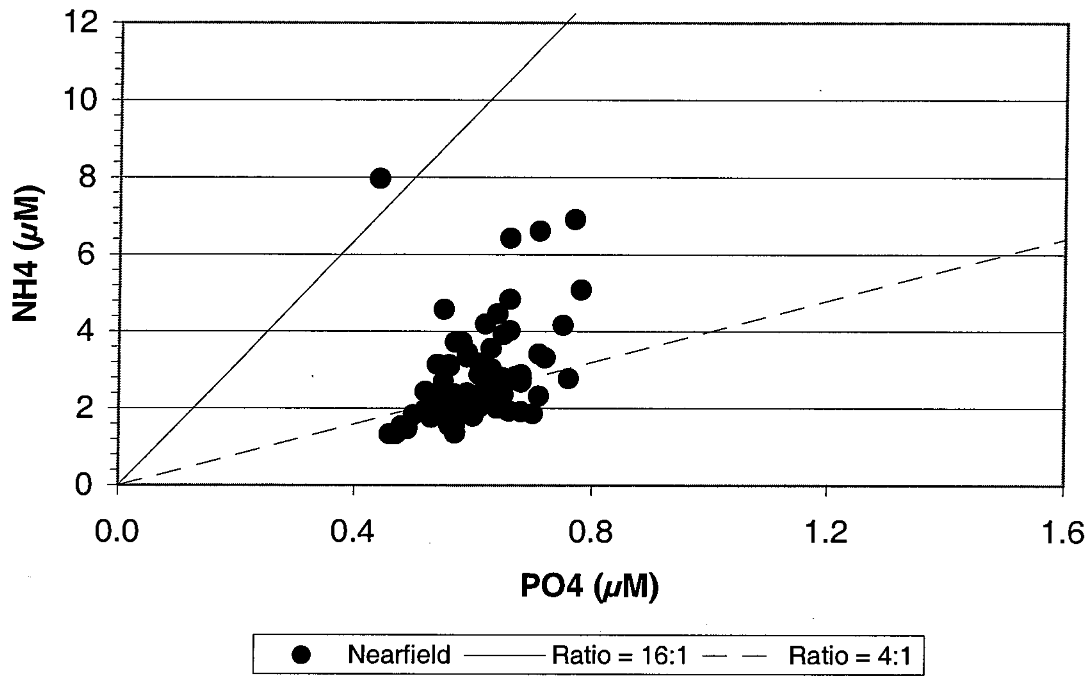


Figure D-65. Nutrient vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

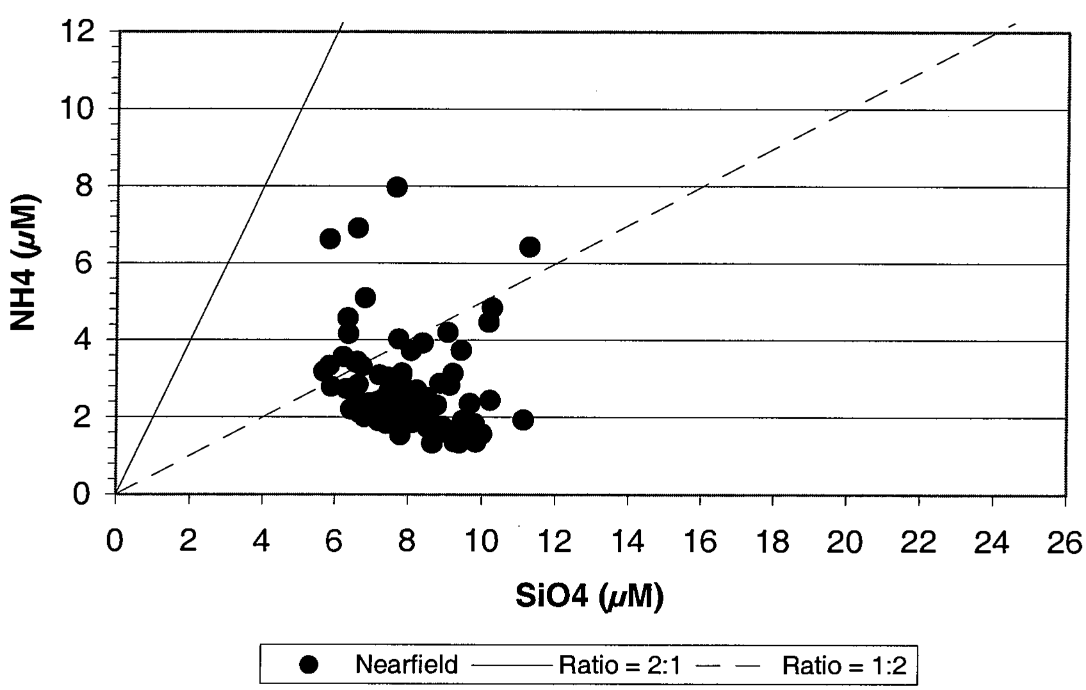
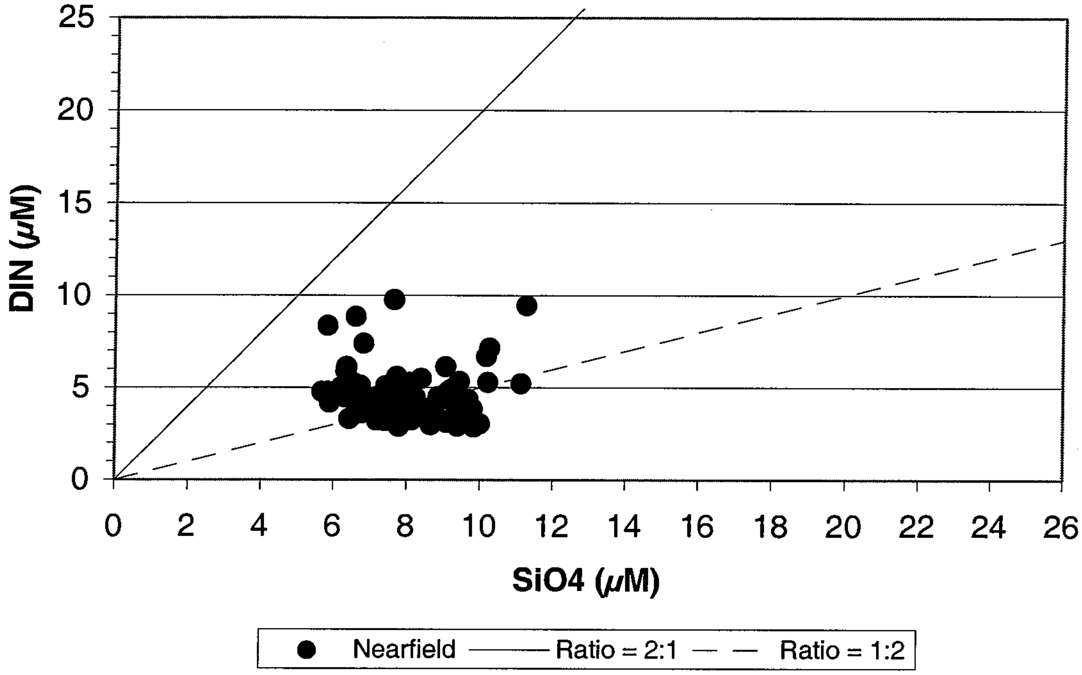


Figure D-66. Nutrient vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

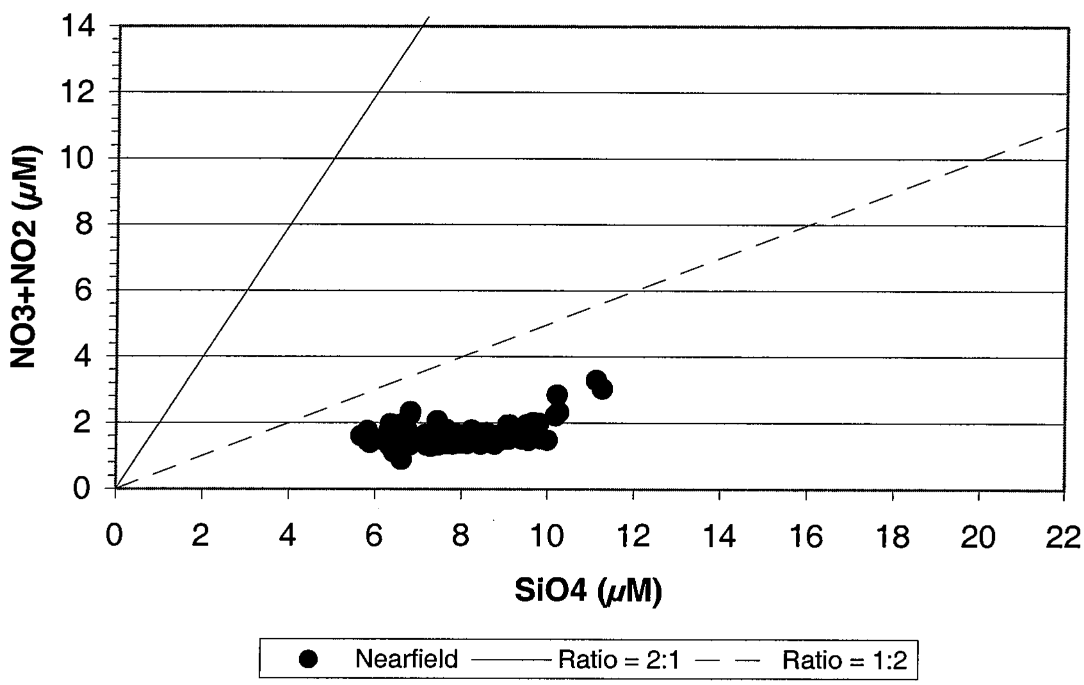
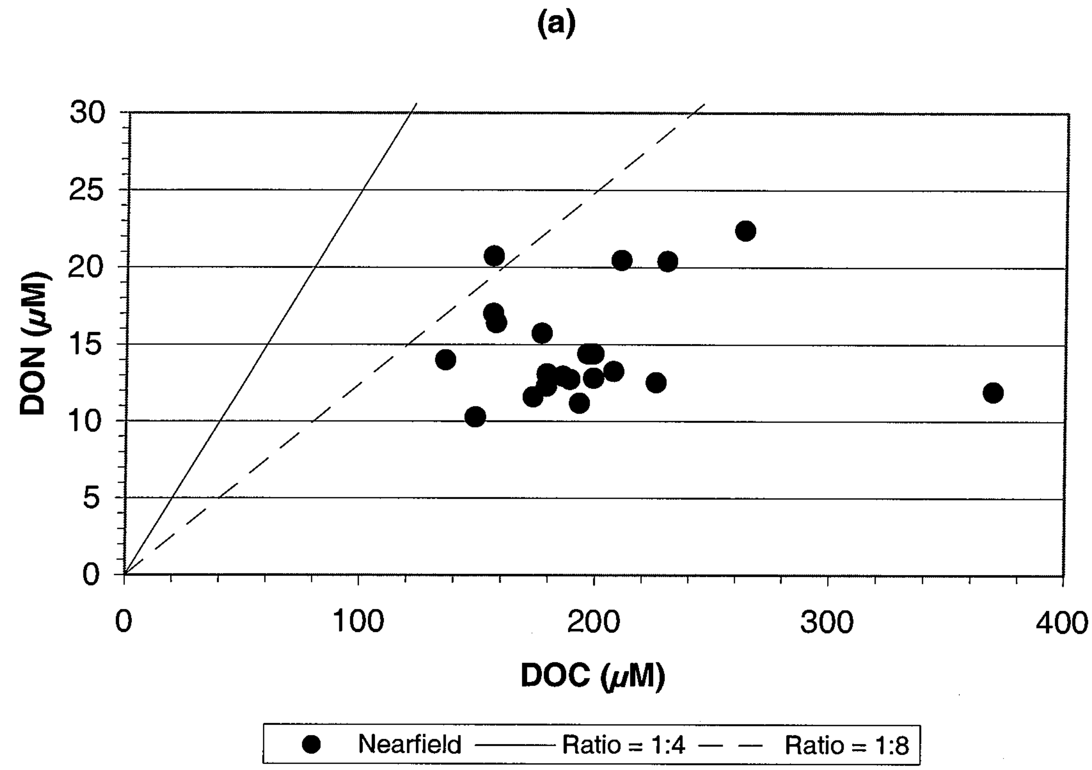


Figure D-67. Nutrient vs. Nutrient Plots for Nearfield Survey WN005, (May 00)



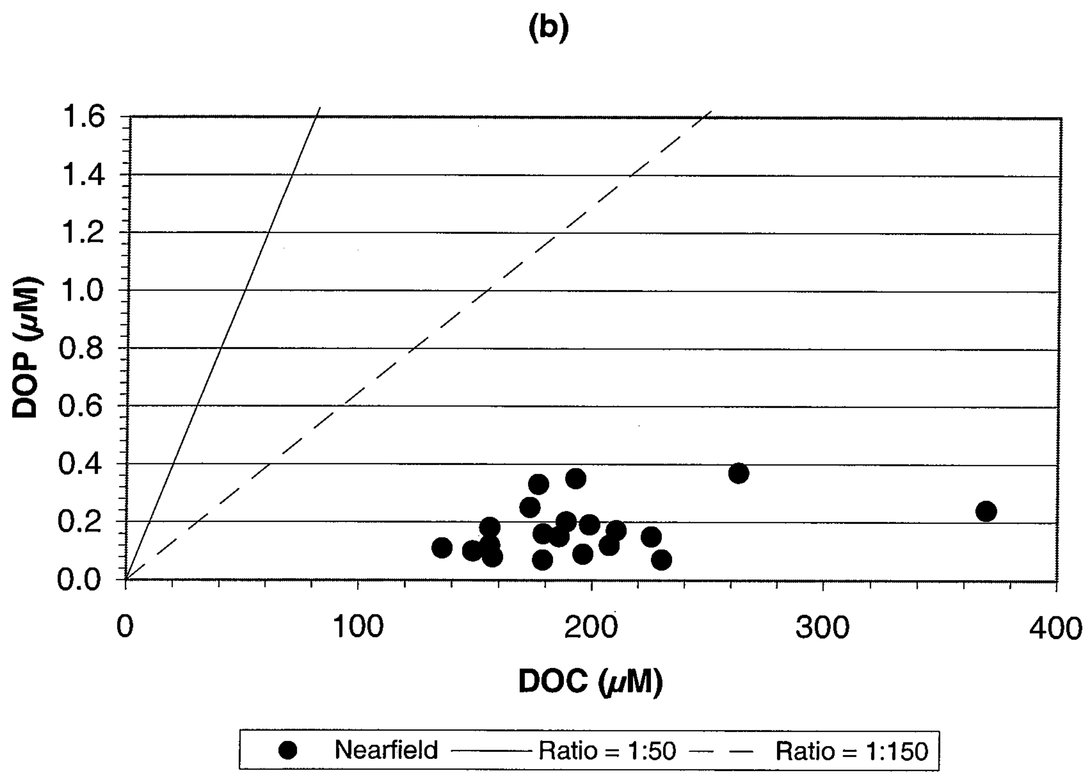
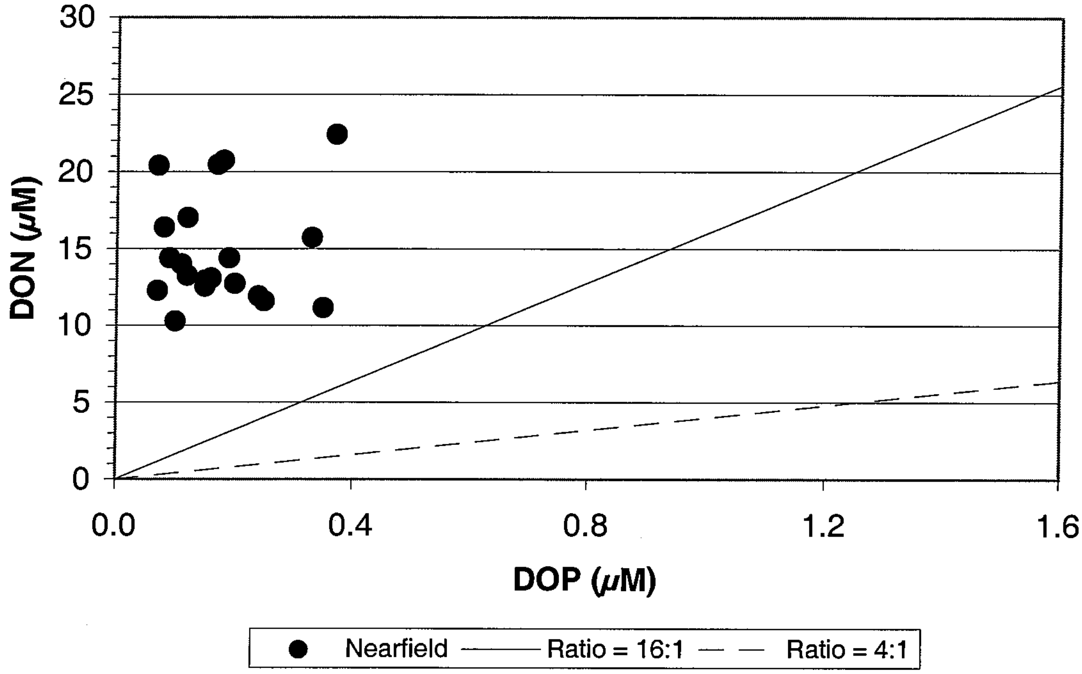


Figure D-68. Nutrient vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

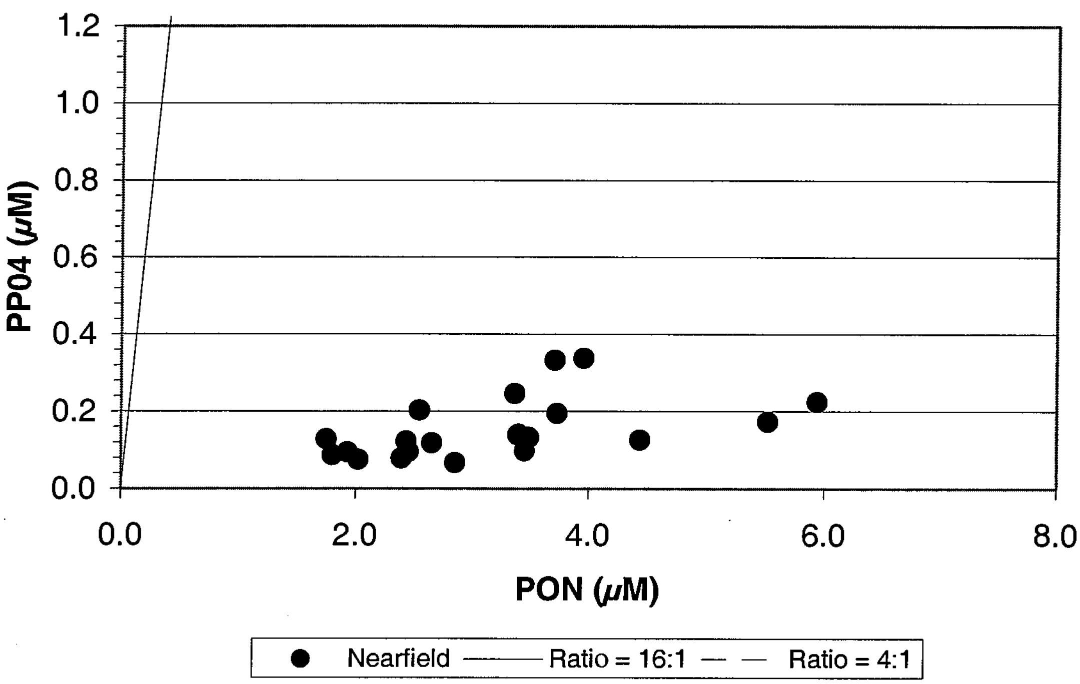
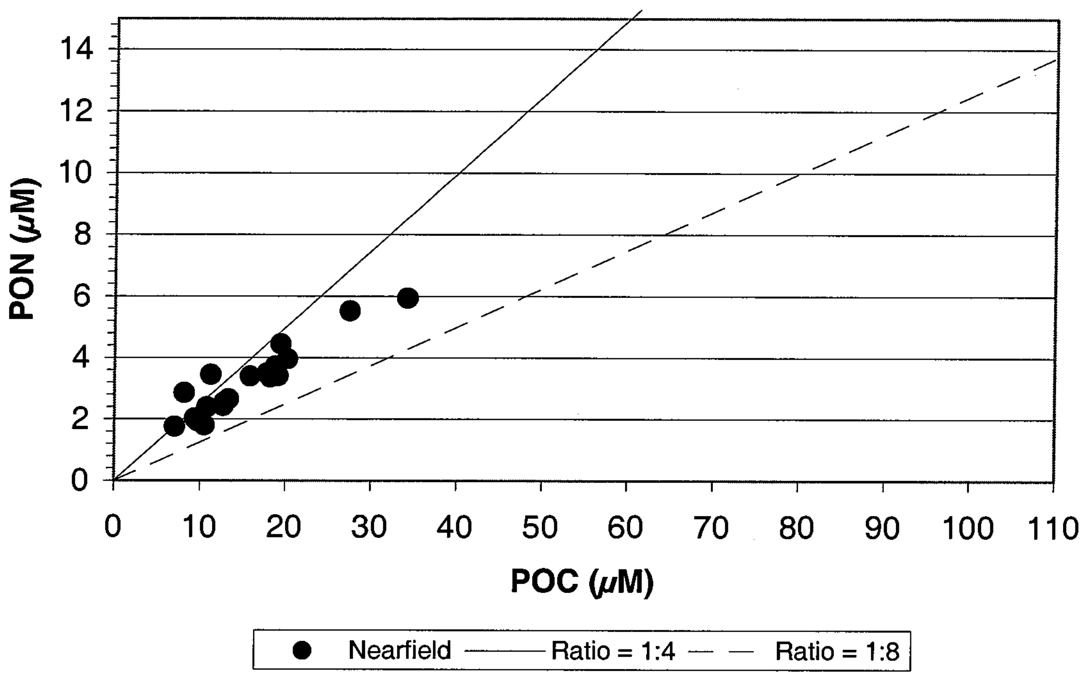


Figure D-69. Nutrient vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

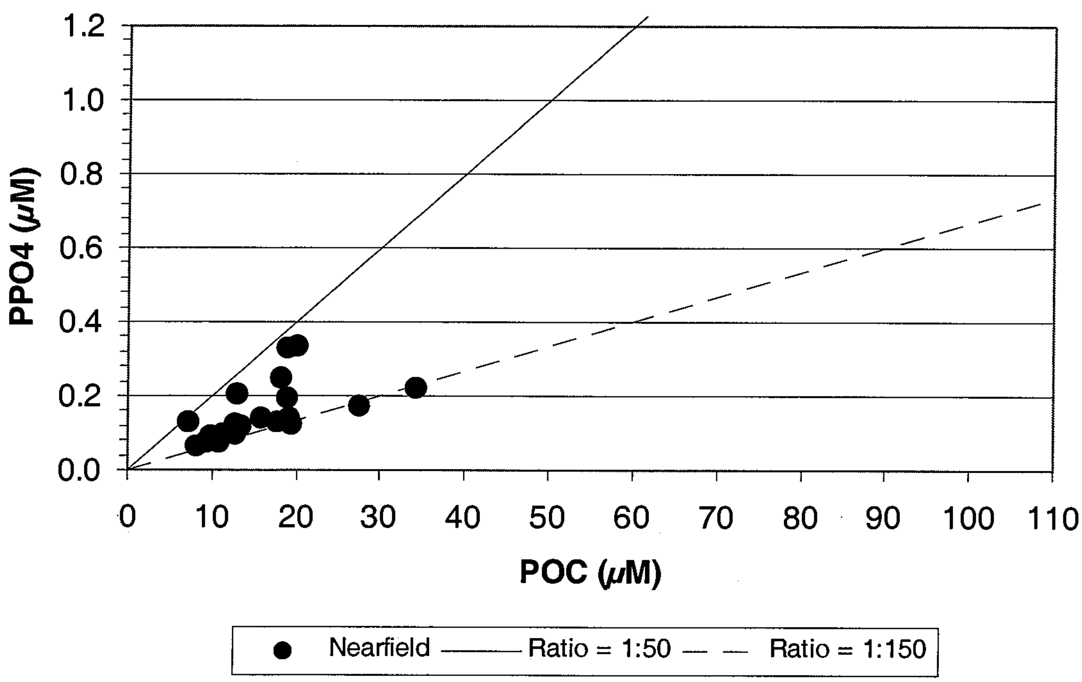
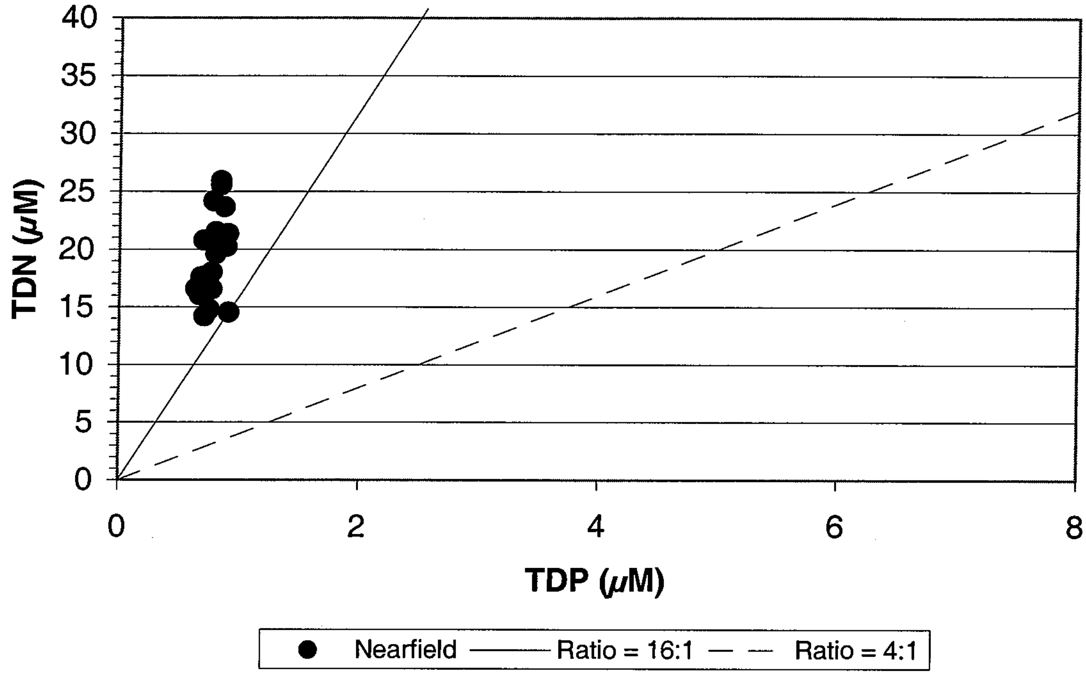


Figure D-70. Nutrient vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

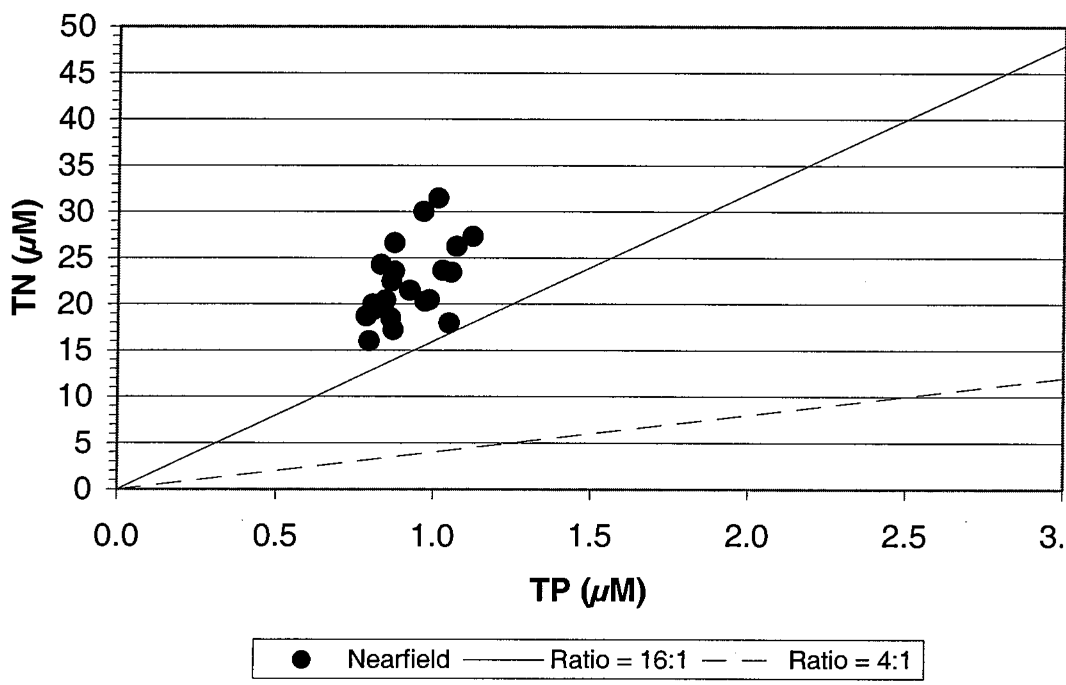
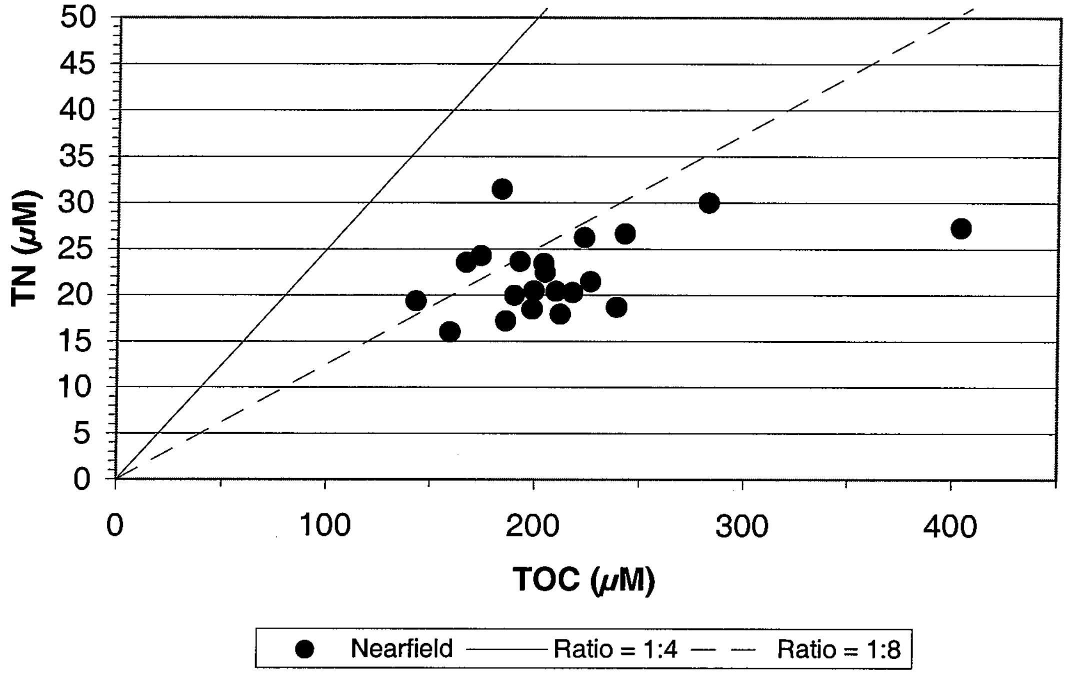


Figure D-71. Nutrient vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

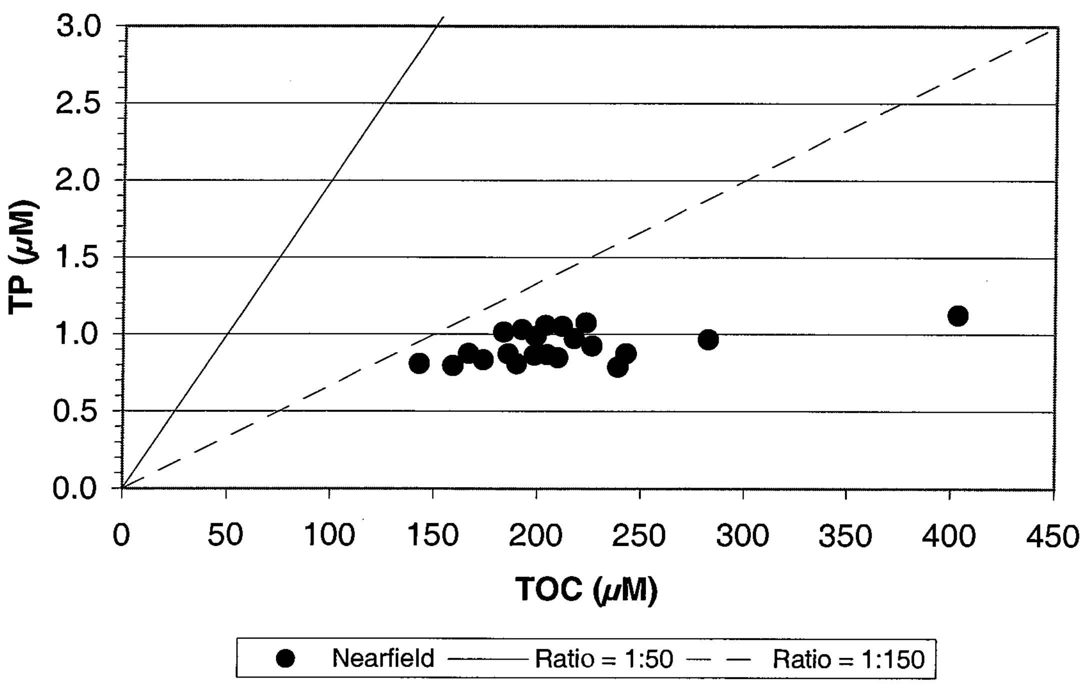


Figure D-72. Nutrient vs. Nutrient Plots for Nearfield Survey WN005, (May 00)

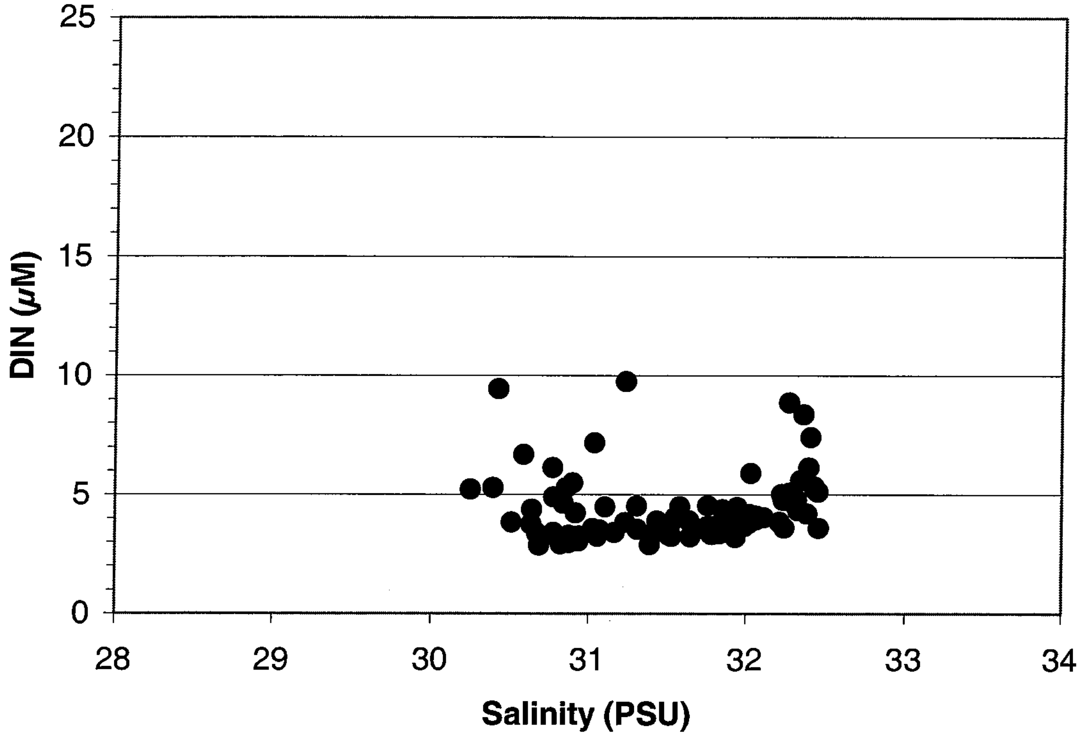
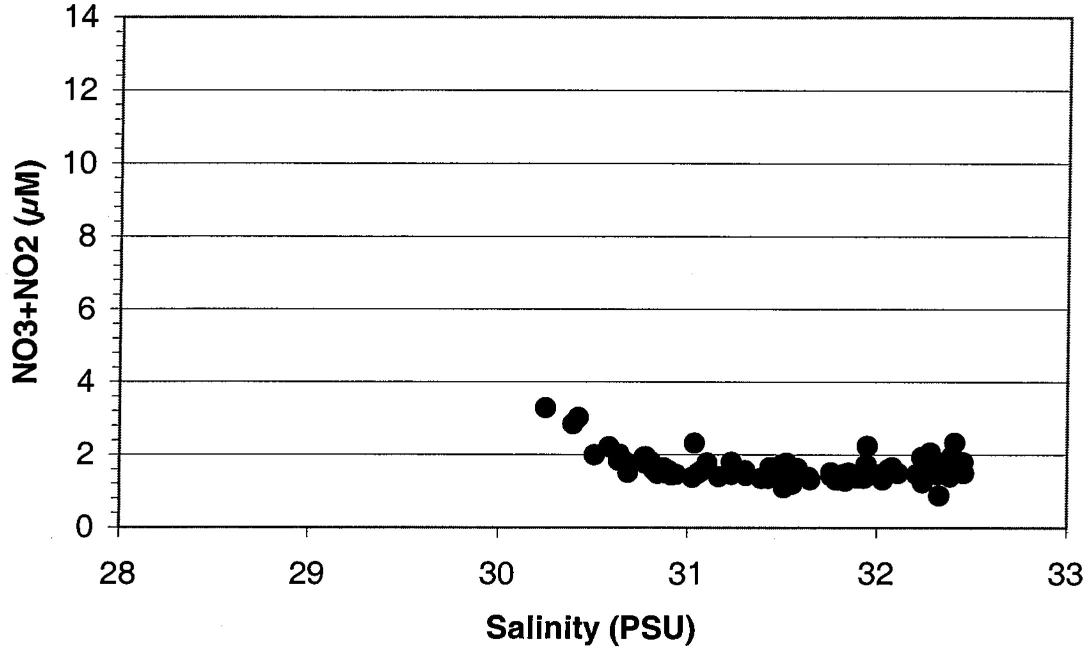


Figure D-73. Nutrient vs. Salinity Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

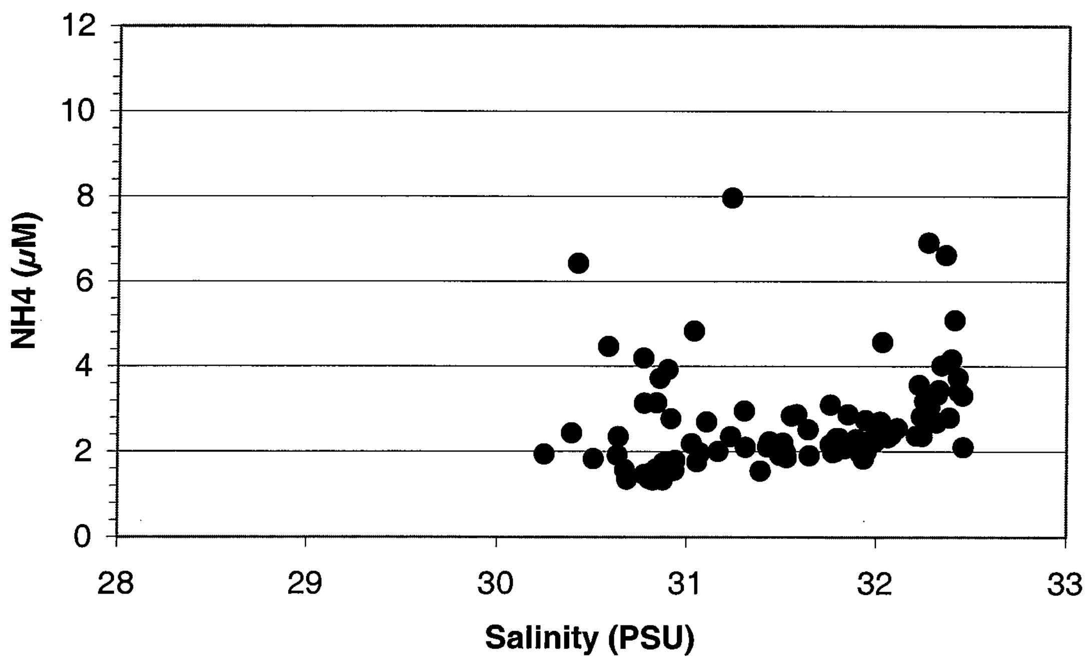
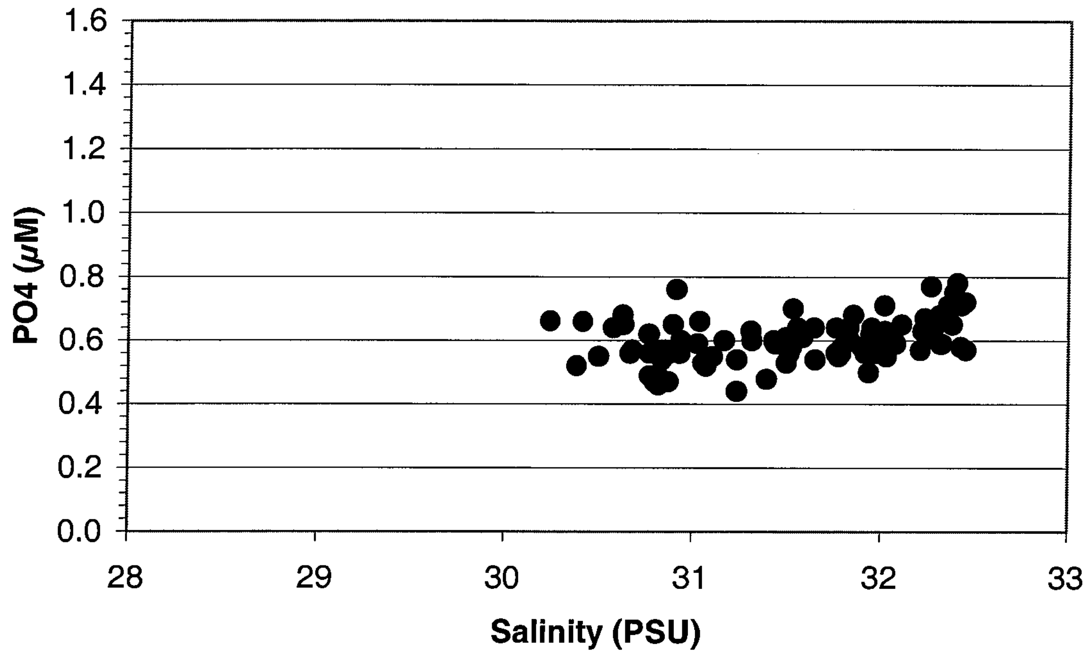


Figure D-74. Nutrient vs. Salinity Plots for Nearfield Survey WN005, (May 00)

(a)



(b)

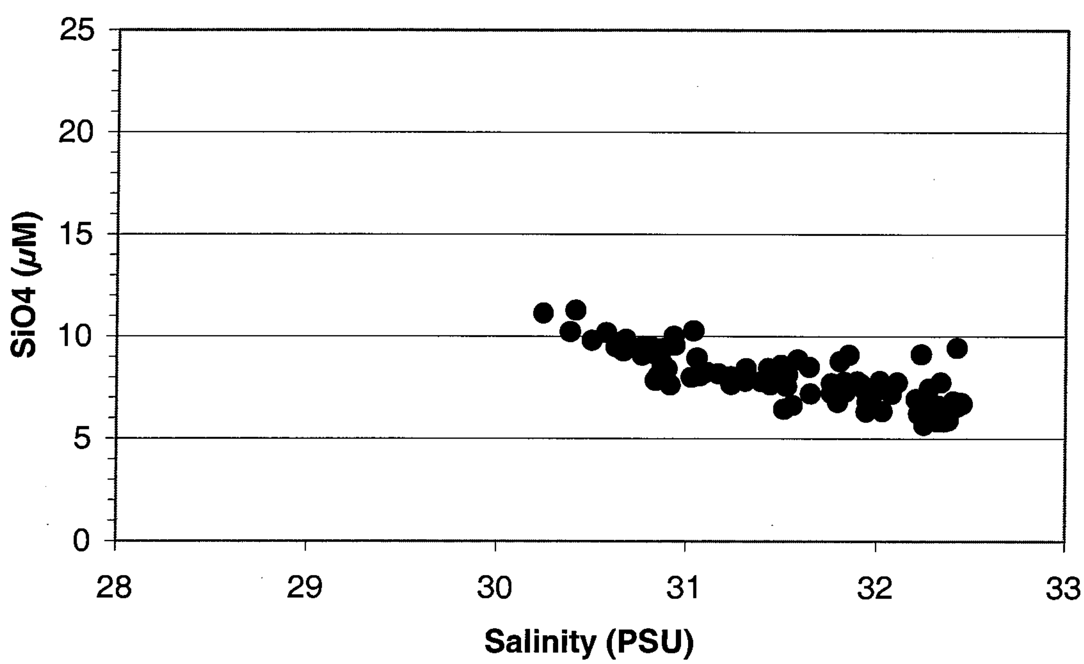


Figure D-75. Nutrient vs. Salinity Plots for Nearfield Survey WN005, (May 00)

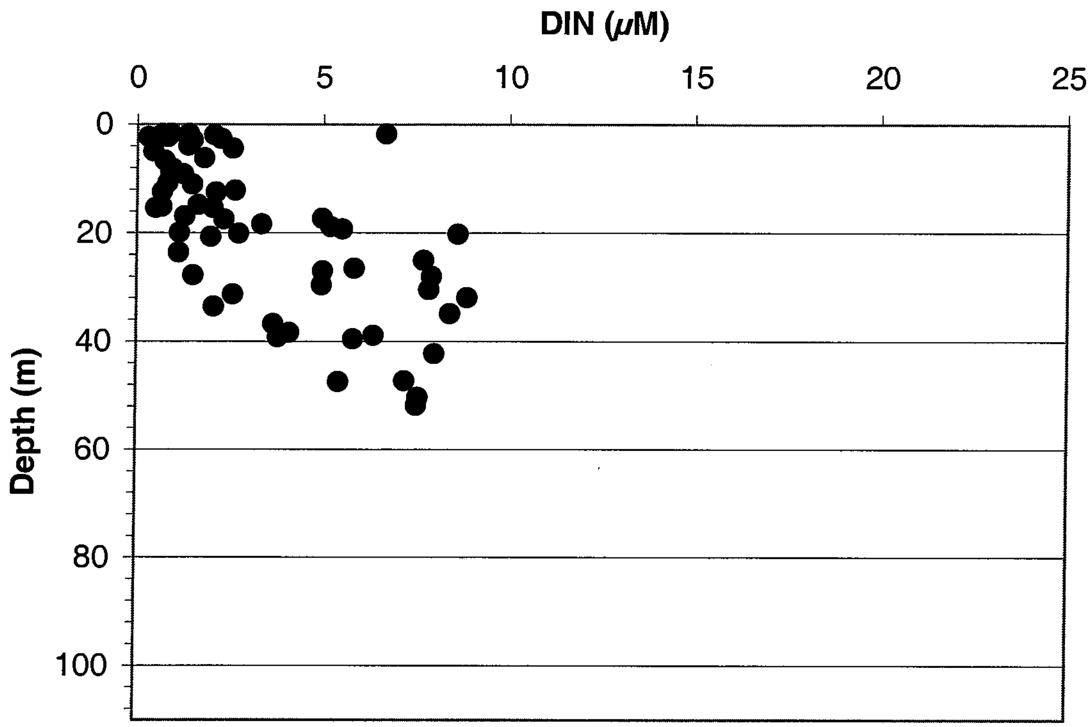
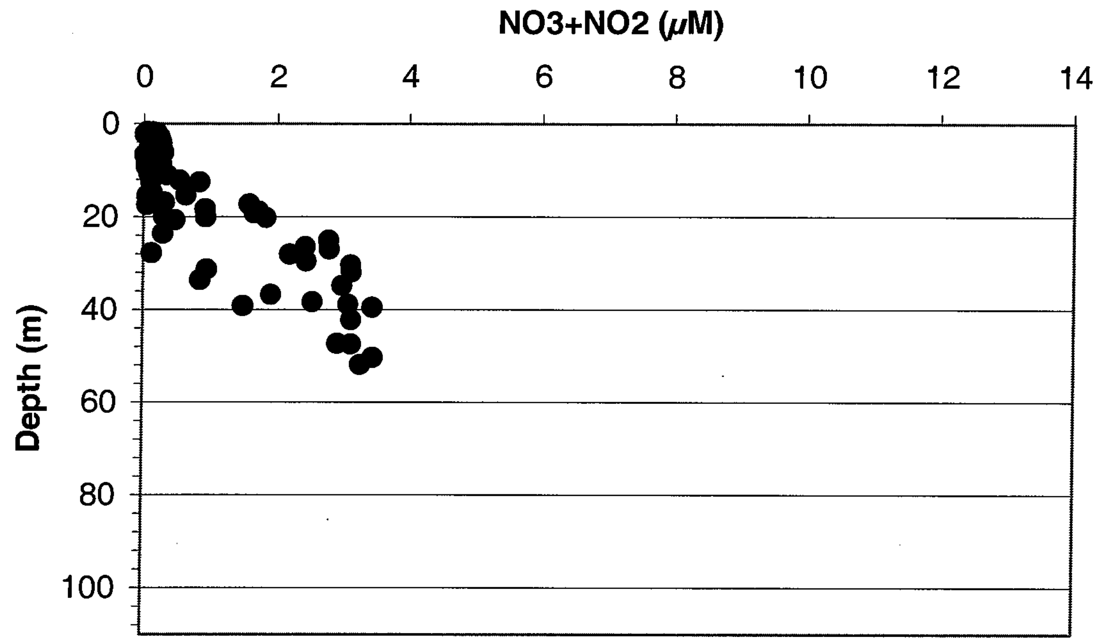


Figure D-76. Depth vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

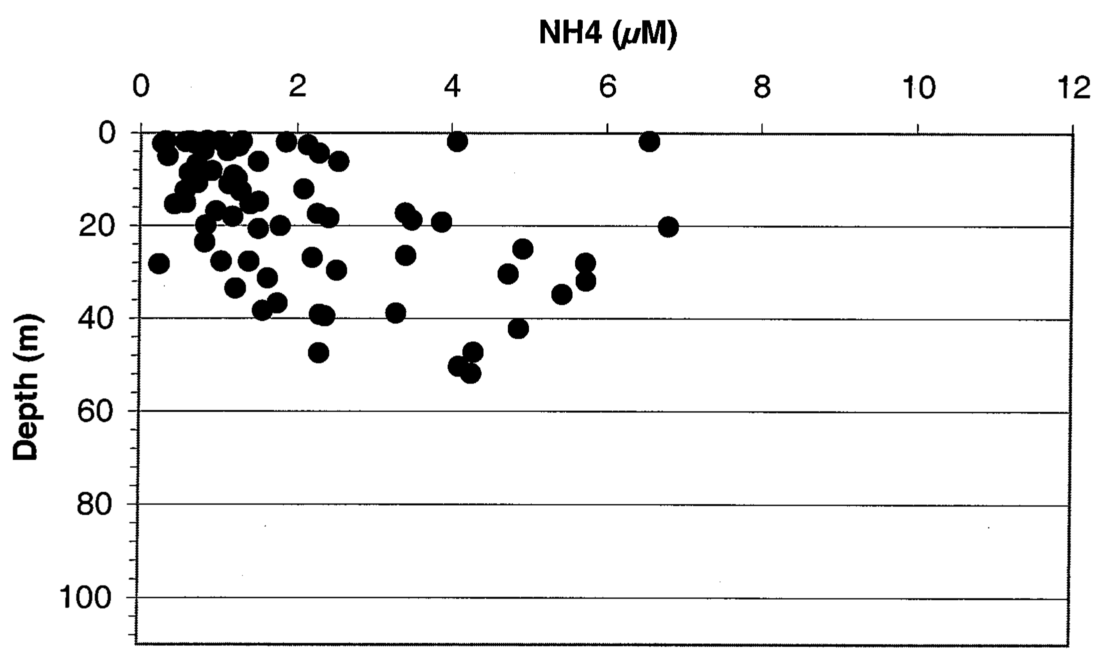
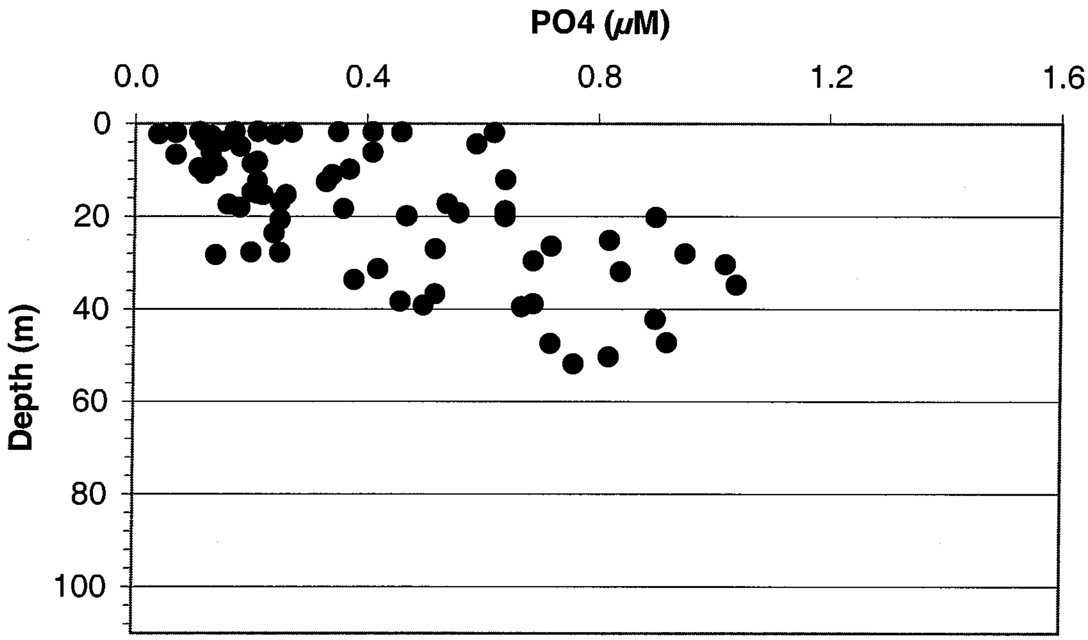


Figure D-77. Depth vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

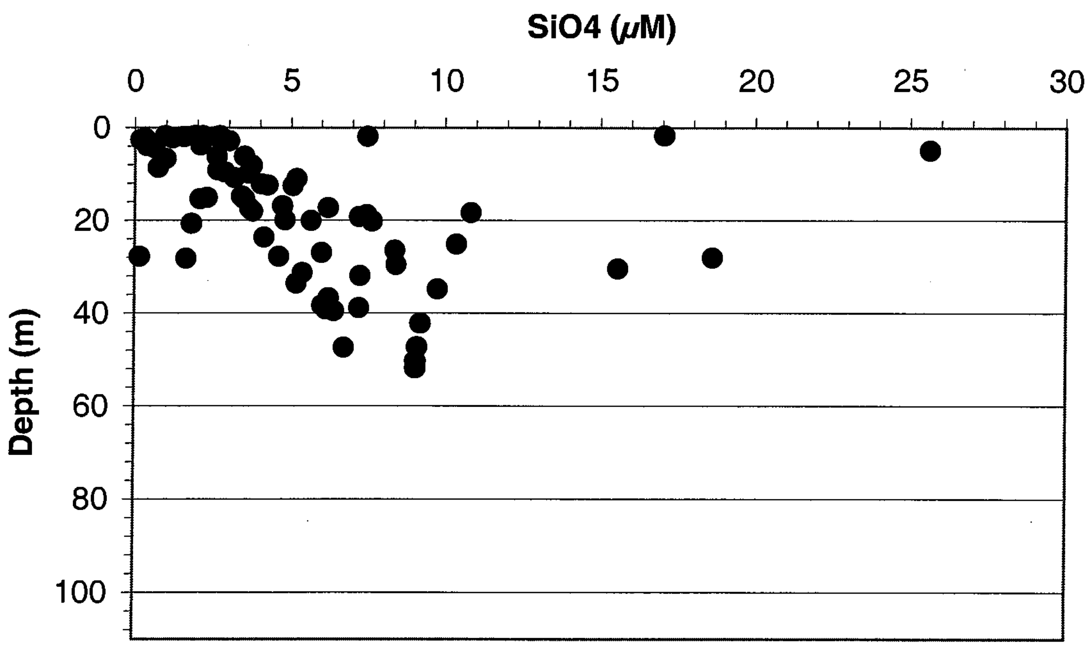
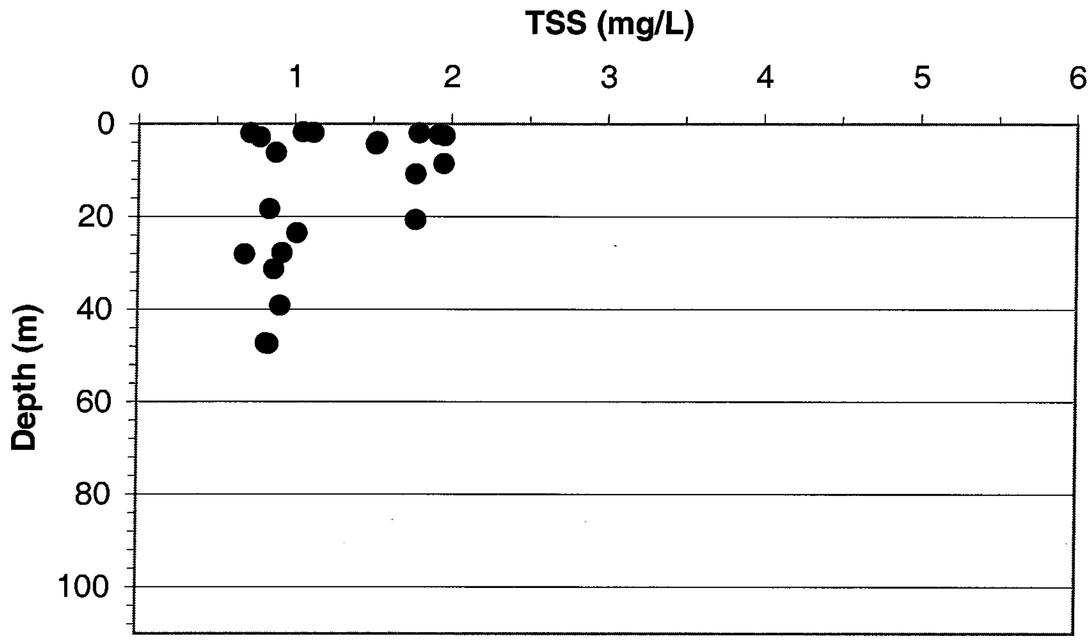


Figure D-78. Depth vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

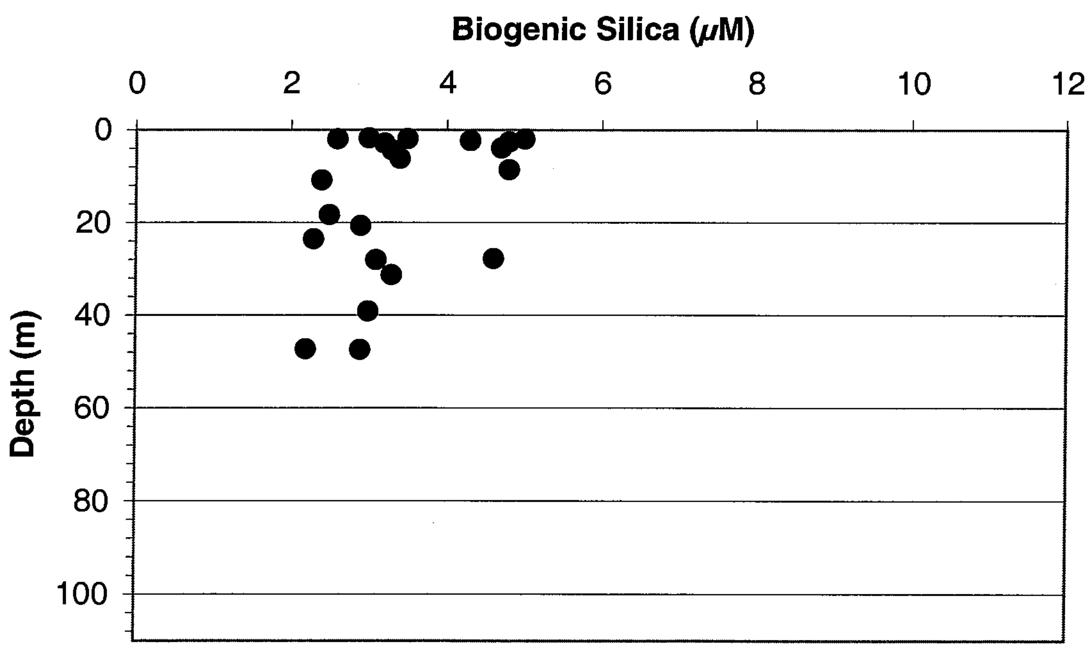
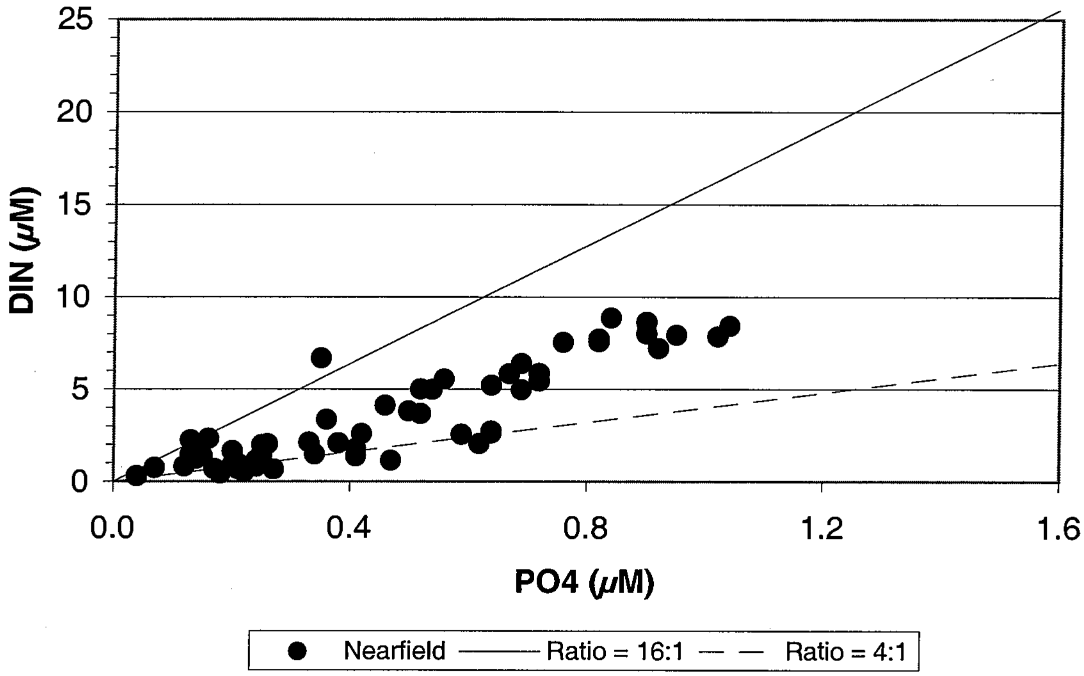


Figure D-79. Depth vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

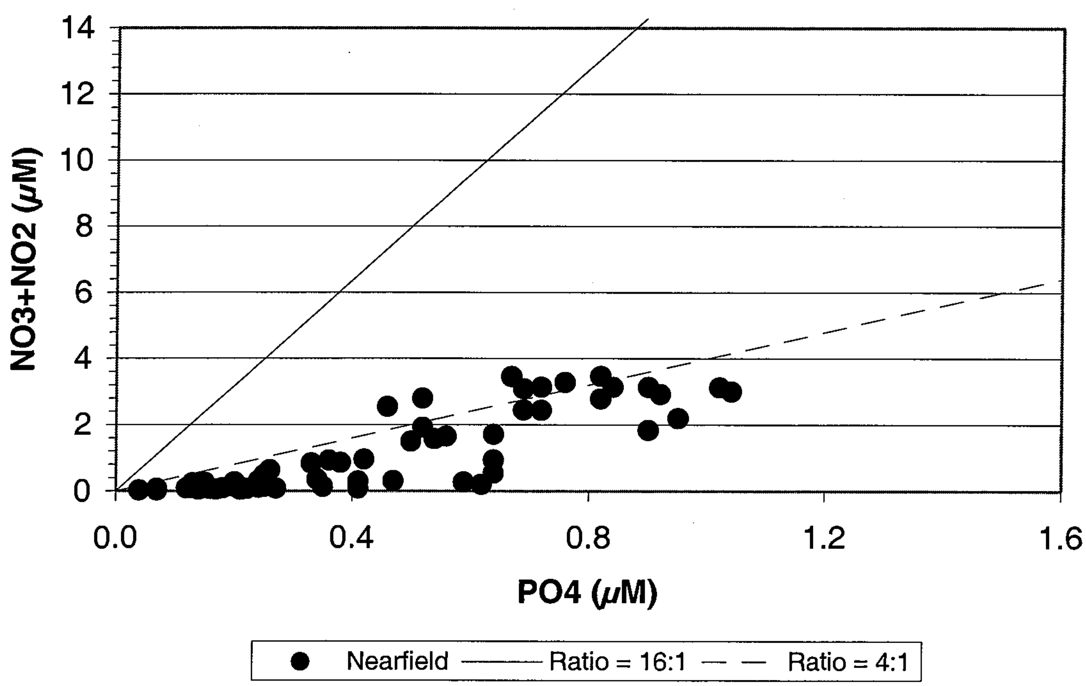


Figure D-80. Nutrient vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

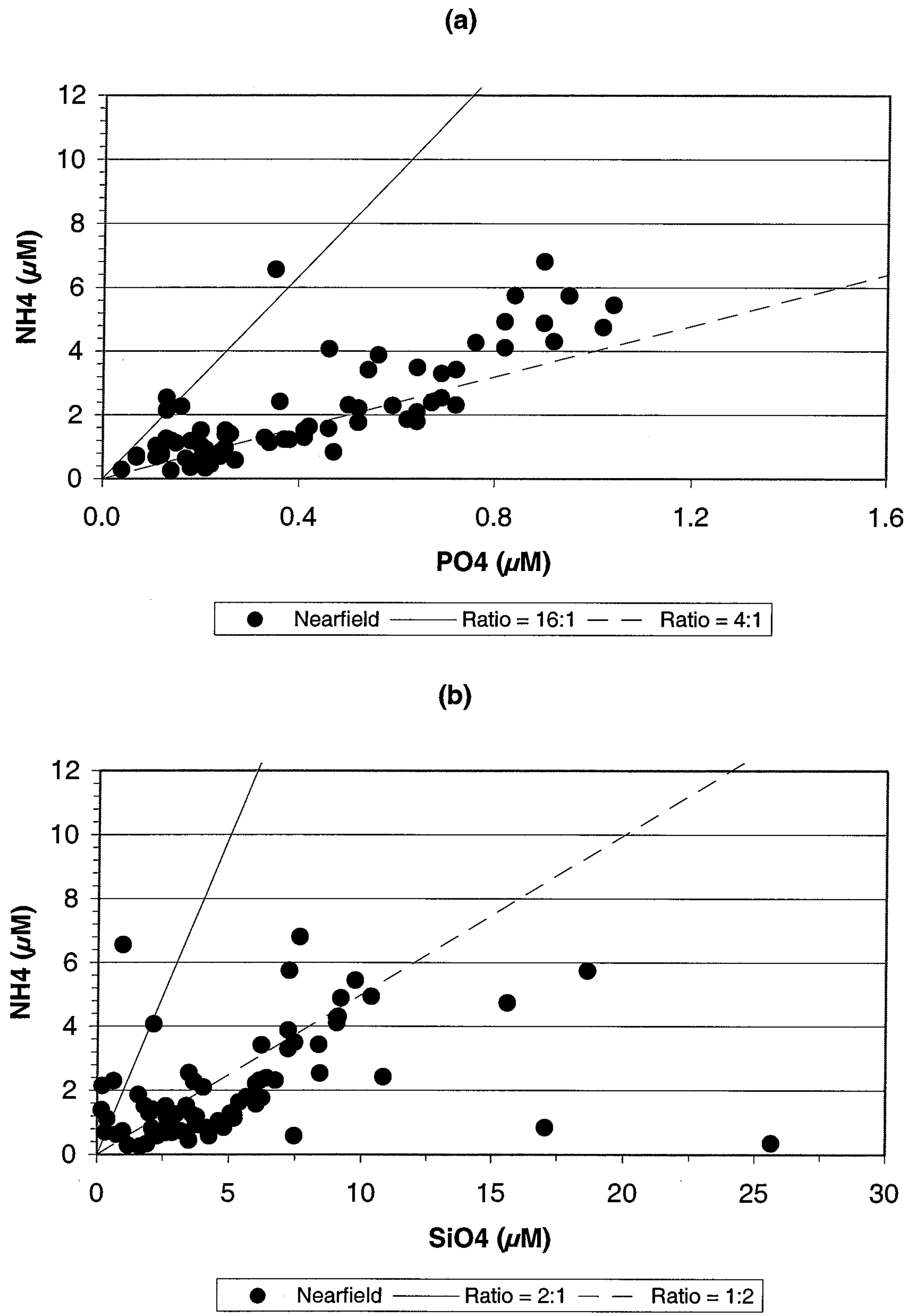
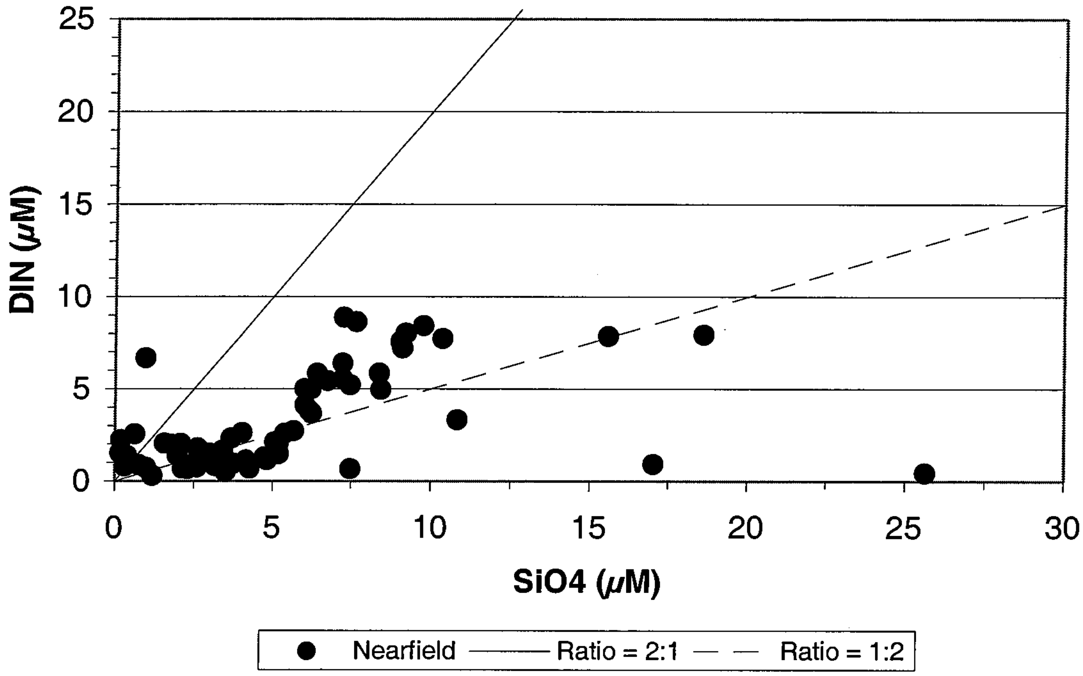


Figure D-81. Nutrient vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

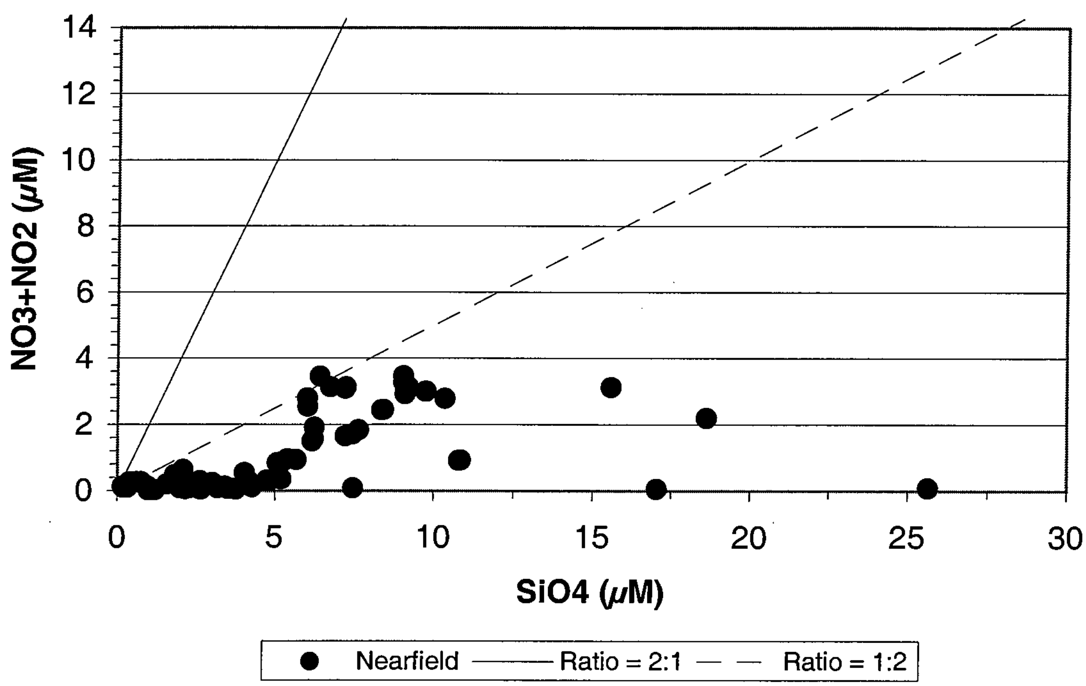
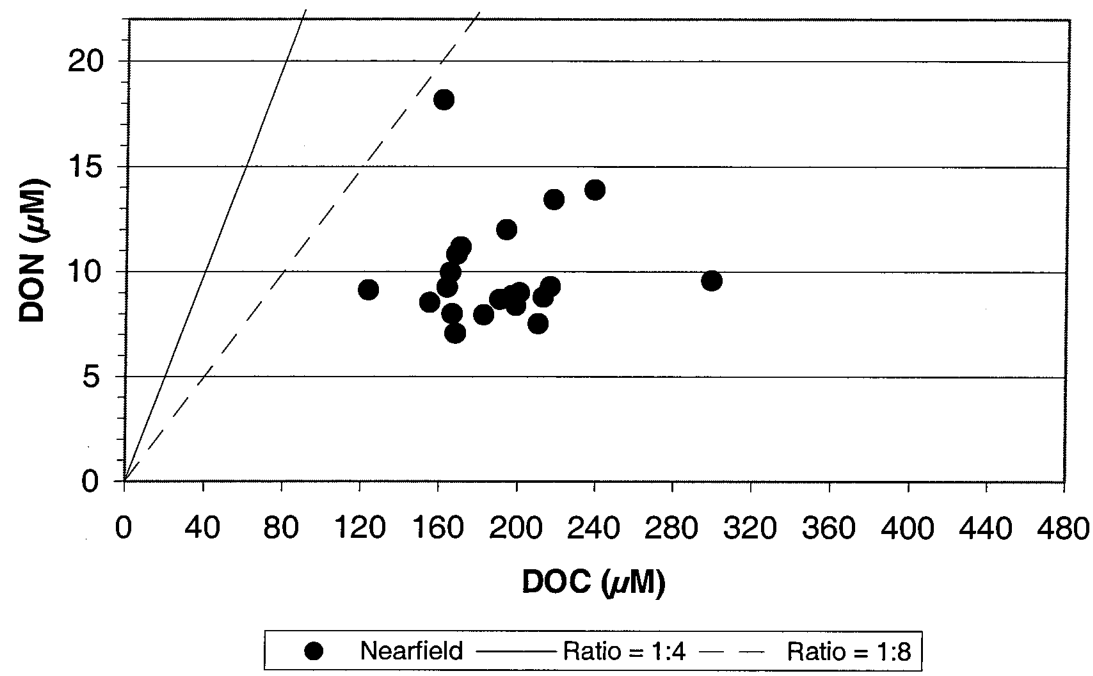


Figure D-82. Nutrient vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

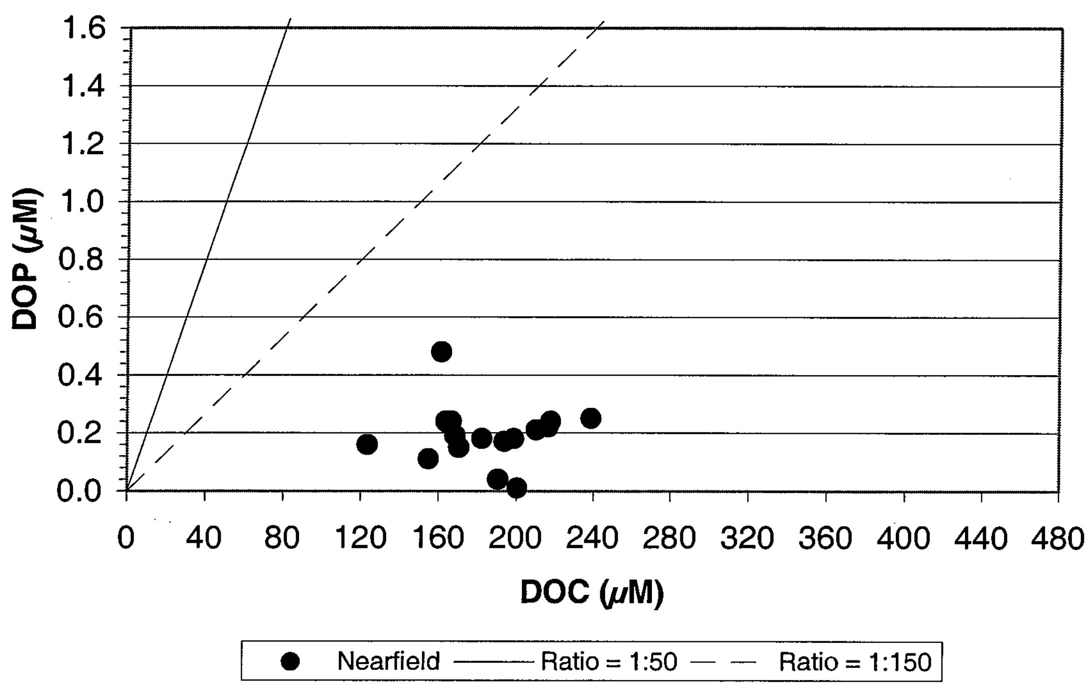
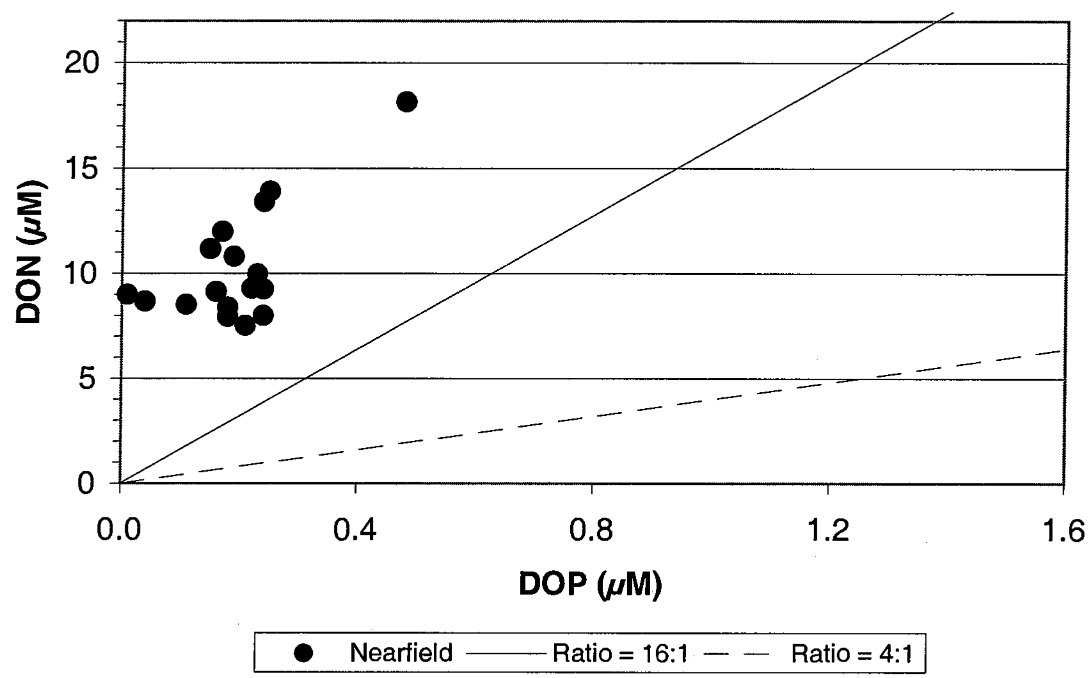


Figure D-83. Nutrient vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

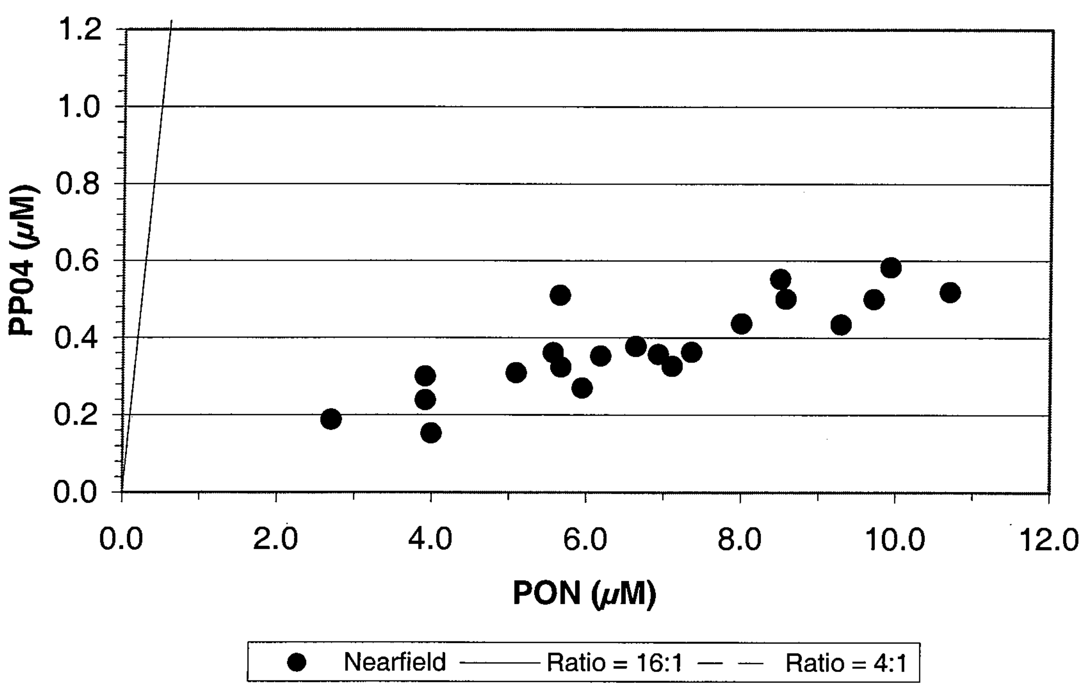
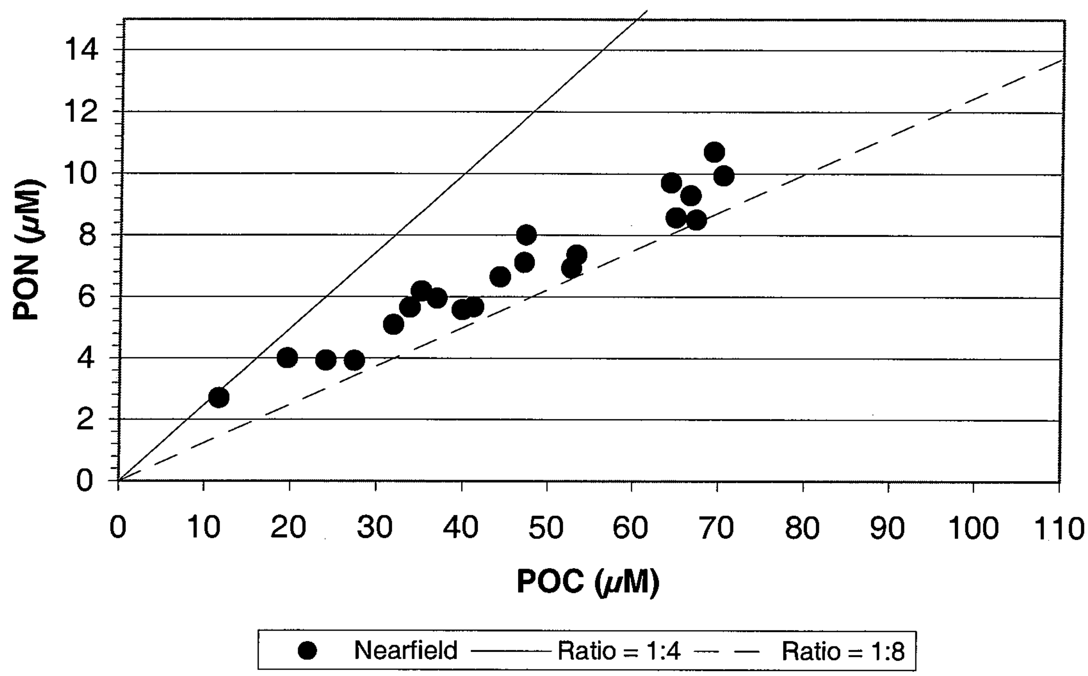


Figure D-84. Nutrient vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

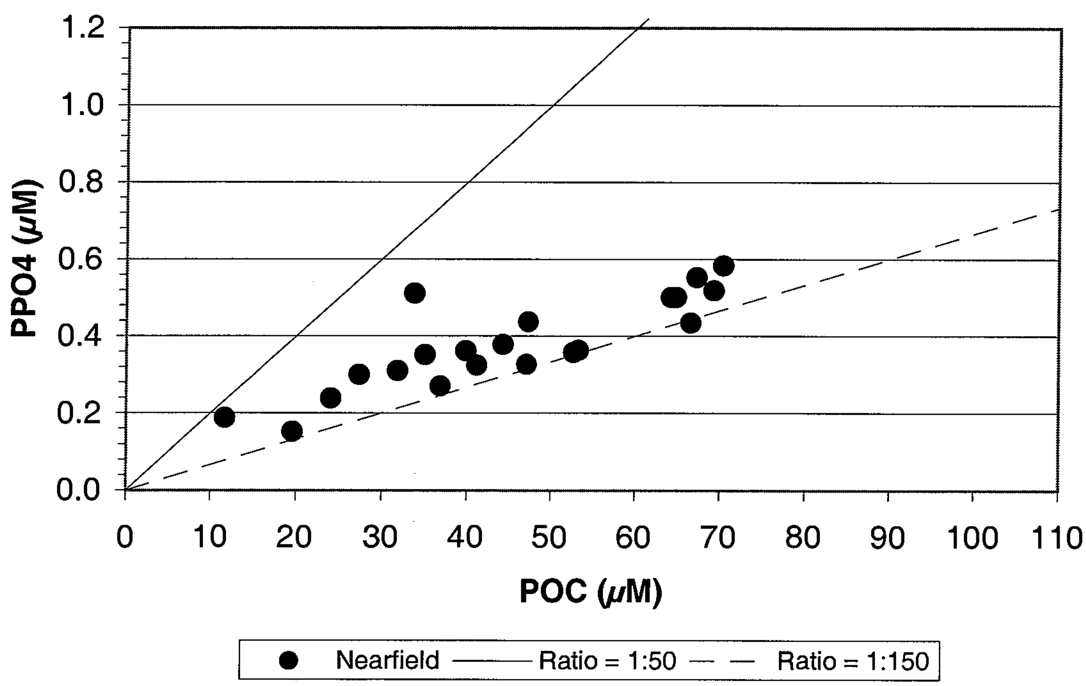
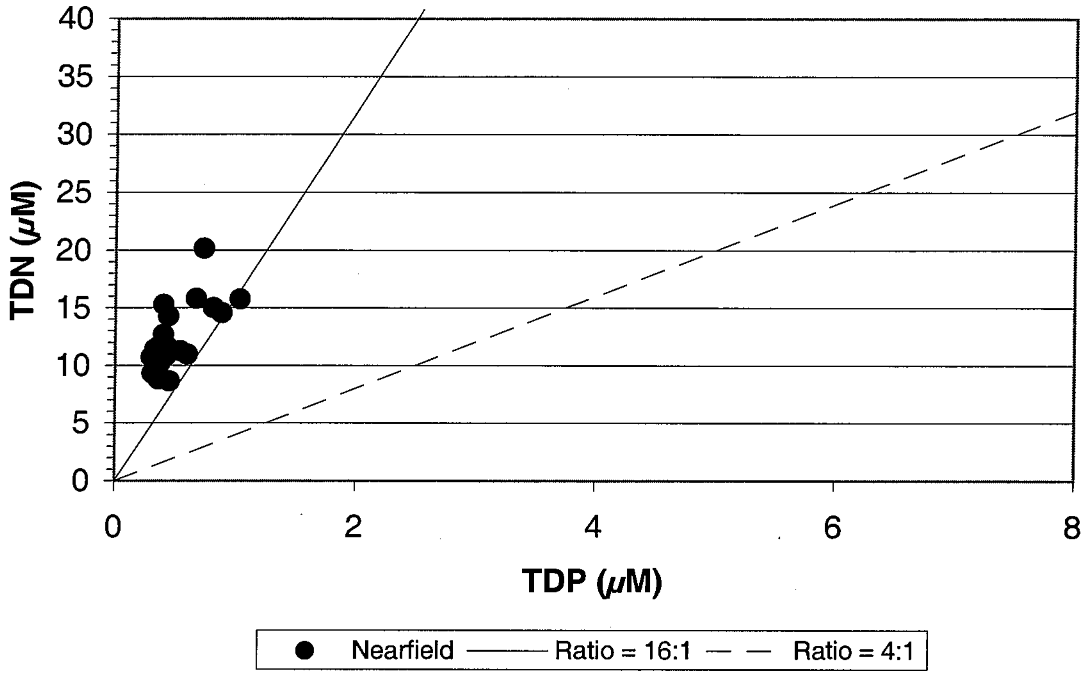


Figure D-85. Nutrient vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

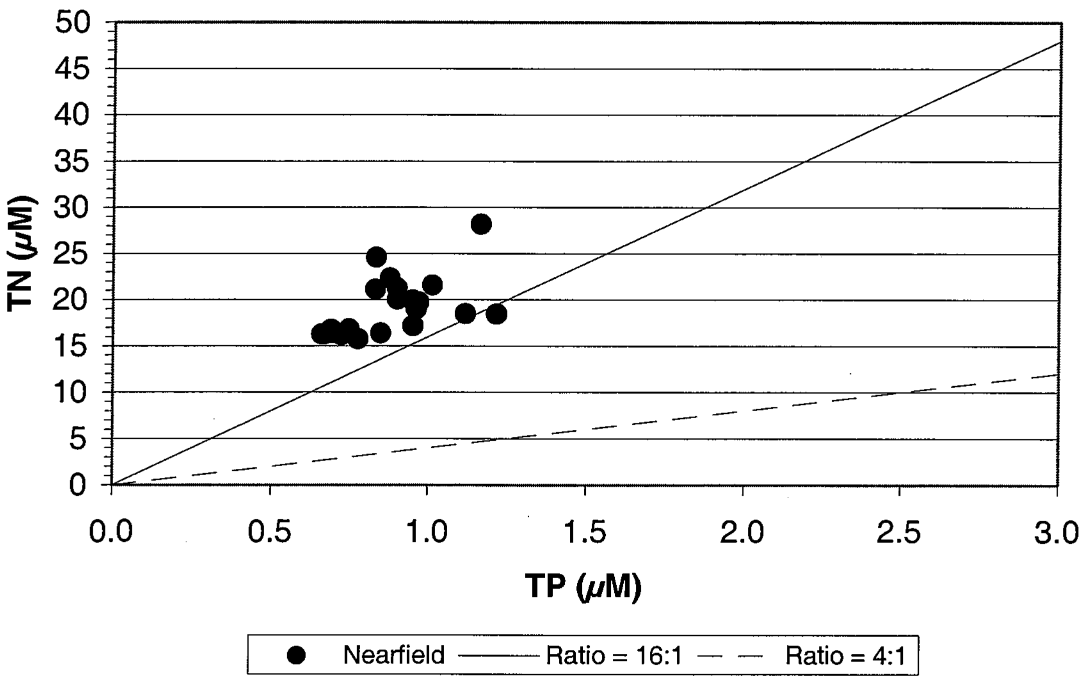
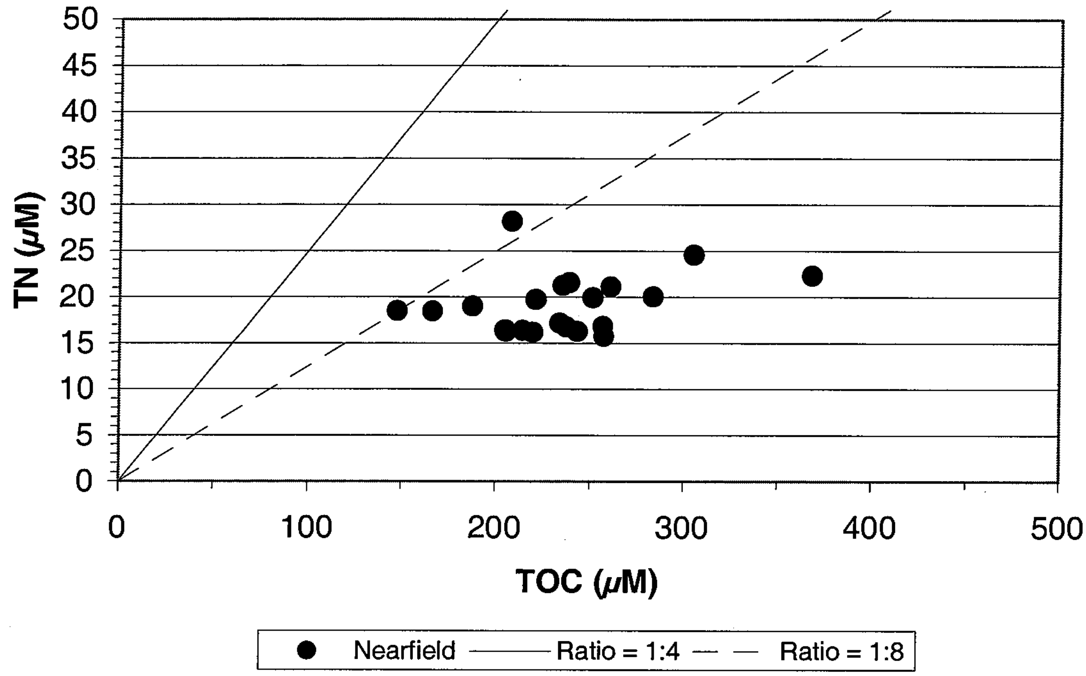


Figure D-86. Nutrient vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

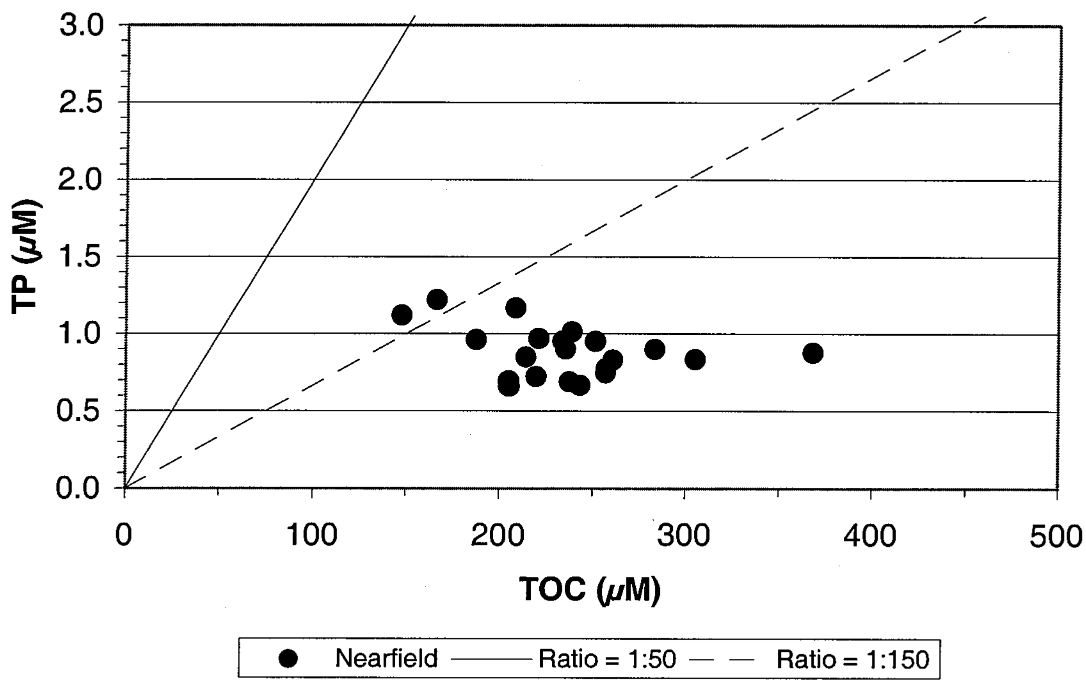


Figure D-87. Nutrient vs. Nutrient Plots for Nearfield Survey WN006, (May 00)

