The following document is best viewed using Acrobat Reader 4.0. Earlier versions will not reproduce the maps.

Note: The following is the text part of data report 172, including the nutrient and chlorophyll data. A complete copy including the CTD data plots, standard depth listings, and vertical sections is available from Dr. A. Huyer at Oregon State University, COAS, 104 Ocean. Admin. Bldg., Corvallis, Oregon, 97331-5503.

The CTD station data for each cruise are also available by ftp at: ftp.oce.orst.edu under the directory: dist/globec/'cruise'/.

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Hydrographic Data from the GLOBEC Long-Term Observation Program off Oregon, 1997 and 1998

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Table of Contents

List of Tables

List of Figures

Hydrographic Data from the GLOBEC Long-Term Observation Program off Oregon, 1997 and 1998

Introduction

As part of the GLOBEC North East Pacific Program, a Long Term Observation Program (LTOP) of repeated hydrographic observations along two lines off Oregon began in September 1997. One of these lines (NH, off Newport) had been sampled frequently during the decade from 1961 to 1970, and the other (FM, off Coos Bay) had been sampled repeatedly in 1981-1983. Early detection of the 1997-98 El Niño resulted in resources for additional sampling off northern California, and cooperation with colleagues resulted in extra sampling off Newport (in July 1997) and Coos Bay (May 1998). The program includes measurements of upper ocean currents by the ship-borne Acoustic Doppler profiling system, zooplankton sampling at selected stations, and deployment of satellite-tracked drifters at selected sites; those results will be presented elsewhere. This report presents the CTD, nutrient and chlorophyll data from ten cruises made between July 1997 and November 1998.

In this set of ten cruises, sampling occurred on five separate lines (Figure 1): the Newport Hydro (NH) line which extends 150 km west along 44°39.1'N off Newport, Oregon; the Five Mile Point (FM) line which extends 65 km west along 43°13.0'N from Coos Bay, Oregon; the CR line which extends west along 41°54'N from Crescent City, California, the EUR line which extends west along 40°52'N from Eureka, California, and the COC line which extends southwest from the coastline at 38°40'N, about half-way between Point Arena and Point Reyes. Station names on each line reflect historical usage: for the NH line, the numerical suffix indicates the distance from shore in nautical miles; for all other lines, the station location names are those used during SuperCODE in 1981-1984 (Fleischbein et al., 1985). Each section includes at least two stations beyond the 1000 m isobath, and the maximum CTD sampling depth is 1000 m. The NH-line was sampled on nine cruises, and the FM line on eight (Table 1). Two cruises included sampling on all five lines (Table 1).

All but two of the cruises were on the R/V Wecoma, operated by Oregon State University, and sailing to and from her homeport of Newport, Oregon. Wecoma was working in the Bering Sea during the summer of 1998, and not available for local sampling then. NOAA Ship McArthur, engaged in the Pacific Northwest Coastal Ecosystem Regional Study (PNCERS), was used instead for CTD sampling off Coos Bay and Newport in late May and early June 1998. The Oregon State cruise name convention is as follows: the first letter designates the ship (W for Wecoma), the next four digits indicate the beginning year and month, and the final letter distinguishes between cruises starting in the same month (A for first, B for second, etc). The NOAA Ship McArthur uses a slightly different naming convention: AR designates McArthur; the first two digits indicate the year, and the last two digits indicate the consecutive number of the cruise within that year.

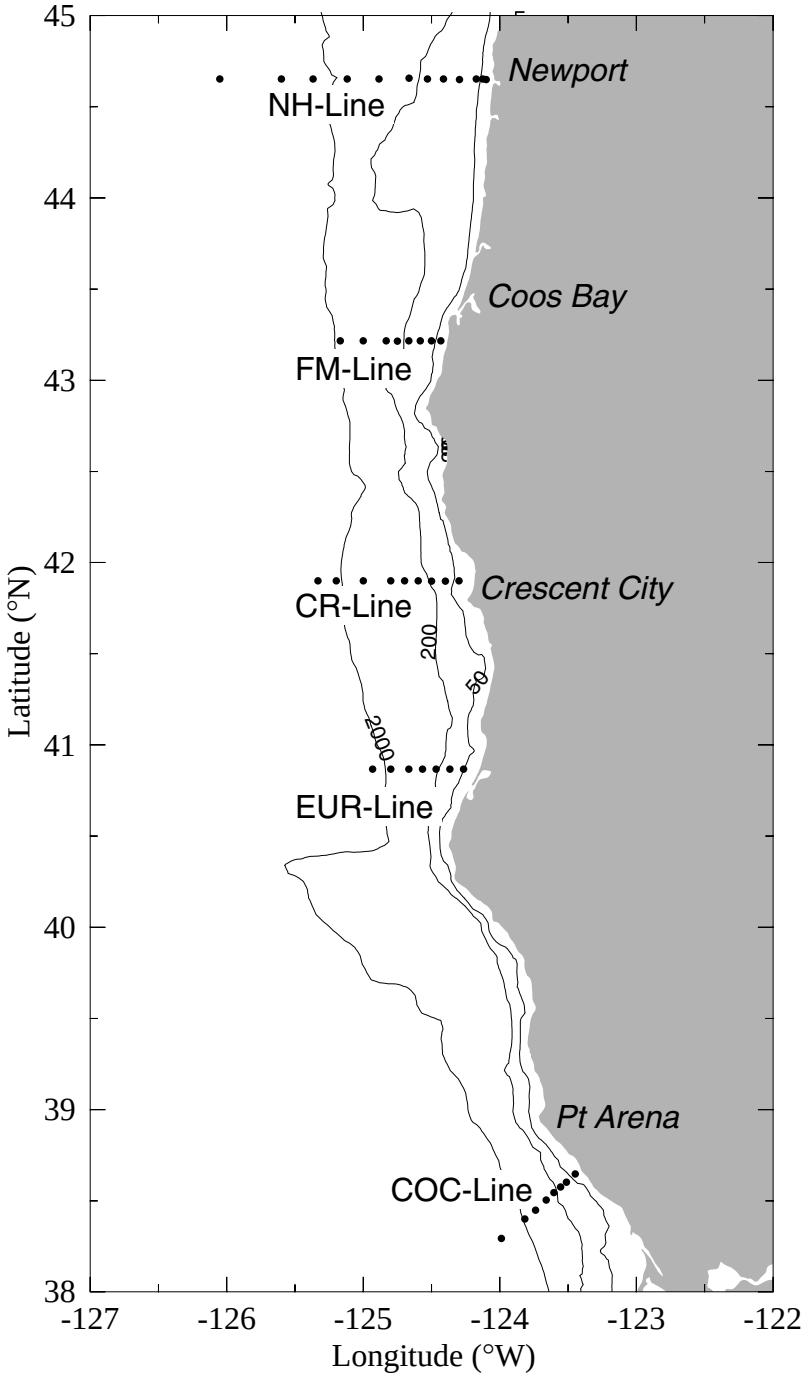

Figure 1. Location of standard sampling lines.

Several persons participated in almost all cruises (Table 2). This overlap of personnel ensured that similar sampling protocols were used throughout; these protocols are described below.

The GLOBEC LTOP cruises off Oregon were originally planned to begin in January 1998, but because of the appearance of El Niño, we were able to arrange for earlier sampling. The first Newport section in July 1997 was completed as ancillary work on a cruise whose primary purpose was to test instruments for COAS colleagues Drs. Jack Barth and Tim Cowles; this section had relatively few stations (Table 3, Fig. 2), and did not include sampling for nutrients and chlorophyll. The first GLOBEC LTOP cruise in September 1997 included full CTD, nutrient and chlorophyll sampling of the Newport Line (Table 4, Fig. 2), but did not include sufficient time for sampling the FM or other lines. Four lines were fully sampled in November 1997 (Table 5, Fig. 2). The NH and FM lines were both sampled during W9801B (Table 6, Fig. 2), and a PNCERS mooring off Coos Bay was recovered and redeployed for Dr. Barbara Hickey, University of Washington; rough weather prevented the completion of the most offshore station of the FM line (Table 1). All five lines were sampled in April 1998 (Table 7, Fig. 3), but rough weather prevented the completion of two stations on the EUR line (Table 1). A mooring at NH-10, consisting of a bottom mounted Acoustic Doppler Profiler and thermistor, was recovered and replaced at the beginning of the April cruise.

The two cruises on McArthur in May and June (Tables 8, 9; Fig. 3) did not include nutrient or chlorophyll sampling. The McArthur cruise in May was organized primarily by and for the PNCERS program; chief scientist Dr. Curtis Roegner and other personnel from Oregon Institute for Marine Biology provided the CTD data along the FM line. Four persons from OSU joined the McArthur cruise in June (boarding in Coos Bay, and disembarking by small boat off Newport) to make CTD observations along the NH-line.

All five lines were sampled in August 1998 (Tables 1, 10; Fig. 4), beginning with the NH line, and working progressively farther south. Preliminary processing of the CTD data indicated that the CTD system functioned poorly during the first several stations of the cruise (for more details see Table 14 below). Since there was sufficient remaining time, most of the NH-line was repeated at the end of the cruise.

In September 1998, our two-day allotment of ship-time was combined with an additional day of ship-time allotted to COAS colleague Dr. Marta Torres for recovering several bottom moorings to measure interfacial exchange on the sea floor near NH-45. Her work was part of a collaborative program with Scripps Institute of Oceanography, and three persons from Scripps participated in the cruise (Table 2). All moorings were successfully recovered, and we completed a full set of stations along the NH line as usual (Table 11, Fig. 4).

Four lines were sampled in November 1998 (Table 12, Fig. 4). Preliminary processing of the CTD data indicated that the primary sensor pump malfunctioned during some stations of the NH line (for more details see Table 14 below). Because of

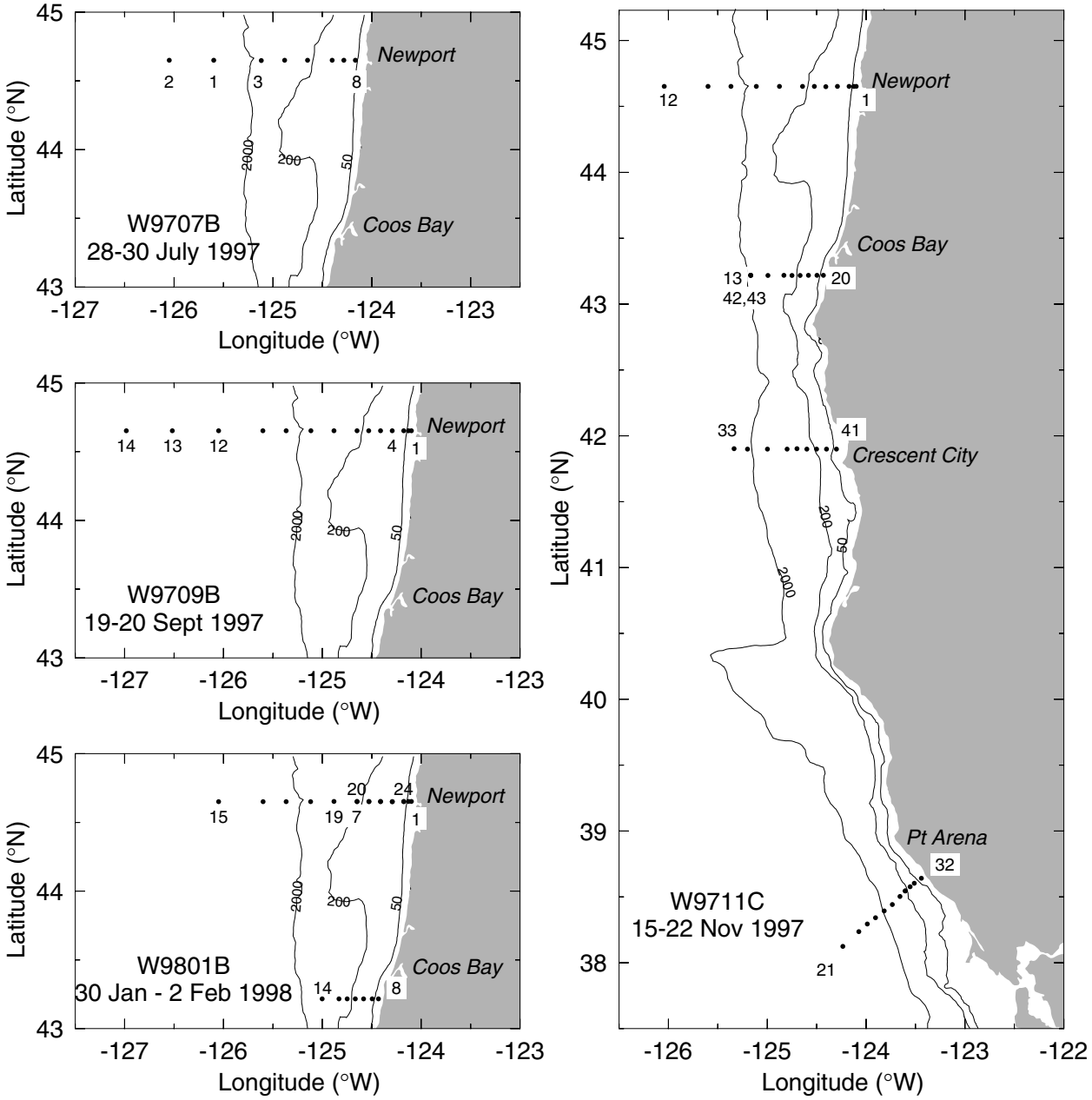

Figure 2. Location of CTD stations during W9707B, W9709B,W9711C, and W9801B.

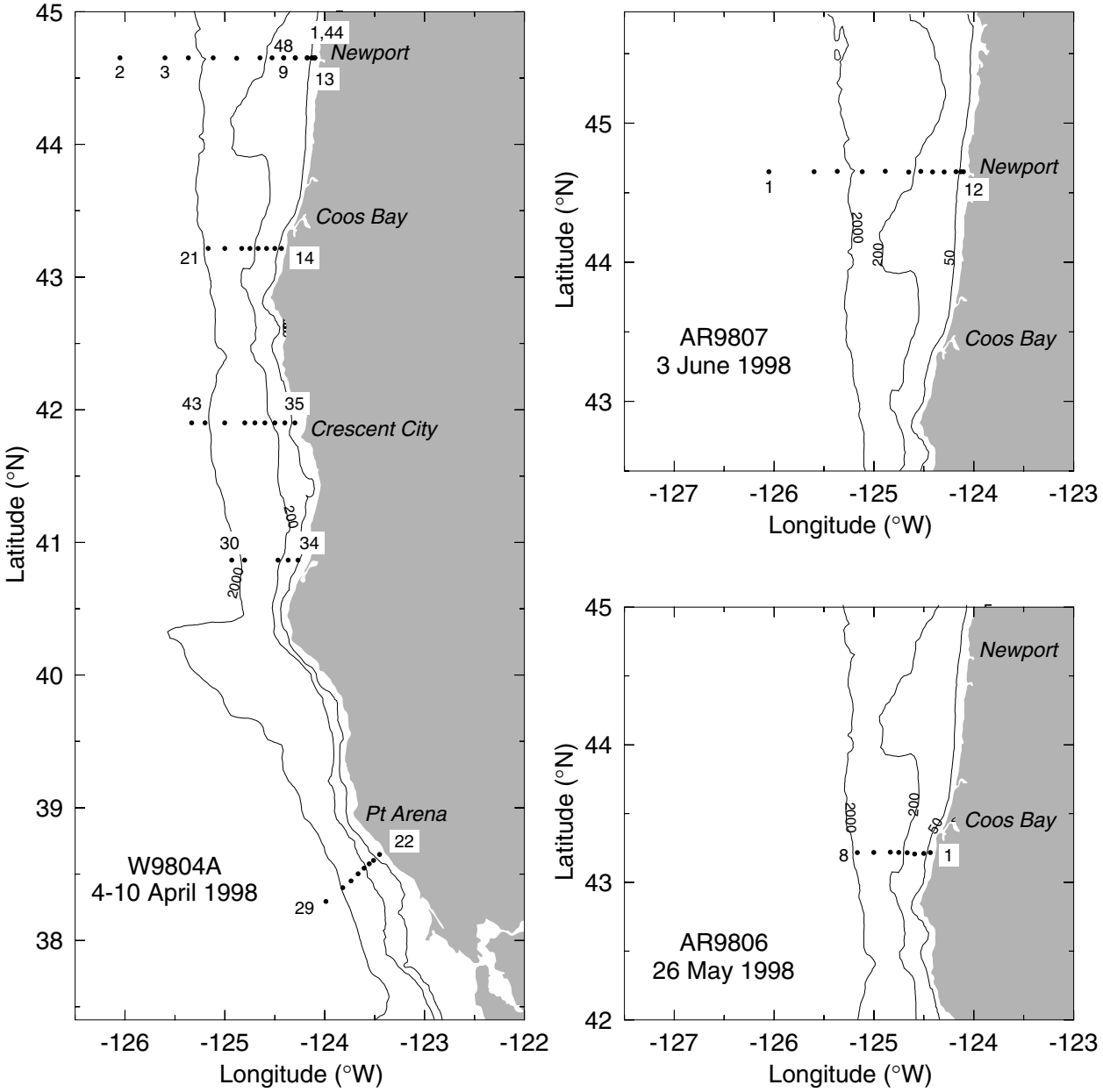

Figure 3. Location of CTD stations during W9804A, AR9706, and AR9807.

increasingly rough weather, we were unable to repeat those stations at the end of the cruise.

Satellite-tracked drifters were deployed on five cruises: in January, April, June, August and September 1998 (Table 13). Because of the El Niño, our routine deployment of 4-5 drifters per cruise was supplemented by the NOAA Atlantic Oceanographic Marine Laboratory in Miami, which provided a total of 17 additional drifters.

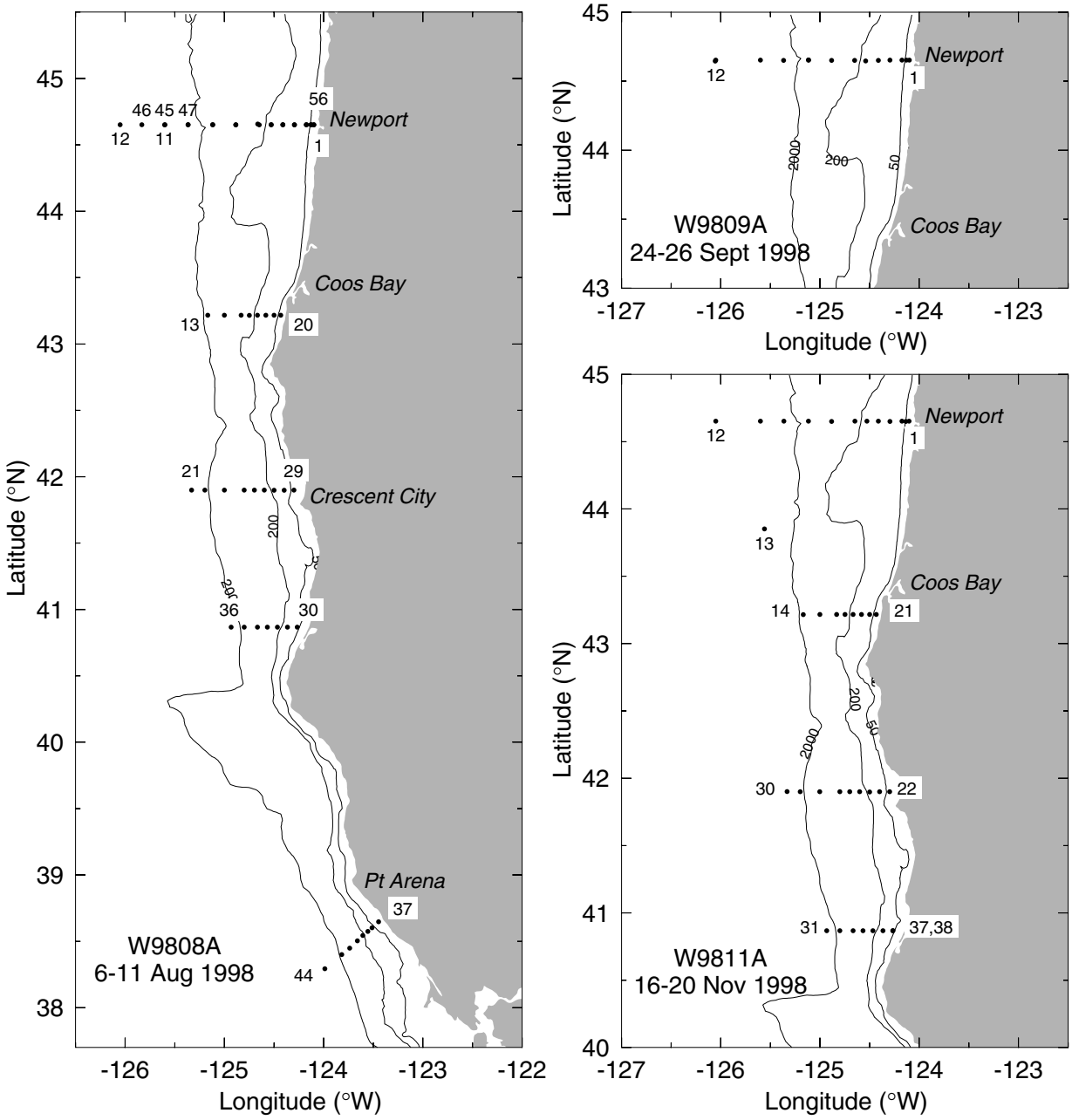

Figure 4. Location of CTD stations during W9808A, W9809A, and W9811A.

Table 1. Stations occupied along the 5 hydrographic lines: Newport, Five Mile, Crescent City, Eureka and CODE Central during the 1997 - 1998 GLOBEC cruises.

Station	W9707b 28-30 July	W9709b 19-20 Sept	W9711c 15-22 Nov	W9801b 30Jan-2Feb	W9804a 4-10 Apr	AR9806 26 May	AR9807 3 June	W9808a 6-14 Aug	W9809a 24-26 Sept	W9811a 16-20 Nov
NH-1		1	1	1	1,13,44		12	1,56	1	1
-3		2	2	2	12,45		11	2,55	2	2
-5	8	3	3	3,24	11,46		10	3,54	3	3
-10	7	4	4	4,23	10,47		9	4,53	4	4
-15	6	5	5	5,22	9,48		8	7,52	5	5
-20		6	6	6,21	8		7	6,51	6	6
-25	5	7	7	7,20	7		6	5,50	7	7
-35	4	8	8	19	6		5	8,49	8	8
-45	3	9	9	18	5		4	9,48	9,14	9
-55		10	10	17	4		3	10,47	10	10
-65	1	11	11	16	3		2	11,45	11	11
-85	2	12	12	15	2		1	12 -75/46	12,13	12
-105		13								
-125		14								
FM-1			20	8	14	1		20		21
-3			19	9	15	2		19		20
-4			18	10	16	3		18		19
-5			17	11	17	4		17		18
-6			16	12	18	5		16		17
-7			15	13	19	6		15		16
-8			14	14	20	7		14		15
-9			13,42,43		21	8		13		14
CR-1			41		37			29		22
-2			40		36			28		23
-3			39		35			27		24
-4			38		38			26		25
-5			37		39			25		26
-6			36		40			24		27
-7			35		41			23		28
-8			34		42			22		29
-9			33		43			21		30
EUR-1					34			30		38
-2					33			31		36
-3					32			32		35
-4								33		34
-5								34		33
-6					31			35		32
-7					30			36		31
COC-2			32		22			37		
-4			31		23			38		
-5			30		24			39		
-6			28,29		25			40		
-7			27		26			41		
-8			26		27			42		
-9			25		28			43		
-10			24							
-11			23		29			44		
-12			22							
-13			21							

Table 2. Names, affiliations, and responsibilities of scientific personnel participating on the Pilot Monitoring Cruises.

			W9707B	W9709B	W9711C	W9801B	W9804A	AR9806	AR9807	W9808A	W9809A	W9811A
Robert L. Smith	OSU	CTD		x	x	x	x			x		x
Adriana Huyer	OSU	CTD		x	x	x	x			x	x	x
P. Michael Kosro	OSU	ADCP, CTD		x	x	x	x			x		x
Jane Fleischbein	OSU	CTD	x	x	x	x	x		x	x	x	x
Sheila O'Keefe	OSU	CTD		x	x	x	x			x		x
Margaret Sparrow	OSU	CTD			x	x	x		x			
Robert O'Malley	OSU	CTD									x	
Jianping Gan	OSU	CTD										x
Marjorie Sandor	OSU	CTD		x								
Walt Waldorf	OSU	Mooring					x					
Stephen Pierce	OSU	CTD	x						x			
Jim Johnson	UW	CB mooring				x						
Yisha Weinstein	SIO	CTD									x	
Mike Tryon	SIO	moorings									x	
Holger Michaelis	SIO	moorings									x	
Patricia Wheeler	OSU	nuts, chl									x	
Jon Hill	OSU	nuts, chl		x	x	x	x			x	x	x
Nobu Kawasaki	OSU	nuts, chl		x	x	x	x					x
Holly Corwith	OSU	nuts, chl								x	x	x
Mariachiara Naldi	OSU	nuts, chl									x	x
Yvette Spitz	OSU	nuts, chl, zp			x		x					
John Harms	OSU	nuts, chl		x							x	
Scott Franz	OSU	nuts, chl		x								
Pinya Sarasas	OSU	nuts, chl			x							
Jeff Campbell	OSU	nuts, chl			x							
Todd Ison	OSU	nuts, chl				x	x					
William Voorhies	--	nuts, chl				x						
Sheryl Horstman	OSU	nuts, chl								x	x	
Kevin Pendergast	OSU	zooplankton								x		
William T Peterson	HMSC	zooplankton			x	x	x			x		x
Curtis Roegner	OIMB	zooplankton				x	x	x		x		x
Julie Keister	HMSC	zooplankton					x		x	x	x	x
Cheryl Morgan	HMSC	zooplankton			x	x						
Rick Cowlishaw	OIMB	zooplankton										x
Dan Cutter	HMSC	zooplankton					x					
Tim Loher	UW	zooplankton								x		
Tim Wagner	OSU	zooplankton									x	
Cascade Sorte	Whitman	zooplankton									x	
Marc Willis	OSU	martec	x	x			x					
Don Michaelson	OSU	martec			x	x						
Linda Fayler	OSU	martec	x				x			x	x	x
Toby Martin	OSU	martec			x							
Russel Sloan	OSU	martec								x		

Table 3. CTD stations occupied during W9707B.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Atm. Pr. (mbar)	Wind Dir (°T)	Wind Spd (kts)
1	NH-65	28 July	0544	44°39.0'N	125°36.0'W	1018.8	000	20
2	NH-85		0841	44°39.0'	126°03.0'	1018.9	000	18
3	NH-45		1526	44°38.9'	125°07.1'	1018.1	010	17
4	NH-35	29 July	0538	44°39.0'	124°53.0'	1018.3	035	8
5	NH-25	30 July	0457	44°39.0'	124°39.0'	1018.0	350	12
6	NH-15		0630	44°39.0'	124°24.0'	1018.1	350	10
7	NH-10		0725	44°39.0'	124°17.0'	1018.1	350	8
8	NH-5		0813	44°39.0'	124°10.0'	1018.0	340	8

Table 4. CTD stations occupied during W9709B.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Depth (m)	Atm. Pr. (mbar)	Wind Dir. (°T)	Wind Spd. (kt)	Chlor., Nuts.
1	NH-1	19 Sept	2104	44°39.1'N	124°06.0'W	29	1019.2	350	13	
2	NH-3		2150	44°39.1'	124°07.8'	48	1019.2	350	13	
3	NH-5		2223	44°39.1'	124°10.6'	59	1019.0	340	16	Y
4	NH-10		2337	44°39.1'	124°17.7'	82	1018.5	330	18	
5	NH-15	20 Sept	0052	44°39.3'	124°24.7'	92	1018.0	340	21	Y
6	NH-20		0208	44°39.0'	124°31.9'	142	1018.1	345	18	
7	NH-25		0314	44°39.0'	124°39.0'	294	1018.1	000	20	Y
8	NH-35		0603	44°39.1'	124°53.0'	431	1017.9	020	18	Y
9	NH-45		0850	44°39.1'	125°07.0'	693	1017.8	015	16	Y
10	NH-55		1042	44°39.1'	125°22.0'	2862	1017.5	015	16	
11	NH-65		1235	44°39.1'	125°36.1'	2857	1017.1	010	18	Y
12	NH-85		1535	44°39.2'	126°03.0'	2977	1018.1	020	17	Y
13	NH-105		1952	44°39.1'	126°31.0'	2857	1018.1	010	16	
14	NH-125		2133	44°39.1'	126°59.0'	2877	1017.9	010	16	

Table 5. CTD stations during W9711C.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Depth (m)	Atm. Pr. (mbar)	Wind Dir. (°T)	Wind Spd. (kt)	Chlor., Nuts.
1	NH-1	15 Nov	1920	44°39.1'N	124°06.0'W	32	1010.0	095	19	
2	NH-3		2120	44°39.1'	124°07.5'	50	1009.7	090	14	
3	NH-5		2207	44°39.1'	124°10.4'	57	1009.7	090	14	Y
4	NH-10		2325	44°39.1'	124°17.4'	80	1009.7	130	14	
5	NH-15	16 Nov	0032	44°39.0'	124°24.5'	90	1010.2	150	18	Y
6	NH-20		0159	44°39.1'	124°31.4'	140	1011.1	170	24	
7	NH-25		0303	44°39.1'	124°38.6'	296	1011.6	160	35	Y
8	NH-35		0553	44°39.1'	124°52.6'	437	1011.9	160	30	Y
9	NH-45		0847	44°39.1'	125°06.6'	700	1010.8	160	36	Y
10	NH-55		1116	44°39.1'	125°22.0'	2874	1010.5	160	38	
11	NH-65		1533	44°39.1'	125°36.0'	2857	1008.9	160	26	Y
12	NH-85		2027	44°39.1'	126°02.6'	2904	1007.4	160	25	Y
13	FM-9	17 Nov	0738	43°13.1'	125°10.0'	1640	1018.1	205	22	Y
14	FM-8		1072	43°13.0'	124°59.6'	1072	1019.9	210	20	Y
15	FM-7		1247	43°13.1'	124°49.9'	355	1020.0	210	20	Y
16	FM-6		1432	43°13.0'	124°45.0'	317	1021.0	210	15	
17	FM-5		1555	43°13.0'	124°40.0'	157	1021.7	225	18	Y
18	FM-4		1713	43°13.1'	124°35.0'	87	1022.3	185	18	Y
19	FM-3		1831	43°13.1'	124°29.9'	71	1023.2	180	12	Y
20	FM-1		1939	43°13.1'	124°26.0'	38	1023.3	195	18	
21	COC-13	19 Nov	1407	38°07.5'	124°14.1'	3742	1006.1	250	14	Y
22	COC-12		1644	38°14.2'	124°04.4'	3588	1018.8	220	4	
23	COC-11		1845	38°17.7'	123°59.3'	3372	1020.0	265	9	Y
24	COC-10		2051	38°20.5'	123°54.3'	2369	1020.8	250	12	
25	COC-9		2255	38°23.6'	123°49.1'	1712	1021.3	260	12	Y
26	COC-8	20 Nov	0101	38°26.6'	123°44.1'	1219	1021.4	280	13	
27	COC-7		0301	38°30.2'	123°39.5'	410	1023.0	310	10	Y
28	COC-6		0439	38°32.7'	123°36.3'	155	1023.0	315	8	
29	COC-6		0542	38°32.7'	123°36.3'	158	1024.0	315	7	
30	COC-5		0634	38°34.6'	123°33.3'	140	1024.5	035	6	
31	COC-4		0746	38°36.2'	123°30.8'	110	1024.5	025	7	Y
32	COC-2		0909	38°38.5'	123°26.5'	74	1024.9	010	6	Y
33	CR-9	21 Nov	0338	41°54.1'	125°20.1'	3085	1024.1	var	--	Y
34	CR-8		0550	41°54.0'	125°12.0'	2709	1024.0	025	5	
35	CR-7		0745	41°54.0'	124°59.9'	840	1023.8	020	4	Y
36	CR-6		0958	41°54.0'	124°48.0'	702	1023.1	var	6	
37	CR-5		1121	41°54.1'	124°42.0'	665	1022.7	040	10	Y
38	CR-4		1309	41°54.0'	124°36.0'	505	1022.0	055	6	Y
39	CR-3		1441	41°54.0'	124°30.0'	135	1021.5	var	--	Y
40	CR-2		1559	41°54.0'	124°24.0'	70	1021.4	104	3	
41	CR-1		1705	41°54.0'	124°18.0'	41	1021.8	airs	1	Y
42	FM-9	22 Nov	0033	43°13.1'	125°10.0'	1639	1017.1	170	13	
43	FM-9		0055	43°13.1'	125°10.0'	1639	1017.1	170	13	

