

data report

CalCOFI Cruise 1203
24 March – 6 April 2012

CC Reference 14 -02
27 May 2014

**UNIVERSITY OF CALIFORNIA, SAN DIEGO
SCRIPPS INSTITUTION OF OCEANOGRAPHY
LA JOLLA, CALIFORNIA 92093-0227**

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

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INTRODUCTION

The data presented in this report were collected during cruise 1203* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the NOAA vessel FSV *Bell M. Shimada*. The CalCOFI program was organized in the late 1940's to study the causes of variations in population size of fishes of importance to the State of California. It is carried out by NOAA's National Marine Fisheries Service Southwest Fisheries Science Center, the California Department of Fish and Game, and the Integrative Oceanography Division (IOD) at Scripps Institution of Oceanography (SIO). IOD contributes to this program by investigations of the physical, chemical and biological structure of the California Current. Data from the cruises were collected and processed by personnel of the Integrative Oceanography Division and the Southwest Fisheries Science Center. CalCOFI data presented in this report and collected on previous cruises can be accessed at <http://www.calcofi.org>.

STANDARD PROCEDURES

CTD/Rosette Cast Data

A Sea-Bird Electronics, Inc., Conductivity-Temperature-Depth (CTD) instrument (Seabird 911, Serial number 3161-936) with a rosette was deployed at each station on these cruises. The rosette was equipped with 24 ten-liter plastic (PVC) bottles equipped with epoxy-coated springs and Viton O-rings. Each CTD/rosette cast usually sampled 20 depths to a maximum sampling depth of 525 meters, bottom depth permitting. Occasional stations have multiple bottles tripped at the same depth to provide more water for ancillary programs. The sample spacing was designed to sample depth intervals as close as 10 meters around the sharp upper thermocline features such as the chlorophyll, oxygen, nitrite maxima and the shallow salinity minimum. Salinity, oxygen and nutrients were determined at sea for all depths sampled. Chlorophyll-*a* and phaeopigments were determined at sea on samples from the top 200 meters, bottom depth permitting.

Pressures and temperatures assigned to the water sample data were derived from the CTD signals recorded just prior to the bottle trip. Pressures have been converted to depths by the Saunders (1981) pressure-to-depth conversion technique. CTD temperatures reported with the bottle data have been rounded to the nearest hundredth of a degree Celsius.

Salinity samples were collected from all rosette bottles and analyzed at sea using a Guildline model 8410 Portasal salinometer. Salinity samples were drawn into 200 ml Kimax high-alumina borosilicate bottles that were rinsed three times with sample prior to filling. The results were compared with the CTD salinity to verify that the rosette bottle did not mis-trip or leak. The salinometer was standardized before and after each group of samples with standardized seawater. Periodic checks on the conductivity of the standardized seawater were made by comparison with IAPSO Standard Seawater batch P152. Salinity values were calculated using the algorithms for the Practical Salinity Scale, 1978 (UNESCO, 1981a) and are reported to three decimal places, provided that accepted standards were met.

Dissolved oxygen analyses were performed with an Ocean Data Facility of Scripps Institution of Oceanography designed automated oxygen titrator using photometric end-point detection based on the absorption of 365nm wavelength ultra-violet light. A computer using PC software controlled the titration of the samples and the data logging. The method used a modified Winkler titration following the technique of Carpenter (1965) with modifications by Culberson (1991), but with higher concentrations of thiosulfate solution (50 g/l). Standard KIO3 solutions prepared ashore were run at the beginning of each run. Reagent and sea water blanks were determined to account for presence of oxidizing or reducing materials.

* The first two digits represent the year and the last digits the month of the cruise.

Nutrient samples were analyzed at sea using a QuAAtro continuous flow analyzer (SEAL Analytical). Dissolved silicate, nitrate and nitrite were analyzed using a modification of the method described by Armstrong et al. (1967) and Gordon et al. (1992). Phosphate was measured with a modification of the *Murphy and Riley* (1962) protocol and ammonium was analyzed using a modified fluorometric method described by Kerouel and Aminot (1997). Samples were collected in 45ml high-density polypropylene screw top tubes which were acid washed and rinsed with sample three times prior to filling. Standardizations and cadmium-reduction coil efficiency determinations were performed at the beginning of every run. Drift corrections were performed in each run using a high standard inserted before and after sample sets. Samples not analyzed immediately after collection were refrigerated and run the following day.

Samples for chlorophyll-*a* and phaeopigments were collected in calibrated 138 ml polyethylene bottles and filtered onto Whatman GF/F filters. The pigments were extracted in cold 90% acetone (Venrick and Hayward, 1984) for a minimum of 24 hours. Chlorophyll-*a* and phaeopigment concentrations were determined from fluorescence readings before and after acidification with a Turner Designs Fluorometer Model 10-AU-005-CE (Yentsch and Menzel, 1963; Holm-Hansen *et al.*, 1965).

Evaluation of the water sample data involved comparisons with the CTD data, adjacent stations and consideration of the variation of a property as a function of density or depth and the relationships with other properties (Klein, 1973). Precision estimates for routine analyses were made on CalCOFI cruise 9003 and are reported in SIO Ref. 91-4.

Primary Productivity Sampling

Primary productivity samples were taken each day shortly before local apparent noon (LAN). Primary production was estimated from ^{14}C uptake using a simulated *in situ* technique. Light penetration was estimated from the Secchi depth (assuming that the 1% light level is three times the Secchi depth). The depths with ambient light intensities corresponding to light levels simulated by the on-deck incubators were identified and sampled on the rosette up-cast. Occasionally an extra bottle or two were tripped in addition to the usual 20 levels sampled in the combined rosette-productivity cast in order to maintain the normal sampling depth resolution. Triplicate samples (two light and one dark control) were drawn from each productivity sample depth into 250 ml polycarbonate incubation bottles. Samples were inoculated with 12.69 μCi of ^{14}C as NaHCO_3 (40 μl of stock solution) prepared in a 0.3 g/liter solution of sodium carbonate (Fitzwater *et al.*, 1982). Samples were incubated from LAN to civil twilight in seawater-cooled incubators with neutral-density screens which simulate *in situ* light levels. At the end of the incubation, the samples were filtered onto Millipore HA filters and placed in scintillation vials. One half ml of 10% HCl was added to each sample. The sample was then allowed to sit, without a cap, at room temperature for 12 hours (after Lean and Burnison, 1979). Following this, 10 ml of scintillation cocktail were added to each sample and the samples were returned to SIO where the radioactivity was determined with a scintillation counter. Salinity, oxygen, nutrients, chlorophyll-*a* and phaeopigments were determined from all rosette productivity bottles.

Macrozooplankton Net Tows

Macrozooplankton was sampled with a 71 cm mouth diameter paired net (bongo net) equipped with 0.505mm plankton mesh. Bottom depth permitting, the nets were towed obliquely from 210 meters to the surface. The tow time for a standard tow was 21.5 minutes. Volumes filtered were determined from flowmeter readings and the mouth area of the net. Only one sample of each pair was retained and preserved. The biomass, as wet displacement volume, after removal of large (>5 ml) organisms, was determined in the laboratory ashore. These procedures are summarized in greater detail in Kramer *et al.* (1972).

Avifauna Observations (Farallon Institute of Advanced Ecosystem Research)

Sea birds were counted within a 300-meter wide strip off to one side of the ship. Counts were made while underway between stations during periods of daylight. These counts were summed over 20 nautical mile (nm) intervals, or the distance between consecutive stations, whichever was less.

Ancillary Programs

Several ancillary programs produced data on these cruises that are not presented in this report. These programs include:

- 1) *Underway Data*: Continuous near surface measurements of temperature, salinity and *in vivo* chlorophyll fluorescence were recorded from seawater pumped through the ship's uncontaminated seawater system. Water was drawn from a depth of approximately 3 meters. The data were logged in one-minute averages using a Sea-Bird Electronics, Inc., SBE 45 MicroTSG and SBE-21 TSG Thermosalinographs and a Turner Designs Fluorometer Model 10-AU-005-CE.
- 2) *California Current Ecosystem Long Term Ecological Research Program*: The CCE-LTER program augments standard CalCOFI measurements to further characterize the lower trophic levels as well as the carbon system. These additional samples, taken at all CalCOFI stations, are for measurements of particulate organic carbon and nitrogen, dissolved organic carbon and nitrogen, taxon-specific phytoplankton pigments, flow-cytometric counts of bacteria and picoautotrophs, microscopic counts of nano- microplankton, determination of mesozooplankton size structure using a Laser Optical Plankton Counter, and mesozooplankton community structure with a Planktonic Rate Processes in Oligotrophic Ocean Systems (PRPOOS) net. (M. Ohman, SIO)
- 3) *Inorganic Carbon System*: The CalCOFI group collected samples for the characterization of the inorganic carbon system at selected locations along the cruise track. Total inorganic carbon and alkalinity will be measured which will allow the calculation of pH and pCO₂. The objectives of these measurements are first the long-term characterization of the inorganic carbon system and its response to changing ocean climate and second measurements of pH in the coastal zone in order to monitor the impact of 'corrosive' waters on benthic ecosystems in the Southern California Bight. (R. Goericke, SIO)
- 4) *Marine Mammal Observations*: During daylight transits, visual line-transect surveys were conducted by marine mammal observers focusing on cetaceans. Acoustic line-transect surveys were performed using a towed hydrophone array which consists of multiple hydrophone elements that sample sounds up to 100 kHz allowing for localization of calling animals. Acoustic monitoring also takes place on individual stations using sonobuoys. (J. Hildebrand, SIO)
- 5) *Nitrate Isotope*: Seawater samples are acquired using the CTD-rosette and shipped frozen to Princeton University. The nitrogen and oxygen isotopic composition of nitrate is measured using strains of denitrifying bacteria that reduce nitrate to N₂O. (P. Rafter, Princeton University)
- 6) *ALF (Advanced Laser Fluorometer)*: Continuous underway analysis of phytoplankton pigment groups and variable fluorescence (F_v/F_m). ALF, developed by A. Chekalyuk at Lamont-Doherty Earth Observatory, uses laser stimulated emission at 405 and 532 nm together with spectral deconvolution analysis to distinguish fluorescence from three types of phycoerythrin, chlorophyll-*a*, and chromophoric dissolved organic matter (CDOM). The ALF is useful for differentiating the contribution of cyanobacteria and cryptophytes from other phytoplankton taxa present in natural phytoplankton assemblages, as well as for assessing phytoplankton photophysiological status.
- 7) *Lagrangian Drifter Buoys*: Surface Velocity Program (SVP) drifters, drogued at 15 meters depth, were deployed at 4 stations. The drifter observations of position and SST approximately every hour following the 15-meter currents supplement Eulerian current profiles. This will provide new insight into the connection between continental shelf flows and the larger scale California Current located further offshore. Four drifters were deployed at all 4 stations to assess the relative motion of drifter pairs which gives an understanding of energy as a function of spatial scale. Drifter tracks are displayed in near real-time on the web (<http://www.icess.ucsb.edu/drifter/realtime-SVP/index.php>). (C. Ohlmann, UCSB)

TABULATED DATA

CTD/Rosette Cast Data

The time reported is the Coordinated Universal Time (UTC) of the first rosette bottle trip on the up cast. The rosette bottles tripped on the up cast are reported as cast 2, where cast 1 is considered to be the down CTD profile. The sample number reported is the cast number followed by a two-digit rosette bottle number. Bottom depths, determined acoustically, have been corrected using British Admiralty Tables (Carter, 1980) and are reported in meters. Weather conditions have been coded using WMO code 4501. Secchi depths are reported for most daylight stations.

Data values from discreet sampled CTD rosette were interpolated and are reported for standard depths. Interpolated or extrapolated standard level data are noted by the footnote "ISL" printed after the depth. Multiple bottles tripped at the same depth to provide water for ancillary programs are not used in the calculation of standard depth data. Density-related parameters have been calculated from the International Equation of State of Seawater 1980 (UNESCO, 1981b). Computed values of potential temperature, sigma-theta, specific volume anomaly (SVA), and dynamic height or geopotential anomaly are included with both observed and interpolated standard depth levels.

On stations where primary productivity samples were drawn a footnote appears after each productivity depth sampled. The corresponding primary productivity data are reported in a separate section following the tabulated rosette cast data.

Primary Productivity Data

In addition to the normal hydrographic data that are reported in the rosette cast data section, the tabulated data include: the *in situ* light levels at which the samples were collected, the uptake from each of the replicate light bottles, uptake 1 and uptake 2 (which have been corrected for dark uptake by subtracting the dark value), the mean of the two uptake values and the dark uptake. The uptake values are totals for the incubation period. Also shown are the times of LAN, civil twilight, and the value of the mean uptake integrated from the surface to the deepest sample, assuming the shallowest value continues to the surface and that negative values (when dark uptake exceeds light uptake) are zero. The uptake data are reported to two significant digits (values <1.00) or one decimal (values >1.00). Incubation time, LAN, and civil twilight are given in local Pacific Standard Time (PST); to convert to UTC, add eight hours to the PST time. Incubation light intensities are listed in a footnote at the bottom of each page.

Macrozooplankton Data

Macrozooplankton biomass volumes are tabulated as total biomass volume (cm³/1000m³ strained) and as the total volume minus the volume of larger organisms under the heading "Small." Tow times are given in local PST (+8) time.

FOOTNOTES

In addition to footnotes, special notations are used without footnotes because the meaning is always the same:

- D: CTD salinity value listed in place of normal shipboard salinity analysis.
- ISL: After a depth value indicates that this is an interpolated or extrapolated standard level.
- U: Uncertain value. Values which are not used in interpolation because they seem to be in error without apparent reason.

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FIGURES

Cruise 1203

1. CalCOFI Cruise 1203 track and station positions.
2. Horizontal distribution of dynamic height anomaly (0 over 500m). In areas shallower than 500 m, the dynamic heights were extrapolated on the basis of the offshore deeper steric height as described in Reid and Mantyla (1976).
3. Horizontal distributions at 10 meters: A) chlorophyll-*a*; B) potential density; C) temperature; and D) salinity.
4. Horizontal distributions at 200 meters: A) dynamic height anomaly (200 over 500 m); B) potential density; C) temperature; and D) salinity.
5. Sections along CalCOFI line 90 (vertical exaggeration, 1000): A) potential density; B) temperature; C) salinity; D) silicate; E) nitrate; F) phosphate; G) chlorophyll-*a*; H) oxygen saturation; I) oxygen; J) nitrite; and K) phaeopigments.