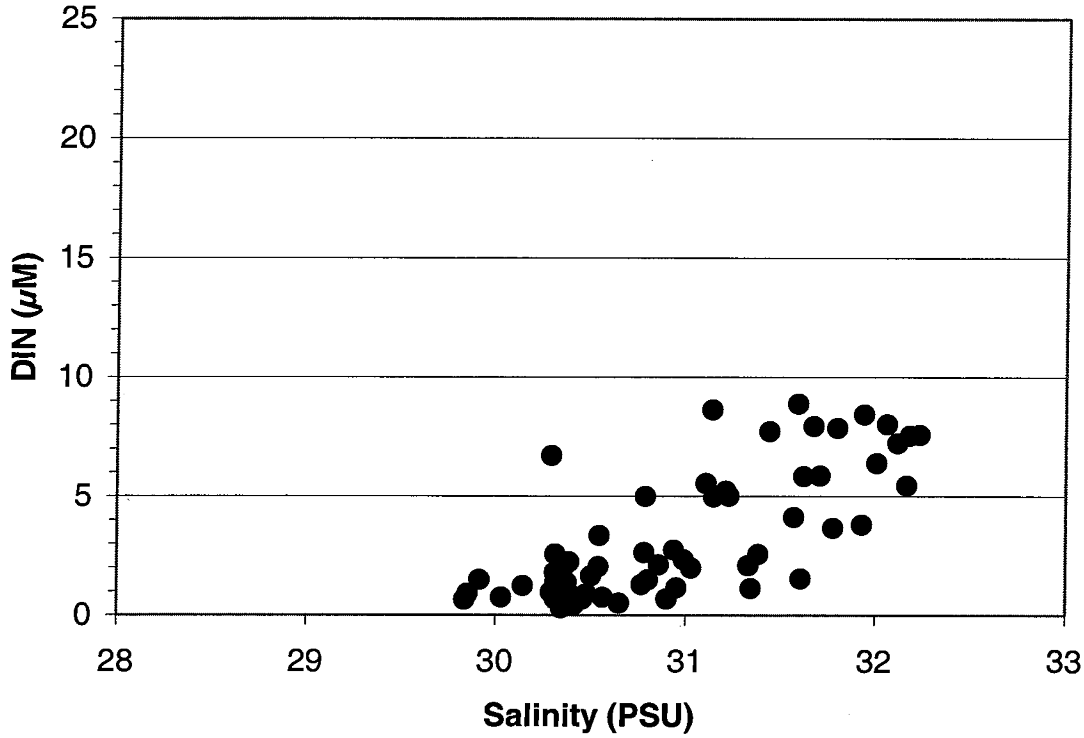
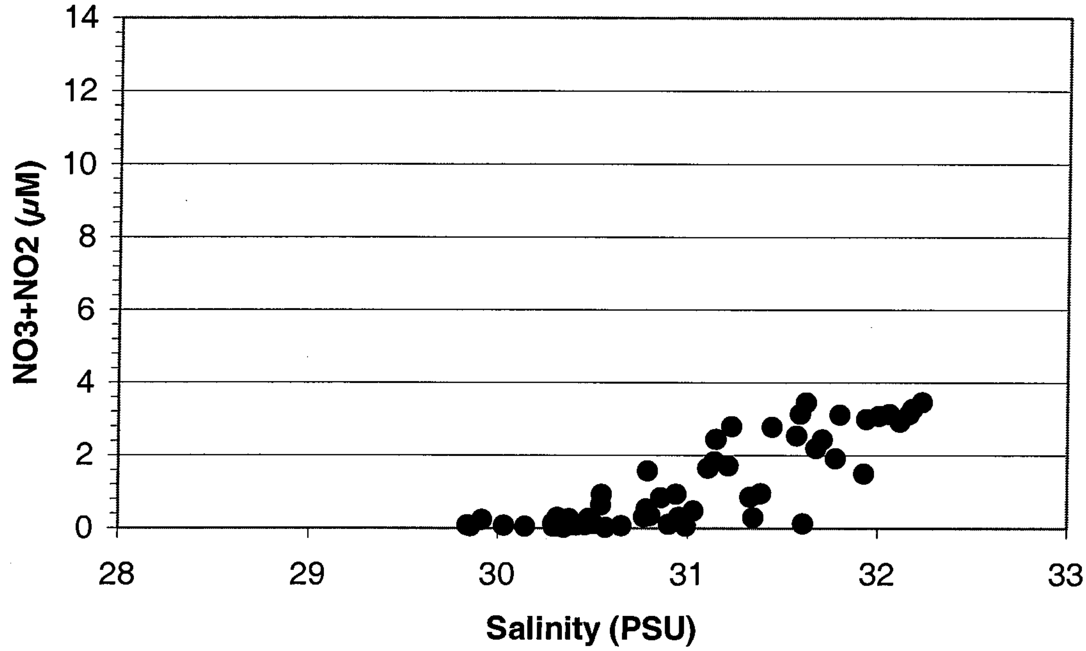


Figure D-88. Nutrient vs. Salinity Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

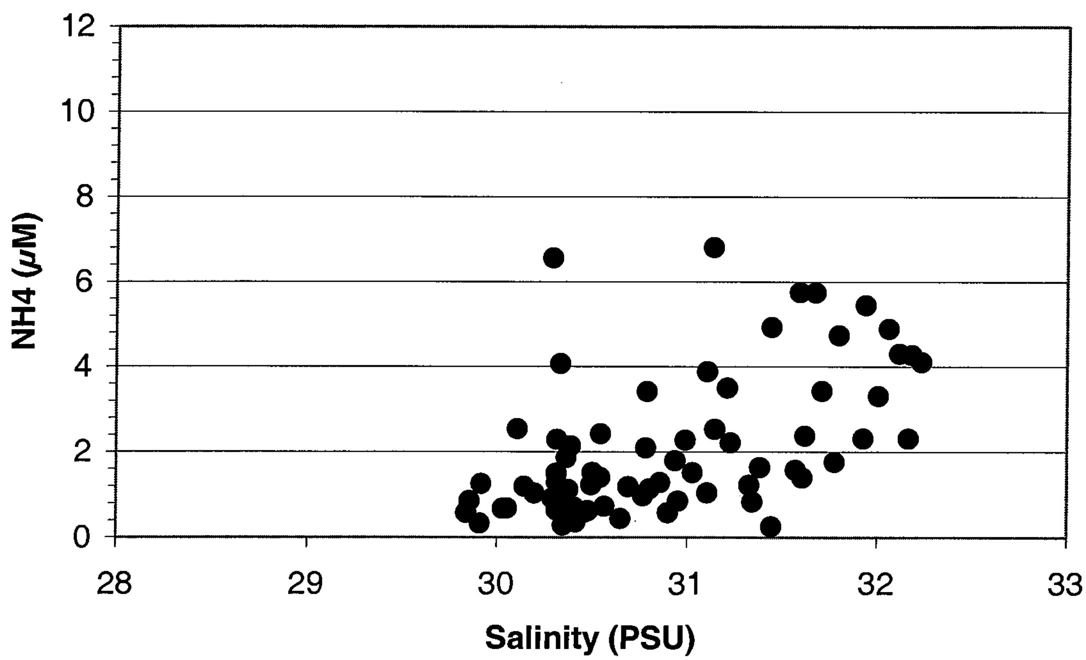
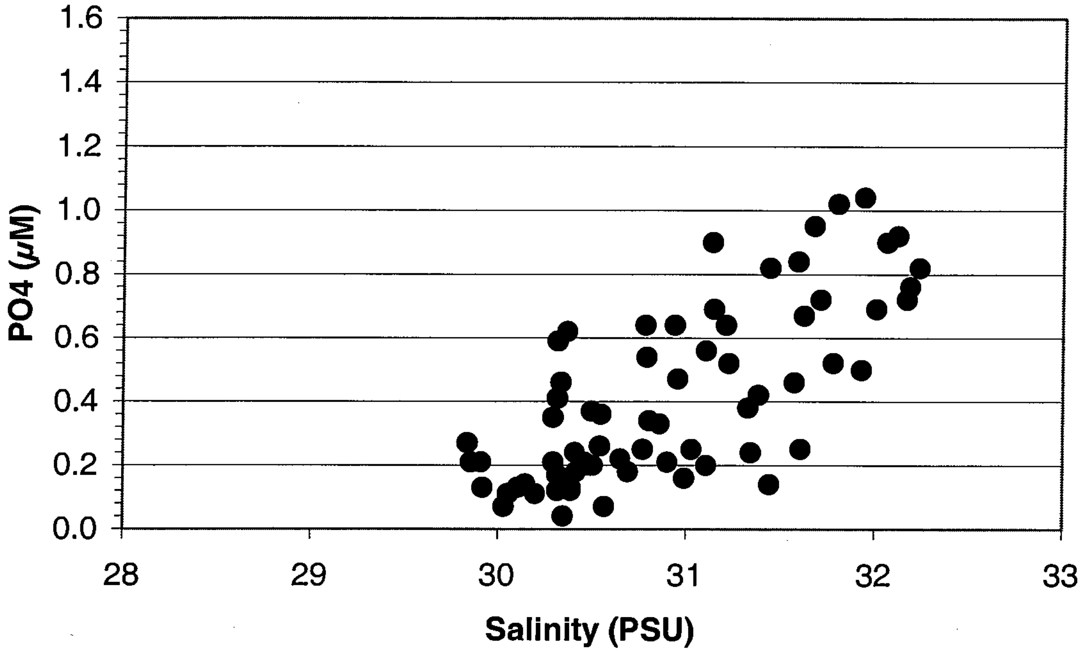


Figure D-89. Nutrient vs. Salinity Plots for Nearfield Survey WN006, (May 00)

(a)



(b)

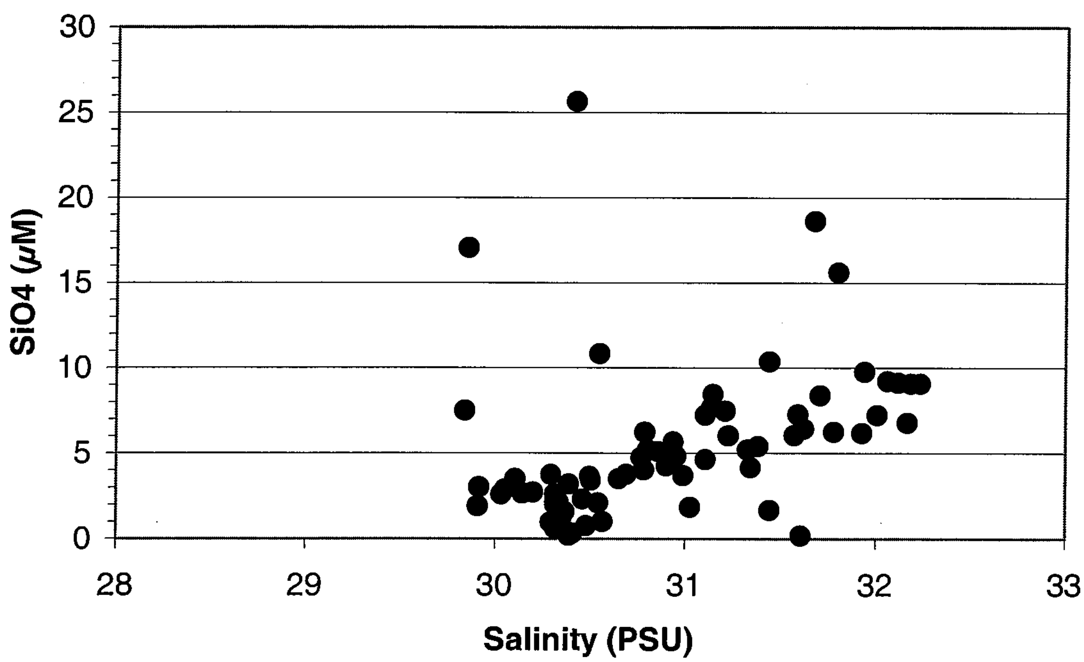


Figure D-90. Nutrient vs. Salinity Plots for Nearfield Survey WN006, (May 00)

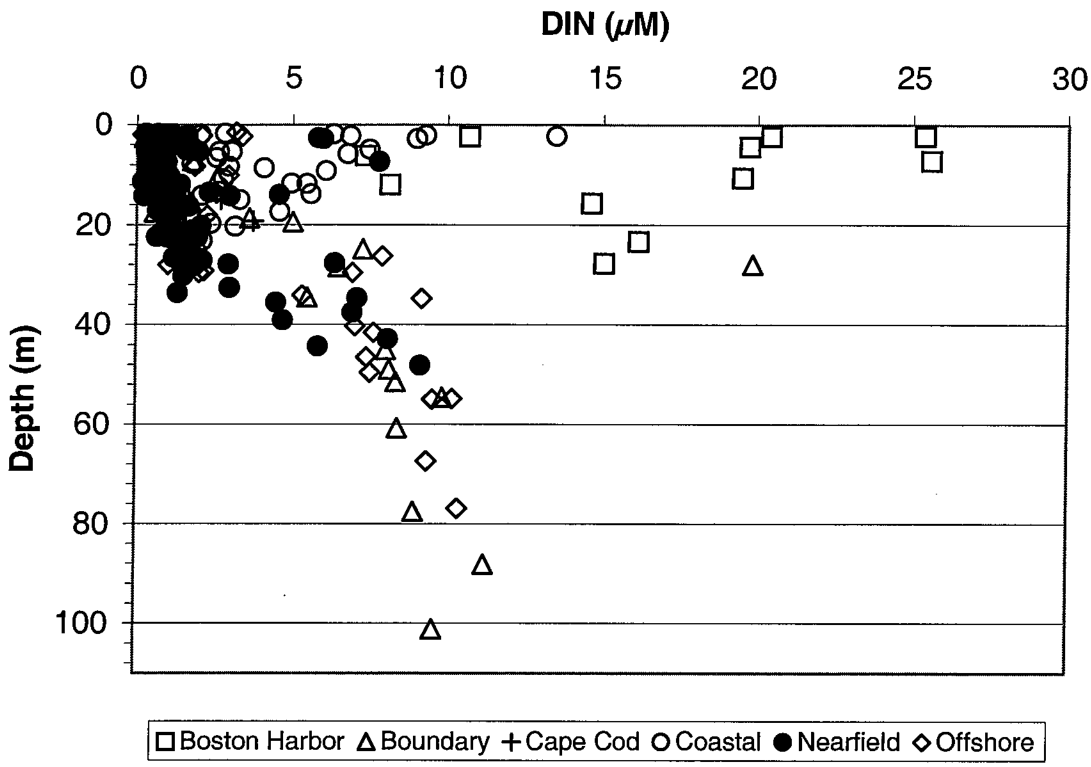
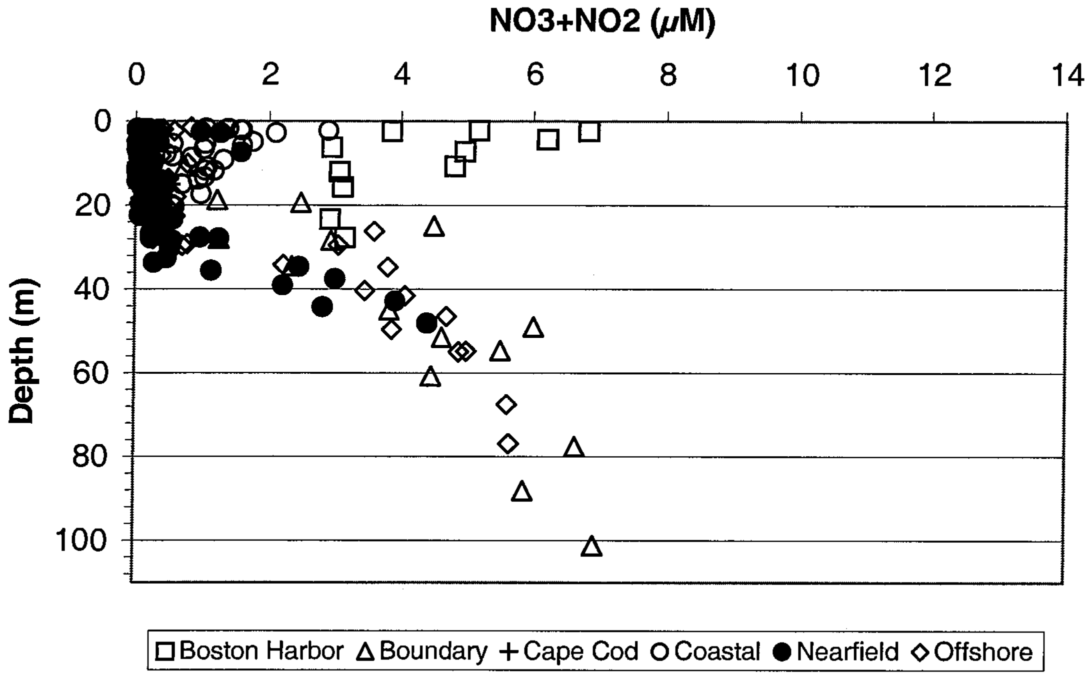


Figure D-91. Depth vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

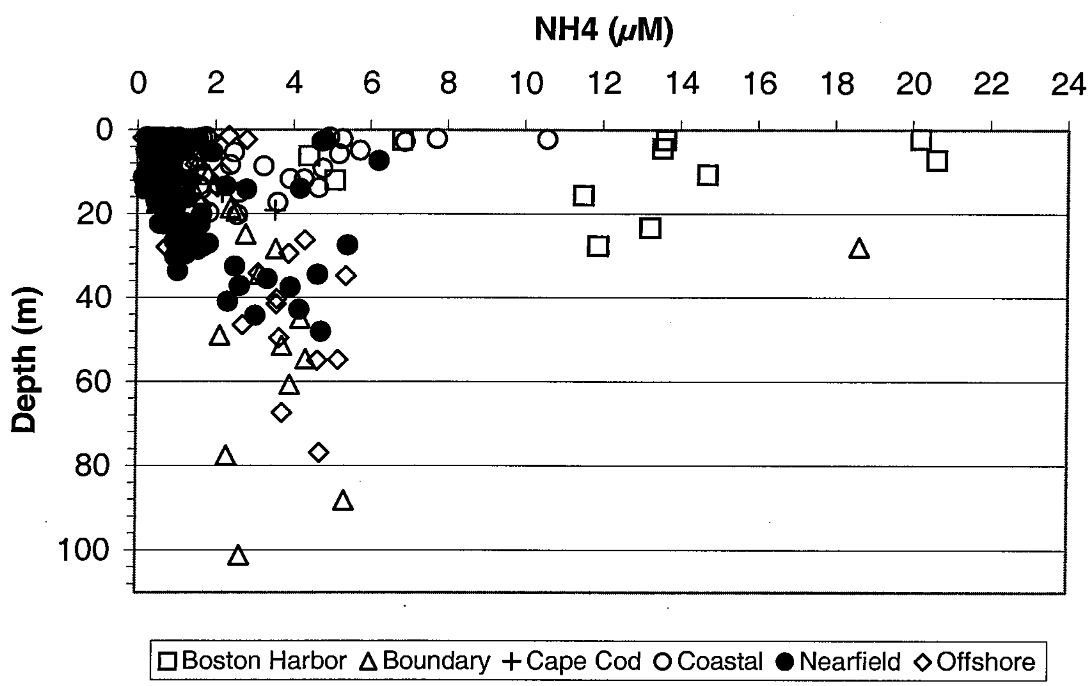
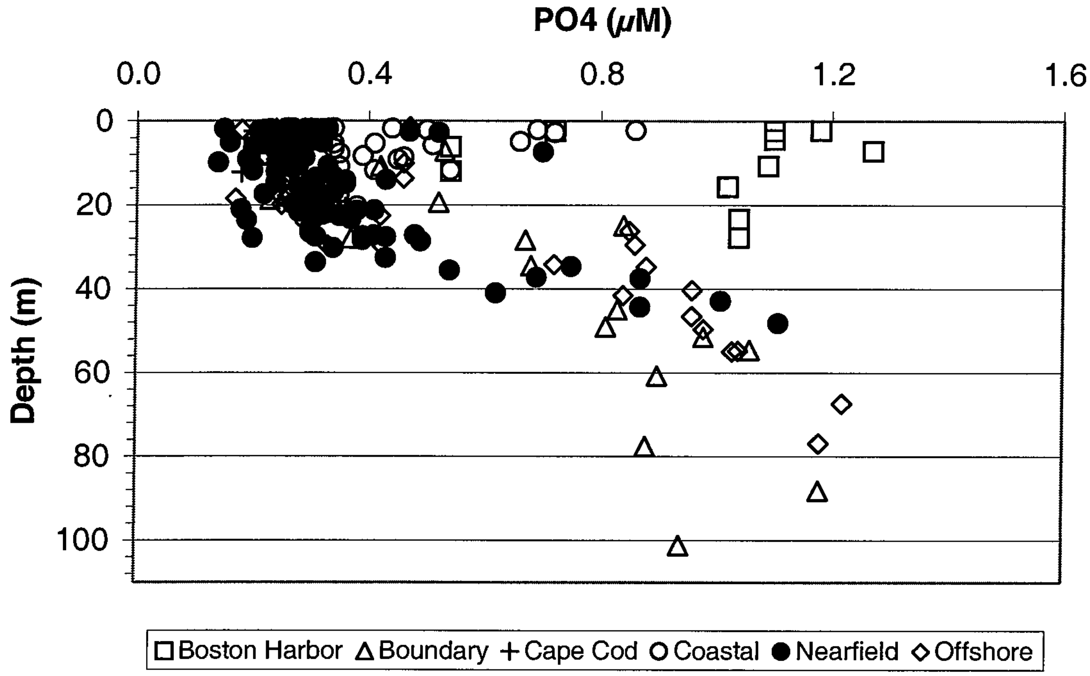


Figure D-92. Depth vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

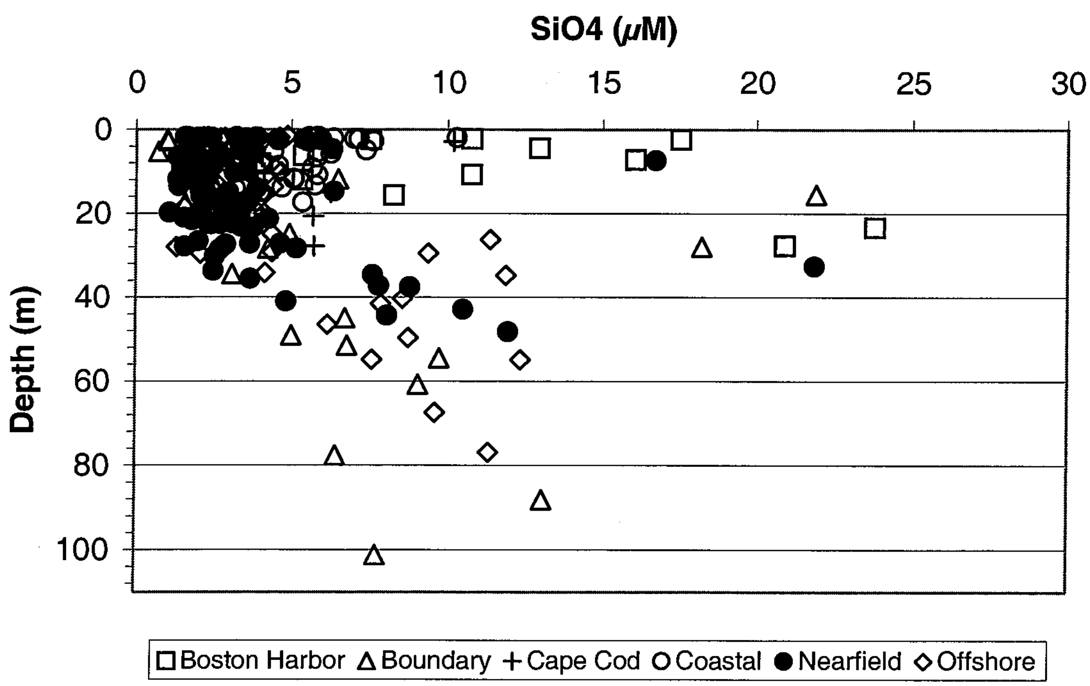
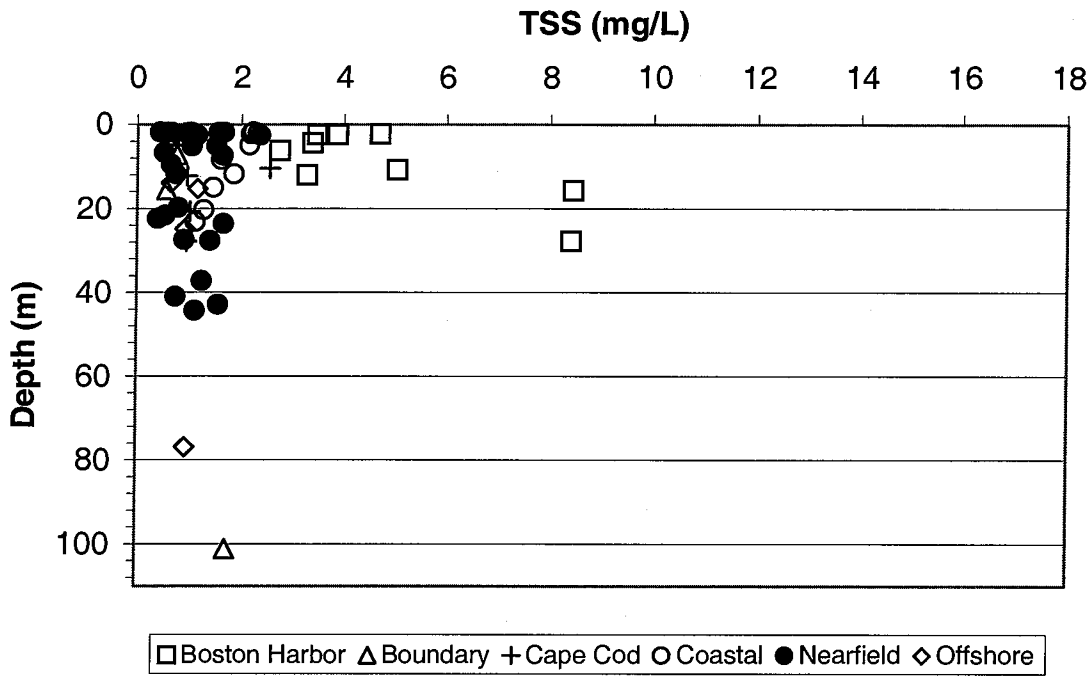


Figure D-93. Depth vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

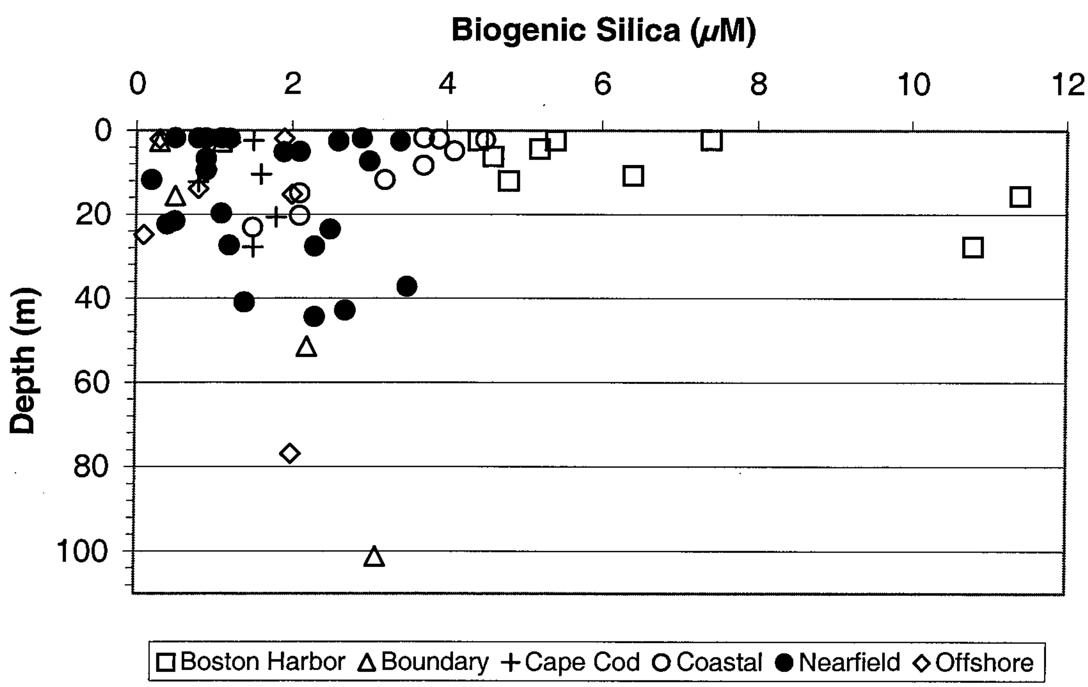
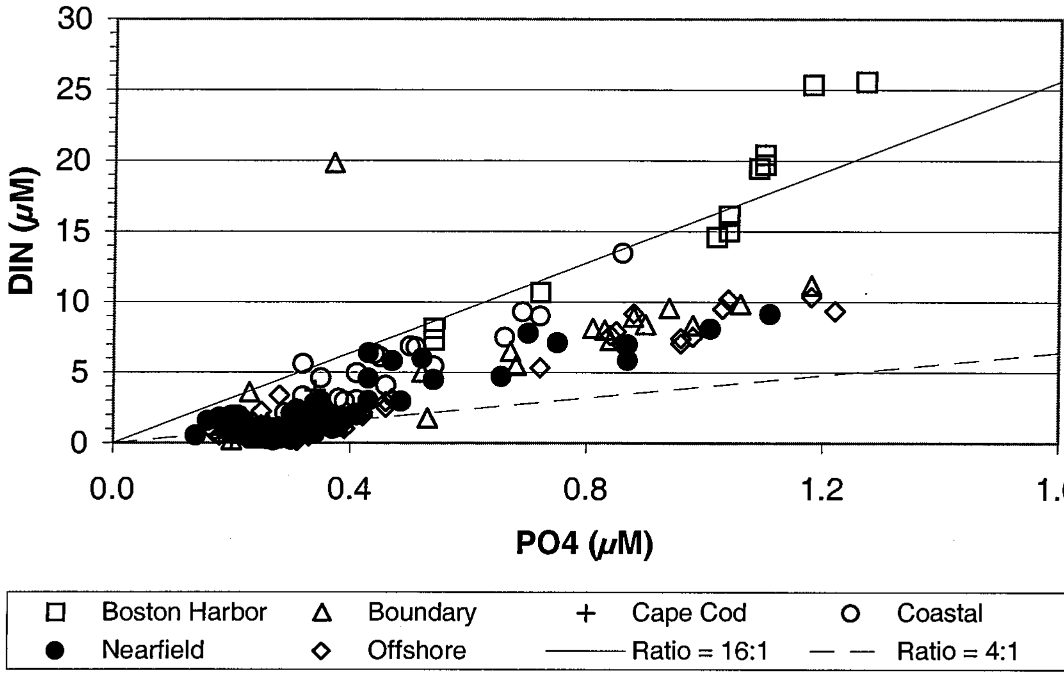


Figure D-94. Depth vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

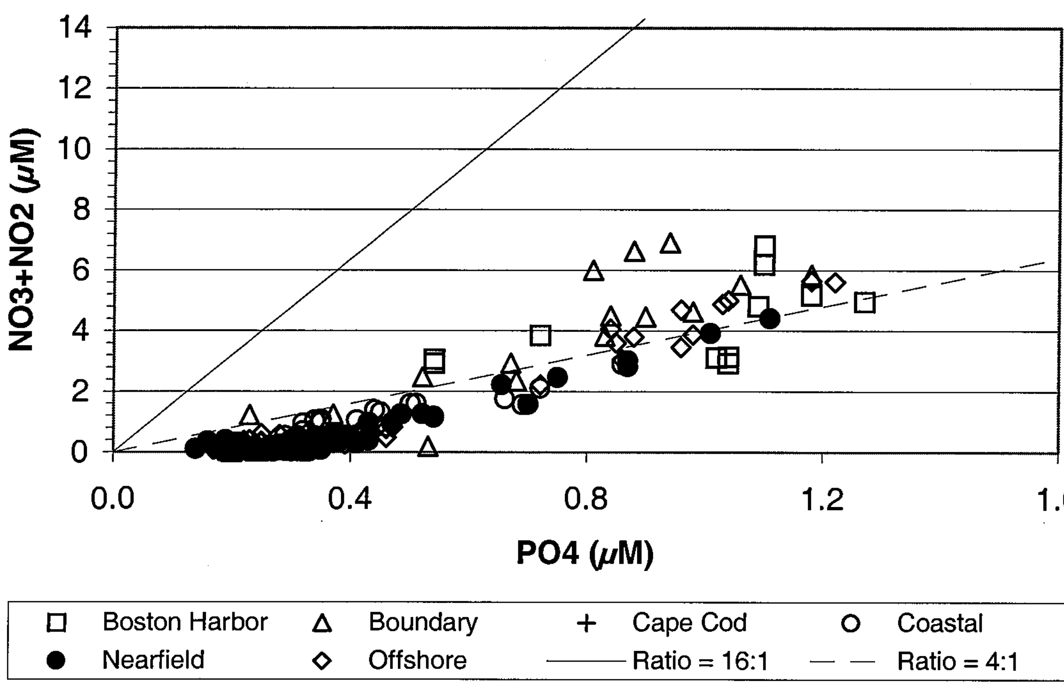
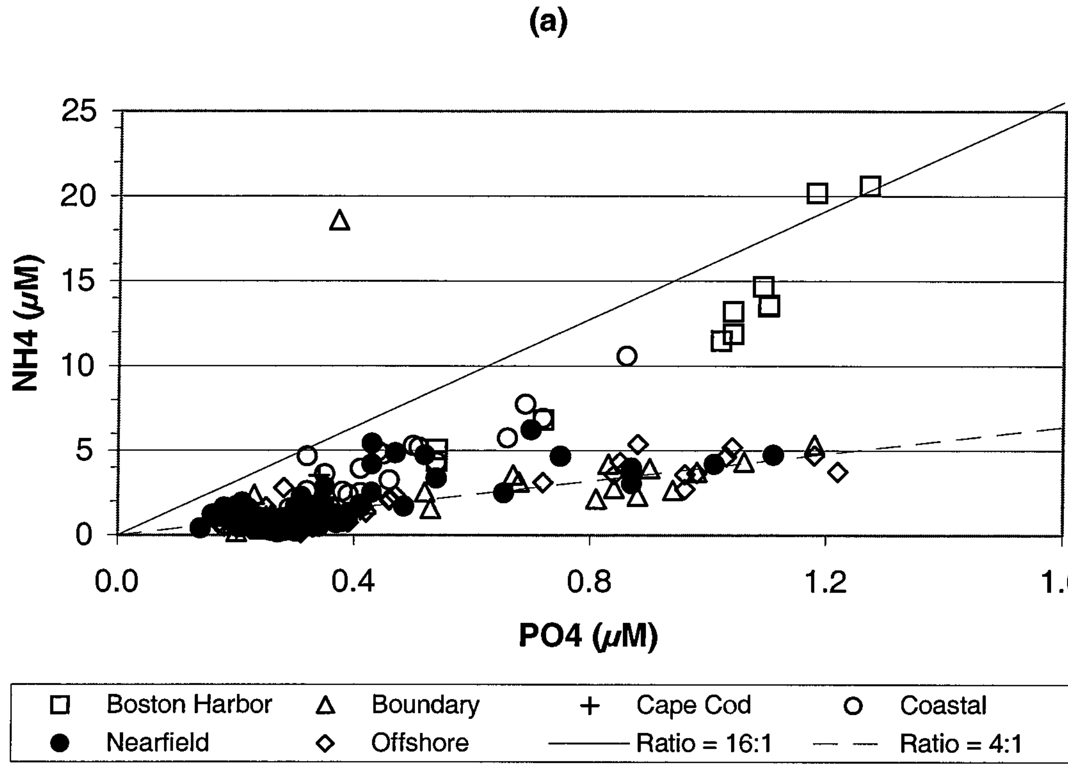


Figure D-95. Nutrient vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)



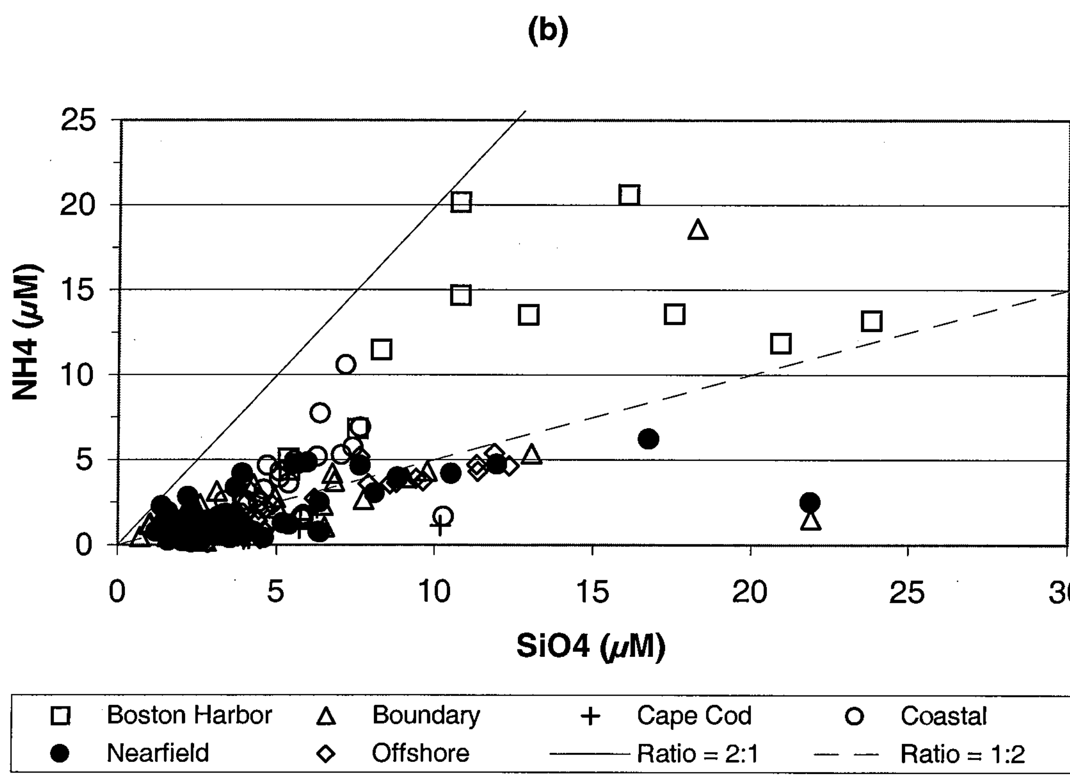
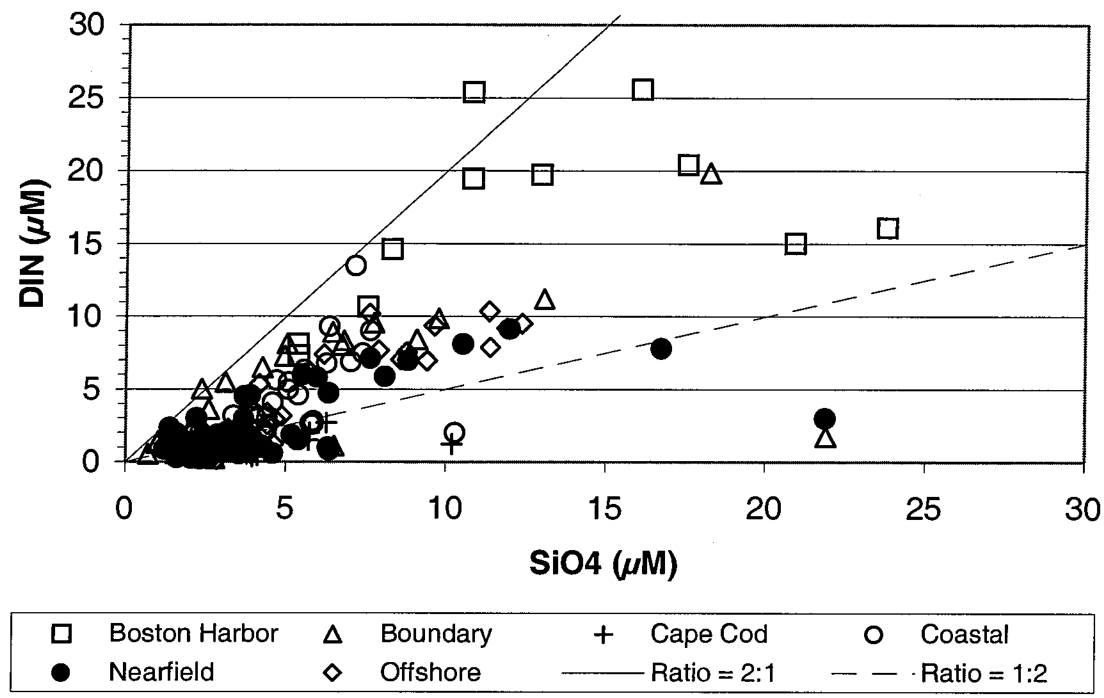


Figure D-96. Nutrient vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

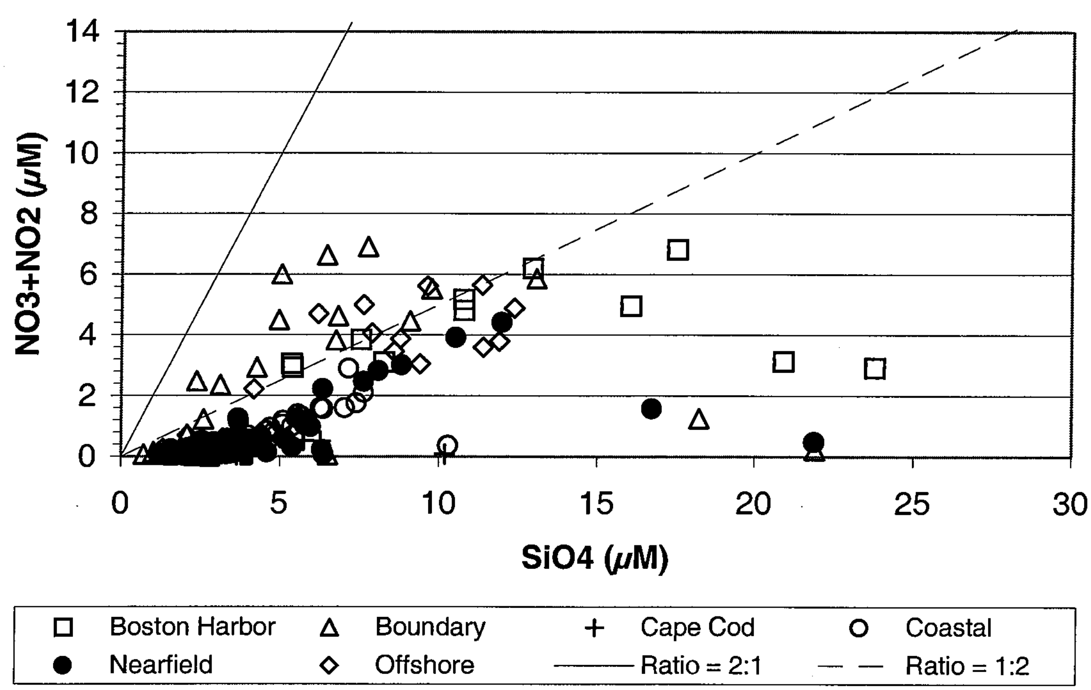
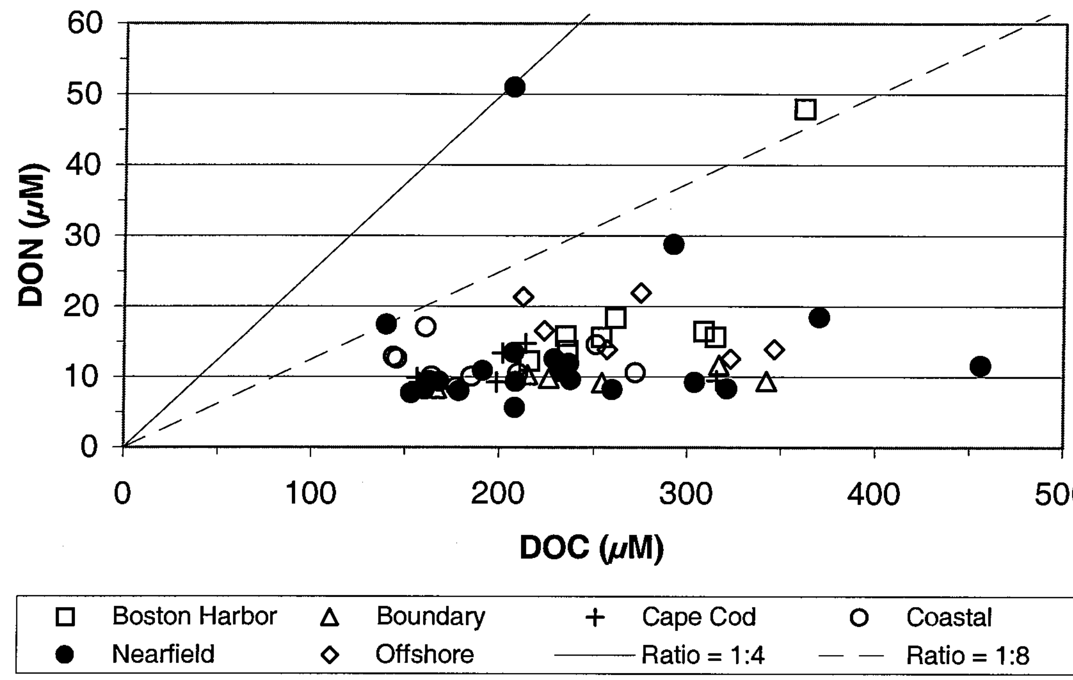


Figure D-97. Nutrient vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

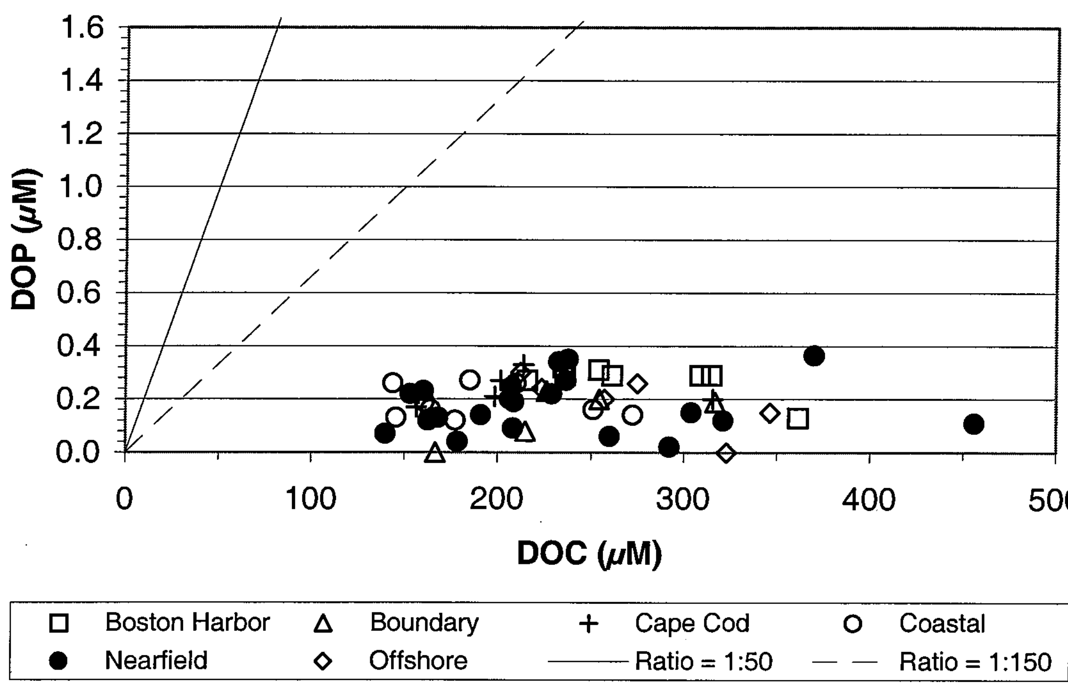
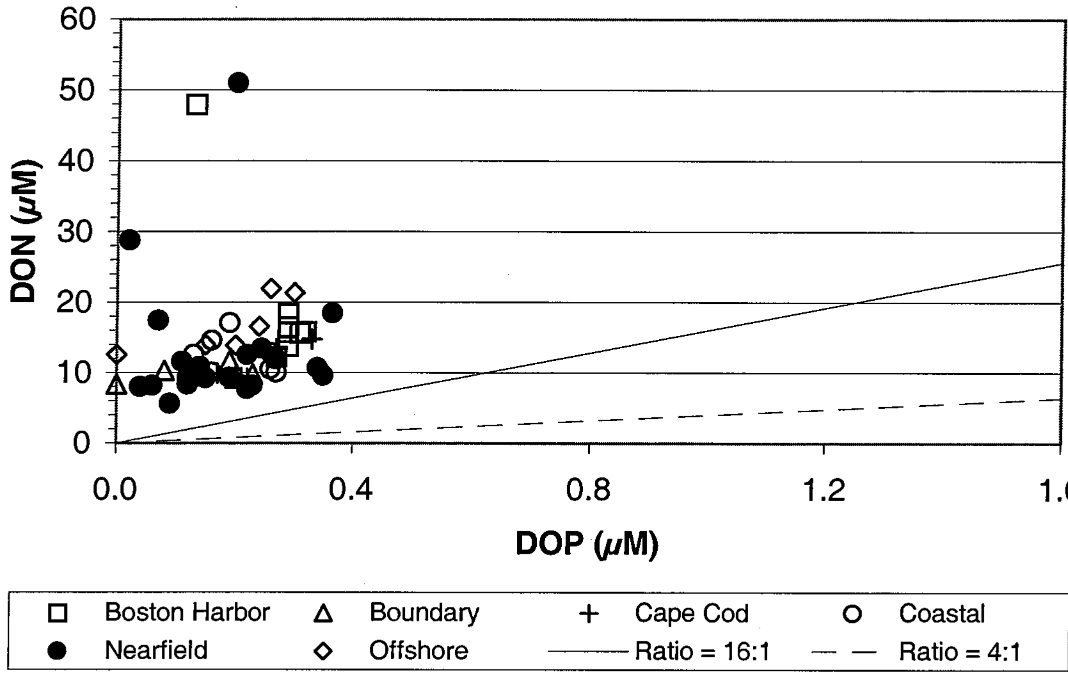


Figure D-98. Nutrient vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

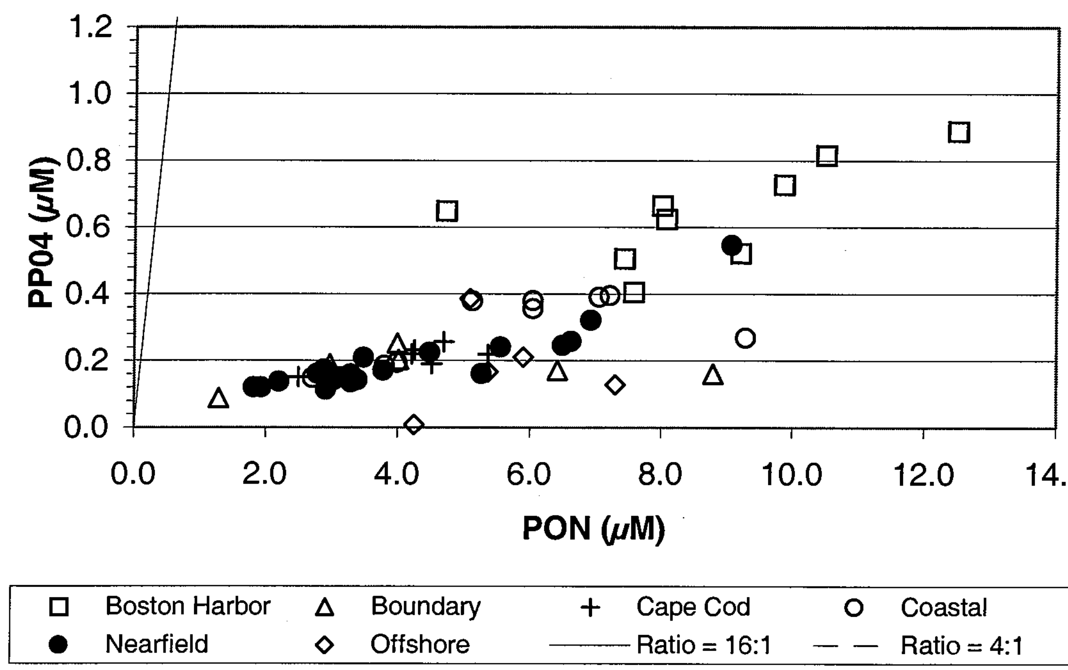
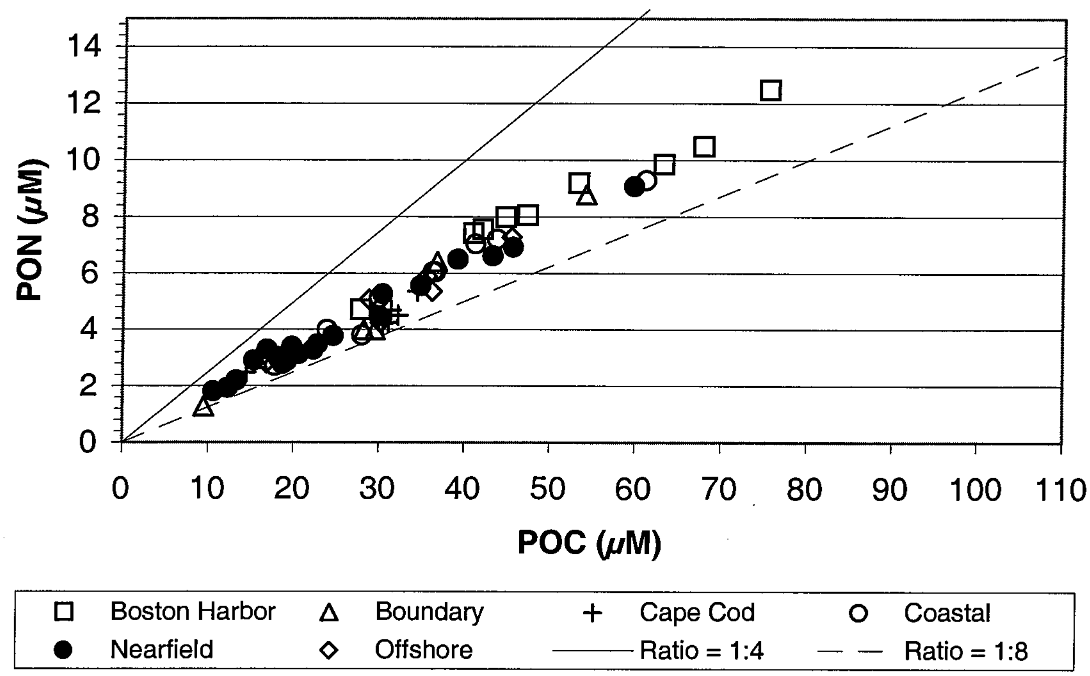


Figure D-99. Nutrient vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

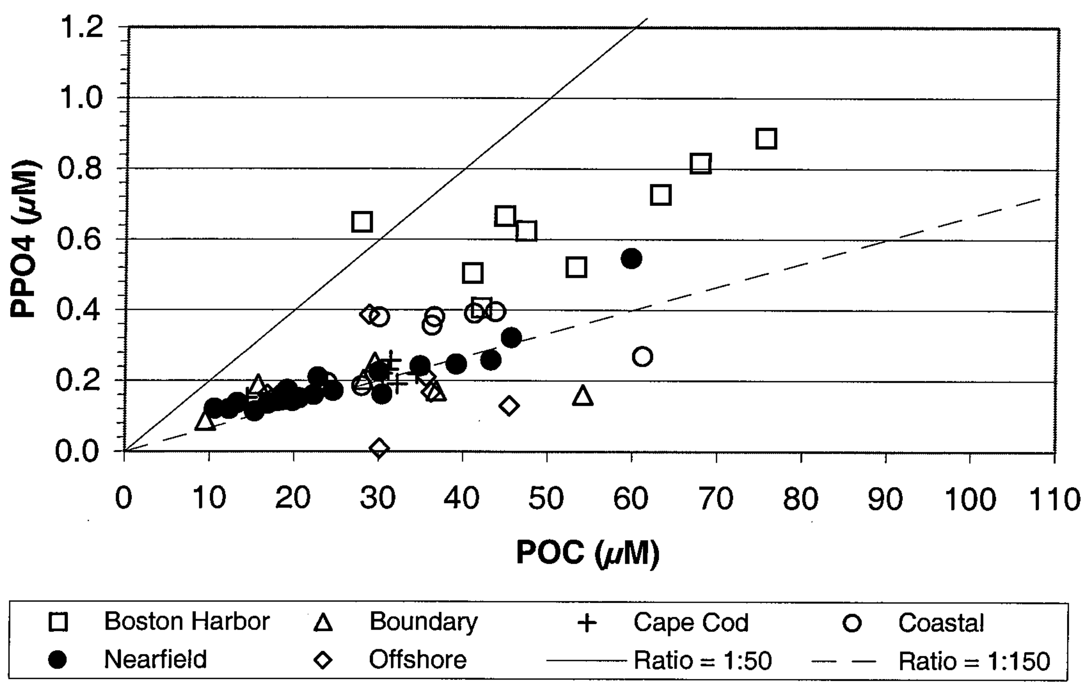
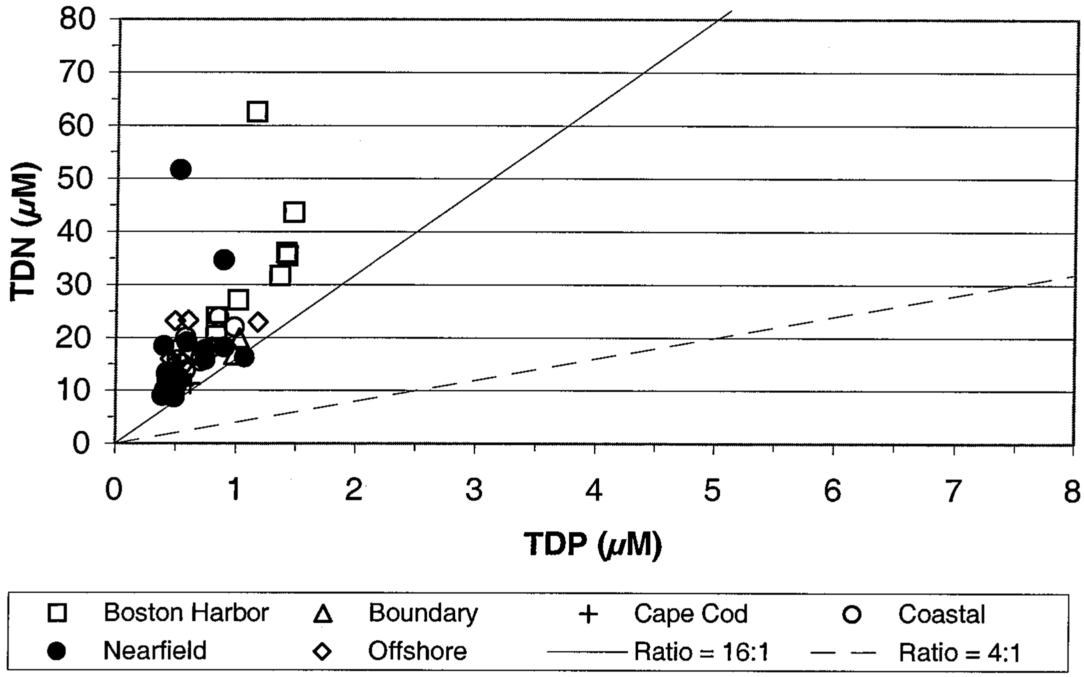


Figure D-100. Nutrient vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

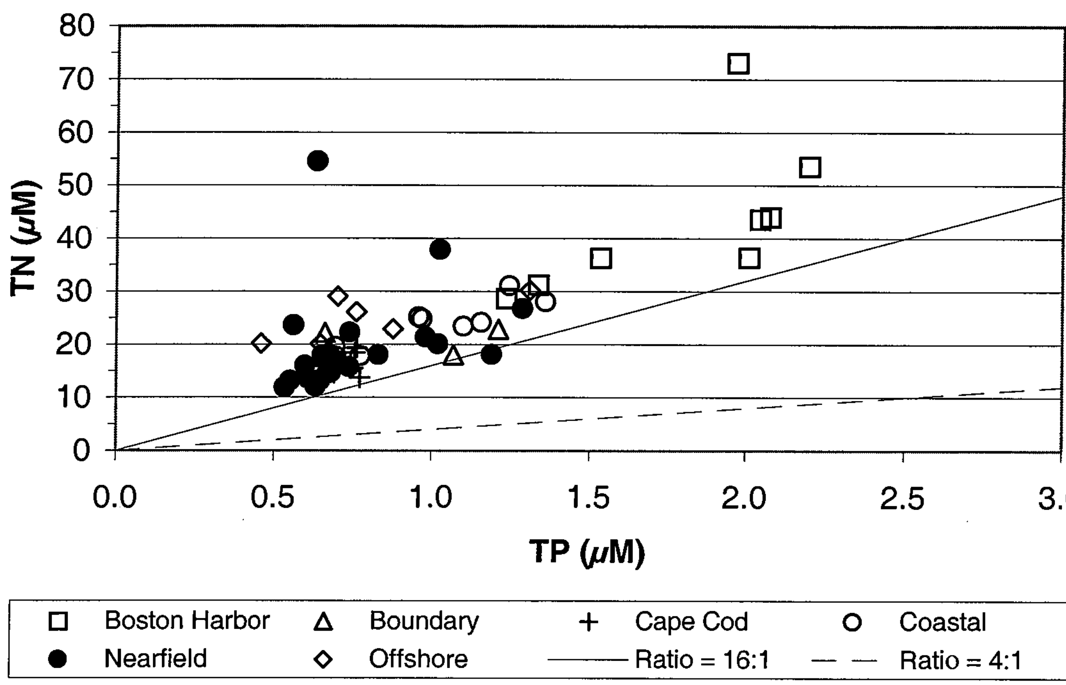
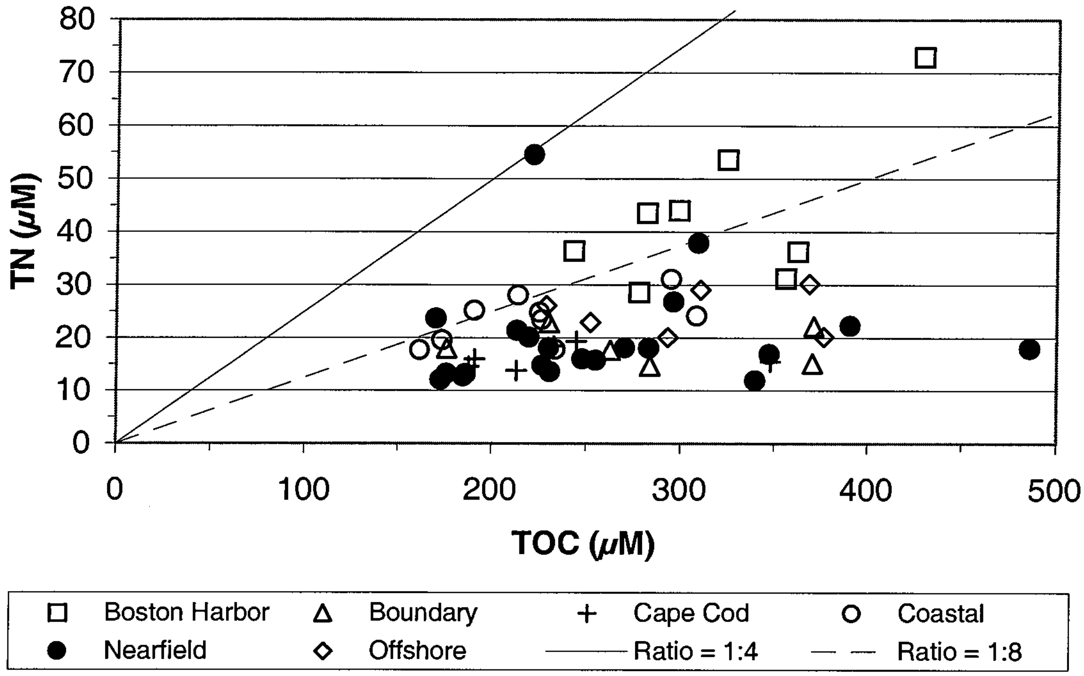


Figure D-101. Nutrient vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

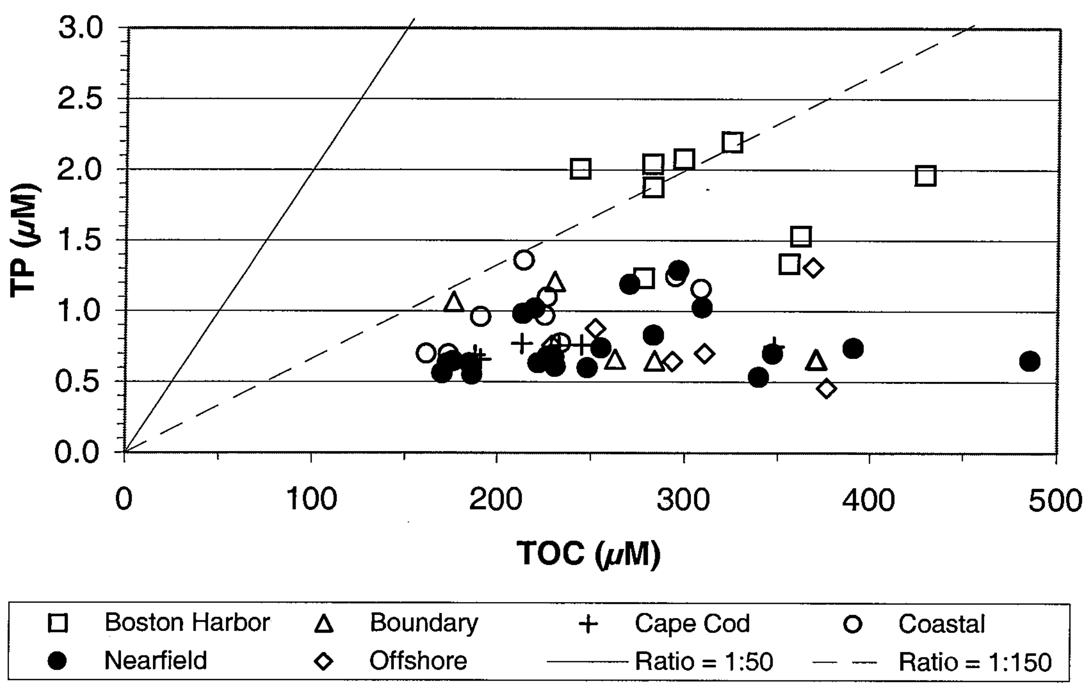


Figure D-102. Nutrient vs. Nutrient Plots for Farfield Survey WF007, (Jun 00)

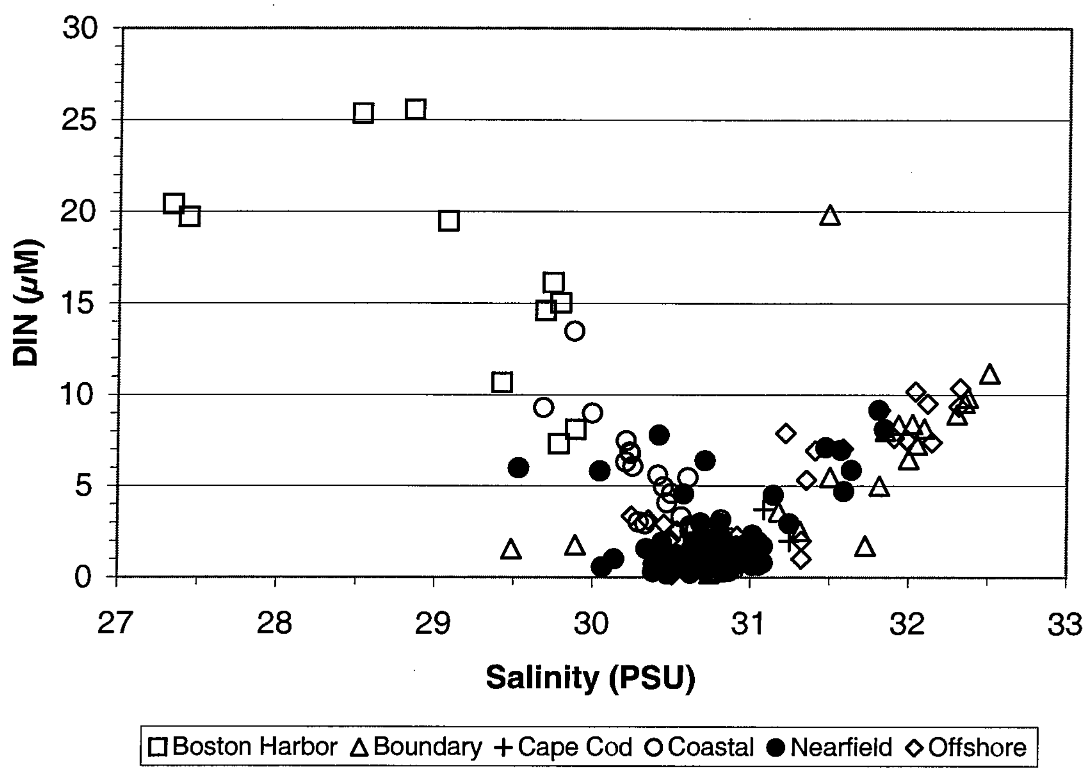
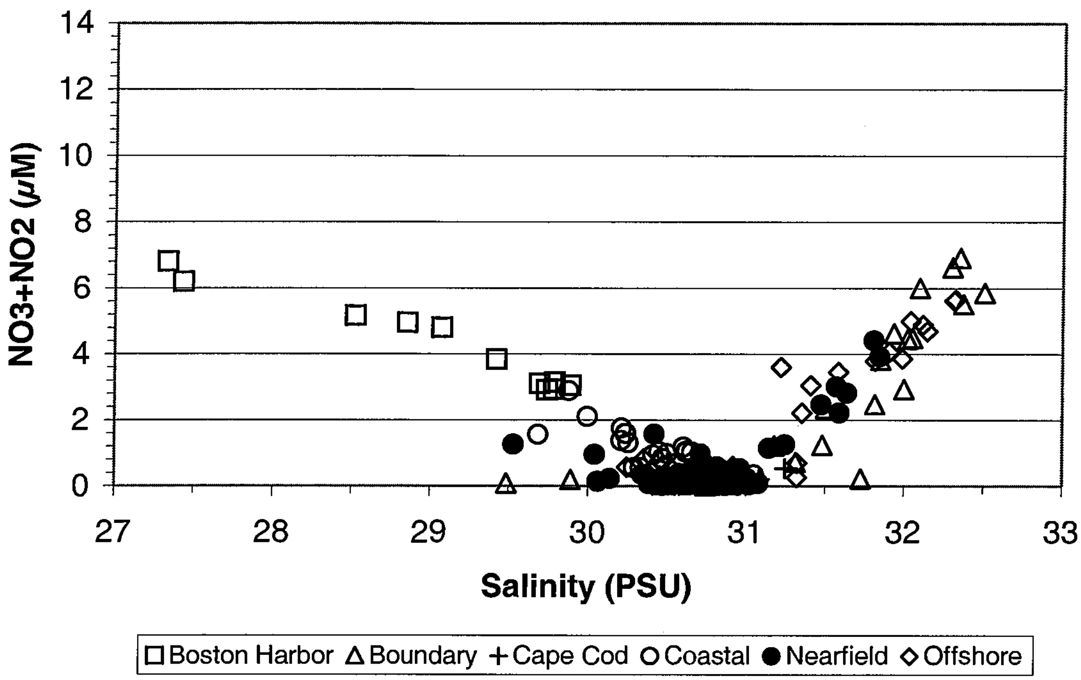


Figure D-103. Nutrient vs. Salinity Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

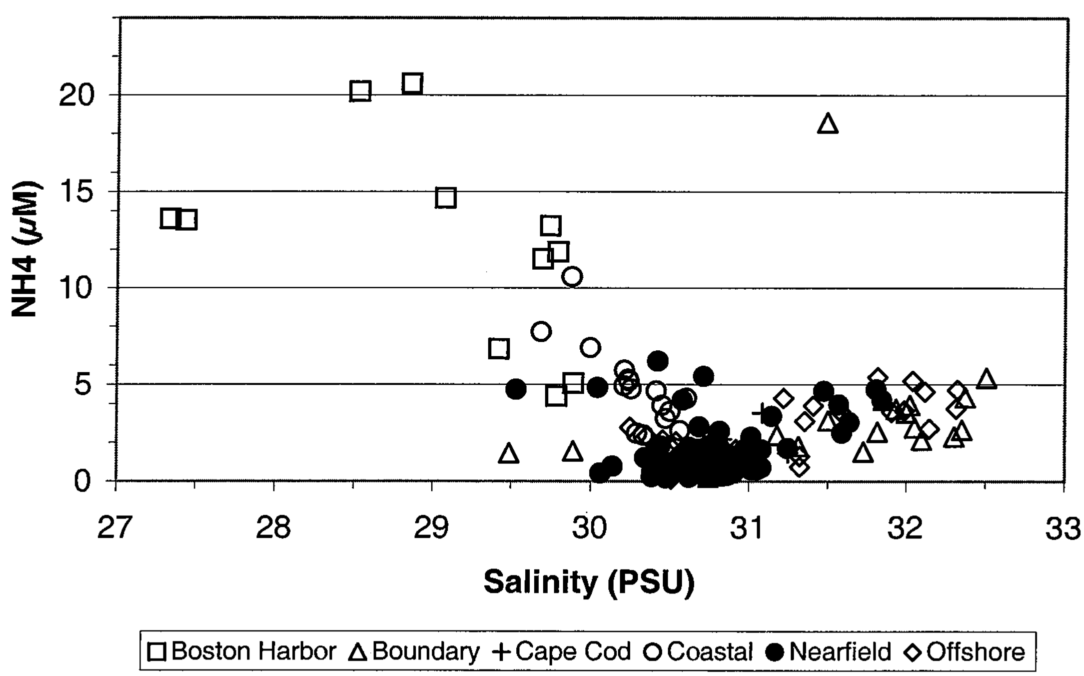
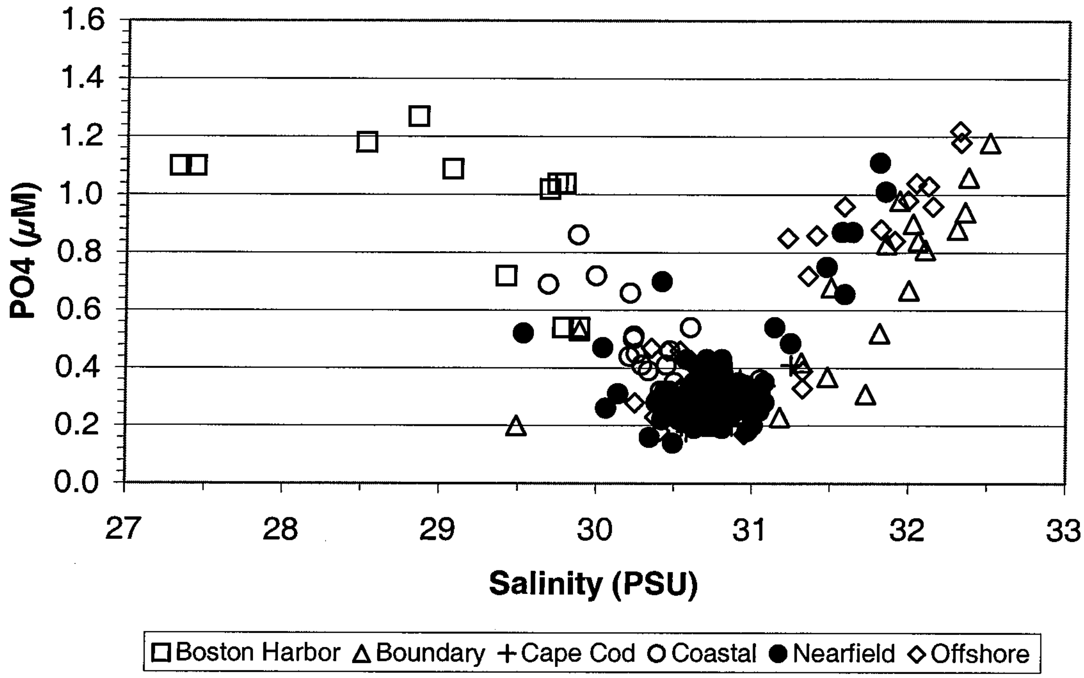


Figure D-104. Nutrient vs. Salinity Plots for Farfield Survey WF007, (Jun 00)

(a)



(b)

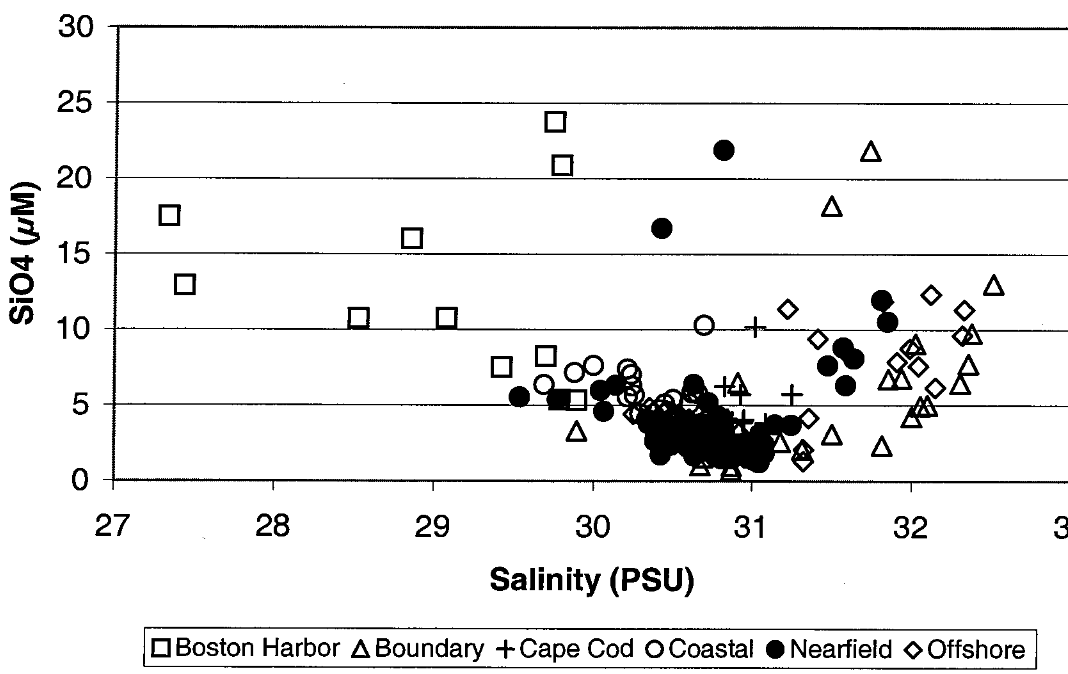


Figure D-105. Nutrient vs. Salinity Plots for Farfield Survey WF007, (Jun 00)

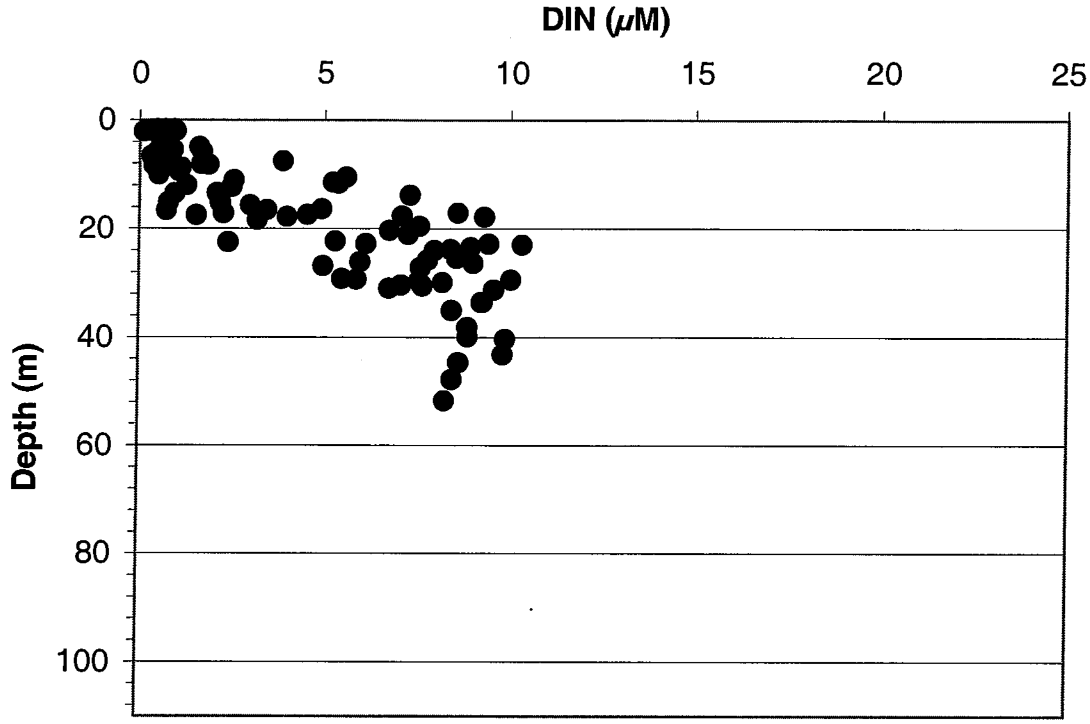
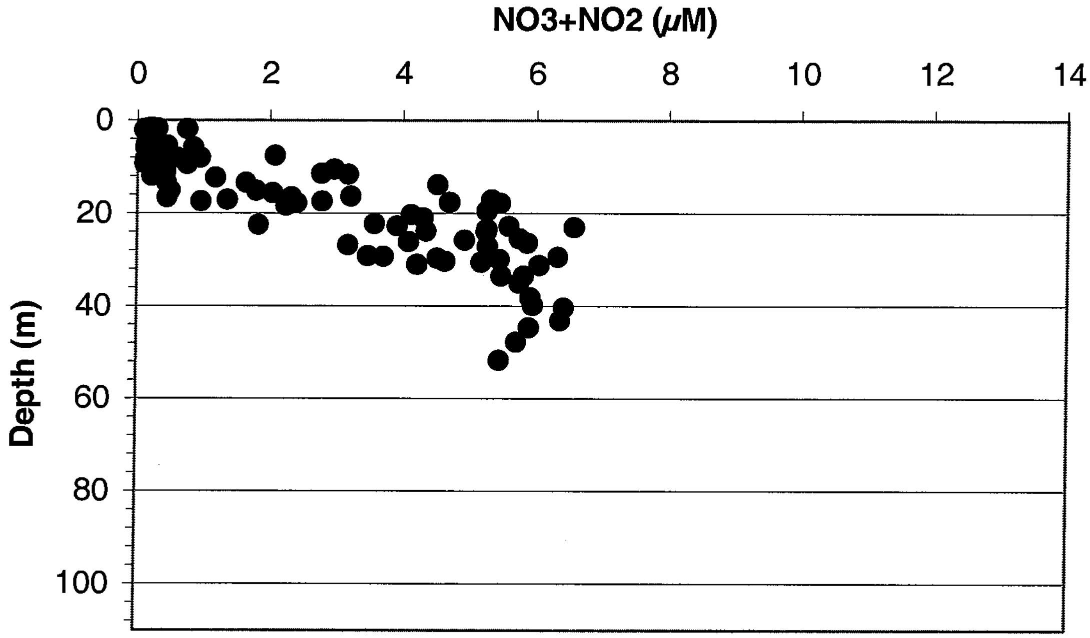


Figure D-106. Depth vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

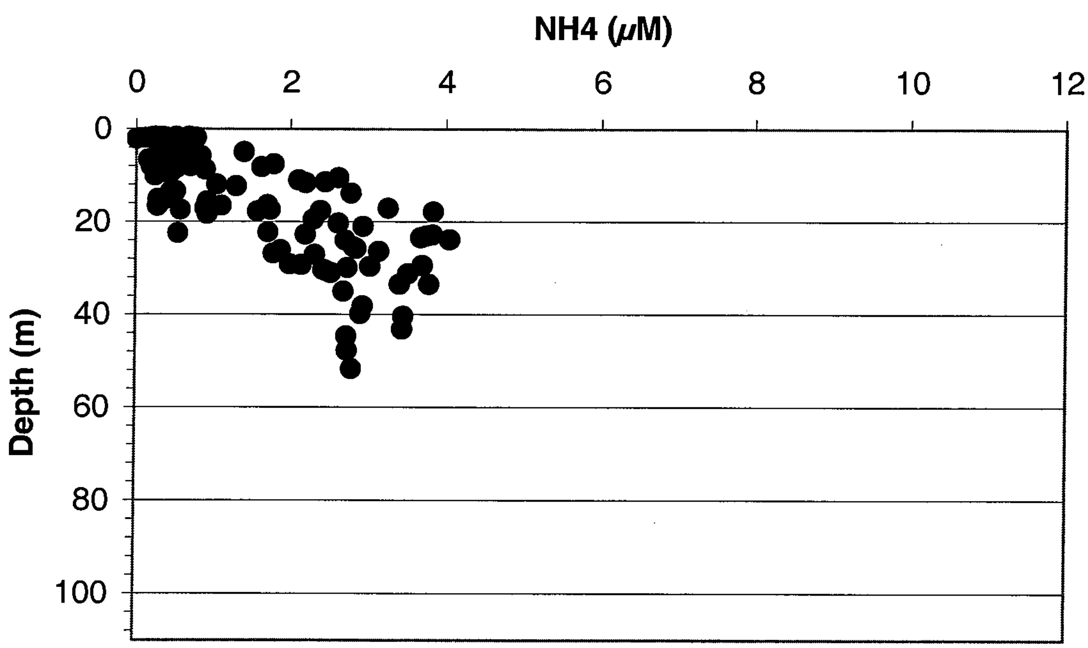
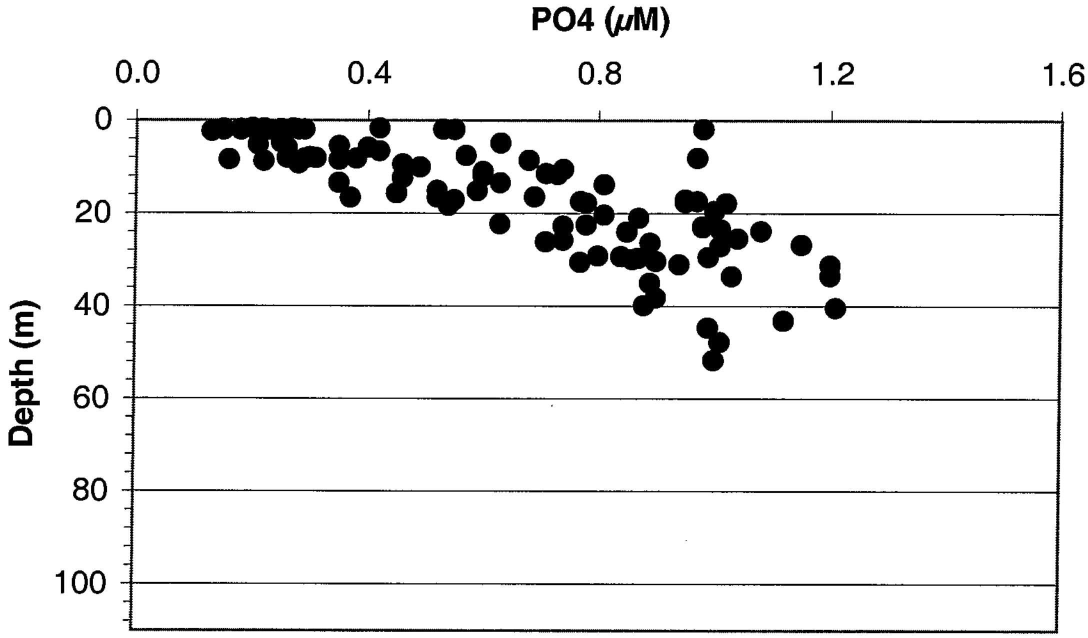


Figure D-107. Depth vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

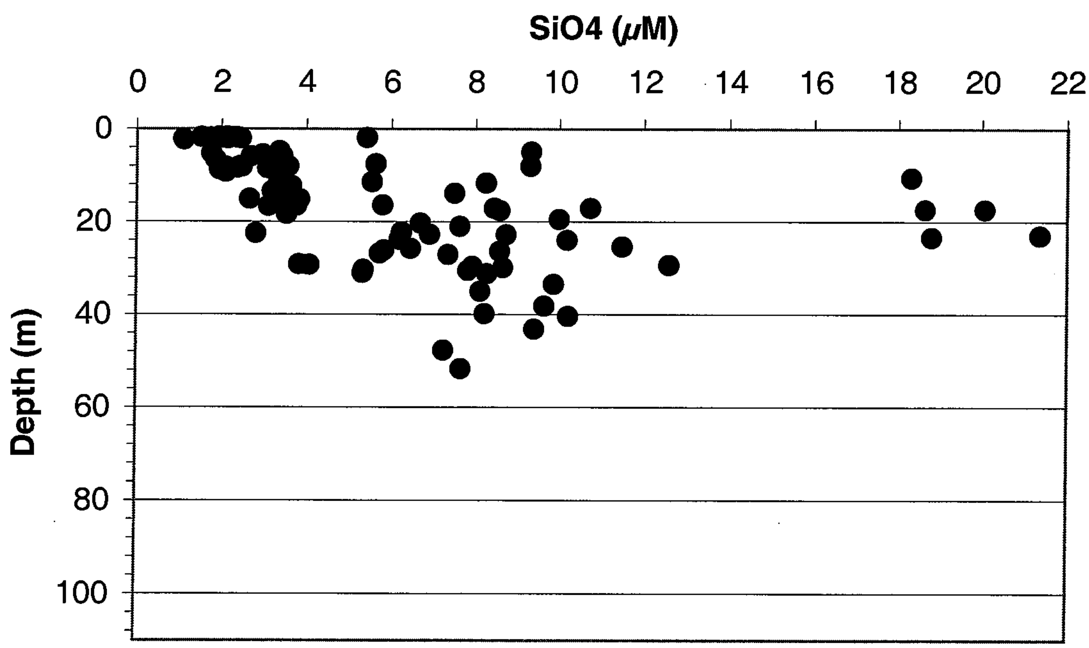
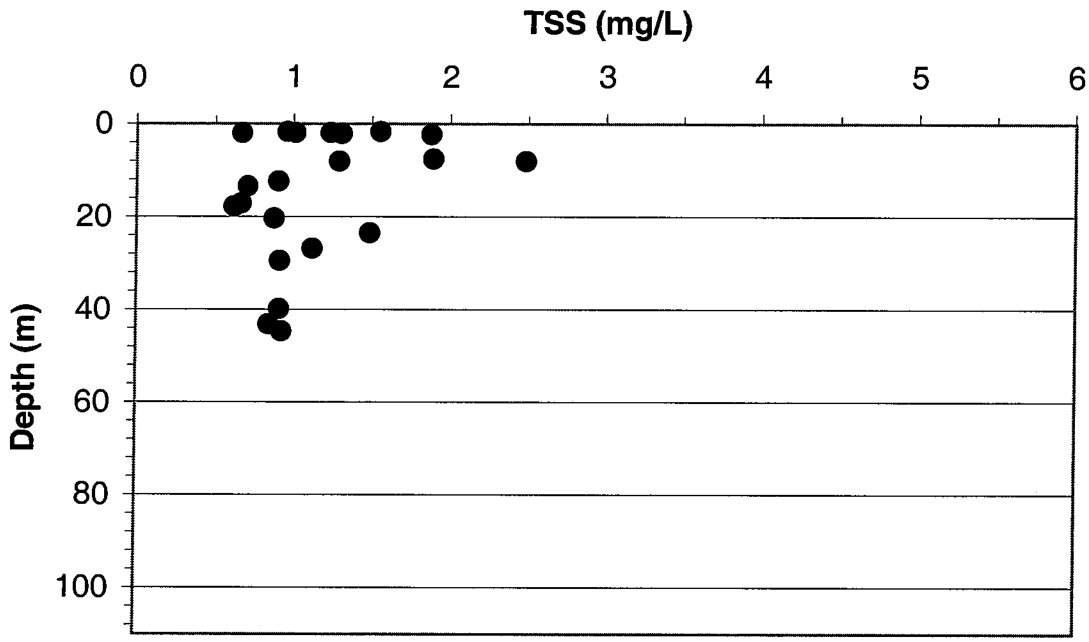


Figure D-108. Depth vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

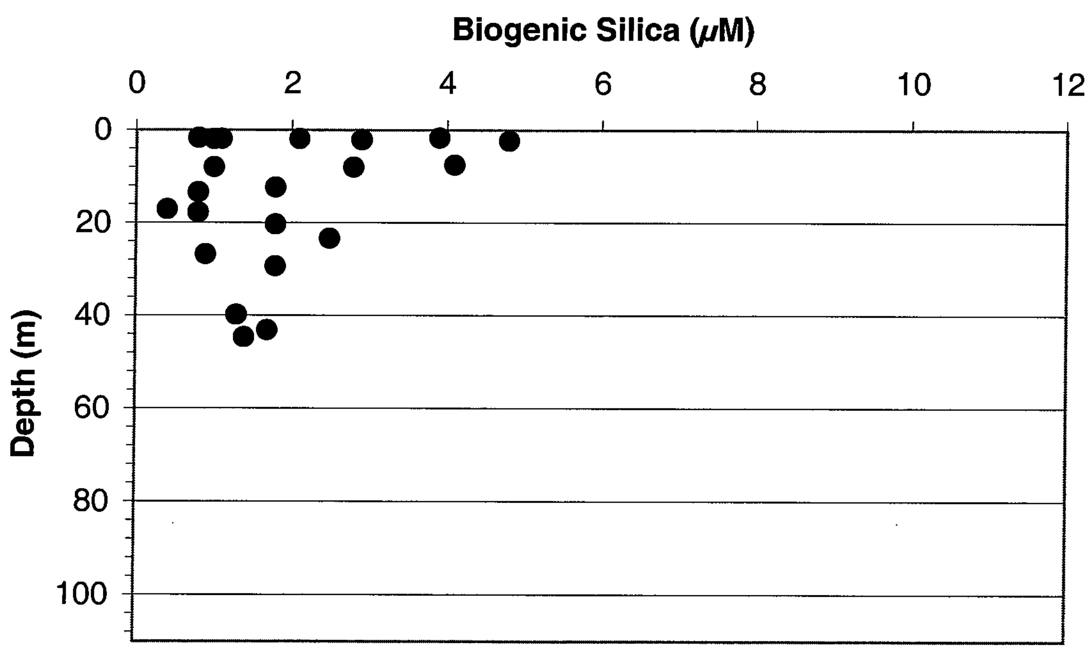
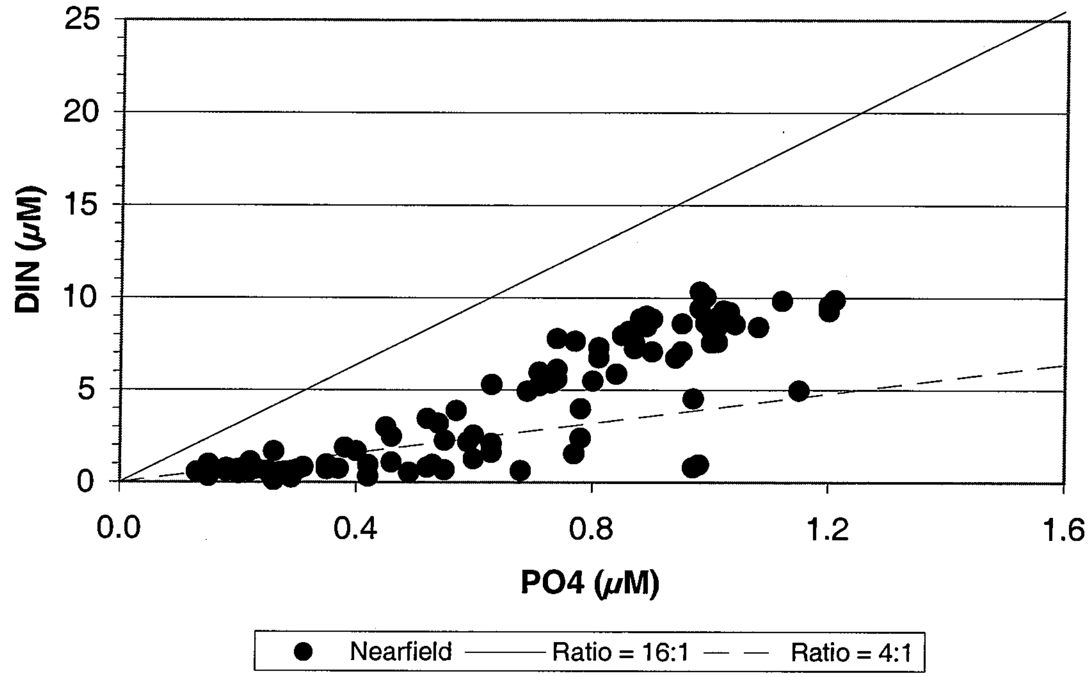


Figure D-109. Depth vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

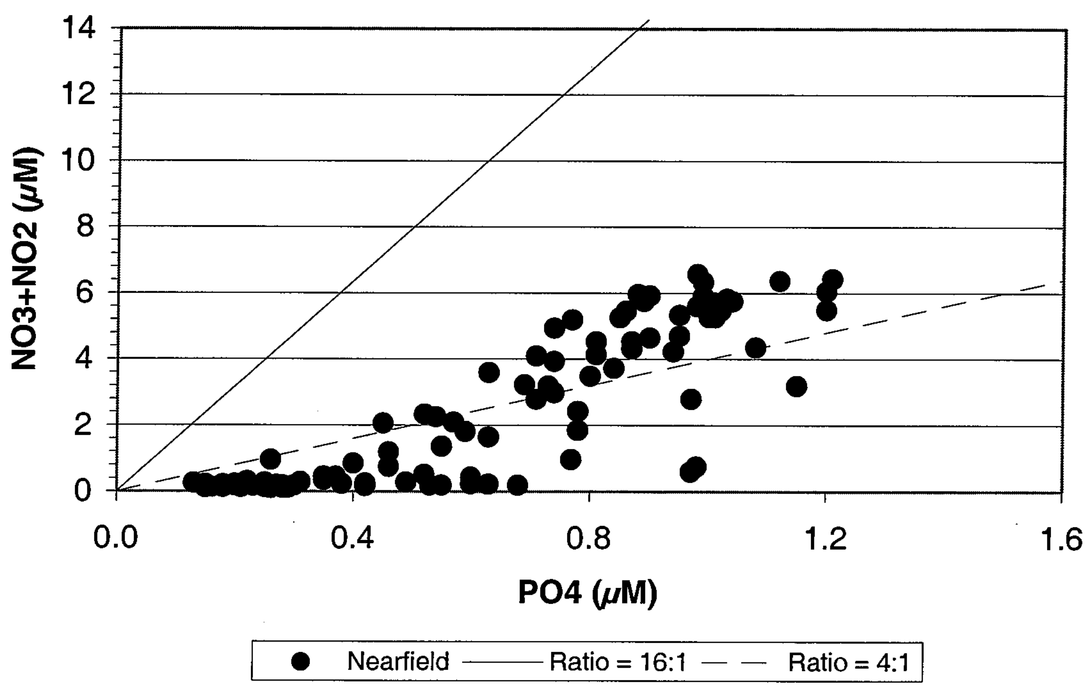
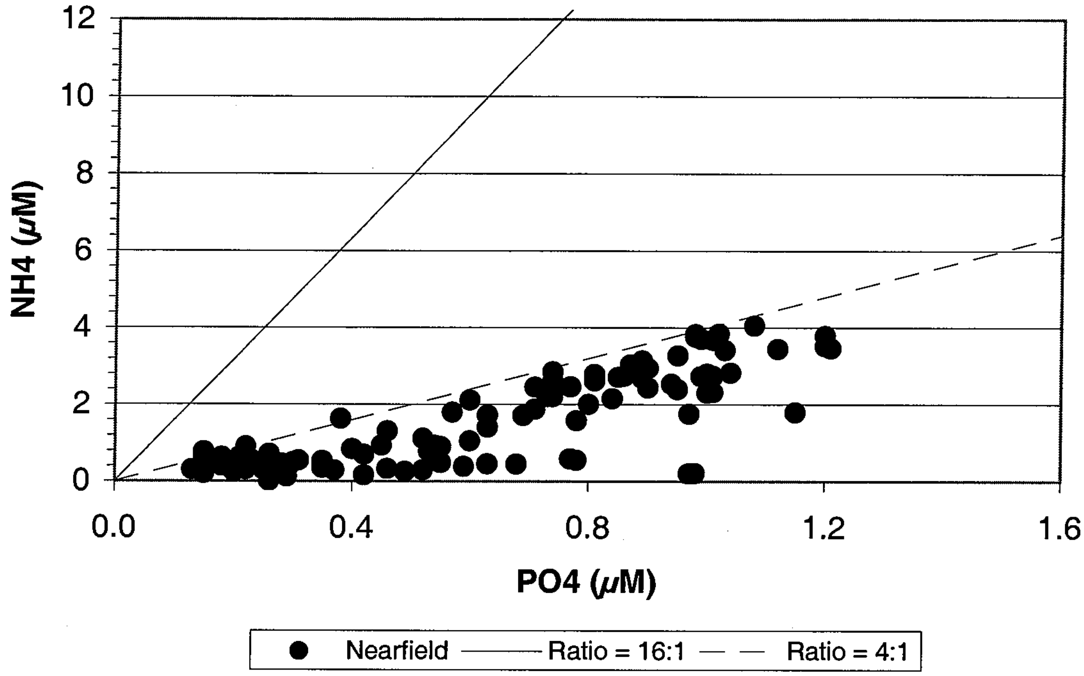