Table 6. CTD stations during W9801B.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Depth (m)	Atm. Pr. (mbar)	Wind Dir. (°T)	Wind Spd. (kt)	Chlor., Nuts.
1	NH-1	30 Jan	1942	44°39.2'N	124°06.0'W	29	1012.8	90	10	
2	NH-3		2135	44°39.2'	124°07.8'	48	1010.7	100	13	
3	NH-5		2240	44°39.1'	124°10.6'	58	1010.1	90	9	Y
4	NH-10	31 Jan	37	44°39.1'	124°17.7'	81	1009.5	90	8	
5	NH-15		221	44°39.1'	124°24.8'	91	1007.9	90	20	Y
6	NH-20		416	44°39.2'	124°31.8'	140	1006.2	90	22	
7	NH-25		540	44°39.2'	124°39.0'	294	1004.9	100	21	Y
8	FM-1		1836	43°13.0'	124°26.0'	35	1002.1	175	6	
9	FM-3		2024	43°13.0'	124°29.8'	68	1003.2	205	30-40	Y
10	FM-4		2219	43°13.0'	124°35.0'	91	1004	175	30	Y
11	FM-5		2357	43°13.0'	124°40.0'	155	1003.8	180	32	Y
12	FM-6	1 Feb	215	43°13.0'	124°45.0'	315	1002.8	170	36	
13	FM-7		338	43°13.0'	124°50.0'	339	1002.3	170	30	Y
14	FM-8		655	43°13.0'	125°00.1'	1075	998.5	165	35	Y
15	NH-85		1826	44°39.1'	126°03.0'	2884	991	185	22	Y
16	NH-65		2207	44°39.1'	125°36.0'	2862	993.2	185	30	Y
17	NH-55	2 Feb	152	44°39.1'	125°22.0'	2867	997.8	200	24	
18	NH-45		434	44°39.1'	125°07.1'	712	999	185	27	Y
19	NH-35		818	44°39.2'	124°53.0'	439	1001.8	190	23	Y
20	NH-25		1010	44°39.1'	124°39.0'	296	1002.6	180	19	Y
21	NH-20		1123	44°39.1'	124°31.7'	140	1003.1	190	24	
22	NH-15		1228	44°39.2'	124°24.7'	98	1004.7	260	20	Y
23	NH-10		1423	44°39.1'	124°17.6'	81	1005.4	160	10	
24	NH-5		1544	44°39.2'	124°10.6'	58	1006.3	125	11	

Table 7. CTD stations during W9804A.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Depth (m)	Atm. Pr. (mbar)	Wind Dir (°T)	Wind Spd (kt)	Chlor., Nuts.
1	NH-1	4 Apr	11	44°39.1'N	124°06.1'W	29	1014.4	330	10	
2	NH-85		1538	44°39.1'	126°03.0	2884	1014.4	350	6	Y
3	NH-65		1829	44°39.1'	125°36.0'	2862	1015.2	335	3	Y
4	NH-55		2159	44°39.1'	125°22.0'	2862	1015.5	320	8	
5	NH-45	5 Apr	10	44°39.1'	125°07.0'	699	1015.2	330	10	Y
6	NH-35		404	44°39.0'	124°53.0'	446	1015.5	340	12	Y
7	NH-25		548	44°39.1'	124°39.0'	297	1015.7	0	12	Y
8	NH-20		814	44°39.1'	124°31.7'	140	1015	350	12	
9	NH-15		944	44°39.1'	124°24.7'	90	1015.2	350	8	Y
10	NH-10		1145	44°39.1'	124°17.7'	82	1015.1	350	6	
11	NH-5		1316	44°39.1'	124°10.5'	60	1015.1	310	6	Y
12	NH-3		1419	44°39.1'	124°07.8'	50	1015.2	130	6	
13	NH-1		1447	44°39.1'	124°06.0'	30	1015.4	--	--	
14	FM-1		2255	43°13.0'	124°26.0'	33	1013.6	330	10	
15	FM-3	6 Apr	3	43°13.0'	124°30.0'	59	1013.4	320	8	Y
16	FM-4		130	43°13.0'	124°35.0'	85	1013.1	320	8	y
17	FM-5		339	43°13.0'	124°40.0'	155	1012.9	305	3	y
18	FM-6		438	43°13.0'	124°45.0'	315	1013.1	225	2	
19	FM-7		533	43°13.0'	124°50.0'	344	1013	25	3	Y
20	FM-8		736	43°13.0'	125°00.0'	1077	1012.3	280	13	Y
21	FM-9		1014	43°13.0'	125°10.0'	1660	1011.1	190	15	
22	COC-2	7 Apr	1239	38°38.8	123°27.0'	78	1019.2	340	24	Y
23	COC-4		1534	38°36.2	123°30.8	112	1020.8	335	25	Y
24	COC-5		1735	38°34.6	123°33.3	138	1022.2	330	25	Y
25	COC-6		1835	38°32.7	123°36.3	157	1022.3	325	30	
26	COC-7		1931	38°30.1	123°40.0	417	1022.8	330	27	Y
27	COC-8		2203	38°26.9	123°44.3	1210	1023.1	320	25	
28	COC-9	8 Apr	7	38°23.9	123°49.2	1685	1022.7	330	26	Y
29	COC-11		356	38°17.6	123°59.3	3385	1023.8	326	25	y
30	EUR-7		2007	40°52.0	124°56.0	2932	1020.6	160	27	
31	EUR-6		2232	40°52.0	124°48.1	1651	1019.2	165	30	
32	EUR-3	9 Apr	231	40°52.0	124°28.1	387	1018.1	180	22	
33	EUR-2		422	40°52.0	124°22.0	115	1018.1	160	17	
34	EUR-1		601	40°52.0	124°16.1	62	1018	150	16	
35	CR-3		1403	41°54.0	124°30.0	135	1017.2	180	22	Y
36	CR-2		1501	41°54.0	124°24.0	70	1017.1	155	16	
37	CR-1		1558	41°54.0	124°18.0	41	1017.2	150	18	Y
38	CR-4		1758	41°54.0	124°36.0	506	1016.6	170	20	Y
39	CR-5		2003	41°54.0	124°42.0	653	1016.2	180	20	Y
40	CR-6		2132	41°54.0	124°48.0	693	1016	170	21	
41	CR-7		2327	41°54.0	125°00.1	836	1014.2	180	20	Y
42	CR-8	10 Apr	118	41°54.0	125°12.0	2729	1012.3	180	26	
43	CR-9		258	41°54.0	125°20.0	3092	1010.9	175	33	Y
44	NH-1		1801	44°39.1	124°06.0	29	1009.1	170	18	
45	NH-3		1902	44°39.1	124°07.8	48	1009.2	150	16	
46	NH-5		1940	44°39.1	124°10.6	59	1008.9	180	32	Y
47	NH-10		2120	44°39.1	124°17.7	81	1008.5	220	22	
48	NH-15		2258	44°39.1	124°24.7	90	1007.7	180	32	Y

Table 8. CTD stations occupied during AR9806.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude
1	FM-1	26 May	1150	43°13.0'N	124°26.1'W
2	FM-3		1310	43°12.6'	124°30.0'
3	FM-4		1434	43°12.4'	124°35.5'
4	FM-5		1703	43°12.9'	124°40.1'
5	FM-6		1820	43°13.1'	124°45.2'
6	FM-7		2000	43°13.2'	124°50.2'
7	FM-8		2140	43°13.1'	125°00.1'
8	FM-9		2330	43°13.0'	125°10.0'

Table 9. CTD stations occupied during AR9807.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Depth (m)
1	NH-85	3 June	0153	44°39.1'N	126°03.1'W	
2	NH-65		0356	44°39.1'	125°36.0'	
3	NH-55		0710	44°39.2'	125°22.1'	
4	NH-45		0908	44°39.1'	125°07.0'	702
5	NH-35		1120	44°39.3'	124°53.2'	453
6	NH-25		1309	44°38.9'	124°39.1'	284
7	NH-20		1422	44°39.2'	124°31.8'	143
8	NH-15		1510	44°39.0'	124°24.8'	90
9	NH-10		1605	44°39.0'	124°17.8'	78
10	NH-5		1700	44°39.1'	124°10.6'	55
11	NH-3		1724	44°39.1'	124°07.8'	45
12	NH-1		1756	44°39.1'	124°06.2'	26

Table 10. CTD stations during W9808A.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Depth (m)	Atm. Pr. (mbar)	Wind Dir. (°T)	Wind Spd. (kt.)	Chlor., Nuts.
1	NH-1	6 Aug	1820	44°39.0'N	124°06.0'W	28	1022.1	000	16	
2	NH-3		1933	44°39.1'	124°07.5'	47	1022.0	000	15	
3	NH-5		2036	44°39.1'	124°10.4'	57	1021.9	350	21	Y
4	NH-10		2316	44°39.0'	124°17.7'	81	1021.9	340	24	
5	NH-25	7 Aug	0620	44°39.4'	124°39.9'	271	1021.2	350	21	Y
6	NH-20		0830	44°39.1'	124°31.8'	145	1021.4	350	23	
7	NH-15		0929	44°39.1'	124°24.8'	91	1021.1	020	12	Y
8	NH-35		1135	44°39.1'	124°53.1'	451	1019.9	000	19	Y
9	NH-45		1340	44°39.1'	125°07.1'	700	1021.2	340	18	Y
10	NH-55		1651	44°39.1'	125°22.0'	2863	1021.5	000	15	
11	NH-65		1845	44°39.1'	125°36.0'	2860	1021.8	000	14	Y
12	NH-85		2232	44°39.1'	126°03.0'	2877	1021.2	350	15	Y
13	FM-9	8 Aug	0807	43°13.0'	125°10.1'	1656	1018.1	000	18	Y
14	FM-8		1120	43°13.0'	125°00.0'	1078	1018.2	000	20	Y
15	FM-7		1358	43°13.0'	124°50.0'	341	1017.9	000	16	Y
16	FM-6		1541	43°12.9'	124°45.0'	311	1017.6	000	18	
17	FM-5		1636	43°13.0'	124°40.0'	157	1017.4	000	19	Y
18	FM-4		1815	43°13.0'	124°35.0'	87	1017.5	005	18	Y
19	FM-3		1941	43°13.0'	124°30.0'	66	1017.8	000	14	Y
20	FM-1		2056	43°13.0'	124°26.0'	36	1017.6	000	12	
21	CR-9	9 Aug	0500	41°54.0'	125°19.9'	2992	1018.2	325	15	Y
22	CR-8		0649	41°54.0'	125°11.9'	2699	1018.9	330	14	
23	CR-7		0925	41°54.0'	125°00.0'	785	1019.1	330	14	Y
24	CR-6		1102	41°54.0'	124°48.0'	698	1019.2	350	16	
25	CR-5		1317	41°54.0'	124°41.9'	654	1019.8	350	16	Y
26	CR-4		1442	41°54.0'	124°35.9'	497	1020.2	350	16	Y
27	CR-3		1659	41°53.9'	124°30.0'	137	1020.1	325	10	Y
28	CR-2		1840	41°53.9'	124°23.9'	68	1020.6	var	--	
29	CR-1		2009	41°54.0'	124°18.0'	42	1020.5	var	5	Y
30	EUR-1	10 Aug	0225	40°52.0'	124°16.0'	61	1020.5	320	12	Y
31	EUR-2		0347	40°52.0'	124°21.9'	112	1020.3	355	8	Y
32	EUR-3		0532	40°52.0'	124°28.0'	381	1020.8	340	7	Y
33	EUR-4		0732	40°52.0'	124°34.0'	555	1020.3	010	7	
34	EUR-5		0907	40°52.0'	124°40.0'	730	1019.8	330	8	Y
35	EUR-6		1033	40°52.0	124°48.0'	1535	1019.6	335	16	
36	EUR-7		1239	40°52.0'	124°56.0'	2930	1019.1	340	26	Y
37	COC-2	11 Aug	0225	38°38.8'	123°26.9'	78	1014.6	310	18	Y
38	COC-4		0355	38°36.1'	123°30.8'	112	1014.1	330	25	Y
39	COC-5		0536	38°34.5'	123°33.3'	141	1014.5	310	27	Y

Table 10, Continued.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Depth (m)	Atm. Pr. (mbar)	Wind Dir. (°T)	Wind Spd. (kts)	Chlor., Nuts.
40	COC-6	11 Aug	0715	38°32.7’	123°36.3’	157	1014.8	320	30	
41	COC-7		0801	38°30.2’	123°39.6’	426	1014.8	320	28	Y
42	COC-8		0959	38°26.9’	123°44.3’	1235	1014.8	320	33	
43	COC-9		1151	38°24.0’	123°49.1’	1710	1016.0	340	30	Y
44	COC-11		1431	38°17.6’	123°59.3’	3380	1017.2	340	30	Y
45	NH-65	13 Aug	1730	44°39.0’	125°36.1’	2862	1023.5	000	23	
46	NH-75		1943	44°39.1’	125°50.0’	2831	--	350	24	
47	NH-55		2327	44°39.1’	125°22.0’	2870	1021.2	340	22	
48	NH-45	14 Aug	0130	44°39.1’	125°07.0’	698	1020.2	340	26	
49	NH-35		0320	44°39.0’	124°53.1’	446	1019.7	335	25	
50	NH-25		0452	44°39.0’	124°39.0’	293	1020.0	335	22	Y
51	NH-20		0617	44°39.1’	124°31.7’	143	1020.1	335	23	
52	NH-15		0711	44°39.1’	124°24.7’	90	1020.2	350	22	Y
53	NH-10		0859	44°39.1’	124°17.7’	80	1019.9	355	16	
54	NH-5		1022	44°39.1’	124°10.6’	59	1019.8	000	21	Y
55	NH-3		1136	44°39.1’	124°07.8’	47	1019.6	350	16	
56	NH-1		1212	44°39.1’	124°06.0’	30	1019.8	350	18	

Table 11. CTD stations during W9809A.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Depth (m)	Atm. Pr. (mbar)	Wind Dir. (°T)	Wind Spd (kts)	Chlor., Nuts.
1	NH-1	24 Sept	1822	44°39.1’N	124°06.0’W	29	1014.1	085	7	
2	NH-3		1914	44°39.1’	124°07.8’	48	1013.4	090	11	
3	NH-5		2006	44°39.1’	124°10.5’	60	1012.1	110	13	Y
4	NH-10		2124	44°39.1’	124°17.8’	81	--	090	10	
5	NH-15		2303	44°39.0’	124°24.8’	91	1009.5	000	16	Y
6	NH-20	25 Sept	0058	44°38.8’	124°32.4’	142	1008.2	010	12	
7	NH-25		0151	44°39.0’	124°39.1’	285	1008.2	020	12	Y
8	NH-35		0350	44°39.0’	124°53.0’	442	1007.2	000	21	Y
9	NH-45		0539	44°39.1’	125°06.9’	693	1007.0	310	20	Y
10	NH-55		0801	44°39.0’	125°22.0’	2862	1007.2	350	19	
11	NH-65		1011	44°39.1’	125°36.0’	2862	1009.0	320	12	Y
12	NH-85		1324	44°39.1’	126°03.0’	2882	1012.3	305	9	Y
13	NH-85		1516	44°38.7’	126°03.3’	2888	1016.0	310	12	
14	NH-45	26 Sept	0240	44°39.2’	125°07.0’	687	1019.0	240	6	

Table 12. CTD stations during W9811A.

Sta. No.	Station Name	Date UT	Time UT	Latitude	Longitude	Depth (m)	Atm. Pr. (mbar)	Wind Dir. (°T)	Wind Spd. (kts)	Chlor., Nuts.
1	NH-1	16 Nov	1931	44°39.1'N	124°06.1'W	29	1014.1	085	7	
2	NH-3		2050	44°39.0'	124°08.1'	48	1013.4	090	11	
3	NH-5		2133	44°39.1'	124°10.5'	60	1012.1	110	13	Y
4	NH-10		2329	44°39.0'	124°17.8'	80	--	090	10	
5	NH-15	17 Nov	0109	44°39.1'	124°24.7'	90	1009.5	000	16	Y
6	NH-20		0325	44°39.1'	124°31.7'	142	1008.2	010	12	
7	NH-25		0440	44°39.1'	124°38.9'	296	1008.2	020	12	Y
8	NH-35		0709	44°39.0'	124°53.0'	438	1007.2	000	21	Y
9	NH-45		0845	44°39.1'	125°07.0'	709	1007.0	310	20	Y
10	NH-55		1203	44°39.1'	125°21.9'	2867	1007.2	350	19	
11	NH-65		1404	44°39.1'	125°36.0'	2857	1009.0	320	12	Y
12	NH-85		1742	44°39.1'	126°03.0'	2882	1012.3	305	9	Y
13			2302	43°51.1'	125°33.6'	3047	1016.0	310	12	
14	FM-9	18 Nov	0312	43°12.9'	125°10.0'	1670	1019.0	240	6	Y
15	FM-8		0555	43°13.0'	125°00.0'	1079	1020.1	220	8	Y
16	FM-7		0817	43°13.0'	124°50.0'	343	1021.5	230	12	Y
17	FM-6		1000	43°13.0'	124°44.9'	306	1022.1	180	12	
18	FM-5		1101	43°13.0'	124°40.0'	155	1021.0	190	10	Y
19	FM-4		1244	43°13.0'	124°34.9'	83	1022.6	160	5	Y
20	FM-3		1411	43°13.0'	124°30.0'	60	1023.1	190	8	Y
21	FM-1		1537	43°13.0'	124°26.0'	35	1024.0	180	5	
22	CR-1		2326	41°54.0'	124°17.9'	39	1025.9	270	7	Y
23	CR-2	19 Nov	0033	41°54.0'	124°24.0'	66	1025.4	310	5	
24	CR-3		0157	41°53.9'	124°30.0'	135	1025.4	255	4	Y
25	CR-4		0326	41°54.0'	124°36.0'	505	1026.0	270	4	Y
26	CR-5		0458	41°54.0'	124°42.0'	653	1026.3	160	2	Y
27	CR-6		0701	41°54.0'	124°48.0'	696	1026.9	165	6	
28	CR-7		0843	41°54.0'	125°00.1'	836	1026.9	170	8	Y
29	CR-8		1117	41°54.0'	125°12.0'	2751	1026.1	170	12	
30	CR-9		1256	41°54.1'	125°19.9'	3095	1025.8	170	19	Y
31	EUR-7		1917	40°52.0'	124°56.0'	2931	1026.7	160	10	Y
32	EUR-6		2047	40°52.1'	124°48.0'	1491	1025.9	160	10	
33	EUR-5		2217	40°52.0'	124°40.0'	715	1025.4	170	8	Y
34	EUR-4	20 Nov	0010	40°52.0'	124°34.0'	555	1025.0	170	11	
35	EUR-3		0109	40°52.0'	124°28.0'	381	1025.0	170	6	Y
36	EUR-2		0248	40°52.0'	124°22.0'	115	1025.1	150	11	Y
37	EUR-1		0418	40°52.0'	124°16.0'	59	1024.9	145	10	
38	EUR-1		0420	40°52.0'	124°16.0'	59	1024.9	145	10	Y

Table 13. Location, time and date of drifter deployments. All drifters were of the standard WOCE holey-sock design and drogued at a depth of 15 m. OSU drifters were deployed under the supervision of Jack Barth, through the GLOBEC LTOP program. AOML drifters were provided by Mark Swenson and Warren Krug of the Global Drifter Center at the NOAA Atlantic Oceanographic Marine Laboratory.

Cruise Name	Drifter Number (Provider)	Name of Site	Latitude (N)	Longitude (W)	Time (UTC)	Date (UTC)
W9801B	30563 (AOML)	NH-10	44°39.4’	124°18.0’	0148	31 Jan 1998
	30565 (AOML)	NH-15	44°38.0’	124°25.8’	0342	31 Jan 1998
	30562 (AOML)	NH-25	44°39.6’	124°38.3’	0800	31 Jan 1998
	30558 (AOML)	NH-85	44°38.8’	126°02.9’	2012	1 Feb 1998
	30564 (AOML)	NH-65	44°37.6’	125°36.2’	0035	2 Feb 1998
	30561 (AOML)	NH-55	44°38.4’	125°22.2’	0311	2 Feb 1998
	30556 (AOML)	NH-45	44°37.0’	125°07.5’	0705	2 Feb 1998
	30560 (AOML)	NH-35	44°39.1’	124°53.0’	0906	2 Feb 1998
W9804A	22253 (OSU)	NH-10	44°39.1’	124°17.7’	2322	3 Apr 1998
	30567 (AOML)	NH-85	44°39.0’	126°03.0’	1642	4 Apr 1998
	30566 (AOML)	NH-65	44°39.2’	125 38.2’	2045	4 Apr 1998
	30571 (AOML)	NH-45	44 40.1’	125 08.4’	0158	5 Apr 1998
	22250 (OSU)	NH-25	44°40.2’	124°38.1’	0729	5 Apr 1998
	22251 (OSU)	NH-15	44°40.2’	124°25.5’	1104	5 Apr 1998
	22252 (OSU)	FM-4	43°13.2’	124°36.4’	0228	6 Apr 1998
	30569 (AOML)	FM-8	43°13.9’	125°00.0’	0924	6 Apr 1998
	30568 (AOML)	EUR-7	40°51.9’	124°56.0’	2111	8 Apr 1998
	30572 (AOML)	CR-3	41°54.0’	124°30.1’	1731	9 Apr 1998
	30570 (AOML)	CR-8	41°53.9’	125°12.1’	0216	10 Apr 1998
	22254 (OSU)	NH-10	44°38.3’	124°17.6’	2217	10 Apr 1998
AR9807	30573 (AOML)	NH-25	44°38.9’	124°39.5’	1347	3 June 1998
	22254 (OSU)	NH-15	44°39.0’	124°24.8’	1530	3 June 1998
	01282 (OSU)	NH-10	44°39.1’	124°17.9’	1624	3 June 1998
W9808A	16123 (OSU)	NH-10	44°39.1’	124°17.7’	2335	6 Aug 1998
	16124 (OSU)	NH-15	44°38.5’	124°25.0’	0225	7 Aug 1998
	16125 (OSU)	NH-25	44°39.0’	124°39.0’	0750	7 Aug 1998
	16127 (OSU)	NH-45	44°41.3’	125°08.4’	1546	7 Aug 1998
	30572 (AOML)	NH-65	44°39.1’	125°36.0’	2046	7 Aug 1998
	03017 (OSU)	NH-15	44°39.1’	124°24.7’	0822	14 Aug 1998
W9809A	22243 (OSU)	NH-10	44°39.1’	124°17.9’	2230	24 Sept 1998
	22247 (OSU)	NH-15	44°39.0’	124°25.3’	2340	24 Sept 1998
	22248 (OSU)	NH-25	44°38.7’	124°39.7’	0251	25 Sept 1998
	23681 (OSU)	NH-45	44°39.1’	125°06.9’	0638	25 Sept 1998
	23682 (OSU)	NH-65	44°39.0’	125°35.7’	1126	25 Sept 1998

CTD Data Acquisition and Calibration

All CTD/rosette casts were made with a Sea-Bird 9/11-plus CTD system equipped with dual ducted temperature and conductivity sensors (Table 14) except during cruises AR9806 and AR9807 a single temperature and conductivity sensor pair was used. For all Wecoma cruises, a SeaTech transmissometer (S/N 225D - 25cm or S/N 1024D - 20cm) and SeaTech fluorometer were mounted adjacent to the CTD. During cruises W9808A, W9809A and W9811A a Sea-Bird Beckman-type dissolved oxygen sensor was mounted on the rosette adjacent to the CTD sensors.

The Sea Tech fluorometer (SN101S) had the time constant set to 1 second, and the range set to medium (X3 = 10 mg m^{-3} chlorophyll). CTD #256 was modified by Sea-Bird in December 1997 to add an isolated 12V power supply for the Sea Tech fluorometer to avoid the low-amplitude noise observed in some data channels on the earlier cruises. Both the fluorometer and transmissometer data were recorded as voltages by the CTD system. Air Calibrations of transmissometer #1024D during cruises resulted in the following corrections of transmission voltage for these cruises:

W9804a Vc = (4.681/4.651)*0.9987*(Vx-0.000)
W9808a Vc = (4.681/4.488)*0.9987*(Vx-0.000)
W9809a Vc = (4.681/4.592)*0.9987*(Vx-0.000)
W9811a Vc = (4.681/4.608)*0.9987*(Vx-0.000)
where Vc = calibrated output voltage and Vx = raw output voltage.

The pressure sensors were Digiquartz pressure transducers and calibrated by Sea-Bird (Table 14). The Sea-Bird CTD temperature and conductivity sensors were also calibrated by Sea-Bird at least once a year (Table 14). The deck unit provided a correction for the time lag between T0 and C0, and no correction for the lag between T1 and C1. Plots of T0-T1 differences were used to check the stability of the temperature calibrations. At each CTD station samples were collected at one or more depths for *in situ* calibration of the conductivity sensors. Twelve 5-liter Niskin bottles were attached to the rosette and at most stations all of the bottles were fired. Nearly all of bottles were used for biological analyses, with 1 bottle reserved specifically for the CTD calibration. Usually one or two of the biologist's sample depths also coincided with a mixed region for an additional salinity sample, and duplicate salt samples were drawn from 1 to 3 Niskin bottles at each station. The pressure, temperature and conductivity data for each bottle firing depth were extracted from the recorded up cast data using the Sea-Bird Seasoft DATCNV and ROSSUM utilities.

One set of the duplicate salinity samples was usually run on a Guildline Portasal on board ship during the cruise, and the rest were run on a Guildline Autosal in a lab on shore. IAPSO Standard Water was used to standardize and check the salinometer at the beginning and end of each batch of 24 samples. The Guildline Portasal determines water sample salinity with a precision of ±0.002 and an accuracy of ±0.003. Sample conductivity was calculated using the sample salinity value with the CTD temperature and pressure values; a value of 4.2914 S m^{-1} for the

Table 14. Instruments and sensors used for CTD sampling, and dates of laboratory calibration. Cruise station numbers are listed for each CTD used, and unless otherwise indicated, a dot represents a sensor used for all stations of a cruise. CTD primary (P) and secondary (S) temperature and conductivity sensors are shown, with the sensor pair used in final processing marked (*).

Instrument/ Sensor No.	SeaBird Calibrations			W9707b 28-30 July	W9709b 19-20 Sept	W9711c 15-22 Nov	W9801b 30 Jan-2 Feb	W9804a 4-10 Apr	AR9806 26 May	AR9807 3 June	W9808a 6-14 Aug	W9809a 24-26 Sept	W9811a 16-20 Nov
CTD/Rosette													
Ctd-256				1-8	1-14	2-43	1-24	1-48			1-56	1-14	1-38
Pressure 50130	30Nov93	18Dec97		•	•	2-43	•	•			•	•	•
Ctd-2843						1							
Pressure 39017	01Dec93	18Dec97				1							
Ctd-NOAA414									1-8	1-12			
Pressure-60961	15Jan98								•	•			
Temperature													
1371	20Feb97	13Dec97		P	P[1]	P	P	P[2]			P*	P*	P[3]
1384	20Feb97	13Dec97	24Aug98	S*	S	S*	S*	S			S	S	S
NOAA 32126	22Dec97								P*	P*			
Conductivity													
1041	19Mar97	16Dec97		P	P	P	P	P			P*	P*	P
1030	19Mar97	16Dec97	25Aug98	S*	S	S*	S*	S			S(1-44)	S	
NOAA 41697	21Dec97								P*	P*			
1538	24Mar98										S(45-56)		S
Transmissometer													
SeaTech 225D	01Dec94			•	•	•[4]	•						
SeaTech 1024D	11Feb98							•			•	•	•
Fluorometer													
SeaTech 101S	01Nov94			unstable	unstable	•[4]	•	•[5]			•	•	•[6]
Oxygen													
130504	17Jun98										•[7]	•	•

[1] Primary Sensor pair used in final processing of W9709B for station 12; secondary sensor pair used for all other stations.
[2] Primary Sensor pair used in final processing of W9804A for stations 1,4,5,7,9-13,15,16,22,25,30-38,40-48; secondary sensor pair used for stations 2, 3, 6, 8, 14, 17-21, 23, 26, 28, 29, 39.
[3] Primary sensor pair used in final processing of W9811A for stations 13-16, 18-36, 38; secondary sensor pair used for stations 1-12, 17,37.
[4] No transmissometer or fluorometer data for station 42 of cruise W9711C.
[5] No fluorometer data for stations 8, 30 of cruise W9804A.
[6] No fluorometer data for station 1 of cruise W9811A.
[7] No oxygen data for stations 1-9 of cruise W9808A.

conductivity of standard sea water at 15°C (Culkin and Smith, 1980) was used to convert the measured sample conductivity ratios to conductivity. Occasionally the CTD-sample differences were larger than 3 standard deviations from the mean; these occurred in regions of sharp vertical gradients and were eliminated from the final calibration data sets. The results of the CTD - bottle comparison are shown in Table 15. When analysis showed a correction was needed, conductivity was corrected using the formula:

corrected conductivity = correction (slope) * computed conductivity + 0.0 (offset)

In all cases when a correction was needed, a slope correction to conductivity was used with no offset.

The preferred sensor pair used in final CTD data processing for each cruise is shown in Table 14. The preferred pair was chosen by examining temperature and conductivity data for each cast for the least number of spikes (caused by biological detritus or electrical interference), and the calibration data. Unusual circumstances are presented in Table 16.

Table 15. Results of *in situ* conductivity calibration for both sensor pairs. Columns show the range of station numbers, number of samples (N), correction applied to CTD conductivity, and the average and standard deviations of the bottle - ctd salinity differences.