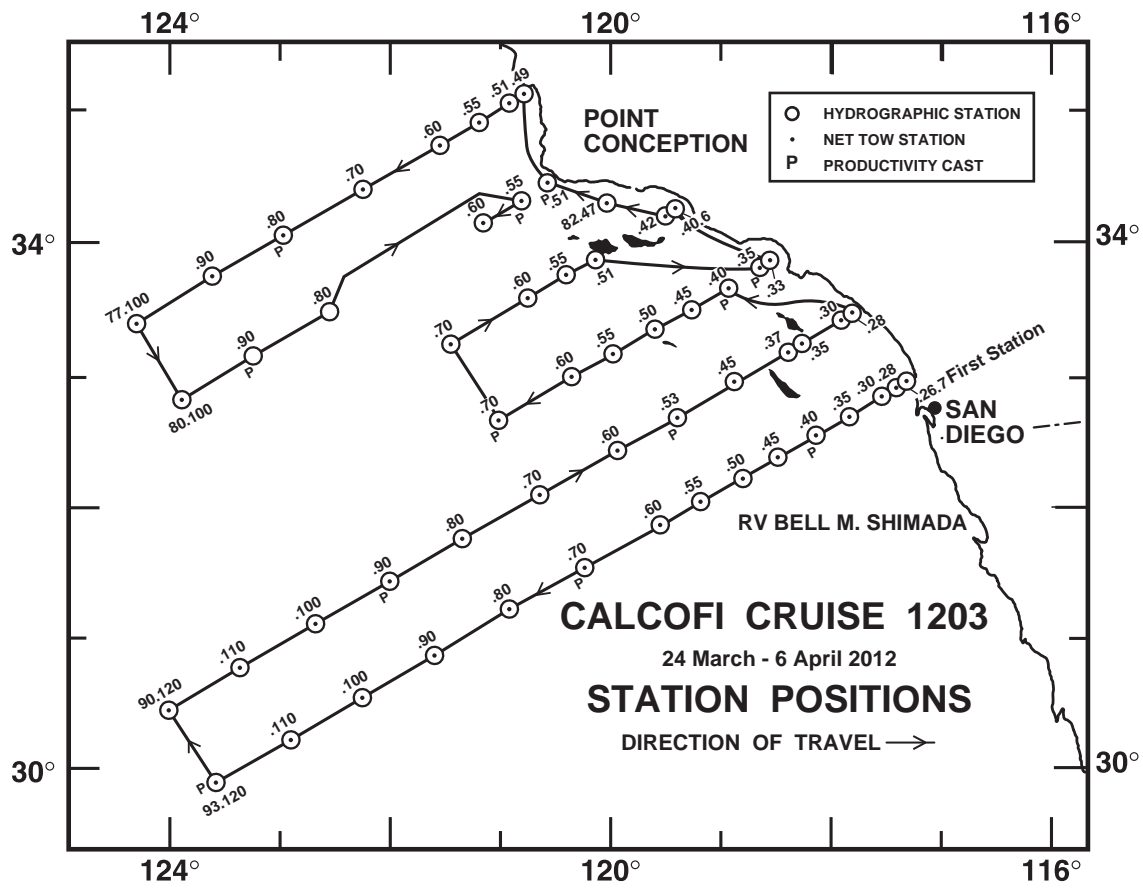


FIGURE 1

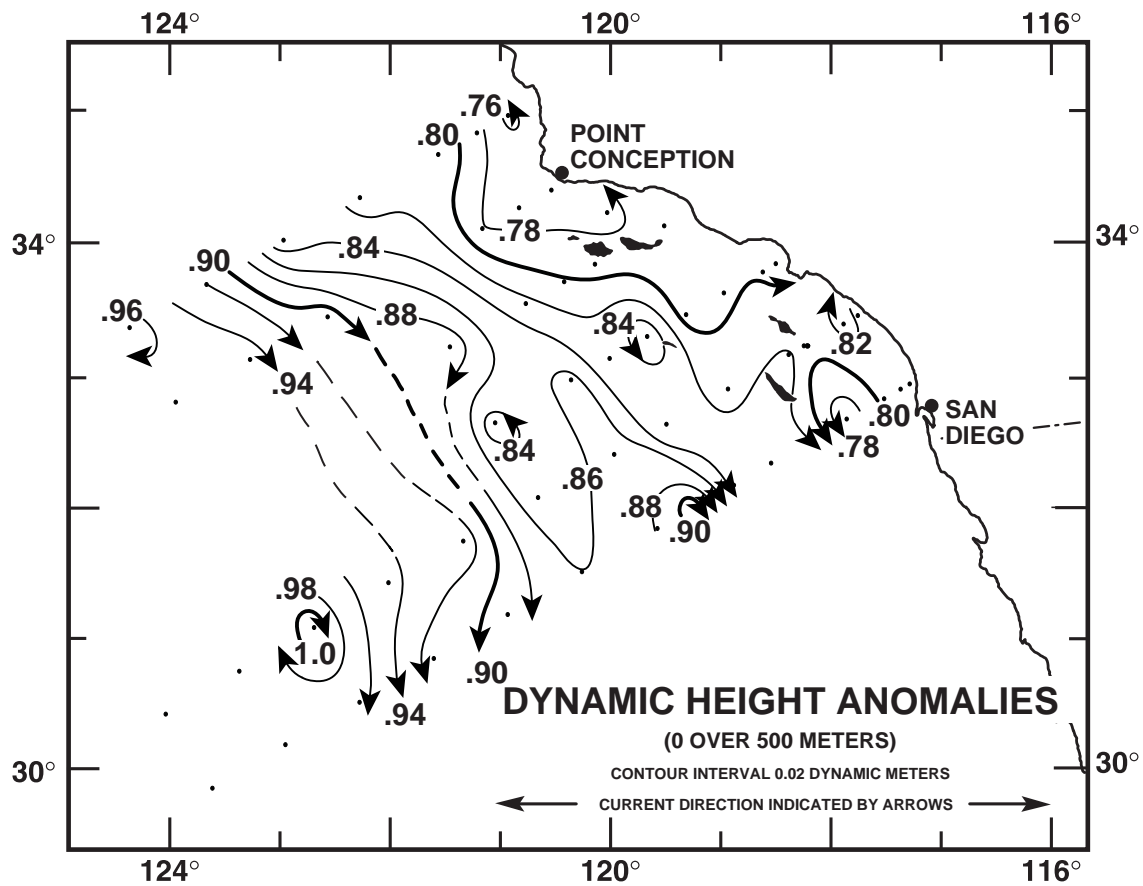


FIGURE 2

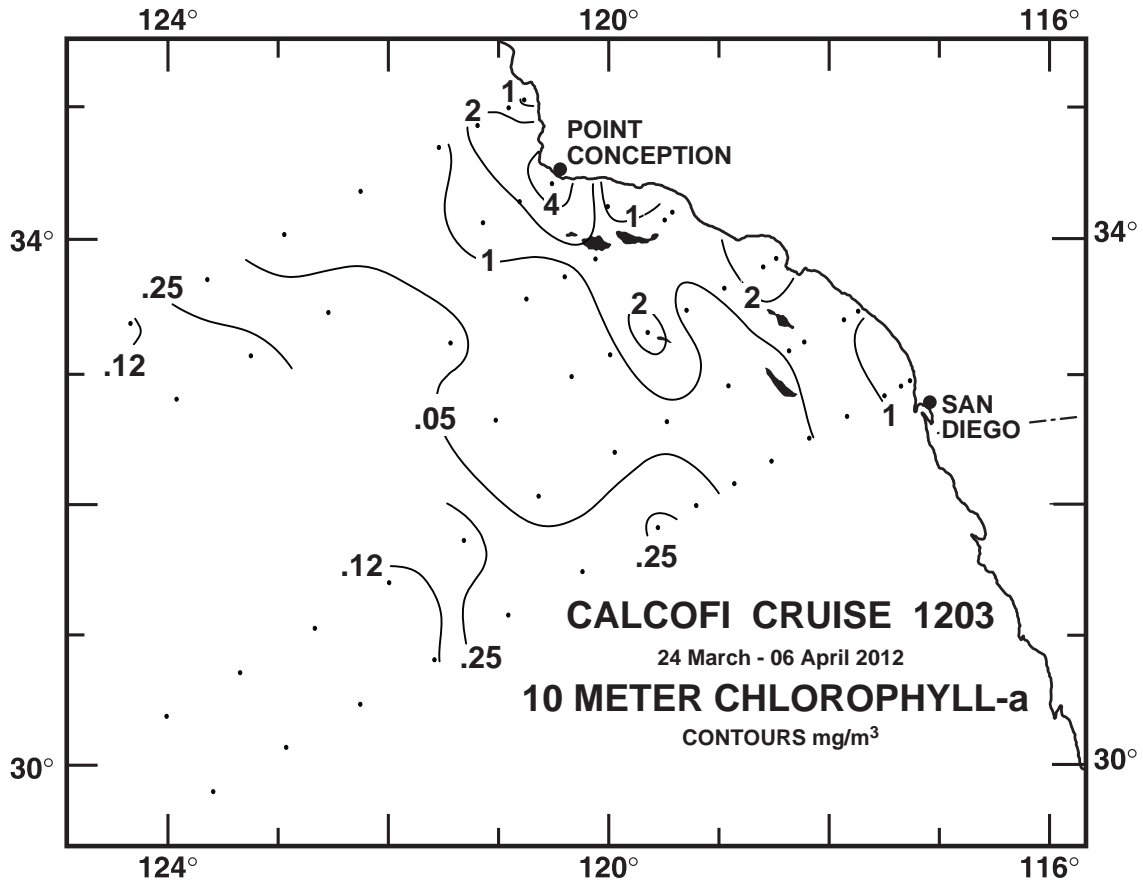


FIGURE 3A

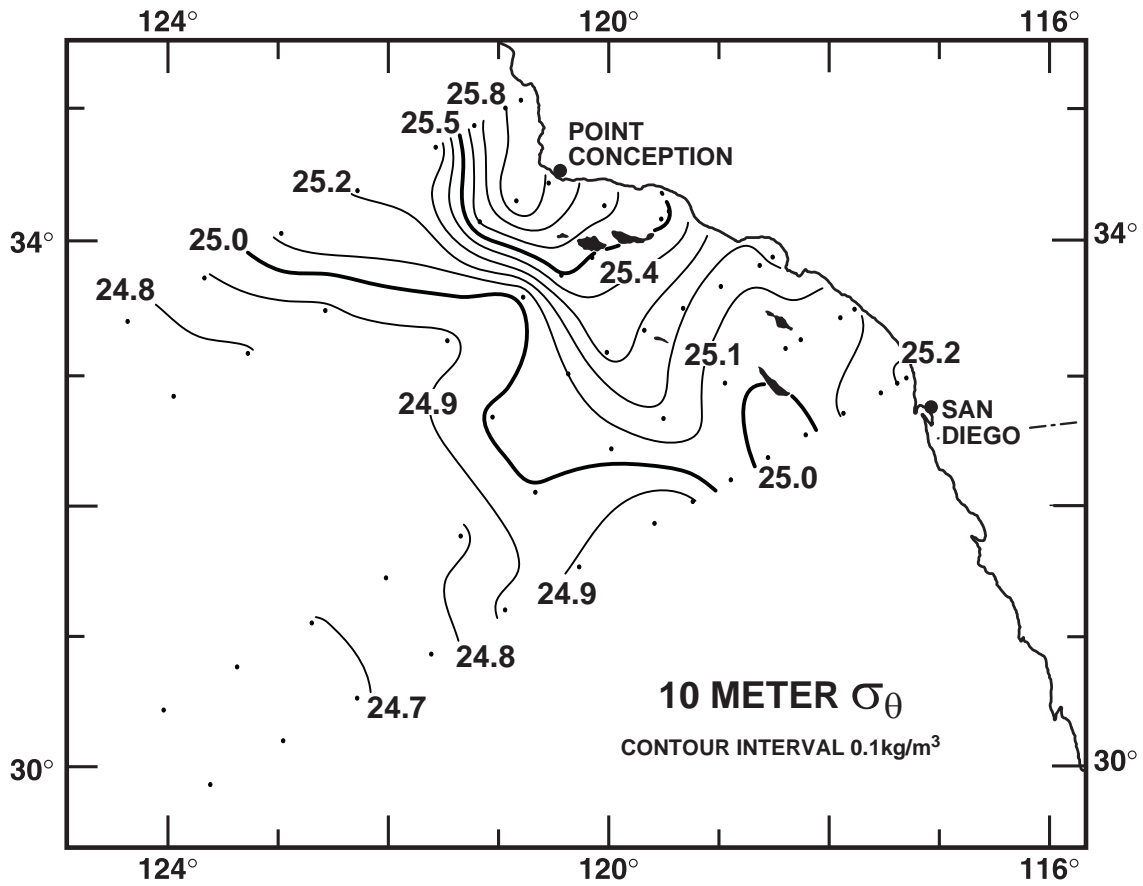


FIGURE 3B

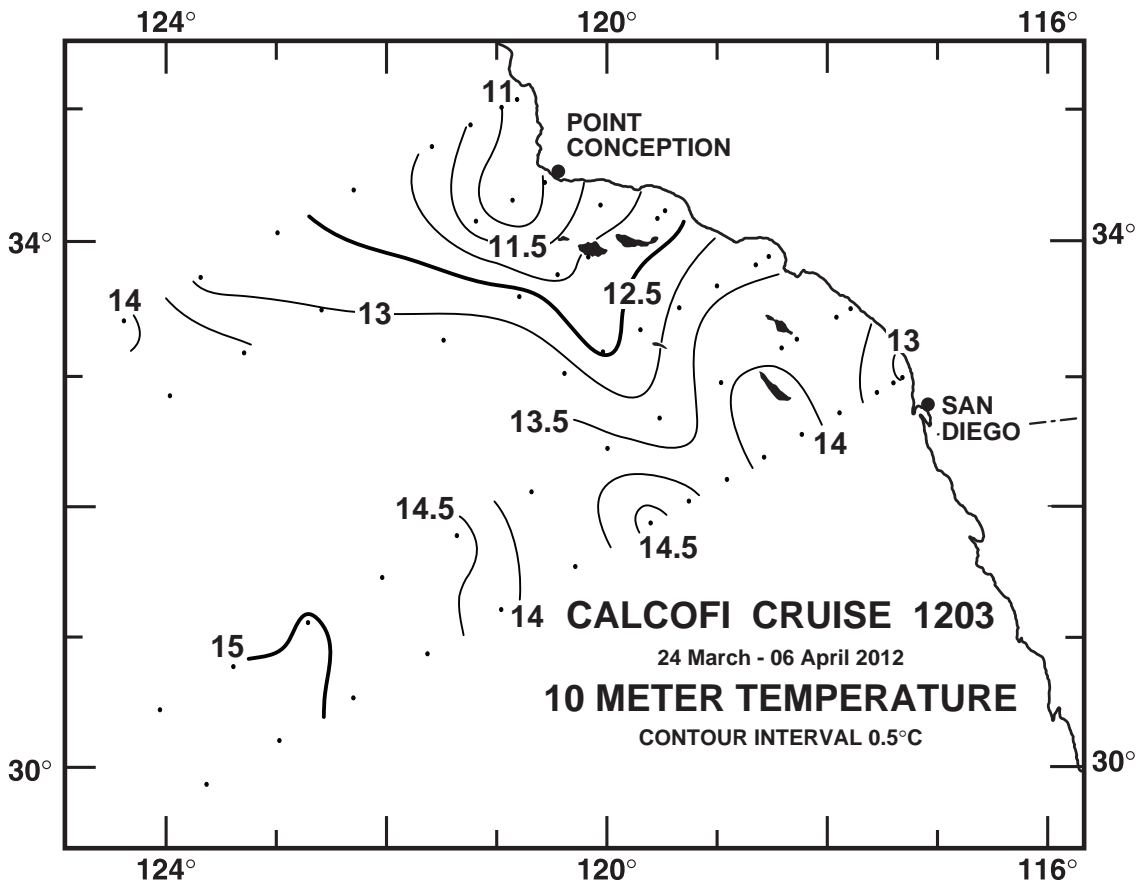


FIGURE 3C

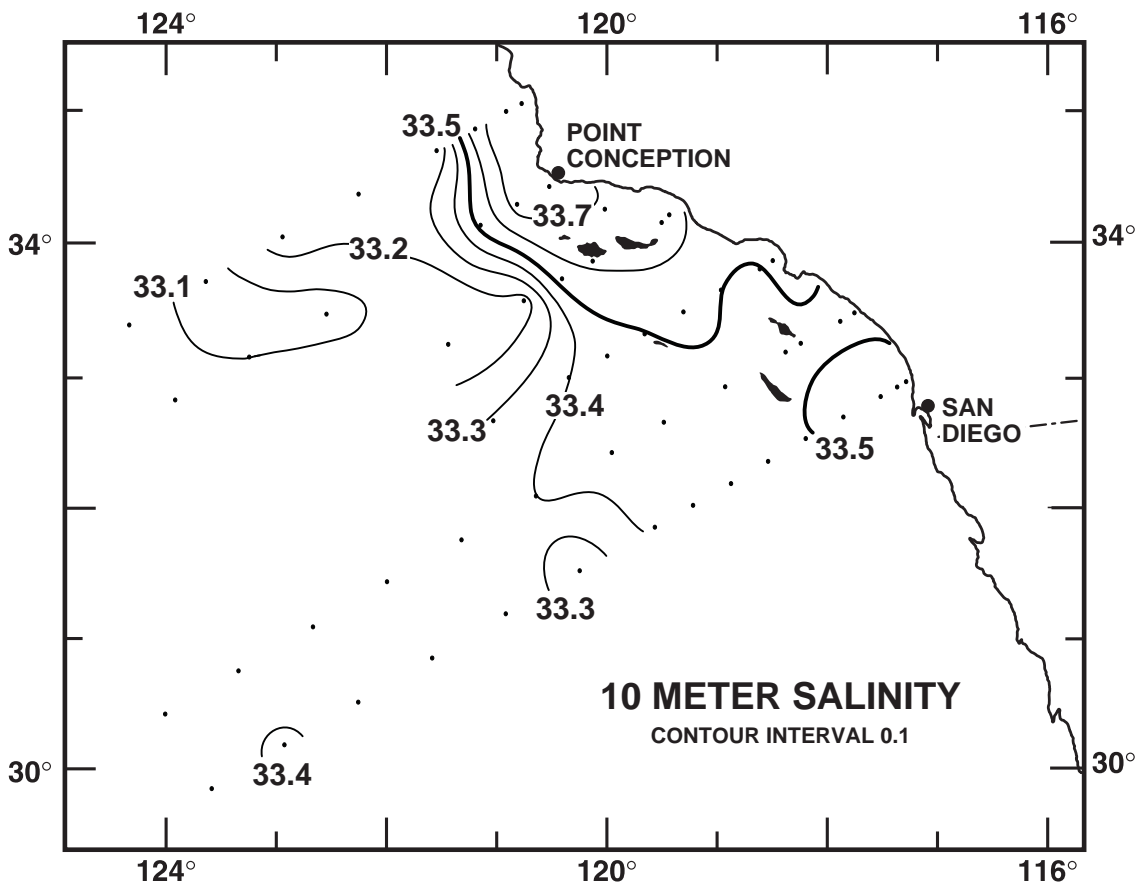


FIGURE 3D

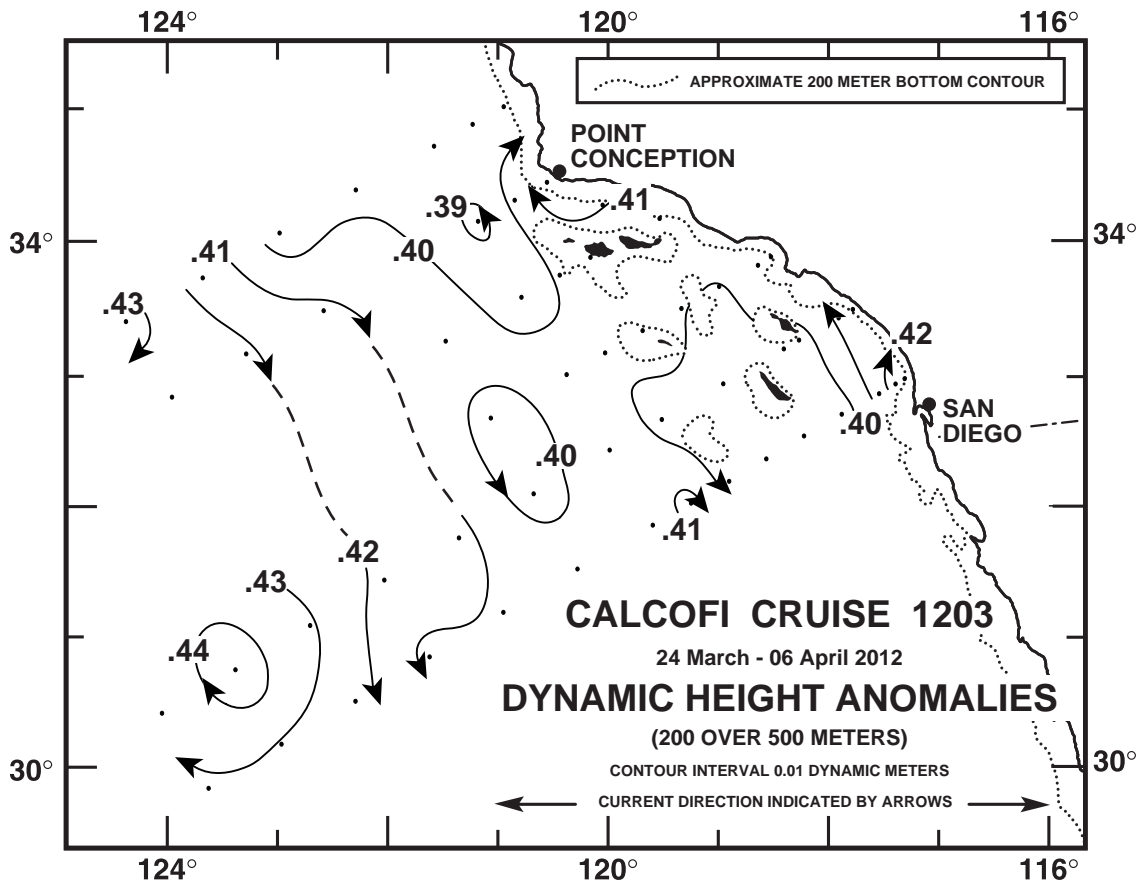


FIGURE 4A

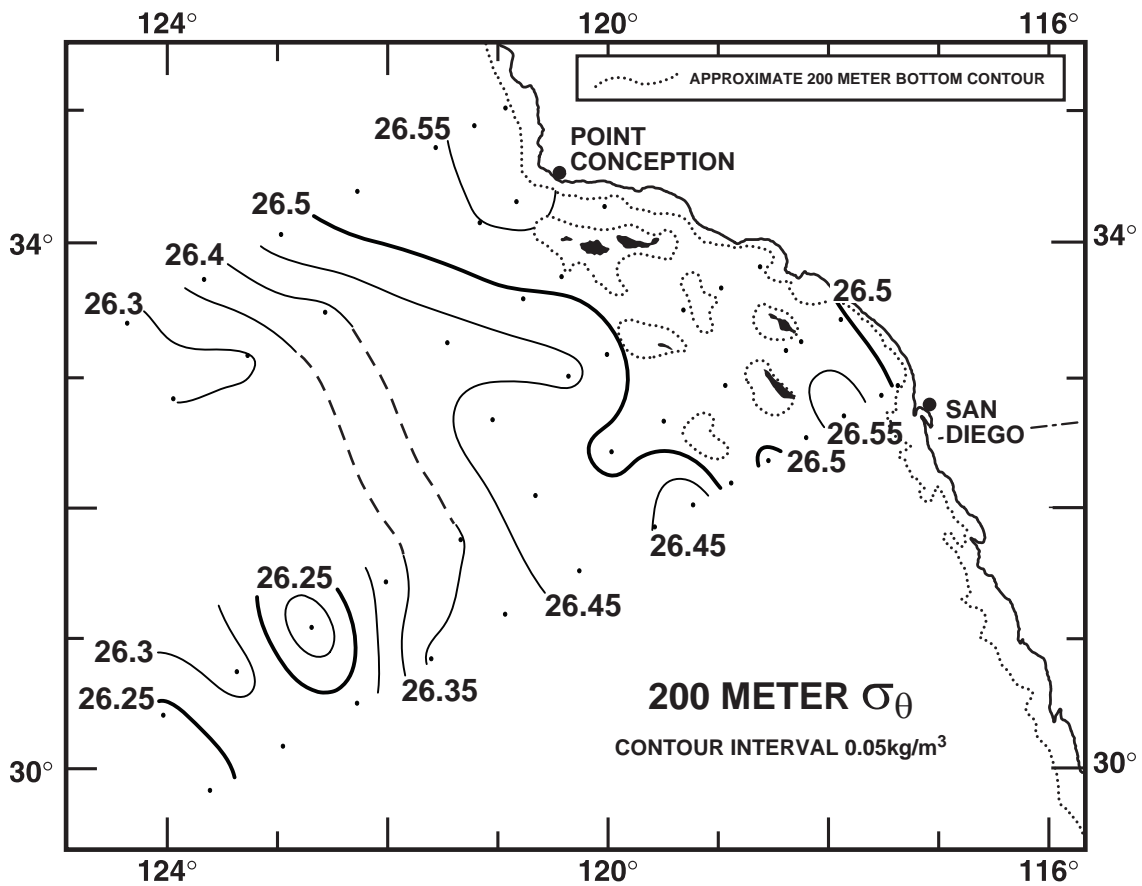


FIGURE 4B

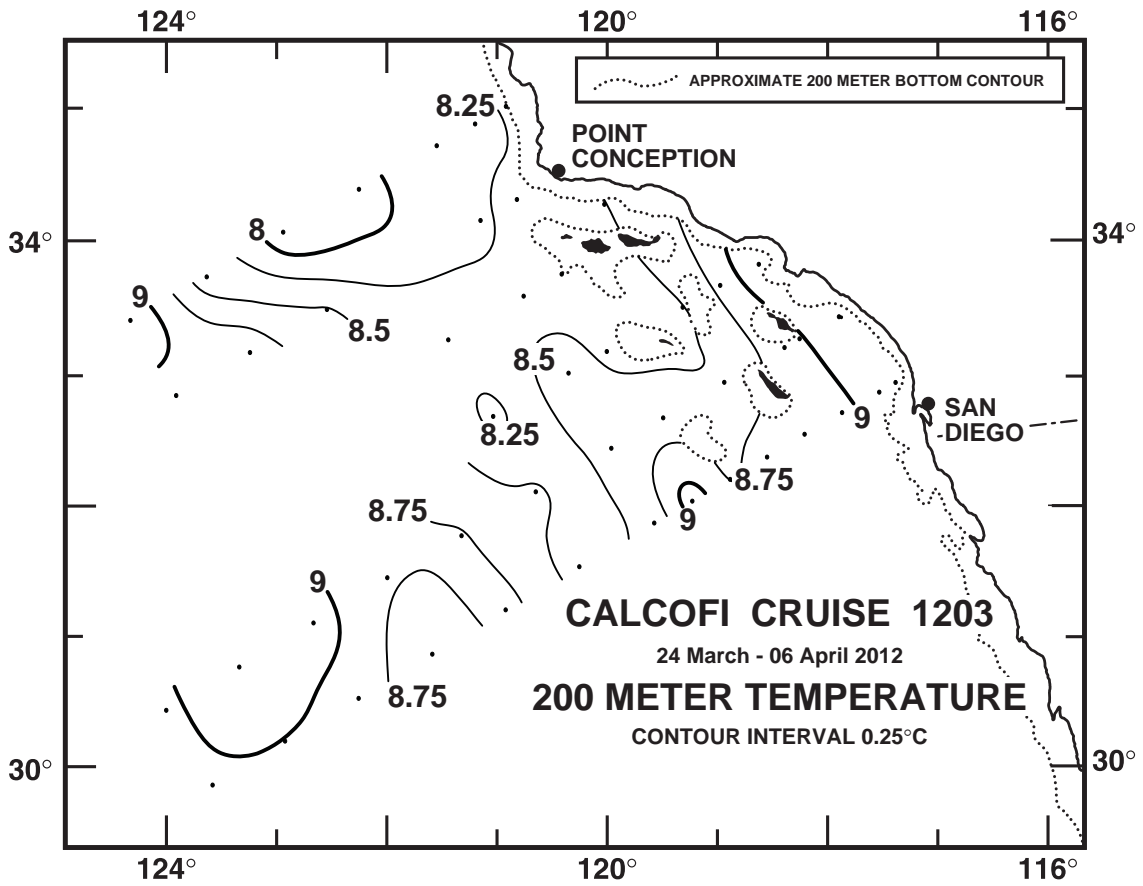


FIGURE 4C

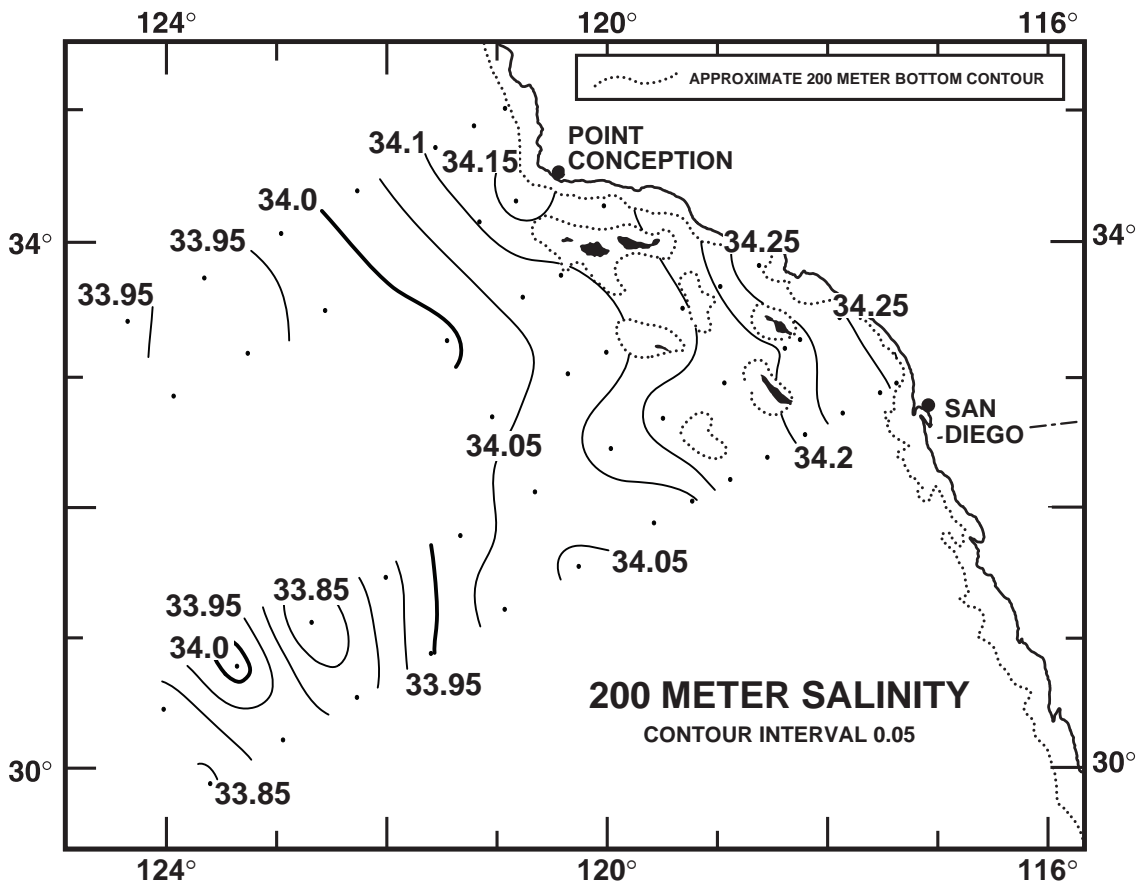


FIGURE 4D

CALCOFI CRUISE 2012

27 - 30 March 2012

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

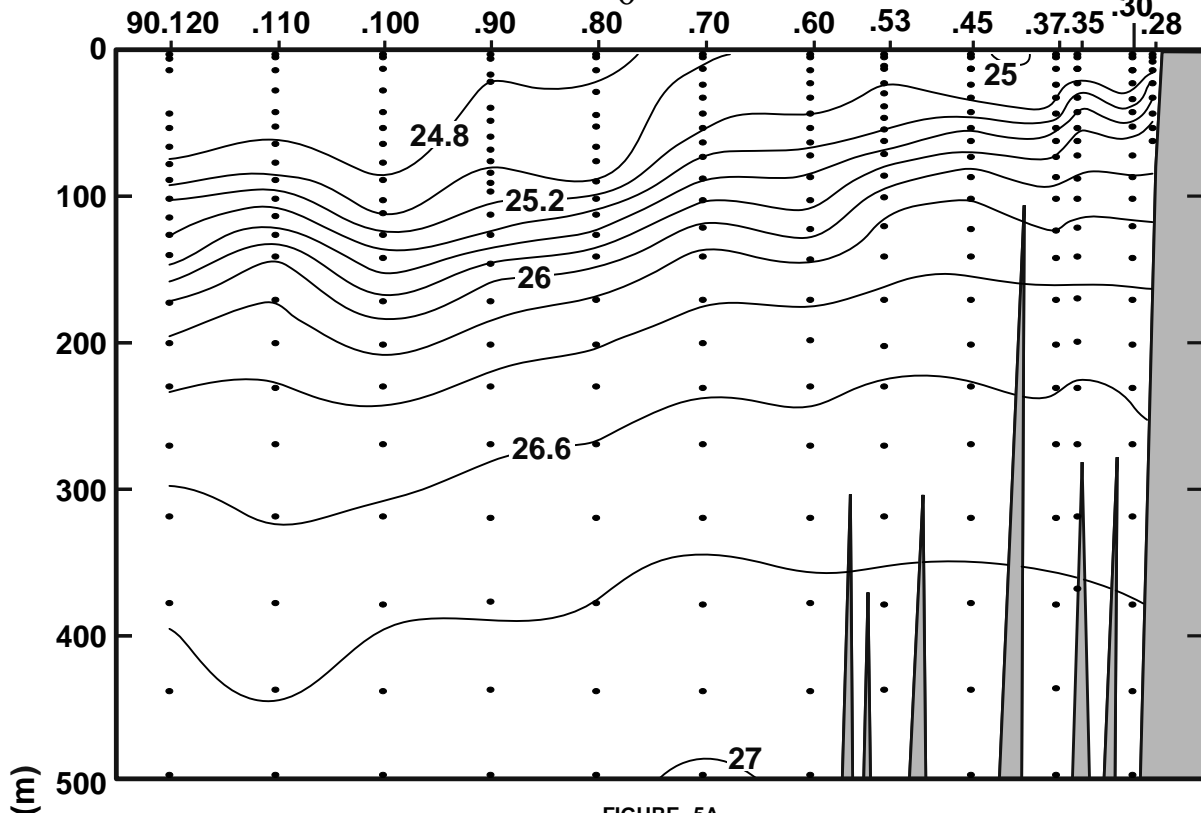


FIGURE 5A

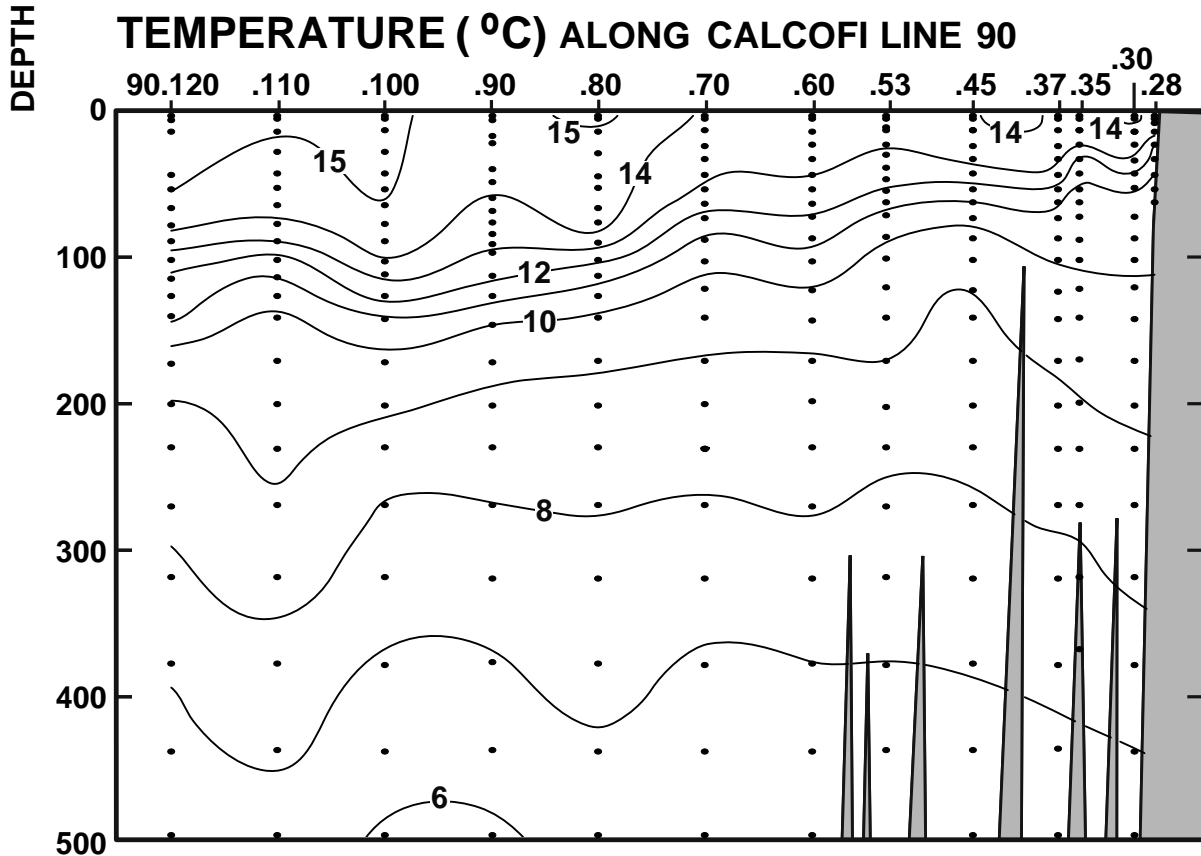


FIGURE 5B

CALCOFI CRUISE 1203

27- 30 March 2013

SALINITY ALONG CALCOFI LINE 90

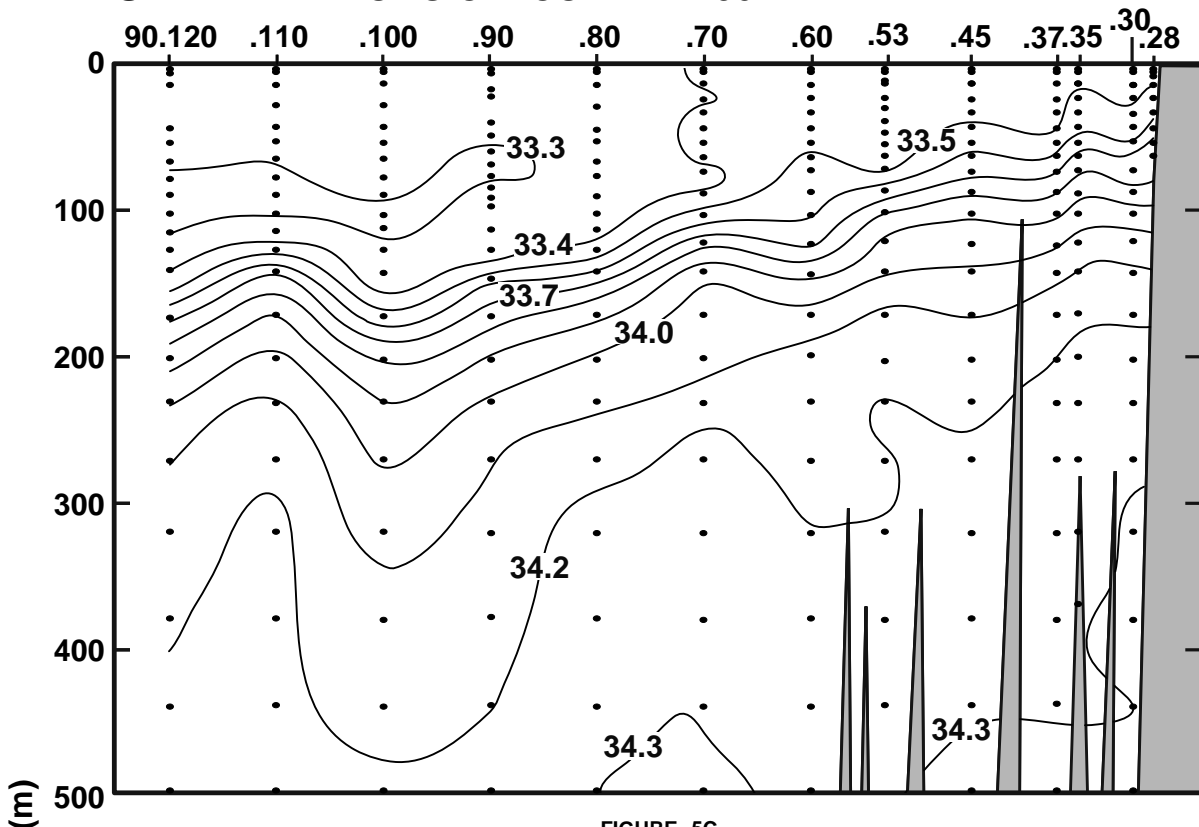


FIGURE 5C

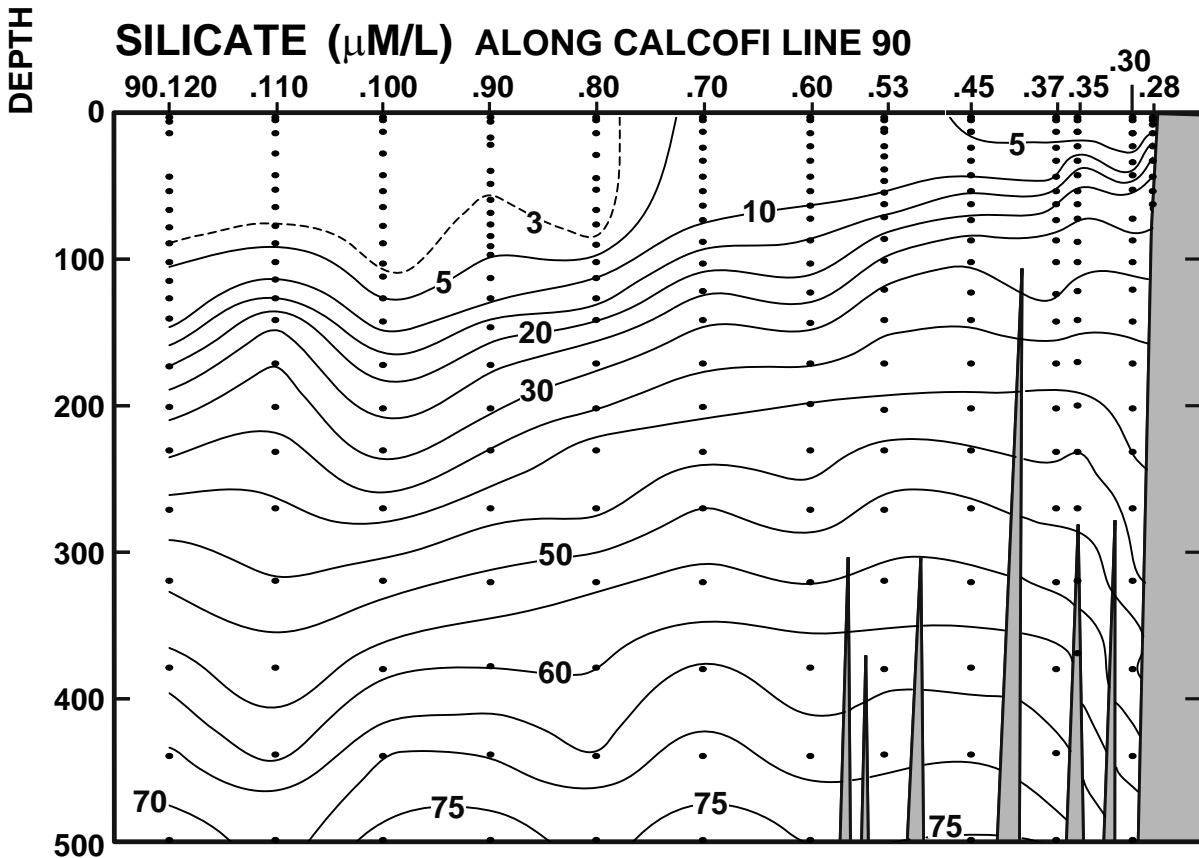


FIGURE 5D

CALCOFI CRUISE 1203

27 - 30 March 2012

NITRATE ($\mu\text{M/L}$) ALONG CALCOFI LINE 90

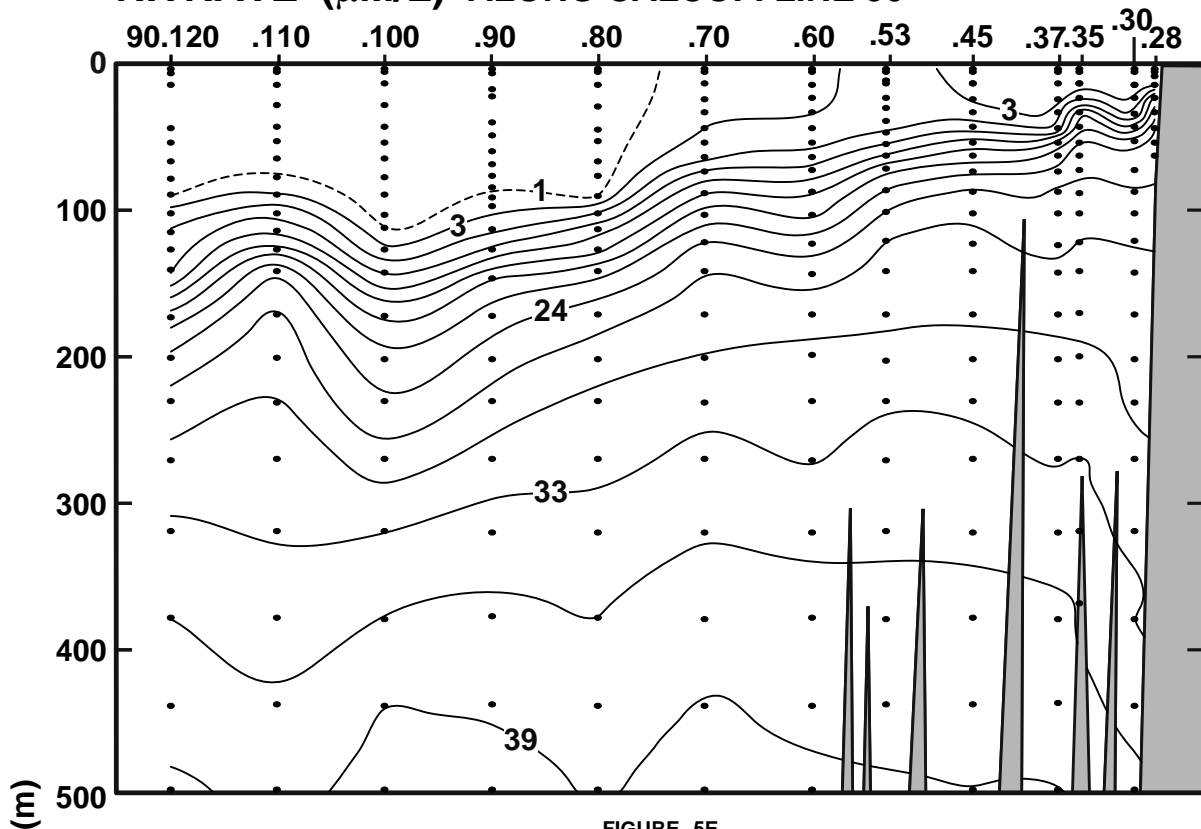


FIGURE 5E

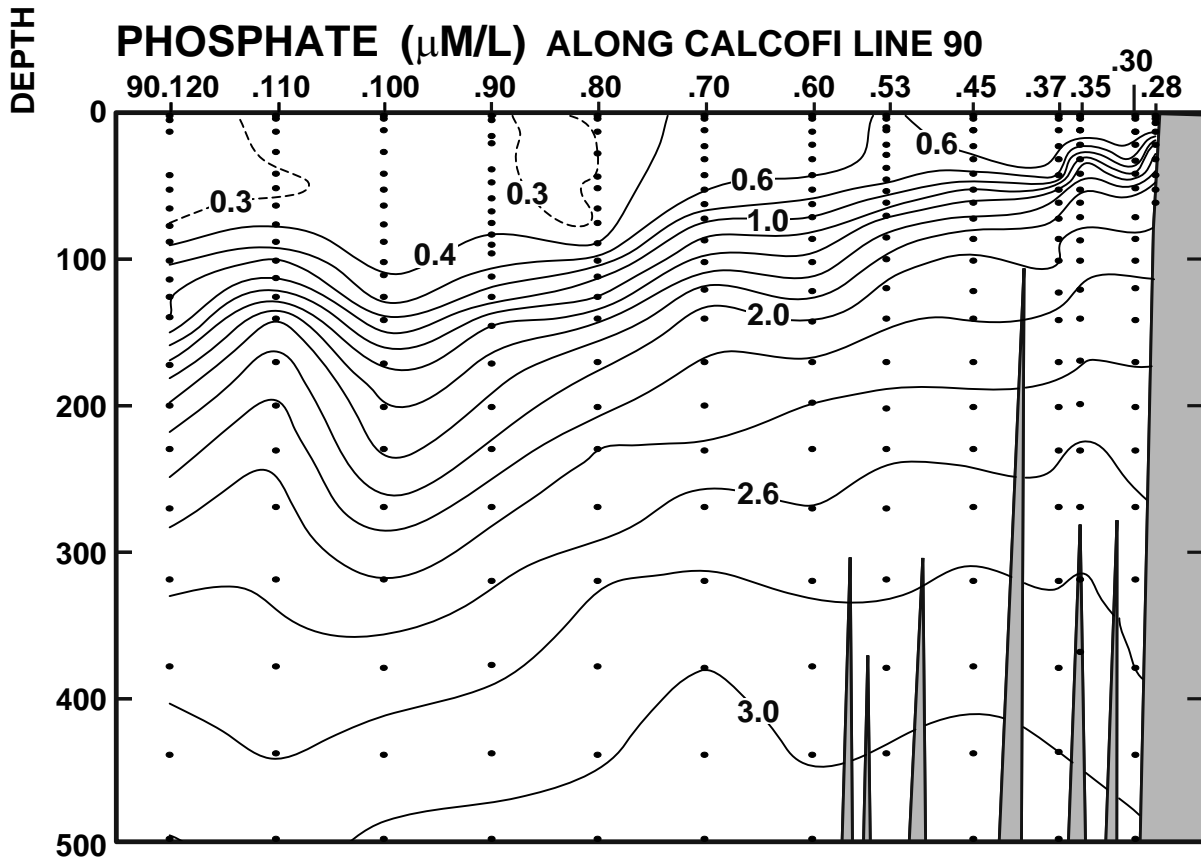


FIGURE 5F

CALCOFI CRUISE 1203

27 - 30 March 2012

CHLOROPHYLL-a ($\mu\text{g/L}$) ALONG CALCOFI LINE 90

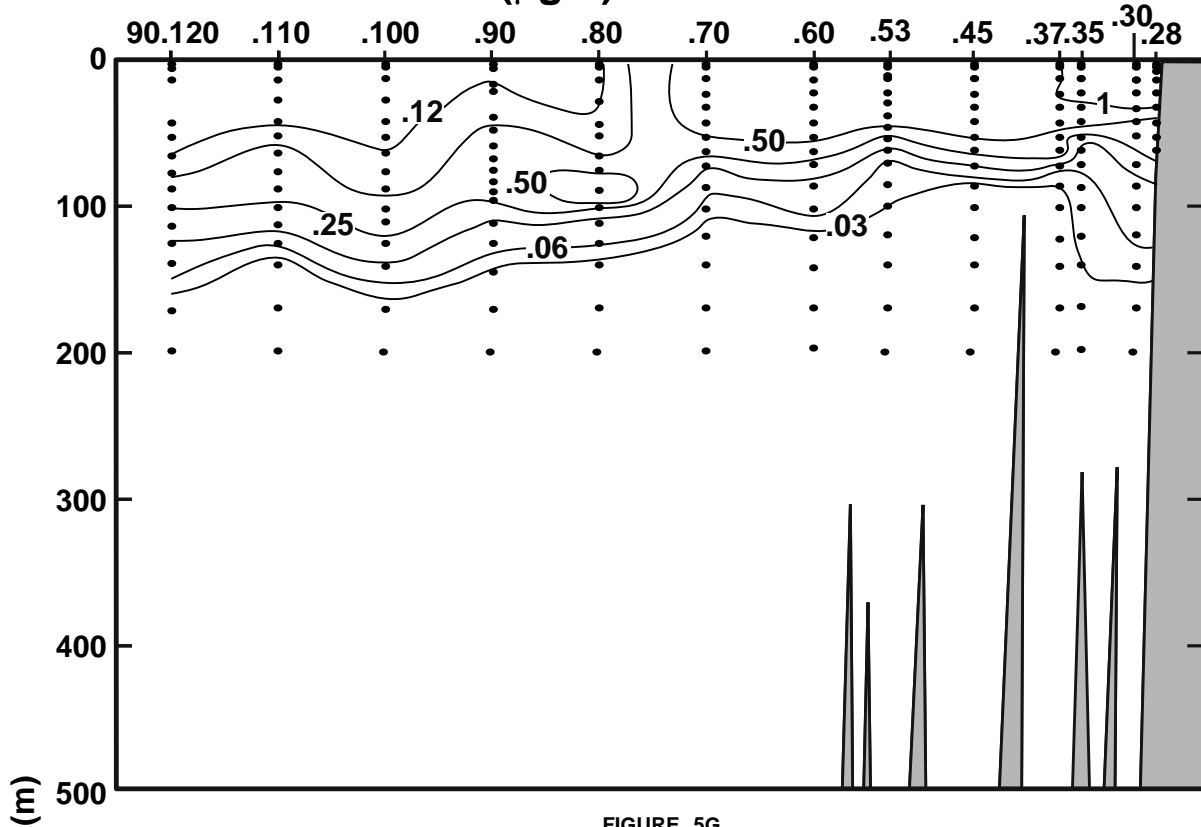


FIGURE 5G

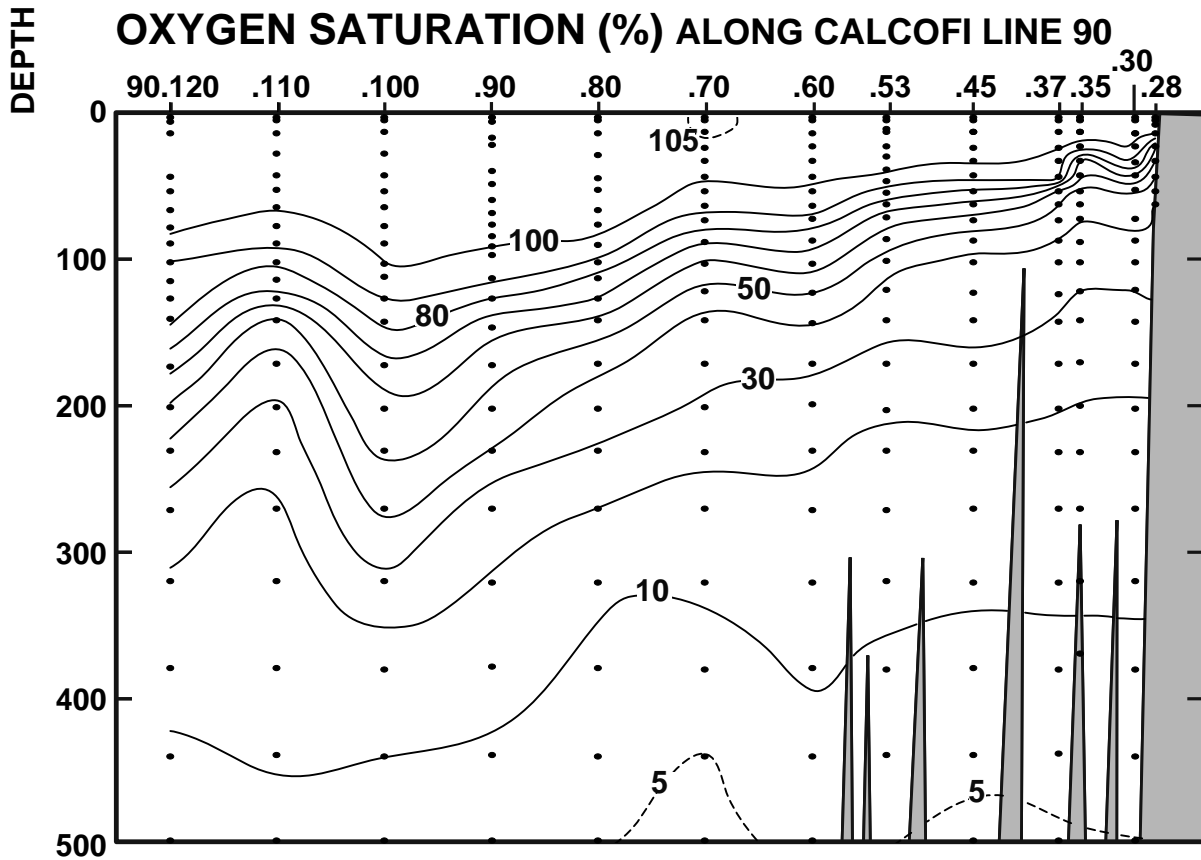


FIGURE 5H

CALCOFI CRUISE 1203

27 - 30 March 2013

OXYGEN (mL/L) ALONG CALCOFI LINE 90

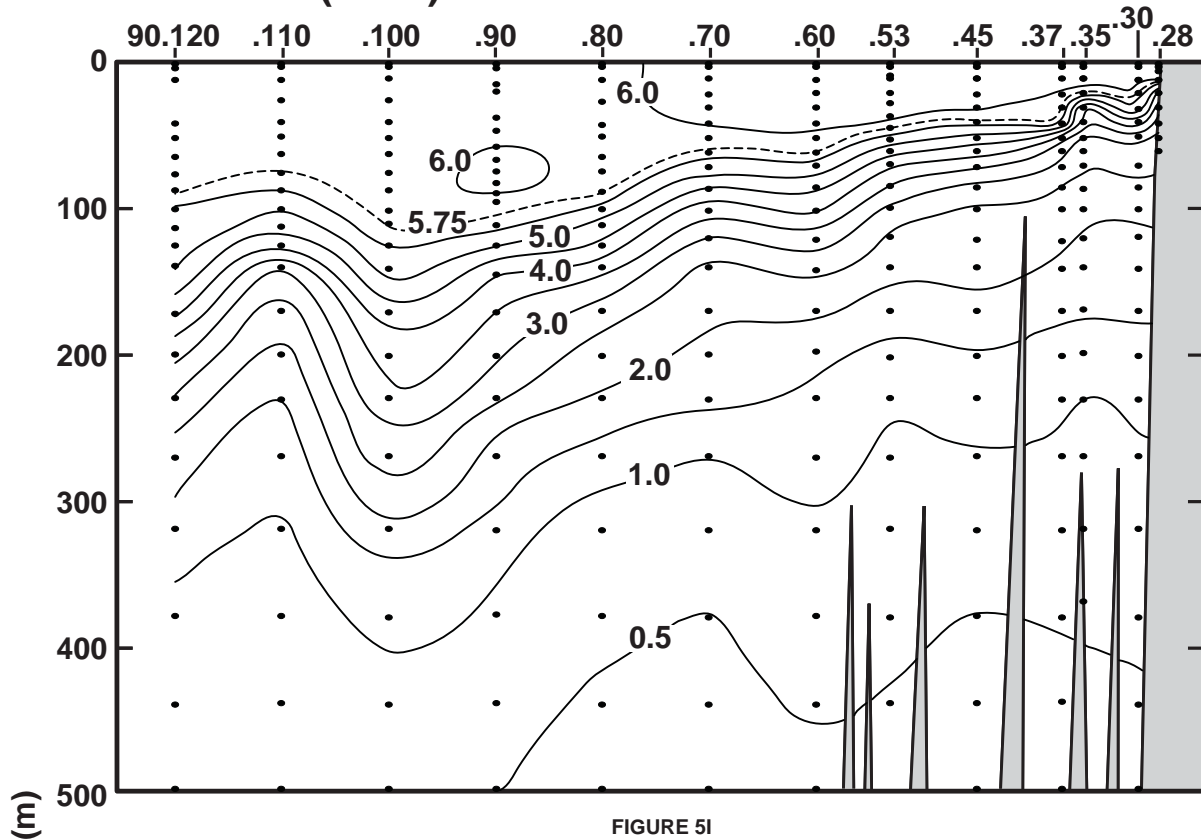


FIGURE 5I

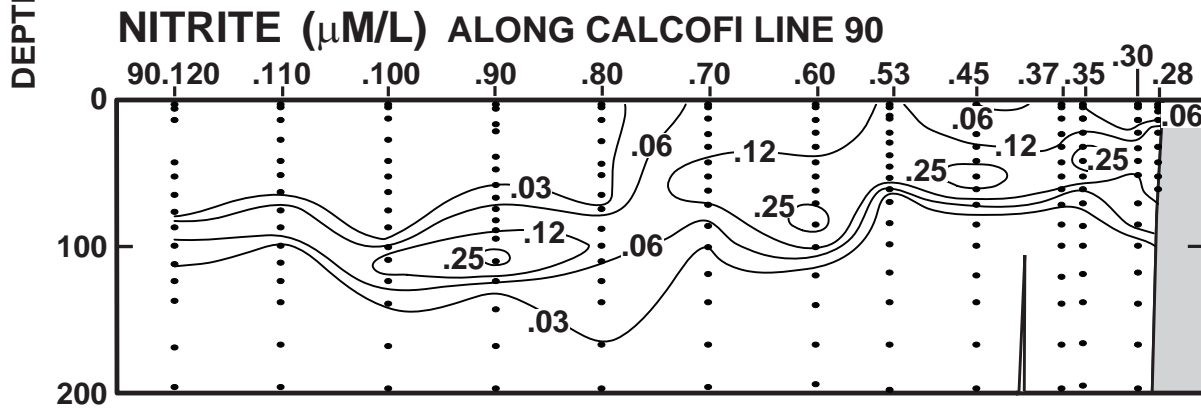


FIGURE 5J

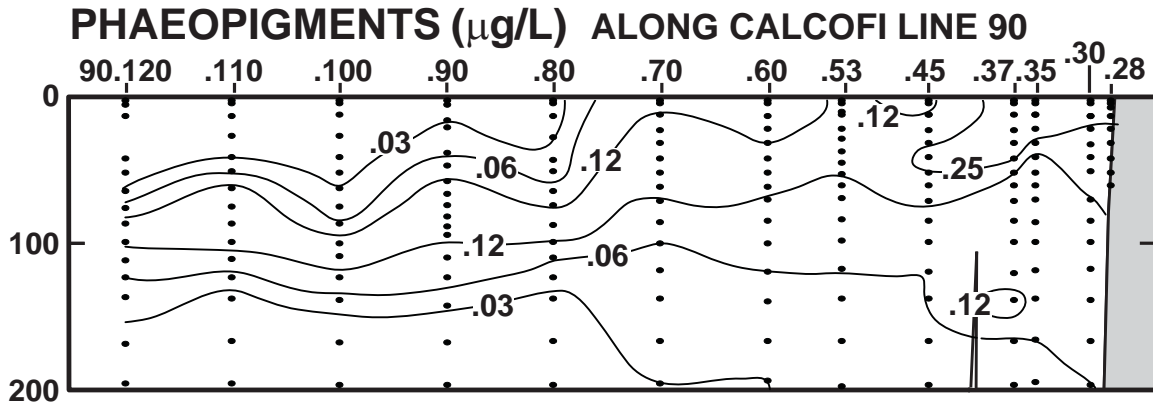


FIGURE 5K

PERSONNEL

CalCOFI Cruise 1203

SHIP'S CAPTAIN

Scott Serois, FSV *Bell M. Shimada*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Leg)
Hays, Amy (Chief Scientist)	Fishery Biologist, NMFS	1
Baran, Melody	Marine Mammal Observer, MPL	1
Bowlin, Noelle	Fishery Biologist, NMFS	
Breese, Dawn	Bird Observer, FIAER	1
Dovel, Shonna	Staff Research Associate, SIO	1
Faber, David	Staff Research Associate, SIO	1
Hennes, Lindsay	Volunteer, SIO	1
Jiorle, Ralph	Staff Research Associate, SIO	1
Roadman, Megan	Staff Research Associate, SIO	1
Rodgers-Wolgast, Jennifer	Staff Research Associate, SIO	1
Whitaker, Katherine	Marine Mammal Observer, MPL	1
Wolgast, David	Staff Research Associate, SIO	1
Wilkinson, James	Programmer Analyst, SIO	1
Vu, Elizabeth	Marine Mammal Acoustician, MPL	1
Zwolinski, Juan	Acoustic Technician, SWFSC	1

San Diego to San Diego, California, 25 Mar. – 6 Apr., 2012

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
35 4.9 N	120 46.6 W	03/04/2012	0535 UTC	65 m	300	12 kn	290 06 10	1	1017.4 mb	11.9 c	10.7 c	09 m	1/8	CS	045		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	10.60	10.59	33.762	25.884	210.8	0.000	4.70	74.7	25.4	1.69	20.4	0.34	0.42	1.04	0.27	0	