Figure D-110. Nutrient vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

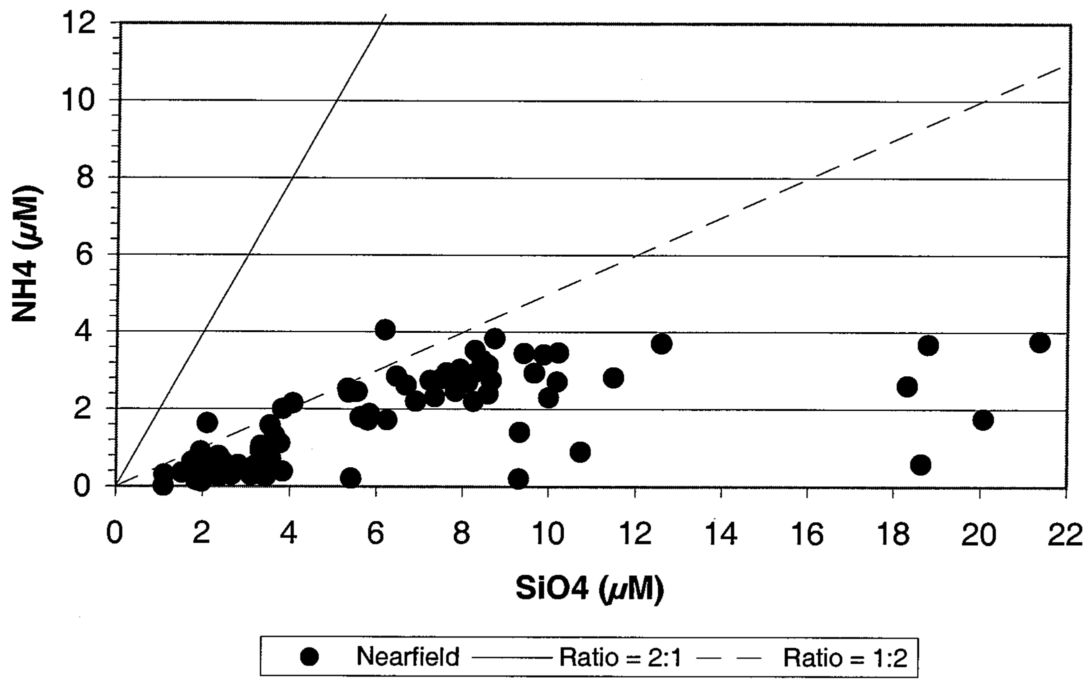
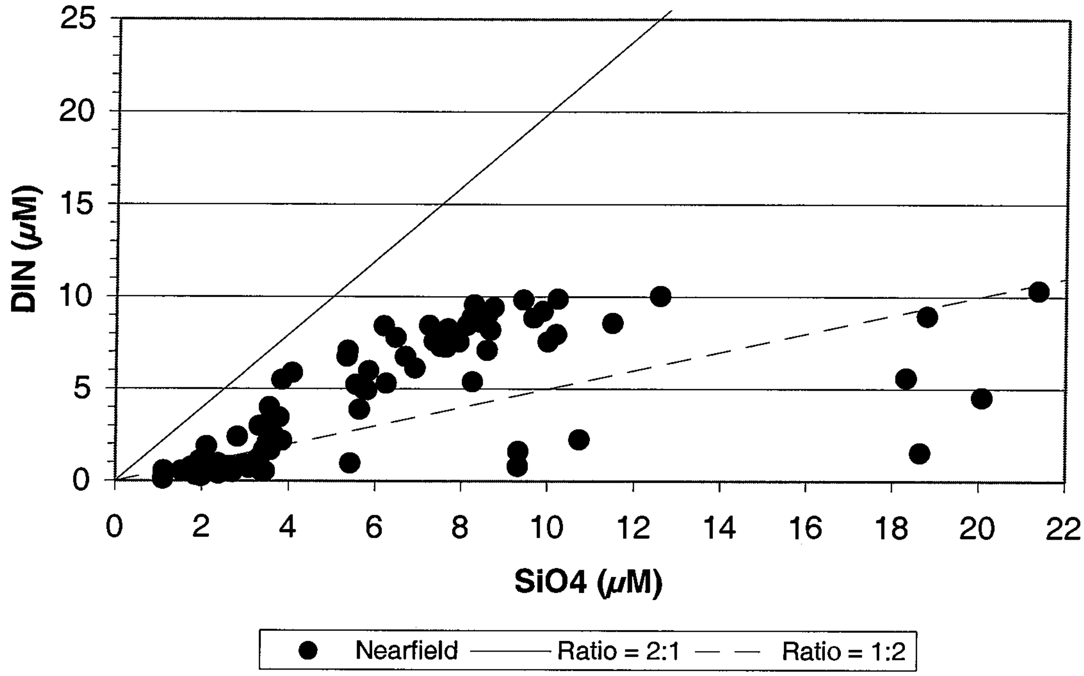


Figure D-111. Nutrient vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

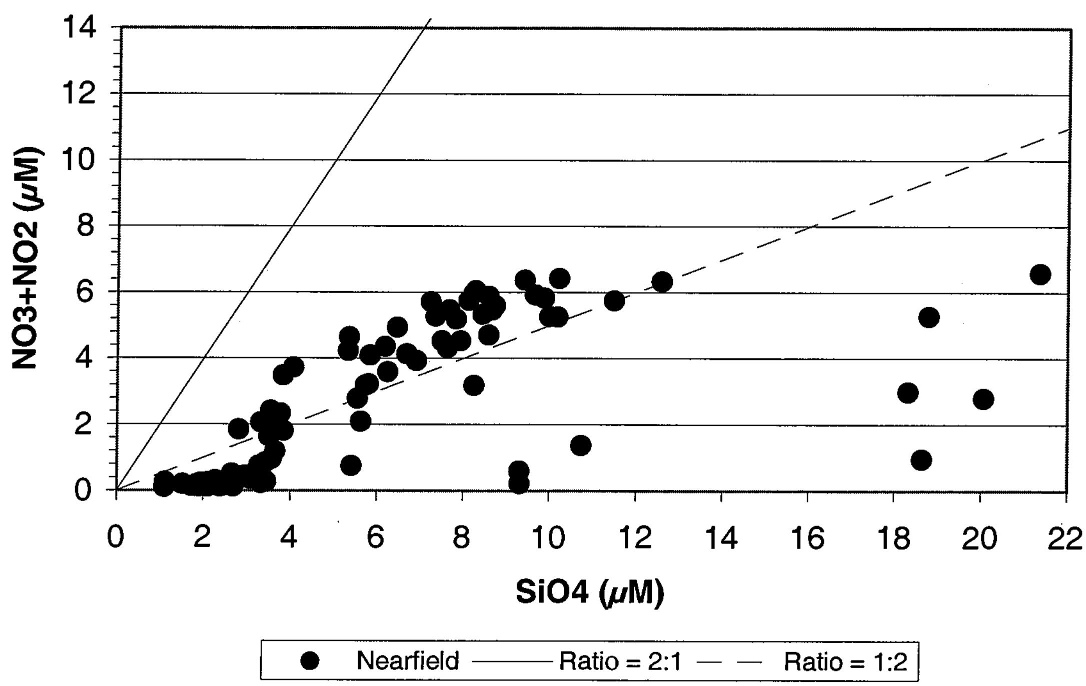
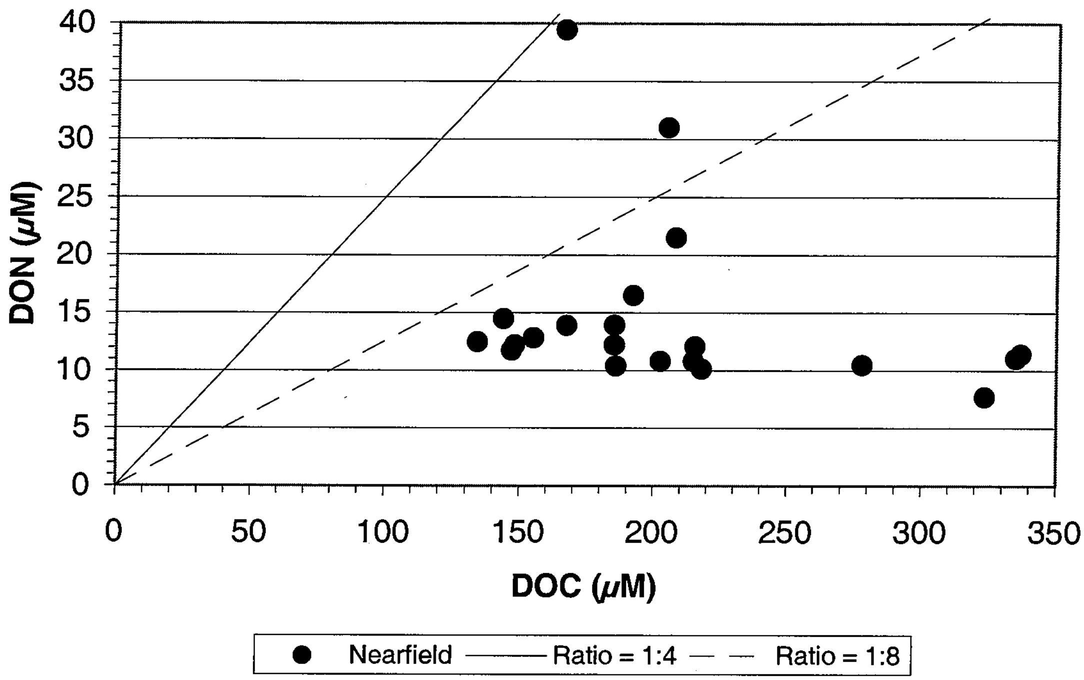


Figure D-112. Nutrient vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

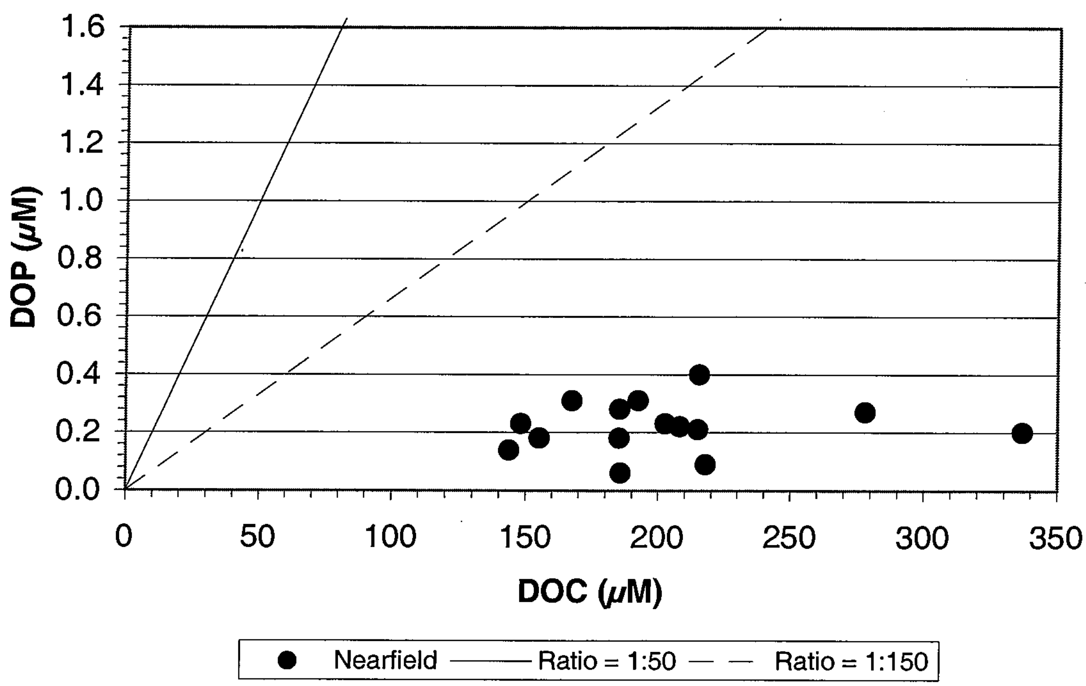
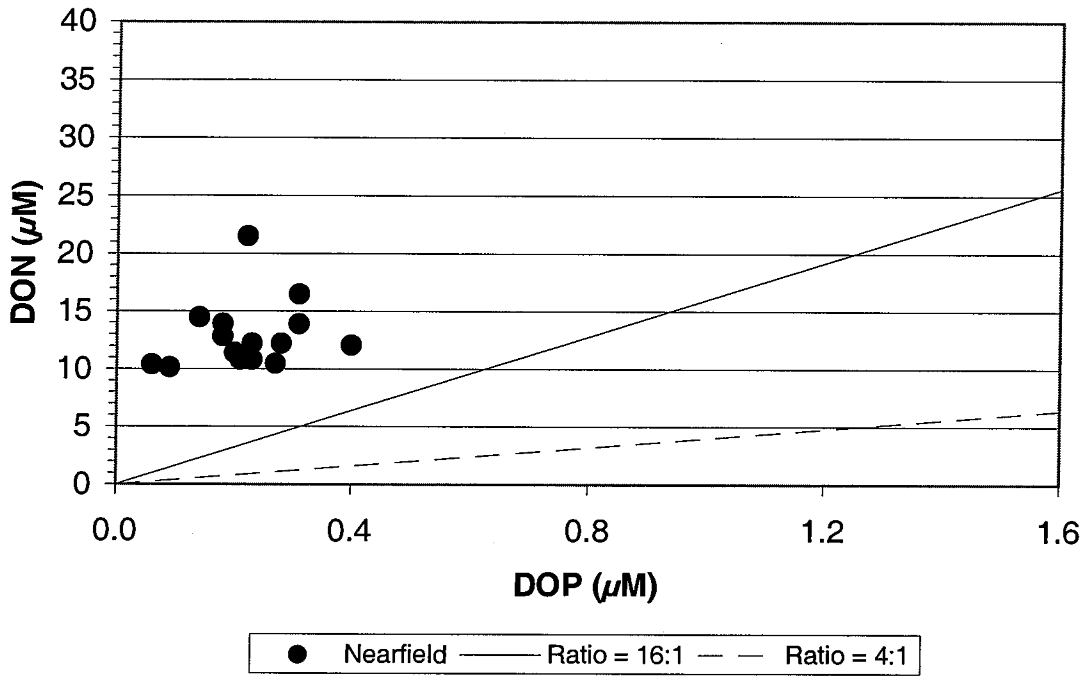


Figure D-113. Nutrient vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

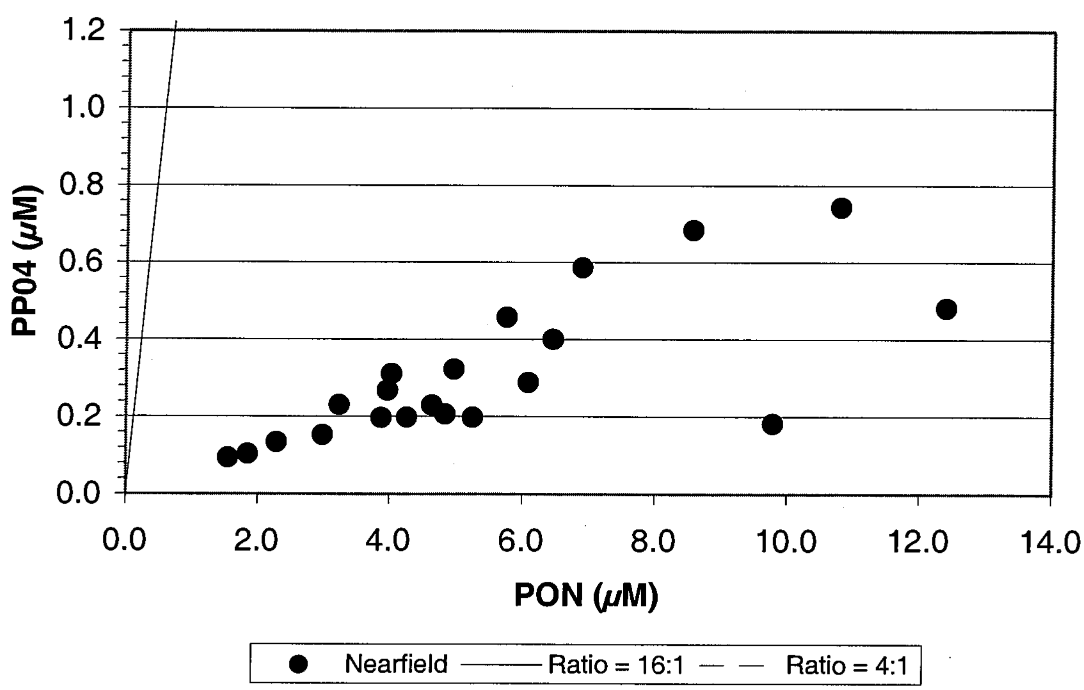
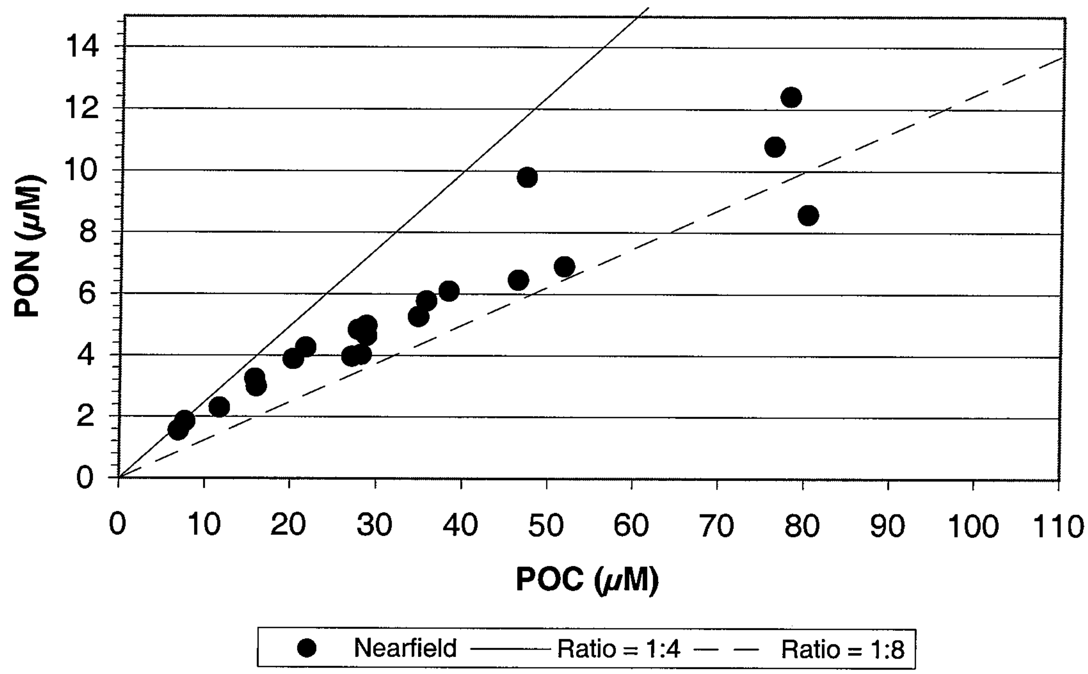


Figure D-114. Nutrient vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

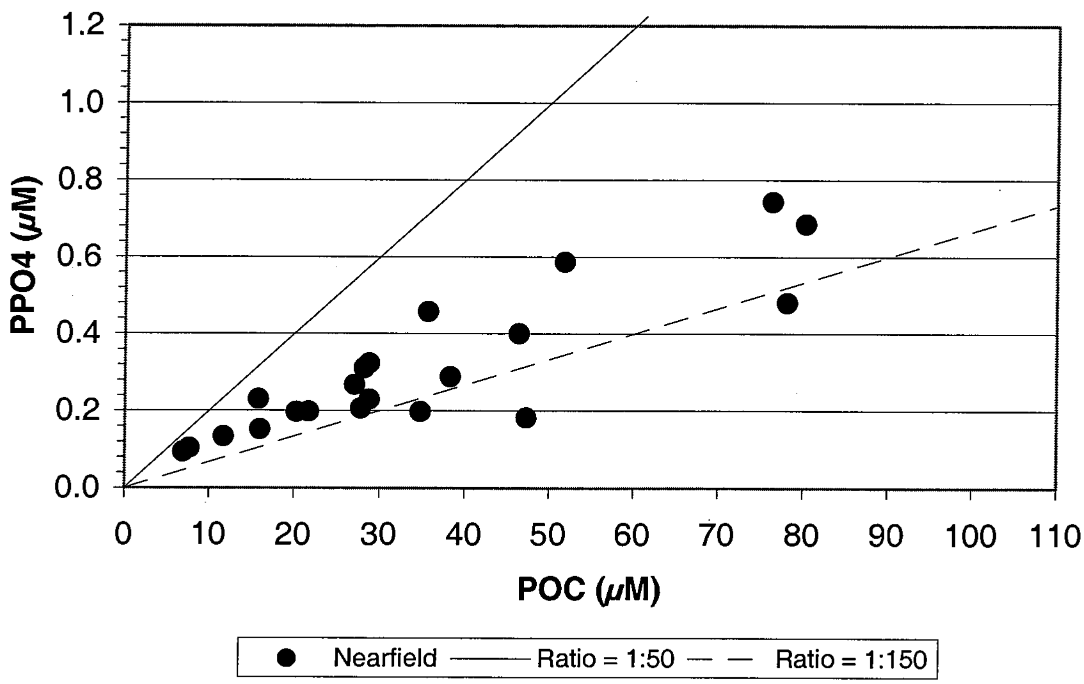
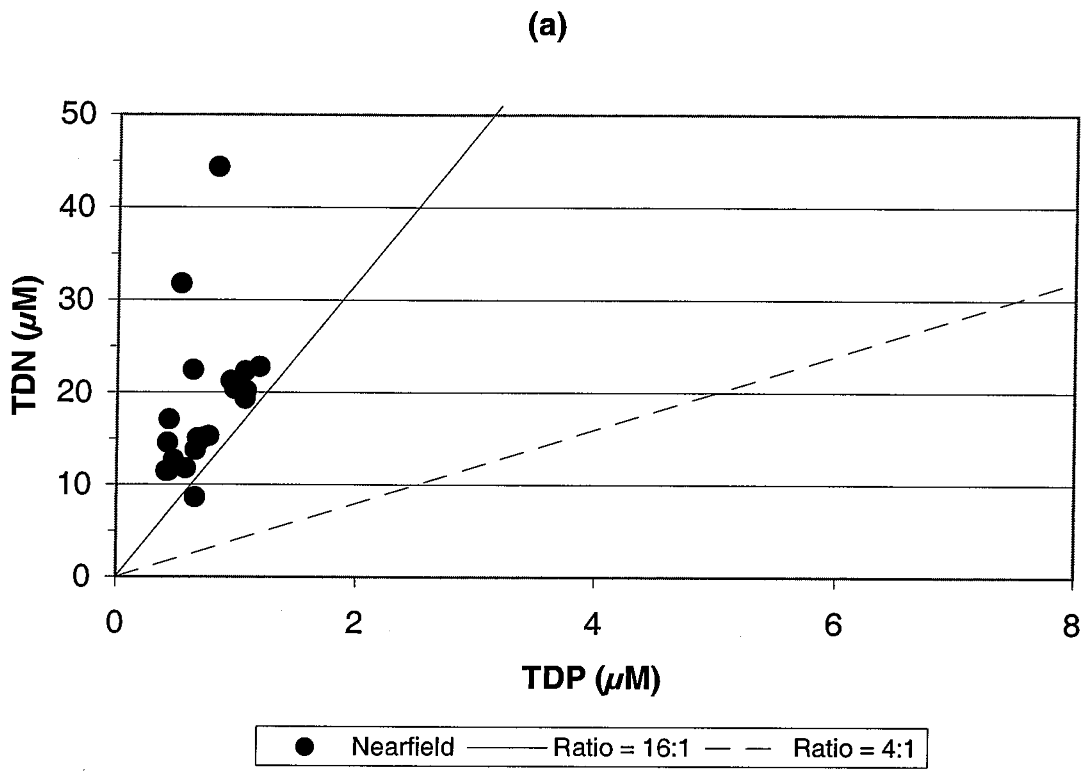


Figure D-115. Nutrient vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)



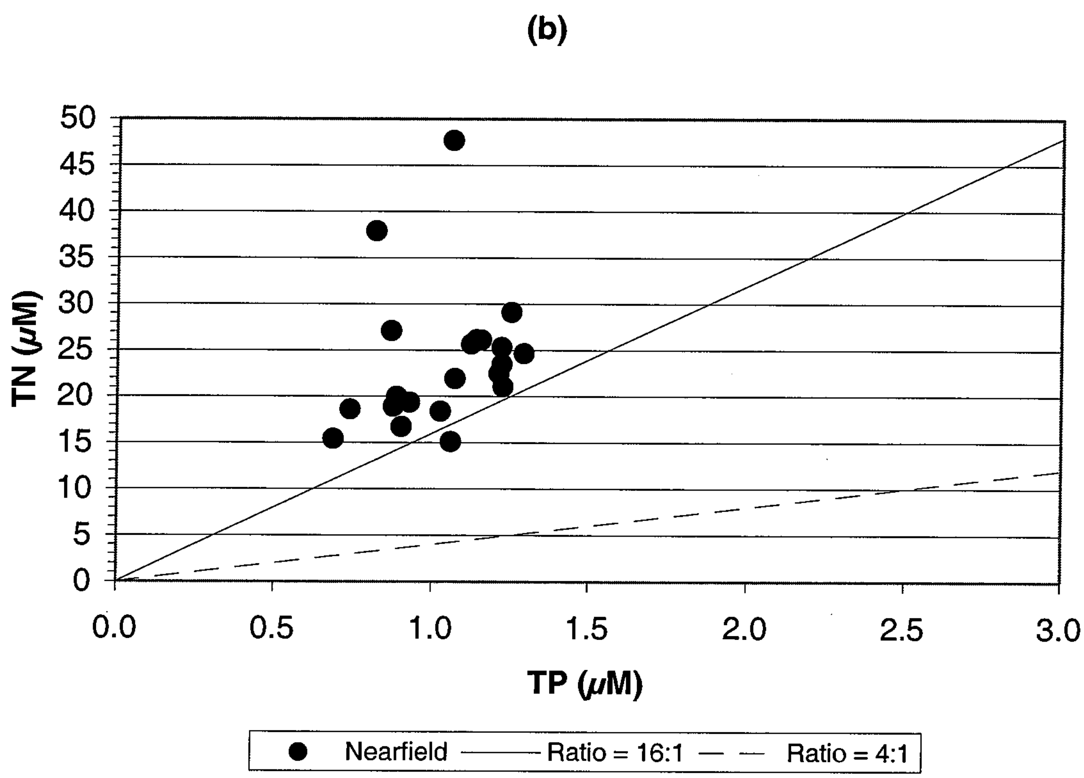
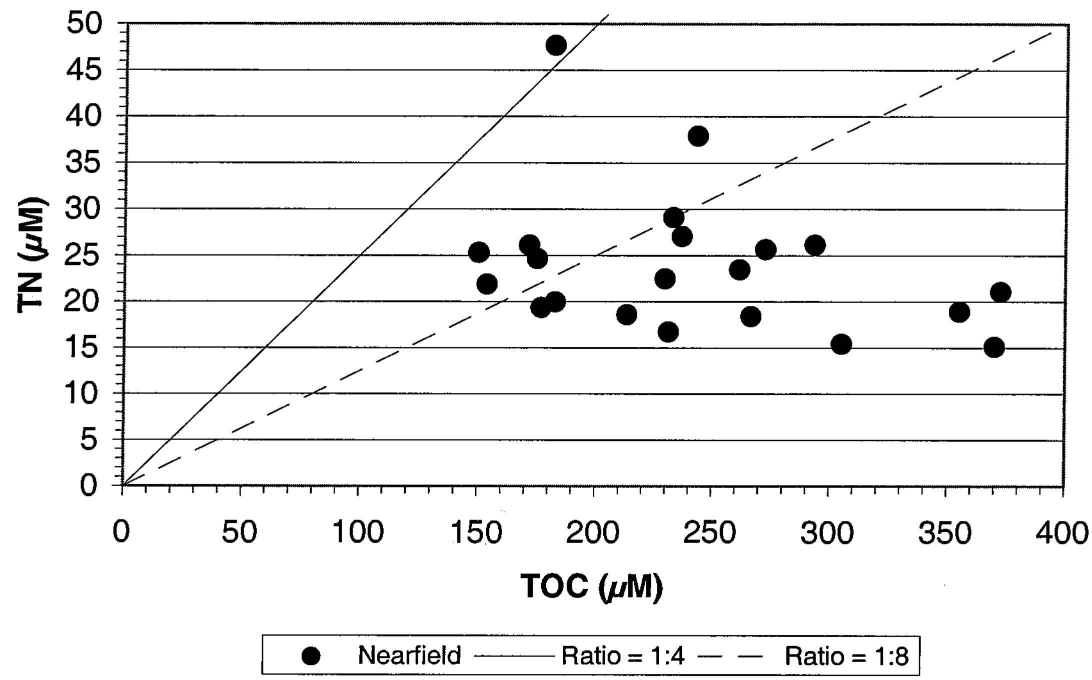


Figure D-116. Nutrient vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

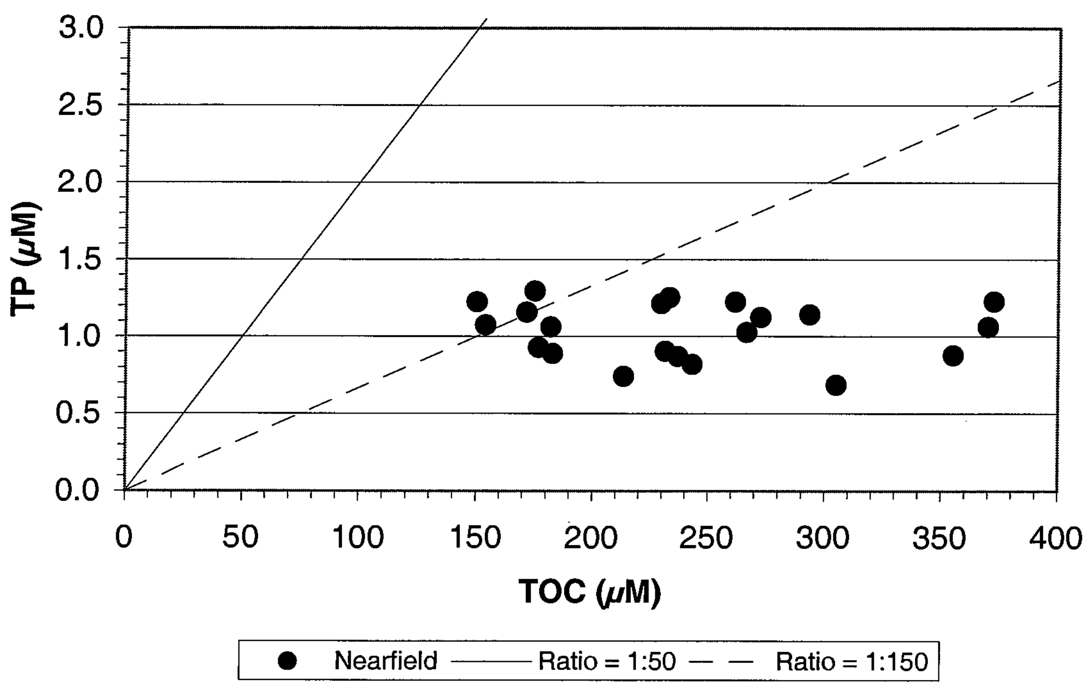


Figure D-117. Nutrient vs. Nutrient Plots for Nearfield Survey WN008, (Jul 00)

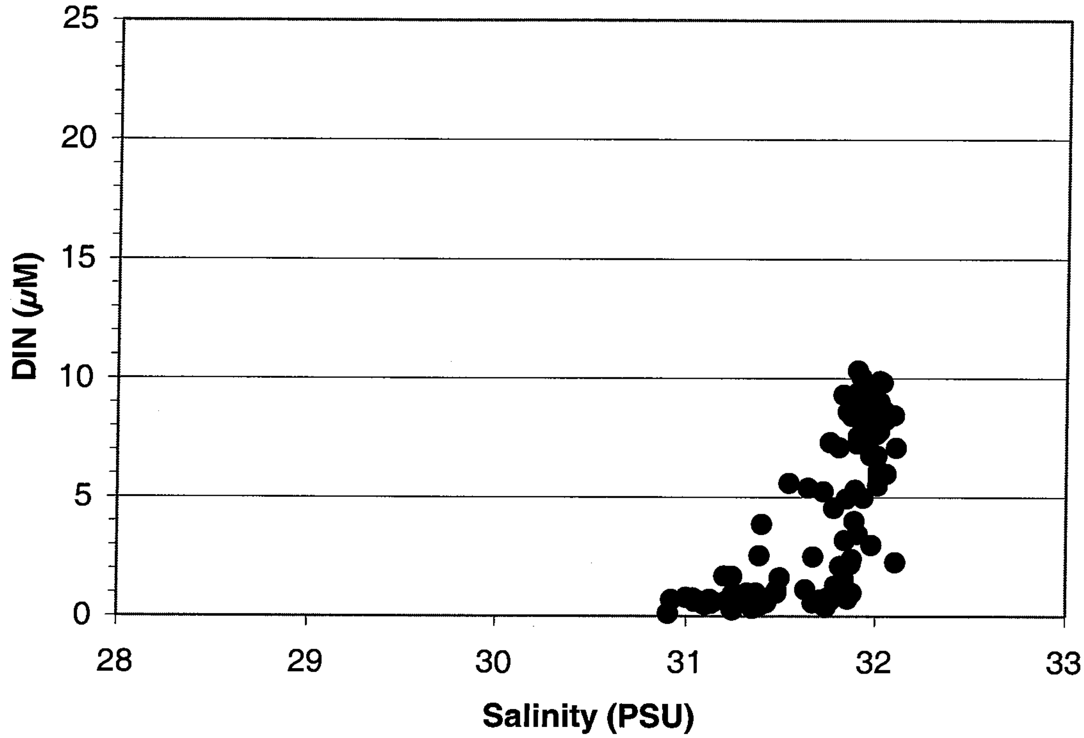
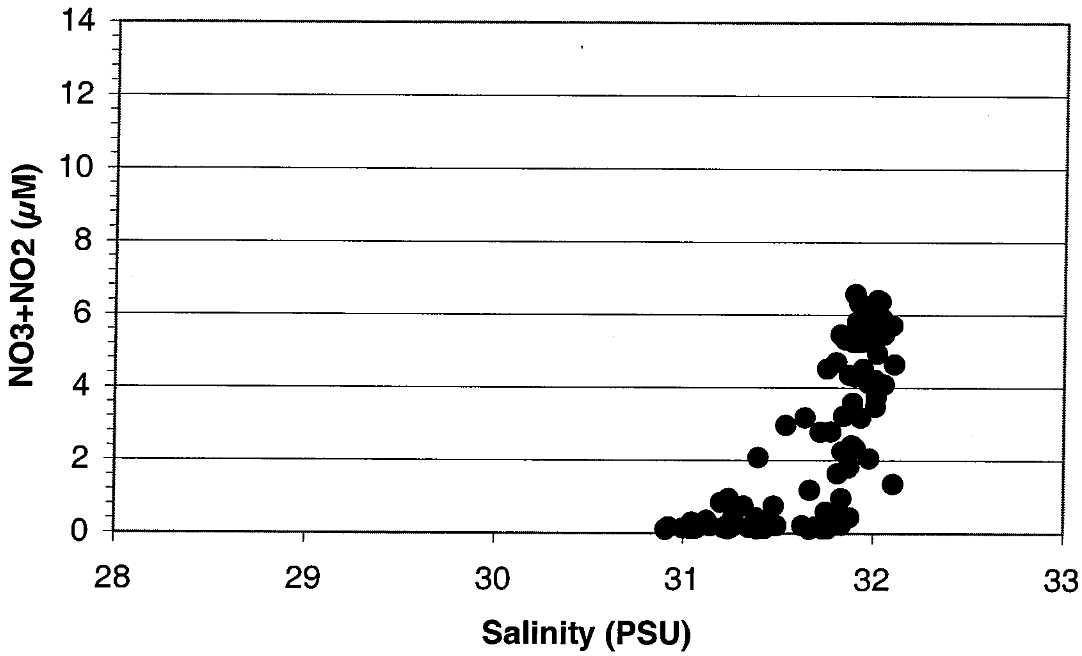


Figure D-118. Nutrient vs. Salinity Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

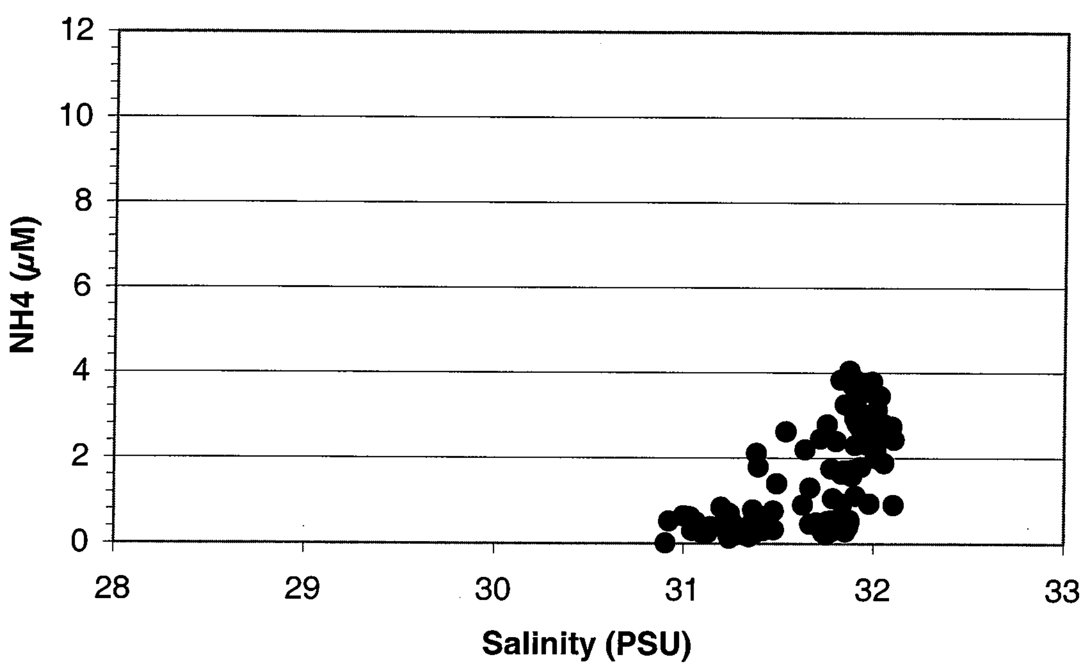
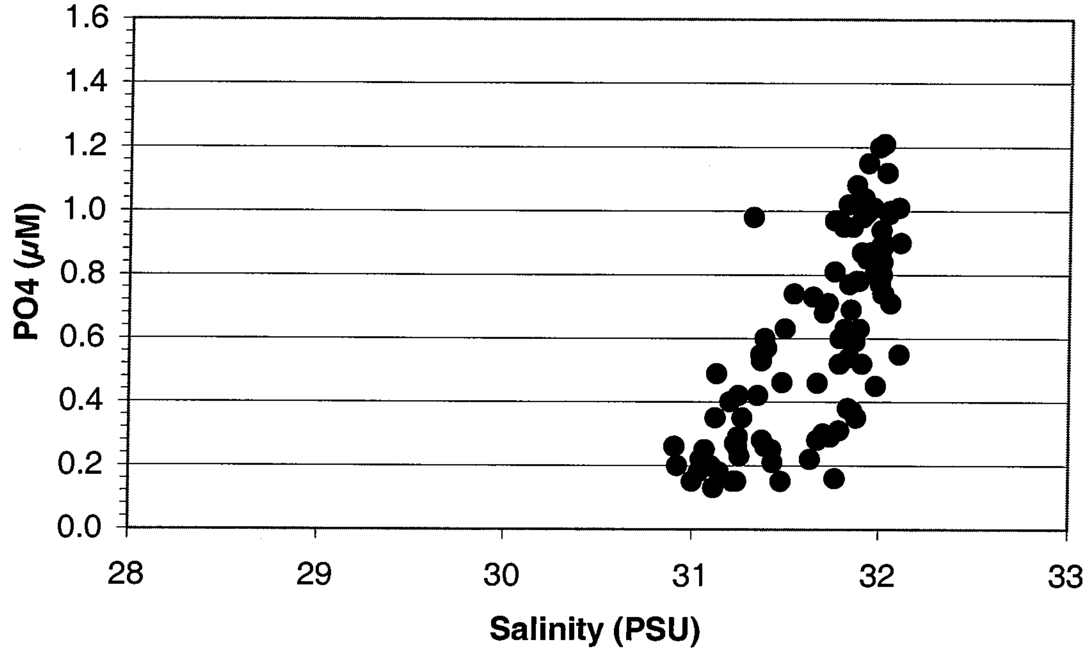


Figure D-119. Nutrient vs. Salinity Plots for Nearfield Survey WN008, (Jul 00)

(a)



(b)

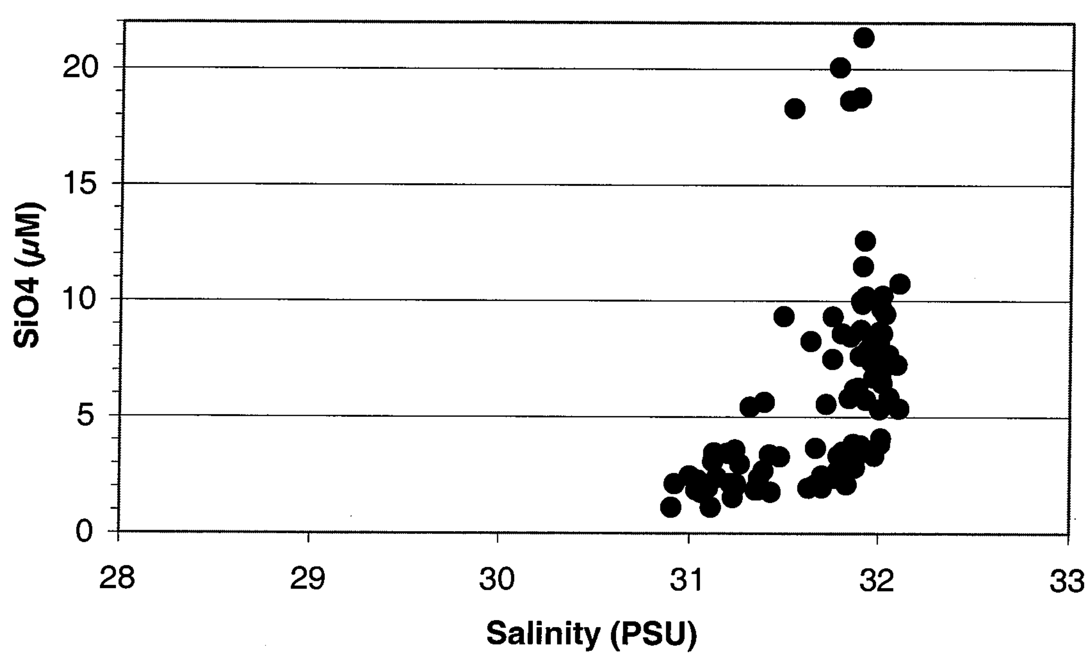


Figure D-120. Nutrient vs. Salinity Plots for Nearfield Survey WN008, (Jul 00)

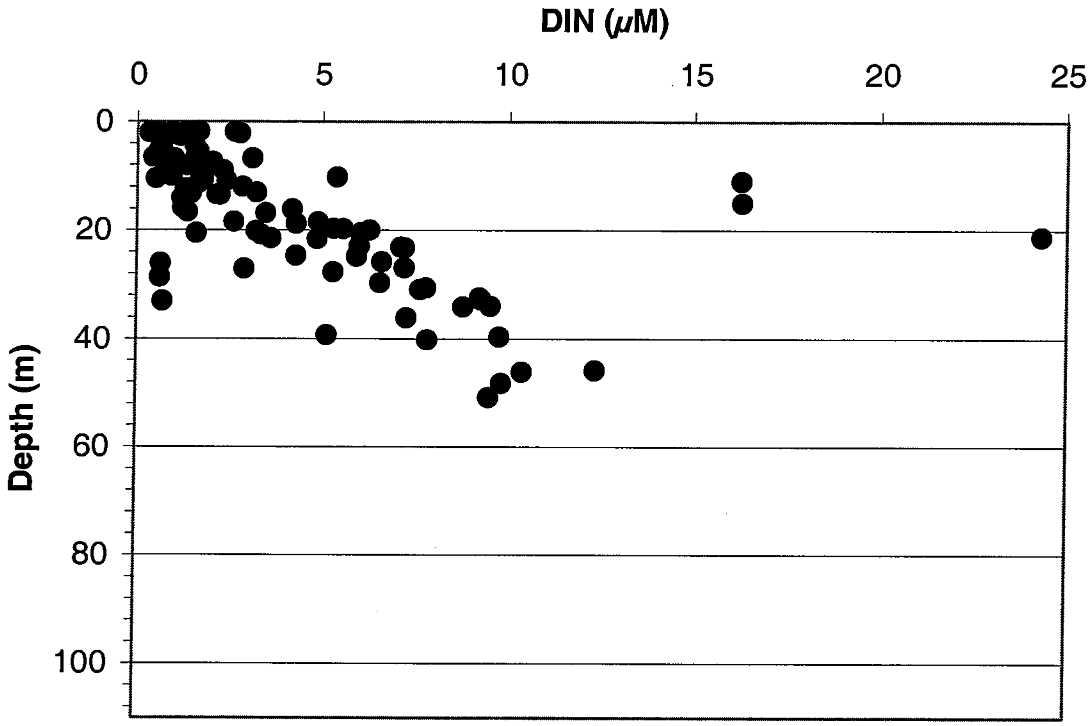
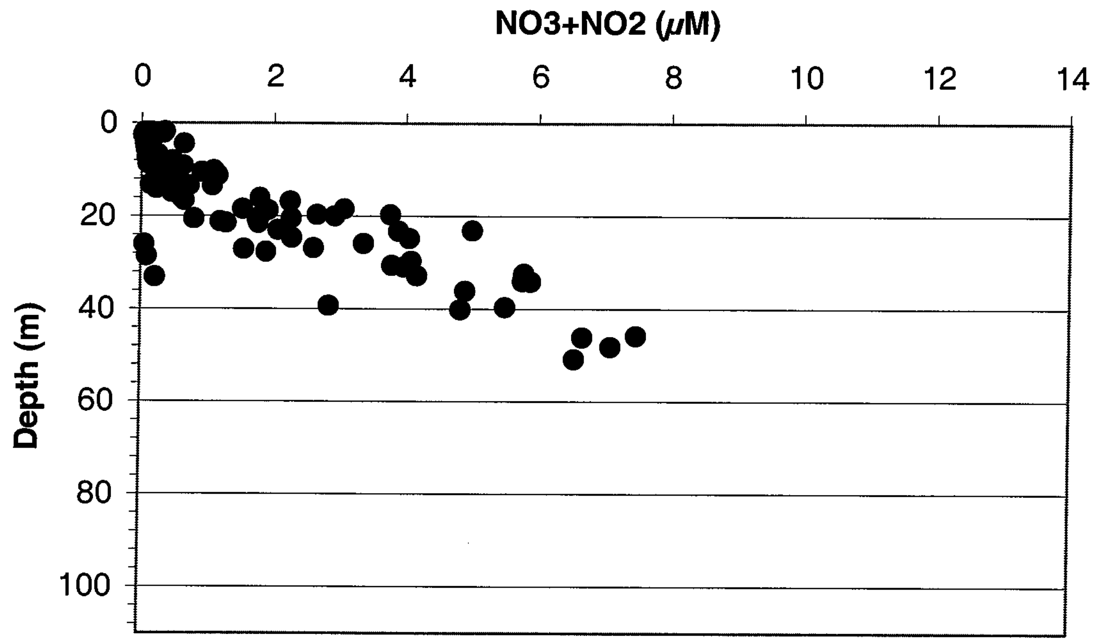


Figure D-121. Depth vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

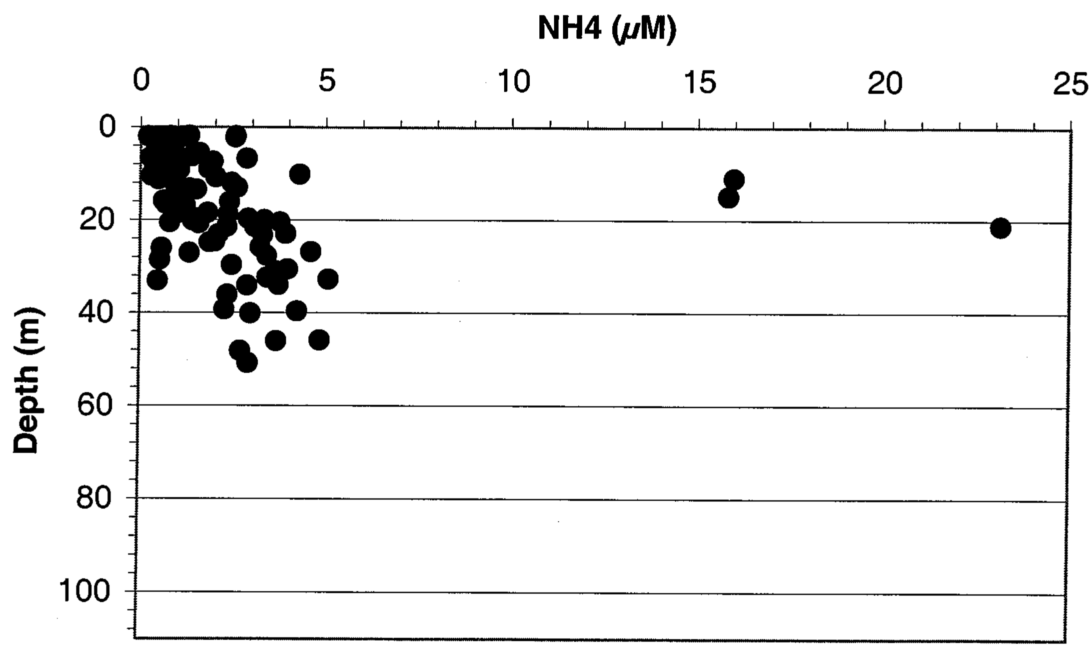
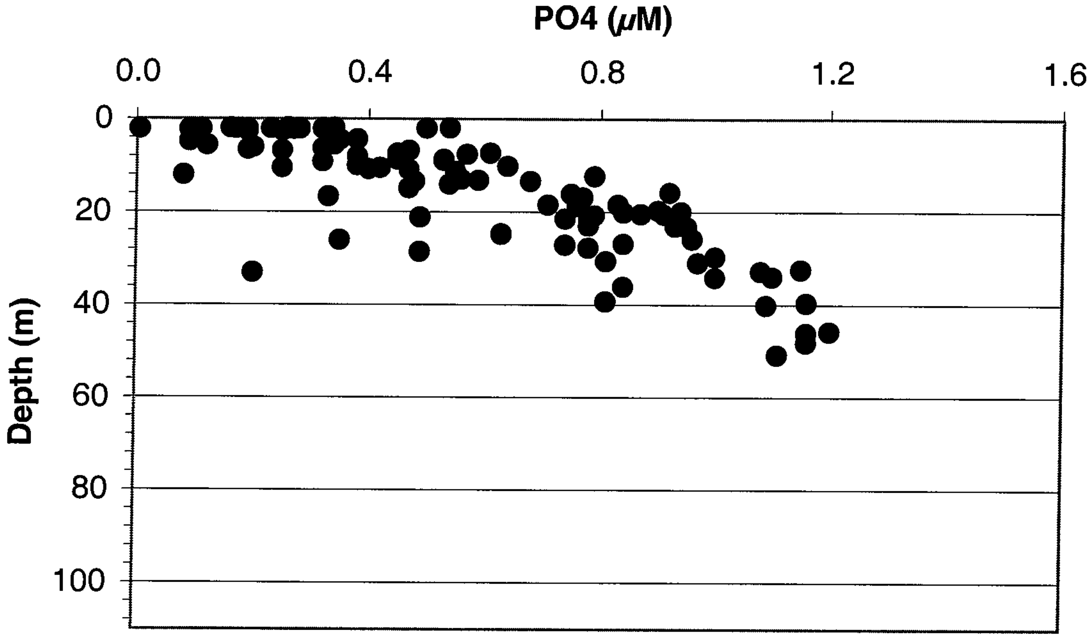


Figure D-122. Depth vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

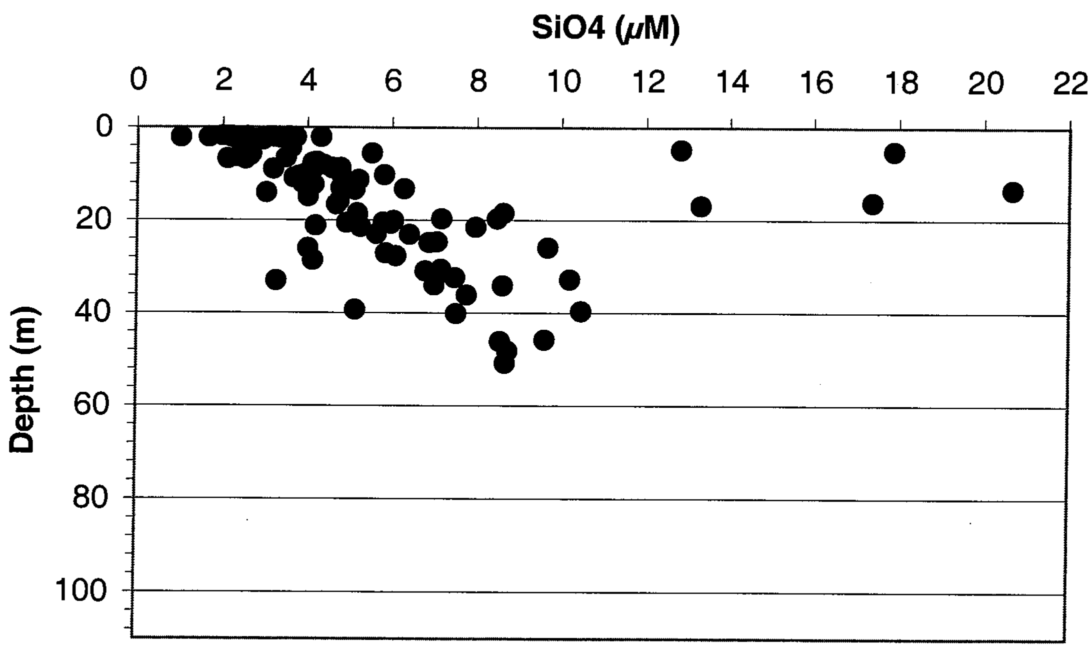
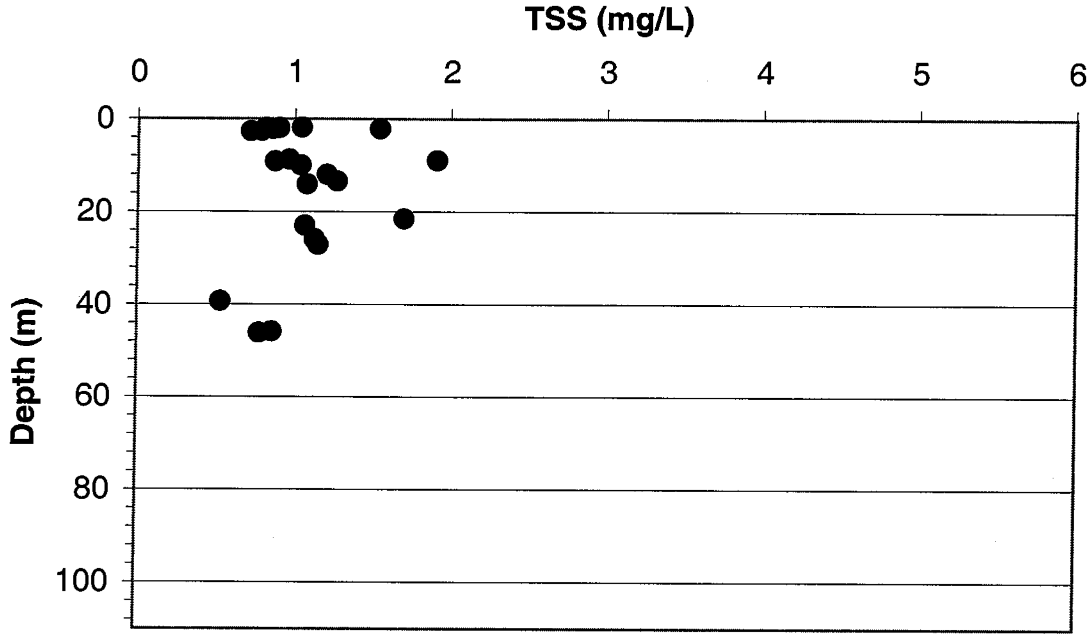


Figure D-123. Depth vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

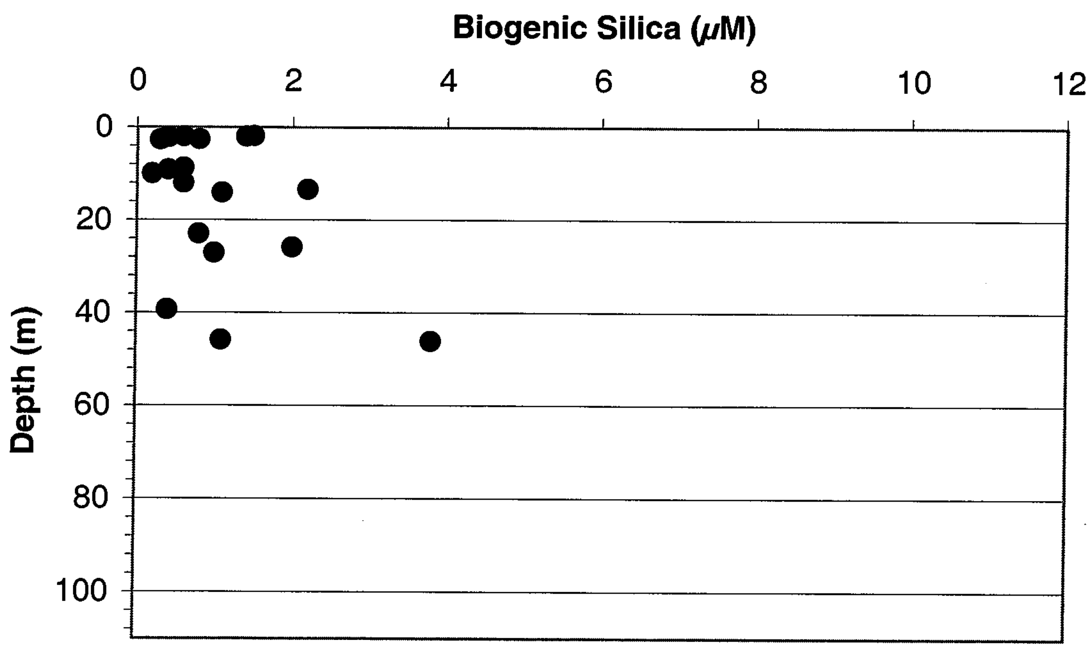
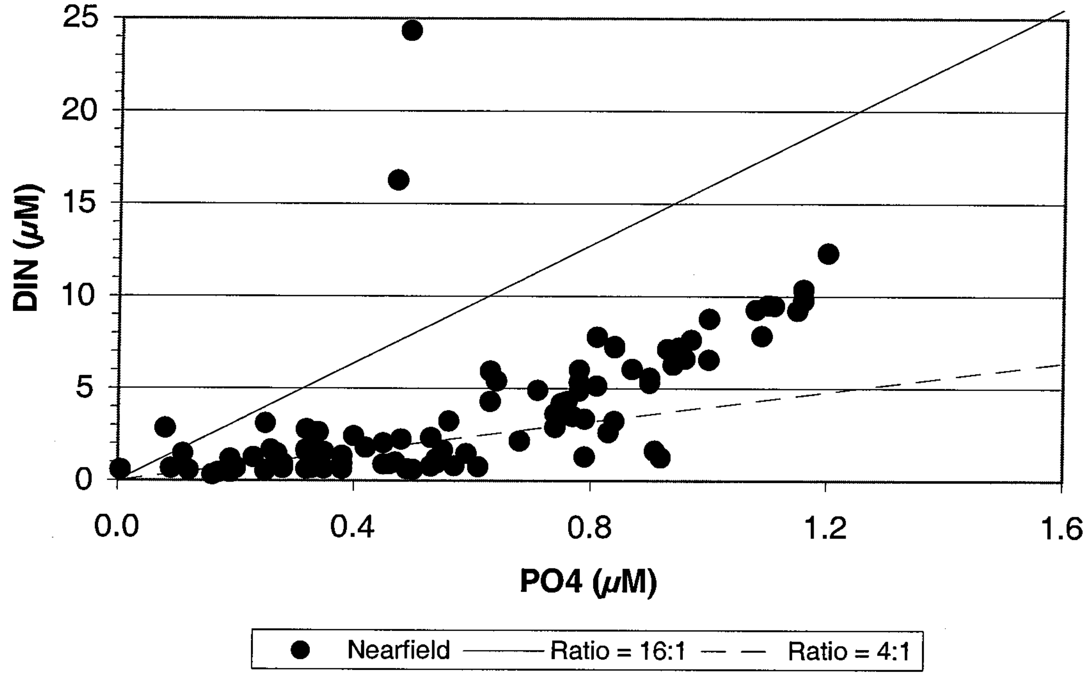


Figure D-124. Depth vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

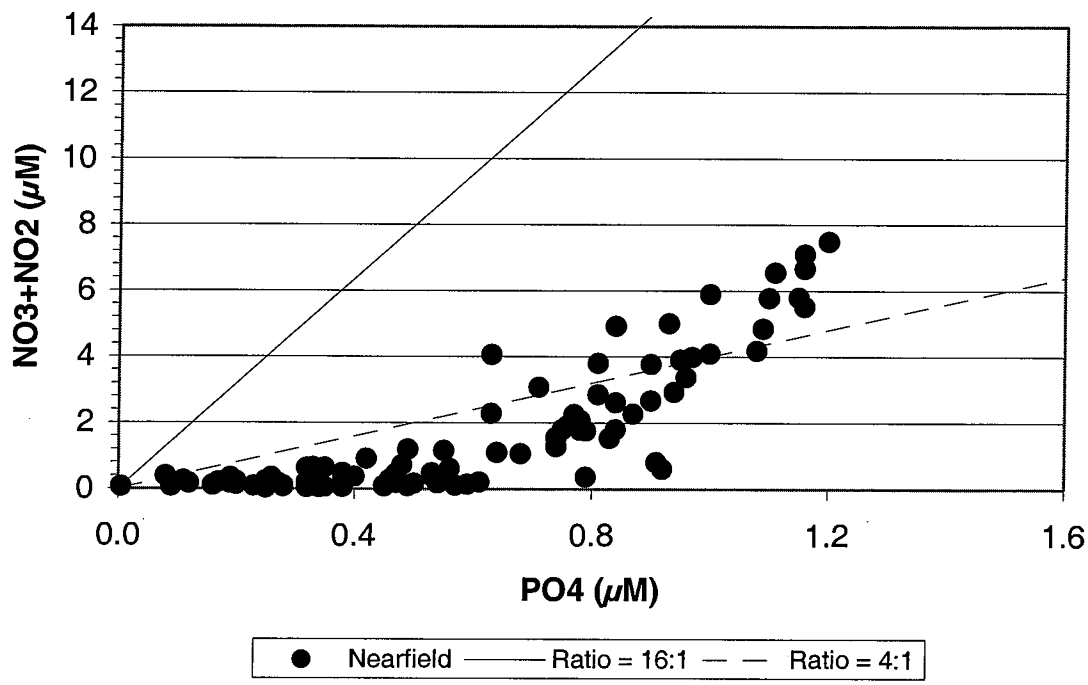
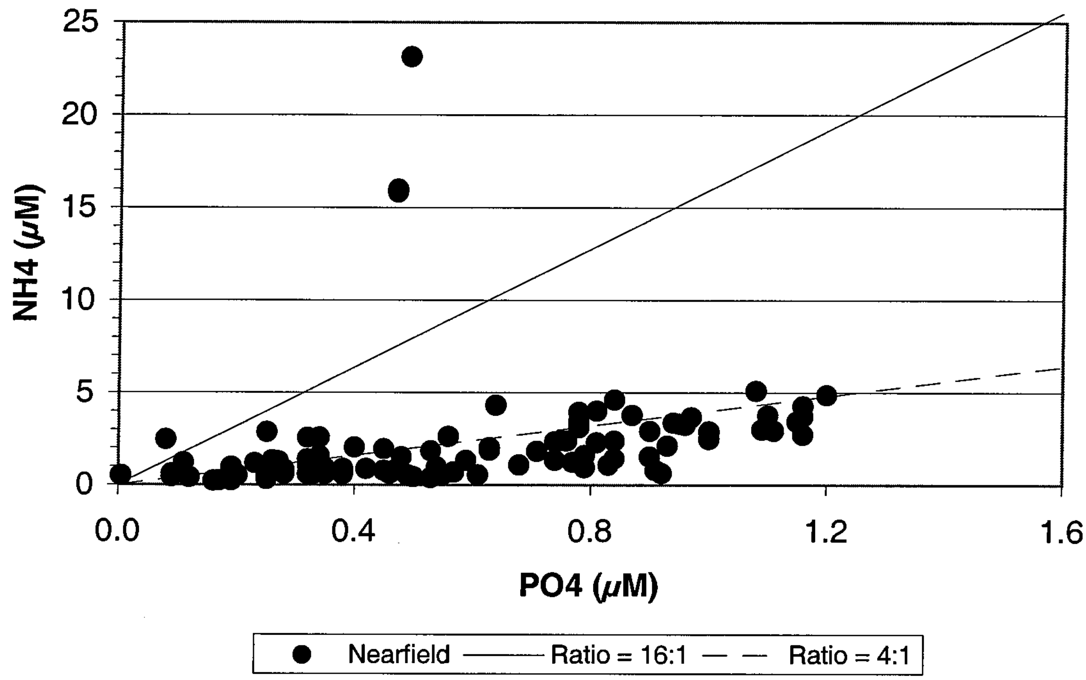


Figure D-125. Nutrient vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

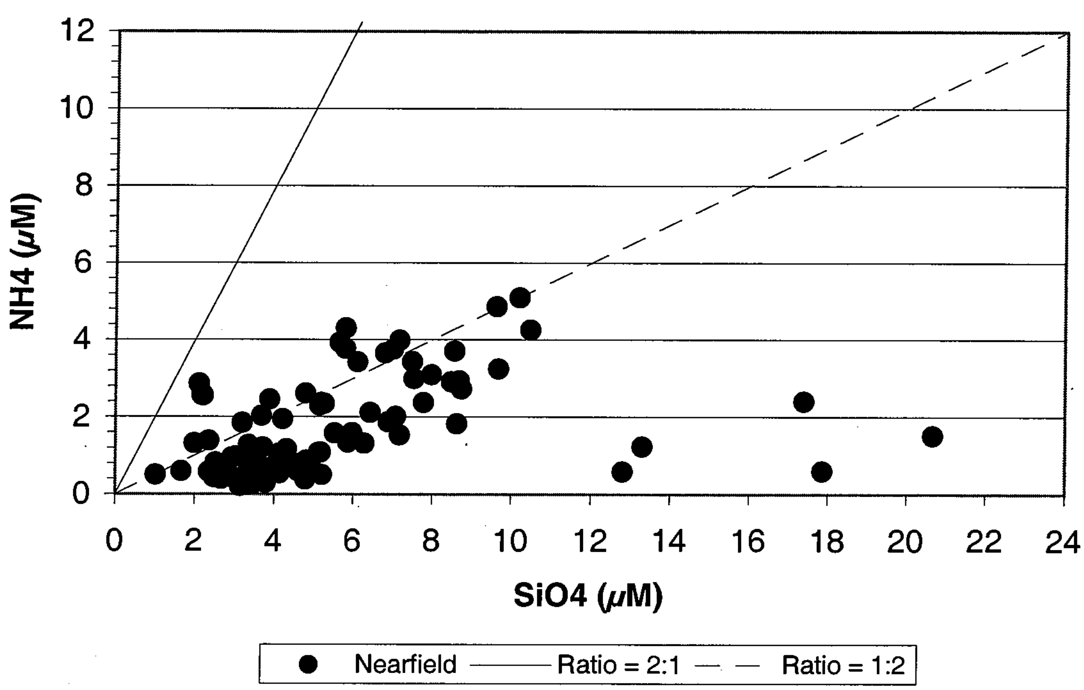
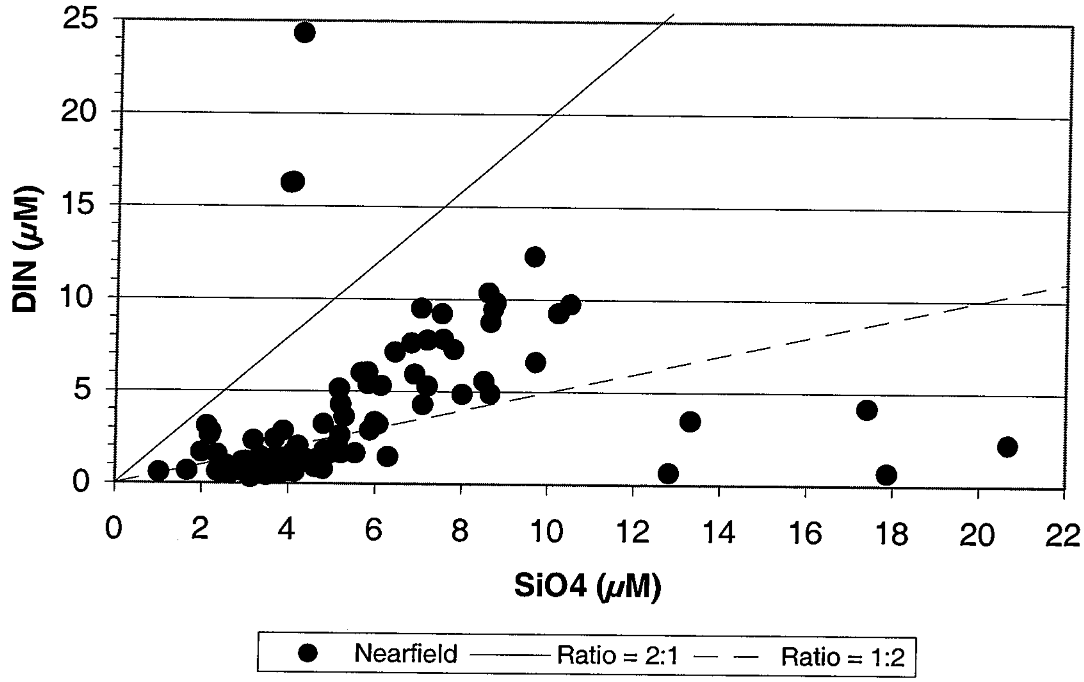


Figure D-126. Nutrient vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

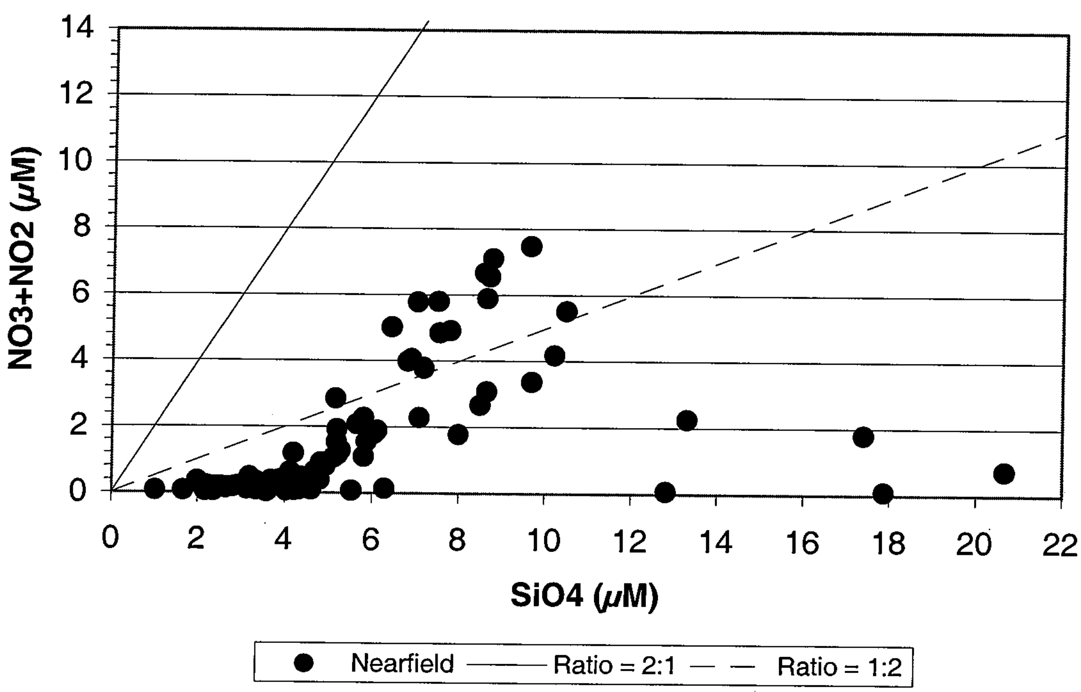
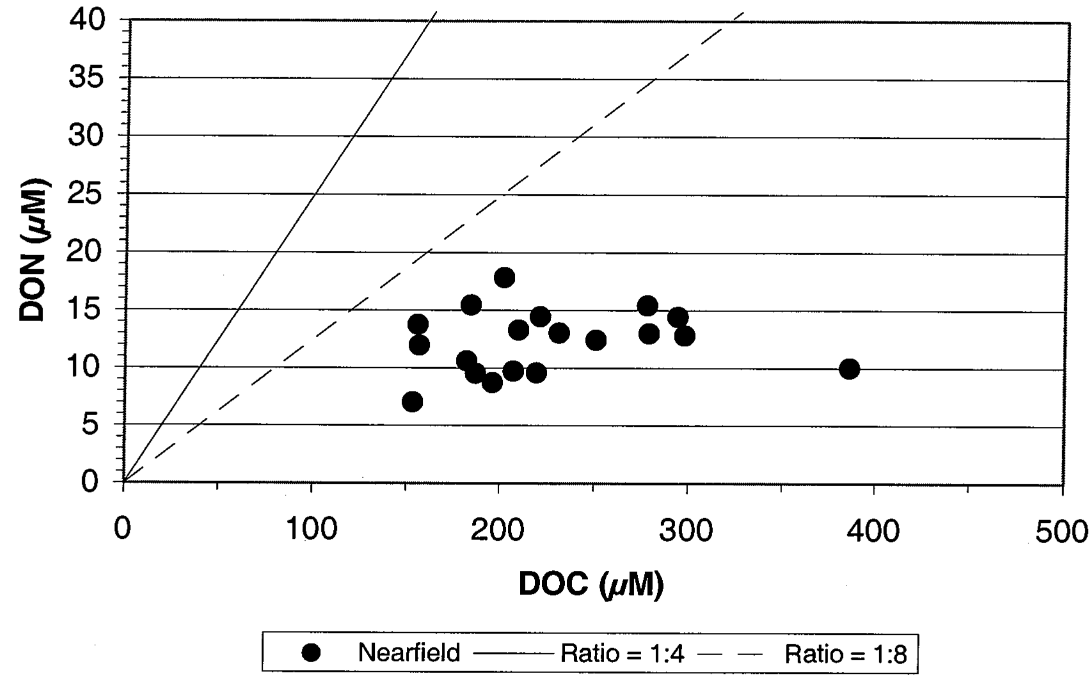


Figure D-127. Nutrient vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

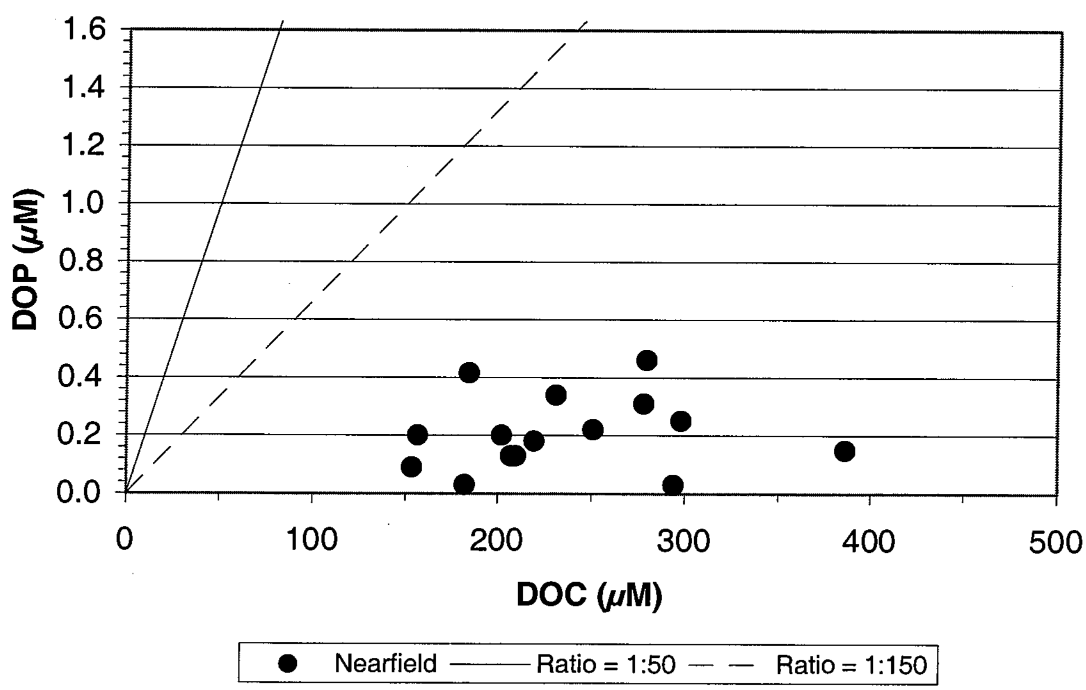
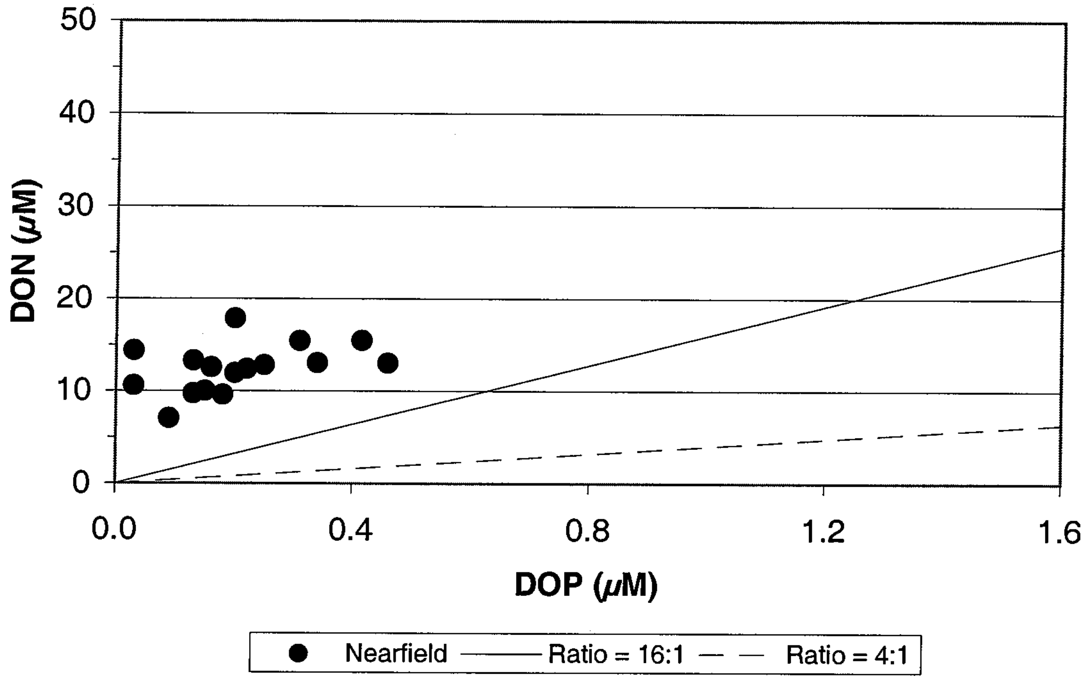


Figure D-128. Nutrient vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

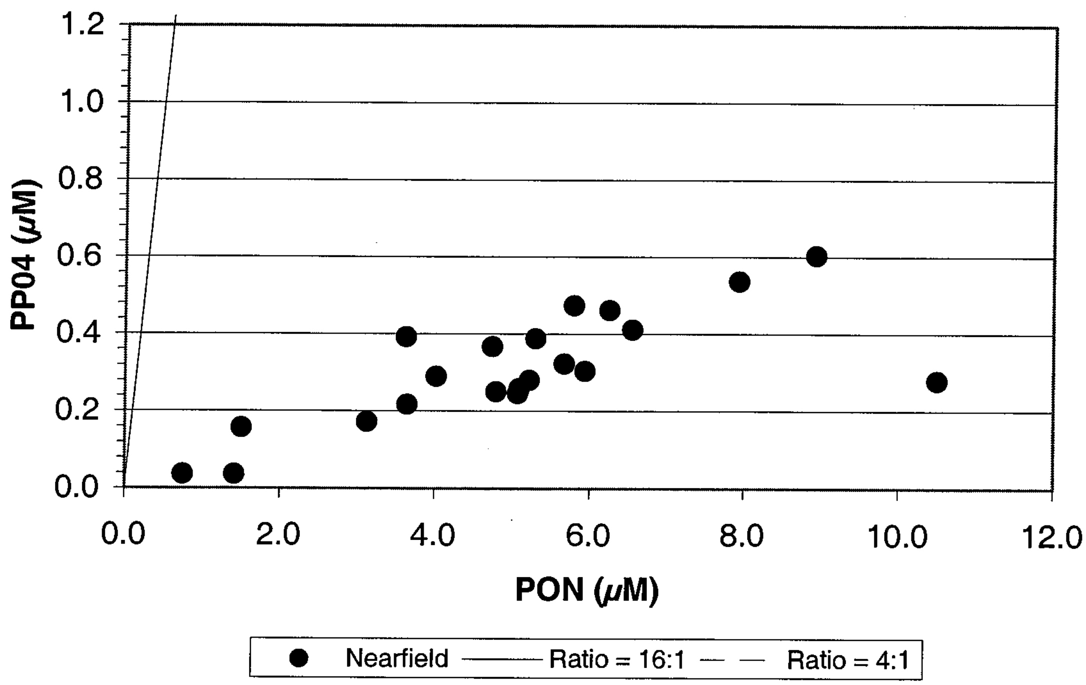


Figure D-129. Nutrient vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

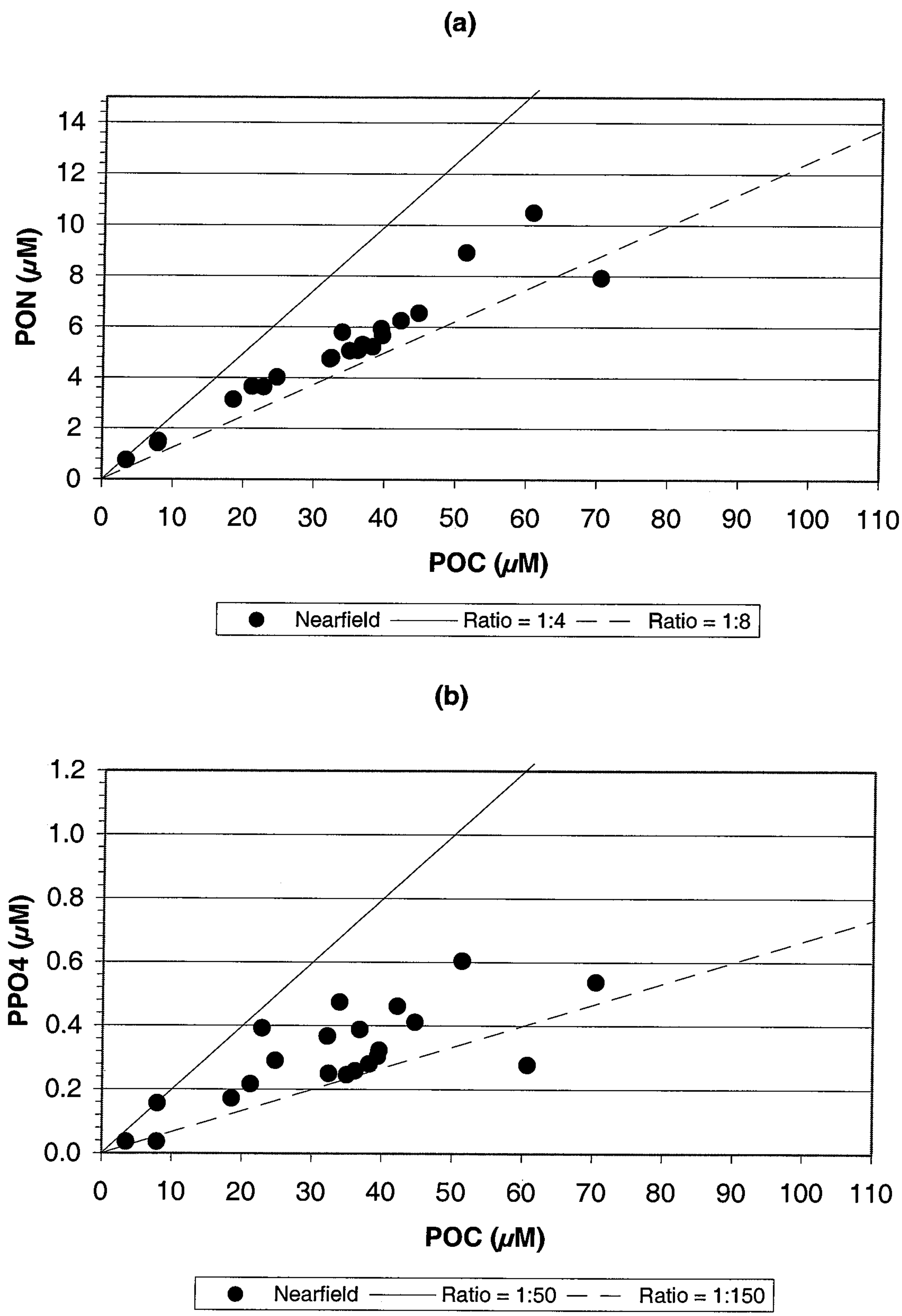
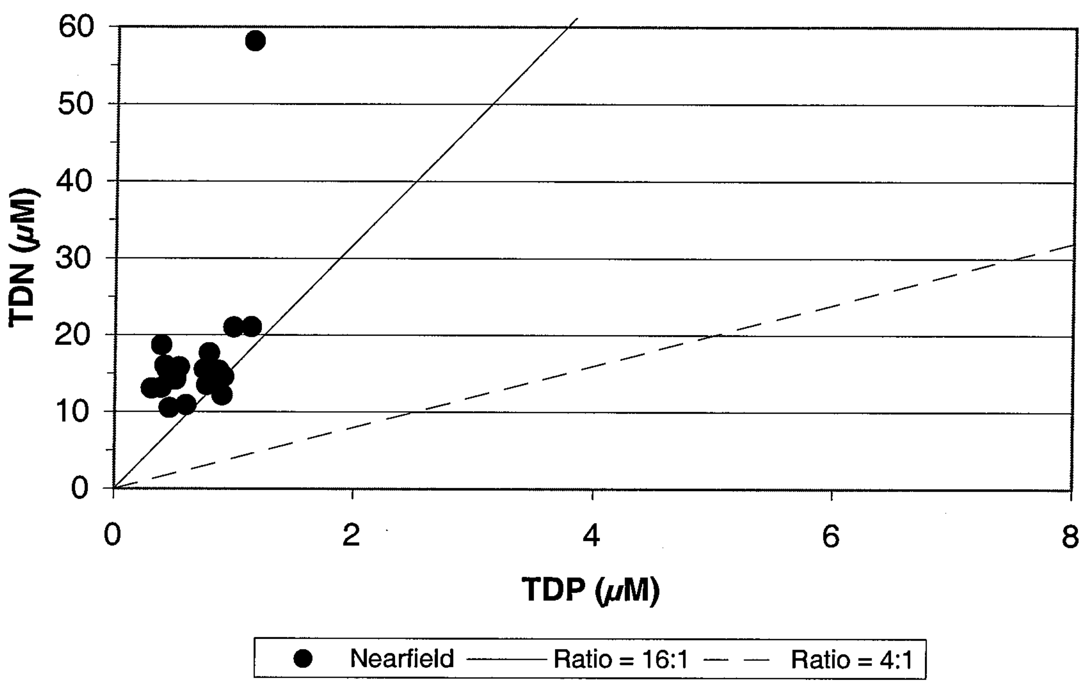


Figure D-130. Nutrient vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

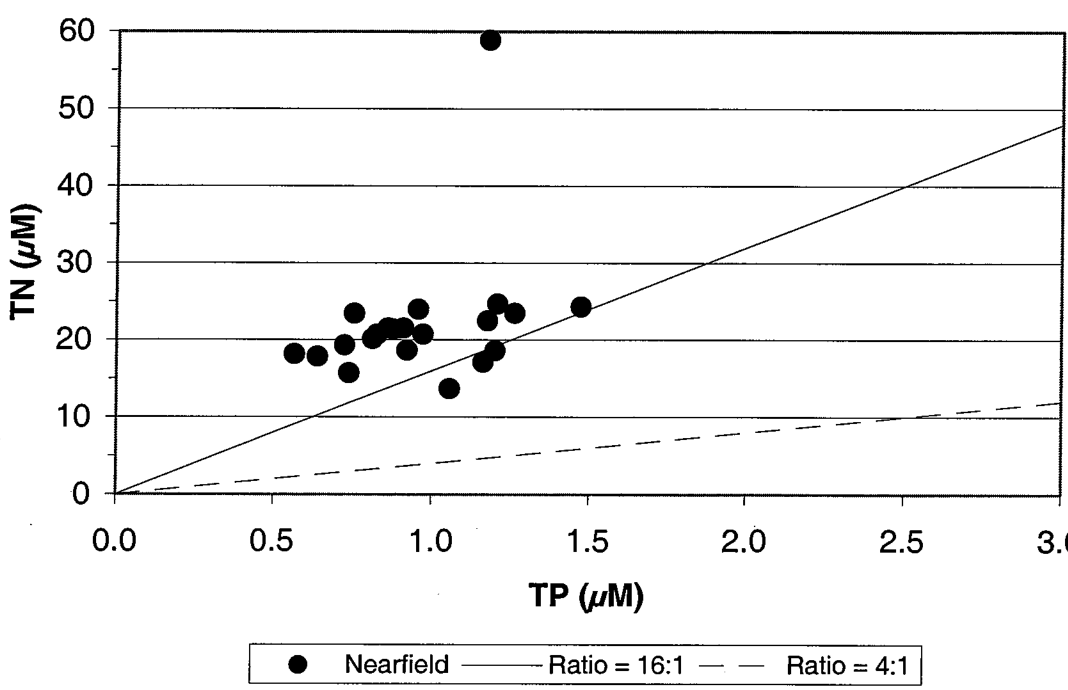
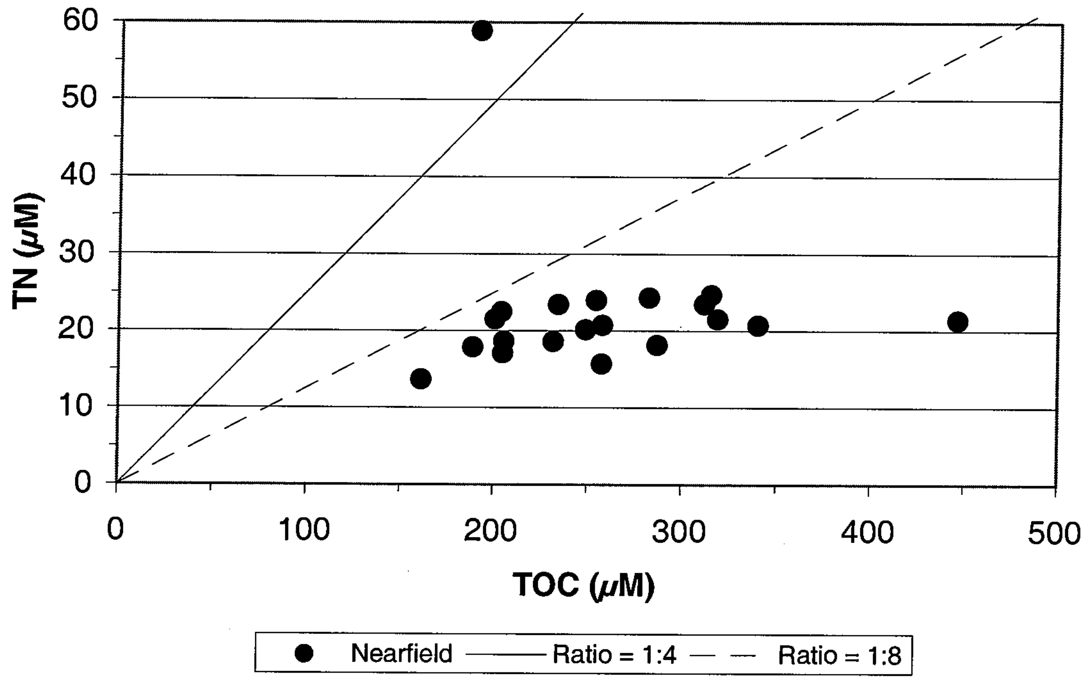


Figure D-131. Nutrient vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

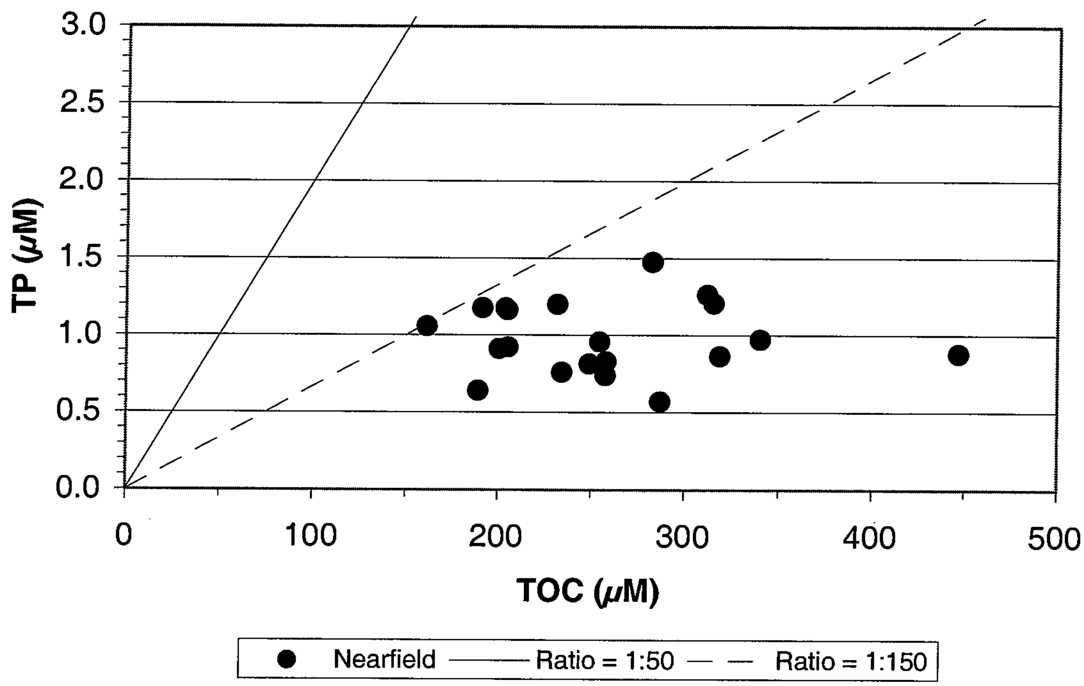


Figure D-132. Nutrient vs. Nutrient Plots for Nearfield Survey WN009, (Jul 00)

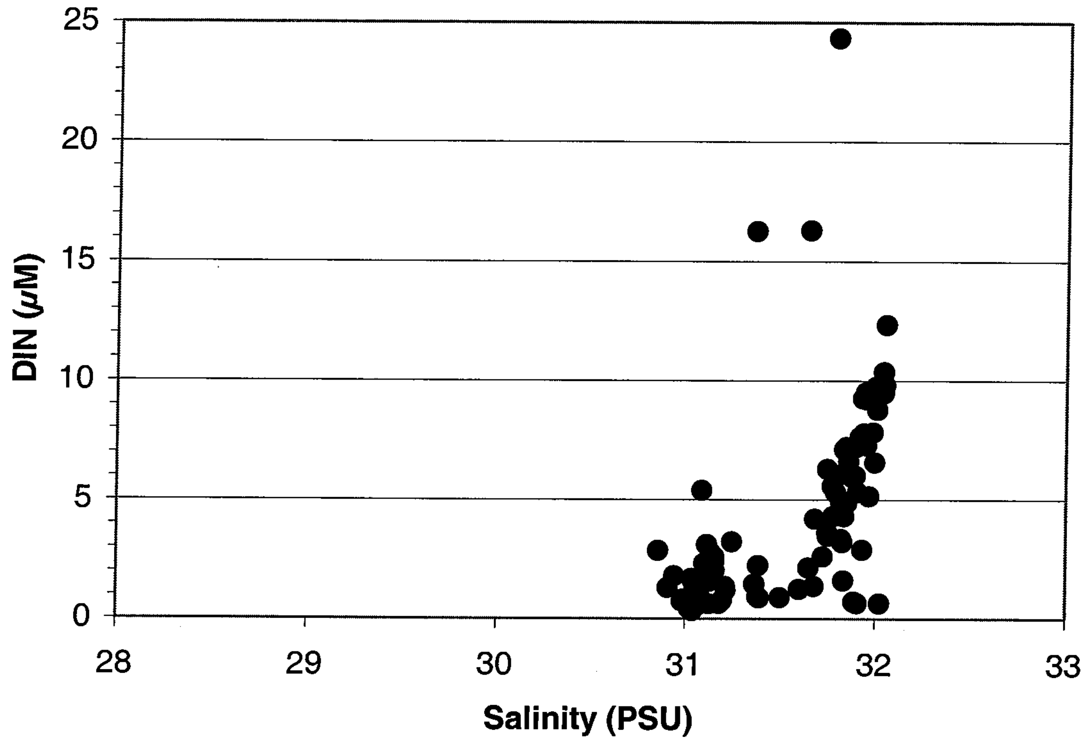
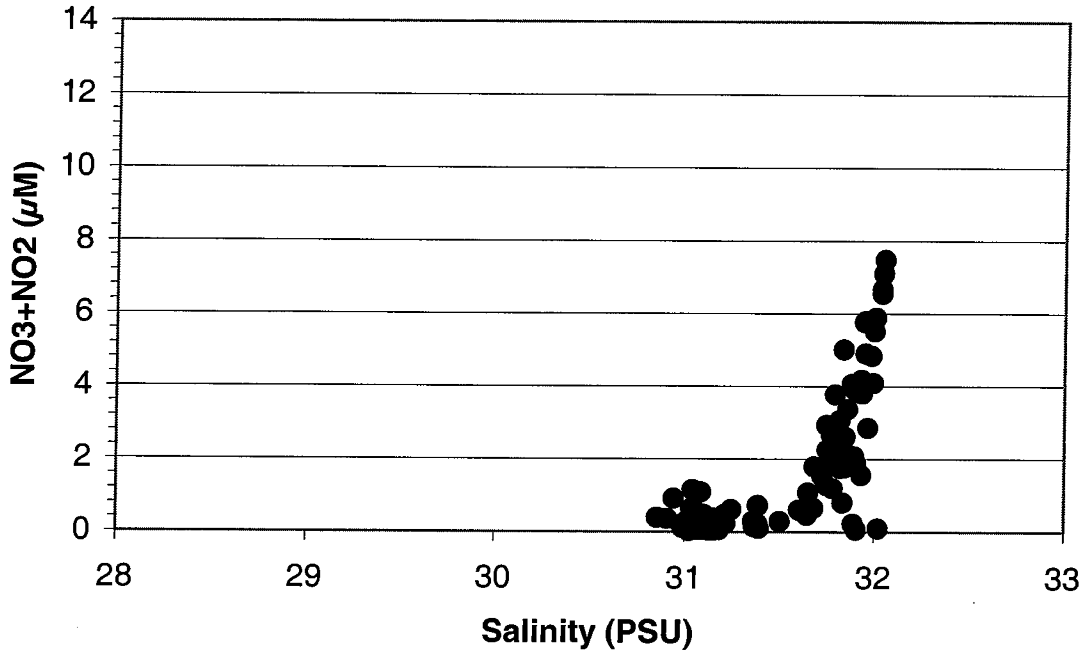


Figure D-133. Nutrient vs. Salinity Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

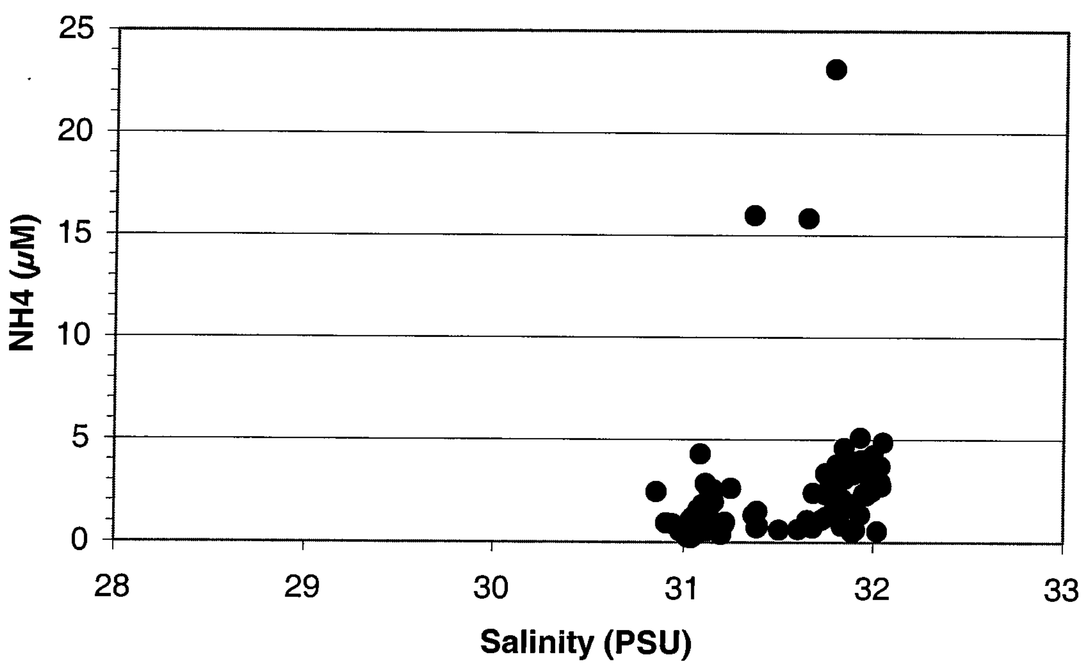
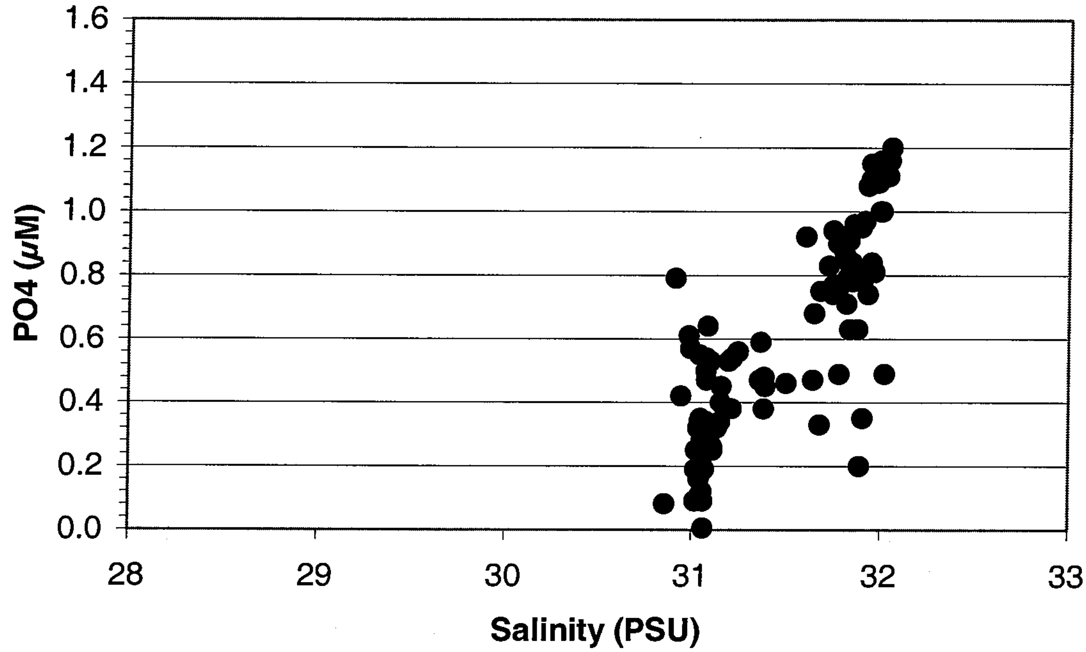


Figure D-134. Nutrient vs. Salinity Plots for Nearfield Survey WN009, (Jul 00)

(a)



(b)

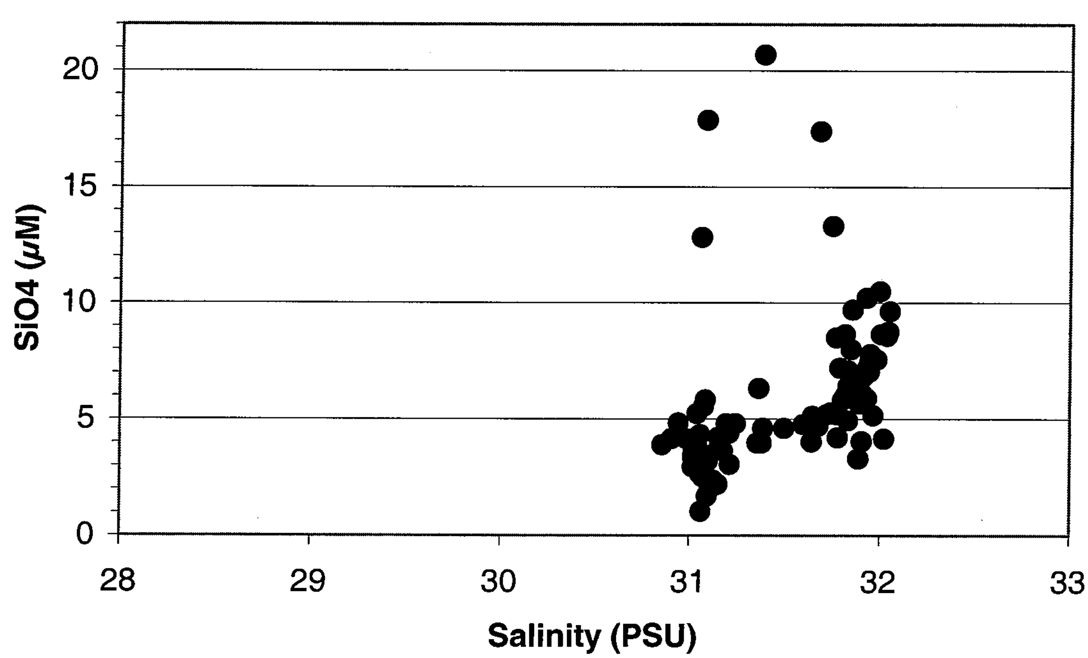


Figure D-135. Nutrient vs. Salinity Plots for Nearfield Survey WN009, (Jul 00)

APPENDIX E

Photosynthesis-Irradiance (P-I) Curves

Photosynthesis-Irradiance (P-I) Curves

Productivity (Prod, mg C m^{-3} hr^{-1}) versus irradiance (Light, μE m^{-2} sec^{-1}) curves for the period 3 February to 20 July 2000. Comprehensive data are presented for each cruise by station (N04, N18, and F23) and by depth (surface, mid-surface, middle, mid-bottom and bottom). Productivity calculations (Appendix A) utilized light attenuation data from a CTD-mounted 4-π sensor and incident light time-series data from a 2-π irradiance sensor located on Deer Island, MA. After collection of the productivity samples, they were transported to the Marine Ecosystems Research Laboratory (MERL) where they were incubated in temperature controlled incubators. Hourly productivity measurements were converted to daily values by fitting the measured hourly rates and light data to one of two P-I models (with or without photoinhibition). Using the fitted parameters, the measured incident light, and the light attenuation data, production rates were calculated for each 15-minute interval over the daylight period (centered from 6 AM to 6 PM), summed for each sampling depth, then integrated over depth to give areal production for each station.