			Correction		Average		Standard Deviation	
Cruise	**Stations**	**N(S0/S1)**	**C0**	**C1**	**S0**	**S1**	**S0**	**S1**
W9707B	1-8	11	1.00016081	no corr.	0.005	0.002	0.009	0.008
W9709B	1-14	22	no corr.	no corr.	0.002	0.001	0.006	0.006
W9711C	1-43	76/74	1.00015497	no corr.	0.006	0.003	0.002	0.002
W9801B	1-24	43	no corr.	no corr.	0.002	0.003	0.002	0.002
W9804A	1-48	87/85	no corr.	no corr.	0.000	0.002	0.002	0.002
AR9806/7	1-8,1-12	17	no corr.	n/a	0.001	n/a	0.003	n/a
W9808A	1-56	112	1.00012314		0.004		0.003	
	1-44	83		1.00061810		0.023		0.003
	45-56	24		no corr.		0.003		0.003
W9809A	1-14	36/37	no corr.	0.999770343	0.000	-0.008	0.003	0.004
W9811A	1-38	43/64	no corr.	1.00058138	0.003	0.021	0.004	0.003

Table 16. Data Acquisition and Processing Notes.

W9707B, W9709B, W9711C	All data fields had multiple spikes due to fluorometer's interference.
W9711C	Station 1 was aborted at 16 dbar due to CTD-2843 malfunctioning. CTD-256 was used for stations 2-43. Station 28 was aborted at 50 db. due to a swivel connector break. Station 42 was done for a SeaCat comparison; salinity was output instead of fluorometer and transmissometer voltages.
W9801B	Prior to cruise, CTD-256 had separate power supply installed for fluorometer, which eliminated erratic spiking in data. Primary sensor and secondary sensor pairs assigned to frequency 3,4 and 0,1 respectively.
W9804A	Fluorometer and transmissometer switched to voltages 6 and 7 from 0 and 1 for stations 5-29 due to noise in transmissometer data, which caused some spiking in conductivity and temperature data. Disconnected fluorometer for station 8 and 30, which eliminated spiking. Reconnected transmissometer and fluorometer in V0 and V1 for stations 31-48, transmissometer still noisy but only for some stations. Found out fluorometer's separate power supply only works in channel V0.
W9808A	Test casts were done between stations 4 and 5 with a different primary temperature sensor and primary pump to troubleshoot T0-T1 and C0-C1 offsets. An error was found and fixed in the temperature configuration file, which corrected the temperature offset. The offset between C0-C1 was confirmed by comparison of the CTD data with salinity bottle samples run on a Portasal; the C1 sensor #1030 was replaced by #1538 for stations 45-56 (see Table 14).
W9809A	C1 sensor #1030 was calibrated by Sea-Bird prior to cruise, but the sensor continued to have an offset (in the opposite direction) from C0 which was confirmed by the salinity bottle comparison. Since the sensor was reading high, Sea-Bird replaced the conductivity cell and calibrated it following the cruise.
W9811A	Fluorometer was unplugged for station 1. Preliminary processing of early stations indicated the flow rate through the primary sensor pair was reduced or erratic. Prior to station 6, the TC sensor pair was flushed with Triton-X solution, and this did not fix the problem. Prior to station 12, the tubing between the primary sensors and pump was replaced. After station 12, both CTD pumps were replaced and the problem was fixed. Station 17 had clogged primary sensors. Station 37 was aborted at 24m due to a large conductivity spike in the primary sensor data and redone as station 38.

CTD Data Processing

The CTD data were processed using the Sea-Bird SEASOFT software, and included all of the normal steps, i.e., using SEASOFT modules DATCNV, WILDEDIT, ALIGNCTD, CELLTM, FILTER, LOOPEDIT, and BINAVG to obtain 1-dbar average values of pressure, primary and secondary temperature, primary and secondary conductivity, and the two voltages from the fluorometer and transmissometer. CTD stations with oxygen were processed with the addition of the DERIVE module to calculate dissolved oxygen concentration using the manufacturer's calibration. The ALIGNCTD module was run with the T-C offset for the primary sensor pair as 0.000 sec, and the T-C offset for the secondary sensor pair as 0.073 sec; oxygen was advanced 3.0 sec relative to pressure. Table 16 presents data acquisition and data processing notes.

CTD Data Presentation

Derived parameters, including salinity, potential temperature (theta), density anomaly (sigma-theta) and specific volume anomaly were computed from the processed and calibrated 1-dbar values of temperature and conductivity using standard algorithms (Fofonoff and Millard, 1983).

For each station, we present a plot of the vertical temperature, salinity, and sigma-t profiles, and a listing of the observed and derived variables at standard pressures. Header data includes the CTD Station Number and Name, Latitude (degrees and minutes North), Longitude (degrees and minutes West), Date and Time (UTC), and Bottom Depth (in meters).

Following the station plots and standard depth listings, vertical sections of temperature, salinity, sigma-theta and dissolved oxygen (when available) are shown for each hydrographic line.

Nutrient and Chlorophyll Data Analyses

Nutrients were analyzed by standard chromatographic methods as adapted for autoanalyzers. A Technicon AA was used for samples from September 1997-April 1998, and an Alpkem RFA was used for August 1998 - November 1998. Quality control screening was accomplished by reviewing coherence within depth profiles and examination of nitrate:phosphate and nitrate:silicate ratios. To achieve highest accuracy and precision samples were separated into lower concentration ranges from shallow samples (0-300 m) and higher concentration ranges from deep samples (> 300 m). Nutrient concentrations were calculated from the mean of three peak heights and calibrated against a linear regression for standards prepared in an artificial seawater matrix. Coefficients of variation for replicates in each nutrient analysis were typically less than 1%.

Occasional missing data for phosphate resulted from an unidentified bottle contamination during September 1997 and occasional reagent flow problems in later cruises. Ammonium and nitrite concentrations from deep samples were compromised by baseline problems and are not reported here.

Nutrient and Chlorophyll Data Presentation

Nutrient and chlorophyll data are presented as depth profiles in tabular form along with temperature. Units for phosphate, ammonium, silicate, nitrate+nitrite, nitrite, and nitrate are μM, and units for chlorophyll are μg/L. Values of sample depth (actually pressure in dbar) and temperature (°C) are those measured by the SeaBird CTD when the rosette was fired.

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CTD Data

Profiles of Temperature, Salinity and Density Anomaly
Tabulated Values at Standard Depths

W9707B
W9709B
W9711C
W9801B
W9804A
AR9806
AR9807
W9808A
W9809A
W9811A

Vertical Sections of Temperature, Salinity, Sigma-t, and Dissolved Oxygen

Nutrient and Chlorophyll Data

Appendix A: Vertical Profiles of Fluorometer, Transmissometer, Dissolved Oxygen

W9707B
W9709B
W9711C
W9801B
W9804A
AR9806
AR9807
W9808A
W9809A
W9811A

Appendix B: Oxygen calibration data.

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Sep-97	3	44°39.1'N	124°10.6'W	3	17.6	0.28	0.06	2.44	0.19	0.00	0.22	0.62
Sep-97	3	44°39.1'N	124°10.6'W	4	17.5	0.26	0.07	1.93	0.07	0.00	0.38	0.48
Sep-97	3	44°39.1'N	124°10.6'W	10	17.4	0.46	0.06	2.63	0.03	0.00	0.28	0.44
Sep-97	3	44°39.1'N	124°10.6'W	15	17.3	0.45	0.19	1.80	0.00	0.00	0.22	0.21
Sep-97	3	44°39.1'N	124°10.6'W	21	17.2	0.45	0.22	1.75	0.11	0.00	0.29	0.29
Sep-97	3	44°39.1'N	124°10.6'W	25	16.9	0.49	0.34	2.19	0.28	0.00	0.42	0.30
Sep-97	3	44°39.1'N	124°10.6'W	35	15.9	0.60	0.57	4.95	1.05	0.00	1.09	0.38
Sep-97	3	44°39.1'N	124°10.6'W	40	15.7	0.65	0.60	5.78	1.33	0.01	1.33	0.38
Sep-97	3	44°39.1'N	124°10.6'W	44	15.1	0.63	0.62	6.49	1.85	0.07	1.77	0.44
Sep-97	3	44°39.1'N	124°10.6'W	49	14.3	0.61	0.70	9.42	2.66	0.13	2.53	0.47
Sep-97	5	44°39.1'N	124°24.7'W	4	17.3	0.32	0.12	1.41	0.12	0.02	0.10	0.31
Sep-97	5	44°39.1'N	124°24.7'W	5	17.3	0.22	0.00	1.60	0.03	0.01	0.02	0.28
Sep-97	5	44°39.1'N	124°24.7'W	10	17.3	0.23	0.00	1.44	0.03	0.00	0.03	0.32
Sep-97	5	44°39.1'N	124°24.7'W	20	17.0	0.19	0.00	1.63	0.15	0.00	0.17	0.34
Sep-97	5	44°39.1'N	124°24.7'W	26	17.0	0.25	0.00	1.74	0.06	0.00	0.12	0.44
Sep-97	5	44°39.1'N	124°24.7'W	30	16.0	0.55	0.21	4.29	2.52	0.00	2.54	0.86
Sep-97	5	44°39.1'N	124°24.7'W	35	12.6	1.13	0.59	9.02	7.14	0.11	7.03	0.86
Sep-97	5	44°39.1'N	124°24.7'W	40	9.9	1.07	0.13	10.41	8.18	0.33	7.85	0.63
Sep-97	5	44°39.1'N	124°24.7'W	50	9.1	1.37	0.04	15.43	13.46	0.03	13.43	0.26
Sep-97	5	44°39.1'N	124°24.7'W	60	9.1	1.71	0.42	19.60	17.99	0.12	17.88	0.16
Sep-97	5	44°39.1'N	124°24.7'W	69	9.2	1.91	0.30	25.21	22.12	0.06	22.06	0.16
Sep-97	5	44°39.1'N	124°24.7'W	86	9.4	1.92	0.11	27.55	23.89	0.06	23.83	0.11
Sep-97	7	44°39.1'N	124°39.0'W	3	17.7	0.29	0.09	2.09	0.75	0.00	0.75	0.33
Sep-97	7	44°39.1'N	124°39.0'W	10	17.7		0.00	1.69	0.34	0.03	0.31	0.33
Sep-97	7	44°39.1'N	124°39.0'W	21	16.7	0.32	0.08	2.11	0.29	0.02	0.27	0.58
Sep-97	7	44°39.1'N	124°39.0'W	25	12.9	0.56	0.05	4.15	1.28	0.03	1.25	1.03
Sep-97	7	44°39.1'N	124°39.0'W	30	12.2	0.64	0.04	4.94	1.69	0.13	1.56	0.92
Sep-97	7	44°39.1'N	124°39.0'W	40	11.0	0.88	0.05	6.91	4.96	0.18	4.79	0.49
Sep-97	7	44°39.1'N	124°39.0'W	50	9.8	1.17	0.05	10.97	10.12	0.28	9.84	0.15
Sep-97	7	44°39.1'N	124°39.0'W	200	8.4	2.55	0.04	37.75	30.61	0.07	30.54	0.02
Sep-97	7	44°39.1'N	124°39.0'W	214	8.4	2.51	0.00	38.19	30.53	0.02	30.51	0.03
Sep-97	8	44°39.1'N	124°53.0'W	3	17.1	0.40	0.09	1.00	0.16	0.00	0.16	0.35
Sep-97	8	44°39.1'N	124°53.0'W	20	17.1	0.41	0.09	0.80	0.16	0.00	0.16	0.37
Sep-97	8	44°39.1'N	124°53.0'W	25	16.8	0.44	0.06	1.33	0.20	0.00	0.20	0.58
Sep-97	8	44°39.1'N	124°53.0'W	30	15.5	0.58	0.07	2.89	0.64	0.06	0.58	0.99
Sep-97	8	44°39.1'N	124°53.0'W	35	11.5	0.78	0.20	4.77	1.87	0.27	1.61	0.72
Sep-97	8	44°39.1'N	124°53.0'W	40	11.1	0.81	0.13	5.13	2.72	0.41	2.32	0.55
Sep-97	8	44°39.1'N	124°53.0'W	50	10.2	0.98	0.03	7.63	5.85	0.15	5.70	0.43
Sep-97	8	44°39.1'N	124°53.0'W	60	9.7	1.13	0.01	10.18	8.47	0.03	8.45	0.24
Sep-97	8	44°39.1'N	124°53.0'W	71	9.5	1.32	0.02	12.01	10.20	0.03	10.17	0.13
Sep-97	8	44°39.1'N	124°53.0'W	100	8.9	1.80	0.02	22.05	19.34	0.02	19.32	0.04
Sep-97	8	44°39.1'N	124°53.0'W	406	5.9		0.01	59.41	37.97	0.03	37.94	0.01
Sep-97	9	44°39.1'N	125°07.0'W	5	17.5	0.48	0.00	1.34	0.00	0.00	0.00	0.36
Sep-97	9	44°39.1'N	125°07.0'W	10	17.5	0.48	0.01	1.82	0.00	0.00	0.00	0.34
Sep-97	9	44°39.1'N	125°07.0'W	20	17.5	0.52	0.02	1.73	0.00	0.00	0.00	0.45
Sep-97	9	44°39.1'N	125°07.0'W	30	13.8	0.68	0.05	4.51	0.79	0.09	0.70	0.78
Sep-97	9	44°39.1'N	125°07.0'W	36	10.8	0.92	0.01	7.19	3.76	0.37	3.38	0.53
Sep-97	9	44°39.1'N	125°07.0'W	40	10.3	1.01	0.00	9.02	6.31	0.24	6.07	0.35
Sep-97	9	44°39.1'N	125°07.0'W	50	9.9	1.20	0.00	10.89	9.05	0.04	9.01	0.22
Sep-97	9	44°39.1'N	125°07.0'W	59	9.0	1.34	0.00	15.41	12.42	0.00	12.43	0.13
Sep-97	9	44°39.1'N	125°07.0'W	70	8.8	1.41	0.00	16.62	13.31	0.00	13.32	0.12

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Sep-97	9	44°39.1'N	125°07.0'W	101	8.6	2.14	0.02	27.59	24.06	0.01	24.05	0.02
Sep-97	9	44°39.1'N	125°07.0'W	500	5.3	3.27	0.00	72.05	40.30	0.03	40.27	0.01
Sep-97	9	44°39.1'N	125°07.0'W	682	4.8	3.41	0.06	83.66	43.97	0.01	43.96	0.01
Sep-97	11	44°39.1'N	125°36.1'W	2	17.0	0.14	0.08	1.84	0.00	0.00	0.00	0.37
Sep-97	11	44°39.1'N	125°36.1'W	10	17.0	0.15	0.07	1.75	0.01	0.00	0.01	0.27
Sep-97	11	44°39.1'N	125°36.1'W	19	17.0	0.12	0.10	2.20	0.07	0.01	0.06	0.35
Sep-97	11	44°39.1'N	125°36.1'W	25	16.7	0.18	0.05	2.20	0.02	0.02	0.01	0.47
Sep-97	11	44°39.1'N	125°36.1'W	30	13.7	0.28	0.02	3.71	0.02	0.08	0.00	0.74
Sep-97	11	44°39.1'N	125°36.1'W	35	11.7	0.55	0.10	5.77	1.73	0.22	1.51	0.90
Sep-97	11	44°39.1'N	125°36.1'W	40	10.9	0.66	0.02	7.22	4.01	0.31	3.70	0.63
Sep-97	11	44°39.1'N	125°36.1'W	49	9.7	0.73	0.00	11.27	8.10	0.01	8.10	0.30
Sep-97	11	44°39.1'N	125°36.1'W	69	9.1		0.04	18.75	16.34	0.09	16.25	0.13
Sep-97	11	44°39.1'N	125°36.1'W	100	8.7		0.00	32.41	25.78	0.00	25.79	0.02
Sep-97	11	44°39.1'N	125°36.1'W	999	3.6		0.02	29.75	41.99	0.00	42.01	0.02
Sep-97	12	44°39.1'N	126°03.0'W	3	17.4	0.18	0.04	1.91	0.00	0.00	0.00	0.31
Sep-97	12	44°39.1'N	126°03.0'W	10	17.4	0.18	0.10	1.91	0.03	0.00	0.06	0.26
Sep-97	12	44°39.1'N	126°03.0'W	20	17.3	0.30	0.14	2.42	0.00	0.00	0.02	0.39
Sep-97	12	44°39.1'N	126°03.0'W	30	11.8	0.55	0.12	5.73	0.91	0.04	0.87	1.02
Sep-97	12	44°39.1'N	126°03.0'W	35	11.4	0.71	0.25	6.44	1.75	0.12	1.63	1.02
Sep-97	12	44°39.1'N	126°03.0'W	40	10.8	0.75	0.17	7.43	3.39	0.33	3.06	0.79
Sep-97	12	44°39.1'N	126°03.0'W	50	10.2	0.93	0.00	8.92	6.37	0.09	6.28	0.37
Sep-97	12	44°39.1'N	126°03.0'W	60	9.8	1.13	0.02	11.81	9.50	0.01	9.49	0.18
Sep-97	12	44°39.1'N	126°03.0'W	70	9.4	1.32	0.17	16.20	13.41	0.01	13.40	0.10
Sep-97	12	44°39.1'N	126°03.0'W	100	8.8	1.96	0.09	23.57	21.67	0.01	21.66	0.02
Sep-97	12	44°39.1'N	126°03.0'W	870	4.0	3.28	0.01	40.44	42.46	0.00	42.46	0.01
Sep-97	12	44°39.1'N	126°03.0'W	1006	3.7	3.16	0.08	49.21	42.62	0.01	42.61	0.01
Nov-97	3	44°39.1'N	124°10.6'W	2	12.4	0.79	0.05	8.50	3.94	0.18	3.76	1.27
Nov-97	3	44°39.1'N	124°10.6'W	4	12.4	0.74	0.03	8.29	3.95	0.19	3.77	1.16
Nov-97	3	44°39.1'N	124°10.6'W	10	12.4	0.72	0.03	8.46	3.94	0.18	3.75	1.33
Nov-97	3	44°39.1'N	124°10.6'W	15	12.4	0.70	0.02	8.30	3.97	0.18	3.79	1.33
Nov-97	3	44°39.1'N	124°10.6'W	22	12.0	0.82	0.05	11.15	6.40	0.32	6.08	1.25
Nov-97	3	44°39.1'N	124°10.6'W	24	12.1	0.88	0.05	11.48	6.99	0.40	6.60	1.09
Nov-97	3	44°39.1'N	124°10.6'W	28	12.1	0.97	0.04	10.63	7.45	0.59	6.87	0.87
Nov-97	3	44°39.1'N	124°10.6'W	31	12.1	0.93	0.09	10.71	7.41	0.47	6.95	0.65
Nov-97	3	44°39.1'N	124°10.6'W	43	12.0	0.94	0.20	10.09	6.81	0.28	6.53	0.46
Nov-97	3	44°39.1'N	124°10.6'W	52	11.9	0.89	0.20	10.40	7.75	0.35	7.40	0.37
Nov-97	5	44°39.1'N	124°24.7'W	3	12.2	0.69	0.00	7.50	4.91	0.24	4.67	1.79
Nov-97	5	44°39.1'N	124°24.7'W	4	12.2	0.70	0.00	7.64	4.86	0.24	4.62	1.88
Nov-97	5	44°39.1'N	124°24.7'W	10	12.2	0.74	0.00	7.59	4.88	0.24	4.64	1.94
Nov-97	5	44°39.1'N	124°24.7'W	19	12.2	0.74	0.00	7.80	5.12	0.25	4.87	1.92
Nov-97	5	44°39.1'N	124°24.7'W	30	11.8	0.98	0.18	9.23	7.21	0.34	6.86	1.16
Nov-97	5	44°39.1'N	124°24.7'W	35	11.6	1.32	0.22	11.64	10.38	0.54	9.84	0.41
Nov-97	5	44°39.1'N	124°24.7'W	41	11.1	1.55	0.01	16.20	14.02	0.44	13.57	0.31
Nov-97	5	44°39.1'N	124°24.7'W	50	11.0	1.50	0.00	16.97	14.57	0.37	14.20	0.31
Nov-97	5	44°39.1'N	124°24.7'W	60	10.8	1.69	0.00	19.39	15.83	0.28	15.55	0.24
Nov-97	5	44°39.1'N	124°24.7'W	70	10.7	1.71	0.00	19.31	16.82	0.13	16.70	0.29
Nov-97	5	44°39.1'N	124°24.7'W	88	10.4	1.79	0.00	22.99	18.99	0.03	18.96	0.28
Nov-97	7	44°39.1'N	124°39.0'W	4	12.2	0.82	0.00	8.68	5.73	0.29	5.44	1.57

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-97	7	44°39.1'N	124°39.0'W	10	12.2	0.76	0.01	8.59	5.71	0.29	5.42	1.49
Nov-97	7	44°39.1'N	124°39.0'W	15	12.2	0.84	0.00	8.69	5.74	0.29	5.45	1.25
Nov-97	7	44°39.1'N	124°39.0'W	19	12.2	0.88	0.01	8.74	5.78	0.32	5.46	1.29
Nov-97	7	44°39.1'N	124°39.0'W	31	12.1	0.98	0.00	9.35	6.69	0.38	6.31	1.11
Nov-97	7	44°39.1'N	124°39.0'W	39	11.6	1.41	0.03	12.64	10.83	0.57	10.26	0.65
Nov-97	7	44°39.1'N	124°39.0'W	100	9.9	2.32	0.00	22.94	21.86	0.00	21.87	0.08
Nov-97	7	44°39.1'N	124°39.0'W	151	9.5	2.31	0.00	19.84	24.14	0.02	24.12	0.07
Nov-97	8	44°39.1'N	124°53.0'W	2	13.7	0.52	0.00	2.65	0.55	0.02	0.53	0.92
Nov-97	8	44°39.1'N	124°53.0'W	20	13.2	0.75	0.02	4.75	2.81	0.14	2.67	0.94
Nov-97	8	44°39.1'N	124°53.0'W	29	11.7	1.30	0.00	10.89	8.96	0.40	8.56	0.98
Nov-97	8	44°39.1'N	124°53.0'W	40	11.0	1.66	0.00	16.64	14.90	0.18	14.72	0.48
Nov-97	8	44°39.1'N	124°53.0'W	49	10.5	1.77	0.00	20.50	17.80	0.02	17.78	0.26
Nov-97	9	44°39.1'N	125°07.0'W	5	12.7	0.72	0.02	5.93	2.87	0.15	2.72	1.37
Nov-97	9	44°39.1'N	125°07.0'W	10	12.8	0.71	0.04	2.76	2.83	0.14	2.69	1.55
Nov-97	9	44°39.1'N	125°07.0'W	20	12.6	0.75	0.03	6.10	3.15	0.16	3.00	1.62
Nov-97	9	44°39.1'N	125°07.0'W	24	11.9	1.19	0.03	10.56	8.57	0.38	8.19	0.72
Nov-97	9	44°39.1'N	125°07.0'W	30	11.2	1.35	0.05	11.51	10.22	0.36	9.86	0.47
Nov-97	9	44°39.1'N	125°07.0'W	40	11.5	1.56	0.00	13.03	13.23	0.65	12.59	0.41
Nov-97	9	44°39.1'N	125°07.0'W	50	11.0	1.84	0.00	17.04	16.46	0.04	16.43	0.19
Nov-97	9	44°39.1'N	125°07.0'W	70	9.9	2.17	0.00	21.93	19.75	0.00	19.75	0.10
Nov-97	9	44°39.1'N	125°07.0'W	100	9.2	2.29	0.00	26.04	21.92	0.00	21.93	0.03
Nov-97	9	44°39.1'N	125°07.0'W	151	8.7	2.36	0.00	23.14	26.22	0.00	26.24	0.02
Nov-97	11	44°39.1'N	125°36.1'W	3	14.0	0.40	0.00	2.11	0.23	0.01	0.22	0.70
Nov-97	11	44°39.1'N	125°36.1'W	11	14.0	0.41	0.00	2.17	0.25	0.01	0.24	0.68
Nov-97	11	44°39.1'N	125°36.1'W	20	14.0	0.40	0.00	1.99	0.26	0.01	0.24	0.72
Nov-97	11	44°39.1'N	125°36.1'W	29	14.0	0.44	0.00	2.09	0.26	0.02	0.24	0.74
Nov-97	11	44°39.1'N	125°36.1'W	41	14.0	0.39	0.00	2.11	0.25	0.02	0.23	0.70
Nov-97	11	44°39.1'N	125°36.1'W	50	13.5	0.44	0.00	3.05	0.97	0.07	0.90	0.61
Nov-97	11	44°39.1'N	125°36.1'W	60	10.8	0.50	0.00	3.41	1.28	0.09	1.19	0.52
Nov-97	11	44°39.1'N	125°36.1'W	70	9.9	1.42	0.00	12.82	11.63	0.01	11.62	0.18
Nov-97	11	44°39.1'N	125°36.1'W	101	9.0	2.10	0.00	22.08	19.29	0.00	19.30	0.05
Nov-97	11	44°39.1'N	125°36.1'W	149	8.0	2.47	0.00	33.04	26.80	0.00	26.82	0.01
Nov-97	12	44°39.1'N	126°03.0'W	4	14.0	0.36	0.09	1.71	0.05	0.00	0.06	0.59
Nov-97	12	44°39.1'N	126°03.0'W	10	14.0	0.36	0.09	1.69	0.06	0.00	0.08	0.53
Nov-97	12	44°39.1'N	126°03.0'W	21	14.0	0.36	0.10	2.03	0.10	0.00	0.12	0.65
Nov-97	12	44°39.1'N	126°03.0'W	29	14.1	0.36	0.09	2.17	0.05	0.00	0.08	0.59
Nov-97	12	44°39.1'N	126°03.0'W	34	14.0	0.08	0.00	2.05	0.05	0.00	0.09	0.55
Nov-97	12	44°39.1'N	126°03.0'W	40	14.0	0.40	0.00	2.16	0.13	0.00	0.17	0.48
Nov-97	12	44°39.1'N	126°03.0'W	48	11.0	1.06	0.00	8.33	7.13	0.00	7.14	0.29
Nov-97	12	44°39.1'N	126°03.0'W	71	9.8	1.66	0.00	17.27	15.51	0.00	15.57	0.13
Nov-97	12	44°39.1'N	126°03.0'W	98	9.5	2.12	0.00	25.57	22.74	0.00	22.81	0.04
Nov-97	12	44°39.1'N	126°03.0'W	152	7.9	2.54	0.00	35.60	28.62	0.00	28.64	0.01
Nov-97	13	43°13'N	125°10'W	5	13.6	0.50	0.00	3.10	0.84	0.03	0.81	0.76
Nov-97	13	43°13'N	125°10'W	10	13.6	0.50	0.00	3.35	0.85	0.03	0.82	0.78
Nov-97	13	43°13'N	125°10'W	30	13.6	0.48	0.00	2.75	0.85	0.03	0.82	0.83
Nov-97	13	43°13'N	125°10'W	39	13.6	0.49	0.00	2.96	0.92	0.04	0.88	0.78
Nov-97	13	43°13'N	125°10'W	45	13.5	0.51	0.01	3.41	1.21	0.05	1.15	0.70
Nov-97	13	43°13'N	125°10'W	51	13.3	0.72	0.12	5.20	4.02	0.20	3.82	0.55
Nov-97	13	43°13'N	125°10'W	71	11.5	1.14	0.00	9.79	9.96	0.03	9.93	0.21

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-97	13	43°13'N	125°10'W	101	10.1	1.65	0.00	17.55	17.85	0.00	17.85	0.06
Nov-97	13	43°13'N	125°10'W	152	8.7	2.33	0.00	29.00	28.30	0.00	28.31	0.01
Nov-97	14	43°13'N	125°00'W	3	13.5	0.47	0.01	0.00	0.83	0.03	0.80	0.90
Nov-97	14	43°13'N	125°00'W	10	13.5	0.47	0.01	3.40	0.88	0.03	0.84	0.79
Nov-97	14	43°13'N	125°00'W	20	13.5	0.47	0.01	3.42	0.90	0.04	0.86	0.85
Nov-97	14	43°13'N	125°00'W	30	13.5	0.47	0.01	3.46	0.85	0.03	0.81	0.76
Nov-97	14	43°13'N	125°00'W	34	13.5	0.53	0.03	3.54	1.25	0.06	1.19	0.65
Nov-97	14	43°13'N	125°00'W	39	13.4	0.57	0.02	3.80	1.86	0.12	1.74	0.60
Nov-97	14	43°13'N	125°00'W	48	12.4	0.87	0.03	6.26	5.57	0.30	5.27	0.54
Nov-97	14	43°13'N	125°00'W	70	11.2	1.28	0.00	10.95	11.56	0.01	11.55	0.19
Nov-97	14	43°13'N	125°00'W	100	10.1	1.79	0.00	18.49	19.48	0.00	19.49	0.03
Nov-97	14	43°13'N	125°00'W	150	9.2	2.30	0.00	29.15	26.29	0.00	26.30	0.04
Nov-97	15	43°13'N	124°50'W	3	13.6	0.53	0.02	3.94	1.38	0.11	1.27	0.72
Nov-97	15	43°13'N	124°50'W	10	13.6	0.52	0.02	3.82	1.39	0.11	1.28	0.72
Nov-97	15	43°13'N	124°50'W	20	13.6	0.51	0.01	3.76	1.37	0.11	1.26	0.70
Nov-97	15	43°13'N	124°50'W	30	13.6	0.52	0.07	3.77	1.42	0.11	1.31	0.69
Nov-97	15	43°13'N	124°50'W	40	13.5	0.56	0.03	4.15	2.15	0.15	2.00	0.51
Nov-97	15	43°13'N	124°50'W	45	12.7	0.82	0.00	6.01	5.06	0.34	4.72	0.42
Nov-97	15	43°13'N	124°50'W	50	12.1	0.90	0.00	7.35	6.75	0.40	6.35	0.38
Nov-97	15	43°13'N	124°50'W	70	10.3	1.49	0.00	15.58	15.72	0.00	15.72	0.10
Nov-97	15	43°13'N	124°50'W	100	10.5	1.77	0.00	18.28	19.22	0.00	19.23	0.06
Nov-97	15	43°13'N	124°50'W	151	9.9	2.02	0.05	24.88	22.88	0.02	22.87	0.07
Nov-97	17	43°13'N	124°40'W	4	13.7	0.49	0.01	3.67	0.96	0.07	0.89	0.84
Nov-97	17	43°13'N	124°40'W	10	13.7	0.48	0.04	4.49	0.96	0.07	0.89	0.82
Nov-97	17	43°13'N	124°40'W	20	13.7	0.51	0.07	4.81	0.94	0.05	0.89	0.95
Nov-97	17	43°13'N	124°40'W	32	13.7	0.53	0.00	5.48	1.19	0.00	1.20	0.75
Nov-97	17	43°13'N	124°40'W	40	13.6	0.53	0.00	3.17	1.32	0.08	1.24	0.62
Nov-97	17	43°13'N	124°40'W	40	13.6	0.48	0.00	3.11	1.36	0.08	1.28	0.62
Nov-97	18	43°13'N	124°35'W	3	14.4	0.43	0.00	2.33	0.56	0.02	0.54	1.09
Nov-97	18	43°13'N	124°35'W	10	14.4	0.40	0.00	2.33	0.57	0.03	0.54	0.95
Nov-97	18	43°13'N	124°35'W	20	14.3	0.44	0.04	2.36	0.57	0.03	0.54	0.66
Nov-97	18	43°13'N	124°35'W	31	14.3	0.46	0.09	2.40	0.57	0.03	0.54	1.02
Nov-97	18	43°13'N	124°35'W	41	14.0	0.53	0.19	3.03	1.14	0.06	1.09	0.66
Nov-97	18	43°13'N	124°35'W	51	13.5	0.69	0.26	4.94	2.69	0.13	2.57	0.69
Nov-97	18	43°13'N	124°35'W	60	13.0	0.85	0.27	7.02	4.18	0.16	4.02	0.66
Nov-97	18	43°13'N	124°35'W	70	12.8	0.94	0.28	8.07	5.11	0.18	4.93	0.80
Nov-97	18	43°13'N	124°35'W	80	12.8	0.89	0.00	8.27	5.14	0.18	4.96	0.69
Nov-97	19	43°13'N	124°30'W	2	14.4	0.58	0.01	2.33	0.52	0.02	0.50	0.80
Nov-97	19	43°13'N	124°30'W	10	14.4	0.44	0.02	2.35	0.51	0.02	0.49	0.91
Nov-97	19	43°13'N	124°30'W	20	13.9	0.56	0.04	3.22	1.17	0.06	1.11	1.06
Nov-97	19	43°13'N	124°30'W	31	13.8	0.54	0.07	3.48	1.31	0.07	1.24	0.69
Nov-97	19	43°13'N	124°30'W	41	13.7	0.56	0.08	3.60	1.38	0.08	1.30	0.88
Nov-97	19	43°13'N	124°30'W	51	13.7	0.55	0.08	3.62	1.42	0.09	1.34	0.82
Nov-97	19	43°13'N	124°30'W	61	13.7	0.56	0.06	3.64	1.48	0.09	1.39	0.80
Nov-97	21	38°07.8'N	124°14.1'W	3	16.1	0.36	0.00	2.05	0.02	0.00	0.03	0.51
Nov-97	21	38°07.8'N	124°14.1'W	11	16.1	0.35	0.00	2.12	0.00	0.00	0.02	0.49
Nov-97	21	38°07.8'N	124°14.1'W	21	16.1	0.37	0.00	2.27	0.00	0.00	0.00	0.51
Nov-97	21	38°07.8'N	124°14.1'W	30	16.1	0.36	0.00	2.34	0.00	0.00	0.00	0.49