2	10.60	10.59	33.762	25.884	210.8	0.004	4.70	74.7	25.4	1.69	20.4	0.34	0.42	1.04	0.27	2	09
5	10.58	10.58	33.758	25.883	210.9	0.011	4.68	74.5	25.4	1.68	20.4	0.34	0.48	1.06	0.32	5	08
10	10.52	10.51	33.764	25.899	209.5	0.021	4.54	72.1	25.7	1.70	20.7	0.34	0.39	0.94	0.32	10	06
10	10.52	10.51	33.761	25.897	209.7	0.021										10	07
20	10.21	10.20	33.784	25.969	203.2	0.042	4.23	66.7	26.8	1.79	21.6	0.34	0.34	0.91	0.29	20	05
30	10.03	10.02	33.812	26.022	198.4	0.062	3.70	58.1	28.3	1.86	22.8	0.38	0.41	0.53	0.29	30	04
40	9.67	9.66	33.868	26.125	188.7	0.081	2.97	46.3	30.9	2.01	24.9	0.38	0.16	0.47	0.26	40	03
50 ISL	9.38 D	9.37	33.923 D	26.217	180.2	0.100	2.47 D	38.2	33.4	2.12	26.5	0.33	0.02	0.31	0.26	50	
51	9.37	9.37	33.931	26.216	180.3	0.101	2.45	38.0	33.6	2.13	26.7	0.32	0.01	0.30	0.26	51	02
61	9.27	9.27	33.941	26.248	177.5	0.119	2.28	35.3	34.8	2.17	27.3	0.28	0.11	0.23	0.31	62	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
35 1.3 N	120 55.0 W	03/04/2012	0735 UTC	220 m	310	24 kn	310 10 13	1	1016.7 mb	12.3 c	11.2 c	07 m	1/8	CS	046		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	11.00	11.00	33.744	25.798	218.9	0.000	5.41	86.9	23.8	1.54	18.4	0.35	0.18	1.59	0.43	0	
2	11.00	11.00	33.744	25.798	218.9	0.004	5.41	86.9	23.8	1.54	18.4	0.35	0.18	1.59	0.43	2	16
10	11.01	11.01	33.742	25.794	219.5	0.022	5.41	86.8	23.7	1.54	18.4	0.35	0.17	1.50	0.47	10	14
11	11.00	11.00	33.746	25.800	219.0	0.024										11	15
20	10.81	10.80	33.749	25.837	215.6	0.044	5.26	84.1	23.6	1.54	18.4	0.35	0.26	1.77	0.55	20	13
30	10.66	10.66	33.751	25.865	213.3	0.065	5.13	81.7	23.7	1.57	18.6	0.35	0.45	1.45	0.54	30	12
40	10.26	10.26	33.793	25.967	203.8	0.086	4.22	66.6	25.6	1.73	20.8	0.35	0.51	0.89	0.41	40	11
50	9.94	9.93	33.847	26.065	194.7	0.106	3.41	53.4	28.7	1.90	23.1	0.39	0.51	0.78	0.38	50	10
61	9.82	9.81	33.860	26.096	192.0	0.127	3.05	47.8	28.7	1.93	24.1	0.35	0.30	0.56	0.49	62	09
70	9.50	9.49	33.917	26.193	182.9	0.144	2.57	39.9	31.9	2.09	26.0	0.35	0.17	0.48	0.37	71	08
75 ISL	9.43 D	9.42	33.942 D	26.224	180.1	0.155	2.47 D	38.3	32.3	2.12	26.5	0.27	0.13	0.40	0.36	76	
85	9.33	9.32	33.969	26.260	176.9	0.171	2.15	33.4	33.1	2.17	27.5	0.11	0.04	0.24	0.36	86	07
100	9.24	9.23	33.988	26.291	174.3	0.197	2.04	31.5	33.8	2.18	27.8	0.09	0.04	0.19	0.25	101	06
120	9.17	9.15	34.009	26.320	172.0	0.232	1.93	29.8	35.3	2.24	28.3	0.09	0.03	0.24	0.30	121	05
125 ISL	9.14 D	9.13	34.009 D	26.324	171.7	0.243	1.91 D	29.5	35.9	2.26	28.5	0.09	0.06	0.23	0.28	126	
141	8.98	8.96	34.053	26.386	166.2	0.267	1.75	27.0	37.6	2.34	29.2	0.07	0.15	0.19	0.21	142	04