WF001 **Station N04**

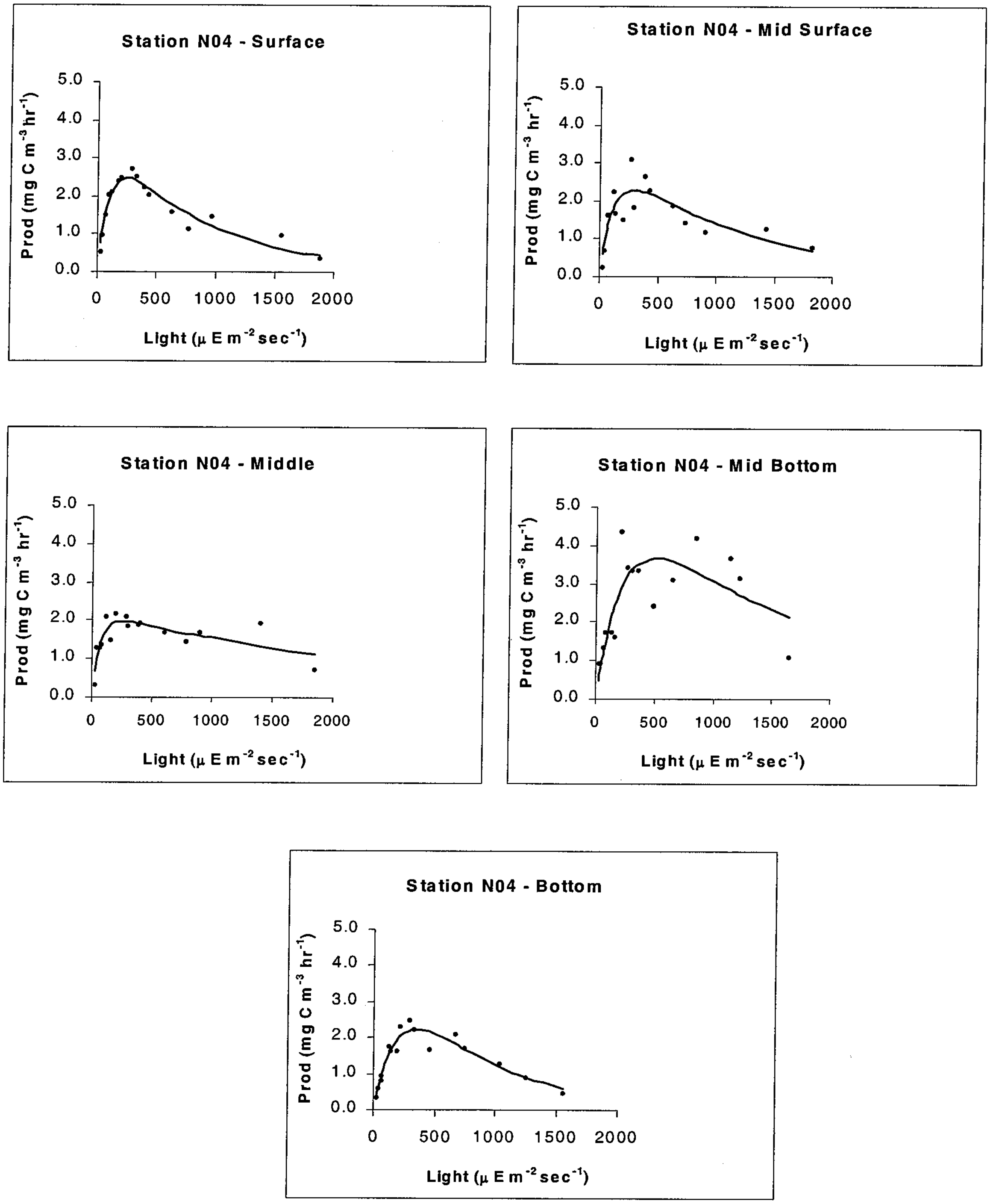


Figure E-1. Photosynthesis-Irradiance (P-I) Curves for Station N04 from Farfield Survey WF001 (Feb 00).

WF001 **Station N18**

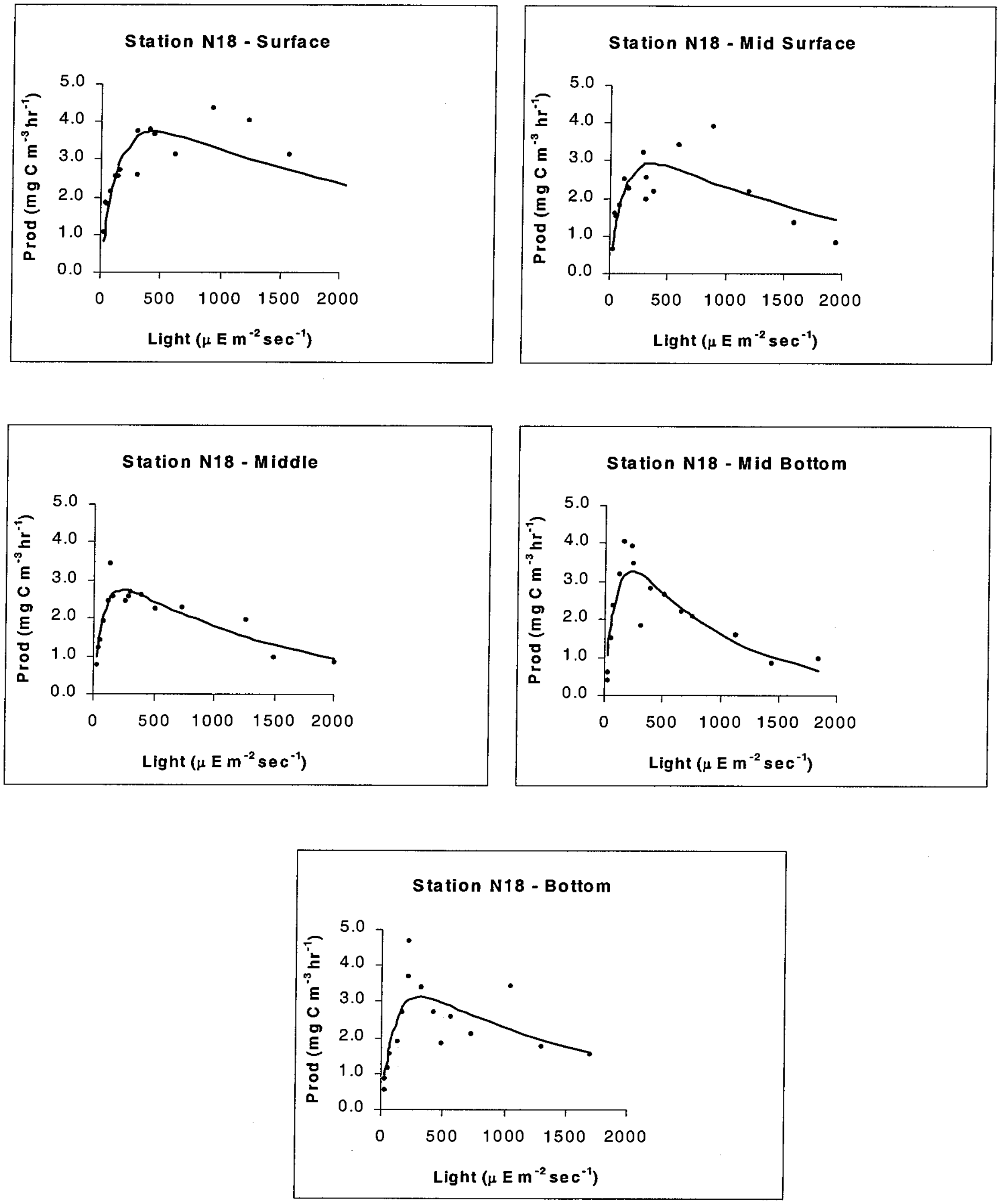


Figure E-2. Photosynthesis-Irradiance (P-I) Curves for Station N18 from Farfield Survey WF001 (Feb 00).

WF001 **Station F23**

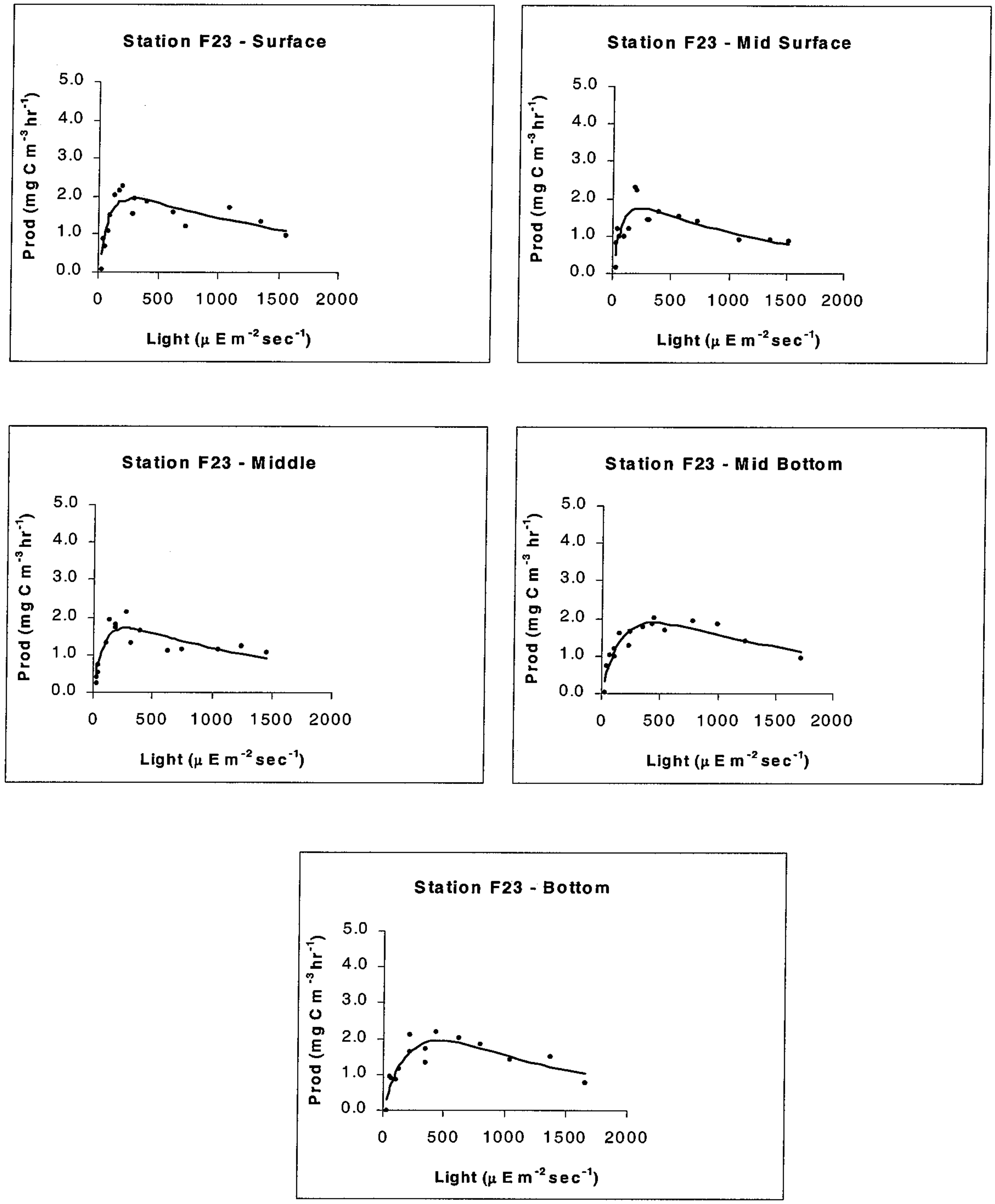


Figure E-3. Photosynthesis-Irradiance (P-I) Curves for Station F23 from Farfield Survey WF001 (Feb 00).

WF002 **Station N04**

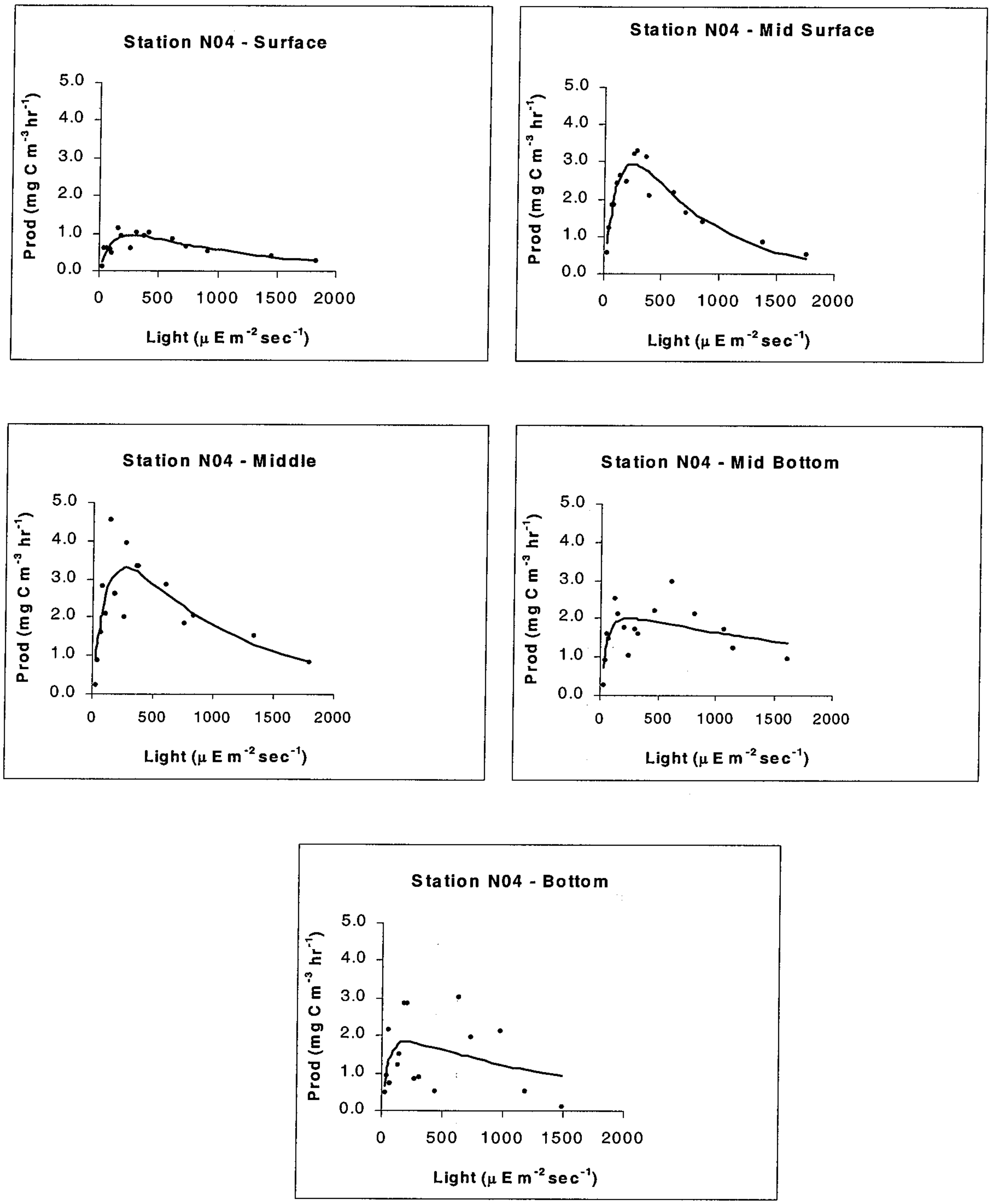


Figure E-4. Photosynthesis-Irradiance (P-I) Curves for Station N04 from Farfield Survey WF002 (Feb 00).

WF002 **Station N18**

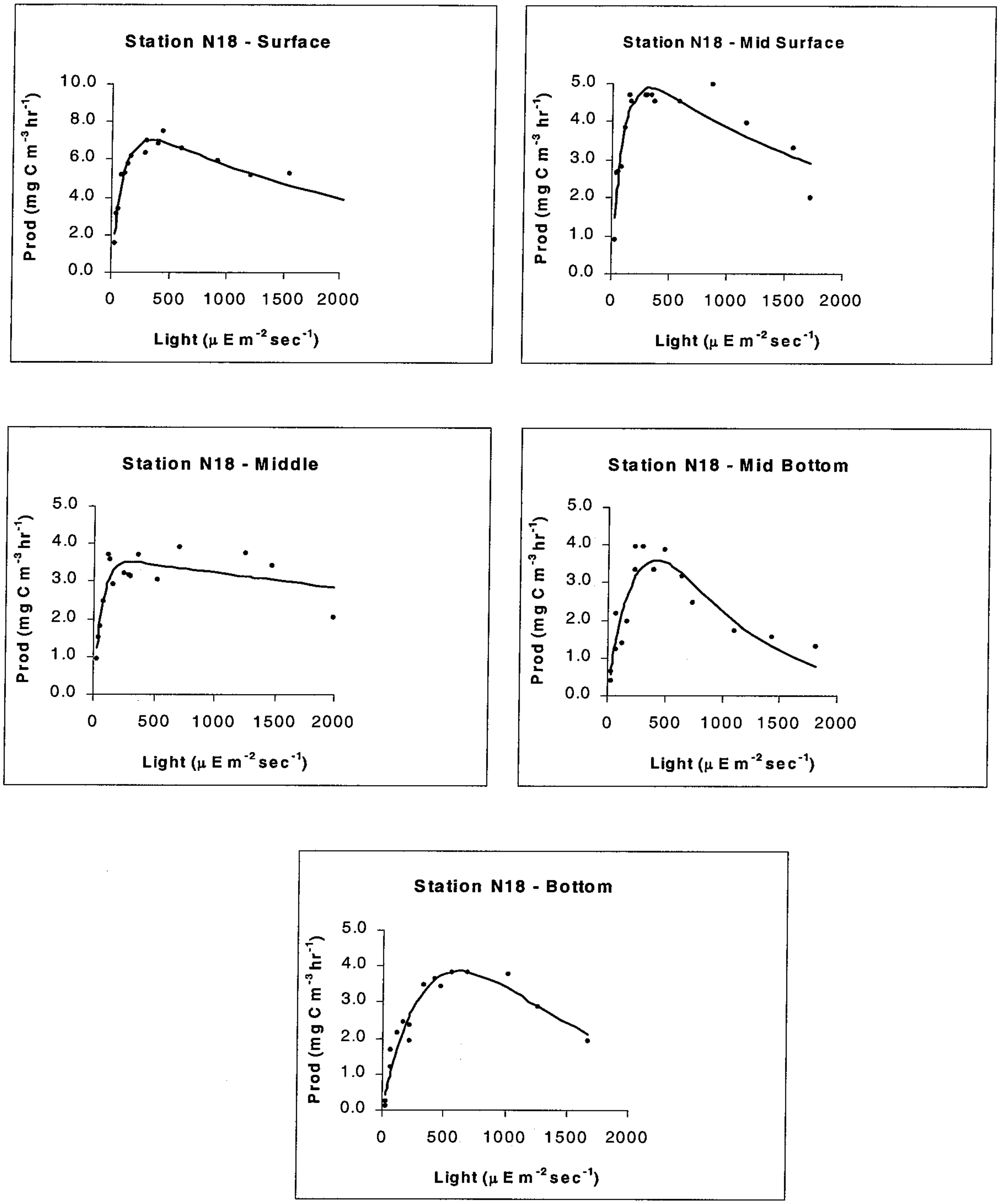
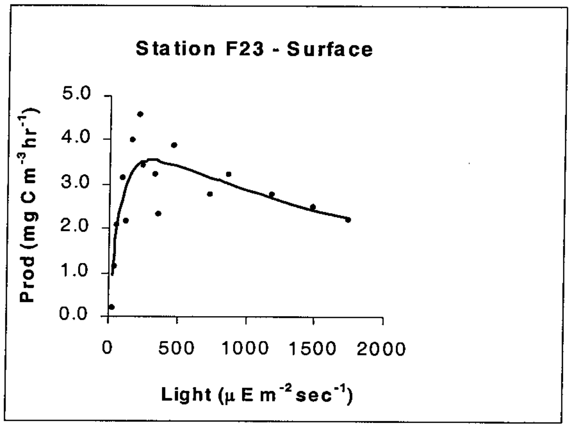
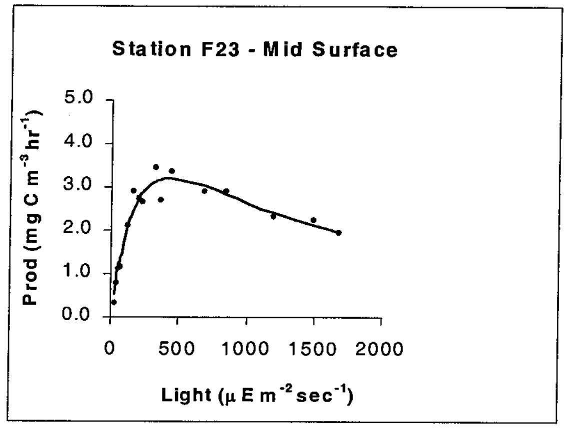
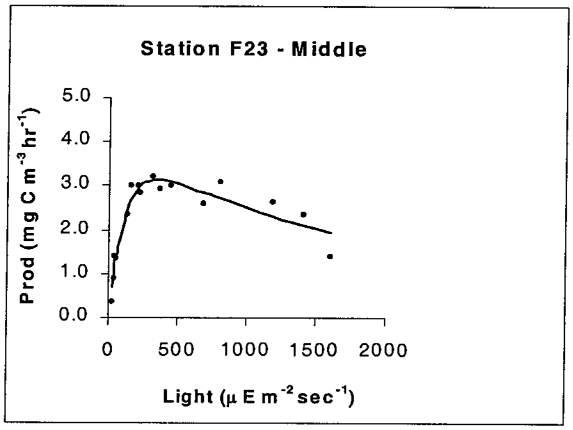


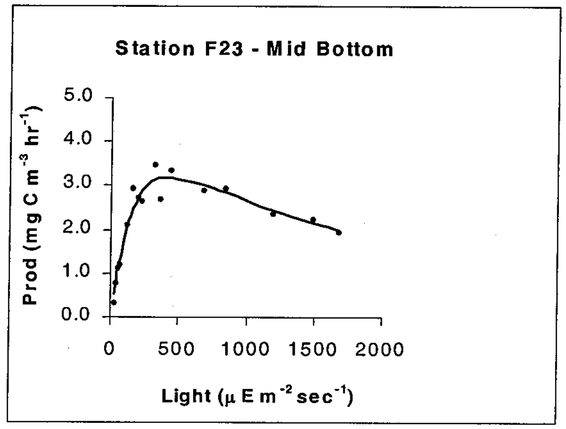
Figure E-5. Photosynthesis-Irradiance (P-I) Curves for Station N18 from Farfield Survey WF002 (Feb 00).

WF002 **Station F23**









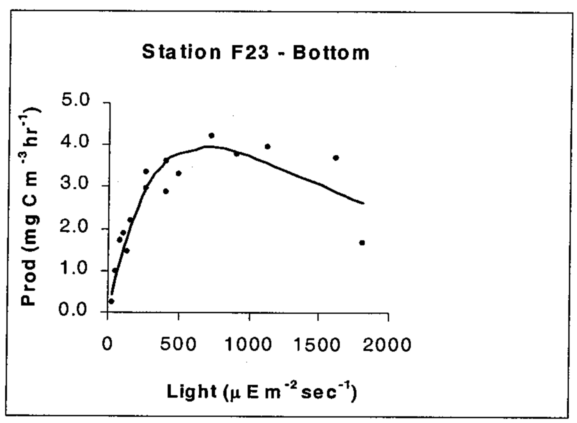


Figure E-6. Photosynthesis-Irradiance (P-I) Curves for Station F23 from Farfield Survey WF002 (Feb 00).

WN003 **Station N04**

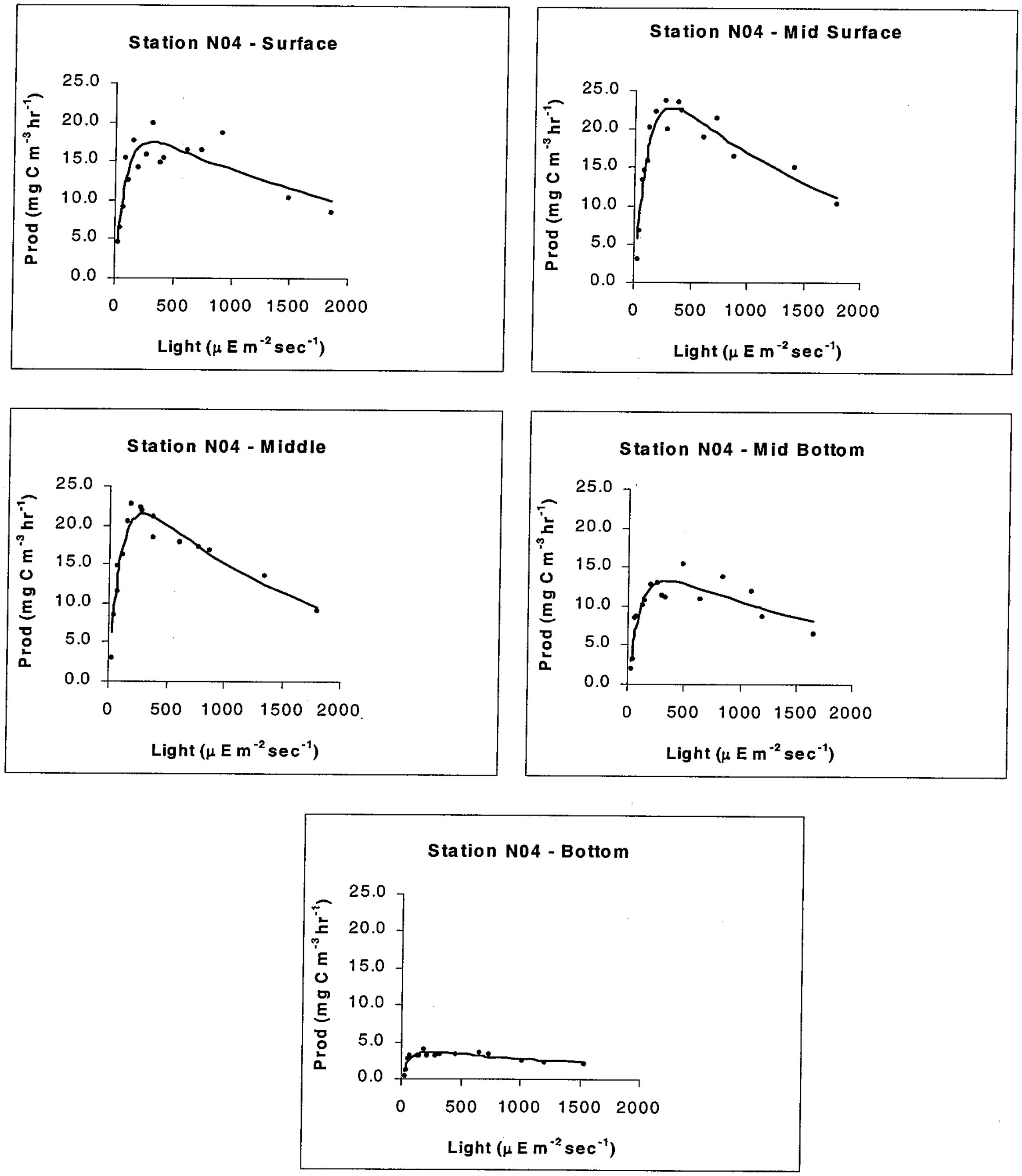
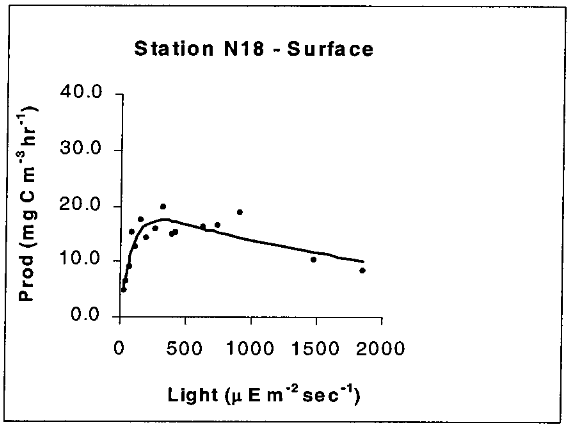
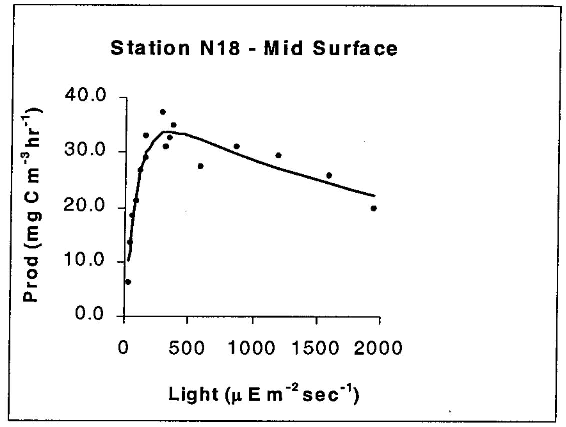
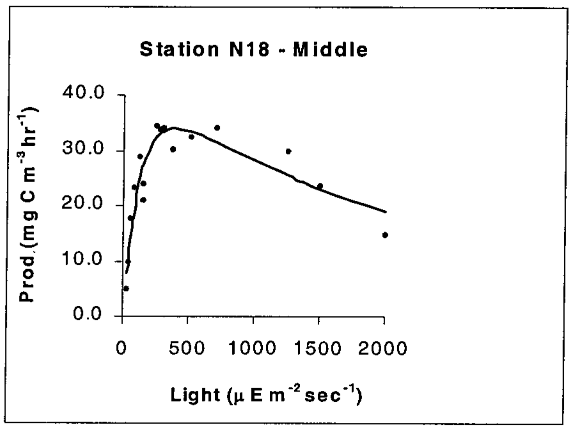


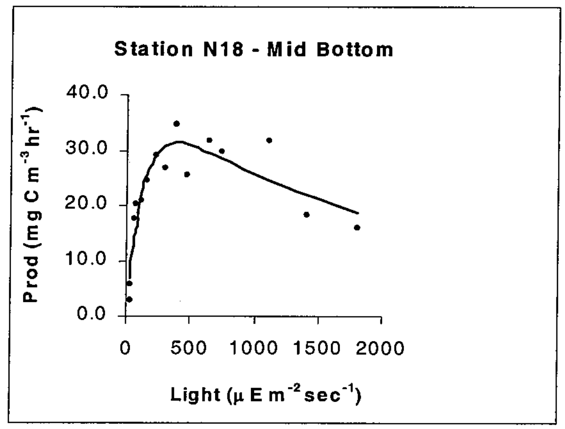
Figure E-7. Photosynthesis-Irradiance (P-I) Curves for Station N04 from Nearfield Survey WN003 (Mar 00).

WN003 **Station N18**









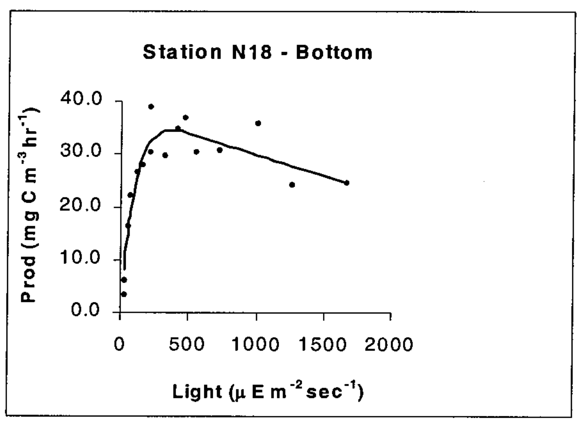


Figure E-8. Photosynthesis-Irradiance (P-I) Curves for Station N18 from Nearfield Survey WN003 (Mar 00).

WF004 **Station N04**

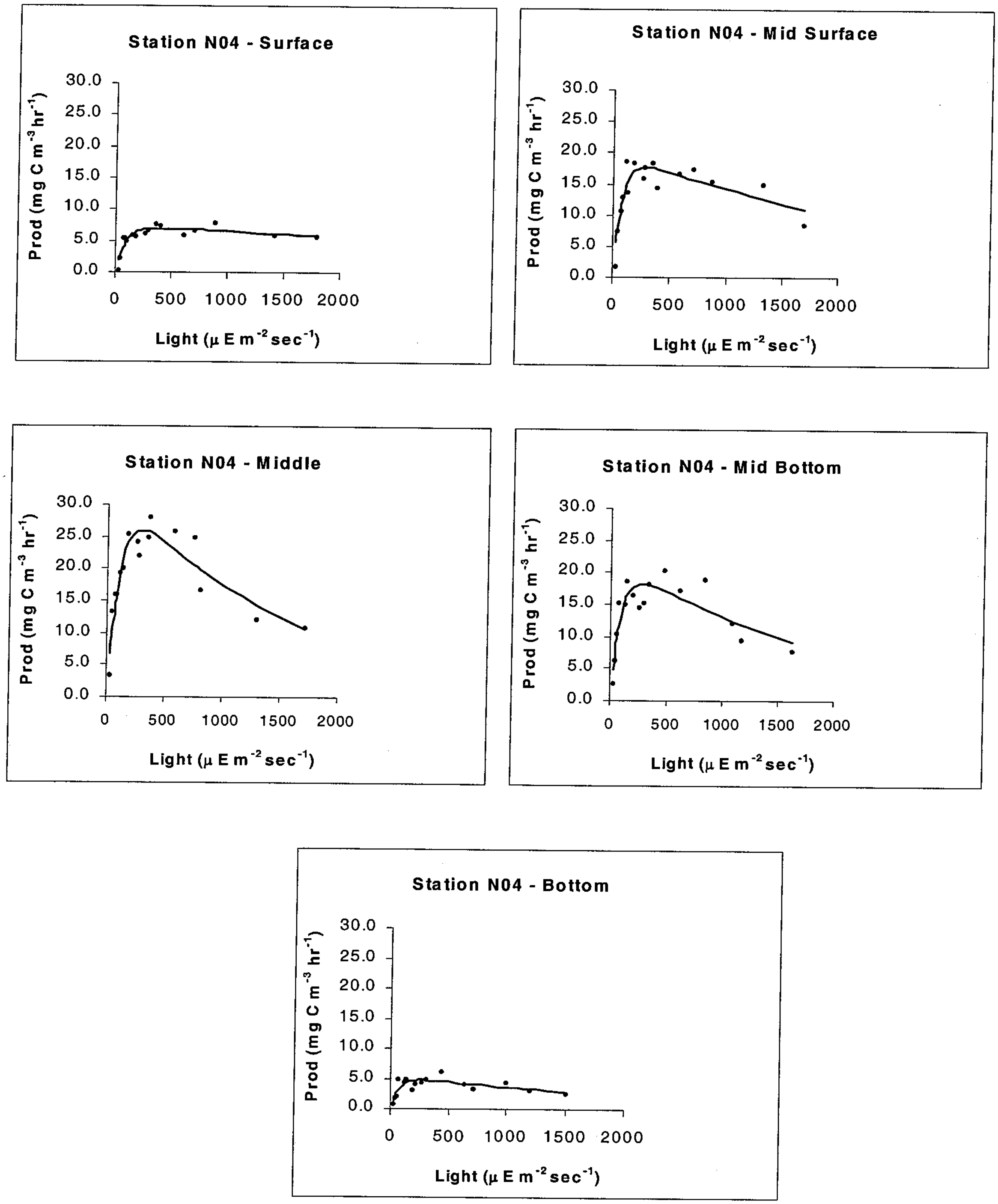


Figure E-9. Photosynthesis-Irradiance (P-I) Curves for Station N04 from Farfield Survey WF004 (Apr 00).

WF004 **Station N18**

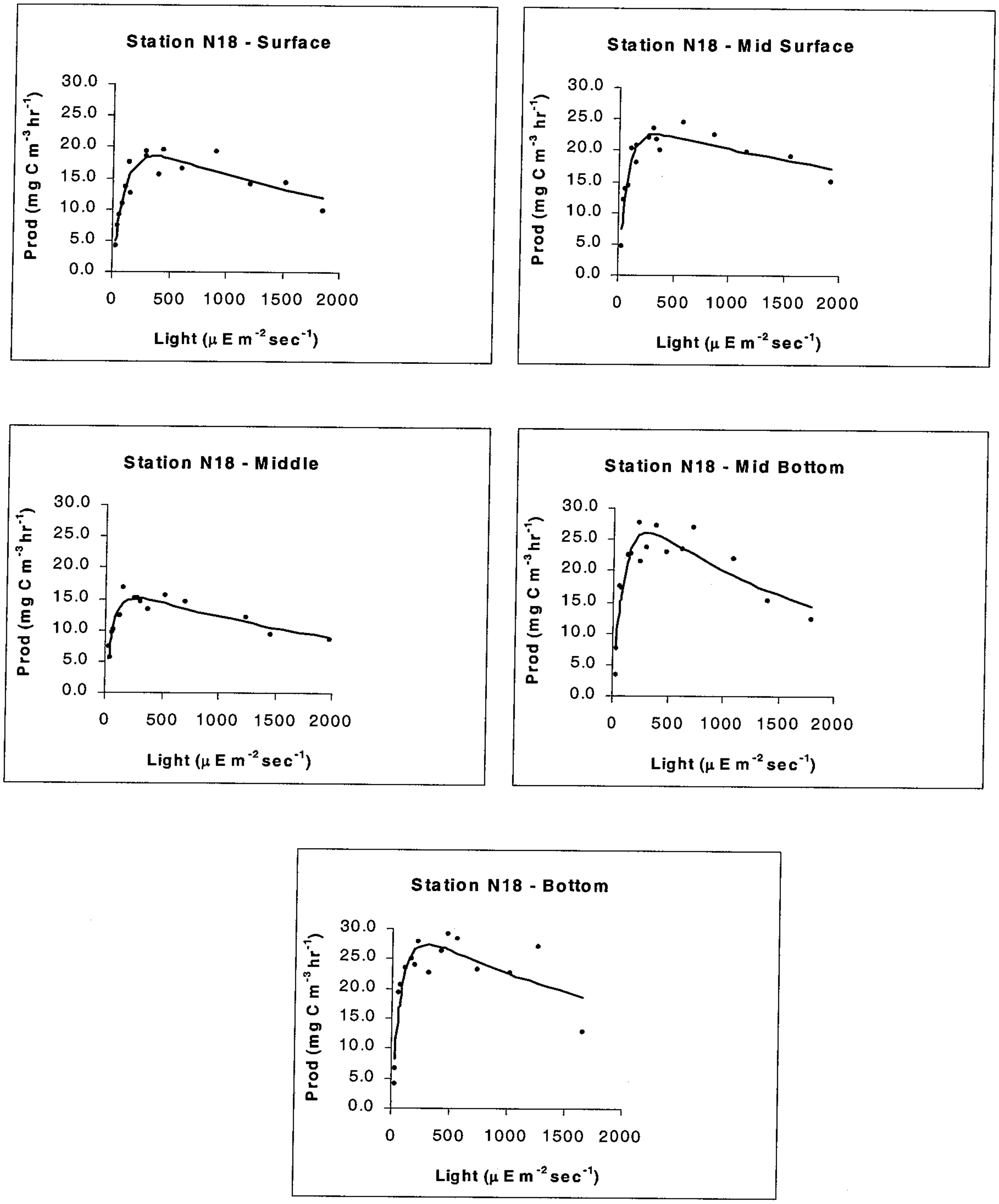


Figure E-10. Photosynthesis-Irradiance (P-I) Curves for Station N18 from Farfield Survey WF004 (Apr 00).

WF004 **Station F23**

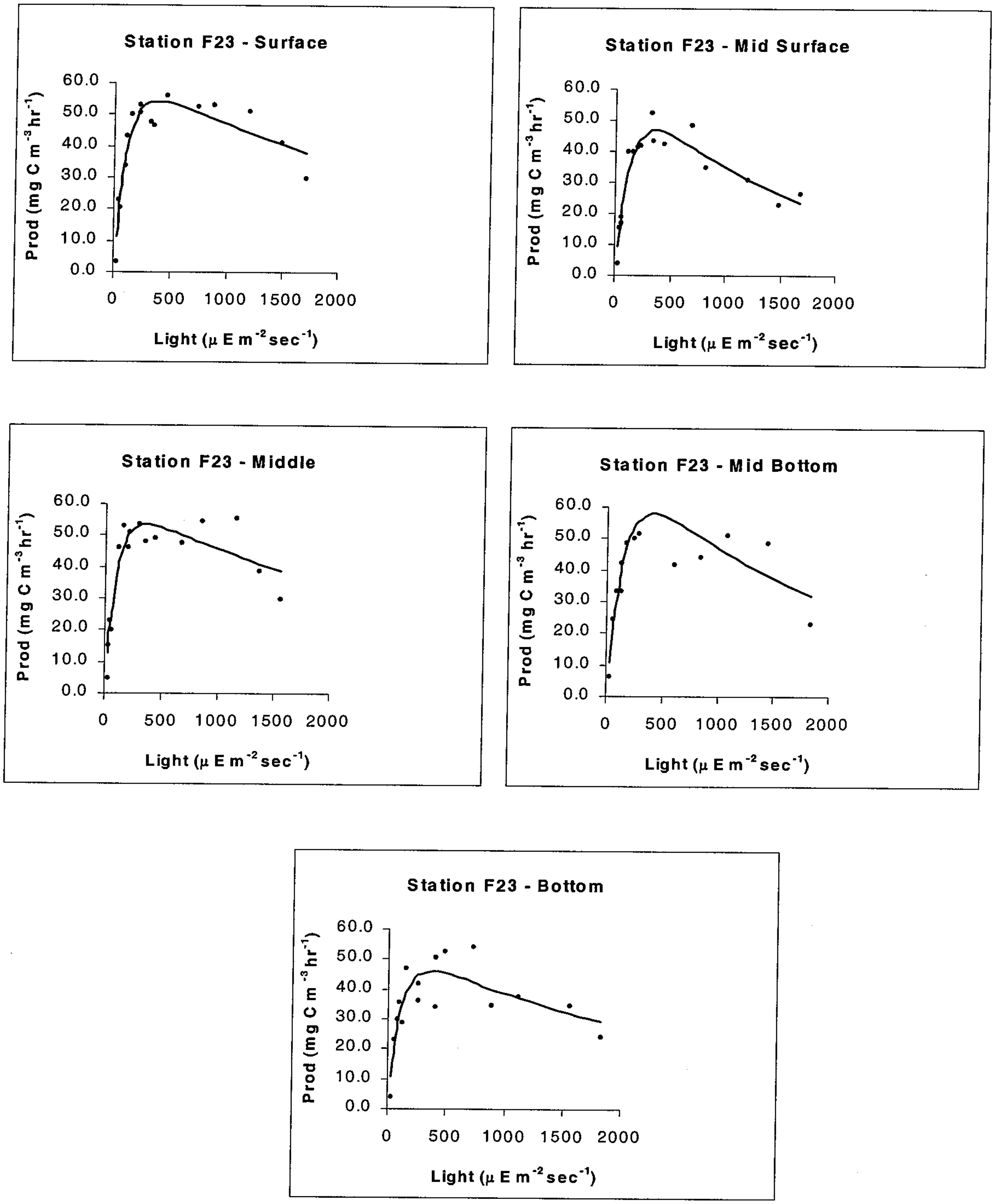


Figure E-11. Photosynthesis-Irradiance (P-I) Curves for Station F23 from Farfield Survey WF004 (Apr 00).

WN005 **Station N04**

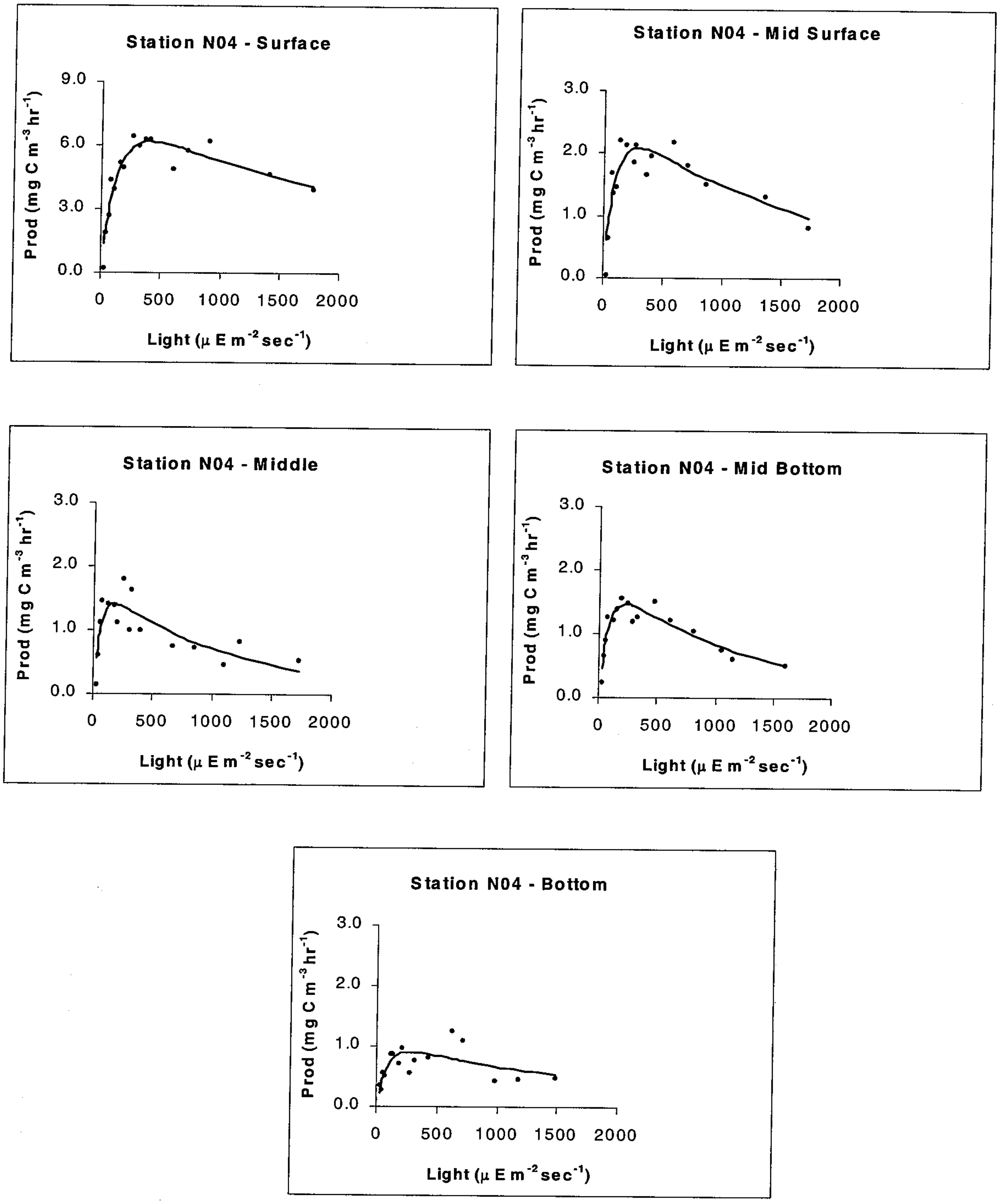


Figure E-12. Photosynthesis-Irradiance (P-I) Curves for Station N04 from Nearfield Survey WN005 (May 00).

WN005 **Station N18**

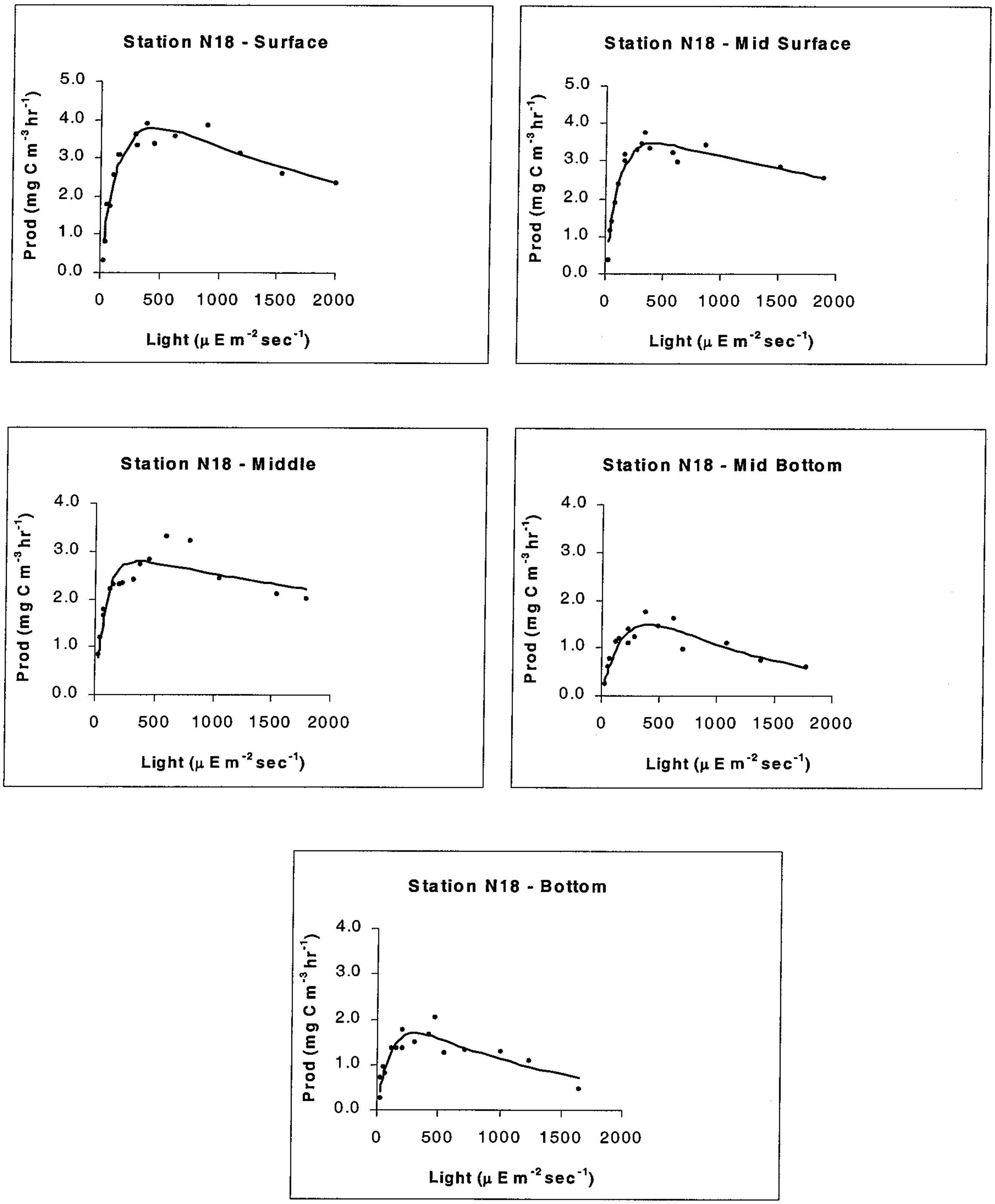


Figure E-13. Photosynthesis-Irradiance (P-I) Curves for Station N18 from Nearfield Survey WN005 (May 00).

WN006 **Station N04**

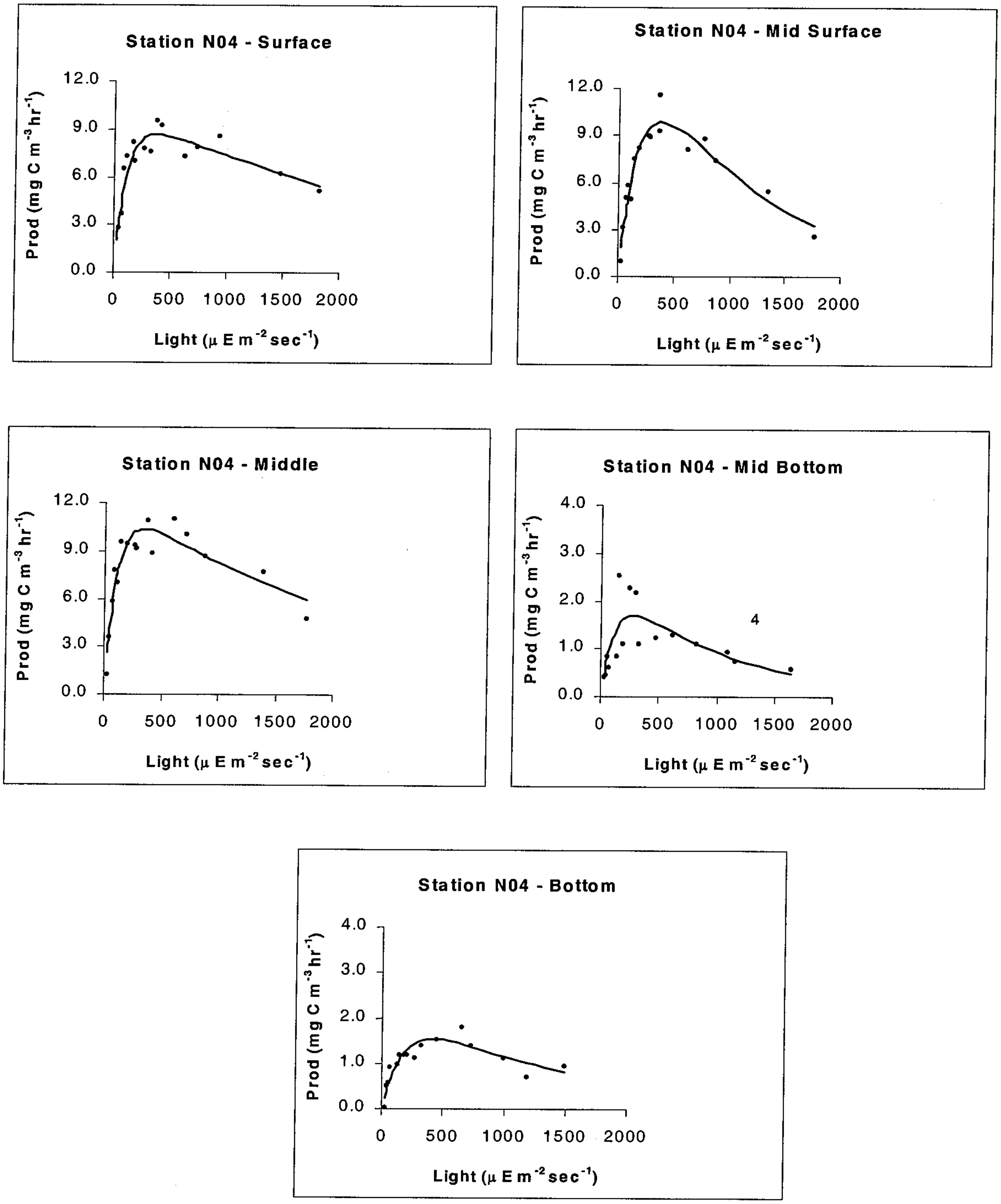
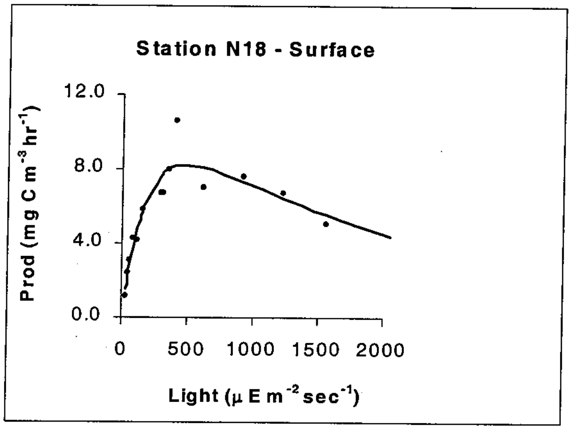
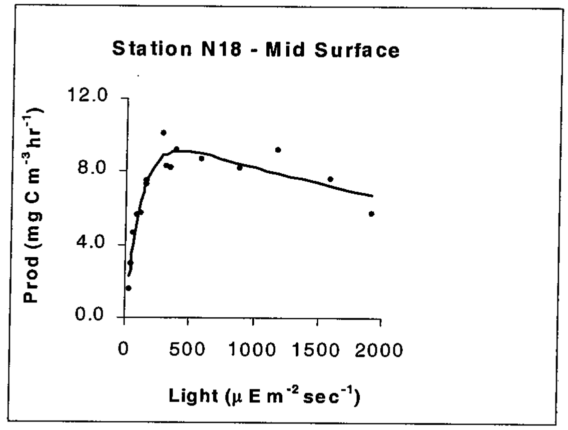
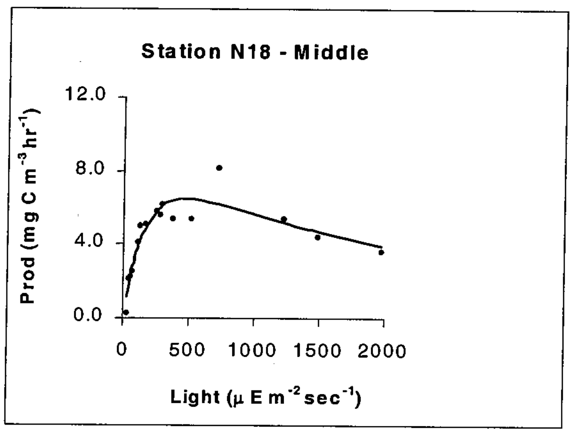


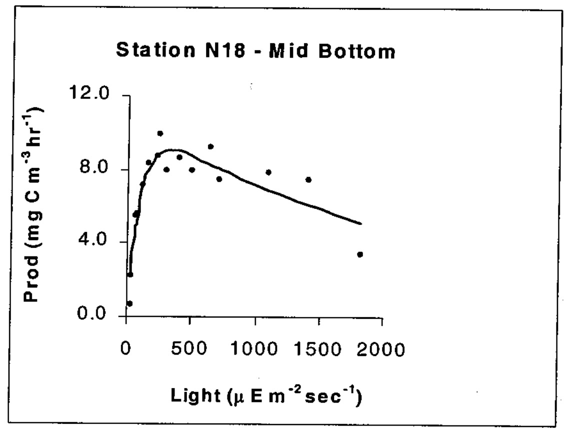
Figure E-14. Photosynthesis-Irradiance (P-I) Curves for Station N04 from Nearfield Survey WN006 (May 00).

WN006 **Station N18**









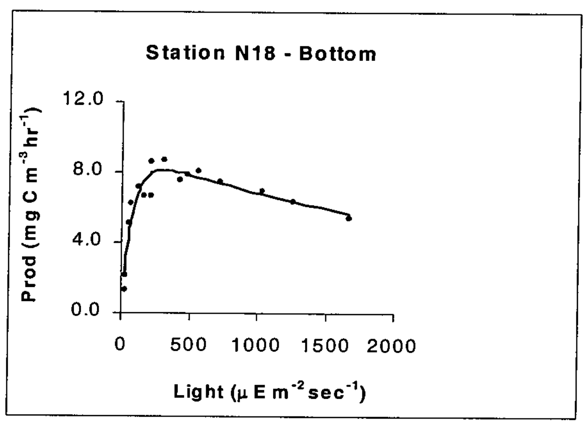


Figure E-15. Photosynthesis-Irradiance (P-I) Curves for Station N18 from Nearfield Survey WN006 (May 00).

WF007 **Station N04**

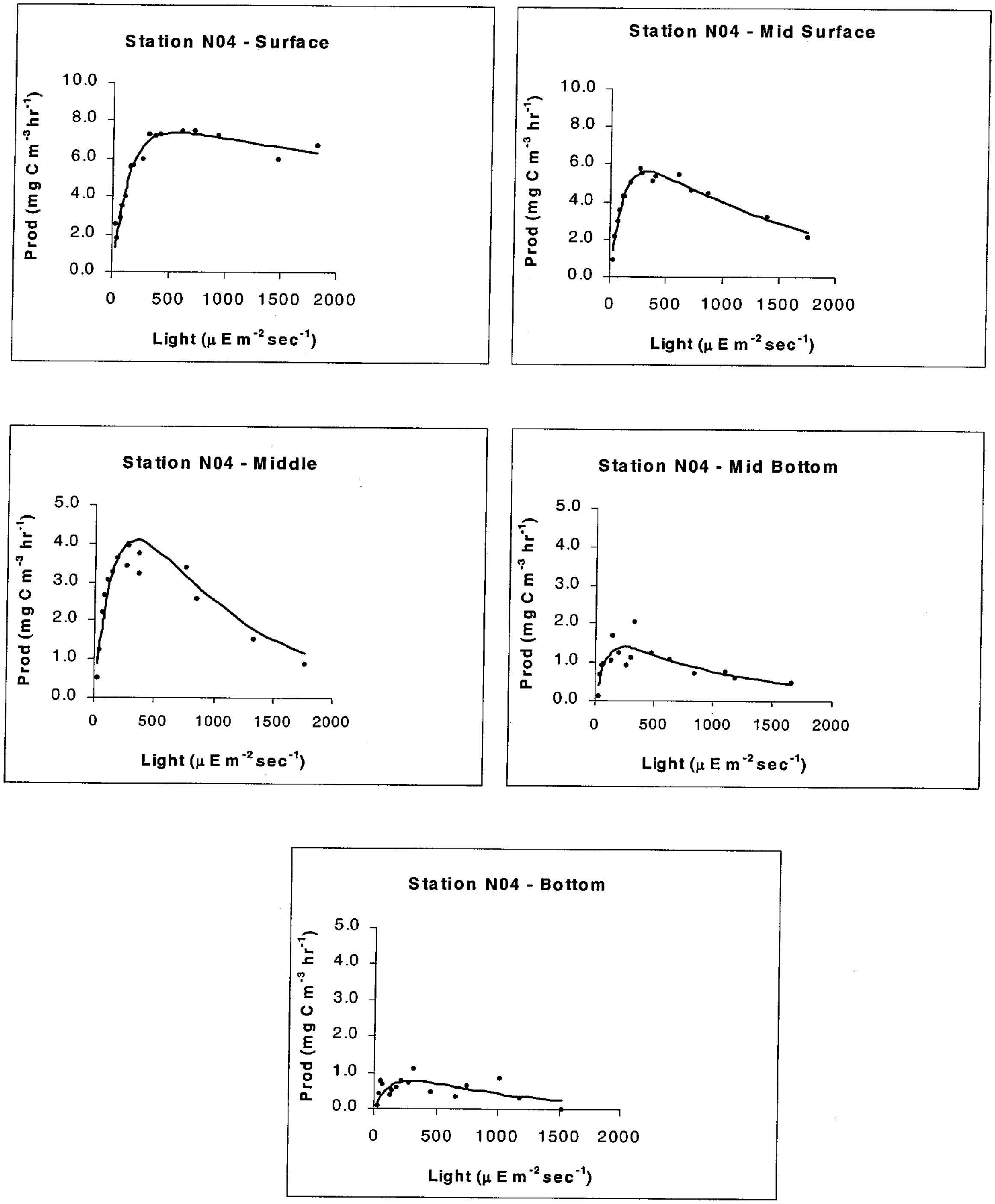


Figure E-16. Photosynthesis-Irradiance (P-I) Curves for Station N04 from Farfield Survey WF007 (Jun 00).

WF007 **Station N18**

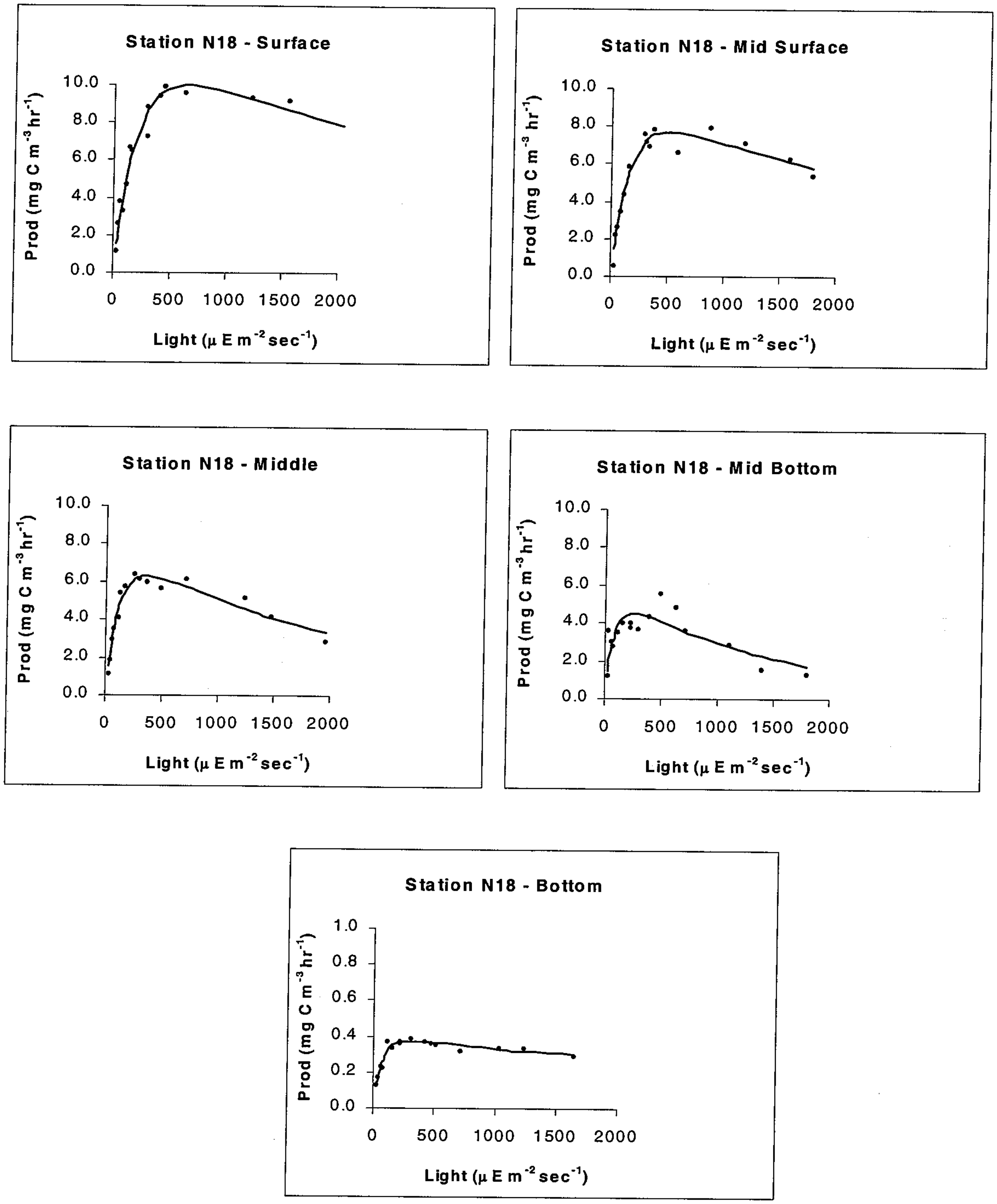


Figure E-17. Photosynthesis-Irradiance (P-I) Curves for Station N18 from Farfield Survey WF007 (Jun 00).

WF007 **Station F23**

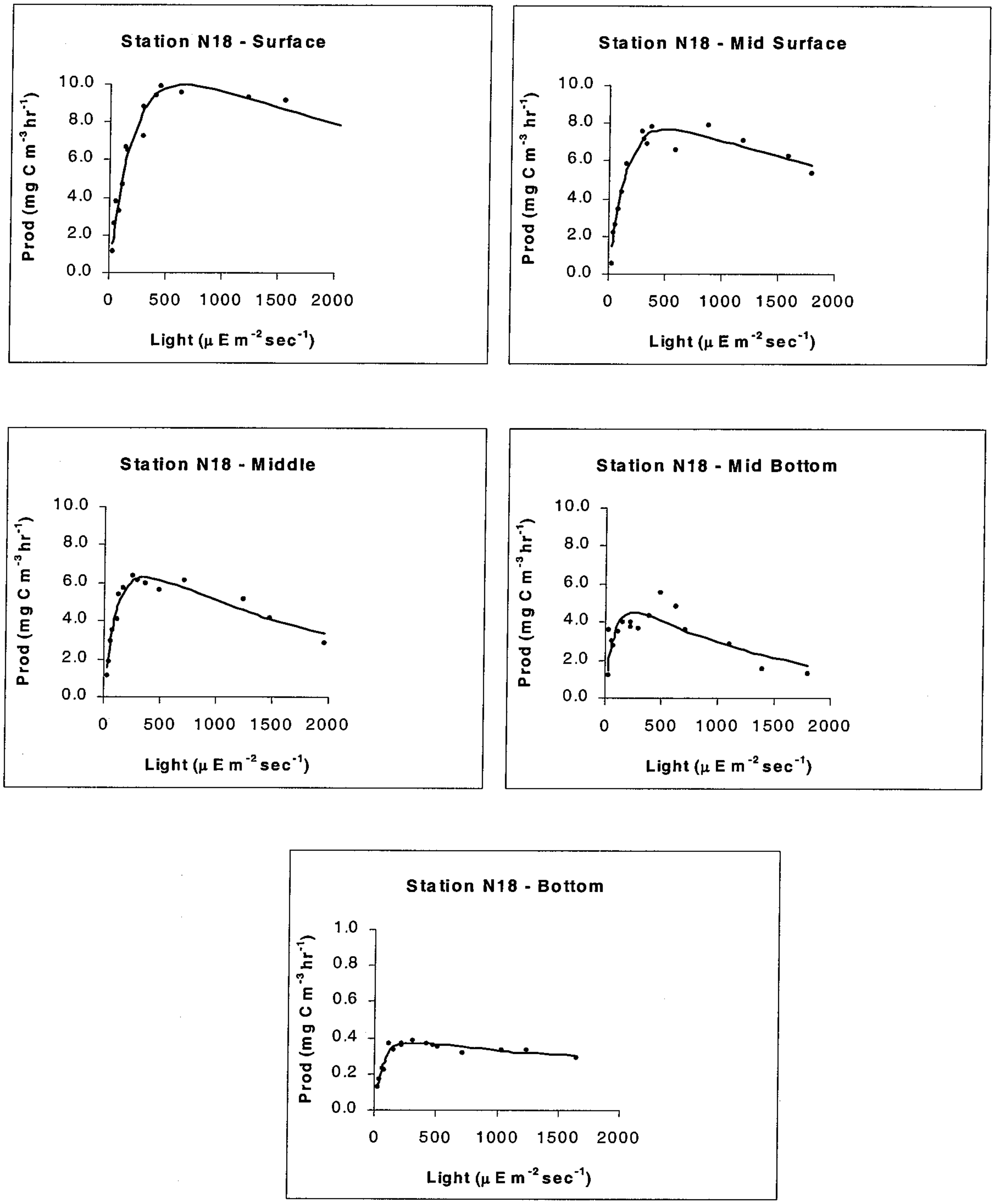


Figure E-18. Photosynthesis-Irradiance (P-I) Curves for Station F23 from Farfield Survey WF007 (Jun 00).

WN008 **Station N04**

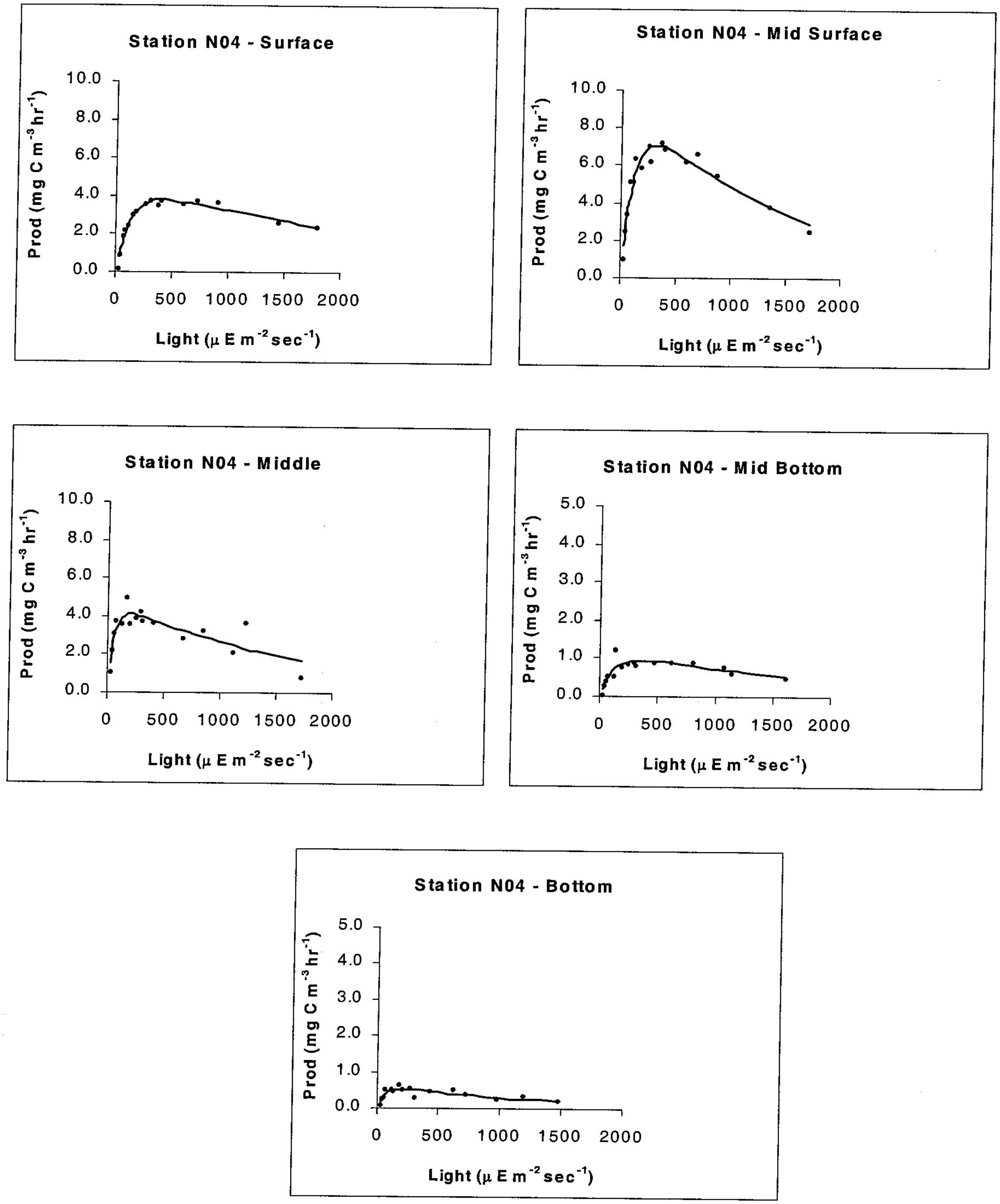


Figure E-19. Photosynthesis-Irradiance (P-I) Curves for Station N04 from Nearfield Survey WN008 (Jul 00).

WN008 **Station N18**

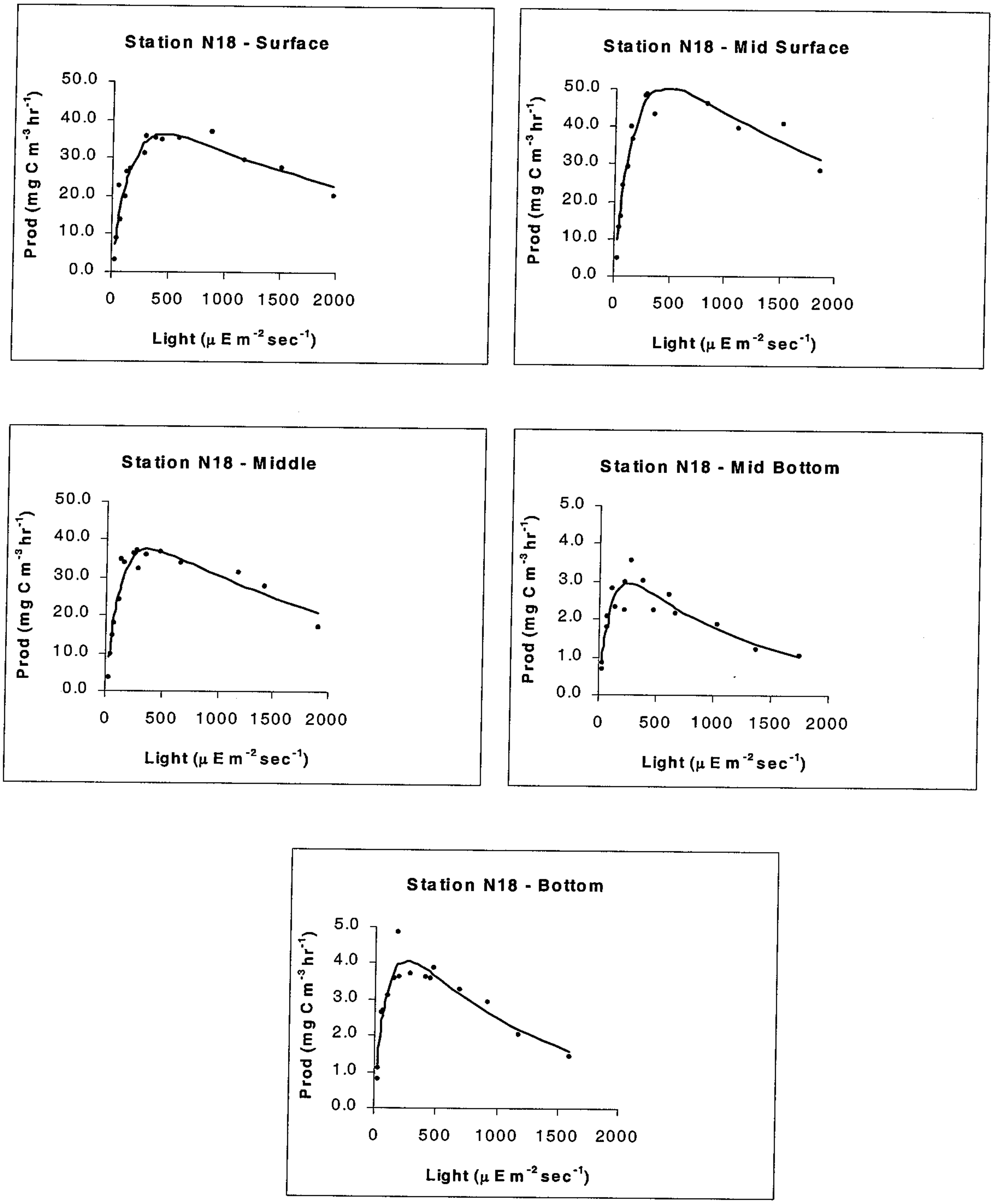


Figure E-20. Photosynthesis-Irradiance (P-I) Curves for Station N18 from Nearfield Survey WN008 (Jul 00).

WN009 **Station N04**

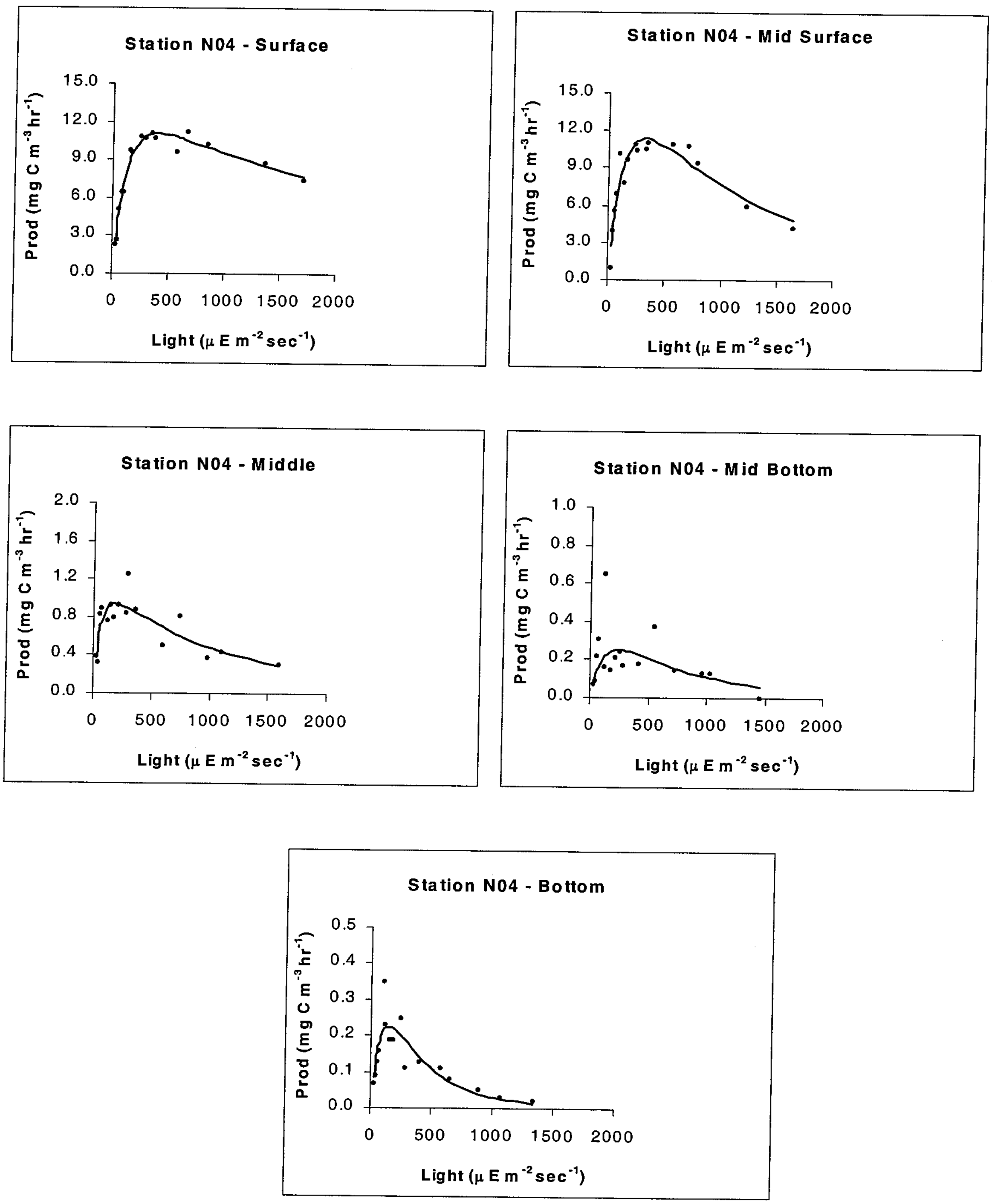


Figure E-21. Photosynthesis-Irradiance (P-I) Curves for Station N04 from Nearfield Survey WN009 (Jul 00).

WN009 **Station N18**

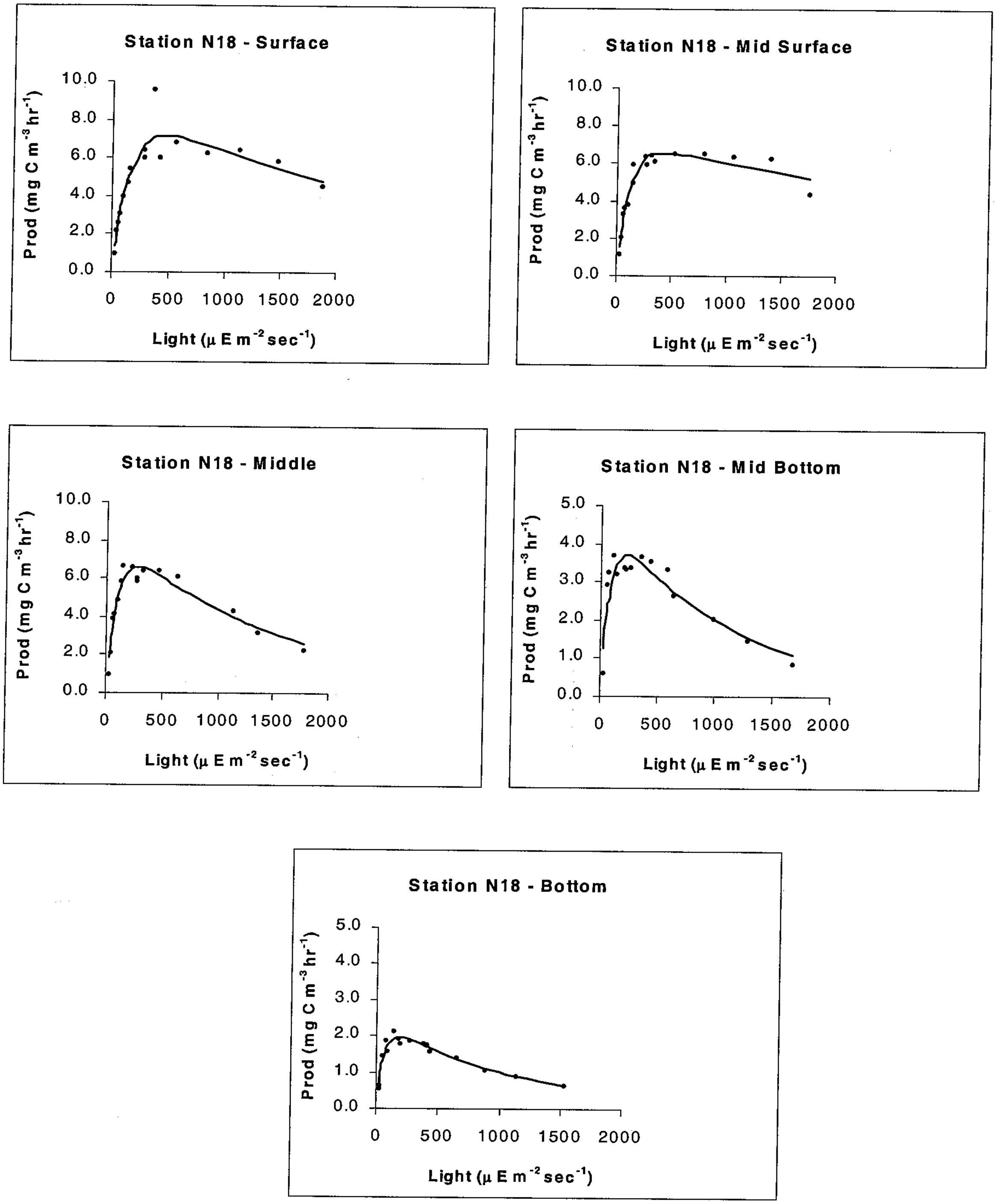


Figure E-22. Photosynthesis-Irradiance (P-I) Curves for Station N18 from Nearfield Survey WN009 (Jul 00).