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-97	21	38°07.8'N	124°14.1'W	40	16.1	0.37	0.00	2.01	0.00	0.00	0.00	0.53
Nov-97	21	38°07.8'N	124°14.1'W	61	12.4	0.76	0.00	5.65	4.14	0.22	3.93	0.33
Nov-97	21	38°07.8'N	124°14.1'W	71	11.5	1.07	0.00	8.17	8.76	0.00	8.75	0.17
Nov-97	21	38°07.8'N	124°14.1'W	102	10.3	1.63	0.00	15.56	16.86	0.00	16.87	0.03
Nov-97	21	38°07.8'N	124°14.1'W	151	8.9	2.01	0.00	23.79	24.65	0.00	24.67	0.01
Nov-97	23	38°17.6'N	123°59.3'W	4	15.6	0.43	0.00	1.79	0.00	0.00	0.00	0.36
Nov-97	23	38°17.6'N	123°59.3'W	10	15.6	0.40	0.00	2.16	0.00	0.00	0.00	0.31
Nov-97	23	38°17.6'N	123°59.3'W	21	15.6	0.37	0.00	1.96	0.00	0.00	0.00	0.36
Nov-97	23	38°17.6'N	123°59.3'W	32	15.5	0.44	0.00	2.52	0.00	0.00	0.00	0.46
Nov-97	23	38°17.6'N	123°59.3'W	40	14.8	0.50	0.00	3.09	0.36	0.10	0.26	0.58
Nov-97	23	38°17.6'N	123°59.3'W	46	14.1	0.49	0.01	3.41	1.05	0.34	0.71	0.60
Nov-97	23	38°17.6'N	123°59.3'W	52	13.4	0.53	0.00	4.30	1.62	0.49	1.13	0.53
Nov-97	23	38°17.6'N	123°59.3'W	70	11.8	0.83	0.00	6.80	5.45	0.08	5.36	0.24
Nov-97	23	38°17.6'N	123°59.3'W	100	10.6	1.45	0.00	13.32	14.51	0.00	14.52	0.06
Nov-97	23	38°17.6'N	123°59.3'W	152	9.0	2.21	0.00	18.23	24.64	0.00	24.65	0.01
Nov-97	25	38°24.0'N	123°49.2'W	5	15.8	0.35	0.00	1.52	0.00	0.00	0.02	0.42
Nov-97	25	38°24.0'N	123°49.2'W	9	15.8	0.33	0.00	1.81	0.00	0.00	0.01	0.42
Nov-97	25	38°24.0'N	123°49.2'W	21	15.8	0.34	0.00	1.97	0.00	0.00	0.00	0.44
Nov-97	25	38°24.0'N	123°49.2'W	30	15.8	0.34	0.00	1.57	0.01	0.00	0.03	0.44
Nov-97	25	38°24.0'N	123°49.2'W	40	15.1	0.36	0.00	2.52	0.10	0.02	0.09	0.58
Nov-97	25	38°24.0'N	123°49.2'W	47	13.8	0.38	0.00	3.47	0.28	0.06	0.21	0.60
Nov-97	25	38°24.0'N	123°49.2'W	48	13.7	0.41	0.00	2.88	0.36	0.00	0.39	0.47
Nov-97	25	38°24.0'N	123°49.2'W	74	11.8	0.81	0.00	6.85	6.87	0.05	6.82	0.20
Nov-97	25	38°24.0'N	123°49.2'W	100	11.4	1.40	0.00	15.65	16.38	0.03	16.35	0.04
Nov-97	25	38°24.0'N	123°49.2'W	152	10.4	1.62	0.00	20.13	21.32	0.02	21.30	0.01
Nov-97	27	38°30.2'N	123°39.6'W	3	15.8	0.38	0.00	2.03	0.18	0.01	0.18	0.69
Nov-97	27	38°30.2'N	123°39.6'W	10	15.8	0.62	0.00	1.96	0.20	0.00	0.20	0.73
Nov-97	27	38°30.2'N	123°39.6'W	24	15.9	0.37	0.00	2.02	0.24	0.01	0.23	0.77
Nov-97	27	38°30.2'N	123°39.6'W	30	15.9	0.42	0.00	2.22	0.30	0.01	0.28	0.77
Nov-97	27	38°30.2'N	123°39.6'W	40	15.8	0.42	0.00	3.04	1.06	0.10	0.95	0.58
Nov-97	27	38°30.2'N	123°39.6'W	50	15.0	0.57	0.00	4.37	3.21	0.24	2.97	0.31
Nov-97	27	38°30.2'N	123°39.6'W	70	13.2	1.10	0.00	9.42	9.09	0.06	9.03	0.18
Nov-97	27	38°30.2'N	123°39.6'W	99	12.3	1.26	0.00	12.10	12.31	0.06	12.25	0.10
Nov-97	27	38°30.2'N	123°39.6'W	149	11.1	1.50	0.00	16.12	17.47	0.01	17.46	0.03
Nov-97	31	38°36.2'N	123°30.8'W	4	15.8	0.51	0.08	2.90	0.33	0.04	0.30	0.81
Nov-97	31	38°36.2'N	123°30.8'W	5	15.8	0.50	0.07	2.90	0.35	0.04	0.32	0.77
Nov-97	31	38°36.2'N	123°30.8'W	11	15.8	0.52	0.08	3.00	0.35	0.04	0.32	0.75
Nov-97	31	38°36.2'N	123°30.8'W	15	15.8	0.51	0.05	3.17	0.35	0.04	0.32	0.77
Nov-97	31	38°36.2'N	123°30.8'W	20	15.8	0.52	0.06	3.07	0.44	0.04	0.40	0.70
Nov-97	31	38°36.2'N	123°30.8'W	30	15.8	0.54	0.08	3.14	0.52	0.05	0.47	0.57
Nov-97	31	38°36.2'N	123°30.8'W	40	15.7	0.57	0.09	3.27	0.85	0.10	0.76	0.62
Nov-97	31	38°36.2'N	123°30.8'W	46	15.5	0.67	0.06	4.25	1.88	0.22	1.66	0.33
Nov-97	31	38°36.2'N	123°30.8'W	52	15.3	0.76	0.04	5.22	2.62	0.30	2.32	0.70
Nov-97	31	38°36.2'N	123°30.8'W	61	14.7	1.04	0.01	9.41	5.05	0.45	4.60	0.28
Nov-97	31	38°36.2'N	123°30.8'W	72	14.6	1.29	0.10	11.01	5.44	0.46	4.98	0.29
Nov-97	32	38°38.8'N	123°26.9'W	3	15.5	0.72	0.26	4.32	0.42	0.11	0.31	2.64
Nov-97	32	38°38.8'N	123°26.9'W	5	15.6	0.68	0.24	4.34	0.42	0.10	0.32	2.79
Nov-97	32	38°38.8'N	123°26.9'W	9	15.6	0.70	0.27	4.51	0.44	0.10	0.34	2.05
Nov-97	32	38°38.8'N	123°26.9'W	15	15.6	0.70	0.25	4.34	0.42	0.09	0.32	1.65

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-97	32	38°38.8'N	123°26.9'W	20	15.6	0.68	0.24	4.37	0.45	0.09	0.35	0.83
Nov-97	32	38°38.8'N	123°26.9'W	26	15.6	0.64	0.18	4.34	0.49	0.12	0.37	0.59
Nov-97	32	38°38.8'N	123°26.9'W	30	15.7	0.64	0.17	4.34	0.58	0.13	0.45	0.51
Nov-97	32	38°38.8'N	123°26.9'W	42	15.7	0.69	0.22	4.16	0.60	0.14	0.46	0.57
Nov-97	32	38°38.8'N	123°26.9'W	50	15.7	0.73	0.22	4.71	0.62	0.14	0.47	0.59
Nov-97	32	38°38.8'N	123°26.9'W	61	15.7	0.83	0.24	4.71	0.58	0.14	0.44	0.62
Nov-97	32	38°38.8'N	123°26.9'W	65	15.7	0.98	0.24	5.03	0.54	0.15	0.39	0.81
Nov-97	33	41°54'N	125°20'W	4	14.2		0.10	2.52	0.78	0.05	0.73	0.95
Nov-97	33	41°54'N	125°20'W	11	14.2		0.07	2.53	0.77	0.05	0.72	0.91
Nov-97	33	41°54'N	125°20'W	20	14.2		0.07	2.49	0.77	0.05	0.72	0.85
Nov-97	33	41°54'N	125°20'W	30	14.2		0.10	2.49	0.84	0.06	0.78	0.78
Nov-97	33	41°54'N	125°20'W	41	14.2		0.14	2.54	0.84	0.06	0.78	0.67
Nov-97	33	41°54'N	125°20'W	50	12.7		0.15	5.34	3.85	0.11	3.74	0.36
Nov-97	33	41°54'N	125°20'W	70	10.1		0.04	11.04	10.40	0.00	10.40	0.14
Nov-97	33	41°54'N	125°20'W	101	9.1		0.05	23.32	22.19	0.00	22.20	0.05
Nov-97	33	41°54'N	125°20'W	153	8.5		0.05	28.90	27.53	0.00	27.54	0.01
Nov-97	35	41°54'N	125°00'W	3	14.5		0.05	2.34	0.67	0.03	0.63	0.65
Nov-97	35	41°54'N	125°00'W	10	14.5		0.04	2.28	0.67	0.04	0.64	0.59
Nov-97	35	41°54'N	125°00'W	20	14.4		0.05	2.40	0.68	0.04	0.64	0.66
Nov-97	35	41°54'N	125°00'W	29	14.4		0.08	2.32	0.77	0.05	0.72	0.63
Nov-97	35	41°54'N	125°00'W	34	14.3		0.09	2.85	1.11	0.09	1.02	0.50
Nov-97	35	41°54'N	125°00'W	39	13.9		0.09	3.54	2.15	0.15	2.00	0.41
Nov-97	35	41°54'N	125°00'W	50	13.2		0.09	5.26	4.03	0.20	3.83	0.35
Nov-97	35	41°54'N	125°00'W	68	12.0		0.03	7.55	6.92	0.14	6.78	0.25
Nov-97	35	41°54'N	125°00'W	101	10.6		0.02	13.67	14.08	0.00	14.09	0.12
Nov-97	35	41°54'N	125°00'W	150	9.0		0.04	27.31	24.92	0.00	24.94	0.01
Nov-97	37	41°54'N	124°42'W	3	14.3		0.00	2.33	0.47	0.03	0.44	1.07
Nov-97	37	41°54'N	124°42'W	10	14.2		0.00	2.52	0.59	0.03	0.55	1.10
Nov-97	37	41°54'N	124°42'W	20	14.2		0.01	2.43	0.78	0.05	0.73	0.98
Nov-97	37	41°54'N	124°42'W	30	13.9		0.08	3.45	1.83	0.10	1.74	0.74
Nov-97	37	41°54'N	124°42'W	40	13.0		1.16	6.15	5.59	0.09	5.50	0.34
Nov-97	37	41°54'N	124°42'W	45	12.8		0.00	6.10	6.39	0.07	6.32	0.28
Nov-97	37	41°54'N	124°42'W	50	12.3		0.01	7.08	7.17	0.06	7.11	0.23
Nov-97	37	41°54'N	124°42'W	70	11.5		0.00	13.46	14.86	0.00	14.87	0.08
Nov-97	37	41°54'N	124°42'W	100	10.9		0.01	18.13	18.19	0.00	18.20	0.05
Nov-97	37	41°54'N	124°42'W	150	10.1		0.00	24.52	22.65	0.00	22.67	0.02
Nov-97	38	41°54'N	124°36'W	3	14.2		0.03	2.73	1.19	0.07	1.12	0.84
Nov-97	38	41°54'N	124°36'W	10	14.2		0.04	2.81	1.13	0.07	1.06	0.91
Nov-97	38	41°54'N	124°36'W	21	14.3		0.03	2.90	1.11	0.08	1.03	0.86
Nov-97	38	41°54'N	124°36'W	31	14.3		0.04	2.98	1.14	0.07	1.07	0.88
Nov-97	38	41°54'N	124°36'W	40	14.3		0.04	3.54	1.33	0.09	1.24	0.71
Nov-97	38	41°54'N	124°36'W	45	14.4		0.05	3.68	2.33	0.18	2.15	0.42
Nov-97	38	41°54'N	124°36'W	50	14.4		0.02	4.71	3.16	0.22	2.94	0.35
Nov-97	38	41°54'N	124°36'W	70	13.4		0.01	8.93	7.97	0.09	7.88	0.22
Nov-97	38	41°54'N	124°36'W	100	12.0		0.02	12.98	12.86	0.01	12.85	0.13
Nov-97	38	41°54'N	124°36'W	150	11.1		0.00	18.30	17.43	0.00	17.44	0.05
Nov-97	39	41°54'N	124°30'W	3	14.5	0.40	0.01	3.01	1.09	0.12	0.96	0.92
Nov-97	39	41°54'N	124°30'W	5	14.5	0.40	0.00	3.03	1.07	0.00	1.17	0.92
Nov-97	39	41°54'N	124°30'W	10	14.6	0.41	0.03	3.09	1.17	0.13	1.04	0.96

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-97	39	41°54'N	124°30'W	20	14.6	0.38	0.03	3.20	1.24	0.14	1.10	0.96
Nov-97	39	41°54'N	124°30'W	30	14.6	0.40	0.02	3.20	1.32	0.15	1.18	1.00
Nov-97	39	41°54'N	124°30'W	36	14.6	0.46	0.03	3.08	1.36	0.17	1.19	0.98
Nov-97	39	41°54'N	124°30'W	41	14.6	0.49	0.04	3.14	1.35	0.17	1.19	0.92
Nov-97	39	41°54'N	124°30'W	51	14.5	0.00	0.01	3.99	2.28	0.27	2.01	0.44
Nov-97	39	41°54'N	124°30'W	60	14.3	0.00	0.02	5.03	3.56	0.37	3.19	0.34
Nov-97	39	41°54'N	124°30'W	70	13.7	0.93	0.04	7.02	5.31	0.48	4.83	0.27
Nov-97	39	41°54'N	124°30'W	100	13.0	1.15	0.08	10.43	9.11	0.19	8.93	0.18
Nov-97	39	41°54'N	124°30'W	110	13.0	1.20	0.06	10.50	9.05	0.19	8.86	0.15
Nov-97	41	41°54'N	124°18'W	4	13.3	0.80	0.00	7.02	1.85	0.24	1.61	1.10
Nov-97	41	41°54'N	124°18'W	10	13.5	0.81	0.00	4.79	1.60	0.23	1.37	0.52
Nov-97	41	41°54'N	124°18'W	20	13.1	0.95	0.00	6.40	2.20	0.27	1.93	0.73
Nov-97	41	41°54'N	124°18'W	28	13.1	1.12	0.00	6.75	2.26	0.25	2.00	0.78
Nov-97	41	41°54'N	124°18'W	30	13.1	1.20	0.00	7.32	2.23	0.24	1.99	0.93
Nov-97	41	41°54'N	124°18'W	36	13.2	1.15	0.00	7.63	2.16	0.20	1.97	0.95
Jan-98	3	44°39.1'N	124°10.6'W	2	12.4	1.09	0.01	12.68	3.90	0.40	3.50	1.11
Jan-98	3	44°39.1'N	124°10.6'W	5	12.4	1.06	0.00	15.08	3.61	0.35	3.27	0.97
Jan-98	3	44°39.1'N	124°10.6'W	10	12.5	1.07	0.02	13.15	3.42	0.31	3.11	0.86
Jan-98	3	44°39.1'N	124°10.6'W	15	12.5	1.07	0.01	12.61	3.38	0.29	3.09	0.77
Jan-98	3	44°39.1'N	124°10.6'W	20	12.5	1.07	0.00	12.41	3.36	0.29	3.07	0.72
Jan-98	3	44°39.1'N	124°10.6'W	24	12.5	1.07	0.03	11.41	3.29	0.26	3.02	0.54
Jan-98	3	44°39.1'N	124°10.6'W	30	12.5	1.08	0.00	11.50	3.25	0.25	3.00	0.68
Jan-98	3	44°39.1'N	124°10.6'W	41	12.5	1.10	0.00	10.21	2.95	0.20	2.75	0.72
Jan-98	3	44°39.1'N	124°10.6'W	50	12.5	1.06	0.00	9.01	3.02	0.15	2.87	0.72
Jan-98	5	44°39.1'N	124°24.7'W	2	12.1	0.95	0.00	4.17	2.26	0.20	2.06	0.70
Jan-98	5	44°39.1'N	124°24.7'W	2	12.1	0.95	0.00	4.17	2.26	0.20	2.06	0.61
Jan-98	5	44°39.1'N	124°24.7'W	6	12.1	1.47	0.00	4.24	2.28	0.20	2.08	0.70
Jan-98	5	44°39.1'N	124°24.7'W	11	12.1	0.84	0.00	4.33	2.26	0.20	2.06	0.70
Jan-98	5	44°39.1'N	124°24.7'W	11	12.1	0.84	0.00	4.33	2.26	0.20	2.06	0.77
Jan-98	5	44°39.1'N	124°24.7'W	21	12.1	1.17	0.00	4.50	2.24	0.20	2.05	0.75
Jan-98	5	44°39.1'N	124°24.7'W	25	12.1	0.86	0.00	4.49	2.25	0.20	2.04	0.73
Jan-98	5	44°39.1'N	124°24.7'W	30	12.1	0.90	0.00	4.39	2.27	0.20	2.07	0.66
Jan-98	5	44°39.1'N	124°24.7'W	51	12.1	0.86	0.00	4.08	2.31	0.21	2.11	0.59
Jan-98	5	44°39.1'N	124°24.7'W	51	12.1	0.86	0.00	4.08	2.31	0.21	2.11	0.61
Jan-98	5	44°39.1'N	124°24.7'W	61	12.1	0.82	0.00	4.36	2.28	0.21	2.08	0.64
Jan-98	5	44°39.1'N	124°24.7'W	71	12.1	0.87	0.00	4.35	2.31	0.21	2.10	0.64
Jan-98	5	44°39.1'N	124°24.7'W	84	12.1	0.94	0.14	4.37	2.34	0.21	2.13	0.59
Jan-98	7	44°39.1'N	124°39.0'W	2	11.8	0.80	0.02	3.93	2.34	0.20	2.14	0.61
Jan-98	7	44°39.1'N	124°39.0'W	2	11.8	0.80	0.02	3.93	2.34	0.20	2.14	0.75
Jan-98	7	44°39.1'N	124°39.0'W	9	11.8	0.80	0.00	3.93	2.33	0.20	2.13	0.52
Jan-98	7	44°39.1'N	124°39.0'W	9	11.8	0.80	0.00	3.93	2.33	0.20	2.13	0.80
Jan-98	7	44°39.1'N	124°39.0'W	30	11.8	0.80	0.00	3.96	2.32	0.19	2.13	0.80
Jan-98	7	44°39.1'N	124°39.0'W	39	11.8	0.79	0.00	4.00	2.33	0.18	2.15	0.72
Jan-98	7	44°39.1'N	124°39.0'W	51	11.8	0.83	0.00	3.76	2.29	0.00	2.10	0.75
Jan-98	7	44°39.1'N	124°39.0'W	69	11.7	0.82	0.00	3.86	2.38	0.00	2.19	0.77
Jan-98	7	44°39.1'N	124°39.0'W	84	11.9	0.92	0.00	5.54	3.85	0.00	3.70	0.30
Jan-98	7	44°39.1'N	124°39.0'W	99	11.7	1.23	0.00	9.86	8.02	0.00	7.97	0.16
Jan-98	7	44°39.1'N	124°39.0'W	149	10.8	1.71	0.00	15.77	14.03	0.00	14.03	0.05

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Jan-98	9	43°13'N	124°30'W	11	12.6	1.10	0.11	15.60	3.42	0.54	2.88	0.70
Jan-98	9	43°13'N	124°30'W	15	12.6	1.13	0.08	14.64	3.42	0.52	2.91	0.72
Jan-98	9	43°13'N	124°30'W	21	12.6	1.12	0.06	13.36	3.35	0.48	2.87	0.70
Jan-98	9	43°13'N	124°30'W	25	12.6	1.11	0.14	12.94	3.37	0.42	2.94	0.54
Jan-98	9	43°13'N	124°30'W	30	12.6	1.03	0.08	11.74	3.19	0.42	2.77	0.52
Jan-98	9	43°13'N	124°30'W	41	12.8	1.08	0.05	10.42	3.29	0.41	2.88	0.43
Jan-98	9	43°13'N	124°30'W	51	12.8	0.96	0.02	8.05	2.90	0.26	2.64	0.34
Jan-98	9	43°13'N	124°30'W	56	12.8	0.96	0.07	8.04	3.13	0.28	2.85	0.32
Jan-98	10	43°13'N	124°35'W	10	12.6	0.89	0.01	15.14	3.57	0.57	3.00	0.79
Jan-98	10	43°13'N	124°35'W	21	12.6	0.83	0.00	15.51	3.39	0.55	2.85	0.81
Jan-98	10	43°13'N	124°35'W	26	12.7	0.78	0.00	13.25	3.35	0.45	2.89	0.42
Jan-98	10	43°13'N	124°35'W	30	12.7	0.74	0.00	12.52	3.27	0.40	2.87	0.47
Jan-98	10	43°13'N	124°35'W	41	12.8	0.61	0.00	10.57	2.87	0.27	2.60	0.45
Jan-98	10	43°13'N	124°35'W	51	12.8	1.01	0.09	8.51	3.03	0.32	2.72	0.51
Jan-98	10	43°13'N	124°35'W	60	12.8	1.04	0.23	7.98	3.08	0.28	2.80	0.42
Jan-98	10	43°13'N	124°35'W	71	12.8	1.05	0.06	6.89	3.37	0.23	3.14	0.34
Jan-98	10	43°13'N	124°35'W	73	12.8	0.98	0.03	6.83	3.42	0.23	3.19	0.40
Jan-98	11	43°13'N	124°40'W	1	12.8	0.83	0.01	6.08	2.78	0.27	2.51	0.73
Jan-98	11	43°13'N	124°40'W	10	12.8	0.76	0.01	6.25	2.80	0.26	2.54	0.77
Jan-98	11	43°13'N	124°40'W	20	12.8	0.74	0.00	6.05	2.74	0.25	2.49	0.72
Jan-98	11	43°13'N	124°40'W	31	12.8	0.68	0.00	5.45	2.84	0.20	2.64	0.61
Jan-98	11	43°13'N	124°40'W	41	12.8	0.92	0.04	5.13	2.95	0.18	2.77	0.54
Jan-98	11	43°13'N	124°40'W	51	12.8	0.87	0.12	5.50	3.05	0.18	2.87	0.52
Jan-98	11	43°13'N	124°40'W	59	12.8	0.84	0.02	5.29	2.95	0.17	2.78	0.46
Jan-98	11	43°13'N	124°40'W	70	12.8	0.81	0.00	4.92	2.97	0.17	2.80	0.41
Jan-98	11	43°13'N	124°40'W	80	12.8	0.81	0.04	4.98	3.05	0.17	2.88	0.48
Jan-98	11	43°13'N	124°40'W	102	12.8	0.77	0.00	4.29	2.98	0.18	2.81	0.48
Jan-98	11	43°13'N	124°40'W	129	12.8	0.83	0.05	5.91	3.25	0.16	3.09	0.46
Jan-98	13	43°13'N	124°50'W	2	12.6	0.83	0.00	5.48	3.35	0.19	3.15	0.91
Jan-98	13	43°13'N	124°50'W	11	12.6	0.85	0.02	5.34	3.31	0.19	3.12	0.86
Jan-98	13	43°13'N	124°50'W	20	12.6	0.84	0.00	5.79	3.31	0.19	3.12	0.89
Jan-98	13	43°13'N	124°50'W	31	12.6	0.90	0.00	6.03	3.42	0.19	3.22	0.89
Jan-98	13	43°13'N	124°50'W	41	12.6	0.86	0.03	5.84	3.45	0.19	3.25	0.80
Jan-98	13	43°13'N	124°50'W	50	12.6	0.88	0.01	5.68	3.42	0.20	3.22	0.86
Jan-98	13	43°13'N	124°50'W	71	12.6	0.94	0.00	6.21	3.50	0.21	3.29	0.91
Jan-98	13	43°13'N	124°50'W	86	12.6	0.95	0.00	6.20	3.64	0.20	3.44	0.80
Jan-98	13	43°13'N	124°50'W	101	12.6	0.95	0.00	6.95	4.46	0.18	4.28	0.54
Jan-98	13	43°13'N	124°50'W	121	12.5	1.03	0.00	7.70	5.25	0.16	5.09	0.46
Jan-98	13	43°13'N	124°50'W	150	10.9	1.72	0.00	15.83	14.74	0.00	14.75	0.08
Jan-98	14	43°13'N	125°00'W	5	11.3	0.67	0.02	7.27	1.30	0.04	1.27	0.45
Jan-98	14	43°13'N	125°00'W	10	11.3	0.67	0.01	4.08	1.48	0.04	1.45	0.39
Jan-98	14	43°13'N	125°00'W	20	11.3	0.69	0.02	2.73	1.50	0.03	1.46	0.41
Jan-98	14	43°13'N	125°00'W	28	11.3	0.70	0.02	3.08	1.48	0.03	1.45	0.41
Jan-98	14	43°13'N	125°00'W	39	11.3	0.73	0.02	2.63	1.42	0.03	1.38	0.43
Jan-98	14	43°13'N	125°00'W	50	11.3	0.72	0.01	2.88	1.44	0.03	1.41	0.41
Jan-98	14	43°13'N	125°00'W	70	11.3	0.73	0.01	3.22	1.42	0.03	1.38	0.43
Jan-98	14	43°13'N	125°00'W	101	11.2	0.76	0.02	3.09	1.57	0.04	1.53	0.34
Jan-98	14	43°13'N	125°00'W	121	10.1	1.09	0.03	8.03	7.00	0.04	6.97	0.11
Jan-98	14	43°13'N	125°00'W	150	9.3	1.78	0.00	19.26	18.18	0.00	18.20	0.04

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Jan-98	15	44°39.1'N	126°03.0'W	1	10.4	1.12	0.05	5.43	3.71	0.13	3.58	0.79
Jan-98	15	44°39.1'N	126°03.0'W	11	10.4	1.10	0.01	5.11	3.72	0.14	3.59	0.78
Jan-98	15	44°39.1'N	126°03.0'W	20	10.4	1.11	0.09	8.96	3.77	0.14	3.63	0.79
Jan-98	15	44°39.1'N	126°03.0'W	29	10.4	1.12	0.19	5.37	3.74	0.14	3.61	0.70
Jan-98	15	44°39.1'N	126°03.0'W	41	10.4	1.11	0.01	5.65	3.76	0.14	3.62	0.76
Jan-98	15	44°39.1'N	126°03.0'W	50	10.4	1.25	0.10	5.40	3.70	0.14	3.56	0.69
Jan-98	15	44°39.1'N	126°03.0'W	71	10.4	1.04	0.03	5.23	3.74	0.14	3.60	0.78
Jan-98	15	44°39.1'N	126°03.0'W	85	10.1	1.18	0.03	5.46	3.74	0.14	3.60	0.72
Jan-98	15	44°39.1'N	126°03.0'W	99	9.1	2.41	0.06	20.40	18.97	0.00	18.98	0.06
Jan-98	15	44°39.1'N	126°03.0'W	149	8.1	2.73	0.04	29.85	25.10	0.00	25.12	0.01
Jan-98	16	44°39.1'N	125°36.1'W	3	10.8	1.00	0.00	3.82	2.11	0.10	2.01	0.49
Jan-98	16	44°39.1'N	125°36.1'W	10	10.8	1.04	0.03	4.16	2.37	0.10	2.28	0.49
Jan-98	16	44°39.1'N	125°36.1'W	19	10.8	1.07	0.04	5.11	2.32	0.10	2.23	0.54
Jan-98	16	44°39.1'N	125°36.1'W	30	10.8	1.01	0.01	4.93	2.11	0.09	2.02	0.52
Jan-98	16	44°39.1'N	125°36.1'W	40	10.8	1.02	0.02	4.14	2.12	0.10	2.03	0.43
Jan-98	16	44°39.1'N	125°36.1'W	50	10.8	1.01	0.03	4.46	2.23	0.10	2.12	0.47
Jan-98	16	44°39.1'N	125°36.1'W	72	10.8	1.06	0.04	3.95	2.32	0.10	2.22	0.47
Jan-98	16	44°39.1'N	125°36.1'W	91	10.7	1.13	0.00	4.99	3.45	0.12	3.33	0.31
Jan-98	16	44°39.1'N	125°36.1'W	101	9.4	1.75	0.00	12.33	11.37	0.00	11.36	0.08
Jan-98	16	44°39.1'N	125°36.1'W	148	8.4	2.93	0.00	30.84	25.80	0.00	25.83	0.02
Jan-98	18	44°39.1'N	125°07.0'W	2	11.4	0.99	0.00	4.48	2.71	0.14	2.57	0.77
Jan-98	18	44°39.1'N	125°07.0'W	10	11.4	0.99	0.00	4.54	2.70	0.14	2.57	0.75
Jan-98	18	44°39.1'N	125°07.0'W	22	11.4	1.16	0.01	4.43	2.71	0.14	2.57	0.79
Jan-98	18	44°39.1'N	125°07.0'W	30	11.4	1.14	0.00	4.41	2.72	0.14	2.58	0.77
Jan-98	18	44°39.1'N	125°07.0'W	39	11.4	1.20	0.00	4.61	2.73	0.14	2.59	0.72
Jan-98	18	44°39.1'N	125°07.0'W	50	11.4	1.14	0.00	4.28	2.64	0.13	2.51	0.72
Jan-98	18	44°39.1'N	125°07.0'W	69	11.5	1.12	0.00	4.57	2.88	0.15	2.73	0.73
Jan-98	18	44°39.1'N	125°07.0'W	86	11.5	1.07	0.00	5.27	3.15	0.16	2.99	0.59
Jan-98	18	44°39.1'N	125°07.0'W	101	11.4	1.47	0.00	8.98	7.55	0.08	7.47	0.18
Jan-98	18	44°39.1'N	125°07.0'W	148	9.0	2.71	0.14	23.73	21.83	0.00	21.85	0.02
Jan-98	19	44°39.1'N	124°53.0'W	2	11.6	0.80	0.03	4.29	2.42	0.16	2.25	0.80
Jan-98	19	44°39.1'N	124°53.0'W	11	11.6	0.82	0.03	4.22	2.49	0.16	2.33	0.73
Jan-98	19	44°39.1'N	124°53.0'W	21	11.6	0.84	0.02	4.28	2.50	0.17	2.34	0.80
Jan-98	19	44°39.1'N	124°53.0'W	31	11.6	0.84	0.00	4.07	2.52	0.17	2.35	0.79
Jan-98	19	44°39.1'N	124°53.0'W	40	11.6	0.84	0.00	4.20	2.59	0.17	2.43	0.77
Jan-98	19	44°39.1'N	124°53.0'W	71	11.6	0.85	0.00	4.00	2.75	0.17	2.58	0.70
Jan-98	19	44°39.1'N	124°53.0'W	99	11.7	0.87	0.00	4.31	2.73	0.17	2.55	0.72
Jan-98	19	44°39.1'N	124°53.0'W	143	10.4	1.70	0.00	15.38	15.98	0.00	15.99	0.05
Jan-98	20	44°39.1'N	124°39.0'W	1	12.2	0.80	0.02	3.93	2.34	0.20	2.14	0.61
Jan-98	20	44°39.1'N	124°39.0'W	1	12.2	0.80	0.02	3.93	2.34	0.20	2.14	0.75
Jan-98	20	44°39.1'N	124°39.0'W	10	12.2	0.80	0.00	3.93	2.33	0.20	2.13	0.52
Jan-98	20	44°39.1'N	124°39.0'W	10	12.2	0.80	0.00	3.93	2.33	0.20	2.13	0.80
Jan-98	22	44°39.1'N	124°24.7'W	1	12.3	0.95	0.00	4.17	2.26	0.20	2.06	0.70
Jan-98	22	44°39.1'N	124°24.7'W	1	12.3	0.95	0.00	4.17	2.26	0.20	2.06	0.61
Jan-98	22	44°39.1'N	124°24.7'W	10	12.3	0.84	0.00	4.33	2.26	0.20	2.06	0.70
Jan-98	22	44°39.1'N	124°24.7'W	10	12.3	0.84	0.00	4.33	2.26	0.20	2.06	0.77
Jan-98	22	44°39.1'N	124°24.7'W	49	12.3	0.86	0.00	4.08	2.31	0.21	2.11	0.59
Jan-98	22	44°39.1'N	124°24.7'W	49	12.3	0.86	0.00	4.08	2.31	0.21	2.11	0.61