150 ISL	8.88 D	8.86	34.055 D	26.404	164.6	0.285	1.77 D	27.1	39.0	2.36	29.6	0.07	0.11	0.18	0.20	151	
170	8.67	8.65	34.104	26.474	158.3	0.315	1.48	22.6	41.9	2.41	30.5	0.06	0.01	0.15	0.19	171	03
199	8.35	8.33	34.138	26.550	151.5	0.360	1.24	18.8	47.0	2.54	31.5	0.13	0.09	0.10	0.24	201	02
200 ISL	8.32 D	8.29	34.142 D	26.560	150.6	0.365	1.27 D	19.3	47.2	2.55	31.6	0.13	0.10	0.10	0.23	202	
220	8.06	8.04	34.174	26.623	144.9	0.391	1.04	15.7	51.3	2.67	32.7	0.09	0.20			222	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
34 53.3 N	121 11.8 W	03/04/2012	1048 UTC	560 m	330	23 kn			1016.6 mb	12.5 c	11.3 c				047		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	11.46	11.46	33.671	25.657	232.3	0.000	6.48	105.0	11.8	0.80	9.2	0.20	0.79	2.61	0.34	0	
1	11.46	11.46	33.671	25.657	232.3	0.002	6.48	105.0	11.8	0.80	9.2	0.20	0.79	2.61	0.34	1	21
10	11.46	11.46	33.671	25.659	232.4	0.024										10	20
10	11.46	11.46	33.674	25.661	232.2	0.023	6.48	104.9	12.1	0.85	9.4	0.20	0.81	2.58	0.33	10	19
20	11.43	11.43	33.672	25.665	232.0	0.046	6.47	104.7	11.8	0.84	9.2	0.20	0.80	2.32	0.30	20	18
30 ISL	11.44 D	11.43	33.674 D	25.665	232.3	0.070	6.51 D	105.4	11.1	0.80	8.8	0.19	0.86	2.42	0.32	30	
31	11.45	11.45	33.672	25.662	232.7	0.072	6.50	105.2	11.0	0.80	8.8	0.19	0.87	2.43	0.32	31	17
41	11.45	11.44	33.673	25.663	232.8	0.095	6.50	105.2	10.9	0.80	8.6	0.19	0.95	2.21	0.29	41	16
50	11.41	11.41	33.673	25.670	232.4	0.116	6.49	105.1	10.8	0.78	8.6	0.19	0.90	2.42	0.36	50	15
59	11.35	11.34	33.672	25.681	231.6	0.137	6.44	104.1	9.7	0.74	7.9	0.17	1.12	2.29	0.22	59	14
70	11.34	11.33	33.669	25.681	231.8	0.163	6.44	104.0	9.3	0.73	7.6	0.17	1.18	1.56	0.18	71	13
75 ISL	10.81 D	10.61	33.606 D	25.761	224.3	0.175	6.15 D	97.8	12.4	0.96	11.1	0.16	0.92	1.26	0.20	76	
86	9.93	9.92	33.568	25.849	216.0	0.198	4.30	67.4	19.2	1.47	18.7	0.14	0.34	0.58	0.25	87	12
100 ISL	9.42 D	9.42	33.794 D	26.108	191.7	0.228	3.05 D	47.2	28.0	1.87	23.8	0.13	0.06	0.49	0.32	101	
101	9.34	9.32	33.795	26.125	190.1	0.229	3.07	47.5	28.6	1.90	24.2	0.13	0.04	0.48	0.33	102	11
120	9.20	9.19	33.930	26.253	178.3	0.264	2.29	35.3	33.9	2.10	28.0	0.08	0.00	0.81	0.48	121	10
125 ISL	9.03 D	9.02	33.964 D	26.306	173.4	0.274	2.22 D	34.2	34.3	2.10	28.2	0.07	0.00	0.68	0.41	126	
140	8.80	8.79	33.984	26.359	168.6	0.298	2.13 D	32.6	35.3	2.11	28.6	0.03	0.00	0.31	0.21	141	09
150 ISL	8.72 D	8.70	34.032 D	26.410	164.0	0.317	2.06 D	31.5	37.1	2.16	29.3	0.02	0.00	0.25	0.19	151	
170	8.47	8.45	34.069	26.478	157.9	0.347	1.87	28.3	40.7	2.27	30.8	0.01	0.00	0.14	0.16	171	08
200	8.00	7.98	34.117	26.587	147.9	0.393	1.54	23.2	46.5	2.41	32.7	0.01	0.00	0.08	0.14	202	07
229	7.76	7.74	34.136	26.638	143.5	0.435											