APPENDIX F

Abundance of Prevalent Phytoplankton Species in Whole Water Surface and Chlorophyll-A Maximum Samples

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WF001

			F01	F02	F06	F13	F23	F24
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%					9.762	
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L					0.032	
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	16.167	20.921	18.453	15.950	12.868	16.701
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.083	0.123	0.139	0.045	0.043	0.055
GUINARDIA DELICATULA	CD	%		8.014				
GUINARDIA DELICATULA	CD	E6CELLS/L		0.047				
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	%	5.017					
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	E6CELLS/L	0.026					
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%	5.232	10.807		9.965	9.391	11.265
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L	0.027	0.064		0.028	0.031	0.037
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	57.979	44.760	63.995	63.287	62.567	63.644
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.297	0.263	0.483	0.178	0.208	0.209
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	%						
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	E6CELLS/L						

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WF001
(continued)

			F25	F27	F30	F31	N04	N16	N18
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%				5.109	12.581	6.616	
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L				0.018	0.063	0.021	
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	5.592	16.318	14.477	6.812	5.032	13.893	8.242
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.023	0.043	0.108	0.024	0.025	0.044	0.041
GUINARDIA DELICATULA	CD	%							
GUINARDIA DELICATULA	CD	E6CELLS/L							
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	%							
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	E6CELLS/L							
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%	10.397	6.621		11.902	6.405	14.927	8.816
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L	0.043	0.017		0.042	0.032	0.048	0.044
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	73.391	64.747	69.254	61.879	69.194	57.558	68.878
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.306	0.169	0.516	0.216	0.344	0.184	0.344
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	%				7.380			
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	E6CELLS/L				0.026			

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WF002

			F01	F02	F06	F13	F23	F24
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	8.348		6.467		6.115	
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.104		0.048		0.044	
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	%						
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	E6CELLS/L						
THALASSIOSIRA NORDENSKIOLDII	CD	%	11.427					
THALASSIOSIRA NORDENSKIOLDII	CD	E6CELLS/L	0.143					
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%	8.081	24.978	20.888	18.272	7.563	13.376
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L	0.101	0.352	0.156	0.121	0.054	0.027
THALASSIOSIRA SP. GROUP 4 20-30 MICRONS LENGTH	CD	%		10.974	9.052	5.883		
THALASSIOSIRA SP. GROUP 4 20-30 MICRONS LENGTH	CD	E6CELLS/L		0.155	0.068	0.039		
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	58.434	38.315	54.401	66.555	69.714	75.562
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.729	0.540	0.406	0.442	0.498	0.153
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	%					7.746	
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	E6CELLS/L					0.055	

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WF002
(continued)

			F25	F27	F30	F31	N04	N16	N18
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%					5.525		5.391
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L					0.012		0.021
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	%					8.199		10.415
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	E6CELLS/L					0.017		0.040
THALASSIOSIRA NORDENSKIOLDII	CD	%							
THALASSIOSIRA NORDENSKIOLDII	CD	E6CELLS/L							
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%	11.759		16.285	21.143	6.071		10.846
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L	0.097		0.069	0.123	0.013		0.041
THALASSIOSIRA SP. GROUP 4 20-30 MICRONS LENGTH	CD	%							
THALASSIOSIRA SP. GROUP 4 20-30 MICRONS LENGTH	CD	E6CELLS/L							
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	79.762	83.468	74.322	66.282	67.640	91.030	57.473
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.658	0.113	0.316	0.386	0.143	0.222	0.220
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	%					7.516		8.100
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	E6CELLS/L					0.016		0.031

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WN003

			N04	N18
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%	5.904	
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L	0.128	
PHAEOCYSTIS POUCHETII	H	%	51.984	56.796
PHAEOCYSTIS POUCHETII	H	E6CELLS/L	1.129	1.177
THALASSIOSIRA NORDENSKIOLDII	CD	%	14.832	23.970
THALASSIOSIRA NORDENSKIOLDII	CD	E6CELLS/L	0.322	0.497
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	19.584	10.745
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.425	0.223

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WF004

			F01	F02	F06	F13	F22	F23	F24
PHAEOCYSTIS POUCHETII	H	%	61.549	16.841	94.239	92.172	89.525	91.570	95.807
PHAEOCYSTIS POUCHETII	H	E6CELLS/L	1.262	0.233	6.162	4.332	1.605	6.328	11.375
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	34.208	75.983		6.242	9.906		
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.702	1.053		0.293	0.178		

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WF004
(continued)

			F25	F26	F27	F30	F31	N04	N16	N18
PHAEOCYSTIS POUCHETII	H	%	86.591	90.943	89.241	84.184	88.967	91.050	89.538	94.873
PHAEOCYSTIS POUCHETII	H	E6CELLS/L	5.262	3.233	4.530	6.515	5.959	3.430	2.254	5.915
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	8.506	6.971	7.515		6.363	7.267	7.878	
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.517	0.248	0.382		0.426	0.274	0.198	

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WN005

			N04	N18
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	34.545	24.453
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.322	0.245
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	56.782	69.093
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.529	0.691

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WN006

			N04	N18
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	8.407	9.835
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.174	0.242
GUINARDIA DELICATULA	CD	%	13.040	14.206
GUINARDIA DELICATULA	CD	E6CELLS/L	0.270	0.349
SKELETONEMA COSTATUM	CD	%	23.231	26.121
SKELETONEMA COSTATUM	CD	E6CELLS/L	0.481	0.642
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	45.490	41.282
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.942	1.015

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WF007

			F01	F02	F06	F13	F22	F23	F24
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	12.132	16.056	18.543	13.405	18.279	9.942	14.826
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.163	0.219	0.248	0.290	0.111	0.170	0.274
SKELETONEMA COSTATUM	CD	%							
SKELETONEMA COSTATUM	CD	E6CELLS/L							
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%							
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L							
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	83.382	70.606	69.646	68.473	79.825	69.858	66.931
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	1.117	0.964	0.932	1.482	0.485	1.192	1.236

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WF007
(continued)

			F25	F26	F27	F30	F31	N04	N16	N18
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	14.238	12.775	16.038	16.463	22.426	6.458	12.297	5.741
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.259	0.073	0.129	0.273	0.472	0.047	0.132	0.086
SKELETONEMA COSTATUM	CD	%					11.834			11.660
SKELETONEMA COSTATUM	CD	E6CELLS/L					0.249			0.174
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%					8.396			
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L					0.177			
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	69.780	79.400	80.363	67.131	44.693	84.611	82.404	77.403
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	1.269	0.451	0.649	1.114	0.941	0.614	0.885	1.157

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WN008

			N04	N18
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%		6.756
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L		0.247
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	9.339	
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.119	
DACTYLIOSOLEN FRAGILISSIMUS	CD	%		9.116
DACTYLIOSOLEN FRAGILISSIMUS	CD	E6CELLS/L		0.334
GUINARDIA DELICATULA	CD	%		17.093
GUINARDIA DELICATULA	CD	E6CELLS/L		0.626
LEPTOCYLINDRUS MINIMUS	CD	%		13.349
LEPTOCYLINDRUS MINIMUS	CD	E6CELLS/L		0.489
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	77.550	40.128
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.990	1.469

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Whole Water Phytoplankton, Survey WN009

			N04	N18
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	12.513	9.286
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.308	0.283
DACTYLIOSOLEN FRAGILISSIMUS	CD	%		32.446
DACTYLIOSOLEN FRAGILISSIMUS	CD	E6CELLS/L		0.990
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	75.774	49.525
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	1.867	1.511

**Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WF001**

			F01	F02	F06	F13	F23	F24
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%	5.539		6.353		7.659	
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L	0.020		0.051		0.051	
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	18.990	16.741	18.313	8.101	6.758	12.849
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.069	0.082	0.148	0.026	0.045	0.031
GUINARDIA DELICATULA	CD	%		5.705				
GUINARDIA DELICATULA	CD	E6CELLS/L		0.028				
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%	6.240	12.736		11.748	7.286	16.248
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L	0.023	0.063		0.038	0.049	0.039
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	62.509	50.800	61.292	68.645	75.236	59.964
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.226	0.250	0.496	0.220	0.505	0.145
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	%						
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	E6CELLS/L						

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WF001
(continued)

			F25	F27	F30	F31	N04	N16	N18
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%				6.511			6.436
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L				0.016			0.026
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	11.739	19.253	10.023	5.919	10.491	6.252	6.436
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.083	0.050	0.068	0.014	0.071	0.019	0.026
GUINARDIA DELICATULA	CD	%							
GUINARDIA DELICATULA	CD	E6CELLS/L							
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%	8.028			19.265		15.364	17.276
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L	0.057			0.047		0.046	0.070
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	72.195	68.991	73.213	57.419	75.622	61.078	59.352
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.512	0.179	0.496	0.140	0.510	0.182	0.239
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	%						5.771	
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	E6CELLS/L						0.017	

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WF002

			F01	F02	F06	F13	F23	F24
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%						
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L						
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	10.607					
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.159					
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	%						
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	E6CELLS/L						
THALASSIOSIRA NORDENSKIOLDII	CD	%	10.283					
THALASSIOSIRA NORDENSKIOLDII	CD	E6CELLS/L	0.154					
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%	9.571	27.356	16.388	16.151	12.617	6.956
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L	0.144	0.316	0.181	0.123	0.058	0.012
THALASSIOSIRA SP. GROUP 4 20-30 MICRONS LENGTH	CD	%		13.491	6.415	5.509		
THALASSIOSIRA SP. GROUP 4 20-30 MICRONS LENGTH	CD	E6CELLS/L		0.156	0.071	0.042		
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	53.645	27.277	68.663	71.314	69.996	84.668
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.805	0.315	0.759	0.544	0.319	0.145
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	%						
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	E6CELLS/L						

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WF002
(continued)

			F25	F27	F30	F31	N04	N16	N18
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%						5.631	
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L						0.007	
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%		7.874	7.716		8.158		
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L		0.019	0.033		0.013		
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	%					5.439		
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	E6CELLS/L					0.009		
THALASSIOSIRA NORDENSKIOLDII	CD	%							
THALASSIOSIRA NORDENSKIOLDII	CD	E6CELLS/L							
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%	28.121		11.834	30.251	5.958		
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L	0.096		0.051	0.112	0.010		
THALASSIOSIRA SP. GROUP 4 20-30 MICRONS LENGTH	CD	%	8.393						
THALASSIOSIRA SP. GROUP 4 20-30 MICRONS LENGTH	CD	E6CELLS/L	0.029						
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	55.037	79.350	68.037	52.475	70.706	88.967	72.477
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.189	0.191	0.290	0.194	0.116	0.111	0.125
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	%							7.674
UNID. MICRO-PHYTOFLAG SP. GROUP 2 LENGTH >10 MICRONS	MF	E6CELLS/L							0.013

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WN003

			N04	N18
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%	7.393	
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L	0.140	
PHAEOCYSTIS POUCHETII	H	%	49.749	56.167
PHAEOCYSTIS POUCHETII	H	E6CELLS/L	0.941	1.276
THALASSIOSIRA NORDENSKIOLDII	CD	%	15.761	15.825
THALASSIOSIRA NORDENSKIOLDII	CD	E6CELLS/L	0.298	0.359
THALASSIOSIRA ROTULA	CD	%		5.504
THALASSIOSIRA ROTULA	CD	E6CELLS/L		0.125
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	16.788	15.436
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.318	0.351

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WF004

			F01	F02	F06	F13	F22	F23	F24
PHAEOCYSTIS POUCHETII	H	%	56.794	25.455	96.167	91.107	96.247	95.007	95.210
PHAEOCYSTIS POUCHETII	H	E6CELLS/L	2.138	0.446	8.824	6.246	7.482	9.872	8.462
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	38.963	68.440		7.573			
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	1.467	1.199		0.519			

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WF004
(continued)

			F25	F26	F27	F30	F31	N04	N16	N18
PHAEOCYSTIS POUCHETII	H	%	90.778	95.984	95.366	89.078	93.979	97.282	96.306	95.307
PHAEOCYSTIS POUCHETII	H	E6CELLS/L	11.512	5.899	7.121	12.258	9.956	10.706	6.997	9.604
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	7.973							
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	1.011							

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WN005

			N04	N18
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	%		5.483
GYMNODINIUM SP. GROUP 1 5-200 MICRONS WIDTH, 10-20 MICRONS LENGTH	DF	E6CELLS/L		0.030
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	90.503	84.234
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.169	0.462

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WN006

			N04	N18
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	8.806	9.296
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.185	0.234
GUINARDIA DELICATULA	CD	%	7.709	14.386
GUINARDIA DELICATULA	CD	E6CELLS/L	0.162	0.362
SKELETONEMA COSTATUM	CD	%	20.625	20.935
SKELETONEMA COSTATUM	CD	E6CELLS/L	0.433	0.527
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	53.242	48.580
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	1.118	1.224

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WF007

			F01	F02	F06	F13	F22	F23	F24
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	15.464	18.272	13.336	16.237	17.435	10.835	13.082
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.371	0.162	0.248	0.131	0.075	0.251	0.329
SKELETONEMA COSTATUM	CD	%							5.042
SKELETONEMA COSTATUM	CD	E6CELLS/L							0.127
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%							
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L							
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	77.318	70.371	76.448	73.967	79.056	71.465	68.720
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	1.854	0.625	1.422	0.595	0.339	1.656	1.727

**Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WF007
(continued)**

			F25	F26	F27	F30	F31	N04	N16	N18
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	16.472	8.518	21.764	17.478	16.256	13.925	15.956	19.750
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.365	0.068	0.068	0.290	0.550	0.142	0.214	0.276
SKELETONEMA COSTATUM	CD	%					14.635			
SKELETONEMA COSTATUM	CD	E6CELLS/L					0.495			
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	%					11.070			
THALASSIOSIRA SP. GROUP 3 10-20 MICRONS LENGTH	CD	E6CELLS/L					0.374			
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	69.154	87.211	64.653	68.027	49.465	80.822	81.398	73.477
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	1.532	0.692	0.202	1.129	1.673	0.824	1.089	1.025

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WN008

			N04	N18
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	%		6.301
CENTRIC DIATOM SP. GROUP 1 DIAM <10 MICRONS	CD	E6CELLS/L		0.197
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	15.345	9.452
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.084	0.296
DACTYLIOSOLEN FRAGILISSIMUS	CD	%		19.953
DACTYLIOSOLEN FRAGILISSIMUS	CD	E6CELLS/L		0.625
PROROCENTRUM MINIMUM	DF	%		12.037
PROROCENTRUM MINIMUM	DF	E6CELLS/L		0.377
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	76.727	39.503
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	0.419	1.237

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Whole Water Phytoplankton, Survey WN009

			N04	N18
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	%	25.855	15.271
CRYPTOMONAS SP. GROUP 1 LENGTH <10 MICRONS	CY	E6CELLS/L	0.526	0.233
DACTYLIOSOLEN FRAGILISSIMUS	CD	%		7.925
DACTYLIOSOLEN FRAGILISSIMUS	CD	E6CELLS/L		0.121
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	%	58.855	66.377
UNID. MICRO-PHYTOFLAG SP. GROUP 1 LENGTH <10 MICRONS	MF	E6CELLS/L	1.197	1.012

APPENDIX G

Abundance of Prevalent Phytoplankton Species in Screened Water Surface and Chlorophyll-A Maximum Samples

Abundance Of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF001

			F01	F02	F06	F13	F23	F24
CERATIUM FUSUS	DF	%						
CERATIUM FUSUS	DF	CELLS/L						
CERATIUM TRIPOS	DF	%						
CERATIUM TRIPOS	DF	CELLS/L						
DICTYOCHA FIBULA	CR	%						5.0
DICTYOCHA FIBULA	CR	CELLS/L						35.1
DISTEPHANUS SPECULUM	CR	%	20.7	12.1	6.9	9.5	7.8	7.9
DISTEPHANUS SPECULUM	CR	CELLS/L	214.5	211.2	219.6	43.5	63.0	54.9
PROROCENTRUM MICANS	DF	%	74.8	84.7	86.9	85.2	87.3	80.7
PROROCENTRUM MICANS	DF	CELLS/L	775.5	1484.8	2746.5	388.5	702.0	561.2
PROROCENTRUM MINIMUM	DF	%						
PROROCENTRUM MINIMUM	DF	CELLS/L						
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	%						
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	CELLS/L						

**Abundance Of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF001
(continued)**

			F25	F27	F30	F31	N04	N16	N18
CERATIUM FUSUS	DF	%		7.0			5.4		6.1
CERATIUM FUSUS	DF	CELLS/L		19.5			52.7		40.5
CERATIUM TRIPOS	DF	%				5.4			7.5
CERATIUM TRIPOS	DF	CELLS/L				12.4			49.5
DICTYOCHA FIBULA	CR	%				6.1			10.5
DICTYOCHA FIBULA	CR	CELLS/L				14.0			69.0
DISTEPHANUS SPECULUM	CR	%	14.4	30.4	28.7	10.8			9.1
DISTEPHANUS SPECULUM	CR	CELLS/L	36.0	85.2	123.0	24.8			60.0
PROROCENTRUM MICANS	DF	%		55.7	69.6	73.6	87.5	90.6	66.1
PROROCENTRUM MICANS	DF	CELLS/L		156.2	298.5	169.0	846.6	866.5	436.5
PROROCENTRUM MINIMUM	DF	%	70.1						
PROROCENTRUM MINIMUM	DF	CELLS/L	175.5						
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	%	7.8						
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	CELLS/L	19.5						

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF002

			F01	F02	F06	F13	F23	F24
CERATIUM FUSUS	DF	%					21.2	
CERATIUM FUSUS	DF	CELLS/L					11.6	
CERATIUM TRIPOS	DF	%						
CERATIUM TRIPOS	DF	CELLS/L						
DICTYOCHA FIBULA	CR	%						
DICTYOCHA FIBULA	CR	CELLS/L						
DISTEPHANUS SPECULUM	CR	%			37.7	11.3	12.1	22.5
DISTEPHANUS SPECULUM	CR	CELLS/L			89.9	10.4	6.6	44.8
GONYAULAX SPP.	DF	%	5.1	6.4				
GONYAULAX SPP.	DF	CELLS/L	10.2	5.0				
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%	19.0	8.5		22.6	9.1	
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L	37.7	6.6		20.7	5.0	
PROROCENTRUM MICANS	DF	%	67.2	85.1	59.7	66.0	45.5	73.2
PROROCENTRUM MICANS	DF	CELLS/L	133.4	66.0	142.6	60.4	24.8	145.6
PROTOPERIDINIUM BIPES	DF	%					6.1	
PROTOPERIDINIUM BIPES	DF	CELLS/L					3.3	
PROTOPERIDINIUM TROCHOIDIUM	DF	%	8.8					
PROTOPERIDINIUM TROCHOIDIUM	DF	CELLS/L	17.4					

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF002
(continued)

			F25	F27	F30	F31	N04	N16	N18
CERATIUM FUSUS	DF	%					9.2		
CERATIUM FUSUS	DF	CELLS/L					20.1		
CERATIUM TRIPOS	DF	%					16.8	6.4	
CERATIUM TRIPOS	DF	CELLS/L					36.9	14.4	
DICTYOCHA FIBULA	CR	%	5.4	14.3					
DICTYOCHA FIBULA	CR	CELLS/L	3.4	13.1					
DISTEPHANUS SPECULUM	CR	%		49.2		14.7	18.3	27.7	46.0
DISTEPHANUS SPECULUM	CR	CELLS/L		45.0		22.1	40.2	62.4	185.6
GONYAULAX SPP.	DF	%	16.2						
GONYAULAX SPP.	DF	CELLS/L	10.2						
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%							
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L							
PROROCENTRUM MICANS	DF	%	78.4	27.0	81.7	85.3	50.4	61.7	54.0
PROROCENTRUM MICANS	DF	CELLS/L	49.3	24.7	68.6	127.6	110.6	139.2	217.6
PROTOPERIDINIUM BIPES	DF	%							
PROTOPERIDINIUM BIPES	DF	CELLS/L							
PROTOPERIDINIUM TROCHOIDIUM	DF	%			18.3				
PROTOPERIDINIUM TROCHOIDIUM	DF	CELLS/L			15.4				

**Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WN003**

			N04	N18
ATHECATE DINOFLAGELLATE	DF	%	18.1	
ATHECATE DINOFLAGELLATE	DF	CELLS/L	63.0	
CERATIUM FUSUS	DF	%		34.9
CERATIUM FUSUS	DF	CELLS/L		74.0
CERATIUM TRIPOS	DF	%	26.6	
CERATIUM TRIPOS	DF	CELLS/L	92.8	
DISTEPHANUS SPECULUM	CR	%	35.7	8.2
DISTEPHANUS SPECULUM	CR	CELLS/L	124.3	17.4
GONYAULAX SPP.	DF	%	8.0	
GONYAULAX SPP.	DF	CELLS/L	28.0	
PROROCENTRUM MICANS	DF	%		43.2
PROROCENTRUM MICANS	DF	CELLS/L		91.4
THECATE DINOFLAGELLATE SPP.	DF	%		8.2
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L		17.4

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF004

			F01	F02	F06	F13	F22	F23	F24
ATHECATE DINOFLAGELLATE	DF	%	13.6						10.6
ATHECATE DINOFLAGELLATE	DF	CELLS/L	9.9						12.4
CERATIUM FUSUS	DF	%	6.8	29.2			6.3		
CERATIUM FUSUS	DF	CELLS/L	5.0	10.0			11.8		
CERATIUM LONGIPES	DF	%		33.3	12.5	15.8	25.8		7.6
CERATIUM LONGIPES	DF	CELLS/L		11.4	32.3	35.1	48.7		8.9
CERATIUM MACROCEROS	DF	%							
CERATIUM MACROCEROS	DF	CELLS/L							
CERATIUM SPP.	DF	%							6.1
CERATIUM SPP.	DF	CELLS/L							7.1
CERATIUM TRIPOS	DF	%		8.3	7.2	6.2	21.9		6.1
CERATIUM TRIPOS	DF	CELLS/L		2.9	18.7	13.7	41.3		7.1
DICTYOCHA FIBULA	CR	%	11.4	25.0					
DICTYOCHA FIBULA	CR	CELLS/L	8.3	8.6					
DISTEPHANUS SPECULUM	CR	%	27.3		40.8		16.4		
DISTEPHANUS SPECULUM	CR	CELLS/L	19.8		105.4		31.0		
GONYAULAX SPP.	DF	%				21.2			
GONYAULAX SPP.	DF	CELLS/L				47.3			
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%	13.6		5.3	6.2			
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L	9.9		13.6	13.7			
GYMNODINIUM SPLENDENS	DF	%							
GYMNODINIUM SPLENDENS	DF	CELLS/L							

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF004
(continued)

			F25	F26	F27	F30	F31	N04	N16	N18
ATHECATE DINOFLAGELLATE	DF	%			8.9				6.3	
ATHECATE DINOFLAGELLATE	DF	CELLS/L			39.4				12.8	
CERATIUM FUSUS	DF	%			6.0			32.5		
CERATIUM FUSUS	DF	CELLS/L			26.8			23.4		
CERATIUM LONGIPES	DF	%	12.5	29.5	6.7			10.0	24.2	
CERATIUM LONGIPES	DF	CELLS/L	13.1	44.8	29.9			7.2	49.6	
CERATIUM MACROCEROS	DF	%								14.3
CERATIUM MACROCEROS	DF	CELLS/L								8.3
CERATIUM SPP.	DF	%							5.5	
CERATIUM SPP.	DF	CELLS/L							11.2	
CERATIUM TRIPOS	DF	%		16.8				17.5	15.6	8.6
CERATIUM TRIPOS	DF	CELLS/L		25.6				12.6	32.0	5.0
DICTYOCHA FIBULA	CR	%								
DICTYOCHA FIBULA	CR	CELLS/L								
DISTEPHANUS SPECULUM	CR	%		15.8	5.7			12.5		17.1
DISTEPHANUS SPECULUM	CR	CELLS/L		24.0	25.2			9.0		9.9
GONYAULAX SPP.	DF	%								
GONYAULAX SPP.	DF	CELLS/L								
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%					24.1		5.5	
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L					22.1		11.2	
GYMNODINIUM SPLENDENS	DF	%							7.0	
GYMNODINIUM SPLENDENS	DF	CELLS/L							14.4	

**Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF004
(continued)**

			F01	F02	F06	F13	F22	F23	F24
GYRODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%							
GYRODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L							
GYRODINIUM SPIRALE	DF	%						36.6	
GYRODINIUM SPIRALE	DF	CELLS/L						24.8	
MESODINIUM RUBRUM	CL	%					5.5		
MESODINIUM RUBRUM	CL	CELLS/L					10.3		
PROROCENTRUM MICANS	DF	%							
PROROCENTRUM MICANS	DF	CELLS/L							
PROROCENTRUM MINIMUM	DF	%	9.1		15.1		5.5		36.4
PROROCENTRUM MINIMUM	DF	CELLS/L	6.6		39.1		10.3		42.6
PROTOPERIDINIUM DEPRESSUM	DF	%							9.1
PROTOPERIDINIUM DEPRESSUM	DF	CELLS/L							10.7
PROTOPERIDINIUM SP. GROUP 1 10-30 MICRONS WIDTH, 10-40 MICRONS LENGTH	DF	%				11.0		22.0	
PROTOPERIDINIUM SP. GROUP 1 10-30 MICRONS WIDTH, 10-40 MICRONS LENGTH	DF	CELLS/L				24.4		14.9	
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	%	9.1		6.6	10.3	10.9	41.5	
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	CELLS/L	6.6		17.0	22.9	20.7	28.1	
THECATE DINOFLAGELLATE SPP.	DF	%			5.3	13.7			21.2
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L			13.6	30.5			24.9

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF004
(continued)

			F25	F26	F27	F30	F31	N04	N16	N18
GYRODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%				25.7				
GYRODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L				88.5				
GYRODINIUM SPIRALE	DF	%	15.3			63.9	17.2			5.7
GYRODINIUM SPIRALE	DF	CELLS/L	16.0			220.5	15.8			3.3
MESODINIUM RUBRUM	CL	%	12.5		55.3					
MESODINIUM RUBRUM	CL	CELLS/L	13.1		245.7					
PROROCENTRUM MICANS	DF	%						10.0	6.3	
PROROCENTRUM MICANS	DF	CELLS/L						7.2	12.8	
PROROCENTRUM MINIMUM	DF	%	31.9		6.4		39.7		9.4	11.4
PROROCENTRUM MINIMUM	DF	CELLS/L	33.4		28.4		36.2		19.2	6.6
PROTOPERIDINIUM DEPRESSUM	DF	%								
PROTOPERIDINIUM DEPRESSUM	DF	CELLS/L								
PROTOPERIDINIUM SP. GROUP 1 10-30 MICRONS WIDTH, 10-40 MICRONS LENGTH	DF	%								
PROTOPERIDINIUM SP. GROUP 1 10-30 MICRONS WIDTH, 10-40 MICRONS LENGTH	DF	CELLS/L								
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	%	13.9	9.5			10.3	7.5	9.4	40.0
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	CELLS/L	14.5	14.4			9.5	5.4	19.2	23.1
THECATE DINOFLAGELLATE SPP.	DF	%		8.4			5.2			
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L		12.8			4.7			

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WN005

			N04	N18
CERATIUM LONGIPES	DF	%	61.9	81.4
CERATIUM LONGIPES	DF	CELLS/L	309.4	236.3
CERATIUM SPP.	DF	%	7.3	
CERATIUM SPP.	DF	CELLS/L	36.4	
CERATIUM TRIPOS	DF	%	17.9	
CERATIUM TRIPOS	DF	CELLS/L	89.6	
PROROCENTRUM MINIMUM	DF	%	9.8	7.0
PROROCENTRUM MINIMUM	DF	CELLS/L	49.0	20.3

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WN006

			N04	N18
CERATIUM LINEATUM	DF	%	19.0	36.8
CERATIUM LINEATUM	DF	CELLS/L	745.6	1411.2
CERATIUM LONGIPES	DF	%	45.6	39.3
CERATIUM LONGIPES	DF	CELLS/L	1792.0	1506.4
CERATIUM TRIPOS	DF	%	6.6	
CERATIUM TRIPOS	DF	CELLS/L	259.2	
DINOPHYSIS NORVEGICA	DF	%	5.6	
DINOPHYSIS NORVEGICA	DF	CELLS/L	220.8	
PROROCENTRUM MINIMUM	DF	%	11.1	9.0
PROROCENTRUM MINIMUM	DF	CELLS/L	435.2	344.4

**Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF007**

			F01	F02	F06	F13	F22	F23	F24
CERATIUM FUSUS	DF	%	37.2	42.6	35.5	26.2	31.7	13.2	23.4
CERATIUM FUSUS	DF	CELLS/L	345.8	363.4	1177.6	685.8	991.6	129.6	461.7
CERATIUM LINEATUM	DF	%			5.0	19.1			5.6
CERATIUM LINEATUM	DF	CELLS/L			166.4	500.4			110.2
CERATIUM LONGIPES	DF	%	21.2	26.2	16.4	17.1	34.4	12.8	26.7
CERATIUM LONGIPES	DF	CELLS/L	197.6	223.6	545.6	448.2	1078.6	126.0	528.2
CERATIUM TRIPOS	DF	%	22.9	24.2	18.4	12.6	21.0	9.0	17.8
CERATIUM TRIPOS	DF	CELLS/L	213.2	206.4	609.6	331.2	656.8	88.2	351.5
DINOPHYSIS NORVEGICA	DF	%	14.5	5.8	22.3	19.9	11.3	23.5	26.0
DINOPHYSIS NORVEGICA	DF	CELLS/L	135.2	49.5	739.2	522.0	355.2	230.4	513.0
PROROCENTRUM MINIMUM	DF	%						34.5	
PROROCENTRUM MINIMUM	DF	CELLS/L						338.4	

**Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WF007
(continued)**

			F25	F26	F27	F30	F31	N04	N16	N18
CERATIUM FUSUS	DF	%	26.2	32.0	18.1		22.2	22.1	28.0	
CERATIUM FUSUS	DF	CELLS/L	151.8	1180.0	293.7		98.0	347.8	709.9	
CERATIUM LINEATUM	DF	%	28.0				9.5			40.5
CERATIUM LINEATUM	DF	CELLS/L	162.2				42.0			945.0
CERATIUM LONGIPES	DF	%		28.8	43.1	19.8	11.5	45.1	21.6	29.9
CERATIUM LONGIPES	DF	CELLS/L		1060.0	699.6	32.0	50.8	710.4	547.5	697.2
CERATIUM TRIPOS	DF	%		30.6	26.3	14.8	20.2	28.6	26.2	22.6
CERATIUM TRIPOS	DF	CELLS/L		1128.0	427.4	24.0	89.3	451.4	664.3	527.1
DINOPHYSIS NORVEGICA	DF	%	40.5		8.2	48.1	13.1		20.6	
DINOPHYSIS NORVEGICA	DF	CELLS/L	234.6		133.7	78.0	57.8		522.0	
PROROCENTRUM MINIMUM	DF	%				9.9	5.2			
PROROCENTRUM MINIMUM	DF	CELLS/L				16.0	22.8			

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WN008

			N04	N18
CERATIUM FUSUS	DF	%	17.2	14.7
CERATIUM FUSUS	DF	CELLS/L	298.7	295.8
CERATIUM LONGIPES	DF	%	7.0	6.4
CERATIUM LONGIPES	DF	CELLS/L	120.5	129.1
CERATIUM SPP.	DF	%	6.7	6.6
CERATIUM SPP.	DF	CELLS/L	115.5	132.0
CERATIUM TRIPOS	DF	%	64.5	70.6
CERATIUM TRIPOS	DF	CELLS/L	1117.1	1419.6

Abundance of Prevalent Species (>5% Total Count) in Surface Sample
Screened Phytoplankton, Survey WN009

			N04	N18
CERATIUM FUSUS	DF	%	13.8	10.1
CERATIUM FUSUS	DF	CELLS/L	358.9	363.4
CERATIUM MACROCEROS	DF	%		10.8
CERATIUM MACROCEROS	DF	CELLS/L		388.7
CERATIUM SPP.	DF	%	7.3	
CERATIUM SPP.	DF	CELLS/L	190.6	
CERATIUM TRIPOS	DF	%	67.4	69.7
CERATIUM TRIPOS	DF	CELLS/L	1755.7	2500.1
DINOPHYSIS NORVEGICA	DF	%	5.0	
DINOPHYSIS NORVEGICA	DF	CELLS/L	131.4	

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WF001

			F01	F02	F06	F13	F23	F24
CERATIUM FUSUS	DF	%						9.1
CERATIUM FUSUS	DF	CELLS/L						76.5
CERATIUM TRIPOS	DF	%						
CERATIUM TRIPOS	DF	CELLS/L						
DISTEPHANUS SPECULUM	CR	%				11.2		11.8
DISTEPHANUS SPECULUM	CR	CELLS/L				57.6		99.0
PROROCENTRUM MICANS	DF	%	96.3	92.9	90.1	73.9	91.2	63.6
PROROCENTRUM MICANS	DF	CELLS/L	1539.9	1913.5	1393.6	380.8	451.5	534.0
THECATE DINOFLAGELLATE SPP.	DF	%				5.6		5.7
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L				28.8		48.0

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample Screened Phytoplankton, Survey WF001 (continued)

			F25	F27	F30	F31	N04	N16	N18
CERATIUM FUSUS	DF	%							
CERATIUM FUSUS	DF	CELLS/L							
CERATIUM TRIPOS	DF	%		9.5				7.2	
CERATIUM TRIPOS	DF	CELLS/L		34.5				75.3	
DISTEPHANUS SPECULUM	CR	%	20.0	8.7	23.9		13.7		9.0
DISTEPHANUS SPECULUM	CR	CELLS/L	85.4	31.5	94.6		123.0		74.3
PROROCENTRUM MICANS	DF	%	72.9	78.0	72.2	91.3	75.0	85.4	82.8
PROROCENTRUM MICANS	DF	CELLS/L	311.6	282.0	285.2	355.3	673.5	887.3	683.1
THECATE DINOFLAGELLATE SPP.	DF	%							
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L							

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample Screened Phytoplankton, Survey WF002

			F01	F02	F06	F13	F23	F24
ATHECATE DINOFLAGELLATE	DF	%		27.3				
ATHECATE DINOFLAGELLATE	DF	CELLS/L		9.8				
CERATIUM FUSUS	DF	%						
CERATIUM FUSUS	DF	CELLS/L						
CERATIUM LINEATUM	DF	%		9.1				
CERATIUM LINEATUM	DF	CELLS/L		3.3				
CERATIUM TRIPOS	DF	%	5.8					
CERATIUM TRIPOS	DF	CELLS/L	21.5					
DISTEPHANUS SPECULUM	CR	%	41.1		9.9	21.7	9.6	
DISTEPHANUS SPECULUM	CR	CELLS/L	151.8		34.0	27.0	15.2	
GONYAULAX SPP.	DF	%						
GONYAULAX SPP.	DF	CELLS/L						
PROROCENTRUM MICANS	DF	%	47.3	63.6	75.0	73.9	83.1	95.0
PROROCENTRUM MICANS	DF	CELLS/L	174.9	22.8	258.0	91.8	131.1	243.2
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	%					7.2	
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	CELLS/L					11.4	
THECATE DINOFLAGELLATE SPP.	DF	%			12.2			
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L			42.0			

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WF002
(continued)

			F25	F27	F30	F31	N04	N16	N18
ATHECATE DINOFLAGELLATE	DF	%							
ATHECATE DINOFLAGELLATE	DF	CELLS/L							
CERATIUM FUSUS	DF	%		9.1			5.8		
CERATIUM FUSUS	DF	CELLS/L		12.8			11.9		
CERATIUM LINEATUM	DF	%							
CERATIUM LINEATUM	DF	CELLS/L							
CERATIUM TRIPOS	DF	%		17.0					
CERATIUM TRIPOS	DF	CELLS/L		24.0					
DISTEPHANUS SPECULUM	CR	%	13.3	13.6		31.0	27.3	8.4	10.9
DISTEPHANUS SPECULUM	CR	CELLS/L	21.5	19.2		16.0	56.1	23.1	20.4
GONYAULAX SPP.	DF	%				20.7			
GONYAULAX SPP.	DF	CELLS/L				10.7			
PROROCENTRUM MICANS	DF	%	86.7	56.8	97.1	31.0	66.9	83.2	82.2
PROROCENTRUM MICANS	DF	CELLS/L	140.4	80.0	42.9	16.0	137.7	229.4	153.6
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	%				17.2			
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	CELLS/L				8.9			
THECATE DINOFLAGELLATE SPP.	DF	%							
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L							

**Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytopolankton, Survey WN003**

			N04	N18
CERATIUM FUSUS	DF	%	17.8	13.8
CERATIUM FUSUS	DF	CELLS/L	54.6	54.4
CERATIUM LONGIPES	DF	%	7.7	
CERATIUM LONGIPES	DF	CELLS/L	23.6	
CERATIUM TRIPOS	DF	%	31.7	17.7
CERATIUM TRIPOS	DF	CELLS/L	97.4	69.7
DISTEPHANUS SPECULUM	CR	%	19.7	18.5
DISTEPHANUS SPECULUM	CR	CELLS/L	60.5	73.1
PROROCENTRUM MICANS	DF	%		37.9
PROROCENTRUM MICANS	DF	CELLS/L		149.6
PROTOPERIDINIUM SP. GROUP 2 31-75W 41-80L	DF	%	6.7	
PROTOPERIDINIUM SP. GROUP 2 31-75W 41-80L	DF	CELLS/L	20.7	
THECATE DINOFLAGELLATE SPP.	DF	%	10.1	9.5
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L	31.0	37.4

Abundance of Prevalent Species (> 5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WF004

			F01	F02	F06	F13	F22	F23	F24
ATHECATE DINOFLAGELLATE	DF	%		5.1	5.8	16.7		12.2	
ATHECATE DINOFLAGELLATE	DF	CELLS/L		6.0	22.8	11.1		9.9	
CERATIUM FUSUS	DF	%						38.8	12.7
CERATIUM FUSUS	DF	CELLS/L						31.4	34.1
CERATIUM LONGIPES	DF	%	6.5	11.5	5.1		17.5	10.2	
CERATIUM LONGIPES	DF	CELLS/L	4.4	13.5	20.0		17.5	8.3	
CERATIUM TRIPOS	DF	%	19.6	7.7			5.3	6.1	
CERATIUM TRIPOS	DF	CELLS/L	13.1	9.0			5.3	5.0	
DICTYOCHA FIBULA	CR	%		10.3					
DICTYOCHA FIBULA	CR	CELLS/L		12.0					
DISTEPHANUS SPECULUM	CR	%	15.2		37.8	30.6	10.5		13.9
DISTEPHANUS SPECULUM	CR	CELLS/L	10.2		148.2	20.4	10.5		37.4
GONYAULAX SPP.	DF	%					7.0	12.2	
GONYAULAX SPP.	DF	CELLS/L					7.0	9.9	
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%						6.1	7.9
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L						5.0	21.1
GYRODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%			30.9				13.3
GYRODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L			121.1				35.8
GYRODINIUM SPIRALE	DF	%				8.3	29.8	6.1	20.0
GYRODINIUM SPIRALE	DF	CELLS/L				5.6	29.8	5.0	53.6
GYRODINIUM SPP.	DF	%							
GYRODINIUM SPP.	DF	CELLS/L							

Abundance of Prevalent Species (> 5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WF004
(continued)

			F25	F26	F27	F30	F31	N04	N16	N18
ATHECATE DINOFLAGELLATE	DF	%	10.4	15.6			16.4		7.6	20.5
ATHECATE DINOFLAGELLATE	DF	CELLS/L	12.4	12.3			19.8		12.8	13.7
CERATIUM FUSUS	DF	%								15.9
CERATIUM FUSUS	DF	CELLS/L								10.7
CERATIUM LONGIPES	DF	%	9.1	13.3	8.1				29.5	9.1
CERATIUM LONGIPES	DF	CELLS/L	10.9	10.5	9.6				49.6	6.1
CERATIUM TRIPOS	DF	%			14.9				12.4	
CERATIUM TRIPOS	DF	CELLS/L			17.6				20.8	
DICTYOCHA FIBULA	CR	%								
DICTYOCHA FIBULA	CR	CELLS/L								
DISTEPHANUS SPECULUM	CR	%							18.1	
DISTEPHANUS SPECULUM	CR	CELLS/L							30.4	
GONYAULAX SPP.	DF	%					9.6			
GONYAULAX SPP.	DF	CELLS/L					11.6			
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%								
GYMNODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L								
GYRODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	%			9.5					
GYRODINIUM SP. GROUP 2 21-400 MICRONS WIDTH, 21-50 MICRONS LENGTH	DF	CELLS/L			11.2					
GYRODINIUM SPIRALE	DF	%		31.1		65.0	20.5		5.7	13.6
GYRODINIUM SPIRALE	DF	CELLS/L		24.5		85.8	24.8		9.6	9.2
GYRODINIUM SPP.	DF	%		17.8		10.0				
GYRODINIUM SPP.	DF	CELLS/L		14.0		13.2				

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WF004
(continued)

			F01	F02	F06	F13	F22	F23	F24
MESODINIUM RUBRUM	CL	%		16.7					
MESODINIUM RUBRUM	CL	CELLS/L		19.5					
PROROCENTRUM MICANS	DF	%	10.9				10.5		
PROROCENTRUM MICANS	DF	CELLS/L	7.3				10.5		
PROROCENTRUM MINIMUM	DF	%		7.7					5.5
PROROCENTRUM MINIMUM	DF	CELLS/L		9.0					14.6
PROTOPERIDINIUM PUNCTULATUM	DF	%				5.6			
PROTOPERIDINIUM PUNCTULATUM	DF	CELLS/L				3.7			
PROTOPERIDINIUM SP. GROUP 1 10-30 MICRONS WIDTH, 10-40 MICRONS LENGTH	DF	%	17.4						
PROTOPERIDINIUM SP. GROUP 1 10-30 MICRONS WIDTH, 10-40 MICRONS LENGTH	DF	CELLS/L	11.6						
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	%	30.4	20.5	5.1	36.1	14.0		17.0
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	CELLS/L	20.3	24.0	20.0	24.1	14.0		45.5
PROTOPERIDINIUM SP. GROUP 3 76-150 MICRONS WIDTH, 81-150 MICRONS LENGTH	DF	%		16.7					
PROTOPERIDINIUM SP. GROUP 3 76-150 MICRONS WIDTH, 81-150 MICRONS LENGTH	DF	CELLS/L		19.5					
THECATE DINOFLAGELLATE SPP.	DF	%							
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L							

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WF004
(continued)

			F25	F26	F27	F30	F31	N04	N16	N18
MESODINIUM RUBRUM	CL	%			14.9					
MESODINIUM RUBRUM	CL	CELLS/L			17.6					
PROROCENTRUM MICANS	DF	%								
PROROCENTRUM MICANS	DF	CELLS/L								
PROROCENTRUM MINIMUM	DF	%	66.2				41.1		17.1	13.6
PROROCENTRUM MINIMUM	DF	CELLS/L	79.1				49.5		28.8	9.2
PROTOPERIDINIUM PUNCTULATUM	DF	%								
PROTOPERIDINIUM PUNCTULATUM	DF	CELLS/L								
PROTOPERIDINIUM SP. GROUP 1 10-30 MICRONS WIDTH, 10-40 MICRONS LENGTH	DF	%								
PROTOPERIDINIUM SP. GROUP 1 10-30 MICRONS WIDTH, 10-40 MICRONS LENGTH	DF	CELLS/L								
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	%	7.8	15.6	40.5	18.3		35.3		
PROTOPERIDINIUM SP. GROUP 2 31-75 MICRONS WIDTH, 41-80 MICRONS LENGTH	DF	CELLS/L	9.3	12.3	48.0	24.2		9.9		
PROTOPERIDINIUM SP. GROUP 3 76-150 MICRONS WIDTH, 81-150 MICRONS LENGTH	DF	%						41.2		
PROTOPERIDINIUM SP. GROUP 3 76-150 MICRONS WIDTH, 81-150 MICRONS LENGTH	DF	CELLS/L						11.6		
THECATE DINOFLAGELLATE SPP.	DF	%				6.7	6.8	23.5		18.2
THECATE DINOFLAGELLATE SPP.	DF	CELLS/L				8.8	8.3	6.6		12.2

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WN005

			N04	N18
CERATIUM FUSUS	DF	%	5.9	
CERATIUM FUSUS	DF	CELLS/L	25.1	
CERATIUM LONGIPES	DF	%	63.8	76.9
CERATIUM LONGIPES	DF	CELLS/L	271.4	242.3
CERATIUM SPP.	DF	%	5.1	
CERATIUM SPP.	DF	CELLS/L	21.8	
CERATIUM TRIPOS	DF	%	8.3	17.6
CERATIUM TRIPOS	DF	CELLS/L	35.2	55.6
PROROCENTRUM MINIMUM	DF	%	12.6	
PROROCENTRUM MINIMUM	DF	CELLS/L	53.6	

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WN006

			N04	N18
CERATIUM FUSUS	DF	%	6.2	7.8
CERATIUM FUSUS	DF	CELLS/L	268.8	416.0
CERATIUM LINEATUM	DF	%		9.8
CERATIUM LINEATUM	DF	CELLS/L		524.8
CERATIUM LONGIPES	DF	%	60.9	51.1
CERATIUM LONGIPES	DF	CELLS/L	2627.2	2739.2
CERATIUM TRIPOS	DF	%	9.1	8.3
CERATIUM TRIPOS	DF	CELLS/L	393.6	444.8
PROROCENTRUM MINIMUM	DF	%	12.7	10.3
PROROCENTRUM MINIMUM	DF	CELLS/L	547.2	550.4

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WF007

			F01	F02	F06	F13	F22	F23	F24
CERATIUM FUSUS	DF	%	27.1	23.6	20.6	28.7	19.0	17.9	28.3
CERATIUM FUSUS	DF	CELLS/L	855.8	797.5	603.1	590.9	572.5	182.0	741.6
CERATIUM LINEATUM	DF	%			5.1			8.2	
CERATIUM LINEATUM	DF	CELLS/L			148.0			84.0	
CERATIUM LONGIPES	DF	%	18.2	20.5	21.5	19.1	18.1	19.1	27.7
CERATIUM LONGIPES	DF	CELLS/L	574.2	692.5	629.0	393.3	545.0	194.3	725.4
CERATIUM TRIPOS	DF	%	34.3	39.4	25.5	17.6	46.7	9.6	17.2
CERATIUM TRIPOS	DF	CELLS/L	1082.4	1332.5	745.6	362.9	1410.0	98.0	450.0
DINOPHYSIS NORVEGICA	DF	%	20.1	15.4	24.6	25.9	11.6	16.8	19.3
DINOPHYSIS NORVEGICA	DF	CELLS/L	633.6	520.0	719.7	533.9	350.0	171.5	505.8
PROROCENTRUM MINIMUM	DF	%						19.9	
PROROCENTRUM MINIMUM	DF	CELLS/L						203.0	

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WF007
(continued)

			F25	F26	F27	F30	F31	N04	N16	N18
CERATIUM FUSUS	DF	%	32.0	37.5	26.6	49.1	12.6	21.1	28.3	25.0
CERATIUM FUSUS	DF	CELLS/L	380.4	675.0	397.1	98.8	185.7	722.0	808.2	855.0
CERATIUM LINEATUM	DF	%	5.2							
CERATIUM LINEATUM	DF	CELLS/L	61.6							
CERATIUM LONGIPES	DF	%	17.7	25.4	28.0		13.7	46.4	34.8	41.0
CERATIUM LONGIPES	DF	CELLS/L	210.4	457.5	418.0		202.1	1592.0	995.4	1402.2
CERATIUM TRIPOS	DF	%	12.9	30.4	39.4			28.0	18.1	17.8
CERATIUM TRIPOS	DF	CELLS/L	153.0	547.5	589.0			960.0	518.4	608.4
DINOPHYSIS NORVEGICA	DF	%	28.9	6.4		42.2			13.2	11.4
DINOPHYSIS NORVEGICA	DF	CELLS/L	344.3	115.0		85.0			376.2	390.6
PROROCENTRUM MINIMUM	DF	%					52.1			
PROROCENTRUM MINIMUM	DF	CELLS/L					770.8			

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WN008

			N04	N18
CERATIUM FUSUS	DF	%	9.4	5.3
CERATIUM FUSUS	DF	CELLS/L	113.9	140.0
CERATIUM LONGIPES	DF	%	31.9	18.2
CERATIUM LONGIPES	DF	CELLS/L	387.6	485.0
CERATIUM SPP.	DF	%		8.9
CERATIUM SPP.	DF	CELLS/L		236.3
CERATIUM TRIPOS	DF	%	47.8	39.7
CERATIUM TRIPOS	DF	CELLS/L	579.7	1057.5
DINOPHYSIS NORVEGICA	DF	%		24.3
DINOPHYSIS NORVEGICA	DF	CELLS/L		646.3

Abundance of Prevalent Species (>5% Total Count) in Chlorophyll a Maximum Sample
Screened Phytoplankton, Survey WN009

			N04	N18
CERATIUM FUSUS	DF	%	7.4	9.2
CERATIUM FUSUS	DF	CELLS/L	569.6	1525.5
CERATIUM LONGIPES	DF	%		6.4
CERATIUM LONGIPES	DF	CELLS/L		1071.0
CERATIUM TRIPOS	DF	%	54.3	67.8
CERATIUM TRIPOS	DF	CELLS/L	4198.4	11286.0
DINOPHYSIS NORVEGICA	DF	%	30.2	12.0
DINOPHYSIS NORVEGICA	DF	CELLS/L	2336.0	1989.0

APPENDIX H

Abundance of Prevalent Species in Zooplankton Tow Samples

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WF001

				F01	F02	F06	F13	F23	F24
CENTROPAGES SPP.	C	C	%	10	10	8			
CENTROPAGES SPP.	C	C	ind/m3	1031	996	1021			
CIRRIPEDIA SPP.	N	B	%						
CIRRIPEDIA SPP.	N	B	ind/m3						
COPEPOD SPP.	N	C	%	37	30	36	28	43	52
COPEPOD SPP.	N	C	ind/m3	3930	3034	4580	1909	858	5828
MICROSETELLA NORVEGICA	null	C	%						
MICROSETELLA NORVEGICA	null	C	ind/m3						
OITHONA SIMILIS	C	C	%	27	39	30	32	22	21
OITHONA SIMILIS	C	C	ind/m3	2856	3909	3822	2190	441	2367
OITHONA SIMILIS	F	C	%		6	5	8	9	5
OITHONA SIMILIS	F	C	ind/m3		558	659	538	178	598
PSEUDOCALANUS NEWMANI	C	C	%	14	7	9	17	10	
PSEUDOCALANUS NEWMANI	C	C	ind/m3	1460	740	1120	1175	190	
PSEUDOCALANUS NEWMANI	F	C	%						
PSEUDOCALANUS NEWMANI	F	C	ind/m3						

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WF001
(continued)

				F25	F27	F30	F31	F32	F33	N04	N16	N18
CENTROPAGES SPP.	C	C	%					7		9	6	16
CENTROPAGES SPP.	C	C	ind/m3					1088		1294	1042	1213
CIRRIPEDIA SPP.	N	B	%	6		23						
CIRRIPEDIA SPP.	N	B	ind/m3	51		909						
COPEPOD SPP.	N	C	%	47	60	44	42	32	53	27	27	32
COPEPOD SPP.	N	C	ind/m3	434	3184	1735	2356	5304	6383	3806	4465	2448
MICROSETELLA NORVEGICA	null	C	%							7		
MICROSETELLA NORVEGICA	null	C	ind/m3							995		
OITHONA SIMILIS	C	C	%	19	12	9	19	25	29	21	21	32
OITHONA SIMILIS	C	C	ind/m3	180	634	368	1044	4148	3565	3060	3513	2425
OITHONA SIMILIS	F	C	%		7			5	6			7
OITHONA SIMILIS	F	C	ind/m3		390			850	747			561
PSEUDOCALANUS NEWMANI	C	C	%	13		8	18	18		23	23	
PSEUDOCALANUS NEWMANI	C	C	ind/m3	117		315	991	3026		3334	3810	
PSEUDOCALANUS NEWMANI	F	C	%					5				
PSEUDOCALANUS NEWMANI	F	C	ind/m3					884				

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WF002

				F01	F02	F06	F13	F23	F24
ACARTIA HUDSONICA	F	C	%						
ACARTIA HUDSONICA	F	C	ind/m3						
CENTROPAGES HAMATUS	F	C	%					14	
CENTROPAGES HAMATUS	F	C	ind/m3					693	
CENTROPAGES HAMATUS	M	C	%					8	
CENTROPAGES HAMATUS	M	C	ind/m3					387	
CENTROPAGES SPP.	C	C	%					9	
CENTROPAGES SPP.	C	C	ind/m3					467	
CENTROPAGES TYPICUS	M	C	%		6				
CENTROPAGES TYPICUS	M	C	ind/m3		1129				
CIRRIPEDIA SPP.	N	B	%				11	9	
CIRRIPEDIA SPP.	N	B	ind/m3				1322	440	
COPEPOD SPP.	N	C	%	64	42	46	54	30	66
COPEPOD SPP.	N	C	ind/m3	4722	7859	6359	6796	1507	11028
OITHONA SIMILIS	C	C	%	11	15	17	8		8
OITHONA SIMILIS	C	C	ind/m3	784	2918	2336	1019		1347
OITHONA SIMILIS	F	C	%						
OITHONA SIMILIS	F	C	ind/m3						
POLYCHAETE SPP.	L	OZ	%			11			
POLYCHAETE SPP.	L	OZ	ind/m3			1493			
PSEUDOCALANUS NEWMANI	C	C	%	12	15	14	14	12	11
PSEUDOCALANUS NEWMANI	C	C	ind/m3	910	2776	2012	1699	613	1846
PSEUDOCALANUS NEWMANI	F	C	%						
PSEUDOCALANUS NEWMANI	F	C	ind/m3						

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WF002
(continued)

				F25	F27	F30	F31	F32	F33	N04	N16	N18
ACARTIA HUDSONICA	F	C	%			5						
ACARTIA HUDSONICA	F	C	ind/m3			1375						
CENTROPAGES HAMATUS	F	C	%									
CENTROPAGES HAMATUS	F	C	ind/m3									
CENTROPAGES HAMATUS	M	C	%									
CENTROPAGES HAMATUS	M	C	ind/m3									
CENTROPAGES SPP.	C	C	%						6			
CENTROPAGES SPP.	C	C	ind/m3						1221			
CENTROPAGES TYPICUS	M	C	%									
CENTROPAGES TYPICUS	M	C	ind/m3									
CIRRIPEDIA SPP.	N	B	%	13		48	15					
CIRRIPEDIA SPP.	N	B	ind/m3	1528		12113	2677					
COPEPOD SPP.	N	C	%	40	67	26	30	50	42	41	36	45
COPEPOD SPP.	N	C	ind/m3	4555	5298	6482	5354	14737	8126	3308	7002	7298
OITHONA SIMILIS	C	C	%		16			13	31	28	16	26
OITHONA SIMILIS	C	C	ind/m3		1293			3766	6104	2293	2990	4197
OITHONA SIMILIS	F	C	%		5			5	7	6		8
OITHONA SIMILIS	F	C	ind/m3		401			1521	1465	507		1361
POLYCHAETE SPP.	L	OZ	%									
POLYCHAETE SPP.	L	OZ	ind/m3									
PSEUDOCALANUS NEWMANI	C	C	%	20		7	22	15		6	24	6
PSEUDOCALANUS NEWMANI	C	C	ind/m3	2306		1637	3960	4273		451	4704	1021
PSEUDOCALANUS NEWMANI	F	C	%	8			7				8	
PSEUDOCALANUS NEWMANI	F	C	ind/m3	923			1283				1605	

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WN003

				N04	N18
COPEPOD SPP.	N	C	%	68	46
COPEPOD SPP.	N	C	ind/m3	8779	18811
OITHONA SIMILIS	C	C	%	23	46
OITHONA SIMILIS	C	C	ind/m3	2996	18771

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WF004

				F01	F02	F06	F13	F22	F23	F24
ACARTIA SPP.	C	C	%							
ACARTIA SPP.	C	C	ind/m3							
CALANUS FINMARCHICUS	C	C	%		10			8		
CALANUS FINMARCHICUS	C	C	ind/m3		4626			804		
CIRRIPEDIA SPP.	N	B	%	7		21	42		8	9
CIRRIPEDIA SPP.	N	B	ind/m3	1208		2770	13931		290	511
COPEPOD SPP.	N	C	%	21	16	26	16	41	31	19
COPEPOD SPP.	N	C	ind/m3	3381	7541	3481	5428	4287	1132	1075
HARPACTICOIDA SPP.	C	C	%							
HARPACTICOIDA SPP.	C	C	ind/m3							
OITHONA SIMILIS	C	C	%	15	9	28	17	22	15	34
OITHONA SIMILIS	C	C	ind/m3	2385	4182	3705	5608	2292	543	1939
OITHONA SIMILIS	F	C	%							6
OITHONA SIMILIS	F	C	ind/m3							335
POLYCHAETE SPP.	L	OZ	%				10		20	14
POLYCHAETE SPP.	L	OZ	ind/m3				3166		730	776
PSEUDOCALANUS NEWMANI	C	C	%	43	54	10	6	9	9	6
PSEUDOCALANUS NEWMANI	C	C	ind/m3	6883	24713	1310	1990	982	318	370
PSEUDOCALANUS NEWMANI	F	C	%		6					
PSEUDOCALANUS NEWMANI	F	C	ind/m3		2661					

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WF004
(continued)

				F25	F26	F27	F30	F31	F32	F33	N04	N16	N18
ACARTIA SPP.	C	C	%				5						
ACARTIA SPP.	C	C	ind/m3				1187						
CALANUS FINMARCHICUS	C	C	%						11		15	9	8
CALANUS FINMARCHICUS	C	C	ind/m3						920		932	1127	1006
CIRRIPEDIA SPP.	N	B	%	29	23	23		64	8		7		11
CIRRIPEDIA SPP.	N	B	ind/m3	1450	1119	2298		6466	671		414		1449
COPEPOD SPP.	N	C	%	11	42	35	18	6	20	53	36	36	34
COPEPOD SPP.	N	C	ind/m3	547	1986	3479	4077	618	1705	14332	2208	4225	4267
HARPACTICOIDA SPP.	C	C	%					6					
HARPACTICOIDA SPP.	C	C	ind/m3					574					
OITHONA SIMILIS	C	C	%	13	20	17			28	11	26	26	23
OITHONA SIMILIS	C	C	ind/m3	629	962	1692			2319	3063	1604	3036	2898
OITHONA SIMILIS	F	C	%						7				
OITHONA SIMILIS	F	C	ind/m3						575				
POLYCHAETE SPP.	L	OZ	%	20			70	13					9
POLYCHAETE SPP.	L	OZ	ind/m3	985			15948	1280					1127
PSEUDOCALANUS NEWMANI	C	C	%	11		6			17	25	6	10	
PSEUDOCALANUS NEWMANI	C	C	ind/m3	547		575			1437	6728	397	1158	
PSEUDOCALANUS NEWMANI	F	C	%										
PSEUDOCALANUS NEWMANI	F	C	ind/m3										

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WN005

				N04	N18
BIVALVIA SPP.	V	OZ	%		6
BIVALVIA SPP.	V	OZ	ind/m3		925
CALANUS FINMARCHICUS	C	C	%	43	28
CALANUS FINMARCHICUS	C	C	ind/m3	20067	4421
COPEPOD SPP.	N	C	%	27	28
COPEPOD SPP.	N	C	ind/m3	12519	4352
OITHONA SIMILIS	C	C	%	6	12
OITHONA SIMILIS	C	C	ind/m3	2579	1919
PSEUDOCALANUS NEWMANI	C	C	%	6	7
PSEUDOCALANUS NEWMANI	C	C	ind/m3	2719	1062

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WN006

				N04	N18
BIVALVIA SPP.	V	OZ	%	33	7
BIVALVIA SPP.	V	OZ	ind/m3	24324	2594
CENTROPAGES SPP.	C	C	%		7
CENTROPAGES SPP.	C	C	ind/m3		2707
COPEPOD SPP.	N	C	%	28	25
COPEPOD SPP.	N	C	ind/m3	20752	8909
OITHONA SIMILIS	C	C	%	16	32
OITHONA SIMILIS	C	C	ind/m3	11737	11616
OITHONA SIMILIS	F	C	%		8
OITHONA SIMILIS	F	C	ind/m3		3045
PSEUDOCALANUS NEWMANI	C	C	%		6
PSEUDOCALANUS NEWMANI	C	C	ind/m3		2256

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WF007

				F01	F02	F06	F13	F22	F23	F24
ACARTIA HUDSONICA	F	C	%						8	
ACARTIA HUDSONICA	F	C	ind/m3						5297	
ACARTIA HUDSONICA	M	C	%						5	
ACARTIA HUDSONICA	M	C	ind/m3						3531	
ACARTIA SPP.	C	C	%						9	
ACARTIA SPP.	C	C	ind/m3						5568	
BIVALVIA SPP.	V	OZ	%	10			28	49		28
BIVALVIA SPP.	V	OZ	ind/m3	10081			34224	92090		40253
CALANUS FINMARCHICUS	C	C	%							
CALANUS FINMARCHICUS	C	C	ind/m3							
CENTROPAGES SPP.	C	C	%			8	6	8		
CENTROPAGES SPP.	C	C	ind/m3			10091	7877	14294		
COPEPOD SPP.	N	C	%	25	30	42	31	17	29	32
COPEPOD SPP.	N	C	ind/m3	23610	24493	55041	37483	30931	18470	46236
EURYTEMORA HERDMANI	C	C	%						8	
EURYTEMORA HERDMANI	C	C	ind/m3						4889	
EVADNE NORDMANNI	null	OZ	%						12	
EVADNE NORDMANNI	null	OZ	ind/m3						7605	
OITHONA SIMILIS	C	C	%	35	40	30	16	7	5	15
OITHONA SIMILIS	C	C	ind/m3	33956	32657	40020	20100	13591	3531	22030
POLYCHAETE SPP.	L	OZ	%							
POLYCHAETE SPP.	L	OZ	ind/m3							
PSEUDOCALANUS NEWMANI	C	C	%	12	9	6		6		6
PSEUDOCALANUS NEWMANI	C	C	ind/m3	11142	7611	8256		11951		8703

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WF007
(continued)

				F25	F26	F27	F30	F31	N04	N16	N18
ACARTIA HUDSONICA	F	C	%								
ACARTIA HUDSONICA	F	C	ind/m3								
ACARTIA HUDSONICA	M	C	%				8				
ACARTIA HUDSONICA	M	C	ind/m3				2565				
ACARTIA SPP.	C	C	%				13	6			
ACARTIA SPP.	C	C	ind/m3				3875	5319			
BIVALVIA SPP.	V	OZ	%	9	36	22			17	64	7
BIVALVIA SPP.	V	OZ	ind/m3	11048	49595	20429			11463	1860415	4361
CALANUS FINMARCHICUS	C	C	%			10			13		
CALANUS FINMARCHICUS	C	C	ind/m3			9136			8788		
CENTROPAGES SPP.	C	C	%		14	8			6	6	14
CENTROPAGES SPP.	C	C	ind/m3		19041	7233			4330	161982	8571
COPEPOD SPP.	N	C	%	37	20	31	50	42	36	17	47
COPEPOD SPP.	N	C	ind/m3	43924	26569	28296	15284	37901	24963	493093	27968
EURYTEMORA HERDMANI	C	C	%				10				
EURYTEMORA HERDMANI	C	C	ind/m3				2948				
EVADNE NORDMANNI	null	OZ	%								
EVADNE NORDMANNI	null	OZ	ind/m3								
OITHONA SIMILIS	C	C	%	24	13	9		13	13		17
OITHONA SIMILIS	C	C	ind/m3	28025	17934	8375		12135	8788		9924
POLYCHAETE SPP.	L	OZ	%				6				
POLYCHAETE SPP.	L	OZ	ind/m3				1856				
PSEUDOCALANUS NEWMANI	C	C	%			9			5		
PSEUDOCALANUS NEWMANI	C	C	ind/m3			7994			3566		

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WN008

				N04	N18
BIVALVIA SPP.	V	OZ	%		17
BIVALVIA SPP.	V	OZ	ind/m3		24276
COPEPOD SPP.	N	C	%	25	34
COPEPOD SPP.	N	C	ind/m3	21352	50317
EURYTEMORA HERDMANI	C	C	%		6
EURYTEMORA HERDMANI	C	C	ind/m3		9269
OITHONA SIMILIS	C	C	%	27	10
OITHONA SIMILIS	C	C	ind/m3	23006	14566
PSEUDOCALANUS NEWMANI	C	C	%	12	7
PSEUDOCALANUS NEWMANI	C	C	ind/m3	9774	10152
PSEUDOCALANUS NEWMANI	F	C	%	5	
PSEUDOCALANUS NEWMANI	F	C	ind/m3	4361	
TEMORA LONGICORNIS	C	C	%	7	
TEMORA LONGICORNIS	C	C	ind/m3	6015	

Abundance of Prevalent Species (>5% Total Count)
Zooplankton, Survey WN009

				N04	N18
BIVALVIA SPP.	V	OZ	%	38	27
BIVALVIA SPP.	V	OZ	ind/m3	104186	75145
COPEPOD SPP.	N	C	%	6	14
COPEPOD SPP.	N	C	ind/m3	17265	38765
OITHONA SIMILIS	C	C	%	20	16
OITHONA SIMILIS	C	C	ind/m3	55963	45326
OITHONA SIMILIS	F	C	%	5	5
OITHONA SIMILIS	F	C	ind/m3	13693	14313
PSEUDOCALANUS NEWMANI	C	C	%	9	11
PSEUDOCALANUS NEWMANI	C	C	ind/m3	25005	31609
PSEUDOCALANUS NEWMANI	F	C	%	5	5
PSEUDOCALANUS NEWMANI	F	C	ind/m3	14288	14313
TEMORA LONGICORNIS	C	C	%	10	
TEMORA LONGICORNIS	C	C	ind/m3	27386	