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Apr-98	2	44°39.1'N	126°03.0'W	2	11.0	1.59	0.17	0.53	1.08	0.05	1.02	0.28
Apr-98	2	44°39.1'N	126°03.0'W	10	11.0	1.75	0.38	0.49	1.10	0.06	1.04	0.27
Apr-98	2	44°39.1'N	126°03.0'W	21	11.0	1.65	0.23	0.48	1.13	0.06	1.07	0.28
Apr-98	2	44°39.1'N	126°03.0'W	29	11.0	1.83	0.41	0.50	1.11	0.07	1.05	0.32
Apr-98	2	44°39.1'N	126°03.0'W	40	10.9	1.55	0.56	0.50	1.05	0.07	0.98	0.34
Apr-98	2	44°39.1'N	126°03.0'W	50	10.9	1.86	2.97	0.52	1.17	0.08	1.10	0.50
Apr-98	2	44°39.1'N	126°03.0'W	69	10.8	2.65	0.44	0.61	2.08	0.12	1.96	0.50
Apr-98	2	44°39.1'N	126°03.0'W	101	10.2	29.36	0.51	1.93	23.66	0.01	23.65	0.07
Apr-98	2	44°39.1'N	126°03.0'W	150	8.7	30.72	0.49	2.04	25.11	0.01	25.11	0.04
Apr-98	2	44°39.1'N	126°03.0'W	864	3.9	123.95	0.31	3.59	54.73	0.01	54.72	0.01
Apr-98	2	44°39.1'N	126°03.0'W	1006	3.6		0.44	3.60	51.12	0.01	51.11	0.01
Apr-98	3	44°39.1'N	125°36.1'W	10	11.0	0.76	0.00	4.06	0.07	0.06	0.01	0.53
Apr-98	3	44°39.1'N	125°36.1'W	20	11.0	0.77	0.00	3.93	0.10	0.06	0.04	0.65
Apr-98	3	44°39.1'N	125°36.1'W	30	10.9	0.77	0.00	4.19	0.17	0.06	0.10	0.65
Apr-98	3	44°39.1'N	125°36.1'W	40	11.0	0.79	0.00	4.14	0.00	0.06	0.00	0.61
Apr-98	3	44°39.1'N	125°36.1'W	45	10.9	0.72	0.00	4.82	0.55	0.06	0.49	0.55
Apr-98	3	44°39.1'N	125°36.1'W	51	10.9	0.80	0.00	4.54	2.66	0.07	2.60	0.52
Apr-98	3	44°39.1'N	125°36.1'W	70	10.9	0.82	0.00	4.80	5.47	0.10	5.37	0.41
Apr-98	3	44°39.1'N	125°36.1'W	100	9.8	1.84	0.00	18.24	6.20	0.00	6.20	0.07
Apr-98	3	44°39.1'N	125°36.1'W	150	8.4	2.52	0.00	25.87	12.16	0.00	12.19	0.02
Apr-98	5	44°39.1'N	125°07.0'W	2	12.1	0.37	0.00	0.10	0.00	0.00	0.00	0.18
Apr-98	5	44°39.1'N	125°07.0'W	10	11.6	0.41	0.00	1.68	0.00	0.00	0.00	0.28
Apr-98	5	44°39.1'N	125°07.0'W	20	11.4	0.52	0.00	1.23	0.00	0.00	0.00	0.94
Apr-98	5	44°39.1'N	125°07.0'W	30	11.4	0.58	0.00	1.67	0.34	0.04	0.30	1.29
Apr-98	5	44°39.1'N	125°07.0'W	36	11.4	0.59	0.00	1.70	0.64	0.07	0.57	1.14
Apr-98	5	44°39.1'N	125°07.0'W	40	11.4	0.62	0.10	2.47	0.91	0.13	0.78	0.74
Apr-98	5	44°39.1'N	125°07.0'W	50	11.4	0.68	0.16	2.38	1.38	0.20	1.19	0.50
Apr-98	5	44°39.1'N	125°07.0'W	70	11.1	0.88	0.16	5.56	3.86	0.27	3.59	0.25
Apr-98	5	44°39.1'N	125°07.0'W	100	10.6	1.43	0.00	12.81	11.03	0.02	11.01	0.10
Apr-98	5	44°39.1'N	125°07.0'W	150	9.0	2.36	0.00	27.35	23.33	0.00	23.33	0.06
Apr-98	6	44°39.1'N	124°53.0'W	2	11.7	2.17	0.00	0.39	0.53	0.00	0.54	0.33
Apr-98	6	44°39.1'N	124°53.0'W	10	11.7	1.26	0.05	0.38	0.09	0.00	0.10	0.32
Apr-98	6	44°39.1'N	124°53.0'W	20	11.6	1.42	0.05	0.38	0.10	0.00	0.10	0.35
Apr-98	6	44°39.1'N	124°53.0'W	29	11.5	1.32	0.06	0.40	0.33	0.00	0.33	0.55
Apr-98	6	44°39.1'N	124°53.0'W	35	11.5	1.39	0.08	0.40	0.30	0.04	0.26	0.92
Apr-98	6	44°39.1'N	124°53.0'W	40	11.5	1.66	0.07	0.47	0.77	0.11	0.66	1.16
Apr-98	6	44°39.1'N	124°53.0'W	50	11.4	1.63	0.13	0.49	0.70	0.07	0.63	0.92
Apr-98	6	44°39.1'N	124°53.0'W	70	11.1	3.26	0.05	0.58	2.26	0.25	2.01	0.27
Apr-98	6	44°39.1'N	124°53.0'W	101	10.7	11.61	0.14	0.94	8.47	0.10	8.37	0.12
Apr-98	6	44°39.1'N	124°53.0'W	150	8.8	31.40	0.13	2.15	24.85	0.02	24.83	0.09
Apr-98	6	44°39.1'N	124°53.0'W	300	6.5	57.55	0.17	2.67	35.67	0.02	35.65	0.04
Apr-98	6	44°39.1'N	124°53.0'W	400	5.7	71.62		2.83	38.94	0.01	38.92	0.05
Apr-98	7	44°39.1'N	124°39.0'W	2	11.6	0.48	0.00	1.12	0.00	0.00	0.00	0.54
Apr-98	7	44°39.1'N	124°39.0'W	10	11.5	0.45	0.21	1.10	0.07	0.00	0.07	0.54
Apr-98	7	44°39.1'N	124°39.0'W	20	11.4	0.50	0.18	2.00	0.10	0.01	0.09	0.71
Apr-98	7	44°39.1'N	124°39.0'W	30	11.4	0.47	0.46	1.54	0.17	0.01	0.15	1.14
Apr-98	7	44°39.1'N	124°39.0'W	35	11.4	0.58	0.17	2.36	0.55	0.09	0.46	1.21
Apr-98	7	44°39.1'N	124°39.0'W	40	11.3	0.84	0.29	4.08	2.66	0.41	2.26	0.86
Apr-98	7	44°39.1'N	124°39.0'W	50	11.2	1.17	1.28	7.39	5.47	0.48	4.99	0.33

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Apr-98	7	44°39.1'N	124°39.0'W	70	11.0	0.97	0.74	8.26	6.20	0.41	5.79	0.17
Apr-98	7	44°39.1'N	124°39.0'W	100	10.5	1.43	0.47	14.38	12.16	0.11	12.04	0.10
Apr-98	9	44°39.1'N	124°24.7'W	3	11.4	0.98	0.00	0.36	0.01	0.00	0.02	0.27
Apr-98	9	44°39.1'N	124°24.7'W	7	11.4	1.20	0.02	0.40	0.12	0.01	0.11	0.47
Apr-98	9	44°39.1'N	124°24.7'W	10	11.3	1.09	0.00	0.26	0.10	0.00	0.10	0.60
Apr-98	9	44°39.1'N	124°24.7'W	20	11.1	1.44	0.01	0.26	0.11	0.02	0.09	0.87
Apr-98	9	44°39.1'N	124°24.7'W	30	11.0	2.17	0.05	0.36	0.12	0.02	0.10	0.93
Apr-98	9	44°39.1'N	124°24.7'W	41	11.0	3.29	0.17	0.55	1.24	0.13	1.12	0.56
Apr-98	9	44°39.1'N	124°24.7'W	50	10.9	8.48	0.00	0.80	4.70	0.30	4.40	0.35
Apr-98	9	44°39.1'N	124°24.7'W	60	11.1	6.25	0.23	0.73	4.80	0.45	4.35	0.23
Apr-98	9	44°39.1'N	124°24.7'W	70	11.0	8.70	0.08	0.87	6.99	0.40	6.59	0.15
Apr-98	11	44°39.1'N	124°10.6'W	2	11.8	0.45	0.00	0.26	0.06	0.00	0.08	0.73
Apr-98	11	44°39.1'N	124°10.6'W	5	11.8	0.49	0.00	2.12	0.08	0.00	0.09	0.67
Apr-98	11	44°39.1'N	124°10.6'W	10	11.8	0.49	0.00	2.44	0.05	0.00	0.06	1.59
Apr-98	11	44°39.1'N	124°10.6'W	15	11.5	0.50	0.00	1.61	0.06	0.00	0.07	0.89
Apr-98	11	44°39.1'N	124°10.6'W	20	11.1	0.44	0.00	2.04	0.06	0.00	0.07	2.68
Apr-98	11	44°39.1'N	124°10.6'W	25	11.0	0.48	0.00	2.11	0.16	0.01	0.15	1.47
Apr-98	11	44°39.1'N	124°10.6'W	30	10.9	0.65	0.00	3.11	0.68	0.13	0.55	1.10
Apr-98	11	44°39.1'N	124°10.6'W	40	10.7	0.99	0.06	6.92	4.09	0.22	3.88	0.93
Apr-98	11	44°39.1'N	124°10.6'W	49	10.5	1.35	0.00	13.63	7.18	0.28	6.90	0.86
Apr-98	15	43°13'N	124°30'W	2	12.3	0.62	0.11	11.47	2.41	0.04	2.38	1.14
Apr-98	15	43°13'N	124°30'W	5	11.7	0.63	0.23	9.24	2.27	0.15	2.12	1.13
Apr-98	15	43°13'N	124°30'W	10	11.4	0.93	0.19	11.08	5.91	0.27	5.64	1.32
Apr-98	15	43°13'N	124°30'W	15	10.9	1.11	0.19	14.67	9.15	0.27	8.89	1.13
Apr-98	15	43°13'N	124°30'W	20	10.3	1.32	0.18	20.02	12.77	0.24	12.54	0.82
Apr-98	15	43°13'N	124°30'W	25	10.1	1.46	0.17	23.10	15.14	0.17	14.97	0.73
Apr-98	15	43°13'N	124°30'W	29	9.5	1.70	0.20	27.76	18.32	0.12	18.20	0.48
Apr-98	15	43°13'N	124°30'W	41	9.3	1.80	0.17	29.31	20.27	0.13	20.14	0.22
Apr-98	15	43°13'N	124°30'W	45	9.2	1.85	0.12	30.58	20.65	0.15	20.51	0.21
Apr-98	15	43°13'N	124°30'W	49	9.2	1.80	0.11	30.54	20.95	0.12	20.83	0.22
Apr-98	16	43°13'N	124°35'W	2	12.2	0.35	0.06	1.84	0.00	0.00	0.02	0.37
Apr-98	16	43°13'N	124°35'W	5	12.2	0.38	0.06	1.81	0.00	0.00	0.00	0.37
Apr-98	16	43°13'N	124°35'W	10	11.8	0.36	0.07	0.82	0.00	0.00	0.00	0.25
Apr-98	16	43°13'N	124°35'W	20	11.8	0.48	0.10	2.34	0.37	0.10	0.26	0.93
Apr-98	16	43°13'N	124°35'W	30	11.5	0.48	0.14	2.88	0.25	0.07	0.18	1.18
Apr-98	16	43°13'N	124°35'W	36	11.3	0.54	0.22	3.85	0.66	0.10	0.56	0.97
Apr-98	16	43°13'N	124°35'W	40	11.3	0.58	0.29	3.28	1.42	0.18	1.24	0.55
Apr-98	16	43°13'N	124°35'W	45	11.2	0.66	0.24	4.14	2.84	0.31	2.54	0.35
Apr-98	16	43°13'N	124°35'W	50	11.0	0.81	0.17	6.94	4.82	0.36	4.46	0.21
Apr-98	16	43°13'N	124°35'W	60	10.5	1.16	0.18	14.43	10.03	0.03	10.01	0.14
Apr-98	16	43°13'N	124°35'W	70	10.0	1.41	0.09	19.67	13.82	0.00	13.85	0.14
Apr-98	16	43°13'N	124°35'W	75	9.1	1.74	0.13	27.64	18.88	0.00	18.90	0.13
Apr-98	17	43°13'N	124°40'W	2	12.2	0.36	0.00	2.50	0.05	0.00	0.07	0.31
Apr-98	17	43°13'N	124°40'W	10	11.7	0.41	0.00	1.49	0.01	0.00	0.02	0.35
Apr-98	17	43°13'N	124°40'W	21	11.5	0.48	0.15	1.54	0.00	0.00	0.00	0.56
Apr-98	17	43°13'N	124°40'W	30	11.4	0.51	0.00	1.67	0.02	0.00	0.02	1.08
Apr-98	17	43°13'N	124°40'W	40	11.3	0.61	0.00	2.61	1.09	0.18	0.91	0.81
Apr-98	17	43°13'N	124°40'W	51	11.3	0.62	0.17	2.94	1.79	0.26	1.53	0.45
Apr-98	17	43°13'N	124°40'W	60	11.1	0.73	0.17	5.28	4.07	0.40	3.67	0.21

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Apr-98	17	43°13'N	124°40'W	71	10.9	0.87	0.00	7.83	6.54	0.38	6.16	0.17
Apr-98	17	43°13'N	124°40'W	101	8.5	2.07	0.07	34.82	25.89	0.08	25.81	0.16
Apr-98	17	43°13'N	124°40'W	135	7.9	2.26	0.00	40.50	29.49	0.05	29.44	0.14
Apr-98	17	43°13'N	124°40'W	147	7.9	2.28	0.00	41.73	29.95	0.06	29.89	0.13
Apr-98	19	43°13'N	124°50'W	2	11.6	0.36	0.00	1.29	0.01	0.00	0.04	0.45
Apr-98	19	43°13'N	124°50'W	9	11.4	0.42	0.00	2.24	0.13	0.00	0.14	1.08
Apr-98	19	43°13'N	124°50'W	20	11.4	0.48	0.02	2.39	0.52	0.00	0.52	1.12
Apr-98	19	43°13'N	124°50'W	26	11.3	0.51	0.00	2.62	1.05	0.17	0.88	0.87
Apr-98	19	43°13'N	124°50'W	30	11.3	0.49	0.00	2.06	0.83	0.12	0.70	1.03
Apr-98	19	43°13'N	124°50'W	40	11.3	0.50	0.10	1.85	0.70	0.10	0.60	0.65
Apr-98	19	43°13'N	124°50'W	50	11.3	0.60	0.14	3.22	2.17	0.27	1.90	0.33
Apr-98	19	43°13'N	124°50'W	71	11.0	0.82	0.00	6.95	5.74	0.32	5.41	0.16
Apr-98	19	43°13'N	124°50'W	101	9.7	1.63	0.00	22.01	19.65	0.03	19.62	0.12
Apr-98	19	43°13'N	124°50'W	150	8.2	2.12	0.00	37.26	28.96	0.01	28.95	0.06
Apr-98	20	43°13'N	125°00'W	2	11.6	0.42	0.00	2.10	0.08	0.00	0.10	0.32
Apr-98	20	43°13'N	125°00'W	10	11.7	0.36	0.00	1.90	0.19	0.00	0.21	0.41
Apr-98	20	43°13'N	125°00'W	20	11.5	0.41	0.00	1.62	0.00	0.00	0.02	0.75
Apr-98	20	43°13'N	125°00'W	24	11.4	0.43	0.00	2.08	0.05	0.00	0.05	1.02
Apr-98	20	43°13'N	125°00'W	30	11.4	0.45	0.00	2.61	0.17	0.03	0.15	1.16
Apr-98	20	43°13'N	125°00'W	41	11.3	0.52	0.05	2.42	1.05	0.13	0.92	0.95
Apr-98	20	43°13'N	125°00'W	50	11.3	0.57	0.07	2.80	1.78	0.29	1.49	0.61
Apr-98	20	43°13'N	125°00'W	69	11.0	0.76	0.00	6.04	4.29	0.39	3.90	0.19
Apr-98	20	43°13'N	125°00'W	100	10.3	1.24	0.00	15.32	12.52	0.04	12.48	0.13
Apr-98	20	43°13'N	125°00'W	151	8.6	1.99	0.00	30.31	25.92	0.00	25.93	0.05
Apr-98	22	38°38.8'N	123°26.9'W	2	12.1	0.59	0.06	6.71	2.74	0.07	2.67	4.11
Apr-98	22	38°38.8'N	123°26.9'W	5	12.1	0.59	0.08	7.11	2.82	0.07	2.75	4.00
Apr-98	22	38°38.8'N	123°26.9'W	15	11.7	0.89	0.04	7.58	7.57	0.23	7.34	1.19
Apr-98	22	38°38.8'N	123°26.9'W	21	11.5	0.97	0.05	8.72	8.52	0.26	8.26	1.13
Apr-98	22	38°38.8'N	123°26.9'W	31	11.4	1.12	0.07	10.59	10.74	0.27	10.46	0.78
Apr-98	22	38°38.8'N	123°26.9'W	41	11.2	1.21	0.08	12.19	12.12	0.27	11.85	0.58
Apr-98	22	38°38.8'N	123°26.9'W	71	10.1	1.77	0.07	22.21	19.08	0.09	18.99	0.58
Apr-98	23	38°36.2'N	123°30.8'W	2	11.7	0.89	0.09	10.31	6.37	0.10	6.27	3.78
Apr-98	23	38°36.2'N	123°30.8'W	5	11.7	0.90	0.02	9.42	6.32	0.06	6.26	3.78
Apr-98	23	38°36.2'N	123°30.8'W	10	11.7	0.92	0.01	10.05	6.33	0.07	6.27	3.67
Apr-98	23	38°36.2'N	123°30.8'W	25	11.6	1.03	0.05	11.27	8.45	0.12	8.32	2.92
Apr-98	23	38°36.2'N	123°30.8'W	30	11.4	1.14	0.04	11.56	10.27	0.17	10.10	1.86
Apr-98	23	38°36.2'N	123°30.8'W	40	11.1	1.31	0.04	14.39	13.48	0.29	13.19	0.75
Apr-98	23	38°36.2'N	123°30.8'W	51	10.9	1.41	0.00	14.56	14.72	0.17	14.55	0.44
Apr-98	23	38°36.2'N	123°30.8'W	61	10.5	1.61	0.00	17.38	17.77	0.05	17.72	0.23
Apr-98	23	38°36.2'N	123°30.8'W	101	9.6	2.07	0.03	26.70	23.04	0.15	22.88	0.17
Apr-98	24	38°34.6'N	123°33.3'W	10	12.1	0.45	0.03	4.53	1.44	0.02	1.41	2.34
Apr-98	24	38°34.6'N	123°33.3'W	20	12.1	0.73	0.07	6.50	2.77	0.10	2.67	2.39
Apr-98	24	38°34.6'N	123°33.3'W	31	12.1	0.75	0.07	5.54	3.84	0.20	3.64	0.75
Apr-98	24	38°34.6'N	123°33.3'W	41	11.6	1.16	0.06	10.46	9.42	0.17	9.26	0.26
Apr-98	24	38°34.6'N	123°33.3'W	49	11.3	1.24	0.13	13.06	11.55	0.22	11.33	0.29
Apr-98	24	38°34.6'N	123°33.3'W	70	10.1	1.70	0.08	21.25	19.30	0.04	19.26	0.25
Apr-98	24	38°34.6'N	123°33.3'W	99	9.6	1.85	0.02	24.82	21.92	0.00	21.92	0.10
Apr-98	24	38°34.6'N	123°33.3'W	125	9.0	1.55	0.00	19.85	15.67	0.02	15.65	0.14

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Apr-98	26	38°30.2'N	123°39.6'W	3	12.5	0.30	0.04	2.64	0.24	0.00	0.25	0.74
Apr-98	26	38°30.2'N	123°39.6'W	10	12.5	0.29	0.06	2.51	0.33	0.00	0.33	0.76
Apr-98	26	38°30.2'N	123°39.6'W	20	12.5	0.32	0.03	2.87	0.39	0.00	0.40	0.80
Apr-98	26	38°30.2'N	123°39.6'W	30	12.5	0.34	0.03	2.44	0.47	0.00	0.48	0.74
Apr-98	26	38°30.2'N	123°39.6'W	41	12.5	0.34	0.04	2.12	0.38	0.00	0.39	0.78
Apr-98	26	38°30.2'N	123°39.6'W	51	12.5	0.74	0.06	6.84	6.28	0.00	6.31	0.74
Apr-98	26	38°30.2'N	123°39.6'W	71	11.8	0.57	0.06	4.94	3.45	0.00	3.47	0.15
Apr-98	26	38°30.2'N	123°39.6'W	98	10.0	1.58	0.06	19.24	19.41	0.00	19.41	0.03
Apr-98	26	38°30.2'N	123°39.6'W	151	9.0	1.99	0.15	28.54	25.68	0.01	25.67	0.03
Apr-98	28	38°24.0'N	123°49.2'W	3	12.6	0.41	0.00	2.81	0.06	0.02	0.05	0.50
Apr-98	28	38°24.0'N	123°49.2'W	10	12.6	0.37	0.01	2.66	0.16	0.01	0.15	0.50
Apr-98	28	38°24.0'N	123°49.2'W	19	12.6	0.38	0.20	3.15	0.09	0.00	0.11	0.50
Apr-98	28	38°24.0'N	123°49.2'W	29	12.6	0.41	-0.01	2.86	0.42	0.01	0.41	0.51
Apr-98	28	38°24.0'N	123°49.2'W	39	12.6	0.38	0.00	3.10	0.39	0.01	0.38	0.50
Apr-98	28	38°24.0'N	123°49.2'W	50	12.6	0.32	-0.02	2.44	0.14	0.01	0.13	0.55
Apr-98	28	38°24.0'N	123°49.2'W	70	12.0	0.71	0.02	5.99	5.32	0.00	5.40	0.21
Apr-98	28	38°24.0'N	123°49.2'W	80	11.2	1.05	0.03	11.20	18.90	0.00	18.92	0.10
Apr-98	28	38°24.0'N	123°49.2'W	101	10.1	1.47	0.04	18.86	17.98	0.00	17.98	0.04
Apr-98	28	38°24.0'N	123°49.2'W	150	8.6	2.01	0.09	18.86	27.17	0.00	27.17	0.03
Apr-98	29	38°17.6'N	123°59.3'W	3	12.6	0.73	0.00	2.77	0.35	0.02	0.34	0.40
Apr-98	29	38°17.6'N	123°59.3'W	10	12.6	0.46	0.08	3.46	0.47	0.02	0.45	0.42
Apr-98	29	38°17.6'N	123°59.3'W	19	12.6	0.36	0.06	2.23	0.00	0.02	0.00	0.41
Apr-98	29	38°17.6'N	123°59.3'W	29	12.6	0.36	0.00	2.14	0.00	0.03	0.00	0.43
Apr-98	29	38°17.6'N	123°59.3'W	41	12.6	0.32	0.01	2.57	0.06	0.02	0.04	0.41
Apr-98	29	38°17.6'N	123°59.3'W	50	12.6	0.43	0.05	2.74	0.02	0.00	0.02	0.42
Apr-98	29	38°17.6'N	123°59.3'W	60	12.6	0.37	0.00	2.36	0.14	0.00	0.13	0.40
Apr-98	29	38°17.6'N	123°59.3'W	70	12.5	0.52	0.03	3.78	2.19	0.00	2.26	0.31
Apr-98	29	38°17.6'N	123°59.3'W	99	10.1	1.27	0.00	14.55	14.47	0.00	14.46	0.05
Apr-98	29	38°17.6'N	123°59.3'W	151	8.7	1.69	0.00	25.93	22.81	0.01	22.80	0.02
Apr-98	35	41°54'N	124°30'W	2	11.4	0.48	0.00	7.65	1.44	0.03	1.41	2.73
Apr-98	35	41°54'N	124°30'W	5	11.4	0.50	0.00	7.52	1.44	0.03	1.41	2.76
Apr-98	35	41°54'N	124°30'W	10	11.4	0.53	0.07	7.05	1.24	0.03	1.21	2.62
Apr-98	35	41°54'N	124°30'W	19	11.0	0.78	0.00	13.87	5.51	0.13	5.37	6.23
Apr-98	35	41°54'N	124°30'W	24	10.9	0.89	0.24	14.80	6.39	0.15	6.24	5.38
Apr-98	35	41°54'N	124°30'W	31	10.8	1.11	0.06	13.39	8.26	0.27	7.99	1.15
Apr-98	35	41°54'N	124°30'W	40	10.5	1.24	0.07	13.63	10.07	0.30	9.77	0.67
Apr-98	35	41°54'N	124°30'W	50	10.1	1.54	0.00	19.37	13.98	0.22	13.76	0.69
Apr-98	35	41°54'N	124°30'W	61	9.6	1.92	0.09	24.50	19.10	0.05	19.05	0.41
Apr-98	35	41°54'N	124°30'W	70	8.8	2.33	0.05	31.08	24.36	0.05	24.31	0.15
Apr-98	35	41°54'N	124°30'W	100	8.6	2.44	0.06	34.31	25.63	0.10	25.53	0.24
Apr-98	35	41°54'N	124°30'W	117	8.6	2.41	0.00	35.36	25.43	0.13	25.30	0.35
Apr-98	37	41°54'N	124°18'W	2	10.9	0.83	0.00	21.53	5.96	0.17	5.80	7.88
Apr-98	37	41°54'N	124°18'W	5	10.9	0.86	0.00	21.85	6.01	0.16	5.85	7.78
Apr-98	37	41°54'N	124°18'W	8	10.9	0.85	0.01	21.22	5.59	0.16	5.43	8.62
Apr-98	37	41°54'N	124°18'W	10	10.9	0.77	0.00	19.97	5.08	0.14	4.94	9.78
Apr-98	37	41°54'N	124°18'W	15	11.0	0.83	0.00	20.80	5.08	0.15	4.94	9.93
Apr-98	37	41°54'N	124°18'W	19	10.7	1.20	0.00	17.97	9.55	0.25	9.31	4.94
Apr-98	37	41°54'N	124°18'W	25	10.5	1.36	0.00	17.01	11.91	0.26	11.65	1.33
Apr-98	37	41°54'N	124°18'W	29	10.2	1.61	0.16	20.17	13.88	0.29	13.59	1.26
Apr-98	37	41°54'N	124°18'W	34	10.0	1.70	0.12	21.71	15.23	0.28	14.95	1.47