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
34 43.3 N	121 32.7 W	03/04/2012	1442 UTC	938 m	330	23 kn			1017.7 mb	12.9 c	10.9 c					048	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	11.93	11.93	33.203	25.208	275.1	0.000	6.29	102.7	9.2	0.65	4.3	0.13	0.25	0.47	0.13	0	
2	11.93	11.93	33.203	25.208	275.1	0.006	6.29	102.7	9.2	0.65	4.3	0.13	0.25	0.47	0.13	2	20
10	11.94	11.94	33.202	25.205	275.6	0.028	6.30	102.9	9.2	0.65	4.6	0.13	0.33	0.53	0.14	10	19
20	11.94 D	11.94	33.204 D	25.207	275.6	0.055	6.29	102.7	8.5	0.65	4.6	0.12	0.24	0.54	0.14	20	
21	11.94	11.94	33.203	25.206	275.8	0.058	6.30	102.8	8.4	0.65	4.6	0.12	0.23	0.55	0.14	21	18
30	11.94	11.93	33.207	25.210	275.6	0.083	6.30	102.8	9.3	0.65	4.6	0.13	0.14	0.47	0.13	30	17
40	11.53	11.52	33.223	25.299	267.3	0.110	6.08	98.4	9.1	0.73	5.7	0.32	0.19	0.42	0.14	40	16
50	11.10	11.09	33.315	25.448	253.4	0.136	5.68	91.0	10.8	0.96	9.1	0.42	0.07	0.24	0.09	50	15
60	10.88	10.87	33.341	25.508	248.0	0.161	5.45	87.0	12.0	1.09	11.0	0.20	0.00	0.30	0.10	60	14
71	10.20	10.19	33.358	25.639	235.7	0.188	4.92	77.4	14.7	1.27	14.1	0.04	0.03	0.10	0.06	72	13
75	9.89 D	9.87	33.371 D	25.703	229.6	0.198	4.78	74.7	16.4	1.37	15.7	0.03	0.02	0.10	0.06	76	
85	9.39	9.38	33.442	25.840	216.8	0.219	4.11	63.6	20.8	1.61	19.6	0.02	0.00	0.11	0.05	86	12
100	8.97	8.96	33.747	26.146	188.0	0.250	3.24	49.8	29.7	1.98	25.3	0.00	0.01	0.02	0.05	101	11
119	8.87	8.85	33.877	26.264	177.2	0.284	2.76	42.2	33.2	2.12	26.9	0.01	0.02	0.06	0.13	120	10
125	8.69 D	8.67	33.880 D	26.295	174.3	0.296	2.82	43.0	34.0	2.15	27.3	0.01	0.03	0.06	0.12	126	
140	8.70	8.69	33.945	26.343	170.1	0.321	2.48	37.8	36.1	2.21	28.2	0.01	0.04	0.04	0.11	141	09
150	8.54 D	8.52	33.960 D	26.381	166.6	0.339	2.53	38.5	38.3	2.29	28.8	0.01	0.03	0.06	0.12	151	
170	8.70	8.69	34.064	26.438	161.8	0.370	1.74	26.6	42.5	2.46	30.1	0.01	0.02	0.08	0.15	171	08
200	8.34	8.32	34.115	26.533	153.1	0.417	1.47	22.3	47.1	2.58	31.5	0.01		0.04	0.07	202	07
230	8.12	8.10	34.154	26.598	147.5	0.462	1.24	18.8	51.2	2.69	32.8	0.00				232	06
250	7.92 D	7.89	34.170 D	26.642	143.7	0.494	1.13	16.9	54.2	2.77	33.4	0.00				252	
270	7.70	7.67	34.191	26.691	139.2	0.520	0.97	14.5	57.2	2.84	34.0	0.00				272	05
300	7.44 D	7.41	34.186 D	26.725	136.4	0.565	0.95	14.1	60.0	2.89	34.9	0.00				302	
321	7.38	7.34	34.207	26.751	134.3	0.590	0.81	12.0	62.1	2.93	35.6	0.00				324	04
380	6.79	6.76	34.235	26.854	125.1	0.666	0.60	8.7	70.8	3.07	37.1	0.00				383	03
400	6.67 D	6.64	34.239 D	26.874	123.5	0.695	0.57	8.3	72.8	3.10	37.6	0.00				403	
440	6.46	6.42	34.252	26.914	120.1	0.740	0.47	6.8	76.9	3.16	38.6	0.00				444	02
500	6.06 D	6.02	34.271 D	26.981	114.3	0.816	0.39	5.6	83.1	3.23	39.5	0.00				504	
518	6.01	5.97	34.266	26.983	114.3	0.831	0.36	5.2	85.0	3.25	39.8	0.00				522	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
34 23.4 N	122 15.0 W	03/04/2012	1956 UTC	3944 m	330	25 kn			1018.1 mb	12.2 c	10.2 c					049	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	12.02	12.02	33.241	25.220	273.9	0.000	6.19	101.1	8.2	0.67	4.9	0.13	0.05	0.63	0.20	0	
2	12.02	12.02	33.241	25.220	273.9	0.006	6.19	101.1	8.2	0.67	4.9	0.13	0.05	0.63	0.20	2	20
10	12.02 D	12.02	33.242 D	25.221	274.0	0.028	6.21	101.5	8.1	0.67	4.9	0.13	0.04	0.57	0.20	10	
11	12.02	12.02	33.241	25.220	274.1	0.030	6.19	101.2	8.1	0.67	4.9	0.13	0.04	0.56	0.20	11	19
20	12.02	12.02	33.245	25.224	274.0	0.055	6.19	101.2	8.2	0.69	5.0	0.13	0.05	0.64	0.20	20	18
30	11.81 D	11.80	33.234 D	25.256	271.2	0.083	6.09	99.2	8.2	0.73	5.5	0.14	0.02	0.56	0.19	30	
31	11.78	11.77	33.231	25.259	271.0	0.085	6.06	98.6	8.2	0.73	5.6	0.14	0.02	0.55	0.19	31	17
41	10.73	10.73	33.224	25.442	253.7	0.111	5.69	90.4	8.7	0.84	7.4	0.13	0.04	0.49	0.16	41	16
50	10.42	10.41	33.307	25.562	242.5	0.133	4.95	78.2	12.2	1.20	12.8	0.07	0.08	0.21	0.07	50	15
61	9.93	9.92	33.427	25.739	225.9	0.159	4.36	68.2	15.9	1.47	16.6	0.03	0.18	0.06	0.03	62	14
70	9.74	9.74	33.517	25.840	216.5	0.179	3.99	62.2	19.1	1.62	19.7	0.02	0.01	0.09	0.04	71	13
75	9.72 D	9.71	33.538 D	25.861	214.6	0.191	3.93	61.2	20.9	1.72	20.9	0.02	0.02	0.07	0.04	76	
85	9.47	9.46	33.665	26.001	201.5	0.211	3.28	50.9	24.4	1.91	23.4	0.02	0.03	0.02	0.06	86	12
100	8.90	8.89	33.752	26.160	186.6	0.240	3.50	53.7	26.6	1.88	24.0	0.01	0.00	0.02	0.03	101	11
120	8.81	8.80	33.874	26.271	176.5	0.276	2.78	42.5	31.6	2.15	27.2	0.01	0.01	0.00	0.05	121	10
125	8.76 D	8.74	33.884 D	26.287	175.1	0.287	2.79	42.7	31.9	2.15	27.3	0.01	0.01	0.00	0.05	126	
140	8.47	8.46	33.894	26.339	170.4	0.311	2.91	44.2	33.1	2.13	27.5	0.01	0.00	0.01	0.05	141	09
150	8.39 D	8.38	33.941 D	26.388	165.9	0.330	2.71	41.1	34.9	2.22	28.3	0.01	0.01	0.01	0.06	151	
170	8.52	8.50	34.029	26.439	161.5	0.360	2.09	31.8	38.6	2.39	29.9	0.01	0.04	0.01	0.07	171	08
200	7.76 D	7.75	34.030 D	26.552	151.1	0.410	2.10	31.3	43.8	2.46	31.5	0.01		0.02	0.05	202	
201	7.76	7.74	34.022	26.547	151.6	0.409	2.13	31.9	44.0	2.46	31.6	0.01		0.02	0.05	203	07
231	7.56	7.53	34.048	26.598	147.3	0.453	1.81	27.0	47.8	2.59	33.1	0.01				233	06
250	7.30 D	7.27	34.039 D	26.628	144.6	0.485	1.84	27.2	50.1	2.67	33.8	0.01				252	
272	7.47	7.44	34.121	26.669	141.2	0.513	1.30	19.3	52.8	2.77	34.6	0.01				274	05
300	7.18 D	7.14	34.104 D	26.698	138.8	0.556	1.32	19.4	55.7	2.84	35.4	0.00				302	
320	7.12	7.09	34.145	26.738	135.3	0.579	1.09	16.1	57.8	2.89	36.0	0.00				323	04
380	6.60	6.56	34.168	26.827	127.4	0.658	0.76	11.1	67.0	3.07	38.2	0.01				383	03
400	6.42 D	6.39	34.176 D	26.857	124.8	0.689	0.71	10.3	69.5	3.11	38.6	0.01				403	
439	6.17	6.13	34.199	26.908	120.3	0.731	0.57	8.2	74.3	3.20	39.5	0.01				443	02
500	5.80 D	5.75	34.247 D	26.994	112.7	0.809	0.41	5.9	82.1	3.31	40.7	0.00				504	
519	5.73	5.69	34.260	27.012	111.1	0.823	0.36	5.1	84.5	3.35	41.1	0.00				523	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
34 3.8 N	122 56.2 W	04/04/2012	0122 UTC	4259 m	340	15 kn	330 05 06	1	1020.1 mb	13.3 C	11.5 C	14 m	5/8	CU	050		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	12.53	12.53	33.260	25.138	281.7	0.000	6.39	105.6	8.4	0.57	3.5	0.13	0.26	0.65	0.19	0	
2 A	12.53	12.53	33.260	25.138	281.7	0.006	6.39	105.6	8.4	0.57	3.5	0.13	0.26	0.65	0.19	2	21
10 A	12.53	12.53	33.261	25.140	281.8	0.028	6.36	105.1	8.1	0.57	3.5	0.13	0.17	0.86	0.20	10	20
12 A	12.52	12.52	33.261	25.141	281.7	0.034	6.38	105.4	8.2	0.56	3.5	0.13	0.03	0.78	0.20	12	19
20 ISL	12.50 D	12.50	33.262 D	25.146	281.5	0.057	6.37	105.2	8.2	0.57	3.5	0.13	0.08	0.76	0.19	20	
23 A	12.49	12.49	33.260	25.146	281.5	0.065	6.36	105.1	8.2	0.57	3.5	0.13	0.10	0.75	0.19	23	18
30 ISL	12.49 D	12.49	33.262 D	25.148	281.6	0.085	6.31	104.2	8.2	0.57	3.5	0.13	0.09	0.71	0.20	30	
32	12.49	12.49	33.260	25.147	281.7	0.090	6.36	105.1	8.2	0.57	3.5	0.13	0.09	0.70	0.21	32	17
40 A	12.50	12.49	33.260	25.146	282.0	0.112	6.32	104.5	8.3	0.58	3.7	0.14	0.34	0.61	0.88	40	16
50 A	11.56	11.55	33.315	25.365	261.4	0.140	6.02	97.4	9.7	0.82	7.0	0.37	0.57	0.55	0.28	50	15
59	11.54	11.53	33.384	25.424	256.0	0.163	5.76	93.2	10.7	0.92	8.6	0.53	0.25	0.34	0.23	59	14
70	11.24	11.23	33.467	25.543	244.9	0.191	5.23	84.2	14.4	1.22	13.2	0.47	0.12	0.20	0.15	71	13
75 ISL	11.03 D	11.02	33.482 D	25.592	240.3	0.204	5.14	82.3	16.3	1.35	15.4	0.32	0.10	0.14	0.12	76	
85	9.24	9.23	33.492	25.902	210.9	0.225	4.04	62.3	20.1	1.60	19.9	0.03	0.07	0.03	0.07	86	12
100	9.38	9.37	33.703	26.045	197.6	0.256	3.16	48.9	25.9	1.92	24.4	0.04	0.08	0.02	0.09	101	11
121	9.26	9.25	33.856	26.186	184.8	0.296	2.54	39.3	30.5	2.12	27.0	0.03	0.00	0.01	0.12	122	10
125 ISL	9.19 D	9.18	33.886 D	26.220	181.6	0.305	2.51	38.8	31.0	2.14	27.2	0.03	0.00	0.01	0.12	126	
140	9.09	9.08	33.918	26.261	177.9	0.330	2.34	36.0	33.0	2.21	28.0	0.03	0.00	0.01	0.10	141	09
150 ISL	8.77 D	8.75	33.922 D	26.315	172.9	0.350	2.63	40.2	33.4	2.18	28.0	0.03	0.05	0.01	0.09	151	
171	8.40	8.38	33.933	26.381	167.0	0.384	2.70	40.9	34.2	2.13	27.9	0.02	0.14	0.01	0.06	172	08
200	7.76	7.74	33.961	26.499	156.1	0.430	3.10	46.3	38.5	2.08	28.0	0.02	0.00	0.02	0.02	202	07
230	7.38	7.35	33.989	26.577	149.1	0.476	2.30	34.1	46.2	2.40	31.9	0.02	0.00	0.00	0.00	232	06
250 ISL	7.07 D	7.05	34.002 D	26.629	144.4	0.509	2.25	33.2	50.4	2.49	33.1	0.02	0.00	0.00	0.00	252	
270	6.78	6.75	34.011	26.677	140.0	0.534	2.00	29.2	54.7	2.57	34.2	0.02	0.00	0.00	0.00	272	05
300 ISL	6.47 D	6.44	34.044 D	26.744	133.9	0.579	1.51	21.9	61.1	2.77	36.5	0.01	0.00	0.00	0.00	302	
321	6.39	6.36	34.085	26.787	130.1	0.603	1.12	16.2	65.6	2.91	38.1	0.01	0.00	0.00	0.00	324	04
381	6.14	6.11	34.150	26.872	122.8	0.679	0.69	9.9	73.4	3.10	39.8	0.01	0.00	0.00	0.00	384	03
400 ISL	6.05 D	6.01	34.165 D	26.896	120.7	0.707	0.63	9.1	75.6	3.13	40.1	0.01	0.00	0.00	0.00	403	
440	5.82	5.78	34.180	26.937	117.2	0.749	0.56	8.1	80.2	3.19	40.8	0.01	0.00	0.00	0.00	444	02
500 ISL	5.37 D	5.33	34.203 D	27.010	110.6	0.823	0.45	6.3	88.2	3.27	42.0	0.01	0.00	0.00	0.00	504	
518	5.29	5.24	34.205	27.022	109.6	0.837	0.41	5.8	90.6	3.30	42.3	0.01	0.00	0.00	0.00	522	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
33 43.3 N	123 37.8 W	04/04/2012	0651 UTC	4028 m	300	11 kn	320 10 13	1	1019.6 mb	14.9 C	13.2 C	18 m	3/8	CS	051		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.10	13.10	33.008	24.830	311.0	0.000	6.18	103.2	3.6	0.36	0.2	0.14	0.06	0.28	0.06	0	
2	13.10	13.10	33.008	24.830	311.0	0.006	6.18	103.2	3.6	0.36	0.2	0.14	0.06	0.28	0.06	2	20
10	12.84	12.84	33.014	24.887	305.8	0.031	6.22	103.3	3.8	0.37	0.3	0.13	0.09	0.36	0.09	10	19
20 ISL	12.75 D	12.74	33.015 D	24.907	304.2	0.062	6.21	102.9	3.8	0.37	0.3	0.15	0.07	0.37	0.09	20	
21	12.75	12.74	33.014	24.906	304.3	0.064	6.23	103.2	3.8	0.37	0.3	0.15	0.07	0.37	0.09	21	18
30 ISL	12.71 D	12.71	33.016 D	24.914	303.8	0.092	6.21	102.9	4.0	0.42	0.5	0.12	0.37	0.40	0.09	30	
31	12.71	12.71	33.014	24.913	304.0	0.095	6.23	103.2	4.0	0.42	0.5	0.12	0.40	0.40	0.09	31	17
40	12.70	12.69	33.015	24.917	303.8	0.122	6.23	103.2	4.1	0.40	0.5	0.14	0.19	0.40	0.10	40	16
50	12.66	12.65	33.018	24.928	303.0	0.152	6.23	103.1	4.3	0.42	1.0	0.13	0.15	0.43	0.09	50	15
60	12.61	12.60	33.019	24.939	302.3	0.183	6.25	103.3	3.9	0.38	0.4	0.15	0.08	0.42	0.09	60	14
71	12.25	12.24	33.017	25.006	296.2	0.216	6.22	102.0	3.6	0.37	0.3	0.15	0.02	0.37	0.12	72	13
75 ISL	11.95 D	11.95	33.001 D	25.048	292.2	0.229	6.20	101.0	4.2	0.42	1.0	0.18	0.07	0.35	0.13	76	
86	11.83	11.82	33.087	25.140	283.8	0.259	6.15	100.0	5.6	0.56	2.9	0.28	0.21	0.29	0.14	87	12
100 ISL	10.87 D	10.88	33.120 D	25.335	265.4	0.300	5.63	89.7	7.2	0.80	6.5	0.25	0.01	0.13	0.07	101	
101	10.87	10.86	33.127	25.345	264.5	0.300	5.72	91.2	7.3	0.82	6.8	0.25	0.00	0.12	0.06	102	11
120	9.62	9.61	33.236	25.642	236.4	0.348	4.99	77.4	13.3	1.27	13.7	0.19	0.04	0.03	0.04	121	10
125 ISL	9.46 D	9.44	33.334 D	25.745	226.6	0.362	4.87	75.3	14.8	1.36	15.1	0.18	0.05	0.02	0.04	126	
141	9.20	9.18	33.456	25.883	213.8	0.395	4.20	64.6	19.6	1.64	19.4	0.14	0.07	0.01	0.03	142	09
150 ISL	9.08 D	9.06	33.563 D	25.987	204.2	0.416	3.96	60.8	22.0	1.73	21.0	0.14	0.05	0.01	0.03	151	
171	8.49	8.47	33.748	26.223	182.0	0.454	3.54	53.8	27.7	1.94	24.6	0.15	0.00	0.01	0.03	172	08
200	8.31	8.28	33.905	26.374	168.2	0.505	3.34	50.4	31.4	2.02	25.9	0.14	0.00	0.00	0.02	202	07
231	7.99	7.96	33.966	26.471	159.5	0.555	2.66	40.0	37.4	2.29	29.2	0.17	0.00	0.00	0.00	233	06
250 ISL	7.66 D	7.63	33.982 D	26.532	153.9	0.589	2.67	39.9	41.4	2.45	30.8	0.16	0.00	0.00	0.00	252	
270	7.56	7.53	34.045	26.596	148.1	0.615	1.91	28.4	45.6	2.61	32.5	0.15	0.00	0.00	0.00	272	05
300 ISL	7.37 D	7.33	34.075 D	26.649	143.6	0.663	1.60	23.8	50.5	2.73	34.0	0.16	0.00	0.00	0.00	302	
319	7.02	6.99	34.068	26.691	139.6	0.686	1.57	23.1	53.5	2.81	35.0	0.16	0.00	0.00	0.00	322	04
381	6.50	6.47	34.119	26.801	129.8	0.770	1.00	14.5	64.5	3.09	38.1	0.01	0.00	0.00	0.00	384	03
400 ISL	6.33 D	6.29	34.131 D	26.834	126.8	0.800	0.90	13.0	67.8	3.15	38.7	0.01	0.00	0.00	0.00	403	
440	6.04	6.00	34.164	26.897	121.2	0.844	0.68	9.7	74.6	3.29	40.0	0.02	0.00	0.00	0.00	444	02
500 ISL	5.68 D	5.64	34.212 D	26.981	113.8	0.921	0.50	7.1	82.0	3.42	41.2	0.01	0.00	0.00	0.00	504	
515	5.61	5.57	34.214	26.991	112.9	0.931	0.45	6.4	83.9	3.45	41.5	0.01	0.00	0.00	0.00	519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 23.4 N	124 19.3 W	04/04/2012	1220 UTC	4589 m	320	17 kn			1020.9 mb	14.9 c	14.0 c					052	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	14.17	14.17	33.158	24.730	320.5	0.000	5.98	102.2	3.1	0.33	0.0	0.01	0.37	0.12	0.02	0	
2	14.17	14.17	33.158	24.729	320.6	0.006	5.98	102.2	3.1	0.33	0.0	0.01	0.37	0.12	0.02	2	20
2	14.17	14.17	33.160	24.731	320.5	0.006										2	21
10	14.17	14.17	33.159	24.730	320.8	0.032	5.98	102.3	3.1	0.33	0.0	0.01	0.02	0.11	0.04	10	19
20	13.97	13.97	33.166	24.779	316.5	0.064	6.02	102.4	3.0	0.32	0.0	0.01	0.35	0.13	0.03	20	18
30	13.96	13.96	33.149	24.768	317.8	0.096	6.00	102.1	3.1	0.32	0.0	0.00	0.14	0.15	0.03	30	17
40	13.92	13.92	33.145	24.773	317.7	0.128	6.01	102.2	3.1	0.33	0.0	0.00	0.07	0.16	0.04	40	16
50 ISL	13.73 D	13.73	33.105 D	24.782	317.1	0.161	6.03	D102.1	3.2	0.32	0.0	0.00	0.01	0.19	0.04	50	
51	13.73	13.72	33.104	24.782	317.1	0.162	6.04	102.3	3.2	0.32	0.0	0.00	0.00	0.19	0.05	51	15
62	13.67	13.66	33.100	24.791	316.6	0.197	6.03	101.9	3.2	0.32	0.0	0.00	0.00	0.21	0.07	63	14
75 ISL	13.32 D	13.30	33.086 D	24.852	311.1	0.240	6.09	D102.2	3.5	0.37	0.5	0.07	0.00	0.34	0.13	76	
88	12.62	12.61	33.096	24.998	297.5	0.278	5.98	98.9	3.8	0.41	1.0	0.13	0.00	0.47	0.19	89	13
100	12.02	12.01	33.174	25.173	281.0	0.312	5.50	89.9	6.2	0.67	5.3	0.10	0.00	0.30	0.16	101	12
114	11.17	11.16	33.198	25.347	264.6	0.351	5.47	87.7	7.6	0.79	7.3	0.00	0.00	0.07	0.04	115	11
125	10.69	10.67	33.329	25.535	246.9	0.379	4.71	74.8	11.5	1.09	12.3	0.00	0.06	0.11	0.07	126	10
140	10.16	10.14	33.465	25.733	228.4	0.414	3.91	61.5	17.9	1.51	18.8	0.00	0.01	0.06	0.05	141	09
150 ISL	9.81 D	9.79	33.624 D	25.915	211.2	0.439	3.33	D 52.0	21.9	1.71	21.7	0.00	0.03	0.05	0.04	151	
171	9.50	9.48	33.813	26.114	192.7	0.479	2.40	37.2	30.3	2.13	27.8	0.00	0.06	0.01	0.02	172	08
200 ISL	9.26 D	9.24	33.964 D	26.273	178.3	0.536	1.81	D 27.9	35.2	2.31	30.1	0.01	0.00	0.00	0.02	202	
201	9.25	9.23	33.951	26.265	179.1	0.534	1.81	28.0	35.4	2.32	30.2	0.01	0.00	0.00	0.02	203	07
228	8.96	8.94	34.045	26.384	168.2	0.581	1.51	23.1	39.6	2.43	31.6	0.01	0.00	0.00	0.02	230	06
250 ISL	8.78 D	8.75	34.094 D	26.452	162.1	0.621	1.36	D 20.8	42.5	2.49	32.3	0.01	0.00	0.00	0.02	252	
271	8.54	8.51	34.120	26.510	156.9	0.651	1.23	18.8	45.2	2.55	33.0	0.01	0.00	0.00	0.02	273	05
300 ISL	8.28 D	8.24	34.146 D	26.571	151.6	0.700	1.16	D 17.6	48.2	2.57	33.6	0.01	0.00	0.00	0.02	302	
320	7.85	7.82	34.108	26.605	148.5	0.726	1.35	20.2	50.3	2.58	34.0	0.01	0.00	0.00	0.02	323	04
382	7.09	7.05	34.125	26.727	137.4	0.814	1.09	16.1	59.1	2.73	36.5	0.01	0.00	0.00	0.02	385	03
400 ISL	6.89 D	6.85	34.136 D	26.764	134.0	0.844	1.02	D 14.9	62.5	2.79	37.2	0.01	0.00	0.00	0.02	403	
442	6.60	6.56	34.171	26.831	128.1	0.894	0.71	10.4	70.4	2.94	38.7	0.01	0.00	0.00	0.02	446	02
500 ISL	5.97 D	5.93	34.171 D	26.912	120.6	0.972	0.68	D 9.7	78.6	3.06	40.2	0.01	0.00	0.00	0.02	504	
516	5.96	5.91	34.190	26.929	119.2	0.985	0.57	8.1	80.8	3.09	40.6	0.01	0.00	0.00	0.02	520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
34 26.9 N	120 31.6 W	03/04/2012	0039 UTC	68 m	330	19 kn	280 06 07	1	1018.9 mb	13.6 c	9.9 c	10 m		2/8	CS	044	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	11.03	11.03	33.737	25.788	219.9	0.000	5.34	85.7	12.2	1.12	12.8	0.29	0.97	5.04	0.11	0	
2 A	11.03	11.03	33.737	25.788	219.9	0.004	5.34	85.7	12.2	1.12	12.8	0.29	0.97	5.04	0.11	2	11
7 A	11.03	11.02	33.737	25.789	219.9	0.015	5.34	85.7	12.2	1.11	12.9	0.29	0.99	5.72	0.68	7	10
8 A	11.02	11.02	33.736	25.788	220.0	0.018	5.34	85.7	12.3	1.13	12.9	0.29	1.47	6.48	0.44	8	08
9	11.02	11.02	33.737	25.789	219.9	0.018										8	09
10 ISL	11.02 D	11.02	33.738 D	25.791	219.8	0.022	5.26	D 84.5	12.3	1.13	13.0	0.29	1.36	6.94	0.61	10	
17	10.93	10.93	33.737	25.806	218.6	0.037	5.24	84.0	12.6	1.14	13.2	0.29	0.99	8.54B	1.21B	17	07
20 ISL	10.67 D	10.64	33.770 D	25.882	211.4	0.044	4.31	D 68.6	18.0	1.46	16.9	0.34	0.98	4.67	0.77	20	
22 A	10.52	10.52	33.786	25.916	208.3	0.048	3.82	60.7	21.5	1.67	19.4	0.38	0.97	2.09	0.48	22	06
30 ISL	10.14 D	10.12	33.820 D	26.011	199.4	0.065	3.14	D 49.5	25.1	1.87	22.0	0.38	0.80	1.07	0.41	30	
31 A	10.11	10.11	33.813	26.008	199.7	0.066	3.17	49.9	25.5	1.89	22.3	0.38	0.78	0.94	0.41	31	05
36 A	10.14	10.14	33.824	26.012	199.4	0.076	3.07	48.4	26.0	1.92	22.7	0.40	0.69	0.93	0.35	36	04
42	10.21	10.21	33.818	25.995	201.2	0.088	3.16	49.8	25.5	1.90	22.3	0.39	1.10	0.87	0.38	42	03
50 ISL	10.23 D	10.22	33.812 D	25.988	202.1	0.105	3.24	D 51.1	24.9	1.87	21.9	0.40	0.81	0.83	0.37	50	
51	10.23	10.22	33.810	25.986	202.2	0.106	3.25	51.3	24.8	1.87	21.8	0.40	0.77	0.83	0.37	51	02
62	9.90	9.89	33.863	26.083	193.3	0.128	2.69	42.2	28.1	2.02	24.2	0.36	0.78	0.65	0.46	63	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

B) SECOND FLUOROMETER READING RECALCULATED BECAUSE ACID RATIO > TAU OF PURE CHL-A

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
34 18.7 N	120 49.1 W	06/04/2012	2354 UTC	768 m	340	24 kn	310 09 08	1	1022.2 mb	10.9 c	8.0 c	10 m	2/8	CS	056		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db		
0	10.44	10.43	33.755	25.906	208.7	0.000	5.08	80.5	20.0	1.50	19.1	0.22	0.37	1.78	0.41	0	
2 A	10.44	10.43	33.755	25.906	208.7	0.004	5.08	80.5	20.0	1.50	19.1	0.22	0.37	1.78	0.41	2	24
7 A	10.43	10.43	33.756	25.907	208.7	0.015	5.05	80.1	19.9	1.49	19.1	0.22	0.47	1.68	0.42	7	23
8	10.44	10.43	33.754	25.906	208.8	0.017										8	22
9 A	10.42	10.42	33.755	25.909	208.5	0.019	5.10	80.9	20.1	1.51	19.1	0.23	0.62	1.85	0.41	9	21
10 ISL	10.41 D	10.41	33.755 D	25.910	208.5	0.021	5.03 D	79.6	20.1	1.51	19.1	0.23	0.59	1.84	0.47	10	
16 A	10.44	10.44	33.755	25.906	209.0	0.033	5.04	79.9	20.1	1.51	19.1	0.22	0.43	1.78	0.77	16	20
20 ISL	10.44 D	10.44	33.759 D	25.909	208.9	0.042	5.09 D	80.6	20.1	1.51	19.1	0.22	0.47	2.00	0.46	20	
22	10.44	10.44	33.757	25.908	209.0	0.046	5.08	80.5	20.1	1.51	19.1	0.22	0.49	2.11	0.31	22	19
30 A	10.43	10.43	33.756	25.908	209.2	0.063	5.04	79.8	20.1	1.51	19.1	0.22	0.42	1.86	0.40	30	18
36 A	10.42	10.41	33.753	25.909	209.2	0.075	4.99	79.1	20.1	1.52	19.2	0.22	0.40	2.23	0.34	36	17
40	10.43	10.42	33.754	25.908	209.4	0.084	5.02	79.6	20.1	1.53	19.1	0.22	0.57	1.86	0.45	40	16
50	10.44	10.43	33.754	25.907	209.7	0.105	5.02	79.5	20.1	1.55	19.2	0.22	0.33	1.68	0.33	50	15
60	10.42	10.42	33.754	25.909	209.8	0.126	4.99	79.1	20.1	1.56	19.2	0.21	0.49	1.53	0.34	60	14
70	10.25	10.24	33.746	25.933	207.7	0.147	4.52	71.4	21.4	1.64	20.9	0.18	0.31	0.99	0.25	71	13
75 ISL	9.91 D	9.89	33.757 D	26.001	201.3	0.158	4.07 D	63.7	24.7	1.79	23.0	0.13	0.25	0.68	0.23	76	
85	9.33	9.32	33.868	26.183	184.2	0.176	2.54	39.2	31.2	2.10	27.2	0.04	0.12	0.04	0.18	86	12
100	9.25	9.24	33.932	26.246	178.5	0.203	2.27	35.1	33.1	2.18	28.0	0.06	0.15	0.05	0.14	101	11
120	9.06	9.05	34.055	26.373	167.0	0.238	1.71	26.4	38.5	2.38	29.9	0.09	0.19	0.10	0.17	121	10
125 ISL	9.06 D	9.04	34.056 D	26.374	166.9	0.247	1.71 D	26.4	38.8	2.39	30.0	0.09	0.19	0.11	0.17	126	
140	9.02	9.00	34.075	26.395	165.2	0.271	1.60	24.6	39.4	2.42	30.3	0.09	0.19	0.12	0.16	141	09
150 ISL	8.98 D	8.96	34.086 D	26.411	164.0	0.289	1.58 D	24.3	41.0	2.46	30.8	0.07	0.16	0.11	0.15	151	
171	8.70	8.68	34.126	26.487	157.1	0.321	1.36	20.9	44.4	2.54	31.7	0.03	0.11	0.09	0.14	172	08
200 ISL	8.41 D	8.39	34.178 D	26.574	149.3	0.368	1.20 D	18.3	47.0	2.61	32.7	0.04	0.06	0.11	0.20	202	
201	8.39	8.37	34.177	26.576	149.2	0.367	1.19	18.1	47.0	2.61	32.7	0.04	0.06	0.11	0.20	203	07
230	8.19	8.17	34.207	26.630	144.6	0.410	1.05	15.9	49.6	2.67	33.5	0.03				232	06
250 ISL	8.02 D	7.99	34.195 D	26.647	143.3	0.442	1.07 D	16.1	52.5	2.73	34.0	0.02				252	
270	7.87	7.84	34.197	26.670	141.3	0.467	0.87	13.0	55.4	2.78	34.5	0.01				272	05
300 ISL	7.78 D	7.76	34.214 D	26.698	139.3	0.513	0.84 D	12.6	56.8	2.81	35.0	0.01				302	
322	7.68	7.64	34.224	26.721	137.4	0.540	0.75	11.2	57.9	2.84	35.4	0.01				325	04
380	7.07	7.03	34.252	26.830	127.6	0.616	0.56	8.2	66.4	3.00	37.4	0.01				383	03
400 ISL	6.98 D	6.95	34.261 D	26.849	126.1	0.646	0.55 D	8.0	67.6	3.02	37.6	0.01				403	
440	6.86	6.82	34.272	26.875	124.2	0.692	0.46	6.8	70.0	3.05	38.1	0.00				444	02
500 ISL	6.59 D	6.54	34.284 D	26.923	120.3	0.771	0.44 D	6.4	74.5	3.11	39.2	0.00				504	
520	6.47	6.42	34.284	26.939	119.0	0.789	0.39	5.7	76.1	3.13	39.5	0.00				524	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
34 9.1 N	121 8.9 W	07/04/2012	0342 UTC	2165 m	330	23 kn	320 10 09	1	1022.3 mb	11.9 c	8.7 c	13 m	1/8	CI	057		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db		
0	11.11	11.11	33.551	25.629	235.0	0.000	5.81	93.3	12.4	1.13	12.1	0.22	0.37	1.84	0.50	0	
3	11.11	11.11	33.551	25.629	235.0	0.007	5.81	93.3	12.4	1.13	12.1	0.22	0.37	1.84	0.50	3	21
10	11.11	11.10	33.550	25.629	235.2	0.024	5.79	93.0	12.4	1.13	12.1	0.22	0.53	1.76	0.44	10	19
11	11.11	11.10	33.550	25.629	235.2	0.024										10	20
20	11.03	11.02	33.557	25.648	233.6	0.047	5.79	92.9	12.4	1.11	12.1	0.22	0.39	1.91	0.44	20	18
30	10.96	10.96	33.570	25.671	231.7	0.070	5.75	92.1	12.1	1.16	12.4	0.21	0.30	2.42	0.58	30	17
41	10.93	10.92	33.589	25.692	230.0	0.096	5.67	90.7	12.3	1.15	12.7	0.21	0.39	2.58	0.66	41	16
50	10.93	10.93	33.597	25.698	229.7	0.117	5.61	89.7	12.5	1.15	12.9	0.21	0.42	2.13	0.45	50	15
60	10.93	10.93	33.598	25.699	229.8	0.140	5.56	88.9	12.6	1.17	13.0	0.22	0.57	1.95	0.94	60	14
70	10.91	10.90	33.620	25.721	227.9	0.162	5.38	86.1	13.1	1.21	13.5	0.23	0.67	1.20	0.39	71	13
75 ISL	10.55 D	10.57	33.681 D	25.827	218.0	0.175	4.72 D	75.1	17.0	1.42	16.4	0.25	0.56	0.89	0.34	76	
85	10.07	10.06	33.746	25.965	205.0	0.195	3.55	55.8	24.7	1.85	22.1	0.28	0.33	0.27	0.25	86	12
100 ISL	9.65 D	9.63	33.890 D	26.149	187.9	0.225	2.47 D	38.5	30.6	2.15	26.0	0.30	0.20	0.18	0.31	101	
101	9.65	9.64	33.881	26.141	188.7	0.226	2.50	38.9	31.0	2.17	26.3	0.30	0.19	0.17	0.31	102	11
120	9.41	9.40	33.989	26.264	177.3	0.261	1.85	28.7	35.1	2.36	28.6	0.25	0.12	0.26	0.46	121	10
125 ISL	9.36 D	9.34	34.002 D	26.284	175.5	0.271	1.86 D	28.8	35.2	2.34	28.7	0.21	0.12	0.24	0.41	126	
141	8.91	8.90	33.985	26.342	170.3	0.297	2.09	32.1	35.6	2.28	29.1	0.08	0.10	0.14	0.23	142	09
150 ISL	8.61 D	8.59	34.032 D	26.426	162.4	0.314	2.07 D	31.5	37.6	2.33	29.8	0.06	0.10	0.12	0.19	151	
169	8.38	8.36	34.068	26.490	156.6	0.343	1.80	27.3	41.8	2.42	31.4	0.02	0.11	0.07	0.12	170	08
200 ISL	8.17 D	8.15	34.103 D	26.550	151.5	0.393	1.61 D	24.3	45.0	2.51	32.5	0.02		0.04	0.16	202	
201	8.17	8.15	34.100	26.548	151.7	0.392	1.60	24.2	45.1	2.51	32.5	0.02		0.04	0.17	203	07
230	7.96	7.94	34.120	26.595	147.7	0.435	1.44	21.6	48.0	2.60	33.4	0.01				232	06
250 ISL	7.69 D	7.67	34.143 D	26.653	142.5	0.467	1.28 D	19.1	52.1	2.70	34.6	0.01				252	
270	7.37	7.34	34.157	26.7													