APPENDIX I

Satellite Images of Chlorophyll a Concentrations and Temperature

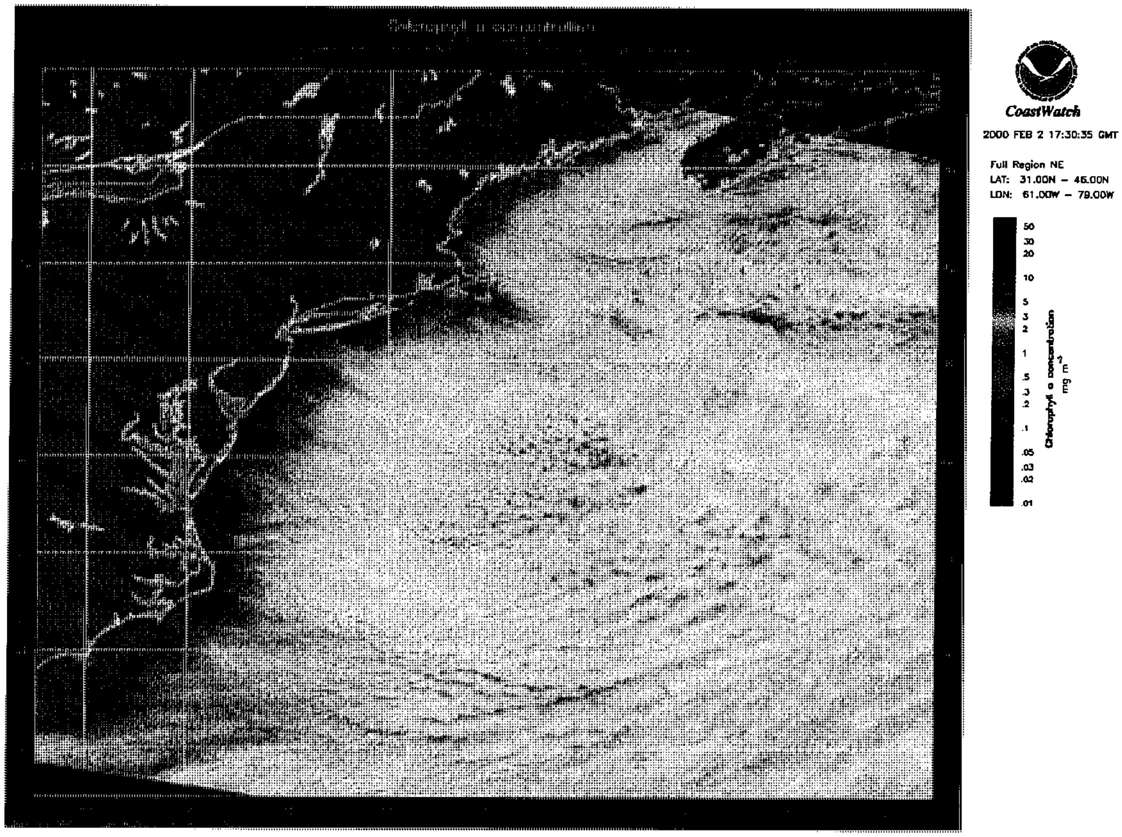


Figure I-1. Chlorophyll a Concentrations from February 2, 2000

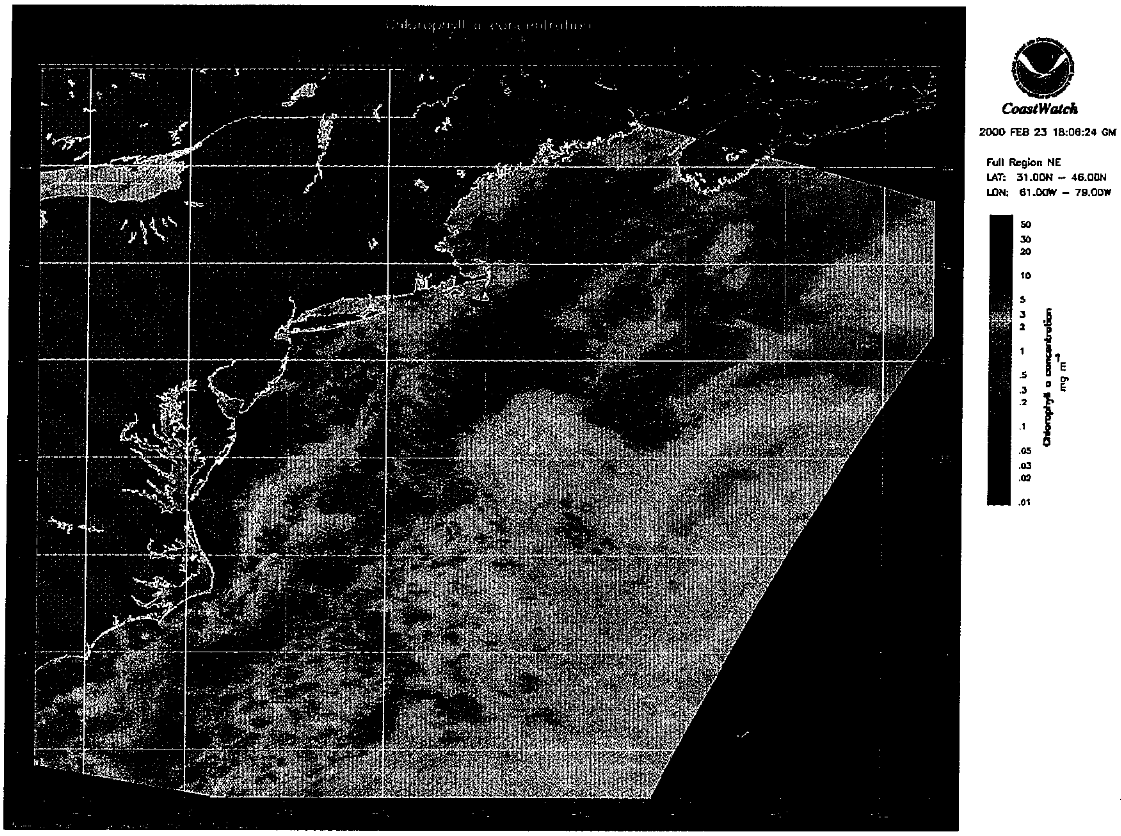


Figure I- 2. Chlorophyll a Concentrations from February 23, 2000

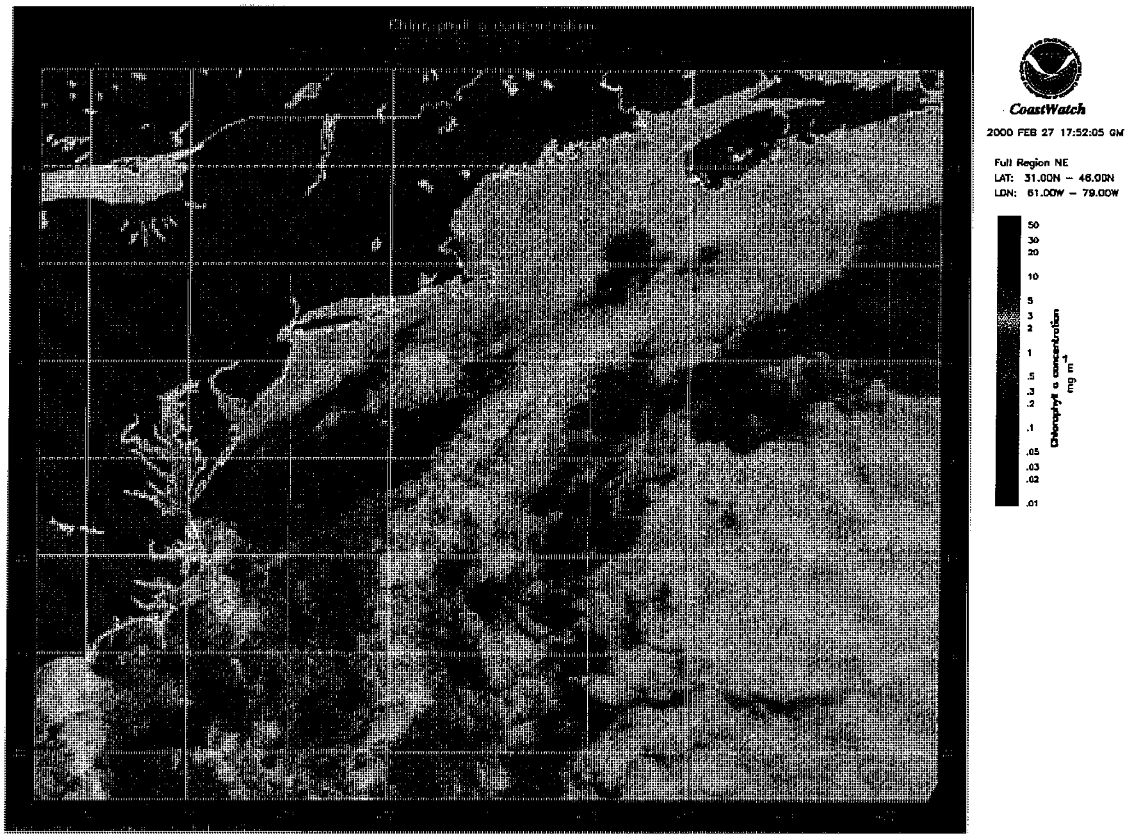


Figure I-3. Chlorophyll a Concentrations from February 27, 2000

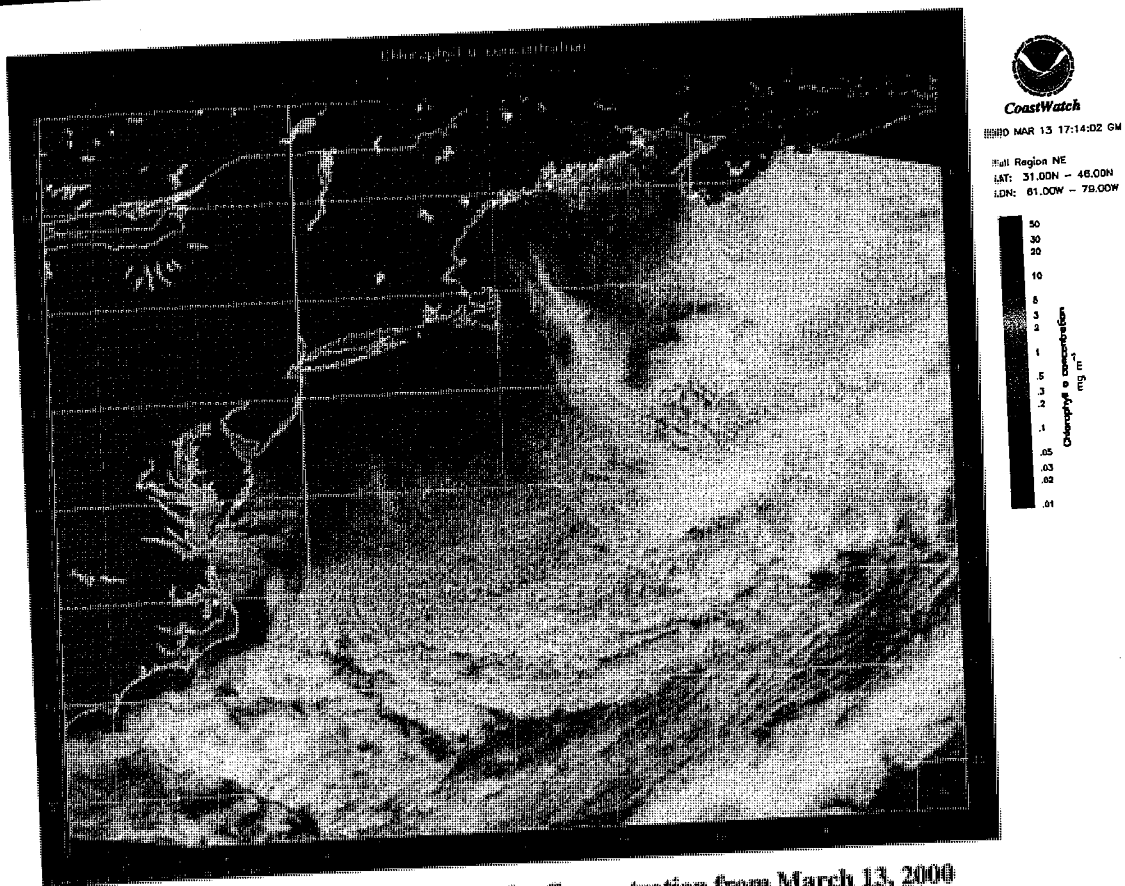


Figure I-4. Chlorophyll a Concentration from March 13, 2000

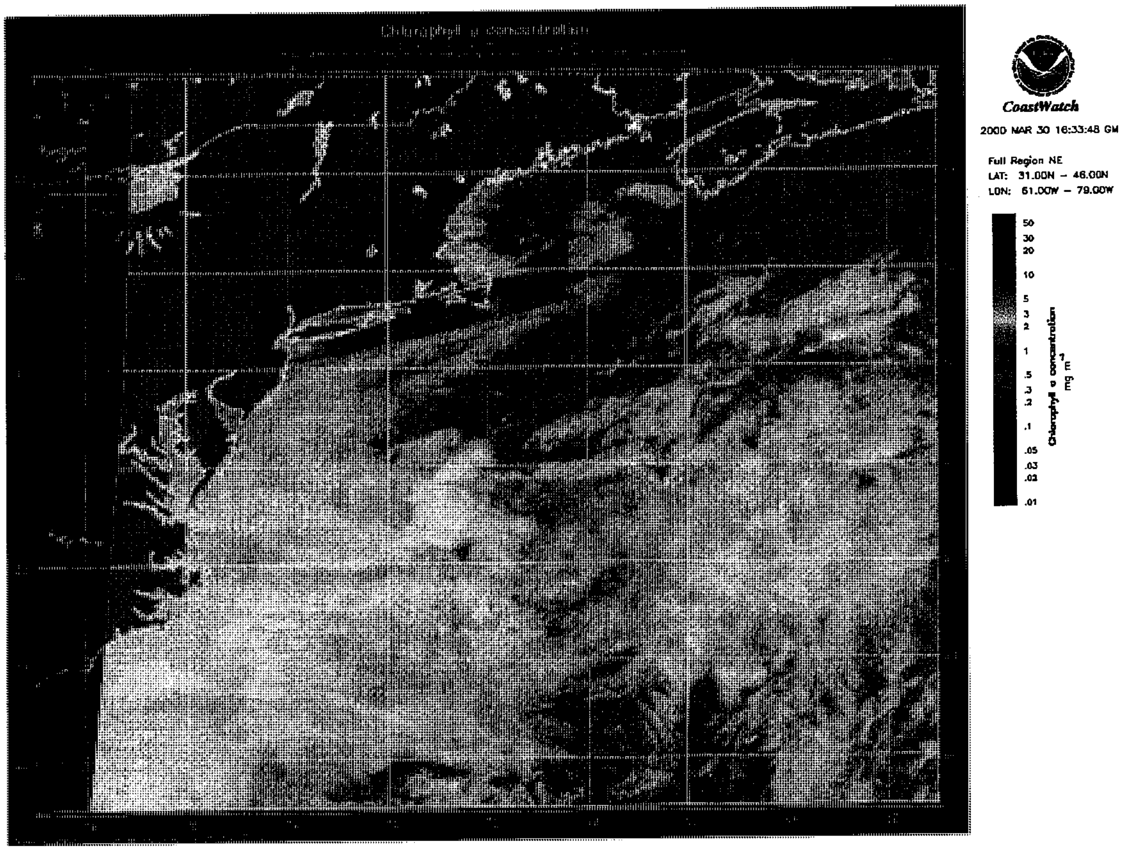


Figure I-5. Chlorophyll a Concentration from March 30, 2000

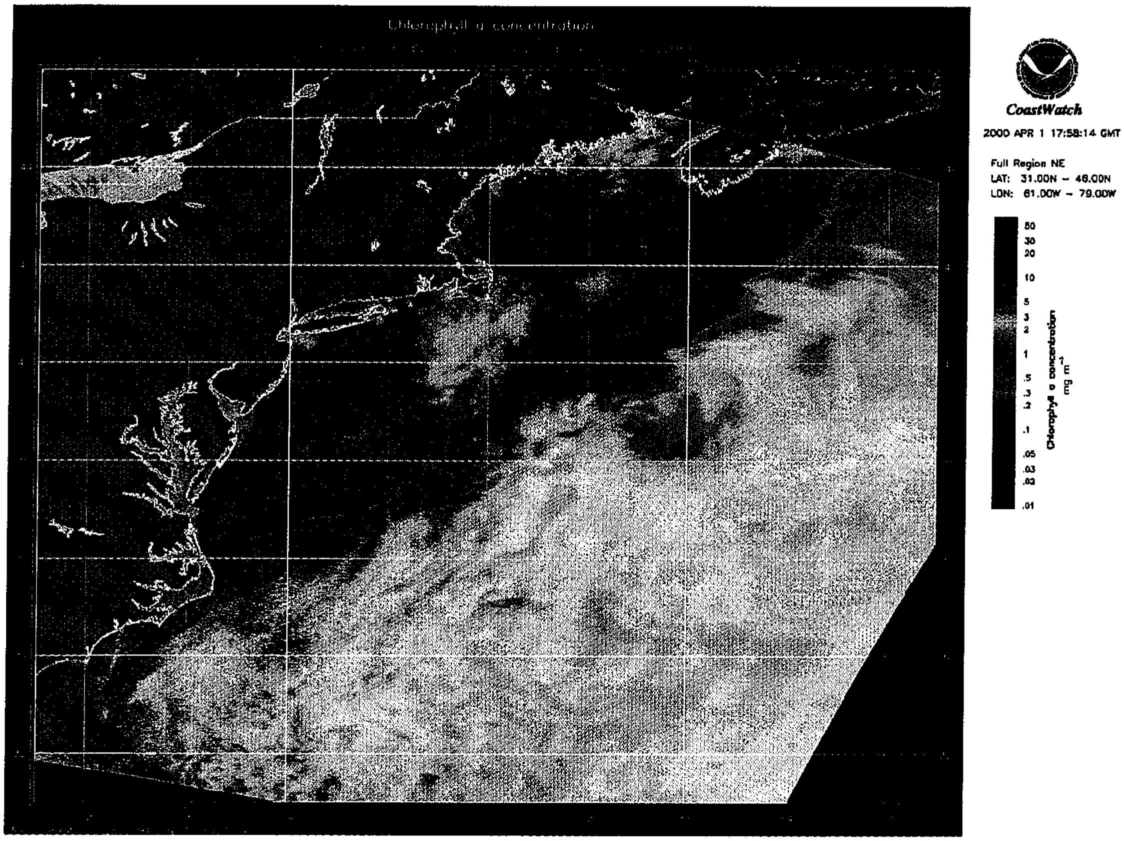


Figure I-6. Chlorophyll a Concentration from April 1, 2000

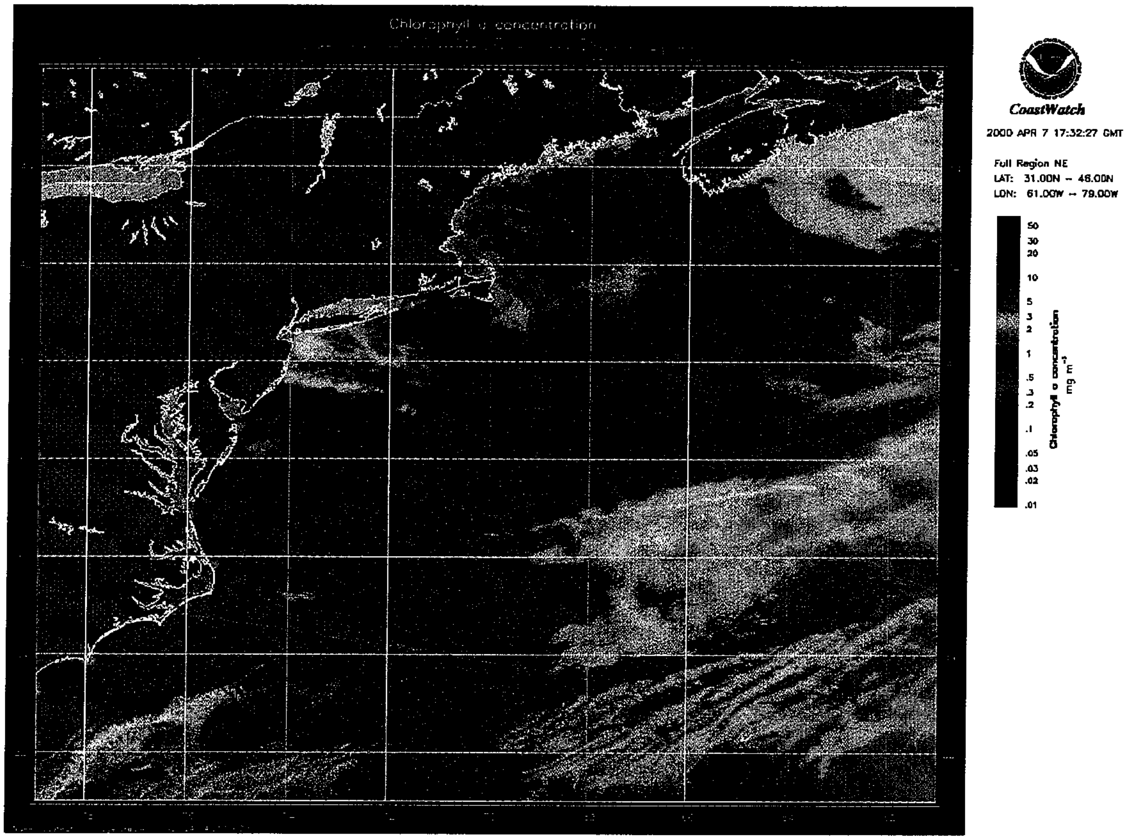


Figure I-7. Chlorophyll a Concentration from April 7, 2000

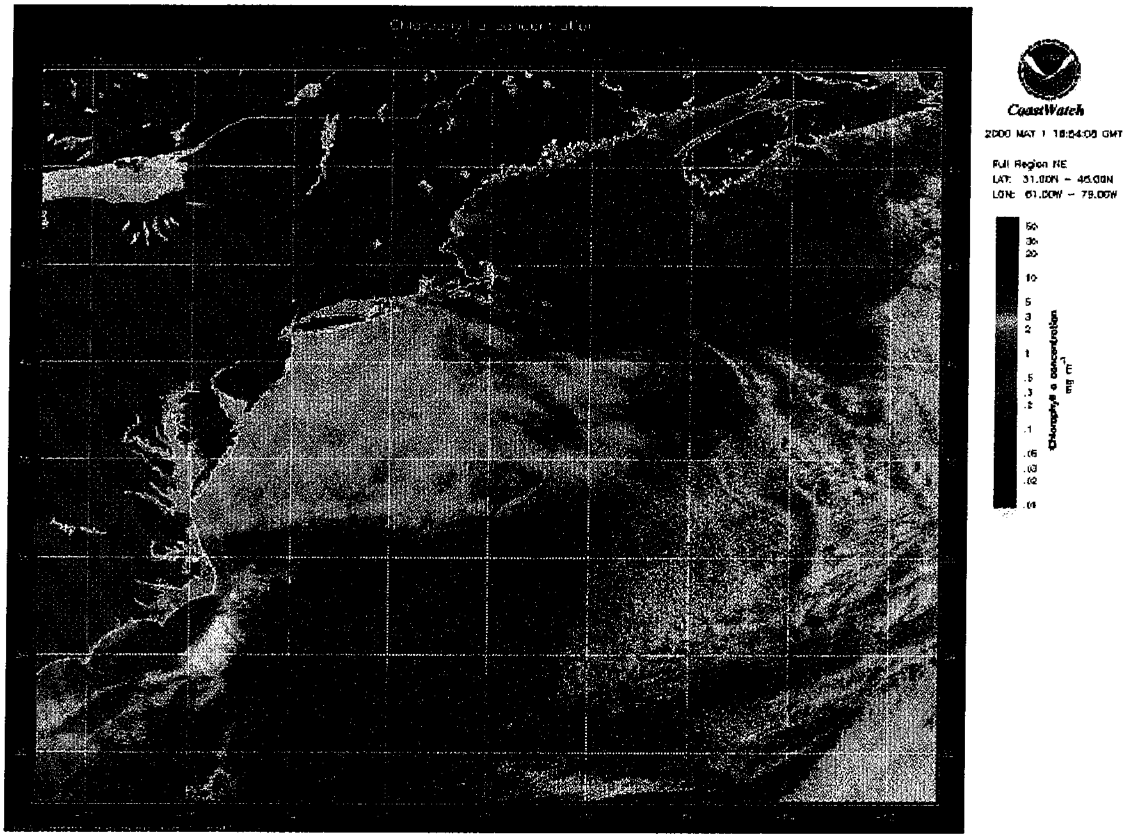


Figure I-8. Chlorophyll a Concentration from May 1, 2000

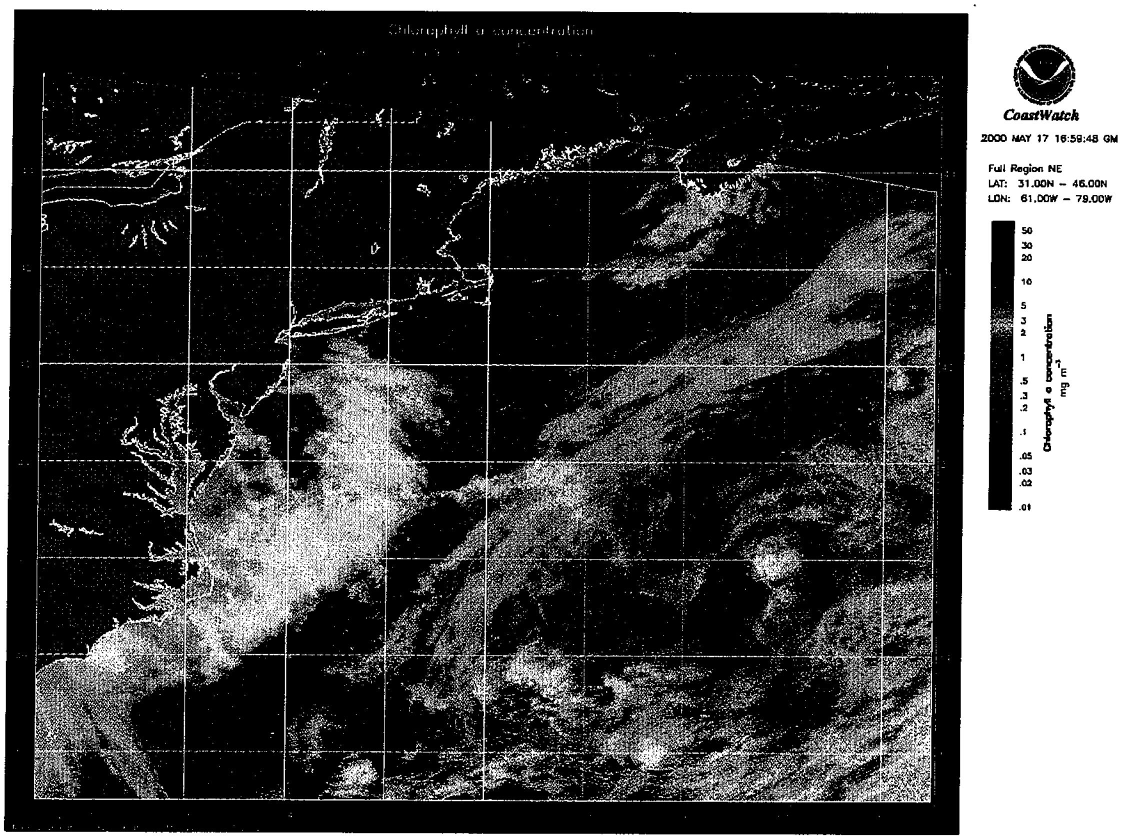


Figure I-9. Chlorophyll a Concentration from May 17, 2000

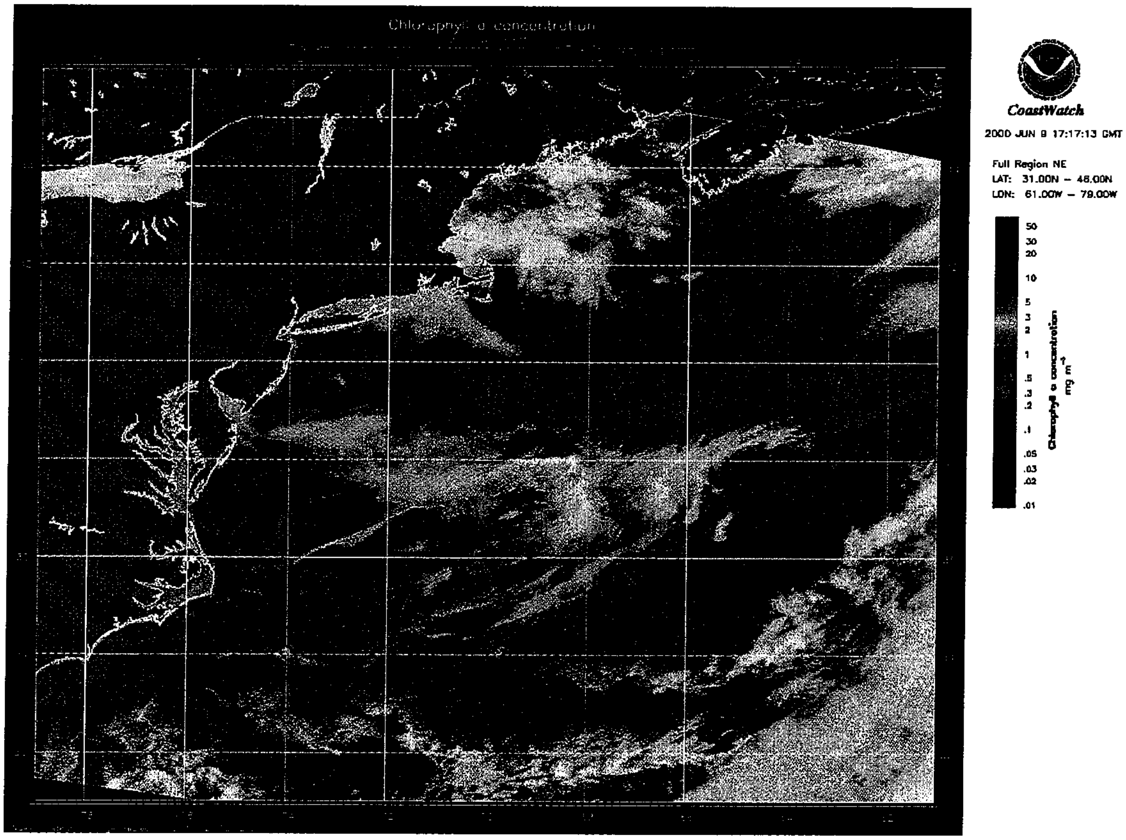


Figure I-10. Chlorophyll a Concentration from June 9, 2000

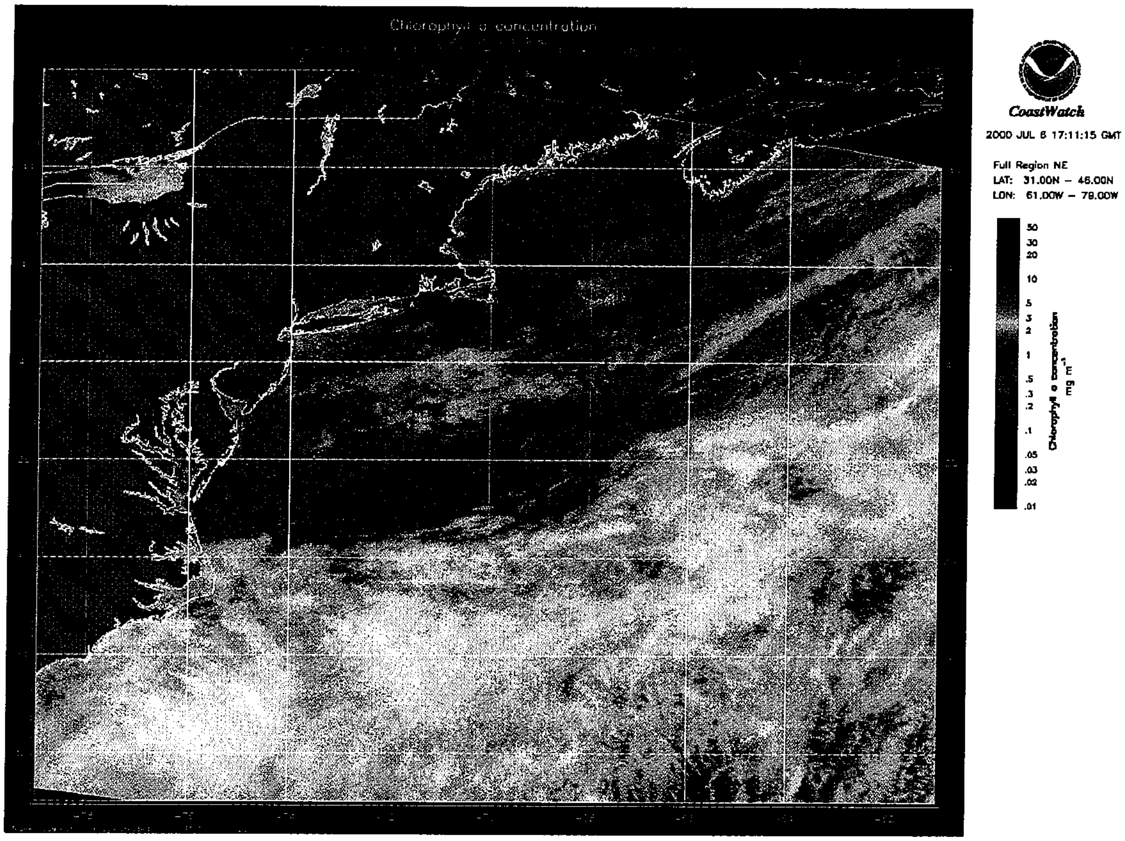


Figure I-11. Chlorophyll a Concentration from July 6, 2000

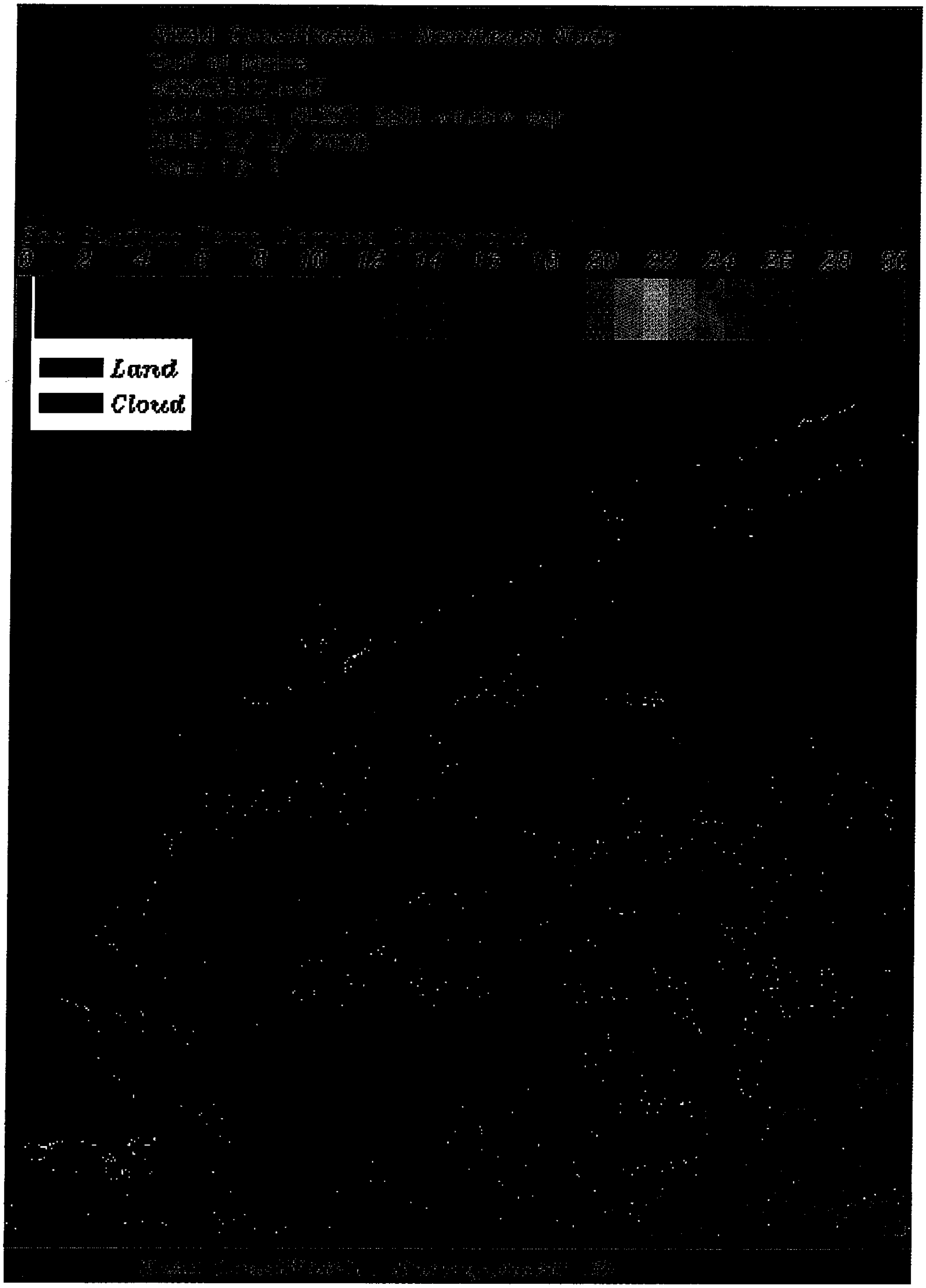


Figure I-12. Sea Surface Temperature from February 2, 2000

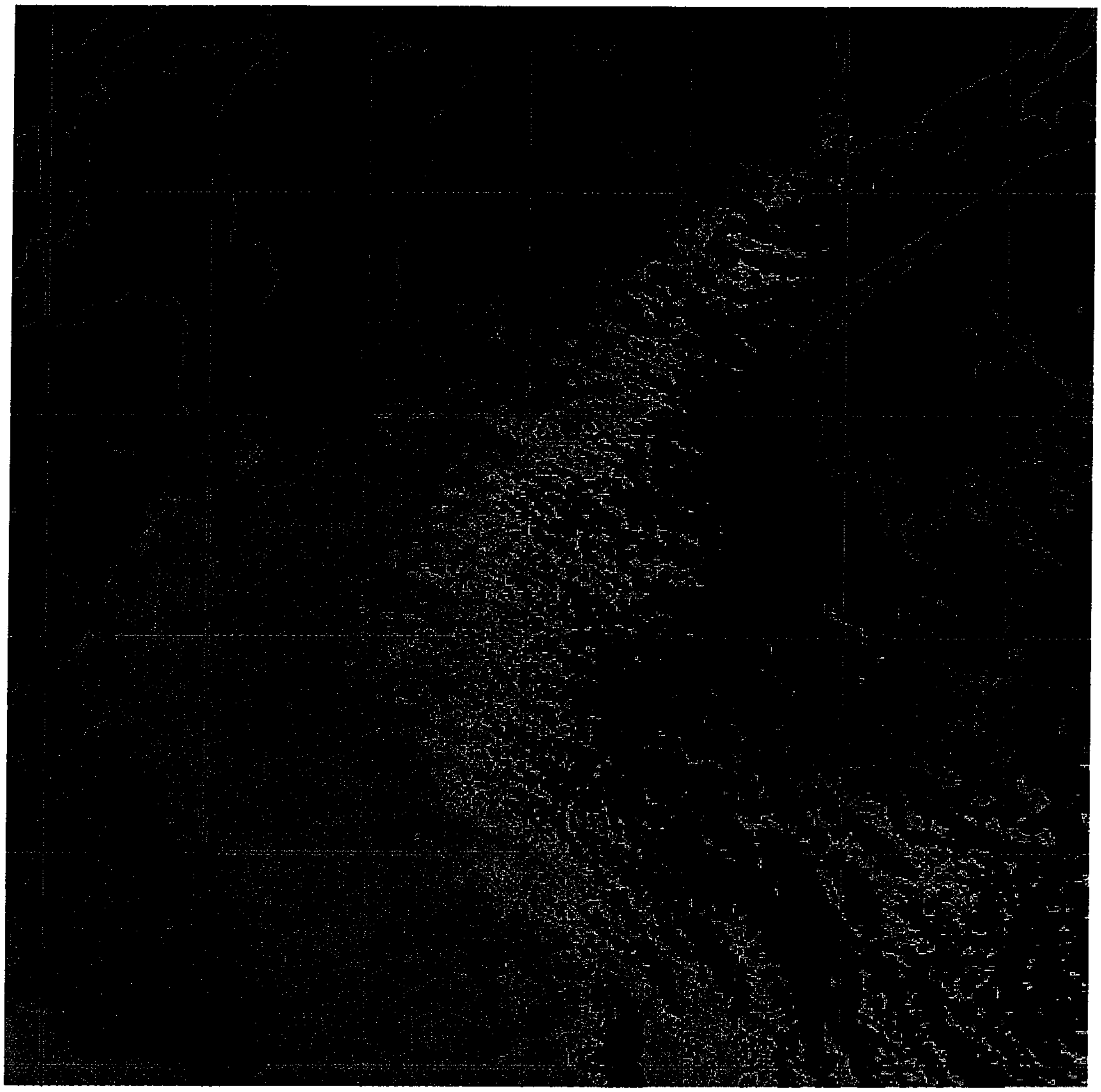


Figure I-13. Sea Surface Temperature from February 6, 2000

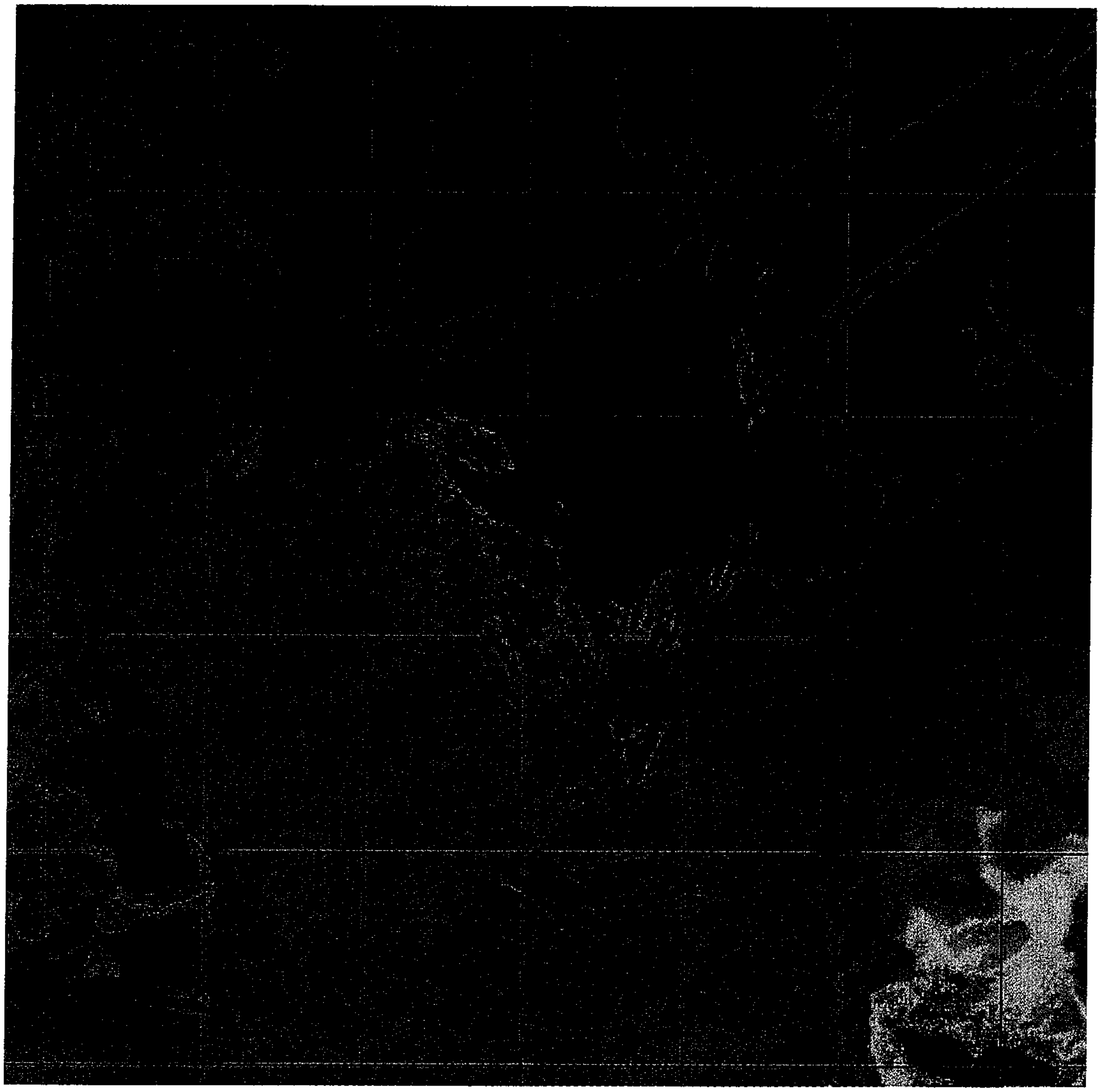


Figure I-14. Sea Surface Temperature from February 22, 2000

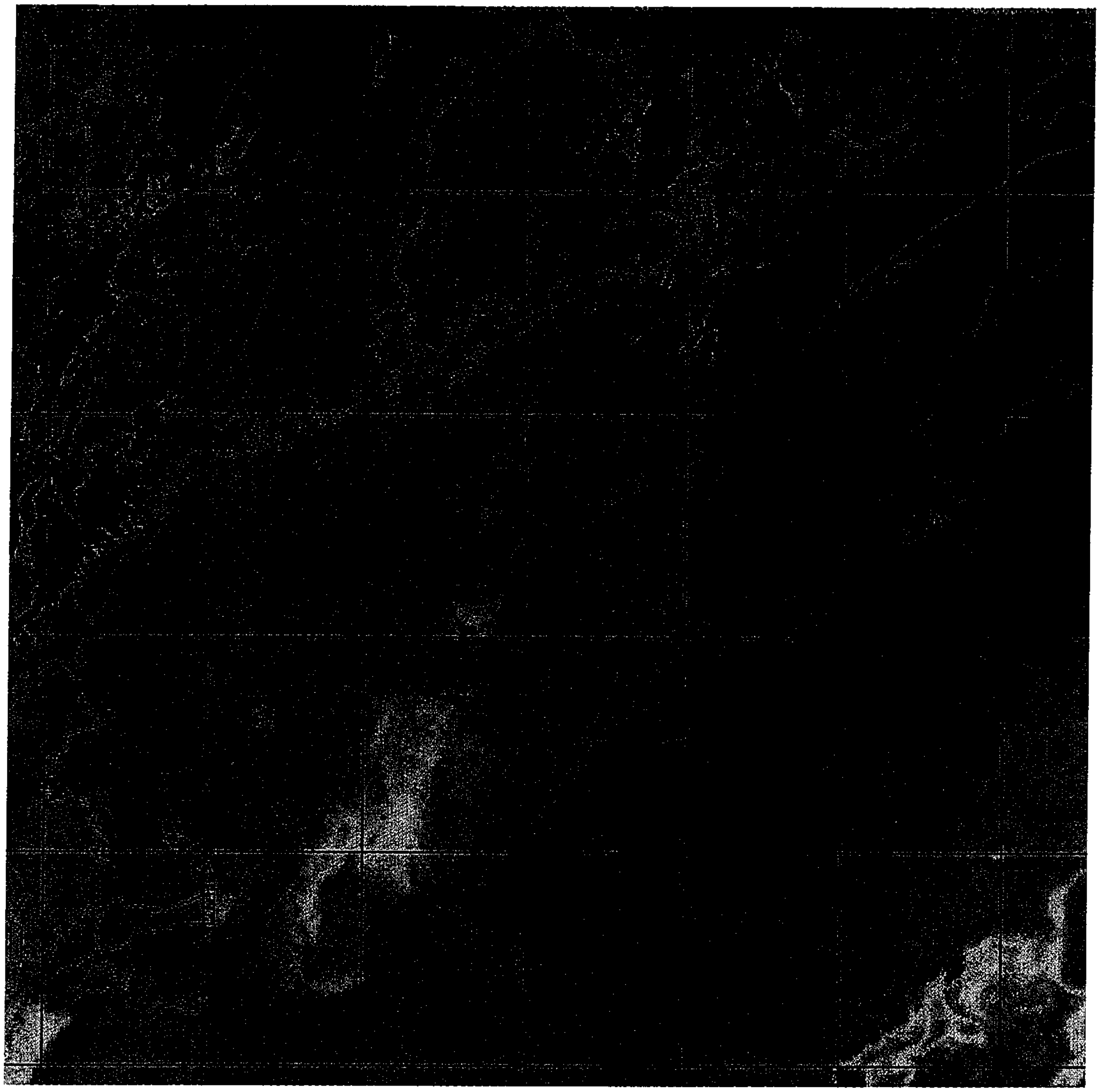


Figure I-15. Sea Surface Temperature from February 27, 2000

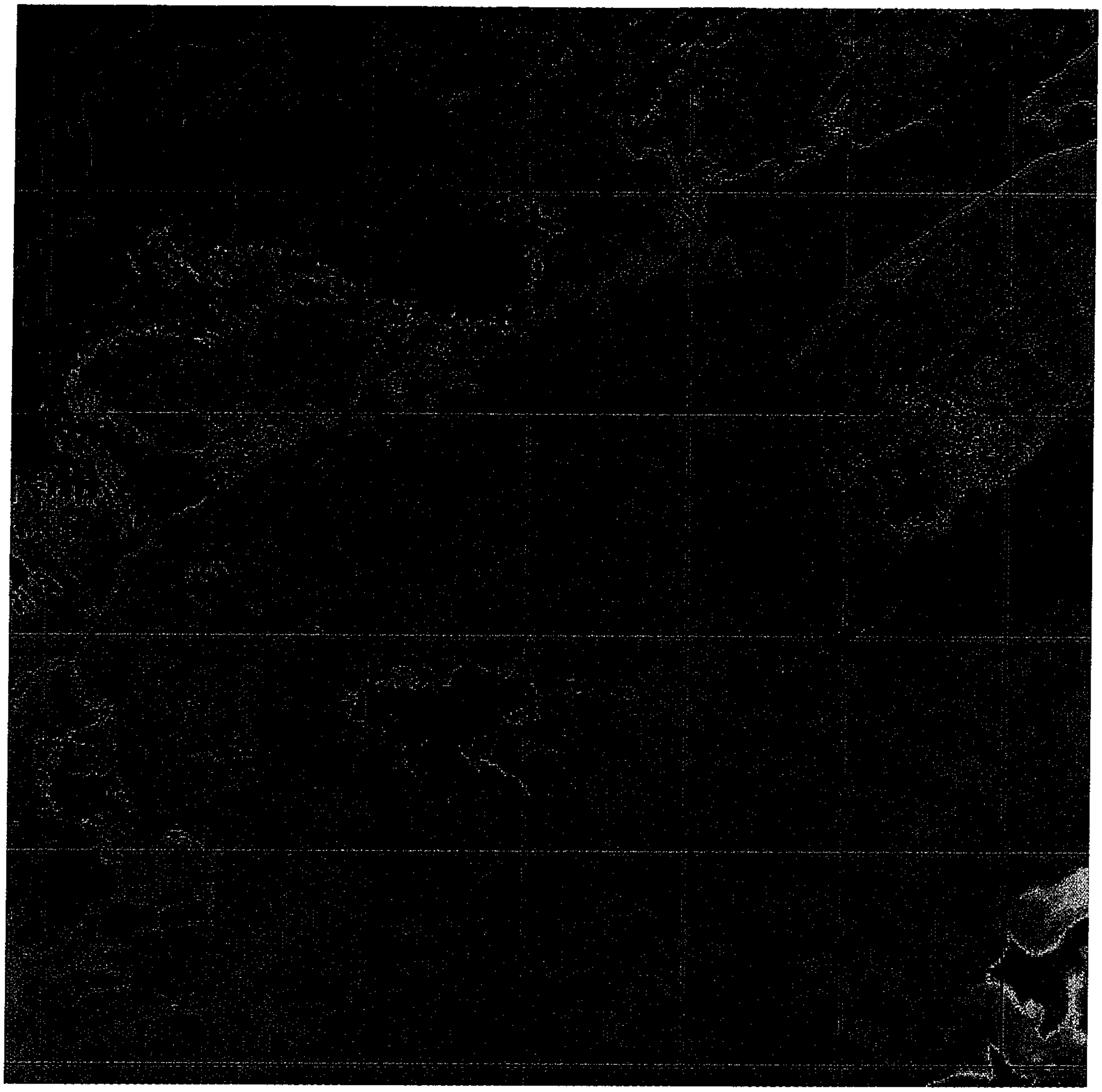


Figure I-16. Sea Surface Temperature from March 30, 2000

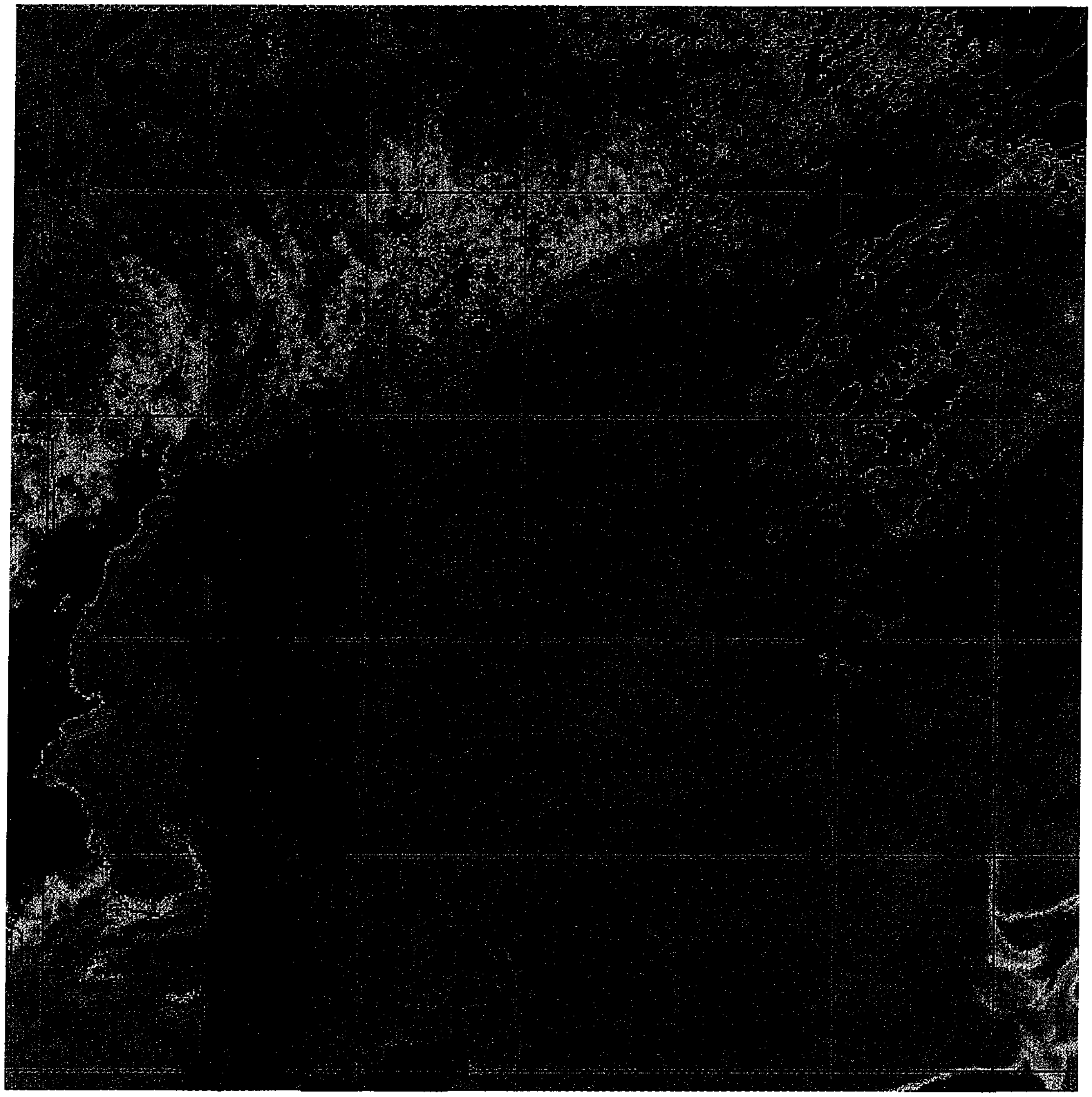


Figure I-17. Sea Surface Temperature from April 1, 2000

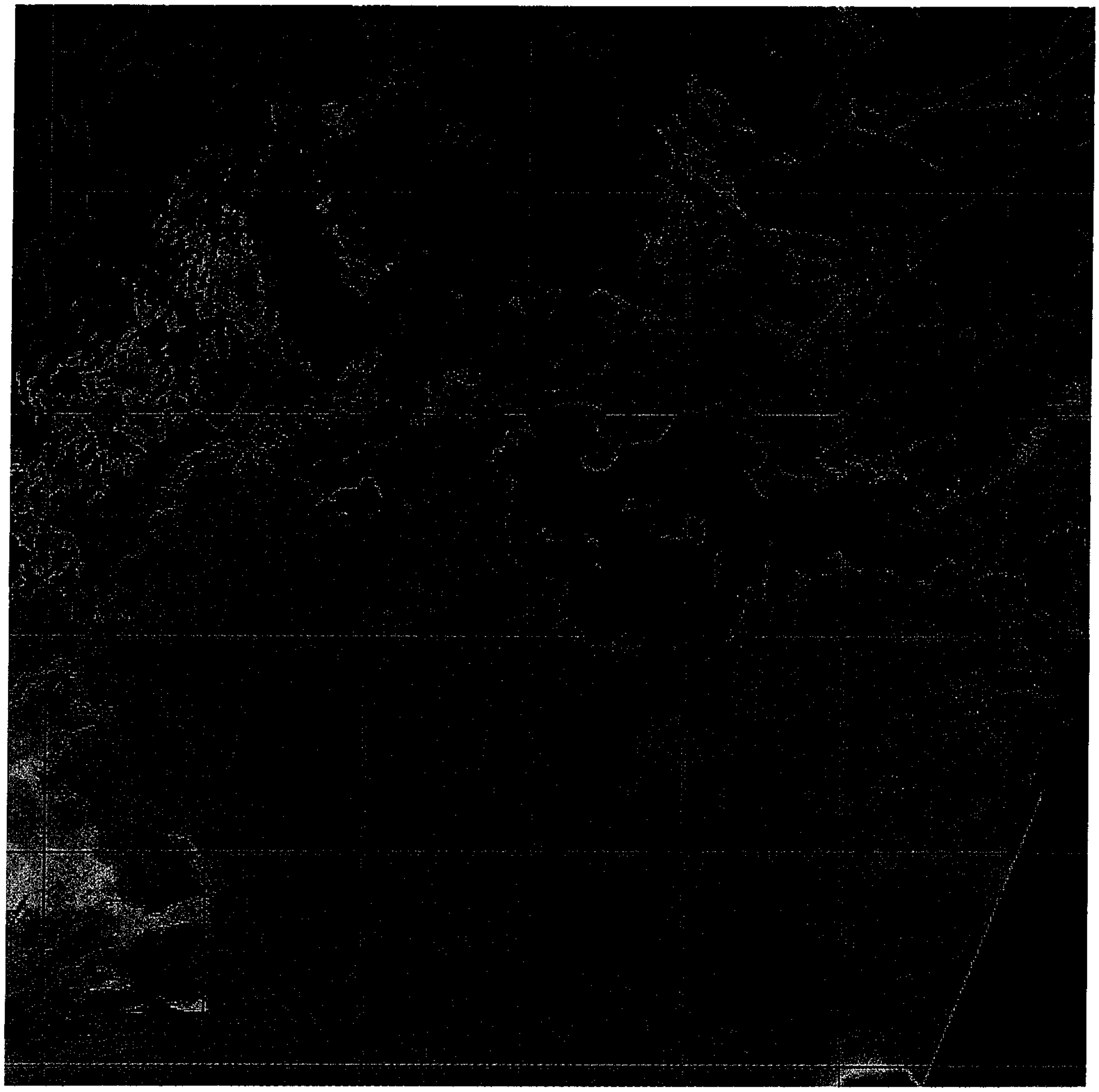


Figure I-18. Sea Surface Temperature from April 7, 2000

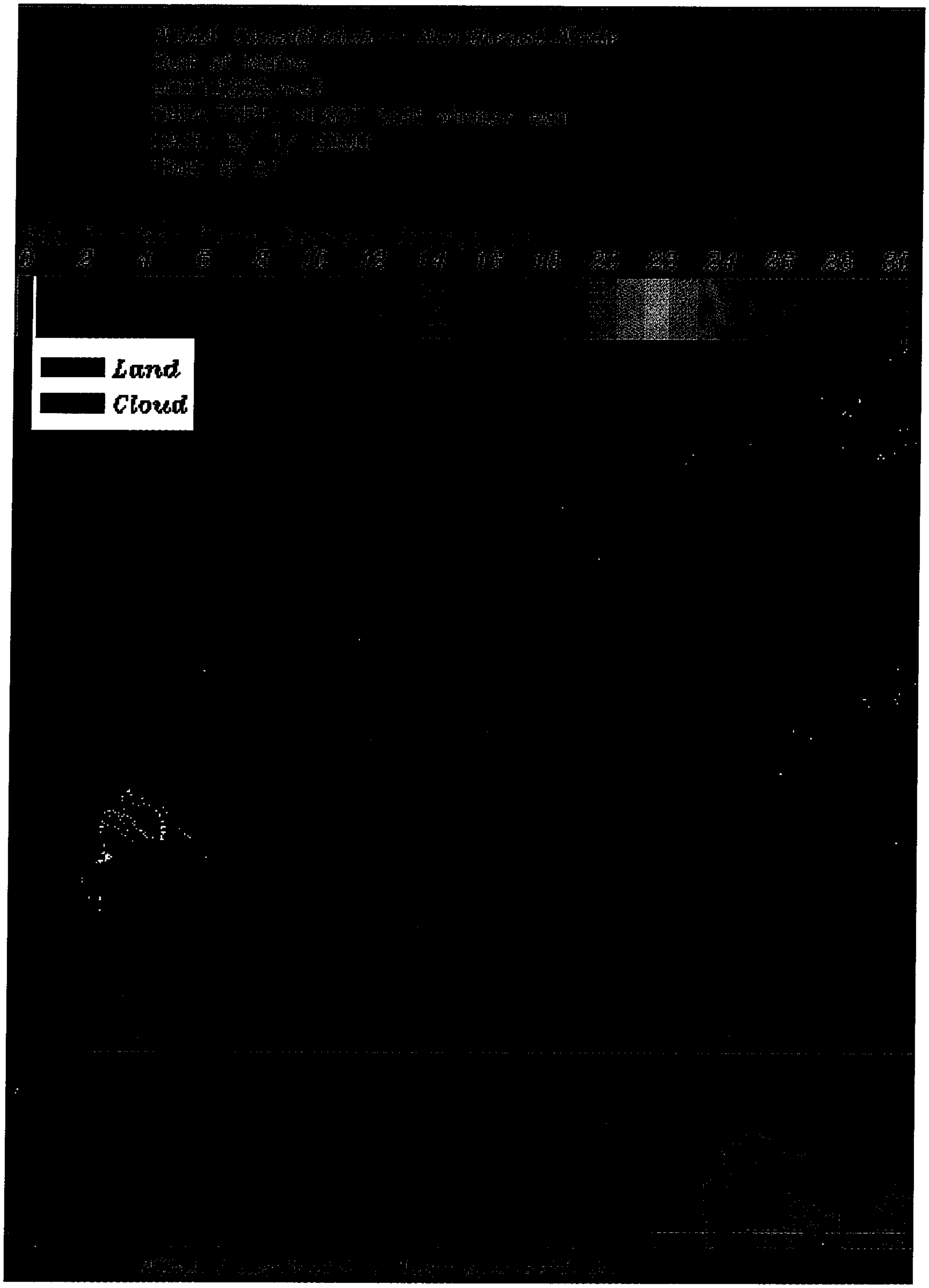


Figure I-19. Sea Surface Temperature from May 1, 2000

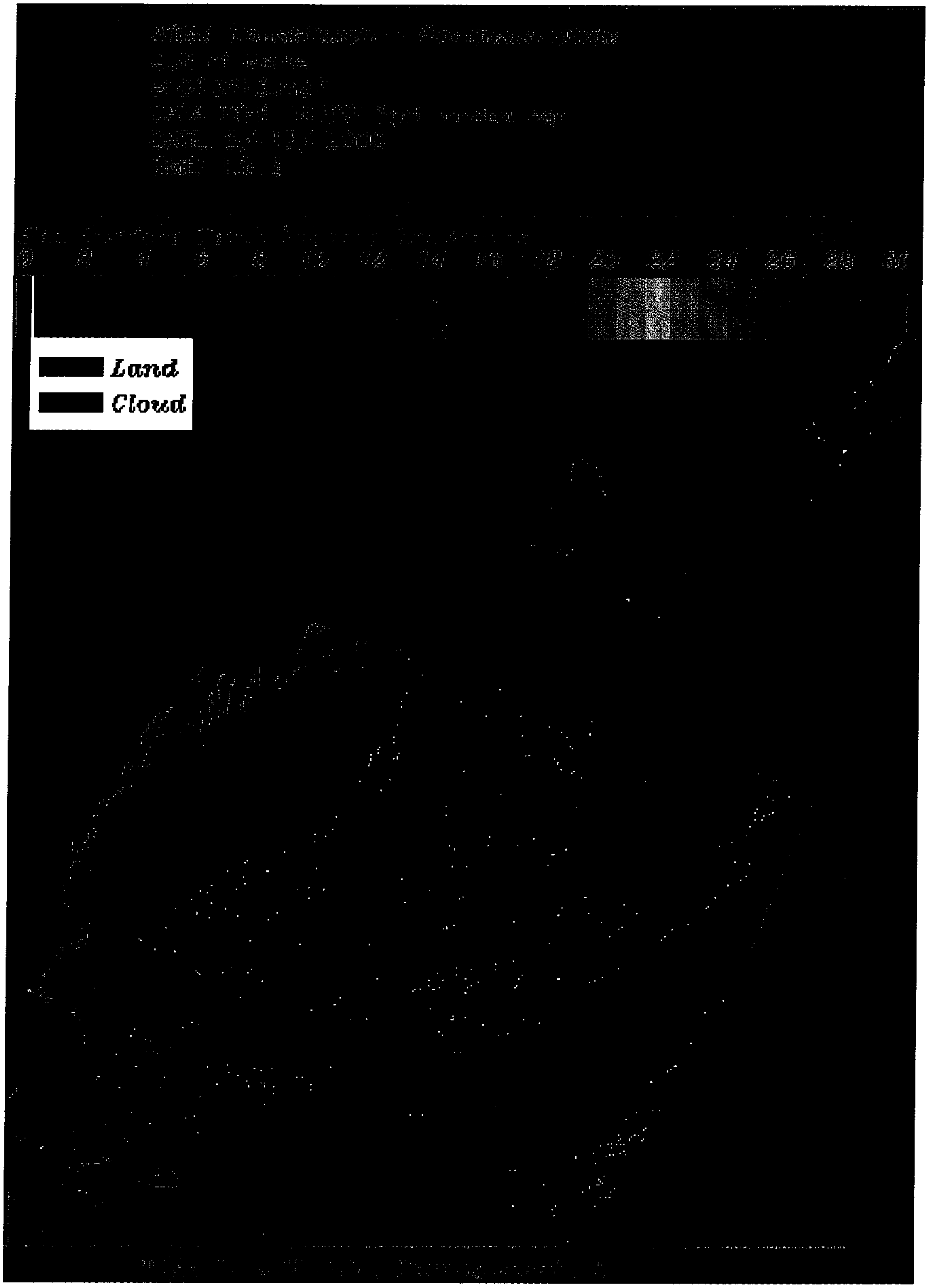


Figure I-20. Sea Surface Temperature from May 17, 2000

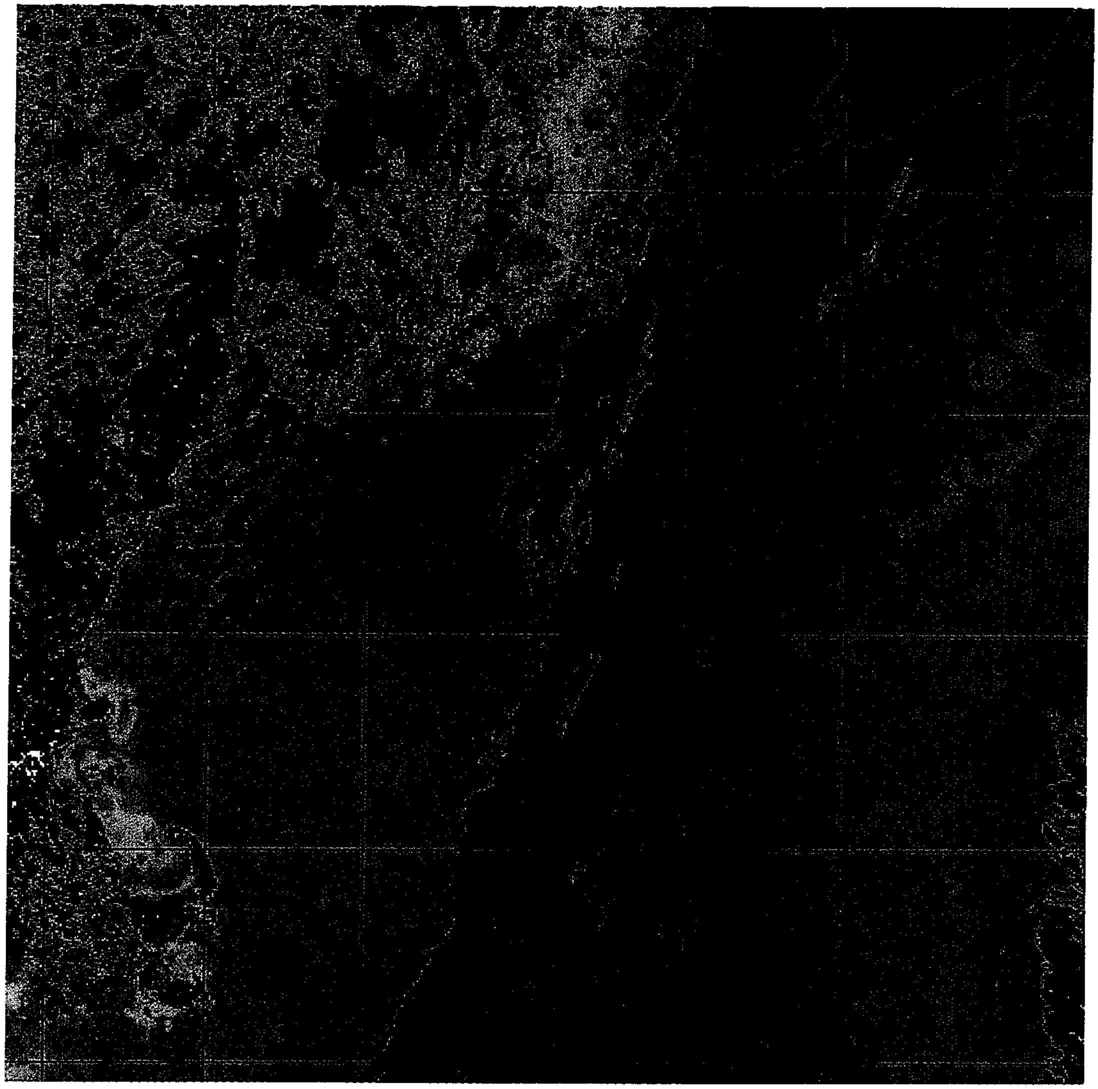


Figure I-21. Sea Surface Temperature from June 7, 2000

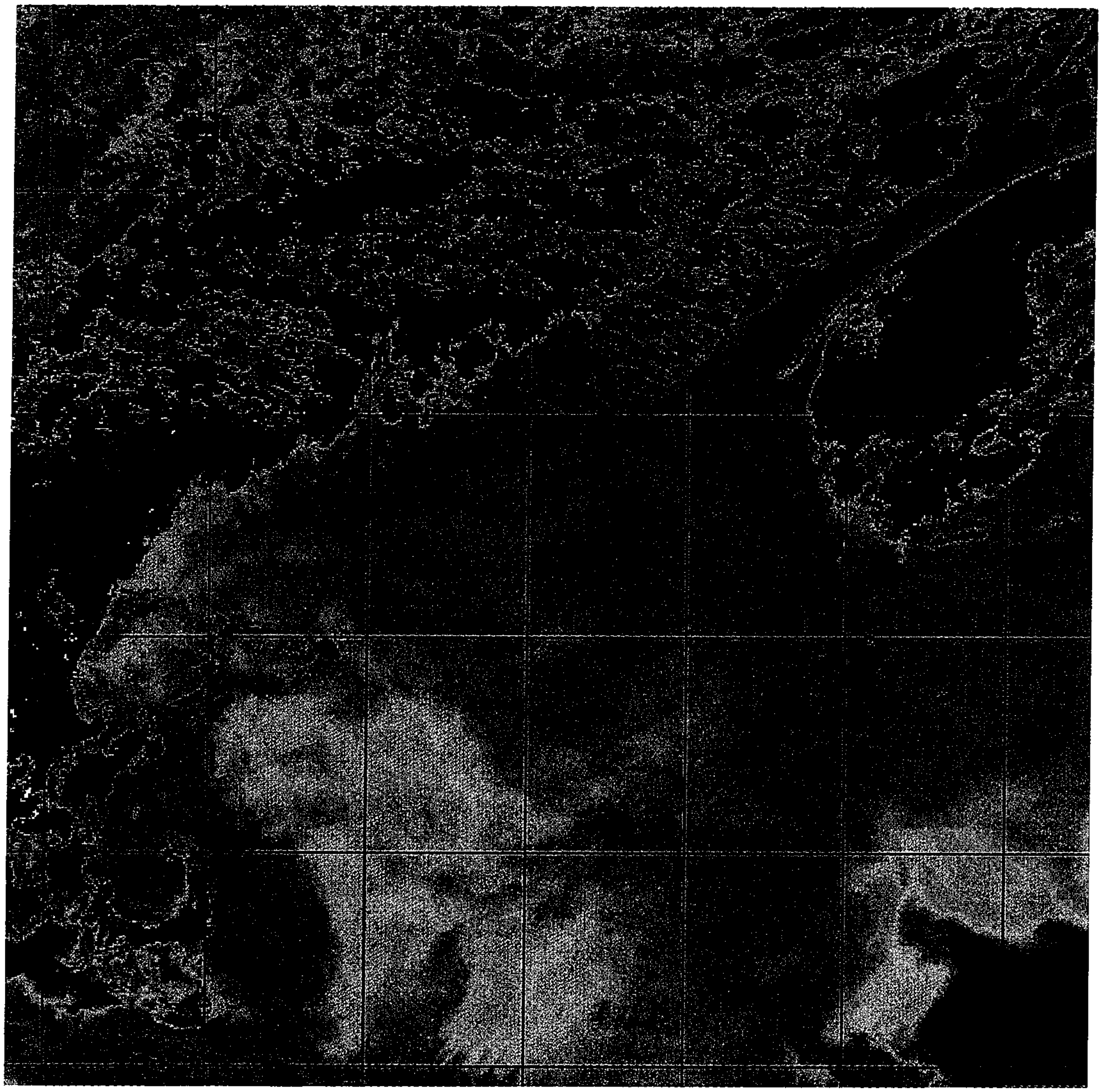


Figure I-22. Sea Surface Temperature from June 9, 2000

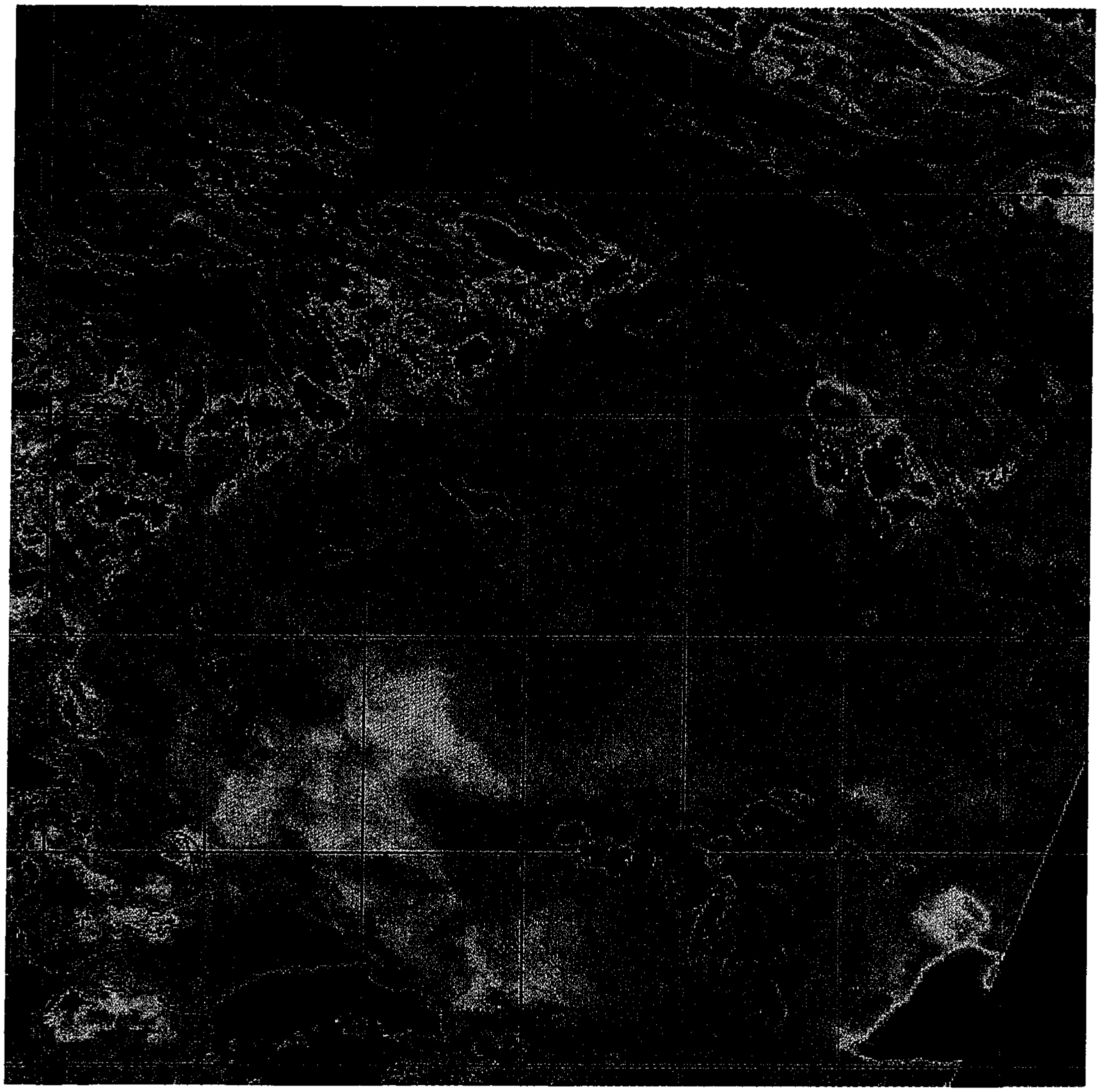


Figure I-23. Sea Surface Temperature from June 13, 2000

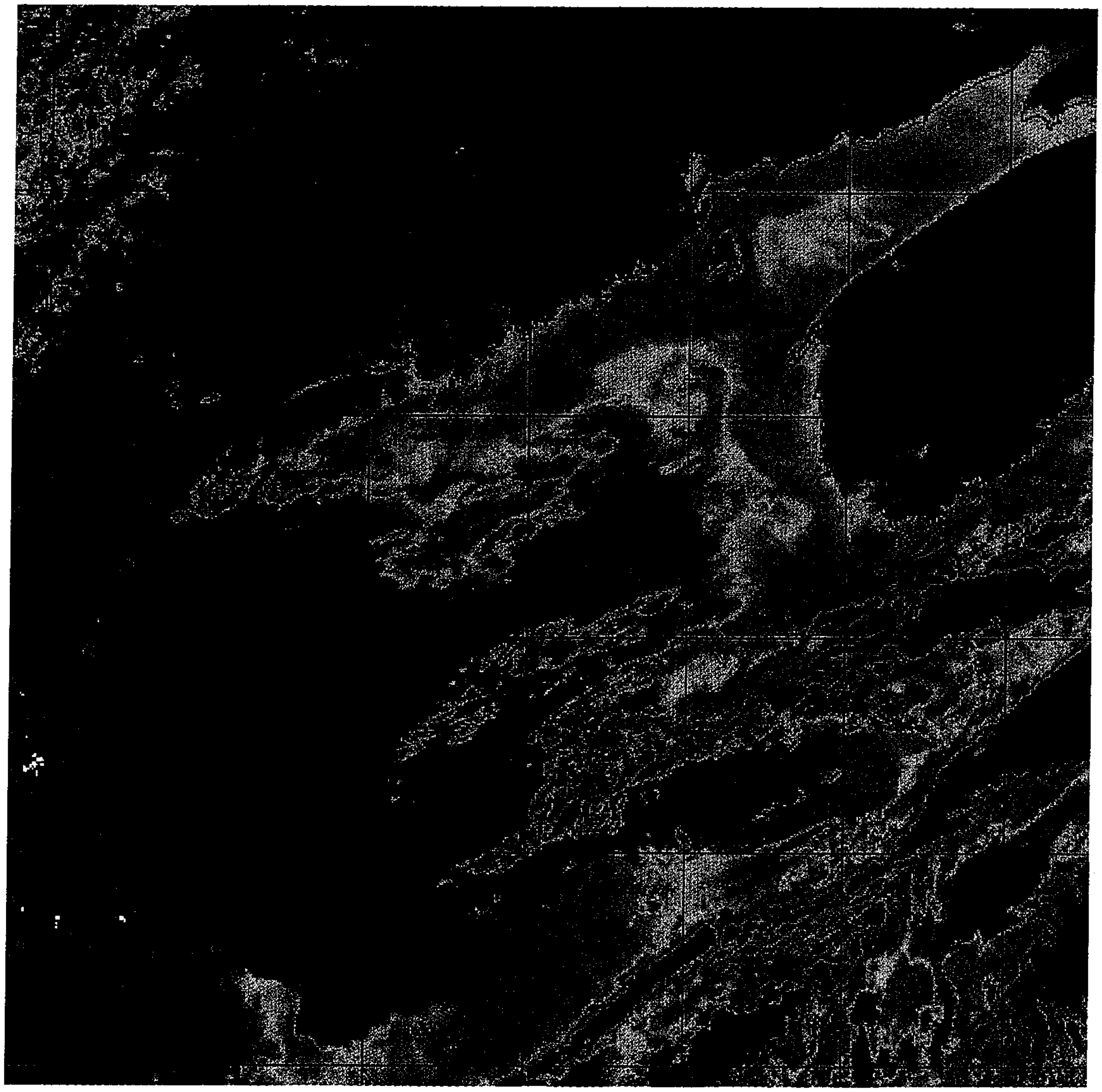


Figure I-24. Sea Surface Temperature from July 6, 2000

APPENDIX J

Secchi Disk Data

Survey ID	Station ID	Station Arrival Date and Time	Secchi Disk Depth (m)	Qualifier
WF001	F01	2/5/00 14:21	7	v
WF001	F02	2/5/00 12:53	4	v
WF001	F03	2/2/00 10:45	5	v
WF001	F05	2/2/00 13:32	4	v
WF001	F06	2/2/00 14:24	8	v
WF001	F07	2/2/00 15:27	7	v
WF001	F10	2/4/00 13:03	9	v
WF001	F12	2/5/00 9:31	12	v
WF001	F13	2/4/00 12:24	7	v
WF001	F14	2/4/00 11:52	7	v
WF001	F15	2/4/00 11:20	10	v
WF001	F16	2/4/00 13:48	9	v
WF001	F17	2/4/00 14:26	10	v
WF001	F18	2/4/00 9:45	10	v
WF001	F19	2/4/00 15:10	8	v
WF001	F22	2/4/00 15:51	10	v
WF001	F23	2/3/00 8:41	7	v
WF001	F24	2/4/00 9:09	11	v
WF001	F25	2/4/00 8:20	9	v
WF001	F26	2/5/00 6:52	10	v
WF001	F27	2/5/00 7:40	12	v
WF001	F28	2/5/00 8:43	11	v
WF001	F29	2/5/00 11:11	9	v
WF001	F30	2/4/00 6:34		e
WF001	F31	2/4/00 7:45	8	v
WF001	F32	2/5/00 13:39	8	v
WF001	F33	2/5/00 12:01	6	v
WF001	N16	2/4/00 10:38	10	v
WF002	F01	2/23/00 9:03	5	v
WF002	F02	2/23/00 11:18	7	v
WF002	F03	2/25/00 14:23	5	v
WF002	F05	2/25/00 12:42	7	v
WF002	F06	2/25/00 11:53	6	v
WF002	F07	2/25/00 11:09	10	v
WF002	F10	2/25/00 10:06	6	v
WF002	F12	2/24/00 11:31	15	v
WF002	F13	2/25/00 9:03	6	v
WF002	F14	2/25/00 8:23	6	v
WF002	F15	2/24/00 13:31	8	v
WF002	F16	2/24/00 12:57	9	v
WF002	F17	2/24/00 12:22	13	v

Survey ID	Station ID	Station Arrival Date and Time	Secchi Disk Depth (m)	Qualifier
WF002	F18	2/24/00 15:04	6	v
WF002	F19	2/24/00 8:20	13	v
WF002	F22	2/24/00 6:56	11	v
WF002	F23	2/27/00 6:28	3	v
WF002	F24	2/24/00 15:39	7	v
WF002	F25	2/25/00 7:45	6	v
WF002	F26	2/23/00 18:34		e
WF002	F27	2/24/00 9:46	13	v
WF002	F28	2/24/00 10:50	12	v
WF002	F29	2/23/00 14:21	12	v
WF002	F29	2/27/00 16:26	12	v
WF002	F30	2/24/00 16:52	3	v
WF002	F31	2/25/00 7:13	6	v
WF002	F32	2/23/00 9:51	7	v
WF002	F33	2/23/00 12:16	7	v
WF002	N16	2/24/00 14:11	13	v
WF004	F01	4/7/00 17:50	7	v
WF004	F02	4/7/00 16:36	8	v
WF004	F03	3/30/00 13:08	6	v
WF004	F05	3/30/00 14:46	4	v
WF004	F06	3/30/00 15:15	6	v
WF004	F07	3/30/00 16:01	5	v
WF004	F10	3/30/00 16:40		e
WF004	F12	4/3/00 14:22	7	v
WF004	F13	3/30/00 17:43		e
WF004	F14	4/7/00 12:52	3	v
WF004	F15	4/3/00 16:03	6	v
WF004	F16	4/3/00 15:36	8	v
WF004	F17	4/3/00 15:04	9	v
WF004	F18	4/3/00 8:20	8	v
WF004	F19	4/3/00 9:59	9	v
WF004	F22	4/3/00 10:42	10	v
WF004	F23	4/1/00 8:02	4	v
WF004	F24	4/3/00 7:22	3	v
WF004	F25	4/7/00 7:08	2	v
WF004	F26	4/3/00 11:51	5	v
WF004	F27	4/3/00 12:43	5	v
WF004	F28	4/3/00 13:47	9	v
WF004	F29	4/7/00 14:50	5	v
WF004	F30	4/3/00 17:11	3	v
WF004	F31	4/3/00 6:29	3	v
WF004	F32	4/7/00 17:10	8	v
WF004	F33	4/7/00 15:49	8	v

Survey ID	Station ID	Station Arrival Date and Time	Secchi Disk Depth (m)	Qualifier
WF007	F07	6/9/00 10:31	3	v
WF007	F10	6/9/00 8:55	3	v
WF007	F12	6/9/00 11:26	4	v
WF007	F13	6/9/00 8:18	2	v
WF007	F14	6/9/00 7:11	2	v
WF007	F15	6/9/00 7:38	3	v
WF007	F16	6/9/00 12:35	5	v
WF007	F17	6/9/00 12:09	6	v
WF007	F18	6/9/00 14:28	3	v
WF007	F19	6/9/00 13:13	5	v
WF007	F22	6/13/00 8:45	9	v
WF007	F23	6/8/00 6:28	2	v
WF007	F24	6/9/00 14:55	2	v
WF007	F25	6/9/00 6:34	3	v
WF007	F26	6/13/00 9:39	5	v
WF007	F27	6/13/00 10:25	9	v
WF007	F28	6/13/00 11:19	9	v
WF007	F29	6/13/00 13:00	8	v
WF007	F30	6/13/00 7:02	2	v
WF007	F31	6/13/00 6:17	3	v
WF007	N16	6/9/00 13:49	5	v

e-Results not reported value given is null
v-Arithmetic mean

APPENDIX K

Estimated Carbon Equivalence Data

Survey	Sta.	Sample Number	Depth (m)	Sampling Date	Plankton	Estimated Carbon Equivalence (ng Carbon/L)
WF001	F01	WF0012AA	2.15	02/05/2000	Centric diatom sp. group 1 diam <10 micro	189.83217
WF001	F01	WF0012AA	2.15	02/05/2000	Cryptomonas sp. group 1 length <10 micro	535.77331
WF001	F01	WF0012AA	2.15	02/05/2000	Cryptomonas sp. group 2 length >10 micro	830.51573
WF001	F01	WF0012AA	2.15	02/05/2000	Cylindrotheca closterium	43.60117
WF001	F01	WF0012AA	2.15	02/05/2000	Dictyocha speculum	890.15366
WF001	F01	WF0012AA	2.15	02/05/2000	Guinardia delicatula	128.97051
WF001	F01	WF0012AA	2.15	02/05/2000	Gymnodinium sp. group 1 5-200 microns wi	2,758.05
WF001	F01	WF0012AA	2.15	02/05/2000	Gymnodinium sp. group 2 21-400 microns w	8,472.47
WF001	F01	WF0012AA	2.15	02/05/2000	Heterocapsa rotundata	120.61538
WF001	F01	WF0012AA	2.15	02/05/2000	Prorocentrum micans	704.93921
WF001	F01	WF0012AA	2.15	02/05/2000	Protoperidinium bipes	148.66017
WF001	F01	WF0012AA	2.15	02/05/2000	Rhizosolenia setigera	1,993.30
WF001	F01	WF0012AA	2.15	02/05/2000	Thalassionema nitzschioides	71.35825
WF001	F01	WF0012AA	2.15	02/05/2000	Thalassiosira nordenskioldii	17.49748
WF001	F01	WF0012AA	2.15	02/05/2000	Thalassiosira sp. group 3 10-20 microns	1,420.48
WF001	F01	WF0012AA	2.15	02/05/2000	Unid. micro-phytoflag sp. group 1 length	6,179.94
WF001	F01	WF0012AA	2.15	02/05/2000	Unid. micro-phytoflag sp. group 2 length	2,158.74
WF001	F01	WF0012A8	10.89	02/05/2000	Centric diatom sp. group 1 diam <10 micr	166.10315
WF001	F01	WF0012A8	10.89	02/05/2000	Corethron criophilum	870.05351
WF001	F01	WF0012A8	10.89	02/05/2000	Cryptomonas sp. group 1 length <10 micro	443.3986
WF001	F01	WF0012A8	10.89	02/05/2000	Cryptomonas sp. group 2 length >10 micro	118.6451
WF001	F01	WF0012A8	10.89	02/05/2000	Dictyocha fibula	1,192.39
WF001	F01	WF0012A8	10.89	02/05/2000	Guinardia delicatula	644.85256
WF001	F01	WF0012A8	10.89	02/05/2000	Gymnodinium sp. group 1 5-200 microns wi	919.34965
WF001	F01	WF0012A8	10.89	02/05/2000	Gymnodinium sp. group 2 21-400 microns w	5,083.48
WF001	F01	WF0012A8	10.89	02/05/2000	Pleurosigma spp.	239.87911
WF001	F01	WF0012A8	10.89	02/05/2000	Prorocentrum micans	1,586.11
WF001	F01	WF0012A8	10.89	02/05/2000	Thalassionema nitzschioides	59.46521
WF001	F01	WF0012A8	10.89	02/05/2000	Thalassiosira sp. group 3 10-20 microns	1,193.81
WF001	F01	WF0012A8	10.89	02/05/2000	Unid. micro-phytoflag sp. group 1 length	4,694.38
WF001	F02	WF00128F	1.32	02/05/2000	Centric diatom sp. group 1 diam <10 micr	166.46635
WF001	F02	WF00128F	1.32	02/05/2000	Chaetoceros sp. group 1 diam <10 microns	29.58335
WF001	F02	WF00128F	1.32	02/05/2000	Corethron criophilum	1,089.94
WF001	F02	WF00128F	1.32	02/05/2000	Cryptomonas sp. group 1 length <10 micro	796.15957
WF001	F02	WF00128F	1.32	02/05/2000	Cryptomonas sp. group 2 length >10 micro	594.52266
WF001	F02	WF00128F	1.32	02/05/2000	Dictyocha speculum	257.33656
WF001	F02	WF00128F	1.32	02/05/2000	Guinardia delicatula	10,663.33
WF001	F02	WF00128F	1.32	02/05/2000	Gymnodinium sp. group 1 5-200 microns wi	1,535.60
WF001	F02	WF00128F	1.32	02/05/2000	Gymnodinium sp. group 2 21-400 microns w	7,075.83
WF001	F02	WF00128F	1.32	02/05/2000	Gyrodinium spirale	24,913.44
WF001	F02	WF00128F	1.32	02/05/2000	Pennate diatom sp. group 2 10-30 microns	93.83585
WF001	F02	WF00128F	1.32	02/05/2000	Pennate diatom sp. group 3 31-60 microns	100.44911
WF001	F02	WF00128F	1.32	02/05/2000	Pleurosigma spp.	300.50453
WF001	F02	WF00128F	1.32	02/05/2000	Prorocentrum micans	220.7752
WF001	F02	WF00128F	1.32	02/05/2000	Pyramimonas sp. group 1 10-20 microns le	113.78205

WF001	F02	WF00128F	1.32	02/05/2000	Rhizosolenia setigera	14,482.99
WF001	F02	WF00128F	1.32	02/05/2000	Skeletonema costatum	75.10828
WF001	F02	WF00128F	1.32	02/05/2000	Thalassionema nitzschioides	223.48212
WF001	F02	WF00128F	1.32	02/05/2000	Thalassiosira nordenskioldii	65.75902
WF001	F02	WF00128F	1.32	02/05/2000	Thalassiosira sp. group 3 10-20 microns	3,369.65
WF001	F02	WF00128F	1.32	02/05/2000	Unid. micro-phytoflag sp. group 1 length	5,478.82
WF001	F02	WF00128F	1.32	02/05/2000	Unid. micro-phytoflag sp. group 2 length	360.57692
WF001	F02	WF00128D	10.84	02/05/2000	Centric diatom sp. group 1 diam <10 micr	23.64019
WF001	F02	WF00128D	10.84	02/05/2000	Chaetoceros sp. group 2 diam 10-30 micro	192.6776
WF001	F02	WF00128D	10.84	02/05/2000	Cryptomonas sp. group 1 length <10 micro	533.76764
WF001	F02	WF00128D	10.84	02/05/2000	Cryptomonas sp. group 2 length >10 micro	354.60287
WF001	F02	WF00128D	10.84	02/05/2000	Cylindrotheca closterium	43.43795
WF001	F02	WF00128D	10.84	02/05/2000	Dictyocha speculum	683.31816
WF001	F02	WF00128D	10.84	02/05/2000	Ebria tripartita	415.33435
WF001	F02	WF00128D	10.84	02/05/2000	Eutreptia/eutreptiella spp.	17.32974
WF001	F02	WF00128D	10.84	02/05/2000	Guinardia delicatula	6,360.14
WF001	F02	WF00128D	10.84	02/05/2000	Gymnodinium sp. group 1 5-200 microns wi	2,137.12
WF001	F02	WF00128D	10.84	02/05/2000	Gymnodinium sp. group 2 21-400 microns w	7,315.32
WF001	F02	WF00128D	10.84	02/05/2000	Gyrodinium sp. group 1 5-200 microns wid	60.95796
WF001	F02	WF00128D	10.84	02/05/2000	Pennate diatom sp. group 2 10-30 microns	18.62478
WF001	F02	WF00128D	10.84	02/05/2000	Prorocentrum micans	1,580.18
WF001	F02	WF00128D	10.84	02/05/2000	Rhizosolenia setigera	9,532.00
WF001	F02	WF00128D	10.84	02/05/2000	Skeletonema costatum	86.88157
WF001	F02	WF00128D	10.84	02/05/2000	Thalassionema nitzschioides	272.51595
WF001	F02	WF00128D	10.84	02/05/2000	Thalassiosira nordenskioldii	40.67462
WF001	F02	WF00128D	10.84	02/05/2000	Thalassiosira sp. group 3 10-20 microns	3,327.13
WF001	F02	WF00128D	10.84	02/05/2000	Unid. micro-phytoflag sp. group 1 length	5,209.60
WF001	F02	WF00128D	10.84	02/05/2000	Unid. micro-phytoflag sp. group 2 length	716.88666
WF001	F06	WF001046	2.44	02/02/2000	Centric diatom sp. group 1 diam <10 micr	270.86901
WF001	F06	WF001046	2.44	02/02/2000	Chaetoceros sp. group 2 diam 10-30 micro	2,010.37
WF001	F06	WF001046	2.44	02/02/2000	Choanoflagellate spp.	45.31522
WF001	F06	WF001046	2.44	02/02/2000	Corethron criophilum	1,128.61
WF001	F06	WF001046	2.44	02/02/2000	Coscinodiscus sp. group 3 diam >100 micr	4,499.84
WF001	F06	WF001046	2.44	02/02/2000	Cryptomonas sp. group 1 length <10 micro	901.08914
WF001	F06	WF001046	2.44	02/02/2000	Cryptomonas sp. group 2 length >10 micro	246.24456
WF001	F06	WF001046	2.44	02/02/2000	Cylindrotheca closterium	226.23247
WF001	F06	WF001046	2.44	02/02/2000	Dictyocha fibula	154.41346
WF001	F06	WF001046	2.44	02/02/2000	Guinardia delicatula	7,193.76
WF001	F06	WF001046	2.44	02/02/2000	Gymnodinium sp. group 1 5-200 microns wi	318.01403
WF001	F06	WF001046	2.44	02/02/2000	Gymnodinium sp. group 2 21-400 microns w	732.68184
WF001	F06	WF001046	2.44	02/02/2000	Gyrodinium spirale	3,224.64
WF001	F06	WF001046	2.44	02/02/2000	Heterocapsa rotundata	187.75036
WF001	F06	WF001046	2.44	02/02/2000	Pleurosigma spp.	311.16394
WF001	F06	WF001046	2.44	02/02/2000	Prorocentrum micans	1,371.64
WF001	F06	WF001046	2.44	02/02/2000	Protoperidinium sp. group 1 10-30 micron	579.69204
WF001	F06	WF001046	2.44	02/02/2000	Rhizosolenia setigera	1,034.26
WF001	F06	WF001046	2.44	02/02/2000	Thalassionema nitzschioides	30.85459
WF001	F06	WF001046	2.44	02/02/2000	Thalassiosira sp. group 3 10-20 microns	1,803.40
WF001	F06	WF001046	2.44	02/02/2000	Unid. micro-phytoflag sp. group 1 length	10,051.37

WF001	F06	WF001044	16.04	02/02/2000	Calycomonas ovalis	23.31277
WF001	F06	WF001044	16.04	02/02/2000	Centric diatom sp. group 1 diam <10 micr	427.15893
WF001	F06	WF001044	16.04	02/02/2000	Corethron criophilum	4,606.56
WF001	F06	WF001044	16.04	02/02/2000	Cryptomonas sp. group 1 length <10 micro	958.60547
WF001	F06	WF001044	16.04	02/02/2000	Cryptomonas sp. group 2 length >10 micro	125.63498
WF001	F06	WF001044	16.04	02/02/2000	Cylindrotheca closterium	173.13709
WF001	F06	WF001044	16.04	02/02/2000	Dictyocha fibula	1,262.64
WF001	F06	WF001044	16.04	02/02/2000	Eutreptia/eutreptiella spp.	23.02457
WF001	F06	WF001044	16.04	02/02/2000	Guinardia delicatula	7,852.70
WF001	F06	WF001044	16.04	02/02/2000	Gymnodinium sp. group 1 5-200 microns wi	973.51234
WF001	F06	WF001044	16.04	02/02/2000	Gyrodinium sp. group 2 21-40 microns wid	2,242.90
WF001	F06	WF001044	16.04	02/02/2000	Gyrodinium spirale	3,290.45
WF001	F06	WF001044	16.04	02/02/2000	Pleurosigma spp.	635.02844
WF001	F06	WF001044	16.04	02/02/2000	Prorocentrum micans	1,399.63
WF001	F06	WF001044	16.04	02/02/2000	Pseudonitzschia spp.	97.48654
WF001	F06	WF001044	16.04	02/02/2000	Skeletonema costatum	28.85807
WF001	F06	WF001044	16.04	02/02/2000	Thalassionema nitzschioides	314.84274
WF001	F06	WF001044	16.04	02/02/2000	Thalassiosira rotula	2,496.67
WF001	F06	WF001044	16.04	02/02/2000	Thalassiosira sp. group 3 10-20 microns	2,120.23
WF001	F06	WF001044	16.04	02/02/2000	Unid. micro-phytoflag sp. group 1 length	10,319.42
WF001	F13	WF0011DF	2.52	02/04/2000	Centric diatom sp. group 1 diam <10 micr	60.16856
WF001	F13	WF0011DF	2.52	02/04/2000	Corethron criophilum	4,419.73
WF001	F13	WF0011DF	2.52	02/04/2000	Cryptomonas sp. group 1 length <10 micro	290.44544
WF001	F13	WF0011DF	2.52	02/04/2000	Cryptomonas sp. group 2 length >10 micro	60.16856
WF001	F13	WF0011DF	2.52	02/04/2000	Dictyocha speculum	138.89973
WF001	F13	WF0011DF	2.52	02/04/2000	Eutreptia/eutreptiella spp.	17.64293
WF001	F13	WF0011DF	2.52	02/04/2000	Guinardia delicatula	65.40489
WF001	F13	WF0011DF	2.52	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	621.64041
WF001	F13	WF0011DF	2.52	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	12,603.50
WF001	F13	WF0011DF	2.52	02/04/2000	Gyrodinium sp. group 2 21-40 microns wid	2,291.54
WF001	F13	WF0011DF	2.52	02/04/2000	Pleurosigma spp.	243.30005
WF001	F13	WF0011DF	2.52	02/04/2000	Prorocentrum micans	895.24444
WF001	F13	WF0011DF	2.52	02/04/2000	Prorocentrum minimum	44.51499
WF001	F13	WF0011DF	2.52	02/04/2000	Pseudonitzschia spp.	37.35026
WF001	F13	WF0011DF	2.52	02/04/2000	Rhizosolenia setigera	1,213.03
WF001	F13	WF0011DF	2.52	02/04/2000	Scrippsiella trochoidea	203.32735
WF001	F13	WF0011DF	2.52	02/04/2000	Thalassionema nitzschioides	84.43855
WF001	F13	WF0011DF	2.52	02/04/2000	Thalassiosira sp. group 3 10-20 microns	1,486.72
WF001	F13	WF0011DF	2.52	02/04/2000	Thalassiothrix longissima	289.1335
WF001	F13	WF0011DF	2.52	02/04/2000	Unid. micro-phytoflag sp. group 1 length	3,706.60
WF001	F13	WF0011DD	12.9	02/04/2000	Centric diatom sp. group 1 diam <10 micr	90.90857
WF001	F13	WF0011DD	12.9	02/04/2000	Corethron criophilum	833.31839
WF001	F13	WF0011DD	12.9	02/04/2000	Coscinodiscus centralis	1,739.76
WF001	F13	WF0011DD	12.9	02/04/2000	Cryptomonas sp. group 1 length <10 micro	168.10154
WF001	F13	WF0011DD	12.9	02/04/2000	Cylindrotheca closterium	41.76025
WF001	F13	WF0011DD	12.9	02/04/2000	Dictyocha speculum	65.5823
WF001	F13	WF0011DD	12.9	02/04/2000	Guinardia delicatula	679.38838
WF001	F13	WF0011DD	12.9	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	440.26658
WF001	F13	WF0011DD	12.9	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	2,704.91

WF001	F13	WF0011DD	12.9	02/04/2000	Gyrodinium sp. group 1 5-200 microns wid	293.51105
WF001	F13	WF0011DD	12.9	02/04/2000	Heterocapsa rotundata	28.8807
WF001	F13	WF0011DD	12.9	02/04/2000	Pleurosigma spp.	229.75101
WF001	F13	WF0011DD	12.9	02/04/2000	Prorocentrum micans	168.79387
WF001	F13	WF0011DD	12.9	02/04/2000	Prorocentrum minimum	42.03601
WF001	F13	WF0011DD	12.9	02/04/2000	Pyramimonas sp. group 1 10-20 microns le	10.85575
WF001	F13	WF0011DD	12.9	02/04/2000	Rhizosolenia setigera	2,672.79
WF001	F13	WF0011DD	12.9	02/04/2000	Scrippsiella trochoidea	192.00433
WF001	F13	WF0011DD	12.9	02/04/2000	Skeletonema costatum	36.54261
WF001	F13	WF0011DD	12.9	02/04/2000	Thalassionema nitzschioides	68.34538
WF001	F13	WF0011DD	12.9	02/04/2000	Thalassiosira sp. group 3 10-20 microns	1,997.33
WF001	F13	WF0011DD	12.9	02/04/2000	Unid. micro-phytoflag sp. group 1 length	4,581.54
WF001	F13	WF0011DD	12.9	02/04/2000	Unid. micro-phytoflag sp. group 2 length	689.19853
WF001	F23	WF00106D	2.39	02/03/2000	Centric diatom sp. group 1 diam <10 micr	269.6142
WF001	F23	WF00106D	2.39	02/03/2000	Choanoflagellate spp.	30.0702
WF001	F23	WF00106D	2.39	02/03/2000	Corethron criophilum	898.70307
WF001	F23	WF00106D	2.39	02/03/2000	Coscinodiscus sp. group 3 diam >100 micr	17,946.11
WF001	F23	WF00106D	2.39	02/03/2000	Cryptomonas sp. group 1 length <10 micro	276.70776
WF001	F23	WF00106D	2.39	02/03/2000	Cryptomonas sp. group 2 length >10 micro	61.27596
WF001	F23	WF00106D	2.39	02/03/2000	Dictyocha speculum	70.72808
WF001	F23	WF00106D	2.39	02/03/2000	Guinardia delicatula	66.60866
WF001	F23	WF00106D	2.39	02/03/2000	Gyrodinium sp. group 2 21-40 microns wid	1,166.86
WF001	F23	WF00106D	2.39	02/03/2000	Heterocapsa rotundata	6.21889
WF001	F23	WF00106D	2.39	02/03/2000	Pennate diatom sp. group 2 10-30 microns	48.27589
WF001	F23	WF00106D	2.39	02/03/2000	Pleurosigma spp.	247.77797
WF001	F23	WF00106D	2.39	02/03/2000	Prorocentrum micans	182.03795
WF001	F23	WF00106D	2.39	02/03/2000	Protoperidinium sp. group 1 10-30 micron	230.80264
WF001	F23	WF00106D	2.39	02/03/2000	Rhizosolenia setigera	823.57289
WF001	F23	WF00106D	2.39	02/03/2000	Skeletonema costatum	112.78905
WF001	F23	WF00106D	2.39	02/03/2000	Thalassionema nitzschioides	61.52666
WF001	F23	WF00106D	2.39	02/03/2000	Thalassiosira sp. group 3 10-20 microns	1,654.56
WF001	F23	WF00106D	2.39	02/03/2000	Unid. micro-phytoflag sp. group 1 length	4,327.23
WF001	F23	WF00106D	2.39	02/03/2000	Unid. micro-phytoflag sp. group 2 length	185.81878
WF001	F23	WF00106B	6.22	02/03/2000	Amphidinium spp.	61.85769
WF001	F23	WF00106B	6.22	02/03/2000	Centric diatom sp. group 1 diam <10 micr	427.15893
WF001	F23	WF00106B	6.22	02/03/2000	Cryptomonas sp. group 1 length <10 micro	293.45065
WF001	F23	WF00106B	6.22	02/03/2000	Cylindrotheca closterium	184.67957
WF001	F23	WF00106B	6.22	02/03/2000	Guinardia delicatula	409.70609
WF001	F23	WF00106B	6.22	02/03/2000	Gymnodinium sp. group 1 5-200 microns wi	973.51234
WF001	F23	WF00106B	6.22	02/03/2000	Gymnodinium sp. group 2 21-400 microns w	2,392.43
WF001	F23	WF00106B	6.22	02/03/2000	Pleurosigma spp.	254.01138
WF001	F23	WF00106B	6.22	02/03/2000	Prorocentrum micans	186.61752
WF001	F23	WF00106B	6.22	02/03/2000	Rhizosolenia setigera	2,532.88
WF001	F23	WF00106B	6.22	02/03/2000	Skeletonema costatum	11.54323
WF001	F23	WF00106B	6.22	02/03/2000	Thalassionema nitzschioides	37.78113
WF001	F23	WF00106B	6.22	02/03/2000	Thalassiosira sp. group 3 10-20 microns	2,592.28
WF001	F23	WF00106B	6.22	02/03/2000	Unid. micro-phytoflag sp. group 1 length	10,508.19
WF001	F23	WF00106B	6.22	02/03/2000	Unid. micro-phytoflag sp. group 2 length	380.98694
WF001	F24	WF00119C	1.99	02/04/2000	Centric diatom sp. group 1 diam <10 micr	36.99252

WF001	F24	WF00119C	1.99	02/04/2000	Ceratium lineatum	2,837.68
WF001	F24	WF00119C	1.99	02/04/2000	Cryptomonas sp. group 1 length <10 micro	355.2202
WF001	F24	WF00119C	1.99	02/04/2000	Cylindrotheca closterium	90.62979
WF001	F24	WF00119C	1.99	02/04/2000	Dictyocha speculum	426.98806
WF001	F24	WF00119C	1.99	02/04/2000	Guinardia delicatula	402.11894
WF001	F24	WF00119C	1.99	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	477.74217
WF001	F24	WF00119C	1.99	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	3,522.19
WF001	F24	WF00119C	1.99	02/04/2000	Gyrodinium sp. group 2 21-40 microns wid	587.03156
WF001	F24	WF00119C	1.99	02/04/2000	Heterocapsa rotundata	31.33903
WF001	F24	WF00119C	1.99	02/04/2000	Prorocentrum micans	732.64657
WF001	F24	WF00119C	1.99	02/04/2000	Pseudonitzschia pungens	59.53894
WF001	F24	WF00119C	1.99	02/04/2000	Rhizosolenia setigera	1,242.99
WF001	F24	WF00119C	1.99	02/04/2000	Thalassionema nitzschioides	74.16296
WF001	F24	WF00119C	1.99	02/04/2000	Thalassiosira sp. group 3 10-20 microns	1,963.18
WF001	F24	WF00119C	1.99	02/04/2000	Unid. micro-phytoflag sp. group 1 length	4,353.94
WF001	F24	WF00119C	1.99	02/04/2000	Unid. micro-phytoflag sp. group 2 length	560.89744
WF001	F24	WF00119A	9.59	02/04/2000	Centric diatom sp. group 1 diam <10 micr	86.12391
WF001	F24	WF00119A	9.59	02/04/2000	Cryptomonas sp. group 1 length <10 micro	201.16306
WF001	F24	WF00119A	9.59	02/04/2000	Cylindrotheca closterium	35.16653
WF001	F24	WF00119A	9.59	02/04/2000	Ditylum brightwellii	3,990.49
WF001	F24	WF00119A	9.59	02/04/2000	Guinardia delicatula	312.06356
WF001	F24	WF00119A	9.59	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	370.75081
WF001	F24	WF00119A	9.59	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	2,733.39
WF001	F24	WF00119A	9.59	02/04/2000	Gyrodinium sp. group 2 21-40 microns wid	911.12922
WF001	F24	WF00119A	9.59	02/04/2000	Heterocapsa rotundata	24.32059
WF001	F24	WF00119A	9.59	02/04/2000	Heterocapsa triquetra	86.90122
WF001	F24	WF00119A	9.59	02/04/2000	Leptocylindrus minimus	8.00128
WF001	F24	WF00119A	9.59	02/04/2000	Pleurosigma spp.	580.4236
WF001	F24	WF00119A	9.59	02/04/2000	Prorocentrum micans	710.71105
WF001	F24	WF00119A	9.59	02/04/2000	Pseudonitzschia spp.	59.40258
WF001	F24	WF00119A	9.59	02/04/2000	Rhizosolenia setigera	1,286.15
WF001	F24	WF00119A	9.59	02/04/2000	Stephanopyxis turris	1,994.88
WF001	F24	WF00119A	9.59	02/04/2000	Thalassionema nitzschioides	95.92334
WF001	F24	WF00119A	9.59	02/04/2000	Thalassiosira sp. group 3 10-20 microns	2,084.17
WF001	F24	WF00119A	9.59	02/04/2000	Unid. micro-phytoflag sp. group 1 length	3,019.42
WF001	F25	WF00118E	1.92	02/04/2000	Centric diatom sp. group 1 diam <10 micr	169.79567
WF001	F25	WF00118E	1.92	02/04/2000	Chaetoceros sp. group 2 diam 10-30 micro	98.85049
WF001	F25	WF00118E	1.92	02/04/2000	Corethron criophilum	8,908.92
WF001	F25	WF00118E	1.92	02/04/2000	Cryptomonas sp. group 1 length <10 micro	151.08516
WF001	F25	WF00118E	1.92	02/04/2000	Guinardia delicatula	263.67513
WF001	F25	WF00118E	1.92	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	626.52473
WF001	F25	WF00118E	1.92	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	5,196.49
WF001	F25	WF00118E	1.92	02/04/2000	Gyrodinium sp. group 2 21-40 microns wid	2,886.94
WF001	F25	WF00118E	1.92	02/04/2000	Heterocapsa rotundata	61.64835
WF001	F25	WF00118E	1.92	02/04/2000	Heterocapsa triquetra	110.13953
WF001	F25	WF00118E	1.92	02/04/2000	Leptocylindrus minimus	10.1409
WF001	F25	WF00118E	1.92	02/04/2000	Pennate diatom sp. group 2 10-30 microns	9.55518
WF001	F25	WF00118E	1.92	02/04/2000	Pleurosigma spp.	490.42339
WF001	F25	WF00118E	1.92	02/04/2000	Prorocentrum micans	180.15256

WF001	F25	WF00118E	1.92	02/04/2000	Rhizosolenia setigera	815.04303
WF001	F25	WF00118E	1.92	02/04/2000	Stephanopyxis turris	842.77898
WF001	F25	WF00118E	1.92	02/04/2000	Thalassionema nitzschioides	24.31485
WF001	F25	WF00118E	1.92	02/04/2000	Thalassiosira sp. group 3 10-20 microns	2,301.66
WF001	F25	WF00118E	1.92	02/04/2000	Thalassiothrix longissima	291.40526
WF001	F25	WF00118E	1.92	02/04/2000	Unid. micro-phytoflag sp. group 1 length	6,378.06
WF001	F25	WF00118E	1.92	02/04/2000	Unid. micro-phytoflag sp. group 2 length	367.78846
WF001	F25	WF00118C	6.71	02/04/2000	Centric diatom sp. group 1 diam <10 micr	242.14763
WF001	F25	WF00118C	6.71	02/04/2000	Chaetoceros sp. group 1 diam <10 microns	8.60659
WF001	F25	WF00118C	6.71	02/04/2000	Coscinodiscus centralis	2,648.05
WF001	F25	WF00118C	6.71	02/04/2000	Cryptomonas sp. group 1 length <10 micro	538.66088
WF001	F25	WF00118C	6.71	02/04/2000	Cryptomonas sp. group 2 length >10 micro	172.96259
WF001	F25	WF00118C	6.71	02/04/2000	Cylindrotheca closterium	63.56243
WF001	F25	WF00118C	6.71	02/04/2000	Guinardia delicatula	752.0605
WF001	F25	WF00118C	6.71	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	893.49437
WF001	F25	WF00118C	6.71	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	9,881.03
WF001	F25	WF00118C	6.71	02/04/2000	Heterocapsa rotundata	87.91745
WF001	F25	WF00118C	6.71	02/04/2000	Licmophora spp.	38.04187
WF001	F25	WF00118C	6.71	02/04/2000	Pleurosigma spp.	349.69932
WF001	F25	WF00118C	6.71	02/04/2000	Prorocentrum micans	513.83542
WF001	F25	WF00118C	6.71	02/04/2000	Thalassiosira sp. group 3 10-20 microns	3,018.07
WF001	F25	WF00118C	6.71	02/04/2000	Unid. micro-phytoflag sp. group 1 length	10,655.12
WF001	F27	WF001242	2.09	02/05/2000	Centric diatom sp. group 1 diam <10 micr	80.02418
WF001	F27	WF001242	2.09	02/05/2000	Corethron criophilum	2,515.02
WF001	F27	WF001242	2.09	02/05/2000	Cryptomonas sp. group 1 length <10 micro	275.92316
WF001	F27	WF001242	2.09	02/05/2000	Eutreptia/eutreptiella spp.	16.76078
WF001	F27	WF001242	2.09	02/05/2000	Guinardia delicatula	248.53857
WF001	F27	WF001242	2.09	02/05/2000	Gymnodinium sp. group 1 5-200 microns wi	1,033.48
WF001	F27	WF001242	2.09	02/05/2000	Gymnodinium sp. group 2 21-400 microns w	6,530.90
WF001	F27	WF001242	2.09	02/05/2000	Gyrodinium spirale	35,989.83
WF001	F27	WF001242	2.09	02/05/2000	Heterocapsa triquetra	103.81685
WF001	F27	WF001242	2.09	02/05/2000	Prorocentrum minimum	42.28924
WF001	F27	WF001242	2.09	02/05/2000	Rhizosolenia setigera	768.25459
WF001	F27	WF001242	2.09	02/05/2000	Thalassionema nitzschioides	22.91903
WF001	F27	WF001242	2.09	02/05/2000	Thalassiosira punctigera	219.74146
WF001	F27	WF001242	2.09	02/05/2000	Thalassiosira sp. group 3 10-20 microns	917.31895
WF001	F27	WF001242	2.09	02/05/2000	Unid. micro-phytoflag sp. group 1 length	3,521.27
WF001	F27	WF001242	2.09	02/05/2000	Unid. micro-phytoflag sp. group 2 length	173.33758
WF001	F27	WF001240	51.47	02/05/2000	Amphidinium spp.	56.87927
WF001	F27	WF001240	51.47	02/05/2000	Centric diatom sp. group 1 diam <10 micr	69.31418
WF001	F27	WF001240	51.47	02/05/2000	Ceratium fusus	821.2187
WF001	F27	WF001240	51.47	02/05/2000	Corethron criophilum	847.16299
WF001	F27	WF001240	51.47	02/05/2000	Cryptomonas sp. group 1 length <10 micro	323.79981
WF001	F27	WF001240	51.47	02/05/2000	Cylindrotheca closterium	84.9081
WF001	F27	WF001240	51.47	02/05/2000	Dictyocha speculum	66.67187
WF001	F27	WF001240	51.47	02/05/2000	Gymnodinium sp. group 1 5-200 microns wi	447.58109
WF001	F27	WF001240	51.47	02/05/2000	Gymnodinium sp. group 2 21-400 microns w	3,849.80
WF001	F27	WF001240	51.47	02/05/2000	Gyrodinium sp. group 1 5-200 microns wid	29.78861
WF001	F27	WF001240	51.47	02/05/2000	Pennate diatom sp. group 2 10-30 microns	9.10146

WF001	F27	WF001240	51.47	02/05/2000	Prorocentrum micans	171.59819
WF001	F27	WF001240	51.47	02/05/2000	Protoperidinium bipes	144.74902
WF001	F27	WF001240	51.47	02/05/2000	Skeletonema costatum	21.22841
WF001	F27	WF001240	51.47	02/05/2000	Stephanopyxis turris	1,605.52
WF001	F27	WF001240	51.47	02/05/2000	Thalassionema nitzschioides	57.99815
WF001	F27	WF001240	51.47	02/05/2000	Thalassiosira sp. group 3 10-20 microns	470.84441
WF001	F27	WF001240	51.47	02/05/2000	Unid. micro-phytoflag sp. group 1 length	3,731.91
WF001	F27	WF001240	51.47	02/05/2000	Unid. micro-phytoflag sp. group 2 length	175.16219
WF001	F30	WF001160	1.87	02/04/2000	Centric diatom sp. group 1 diam <10 micr	266.34615
WF001	F30	WF001160	1.87	02/04/2000	Ceratium fusus	860.6206
WF001	F30	WF001160	1.87	02/04/2000	Ceratium tripos	4,410.61
WF001	F30	WF001160	1.87	02/04/2000	Chaetoceros sp. group 2 diam 10-30 micro	493.37144
WF001	F30	WF001160	1.87	02/04/2000	Cryptomonas sp. group 1 length <10 micro	697.52331
WF001	F30	WF001160	1.87	02/04/2000	Cryptomonas sp. group 2 length >10 micro	605.33217
WF001	F30	WF001160	1.87	02/04/2000	Cylindrotheca closterium	44.49099
WF001	F30	WF001160	1.87	02/04/2000	Ebria tripartita	1,420.40
WF001	F30	WF001160	1.87	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	1,563.52
WF001	F30	WF001160	1.87	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	7,492.66
WF001	F30	WF001160	1.87	02/04/2000	Heterocapsa rotundata	123.07692
WF001	F30	WF001160	1.87	02/04/2000	Pennate diatom sp. group 2 10-30 microns	9.53815
WF001	F30	WF001160	1.87	02/04/2000	Pleurosigma spp.	489.5492
WF001	F30	WF001160	1.87	02/04/2000	Pseudonitzschia spp.	376.3986
WF001	F30	WF001160	1.87	02/04/2000	Rhizosolenia setigera	406.79509
WF001	F30	WF001160	1.87	02/04/2000	Thalassionema nitzschioides	12.13576
WF001	F30	WF001160	1.87	02/04/2000	Thalassiosira sp. group 3 10-20 microns	1,372.37
WF001	F30	WF001160	1.87	02/04/2000	Unid. micro-phytoflag sp. group 1 length	10,732.43
WF001	F30	WF001160	1.87	02/04/2000	Unid. micro-phytoflag sp. group 2 length	1,835.66
WF001	F30	WF00115F	4.82	02/04/2000	Asterionella formosa	20.45873
WF001	F30	WF00115F	4.82	02/04/2000	Calycomonas ovalis	22.74068
WF001	F30	WF00115F	4.82	02/04/2000	Centric diatom sp. group 1 diam <10 micr	245.10382
WF001	F30	WF00115F	4.82	02/04/2000	Chaetoceros sp. group 2 diam 10-30 micro	199.77003
WF001	F30	WF00115F	4.82	02/04/2000	Cryptomonas sp. group 1 length <10 micro	438.91576
WF001	F30	WF00115F	4.82	02/04/2000	Cryptomonas sp. group 2 length >10 micro	122.55191
WF001	F30	WF00115F	4.82	02/04/2000	Cylindrotheca closterium	45.03689
WF001	F30	WF00115F	4.82	02/04/2000	Eutreptia/eutreptiella spp.	35.93528
WF001	F30	WF00115F	4.82	02/04/2000	Guinardia delicatula	266.43464
WF001	F30	WF00115F	4.82	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	2,215.79
WF001	F30	WF00115F	4.82	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	8,751.45
WF001	F30	WF00115F	4.82	02/04/2000	Gyrodinium sp. group 2 21-40 microns wid	1,166.86
WF001	F30	WF00115F	4.82	02/04/2000	Heterocapsa rotundata	93.28333
WF001	F30	WF00115F	4.82	02/04/2000	Lithodesmium undulatum	966.20688
WF001	F30	WF00115F	4.82	02/04/2000	Pennate diatom sp. group 2 10-30 microns	67.58625
WF001	F30	WF00115F	4.82	02/04/2000	Pennate diatom sp. group 3 31-60 microns	82.82429
WF001	F30	WF00115F	4.82	02/04/2000	Prorocentrum micans	182.03795
WF001	F30	WF00115F	4.82	02/04/2000	Rhizosolenia setigera	3,706.08
WF001	F30	WF00115F	4.82	02/04/2000	Thalassionema nitzschioides	61.42331
WF001	F30	WF00115F	4.82	02/04/2000	Thalassiosira sp. group 3 10-20 microns	1,763.82
WF001	F30	WF00115F	4.82	02/04/2000	Unid. micro-phytoflag sp. group 1 length	10,311.70
WF001	F30	WF00115F	4.82	02/04/2000	Unid. micro-phytoflag sp. group 2 length	371.63756

WF001	F31	WF00117B	2.02	02/04/2000	Centric diatom sp. group 1 diam <10 micr	148.18531
WF001	F31	WF00117B	2.02	02/04/2000	Chaetoceros sp. group 1 diam <10 microns	8.19297
WF001	F31	WF00117B	2.02	02/04/2000	Cocconeis scutellum	61.01412
WF001	F31	WF00117B	2.02	02/04/2000	Cryptomonas sp. group 1 length <10 micro	153.83217
WF001	F31	WF00117B	2.02	02/04/2000	Cylindrotheca closterium	121.01548
WF001	F31	WF00117B	2.02	02/04/2000	Dictyocha speculum	95.02425
WF001	F31	WF00117B	2.02	02/04/2000	Eutreptia/eutreptiella spp.	24.1398
WF001	F31	WF00117B	2.02	02/04/2000	Guinardia delicatula	89.48974
WF001	F31	WF00117B	2.02	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	425.27739
WF001	F31	WF00117B	2.02	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	8,622.32
WF001	F31	WF00117B	2.02	02/04/2000	Pennate diatom sp. group 1 <10 microns l	25.48019
WF001	F31	WF00117B	2.02	02/04/2000	Pennate diatom sp. group 2 10-30 microns	38.91564
WF001	F31	WF00117B	2.02	02/04/2000	Pleurosigma spp.	332.89346
WF001	F31	WF00117B	2.02	02/04/2000	Prorocentrum micans	244.57075
WF001	F31	WF00117B	2.02	02/04/2000	Protoperidinium bipes	206.3039
WF001	F31	WF00117B	2.02	02/04/2000	Pseudonitzschia spp.	51.10422
WF001	F31	WF00117B	2.02	02/04/2000	Rhizosolenia setigera	2,212.97
WF001	F31	WF00117B	2.02	02/04/2000	Skeletonema costatum	22.69189
WF001	F31	WF00117B	2.02	02/04/2000	Thalassionema nitzschioides	148.54166
WF001	F31	WF00117B	2.02	02/04/2000	Thalassiosira sp. group 3 10-20 microns	2,201.96
WF001	F31	WF00117B	2.02	02/04/2000	Unid. micro-phytoflag sp. group 1 length	4,494.28
WF001	F31	WF00117B	2.02	02/04/2000	Unid. micro-phytoflag sp. group 2 length	3,245.45
WF001	F31	WF00117A	5.93	02/04/2000	Centric diatom sp. group 1 diam <10 micr	131.57819
WF001	F31	WF00117A	5.93	02/04/2000	Choanoflagellate spp.	58.69991
WF001	F31	WF00117A	5.93	02/04/2000	Corethron criophilum	877.17725
WF001	F31	WF00117A	5.93	02/04/2000	Cryptomonas sp. group 1 length <10 micro	93.13105
WF001	F31	WF00117A	5.93	02/04/2000	Dictyocha speculum	138.068
WF001	F31	WF00117A	5.93	02/04/2000	Guinardia delicatula	325.06621
WF001	F31	WF00117A	5.93	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	4,555.65
WF001	F31	WF00117A	5.93	02/04/2000	Gyrodinium spirale	2,506.26
WF001	F31	WF00117A	5.93	02/04/2000	Gyrosigma spp.	241.84317
WF001	F31	WF00117A	5.93	02/04/2000	Heterocapsa rotundata	30.40074
WF001	F31	WF00117A	5.93	02/04/2000	Leptocylindrus minimus	20.00319
WF001	F31	WF00117A	5.93	02/04/2000	Pennate diatom sp. group 2 10-30 microns	47.19887
WF001	F31	WF00117A	5.93	02/04/2000	Pleurosigma spp.	725.5295
WF001	F31	WF00117A	5.93	02/04/2000	Prorocentrum micans	355.35552
WF001	F31	WF00117A	5.93	02/04/2000	Rhizosolenia setigera	1,607.69
WF001	F31	WF00117A	5.93	02/04/2000	Thalassionema nitzschioides	11.99042
WF001	F31	WF00117A	5.93	02/04/2000	Thalassiosira sp. group 3 10-20 microns	2,483.34
WF001	F31	WF00117A	5.93	02/04/2000	Unid. micro-phytoflag sp. group 1 length	2,905.59
WF001	F31	WF00117A	5.93	02/04/2000	Unid. micro-phytoflag sp. group 2 length	1,450.94
WF001	N04	WF00109F	2.28	02/03/2000	Centric diatom sp. group 1 diam <10 micr	519.6201
WF001	N04	WF00109F	2.28	02/03/2000	Corethron criophilum	952.62526
WF001	N04	WF00109F	2.28	02/03/2000	Cryptomonas sp. group 1 length <10 micro	161.82633
WF001	N04	WF00109F	2.28	02/03/2000	Cylindrotheca closterium	238.69551
WF001	N04	WF00109F	2.28	02/03/2000	Guinardia delicatula	2,329.97
WF001	N04	WF00109F	2.28	02/03/2000	Gymnodinium sp. group 1 5-200 microns wi	335.53327
WF001	N04	WF00109F	2.28	02/03/2000	Gymnodinium sp. group 2 21-400 microns w	5,565.92
WF001	N04	WF00109F	2.28	02/03/2000	Heterocapsa rotundata	66.03115

WF001	N04	WF00109F	2.28	02/03/2000	Pleurosigma spp.	262.64465
WF001	N04	WF00109F	2.28	02/03/2000	Prorocentrum micans	964.80115
WF001	N04	WF00109F	2.28	02/03/2000	Thalassionema nitzschioides	39.06522
WF001	N04	WF00109F	2.28	02/03/2000	Thalassiosira punctigera	249.69782
WF001	N04	WF00109F	2.28	02/03/2000	Thalassiosira sp. group 3 10-20 microns	1,687.65
WF001	N04	WF00109F	2.28	02/03/2000	Unid. micro-phytoflag sp. group 1 length	7,156.81
WF001	N04	WF00109F	2.28	02/03/2000	Unid. micro-phytoflag sp. group 2 length	1,181.81
WF001	N04	WF00109D	22.3	02/03/2000	Centric diatom sp. group 1 diam <10 micr	245.10382
WF001	N04	WF00109D	22.3	02/03/2000	Corethron criophilum	898.70307
WF001	N04	WF00109D	22.3	02/03/2000	Coscinodiscus centralis	1,876.26
WF001	N04	WF00109D	22.3	02/03/2000	Cryptomonas sp. group 1 length <10 micro	457.99906
WF001	N04	WF00109D	22.3	02/03/2000	Cylindrotheca closterium	90.07378
WF001	N04	WF00109D	22.3	02/03/2000	Dictyocha speculum	70.72808
WF001	N04	WF00109D	22.3	02/03/2000	Guinardia delicatula	3,064.00
WF001	N04	WF00109D	22.3	02/03/2000	Heterocapsa rotundata	186.8806
WF001	N04	WF00109D	22.3	02/03/2000	Heterocapsa triquetra	111.2922
WF001	N04	WF00109D	22.3	02/03/2000	Leptocylindrus danicus	322.19852
WF001	N04	WF00109D	22.3	02/03/2000	Pennate diatom sp. group 2 10-30 microns	28.96554
WF001	N04	WF00109D	22.3	02/03/2000	Prorocentrum micans	546.11386
WF001	N04	WF00109D	22.3	02/03/2000	Protoperidinium bipes	153.55532
WF001	N04	WF00109D	22.3	02/03/2000	Rhizosolenia setigera	411.78644
WF001	N04	WF00109D	22.3	02/03/2000	Stephanopyxis turris	851.59911
WF001	N04	WF00109D	22.3	02/03/2000	Thalassionema nitzschioides	159.7006
WF001	N04	WF00109D	22.3	02/03/2000	Thalassiosira sp. group 3 10-20 microns	1,514.08
WF001	N04	WF00109D	22.3	02/03/2000	Thalassiothrix longissima	294.45497
WF001	N04	WF00109D	22.3	02/03/2000	Unid. micro-phytoflag sp. group 1 length	10,618.60
WF001	N04	WF00109D	22.3	02/03/2000	Unid. micro-phytoflag sp. group 2 length	371.63756
WF001	N16	WF0011B7	2.28	02/04/2000	Centric diatom sp. group 1 diam <10 micr	175.39869
WF001	N16	WF0011B7	2.28	02/04/2000	Chaetoceros borealis	396.15235
WF001	N16	WF0011B7	2.28	02/04/2000	Corethron criophilum	1,286.24
WF001	N16	WF0011B7	2.28	02/04/2000	Coscinodiscus centralis	2,685.35
WF001	N16	WF0011B7	2.28	02/04/2000	Cryptomonas sp. group 1 length <10 micro	286.78002
WF001	N16	WF0011B7	2.28	02/04/2000	Cylindrotheca closterium	64.45767
WF001	N16	WF0011B7	2.28	02/04/2000	Guinardia delicatula	476.65806
WF001	N16	WF0011B7	2.28	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	679.5591
WF001	N16	WF0011B7	2.28	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	6,680.13
WF001	N16	WF0011B7	2.28	02/04/2000	Pennate diatom sp. group 2 10-30 microns	41.45604
WF001	N16	WF0011B7	2.28	02/04/2000	Prorocentrum micans	1,042.15
WF001	N16	WF0011B7	2.28	02/04/2000	Protoperidinium bipes	219.77137
WF001	N16	WF0011B7	2.28	02/04/2000	Rhizosolenia setigera	1,768.07
WF001	N16	WF0011B7	2.28	02/04/2000	Thalassionema nitzschioides	70.32819
WF001	N16	WF0011B7	2.28	02/04/2000	Thalassiosira sp. group 3 10-20 microns	2,524.42
WF001	N16	WF0011B7	2.28	02/04/2000	Unid. micro-phytoflag sp. group 1 length	3,821.35
WF001	N16	WF0011B7	2.28	02/04/2000	Unid. micro-phytoflag sp. group 2 length	265.94747
WF001	N16	WF0011B5	20.64	02/04/2000	Centric diatom sp. group 1 diam <10 micr	83.23317
WF001	N16	WF0011B5	20.64	02/04/2000	Corethron criophilum	871.95596
WF001	N16	WF0011B5	20.64	02/04/2000	Cryptomonas sp. group 1 length <10 micro	120.3497
WF001	N16	WF0011B5	20.64	02/04/2000	Cylindrotheca closterium	87.39301
WF001	N16	WF0011B5	20.64	02/04/2000	Dictyocha speculum	343.69277

WF001	N16	WF0011B5	20.64	02/04/2000	Guinardia delicatula	193.87878
WF001	N16	WF0011B5	20.64	02/04/2000	Guinardia flaccida	2,617.72
WF001	N16	WF0011B5	20.64	02/04/2000	Gymnodinium sp. group 1 5-200 microns wi	307.11996
WF001	N16	WF0011B5	20.64	02/04/2000	Gymnodinium sp. group 2 21-400 microns w	3,962.46
WF001	N16	WF0011B5	20.64	02/04/2000	Gyrodinium sp. group 2 21-40 microns wid	2,830.33
WF001	N16	WF0011B5	20.64	02/04/2000	Heterocapsa rotundata	151.0989
WF001	N16	WF0011B5	20.64	02/04/2000	Leptocylindrus minimus	14.91309
WF001	N16	WF0011B5	20.64	02/04/2000	Pennate diatom sp. group 2 10-30 microns	9.36782
WF001	N16	WF0011B5	20.64	02/04/2000	Pleurosigma spp.	721.21087
WF001	N16	WF0011B5	20.64	02/04/2000	Prorocentrum micans	706.48062
WF001	N16	WF0011B5	20.64	02/04/2000	Rhizosolenia setigera	399.53089
WF001	N16	WF0011B5	20.64	02/04/2000	Stephanopyxis turris	1,652.51
WF001	N16	WF0011B5	20.64	02/04/2000	Thalassionema nitzschioides	119.19046
WF001	N16	WF0011B5	20.64	02/04/2000	Thalassiosira punctigera	228.55314
WF001	N16	WF0011B5	20.64	02/04/2000	Thalassiosira sp. group 3 10-20 microns	2,423.12
WF001	N16	WF0011B5	20.64	02/04/2000	Unid. micro-phytoflag sp. group 1 length	3,781.58
WF001	N16	WF0011B5	20.64	02/04/2000	Unid. micro-phytoflag sp. group 2 length	2,163.46
WF001	N18	WF0010BA	2.04	02/03/2000	Centric diatom sp. group 1 diam <10 micr	146.73252
WF001	N18	WF0010BA	2.04	02/03/2000	Ceratium fusus	869.22681
WF001	N18	WF0010BA	2.04	02/03/2000	Corethron criophilum	2,690.06
WF001	N18	WF0010BA	2.04	02/03/2000	Coscinodiscus centralis	5,616.17
WF001	N18	WF0010BA	2.04	02/03/2000	Cryptomonas sp. group 1 length <10 micro	266.56702
WF001	N18	WF0010BA	2.04	02/03/2000	Cylindrotheca closterium	134.80769
WF001	N18	WF0010BA	2.04	02/03/2000	Guinardia delicatula	465.21506
WF001	N18	WF0010BA	2.04	02/03/2000	Gymnodinium sp. group 1 5-200 microns wi	1,263.32
WF001	N18	WF0010BA	2.04	02/03/2000	Gymnodinium sp. group 2 21-400 microns w	4,656.97
WF001	N18	WF0010BA	2.04	02/03/2000	Heterocapsa rotundata	62.15385
WF001	N18	WF0010BA	2.04	02/03/2000	Heterocapsa triquetra	111.04264
WF001	N18	WF0010BA	2.04	02/03/2000	Leptocylindrus minimus	20.44811
WF001	N18	WF0010BA	2.04	02/03/2000	Pennate diatom sp. group 1 <10 microns l	18.92279
WF001	N18	WF0010BA	2.04	02/03/2000	Pennate diatom sp. group 2 10-30 microns	9.63353
WF001	N18	WF0010BA	2.04	02/03/2000	Pleurosigma spp.	988.88938
WF001	N18	WF0010BA	2.04	02/03/2000	Prorocentrum micans	363.25949
WF001	N18	WF0010BA	2.04	02/03/2000	Protoperidinium bipes	153.21099
WF001	N18	WF0010BA	2.04	02/03/2000	Pseudonitzschia spp.	37.9524
WF001	N18	WF0010BA	2.04	02/03/2000	Rhizosolenia setigera	410.86304
WF001	N18	WF0010BA	2.04	02/03/2000	Skeletonema costatum	112.53613
WF001	N18	WF0010BA	2.04	02/03/2000	Stephanopyxis turris	849.68946
WF001	N18	WF0010BA	2.04	02/03/2000	Thalassionema nitzschioides	98.05691
WF001	N18	WF0010BA	2.04	02/03/2000	Thalassiosira sp. group 3 10-20 microns	2,336.11
WF001	N18	WF0010BA	2.04	02/03/2000	Unid. micro-phytoflag sp. group 1 length	7,165.26
WF001	N18	WF0010BA	2.04	02/03/2000	Unid. micro-phytoflag sp. group 2 length	1,854.02
WF001	N18	WF0010B8	13.74	02/03/2000	Centric diatom sp. group 1 diam <10 micr	215.30977
WF001	N18	WF0010B8	13.74	02/03/2000	Chaetoceros sp. group 2 diam 10-30 micro	97.49256
WF001	N18	WF0010B8	13.74	02/03/2000	Cryptomonas sp. group 1 length <10 micro	167.63588
WF001	N18	WF0010B8	13.74	02/03/2000	Dictyocha fibula	120.01339
WF001	N18	WF0010B8	13.74	02/03/2000	Dictyocha speculum	69.034
WF001	N18	WF0010B8	13.74	02/03/2000	Ebria tripartita	140.1028
WF001	N18	WF0010B8	13.74	02/03/2000	Guinardia delicatula	4,030.82