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Apr-98	38	41°54'N	124°36'W	2	11.6	0.38	0.00	3.06	0.16	0.03	0.13	1.12
Apr-98	38	41°54'N	124°36'W	10	11.6	0.39	0.00	3.36	0.16	0.04	0.13	1.13
Apr-98	38	41°54'N	124°36'W	20	11.5	0.38	0.00	3.20	0.22	0.05	0.18	1.15
Apr-98	38	41°54'N	124°36'W	29	11.5	0.40	0.00	2.93	0.34	0.07	0.27	1.08
Apr-98	38	41°54'N	124°36'W	35	11.5	0.41	0.00	2.95	0.38	0.08	0.30	1.01
Apr-98	38	41°54'N	124°36'W	40	11.5	0.43	0.00	3.14	0.60	0.10	0.50	0.99
Apr-98	38	41°54'N	124°36'W	51	11.4	0.49	0.00	3.28	1.23	0.18	1.05	0.99
Apr-98	38	41°54'N	124°36'W	70	10.8	0.83	0.00	7.86	6.24	0.26	5.98	0.29
Apr-98	38	41°54'N	124°36'W	99	8.9	1.93	0.00	30.32	24.35	0.06	24.29	0.12
Apr-98	38	41°54'N	124°36'W	149	7.7	2.25	0.00	41.08	30.35	0.00	30.35	0.08
Apr-98	39	41°54'N	124°42'W	4	11.3	0.40	0.00	2.42	0.00	0.00	0.02	0.94
Apr-98	39	41°54'N	124°42'W	9	11.3	0.43	0.00	2.03	0.06	0.00	0.08	0.96
Apr-98	39	41°54'N	124°42'W	20	11.3	0.44	0.00	2.27	0.05	0.00	0.04	0.83
Apr-98	39	41°54'N	124°42'W	29	11.3	0.41	0.00	2.06	0.08	0.00	0.08	0.96
Apr-98	39	41°54'N	124°42'W	40	11.2	0.50	0.00	2.81	0.45	0.06	0.39	1.03
Apr-98	39	41°54'N	124°42'W	45	11.1	0.48	0.00	2.55	0.51	0.06	0.45	0.96
Apr-98	39	41°54'N	124°42'W	50	11.1	0.51	0.00	2.70	0.99	0.15	0.84	0.76
Apr-98	39	41°54'N	124°42'W	69	10.7	0.71	0.00	5.51	3.84	0.43	3.41	0.30
Apr-98	39	41°54'N	124°42'W	101	10.8	1.02	0.00	11.84	9.76	0.04	9.72	0.09
Apr-98	39	41°54'N	124°42'W	150	8.7	2.11	0.00	33.94	26.91	0.03	26.88	0.10
Apr-98	41	41°54'N	125°00'W	2	11.5	0.34	0.10	2.50	0.09	0.02	0.08	1.06
Apr-98	41	41°54'N	125°00'W	10	11.5	0.25	0.07	2.17	0.06	0.02	0.05	1.09
Apr-98	41	41°54'N	125°00'W	20	11.5	0.13	0.09	2.60	0.01	0.03	0.00	1.09
Apr-98	41	41°54'N	125°00'W	30	11.5	0.10	0.10	3.49	0.69	0.04	0.65	1.09
Apr-98	41	41°54'N	125°00'W	40	11.5	0.00	0.09	3.83	0.93	0.04	0.89	0.99
Apr-98	41	41°54'N	125°00'W	50	11.5	0.00	0.09	2.70	0.16	0.04	0.13	0.99
Apr-98	41	41°54'N	125°00'W	60	11.6	0.00	0.14	2.69	0.27	0.06	0.22	0.82
Apr-98	41	41°54'N	125°00'W	70	11.8	0.00	0.29	3.54	0.90	0.23	0.68	0.41
Apr-98	41	41°54'N	125°00'W	100	11.1	0.83	0.13	6.05	3.87	0.38	3.49	0.09
Apr-98	41	41°54'N	125°00'W	149	9.2	0.00	0.16	24.20	19.53	0.05	19.48	0.05
Apr-98	43	41°54'N	125°20'W	3	12.1	0.39	0.12	2.52	0.15	0.02	0.13	0.58
Apr-98	43	41°54'N	125°20'W	10	12.1	0.40	0.12	2.66	0.16	0.04	0.12	0.57
Apr-98	43	41°54'N	125°20'W	19	12.1	0.42	0.03	2.62	0.17	0.04	0.12	0.58
Apr-98	43	41°54'N	125°20'W	40	12.1	0.42	0.15	2.76	0.20	0.04	0.16	0.57
Apr-98	43	41°54'N	125°20'W	51	12.1	0.42	0.06	2.74	0.17	0.02	0.15	0.53
Apr-98	43	41°54'N	125°20'W	70	11.9	0.55	0.12	3.88	2.19	0.28	1.91	0.17
Apr-98	43	41°54'N	125°20'W	101	11.1	0.96	0.03	9.98	9.32	0.02	9.30	0.07
Apr-98	46	44°39.1'N	124°10.6'W	3	11.7	0.45	0.00	0.26	0.06	0.00	0.08	1.59
Apr-98	46	44°39.1'N	124°10.6'W	4	11.7	0.49	0.00	2.12	0.08	0.00	0.09	1.63
Apr-98	46	44°39.1'N	124°10.6'W	10	11.7	0.49	0.00	2.44	0.05	0.00	0.06	1.59
Apr-98	46	44°39.1'N	124°10.6'W	16	11.7	0.50	0.00	1.61	0.06	0.00	0.07	1.16
Apr-98	46	44°39.1'N	124°10.6'W	20	11.7	0.44	0.00	2.04	0.06	0.00	0.07	1.26
Apr-98	46	44°39.1'N	124°10.6'W	25	11.7	0.48	0.00	2.11	0.16	0.01	0.15	1.19
Apr-98	46	44°39.1'N	124°10.6'W	30	11.5	0.65	0.00	3.11	0.68	0.13	0.55	1.30
Apr-98	46	44°39.1'N	124°10.6'W	41	11.1	0.99	0.06	6.92	4.09	0.22	3.88	0.51
Apr-98	46	44°39.1'N	124°10.6'W	51	10.8	1.35	0.00	13.63	7.18	0.28	6.90	1.08
Apr-98	46	44°39.1'N	124°10.6'W	54	10.8	1.52	0.00	17.42	9.12	0.25	8.87	1.52
Apr-98	48	44°39.1'N	124°24.7'W	2	11.6	0.37	0.00	1.56	0.02	0.00	0.03	0.99

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Apr-98	48	44°39.1'N	124°24.7'W	4	11.6	0.36	0.00	1.60	0.03	0.00	0.04	1.01
Apr-98	48	44°39.1'N	124°24.7'W	10	11.6	0.35	0.00	1.42	0.04	0.00	0.06	1.03
Apr-98	48	44°39.1'N	124°24.7'W	19	11.6	0.39	0.00	1.05	0.02	0.00	0.02	1.16
Apr-98	48	44°39.1'N	124°24.7'W	31	11.0	0.55	0.00	2.63	0.91	0.05	0.87	1.45
Apr-98	48	44°39.1'N	124°24.7'W	32	10.9	0.98	0.00	8.00	4.58	0.19	4.39	1.52
Apr-98	48	44°39.1'N	124°24.7'W	39	10.7	1.24	0.00	10.87	7.09	0.14	6.95	0.85
Apr-98	48	44°39.1'N	124°24.7'W	50	10.1	1.65	0.00	16.61	12.04	0.11	11.94	0.47
Apr-98	48	44°39.1'N	124°24.7'W	60	10.0	1.72	0.00	17.22	12.35	0.15	12.20	0.36
Apr-98	48	44°39.1'N	124°24.7'W	69	9.9	1.74	0.00	17.30	13.26	0.12	13.14	0.31
Aug-98	3	44°39.1'N	124°10.6'W	2	10.6	1.32	0.62	12.06	7.79	0.13	7.66	13.64
Aug-98	3	44°39.1'N	124°10.6'W	5	10.4	1.45	0.77	15.13	11.64	0.13	11.50	13.71
Aug-98	3	44°39.1'N	124°10.6'W	10	10.0	1.89	1.15	24.46	18.75	0.11	18.64	9.44
Aug-98	3	44°39.1'N	124°10.6'W	14	9.2	2.08	0.88	30.50	22.99	0.10	22.89	4.70
Aug-98	3	44°39.1'N	124°10.6'W	20	8.7	1.84	0.83	30.60	20.66	0.05	20.61	1.59
Aug-98	3	44°39.1'N	124°10.6'W	24	8.3	2.20	0.30	35.54	26.34	0.07	26.27	0.58
Aug-98	3	44°39.1'N	124°10.6'W	30	8.0	2.32	0.00	42.57	28.91	0.06	28.85	0.56
Aug-98	3	44°39.1'N	124°10.6'W	40	7.8	2.60	0.05	54.54	30.48	0.14	30.34	1.60
Aug-98	3	44°39.1'N	124°10.6'W	52	7.8	2.63	0.21	56.61	30.28	0.17	30.11	3.10
Aug-98	5	44°39.1'N	124°39.0'W	2	14.6		0.13	0.00	1.96	0.10	1.87	0.45
Aug-98	5	44°39.1'N	124°39.0'W	12	12.3	0.43	0.20	1.25	1.97	0.10	1.86	0.56
Aug-98	5	44°39.1'N	124°39.0'W	22	10.4	0.50	0.00	1.02	2.57	0.22	2.35	1.30
Aug-98	5	44°39.1'N	124°39.0'W	27	10.0	0.62	0.00	2.44	3.87	0.28	3.59	0.98
Aug-98	5	44°39.1'N	124°39.0'W	32	9.9	0.73	0.04	3.20	5.66	0.18	5.49	0.59
Aug-98	5	44°39.1'N	124°39.0'W	42	9.3	0.98	0.43	6.93	8.75	0.15	8.61	0.20
Aug-98	5	44°39.1'N	124°39.0'W	52	9.1	1.15	0.12	10.66	11.74	0.13	11.61	0.17
Aug-98	5	44°39.1'N	124°39.0'W	72	8.6	1.82	0.44	25.29	21.99	0.13	21.87	0.11
Aug-98	5	44°39.1'N	124°39.0'W	102	8.1	2.29	0.49	37.94	28.27	0.11	28.16	0.12
Aug-98	5	44°39.1'N	124°39.0'W	202	7.4	2.41		47.72	31.61	0.36	31.25	0.06
Aug-98	7	44°39.1'N	124°24.7'W	2	11.9	0.60	0.52	5.93	1.82	0.00	1.88	9.90
Aug-98	7	44°39.1'N	124°24.7'W	4	11.8	0.60	0.36	7.02	2.31	0.00	2.39	10.94
Aug-98	7	44°39.1'N	124°24.7'W	10	11.4	0.63	0.36	7.45	2.80	0.00	2.88	10.87
Aug-98	7	44°39.1'N	124°24.7'W	19	9.6	1.11	0.25	16.22	9.61	0.00	9.57	1.74
Aug-98	7	44°39.1'N	124°24.7'W	29	8.9	1.36	0.07	17.64	13.95	0.00	14.02	0.63
Aug-98	7	44°39.1'N	124°24.7'W	49	8.9	1.97	0.09	31.03	25.40	0.00	25.51	0.37
Aug-98	7	44°39.1'N	124°24.7'W	59	8.5	2.09	0.08	33.76	26.88	0.00	26.97	0.05
Aug-98	7	44°39.1'N	124°24.7'W	70	8.4	2.63	0.24	50.68	30.53	0.00	30.56	0.04
Aug-98	8	44°39.1'N	124°53.0'W	2	15.3	0.17	0.09	0.00	0.41	0.00	0.41	0.50
Aug-98	8	44°39.1'N	124°53.0'W	10	15.3	0.20	0.15	0.03	0.44	0.00	0.44	0.47
Aug-98	8	44°39.1'N	124°53.0'W	20	11.6	0.46	0.12	1.40	0.00	0.00	0.00	0.67
Aug-98	8	44°39.1'N	124°53.0'W	25	10.6	0.51	0.12	2.45	0.00	0.00	0.00	2.02
Aug-98	8	44°39.1'N	124°53.0'W	30	10.4	0.59	0.11	2.52	1.38	0.20	1.18	1.98
Aug-98	8	44°39.1'N	124°53.0'W	41	9.8	0.71	0.14	3.90	3.82	0.04	3.77	0.66
Aug-98	8	44°39.1'N	124°53.0'W	51	9.5	0.85	0.14	5.93	6.06	0.00	6.06	0.07
Aug-98	8	44°39.1'N	124°53.0'W	70	9.4	1.29	0.05	13.88	13.42	0.00	13.42	0.13
Aug-98	8	44°39.1'N	124°53.0'W	100	8.5	1.96	0.12	30.03	23.86	0.00	23.86	0.06
Aug-98	8	44°39.1'N	124°53.0'W	150	7.9	2.34	0.19	35.35	30.83	0.00	30.83	0.06
Aug-98	8	44°39.1'N	124°53.0'W	234	7.2	2.40		49.63	31.20	0.35	30.86	0.07
Aug-98	8	44°39.1'N	124°53.0'W	410	6.0	2.70		65.07	36.17	0.33	35.83	0.04

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Aug-98	9	44°39.1'N	125°07.0'W	20	11.4	0.44	0.13	3.04	0.25	0.00	0.25	0.95
Aug-98	9	44°39.1'N	125°07.0'W	25	10.6	0.47	0.10	3.08	1.32	0.05	1.27	1.18
Aug-98	9	44°39.1'N	125°07.0'W	30	10.3	0.52	0.14	2.78	1.34	0.12	1.22	1.30
Aug-98	9	44°39.1'N	125°07.0'W	41	9.7	0.74	0.09	4.79		0.03		0.83
Aug-98	9	44°39.1'N	125°07.0'W	50	9.4	0.87	0.14	6.81		0.00		0.39
Aug-98	9	44°39.1'N	125°07.0'W	100	8.2	2.20	0.15	35.92	28.48	0.00	28.48	0.05
Aug-98	9	44°39.1'N	125°07.0'W	151	7.5	2.42	0.09	43.55	31.48	0.00	31.48	0.04
Aug-98	9	44°39.1'N	125°07.0'W	500	5.7	2.84		72.22	37.25	0.34	36.91	0.02
Aug-98	9	44°39.1'N	125°07.0'W	680	4.6	3.06		94.10	41.02	0.34	40.68	0.01
Aug-98	11	44°39.1'N	125°36.1'W	2	16.8	0.10	0.31	1.27	0.00	0.00	0.00	0.29
Aug-98	11	44°39.1'N	125°36.1'W	10	16.6	0.04	0.09	3.64	0.00	0.00	0.00	0.29
Aug-98	11	44°39.1'N	125°36.1'W	30	11.0	0.42	0.24	1.14	0.13	0.00	0.13	0.50
Aug-98	11	44°39.1'N	125°36.1'W	40	10.6	0.58	0.14	1.86	2.09	0.08	2.00	0.71
Aug-98	11	44°39.1'N	125°36.1'W	45	10.3	0.64	0.14	2.26	3.27	0.09	3.18	0.82
Aug-98	11	44°39.1'N	125°36.1'W	50	9.8	0.70	0.13	3.31	4.65	0.06	4.59	0.74
Aug-98	11	44°39.1'N	125°36.1'W	70	9.4	1.04	0.10	8.95	10.56	0.13	10.42	0.47
Aug-98	11	44°39.1'N	125°36.1'W	100	9.0	1.77	0.10	23.14	22.45	0.00	22.45	0.03
Aug-98	11	44°39.1'N	125°36.1'W	150	8.1	2.10	0.05	34.04	29.13	0.00	29.13	0.02
Aug-98	11	44°39.1'N	125°36.1'W	1005	3.5	3.20		129.46	42.48	0.32	42.16	0.01
Aug-98	12	44°39.1'N	126°03.0'W	2	17.6	0.04	0.13	2.37	0.00	0.00	0.00	0.21
Aug-98	12	44°39.1'N	126°03.0'W	20	15.6	0.11	0.19	5.64	0.00	0.00	0.00	0.27
Aug-98	12	44°39.1'N	126°03.0'W	30	11.6	0.34	0.08	1.36	0.00	0.00	0.00	0.37
Aug-98	12	44°39.1'N	126°03.0'W	40	10.9	0.39	0.12	1.68	0.00	0.00	0.00	0.47
Aug-98	12	44°39.1'N	126°03.0'W	50	10.4	0.53	0.14	4.62	2.20	0.09	2.11	0.49
Aug-98	12	44°39.1'N	126°03.0'W	60	10.0	0.63	0.08	4.28	3.93	0.00	3.93	0.34
Aug-98	12	44°39.1'N	126°03.0'W	71	9.8	0.79	0.08	5.91	6.82	0.00	6.82	0.21
Aug-98	12	44°39.1'N	126°03.0'W	70	9.8	0.79	0.08	5.91	6.82	0.00	6.82	0.21
Aug-98	12	44°39.1'N	126°03.0'W	100	9.4	1.84	0.08	27.89	24.27	0.00	24.27	0.19
Aug-98	12	44°39.1'N	126°03.0'W	150	8.1	2.00	0.05	31.16	27.93	0.00	27.93	0.09
Aug-98	12	44°39.1'N	126°03.0'W	1005	3.5	3.22		126.54	42.33		42.01	0.00
Aug-98	13	43°13'N	125°10'W	2	12.5	0.42	0.40	1.19	6.91	0.00	6.91	0.93
Aug-98	13	43°13'N	125°10'W	10	12.5	0.44	0.48	1.26	7.10	0.00	7.10	0.99
Aug-98	13	43°13'N	125°10'W	20	12.4	0.82	0.73	5.63	11.44	0.08	11.36	0.74
Aug-98	13	43°13'N	125°10'W	30	11.7	1.32	1.19	5.38	11.53	0.08	11.46	1.20
Aug-98	13	43°13'N	125°10'W	40	11.0	0.96	0.97	6.44	13.85	0.12	13.73	1.57
Aug-98	13	43°13'N	125°10'W	51	9.9	1.31	0.85	13.13	19.15	0.23	18.93	0.87
Aug-98	13	43°13'N	125°10'W	70	9.3	1.70	0.39	21.79	26.29	0.28	26.01	0.22
Aug-98	13	43°13'N	125°10'W	85	8.8	1.91	0.40	25.83	29.86	0.14	29.72	0.14
Aug-98	13	43°13'N	125°10'W	85	8.9	1.91	0.40	25.83	29.86	0.14	29.72	0.14
Aug-98	13	43°13'N	125°10'W	100	8.6	2.07	0.16	30.20	32.56	0.02	32.54	0.07
Aug-98	13	43°13'N	125°10'W	151	8.1	2.20	0.14	35.57	35.07	0.00	35.07	0.04
Aug-98	13	43°13'N	125°10'W	1005	3.6	3.20		125.32	41.96		41.63	0.01
Aug-98	14	43°13'N	125°00'W	2	12.3	0.36	0.34	0.00	7.10	0.00	7.10	0.91
Aug-98	14	43°13'N	125°00'W	10	12.2	0.39	0.30	0.00	7.19	0.00	7.19	0.97
Aug-98	14	43°13'N	125°00'W	20	11.9	0.53	0.53	2.09	9.12	0.03	9.10	1.37
Aug-98	14	43°13'N	125°00'W	25	10.7	0.68	0.63	8.11	13.08	0.06	13.02	0.87
Aug-98	14	43°13'N	125°00'W	30	9.7	0.90	0.48	4.55	15.97	0.11	15.86	0.84
Aug-98	14	43°13'N	125°00'W	40	9.3	1.35	0.19	15.53	24.07	0.09	23.98	0.62
Aug-98	14	43°13'N	125°00'W	70	9.1	1.88	0.87	26.25	31.88	0.26	31.62	0.23
Aug-98	14	43°13'N	125°00'W	71	9.1	1.88	0.87	26.25	31.88	0.26	31.62	0.23

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Aug-98	14	43°13'N	125°00'W	100	8.7	2.02	0.53	29.96	35.84	0.27	35.57	0.07
Aug-98	14	43°13'N	125°00'W	150	8.2	2.28	0.11	36.65	29.86	0.12	29.74	0.09
Aug-98	14	43°13'N	125°00'W	1005	3.7	3.22		122.66	41.69		41.36	0.01
Aug-98	15	43°13'N	124°50'W	3	12.1	0.35	0.34	0.00	2.65	0.14	2.51	1.51
Aug-98	15	43°13'N	124°50'W	10	12.0	0.38	0.52	0.00	2.85	0.14	2.71	1.51
Aug-98	15	43°13'N	124°50'W	15	11.6	0.46	0.79	0.00	3.34	0.15	3.19	1.74
Aug-98	15	43°13'N	124°50'W	20	11.0	0.65	0.60	2.28	4.84	0.18	4.65	1.00
Aug-98	15	43°13'N	124°50'W	30	9.2	1.35	0.25	14.16	15.38	0.31	15.08	0.74
Aug-98	15	43°13'N	124°50'W	40	9.2	1.60	0.00	19.45	20.76	0.18	20.58	0.16
Aug-98	15	43°13'N	124°50'W	70	8.9	2.00	0.51	27.70	25.13	0.32	24.81	0.07
Aug-98	15	43°13'N	124°50'W	70	8.9	2.00	0.51	27.70	25.13	0.32	24.81	0.07
Aug-98	15	43°13'N	124°50'W	100	8.6	2.13	0.06	31.34	28.42	0.36	28.06	0.07
Aug-98	15	43°13'N	124°50'W	151	8.0	2.31	0.00	37.94	30.81	0.23	30.58	0.06
Aug-98	15	43°13'N	124°50'W	249	7.6	2.44		47.99	30.67		30.25	0.04
Aug-98	17	43°13'N	124°40'W	2	11.5	0.40	1.29	0.00	1.61	0.00	1.63	0.79
Aug-98	17	43°13'N	124°40'W	15	11.4	0.56	1.40	3.42	3.24	0.00	3.25	0.77
Aug-98	17	43°13'N	124°40'W	20	10.7	0.94	1.78	9.60	7.41	0.08	7.34	0.59
Aug-98	17	43°13'N	124°40'W	10	11.5	0.94	1.78	9.60	7.41	0.08	7.34	0.59
Aug-98	17	43°13'N	124°40'W	30	9.7	1.46	1.09	18.08	15.14	0.20	14.94	0.59
Aug-98	17	43°13'N	124°40'W	40	8.9	1.71	1.03	22.28	29.89	0.20	29.69	0.42
Aug-98	17	43°13'N	124°40'W	50	8.8	2.02	0.76	29.12	25.56	0.23	25.33	0.19
Aug-98	17	43°13'N	124°40'W	60	8.7	2.11	0.76	32.32	26.97	0.23	26.74	0.11
Aug-98	17	43°13'N	124°40'W	61	8.7	2.11	0.76	32.32	26.97	0.23	26.74	0.11
Aug-98	17	43°13'N	124°40'W	70	8.6	2.24	0.20	36.52	29.36	0.19	29.18	0.10
Aug-98	17	43°13'N	124°40'W	100	8.4	2.34	0.09	40.06	30.67	0.15	30.52	0.13
Aug-98	17	43°13'N	124°40'W	147	8.1	2.15	0.26	39.64	26.35	0.09	26.26	0.11
Aug-98	18	43°13'N	124°35'W	2	10.6	0.82	0.61	6.61	5.96	0.15	5.80	10.15
Aug-98	18	43°13'N	124°35'W	5	10.6	0.85	0.61	6.98	6.26	0.17	6.09	10.27
Aug-98	18	43°13'N	124°35'W	8	10.2	1.04	1.01	9.32	8.30	0.18	8.11	9.43
Aug-98	18	43°13'N	124°35'W	10	10.2	1.11	1.13	10.02	9.18	0.20	8.98	9.05
Aug-98	18	43°13'N	124°35'W	20	9.6	1.68	1.68	19.96	17.59	0.29	17.30	2.05
Aug-98	18	43°13'N	124°35'W	30	9.0	2.05	1.85	59.32	22.62	0.34	22.28	0.48
Aug-98	18	43°13'N	124°35'W	41	9.1	2.09	2.01	60.01	23.31	0.30	23.01	0.38
Aug-98	18	43°13'N	124°35'W	50	8.6	2.10	0.97	65.99	25.25	0.25	25.00	0.26
Aug-98	18	43°13'N	124°35'W	60	8.5	2.23	0.46	40.25	27.19	0.28	26.91	1.08
Aug-98	18	43°13'N	124°35'W	70	8.4	2.39	0.34	39.95	29.62	0.29	29.33	0.17
Aug-98	18	43°13'N	124°35'W	77	8.4	2.37	0.36	40.32	29.44	0.29	29.15	0.18
Aug-98	19	43°13'N	124°30'W	2	10.1	1.25	0.33	17.13	11.94	0.28	11.66	14.05
Aug-98	19	43°13'N	124°30'W	5	9.8	1.28	0.41	17.37	12.46	0.26	12.20	13.05
Aug-98	19	43°13'N	124°30'W	10	9.6	1.35	0.35	17.61	13.57	0.25	13.32	15.57
Aug-98	19	43°13'N	124°30'W	15	9.5	1.47	0.42	19.50	15.08	0.34	14.74	13.84
Aug-98	19	43°13'N	124°30'W	20	9.0	1.85	0.77	26.67	21.52	0.34	21.18	8.39
Aug-98	19	43°13'N	124°30'W	25	8.7	2.19	0.91	34.16	27.17	0.27	26.90	0.95
Aug-98	19	43°13'N	124°30'W	30	8.6	2.19	0.86	35.06	27.49	0.25	27.25	0.93
Aug-98	19	43°13'N	124°30'W	41	8.5	2.24	0.77	38.27	28.31	0.19	28.11	0.52
Aug-98	19	43°13'N	124°30'W	61	8.5	2.25	0.75	39.17	28.53	0.15	28.38	0.42
Aug-98	19	43°13'N	124°30'W	50	8.5	2.25	0.75	39.17	28.53	0.15	28.38	0.42
Aug-98	21	41°54'N	125°20'W	3	13.5	0.65	0.70	11.17	3.02	0.25	2.78	1.11
Aug-98	21	41°54'N	125°20'W	10	13.2	0.70	0.76	11.07	2.99	0.24	2.75	1.42

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Aug-98	21	41°54'N	125°20'W	20	12.0	0.66	0.74		2.76	0.23	2.53	1.13
Aug-98	21	41°54'N	125°20'W	30	10.9	0.75	0.77	12.13	3.99	0.27	3.72	0.91
Aug-98	21	41°54'N	125°20'W	40	10.4	0.83	0.75	12.72	5.37	0.29	5.07	0.98
Aug-98	21	41°54'N	125°20'W	51	9.9	0.95	0.68	14.84	7.66	0.36	7.30	0.69
Aug-98	21	41°54'N	125°20'W	71	9.9	1.25	0.69	20.57	14.12	0.22	13.90	0.15
Aug-98	21	41°54'N	125°20'W	99	9.2	1.64	0.70	29.34	21.38	0.22	21.15	0.06
Aug-98	21	41°54'N	125°20'W	99	9.2	1.64	0.70	29.34	21.38	0.22	21.15	0.06
Aug-98	21	41°54'N	125°20'W	150	8.1	2.07	0.68	43.80	28.86	0.21	28.66	0.03
Aug-98	21	41°54'N	125°20'W	750	4.2	3.21		107.04	41.07		40.76	0.02
Aug-98	21	41°54'N	125°20'W	1005	3.6	3.21		123.92	41.45		41.08	0.04
Aug-98	23	41°54'N	125°00'W	2	13.7	0.69	0.76	13.28	3.60	0.22	3.39	1.10
Aug-98	23	41°54'N	125°00'W	10	13.7	0.68	0.74	13.11	3.62	0.22	3.40	1.30
Aug-98	23	41°54'N	125°00'W	20	13.7	0.70	0.70	12.94	3.67	0.21	3.46	1.09
Aug-98	23	41°54'N	125°00'W	30	12.7	0.80	0.80	14.03	4.68	0.25	4.43	1.10
Aug-98	23	41°54'N	125°00'W	40	10.9	1.15	1.25	18.85	9.85	0.36	9.49	2.43
Aug-98	23	41°54'N	125°00'W	50	9.7	1.52	1.09	26.31	16.66	0.44	16.22	0.67
Aug-98	23	41°54'N	125°00'W	70	9.2	1.79	0.90	32.93	22.40	0.39	22.01	0.29
Aug-98	23	41°54'N	125°00'W	70	9.2	1.79	0.90	32.93	22.40	0.39	22.01	0.29
Aug-98	23	41°54'N	125°00'W	100	8.6	2.00	0.68	39.56	26.92	0.21	26.71	0.05
Aug-98	23	41°54'N	125°00'W	150	8.1	2.11	0.65	44.10	29.31	0.20	29.10	0.05
Aug-98	23	41°54'N	125°00'W	781	4.2	3.21		107.81	40.87		40.55	0.02
Aug-98	25	41°54'N	124°42'W	3	13.6	0.31	0.66	5.77	0.00	0.08	0.00	0.46
Aug-98	25	41°54'N	124°42'W	10	13.6	0.32	0.64	5.63	0.00	0.08	0.00	0.45
Aug-98	25	41°54'N	124°42'W	20	13.1	0.35	0.78	5.50	0.00	0.09	0.00	0.46
Aug-98	25	41°54'N	124°42'W	30	13.2	0.55	0.82	6.31	2.15	0.17	1.99	0.57
Aug-98	25	41°54'N	124°42'W	40	11.5	1.02	1.10	13.07	9.31	0.27	9.04	0.68
Aug-98	25	41°54'N	124°42'W	47	10.6	1.28	1.16	17.27		0.37		0.66
Aug-98	25	41°54'N	124°42'W	50	10.4	1.36	1.21	17.67		0.45		0.65
Aug-98	25	41°54'N	124°42'W	69	9.7	1.59	0.92	22.68	18.49	0.42	18.07	0.20
Aug-98	25	41°54'N	124°42'W	70	9.7	1.59	0.92	22.68	18.49	0.42	18.07	0.20
Aug-98	25	41°54'N	124°42'W	101	8.7	2.00	0.34	30.66	25.31	0.24	25.07	0.08
Aug-98	25	41°54'N	124°42'W	150	7.9	2.27	0.36	38.92	29.54	0.09	29.45	0.03
Aug-98	25	41°54'N	124°42'W	510	5.3	3.01		83.95	38.05		37.73	0.02
Aug-98	26	41°54'N	124°36'W	1	12.9	0.40	0.11	2.04	0.76	0.04	0.72	0.58
Aug-98	26	41°54'N	124°36'W	10	12.4	0.45	0.14	2.40	1.66	0.08	1.58	0.63
Aug-98	26	41°54'N	124°36'W	20	12.2	0.46	0.29	2.43	1.82	0.08	1.74	0.66
Aug-98	26	41°54'N	124°36'W	25	12.2	0.50	0.30	2.13	1.62	0.09	1.53	0.62
Aug-98	26	41°54'N	124°36'W	30	11.5	0.69	0.54	3.48	4.36	0.14	4.21	0.75
Aug-98	26	41°54'N	124°36'W	40	10.3	0.89	0.64	6.46	7.55	0.22	7.33	0.49
Aug-98	26	41°54'N	124°36'W	50	9.8	1.23	0.13	13.38	14.04	0.13	13.91	0.23
Aug-98	26	41°54'N	124°36'W	69	9.2	1.59	0.01	21.29	20.53	0.01	20.53	0.06
Aug-98	26	41°54'N	124°36'W	70	9.2	1.59	0.01	21.29	20.53	0.01	20.53	0.06
Aug-98	26	41°54'N	124°36'W	101	8.9	1.92	0.02	28.50	25.65	0.02	25.63	0.04
Aug-98	26	41°54'N	124°36'W	150	8.2	2.11	0.00	35.39	29.39	0.00	29.39	0.03
Aug-98	26	41°54'N	124°36'W	460	5.7	2.93		76.15	36.32		35.96	0.03
Aug-98	27	41°54'N	124°30'W	2	12.4	0.49	0.30	1.61	1.77	0.09	1.68	0.44
Aug-98	27	41°54'N	124°30'W	5	12.3	0.51	0.33	1.94	2.39	0.09	2.30	0.61
Aug-98	27	41°54'N	124°30'W	5	12.3	0.51	0.33	1.94	2.39	0.09	2.30	0.61
Aug-98	27	41°54'N	124°30'W	17	11.3	0.69	0.40	3.91	4.94	0.15	4.79	0.72
Aug-98	27	41°54'N	124°30'W	20	10.5	0.91	0.09	7.51	8.87	0.18	8.69	0.70