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
33 28.4 N	122 32.4 W	05/04/2012	0512 UTC	4077 m	350	25 kn	350 10 06	1	1021.4 mb	13.4 c	10.5 c		3/8	AS	055		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	12.97	12.97	33.027	24.871	307.1	0.000	6.22	103.6	4.7	0.35	0.3	0.02	0.17	0.40	0.02	0	
2	12.97	12.97	33.027	24.871	307.1	0.006	6.22	103.6	4.7	0.35	0.3	0.02	0.17	0.40	0.02	2	20
10 ISL	12.97 D	12.96	33.026 D	24.872	307.3	0.031	6.22	D103.6	4.7	0.35	0.3	0.02	0.09	0.34	0.08	10	
11	12.97	12.97	33.024	24.870	307.5	0.034	6.22	103.6	4.7	0.35	0.3	0.02	0.08	0.33	0.09	11	19
20	12.96	12.96	33.023	24.870	307.7	0.062	6.22	103.6	4.6	0.31	0.3	0.02	0.01	0.32A	0.09A	20	18
30	12.95	12.94	33.024	24.875	307.5	0.092	6.21	103.4	4.7	0.34	0.3	0.02	0.10	0.35	0.08	30	17
40	12.89	12.88	33.023	24.887	306.7	0.123	6.24	103.7	4.7	0.34	0.4	0.02	0.14	0.37	0.06	40	16
50 ISL	12.39 D	12.38	33.039 D	24.996	296.5	0.154	6.13	D100.8	4.8	0.39	1.0	0.07	0.14	0.35	0.08	50	
51	12.38	12.37	33.029	24.989	297.2	0.156	6.16	101.3	4.8	0.40	1.1	0.07	0.14	0.35	0.08	51	15
60	12.25	12.24	33.106	25.075	289.3	0.183	5.95	97.6	4.8	0.48	2.4	0.15	0.02	0.37	0.16	60	14
71	12.00	11.99	33.141	25.149	282.5	0.214	6.08	99.4	6.0	0.53	2.9	0.19	0.24	0.46	0.19	72	13
75 ISL	11.96 D	11.95	33.165 D	25.176	280.1	0.227	6.13	D100.1	6.4	0.57	3.5	0.24	0.21	0.40	0.16	76	
86	11.37	11.36	33.183	25.298	268.6	0.256	5.96	96.0	7.5	0.67	5.1	0.37	0.11	0.22	0.09	87	12
100 ISL	10.70 D	10.69	33.176 D	25.412	258.0	0.294	5.50	D 87.3	8.0	0.79	7.4	0.04	0.06	0.09	0.04	101	
101	10.68	10.67	33.176	25.416	257.7	0.295	5.52	87.6	8.1	0.80	7.6	0.02	0.06	0.08	0.03	102	11
122	10.21	10.20	33.372	25.650	235.8	0.347	4.70	74.0	13.2	1.17	13.9	0.02	0.00	0.04	0.03	123	10
125 ISL	9.92 D	9.88	33.437 D	25.754	225.9	0.356	4.41	D 69.0	14.1	1.21	14.6	0.02	0.02	0.04	0.03	126	
140	9.46	9.44	33.577 D	25.936	208.8	0.386	3.99	D 61.8								141	09
150 ISL	9.27 D	9.25	33.637 D	26.013	201.7	0.410	3.77	D 58.1	22.1	1.59	20.4	0.01	0.22	0.02	0.02	151	
171	8.95	8.94	33.797	26.189	185.4	0.447	3.30	50.5	25.7	1.90	25.2	0.00	0.38	0.01	0.02	172	08
200	8.54	8.52	33.962	26.383	167.4	0.499	2.74	41.7	38.3	2.08	28.0	0.00	0.00	0.02	0.02	202	07
230	8.04	8.01	34.008	26.496	157.1	0.547	2.29	34.5	41.9	2.29	30.9	0.00	0.00	0.00	0.00	232	06
250 ISL	7.75 D	7.72	34.036 D	26.561	151.2	0.582	2.10	D 31.4	45.1	2.38	32.0	0.00	0.00	0.00	0.00	252	
270	7.63	7.60	34.044	26.585	149.2	0.608	1.90	28.3	48.3	2.47	33.1	0.00	0.00	0.00	0.00	272	05
300 ISL	7.19 D	7.16	34.037 D	26.642	144.0	0.656	1.89	D 27.9	53.5	2.58	34.7	0.00	0.00	0.00	0.00	302	
320	7.10	7.07	34.071	26.683	140.5	0.681	1.48	21.8	57.0	2.66	35.7	0.00	0.00	0.00	0.00	323	04
380	6.39	6.35	34.124	26.820	127.9	0.761	0.97	14.1	70.2	2.94	38.9	0.00	0.00	0.00	0.00	383	03
400 ISL	6.20 D	6.17	34.133 D	26.851	125.1	0.792	0.89	D 12.9	72.6	2.98	39.3	0.00	0.00	0.00	0.00	403	
439	6.09	6.05	34.169	26.895	121.4	0.834	0.67	9.7	77.4	3.05	40.2	0.00	0.00	0.00	0.00	443	02
500 ISL	5.74 D	5.69	34.234 D	26.991	112.9	0.912	0.42	D 6.0	86.8	3.20	41.7	0.00	0.00	0.00	0.00	504	
514	5.62	5.58	34.235	27.006	111.5	0.922	0.40	5.7	89.0	3.23	42.1	0.00	0.00	0.00	0.00	518	01

A) FIRST FLUOROMETER READING NOT RECORDED CHLOROPHYLL AND PHAEOPIGMENT CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED 02;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
33 8.7 N	123 14.3 W	04/04/2012	2313 UTC	4177 m	360	32 kn	360 09 07	1	1022.0 mb	12.9 c	9.8 c		16 m	4/8	SC 054		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.67	13.67	33.099	24.786	315.2	0.000	6.04	102.2	3.2	0.36	0.0	0.00	0.18	0.19	0.04	0	
3 A	13.67	13.67	33.099	24.786	315.2	0.010	6.04	102.2	3.2	0.36	0.0	0.00	0.18	0.19	0.04	3	22
10 A	13.67	13.67	33.098	24.786	315.5	0.032	6.07	102.7	3.1	0.32	0.0	0.00	0.00	0.17	0.04	10	21
13 A	13.67	13.67	33.098	24.787	315.5	0.041	6.06	102.4	3.2	0.32	0.0	0.00	0.00	0.19	0.04	13	20
20 ISL	13.67 D	13.67	33.099 D	24.788	315.6	0.064	6.04	D102.1	3.2	0.32	0.0	0.00	0.04	0.18	0.04	20	
25 A	13.68	13.68	33.099	24.787	315.9	0.079	6.05	102.3	3.2	0.32	0.0	0.00	0.06	0.18	0.04	25	19
30 ISL	13.66 D	13.65	33.098 D	24.791	315.6	0.095	6.02	D101.8	3.2	0.32	0.0	0.00	0.07	0.18	0.04	30	
37	13.65	13.65	33.109	24.800	314.9	0.117	6.05	102.2	3.2	0.33	0.0	0.00	0.08	0.19	0.04	37	18
47 A	13.59	13.58	33.090	24.799	315.3	0.148	6.06	102.2	3.2	0.32	0.0	0.00	0.05	0.22	0.05	47	17
50 ISL	13.57 D	13.54	33.090 D	24.807	314.7	0.159	6.04	D101.9	3.2	0.32	0.0	0.00	0.03	0.23	0.05	50	
56 A	13.44	13.43	33.084	24.825	313.1	0.177	6.07	102.2	3.3	0.31	0.1	0.00	0.00	0.25	0.05	56	16
65	12.73	12.72	33.017	24.914	304.8	0.205	6.14	101.7	4.2	0.38	0.9	0.09	0.03	0.33	0.12	66	15
75	12.13	12.12	33.014	25.028	294.2	0.235	6.21	101.6	4.8	0.43	1.3	0.08	0.30	0.29	0.10	76	14
85	11.97	11.96	33.017	25.060	291.4	0.264	6.14	100.2	5.1	0.47	2.0	0.18	0.25	0.22	0.08	86	13
100	11.67	11.66	33.094	25.176	280.7	0.307	5.90	95.6	5.9	0.62	4.2	0.16	0.20	0.14	0.05	101	12
112	11.61	11.59	33.227	25.291	270.0	0.340	5.71	92.5	6.9	0.70	5.8	0.07	0.00	0.10	0.05	113	11
125	11.14	11.12	33.280	25.418	258.2	0.374	5.19	83.2	7.7	0.82	8.1	0.02	0.10	0.08	0.05	126	10
140	10.36	10.34	33.388	25.638	237.4	0.411	4.74	74.8	12.3	1.10	12.9	0.01	0.03	0.04	0.03	141	09
150 ISL	9.73 D	9.71	33.521 D	25.848	217.5	0.436	4.15	D 64.6	17.0	1.35	16.6	0.01	0.02	0.03	0.03	151	
171	9.42	9.40	33.751	26.079	196.0	0.477	3.04	47.1	26.7	1.88	24.4	0.00	0.00	0.01	0.03	172	08
200	8.99	8.97	33.935	26.294	176.1	0.531	2.40	36.8	33.7	2.16	27.7	0.00	0.00	0.00	0.03	202	07
230	8.28	8.26	33.997	26.452	161.4	0.582	2.55	38.5	37.7	2.17	29.1	0.00	0.00	0.00	0.00	232	06
250 ISL	7.99 D	7.96	34.012 D	26.507	156.4	0.618	2.30	D 34.6	42.3	2.34	30.8	0.00	0.00	0.00	0.00	252	
270	8.01	7.98	34.104	26.577	150.2	0.644	1.60	24.1	46.8	2.51	32.5	0.00	0.00	0.00	0.00	272	05
300 ISL	7.70 D	7.67	34.133 D	26.646	144.1	0.693	1.29	D 19.3	51.7	2.61	34.1	0.00	0.00	0.00	0.00	302	
322	7.37	7.34	34.115	26.678	141.2	0.720	1.25	18.5	55.3	2.69	35.2						

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
32 49.0 N	123 54.4 W	04/04/2012	1741 UTC	4880 m	350	26 kn			1021.3 mb	13.9 C	11.0 C					053	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			m/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.74	13.74	33.105	24.777	316.0	0.000	6.09	103.2						0.20	0.03	0	
2	13.74	13.74	33.105	24.777	316.0	0.006	6.09	103.2						0.20	0.03	2	20
10	ISL 13.74	D 13.74	33.107	D 24.780	316.1	0.032	6.04	D102.3						0.18	0.04	10	
11	13.74	13.74	33.106	24.778	316.2	0.035	6.06	102.7						0.18	0.04	11	19
20	ISL 13.74	D 13.74	33.107	D 24.779	316.4	0.064	6.04	D102.3						0.20	0.03	20	
25	13.74	13.73	33.116	24.787	315.8	0.079	6.06	102.6						0.22	0.03	25	18
30	ISL 13.74	D 13.74	33.108	D 24.781	316.6	0.096	6.03	D102.2						0.22	0.03	30	
40	13.71	13.70	33.106	24.787	316.2	0.127	6.07	102.6						0.22	0.03	40	17
50	ISL 13.50	D 13.49	33.087	D 24.816	313.8	0.159	6.06	D102.1						0.29	0.08	50	
51	13.49	13.49	33.084	24.814	314.0	0.161	6.11	103.0						0.29	0.08	51	16
62	12.53	12.52	33.036	24.967	299.6	0.195	6.28	103.7						0.46	0.09	62	15
75	ISL 12.38	D 12.38	33.205	D 25.126	284.9	0.234	6.25	D103.0						0.44	0.14	76	
76	12.35	12.34	33.210	25.137	283.9	0.236	6.27	103.2						0.44	0.14	77	14
87	11.92	11.90	33.195	25.208	277.3	0.267	6.01	97.9						0.37	0.17	88	13
100	11.91	11.90	33.274	25.271	271.7	0.302	6.03	98.4						0.23	0.17	101	12
112	11.92	11.90	33.326	25.311	268.2	0.335	5.98	97.6						0.12	0.09	113	11
125	10.82	10.80	33.276	25.471	253.0	0.369	5.36	85.3						0.07	0.06	126	10
141	10.23	10.21	33.432	25.696	232.0	0.407	4.28	67.3						0.05	0.06	142	09
150	ISL 9.87	D 9.85	33.538	D 25.839	218.5	0.430	3.79	D 59.3						0.04	0.05	151	
171	9.43	9.41	33.711	26.046	199.2	0.472	3.16	49.0						0.01	0.04	172	08
200	ISL 8.88	D 8.88	33.926	D 26.299	175.6	0.529	2.55	D 39.1						0.01	0.03	202	
201	8.80	8.78	33.920	26.311	174.5	0.528	2.52	38.6						0.01	0.03	203	07
229	8.42	8.39	33.999	26.433	163.3	0.575	2.31	35.0								231	06
250	ISL 8.18	D 8.15	34.032	D 26.495	157.7	0.613	2.07	D 31.2								252	
269	7.98	7.96	34.057	26.544	153.3	0.638	1.87	28.1								271	05
300	ISL 7.68	D 7.65	34.091	D 26.616	146.9	0.689	1.53	D 22.8								302	
320	7.48	7.45	34.116	26.664	142.6	0.713	1.25	18.6								323	04
381	6.91	6.87	34.166	26.785	131.8	0.797	0.81	11.9								384	03
400	ISL 6.72	D 6.69	34.178	D 26.819	128.7	0.828	0.78	D 11.4								403	
441	6.44	6.40	34.206	26.879	123.4	0.874	0.59	8.5								445	02
500	ISL 6.09	D 6.04	34.251	D 26.961	116.2	0.951	0.45	D 6.5								504	
516	6.02	5.98	34.255	26.973	115.2	0.963	0.39	5.6								520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
34 16.5 N	120 1.5 W	02/04/2012	1854 UTC	583 m	300	21 kn			1017.7 mb	12.8 C	9.7 C					043	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			m/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	A 11.70	11.70	33.695	25.631	234.8	0.000	6.33	103.2	6.9	0.68	6.9	0.15	1.17	0.54	0.18	0	
2	11.70	11.70	33.695	25.631	234.8	0.005	6.33	103.2	6.9	0.68	6.9	0.15	1.17	0.54	0.18	2	24
10	11.71	11.70	33.697	25.634	234.8	0.024	6.34	103.2	6.8	0.69	7.0	0.15	1.15	0.65	0.22	10	23
20	11.68	11.68	33.697	25.638	234.6	0.047	6.29	102.4	7.0	0.72	7.2	0.15	1.25	0.97	0.24	20	22
30	ISL 11.27	D 11.24	33.727	D 25.743	224.9	0.070	5.62	D 90.7						1.03	0.30	30	
31	11.23	11.22	33.722	25.741	225.1	0.072	5.33	86.0						1.04	0.30	31	21
41	10.51	10.51	33.786	25.918	208.5	0.094	3.77	59.9	21.4	1.72	18.8	0.27	1.79	0.93	0.31	41	20
50	9.98	9.97	33.912	26.108	190.6	0.112	2.41	37.9	28.2	2.14	25.5	0.18	0.50	0.80	0.27	50	19
61	9.73	9.72	33.994	26.215	180.7	0.132	2.03	31.8	30.7	2.20	26.8	0.20	0.13	0.86	0.26	61	18
70	9.66	9.65	34.026	26.252	177.4	0.149	1.97	30.8	32.0	2.22	27.3	0.16	0.00	0.81	0.29	71	17
75	ISL 9.54	D 9.53	34.043	D 26.285	174.3	0.158	1.87	D 29.1	32.4	2.23	27.5	0.14	0.05	0.63	0.25	76	
85	9.51	9.50	34.050	26.295	173.7	0.175	1.81	28.2	33.2	2.26	27.9	0.09	0.15	0.29	0.18	86	16
100	ISL 9.42	D 9.41	34.101	D 26.350	168.8	0.202	1.72	D 26.6	34.3	2.27	28.5	0.09	0.03	0.32	0.22	101	
101	9.41	9.39	34.100	26.352	168.6	0.202	1.72	26.6	34.4	2.27	28.5	0.09	0.02	0.32	0.22	102	15
120	9.31	9.30	34.140	26.399	164.5	0.234	1.56	24.2	36.2	2.37	29.1	0.09	0.05	0.36	0.22	121	14
125	ISL 9.29	D 9.27	34.143	D 26.406	164.0	0.243	1.55	D 24.0	36.4	2.37	29.2	0.09	0.05	0.38	0.23	126	
140	9.18	9.16	34.143	26.425	162.5	0.266	1.55	24.0	37.2	2.37	29.5	0.08	0.05	0.42	0.23	141	13
150	ISL 9.16	D 9.15	34.152	D 26.434	161.9	0.284	1.51	D 23.3	37.6	2.39	29.6	0.08	0.06	0.39	0.23	151	
170	9.06	9.04	34.164	26.460	159.8	0.315	1.45	22.3	38.5	2.42	29.9	0.07	0.08	0.33	0.23	171	12
200	ISL 8.49	D 8.47	34.150	D 26.538	152.8	0.364	1.14	D 17.3	44.0	2.52	31.8	0.05	0.05	0.25	0.24	202	
201	8.50	8.48	34.132	26.523	154.2	0.363	1.31	19.9	44.2	2.52	31.9	0.05	0.05	0.25	0.24	203	11
230	8.38	8.35	34.182	26.582	149.2	0.407	1.09	16.5	47.0	2.58	32.3	0.04	0.04	0.25	0.24	232	10
250	ISL 8.26	D 8.24	34.186	D 26.604	147.5	0.440	0.98	D 14.9	50.4	2.66	32.9	0.04	0.04	0.25	0.24	252	
270	8.09	8.06	34.187	26.631	145.2	0.466	0.74	11.1	53.7	2.74	33.5	0.04	0.04	0.25	0.24	272	09
300	ISL 7.85	D 7.82	34.198	D 26.675	141.5	0.512	0.71	D 10.7	56.4	2.80	34.1	0.05	0.05	0.25	0.24	302	
321	7.64	7.61	34.207	26.714	138.1	0.539	0.68	10.2	58.2	2.85	34.6	0.05	0.05	0.25	0.24	324	08
379	7.22	7.19	34.227	26.789	131.6	0.617	0.33	4.9	70.6	3.07	34.4	0.04	0.04	0.25	0.24	382	07
400	ISL 6.95	D 6.92	34.222	D 26.823	128.5	0.649	0.29	D 4.2	75.4	3.14	33.8	0.04	0.04	0.25	0.24	403	
440	6.64	6.59	34.230	26.873	124.2	0.695	0.20	3.0	84.6	3.28	32.7	0.04	0.04	0.25	0.24	444	06
480	6.54	6.49	34.238	26.893	122.8	0.744	0.09	1.3	95.7	3.49	29.0	0.05	0.05	0.25	0.24	484	05
500	ISL 6.50	D 6.45	34.245	D 26.904	122.0	0.774	0.12	D 1.7	98.8	3.57	27.4	0.04	0.04	0.25	0.24	504	
516	6.46	6.42	34.244	26.908	121.9	0.788	0.08	1.2	101.2	3.64	26.2	0.04	0.04	0.25	0.24	520	04
540	6.47	6.42	34.257	26.918	121.3	0.817	0.07	1.0	107.5	3.84	21.9	0.04	0.04	0.25	0.24	545	03
566	6.41	6.36	34.246	26.918	121.7	0.849	0.11	1.7	99.1	3.63	28.1	0.06	0.06	0.25	0.24	571	02
571	6.41	6.36	34.246	26.918	121.8	0.855	0.11	1.7	100.3	3.80	28.1	0.11	0.11	0.25	0.24	576	01