WF001	N18	WF0010B8	13.74	02/03/2000	Gymnodinium sp. group 1 5-200 microns wi	926.87702
WF001	N18	WF0010B8	13.74	02/03/2000	Gymnodinium sp. group 2 21-400 microns w	2,847.28
WF001	N18	WF0010B8	13.74	02/03/2000	Heterocapsa rotundata	60.80147
WF001	N18	WF0010B8	13.74	02/03/2000	Leptocylindrus danicus	419.30825
WF001	N18	WF0010B8	13.74	02/03/2000	Pennate diatom sp. group 1 <10 microns l	1.848
WF001	N18	WF0010B8	13.74	02/03/2000	Pleurosigma spp.	483.68634
WF001	N18	WF0010B8	13.74	02/03/2000	Prorocentrum micans	533.03329
WF001	N18	WF0010B8	13.74	02/03/2000	Rhizosolenia setigera	803.84659
WF001	N18	WF0010B8	13.74	02/03/2000	Thalassionema nitzschioides	119.90418
WF001	N18	WF0010B8	13.74	02/03/2000	Thalassiosira sp. group 3 10-20 microns	3,686.92
WF001	N18	WF0010B8	13.74	02/03/2000	Unid. micro-phytoflag sp. group 1 length	4,972.45
WF001	N18	WF0010B8	13.74	02/03/2000	Unid. micro-phytoflag sp. group 2 length	362.73607
WF002	F01	WF002027	2.31	02/23/2000	Centric diatom sp. group 1 diam <10 micr	183.49729
WF002	F01	WF002027	2.31	02/23/2000	Chaetoceros debilis	1,813.47
WF002	F01	WF002027	2.31	02/23/2000	Chaetoceros sp. group 1 diam <10 microns	48.91497
WF002	F01	WF002027	2.31	02/23/2000	Chaetoceros sp. group 2 diam 10-30 micro	13,887.54
WF002	F01	WF002027	2.31	02/23/2000	Choanoflagellate spp.	64.32026
WF002	F01	WF002027	2.31	02/23/2000	Cryptomonas sp. group 1 length <10 micro	673.51738
WF002	F01	WF002027	2.31	02/23/2000	Cryptomonas sp. group 2 length >10 micro	131.06949
WF002	F01	WF002027	2.31	02/23/2000	Dictyocha speculum	757.711
WF002	F01	WF002027	2.31	02/23/2000	Guinardia delicatula	1,068.57
WF002	F01	WF002027	2.31	02/23/2000	Gymnodinium sp. group 1 5-200 microns wi	2,369.79
WF002	F01	WF002027	2.31	02/23/2000	Heterocapsa rotundata	133.2461
WF002	F01	WF002027	2.31	02/23/2000	Leptocylindrus minimus	109.77661
WF002	F01	WF002027	2.31	02/23/2000	Pennate diatom sp. group 2 10-30 microns	25.81558
WF002	F01	WF002027	2.31	02/23/2000	Protoperidinium bipes	1,642.28
WF002	F01	WF002027	2.31	02/23/2000	Rhizosolenia setigera	8,808.13
WF002	F01	WF002027	2.31	02/23/2000	Skeletonema costatum	361.27637
WF002	F01	WF002027	2.31	02/23/2000	Thalassiosira nordenskioldii	2,915.58
WF002	F01	WF002027	2.31	02/23/2000	Thalassiosira rotula	4,630.52
WF002	F01	WF002027	2.31	02/23/2000	Thalassiosira sp. group 3 10-20 microns	5,342.05
WF002	F01	WF002027	2.31	02/23/2000	Unid. micro-phytoflag sp. group 1 length	15,164.03
WF002	F01	WF002027	2.31	02/23/2000	Unid. micro-phytoflag sp. group 2 length	1,589.87
WF002	F01	WF002025	10.06	02/23/2000	Centric diatom sp. group 1 diam <10 micr	177.96766
WF002	F01	WF002025	10.06	02/23/2000	Chaetoceros decipiens	3,412.31
WF002	F01	WF002025	10.06	02/23/2000	Chaetoceros socialis	486.09202
WF002	F01	WF002025	10.06	02/23/2000	Chaetoceros sp. group 2 diam 10-30 micro	18,131.40
WF002	F01	WF002025	10.06	02/23/2000	Cryptomonas sp. group 1 length <10 micro	1,029.32
WF002	F01	WF002025	10.06	02/23/2000	Cryptomonas sp. group 2 length >10 micro	127.11976
WF002	F01	WF002025	10.06	02/23/2000	Cylindrotheca closterium	233.57768
WF002	F01	WF002025	10.06	02/23/2000	Dictyocha speculum	366.82156
WF002	F01	WF002025	10.06	02/23/2000	Guinardia delicatula	3,800.02
WF002	F01	WF002025	10.06	02/23/2000	Gymnodinium sp. group 1 5-200 microns wi	1,641.70
WF002	F01	WF002025	10.06	02/23/2000	Gymnodinium sp. group 2 21-400 microns w	3,025.88
WF002	F01	WF002025	10.06	02/23/2000	Gyrodinium spirale	13,317.36
WF002	F01	WF002025	10.06	02/23/2000	Heterocapsa rotundata	516.92308
WF002	F01	WF002025	10.06	02/23/2000	Protoperidinium bipes	796.39374
WF002	F01	WF002025	10.06	02/23/2000	Protoperidinium sp. group 1 10-30 micron	2,398.08
WF002	F01	WF002025	10.06	02/23/2000	Pyramimonas sp. group 1 10-20 microns le	1,094.79

WF002	F01	WF002025	10.06	02/23/2000	Rhizosolenia setigera	4,271.35
WF002	F01	WF002025	10.06	02/23/2000	Skeletonema costatum	700.77885
WF002	F01	WF002025	10.06	02/23/2000	Thalassiosira nordenskioldii	3,155.80
WF002	F01	WF002025	10.06	02/23/2000	Thalassiosira rotula	3,368.24
WF002	F01	WF002025	10.06	02/23/2000	Thalassiosira sp. group 3 10-20 microns	7,609.70
WF002	F01	WF002025	10.06	02/23/2000	Unid. micro-phytoflag sp. group 1 length	16,744.41
WF002	F01	WF002025	10.06	02/23/2000	Unid. micro-phytoflag sp. group 2 length	1,156.47
WF002	F02	WF0022B5	2.41	02/27/2000	Centric diatom sp. group 1 diam <10 micr	514.71803
WF002	F02	WF0022B5	2.41	02/27/2000	Chaetoceros didymus	219.16284
WF002	F02	WF0022B5	2.41	02/27/2000	Chaetoceros sp. group 1 diam <10 microns	183.25271
WF002	F02	WF0022B5	2.41	02/27/2000	Chaetoceros sp. group 2 diam 10-30 micro	5,993.10
WF002	F02	WF0022B5	2.41	02/27/2000	Cryptomonas sp. group 1 length <10 micro	324.416
WF002	F02	WF0022B5	2.41	02/27/2000	Cylindrotheca closterium	225.18444
WF002	F02	WF0022B5	2.41	02/27/2000	Detonula confervacea	1,501.60
WF002	F02	WF0022B5	2.41	02/27/2000	Dictyocha speculum	708.47098
WF002	F02	WF0022B5	2.41	02/27/2000	Eutreptia/eutreptiella spp.	179.97876
WF002	F02	WF0022B5	2.41	02/27/2000	Guinardia delicatula	14,986.95
WF002	F02	WF0022B5	2.41	02/27/2000	Gymnodinium sp. group 1 5-200 microns wi	4,115.03
WF002	F02	WF0022B5	2.41	02/27/2000	Gyrodinium spirale	12,838.83
WF002	F02	WF0022B5	2.41	02/27/2000	Protoperidinium bipes	3,076.27
WF002	F02	WF0022B5	2.41	02/27/2000	Rhizosolenia setigera	8,235.73
WF002	F02	WF0022B5	2.41	02/27/2000	Skeletonema costatum	112.59958
WF002	F02	WF0022B5	2.41	02/27/2000	Thalassionema nitzschioides	184.26992
WF002	F02	WF0022B5	2.41	02/27/2000	Thalassiosira anguste-lineata	2,770.41
WF002	F02	WF0022B5	2.41	02/27/2000	Thalassiosira nordenskioldii	813.31408
WF002	F02	WF0022B5	2.41	02/27/2000	Thalassiosira sp. group 3 10-20 microns	18,652.82
WF002	F02	WF0022B5	2.41	02/27/2000	Thalassiosira sp. group 4 20-30 microns	40,881.02
WF002	F02	WF0022B5	2.41	02/27/2000	Unid. micro-phytoflag sp. group 1 length	11,232.39
WF002	F02	WF0022B5	2.41	02/27/2000	Unid. micro-phytoflag sp. group 2 length	3,716.38
WF002	F02	WF0022B3	9.81	02/27/2000	Asterionellopsis glacialis	211.2677
WF002	F02	WF0022B3	9.81	02/27/2000	Centric diatom sp. group 1 diam <10 micr	264.22192
WF002	F02	WF0022B3	9.81	02/27/2000	Chaetoceros debilis	4,229.80
WF002	F02	WF0022B3	9.81	02/27/2000	Chaetoceros diadema	5,558.34
WF002	F02	WF0022B3	9.81	02/27/2000	Chaetoceros sp. group 1 diam <10 microns	778.21319
WF002	F02	WF0022B3	9.81	02/27/2000	Chaetoceros sp. group 2 diam 10-30 micro	8,809.86
WF002	F02	WF0022B3	9.81	02/27/2000	Cryptomonas sp. group 1 length <10 micro	168.31465
WF002	F02	WF0022B3	9.81	02/27/2000	Detonula confervacea	4,046.82
WF002	F02	WF0022B3	9.81	02/27/2000	Guinardia delicatula	12,076.15
WF002	F02	WF0022B3	9.81	02/27/2000	Gymnodinium sp. group 1 5-200 microns wi	2,171.47
WF002	F02	WF0022B3	9.81	02/27/2000	Gymnodinium sp. group 2 21-400 microns w	2,858.81
WF002	F02	WF0022B3	9.81	02/27/2000	Gyrodinium spirale	37,746.15
WF002	F02	WF0022B3	9.81	02/27/2000	Heterocapsa rotundata	61.04766
WF002	F02	WF0022B3	9.81	02/27/2000	Leptocylindrus minimus	75.31569
WF002	F02	WF0022B3	9.81	02/27/2000	Pennate diatom sp. group 2 10-30 microns	47.31037
WF002	F02	WF0022B3	9.81	02/27/2000	Pleurosigma spp.	1,214.11
WF002	F02	WF0022B3	9.81	02/27/2000	Rhizosolenia setigera	2,017.75
WF002	F02	WF0022B3	9.81	02/27/2000	Skeletonema costatum	221.06654
WF002	F02	WF0022B3	9.81	02/27/2000	Stephanopyxis turris	8,345.67
WF002	F02	WF0022B3	9.81	02/27/2000	Thalassionema nitzschioides	120.38968

WF002	F02	WF0022B3	9.81	02/27/2000	Thalassiosira nordenskioldii	1,062.73
WF002	F02	WF0022B3	9.81	02/27/2000	Thalassiosira sp. group 3 10-20 microns	16,750.08
WF002	F02	WF0022B3	9.81	02/27/2000	Thalassiosira sp. group 4 20-30 microns	41,208.07
WF002	F02	WF0022B3	9.81	02/27/2000	Unid. micro-phytoflag sp. group 1 length	6,556.52
WF002	F02	WF0022B3	9.81	02/27/2000	Unid. micro-phytoflag sp. group 2 length	1,092.61
WF002	F06	WF00219A	3.23	02/25/2000	Centric diatom sp. group 1 diam <10 micr	141.51645
WF002	F06	WF00219A	3.23	02/25/2000	Coscinodiscus sp. group 3 diam >100 micr	5,746.78
WF002	F06	WF00219A	3.23	02/25/2000	Cryptomonas sp. group 1 length <10 micro	312.182
WF002	F06	WF00219A	3.23	02/25/2000	Cryptomonas sp. group 2 length >10 micro	117.93038
WF002	F06	WF00219A	3.23	02/25/2000	Dictyocha speculum	681.75394
WF002	F06	WF00219A	3.23	02/25/2000	Guinardia delicatula	106.82798
WF002	F06	WF00219A	3.23	02/25/2000	Gymnodinium sp. group 1 5-200 microns wi	609.2076
WF002	F06	WF00219A	3.23	02/25/2000	Gymnodinium sp. group 2 21-400 microns w	1,871.43
WF002	F06	WF00219A	3.23	02/25/2000	Gyrodinium sp. group 2 21-40 microns wid	5,623.73
WF002	F06	WF00219A	3.23	02/25/2000	Heterocapsa rotundata	59.94439
WF002	F06	WF00219A	3.23	02/25/2000	Pennate diatom sp. group 2 10-30 microns	15.48512
WF002	F06	WF00219A	3.23	02/25/2000	Prorocentrum micans	291.95525
WF002	F06	WF00219A	3.23	02/25/2000	Prorocentrum minimum	145.41564
WF002	F06	WF00219A	3.23	02/25/2000	Rhizosolenia setigera	3,302.15
WF002	F06	WF00219A	3.23	02/25/2000	Thalassiosira sp. group 3 10-20 microns	8,261.24
WF002	F06	WF00219A	3.23	02/25/2000	Thalassiosira sp. group 4 20-30 microns	17,858.82
WF002	F06	WF00219A	3.23	02/25/2000	Unid. micro-phytoflag sp. group 1 length	8,446.23
WF002	F06	WF00219A	3.23	02/25/2000	Unid. micro-phytoflag sp. group 2 length	3,576.23
WF002	F06	WF002198	14.61	02/25/2000	Centric diatom sp. group 1 diam <10 micr	103.34869
WF002	F06	WF002198	14.61	02/25/2000	Cryptomonas sp. group 1 length <10 micro	26.82174
WF002	F06	WF002198	14.61	02/25/2000	Cryptomonas sp. group 2 length >10 micro	344.49562
WF002	F06	WF002198	14.61	02/25/2000	Guinardia delicatula	351.07151
WF002	F06	WF002198	14.61	02/25/2000	Gymnodinium sp. group 1 5-200 microns wi	2,224.50
WF002	F06	WF002198	14.61	02/25/2000	Gymnodinium sp. group 2 21-400 microns w	2,050.04
WF002	F06	WF002198	14.61	02/25/2000	Gyrodinium sp. group 2 21-40 microns wid	8,213.96
WF002	F06	WF002198	14.61	02/25/2000	Pennate diatom sp. group 1 <10 microns l	26.65592
WF002	F06	WF002198	14.61	02/25/2000	Prorocentrum minimum	638.24965
WF002	F06	WF002198	14.61	02/25/2000	Rhizosolenia setigera	3,617.31
WF002	F06	WF002198	14.61	02/25/2000	Skeletonema costatum	19.78247
WF002	F06	WF002198	14.61	02/25/2000	Thalassiosira rotula	760.66269
WF002	F06	WF002198	14.61	02/25/2000	Thalassiosira sp. group 3 10-20 microns	9,598.17
WF002	F06	WF002198	14.61	02/25/2000	Thalassiosira sp. group 4 20-30 microns	18,742.46
WF002	F06	WF002198	14.61	02/25/2000	Unid. micro-phytoflag sp. group 1 length	15,787.23
WF002	F06	WF002198	14.61	02/25/2000	Unid. micro-phytoflag sp. group 2 length	3,656.38
WF002	F13	WF002174	2.74	02/25/2000	Centric diatom sp. group 1 diam <10 micr	76.51399
WF002	F13	WF002174	2.74	02/25/2000	Chaetoceros sp. group 2 diam 10-30 micro	155.90537
WF002	F13	WF002174	2.74	02/25/2000	Cryptomonas sp. group 1 length <10 micro	89.35839
WF002	F13	WF002174	2.74	02/25/2000	Gymnodinium sp. group 2 21-400 microns w	910.64604
WF002	F13	WF002174	2.74	02/25/2000	Heterocapsa rotundata	291.69231
WF002	F13	WF002174	2.74	02/25/2000	Pennate diatom sp. group 2 10-30 microns	150.95629
WF002	F13	WF002174	2.74	02/25/2000	Prorocentrum minimum	708.79021
WF002	F13	WF002174	2.74	02/25/2000	Rhizosolenia setigera	1,285.47
WF002	F13	WF002174	2.74	02/25/2000	Thalassiosira sp. group 3 10-20 microns	6,431.93
WF002	F13	WF002174	2.74	02/25/2000	Thalassiosira sp. group 4 20-30 microns	10,330.99

WF002	F13	WF002174	2.74	02/25/2000	Unid. micro-phytoflag sp. group 1 length	9,197.15
WF002	F13	WF002174	2.74	02/25/2000	Unid. micro-phytoflag sp. group 2 length	1,740.21
WF002	F13	WF002172	10.52	02/25/2000	Centric diatom sp. group 1 diam <10 micr	95.69323
WF002	F13	WF002172	10.52	02/25/2000	Chaetoceros sp. group 2 diam 10-30 micro	243.7314
WF002	F13	WF002172	10.52	02/25/2000	Choanoflagellate spp.	58.69991
WF002	F13	WF002172	10.52	02/25/2000	Cocconeis scutellum	55.40754
WF002	F13	WF002172	10.52	02/25/2000	Cryptomonas sp. group 1 length <10 micro	18.62621
WF002	F13	WF002172	10.52	02/25/2000	Guinardia delicatula	325.06621
WF002	F13	WF002172	10.52	02/25/2000	Gymnodinium sp. group 1 5-200 microns wi	617.91801
WF002	F13	WF002172	10.52	02/25/2000	Gymnodinium sp. group 2 21-400 microns w	711.8197
WF002	F13	WF002172	10.52	02/25/2000	Heterocapsa rotundata	121.60295
WF002	F13	WF002172	10.52	02/25/2000	Prorocentrum minimum	55.31055
WF002	F13	WF002172	10.52	02/25/2000	Protoperidinium sp. group 1 10-30 micron	281.59304
WF002	F13	WF002172	10.52	02/25/2000	Rhizosolenia setigera	1,507.21
WF002	F13	WF002172	10.52	02/25/2000	Thalassiosira sp. group 3 10-20 microns	6,532.09
WF002	F13	WF002172	10.52	02/25/2000	Thalassiosira sp. group 4 20-30 microns	11,115.51
WF002	F13	WF002172	10.52	02/25/2000	Unid. micro-phytoflag sp. group 1 length	11,322.81
WF002	F13	WF002172	10.52	02/25/2000	Unid. micro-phytoflag sp. group 2 length	2,539.15
WF002	F23	WF0021D6	2.26	02/27/2000	Centric diatom sp. group 1 diam <10 micr	145.27972
WF002	F23	WF0021D6	2.26	02/27/2000	Cocconeis scutellum	449.38811
WF002	F23	WF0021D6	2.26	02/27/2000	Cryptomonas sp. group 1 length <10 micro	282.77972
WF002	F23	WF0021D6	2.26	02/27/2000	Cylindrotheca closterium	445.65851
WF002	F23	WF0021D6	2.26	02/27/2000	Eutreptia/eutreptiella spp.	14.79154
WF002	F23	WF0021D6	2.26	02/27/2000	Grammatophora marina	281.23543
WF002	F23	WF0021D6	2.26	02/27/2000	Gymnodinium sp. group 1 5-200 microns wi	78.04467
WF002	F23	WF0021D6	2.26	02/27/2000	Heterocapsa rotundata	61.53846
WF002	F23	WF0021D6	2.26	02/27/2000	Licmophora spp.	22.18974
WF002	F23	WF0021D6	2.26	02/27/2000	Pennate diatom sp. group 1 <10 microns l	21.858
WF002	F23	WF0021D6	2.26	02/27/2000	Pennate diatom sp. group 2 10-30 microns	63.58764
WF002	F23	WF0021D6	2.26	02/27/2000	Pleurosigma spp.	203.97883
WF002	F23	WF0021D6	2.26	02/27/2000	Prorocentrum minimum	897.2028
WF002	F23	WF0021D6	2.26	02/27/2000	Rhizosolenia setigera	1,355.98
WF002	F23	WF0021D6	2.26	02/27/2000	Thalassiosira sp. group 3 10-20 microns	2,865.52
WF002	F23	WF0021D6	2.26	02/27/2000	Thalassiosira sp. group 4 20-30 microns	5,448.84
WF002	F23	WF0021D6	2.26	02/27/2000	Unid. micro-phytoflag sp. group 1 length	10,368.62
WF002	F23	WF0021D6	2.26	02/27/2000	Unid. micro-phytoflag sp. group 2 length	6,975.52
WF002	F23	WF0021D4	14.76	02/27/2000	Centric diatom sp. group 1 diam <10 micr	93.13945
WF002	F23	WF0021D4	14.76	02/27/2000	Chaetoceros sp. group 2 diam 10-30 micro	158.15127
WF002	F23	WF0021D4	14.76	02/27/2000	Cocconeis scutellum	71.90517
WF002	F23	WF0021D4	14.76	02/27/2000	Coscinodiscus oculus-iridis	3,316.60
WF002	F23	WF0021D4	14.76	02/27/2000	Cryptomonas sp. group 1 length <10 micro	36.25826
WF002	F23	WF0021D4	14.76	02/27/2000	Cryptomonas sp. group 2 length >10 micro	116.42432
WF002	F23	WF0021D4	14.76	02/27/2000	Cylindrotheca closterium	428.57038
WF002	F23	WF0021D4	14.76	02/27/2000	Grammatophora marina	270.45186
WF002	F23	WF0021D4	14.76	02/27/2000	Gymnodinium sp. group 1 5-200 microns wi	300.71378
WF002	F23	WF0021D4	14.76	02/27/2000	Gymnodinium sp. group 2 21-400 microns w	1,385.65
WF002	F23	WF0021D4	14.76	02/27/2000	Gyrosigma spp.	196.15756
WF002	F23	WF0021D4	14.76	02/27/2000	Heterocapsa rotundata	14.76986
WF002	F23	WF0021D4	14.76	02/27/2000	Pennate diatom sp. group 2 10-30 microns	183.75708

WF002	F23	WF0021D4	14.76	02/27/2000	Pleurosigma spp.	588.47268
WF002	F23	WF0021D4	14.76	02/27/2000	Rhizosolenia setigera	977.9928
WF002	F23	WF0021D4	14.76	02/27/2000	Thalassiosira sp. group 3 10-20 microns	3,052.22
WF002	F23	WF0021D4	14.76	02/27/2000	Thalassiosira sp. group 4 20-30 microns	5,671.43
WF002	F23	WF0021D4	14.76	02/27/2000	Unid. micro-phytoflag sp. group 1 length	6,647.37
WF002	F23	WF0021D4	14.76	02/27/2000	Unid. micro-phytoflag sp. group 2 length	2,471.39
WF002	F24	WF002125	1.54	02/24/2000	Centric diatom sp. group 1 diam <10 micr	65.35345
WF002	F24	WF002125	1.54	02/24/2000	Cryptomonas sp. group 1 length <10 micro	20.35316
WF002	F24	WF002125	1.54	02/24/2000	Cryptomonas sp. group 2 length >10 micro	65.35345
WF002	F24	WF002125	1.54	02/24/2000	Gymnodinium sp. group 1 5-200 microns wi	1,012.81
WF002	F24	WF002125	1.54	02/24/2000	Heterocapsa rotundata	3.31636
WF002	F24	WF002125	1.54	02/24/2000	Pennate diatom sp. group 2 10-30 microns	5.14883
WF002	F24	WF002125	1.54	02/24/2000	Thalassiosira sp. group 3 10-20 microns	1,431.71
WF002	F24	WF002125	1.54	02/24/2000	Unid. micro-phytoflag sp. group 1 length	3,174.98
WF002	F24	WF002123	9.46	02/24/2000	Centric diatom sp. group 1 diam <10 micr	12.57746
WF002	F24	WF002123	9.46	02/24/2000	Coscinodiscus centralis	1,925.60
WF002	F24	WF002123	9.46	02/24/2000	Cryptomonas sp. group 1 length <10 micro	29.37767
WF002	F24	WF002123	9.46	02/24/2000	Cryptomonas sp. group 2 length >10 micro	62.88729
WF002	F24	WF002123	9.46	02/24/2000	Dictyocha speculum	72.58797
WF002	F24	WF002123	9.46	02/24/2000	Gymnodinium sp. group 1 5-200 microns wi	324.86467
WF002	F24	WF002123	9.46	02/24/2000	Pennate diatom sp. group 2 10-30 microns	49.62874
WF002	F24	WF002123	9.46	02/24/2000	Pleurosigma spp.	381.44042
WF002	F24	WF002123	9.46	02/24/2000	Prorocentrum micans	373.64975
WF002	F24	WF002123	9.46	02/24/2000	Prorocentrum minimum	23.26321
WF002	F24	WF002123	9.46	02/24/2000	Protoperidinium sp. group 1 10-30 micron	118.43595
WF002	F24	WF002123	9.46	02/24/2000	Stephanopyxis turris	873.99301
WF002	F24	WF002123	9.46	02/24/2000	Thalassiosira sp. group 3 10-20 microns	632.77098
WF002	F24	WF002123	9.46	02/24/2000	Unid. micro-phytoflag sp. group 1 length	3,023.68
WF002	F25	WF002157	2.41	02/25/2000	Centric diatom sp. group 1 diam <10 micr	95.307
WF002	F25	WF002157	2.41	02/25/2000	Cryptomonas sp. group 1 length <10 micro	123.67354
WF002	F25	WF002157	2.41	02/25/2000	Gymnodinium sp. group 2 21-400 microns w	756.20981
WF002	F25	WF002157	2.41	02/25/2000	Gyrosigma spp.	321.15607
WF002	F25	WF002157	2.41	02/25/2000	Odontella sinensis	60,162.04
WF002	F25	WF002157	2.41	02/25/2000	Pennate diatom sp. group 2 10-30 microns	12.51451
WF002	F25	WF002157	2.41	02/25/2000	Pleurosigma spp.	321.15607
WF002	F25	WF002157	2.41	02/25/2000	Rhizosolenia setigera	533.73477
WF002	F25	WF002157	2.41	02/25/2000	Thalassiosira sp. group 3 10-20 microns	5,138.83
WF002	F25	WF002157	2.41	02/25/2000	Thalassiosira sp. group 4 20-30 microns	8,679.89
WF002	F25	WF002157	2.41	02/25/2000	Unid. micro-phytoflag sp. group 1 length	13,683.68
WF002	F25	WF002157	2.41	02/25/2000	Unid. micro-phytoflag sp. group 2 length	481.69601
WF002	F25	WF002155	6.16	02/25/2000	Centric diatom sp. group 1 diam <10 micr	18.49205
WF002	F25	WF002155	6.16	02/25/2000	Chaetoceros sp. group 2 diam 10-30 micro	201.29555
WF002	F25	WF002155	6.16	02/25/2000	Cryptomonas sp. group 1 length <10 micro	105.75962
WF002	F25	WF002155	6.16	02/25/2000	Gyrosigma spp.	1,250.45
WF002	F25	WF002155	6.16	02/25/2000	Heterocapsa rotundata	31.38462
WF002	F25	WF002155	6.16	02/25/2000	Licmophora spp.	27.16024
WF002	F25	WF002155	6.16	02/25/2000	Pennate diatom sp. group 2 10-30 microns	146.1792
WF002	F25	WF002155	6.16	02/25/2000	Rhizosolenia setigera	829.86199
WF002	F25	WF002155	6.16	02/25/2000	Thalassiosira sp. group 3 10-20 microns	5,111.68

WF002	F25	WF002155	6.16	02/25/2000	Thalassiosira sp. group 4 20-30 microns	7,610.94
WF002	F25	WF002155	6.16	02/25/2000	Unid. micro-phytoflag sp. group 1 length	3,927.34
WF002	F25	WF002155	6.16	02/25/2000	Unid. micro-phytoflag sp. group 2 length	187.23776
WF002	F27	WF0020C0	1.91	02/24/2000	Centric diatom sp. group 1 diam <10 micr	35.08752
WF002	F27	WF0020C0	1.91	02/24/2000	Ceratium fusus	467.67257
WF002	F27	WF0020C0	1.91	02/24/2000	Chaetoceros decipiens	588.665
WF002	F27	WF0020C0	1.91	02/24/2000	Chaetoceros sp. group 1 diam <10 microns	43.72217
WF002	F27	WF0020C0	1.91	02/24/2000	Coscinodiscus centralis	2,014.46
WF002	F27	WF0020C0	1.91	02/24/2000	Cryptomonas sp. group 1 length <10 micro	34.14805
WF002	F27	WF0020C0	1.91	02/24/2000	Cylindrotheca closterium	161.45114
WF002	F27	WF0020C0	1.91	02/24/2000	Gymnodinium sp. group 1 5-200 microns wi	226.56994
WF002	F27	WF0020C0	1.91	02/24/2000	Gymnodinium sp. group 2 21-400 microns w	313.20067
WF002	F27	WF0020C0	1.91	02/24/2000	Heterocapsa rotundata	44.58775
WF002	F27	WF0020C0	1.91	02/24/2000	Prorocentrum minimum	24.33664
WF002	F27	WF0020C0	1.91	02/24/2000	Rhizosolenia setigera	442.11562
WF002	F27	WF0020C0	1.91	02/24/2000	Thalassiosira sp. group 3 10-20 microns	134.06966
WF002	F27	WF0020C0	1.91	02/24/2000	Unid. micro-phytoflag sp. group 1 length	2,350.43
WF002	F27	WF0020C0	1.91	02/24/2000	Unid. micro-phytoflag sp. group 2 length	133.00322
WF002	F27	WF0020BE	50.79	02/24/2000	Centric diatom sp. group 1 diam <10 micr	18.16183
WF002	F27	WF0020BE	50.79	02/24/2000	Chaetoceros debilis	91.53039
WF002	F27	WF0020BE	50.79	02/24/2000	Coscinodiscus centralis	2,785.25
WF002	F27	WF0020BE	50.79	02/24/2000	Cryptomonas sp. group 1 length <10 micro	122.7567
WF002	F27	WF0020BE	50.79	02/24/2000	Ditylum brightwellii	504.90915
WF002	F27	WF0020BE	50.79	02/24/2000	Gymnodinium sp. group 1 5-200 microns wi	1,253.05
WF002	F27	WF0020BE	50.79	02/24/2000	Heterocapsa rotundata	123.2967
WF002	F27	WF0020BE	50.79	02/24/2000	Pleurosigma spp.	122.60585
WF002	F27	WF0020BE	50.79	02/24/2000	Stephanopyxis turris	842.77898
WF002	F27	WF0020BE	50.79	02/24/2000	Thalassionema nitzschioides	30.39357
WF002	F27	WF0020BE	50.79	02/24/2000	Thalassiosira punctigera	349.68631
WF002	F27	WF0020BE	50.79	02/24/2000	Thalassiosira sp. group 3 10-20 microns	139.02654
WF002	F27	WF0020BE	50.79	02/24/2000	Unid. micro-phytoflag sp. group 1 length	3,978.70
WF002	F27	WF0020BE	50.79	02/24/2000	Unid. micro-phytoflag sp. group 2 length	735.57692
WF002	F30	WF002138	2.08	02/24/2000	Centric diatom sp. group 1 diam <10 micr	79.61949
WF002	F30	WF002138	2.08	02/24/2000	Ceratium tripos	10,376.87
WF002	F30	WF002138	2.08	02/24/2000	Coscinodiscus centralis	870.69339
WF002	F30	WF002138	2.08	02/24/2000	Cryptomonas sp. group 1 length <10 micro	79.70162
WF002	F30	WF002138	2.08	02/24/2000	Cryptomonas sp. group 2 length >10 micro	56.87106
WF002	F30	WF002138	2.08	02/24/2000	Cylindrotheca closterium	41.79936
WF002	F30	WF002138	2.08	02/24/2000	Eutreptia/eutreptiella spp.	8.33801
WF002	F30	WF002138	2.08	02/24/2000	Guinardia delicatula	30.91021
WF002	F30	WF002138	2.08	02/24/2000	Gymnodinium sp. group 1 5-200 microns wi	293.78593
WF002	F30	WF002138	2.08	02/24/2000	Gymnodinium sp. group 2 21-400 microns w	270.7448
WF002	F30	WF002138	2.08	02/24/2000	Gyrosigma spp.	114.98309
WF002	F30	WF002138	2.08	02/24/2000	Heterocapsa rotundata	2.88592
WF002	F30	WF002138	2.08	02/24/2000	Licmophora spp.	25.01676
WF002	F30	WF002138	2.08	02/24/2000	Pennate diatom sp. group 2 10-30 microns	8.96111
WF002	F30	WF002138	2.08	02/24/2000	Pennate diatom sp. group 5 >100 microns	516.10391
WF002	F30	WF002138	2.08	02/24/2000	Rhizosolenia setigera	955.46178
WF002	F30	WF002138	2.08	02/24/2000	Skeletonema costatum	10.45052

WF002	F30	WF002138	2.08	02/24/2000	Thalassiosira sp. group 3 10-20 microns	3,672.45
WF002	F30	WF002138	2.08	02/24/2000	Thalassiosira sp. group 4 20-30 microns	289.08378
WF002	F30	WF002138	2.08	02/24/2000	Unid. micro-phytoflag sp. group 1 length	6,579.67
WF002	F30	WF002138	2.08	02/24/2000	Unid. micro-phytoflag sp. group 2 length	1,034.77
WF002	F30	WF002137	5.39	02/24/2000	Centric diatom sp. group 1 diam <10 micr	174.16168
WF002	F30	WF002137	5.39	02/24/2000	Chaetoceros sp. group 1 diam <10 microns	3.09509
WF002	F30	WF002137	5.39	02/24/2000	Choanoflagellate spp.	61.0479
WF002	F30	WF002137	5.39	02/24/2000	Cocconeis scutellum	23.04954
WF002	F30	WF002137	5.39	02/24/2000	Cryptomonas sp. group 1 length <10 micro	213.08383
WF002	F30	WF002137	5.39	02/24/2000	Dictyocha speculum	35.89768
WF002	F30	WF002137	5.39	02/24/2000	Eutreptia/eutreptiella spp.	9.11939
WF002	F30	WF002137	5.39	02/24/2000	Guinardia delicatula	236.6482
WF002	F30	WF002137	5.39	02/24/2000	Gymnodinium sp. group 1 5-200 microns wi	963.9521
WF002	F30	WF002137	5.39	02/24/2000	Pennate diatom sp. group 2 10-30 microns	24.50218
WF002	F30	WF002137	5.39	02/24/2000	Pennate diatom sp. group 5 >100 microns	188.15644
WF002	F30	WF002137	5.39	02/24/2000	Pleurosigma spp.	125.75845
WF002	F30	WF002137	5.39	02/24/2000	Rhizosolenia setigera	2,299.00
WF002	F30	WF002137	5.39	02/24/2000	Skeletonema costatum	8.5724
WF002	F30	WF002137	5.39	02/24/2000	Thalassionema nitzschioides	12.47003
WF002	F30	WF002137	5.39	02/24/2000	Thalassiosira sp. group 3 10-20 microns	2,677.74
WF002	F30	WF002137	5.39	02/24/2000	Unid. micro-phytoflag sp. group 1 length	6,043.62
WF002	F30	WF002137	5.39	02/24/2000	Unid. micro-phytoflag sp. group 2 length	1,886.23
WF002	F31	WF002149	2.19	02/25/2000	Centric diatom sp. group 1 diam <10 micr	225.27108
WF002	F31	WF002149	2.19	02/25/2000	Cocconeis scutellum	23.18839
WF002	F31	WF002149	2.19	02/25/2000	Cryptomonas sp. group 1 length <10 micro	97.43976
WF002	F31	WF002149	2.19	02/25/2000	Cylindrotheca closterium	68.98783
WF002	F31	WF002149	2.19	02/25/2000	Gymnodinium sp. group 1 5-200 microns wi	323.25301
WF002	F31	WF002149	2.19	02/25/2000	Gyrosigma spp.	126.51603
WF002	F31	WF002149	2.19	02/25/2000	Pennate diatom sp. group 2 10-30 microns	9.85991
WF002	F31	WF002149	2.19	02/25/2000	Pleurosigma spp.	253.03206
WF002	F31	WF002149	2.19	02/25/2000	Rhizosolenia setigera	1,051.30
WF002	F31	WF002149	2.19	02/25/2000	Thalassiosira sp. group 3 10-20 microns	6,519.48
WF002	F31	WF002149	2.19	02/25/2000	Thalassiosira sp. group 4 20-30 microns	6,838.70
WF002	F31	WF002149	2.19	02/25/2000	Unid. micro-phytoflag sp. group 1 length	8,023.13
WF002	F31	WF002148	6.71	02/25/2000	Centric diatom sp. group 1 diam <10 micr	133.17308
WF002	F31	WF002148	6.71	02/25/2000	Cocconeis scutellum	22.43166
WF002	F31	WF002148	6.71	02/25/2000	Cryptomonas sp. group 1 length <10 micro	113.11189
WF002	F31	WF002148	6.71	02/25/2000	Cylindrotheca closterium	66.73648
WF002	F31	WF002148	6.71	02/25/2000	Guinardia delicatula	32.90064
WF002	F31	WF002148	6.71	02/25/2000	Gymnodinium sp. group 2 21-400 microns w	2,886.64
WF002	F31	WF002148	6.71	02/25/2000	Heterocapsa rotundata	30.76923
WF002	F31	WF002148	6.71	02/25/2000	Pennate diatom sp. group 2 10-30 microns	47.77098
WF002	F31	WF002148	6.71	02/25/2000	Prorocentrum minimum	22.39239
WF002	F31	WF002148	6.71	02/25/2000	Rhizosolenia setigera	610.19264
WF002	F31	WF002148	6.71	02/25/2000	Skeletonema costatum	167.13287
WF002	F31	WF002148	6.71	02/25/2000	Thalassionema nitzschioides	6.06788
WF002	F31	WF002148	6.71	02/25/2000	Thalassiosira sp. group 3 10-20 microns	5,921.23
WF002	F31	WF002148	6.71	02/25/2000	Thalassiosira sp. group 4 20-30 microns	3,769.31
WF002	F31	WF002148	6.71	02/25/2000	Unid. micro-phytoflag sp. group 1 length	4,032.24

WF002	F31	WF002148	6.71	02/25/2000	Unid. micro-phytoflag sp. group 2 length	183.56643
WF002	N04	WF00220B	2.17	02/27/2000	Centric diatom sp. group 1 diam <10 micr	35.88496
WF002	N04	WF00220B	2.17	02/27/2000	Coscinodiscus centralis	915.66184
WF002	N04	WF00220B	2.17	02/27/2000	Cryptomonas sp. group 1 length <10 micro	75.30942
WF002	N04	WF00220B	2.17	02/27/2000	Dictyocha speculum	34.517
WF002	N04	WF00220B	2.17	02/27/2000	Eutreptia/eutreptiella spp.	70.14912
WF002	N04	WF00220B	2.17	02/27/2000	Gymnodinium sp. group 1 5-200 microns wi	1,853.75
WF002	N04	WF00220B	2.17	02/27/2000	Gymnodinium sp. group 2 21-400 microns w	1,423.64
WF002	N04	WF00220B	2.17	02/27/2000	Heterocapsa rotundata	3.03497
WF002	N04	WF00220B	2.17	02/27/2000	Prorocentrum minimum	420.36014
WF002	N04	WF00220B	2.17	02/27/2000	Thalassiosira sp. group 3 10-20 microns	677.96588
WF002	N04	WF00220B	2.17	02/27/2000	Thalassiosira sp. group 4 20-30 microns	342.01575
WF002	N04	WF00220B	2.17	02/27/2000	Unid. micro-phytoflag sp. group 1 length	2,965.50
WF002	N04	WF00220B	2.17	02/27/2000	Unid. micro-phytoflag sp. group 2 length	1,995.05
WF002	N04	WF002209	22.3	02/27/2000	Centric diatom sp. group 1 diam <10 micr	24.62446
WF002	N04	WF002209	22.3	02/27/2000	Ceratium tripos	934.48036
WF002	N04	WF002209	22.3	02/27/2000	Coscinodiscus centralis	1,570.83
WF002	N04	WF002209	22.3	02/27/2000	Cryptomonas sp. group 1 length <10 micro	86.27449
WF002	N04	WF002209	22.3	02/27/2000	Cryptomonas sp. group 2 length >10 micro	61.56114
WF002	N04	WF002209	22.3	02/27/2000	Dictyocha speculum	59.21438
WF002	N04	WF002209	22.3	02/27/2000	Gymnodinium sp. group 1 5-200 microns wi	954.04209
WF002	N04	WF002209	22.3	02/27/2000	Gymnodinium sp. group 2 21-400 microns w	2,935.66
WF002	N04	WF002209	22.3	02/27/2000	Pennate diatom sp. group 2 10-30 microns	4.04171
WF002	N04	WF002209	22.3	02/27/2000	Prorocentrum micans	228.60647
WF002	N04	WF002209	22.3	02/27/2000	Prorocentrum minimum	75.9088
WF002	N04	WF002209	22.3	02/27/2000	Thalassiosira sp. group 3 10-20 microns	516.18942
WF002	N04	WF002209	22.3	02/27/2000	Thalassiosira sp. group 4 20-30 microns	1,043.08
WF002	N04	WF002209	22.3	02/27/2000	Unid. micro-phytoflag sp. group 1 length	2,404.93
WF002	N04	WF002209	22.3	02/27/2000	Unid. micro-phytoflag sp. group 2 length	560.0508
WF002	N16	WF00210A	2	02/24/2000	Centric diatom sp. group 1 diam <10 micr	38.69065
WF002	N16	WF00210A	2	02/24/2000	Cocconeis scutellum	23.93606
WF002	N16	WF00210A	2	02/24/2000	Cryptomonas sp. group 1 length <10 micro	10.05815
WF002	N16	WF00210A	2	02/24/2000	Gymnodinium sp. group 1 5-200 microns wi	500.51359
WF002	N16	WF00210A	2	02/24/2000	Pleurosigma spp.	130.59531
WF002	N16	WF00210A	2	02/24/2000	Prorocentrum minimum	95.57662
WF002	N16	WF00210A	2	02/24/2000	Thalassiosira sp. group 3 10-20 microns	106.95102
WF002	N16	WF00210A	2	02/24/2000	Thalassiosira sp. group 4 20-30 microns	82.08378
WF002	N16	WF00210A	2	02/24/2000	Unid. micro-phytoflag sp. group 1 length	4,626.18
WF002	N16	WF00210A	2	02/24/2000	Unid. micro-phytoflag sp. group 2 length	979.38738
WF002	N16	WF002108	17.8	02/24/2000	Centric diatom sp. group 1 diam <10 micr	58.6121
WF002	N16	WF002108	17.8	02/24/2000	Coscinodiscus centralis	1,794.70
WF002	N16	WF002108	17.8	02/24/2000	Cryptomonas sp. group 1 length <10 micro	9.12684
WF002	N16	WF002108	17.8	02/24/2000	Guinardia delicatula	31.85649
WF002	N16	WF002108	17.8	02/24/2000	Gymnodinium sp. group 1 5-200 microns wi	151.38991
WF002	N16	WF002108	17.8	02/24/2000	Pleurosigma spp.	118.50315
WF002	N16	WF002108	17.8	02/24/2000	Prorocentrum micans	174.12421
WF002	N16	WF002108	17.8	02/24/2000	Thalassiosira rotula	207.06929
WF002	N16	WF002108	17.8	02/24/2000	Thalassiosira sp. group 3 10-20 microns	44.79145
WF002	N16	WF002108	17.8	02/24/2000	Thalassiosira sp. group 4 20-30 microns	148.96686

WF002	N16	WF002108	17.8	02/24/2000	Unid. micro-phytoflag sp. group 1 length	2,319.08
WF002	N16	WF002108	17.8	02/24/2000	Unid. micro-phytoflag sp. group 2 length	177.74067
WF002	N18	WF002243	2.48	02/27/2000	Centric diatom sp. group 1 diam <10 micr	122.55191
WF002	N18	WF002243	2.48	02/27/2000	Cocconeis scutellum	37.84483
WF002	N18	WF002243	2.48	02/27/2000	Cryptomonas sp. group 1 length <10 micro	133.35866
WF002	N18	WF002243	2.48	02/27/2000	Cryptomonas sp. group 2 length >10 micro	183.82787
WF002	N18	WF002243	2.48	02/27/2000	Gymnodinium sp. group 1 5-200 microns wi	4,273.30
WF002	N18	WF002243	2.48	02/27/2000	Heterocapsa rotundata	31.14677
WF002	N18	WF002243	2.48	02/27/2000	Prorocentrum minimum	188.89286
WF002	N18	WF002243	2.48	02/27/2000	Thalassiosira sp. group 3 10-20 microns	2,198.28
WF002	N18	WF002243	2.48	02/27/2000	Thalassiosira sp. group 4 20-30 microns	2,011.61
WF002	N18	WF002243	2.48	02/27/2000	Unid. micro-phytoflag sp. group 1 length	4,572.75
WF002	N18	WF002243	2.48	02/27/2000	Unid. micro-phytoflag sp. group 2 length	3,902.19
WF002	N18	WF002241	9.36	02/27/2000	Centric diatom sp. group 1 diam <10 micr	61.05123
WF002	N18	WF002241	9.36	02/27/2000	Coscinodiscus centralis	1,869.38
WF002	N18	WF002241	9.36	02/27/2000	Cryptomonas sp. group 1 length <10 micro	54.09689
WF002	N18	WF002241	9.36	02/27/2000	Cryptomonas sp. group 2 length >10 micro	61.05123
WF002	N18	WF002241	9.36	02/27/2000	Gymnodinium sp. group 1 5-200 microns wi	788.44978
WF002	N18	WF002241	9.36	02/27/2000	Gymnodinium sp. group 2 21-400 microns w	2,325.16
WF002	N18	WF002241	9.36	02/27/2000	Pleurosigma spp.	246.86925
WF002	N18	WF002241	9.36	02/27/2000	Prorocentrum micans	90.68517
WF002	N18	WF002241	9.36	02/27/2000	Thalassiosira sp. group 3 10-20 microns	326.58805
WF002	N18	WF002241	9.36	02/27/2000	Thalassiosira sp. group 4 20-30 microns	426.70669
WF002	N18	WF002241	9.36	02/27/2000	Unid. micro-phytoflag sp. group 1 length	2,599.05
WF002	N18	WF002241	9.36	02/27/2000	Unid. micro-phytoflag sp. group 2 length	1,666.24
WF004	F01	WF00431C	3.09	04/07/2000	Centric diatom sp. group 1 diam <10 micr	191.48555
WF004	F01	WF00431C	3.09	04/07/2000	Chaetoceros sp. group 2 diam 10-30 micro	868.50819
WF004	F01	WF00431C	3.09	04/07/2000	Cryptomonas sp. group 1 length <10 micro	99.39122
WF004	F01	WF00431C	3.09	04/07/2000	Eutreptia/eutreptiella spp.	15.59676
WF004	F01	WF00431C	3.09	04/07/2000	Guinardia delicatula	1,474.40
WF004	F01	WF00431C	3.09	04/07/2000	Gymnodinium sp. group 1 5-200 microns wi	1,099.09
WF004	F01	WF00431C	3.09	04/07/2000	Gymnodinium sp. group 2 21-400 microns w	5,317.67
WF004	F01	WF00431C	3.09	04/07/2000	Gyrodinium sp. group 2 21-40 microns wid	5,072.97
WF004	F01	WF00431C	3.09	04/07/2000	Heterocapsa rotundata	54.07374
WF004	F01	WF00431C	3.09	04/07/2000	Pennate diatom sp. group 2 10-30 microns	83.95255
WF004	F01	WF00431C	3.09	04/07/2000	Phaeocystis pouchetii	39,255.43
WF004	F01	WF00431C	3.09	04/07/2000	Pleurosigma spp.	215.08301
WF004	F01	WF00431C	3.09	04/07/2000	Prorocentrum minimum	19.67615
WF004	F01	WF00431C	3.09	04/07/2000	Thalassionema nitzschioides	10.66367
WF004	F01	WF00431C	3.09	04/07/2000	Thalassiosira rotula	93.9576
WF004	F01	WF00431C	3.09	04/07/2000	Unid. micro-phytoflag sp. group 1 length	14,598.73
WF004	F01	WF00431C	3.09	04/07/2000	Unid. micro-phytoflag sp. group 2 length	2,258.19
WF004	F01	WF00431A	11.17	04/07/2000	Centric diatom sp. group 1 diam <10 micr	65.88563
WF004	F01	WF00431A	11.17	04/07/2000	Ceratium fusus	390.29899
WF004	F01	WF00431A	11.17	04/07/2000	Cryptomonas sp. group 1 length <10 micro	632.66588
WF004	F01	WF00431A	11.17	04/07/2000	Cryptomonas sp. group 2 length >10 micro	658.85628
WF004	F01	WF00431A	11.17	04/07/2000	Cylindrotheca closterium	20.17705
WF004	F01	WF00431A	11.17	04/07/2000	Guinardia delicatula	2,476.84
WF004	F01	WF00431A	11.17	04/07/2000	Gymnodinium sp. group 1 5-200 microns wi	1,701.77

WF004	F01	WF00431A	11.17	04/07/2000	Gymnodinium sp. group 2 21-400 microns w	18,558.23
WF004	F01	WF00431A	11.17	04/07/2000	Gyrodinium sp. group 2 21-40 microns wid	2,091.07
WF004	F01	WF00431A	11.17	04/07/2000	Phaeocystis pouchetii	66,493.21
WF004	F01	WF00431A	11.17	04/07/2000	Pleurosigma spp.	111.00743
WF004	F01	WF00431A	11.17	04/07/2000	Prorocentrum minimum	20.31029
WF004	F01	WF00431A	11.17	04/07/2000	Protoperidinium bipes	137.58916
WF004	F01	WF00431A	11.17	04/07/2000	Protoperidinium brevipes	187.44145
WF004	F01	WF00431A	11.17	04/07/2000	Unid. micro-phytoflag sp. group 1 length	30,523.44
WF004	F02	WF0042F8	2.6	04/07/2000	Centric diatom sp. group 1 diam <10 micr	161.65518
WF004	F02	WF0042F8	2.6	04/07/2000	Cryptomonas sp. group 1 length <10 micro	215.76256
WF004	F02	WF0042F8	2.6	04/07/2000	Dictyocha speculum	33.31988
WF004	F02	WF0042F8	2.6	04/07/2000	Gymnodinium sp. group 1 5-200 microns wi	894.73099
WF004	F02	WF0042F8	2.6	04/07/2000	Gymnodinium sp. group 2 21-400 microns w	8,520.44
WF004	F02	WF0042F8	2.6	04/07/2000	Heterocapsa rotundata	58.69275
WF004	F02	WF0042F8	2.6	04/07/2000	Phaeocystis pouchetii	7,259.89
WF004	F02	WF0042F8	2.6	04/07/2000	Pleurosigma spp.	116.72777
WF004	F02	WF0042F8	2.6	04/07/2000	Thalassiosira sp. group 3 10-20 microns	22.0602
WF004	F02	WF0042F8	2.6	04/07/2000	Unid. micro-phytoflag sp. group 1 length	21,918.05
WF004	F02	WF0042F8	2.6	04/07/2000	Unid. micro-phytoflag sp. group 2 length	3,851.71
WF004	F02	WF0042F6	14.02	04/07/2000	Calycomonas ovalis	20.59295
WF004	F02	WF0042F6	14.02	04/07/2000	Centric diatom sp. group 1 diam <10 micr	88.78205
WF004	F02	WF0042F6	14.02	04/07/2000	Cryptomonas sp. group 1 length <10 micro	362.90064
WF004	F02	WF0042F6	14.02	04/07/2000	Dictyocha speculum	32.0241
WF004	F02	WF0042F6	14.02	04/07/2000	Dinophysis norvegica	564.59483
WF004	F02	WF0042F6	14.02	04/07/2000	Guinardia delicatula	60.31784
WF004	F02	WF0042F6	14.02	04/07/2000	Gymnodinium sp. group 1 5-200 microns wi	1,433.23
WF004	F02	WF0042F6	14.02	04/07/2000	Gymnodinium sp. group 2 21-400 microns w	2,641.64
WF004	F02	WF0042F6	14.02	04/07/2000	Phaeocystis pouchetii	13,872.06
WF004	F02	WF0042F6	14.02	04/07/2000	Pleurosigma spp.	673.13015
WF004	F02	WF0042F6	14.02	04/07/2000	Prorocentrum minimum	20.52636
WF004	F02	WF0042F6	14.02	04/07/2000	Unid. micro-phytoflag sp. group 1 length	24,956.44
WF004	F02	WF0042F6	14.02	04/07/2000	Unid. micro-phytoflag sp. group 2 length	2,692.31
WF004	F06	WF004084	2.25	03/30/2000	Centric diatom sp. group 1 diam <10 micr	78.45105
WF004	F06	WF004084	2.25	03/30/2000	Chaetoceros socialis	49.99804
WF004	F06	WF004084	2.25	03/30/2000	Choanoflagellate spp.	64.16434
WF004	F06	WF004084	2.25	03/30/2000	Cryptomonas sp. group 1 length <10 micro	285.04196
WF004	F06	WF004084	2.25	03/30/2000	Cylindrotheca closterium	481.31119
WF004	F06	WF004084	2.25	03/30/2000	Dictyocha speculum	188.65109
WF004	F06	WF004084	2.25	03/30/2000	Guinardia delicatula	284.26154
WF004	F06	WF004084	2.25	03/30/2000	Gymnodinium sp. group 1 5-200 microns wi	337.72028
WF004	F06	WF004084	2.25	03/30/2000	Gymnodinium sp. group 2 21-400 microns w	6,535.90
WF004	F06	WF004084	2.25	03/30/2000	Pennate diatom sp. group 2 10-30 microns	25.75299
WF004	F06	WF004084	2.25	03/30/2000	Phaeocystis pouchetii	191,623.85
WF004	F06	WF004084	2.25	03/30/2000	Prorocentrum minimum	2,325.55
WF004 .	F06	WF004084	2.25	03/30/2000	Protoperidinium bipes	81.91478
WF004	F06	WF004084	2.25	03/30/2000	Stephanopyxis turris	1,362.87
WF004	F06	WF004084	2.25	03/30/2000	Thalassionema nitzschioides	19.65993
WF004	F06	WF004084	2.25	03/30/2000	Thalassiosira sp. group 3 10-20 microns	58.28706
WF004	F06	WF004084	2.25	03/30/2000	Unid. micro-phytoflag sp. group 1 length	5,959.23

WF004	F06	WF004084	2.25	03/30/2000	Unid. micro-phytoflag sp. group 2 length	396.5035
WF004	F06	WF004082	10.03	03/30/2000	Centric diatom sp. group 1 diam <10 micr	78.92941
WF004	F06	WF004082	10.03	03/30/2000	Ceratium lineatum	302.22357
WF004	F06	WF004082	10.03	03/30/2000	Ceratium tripos	24,002.84
WF004	F06	WF004082	10.03	03/30/2000	Chaetoceros sp. group 2 diam 10-30 micro	160.82706
WF004	F06	WF004082	10.03	03/30/2000	Choanoflagellate spp.	193.66674
WF004	F06	WF004082	10.03	03/30/2000	Corethron criophilum	482.34052
WF004	F06	WF004082	10.03	03/30/2000	Cryptomonas sp. group 1 length <10 micro	163.8743
WF004	F06	WF004082	10.03	03/30/2000	Dictyocha speculum	75.92056
WF004	F06	WF004082	10.03	03/30/2000	Guinardia delicatula	35.74935
WF004	F06	WF004082	10.03	03/30/2000	Gymnodinium sp. group 1 5-200 microns wi	679.5591
WF004	F06	WF004082	10.03	03/30/2000	Gymnodinium sp. group 2 21-400 microns w	5,636.36
WF004	F06	WF004082	10.03	03/30/2000	Pennate diatom sp. group 2 10-30 microns	5.182
WF004	F06	WF004082	10.03	03/30/2000	Phaeocystis pouchetii	274,418.84
WF004	F06	WF004082	10.03	03/30/2000	Prorocentrum minimum	267.64368
WF004	F06	WF004082	10.03	03/30/2000	Protoperidinium bipes	82.41427
WF004	F06	WF004082	10.03	03/30/2000	Pseudonitzschia delicatissima	19.85566
WF004	F06	WF004082	10.03	03/30/2000	Scrippsiella trochoidea	2,226.46
WF004	F06	WF004082	10.03	03/30/2000	Stephanopyxis turris	457.05947
WF004	F06	WF004082	10.03	03/30/2000	Thalassionema nitzschioides	6.59327
WF004	F06	WF004082	10.03	03/30/2000	Thalassiosira sp. group 3 10-20 microns	125.66243
WF004	F06	WF004082	10.03	03/30/2000	Unid. micro-phytoflag sp. group 1 length	5,863.79
WF004	F06	WF004082	10.03	03/30/2000	Unid. micro-phytoflag sp. group 2 length	398.9212
WF004	F13	WF0040BD	1.76	03/30/2000	Centric diatom sp. group 1 diam <10 micr	74.64072
WF004	F13	WF0040BD	1.76	03/30/2000	Chaetoceros sp. group 2 diam 10-30 micro	405.56905
WF004	F13	WF0040BD	1.76	03/30/2000	Cryptomonas sp. group 1 length <10 micro	251.82635
WF004	F13	WF0040BD	1.76	03/30/2000	Cylindrotheca closterium	68.57473
WF004	F13	WF0040BD	1.76	03/30/2000	Dictyocha speculum	35.89768
WF004	F13	WF0040BD	1.76	03/30/2000	Eutreptia/eutreptiella spp.	337.41726
WF004	F13	WF0040BD	1.76	03/30/2000	Guinardia delicatula	169.03443
WF004	F13	WF0040BD	1.76	03/30/2000	Gymnodinium sp. group 1 5-200 microns wi	963.9521
WF004	F13	WF0040BD	1.76	03/30/2000	Gymnodinium sp. group 2 21-400 microns w	2,072.82
WF004	F13	WF0040BD	1.76	03/30/2000	Gyrodinium spirale	2,606.51
WF004	F13	WF0040BD	1.76	03/30/2000	Pennate diatom sp. group 2 10-30 microns	49.00437
WF004	F13	WF0040BD	1.76	03/30/2000	Phaeocystis pouchetii	134,735.63
WF004	F13	WF0040BD	1.76	03/30/2000	Prorocentrum minimum	460.18374
WF004	F13	WF0040BD	1.76	03/30/2000	Protoperidinium sp. group 2 31-75 micron	826.55826
WF004	F13	WF0040BD	1.76	03/30/2000	Pyramimonas sp. group 1 10-20 microns le	17.82629
WF004	F13	WF0040BD	1.76	03/30/2000	Rhizosolenia setigera	627.00034
WF004	F13	WF0040BD	1.76	03/30/2000	Stephanopyxis turris	3,457.80
WF004	F13	WF0040BD	1.76	03/30/2000	Thalassionema nitzschioides	18.70505
WF004	F13	WF0040BD	1.76	03/30/2000	Thalassiosira sp. group 3 10-20 microns	55.45609
WF004	F13	WF0040BD	1.76	03/30/2000	Unid. micro-phytoflag sp. group 1 length	6,105.93
WF004	F13	WF0040BB	9.59	03/30/2000	Centric diatom sp. group 1 diam <10 micr	25.83717
WF004	F13	WF0040BB	9.59	03/30/2000	Ceratium tripos	1,176.60
WF004	F13	WF0040BB	9.59	03/30/2000	Corethron criophilum	473.67572
WF004	F13	WF0040BB	9.59	03/30/2000	Coscinodiscus sp. group 2 diam 40-100 mi	403.81992
WF004	F13	WF0040BB	9.59	03/30/2000	Cryptomonas sp. group 1 length <10 micro	261.51198
WF004	F13	WF0040BB	9.59	03/30/2000	Cryptomonas sp. group 2 length >10 micro	516.74344

WF004	F13	WF0040BB	9.59	03/30/2000	Eutreptia/eutreptiella spp.	198.87275
WF004	F13	WF0040BB	9.59	03/30/2000	Guinardia delicatula	70.2143
WF004	F13	WF0040BB	9.59	03/30/2000	Gymnodinium sp. group 1 5-200 microns wi	667.35145
WF004	F13	WF0040BB	9.59	03/30/2000	Gymnodinium sp. group 2 21-400 microns w	1,537.53
WF004	F13	WF0040BB	9.59	03/30/2000	Gyrodinium spirale	27,113.17
WF004	F13	WF0040BB	9.59	03/30/2000	Heterocapsa triquetra	58.65832
WF004	F13	WF0040BB	9.59	03/30/2000	Licmophora spp.	14.20675
WF004	F13	WF0040BB	9.59	03/30/2000	Pennate diatom sp. group 2 10-30 microns	101.94956
WF004	F13	WF0040BB	9.59	03/30/2000	Pennate diatom sp. group 3 31-60 microns	14.55129
WF004	F13	WF0040BB	9.59	03/30/2000	Phaeocystis pouchetii	194,260.40
WF004	F13	WF0040BB	9.59	03/30/2000	Prorocentrum minimum	71.68247
WF004	F13	WF0040BB	9.59	03/30/2000	Protoperidinium bipes	1,621.40
WF004	F13	WF0040BB	9.59	03/30/2000	Stephanopyxis turris	4,039.64
WF004	F13	WF0040BB	9.59	03/30/2000	Thalassiosira sp. group 3 10-20 microns	131.63203
WF004	F13	WF0040BB	9.59	03/30/2000	Unid. micro-phytoflag sp. group 1 length	10,805.19
WF004	F13	WF0040BB	9.59	03/30/2000	Unid. micro-phytoflag sp. group 2 length	1,175.26
WF004	F22	WF0041FB	1.38	04/03/2000	Ceratium fusus	971.59537
WF004	F22	WF0041FB	1.38	04/03/2000	Chaetoceros sp. group 2 diam 10-30 micro	111.39808
WF004	F22	WF0041FB	1.38	04/03/2000	Cryptomonas sp. group 1 length <10 micro	14.1886
WF004	F22	WF0041FB	1.38	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	235.35088
WF004	F22	WF0041FB	1.38	04/03/2000	Gymnodinium sp. group 2 21-400 microns w	1,735.14
WF004	F22	WF0041FB	1.38	04/03/2000	Heterocapsa rotundata	46.31579
WF004	F22	WF0041FB	1.38	04/03/2000	Pennate diatom sp. group 2 10-30 microns	7.17871
WF004	F22	WF0041FB	1.38	04/03/2000	Phaeocystis pouchetii	49,923.68
WF004	F22	WF0041FB	1.38	04/03/2000	Prorocentrum minimum	185.38542
WF004	F22	WF0041FB	1.38	04/03/2000	Thalassionema nitzschioides	22.83438
WF004	F22	WF0041FB	1.38	04/03/2000	Thalassiothrix longissima	109.46493
WF004	F22	WF0041FB	1.38	04/03/2000	Unid. micro-phytoflag sp. group 1 length	3,696.51
WF004	F22	WF0041F9	17.59	04/03/2000	Centric diatom sp. group 1 diam <10 micr	67.28745
WF004	F22	WF0041F9	17.59	04/03/2000	Ceratium macroceros	395.99224
WF004	F22	WF0041F9	17.59	04/03/2000	Chaetoceros debilis	169.26983
WF004	F22	WF0041F9	17.59	04/03/2000	Cryptomonas sp. group 1 length <10 micro	157.16599
WF004	F22	WF0041F9	17.59	04/03/2000	Cylindrotheca closterium	103.03176
WF004	F22	WF0041F9	17.59	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	868.98785
WF004	F22	WF0041F9	17.59	04/03/2000	Gymnodinium sp. group 2 21-400 microns w	10,944.74
WF004	F22	WF0041F9	17.59	04/03/2000	Gyrodinium spirale	7,049.19
WF004	F22	WF0041F9	17.59	04/03/2000	Pennate diatom sp. group 2 10-30 microns	13.253
WF004	F22	WF0041F9	17.59	04/03/2000	Phaeocystis pouchetii	232,683.40
WF004	F22	WF0041F9	17.59	04/03/2000	Prorocentrum minimum	62.22727
WF004	F22	WF0041F9	17.59	04/03/2000	Thalassionema nitzschioides	61.82849
WF004	F22	WF0041F9	17.59	04/03/2000	Thalassiosira sp. group 3 10-20 microns	185.68754
WF004	F22	WF0041F9	17.59	04/03/2000	Unid. micro-phytoflag sp. group 1 length	4,886.56
WF004	F22	WF0041F9	17.59	04/03/2000	Unid. micro-phytoflag sp. group 2 length	340.08097
WF004	F23	WF0040FB	2.49	04/01/2000	Centric diatom sp. group 1 diam <10 micr	268.41951
WF004	F23	WF0040FB	2.49	04/01/2000	Chaetoceros debilis	1,227.71
WF004	F23	WF0040FB	2.49	04/01/2000	Chaetoceros socialis	373.23884
WF004	F23	WF0040FB	2.49	04/01/2000	Chaetoceros sp. group 2 diam 10-30 micro	994.42411
WF004	F23	WF0040FB	2.49	04/01/2000	Cryptomonas sp. group 1 length <10 micro	284.981
WF004	F23	WF0040FB	2.49	04/01/2000	Cryptomonas sp. group 2 length >10 micro	122.00887

WF004	F23	WF0040FB	2.49	04/01/2000	Cylindrotheca closterium	112.09331
WF004	F23	WF0040FB	2.49	04/01/2000	Gymnodinium sp. group 1 5-200 microns wi	945.41456
WF004	F23	WF0040FB	2.49	04/01/2000	Gyrodinium spirale	25,563.87
WF004	F23	WF0040FB	2.49	04/01/2000	Heterocapsa rotundata	62.0175
WF004	F23	WF0040FB	2.49	04/01/2000	Pennate diatom sp. group 2 10-30 microns	120.15494
WF004	F23	WF0040FB	2.49	04/01/2000	Phaeocystis pouchetii	196,801.33
WF004	F23	WF0040FB	2.49	04/01/2000	Protoperidinium bipes	382.18725
WF004	F23	WF0040FB	2.49	04/01/2000	Rhizosolenia setigera	1,024.90
WF004	F23	WF0040FB	2.49	04/01/2000	Stephanopyxis turris	19,076.08
WF004	F23	WF0040FB	2.49	04/01/2000	Thalassionema nitzschioides	30.57557
WF004	F23	WF0040FB	2.49	04/01/2000	Thalassiosira nordenskioldii	419.84972
WF004	F23	WF0040FB	2.49	04/01/2000	Thalassiosira rotula	14,008.87
WF004	F23	WF0040FB	2.49	04/01/2000	Thalassiosira sp. group 3 10-20 microns	5,827.46
WF004	F23	WF0040FB	2.49	04/01/2000	Unid. micro-phytoflag sp. group 1 length	6,477.36
WF004	F23	WF0040F9	12.39	04/01/2000	Centric diatom sp. group 1 diam <10 micr	536.83901
WF004	F23	WF0040F9	12.39	04/01/2000	Chaetoceros debilis	306.92826
WF004	F23	WF0040F9	12.39	04/01/2000	Chaetoceros socialis	886.44223
WF004	F23	WF0040F9	12.39	04/01/2000	Chaetoceros sp. group 2 diam 10-30 micro	745.81808
WF004	F23	WF0040F9	12.39	04/01/2000	Corethron criophilum	2,236.80
WF004	F23	WF0040F9	12.39	04/01/2000	Cryptomonas sp. group 1 length <10 micro	398.9734
WF004	F23	WF0040F9	12.39	04/01/2000	Cryptomonas sp. group 2 length >10 micro	122.00887
WF004	F23	WF0040F9	12.39	04/01/2000	Dictyocha speculum	176.0367
WF004	F23	WF0040F9	12.39	04/01/2000	Gymnodinium sp. group 1 5-200 microns wi	945.41456
WF004	F23	WF0040F9	12.39	04/01/2000	Gymnodinium sp. group 2 21-400 microns w	1,452.11
WF004	F23	WF0040F9	12.39	04/01/2000	Gyrodinium spirale	12,781.94
WF004	F23	WF0040F9	12.39	04/01/2000	Pennate diatom sp. group 2 10-30 microns	48.06198
WF004	F23	WF0040F9	12.39	04/01/2000	Phaeocystis pouchetii	307,028.34
WF004	F23	WF0040F9	12.39	04/01/2000	Prorocentrum minimum	225.66702
WF004	F23	WF0040F9	12.39	04/01/2000	Rhizosolenia setigera	1,024.90
WF004	F23	WF0040F9	12.39	04/01/2000	Skeletonema costatum	224.57854
WF004	F23	WF0040F9	12.39	04/01/2000	Stephanopyxis turris	42,391.28
WF004	F23	WF0040F9	12.39	04/01/2000	Thalassionema nitzschioides	152.87783
WF004	F23	WF0040F9	12.39	04/01/2000	Thalassiosira nordenskioldii	89.9678
WF004	F23	WF0040F9	12.39	04/01/2000	Thalassiosira rotula	7,004.44
WF004	F23	WF0040F9	12.39	04/01/2000	Thalassiosira sp. group 3 10-20 microns	3,613.02
WF004	F23	WF0040F9	12.39	04/01/2000	Unid. micro-phytoflag sp. group 1 length	4,827.47
WF004	F23	WF0040F9	12.39	04/01/2000	Unid. micro-phytoflag sp. group 2 length	1,479.96
WF004	F24	WF0041C3	1.7	04/03/2000	Centric diatom sp. group 1 diam <10 micr	162.17171
WF004	F24	WF0041C3	1.7	04/03/2000	Chaetoceros debilis	679.93803
WF004	F24	WF0041C3	1.7	04/03/2000	Chaetoceros socialis	221.47388
WF004	F24	WF0041C3	1.7	04/03/2000	Chaetoceros sp. group 2 diam 10-30 micro	1,891.42
WF004	F24	WF0041C3	1.7	04/03/2000	Cryptomonas sp. group 1 length <10 micro	450.94162
WF004	F24	WF0041C3	1.7	04/03/2000	Cryptomonas sp. group 2 length >10 micro	115.83694
WF004	F24	WF0041C3	1.7	04/03/2000	Dictyocha speculum	167.13172
WF004	F24	WF0041C3	1.7	04/03/2000	Ditylum brightwellii	2,411.19
WF004	F24	WF0041C3	1.7	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	224.02052
WF004	F24	WF0041C3	1.7	04/03/2000	Gyrodinium spirale	18,203.02
WF004	F24	WF0041C3	1.7	04/03/2000	Heterocapsa rotundata	117.76058
WF004	F24	WF0041C3	1.7	04/03/2000	Pennate diatom sp. group 2 10-30 microns	22.81536

WF004	F24	WF0041C3	1.7	04/03/2000	Phaeocystis pouchetii	353,750.11
WF004	F24	WF0041C3	1.7	04/03/2000	Prorocentrum minimum	107.12573
WF004	F24	WF0041C3	1.7	04/03/2000	Rhizosolenia setigera	973.05868
WF004	F24	WF0041C3	1.7	04/03/2000	Stephanopyxis turris	8,049.38
WF004	F24	WF0041C3	1.7	04/03/2000	Thalassionema nitzschioides	29.02887
WF004	F24	WF0041C3	1.7	04/03/2000	Thalassiosira nordenskioldii	540.97239
WF004	F24	WF0041C3	1.7	04/03/2000	Thalassiosira rotula	7,673.20
WF004	F24	WF0041C3	1.7	04/03/2000	Thalassiosira sp. group 3 10-20 microns	4,573.68
WF004	F24	WF0041C3	1.7	04/03/2000	Unid. micro-phytoflag sp. group 1 length	4,873.35
WF004	F24	WF0041C3	1.7	04/03/2000	Unid. micro-phytoflag sp. group 2 length	2,458.92
WF004	F24	WF0041C1	11.02	04/03/2000	Calycomonas wulffii	21.88953
WF004	F24	WF0041C1	11.02	04/03/2000	Centric diatom sp. group 1 diam <10 micr	265.72674
WF004	F24	WF0041C1	11.02	04/03/2000	Chaetoceros sp. group 2 diam 10-30 micro	3,944.42
WF004	F24	WF0041C1	11.02	04/03/2000	Cryptomonas sp. group 1 length <10 micro	188.0814
WF004	F24	WF0041C1	11.02	04/03/2000	Cyanophyceae (nostoc-like 4um diam)	17.44186
WF004	F24	WF0041C1	11.02	04/03/2000	Cylindrotheca closterium	73.9792
WF004	F24	WF0041C1	11.02	04/03/2000	Dictyocha speculum	116.18047
WF004	F24	WF0041C1	11.02	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	570.99655
WF004	F24	WF0041C1	11.02	04/03/2000	Gyrodinium spirale	4,217.90
WF004	F24	WF0041C1	11.02	04/03/2000	Heterocapsa rotundata	61.39535
WF004	F24	WF0041C1	11.02	04/03/2000	Pennate diatom sp. group 1 <10 microns l	18.69186
WF004	F24	WF0041C1	11.02	04/03/2000	Phaeocystis pouchetii	263,174.71
WF004	F24	WF0041C1	11.02	04/03/2000	Pseudonitzschia delicatissima	60.87209
WF004	F24	WF0041C1	11.02	04/03/2000	Stephanopyxis turris	11,190.94
WF004	F24	WF0041C1	11.02	04/03/2000	Thalassiosira anguste-lineata	910.15454
WF004	F24	WF0041C1	11.02	04/03/2000	Thalassiosira nordenskioldii	118.75366
WF004	F24	WF0041C1	11.02	04/03/2000	Thalassiosira rotula	1,066.80
WF004	F24	WF0041C1	11.02	04/03/2000	Thalassiosira sp. group 3 10-20 microns	2,743.48
WF004	F24	WF0041C1	11.02	04/03/2000	Unid. micro-phytoflag sp. group 1 length	5,323.49
WF004	F24	WF0041C1	11.02	04/03/2000	Unid. micro-phytoflag sp. group 2 length	366.27907
WF004	F25	WF0042AA	2.85	04/07/2000	Centric diatom sp. group 1 diam <10 micr	295.45284
WF004	F25	WF0042AA	2.85	04/07/2000	Ceratium fusus	807.79808
WF004	F25	WF0042AA	2.85	04/07/2000	Chaetoceros debilis	57.17291
WF004	F25	WF0042AA	2.85	04/07/2000	Cocconeis scutellum	21.05487
WF004	F25	WF0042AA	2.85	04/07/2000	Cryptomonas sp. group 1 length <10 micro	1,008.61
WF004	F25	WF0042AA	2.85	04/07/2000	Cryptomonas sp. group 2 length >10 micro	1,136.36
WF004	F25	WF0042AA	2.85	04/07/2000	Cyanophyceae (nostoc-like 4um diam)	41.02372
WF004	F25	WF0042AA	2.85	04/07/2000	Cylindrotheca closterium	20.88013
WF004	F25	WF0042AA	2.85	04/07/2000	Guinardia delicatula	92.64387
WF004	F25	WF0042AA	2.85	04/07/2000	Gymnodinium sp. group 1 5-200 microns wi	2,641.60
WF004	F25	WF0042AA	2.85	04/07/2000	Gymnodinium sp. group 2 21-400 microns w	5,139.34
WF004	F25	WF0042AA	2.85	04/07/2000	Gyrodinium spirale	1,190.47
WF004	F25	WF0042AA	2.85	04/07/2000	Heterocapsa rotundata	173.2842
WF004	F25	WF0042AA	2.85	04/07/2000	Licmophora spp.	12.49668
WF004	F25	WF0042AA	2.85	04/07/2000	Pennate diatom sp. group 2 10-30 microns	179.35571
WF004	F25	WF0042AA	2.85	04/07/2000	Phaeocystis pouchetii	163,647.46
WF004	F25	WF0042AA	2.85	04/07/2000	Protoperidinium brevipes	3,885.99
WF004	F25	WF0042AA	2.85	04/07/2000	Pseudonitzschia delicatissima	2.85865
WF004	F25	WF0042AA	2.85	04/07/2000	Scrippsiella trochoidea	96.00216

WF004	F25	WF0042AA	2.85	04/07/2000	Stephanopyxis turris	3,158.57
WF004	F25	WF0042AA	2.85	04/07/2000	Thalassionema nitzschioides	22.78179
WF004	F25	WF0042AA	2.85	04/07/2000	Thalassiosira rotula	1,104.02
WF004	F25	WF0042AA	2.85	04/07/2000	Thalassiosira sp. group 3 10-20 microns	28.94686
WF004	F25	WF0042AA	2.85	04/07/2000	Unid. micro-phytoflag sp. group 1 length	10,756.67
WF004	F25	WF0042AA	2.85	04/07/2000	Unid. micro-phytoflag sp. group 2 length	344.59926
WF004	F25	WF0042A8	8.03	04/07/2000	Calycomonas wulffii	21.94056
WF004	F25	WF0042A8	8.03	04/07/2000	Centric diatom sp. group 1 diam <10 micr	217.91958
WF004	F25	WF0042A8	8.03	04/07/2000	Coscinodiscus sp. group 2 diam 40-100 mi	378.43954
WF004	F25	WF0042A8	8.03	04/07/2000	Cryptomonas sp. group 1 length <10 micro	603.2634
WF004	F25	WF0042A8	8.03	04/07/2000	Cryptomonas sp. group 2 length >10 micro	121.06643
WF004	F25	WF0042A8	8.03	04/07/2000	Guinardia delicatula	659.12005
WF004	F25	WF0042A8	8.03	04/07/2000	Gymnodinium sp. group 2 21-400 microns w	6,051.76
WF004	F25	WF0042A8	8.03	04/07/2000	Gyrodinium spirale	3,804.96
WF004	F25	WF0042A8	8.03	04/07/2000	Pennate diatom sp. group 3 31-60 microns	273.19347
WF004	F25	WF0042A8	8.03	04/07/2000	Phaeocystis pouchetii	358,030.59
WF004	F25	WF0042A8	8.03	04/07/2000	Prorocentrum minimum	22.39239
WF004	F25	WF0042A8	8.03	04/07/2000	Pseudonitzschia delicatissima	15.22787
WF004	F25	WF0042A8	8.03	04/07/2000	Rhizosolenia setigera	203.39755
WF004	F25	WF0042A8	8.03	04/07/2000	Stephanopyxis turris	3,365.11
WF004	F25	WF0042A8	8.03	04/07/2000	Thalassionema nitzschioides	18.20363
WF004	F25	WF0042A8	8.03	04/07/2000	Thalassiosira rotula	3,421.70
WF004	F25	WF0042A8	8.03	04/07/2000	Thalassiosira sp. group 3 10-20 microns	254.42765
WF004	F25	WF0042A8	8.03	04/07/2000	Unid. micro-phytoflag sp. group 1 length	21,040.41
WF004	F25	WF0042A8	8.03	04/07/2000	Unid. micro-phytoflag sp. group 2 length	1,468.53
WF004	F26	WF004208	1.52	04/03/2000	Centric diatom sp. group 1 diam <10 micr	95.03357
WF004	F26	WF004208	1.52	04/03/2000	Chaetoceros debilis	398.44765
WF004	F26	WF004208	1.52	04/03/2000	Chaetoceros decipiens	850.33752
WF004	F26	WF004208	1.52	04/03/2000	Cryptomonas sp. group 1 length <10 micro	271.30121
WF004	F26	WF004208	1.52	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	1,227.32
WF004	F26	WF004208	1.52	04/03/2000	Gymnodinium sp. group 2 21-400 microns w	377.02015
WF004	F26	WF004208	1.52	04/03/2000	Gyrodinium spirale	9,955.94
WF004	F26	WF004208	1.52	04/03/2000	Phaeocystis pouchetii	100,533.55
WF004	F26	WF004208	1.52	04/03/2000	Protoperidinium sp. group 2 31-75 micron	2,104.77
WF004	F26	WF004208	1.52	04/03/2000	Rhizosolenia setigera	266.10176
WF004	F26	WF004208	1.52	04/03/2000	Thalassiosira rotula	419.67726
WF004	F26	WF004208	1.52	04/03/2000	Unid. micro-phytoflag sp. group 1 length	5,156.32
WF004	F26	WF004208	1.52	04/03/2000	Unid. micro-phytoflag sp. group 2 length	480.31406
WF004	F26	WF004206	17.17	04/03/2000	Centric diatom sp. group 1 diam <10 micr	160.27497
WF004	F26	WF004206	17.17	04/03/2000	Chaetoceros borealis	323.20909
WF004	F26	WF004206	17.17	04/03/2000	Chaetoceros debilis	1,007.98
WF004	F26	WF004206	17.17	04/03/2000	Cylindrotheca closterium	168.2852
WF004	F26	WF004206	17.17	04/03/2000	Guinardia delicatula	93.33392
WF004	F26	WF004206	17.17	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	295.69726
WF004	F26	WF004206	17.17	04/03/2000	Gymnodinium sp. group 2 21-400 microns w	272.50623
WF004	F26	WF004206	17.17	04/03/2000	Gyrodinium spirale	24,027.19
WF004	F26	WF004206	17.17	04/03/2000	Pennate diatom sp. group 2 10-30 microns	13.52911
WF004	F26	WF004206	17.17	04/03/2000	Phaeocystis pouchetii	183,460.97
WF004	F26	WF004206	17.17	04/03/2000	Protoperidinium sp. group 2 31-75 micron	760.65297

WF004	F26	WF004206	17.17	04/03/2000	Rhizosolenia setigera	769.3423
WF004	F26	WF004206	17.17	04/03/2000	Thalassionema nitzschioides	17.21361
WF004	F26	WF004206	17.17	04/03/2000	Thalassiosira rotula	2,123.37
WF004	F26	WF004206	17.17	04/03/2000	Thalassiosira sp. group 3 10-20 microns	787.38661
WF004	F26	WF004206	17.17	04/03/2000	Unid. micro-phytoflag sp. group 1 length	4,070.96
WF004	F27	WF004214	1.19	04/03/2000	Centric diatom sp. group 1 diam <10 micr	213.38484
WF004	F27	WF004214	1.19	04/03/2000	Chaetoceros debilis	2,044.94
WF004	F27	WF004214	1.19	04/03/2000	Chaetoceros sp. group 2 diam 10-30 micro	414.08979
WF004	F27	WF004214	1.19	04/03/2000	Cryptomonas sp. group 1 length <10 micro	498.41152
WF004	F27	WF004214	1.19	04/03/2000	Cryptomonas sp. group 2 length >10 micro	152.41774
WF004	F27	WF004214	1.19	04/03/2000	Cylindrotheca closterium	140.03088
WF004	F27	WF004214	1.19	04/03/2000	Dictyocha speculum	73.30373
WF004	F27	WF004214	1.19	04/03/2000	Eutreptia/eutreptiella spp.	93.10978
WF004	F27	WF004214	1.19	04/03/2000	Gymnodinium sp. group 2 21-400 microns w	1,209.35
WF004	F27	WF004214	1.19	04/03/2000	Pennate diatom sp. group 1 <10 microns l	70.76145
WF004	F27	WF004214	1.19	04/03/2000	Phaeocystis pouchetii	140,893.79
WF004	F27	WF004214	1.19	04/03/2000	Prorocentrum minimum	46.98519
WF004	F27	WF004214	1.19	04/03/2000	Rhizosolenia setigera	1,707.13
WF004	F27	WF004214	1.19	04/03/2000	Thalassionema nitzschioides	50.92809
WF004	F27	WF004214	1.19	04/03/2000	Thalassiosira anguste-lineata	2,300.90
WF004	F27	WF004214	1.19	04/03/2000	Thalassiosira rotula	1,121.82
WF004	F27	WF004214	1.19	04/03/2000	Thalassiosira sp. group 3 10-20 microns	1,310.38
WF004	F27	WF004214	1.19	04/03/2000	Unid. micro-phytoflag sp. group 1 length	7,939.08
WF004	F27	WF004212	12.48	04/03/2000	Centric diatom sp. group 1 diam <10 micr	269.73321
WF004	F27	WF004212	12.48	04/03/2000	Chaetoceros debilis	678.54696
WF004	F27	WF004212	12.48	04/03/2000	Cryptomonas sp. group 1 length <10 micro	236.26
WF004	F27	WF004212	12.48	04/03/2000	Cryptomonas sp. group 2 length >10 micro	168.58326
WF004	F27	WF004212	12.48	04/03/2000	Cylindrotheca closterium	185.85917
WF004	F27	WF004212	12.48	04/03/2000	Odontella sinensis	31,925.19
WF004	F27	WF004212	12.48	04/03/2000	Pennate diatom sp. group 3 31-60 microns	37.97789
WF004	F27	WF004212	12.48	04/03/2000	Phaeocystis pouchetii	221,452.67
WF004	F27	WF004212	12.48	04/03/2000	Rhizosolenia setigera	3,965.19
WF004	F27	WF004212	12.48	04/03/2000	Thalassionema nitzschioides	101.39319
WF004	F27	WF004212	12.48	04/03/2000	Thalassiosira rotula	6,253.63
WF004	F27	WF004212	12.48	04/03/2000	Thalassiosira sp. group 3 10-20 microns	1,846.59
WF004	F27	WF004212	12.48	04/03/2000	Unid. micro-phytoflag sp. group 1 length	4,559.42
WF004	F30	WF004263	1.53	04/03/2000	Centric diatom sp. group 1 diam <10 micr	67.98836
WF004	F30	WF004263	1.53	04/03/2000	Chaetoceros debilis	1,142.14
WF004	F30	WF004263	1.53	04/03/2000	Chaetoceros sp. group 2 diam 10-30 micro	925.11077
WF004	F30	WF004263	1.53	04/03/2000	Coscinodiscus sp. group 2 diam 40-100 mi	3,542.06
WF004	F30	WF004263	1.53	04/03/2000	Cryptomonas sp. group 1 length <10 micro	1,693.90
WF004	F30	WF004263	1.53	04/03/2000	Cryptomonas sp. group 2 length >10 micro	3,059.48
WF004	F30	WF004263	1.53	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	1,756.08
WF004	F30	WF004263	1.53	04/03/2000	Gymnodinium sp. group 2 21-400 microns w	13,486.28
WF004	F30	WF004263	1.53	04/03/2000	Gyrodinium spirale	35,613.10
WF004	F30	WF004263	1.53	04/03/2000	Heterocapsa rotundata	5,529.39
WF004	F30	WF004263	1.53	04/03/2000	Pennate diatom sp. group 3 31-60 microns	767.09852
WF004	F30	WF004263	1.53	04/03/2000	Phaeocystis pouchetii	202,623.04
WF004	F30	WF004263	1.53	04/03/2000	Prorocentrum minimum	628.75475

WF004	F30	WF004263	1.53	04/03/2000	Thalassionema nitzschioides	113.58642
WF004	F30	WF004263	1.53	04/03/2000	Thalassiosira nordenskioldii	724.15428
WF004	F30	WF004263	1.53	04/03/2000	Thalassiosira rotula	24,019.44
WF004	F30	WF004263	1.53	04/03/2000	Thalassiosira sp. group 3 10-20 microns	9,814.06
WF004	F30	WF004263	1.53	04/03/2000	Unid. micro-phytoflag sp. group 1 length	6,299.52
WF004	F30	WF004263	1.53	04/03/2000	Unid. micro-phytoflag sp. group 2 length	1,374.49
WF004	F30	WF004262	5.12	04/03/2000	Centric diatom sp. group 1 diam <10 micr	401.88325
WF004	F30	WF004262	5.12	04/03/2000	Chaetoceros debilis	594.69799
WF004	F30	WF004262	5.12	04/03/2000	Chaetoceros sp. group 2 diam 10-30 micro	5,790.05
WF004	F30	WF004262	5.12	04/03/2000	Cryptomonas sp. group 1 length <10 micro	1,656.52
WF004	F30	WF004262	5.12	04/03/2000	Cryptomonas sp. group 2 length >10 micro	5,319.04
WF004	F30	WF004262	5.12	04/03/2000	Eutreptia/eutreptiella spp.	86.64869
WF004	F30	WF004262	5.12	04/03/2000	Gymnodinium sp. group 2 21-400 microns w	8,440.75
WF004	F30	WF004262	5.12	04/03/2000	Gyrodinium spirale	12,383.01
WF004	F30	WF004262	5.12	04/03/2000	Heterocapsa rotundata	6,789.26
WF004	F30	WF004262	5.12	04/03/2000	Pennate diatom sp. group 3 31-60 microns	266.72736
WF004	F30	WF004262	5.12	04/03/2000	Phaeocystis pouchetii	381,229.80
WF004	F30	WF004262	5.12	04/03/2000	Scenedesmus spp.	1,108.10
WF004	F30	WF004262	5.12	04/03/2000	Scrippsiella trochoidea	998.58994
WF004	F30	WF004262	5.12	04/03/2000	Stephanopyxis turris	41,068.24
WF004	F30	WF004262	5.12	04/03/2000	Thalassiosira nordenskioldii	406.74616
WF004	F30	WF004262	5.12	04/03/2000	Thalassiosira rotula	30,275.23
WF004	F30	WF004262	5.12	04/03/2000	Thalassiosira sp. group 3 10-20 microns	11,968.64
WF004	F30	WF004262	5.12	04/03/2000	Thalassiothrix longissima	1,420.00
WF004	F30	WF004262	5.12	04/03/2000	Unid. micro-phytoflag sp. group 1 length	7,873.61
WF004	F30	WF004262	5.12	04/03/2000	Unid. micro-phytoflag sp. group 2 length	1,792.22
WF004	F31	WF0041B6	1.97	04/03/2000	Calycomonas wulffii	20.44344
WF004	F31	WF0041B6	1.97	04/03/2000	Centric diatom sp. group 1 diam <10 micr	270.73303
WF004	F31	WF0041B6	1.97	04/03/2000	Chaetoceros debilis	283.77589
WF004	F31	WF0041B6	1.97	04/03/2000	Cryptomonas sp. group 1 length <10 micro	966.1086
WF004	F31	WF0041B6	1.97	04/03/2000	Cryptomonas sp. group 2 length >10 micro	564.02715
WF004	F31	WF0041B6	1.97	04/03/2000	Dictyocha speculum	162.7578
WF004	F31	WF0041B6	1.97	04/03/2000	Eutreptia/eutreptiella spp.	41.34672
WF004	F31	WF0041B6	1.97	04/03/2000	Guinardia delicatula	153.27828
WF004	F31	WF0041B6	1.97	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	582.73303
WF004	F31	WF0041B6	1.97	04/03/2000	Heterocapsa rotundata	229.35747
WF004	F31	WF0041B6	1.97	04/03/2000	Phaeocystis pouchetii	185,333.48
WF004	F31	WF0041B6	1.97	04/03/2000	Prorocentrum minimum	417.99095
WF004	F31	WF0041B6	1.97	04/03/2000	Skeletonema costatum	51.8223
WF004	F31	WF0041B6	1.97	04/03/2000	Stephanopyxis turris	7,838.72
WF004	F31	WF0041B6	1.97	04/03/2000	Thalassiosira nordenskioldii	69.31775
WF004	F31	WF0041B6	1.97	04/03/2000	Thalassiosira rotula	5,479.75
WF004	F31	WF0041B6	1.97	04/03/2000	Thalassiosira sp. group 3 10-20 microns	2,873.54
WF004	F31	WF0041B6	1.97	04/03/2000	Unid. micro-phytoflag sp. group 1 length	8,870.14
WF004	F31	WF0041B6	1.97	04/03/2000	Unid. micro-phytoflag sp. group 2 length	2,736.65
WF004	F31	WF0041B5	6.58	04/03/2000	Centric diatom sp. group 1 diam <10 micr	314.83072
WF004	F31	WF0041B5	6.58	04/03/2000	Chaetoceros debilis	282.85546
WF004	F31	WF0041B5	6.58	04/03/2000	Cocconeis scutellum	417.36585
WF004	F31	WF0041B5	6.58	04/03/2000	Cryptomonas sp. group 1 length <10 micro	910.4491

WF004	F31	WF0041B5	6.58	04/03/2000	Cryptomonas sp. group 2 length >10 micro	562.19772
WF004	F31	WF0041B5	6.58	04/03/2000	Eutreptia/eutreptiella spp.	41.21261
WF004	F31	WF0041B5	6.58	04/03/2000	Grammatophora marina	65.18913
WF004	F31	WF0041B5	6.58	04/03/2000	Gyrodinium sp. group 2 21-40 microns wid	1,338.22
WF004	F31	WF0041B5	6.58	04/03/2000	Pennate diatom sp. group 3 31-60 microns	126.65008
WF004	F31	WF0041B5	6.58	04/03/2000	Phaeocystis pouchetii	309,626.57
WF004	F31	WF0041B5	6.58	04/03/2000	Pseudonitzschia delicatissima	14.14277
WF004	F31	WF0041B5	6.58	04/03/2000	Stephanopyxis turris	27,346.53
WF004	F31	WF0041B5	6.58	04/03/2000	Thalassiosira nordenskioldii	96.73008
WF004	F31	WF0041B5	6.58	04/03/2000	Thalassiosira rotula	5,958.52
WF004	F31	WF0041B5	6.58	04/03/2000	Thalassiosira sp. group 3 10-20 microns	2,792.61
WF004	F31	WF0041B5	6.58	04/03/2000	Unid. micro-phytoflag sp. group 1 length	7,489.83
WF004	F31	WF0041B5	6.58	04/03/2000	Unid. micro-phytoflag sp. group 2 length	340.9719
WF004	N04	WF004124	1.62	04/01/2000	Centric diatom sp. group 1 diam <10 micr	78.45105
WF004	N04	WF004124	1.62	04/01/2000	Ceratium macroceros	461.69095
WF004	N04	WF004124	1.62	04/01/2000	Corethron criophilum	479.41724
WF004	N04	WF004124	1.62	04/01/2000	Cryptomonas sp. group 1 length <10 micro	285.04196
WF004	N04	WF004124	1.62	04/01/2000	Cryptomonas sp. group 2 length >10 micro	130.75175
WF004	N04	WF004124	1.62	04/01/2000	Eutreptia/eutreptiella spp.	19.16984
WF004	N04	WF004124	1.62	04/01/2000	Gymnodinium sp. group 1 5-200 microns wi	337.72028
WF004	N04	WF004124	1.62	04/01/2000	Gymnodinium sp. group 2 21-400 microns w	311.23346
WF004	N04	WF004124	1.62	04/01/2000	Phaeocystis pouchetii	106,675.17
WF004	N04	WF004124	1.62	04/01/2000	Prorocentrum minimum	145.10269
WF004	N04	WF004124	1.62	04/01/2000	Protoperidinium sp. group 2 31-75 micron	868.75319
WF004	N04	WF004124	1.62	04/01/2000	Thalassionema nitzschioides	19.65993
WF004	N04	WF004124	1.62	04/01/2000	Thalassiosira sp. group 3 10-20 microns	24.98017
WF004	N04	WF004124	1.62	04/01/2000	Thalassiothrix longissima	785.39171
WF004	N04	WF004124	1.62	04/01/2000	Unid. micro-phytoflag sp. group 1 length	5,697.28
WF004	N04	WF004122	19.5	04/01/2000	Coscinodiscus sp. group 2 diam 40-100 mi	413.72961
WF004	N04	WF004122	19.5	04/01/2000	Cryptomonas sp. group 2 length >10 micro	1,191.20
WF004	N04	WF004122	19.5	04/01/2000	Cylindrotheca closterium	121.5996
WF004	N04	WF004122	19.5	04/01/2000	Guinardia delicatula	179.84338
WF004	N04	WF004122	19.5	04/01/2000	Gymnodinium sp. group 1 5-200 microns wi	1,709.32
WF004	N04	WF004122	19.5	04/01/2000	Gymnodinium sp. group 2 21-400 microns w	7,561.25
WF004	N04	WF004122	19.5	04/01/2000	Pennate diatom sp. group 2 10-30 microns	67.77935
WF004	N04	WF004122	19.5	04/01/2000	Phaeocystis pouchetii	332,967.40
WF004	N04	WF004122	19.5	04/01/2000	Prorocentrum minimum	244.80515
WF004	N04	WF004122	19.5	04/01/2000	Pseudonitzschia spp.	41.08071
WF004	N04	WF004122	19.5	04/01/2000	Rhizosolenia setigera	222.36468
WF004	N04	WF004122	19.5	04/01/2000	Thalassionema nitzschioides	126.04063
WF004	N04	WF004122	19.5	04/01/2000	Thalassiosira sp. group 3 10-20 microns	134.86226
WF004	N04	WF004122	19.5	04/01/2000	Thalassiothrix longissima	318.01137
WF004	N04	WF004122	19.5	04/01/2000	Unid. micro-phytoflag sp. group 1 length	4,839.14
WF004	N04	WF004122	19.5	04/01/2000	Unid. micro-phytoflag sp. group 2 length	802.73714
WF004	N16	WF0041E0	1.59	04/03/2000	Centric diatom sp. group 1 diam <10 micr	20.09416
WF004	N16	WF0041E0	1.59	04/03/2000	Choanoflagellate spp.	147.91335
WF004	N16	WF0041E0	1.59	04/03/2000	Cryptomonas sp. group 1 length <10 micro	265.96353
WF004	N16	WF0041E0	1.59	04/03/2000	Cryptomonas sp. group 2 length >10 micro	100.47081
WF004	N16	WF0041E0	1.59	04/03/2000	Eutreptia/eutreptiella spp.	22.09542