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Aug-98	27	41°54'N	124°30'W	30	10.0	1.19	0.09	12.76	12.79	0.12	12.67	0.34
Aug-98	27	41°54'N	124°30'W	40	9.7	1.35	0.22	15.38	15.25	0.06	15.19	0.17
Aug-98	27	41°54'N	124°30'W	40	9.7	1.35	0.22	15.38	15.25	0.06	15.19	0.17
Aug-98	27	41°54'N	124°30'W	50	9.5	0.94	0.58	18.34	17.71	0.10	17.61	0.09
Aug-98	27	41°54'N	124°30'W	61	9.3	1.53	0.19	20.96	18.06	0.09	17.96	0.08
Aug-98	27	41°54'N	124°30'W	70	9.1	1.68		24.93	20.62	0.06	20.56	0.04
Aug-98	27	41°54'N	124°30'W	100	8.6	2.10	0.10	33.16	26.58	0.06	26.53	0.04
Aug-98	29	41°54'N	124°18'W	2	11.7	1.12	0.41	17.78	5.95	0.23	5.72	2.20
Aug-98	29	41°54'N	124°18'W	5	11.3	1.17	0.42	17.81	6.87	0.23	6.64	2.42
Aug-98	29	41°54'N	124°18'W	10	10.5	1.36	0.31	19.81	14.48	0.25	14.23	2.42
Aug-98	29	41°54'N	124°18'W	15	10.0	1.53	0.31	22.14	16.96	0.27	16.68	2.19
Aug-98	29	41°54'N	124°18'W	20	9.9	1.57	0.35	22.50	18.06	0.30	17.75	1.93
Aug-98	29	41°54'N	124°18'W	26	9.7	1.62	0.44	23.19	18.42	0.33	18.10	1.61
Aug-98	29	41°54'N	124°18'W	36	9.3	1.97	0.75	31.75	23.01	0.44	22.57	0.52
Aug-98	30	52°52'N	124°16'W	1	12.9	0.51	0.10	1.29	3.44	0.23	3.21	6.03
Aug-98	30	52°52'N	124°16'W	5	12.9	0.53	0.14	1.62	3.34	0.21	3.13	6.45
Aug-98	30	52°52'N	124°16'W	10	12.1	0.77	0.18	7.23	6.23	0.27	5.95	5.79
Aug-98	30	52°52'N	124°16'W	15	11.3	1.11	0.44	11.52	11.30	0.33	10.98	5.38
Aug-98	30	52°52'N	124°16'W	20	11.0	1.22	0.50	12.84	13.09	0.36	12.74	4.24
Aug-98	30	52°52'N	124°16'W	25	11.0	1.18	0.43	12.51	12.50	0.35	12.15	4.81
Aug-98	30	52°52'N	124°16'W	30	10.9	1.28	0.54	13.83	13.99	0.38	13.62	3.68
Aug-98	30	52°52'N	124°16'W	30	10.7	1.28	0.54	13.83	13.99	0.38	13.62	3.68
Aug-98	30	52°52'N	124°16'W	41	10.1	1.58	0.88	19.78	19.06	0.50	18.57	0.97
Aug-98	30	52°52'N	124°16'W	51	9.1	1.99	0.00	27.37	25.13	0.51	24.62	0.43
Aug-98	30	52°52'N	124°16'W	55	8.9	2.17	0.19	31.43	26.93	0.34	26.59	0.39
Aug-98	31	52°52'N	124°22'W	2	12.0	0.70	0.11	8.23	5.73	0.21	5.52	0.79
Aug-98	31	52°52'N	124°22'W	5	11.8	0.76	0.14	9.25	7.00	0.24	6.76	0.82
Aug-98	31	52°52'N	124°22'W	10	11.4	0.88	0.36	10.60	9.27	0.30	8.97	1.34
Aug-98	31	52°52'N	124°22'W	21	10.3	1.10	0.21	13.91	13.01	0.31	12.71	1.18
Aug-98	31	52°52'N	124°22'W	25	10.3	1.12	0.17	13.94	13.54	0.30	13.24	1.03
Aug-98	31	52°52'N	124°22'W	31	10.0	1.30	0.23	17.25	16.28	0.38	15.89	0.59
Aug-98	31	52°52'N	124°22'W	40	9.5	1.65	0.00	23.85	23.23	0.10	23.13	0.15
Aug-98	31	52°52'N	124°22'W	50	9.1	1.80	0.00	27.16	24.59	0.08	24.50	0.08
Aug-98	31	52°52'N	124°22'W	50	9.1	1.80	0.00	27.16	24.59	0.08	24.50	0.08
Aug-98	31	52°52'N	124°22'W	60	9.0	1.84	0.00	29.82	26.03	0.08	25.95	0.07
Aug-98	31	52°52'N	124°22'W	71	8.9	1.84	0.00	29.85	26.20	0.09	26.11	0.09
Aug-98	31	52°52'N	124°22'W	105	8.6	1.96	0.00	33.16	28.11	0.10	28.01	0.09
Aug-98	32	52°52'N	124°28'W	1	11.7	0.74	0.19	7.24	7.65	0.25	7.40	1.30
Aug-98	32	52°52'N	124°28'W	10	11.3	0.83	0.09	7.58	8.71	0.30	8.41	1.45
Aug-98	32	52°52'N	124°28'W	19	10.9	0.99	0.00	10.64	11.53	0.40	11.13	1.78
Aug-98	32	52°52'N	124°28'W	24	10.8	1.02	0.15	12.34	12.12	0.41	11.71	1.71
Aug-98	32	52°52'N	124°28'W	30	10.8	1.07	0.21	13.36	12.35	0.42	11.92	1.58
Aug-98	32	52°52'N	124°28'W	40	10.7	1.19	0.37	14.04	13.96	0.46	13.50	1.47
Aug-98	32	52°52'N	124°28'W	49	10.3	1.37	0.31	17.09	16.97	0.44	16.53	1.05
Aug-98	32	52°52'N	124°28'W	70	9.3	1.72	0.00	24.22	23.04	0.09	22.95	0.12
Aug-98	32	52°52'N	124°28'W	101	9.0	2.01	0.03	34.07	26.97	0.06	26.91	0.13
Aug-98	32	52°52'N	124°28'W	149	8.6	2.16	0.01	33.73	28.77	0.07	28.70	0.11
Aug-98	32	52°52'N	124°28'W	325	6.4	2.74		63.99	33.47		33.11	0.04
Aug-98	32	52°52'N	124°28'W	350	6.2	2.71		67.44	34.36		34.00	0.04

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Aug-98	34	52°52'N	124°40'W	2	13.6	0.51	0.09	4.53	4.40	0.15	4.25	0.72
Aug-98	34	52°52'N	124°40'W	10	12.8	0.55	0.09	4.77	4.81	0.19	4.62	1.00
Aug-98	34	52°52'N	124°40'W	20	11.6	0.85	0.08	11.46	9.95	0.32	9.63	1.52
Aug-98	34	52°52'N	124°40'W	31	10.3	1.27	0.07	18.48	16.76	0.43	16.33	1.83
Aug-98	34	52°52'N	124°40'W	41	9.8	1.49	0.04	21.44	20.33	0.28	20.05	1.01
Aug-98	34	52°52'N	124°40'W	51	9.5	1.66	0.00	24.73	22.59	0.11	22.49	0.22
Aug-98	34	52°52'N	124°40'W	70	9.1	1.80	0.02	28.37	25.23	0.05	25.17	0.11
Aug-98	34	52°52'N	124°40'W	100	8.9	2.01	0.00	33.02	27.86	0.02	27.84	0.12
Aug-98	34	52°52'N	124°40'W	150	8.7	2.09	0.03	34.62	29.01	0.02	28.99	0.12
Aug-98	34	52°52'N	124°40'W	711	4.5	3.12	0.16	73.57	43.90	0.03	43.87	0.06
Aug-98	36	52°52'N	124°56'W	3	13.3	0.17	0.00	0.11	0.00	0.04	0.00	0.36
Aug-98	36	52°52'N	124°56'W	10	13.3	0.17	0.16	0.00	0.00	0.04	0.00	0.39
Aug-98	36	52°52'N	124°56'W	21	12.0	0.31	0.00	1.13	0.87	0.08	0.79	0.99
Aug-98	36	52°52'N	124°56'W	30	11.2	0.53	0.00	3.17	4.07	0.09	3.97	0.68
Aug-98	36	52°52'N	124°56'W	41	10.9	0.61	0.00	4.19	5.20	0.09	5.11	0.70
Aug-98	36	52°52'N	124°56'W	50	10.6	0.67	0.02	5.21	7.26	0.07	7.19	0.33
Aug-98	36	52°52'N	124°56'W	71	9.9	1.07	0.00	11.66	13.31	0.03	13.29	0.19
Aug-98	36	52°52'N	124°56'W	101	9.1	1.51	0.00	21.85	21.22	0.03	21.19	0.04
Aug-98	36	52°52'N	124°56'W	149	8.7	1.85	0.01	31.36	26.81	0.01	26.80	0.06
Aug-98	36	52°52'N	124°56'W	316	6.5	2.48	0.00	58.86	35.36	0.00	35.36	0.03
Aug-98	36	52°52'N	124°56'W	1004	3.7	3.12	0.00	81.61	44.29	0.00	44.31	0.01
Aug-98	37	38°38.8'N	123°26.9'W	3	10.7	1.77	1.46	34.35	21.04	0.52	20.52	0.58
Aug-98	37	38°38.8'N	123°26.9'W	5	10.9	1.83	1.55	34.20	20.89	0.52	20.37	0.47
Aug-98	37	38°38.8'N	123°26.9'W	10	10.8	1.85	1.41	34.18	20.93	0.53	20.41	0.54
Aug-98	37	38°38.8'N	123°26.9'W	15	10.5	2.09	1.21	36.38	22.01	0.51	21.50	0.49
Aug-98	37	38°38.8'N	123°26.9'W	30	10.2	1.89	1.02	34.42	22.85	0.53	22.32	0.35
Aug-98	37	38°38.8'N	123°26.9'W	40	10.0	2.03	1.03	40.08	24.80	0.56	24.24	0.32
Aug-98	37	38°38.8'N	123°26.9'W	50	9.9	2.06	0.86	40.48	25.38	0.53	24.85	0.25
Aug-98	37	38°38.8'N	123°26.9'W	60	9.8	2.04	0.70	42.12	25.95	0.38	25.57	0.24
Aug-98	37	38°38.8'N	123°26.9'W	72	9.8	2.06	0.90	43.21	26.11	0.35	25.76	0.33
Aug-98	38	38°36.2'N	123°30.8'W	2	10.9	1.88	1.30	34.54	22.13	0.48	21.65	0.36
Aug-98	38	38°36.2'N	123°30.8'W	11	10.7	1.92	1.27	34.69	22.29	0.48	21.80	0.34
Aug-98	38	38°36.2'N	123°30.8'W	20	10.3	1.92	1.12	35.40	23.24	0.44	22.80	0.32
Aug-98	38	38°36.2'N	123°30.8'W	29	10.0	1.98	0.96	36.10	24.43	0.39	24.04	0.28
Aug-98	38	38°36.2'N	123°30.8'W	39	9.7	2.01	0.67	37.78	25.58	0.33	25.25	0.15
Aug-98	38	38°36.2'N	123°30.8'W	50	9.7	2.03	0.65	38.63	25.84	0.31	25.54	0.15
Aug-98	38	38°36.2'N	123°30.8'W	59	9.6	2.05	0.63	40.03	26.11	0.21	25.90	0.18
Aug-98	38	38°36.2'N	123°30.8'W	70	9.5	2.08	0.62	40.32	26.42	0.19	26.23	0.14
Aug-98	38	38°36.2'N	123°30.8'W	90	9.4		0.69	43.38	26.88	0.19	26.69	0.13
Aug-98	38	38°36.2'N	123°30.8'W	101	9.4		0.67	43.70	26.96	0.20	26.76	0.14
Aug-98	39	38°34.6'N	123°33.3'W	1	10.5	2.06	1.51	40.61	24.43	0.46	23.97	0.21
Aug-98	39	38°34.6'N	123°33.3'W	10	10.5	2.04	1.48	40.57	24.40	0.47	23.94	0.21
Aug-98	39	38°34.6'N	123°33.3'W	20	10.3	2.06	1.40	41.36	24.76	0.50	24.26	0.31
Aug-98	39	38°34.6'N	123°33.3'W	30	10.1	2.08	1.38	40.21	24.72	0.53	24.20	0.47
Aug-98	39	38°34.6'N	123°33.3'W	35	10.1	2.05	1.25	41.41	25.08	0.51	24.57	0.36
Aug-98	39	38°34.6'N	123°33.3'W	40	9.9	2.07	1.11	41.23	25.50	0.42	25.09	0.26
Aug-98	39	38°34.6'N	123°33.3'W	50	9.6	2.03	0.73	41.05	26.27	0.25	26.02	0.14
Aug-98	39	38°34.6'N	123°33.3'W	70	9.4	2.11	0.69	44.48	27.28	0.20	27.08	0.15
Aug-98	39	38°34.6'N	123°33.3'W	70	9.4	2.11	0.69	44.48	27.28	0.20	27.08	0.15
Aug-98	39	38°34.6'N	123°33.3'W	85	9.3	2.12	0.69	44.99	27.55	0.20	27.35	0.13

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Aug-98	39	38°34.6'N	123°33.3'W	100	9.3	2.15	0.74	45.78	27.67	0.21	27.47	0.13
Aug-98	39	38°34.6'N	123°33.3'W	131	9.1	2.09	0.70	44.35	27.41	0.27	27.14	0.13
Aug-98	41	38°30.2'N	123°39.6'W	2	12.2	0.99	0.51	19.91	8.57	0.40	8.16	2.03
Aug-98	41	38°30.2'N	123°39.6'W	10	12.2	0.96	0.55	20.36	8.69	0.41	8.29	1.89
Aug-98	41	38°30.2'N	123°39.6'W	20	12.0	0.87	0.60	20.94	9.53	0.41	9.12	1.41
Aug-98	41	38°30.2'N	123°39.6'W	30	11.7	1.00	0.53	23.22	11.54	0.43	11.11	1.06
Aug-98	41	38°30.2'N	123°39.6'W	40	11.5	1.15	0.52	24.46	12.93	0.45	12.48	1.18
Aug-98	41	38°30.2'N	123°39.6'W	50	10.6	1.42	0.38	28.99	18.04	0.24	17.80	0.64
Aug-98	41	38°30.2'N	123°39.6'W	69	10.2	1.58	0.42	32.98	20.52	0.17	20.36	0.12
Aug-98	41	38°30.2'N	123°39.6'W	99	9.8	1.64	0.32	38.03	24.73	0.17	24.56	0.09
Aug-98	41	38°30.2'N	123°39.6'W	150	9.4	1.76	0.48	40.19	25.88	0.17	25.71	0.05
Aug-98	41	38°30.2'N	123°39.6'W	414	6.7	2.65		107.53	21.42		21.09	0.03
Aug-98	43	38°24.0'N	123°49.2'W	3	12.6	0.96	0.65	19.20	7.81	0.42	7.39	0.86
Aug-98	43	38°24.0'N	123°49.2'W	11	12.6	0.93	0.60	19.20	7.57	0.40	7.17	0.76
Aug-98	43	38°24.0'N	123°49.2'W	20	12.5	0.97	0.61	19.86	8.04	0.42	7.62	0.93
Aug-98	43	38°24.0'N	123°49.2'W	29	12.5	1.02	0.57	20.38	8.59	0.43	8.16	0.81
Aug-98	43	38°24.0'N	123°49.2'W	40	11.8	1.12	0.59	24.20	12.56	0.49	12.06	0.87
Aug-98	43	38°24.0'N	123°49.2'W	49	11.5	1.30	0.70	25.78	14.36	0.48	13.88	0.42
Aug-98	43	38°24.0'N	123°49.2'W	61	10.5	1.56	0.36	30.91	20.09	0.34	19.74	0.23
Aug-98	43	38°24.0'N	123°49.2'W	71	10.2	1.74	0.57	34.32	22.72	0.17	22.55	0.16
Aug-98	43	38°24.0'N	123°49.2'W	100	9.7	1.88	0.34	38.93	25.15	0.17	24.98	0.09
Aug-98	43	38°24.0'N	123°49.2'W	150	9.4	1.95	0.33	41.56	26.76	0.17	26.59	0.08
Aug-98	43	38°24.0'N	123°49.2'W	670	4.7	3.12		95.10	38.97		38.66	0.01
Aug-98	43	38°24.0'N	123°49.2'W	1006	3.9	3.27		120.01	40.25		39.94	0.01
Aug-98	44	38°17.6'N	123°59.3'W	2	12.4	0.94	0.80	24.17	10.44	0.70	9.74	0.86
Aug-98	44	38°17.6'N	123°59.3'W	11	12.4	0.95	0.78	23.64	10.14	0.67	9.48	0.76
Aug-98	44	38°17.6'N	123°59.3'W	16	12.4	0.97	0.84	22.84	9.85	0.63	9.22	0.93
Aug-98	44	38°17.6'N	123°59.3'W	19	12.4	0.92	0.77	19.61	9.27	0.61	8.66	0.81
Aug-98	44	38°17.6'N	123°59.3'W	30	12.2	1.01	0.82	20.71	10.83	0.50	10.33	0.87
Aug-98	44	38°17.6'N	123°59.3'W	41	11.3	1.19	0.39	24.51	14.62	0.13	14.49	0.42
Aug-98	44	38°17.6'N	123°59.3'W	50	11.1	1.47	0.57	27.09	18.24	0.11	18.13	0.23
Aug-98	44	38°17.6'N	123°59.3'W	71	10.5	1.65	0.70	29.81	20.84	0.01	20.82	0.16
Aug-98	44	38°17.6'N	123°59.3'W	99	9.9	1.89	0.70	33.07	23.26	0.00	23.29	0.09
Aug-98	44	38°17.6'N	123°59.3'W	150	9.1	1.88	0.66	33.36	23.22	0.00	23.28	0.08
Aug-98	44	38°17.6'N	123°59.3'W	800	4.5	3.24		104.69	42.12		41.78	0.02
Aug-98	44	38°17.6'N	123°59.3'W	1001	3.9	3.24		116.57	42.55		42.21	0.01
Aug-98	50	44°39.1'N	124°39.0'W	1	13.4		0.13	0.00	1.96	0.10	1.87	0.45
Aug-98	50	44°39.1'N	124°39.0'W	10	13.3	0.43	0.20	1.25	1.97	0.10	1.86	0.56
Aug-98	50	44°39.1'N	124°39.0'W	25	10.5	0.62	0.00	2.44	3.87	0.28	3.59	0.98
Aug-98	50	44°39.1'N	124°39.0'W	30	10.1	0.73	0.04	3.20	5.66	0.18	5.49	0.59
Aug-98	50	44°39.1'N	124°39.0'W	70	9.1	1.82	0.44	25.29	21.99	0.13	21.87	0.11
Aug-98	50	44°39.1'N	124°39.0'W	199	7.3	2.41		47.72	31.61	0.36	31.25	0.06
Aug-98	52	44°39.1'N	124°24.7'W	2	11.0	0.60	0.52	5.93	1.82	0.00	1.88	9.90
Aug-98	52	44°39.1'N	124°24.7'W	10	11.0	0.63	0.36	7.45	2.80	0.00	2.88	10.87
Aug-98	52	44°39.1'N	124°24.7'W	20	9.9	1.11	0.25	16.22	9.61	0.00	9.57	1.74
Aug-98	52	44°39.1'N	124°24.7'W	30	9.0	1.36	0.07	17.64	13.95	0.00	14.02	0.63
Aug-98	52	44°39.1'N	124°24.7'W	50	8.7	1.97	0.09	31.03	25.40	0.00	25.51	0.37
Aug-98	54	44°39.1'N	124°10.6'W	2	9.4	1.32	0.62	12.06	7.79	0.13	7.66	13.64

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Aug-98	54	44°39.1'N	124°10.6'W	9	9.1	1.89	1.15	24.46	18.75	0.11	18.64	9.44
Aug-98	54	44°39.1'N	124°10.6'W	20	8.9	1.84	0.83	30.60	20.66	0.05	20.61	1.59
Aug-98	54	44°39.1'N	124°10.6'W	30	8.3	2.32	0.00	42.57	28.91	0.06	28.85	0.56
Aug-98	54	44°39.1'N	124°10.6'W	40	8.1	2.60	0.05	54.54	30.48	0.14	30.34	1.60
Sep-98	3	44°39.1'N	124°10.6'W	2	10.3	1.50	0.62	16.62	15.23	0.17	15.06	2.24
Sep-98	3	44°39.1'N	124°10.6'W	10	9.4	1.61	0.56	20.61	17.13	0.19	16.94	1.15
Sep-98	3	44°39.1'N	124°10.6'W	15	9.5	1.61	0.57	20.32	17.03	0.19	16.84	1.40
Sep-98	3	44°39.1'N	124°10.6'W	20	9.1	1.85	0.74	25.97	21.69	0.20	21.49	0.53
Sep-98	3	44°39.1'N	124°10.6'W	30	9.1	1.97	1.05	31.62	22.55	0.20	22.34	0.61
Sep-98	3	44°39.1'N	124°10.6'W	40	8.7	2.32	0.89	39.91	27.30	0.31	26.99	0.95
Sep-98	3	44°39.1'N	124°10.6'W	47	8.5	2.48	0.53	46.22	28.63	0.32	28.31	1.47
Sep-98	3	44°39.1'N	124°10.6'W	55	8.5	2.48	0.58	45.96	28.53	0.32	28.21	2.02
Sep-98	5	44°39.1'N	124°24.7'W	1	14.3	0.28	0.12	2.02	0.00	0.00	0.00	2.81
Sep-98	5	44°39.1'N	124°24.7'W	11	12.1	0.41	0.30	3.41	1.17	0.01	1.16	2.73
Sep-98	5	44°39.1'N	124°24.7'W	20	9.6	0.85	0.19	6.45	6.06	0.21	5.85	0.57
Sep-98	5	44°39.1'N	124°24.7'W	29	9.3	1.06	0.00	10.15	9.38	0.15	9.23	0.43
Sep-98	5	44°39.1'N	124°24.7'W	41	9.0	1.12	0.00	11.20	11.15	0.00	11.14	0.23
Sep-98	5	44°39.1'N	124°24.7'W	61	8.8	1.50	0.00	18.61	17.21	0.00	17.21	0.07
Sep-98	5	44°39.1'N	124°24.7'W	71	8.7	1.79	0.00	26.93	21.90	0.00	21.90	0.14
Sep-98	5	44°39.1'N	124°24.7'W	85	8.4	2.18	0.04	40.88	26.78	0.07	26.71	0.27
Sep-98	7	44°39.1'N	124°39.0'W	2	15.3	0.16	0.30	0.00	0.30	0.00	0.30	0.55
Sep-98	7	44°39.1'N	124°39.0'W	10	15.1	0.16	0.31	0.00	0.40	0.00	0.40	0.57
Sep-98	7	44°39.1'N	124°39.0'W	15	14.5	0.70	0.40	0.00	0.60	0.00	0.60	0.59
Sep-98	7	44°39.1'N	124°39.0'W	20	11.2	0.49	0.74	0.00	1.54	0.04	1.50	0.73
Sep-98	7	44°39.1'N	124°39.0'W	30	10.6	0.49	0.56	0.00	1.44	0.08	1.36	0.57
Sep-98	7	44°39.1'N	124°39.0'W	40	9.7	0.66	0.23	2.28	4.77	0.15	4.62	0.36
Sep-98	7	44°39.1'N	124°39.0'W	50	9.4	0.81	0.12	3.30	7.15	0.03	7.12	0.27
Sep-98	7	44°39.1'N	124°39.0'W	99	8.8	1.81	0.04	22.17	22.76	0.00	22.76	0.03
Sep-98	7	44°39.1'N	124°39.0'W	149	8.3	2.22	0.33	32.77	28.19	0.00	28.19	0.03
Sep-98	7	44°39.1'N	124°39.0'W	200	7.8	2.38	0.00	44.75	31.24	0.14	31.10	0.02
Sep-98	7	44°39.1'N	124°39.0'W	210	7.7	2.43	0.00	47.09	31.96	0.16	31.80	0.02
Sep-98	8	44°39.1'N	124°53.0'W	2	16.0	0.07	0.16	0.00	0.00	0.00	0.00	0.43
Sep-98	8	44°39.1'N	124°53.0'W	10	15.8	0.29	0.28	0.00	0.00	0.00	0.00	0.52
Sep-98	8	44°39.1'N	124°53.0'W	20	15.3	0.09	0.19	0.00	0.00	0.00	0.00	0.81
Sep-98	8	44°39.1'N	124°53.0'W	25	15.2	0.15	0.31	0.00	0.00	0.00	0.00	0.88
Sep-98	8	44°39.1'N	124°53.0'W	30	14.0	0.29	0.61	0.00	0.00	0.00	0.00	0.51
Sep-98	8	44°39.1'N	124°53.0'W	40	10.7	0.44	0.65	0.00	0.95	0.04	0.91	0.33
Sep-98	8	44°39.1'N	124°53.0'W	50	10.0	0.59	0.30	0.05	3.81	0.23	3.58	0.28
Sep-98	8	44°39.1'N	124°53.0'W	70	9.4	0.91	0.12	4.75	8.77	0.00	8.77	0.14
Sep-98	8	44°39.1'N	124°53.0'W	100	9.2	1.44	0.09	15.41	17.82	0.00	17.82	0.06
Sep-98	8	44°39.1'N	124°53.0'W	150	8.0	2.30	0.14	36.63	30.49	0.00	30.49	0.03
Sep-98	8	44°39.1'N	124°53.0'W	275	7.2	2.51	0.00	52.75	33.26	0.10	33.16	0.01
Sep-98	8	44°39.1'N	124°53.0'W	430	5.3	3.06	0.25	70.36	40.72	0.12	40.60	0.01
Sep-98	9	44°39.1'N	125°07.0'W	2	16.8	0.00	0.14	0.00	0.00	0.00	0.00	0.57
Sep-98	9	44°39.1'N	125°07.0'W	10	16.8	0.00	0.15	0.00	0.00	0.00	0.00	0.57
Sep-98	9	44°39.1'N	125°07.0'W	20	16.5	0.01	0.27	0.00	0.00	0.00	0.00	0.71
Sep-98	9	44°39.1'N	125°07.0'W	27	15.0	0.62	0.30	0.00	0.00	0.00	0.00	0.97
Sep-98	9	44°39.1'N	125°07.0'W	30	13.1	0.73	0.35	0.00	0.05	0.00	0.05	0.86

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Sep-98	9	44°39.1'N	125°07.0'W	40	11.1	0.43	0.66	0.00	0.91	0.00	0.91	0.37
Sep-98	9	44°39.1'N	125°07.0'W	50	10.2	0.57	0.25	0.58	3.11	0.21	2.89	0.31
Sep-98	9	44°39.1'N	125°07.0'W	70	9.6	1.40	0.15	16.19	17.11	0.00	17.11	0.12
Sep-98	9	44°39.1'N	125°07.0'W	101	8.9	1.73	0.09	20.89	21.69	0.00	21.69	0.05
Sep-98	9	44°39.1'N	125°07.0'W	150	7.9	2.20	0.07	34.19	29.79	0.00	29.79	
Sep-98	9	44°39.1'N	125°07.0'W	500	5.2	3.07	0.00	71.79	41.58	0.11	41.46	
Sep-98	9	44°39.1'N	125°07.0'W	580	4.9	3.19	0.00	88.43	42.65	0.11	42.54	
Sep-98	11	44°39.1'N	125°36.1'W	3	16.0	0.02	0.20	0.00	0.00	0.00	0.00	0.45
Sep-98	11	44°39.1'N	125°36.1'W	10	15.9	0.02	0.15	0.00	0.00	0.00	0.00	0.46
Sep-98	11	44°39.1'N	125°36.1'W	20	15.5	0.06	0.17	0.00	0.06	0.00	0.06	0.57
Sep-98	11	44°39.1'N	125°36.1'W	30	12.3	0.39	0.61	0.00	1.94	0.09	1.85	0.94
Sep-98	11	44°39.1'N	125°36.1'W	35	11.0	0.53	0.67	0.00	3.46	0.15	3.31	0.66
Sep-98	11	44°39.1'N	125°36.1'W	40	10.7	0.68	0.80	1.16	6.45	0.17	6.28	0.40
Sep-98	11	44°39.1'N	125°36.1'W	50	10.3	0.79	0.94	2.96	7.00	0.19	6.81	0.29
Sep-98	11	44°39.1'N	125°36.1'W	71	9.6	2.11	0.19	31.60	28.31	0.08	28.23	0.12
Sep-98	11	44°39.1'N	125°36.1'W	100	9.1	1.95	0.11	23.93	25.14	0.07	25.08	0.06
Sep-98	11	44°39.1'N	125°36.1'W	150	8.1	2.18	0.13	31.84	29.09	0.02	29.08	
Sep-98	11	44°39.1'N	125°36.1'W	820	4.0	3.48	0.10	63.50	45.87	0.00	45.87	
Sep-98	11	44°39.1'N	125°36.1'W	1000	3.6	3.47	0.10	54.94	45.28	0.00	45.28	
Sep-98	12	44°39.1'N	126°03.0'W	3	17.7	0.00	0.00	0.00	0.00	0.00	0.00	0.43
Sep-98	12	44°39.1'N	126°03.0'W	10	17.7	0.00	0.00	0.00	0.00	0.00	0.00	0.44
Sep-98	12	44°39.1'N	126°03.0'W	19	17.7	0.00	0.00	0.00	0.00	0.00	0.00	0.44
Sep-98	12	44°39.1'N	126°03.0'W	25	17.4	0.00	0.00	0.00	0.00	0.00	0.00	0.47
Sep-98	12	44°39.1'N	126°03.0'W	30	15.0	0.25	0.11	1.29	0.00	0.00	0.00	0.68
Sep-98	12	44°39.1'N	126°03.0'W	40	11.1	0.62	0.85	5.39	1.63	0.03	1.60	0.36
Sep-98	12	44°39.1'N	126°03.0'W	50	9.9	1.29	0.00	16.10	14.04	0.03	14.01	0.21
Sep-98	12	44°39.1'N	126°03.0'W	70	9.2	1.34	0.00	15.57	14.34	0.00	14.34	0.10
Sep-98	12	44°39.1'N	126°03.0'W	100	8.4	2.08	0.00	32.88	26.85	0.00	26.85	0.03
Sep-98	12	44°39.1'N	126°03.0'W	150	7.9	2.36	0.00	41.27	30.86	0.00	30.86	0.02
Sep-98	12	44°39.1'N	126°03.0'W	999	3.7	3.36	0.00	118.53	45.12	0.12	44.99	0.01
Nov-98	3	44°39.1'N	124°10.6'W	2	12.2	0.50	0.00	6.50	2.58	0.18	2.40	0.84
Nov-98	3	44°39.1'N	124°10.6'W	4	12.2	0.49	0.05	6.58	2.51	0.18	2.34	0.82
Nov-98	3	44°39.1'N	124°10.6'W	10	12.2	0.50	0.05	6.49	2.58	0.18	2.40	0.84
Nov-98	3	44°39.1'N	124°10.6'W	16	12.1	0.49	0.06	6.39	2.52	0.18	2.34	0.92
Nov-98	3	44°39.1'N	124°10.6'W	20	12.2	0.48	0.00	5.95	2.39	0.17	2.23	0.91
Nov-98	3	44°39.1'N	124°10.6'W	25	12.2	0.47	0.00	5.68	2.40	0.17	2.23	0.81
Nov-98	3	44°39.1'N	124°10.6'W	31	12.2	0.46	0.00	5.41	2.40	0.17	2.23	0.70
Nov-98	3	44°39.1'N	124°10.6'W	41	12.0	0.55	0.03	7.05	3.52	0.23	3.29	0.48
Nov-98	3	44°39.1'N	124°10.6'W	51	11.7	0.81	0.03	12.16	6.76	0.34	6.42	0.47
Nov-98	3	44°39.1'N	124°10.6'W	56	11.4	1.06	0.00	16.05	10.50	0.46	10.04	0.40
Nov-98	5	44°39.1'N	124°24.7'W	2	13.0	0.29	0.00	1.99	0.32	0.05	0.28	0.91
Nov-98	5	44°39.1'N	124°24.7'W	10	13.0	0.29	0.00	1.90	0.33	0.05	0.28	0.97
Nov-98	5	44°39.1'N	124°24.7'W	21	13.0	0.29	0.00	1.98	0.40	0.05	0.35	0.90
Nov-98	5	44°39.1'N	124°24.7'W	24	13.0	0.30	0.00	2.05	0.47	0.05	0.42	0.87
Nov-98	5	44°39.1'N	124°24.7'W	30	12.9	0.32	0.00	2.31	0.66	0.06	0.61	0.81
Nov-98	5	44°39.1'N	124°24.7'W	40	10.5	1.03	0.00	11.75	11.35	0.12	11.23	0.29
Nov-98	5	44°39.1'N	124°24.7'W	52	9.9	1.39	0.00	17.90	16.58	0.02	16.56	0.19
Nov-98	5	44°39.1'N	124°24.7'W	61	9.9	1.43	0.00	19.02	17.31	0.00	17.31	0.18
Nov-98	5	44°39.1'N	124°24.7'W	70	9.9	1.45	0.00	19.44	17.51	0.00	17.50	0.18