A) SANTA BARBARA BASIN STATION.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
34 13.9 N	119 26.6 W	02/04/2012	1514 UTC	51 m	270	10 kn			1018.4 mb	14.8 c	11.0 c					042	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	12.14	12.13	33.638	25.506	246.6	0.000	6.30	103.5	6.1	0.67	5.8	0.16	0.77	1.17	0.19	0	
2	12.14	12.13	33.638	25.506	246.6	0.005	6.30	103.5	6.1	0.67	5.8	0.16	0.77	1.17	0.19	2	07
5	12.12	12.12	33.640	25.511	246.3	0.012	6.27	103.0	6.2	0.70	5.9	0.16	0.77	1.67	0.40	5	06
10	12.12	12.12	33.641	25.512	246.4	0.025	6.26	102.8	6.4	0.69	6.3	0.16	0.73	1.64	0.24	10	04
10	12.12	12.12	33.641	25.511	246.4	0.025										10	05
20	10.53	10.53	33.724	25.866	212.9	0.048	3.08	48.9	20.5	1.74	20.9	0.24	0.20	3.27	0.20	20	03
30	10.23	10.23	33.840	26.009	199.6	0.068	2.43	38.3	26.2	1.99	24.2	0.32	0.26	0.49	0.21	30	02
40	10.12	10.12	33.883	26.061	194.9	0.088	2.20	34.7	28.5	2.18	24.7	0.39	0.23	0.68	1.15	40	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 83.3 42.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
34 10.4 N	119 30.7 W	02/04/2012	1301 UTC	184 m	350	33 kn			1017.6 mb	15.2 c	10.3 c					041	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	12.10	12.10	33.661	25.531	244.3	0.000	6.59	108.2						1.31	0.16	0	
2	12.10	12.10	33.661	25.531	244.3	0.005	6.59	108.2						1.31	0.16	2	14
10 ISL	12.10 D	12.10	33.662 D	25.532	244.4	0.025	6.57	107.9						1.94	0.28	10	
11	12.10	12.10	33.663	25.533	244.4	0.027										11	13
11	12.10	12.10	33.663	25.533	244.4	0.027	6.57	107.9	5.2	0.59	5.1	0.15	0.36	2.02	0.29	11	12
20	11.90	11.90	33.671	25.577	240.5	0.049	6.50	106.2	5.4	0.60	5.5	0.15	0.37	2.05	0.15	20	11
30	11.16	11.15	33.689	25.729	226.2	0.072	4.07	65.5	15.8	1.39	16.2	0.23	0.25	1.58	0.22	30	10
41	10.53	10.53	33.761	25.896	210.6	0.096	2.71	43.1	23.5	1.88	22.5	0.18	0.69	0.18	0.16	41	09
50	10.28	10.28	33.796	25.966	204.1	0.115	2.59	41.0	25.4	1.97	23.8	0.35	0.61	0.79	0.47	50	08
61	10.08	10.08	33.872	26.060	195.5	0.137	2.30	36.2	28.0	2.09	25.5	0.42	0.54	0.22	0.21	61	07
71	10.03	10.02	33.918	26.106	191.4	0.156	2.20	34.5	28.7	2.11	25.6	0.22	0.08	0.30	0.18	72	06
75 ISL	9.99 D	9.98	33.928 D	26.120	190.1	0.165	2.17 D	34.1	29.1	2.12	25.7	0.22	0.06	0.28	0.19	76	
86	9.86	9.85	33.958	26.165	186.1	0.184	2.07	32.4	30.0	2.14	26.1	0.22	0.02	0.25	0.22	87	05
100	9.60	9.59	34.082	26.306	172.9	0.210	1.74	27.2	33.2	2.25	27.7	0.12	0.96	0.09	0.12	101	04
121	9.41	9.39	34.116	26.365	167.8	0.245	1.63	25.4	35.2	2.31	28.4	0.11	0.00	0.12	0.15	122	03
125 ISL	9.31 D	9.29	34.135 D	26.397	164.9	0.253	1.61 D	25.0	35.7	2.33	28.6	0.11	0.15	0.12	0.14	126	
141	9.15	9.14	34.157	26.439	161.2	0.278	1.47	22.7	37.8	2.39	29.4	0.09	0.77	0.13	0.12	142	02
150 ISL	9.15 D	9.13	34.168 D	26.448	160.5	0.294	1.47 D	22.7	38.1	2.40	29.5	0.09	0.57	0.14	0.12	151	
174	9.05	9.03	34.174	26.470	158.9	0.331	1.41	21.7	39.0	2.41	29.6	0.08	0.04	0.17	0.13	175	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 83.3 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 52.7 N	120 8.1 W	01/04/2012	1714 UTC	95 m	310	22 kn			1018.4 mb	12.9 c	11.0 c					038	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	12.36	12.36	33.613	25.444	252.6	0.000	6.55	108.2	3.4	0.49	2.8	0.11	0.38	2.63	0.23	0	
2	12.36	12.36	33.613	25.444	252.6	0.005	6.55	108.2	3.4	0.49	2.8	0.11	0.38	2.63	0.23	2	11
10 ISL	12.18 D	12.19	33.618 D	25.481	249.3	0.025	6.16 D	101.3	5.1	0.65	5.4	0.14	0.46	3.87	0.48	10	
10	12.18	12.18	33.617	25.482	249.2	0.025										10	10
11	12.03	12.03	33.634	25.523	245.3	0.028	5.99	98.2	5.3	0.67	5.7	0.14	0.47	4.03	0.51	11	09
20	10.92	10.92	33.702	25.780	221.1	0.049	3.99	64.0	15.5	1.41	16.6	0.22	0.36	3.03	0.40	20	08
30	10.77	10.76	33.726	25.827	216.9	0.071	3.88	61.9	16.8	1.46	17.2	0.19	0.39	4.18	0.34	30	07
40	10.56	10.56	33.769	25.897	210.5	0.092	3.65	57.9	19.0	1.54	18.1	0.16	0.51	2.51	0.55	40	06
50	10.36	10.36	33.797	25.953	205.4	0.113	3.35	53.0	21.4	1.65	19.6	0.15	0.38	2.04	0.40	50	05
60	9.96	9.96	33.865	26.074	194.1	0.133	2.65	41.6	27.0	1.91	23.3	0.13	0.45	1.08	0.46	60	04
71	9.83	9.82	33.884	26.112	190.7	0.154	2.47	38.7	28.2	2.01	24.4	0.12	0.14	1.06	0.33	72	03
75 ISL	9.82 D	9.81	33.884 D	26.114	190.6	0.162	2.49 D	38.9	28.1	2.00	24.3	0.12	0.16	1.14	0.37	76	
80	9.85	9.84	33.880	26.106	191.5	0.171	2.50	39.2	28.0	1.98	24.2	0.12	0.18	1.25	0.43	81	02
90	9.82	9.81	33.886	26.117	190.7	0.190	2.47	38.6	28.4	1.97	24.4	0.12	0.13	0.88	0.33	91	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
33 44.6 N	120 24.7 W	01/04/2012	1354 UTC	960 m	300	16 kn			1018.8 mb	13.3 C	10.2 C					037		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP	
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db		
0	11.83	11.83	33.551	25.496	247.7	0.000	6.08	99.2	11.2	1.00	9.6	0.29	0.78	0.42	0.16	0		
2	11.83	11.83	33.551	25.496	247.7	0.005	6.08	99.2	11.2	1.00	9.6	0.29	0.78	0.42	0.16	2	21	
10	ISL	11.84	D 11.84	33.553	D 25.497	247.8	0.025	6.08	D 99.2	11.2	1.00	9.6	0.28	0.82	0.42	0.20	10	20
11	11.84	11.84	33.552	25.495	247.9	0.025										10	20	
11	11.84	11.84	33.551	25.496	247.9	0.027	6.08	99.2	11.2	1.00	9.6	0.28	0.83	0.43	0.21	11	19	
20	11.84	11.84	33.551	25.495	248.2	0.050	6.07	99.1	11.2	1.00	9.6	0.28	0.81	0.50	0.30	20	18	
30	ISL	11.83	D 11.82	33.553	D 25.500	248.0	0.075	6.05	D 98.7	11.2	1.00	9.6	0.28	0.79	0.51	0.26	30	
31	11.82	11.81	33.550	25.500	248.1	0.077	6.09	99.4	11.2	1.00	9.6	0.28	0.79	0.51	0.26	31	17	
41	11.75	11.74	33.559	25.519	246.5	0.102	6.02	98.0	11.1	1.02	9.8	0.29	0.84	0.59	0.28	41	16	
50	11.27	11.26	33.597	25.638	235.4	0.123	5.84	94.2	11.2	1.08	10.9	0.28	0.94	0.42	0.19	50	15	
61	10.53	10.52	33.633	25.797	220.4	0.148	4.74	75.1	19.0	1.53	17.1	0.37	0.86	0.16	0.21	61	14	
70	10.13	10.12	33.634	25.867	214.0	0.168	4.03	63.5	21.2	1.65	20.1	0.27	0.21	0.28	0.25	71	13	
75	ISL	9.93	D 9.93	33.726	D 25.971	204.2	0.180	3.56	D 55.8	22.4	1.71	21.0	0.26	0.16	0.25	0.26	76	
86	9.80	9.79	33.745	26.010	200.8	0.201	3.40	53.1	25.1	1.84	23.1	0.23	0.06	0.19	0.29	87	12	
100	ISL	9.52	D 9.51	33.806	D 26.103	192.1	0.230	2.83	D 44.0	27.0	1.94	24.2	0.06	0.00	0.08	0.21	101	
101	9.52	9.50	33.805	26.103	192.2	0.230	2.84	44.2	27.2	1.95	24.3	0.05	0.00	0.07	0.20	102	11	
120	9.17	9.15	33.876	26.216	181.8	0.266	2.56	39.4	29.5	2.04	26.7	0.03	0.00	0.04	0.16	121	10	
125	ISL	9.06	D 9.04	33.901	D 26.253	178.4	0.276	2.54	D 39.1	30.3	2.06	27.0	0.03	0.00	0.04	0.16	126	
142	8.88	8.87	33.953	26.321	172.2	0.304	2.31	35.4	33.0	2.14	28.1	0.03	0.01	0.06	0.17	143	09	
150	ISL	8.80	D 8.79	33.989	D 26.363	168.4	0.320	2.21	D 33.9	34.4	2.18	28.6	0.03	0.01	0.05	0.16	151	
170	8.57	8.55	34.041	26.441	161.4	0.351	1.98	30.1	37.7	2.28	29.8	0.02	0.00	0.03	0.15	171	08	
199	8.33	8.31	34.076	26.506	155.7	0.397	1.77	26.8	40.6	2.36	30.8	0.03		0.03	0.11	201	07	
200	ISL	8.32	D 8.30	34.085	D 26.513	155.1	0.401	1.75	D 26.5	40.7	2.36	30.8	0.03	0.03	0.11	202		
230	8.05	8.03	34.112	26.576	149.5	0.444	1.51	22.7	44.7	2.48	32.3	0.02				232	06	
250	ISL	7.90	D 7.87	34.130	D 26.613	146.4	0.477	1.41	D 21.1	47.3	2.55	33.1	0.02			252		
268	7.72	7.69	34.141	26.649	143.2	0.500	1.26	18.8	49.7	2.61	33.8	0.02				270	05	
300	ISL	7.44	D 7.41	34.161	D 26.705	138.4	0.549	1.09	D 16.2	53.3	2.70	34.8	0.02			302		
320	7.30	7.27	34.169	26.732	136.0	0.573	0.98	14.5	55.6	2.75	35.4	0.02				323	04	
381	6.76	6.72	34.208	26.837	126.7	0.653	0.70	10.2	63.7	2.90	37.4	0.02				384	03	
400	ISL	6.64	D 6.61	34.220	D 26.863	124.5	0.681	0.66	D 9.6	65.9	2.94	37.7	0.02			403		
441	6.40	6.36	34.239	26.910	120.4	0.727	0.50	7.3	70.5	3.03	38.2	0.01				445	02	
500	ISL	6.10	D 6.05	34.273	D 26.978	114.6	0.802	0.40	D 5.8	76.5	3.11	39.7	0.00			504		
516	6.02	5.98	34.281	26.993	113.3	0.814	0.34	4.8	78.2	3.13	40.1	0.00				520	01	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
33 34.5 N	120 45.4 W	01/04/2012	0955 UTC	1424 m	280	12 kn			1017.2 mb	13.5 C	12.2 C					036		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP	
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db		
0	12.82	12.82	33.131	24.981	296.6	0.000	6.31	104.8	5.3	0.42	1.2	0.10	0.01	0.47	0.08	0		
3	12.82	12.82	33.131	24.981	296.6	0.009	6.31	104.8	5.3	0.42	1.2	0.10	0.01	0.47	0.08	3	21	
10	12.81	12.81	33.138	24.988	296.2	0.030	6.27	104.2	5.3	0.42	1.3	0.10	0.00	0.44	0.08	10	19	
10	12.81	12.81	33.131	24.983	296.7	0.030										10	20	
20	12.71	12.70	33.142	25.014	294.1	0.059	6.25	103.7	5.4	0.44	1.5	0.11	0.32	0.49	0.10	20	18	
30	ISL	12.54	D 12.53	33.175	D 25.072	288.8	0.089	6.23	102.9	5.5	0.47	1.8	0.15	0.50	0.49	0.12	30	
31	12.53	12.53	33.170	25.069	289.1	0.091	6.23	102.8	5.5	0.47	1.8	0.15	0.52	0.49	0.12	31	17	
40	12.18	12.18	33.228	25.182	278.6	0.117	6.06	99.4	5.9	0.56	3.1	0.34	0.04	0.35	0.13	40	16	
50	ISL	11.51	D 11.49	33.229	D 25.310	266.6	0.145	5.64	D 91.1	6.9	0.73	6.0	0.15	0.00	0.20	0.09	50	
51	11.47	11.47	33.227	25.313	266.4	0.147	5.68	91.8	7.0	0.75	6.3	0.13	0.00	0.18	0.08	51	15	
60	10.77	10.76	33.209	25.424	255.9	0.170	5.31	84.5	9.0	0.93	9.3	0.04	0.01	0.09	0.05	60	14	
71	9.86	9.86	33.297	25.648	234.7	0.197	4.81	75.1	13.7	1.23	14.1	0.04	0.00	0.04	0.03	72	13	
75	ISL	9.80	D 9.79	33.365	D 25.712	228.8	0.208	4.58	D 71.3	15.7	1.35	16.0	0.04	0.02	0.03	0.04	76	
85	9.64	9.63	33.546	25.881	212.9	0.229	3.76	58.4	20.6	1.66	20.7	0.03	0.06	0.02	0.04	86	12	
100	9.44	9.43	33.772	26.090	193.4	0.259	2.96	45.9	26.9	1.96	25.0	0.03	0.00	0.03	0.07	101	11	
120	8.96	8.95	33.899	26.267	177.0	0.296	2.64	40.5	31.3	2.10	27.2	0.02	0.00	0.01	0.07	121	10	
125	ISL	8.95	D 8.94	33.920	D 26.285	175.3	0.307	2.51	D 38.6	31.6	2.12	27.4	0.02	0.00	0.01	0.07	126	
140	8.84	8.83	33.935	26.314	172.9	0.331	2.48	38.0	32.6	2.16	28.0	0.02	0.00	0.01	0.07	141	09	
150	ISL	8.69	D 8.67	33.966	D 26.362	168.4	0.350	2.38	D 36.4	34.1	2.21	28.6	0.02	0.00	0.01	0.07	151	
170	8.58	8.56	34.023	26.425	162.9	0.381	2.06	31.4	37.0	2.31	29.9	0.02	0.01	0.00	0.05	171	08	
200	8.35	8.33	34.070	26.497	156.6	0.429	1.80	27.3	40.4	2.41	31.1	0.02		0.00	0.04	202	07	
231	7.95	7.92	34.119	26.597	147.5	0.476	1.48	22.2	46.0	2.57	32.9	0.02				233	06	
250	ISL	7.72	D 7.70	34.143	D 26.649	142.9	0.507	1.28	D 19.1	48.8	2.64	33.7	0.02			252		
271	7.53	7.50	34.150	26.683	139.9	0.533	1.16	17.3	51.9	2.72	34.6	0.01				273	05	
300	ISL	7.32	D 7.30	34.170	D 26.728	136.0	0.577	1.00	D 14.8	55.4	2.80	34.9	0.02			302		
321	7.19	7.16	34.178	26.753	133.9	0.602	0.91	13.5	57.9	2.86	35.2	0.02				324	04	
381	6.60	6.57	34.211	26.861	124.3	0.679	0.63	9.2	66.8	3.03	38.2	0.02				384	03	
400	ISL	6.46	D 6.42	34.224	D 26.890	121.7	0.708	0.58	D 8.4	68.9	3.06	38.6	0.02			403		
441	6.27	6.23	34.247	26.934	118.0	0.752	0.45	6.5	73.5	3.13	39.5	0.02				445	02	
500	ISL	6.06	D 6.00	34.308	D 27.011	111.4	0.825	0.32	D 4.5	79.4	3.24	40.4	0.01			504		
514	5.96	5.92	34.319	27.030	109.7	0.835	0.25	3.6	80.8	3.27	40.6	0.01				518	01	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
33 14.5 N	121 26.4 W	01/04/2012	0429 UTC	3824 m	200	17 kn	230 05 10	2	1016.0 mb	14.9 c	14.2 c	14 m	7/8	SC	035		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	13.34	13.34	33.104	24.857	308.4	0.000	6.21	104.2	4.5	0.45	0.5	0.05	0.14	0.36	0.05	0	
3	13.34	13.34	33.104	24.857	308.4	0.009	6.21	104.2	4.5	0.45	0.5	0.05	0.14	0.36	0.05	3	21
10	13.29	13.29	33.096	24.861	308.3	0.031	6.23	104.4	4.5	0.44	0.4	0.05	0.04	0.35	0.06	10	20
10	13.29	13.29	33.096	24.861	308.3	0.031	6.23	104.4	4.5	0.44	0.4	0.05	0.04	0.35	0.06	10	19
20	13.17	13.17	33.092	24.883	306.5	0.062	6.25	104.5	4.4	0.38	0.3	0.03	0.13	0.46	0.09	20	18
30	12.87	12.87	33.106	24.953	300.1	0.092	6.26	104.2	4.6	0.40	0.7	0.06	0.40	0.54	0.15	30	17
40	12.68	12.67	33.150	25.026	293.5	0.122	6.16	102.0	4.9	0.50	1.4	0.11	0.34	0.45	0.15	40	16
50	12.48	12.47	33.148	25.064	290.1	0.151	6.10	100.6	4.9	0.49	1.9	0.19	0.21	0.36	0.16	50	15
60	12.30	12.30	33.172	25.116	285.4	0.180	6.03	99.2	5.2	0.56	2.5	0.25	0.35	0.32	0.15	60	14
70	11.94	11.93	33.228	25.228	275.0	0.208	5.90	96.3	6.0	0.64	4.0	0.27	0.25	0.25	0.18	71	13
75 ISL	11.75 D	11.75	33.264 D	25.290	269.2	0.223	5.66 D	92.1	6.7	0.70	5.2	0.25	0.26	0.21	0.15	76	
85	11.65	11.64	33.311	25.347	264.0	0.248	5.53	89.8	8.1	0.83	7.5	0.22	0.27	0.14	0.10	86	12
100 ISL	10.99 D	10.98	33.319 D	25.473	252.3	0.289	4.92 D	78.7	9.9	1.02	11.0	0.07	0.19	0.08	0.07	101	
101	10.98	10.97	33.318	25.474	252.2	0.289	4.90	78.3	10.0	1.03	11.2	0.06	0.18	0.08	0.07	102	11
120	9.91	9.90	33.410	25.731	228.1	0.335	4.56	71.3	15.5	1.32	16.0	0.04	0.08	0.02	0.06	121	10
125 ISL	9.72 D	9.70	33.437 D	25.784	223.0	0.348	4.44 D	69.2	17.2	1.41	17.5	0.04	0.09	0.02	0.05	126	
140	9.06	9.04	33.597	26.015	201.2	0.378	3.82	58.7	22.5	1.66	21.8	0.02	0.10	0.01	0.03	141	09
150 ISL	8.82 D	8.80	33.777 D	26.195	184.3	0.400	3.36 D	51.4	25.3	1.79	23.5	0.02	0.12	0.01	0.03	151	
171	8.77	8.75	33.902	26.301	174.7	0.435	2.76	42.2	31.1	2.05	27.1	0.02	0.17	0.01	0.02	172	08
200	8.40	8.38	33.986	26.424	163.5	0.484	2.37	36.0	35.2	2.17	29.0	0.02	0.17	0.00	0.03	202	07
230	8.07	8.04	34.011	26.494	157.3	0.532	2.27	34.2	39.0	2.25	30.3	0.02	0.17	0.00	0.03	232	06
250 ISL	7.67 D	7.65	34.050 D	26.583	149.1	0.566	1.88 D	28.0	43.3	2.37	31.8	0.02	0.17	0.00	0.03	252	
270	7.51	7.48	34.065	26.619	145.9	0.592	1.70	25.3	47.6	2.49	33.3	0.02	0.17	0.00	0.03	272	05
300 ISL	7.41 D	7.38	34.100 D	26.661	142.4	0.640	1.38 D	20.4	51.5	2.62	34.7	0.02	0.17	0.00	0.03	302	
322	7.20	7.17	34.128	26.713	137.8	0.666	1.12	16.6	54.4	2.71	35.8	0.02	0.17	0.00	0.03	325	04
380	6.64	6.60	34.173	26.826	127.6	0.743	0.78	11.4	64.1	2.90	37.9	0.02	0.17	0.00	0.03	383	03
400 ISL	6.47 D	6.43	34.181 D	26.856	124.9	0.774	0.70 D	10.1	67.1	2.95	38.5	0.02	0.17	0.00	0.03	403	
440	6.09	6.05	34.201	26.919	119.2	0.817	0.55	7.9	73.2	3.04	39.6	0.02	0.17	0.00	0.03	444	02
500 ISL	5.85 D	5.81	34.248 D	26.987	113.4	0.894	0.41 D	5.9	78.5	3.13	40.3	0.02	0.17	0.00	0.03	504	
515	5.86	5.82	34.275	27.008	111.7	0.904	0.35	5.0	79.8	3.15	40.5	0.02	0.17	0.00	0.03	519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
33 52.9 N	118 30.5 W	02/04/2012	0325 UTC	50 m	280	23 kn	270 06 07	1	1017.3 mb	14.3 c	11.2 c	10 m	1/8	AC	040		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	13.03	13.03	33.551	25.265	269.6	0.000	6.21	103.8	4.4A	0.61A	5.6A	0.15A	0.49A	1.60	0.36	0	
2	13.03	13.03	33.551	25.265	269.6	0.005	6.21	103.8	4.4	0.61	5.6	0.15	0.49	1.60	0.36	2	08
5	13.02	13.02	33.547	25.264	269.8	0.014	6.20	103.7	4.5	0.62	5.7	0.14	0.35	1.58	0.34	5	07
10	13.03	13.03	33.547	25.261	270.2	0.027	6.18	103.5	4.5	0.63	5.6	0.15	0.35	1.35	0.33	10	06
10	13.03	13.03	33.547	25.262	270.1	0.027	6.18	103.5	4.5	0.63	5.6	0.15	0.35	1.35	0.33	10	05
20 ISL	11.13 D	11.12	33.623 D	25.683	230.3	0.052	3.75 D	60.2	12.2	1.45	16.2	0.21	1.88	7.38	1.02	20	
21	10.90	10.90	33.610	25.712	227.6	0.054	3.63	58.0	12.9	1.53	17.3	0.22	2.03	7.99	1.09	21	04
30 ISL	10.69 D	10.68	33.658 D	25.788	220.6	0.075	2.85 D	45.4	21.9	1.93	20.5	0.28	8.74	2.55	0.40	30	
31	10.66	10.66	33.656	25.791	220.4	0.077	2.84	45.2	22.9	1.97	20.8	0.29	9.49	1.95	0.32	31	03
41	10.52	10.52	33.671	25.827	217.1	0.099	2.66	42.2	24.6	2.09	21.6	0.31	11.65	1.52	0.22	41	02
45	10.52	10.51	33.726	25.871	213.1	0.107	2.63	41.7	24.2	1.93	21.8	0.26	4.71	0.83	0.25	45	01

A) UNUSUAL PROFILES AND ODD N03/P04 RATIOS MAY BE DUE TO THE PROXIMITY OF THIS STATION TO THE HYPERION WASTE-WATER OUTFALL

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 49.1 N	118 37.5 W	02/04/2012	0027 UTC	631 m	320	16 kn	260 08 07	1	1017.3 mb	13.2 c	10.0 c	10 m	1/8		SC	039	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.50	13.49	33.486	25.122	283.2	0.000	6.03	101.8	3.8	0.52	2.0	0.08	0.16	1.97	0.41	0	
2 A	13.50	13.49	33.486	25.122	283.2	0.006	6.03	101.8	3.8	0.52	2.0	0.08	0.16	1.97	0.41	2	24
6 A	13.49	13.49	33.486	25.122	283.3	0.017	6.02	101.7	3.8	0.52	2.1	0.08	0.22	3.20	0.43	6	23
9	13.48	13.48	33.484	25.123	283.3	0.023										8	22
9 A	13.49	13.49	33.486	25.122	283.4	0.026	6.04	102.0	3.8	0.52	2.0	0.09	0.35	3.59	0.37	9	21
10 ISL	13.50 D	13.49	33.486 D	25.122	283.4	0.029	6.01	D101.6	3.8	0.52	2.0	0.09	0.49	3.57	0.40	10	
16 A	13.46	13.46	33.492	25.134	282.5	0.045	5.98	101.0	3.9	0.54	2.2	0.09	1.33	3.40	0.58	16	20
20 ISL	13.28 D	13.28	33.489 D	25.168	279.4	0.057	5.97	D100.3	3.9	0.55	2.1	0.10	1.13	2.95	0.48	20	
22	13.29	13.28	33.487	25.165	279.7	0.062	5.79	97.3	3.9	0.55	2.1	0.10	1.03	2.72	0.43	22	19
29 A	11.31	11.31	33.543	25.587	239.7	0.080	3.99	64.4	5.1	0.60	3.4	0.13	0.23	2.37	0.42	29	18
30 ISL	11.50 D	11.26	33.582 D	25.626	236.1	0.083	3.78	D 60.9	6.2	0.71	5.0	0.15	0.21	2.09	0.39	30	
36 A	10.90	10.90	33.642	25.737	225.6	0.097	3.20	51.1	13.2	1.37	14.7	0.30	0.11	0.40	0.17	36	17
42	10.76	10.75	33.694	25.803	219.4	0.110	2.92	46.6	19.9	1.73	19.6	0.14	0.12	0.40	0.16	42	16
50	10.62	10.62	33.721	25.849	215.3	0.127	2.81	44.8	21.7	1.86	21.0	0.18	0.35	0.39	0.18	50	15
60	10.45	10.44	33.784	25.928	208.0	0.149	2.60	41.2	22.6	1.90	21.7	0.20	0.85	0.23	0.15	60	14
70	10.24	10.23	33.853	26.018	199.7	0.169	2.41	38.0	24.3	2.02	23.1	0.24	1.63	0.14	0.13	71	13
75 ISL	10.13 D	10.12	33.908 D	26.080	193.9	0.180	2.30	D 36.2	24.8	2.04	23.5	0.23	1.38	0.13	0.12	76	
85	9.97	9.96	33.945	26.137	188.7	0.198	2.27	35.6	25.8	2.09	24.2	0.20	0.87	0.13	0.10	86	12
100	9.88	9.87	34.018	26.210	182.2	0.226	1.95	30.6	28.6	2.15	25.4	0.04	0.11	0.13	0.11	101	11
121	9.66	9.65	34.127	26.332	171.0	0.263	1.74	27.1	30.9	2.26	26.6	0.05	0.10	0.02	0.08	122	10
125 ISL	9.67 D	9.66	34.147 D	26.347	169.7	0.271	1.71	D 26.7	31.4	2.28	26.8	0.05	0.08	0.02	0.08	126	
140	9.65	9.63	34.191	26.385	166.5	0.295	1.53	23.9	33.4	2.35	27.6	0.03	0.02	0.02	0.09	141	09
150 ISL	9.56 D	9.54	34.198 D	26.406	164.7	0.313	1.48	D 23.1	33.9	2.37	27.8	0.03	0.13	0.02	0.09	151	
170	9.39	9.37	34.255	26.479	158.2	0.344	1.29	20.0	34.9	2.42	28.1	0.02	0.36	0.02	0.10	171	08
200	9.28	9.25	34.318	26.547	152.3	0.390	0.94	14.5	38.2	2.55	29.1	0.02		0.03	0.11	202	07
229	9.03	9.00	34.334	26.601	147.8	0.434	0.80	12.3	41.1	2.68	29.8	0.02				231	06
250 ISL	8.87 D	8.84	34.334 D	26.627	145.7	0.468	0.75	D 11.5	42.4	2.72	30.2	0.02				252	
271	8.40	8.37	34.297	26.671	141.7	0.495	0.78	11.8	43.6	2.76	30.5	0.02				273	05
300 ISL	8.09 D	8.06	34.280 D	26.705	138.9	0.539	0.74	D 11.1	46.3	2.80	31.5	0.03				302	
320	7.89	7.85	34.267	26.725	137.2	0.563	0.73	11.0	48.1	2.82	32.2	0.03				323	04
380	7.41	7.37	34.276	26.802	130.7	0.643	0.56	8.3	53.4	2.89	33.9	0.03				383	03
400 ISL	7.28 D	7.24	34.280 D	26.824	128.8	0.674	0.52	D 7.7	55.4	2.93	34.5	0.03				403	
440	7.03	6.99	34.290	26.867	125.2	0.720	0.42	6.2	59.4	3.01	35.7	0.02				444	02
500 ISL	6.52 D	6.47	34.311 D	26.953	117.4	0.799	0.33	D 4.8	63.6	3.09	36.5	0.01				504	
519	6.45	6.40	34.322	26.972	115.9	0.815	0.29	4.3	64.9	3.12	36.8	0.01				523	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY STA-CORRECTED 02;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 39.4 N	118 58.5 W	31/03/2012	0245 UTC	735 m	130	05 kn	240 03 07	4	1016.9 mb	14.2 c	12.9 c	11 m	8/8		ST	029	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.58	13.57	33.500	25.112	284.1	0.000	6.15	104.1	6.8	0.58	2.9	0.08	0.13	0.96	0.21	0	
2 A	13.58	13.58	33.500 D	25.115	283.9	0.006	6.15	104.1	6.8	0.58	2.9	0.08	0.13	0.96	0.21	2	24
7 A	13.53	13.53	33.497	25.123	283.3	0.020	6.19	104.6	6.7	0.63	2.9	0.07	0.24	0.98	0.22	7	23
9 A	13.49	13.48	33.495	25.131	282.6	0.026	6.12	103.4	6.6	0.61	2.9	0.07	0.17	1.01	0.22	9	22
10 ISL	13.48 D	13.48	33.496 D	25.133	282.4	0.029	6.12	D103.3	6.6	0.61	2.9	0.07	0.16	1.02	0.22	10	
17 A	13.35	13.34	33.495	25.160	280.1	0.048	6.09	102.6	6.7	0.60	3.2	0.08	0.12	1.07	0.18	17	21
20 ISL	13.00 D	12.97	33.512 D	25.247	271.9	0.057	6.03	D100.8						0.91	0.24	20	
24	12.42	12.41	33.519	25.362	261.1	0.067	5.54	91.5						0.70	0.32	24	20
30 ISL	12.33 D	12.32	33.552 D	25.405	257.1	0.083	5.56	D 91.6						0.65	0.31	30	
32 A	12.24	12.24	33.558	25.426	255.2	0.088	5.45	89.7	9.4	0.84	7.0	0.19	0.27	0.63	0.31	32	19
39 A	11.70	11.69	33.577	25.543	244.2	0.105	4.79	77.9	12.6	1.01	9.5	0.23	0.23	0.75	0.30	39	18
50	10.56	10.56	33.653	25.807	219.3	0.131	3.41	54.2	14.5	1.20	12.4	0.26	0.12	0.16	0.13	50	17
61	10.32	10.31	33.761	25.934	207.5	0.154	2.91	46.0	20.8	1.66	19.8	0.07	0.01	0.16	0.11	61	16
70	10.16	10.15	33.811	26.000	201.4	0.173	2.62	41.3	24.0	1.84	22.1	0.07	0.09	0.14	0.12	71	15
75 ISL	10.08 D	10.07	33.849 D	26.044	197.3	0.184	2.55	D 40.2	24.6	1.88	22.6	0.05	0.07	0.13	0.12	76	
85	9.95	9.94	33.924	26.124	189.9	0.202	2.29	36.0	25.7	1.96	23.5	0.02	0.02	0.11	0.10	86	14
100	9.72	9.71	34.006	26.226	180.5	0.230	2.07	32.4	28.6	2.09	25.2	0.01	0.01	0.09	0.09	101	13
121	9.49	9.47	34.040	26.293	174.7	0.267	1.91	29.7	31.2	2.19	26.5	0.00	0.07	0.12	0.10	122	12
125 ISL	9.49 D	9.48	34.079 D	26.322	172.0	0.276	1.88	D 29.2	31.6	2.20	26.7	0.00	0.07	0.12	0.10	126	
140	9.29	9.27	34.099	26.372	167.5	0.300	1.77	27.4	33.2	2.24	27.4	0.01	0.06	0.10	0.08	141	11
150 ISL	9.17 D	9.15	34.096 D	26.389	166.1	0.318	1.72	D 26.5	34.0	2.27	27.8	0.01	0.04	0.09	0.08	151	
170	9.13	9.11	34.140	26.430	162.6	0.349	1.57	24.2	35.6	2.33	28.6	0.00	0.00	0.08	0.08	171	10
200	8.82	8.80	34.208	26.533	153.5	0.397	1.31	D 20.0	37.7	2.38	29.4	0.01		0.12	0.10	202	09
231	8.52</																