WF004	N16	WF0041E0	1.59	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	519.01457
WF004	N16	WF0041E0	1.59	04/03/2000	Gymnodinium sp. group 2 21-400 microns w	2,152.39
WF004	N16	WF0041E0	1.59	04/03/2000	Pennate diatom sp. group 2 10-30 microns	79.28852
WF004	N16	WF0041E0	1.59	04/03/2000	Phaeocystis pouchetii	70,088.25
WF004	N16	WF0041E0	1.59	04/03/2000	Prorocentrum minimum	241.57944
WF004	N16	WF0041E0	1.59	04/03/2000	Thalassionema nitzschioides	25.1781
WF004	N16	WF0041E0	1.59	04/03/2000	Thalassiosira sp. group 3 10-20 microns	51.18663
WF004	N16	WF0041E0	1.59	04/03/2000	Unid. micro-phytoflag sp. group 1 length	4,126.24
WF004	N16	WF0041DE	22.12	04/03/2000	Centric diatom sp. group 1 diam <10 micr	48.59649
WF004	N16	WF0041DE	22.12	04/03/2000	Cryptomonas sp. group 1 length <10 micro	56.75439
WF004	N16	WF0041DE	22.12	04/03/2000	Eutreptia/eutreptiella spp.	8.90607
WF004	N16	WF0041DE	22.12	04/03/2000	Guinardia delicatula	99.04824
WF004	N16	WF0041DE	22.12	04/03/2000	Gymnodinium sp. group 1 5-200 microns wi	313.80117
WF004	N16	WF0041DE	22.12	04/03/2000	Gymnodinium sp. group 2 21-400 microns w	11,278.42
WF004	N16	WF0041DE	22.12	04/03/2000	Pennate diatom sp. group 2 10-30 microns	14.35742
WF004	N16	WF0041DE	22.12	04/03/2000	Phaeocystis pouchetii	217,609.06
WF004	N16	WF0041DE	22.12	04/03/2000	Prorocentrum minimum	157.29672
WF004	N16	WF0041DE	22.12	04/03/2000	Scrippsiella trochoidea	307.91608
WF004	N16	WF0041DE	22.12	04/03/2000	Thalassionema nitzschioides	54.80252
WF004	N16	WF0041DE	22.12	04/03/2000	Thalassiosira sp. group 3 10-20 microns	85.10679
WF004	N16	WF0041DE	22.12	04/03/2000	Unid. micro-phytoflag sp. group 1 length	4,928.68
WF004	N16	WF0041DE	22.12	04/03/2000	Unid. micro-phytoflag sp. group 2 length	368.42105
WF004	N18	WF004143	1.61	04/01/2000	Centric diatom sp. group 1 diam <10 micr	12.81148
WF004	N18	WF004143	1.61	04/01/2000	Ceratium fusus	456.12892
WF004	N18	WF004143	1.61	04/01/2000	Ceratium longipes	1,516.14
WF004	N18	WF004143	1.61	04/01/2000	Chaetoceros socialis	166.8453
WF004	N18	WF004143	1.61	04/01/2000	Chaetoceros sp. group 2 diam 10-30 micro	313.78424
WF004	N18	WF004143	1.61	04/01/2000	Cryptomonas sp. group 1 length <10 micro	199.831
WF004	N18	WF004143	1.61	04/01/2000	Cryptomonas sp. group 2 length >10 micro	128.33042
WF004	N18	WF004143	1.61	04/01/2000	Eutreptia/eutreptiella spp.	28.22227
WF004	N18	WF004143	1.61	04/01/2000	Gymnodinium sp. group 1 5-200 microns wi	1,325.86
WF004	N18	WF004143	1.61	04/01/2000	Gymnodinium sp. group 2 21-400 microns w	610.93975
WF004	N18	WF004143	1.61	04/01/2000	Gyrodinium spirale	1,344.42
WF004	N18	WF004143	1.61	04/01/2000	Phaeocystis pouchetii	183,944.90
WF004	N18	WF004143	1.61	04/01/2000	Pleurosigma spp.	129.73054
WF004	N18	WF004143	1.61	04/01/2000	Prorocentrum minimum	118.67967
WF004	N18	WF004143	1.61	04/01/2000	Protoperidinium brevipes	219.05634
WF004	N18	WF004143	1.61	04/01/2000	Pseudonitzschia delicatissima	12.91324
WF004	N18	WF004143	1.61	04/01/2000	Thalassionema nitzschioides	64.31951
WF004	N18	WF004143	1.61	04/01/2000	Thalassiosira nordenskioldii	28.38877
WF004	N18	WF004143	1.61	04/01/2000	Thalassiosira rotula	1,020.09
WF004	N18	WF004143	1.61	04/01/2000	Thalassiosira sp. group 3 10-20 microns	57.20767
WF004	N18	WF004143	1.61	04/01/2000	Thalassiothrix longissima	462.50845
WF004	N18	WF004143	1.61	04/01/2000	Unid. micro-phytoflag sp. group 1 length	5,334.68
WF004	N18	WF004143	1.61	04/01/2000	Unid. micro-phytoflag sp. group 2 length	389.16084
WF004	N18	WF004141	12.14	04/01/2000	Chaetoceros sp. group 2 diam 10-30 micro	2,065.12
WF004	N18	WF004141	12.14	04/01/2000	Choanoflagellate spp.	62.0656
WF004	N18	WF004141	12.14	04/01/2000	Coscinodiscus sp. group 2 diam 40-100 mi	395.34616
WF004	N18	WF004141	12.14	04/01/2000	Cryptomonas sp. group 1 length <10 micro	374.18952

WF004	N18	WF004141	12.14	04/01/2000	Cylindrotheca closterium	46.4786
WF004	N18	WF004141	12.14	04/01/2000	Guinardia delicatula	68.74092
WF004	N18	WF004141	12.14	04/01/2000	Gymnodinium sp. group 1 5-200 microns wi	2,286.72
WF004	N18	WF004141	12.14	04/01/2000	Gymnodinium sp. group 2 21-400 microns w	2,408.43
WF004	N18	WF004141	12.14	04/01/2000	Gyrodinium spirale	3,974.95
WF004	N18	WF004141	12.14	04/01/2000	Pennate diatom sp. group 2 10-30 microns	59.78555
WF004	N18	WF004141	12.14	04/01/2000	Phaeocystis pouchetii	298,671.30
WF004	N18	WF004141	12.14	04/01/2000	Prorocentrum minimum	23.39276
WF004	N18	WF004141	12.14	04/01/2000	Rhizosolenia setigera	424.96848
WF004	N18	WF004141	12.14	04/01/2000	Thalassionema nitzschioides	12.67792
WF004	N18	WF004141	12.14	04/01/2000	Thalassiosira sp. group 3 10-20 microns	112.76113
WF004	N18	WF004141	12.14	04/01/2000	Unid. micro-phytoflag sp. group 1 length	7,854.66
WF007	F01	WF007266	2.44	06/13/2000	Centric diatom sp. group 1 diam <10 micr	103.03391
WF007	F01	WF007266	2.44	06/13/2000	Ceratium fusus	2,712.72
WF007	F01	WF007266	2.44	06/13/2000	Ceratium longipes	2,254.21
WF007	F01	WF007266	2.44	06/13/2000	Ceratium tripos	1,737.81
WF007	F01	WF007266	2.44	06/13/2000	Cryptomonas sp. group 1 length <10 micro	1,051.78
WF007	F01	WF007266	2.44	06/13/2000	Dinophysis norvegica	1,941.41
WF007	F01	WF007266	2.44	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	1,034.94
WF007	F01	WF007266	2.44	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	35,879.99
WF007	F01	WF007266	2.44	06/13/2000	Heterocapsa triquetra	173.27306
WF007	F01	WF007266	2.44	06/13/2000	Pennate diatom sp. group 3 31-60 microns	21.4918
WF007	F01	WF007266	2.44	06/13/2000	Skeletonema costatum	52.59256
WF007	F01	WF007266	2.44	06/13/2000	Thalassionema nitzschioides	19.12624
WF007	F01	WF007266	2.44	06/13/2000	Thalassiosira sp. group 3 10-20 microns	97.20822
WF007	F01	WF007266	2.44	06/13/2000	Unid. micro-phytoflag sp. group 1 length	23,250.35
WF007	F01	WF007266	2.44	06/13/2000	Unid. micro-phytoflag sp. group 2 length	1,562.25
WF007	F01	WF007264	10.43	06/13/2000	Calycomonas ovalis	64.48396
WF007	F01	WF007264	10.43	06/13/2000	Calycomonas wulffii	20.99283
WF007	F01	WF007264	10.43	06/13/2000	Centric diatom sp. group 1 diam <10 micr	185.3391
WF007	F01	WF007264	10.43	06/13/2000	Ceratium fusus	3,293.78
WF007	F01	WF007264	10.43	06/13/2000	Ceratium longipes	2,737.07
WF007	F01	WF007264	10.43	06/13/2000	Ceratium tripos	10,550.23
WF007	F01	WF007264	10.43	06/13/2000	Cryptomonas sp. group 1 length <10 micro	2,399.01
WF007	F01	WF007264	10.43	06/13/2000	Dinophysis norvegica	5,893.17
WF007	F01	WF007264	10.43	06/13/2000	Ebria tripartita	4,077.13
WF007	F01	WF007264	10.43	06/13/2000	Guinardia delicatula	125.91795
WF007	F01	WF007264	10.43	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	3,889.56
WF007	F01	WF007264	10.43	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	44,668.45
WF007	F01	WF007264	10.43	06/13/2000	Heterocapsa rotundata	471.04233
WF007	F01	WF007264	10.43	06/13/2000	Heterocapsa triquetra	2,107.42
WF007	F01	WF007264	10.43	06/13/2000	Prorocentrum minimum	85.70058
WF007	F01	WF007264	10.43	06/13/2000	Thalassionema nitzschioides	23.2231
WF007	F01	WF007264	10.43	06/13/2000	Thalassiosira sp. group 3 10-20 microns	280.32206
WF007	F01	WF007264	10.43	06/13/2000	Unid. micro-phytoflag sp. group 1 length	38,580.67
WF007	F01	WF007264	10.43	06/13/2000	Unid. micro-phytoflag sp. group 2 length	4,215.29
WF007	F02	WF007259	2.85	06/13/2000	Calycomonas ovalis	86.70715
WF007	F02	WF007259	2.85	06/13/2000	Calycomonas wulffii	148.19501
WF007	F02	WF007259	2.85	06/13/2000	Centric diatom sp. group 1 diam <10 micr	257.00067

WF007	F02	WF007259	2.85	06/13/2000	Ceratium lineatum	268.38134
WF007	F02	WF007259	2.85	06/13/2000	Ceratium tripos	21,315.06
WF007	F02	WF007259	2.85	06/13/2000	Cryptomonas sp. group 1 length <10 micro	1,418.86
WF007	F02	WF007259	2.85	06/13/2000	Cryptomonas sp. group 2 length >10 micro	116.81849
WF007	F02	WF007259	2.85	06/13/2000	Dinophysis norvegica	594.31035
WF007	F02	WF007259	2.85	06/13/2000	Guinardia delicatula	31.74623
WF007	F02	WF007259	2.85	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	3,319.05
WF007	F02	WF007259	2.85	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	23,357.68
WF007	F02	WF007259	2.85	06/13/2000	Heterocapsa rotundata	178.13765
WF007	F02	WF007259	2.85	06/13/2000	Prorocentrum minimum	43.21339
WF007	F02	WF007259	2.85	06/13/2000	Thalassionema nitzschioides	17.56491
WF007	F02	WF007259	2.85	06/13/2000	Thalassiosira sp. group 3 10-20 microns	29.75762
WF007	F02	WF007259	2.85	06/13/2000	Unid. micro-phytoflag sp. group 1 length	20,068.12
WF007	F02	WF007259	2.85	06/13/2000	Unid. micro-phytoflag sp. group 2 length	7,793.52
WF007	F02	WF007257	12.27	06/13/2000	Calycomonas ovalis	50.72368
WF007	F02	WF007257	12.27	06/13/2000	Centric diatom sp. group 1 diam <10 micr	91.11842
WF007	F02	WF007257	12.27	06/13/2000	Ceratium fusus	1,943.19
WF007	F02	WF007257	12.27	06/13/2000	Ceratium longipes	8,612.01
WF007	F02	WF007257	12.27	06/13/2000	Ceratium tripos	16,597.82
WF007	F02	WF007257	12.27	06/13/2000	Cryptomonas sp. group 1 length <10 micro	1,049.96
WF007	F02	WF007257	12.27	06/13/2000	Cryptomonas sp. group 2 length >10 micro	91.11842
WF007	F02	WF007257	12.27	06/13/2000	Dinophysis norvegica	3,708.50
WF007	F02	WF007257	12.27	06/13/2000	Ebria tripartita	213.44785
WF007	F02	WF007257	12.27	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	2,118.16
WF007	F02	WF007257	12.27	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	867.57085
WF007	F02	WF007257	12.27	06/13/2000	Heterocapsa rotundata	694.73684
WF007	F02	WF007257	12.27	06/13/2000	Leptocylindrus minimus	11.42814
WF007	F02	WF007257	12.27	06/13/2000	Prorocentrum minimum	337.63158
WF007	F02	WF007257	12.27	06/13/2000	Thalassionema nitzschioides	91.49123
WF007	F02	WF007257	12.27	06/13/2000	Thalassiosira sp. group 3 10-20 microns	23.21094
WF007	F02	WF007257	12.27	06/13/2000	Unid. micro-phytoflag sp. group 1 length	13,006.25
WF007	F02	WF007257	12.27	06/13/2000	Unid. micro-phytoflag sp. group 2 length	2,210.53
WF007	F06	WF00717B	1.88	06/09/2000	Amphidinium spp.	98.35373
WF007	F06	WF00717B	1.88	06/09/2000	Centric diatom sp. group 1 diam <10 micr	143.82692
WF007	F06	WF00717B	1.88	06/09/2000	Ceratium fusus	4,260.07
WF007	F06	WF00717B	1.88	06/09/2000	Ceratium lineatum	2,753.59
WF007	F06	WF00717B	1.88	06/09/2000	Ceratium longipes	4,720.04
WF007	F06	WF00717B	1.88	06/09/2000	Ceratium tripos	14,555.01
WF007	F06	WF00717B	1.88	06/09/2000	Chaetoceros sp. group 2 diam 10-30 micro	162.81257
WF007	F06	WF00717B	1.88	06/09/2000	Cocconeis scutellum	444.89423
WF007	F06	WF00717B	1.88	06/09/2000	Cryptomonas sp. group 1 length <10 micro	1,605.06
WF007	F06	WF00717B	1.88	06/09/2000	Cryptomonas sp. group 2 length >10 micro	119.85577
WF007	F06	WF00717B	1.88	06/09/2000	Dinophysis norvegica	6,097.62
WF007	F06	WF00717B	1.88	06/09/2000	Ebria tripartita	1,406.19
WF007	F06	WF00717B	1.88	06/09/2000	Eutreptia/eutreptiella spp.	29.28726
WF007	F06	WF00717B	1.88	06/09/2000	Guinardia delicatula	2,280.01
WF007	F06	WF00717B	1.88	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	1,547.88
WF007	F06	WF00717B	1.88	06/09/2000	Gymnodinium sp. group 2 21-400 microns w	4,754.96
WF007	F06	WF00717B	1.88	06/09/2000	Heterocapsa rotundata	182.76923

WF007	F06	WF00717B	1.88	06/09/2000	Heterocapsa triquetra	1,088.44
WF007	F06	WF00717B	1.88	06/09/2000	Prorocentrum minimum	295.57955
WF007	F06	WF00717B	1.88	06/09/2000	Protoperidinium sp. group 2 31-75 micron	2,654.52
WF007	F06	WF00717B	1.88	06/09/2000	Skeletonema costatum	679.08807
WF007	F06	WF00717B	1.88	06/09/2000	Thalassionema nitzschioides	20.024
WF007	F06	WF00717B	1.88	06/09/2000	Thalassiosira sp. group 3 10-20 microns	2,035.42
WF007	F06	WF00717B	1.88	06/09/2000	Unid. micro-phytoflag sp. group 1 length	19,389.32
WF007	F06	WF00717B	1.88	06/09/2000	Unid. micro-phytoflag sp. group 2 length	1,090.38
WF007	F06	WF007179	15.24	06/09/2000	Amphidinium spp.	591.11538
WF007	F06	WF007179	15.24	06/09/2000	Calycomonas ovalis	88.96154
WF007	F06	WF007179	15.24	06/09/2000	Centric diatom sp. group 1 diam <10 micr	503.39423
WF007	F06	WF007179	15.24	06/09/2000	Ceratium fusus	2,840.05
WF007	F06	WF007179	15.24	06/09/2000	Ceratium lineatum	1,376.80
WF007	F06	WF007179	15.24	06/09/2000	Ceratium longipes	14,160.13
WF007	F06	WF007179	15.24	06/09/2000	Ceratium tripos	10,916.26
WF007	F06	WF007179	15.24	06/09/2000	Cryptomonas sp. group 1 length <10 micro	1,605.06
WF007	F06	WF007179	15.24	06/09/2000	Cryptomonas sp. group 2 length >10 micro	119.85577
WF007	F06	WF007179	15.24	06/09/2000	Dinophysis norvegica	2,032.54
WF007	F06	WF007179	15.24	06/09/2000	Ebria tripartita	116.98584
WF007	F06	WF007179	15.24	06/09/2000	Guinardia delicatula	1,845.73
WF007	F06	WF007179	15.24	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	2,786.19
WF007	F06	WF007179	15.24	06/09/2000	Gymnodinium sp. group 2 21-400 microns w	3,803.96
WF007	F06	WF007179	15.24	06/09/2000	Heterocapsa rotundata	304.61538
WF007	F06	WF007179	15.24	06/09/2000	Heterocapsa triquetra	544.21886
WF007	F06	WF007179	15.24	06/09/2000	Prorocentrum minimum	73.89489
WF007	F06	WF007179	15.24	06/09/2000	Pyramimonas sp. group 1 10-20 microns le	344.07692
WF007	F06	WF007179	15.24	06/09/2000	Rhizosolenia setigera	335.60595
WF007	F06	WF007179	15.24	06/09/2000	Skeletonema costatum	316.60187
WF007	F06	WF007179	15.24	06/09/2000	Thalassiosira rotula	705.72594
WF007	F06	WF007179	15.24	06/09/2000	Thalassiosira sp. group 3 10-20 microns	1,030.43
WF007	F06	WF007179	15.24	06/09/2000	Unid. micro-phytoflag sp. group 1 length	29,594.22
WF007	F06	WF007179	15.24	06/09/2000	Unid. micro-phytoflag sp. group 2 length	1,090.38
WF007	F13	WF00714F	1.85	06/09/2000	Calycomonas wulffii	64.26377
WF007	F13	WF00714F	1.85	06/09/2000	Centric diatom sp. group 1 diam <10 micr	354.60287
WF007	F13	WF00714F	1.85	06/09/2000	Ceratium lineatum	5,440.29
WF007	F13	WF00714F	1.85	06/09/2000	Ceratium longipes	27,976.25
WF007	F13	WF00714F	1.85	06/09/2000	Cryptomonas sp. group 1 length <10 micro	1,877.39
WF007	F13	WF00714F	1.85	06/09/2000	Cryptomonas sp. group 2 length >10 micro	827.40669
WF007	F13	WF00714F	1.85	06/09/2000	Dictyocha fibula	1,187.93
WF007	F13	WF00714F	1.85	06/09/2000	Dinophysis norvegica	6,013.44
WF007	F13	WF00714F	1.85	06/09/2000	Ebria tripartita	692.22391
WF007	F13	WF00714F	1.85	06/09/2000	Guinardia delicatula	8,994.14
WF007	F13	WF00714F	1.85	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	6,716.66
WF007	F13	WF00714F	1.85	06/09/2000	Gymnodinium sp. group 2 21-400 microns w	18,288.29
WF007	F13	WF00714F	1.85	06/09/2000	Heterocapsa rotundata	360.49158
WF007	F13	WF00714F	1.85	06/09/2000	Heterocapsa triquetra	2,146.82
WF007	F13	WF00714F	1.85	06/09/2000	Leptocylindrus minimus	24.70808
WF007	F13	WF00714F	1.85	06/09/2000	Paralia sulcata	377.35206
WF007	F13	WF00714F	1.85	06/09/2000	Prorocentrum micans	438.93767

WF007	F13	WF00714F	1.85	06/09/2000	Prorocentrum minimum	765.18376
WF007	F13	WF00714F	1.85	06/09/2000	Skeletonema costatum	1,045.29
WF007	F13	WF00714F	1.85	06/09/2000	Thalassiosira sp. group 3 10-20 microns	3,763.72
WF007	F13	WF00714F	1.85	06/09/2000	Unid. micro-phytoflag sp. group 1 length	30,843.22
WF007	F13	WF00714F	1.85	06/09/2000	Unid. micro-phytoflag sp. group 2 length	5,018.21
WF007	F13	WF00714D	15	06/09/2000	Centric diatom sp. group 1 diam <10 micr	187.54552
WF007	F13	WF00714D	15	06/09/2000	Ceratium fusus	1,428.43
WF007	F13	WF00714D	15	06/09/2000	Ceratium lineatum	461.64766
WF007	F13	WF00714D	15	06/09/2000	Ceratium longipes	4,747.97
WF007	F13	WF00714D	15	06/09/2000	Ceratium tripos	3,660.28
WF007	F13	WF00714D	15	06/09/2000	Cryptomonas sp. group 1 length <10 micro	844.82533
WF007	F13	WF00714D	15	06/09/2000	Guinardia delicatula	1,255.97
WF007	F13	WF00714D	15	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	1,903.05
WF007	F13	WF00714D	15	06/09/2000	Heterocapsa rotundata	34.04643
WF007	F13	WF00714D	15	06/09/2000	Pennate diatom sp. group 2 10-30 microns	52.85901
WF007	F13	WF00714D	15	06/09/2000	Prorocentrum micans	149.23881
WF007	F13	WF00714D	15	06/09/2000	Skeletonema costatum	216.93242
WF007	F13	WF00714D	15	06/09/2000	Thalassiosira sp. group 3 10-20 microns	614.23952
WF007	F13	WF00714D	15	06/09/2000	Unid. micro-phytoflag sp. group 1 length	12,378.73
WF007	F13	WF00714D	15	06/09/2000	Unid. micro-phytoflag sp. group 2 length	609.35366
WF007	F22	WF007211	2.09	06/13/2000	Centric diatom sp. group 1 diam <10 micr	35.04555
WF007	F22	WF007211	2.09	06/13/2000	Ceratium fusus	2,076.06
WF007	F22	WF007211	2.09	06/13/2000	Ceratium longipes	19,321.81
WF007	F22	WF007211	2.09	06/13/2000	Ceratium tripos	13,831.51
WF007	F22	WF007211	2.09	06/13/2000	Cryptomonas sp. group 1 length <10 micro	718.52508
WF007	F22	WF007211	2.09	06/13/2000	Dinophysis norvegica	1,188.62
WF007	F22	WF007211	2.09	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	150.86595
WF007	F22	WF007211	2.09	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	1,390.34
WF007	F22	WF007211	2.09	06/13/2000	Thalassionema nitzschioides	5.85497
WF007	F22	WF007211	2.09	06/13/2000	Thalassiosira sp. group 3 10-20 microns	14.87881
WF007	F22	WF007211	2.09	06/13/2000	Unid. micro-phytoflag sp. group 1 length	10,092.57
WF007	F22	WF007210	13.88	06/13/2000	Centric diatom sp. group 1 diam <10 micr	17.02094
WF007	F22	WF007210	13.88	06/13/2000	Ceratium fusus	3,176.15
WF007	F22	WF007210	13.88	06/13/2000	Ceratium longipes	7,540.90
WF007	F22	WF007210	13.88	06/13/2000	Ceratium tripos	16,277.49
WF007	F22	WF007210	13.88	06/13/2000	Cryptomonas sp. group 1 length <10 micro	483.70391
WF007	F22	WF007210	13.88	06/13/2000	Dinophysis norvegica	4,546.16
WF007	F22	WF007210	13.88	06/13/2000	Ebria tripartita	74.76018
WF007	F22	WF007210	13.88	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	659.4538
WF007	F22	WF007210	13.88	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	303.86699
WF007	F22	WF007210	13.88	06/13/2000	Protoperidinium depressum	7,400.08
WF007	F22	WF007210	13.88	06/13/2000	Thalassionema nitzschioides	42.72645
WF007	F22	WF007210	13.88	06/13/2000	Thalassiosira sp. group 3 10-20 microns	16.25928
WF007	F22	WF007210	13.88	06/13/2000	Unid. micro-phytoflag sp. group 1 length	7,054.28
WF007	F23	WF007019	2.24	06/08/2000	Asterionella formosa	315.81818
WF007	F23	WF007019	2.24	06/08/2000	Centric diatom sp. group 1 diam <10 micr	345.66835
WF007	F23	WF007019	2.24	06/08/2000	Ceratium fusus	2,983.48
WF007	F23	WF007019	2.24	06/08/2000	Ceratium lineatum	2,897.53
WF007	F23	WF007019	2.24	06/08/2000	Cocconeis scutellum	467.36364

WF007	F23	WF007019	2.24	06/08/2000	Cryptomonas sp. group 1 length <10 micro	1,097.94
WF007	F23	WF007019	2.24	06/08/2000	Cryptomonas sp. group 2 length >10 micro	125.90909
WF007	F23	WF007019	2.24	06/08/2000	Cylindrotheca closterium	77.11771
WF007	F23	WF007019	2.24	06/08/2000	Ebria tripartita	245.78843
WF007	F23	WF007019	2.24	06/08/2000	Eutreptia/eutreptiella spp.	61.53282
WF007	F23	WF007019	2.24	06/08/2000	Grammatophora marina	48.66559
WF007	F23	WF007019	2.24	06/08/2000	Guinardia delicatula	11,975.83
WF007	F23	WF007019	2.24	06/08/2000	Gymnodinium sp. group 1 5-200 microns wi	4,065.15
WF007	F23	WF007019	2.24	06/08/2000	Gymnodinium sp. group 2 21-400 microns w	6,993.15
WF007	F23	WF007019	2.24	06/08/2000	Heterocapsa triquetra	190.56822
WF007	F23	WF007019	2.24	06/08/2000	Leptocylindrus minimus	26.31935
WF007	F23	WF007019	2.24	06/08/2000	Licmophora spp.	92.46465
WF007	F23	WF007019	2.24	06/08/2000	Paralia sulcata	267.97333
WF007	F23	WF007019	2.24	06/08/2000	Pennate diatom sp. group 2 10-30 microns	546.5
WF007	F23	WF007019	2.24	06/08/2000	Pennate diatom sp. group 3 31-60 microns	142.06061
WF007	F23	WF007019	2.24	06/08/2000	Pleurosigma spp.	424.27597
WF007	F23	WF007019	2.24	06/08/2000	Prorocentrum micans	311.70781
WF007	F23	WF007019	2.24	06/08/2000	Protoperidinium bipes	262.93635
WF007	F23	WF007019	2.24	06/08/2000	Protoperidinium sp. group 1 10-30 micron	395.20872
WF007	F23	WF007019	2.24	06/08/2000	Pseudonitzschia delicatissima	10.55799
WF007	F23	WF007019	2.24	06/08/2000	Scenedesmus spp.	490.99199
WF007	F23	WF007019	2.24	06/08/2000	Scrippsiella trochoidea	1,065.50
WF007	F23	WF007019	2.24	06/08/2000	Skeletonema costatum	1,378.57
WF007	F23	WF007019	2.24	06/08/2000	Thalassionema nitzschioides	63.10593
WF007	F23	WF007019	2.24	06/08/2000	Thalassiosira rotula	7,413.69
WF007	F23	WF007019	2.24	06/08/2000	Thalassiosira sp. group 3 10-20 microns	1,897.67
WF007	F23	WF007019	2.24	06/08/2000	Unid. micro-phytoflag sp. group 1 length	24,814.35
WF007	F23	WF007019	2.24	06/08/2000	Unid. micro-phytoflag sp. group 2 length	2,863.64
WF007	F23	WF007017	15.64	06/08/2000	Asterionella formosa	97.84664
WF007	F23	WF007017	15.64	06/08/2000	Calycomonas wulffii	21.24424
WF007	F23	WF007017	15.64	06/08/2000	Centric diatom sp. group 1 diam <10 micr	914.3488
WF007	F23	WF007017	15.64	06/08/2000	Ceratium fusus	2,083.27
WF007	F23	WF007017	15.64	06/08/2000	Chaetoceros sp. group 2 diam 10-30 micro	4,785.17
WF007	F23	WF007017	15.64	06/08/2000	Cryptomonas sp. group 1 length <10 micro	1,624.58
WF007	F23	WF007017	15.64	06/08/2000	Cryptomonas sp. group 2 length >10 micro	117.22421
WF007	F23	WF007017	15.64	06/08/2000	Eutreptia/eutreptiella spp.	42.96634
WF007	F23	WF007017	15.64	06/08/2000	Grammatophora marina	67.96314
WF007	F23	WF007017	15.64	06/08/2000	Guinardia delicatula	14,176.14
WF007	F23	WF007017	15.64	06/08/2000	Gymnodinium sp. group 1 5-200 microns wi	3,330.58
WF007	F23	WF007017	15.64	06/08/2000	Gymnodinium sp. group 2 21-400 microns w	9,766.17
WF007	F23	WF007017	15.64	06/08/2000	Lithodesmium spp.	1,155.25
WF007	F23	WF007017	15.64	06/08/2000	Pennate diatom sp. group 2 10-30 microns	555.05873
WF007	F23	WF007017	15.64	06/08/2000	Pennate diatom sp. group 4 61-100 micron	164.4508
WF007	F23	WF007017	15.64	06/08/2000	Scenedesmus spp.	137.13739
WF007	F23	WF007017	15.64	06/08/2000	Skeletonema costatum	888.5624
WF007	F23	WF007017	15.64	06/08/2000	Thalassionema nitzschioides	29.37652
WF007	F23	WF007017	15.64	06/08/2000	Thalassiosira rotula	12,424.16
WF007	F23	WF007017	15.64	06/08/2000	Thalassiosira sp. group 3 10-20 microns	2,911.44
WF007	F23	WF007017	15.64	06/08/2000	Unid. micro-phytoflag sp. group 1 length	34,463.27

WF007	F23	WF007017	15.64	06/08/2000	Unid. micro-phytoflag sp. group 2 length	4,265.78
WF007	F24	WF0071E1	2.12	06/09/2000	Asterionella formosa	46.1759
WF007	F24	WF0071E1	2.12	06/09/2000	Calycomonas ovalis	81.98416
WF007	F24	WF0071E1	2.12	06/09/2000	Calycomonas wulffii	60.0526
WF007	F24	WF0071E1	2.12	06/09/2000	Centric diatom sp. group 1 diam <10 micr	309.27489
WF007	F24	WF0071E1	2.12	06/09/2000	Ceratium fusus	2,617.30
WF007	F24	WF0071E1	2.12	06/09/2000	Ceratium longipes	8,699.69
WF007	F24	WF0071E1	2.12	06/09/2000	Chaetoceros sp. group 2 diam 10-30 micro	300.08592
WF007	F24	WF0071E1	2.12	06/09/2000	Cryptomonas sp. group 1 length <10 micro	1,771.57
WF007	F24	WF0071E1	2.12	06/09/2000	Cryptomonas sp. group 2 length >10 micro	773.18722
WF007	F24	WF0071E1	2.12	06/09/2000	Dinophysis norvegica	3,746.25
WF007	F24	WF0071E1	2.12	06/09/2000	Eutreptia/eutreptiella spp.	26.99022
WF007	F24	WF0071E1	2.12	06/09/2000	Guinardia delicatula	6,703.80
WF007	F24	WF0071E1	2.12	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	7,417.71
WF007	F24	WF0071E1	2.12	06/09/2000	Gymnodinium sp. group 2 21-400 microns w	14,898.86
WF007	F24	WF0071E1	2.12	06/09/2000	Gyrodinium sp. group 1 5-200 microns wid	94.93904
WF007	F24	WF0071E1	2.12	06/09/2000	Heterocapsa rotundata	168.43439
WF007	F24	WF0071E1	2.12	06/09/2000	Heterocapsa triquetra	501.53503
WF007	F24	WF0071E1	2.12	06/09/2000	Leptocylindrus minimus	61.5706
WF007	F24	WF0071E1	2.12	06/09/2000	Paralia sulcata	176.3122
WF007	F24	WF0071E1	2.12	06/09/2000	Pennate diatom sp. group 2 10-30 microns	87.16799
WF007	F24	WF0071E1	2.12	06/09/2000	Prorocentrum micans	273.44956
WF007	F24	WF0071E1	2.12	06/09/2000	Prorocentrum minimum	272.39684
WF007	F24	WF0071E1	2.12	06/09/2000	Pseudonitzschia delicatissima	9.26213
WF007	F24	WF0071E1	2.12	06/09/2000	Skeletonema costatum	1,048.68
WF007	F24	WF0071E1	2.12	06/09/2000	Thalassiosira sp. group 3 10-20 microns	1,969.57
WF007	F24	WF0071E1	2.12	06/09/2000	Unid. micro-phytoflag sp. group 1 length	25,724.13
WF007	F24	WF0071E1	2.12	06/09/2000	Unid. micro-phytoflag sp. group 2 length	4,689.37
WF007	F24	WF0071DF	8.35	06/09/2000	Amphidinium spp.	141.87478
WF007	F24	WF0071DF	8.35	06/09/2000	Calycomonas ovalis	192.48988
WF007	F24	WF0071DF	8.35	06/09/2000	Centric diatom sp. group 1 diam <10 micr	207.46964
WF007	F24	WF0071DF	8.35	06/09/2000	Ceratium fusus	4,096.76
WF007	F24	WF0071DF	8.35	06/09/2000	Ceratium longipes	6,808.64
WF007	F24	WF0071DF	8.35	06/09/2000	Ceratium tripos	5,248.88
WF007	F24	WF0071DF	8.35	06/09/2000	Cryptomonas sp. group 1 length <10 micro	2,126.83
WF007	F24	WF0071DF	8.35	06/09/2000	Cryptomonas sp. group 2 length >10 micro	691.56545
WF007	F24	WF0071DF	8.35	06/09/2000	Dinophysis norvegica	8,795.79
WF007	F24	WF0071DF	8.35	06/09/2000	Ebria tripartita	675.00602
WF007	F24	WF0071DF	8.35	06/09/2000	Guinardia delicatula	15,035.02
WF007	F24	WF0071DF	8.35	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	11,610.64
WF007	F24	WF0071DF	8.35	06/09/2000	Gymnodinium sp. group 2 21-400 microns w	15,089.80
WF007	F24	WF0071DF	8.35	06/09/2000	Heterocapsa rotundata	14.62227
WF007	F24	WF0071DF	8.35	06/09/2000	Heterocapsa triquetra	7,863.54
WF007	F24	WF0071DF	8.35	06/09/2000	Lithodesmium spp.	1,135.91
WF007	F24	WF0071DF	8.35	06/09/2000	Pennate diatom sp. group 2 10-30 microns	136.44062
WF007	F24	WF0071DF	8.35	06/09/2000	Prorocentrum minimum	106.59302
WF007	F24	WF0071DF	8.35	06/09/2000	Skeletonema costatum	2,422.48
WF007	F24	WF0071DF	8.35	06/09/2000	Thalassiosira sp. group 3 10-20 microns	1,651.55
WF007	F24	WF0071DF	8.35	06/09/2000	Unid. micro-phytoflag sp. group 1 length	35,935.40

WF007	F24	WF0071DF	8.35	06/09/2000	Unid. micro-phytoflag sp. group 2 length	2,097.17
WF007	F25	WF00711F	2.3	06/09/2000	Calycomonas wulffii	32.07791
WF007	F25	WF00711F	2.3	06/09/2000	Centric diatom sp. group 1 diam <10 micr	543.7244
WF007	F25	WF00711F	2.3	06/09/2000	Ceratium lineatum	1,357.79
WF007	F25	WF00711F	2.3	06/09/2000	Ceratium tripos	5,382.77
WF007	F25	WF00711F	2.3	06/09/2000	Chaetoceros sp. group 2 diam 10-30 micro	481.69401
WF007	F25	WF00711F	2.3	06/09/2000	Coscinodiscus sp. group 2 diam 40-100 mi	1,847.41
WF007	F25	WF00711F	2.3	06/09/2000	Cryptomonas sp. group 1 length <10 micro	1,674.93
WF007	F25	WF00711F	2.3	06/09/2000	Cylindrotheca closterium	435.11038
WF007	F25	WF00711F	2.3	06/09/2000	Eutreptia/eutreptiella spp.	173.58898
WF007	F25	WF00711F	2.3	06/09/2000	Guinardia delicatula	4,015.24
WF007	F25	WF00711F	2.3	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	3,053.03
WF007	F25	WF00711F	2.3	06/09/2000	Gymnodinium sp. group 2 21-400 microns w	1,406.79
WF007	F25	WF00711F	2.3	06/09/2000	Heterocapsa rotundata	360.49158
WF007	F25	WF00711F	2.3	06/09/2000	Heterocapsa triquetra	1,073.41
WF007	F25	WF00711F	2.3	06/09/2000	Pennate diatom sp. group 2 10-30 microns	23.28098
WF007	F25	WF00711F	2.3	06/09/2000	Prorocentrum minimum	327.9359
WF007	F25	WF00711F	2.3	06/09/2000	Skeletonema costatum	1,561.15
WF007	F25	WF00711F	2.3	06/09/2000	Thalassiosira sp. group 3 10-20 microns	3,048.62
WF007	F25	WF00711F	2.3	06/09/2000	Unid. micro-phytoflag sp. group 1 length	26,403.22
WF007	F25	WF00711F	2.3	06/09/2000	Unid. micro-phytoflag sp. group 2 length	358.44333
WF007	F25	WF00711D	4.95	06/09/2000	Calycomonas ovalis	69.74795
WF007	F25	WF00711D	4.95	06/09/2000	Centric diatom sp. group 1 diam <10 micr	726.69948
WF007	F25	WF00711D	4.95	06/09/2000	Ceratium fusus	1,484.44
WF007	F25	WF00711D	4.95	06/09/2000	Ceratium longipes	4,934.17
WF007	F25	WF00711D	4.95	06/09/2000	Chaetoceros sp. group 2 diam 10-30 micro	680.7942
WF007	F25	WF00711D	4.95	06/09/2000	Coscinodiscus sp. group 2 diam 40-100 mi	1,305.50
WF007	F25	WF00711D	4.95	06/09/2000	Cryptomonas sp. group 1 length <10 micro	2,360.73
WF007	F25	WF00711D	4.95	06/09/2000	Cryptomonas sp. group 2 length >10 micro	626.46507
WF007	F25	WF00711D	4.95	06/09/2000	Dinophysis norvegica	2,124.75
WF007	F25	WF00711D	4.95	06/09/2000	Ebria tripartita	244.58578
WF007	F25	WF00711D	4.95	06/09/2000	Grammatophora marina	290.56478
WF007	F25	WF00711D	4.95	06/09/2000	Guinardia delicatula	5,447.88
WF007	F25	WF00711D	4.95	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	5,177.93
WF007	F25	WF00711D	4.95	06/09/2000	Gymnodinium sp. group 2 21-400 microns w	11,929.59
WF007	F25	WF00711D	4.95	06/09/2000	Heterocapsa rotundata	445.80792
WF007	F25	WF00711D	4.95	06/09/2000	Heterocapsa triquetra	568.90729
WF007	F25	WF00711D	4.95	06/09/2000	Pennate diatom sp. group 2 10-30 microns	16.45189
WF007	F25	WF00711D	4.95	06/09/2000	Prorocentrum minimum	77.24712
WF007	F25	WF00711D	4.95	06/09/2000	Protoperidinium brevipes	712.90524
WF007	F25	WF00711D	4.95	06/09/2000	Scrippsiella trochoidea	352.83511
WF007	F25	WF00711D	4.95	06/09/2000	Skeletonema costatum	911.35147
WF007	F25	WF00711D	4.95	06/09/2000	Thalassionema nitzschioides	20.93238
WF007	F25	WF00711D	4.95	06/09/2000	Thalassiosira sp. group 3 10-20 microns	2,393.73
WF007	F25	WF00711D	4.95	06/09/2000	Unid. micro-phytoflag sp. group 1 length	31,878.04
WF007	F25	WF00711D	4.95	06/09/2000	Unid. micro-phytoflag sp. group 2 length	379.94993
WF007	F26	WF007220	2.75	06/13/2000	Calycomonas wulffii	34.57883
WF007	F26	WF007220	2.75	06/13/2000	Centric diatom sp. group 1 diam <10 micr	175.53925
WF007	F26	WF007220	2.75	06/13/2000	Ceratium fusus	2,848.35

WF007	F26	WF007220	2.75	06/13/2000	Ceratium lineatum	263.01371
WF007	F26	WF007220	2.75	06/13/2000	Ceratium longipes	4,057.58
WF007	F26	WF007220	2.75	06/13/2000	Ceratium tripos	7,298.78
WF007	F26	WF007220	2.75	06/13/2000	Cryptomonas sp. group 1 length <10 micro	469.43638
WF007	F26	WF007220	2.75	06/13/2000	Cryptomonas sp. group 2 length >10 micro	38.16071
WF007	F26	WF007220	2.75	06/13/2000	Guinardia delicatula	124.44523
WF007	F26	WF007220	2.75	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	394.26301
WF007	F26	WF007220	2.75	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	272.50623
WF007	F26	WF007220	2.75	06/13/2000	Heterocapsa rotundata	116.38327
WF007	F26	WF007220	2.75	06/13/2000	Heterocapsa triquetra	51.98192
WF007	F26	WF007220	2.75	06/13/2000	Prorocentrum minimum	21.17456
WF007	F26	WF007220	2.75	06/13/2000	Skeletonema costatum	60.48145
WF007	F26	WF007220	2.75	06/13/2000	Thalassionema nitzschioides	11.47574
WF007	F26	WF007220	2.75	06/13/2000	Thalassiosira sp. group 3 10-20 microns	43.7437
WF007	F26	WF007220	2.75	06/13/2000	Unid. micro-phytoflag sp. group 1 length	9,384.24
WF007	F26	WF007220	2.75	06/13/2000	Unid. micro-phytoflag sp. group 2 length	115.722
WF007	F26	WF00721F	7.19	06/13/2000	Calycomonas ovalis	24.82186
WF007	F26	WF00721F	7.19	06/13/2000	Centric diatom sp. group 1 diam <10 micr	71.34272
WF007	F26	WF00721F	7.19	06/13/2000	Ceratium fusus	8,241.21
WF007	F26	WF00721F	7.19	06/13/2000	Ceratium longipes	8,428.65
WF007	F26	WF00721F	7.19	06/13/2000	Ceratium tripos	8,122.21
WF007	F26	WF00721F	7.19	06/13/2000	Cryptomonas sp. group 1 length <10 micro	437.42488
WF007	F26	WF00721F	7.19	06/13/2000	Dinophysis norvegica	2,722.15
WF007	F26	WF00721F	7.19	06/13/2000	Ebria tripartita	208.90329
WF007	F26	WF00721F	7.19	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	1,036.53
WF007	F26	WF00721F	7.19	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	424.54961
WF007	F26	WF00721F	7.19	06/13/2000	Skeletonema costatum	20.48408
WF007	F26	WF00721F	7.19	06/13/2000	Unid. micro-phytoflag sp. group 1 length	14,404.24
WF007	F26	WF00721F	7.19	06/13/2000	Unid. micro-phytoflag sp. group 2 length	676.08173
WF007	F27	WF00722D	2.63	06/13/2000	Calycomonas wulffii	41.4946
WF007	F27	WF00722D	2.63	06/13/2000	Centric diatom sp. group 1 diam <10 micr	34.34464
WF007	F27	WF00722D	2.63	06/13/2000	Ceratium fusus	1,627.63
WF007	F27	WF00722D	2.63	06/13/2000	Ceratium longipes	16,230.32
WF007	F27	WF00722D	2.63	06/13/2000	Ceratium tripos	6,256.10
WF007	F27	WF00722D	2.63	06/13/2000	Cryptomonas sp. group 1 length <10 micro	837.85481
WF007	F27	WF00722D	2.63	06/13/2000	Dinophysis norvegica	1,164.85
WF007	F27	WF00722D	2.63	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	1,034.94
WF007	F27	WF00722D	2.63	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	4,632.61
WF007	F27	WF00722D	2.63	06/13/2000	Heterocapsa rotundata	29.09582
WF007	F27	WF00722D	2.63	06/13/2000	Heterocapsa triquetra	520.69388
WF007	F27	WF00722D	2.63	06/13/2000	Unid. micro-phytoflag sp. group 1 length	13,502.98
WF007	F27	WF00722D	2.63	06/13/2000	Unid. micro-phytoflag sp. group 2 length	173.583
WF007	F27	WF00722C	15.56	06/13/2000	Centric diatom sp. group 1 diam <10 micr	99.76434
WF007	F27	WF00722C	15.56	06/13/2000	Ceratium fusus	886.48897
WF007	F27	WF00722C	15.56	06/13/2000	Ceratium longipes	8,839.85
WF007	F27	WF00722C	15.56	06/13/2000	Ceratium tripos	6,814.77
WF007	F27	WF00722C	15.56	06/13/2000	Cryptomonas sp. group 1 length <10 micro	440.15562
WF007	F27	WF00722C	15.56	06/13/2000	Cryptomonas sp. group 2 length >10 micro	41.56847
WF007	F27	WF00722C	15.56	06/13/2000	Cylindrotheca closterium	22.91414

WF007	F27	WF00722C	15.56	06/13/2000	Dinophysis norvegica	4,236.68
WF007	F27	WF00722C	15.56	06/13/2000	Ebria tripartita	219.09487
WF007	F27	WF00722C	15.56	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	1,395.78
WF007	F27	WF00722C	15.56	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	6,827.35
WF007	F27	WF00722C	15.56	06/13/2000	Prorocentrum minimum	46.13091
WF007	F27	WF00722C	15.56	06/13/2000	Unid. micro-phytoflag sp. group 1 length	4,205.49
WF007	F27	WF00722C	15.56	06/13/2000	Unid. micro-phytoflag sp. group 2 length	1,134.50
WF007	F30	WF007204	2.33	06/13/2000	Asterionella formosa	26.32716
WF007	F30	WF007204	2.33	06/13/2000	Centric diatom sp. group 1 diam <10 micr	428.95749
WF007	F30	WF007204	2.33	06/13/2000	Chaetoceros sp. group 2 diam 10-30 micro	1,028.29
WF007	F30	WF007204	2.33	06/13/2000	Cryptomonas sp. group 1 length <10 micro	1,768.12
WF007	F30	WF007204	2.33	06/13/2000	Cryptomonas sp. group 2 length >10 micro	2,270.95
WF007	F30	WF007204	2.33	06/13/2000	Dinophysis acuminata	143.21549
WF007	F30	WF007204	2.33	06/13/2000	Ebria tripartita	184.71449
WF007	F30	WF007204	2.33	06/13/2000	Guinardia delicatula	857.14827
WF007	F30	WF007204	2.33	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	4,236.32
WF007	F30	WF007204	2.33	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	9,009.39
WF007	F30	WF007204	2.33	06/13/2000	Heterocapsa triquetra	143.21549
WF007	F30	WF007204	2.33	06/13/2000	Prorocentrum minimum	58.33807
WF007	F30	WF007204	2.33	06/13/2000	Skeletonema costatum	1,108.47
WF007	F30	WF007204	2.33	06/13/2000	Thalassionema nitzschioides	15.80842
WF007	F30	WF007204	2.33	06/13/2000	Thalassiosira sp. group 3 10-20 microns	1,566.74
WF007	F30	WF007204	2.33	06/13/2000	Unid. micro-phytoflag sp. group 1 length	23,190.09
WF007	F30	WF007204	2.33	06/13/2000	Unid. micro-phytoflag sp. group 2 length	3,060.73
WF007	F30	WF007203	4.34	06/13/2000	Amphidinium spp.	96.99579
WF007	F30	WF007203	4.34	06/13/2000	Calycomonas ovalis	21.93332
WF007	F30	WF007203	4.34	06/13/2000	Centric diatom sp. group 1 diam <10 micr	307.32249
WF007	F30	WF007203	4.34	06/13/2000	Cocconeis scutellum	73.00244
WF007	F30	WF007203	4.34	06/13/2000	Cryptomonas sp. group 1 length <10 micro	1,877.39
WF007	F30	WF007203	4.34	06/13/2000	Cryptomonas sp. group 2 length >10 micro	118.20096
WF007	F30	WF007203	4.34	06/13/2000	Dinophysis norvegica	2,004.48
WF007	F30	WF007203	4.34	06/13/2000	Guinardia delicatula	1,391.95
WF007	F30	WF007203	4.34	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	3,663.63
WF007	F30	WF007203	4.34	06/13/2000	Heterocapsa rotundata	180.24579
WF007	F30	WF007203	4.34	06/13/2000	Heterosigma akashiwo	36.23379
WF007	F30	WF007203	4.34	06/13/2000	Paralia sulcata	251.56804
WF007	F30	WF007203	4.34	06/13/2000	Pennate diatom sp. group 2 10-30 microns	93.28061
WF007	F30	WF007203	4.34	06/13/2000	Pennate diatom sp. group 3 31-60 microns	177.51953
WF007	F30	WF007203	4.34	06/13/2000	Skeletonema costatum	1,538.53
WF007	F30	WF007203	4.34	06/13/2000	Thalassiosira sp. group 3 10-20 microns	1,982.23
WF007	F30	WF007203	4.34	06/13/2000	Unid. micro-phytoflag sp. group 1 length	23,502.42
WF007	F30	WF007203	4.34	06/13/2000	Unid. micro-phytoflag sp. group 2 length	2,867.55
WF007	F31	WF0071F2	2.36	06/13/2000	Centric diatom sp. group 1 diam <10 micr	616.80162
WF007	F31	WF0071F2	2.36	06/13/2000	Cryptomonas sp. group 1 length <10 micro	3,056.01
WF007	F31	WF0071F2	2.36	06/13/2000	Cryptomonas sp. group 2 length >10 micro	1,261.64
WF007	F31	WF0071F2	2.36	06/13/2000	Grammatophora marina	325.64103
WF007	F31	WF0071F2	2.36	06/13/2000	Guinardia delicatula	7,238.14
WF007	F31	WF0071F2	2.36	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	6,879.49
WF007	F31	WF0071F2	2.36	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	10,010.43

WF007	F31	WF0071F2	2.36	06/13/2000	Heterocapsa rotundata	213.76518
WF007	F31	WF0071F2	2.36	06/13/2000	Heterocapsa triquetra	1,273.03
WF007	F31	WF0071F2	2.36	06/13/2000	Pennate diatom sp. group 1 <10 microns l	43.38731
WF007	F31	WF0071F2	2.36	06/13/2000	Protoperidinium depressum	81,261.41
WF007	F31	WF0071F2	2.36	06/13/2000	Skeletonema costatum	4,765.53
WF007	F31	WF0071F2	2.36	06/13/2000	Thalassiosira rotula	6,190.58
WF007	F31	WF0071F2	2.36	06/13/2000	Thalassiosira sp. group 3 10-20 microns	9,373.65
WF007	F31	WF0071F2	2.36	06/13/2000	Unid. micro-phytoflag sp. group 1 length	19,588.36
WF007	F31	WF0071F2	2.36	06/13/2000	Unid. micro-phytoflag sp. group 2 length	3,400.81
WF007	F31	WF0071F1	6.15	06/13/2000	Calycomonas ovalis	78.03644
WF007	F31	WF0071F1	6.15	06/13/2000	Centric diatom sp. group 1 diam <10 micr	476.61943
WF007	F31	WF0071F1	6.15	06/13/2000	Cryptomonas sp. group 1 length <10 micro	3,558.06
WF007	F31	WF0071F1	6.15	06/13/2000	Cryptomonas sp. group 2 length >10 micro	1,121.46
WF007	F31	WF0071F1	6.15	06/13/2000	Ebria tripartita	820.95327
WF007	F31	WF0071F1	6.15	06/13/2000	Grammatophora marina	162.547
WF007	F31	WF0071F1	6.15	06/13/2000	Guinardia delicatula	7,238.14
WF007	F31	WF0071F1	6.15	06/13/2000	Gymnodinium sp. group 1 5-200 microns wi	9,776.11
WF007	F31	WF0071F1	6.15	06/13/2000	Gymnodinium sp. group 2 21-400 microns w	26,694.49
WF007	F31	WF0071F1	6.15	06/13/2000	Heterocapsa rotundata	356.2753
WF007	F31	WF0071F1	6.15	06/13/2000	Heterocapsa triquetra	1,273.03
WF007	F31	WF0071F1	6.15	06/13/2000	Heterosigma akashiwo	128.916
WF007	F31	WF0071F1	6.15	06/13/2000	Pennate diatom sp. group 2 10-30 microns	110.62753
WF007	F31	WF0071F1	6.15	06/13/2000	Skeletonema costatum	9,466.66
WF007	F31	WF0071F1	6.15	06/13/2000	Thalassiosira sp. group 3 10-20 microns	19,851.92
WF007	F31	WF0071F1	6.15	06/13/2000	Unid. micro-phytoflag sp. group 1 length	34,823.75
WF007	F31	WF0071F1	6.15	06/13/2000	Unid. micro-phytoflag sp. group 2 length	3,825.91
WF007	N04	WF007049	1.88	06/08/2000	Calycomonas ovalis	35.95751
WF007	N04	WF007049	1.88	06/08/2000	Centric diatom sp. group 1 diam <10 micr	77.51152
WF007	N04	WF007049	1.88	06/08/2000	Ceratium fusus	3,214.19
WF007	N04	WF007049	1.88	06/08/2000	Ceratium longipes	12,209.93
WF007	N04	WF007049	1.88	06/08/2000	Ceratium macroceros	456.16172
WF007	N04	WF007049	1.88	06/08/2000	Cryptomonas sp. group 1 length <10 micro	303.24595
WF007	N04	WF007049	1.88	06/08/2000	Cryptomonas sp. group 2 length >10 micro	64.59293
WF007	N04	WF007049	1.88	06/08/2000	Dinophysis norvegica	2,628.92
WF007	N04	WF007049	1.88	06/08/2000	Ebria tripartita	302.62206
WF007	N04	WF007049	1.88	06/08/2000	Gymnodinium sp. group 1 5-200 microns wi	3,003.08
WF007	N04	WF007049	1.88	06/08/2000	Gymnodinium sp. group 2 21-400 microns w	307.50611
WF007	N04	WF007049	1.88	06/08/2000	Pennate diatom sp. group 2 10-30 microns	25.44458
WF007	N04	WF007049	1.88	06/08/2000	Prorocentrum minimum	23.89416
WF007	N04	WF007049	1.88	06/08/2000	Skeletonema costatum	17.80422
WF007	N04	WF007049	1.88	06/08/2000	Unid. micro-phytoflag sp. group 1 length	12,778.60
WF007	N04	WF007049	1.88	06/08/2000	Unid. micro-phytoflag sp. group 2 length	1,958.77
WF007	N04	WF007047	22.42	06/08/2000	Calycomonas ovalis	191.78303
WF007	N04	WF007047	22.42	06/08/2000	Calycomonas wulffii	5.49973
WF007	N04	WF007047	22.42	06/08/2000	Centric diatom sp. group 1 diam <10 micr	18.20828
WF007	N04	WF007047	22.42	06/08/2000	Ceratium fusus	3,889.63
WF007	N04	WF007047	22.42	06/08/2000	Ceratium lineatum	838.0499
WF007	N04	WF007047	22.42	06/08/2000	Ceratium longipes	25,857.63
WF007	N04	WF007047	22.42	06/08/2000	Ceratium tripos	3,322.34

WF007	N04	WF007047	22.42	06/08/2000	Coscinodiscus sp. group 2 diam 40-100 mi	380.08493
WF007	N04	WF007047	22.42	06/08/2000	Cryptomonas sp. group 1 length <10 micro	918.2964
WF007	N04	WF007047	22.42	06/08/2000	Cryptomonas sp. group 2 length >10 micro	60.7964
WF007	N04	WF007047	22.42	06/08/2000	Gymnodinium sp. group 1 5-200 microns wi	628.12709
WF007	N04	WF007047	22.42	06/08/2000	Gymnodinium sp. group 2 21-400 microns w	289.43208
WF007	N04	WF007047	22.42	06/08/2000	Heterocapsa rotundata	92.70903
WF007	N04	WF007047	22.42	06/08/2000	Prorocentrum minimum	22.48975
WF007	N04	WF007047	22.42	06/08/2000	Unid. micro-phytoflag sp. group 1 length	17,143.02
WF007	N04	WF007047	22.42	06/08/2000	Unid. micro-phytoflag sp. group 2 length	1,106.19
WF007	N16	WF0071C6	1.93	06/09/2000	Centric diatom sp. group 1 diam <10 micr	100.93117
WF007	N16	WF0071C6	1.93	06/09/2000	Ceratium fusus	2,242.14
WF007	N16	WF0071C6	1.93	06/09/2000	Ceratium longipes	16,395.94
WF007	N16	WF0071C6	1.93	06/09/2000	Ceratium tripos	3,447.24
WF007	N16	WF0071C6	1.93	06/09/2000	Cryptomonas sp. group 1 length <10 micro	854.59008
WF007	N16	WF0071C6	1.93	06/09/2000	Cryptomonas sp. group 2 length >10 micro	63.08198
WF007	N16	WF0071C6	1.93	06/09/2000	Dinophysis norvegica	1,283.71
WF007	N16	WF0071C6	1.93	06/09/2000	Ebria tripartita	73.88579
WF007	N16	WF0071C6	1.93	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	1,466.42
WF007	N16	WF0071C6	1.93	06/09/2000	Gymnodinium sp. group 2 21-400 microns w	1,501.56
WF007	N16	WF0071C6	1.93	06/09/2000	Heterocapsa rotundata	416.84211
WF007	N16	WF0071C6	1.93	06/09/2000	Pennate diatom sp. group 2 10-30 microns	4.96988
WF007	N16	WF0071C6	1.93	06/09/2000	Skeletonema costatum	37.67345
WF007	N16	WF0071C6	1.93	06/09/2000	Thalassionema nitzschioides	6.32337
WF007	N16	WF0071C6	1.93	06/09/2000	Thalassiosira sp. group 3 10-20 microns	24.10367
WF007	N16	WF0071C6	1.93	06/09/2000	Unid. micro-phytoflag sp. group 1 length	18,419.38
WF007	N16	WF0071C6	1.93	06/09/2000	Unid. micro-phytoflag sp. group 2 length	382.59109
WF007	N16	WF0071C5	6.71	06/09/2000	Centric diatom sp. group 1 diam <10 micr	112.29091
WF007	N16	WF0071C5	6.71	06/09/2000	Ceratium fusus	1,995.60
WF007	N16	WF0071C5	6.71	06/09/2000	Ceratium longipes	23,879.51
WF007	N16	WF0071C5	6.71	06/09/2000	Ceratium tripos	5,113.63
WF007	N16	WF0071C5	6.71	06/09/2000	Cryptomonas sp. group 1 length <10 micro	1,381.35
WF007	N16	WF0071C5	6.71	06/09/2000	Cryptomonas sp. group 2 length >10 micro	112.29091
WF007	N16	WF0071C5	6.71	06/09/2000	Dinophysis norvegica	2,285.11
WF007	N16	WF0071C5	6.71	06/09/2000	Ebria tripartita	131.52254
WF007	N16	WF0071C5	6.71	06/09/2000	Gymnodinium sp. group 1 5-200 microns wi	870.11265
WF007	N16	WF0071C5	6.71	06/09/2000	Gymnodinium sp. group 2 21-400 microns w	267.2904
WF007	N16	WF0071C5	6.71	06/09/2000	Heterocapsa rotundata	57.07783
WF007	N16	WF0071C5	6.71	06/09/2000	Pennate diatom sp. group 2 10-30 microns	4.42339
WF007	N16	WF0071C5	6.71	06/09/2000	Rhizosolenia setigera	188.65423
WF007	N16	WF0071C5	6.71	06/09/2000	Skeletonema costatum	5.15859
WF007	N16	WF0071C5	6.71	06/09/2000	Thalassionema nitzschioides	5.62805
WF007	N16	WF0071C5	6.71	06/09/2000	Thalassiosira sp. group 3 10-20 microns	14.30215
WF007	N16	WF0071C5	6.71	06/09/2000	Unid. micro-phytoflag sp. group 1 length	22,664.74
WF007	N16	WF0071C5	6.71	06/09/2000	Unid. micro-phytoflag sp. group 2 length	340.52117
WF007	N18	WF007079	1.95	06/08/2000	Centric diatom sp. group 1 diam <10 micr	286.83432
WF007	N18	WF007079	1.95	06/08/2000	Ceratium fusus	6,553.96
WF007	N18	WF007079	1.95	06/08/2000	Cocconeis scutellum	113.88381
WF007	N18	WF007079	1.95	06/08/2000	Cryptomonas sp. group 1 length <10 micro	555.11834
WF007	N18	WF007079	1.95	06/08/2000	Cryptomonas sp. group 2 length >10 micro	40.97633

WF007	N18	WF007079	1.95	06/08/2000	Cylindrotheca closterium	112.93866
WF007	N18	WF007079	1.95	06/08/2000	Dinophysis norvegica	3,126.99
WF007	N18	WF007079	1.95	06/08/2000	Guinardia delicatula	1,338.52
WF007	N18	WF007079	1.95	06/08/2000	Gymnodinium sp. group 1 5-200 microns wi	740.86785
WF007	N18	WF007079	1.95	06/08/2000	Gymnodinium sp. group 2 21-400 microns w	5,852.25
WF007	N18	WF007079	1.95	06/08/2000	Heterocapsa rotundata	41.6568
WF007	N18	WF007079	1.95	06/08/2000	Licmophora spp.	67.59336
WF007	N18	WF007079	1.95	06/08/2000	Pennate diatom sp. group 2 10-30 microns	161.68639
WF007	N18	WF007079	1.95	06/08/2000	Skeletonema costatum	3,331.91
WF007	N18	WF007079	1.95	06/08/2000	Thalassiosira sp. group 3 10-20 microns	78.28543
WF007	N18	WF007079	1.95	06/08/2000	Unid. micro-phytoflag sp. group 1 length	24,073.11
WF007	N18	WF007079	1.95	06/08/2000	Unid. micro-phytoflag sp. group 2 length	1,615.38
WF007	N18	WF007077	9.55	06/08/2000	Centric diatom sp. group 1 diam <10 micr	295.49347
WF007	N18	WF007077	9.55	06/08/2000	Ceratium fusus	2,625.70
WF007	N18	WF007077	9.55	06/08/2000	Ceratium longipes	16,000.65
WF007	N18	WF007077	9.55	06/08/2000	Ceratium tripos	2,242.75
WF007	N18	WF007077	9.55	06/08/2000	Cryptomonas sp. group 1 length <10 micro	1,783.01
WF007	N18	WF007077	9.55	06/08/2000	Dinophysis norvegica	1,879.14
WF007	N18	WF007077	9.55	06/08/2000	Guinardia delicatula	2,010.94
WF007	N18	WF007077	9.55	06/08/2000	Gymnodinium sp. group 1 5-200 microns wi	318.01403
WF007	N18	WF007077	9.55	06/08/2000	Gymnodinium sp. group 2 21-400 microns w	586.14547
WF007	N18	WF007077	9.55	06/08/2000	Heterocapsa rotundata	187.75036
WF007	N18	WF007077	9.55	06/08/2000	Pennate diatom sp. group 2 10-30 microns	4.85006
WF007	N18	WF007077	9.55	06/08/2000	Protoperidinium depressum	7,137.20
WF007	N18	WF007077	9.55	06/08/2000	Skeletonema costatum	25.45282
WF007	N18	WF007077	9.55	06/08/2000	Thalassiosira sp. group 3 10-20 microns	7.84085
WF007	N18	WF007077	9.55	06/08/2000	Thalassiothrix longissima	295.82539
WF007	N18	WF007077	9.55	06/08/2000	Unid. micro-phytoflag sp. group 1 length	21,336.04
WF007	N18	WF007077	9.55	06/08/2000	Unid. micro-phytoflag sp. group 2 length	4,107.04
WN003	N04	WN003045	2.94	03/14/2000	Centric diatom sp. group 1 diam <10 micr	1,065.71
WN003	N04	WN003045	2.94	03/14/2000	Chaetoceros debilis	1,471.23
WN003	N04	WN003045	2.94	03/14/2000	Chaetoceros socialis	298.18106
WN003	N04	WN003045	2.94	03/14/2000	Chaetoceros sp. group 2 diam 10-30 micro	2,122.09
WN003	N04	WN003045	2.94	03/14/2000	Corethron criophilum	4,765.29
WN003	N04	WN003045	2.94	03/14/2000	Coscinodiscus sp. group 2 diam 40-100 mi	6,093.79
WN003	N04	WN003045	2.94	03/14/2000	Cryptomonas sp. group 1 length <10 micro	60.71247
WN003	N04	WN003045	2.94	03/14/2000	Cylindrotheca closterium	1,435.24
WN003	N04	WN003045	2.94	03/14/2000	Detonula confervacea	298.5792
WN003	N04	WN003045	2.94	03/14/2000	Eutreptia/eutreptiella spp.	47.6359
WN003	N04	WN003045	2.94	03/14/2000	Gymnodinium sp. group 1 5-200 microns wi	1,342.74
WN003	N04	WN003045	2.94	03/14/2000	Pennate diatom sp. group 2 10-30 microns	410.25487
WN003	N04	WN003045	2.94	03/14/2000	Pennate diatom sp. group 3 31-60 microns	439.16834
WN003	N04	WN003045	2.94	03/14/2000	Phaeocystis pouchetii	35,117.20
WN003	N04	WN003045	2.94	03/14/2000	Prorocentrum minimum	481.5709
WN003	N04	WN003045	2.94	03/14/2000	Rhizosolenia setigera	1,091.73
WN003	N04	WN003045	2.94	03/14/2000	Skeletonema costatum	59.70491
WN003	N04	WN003045	2.94	03/14/2000	Stephanopyxis turris	4,515.53
WN003	N04	WN003045	2.94	03/14/2000	Thalassionema nitzschioides	162.84577
WN003	N04	WN003045	2.94	03/14/2000	Thalassiosira nordenskioldii	6,591.67

WN003	N04	WN003045	2.94	03/14/2000	Thalassiosira rotula	55,097.64
WN003	N04	WN003045	2.94	03/14/2000	Thalassiothrix longissima	3,127.90
WN003	N04	WN003045	2.94	03/14/2000	Unid. micro-phytoflag sp. group 1 length	8,852.45
WN003	N04	WN003045	2.94	03/14/2000	Unid. micro-phytoflag sp. group 2 length	394.11492
WN003	N04	WN003043	20.76	03/14/2000	Centric diatom sp. group 1 diam <10 micr	1,162.24
WN003	N04	WN003043	20.76	03/14/2000	Chaetoceros debilis	1,522.79
WN003	N04	WN003043	20.76	03/14/2000	Chaetoceros decipiens	4,333.09
WN003	N04	WN003043	20.76	03/14/2000	Chaetoceros socialis	1,203.66
WN003	N04	WN003043	20.76	03/14/2000	Chaetoceros sp. group 2 diam 10-30 micro	3,953.61
WN003	N04	WN003043	20.76	03/14/2000	Coscinodiscus sp. group 2 diam 40-100 mi	3,784.40
WN003	N04	WN003043	20.76	03/14/2000	Cryptomonas sp. group 1 length <10 micro	94.25991
WN003	N04	WN003043	20.76	03/14/2000	Cylindrotheca closterium	889.81972
WN003	N04	WN003043	20.76	03/14/2000	Gymnodinium sp. group 1 5-200 microns wi	4,690.56
WN003	N04	WN003043	20.76	03/14/2000	Gyrodinium spirale	12,683.20
WN003	N04	WN003043	20.76	03/14/2000	Pennate diatom sp. group 3 31-60 microns	136.36727
WN003	N04	WN003043	20.76	03/14/2000	Phaeocystis pouchetii	29,269.52
WN003	N04	WN003043	20.76	03/14/2000	Prorocentrum minimum	223.9239
WN003	N04	WN003043	20.76	03/14/2000	Rhizosolenia setigera	2,033.98
WN003	N04	WN003043	20.76	03/14/2000	Skeletonema costatum	139.04342
WN003	N04	WN003043	20.76	03/14/2000	Stephanopyxis turris	8,412.77
WN003	N04	WN003043	20.76	03/14/2000	Thalassionema nitzschioides	121.35756
WN003	N04	WN003043	20.76	03/14/2000	Thalassiosira nordenskioldii	6,100.31
WN003	N04	WN003043	20.76	03/14/2000	Thalassiosira rotula	28,870.61
WN003	N04	WN003043	20.76	03/14/2000	Thalassiosira sp. group 3 10-20 microns	848.09215
WN003	N04	WN003043	20.76	03/14/2000	Unid. micro-phytoflag sp. group 1 length	6,609.24
WN003	N04	WN003043	20.76	03/14/2000	Unid. micro-phytoflag sp. group 2 length	1,468.53
WN003	N18	WN003073	3.13	03/14/2000	Centric diatom sp. group 1 diam <10 micr	122.00887
WN003	N18	WN003073	3.13	03/14/2000	Ceratium tripos	9,260.30
WN003	N18	WN003073	3.13	03/14/2000	Chaetoceros debilis	1,790.41
WN003	N18	WN003073	3.13	03/14/2000	Chaetoceros decipiens	3,645.14
WN003	N18	WN003073	3.13	03/14/2000	Chaetoceros socialis	233.27427
WN003	N18	WN003073	3.13	03/14/2000	Chaetoceros sp. group 2 diam 10-30 micro	828.68676
WN003	N18	WN003073	3.13	03/14/2000	Corethron criophilum	3,728.00
WN003	N18	WN003073	3.13	03/14/2000	Coscinodiscus sp. group 2 diam 40-100 mi	6,356.42
WN003	N18	WN003073	3.13	03/14/2000	Cryptomonas sp. group 1 length <10 micro	15.83228
WN003	N18	WN003073	3.13	03/14/2000	Gymnodinium sp. group 1 5-200 microns wi	262.61515
WN003	N18	WN003073	3.13	03/14/2000	Pennate diatom sp. group 3 31-60 microns	229.04802
WN003	N18	WN003073	3.13	03/14/2000	Phaeocystis pouchetii	36,605.35
WN003	N18	WN003073	3.13	03/14/2000	Prorocentrum minimum	752.22341
WN003	N18	WN003073	3.13	03/14/2000	Rhizosolenia setigera	1,708.17
WN003	N18	WN003073	3.13	03/14/2000	Skeletonema costatum	210.18869
WN003	N18	WN003073	3.13	03/14/2000	Stephanopyxis turris	24,728.25
WN003	N18	WN003073	3.13	03/14/2000	Thalassiosira nordenskioldii	10,163.44
WN003	N18	WN003073	3.13	03/14/2000	Thalassiosira rotula	72,738.37
WN003	N18	WN003073	3.13	03/14/2000	Thalassiosira sp. group 3 10-20 microns	129.71701
WN003	N18	WN003073	3.13	03/14/2000	Thalassiothrix longissima	2,442.92
WN003	N18	WN003073	3.13	03/14/2000	Unid. micro-phytoflag sp. group 1 length	4,633.96
WN003	N18	WN003071	11.07	03/14/2000	Centric diatom sp. group 1 diam <10 micr	146.87528
WN003	N18	WN003071	11.07	03/14/2000	Chaetoceros debilis	1,539.51

WN003	N18	WN003071	11.07	03/14/2000	Chaetoceros sp. group 2 diam 10-30 micro	997.57994
WN003	N18	WN003071	11.07	03/14/2000	Coscinodiscus sp. group 2 diam 40-100 mi	7,664.79
WN003	N18	WN003071	11.07	03/14/2000	Cryptomonas sp. group 1 length <10 micro	190.59026
WN003	N18	WN003071	11.07	03/14/2000	Cylindrotheca closterium	901.10605
WN003	N18	WN003071	11.07	03/14/2000	Dinophysis ovum	7,510.61
WN003	N18	WN003071	11.07	03/14/2000	Guinardia delicatula	666.35894
WN003	N18	WN003071	11.07	03/14/2000	Gymnodinium sp. group 1 5-200 microns wi	1,580.69
WN003	N18	WN003071	11.07	03/14/2000	Pennate diatom sp. group 3 31-60 microns	828.58159
WN003	N18	WN003071	11.07	03/14/2000	Phaeocystis pouchetii	39,668.40
WN003	N18	WN003071	11.07	03/14/2000	Pleurosigma spp.	1,237.31
WN003	N18	WN003071	11.07	03/14/2000	Prorocentrum micans	909.03229
WN003	N18	WN003071	11.07	03/14/2000	Prorocentrum minimum	1,358.30
WN003	N18	WN003071	11.07	03/14/2000	Stephanopyxis turris	17,010.32
WN003	N18	WN003071	11.07	03/14/2000	Thalassiosira anguste-lineata	1,844.59
WN003	N18	WN003071	11.07	03/14/2000	Thalassiosira nordenskioldii	7,352.95
WN003	N18	WN003071	11.07	03/14/2000	Thalassiosira rotula	91,887.15
WN003	N18	WN003071	11.07	03/14/2000	Unid. micro-phytoflag sp. group 1 length	7,294.83
WN003	N18	WN003071	11.07	03/14/2000	Unid. micro-phytoflag sp. group 2 length	5,567.47
WN005	N04	WN0050ED	2.46	05/01/2000	Centric diatom sp. group 1 diam <10 micr	61.4645
WN005	N04	WN0050ED	2.46	05/01/2000	Ceratium longipes	5,446.20
WN005	N04	WN0050ED	2.46	05/01/2000	Cryptomonas sp. group 1 length <10 micro	2,081.69
WN005	N04	WN0050ED	2.46	05/01/2000	Cryptomonas sp. group 2 length >10 micro	1,690.27
WN005	N04	WN0050ED	2.46	05/01/2000	Heterocapsa rotundata	366.48391
WN005	N04	WN0050ED	2.46	05/01/2000	Pennate diatom sp. group 1 <10 microns l	23.77959
WN005	N04	WN0050ED	2.46	05/01/2000	Unid. micro-phytoflag sp. group 1 length	11,005.29
WN005	N04	WN0050ED	2.46	05/01/2000	Unid. micro-phytoflag sp. group 2 length	1,397.93
WN005	N04	WN0050EB	22.7	05/01/2000	Centric diatom sp. group 1 diam <10 micr	35.46029
WN005	N04	WN0050EB	22.7	05/01/2000	Ceratium longipes	4,189.39
WN005	N04	WN0050EB	22.7	05/01/2000	Cryptomonas sp. group 1 length <10 micro	57.88081
WN005	N04	WN0050EB	22.7	05/01/2000	Gymnodinium sp. group 1 5-200 microns wi	152.65134
WN005	N04	WN0050EB	22.7	05/01/2000	Pennate diatom sp. group 1 <10 microns l	4.56532
WN005	N04	WN0050EB	22.7	05/01/2000	Thalassiosira sp. group 3 10-20 microns	30.10978
WN005	N04	WN0050EB	22.7	05/01/2000	Unid. micro-phytoflag sp. group 1 length	3,522.40
WN005	N04	WN0050EB	22.7	05/01/2000	Unid. micro-phytoflag sp. group 2 length	179.22167
WN005	N18	WN00512D	2.35	05/01/2000	Centric diatom sp. group 1 diam <10 micr	70.92057
WN005	N18	WN00512D	2.35	05/01/2000	Ceratium longipes	1,396.46
WN005	N18	WN00512D	2.35	05/01/2000	Cocconeis scutellum	43.80147
WN005	N18	WN00512D	2.35	05/01/2000	Cryptomonas sp. group 1 length <10 micro	1,582.90
WN005	N18	WN00512D	2.35	05/01/2000	Cryptomonas sp. group 2 length >10 micro	1,536.61
WN005	N18	WN00512D	2.35	05/01/2000	Eucampia zoodiacus	251.00572
WN005	N18	WN00512D	2.35	05/01/2000	Gymnodinium sp. group 1 5-200 microns wi	1,526.51
WN005	N18	WN00512D	2.35	05/01/2000	Gyrosigma spp.	119.49056
WN005	N18	WN00512D	2.35	05/01/2000	Pennate diatom sp. group 2 10-30 microns	13.96859
WN005	N18	WN00512D	2.35	05/01/2000	Thalassionema nitzschioides	118.68457
WN005	N18	WN00512D	2.35	05/01/2000	Thalassiosira sp. group 3 10-20 microns	22.58234
WN005	N18	WN00512D	2.35	05/01/2000	Unid. micro-phytoflag sp. group 1 length	14,385.61
WN005	N18	WN00512B	4.71	05/01/2000	Calycomonas wulffii	61.69322
WN005	N18	WN00512B	4.71	05/01/2000	Centric diatom sp. group 1 diam <10 micr	22.69458
WN005	N18	WN00512B	4.71	05/01/2000	Ceratium fusus	806.64085

WN005	N18	WN00512B	4.71	05/01/2000	Ceratium longipes	6,703.02
WN005	N18	WN00512B	4.71	05/01/2000	Choanoflagellate spp.	55.68503
WN005	N18	WN00512B	4.71	05/01/2000	Cryptomonas sp. group 1 length <10 micro	164.93276
WN005	N18	WN00512B	4.71	05/01/2000	Cryptomonas sp. group 2 length >10 micro	226.94584
WN005	N18	WN00512B	4.71	05/01/2000	Grammatophora marina	13.15765
WN005	N18	WN00512B	4.71	05/01/2000	Gymnodinium sp. group 1 5-200 microns wi	3,224.00
WN005	N18	WN00512B	4.71	05/01/2000	Heterocapsa rotundata	2.87909
WN005	N18	WN00512B	4.71	05/01/2000	Skeletonema costatum	20.85158
WN005	N18	WN00512B	4.71	05/01/2000	Thalassionema nitzschioides	11.37458
WN005	N18	WN00512B	4.71	05/01/2000	Thalassiosira sp. group 3 10-20 microns	50.58443
WN005	N18	WN00512B	4.71	05/01/2000	Unid. micro-phytoflag sp. group 1 length	9,604.62
WN005	N18	WN00512B	4.71	05/01/2000	Unid. micro-phytoflag sp. group 2 length	1,032.32
WN006	N04	WN0061ED	1.79	05/17/2000	Centric diatom sp. group 1 diam <10 micr	25.83717
WN006	N04	WN0061ED	1.79	05/17/2000	Ceratium lineatum	2,967.94
WN006	N04	WN0061ED	1.79	05/17/2000	Ceratium longipes	106,836.91
WN006	N04	WN0061ED	1.79	05/17/2000	Chaetoceros sp. group 2 diam 10-30 micro	526.45982
WN006	N04	WN0061ED	1.79	05/17/2000	Chaetoceros spp. (< 100 microns)	160.70666
WN006	N04	WN0061ED	1.79	05/17/2000	Cryptomonas sp. group 1 length <10 micro	1,126.51
WN006	N04	WN0061ED	1.79	05/17/2000	Cryptomonas sp. group 2 length >10 micro	129.18586
WN006	N04	WN0061ED	1.79	05/17/2000	Dinophysis norvegica	26,333.39
WN006	N04	WN0061ED	1.79	05/17/2000	Eutreptia/eutreptiella spp.	94.70131
WN006	N04	WN0061ED	1.79	05/17/2000	Guinardia delicatula	61,086.44
WN006	N04	WN0061ED	1.79	05/17/2000	Gymnodinium sp. group 1 5-200 microns wi	5,672.49
WN006	N04	WN0061ED	1.79	05/17/2000	Heterocapsa rotundata	853.65269
WN006	N04	WN0061ED	1.79	05/17/2000	Heterocapsa triquetra	3,525.42
WN006	N04	WN0061ED	1.79	05/17/2000	Skeletonema costatum	9,198.85
WN006	N04	WN0061ED	1.79	05/17/2000	Unid. micro-phytoflag sp. group 1 length	19,604.63
WN006	N04	WN0061ED	1.79	05/17/2000	Unid. micro-phytoflag sp. group 2 length	8,226.85
WN006	N04	WN0061EC	6.23	05/17/2000	Centric diatom sp. group 1 diam <10 micr	94.56076
WN006	N04	WN0061EC	6.23	05/17/2000	Ceratium longipes	83,928.74
WN006	N04	WN0061EC	6.23	05/17/2000	Chaetoceros spp. (< 100 microns)	147.04149
WN006	N04	WN0061EC	6.23	05/17/2000	Cryptomonas sp. group 1 length <10 micro	1,196.38
WN006	N04	WN0061EC	6.23	05/17/2000	Cryptomonas sp. group 2 length >10 micro	709.20574
WN006	N04	WN0061EC	6.23	05/17/2000	Dinophysis norvegica	24,094.22
WN006	N04	WN0061EC	6.23	05/17/2000	Ebria tripartita	692.22391
WN006	N04	WN0061EC	6.23	05/17/2000	Eutreptia/eutreptiella spp.	86.64869
WN006	N04	WN0061EC	6.23	05/17/2000	Guinardia delicatula	36,619.00
WN006	N04	WN0061EC	6.23	05/17/2000	Gymnodinium sp. group 1 5-200 microns wi	4,274.24
WN006	N04	WN0061EC	6.23	05/17/2000	Heterocapsa rotundata	901.22895
WN006	N04	WN0061EC	6.23	05/17/2000	Heterocapsa triquetra	3,225.65
WN006	N04	WN0061EC	6.23	05/17/2000	Skeletonema costatum	8,280.90
WN006	N04	WN0061EC	6.23	05/17/2000	Thalassionema nitzschioides	59.2426
WN006	N04	WN0061EC	6.23	05/17/2000	Thalassiosira sp. group 3 10-20 microns	150.80223
WN006	N04	WN0061EC	6.23	05/17/2000	Unid. micro-phytoflag sp. group 1 length	23,265.62
WN006	N04	WN0061EC	6.23	05/17/2000	Unid. micro-phytoflag sp. group 2 length	6,810.42
WN006	N18	WN00621B	2.02	05/17/2000	Amphidinium spp.	305.44637
WN006	N18	WN00621B	2.02	05/17/2000	Centric diatom sp. group 1 diam <10 micr	12.38659
WN006	N18	WN00621B	2.02	05/17/2000	Ceratium lineatum	5,710.61
WN006	N18	WN00621B	2.02	05/17/2000	Ceratium longipes	58,634.08

WN006	N18	WN00621B	2.02	05/17/2000	Ceratium tripos	11,300.47
WN006	N18	WN00621B	2.02	05/17/2000	Chaetoceros sp. group 2 diam 10-30 micro	505.62911
WN006	N18	WN00621B	2.02	05/17/2000	Choanoflagellate spp.	182.66245
WN006	N18	WN00621B	2.02	05/17/2000	Cryptomonas sp. group 1 length <10 micro	1,564.95
WN006	N18	WN00621B	2.02	05/17/2000	Cryptomonas sp. group 2 length >10 micro	496.29718
WN006	N18	WN00621B	2.02	05/17/2000	Eutreptia/eutreptiella spp.	182.21452
WN006	N18	WN00621B	2.02	05/17/2000	Guinardia delicatula	79,033.00
WN006	N18	WN00621B	2.02	05/17/2000	Gymnodinium sp. group 1 5-200 microns wi	3,039.38
WN006	N18	WN00621B	2.02	05/17/2000	Heterocapsa rotundata	756.80841
WN006	N18	WN00621B	2.02	05/17/2000	Heterocapsa triquetra	23,701.51
WN006	N18	WN00621B	2.02	05/17/2000	Pennate diatom sp. group 2 10-30 microns	97.75119
WN006	N18	WN00621B	2.02	05/17/2000	Prorocentrum micans	1,846.09
WN006	N18	WN00621B	2.02	05/17/2000	Prorocentrum minimum	459.74677
WN006	N18	WN00621B	2.02	05/17/2000	Pyramimonas sp. group 1 10-20 microns le	237.45819
WN006	N18	WN00621B	2.02	05/17/2000	Rhizosolenia setigera	2,084.51
WN006	N18	WN00621B	2.02	05/17/2000	Skeletonema costatum	12,283.32
WN006	N18	WN00621B	2.02	05/17/2000	Thalassiosira sp. group 3 10-20 microns	79.0148
WN006	N18	WN00621B	2.02	05/17/2000	Unid. micro-phytoflag sp. group 1 length	21,128.17
WN006	N18	WN00621B	2.02	05/17/2000	Unid. micro-phytoflag sp. group 2 length	3,386.29
WN006	N18	WN006219	10.8	05/17/2000	Amphidinium spp.	285.16762
WN006	N18	WN006219	10.8	05/17/2000	Centric diatom sp. group 1 diam <10 micr	231.67387
WN006	N18	WN006219	10.8	05/17/2000	Ceratium lineatum	2,661.26
WN006	N18	WN006219	10.8	05/17/2000	Ceratium longipes	41,056.00
WN006	N18	WN006219	10.8	05/17/2000	Chaetoceros socialis	354.35821
WN006	N18	WN006219	10.8	05/17/2000	Chaetoceros sp. group 2 diam 10-30 micro	1,416.18
WN006	N18	WN006219	10.8	05/17/2000	Chaetoceros spp. (< 100 microns)	172.92079
WN006	N18	WN006219	10.8	05/17/2000	Cryptomonas sp. group 1 length <10 micro	1,515.16
WN006	N18	WN006219	10.8	05/17/2000	Cryptomonas sp. group 2 length >10 micro	115.83694
WN006	N18	WN006219	10.8	05/17/2000	Dinophysis norvegica	5,893.17
WN006	N18	WN006219	10.8	05/17/2000	Eutreptia/eutreptiella spp.	170.11721
WN006	N18	WN006219	10.8	05/17/2000	Guinardia delicatula	81,984.39
WN006	N18	WN006219	10.8	05/17/2000	Gymnodinium sp. group 1 5-200 microns wi	2,991.97
WN006	N18	WN006219	10.8	05/17/2000	Gymnodinium sp. group 2 21-400 microns w	8,271.93
WN006	N18	WN006219	10.8	05/17/2000	Heterocapsa rotundata	647.6832
WN006	N18	WN006219	10.8	05/17/2000	Heterocapsa triquetra	3,681.80
WN006	N18	WN006219	10.8	05/17/2000	Skeletonema costatum	10,084.24
WN006	N18	WN006219	10.8	05/17/2000	Unid. micro-phytoflag sp. group 1 length	25,469.04
WN006	N18	WN006219	10.8	05/17/2000	Unid. micro-phytoflag sp. group 2 length	4,917.84
WN008	N04	WN008036	1.73	07/06/2000	Calycomonas wulffii	22.73144
WN008	N04	WN008036	1.73	07/06/2000	Centric diatom sp. group 1 diam <10 micr	401.37746
WN008	N04	WN008036	1.73	07/06/2000	Ceratium longipes	4,939.58
WN008	N04	WN008036	1.73	07/06/2000	Ceratium tripos	15,231.99
WN008	N04	WN008036	1.73	07/06/2000	Choanoflagellate spp.	153.88249
WN008	N04	WN008036	1.73	07/06/2000	Cryptomonas sp. group 1 length <10 micro	771.49542
WN008	N04	WN008036	1.73	07/06/2000	Cryptomonas sp. group 2 length >10 micro	62.71523
WN008	N04	WN008036	1.73	07/06/2000	Cylindrotheca closterium	76.82455
WN008	N04	WN008036	1.73	07/06/2000	Dactyliosolen fragilissimus	3,502.88
WN008	N04	WN008036	1.73	07/06/2000	Ebria tripartita	734.56226
WN008	N04	WN008036	1.73	07/06/2000	Guinardia delicatula	11,248.58

WN008	N04	WN008036	1.73	07/06/2000	Gymnodinium sp. group 1 5-200 microns wi	809.93962
WN008	N04	WN008036	1.73	07/06/2000	Gymnodinium sp. group 2 21-400 microns w	2,985.67
WN008	N04	WN008036	1.73	07/06/2000	Leptocylindrus minimus	349.59064
WN008	N04	WN008036	1.73	07/06/2000	Skeletonema costatum	144.29785
WN008	N04	WN008036	1.73	07/06/2000	Thalassiosira sp. group 3 10-20 microns	53.2523
WN008	N04	WN008036	1.73	07/06/2000	Unid. micro-phytoflag sp. group 1 length	20,605.25
WN008	N04	WN008036	1.73	07/06/2000	Unid. micro-phytoflag sp. group 2 length	570.55009
WN008	N04	WN008034	17.79	07/06/2000	Centric diatom sp. group 1 diam <10 micr	137.37854
WN008	N04	WN008034	17.79	07/06/2000	Ceratium fusus	1,743.89
WN008	N04	WN008034	17.79	07/06/2000	Ceratium longipes	2,318.62
WN008	N04	WN008034	17.79	07/06/2000	Ceratium tripos	17,874.57
WN008	N04	WN008034	17.79	07/06/2000	Cryptomonas sp. group 1 length <10 micro	542.44096
WN008	N04	WN008034	17.79	07/06/2000	Dactyliosolen fragilissimus	39.14853
WN008	N04	WN008034	17.79	07/06/2000	Dinophysis norvegica	499.22069
WN008	N04	WN008034	17.79	07/06/2000	Ebria tripartita	57.46673
WN008	N04	WN008034	17.79	07/06/2000	Eucampia cornuta	
WN008	N04	WN008034	17.79	07/06/2000	Guinardia delicatula	1,493.34
WN008	N04	WN008034	17.79	07/06/2000	Gymnodinium sp. group 1 5-200 microns wi	380.18219
WN008	N04	WN008034	17.79	07/06/2000	Gymnodinium sp. group 2 21-400 microns w	467.15353
WN008	N04	WN008034	17.79	07/06/2000	Heterocapsa rotundata	124.69636
WN008	N04	WN008034	17.79	07/06/2000	Leptocylindrus minimus	20.51204
WN008	N04	WN008034	17.79	07/06/2000	Prorocentrum minimum	18.14962
WN008	N04	WN008034	17.79	07/06/2000	Thalassiosira sp. group 3 10-20 microns	106.2347
WN008	N04	WN008034	17.79	07/06/2000	Unid. micro-phytoflag sp. group 1 length	8,723.49
WN008	N04	WN008034	17.79	07/06/2000	Unid. micro-phytoflag sp. group 2 length	446.35628
WN008	N18	WN008058	1.69	07/06/2000	Centric diatom sp. group 1 diam <10 micr	2,055.54
WN008	N18	WN008058	1.69	07/06/2000	Ceratium fusus	1,760.50
WN008	N18	WN008058	1.69	07/06/2000	Ceratium longipes	2,925.87
WN008	N18	WN008058	1.69	07/06/2000	Ceratium tripos	20,300.41
WN008	N18	WN008058	1.69	07/06/2000	Cryptomonas sp. group 1 length <10 micro	1,021.94
WN008	N18	WN008058	1.69	07/06/2000	Cryptomonas sp. group 2 length >10 micro	123.8276
WN008	N18	WN008058	1.69	07/06/2000	Cylindrotheca closterium	45.50569
WN008	N18	WN008058	1.69	07/06/2000	Dactyliosolen fragilissimus	110,846.05
WN008	N18	WN008058	1.69	07/06/2000	Ebria tripartita	580.14031
WN008	N18	WN008058	1.69	07/06/2000	Eucampia cornuta	
WN008	N18	WN008058	1.69	07/06/2000	Eutreptia/eutreptiella spp.	72.6187
WN008	N18	WN008058	1.69	07/06/2000	Guinardia delicatula	141,572.05
WN008	N18	WN008058	1.69	07/06/2000	Gymnodinium sp. group 1 5-200 microns wi	13,113.27
WN008	N18	WN008058	1.69	07/06/2000	Gymnodinium sp. group 2 21-400 microns w	1,768.51
WN008	N18	WN008058	1.69	07/06/2000	Gyrodinium sp. group 2 21-40 microns wid	1,179.01
WN008	N18	WN008058	1.69	07/06/2000	Heterocapsa rotundata	440.59379
WN008	N18	WN008058	1.69	07/06/2000	Leptocylindrus minimus	8,504.32
WN008	N18	WN008058	1.69	07/06/2000	Lithodesmium spp.	488.13223
WN008	N18	WN008058	1.69	07/06/2000	Prorocentrum minimum	12,847.31
WN008	N18	WN008058	1.69	07/06/2000	Protoperidinium bipes	155.15374
WN008	N18	WN008058	1.69	07/06/2000	Skeletonema costatum	341.88934
WN008	N18	WN008058	1.69	07/06/2000	Thalassiosira sp. group 3 10-20 microns	1,387.90
WN008	N18	WN008058	1.69	07/06/2000	Unid. micro-phytoflag sp. group 1 length	30,574.93
WN008	N18	WN008058	1.69	07/06/2000	Unid. micro-phytoflag sp. group 2 length	6,383.60

WN008	N18	WN008056	8.07	07/06/2000	Calycomonas wulffii	114.32186
WN008	N18	WN008056	8.07	07/06/2000	Centric diatom sp. group 1 diam <10 micr	1,640.13
WN008	N18	WN008056	8.07	07/06/2000	Ceratium tripos	4,787.83
WN008	N18	WN008056	8.07	07/06/2000	Cryptomonas sp. group 1 length <10 micro	1,915.46
WN008	N18	WN008056	8.07	07/06/2000	Cryptomonas sp. group 2 length >10 micro	315.40992
WN008	N18	WN008056	8.07	07/06/2000	Cylindrotheca closterium	386.36909
WN008	N18	WN008056	8.07	07/06/2000	Dactyliosolen fragilissimus	207,556.25
WN008	N18	WN008056	8.07	07/06/2000	Dinophysis norvegica	2,674.40
WN008	N18	WN008056	8.07	07/06/2000	Ebria tripartita	3,386.43
WN008	N18	WN008056	8.07	07/06/2000	Eucampia cornuta	
WN008	N18	WN008056	8.07	07/06/2000	Eutreptia/eutreptiella spp.	38.53586
WN008	N18	WN008056	8.07	07/06/2000	Guinardia delicatula	13,285.80
WN008	N18	WN008056	8.07	07/06/2000	Gymnodinium sp. group 1 5-200 microns wi	6,245.85
WN008	N18	WN008056	8.07	07/06/2000	Gymnodinium sp. group 2 21-400 microns w	5,005.22
WN008	N18	WN008056	8.07	07/06/2000	Heterocapsa rotundata	2,084.21
WN008	N18	WN008056	8.07	07/06/2000	Leptocylindrus minimus	494.48676
WN008	N18	WN008056	8.07	07/06/2000	Lithodesmium spp.	2,072.26
WN008	N18	WN008056	8.07	07/06/2000	Prorocentrum minimum	58,046.66
WN008	N18	WN008056	8.07	07/06/2000	Skeletonema costatum	120.74823
WN008	N18	WN008056	8.07	07/06/2000	Thalassiosira sp. group 3 10-20 microns	3,280.78
WN008	N18	WN008056	8.07	07/06/2000	Unid. micro-phytoflag sp. group 1 length	25,749.22
WN008	N18	WN008056	8.07	07/06/2000	Unid. micro-phytoflag sp. group 2 length	5,738.87
WN009	N04	WN00904A	2.72	07/19/2000	Centric diatom sp. group 1 diam <10 micr	426.94185
WN009	N04	WN00904A	2.72	07/19/2000	Ceratium fusus	1,806.54
WN009	N04	WN00904A	2.72	07/19/2000	Ceratium tripos	23,145.91
WN009	N04	WN00904A	2.72	07/19/2000	Chaetoceros sp. group 1 diam <10 microns	50.66739
WN009	N04	WN00904A	2.72	07/19/2000	Cryptomonas sp. group 1 length <10 micro	1,994.45
WN009	N04	WN00904A	2.72	07/19/2000	Cryptomonas sp. group 2 length >10 micro	1,728.10
WN009	N04	WN00904A	2.72	07/19/2000	Cylindrotheca closterium	373.56633
WN009	N04	WN00904A	2.72	07/19/2000	Dactyliosolen fragilissimus	22,913.56
WN009	N04	WN00904A	2.72	07/19/2000	Eutreptia/eutreptiella spp.	149.28653
WN009	N04	WN00904A	2.72	07/19/2000	Guinardia delicatula	552.49715
WN009	N04	WN00904A	2.72	07/19/2000	Gymnodinium sp. group 1 5-200 microns wi	6,038.89
WN009	N04	WN00904A	2.72	07/19/2000	Gymnodinium sp. group 5 20-30 microns	13,308.25
WN009	N04	WN00904A	2.72	07/19/2000	Leptocylindrus minimus	95.62028
WN009	N04	WN00904A	2.72	07/19/2000	Pennate diatom sp. group 2 10-30 microns	20.02164
WN009	N04	WN00904A	2.72	07/19/2000	Unid. micro-phytoflag sp. group 1 length	38,845.89
WN009	N04	WN00904A	2.72	07/19/2000	Unid. micro-phytoflag sp. group 2 length	5,548.70
WN009	N04	WN009049	10.02	07/19/2000	Calycomonas ovalis	20.37618
WN009	N04	WN009049	10.02	07/19/2000	Calycomonas wulffii	19.90047
WN009	N04	WN009049	10.02	07/19/2000	Centric diatom sp. group 1 diam <10 micr	680.81815
WN009	N04	WN009049	10.02	07/19/2000	Ceratium fusus	1,951.49
WN009	N04	WN009049	10.02	07/19/2000	Ceratium tripos	110,013.73
WN009	N04	WN009049	10.02	07/19/2000	Cryptomonas sp. group 1 length <10 micro	3,402.72
WN009	N04	WN009049	10.02	07/19/2000	Cryptomonas sp. group 2 length >10 micro	1,756.95
WN009	N04	WN009049	10.02	07/19/2000	Dactyliosolen fragilissimus	20,590.26
WN009	N04	WN009049	10.02	07/19/2000	Dinophysis norvegica	5,586.52
WN009	N04	WN009049	10.02	07/19/2000	Ebria tripartita	321.54003
WN009	N04	WN009049	10.02	07/19/2000	Guinardia delicatula	149.20729

WN009	N04	WN009049	10.02	07/19/2000	Gymnodinium sp. group 1 5-200 microns wi	3,119.91
WN009	N04	WN009049	10.02	07/19/2000	Gymnodinium sp. group 5 20-30 microns	9,148.42
WN009	N04	WN009049	10.02	07/19/2000	Leptocylindrus minimus	126.24674
WN009	N04	WN009049	10.02	07/19/2000	Thalassionema nitzschioides	110.25866
WN009	N04	WN009049	10.02	07/19/2000	Unid. micro-phytoflag sp. group 1 length	24,913.73
WN009	N04	WN009049	10.02	07/19/2000	Unid. micro-phytoflag sp. group 2 length	7,325.91
WN009	N18	WN00906E	2.59	07/19/2000	Calycomonas ovalis	31.64811
WN009	N18	WN00906E	2.59	07/19/2000	Calycomonas wulffii	92.72773
WN009	N18	WN00906E	2.59	07/19/2000	Centric diatom sp. group 1 diam <10 micr	545.77598
WN009	N18	WN00906E	2.59	07/19/2000	Ceratium tripos	15,533.85
WN009	N18	WN00906E	2.59	07/19/2000	Chaetoceros sp. group 1 diam <10 microns	42.43394
WN009	N18	WN00906E	2.59	07/19/2000	Cryptomonas sp. group 1 length <10 micro	1,832.51
WN009	N18	WN00906E	2.59	07/19/2000	Cryptomonas sp. group 2 length >10 micro	852.77497
WN009	N18	WN00906E	2.59	07/19/2000	Dactyliosolen fragilissimus	328,651.92
WN009	N18	WN00906E	2.59	07/19/2000	Eucampia cornuta	
WN009	N18	WN00906E	2.59	07/19/2000	Guinardia delicatula	9,733.39
WN009	N18	WN00906E	2.59	07/19/2000	Gymnodinium sp. group 1 5-200 microns wi	3,964.76
WN009	N18	WN00906E	2.59	07/19/2000	Gymnodinium sp. group 5 20-30 microns	4,059.79
WN009	N18	WN00906E	2.59	07/19/2000	Leptocylindrus minimus	784.34146
WN009	N18	WN00906E	2.59	07/19/2000	Protoperidinium sp. group 2 31-75 micron	22,702.49
WN009	N18	WN00906E	2.59	07/19/2000	Thalassionema nitzschioides	85.48256
WN009	N18	WN00906E	2.59	07/19/2000	Unid. micro-phytoflag sp. group 1 length	31,434.99
WN009	N18	WN00906E	2.59	07/19/2000	Unid. micro-phytoflag sp. group 2 length	2,586.03
WN009	N18	WN00906C	12	07/19/2000	Calycomonas wulffii	17.35999
WN009	N18	WN00906C	12	07/19/2000	Centric diatom sp. group 1 diam <10 micr	249.05702
WN009	N18	WN00906C	12	07/19/2000	Ceratium fusus	3,404.74
WN009	N18	WN00906C	12	07/19/2000	Ceratium longipes	11,317.06
WN009	N18	WN00906C	12	07/19/2000	Ceratium tripos	104,693.92
WN009	N18	WN00906C	12	07/19/2000	Cryptomonas sp. group 1 length <10 micro	1,506.54
WN009	N18	WN00906C	12	07/19/2000	Cryptomonas sp. group 2 length >10 micro	574.74696
WN009	N18	WN00906C	12	07/19/2000	Dactyliosolen fragilissimus	40,127.24
WN009	N18	WN00906C	12	07/19/2000	Dictyocha speculum	553.76743
WN009	N18	WN00906C	12	07/19/2000	Dinophysis norvegica	4,873.34
WN009	N18	WN00906C	12	07/19/2000	Guinardia delicatula	1,041.28
WN009	N18	WN00906C	12	07/19/2000	Gymnodinium sp. group 1 5-200 microns wi	3,958.72
WN009	N18	WN00906C	12	07/19/2000	Gymnodinium sp. group 5 20-30 microns	13,680.92
WN009	N18	WN00906C	12	07/19/2000	Heterocapsa rotundata	146.07287
WN009	N18	WN00906C	12	07/19/2000	Leptocylindrus minimus	260.3076
WN009	N18	WN00906C	12	07/19/2000	Thalassionema nitzschioides	48.01076
WN009	N18	WN00906C	12	07/19/2000	Thalassiosira sp. group 3 10-20 microns	61.00312
WN009	N18	WN00906C	12	07/19/2000	Unid. micro-phytoflag sp. group 1 length	21,061.58
WN009	N18	WN00906C	12	07/19/2000	Unid. micro-phytoflag sp. group 2 length	2,614.37

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