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-98	5	44°39.1'N	124°24.7'W	81	9.8	1.53	0.00	22.47	18.73	0.06	18.66	0.17
Nov-98	7	44°39.1'N	124°39.0'W	2	12.8	0.32	0.00	1.91	0.32	0.07	0.25	0.66
Nov-98	7	44°39.1'N	124°39.0'W	10	12.8	0.33	0.00	1.81	0.26	0.07	0.19	0.68
Nov-98	7	44°39.1'N	124°39.0'W	20	12.8	0.33	0.00	1.89	0.26	0.07	0.19	0.64
Nov-98	7	44°39.1'N	124°39.0'W	30	12.8	0.33	0.00	1.79	0.26	0.07	0.19	0.66
Nov-98	7	44°39.1'N	124°39.0'W	39	12.8	0.34	0.00	2.05	0.45	0.08	0.36	0.59
Nov-98	7	44°39.1'N	124°39.0'W	45	12.4	0.48	0.00	3.34	2.32	0.16	2.16	0.45
Nov-98	7	44°39.1'N	124°39.0'W	50	10.5	0.80	0.00	6.19	6.56	0.13	6.43	0.23
Nov-98	7	44°39.1'N	124°39.0'W	70	9.5	1.28	0.00	14.25	14.78	0.04	14.74	0.08
Nov-98	7	44°39.1'N	124°39.0'W	101	9.0	1.95	0.00	32.71	25.00	0.03	24.96	0.07
Nov-98	7	44°39.1'N	124°39.0'W	151	8.4	2.14	0.00	35.57	28.98	0.02	28.97	0.02
Nov-98	7	44°39.1'N	124°39.0'W	200	7.6	2.23	0.00	43.06	30.48	0.13	30.35	0.01
Nov-98	8	44°39.1'N	124°53.0'W	3	12.8	0.29	0.00	4.74	0.00	0.02	0.00	0.55
Nov-98	8	44°39.1'N	124°53.0'W	10	12.8	0.29	0.00	4.66	0.07	0.02	0.05	0.56
Nov-98	8	44°39.1'N	124°53.0'W	20	12.8	0.29	0.00	4.93	0.00	0.02	0.00	0.58
Nov-98	8	44°39.1'N	124°53.0'W	32	12.7	0.30	0.00	4.82	0.27	0.03	0.24	0.55
Nov-98	8	44°39.1'N	124°53.0'W	40	10.9	0.62	0.00	4.03	4.40	0.10	4.31	0.28
Nov-98	8	44°39.1'N	124°53.0'W	51	10.1	0.78	0.00	5.84	6.72	0.05	6.67	0.21
Nov-98	8	44°39.1'N	124°53.0'W	70	9.6	1.20	0.00	12.86	13.64	0.02	13.63	0.14
Nov-98	8	44°39.1'N	124°53.0'W	99	9.0	1.89	0.00	28.55	25.24	0.00	25.24	0.02
Nov-98	8	44°39.1'N	124°53.0'W	150	8.2	2.06	0.00	34.35	28.77	0.00	28.77	0.01
Nov-98	8	44°39.1'N	124°53.0'W	420	5.5	2.96	0.00	78.42	39.96	0.13	39.83	0.01
Nov-98	9	44°39.1'N	125°07.0'W	2	12.9	0.24	0.15	0.00	0.00	0.04	0.00	0.55
Nov-98	9	44°39.1'N	125°07.0'W	10	12.9	0.26	0.15	0.00	0.00	0.05	0.00	0.56
Nov-98	9	44°39.1'N	125°07.0'W	20	12.9	0.27	0.15	0.00	0.20	0.04	0.16	0.60
Nov-98	9	44°39.1'N	125°07.0'W	30	12.9	0.26	0.13	0.00	0.00	0.03	0.00	0.59
Nov-98	9	44°39.1'N	125°07.0'W	40	12.0	0.51	0.11	0.16	2.68	0.09	2.59	0.33
Nov-98	9	44°39.1'N	125°07.0'W	50	10.2	0.82	0.10	3.77	6.91	0.06	6.85	0.20
Nov-98	9	44°39.1'N	125°07.0'W	70	9.5	1.52	0.09	15.66	17.50	0.01	17.50	0.08
Nov-98	9	44°39.1'N	125°07.0'W	100	9.2	1.98	0.10	24.11	24.38	0.01	24.36	0.03
Nov-98	9	44°39.1'N	125°07.0'W	150	8.4	2.20	0.11	31.52	27.53	0.02	27.51	0.02
Nov-98	9	44°39.1'N	125°07.0'W	499	5.1	3.10	0.00	84.21	41.90	0.10	41.80	0.01
Nov-98	11	44°39.1'N	125°36.1'W	2	12.9	0.28	0.00	1.07	0.07	0.02	0.05	0.56
Nov-98	11	44°39.1'N	125°36.1'W	10	12.9	0.28	0.00	1.12	0.07	0.02	0.05	0.52
Nov-98	11	44°39.1'N	125°36.1'W	20	12.9	0.28	0.00	1.16	0.02	0.02	0.00	0.54
Nov-98	11	44°39.1'N	125°36.1'W	36	12.9	0.28	0.00	1.07	0.13	0.03	0.10	0.52
Nov-98	11	44°39.1'N	125°36.1'W	40	12.8	0.31	0.00	1.29	0.31	0.04	0.27	0.55
Nov-98	11	44°39.1'N	125°36.1'W	50	10.1	0.76	0.00	6.76	6.21	0.05	6.16	0.21
Nov-98	11	44°39.1'N	125°36.1'W	69	9.9	1.05	0.00	11.19	11.43	0.02	11.41	0.14
Nov-98	11	44°39.1'N	125°36.1'W	101	8.9	1.77	0.00	26.64	23.07	0.00	23.07	0.03
Nov-98	11	44°39.1'N	125°36.1'W	150	7.9	2.02	0.00	36.32	28.34	0.00	28.34	0.01
Nov-98	11	44°39.1'N	125°36.1'W	1007	3.6	3.31	0.00	119.50	45.09	0.11	44.98	0.01
Nov-98	12	44°39.1'N	126°03.0'W	10	13.7	0.25	0.00	0.21	0.00	0.00	0.00	0.36
Nov-98	12	44°39.1'N	126°03.0'W	21	13.7	0.26	0.00	0.18	0.00	0.01	0.00	0.35
Nov-98	12	44°39.1'N	126°03.0'W	30	13.7	0.26	0.00	1.54	0.00	0.01	0.00	0.38
Nov-98	12	44°39.1'N	126°03.0'W	40	13.7	0.26	0.00	1.69	0.00	0.01	0.00	0.36
Nov-98	12	44°39.1'N	126°03.0'W	47	13.6	0.29	0.00	1.14	0.04	0.02	0.01	0.35
Nov-98	12	44°39.1'N	126°03.0'W	70	9.9	1.29	0.00	14.79	15.64	0.00	15.64	0.10
Nov-98	12	44°39.1'N	126°03.0'W	100	8.6	1.74	0.00	25.87	23.53	0.00	23.53	0.02

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-98	12	44°39.1'N	126°03.0'W	149	7.9	2.27	0.00	40.24	30.93	0.00	30.94	0.02
Nov-98	12	44°39.1'N	126°03.0'W	1006	3.5	3.31	0.00	123.92	45.09	0.11	44.98	0.00
Nov-98	14	43°13'N	125°10'W	3	13.4	0.26	0.00	1.46	0.00	0.01	0.00	0.54
Nov-98	14	43°13'N	125°10'W	10	13.4	0.24	0.00	1.52	0.00	0.01	0.00	0.53
Nov-98	14	43°13'N	125°10'W	20	13.4	0.25	0.00	1.58	0.00	0.01	0.00	0.52
Nov-98	14	43°13'N	125°10'W	30	13.3	0.26	0.00	1.64	0.02	0.01	0.00	0.54
Nov-98	14	43°13'N	125°10'W	34	13.3	0.26	0.00	1.70	0.02	0.02	0.00	0.53
Nov-98	14	43°13'N	125°10'W	41	13.1	0.27	0.00	1.94	0.36	0.02	0.34	0.50
Nov-98	14	43°13'N	125°10'W	50	10.8	0.52	0.00	2.35	3.84	0.08	3.76	0.31
Nov-98	14	43°13'N	125°10'W	70	10.0	0.92	0.00	9.07	9.81	0.01	9.80	0.16
Nov-98	14	43°13'N	125°10'W	102	9.4	1.56	0.00	22.79	21.51	0.00	21.50	0.04
Nov-98	14	43°13'N	125°10'W	1007	3.6	3.34	0.00	117.03	45.00	0.08	44.92	0.01
Nov-98	15	43°13'N	125°00'W	2	13.4	0.26	0.00	1.83	0.02	0.01	0.00	0.50
Nov-98	15	43°13'N	125°00'W	10	13.4	0.26	0.00	1.89	0.02	0.02	0.00	0.51
Nov-98	15	43°13'N	125°00'W	20	13.3	0.27	0.00	1.96	0.31	0.02	0.29	0.51
Nov-98	15	43°13'N	125°00'W	30	13.2	0.28	0.00	2.19	0.36	0.02	0.34	0.50
Nov-98	15	43°13'N	125°00'W	35	13.2	0.28	0.00	2.43	0.42	0.03	0.39	0.52
Nov-98	15	43°13'N	125°00'W	40	12.9	0.41	0.00	4.24	2.28	0.11	2.17	0.42
Nov-98	15	43°13'N	125°00'W	50	11.0	1.24	0.00	17.09	15.02	0.13	14.89	0.33
Nov-98	15	43°13'N	125°00'W	70	9.8	1.63	0.00	23.63	21.62	0.01	21.61	0.14
Nov-98	15	43°13'N	125°00'W	100	9.2	1.82	0.00	28.07	24.92	0.00	24.92	0.04
Nov-98	15	43°13'N	125°00'W	150	8.6	2.01	0.00	34.09	27.82	0.00	27.82	0.02
Nov-98	15	43°13'N	125°00'W	1006	3.6	3.34	0.00	124.31	44.74	0.10	44.63	0.01
Nov-98	16	43°13'N	124°50'W	2	12.5	0.37	0.00	4.36	1.75	0.09	1.67	0.53
Nov-98	16	43°13'N	124°50'W	10	12.3	0.42	0.00	5.28	2.68	0.13	2.55	0.54
Nov-98	16	43°13'N	124°50'W	26	12.0	0.65	0.00	7.99	6.10	0.29	5.81	0.50
Nov-98	16	43°13'N	124°50'W	31	12.0	0.69	0.00	8.73	6.85	0.31	6.54	0.47
Nov-98	16	43°13'N	124°50'W	40	11.4	0.99	0.00	12.63	11.72	0.31	11.41	0.39
Nov-98	16	43°13'N	124°50'W	49	10.9	1.36	0.00	18.11	17.34	0.05	17.29	0.22
Nov-98	16	43°13'N	124°50'W	70	10.4	1.57	0.00	21.83	20.64	0.02	20.62	0.13
Nov-98	16	43°13'N	124°50'W	101	9.5	1.78	0.00	27.48	23.82	0.01	23.82	0.07
Nov-98	16	43°13'N	124°50'W	337	6.1	2.74	0.00	60.42	37.02	0.11	36.91	0.01
Nov-98	18	43°13'N	124°40'W	3	12.0	0.69	0.00	8.15	6.30	0.30	5.99	1.14
Nov-98	18	43°13'N	124°40'W	10	12.0	0.70	0.00	8.21	6.43	0.30	6.13	1.19
Nov-98	18	43°13'N	124°40'W	20	11.8	0.84	0.00	11.39	8.80	0.37	8.44	1.16
Nov-98	18	43°13'N	124°40'W	25	11.7	0.88	0.00	11.80	9.12	0.37	8.75	0.99
Nov-98	18	43°13'N	124°40'W	30	11.7	0.90	0.00	12.04	9.69	0.39	9.29	0.93
Nov-98	18	43°13'N	124°40'W	40	11.6	1.05	0.09	13.83	12.00	0.44	11.56	0.57
Nov-98	18	43°13'N	124°40'W	51	10.7	1.50	0.00	20.14	19.04	0.04	19.00	0.21
Nov-98	18	43°13'N	124°40'W	61	10.2	1.61	0.00	21.59	20.42	0.03	20.38	0.17
Nov-98	18	43°13'N	124°40'W	70	10.1	1.67	0.00	23.03	21.67	0.04	21.63	0.14
Nov-98	18	43°13'N	124°40'W	99	9.6	1.82	0.00	26.22	23.92	0.05	23.87	0.11
Nov-98	18	43°13'N	124°40'W	156	8.8	2.13	0.00	35.30	28.41	0.14	28.27	0.06
Nov-98	19	43°13'N	124°35'W	2	11.8	0.77	0.00	8.99	8.00	0.32	7.68	0.89
Nov-98	19	43°13'N	124°35'W	10	11.8	0.80	0.00	9.31	8.49	0.33	8.16	0.91
Nov-98	19	43°13'N	124°35'W	15	11.6	0.92	0.00	12.93	10.50	0.41	10.09	0.96
Nov-98	19	43°13'N	124°35'W	20	11.6	1.02	0.00	13.42	12.32	0.49	11.83	0.68
Nov-98	19	43°13'N	124°35'W	29	11.6	0.98	0.00	12.01	11.59	0.40	11.19	0.54
Nov-98	19	43°13'N	124°35'W	39	11.4	1.08	0.00	13.20	13.17	0.40	12.78	0.39

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-98	19	43°13'N	124°35'W	50	11.4	1.11	0.00	13.52	13.48	0.37	13.11	0.42
Nov-98	19	43°13'N	124°35'W	60	10.5	1.47	0.00	21.65	18.52	0.24	18.28	0.29
Nov-98	19	43°13'N	124°35'W	71	10.4		0.00	22.83	19.61	0.20	19.42	0.28
Nov-98	19	43°13'N	124°35'W	75	10.3		0.00	22.98	19.74	0.21	19.53	0.29
Nov-98	20	43°13'N	124°30'W	2	11.7	0.81	0.00	10.73	7.74	0.28	7.46	1.34
Nov-98	20	43°13'N	124°30'W	4	11.7	0.82	0.00	12.87	7.68	0.28	7.40	1.39
Nov-98	20	43°13'N	124°30'W	10	11.7	0.80	0.00	11.02	7.62	0.28	7.35	1.27
Nov-98	20	43°13'N	124°30'W	15	11.8	0.80	0.00	11.60	7.69	0.28	7.41	1.28
Nov-98	20	43°13'N	124°30'W	20	11.8	0.83	0.00	10.97	8.07	0.34	7.73	1.16
Nov-98	20	43°13'N	124°30'W	24	11.8	0.86	0.00	11.72	8.89	0.38	8.51	0.98
Nov-98	20	43°13'N	124°30'W	30	11.8	0.90	0.00	17.16	9.14	0.41	8.73	0.74
Nov-98	20	43°13'N	124°30'W	40	11.8	0.92	0.16	12.71	9.77	0.42	9.35	0.62
Nov-98	22	41°54'N	124°18'W	2	12.3	0.62	0.00	9.13	4.47	0.19	4.28	1.83
Nov-98	22	41°54'N	124°18'W	5	12.2	0.62	0.00	9.15	4.59	0.20	4.39	1.91
Nov-98	22	41°54'N	124°18'W	10	12.1	0.66	0.00	9.35	5.22	0.23	4.99	2.00
Nov-98	22	41°54'N	124°18'W	15	12.1	0.69	0.00	9.54	5.51	0.24	5.27	1.73
Nov-98	22	41°54'N	124°18'W	20	12.1	0.68	0.00	9.04	5.57	0.24	5.33	1.57
Nov-98	22	41°54'N	124°18'W	25	12.1	0.70	0.00	8.89	5.68	0.27	5.41	1.15
Nov-98	22	41°54'N	124°18'W	30	12.0	0.85	0.26	11.70	7.34	0.38	6.96	0.86
Nov-98	22	41°54'N	124°18'W	34	12.0	0.93	0.45	13.46	8.20	0.42	7.78	0.88
Nov-98	24	41°54'N	124°30'W	2	12.2	0.49	0.00	5.58	2.50	0.16	2.34	1.09
Nov-98	24	41°54'N	124°30'W	5	12.3	0.52	0.00	6.47	3.13	0.18	2.95	1.15
Nov-98	24	41°54'N	124°30'W	10	12.2	0.62	0.00	8.06	4.56	0.24	4.32	1.08
Nov-98	24	41°54'N	124°30'W	15	12.1	0.69	0.00	8.43	5.70	0.28	5.43	1.01
Nov-98	24	41°54'N	124°30'W	20	12.1	0.70	0.00	9.32	5.88	0.29	5.59	1.00
Nov-98	24	41°54'N	124°30'W	30	12.0	0.71	0.00	8.82	6.22	0.32	5.91	0.83
Nov-98	24	41°54'N	124°30'W	40	11.9	0.74	0.00	10.06	6.74	0.34	6.40	0.73
Nov-98	24	41°54'N	124°30'W	59	11.1	0.70	0.00	8.37	6.00	0.28	5.72	1.03
Nov-98	24	41°54'N	124°30'W	70	10.8	1.30	0.00	17.79	15.89	0.18	15.71	0.25
Nov-98	24	41°54'N	124°30'W	100	9.9	1.65	0.00	26.00	21.20	0.10	21.10	0.15
Nov-98	25	41°54'N	124°36'W	2	12.2	0.49	0.22	3.04	2.76	0.10	2.66	0.75
Nov-98	25	41°54'N	124°36'W	10	12.2	0.51	0.16	3.23	2.75	0.10	2.66	0.83
Nov-98	25	41°54'N	124°36'W	15	12.2	0.51	0.21	3.42	2.94	0.10	2.84	0.88
Nov-98	25	41°54'N	124°36'W	20	12.2	0.54	0.20	3.92	3.42	0.13	3.29	0.96
Nov-98	25	41°54'N	124°36'W	29	12.0	0.63	0.27	4.42	4.56	0.19	4.37	0.67
Nov-98	25	41°54'N	124°36'W	40	11.9	0.71	0.15	6.49	5.99	0.26	5.73	0.51
Nov-98	25	41°54'N	124°36'W	50	11.9	0.94	0.09	9.81	9.61	0.32	9.29	0.41
Nov-98	25	41°54'N	124°36'W	70	10.4	1.50	0.00	17.52	18.58	0.00	18.58	0.14
Nov-98	25	41°54'N	124°36'W	100	9.4	2.21	0.00	25.86	23.63	0.00	23.63	0.10
Nov-98	25	41°54'N	124°36'W	150	8.6	2.07	0.04	32.94	27.26	0.00	27.26	0.05
Nov-98	25	41°54'N	124°36'W	449	5.7	2.98	0.00	73.03	39.59	0.10	39.49	0.02
Nov-98	26	41°54'N	124°42'W	2	12.3	0.56	0.12	4.58	3.65	0.09	3.55	1.21
Nov-98	26	41°54'N	124°42'W	10	12.3	0.54	0.13	4.48	3.74	0.10	3.64	1.21
Nov-98	26	41°54'N	124°42'W	21	11.9	0.68	0.31	6.27	5.73	0.15	5.59	1.19
Nov-98	26	41°54'N	124°42'W	40	11.2	1.05	0.39	11.82	11.07	0.29	10.77	0.74
Nov-98	26	41°54'N	124°42'W	49	10.9	1.15	0.36	13.57	12.98	0.37	12.60	0.49
Nov-98	26	41°54'N	124°42'W	70	10.4	1.50	0.15	20.65	17.84	0.53	17.31	0.32
Nov-98	26	41°54'N	124°42'W	100	10.0	1.61	0.06	22.10	20.03	0.19	19.84	0.21
Nov-98	26	41°54'N	124°42'W	150	8.5	2.08	0.01	32.00	27.85	0.00	27.85	0.02

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-98	26	41°54'N	124°42'W	351	6.4	2.68	0.00	61.07	36.13	0.10	36.03	0.01
Nov-98	26	41°54'N	124°42'W	500	5.1	3.14	0.00	86.22	41.90	0.11	41.79	0.01
Nov-98	28	41°54'N	125°00'W	3	12.4	0.44	0.01	4.56	2.12	0.08	2.04	1.13
Nov-98	28	41°54'N	125°00'W	11	12.3	0.52	0.00	6.29	3.17	0.14	3.02	0.94
Nov-98	28	41°54'N	125°00'W	20	11.6	0.84	0.00	9.28	8.07	0.40	7.67	0.67
Nov-98	28	41°54'N	125°00'W	30	11.4	0.96	0.33	11.63	9.79	0.29	9.50	0.65
Nov-98	28	41°54'N	125°00'W	41	11.1	1.05	0.38	13.36	11.03	0.28	10.76	0.47
Nov-98	28	41°54'N	125°00'W	50	10.7	1.20	0.22	15.41	13.72	0.31	13.41	0.34
Nov-98	28	41°54'N	125°00'W	71	9.8	1.61	0.00	23.43	20.44	0.04	20.40	0.20
Nov-98	28	41°54'N	125°00'W	100	9.0	2.01	0.00	31.13	26.78	0.00	26.78	0.03
Nov-98	28	41°54'N	125°00'W	152	8.5	2.16	0.26	35.70	28.99	0.00	28.99	0.02
Nov-98	28	41°54'N	125°00'W	831	4.0	3.35	0.00	115.86	44.47	0.10	44.36	0.01
Nov-98	30	41°54'N	125°20'W	2	12.6	0.50	0.00	2.05	1.64	0.12	1.52	0.93
Nov-98	30	41°54'N	125°20'W	10	12.6	0.48	0.03	2.36	1.75	0.11	1.64	0.93
Nov-98	30	41°54'N	125°20'W	20	12.6	0.51	0.11	2.67	2.14	0.13	2.01	0.87
Nov-98	30	41°54'N	125°20'W	30	12.1	0.64	0.02	3.92	4.27	0.20	4.07	0.68
Nov-98	30	41°54'N	125°20'W	40	11.1	1.07	0.00	9.91	11.24	0.06	11.18	0.31
Nov-98	30	41°54'N	125°20'W	50	10.1	1.28	0.00	13.06	14.73	0.00	14.73	0.17
Nov-98	30	41°54'N	125°20'W	70	9.9	1.65	0.09	26.94	20.92	0.00	20.92	0.08
Nov-98	30	41°54'N	125°20'W	99	9.2	1.83	0.13	26.30	23.83	0.00	23.83	0.03
Nov-98	30	41°54'N	125°20'W	149	8.3	2.03	0.01	33.56	27.70	0.00	27.70	0.01
Nov-98	30	41°54'N	125°20'W	860	4.0	3.32	0.00	115.62	44.90	0.00	44.90	0.01
Nov-98	30	41°54'N	125°20'W	995	3.7	3.32	0.00	119.63	44.74	0.09	44.64	0.01
Nov-98	31	52°52'N	124°56'W	3	12.1	0.52	0.00	3.45	3.36	0.32	3.03	2.20
Nov-98	31	52°52'N	124°56'W	21	11.6	0.84	0.35	7.23	8.29	0.49	7.80	1.05
Nov-98	31	52°52'N	124°56'W	29	11.1	1.05	0.06	10.06	11.68	0.55	11.13	0.64
Nov-98	31	52°52'N	124°56'W	40	10.3	1.30	0.00	15.11	15.85	0.38	15.46	0.40
Nov-98	31	52°52'N	124°56'W	49	9.9	1.50	0.00	18.25	18.95	0.22	18.73	0.19
Nov-98	31	52°52'N	124°56'W	69	9.3	1.65	0.00	22.67	21.66	0.00	21.66	0.10
Nov-98	31	52°52'N	124°56'W	100	8.5	1.97	0.00	30.23	26.89	0.00	26.89	0.03
Nov-98	31	52°52'N	124°56'W	150	8.0	2.11	0.00	36.54	28.93	0.00	28.93	0.01
Nov-98	31	52°52'N	124°56'W	886	3.9	3.35	0.00	119.24	45.09	0.10	44.99	0.01
Nov-98	31	52°52'N	124°56'W	1005	3.6	3.33	0.00	118.85	45.18	0.10	45.08	0.01
Nov-98	33	52°52'N	124°40'W	3	12.4	0.56	0.05	5.66	4.76	0.01	4.75	1.43
Nov-98	33	52°52'N	124°40'W	10	12.3	0.60	0.05	5.82	5.05	0.15	4.90	1.41
Nov-98	33	52°52'N	124°40'W	15	12.2	0.62	0.06	6.60	5.72	0.16	5.56	1.29
Nov-98	33	52°52'N	124°40'W	20	12.0	0.74	0.16	8.02	6.19	0.21	5.98	0.87
Nov-98	33	52°52'N	124°40'W	29	11.5	0.94	0.27	11.63	9.36	0.27	9.09	0.52
Nov-98	33	52°52'N	124°40'W	39	10.7	1.11	0.20	13.36	12.04	0.28	11.77	0.29
Nov-98	33	52°52'N	124°40'W	50	10.1	1.36	0.01	16.98	16.36	0.16	16.20	0.15
Nov-98	33	52°52'N	124°40'W	71	9.7	1.56	0.00	21.54	19.53	0.10	19.43	0.11
Nov-98	33	52°52'N	124°40'W	101	9.1	1.94	0.00	30.82	25.29	0.04	25.25	0.07
Nov-98	33	52°52'N	124°40'W	151	8.7	2.04	0.00	34.75	27.21	0.04	27.17	0.03
Nov-98	33	52°52'N	124°40'W	500	5.4	3.08	0.00	81.41	41.45	0.10	41.35	0.01
Nov-98	35	52°52'N	124°28'W	2	12.2	0.58	0.00	6.17	3.95	0.15	3.80	1.35
Nov-98	35	52°52'N	124°28'W	10	12.2	0.60	0.00	6.26	3.95	0.15	3.80	1.40
Nov-98	35	52°52'N	124°28'W	15	12.2	0.61	0.00	6.52	4.35	0.17	4.18	1.41
Nov-98	35	52°52'N	124°28'W	20	12.1	0.70	0.12	7.31	5.44	0.22	5.22	0.91
Nov-98	35	52°52'N	124°28'W	30	11.9	0.79	0.13	8.97	7.15	0.26	6.89	0.64

Cruise Month	Station Number	Latitude	Longitude	Press. (dbar)	Temp. [°C]	PO_4 [µM]	NH_4 [µM]	SiO_2 [µM]	N + N [µM]	NO_2 [µM]	NO_3 [µM]	Chl-*a* [µg/L]
Nov-98	35	52°52'N	124°28'W	40	11.5	0.92	0.00	10.80	9.44	0.30	9.14	0.38
Nov-98	35	52°52'N	124°28'W	50	11.3	1.01	0.00	12.29	10.93	0.32	10.61	0.35
Nov-98	35	52°52'N	124°28'W	70	10.0	1.41	0.00	19.87	18.12	0.07	18.06	0.16
Nov-98	35	52°52'N	124°28'W	100	9.3	1.73	0.00	28.32	23.38	0.04	23.34	0.13
Nov-98	35	52°52'N	124°28'W	151	8.7	1.83	0.00	31.90	25.44	0.06	25.38	0.07
Nov-98	35	52°52'N	124°28'W	350	5.7	2.92	0.00	76.80	38.97	0.12	38.85	0.02
Nov-98	36	52°52'N	124°22'W	1	12.1	0.63	0.06	7.78	4.59	0.17	4.42	1.34
Nov-98	36	52°52'N	124°22'W	5	12.1	0.65	0.02	7.52	4.88	0.18	4.69	1.38
Nov-98	36	52°52'N	124°22'W	9	12.0	0.68	0.00	7.79	5.17	0.20	4.97	1.36
Nov-98	36	52°52'N	124°22'W	19	12.0	0.73	0.00	8.23	6.02	0.23	5.79	1.27
Nov-98	36	52°52'N	124°22'W	30	11.3	0.93	0.00	11.63	9.91	0.33	9.58	0.55
Nov-98	36	52°52'N	124°22'W	40	11.0	1.08	0.00	14.33	12.31	0.32	11.99	0.34
Nov-98	36	52°52'N	124°22'W	50	10.7	1.24	0.01	18.25	14.54	0.33	14.21	0.34
Nov-98	36	52°52'N	124°22'W	60	9.9	1.50	0.11	23.92	18.71	0.24	18.47	0.31
Nov-98	36	52°52'N	124°22'W	70	9.6	1.62	0.00	25.93	20.99	0.20	20.80	0.23
Nov-98	36	52°52'N	124°22'W	86	9.1	2.01	0.00	30.90	24.54	0.13	24.41	0.09
Nov-98	36	52°52'N	124°22'W	106	8.4	1.95	0.00	36.21	27.28	0.05	27.23	0.05
Nov-98	38	52°52'N	124°16'W	2	11.8	0.78	0.11	6.46	6.39	0.15	6.24	1.89
Nov-98	38	52°52'N	124°16'W	5	11.8	0.84	0.19	6.99	6.77	0.16	6.60	1.71
Nov-98	38	52°52'N	124°16'W	10	11.7	0.85	0.26	7.52	7.43	0.19	7.24	1.55
Nov-98	38	52°52'N	124°16'W	15	11.6	0.89	0.37	8.37	7.99	0.21	7.78	1.31
Nov-98	38	52°52'N	124°16'W	20	11.5	0.95	0.63	9.21	8.94	0.22	8.72	1.10
Nov-98	38	52°52'N	124°16'W	25	11.5	0.94	0.44	9.75	9.03	0.21	8.82	1.06
Nov-98	38	52°52'N	124°16'W	30	11.3	1.03	0.45	10.91	10.16	0.24	9.93	0.84
Nov-98	38	52°52'N	124°16'W	40	11.0	1.16	0.47	13.32	12.16	0.25	11.91	0.66
Nov-98	38	52°52'N	124°16'W	50	10.6	1.32	0.26	16.36	14.92	0.25	14.67	0.41
Nov-98	38	52°52'N	124°16'W	54	10.5	1.32	0.28	16.89	15.01	0.24	14.77	0.43