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 29.4 N	119 18.9 W	31/03/2012	0647 UTC	1647 m	270	07 kn	290 03 06	4	1015.4 mb	13.3 C	12.2 C			7/8	ST	030	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	13.34	13.34		25.197	276.1	0.000	6.31	106.2	5.4	0.64	4.4	0.14	0.25	0.50	0.08	0	
2	13.34	13.35	33.547 D	25.199	275.9	0.006	6.31	106.2	5.4	0.64	4.4	0.14	0.25	0.50	0.08	2	21
10 ISL	13.24	13.24	33.545 D	25.219	274.2	0.028	6.32	D106.1	5.5	0.63	4.4	0.14	0.21	0.61	0.11	10	
11	12.93	12.93	33.548	25.283	268.1	0.031										11	20
11	12.93	12.93	33.548	25.283	268.2	0.030	6.38	106.6	5.5	0.63	4.4	0.14	0.20	0.62	0.12	11	19
20	12.77	12.77	33.554	25.319	265.0	0.054	6.42	106.9	5.2	0.61	4.7	0.16	0.09	1.83	0.21	20	18
30 ISL	12.11	12.10	33.585 D	25.472	250.7	0.081	5.62	D 92.2	7.4	0.86	8.7	0.27	0.17	1.61	0.28	30	
31	12.03	12.03	33.585	25.487	249.3	0.083	5.51	90.3	7.6	0.89	9.1	0.28	0.18	1.58	0.28	31	17
40	10.95	10.95	33.657	25.740	225.4	0.104	4.08	65.3	15.6	1.54	16.8	0.33	0.10	4.37	0.77	40	16
50	10.59	10.39	33.729	25.895	210.9	0.126	3.22	51.0	22.9	1.79	19.9	0.17	0.01	0.79	0.27	50	15
61	10.24	10.23	33.770	25.953	205.6	0.149	3.05	48.2	24.4	1.75	21.8	0.14	0.01	0.80	0.20	61	14
70	10.01	10.00	33.803	26.019	199.5	0.167	2.88	45.2	25.7	1.94	22.8	0.10	0.03	0.12	0.21	71	13
75 ISL	9.91	9.90	33.840 D	26.064	195.4	0.178	2.75	D 43.1	26.6	1.98	23.5	0.08	0.02	0.12	0.19	76	
85	9.69	9.68	33.872	26.126	189.7	0.196	2.45	38.3	28.2	2.06	24.9	0.03	0.00	0.11	0.14	86	12
100	9.50	9.49	33.971	26.236	179.6	0.224	2.16	33.5	31.1	2.17	26.4	0.02	0.00	0.03	0.09	101	11
121	9.06	9.04	34.022	26.348	169.3	0.260	1.96	30.1	34.7	2.27	28.1	0.01	0.04	0.06	0.10	122	10
125 ISL	9.00	8.99	34.041 D	26.371	167.2	0.268	1.93	D 29.7	34.9	2.28	28.2	0.01	0.04	0.07	0.14	126	
139	8.97	8.95	34.045	26.381	166.6	0.290	1.88	28.9	35.8	2.30	28.6	0.02	0.02	0.08	0.25	140	09
150 ISL	8.93	8.92	34.057 D	26.396	165.4	0.310	1.87	D 28.7	37.1	2.34	29.1	0.01	0.01	0.06	0.19	151	
171	8.64	8.62	34.108	26.483	157.5	0.343	1.59	24.3	39.7	2.41	30.1	0.00	0.00	0.02	0.08	172	08
200 ISL	8.47	8.45	34.140 D	26.534	153.1	0.390	1.45	D 22.0	41.9	2.46	30.8	0.00	0.00	0.04	0.08	202	
202	8.46	8.44	34.139	26.534	153.2	0.391	1.43	21.7	42.9	2.46	30.9	0.00	0.00	0.04	0.08	204	07
231	8.23	8.20	34.174	26.599	147.5	0.434	1.17	17.7	41.9	2.47	31.0	0.00				233	06
250 ISL	8.09	8.06	34.202 D	26.643	143.7	0.465	1.05	D 15.8	43.5	2.51	31.6	0.00				252	
272	8.04	8.01	34.209	26.656	142.8	0.494	0.96	14.4	45.3	2.56	32.2	0.00				274	05
300 ISL	7.85	7.82	34.240 D	26.709	138.3	0.536	0.79	D 11.8	47.3	2.62	32.9	0.00				302	
321	7.66	7.63	34.256	26.749	134.7	0.562	0.64	9.5	48.8	2.66	33.4	0.00				324	04
382	7.33	7.30	34.282	26.817	129.1	0.642	0.49	7.3	54.6	2.81	34.9	0.00				385	03
400 ISL	7.11	7.07	34.296 D	26.860	125.3	0.669	0.42	D 6.2	56.2	2.83	35.2	0.00				403	
441	6.81	6.77	34.306	26.909	121.0	0.716	0.32	4.7	59.7	2.89	36.0	0.00				445	02
500 ISL	6.35	6.30	34.328 D	26.990	113.8	0.790	0.28	D 4.0	66.1	3.00	37.2	0.00				504	
514	6.30	6.25	34.331 D	26.997	113.3	0.801	0.27	D 3.8	67.6	3.02	37.5	0.00				518	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 19.3 N	119 39.9 W	31/03/2012	1029 UTC	82 m	290	17 kn			1015.2 mb	12.9 C	12.3 C					031	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	12.69	12.69	33.488	25.284	267.8	0.000	6.06	100.7	9.4	0.73	5.6	0.19	0.01	2.10	0.46	0	
2	12.69	12.69	33.488	25.284	267.8	0.005	6.06	100.7	9.4	0.73	5.6	0.19	0.01	2.10	0.46	2	10
5	12.69	12.69	33.488	25.284	267.9	0.013	6.07	100.8	9.4	0.71	5.8	0.14	0.03	3.43	0.53	5	09
10	12.69	12.69	33.488	25.284	268.1	0.027										10	08
10	12.69	12.69	33.488	25.284	268.1	0.027	6.06	100.6	9.5	0.72	5.8	0.14	0.05	2.85	0.48	10	07
20 ISL	12.14	12.16	33.540 D	25.426	254.8	0.053	5.90	96.9	7.5	0.73	6.4	0.17	0.29	4.60	0.32	20	
21	12.11	12.11	33.528	25.426	254.8	0.055	5.89	96.6	7.3	0.73	6.5	0.17	0.31	4.78	0.31	21	06
30	11.79	11.79	33.580	25.527	245.4	0.078	5.51	89.8	6.8	0.88	9.0	0.21		4.76	0.21	30	05
40	11.30	11.29	33.610	25.642	234.7	0.102	4.72	76.1	12.1	1.18	13.8	0.28	0.30	1.64	0.41	40	04
50	10.61	10.60	33.692	25.829	217.2	0.125	3.81	60.6	19.6	1.49	18.3	0.22	0.13	0.77	0.24	50	03
60	10.40	10.40	33.706	25.876	213.0	0.146	3.56	56.4	21.6	1.55	19.7	0.16	0.04	0.68	0.25	60	02
71	10.18	10.18	33.731	25.933	207.8	0.170	3.33	52.5	23.2	1.61	20.8	0.12	0.23	0.70	0.24	72	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 9.2 N	120 0.2 W	31/03/2012	1355 UTC	1209 m	310	18 kn			1016.7 mb	13.2 C	12.4 C					032	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	12.34	12.33	33.460	25.330	263.4	0.000	6.22	102.4	9.1	0.68	6.5	0.22	0.25	0.55	0.23	0	
2	12.34	12.33	33.460	25.330	263.4	0.005	6.22	102.4	9.1	0.68	6.5	0.22	0.25	0.55	0.23	2	21
10	12.34	12.33	33.463	25.333	263.4	0.027										10	20
10	12.34	12.33	33.460	25.330	263.6	0.026	6.22	102.6	9.1	0.74	6.6	0.21	0.28	0.51	0.21	10	19
20	12.32	12.31	33.454	25.331	263.9	0.053	6.17	101.7	9.1	0.73	6.6	0.21	0.37	0.59	0.22	20	18
30	12.24	12.23	33.466	25.355	261.9	0.079	6.10	100.3	9.3	0.74	6.8	0.20	0.28	0.74	0.22	30	17
40	12.15	12.14	33.508	25.405	257.4	0.105	6.04	99.2	10.0	0.80	8.1	0.22	0.30	0.66	0.22	40	16
49	11.77	11.77	33.575	25.528	245.9	0.128	5.67	92.3	13.3	1.04	11.4	0.26	0.42	0.72	0.27	49	15
50 ISL	11.74	11.73	33.575 D	25.534	245.3	0.131	5.62	D 91.5	13.4	1.04	11.5	0.26	0.41	0.69	0.27	50	
60	11.48	11.47	33.582	25.588	240.5	0.155	5.41	87.6	14.1	1.09	12.4	0.24	0.35	0.44	0.26	60	14
71	10.95	10.94	33.599	25.698	230.2	0.180	4.84	77.5	16.8	1.21	14.9	0.17	0.27	0.42	0.19	72	13
75 ISL	10.51	10.50	33.585 D	25.763	224.0	0.191	4.26	D 67.5	18.0	1.28	16.1	0.18	0.25	0.35	0.18	76	
86	10.43	10.42	33.683	25.854	215.6	0.214	3.93	62.2	21.1	1.47	19.4	0.19	0.21	0.15	0.15	87	12
99	10.00	9.99	33.718	25.956	206.2	0.241	3.42	53.6	23.4	1.56	21.6	0.03	0.07	0.07	0.12	100	11
100 ISL	9.93	9.89	33.716 D	25.970	204.9	0.245	3.33	D 52.1	23.7	1.57	21.8	0.03	0.07	0.07	0.12	101	
118	9.22	9.21	33.841	26.180	185.3	0.278	2.74	42.4	28.7	1.74	25.2	0.01	0.02	0.01	0.08	119	10
125 ISL	9.16	9.15	33.857 D	26.203	183.2	0.293	2.70	D 41.6	29.2	1.76	25.						

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
32 59.3 N	120 21.0 W	31/03/2012	1735 UTC	717 m	310	13 kn			1016.7 mb	13.2 C	12.2 C					033		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP	
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db		
0	13.35	13.35	33.424	25.102	285.1	0.000	6.17	103.9	6.0	0.52	2.2	0.10	0.16	1.01	0.16	0		
2	13.35	13.35	33.424	25.102	285.1	0.006	6.17	103.9	6.0	0.52	2.2	0.10	0.16	1.01	0.16	2	21	
10	13.35	13.35	33.415	25.096	285.9	0.029	6.16	103.6	6.0	0.50	2.2	0.10	0.10	1.09	0.08	10	19	
10	13.35	13.35	33.416	25.097	285.8	0.029										10	20	
20	13.35	13.35	33.418	25.099	285.9	0.057	6.14	103.4	6.0	0.51	2.2	0.10	0.10	1.00	0.16	20	18	
30	ISL	13.34 D	13.34	33.418 D	25.102	286.0	0.086	6.12 D	103.0	5.9	0.48	2.2	0.10	0.13	1.05	0.13	30	
31	13.35	13.34	33.416	25.099	286.3	0.089	6.14	103.4	5.9	0.48	2.2	0.10	0.13	1.05	0.12	31	17	
40	13.18	13.17	33.422	25.139	282.8	0.114	6.03	101.2	5.6	0.50	2.4	0.13	0.33	0.62	0.21	40	16	
50	13.03	13.02	33.428	25.174	279.7	0.142	5.97	99.8	6.1	0.55	2.9	0.14	0.33	0.52	0.22	50	15	
60	12.80	12.79	33.431	25.220	275.6	0.170	5.72	95.2	6.9	0.63	4.1	0.21	0.33	0.41	0.17	60	14	
71	11.85	11.84	33.454	25.421	256.7	0.199	4.76	77.7	10.8	1.01	10.4	0.05	0.00	0.21	0.11	72	13	
75	ISL	11.66 D	11.64	33.470 D	25.470	252.1	0.211	4.70 D	76.3	11.8	1.08	11.5	0.04	0.01	0.17	0.11	76	
85	11.19	11.18	33.496	25.575	242.3	0.234	4.20	67.5	14.2	1.24	14.1	0.02	0.03	0.07	0.09	86	12	
100	10.70	10.69	33.553	25.706	230.1	0.270	3.77	60.0	17.3	1.41	16.8	0.03	0.01	0.06	0.07	101	11	
120	9.98	9.97	33.675	25.926	209.6	0.314	3.23	50.7	22.1	1.65	20.8	0.02	0.07	0.02	0.08	121	10	
125	ISL	9.83 D	9.81	33.753 D	26.013	201.3	0.326	2.97 D	46.4	23.4	21.6	0.02	0.09	0.02	0.07	126		
140	9.57	9.55	33.827	26.114	192.0	0.353	2.74	42.6	27.3	1.87	24.0	0.03	0.15	0.01	0.06	141	09	
150	ISL	9.33 D	9.31	33.904 D	26.213	182.8	0.374	2.58 D	39.9	29.3	25.0	0.02	0.12	0.01	0.05	151		
169	9.08	9.06	33.980	26.313	173.7	0.406	2.28	35.1	33.1	2.05	26.8	0.01	0.06	0.02	0.05	170	08	
200	ISL	8.71 D	8.69	34.057 D	26.432	163.0	0.461	1.92 D	29.3	37.6	21.9	0.01	0.00	0.00	0.04	202		
201	8.71	8.69	34.056	26.431	163.0	0.460	1.93	29.5	37.7	2.19	28.9	0.01	0.00	0.04	0.04	203	07	
230	8.39	8.37	34.114	26.526	154.5	0.506	1.62	24.5	37.7	2.19	28.9	0.01	0.00	0.04	0.04	232	06	
250	ISL	8.23 D	8.20	34.152 D	26.581	149.6	0.540	1.44 D	21.8	39.9	2.25	29.7	0.02	0.02	0.02	252		
270	8.09	8.06	34.187	26.630	145.3	0.566	1.22	18.4	42.0	2.31	30.4	0.02	0.02	0.02	0.02	272	05	
300	ISL	7.85 D	7.82	34.225 D	26.696	139.5	0.613	0.95 D	14.2	45.1	2.40	31.4	0.01	0.01	0.01	302		
320	7.64	7.61	34.228	26.730	136.5	0.636	0.83	12.4	47.1	2.46	32.0	0.01	0.01	0.01	0.01	323	04	
381	7.04	7.00	34.267	26.846	126.1	0.716	0.54	7.9	54.5	2.63	34.3	0.01	0.01	0.01	0.01	384	03	
400	ISL	6.95 D	6.91	34.269 D	26.861	125.0	0.745	0.53 D	7.8	57.3	2.68	35.0	0.01	0.01	0.01	403		
441	6.65	6.61	34.280	26.910	120.7	0.790	0.42	6.1	63.3	2.79	36.5	0.02	0.02	0.02	0.02	445	02	
500	ISL	6.18 D	6.13	34.286 D	26.978	114.7	0.866	0.37 D	5.3	67.5	2.85	37.5	0.02	0.02	0.02	504		
525	5.94	5.89	34.295	27.016	111.2	0.888	0.29	4.2	69.4	2.87	37.9	0.02	0.02	0.02	0.02	529	01	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
32 39.5 N	121 2.0 W	31/03/2012	2346 UTC	3816 m	210	10 kn	260 05 09	1	1017.1 mb	14.6 C	13.8 C	12 m		2/8	CS	034		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP	
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db		
0	13.42	13.42	33.326	25.014	293.6	0.000	6.35	107.0	6.8	0.46	1.8	0.10	0.15	0.81	0.22	0		
3	A	13.42	13.42	33.326	25.014	293.6	0.009	6.35	107.0	6.8	0.46	1.8	0.10	0.15	0.81	0.22	3	23
9	A	13.38	13.37	33.325	25.022	293.0	0.026	6.37	107.2	6.8	0.47	1.8	0.09	0.16	0.95	0.11	9	22
10	ISL	13.38 D	13.37	33.327 D	25.023	292.9	0.030	6.32 D	106.3	6.8	0.47	1.8	0.09	0.16	0.96	0.12	10	
11	13.38	13.37	33.324	25.021	293.0	0.030										10	21	
11	A	13.37	13.37	33.325	25.022	293.0	0.032	6.31	106.2	6.8	0.47	1.7	0.09	0.15	0.97	0.13	11	20
20	A	13.36	13.36	33.323	25.024	293.1	0.059	6.30	106.0	6.8	0.48	1.7	0.08	0.33	0.86	0.23	20	19
27	13.11	13.11	33.312	25.065	289.4	0.079	6.25	104.7	6.8	0.51	2.1	0.10	0.38	1.12	0.01	27	18	
30	ISL	12.71 D	12.70	33.339 D	25.166	279.8	0.088	6.24 D	103.5	7.2	0.56	2.7	0.13	0.31	1.09	0.11	30	
35	A	12.55	12.54	33.395	25.241	272.8	0.101	6.19	102.4	7.7	0.63	3.8	0.19	0.20	1.03	0.27	35	17
43	A	12.51	12.51	33.438	25.281	269.3	0.123	6.02	99.6	8.2	0.71	4.8	0.24	0.40	0.87	0.33	43	16
50	ISL	12.15 D	12.13	33.425 D	25.344	263.5	0.143	5.84 D	95.8	8.8	0.79	5.8	0.33	0.52	0.55	0.28	50	
52	11.96	11.95	33.424	25.377	260.3	0.147	5.83	95.3	9.0	0.81	6.1	0.36	0.56	0.46	0.27	52	15	
60	11.83	11.82	33.434	25.409	257.4	0.168	5.63	91.7	10.2	0.92	7.8	0.42	0.35	0.32	0.22	60	14	
70	11.05	11.04	33.472	25.581	241.3	0.193	5.00	80.2	13.9	1.21	12.7	0.32	0.12	0.12	0.13	71	13	
75	ISL	10.77 D	10.77	33.488 D	25.641	235.7	0.206	4.88 D	77.8	15.1	1.29	14.0	0.24	0.17	0.10	0.12	76	
85	10.41	10.40	33.514	25.725	227.9	0.228	4.35	68.8	17.4	1.46	16.7	0.08	0.26	0.06	0.10	86	12	
100	ISL	9.84 D	9.83	33.612 D	25.898	211.7	0.262	3.78 D	59.1	21.4	1.68	20.4	0.04	0.24	0.03	0.10	101	
102	9.64	9.63	33.625	25.942	207.5	0.265	3.55	55.2	21.9	1.71	20.9	0.04	0.24	0.02	0.10	103	11	
120	8.97	8.95	33.718	26.124	190.5	0.301	3.39	52.0	26.1	1.83	23.3	0.03	0.09	0.01	0.07	121	10	
125	ISL	8.90 D	8.89	33.732 D	26.144	188.6	0.312	3.44 D	52.7	26.8	1.85	23.6	0.03	0.08	0.01	0.07	126	
141	8.70	8.68	33.805	26.235	180.3	0.340	3.23	49.3	29.0	1.90	24.6	0.04	0.06	0.01	0.06	142	09	
150	ISL	8.57 D	8.56	33.855 D	26.294	174.9	0.358	3.19 D	48.5	29.9	1.92	25.0	0.04	0.09	0.01	0.05	151	
170	8.41	8.39	33.897	26.353	169.7	0.390	3.06	46.4	32.0	1.97	25.8	0.04	0.16	0.01	0.04	171	08	
200	8.15	8.12	34.033	26.499	156.3	0.439	2.09	31.5	40.2	2.30	29.9	0.03	0.03	0.00	0.04	202	07	
230	7.73	7.71	34.076	26.594	147.6	0.485	1.68	25.1	40.3	2.30	30.0	0.03	0.03	0.03	0.03	232	06	
250	ISL	7.49 D	7.46	34.111 D	26.657	142.0	0.516	1.49 D	22.1	43.5	2.39	31.1	0.03	0.03	0.03	252		
270	7.40	7.37	34.129	26.685	139.6	0.542	1.30	19.2	46.7	2.48	32.2	0.03	0.03	0.03	0.03	272	05	
300	ISL	6.98 D	6.95	34.136 D	26.749	133.8	0.586	1.17 D	17.1	50.3	2.58	33.2	0.04	0.04	0.04	302		
322	6.82	6.79	34.140	26.774	131.7	0.612	1.04	15.2	52.9	2.66	33.9	0.04	0.04	0.04	0.04	325	04	
381	6.48	6.45	34.190	26.860	124.3	0.688	0.71	10.3	61.3	2.80	36.2	0.04	0.04	0.04	0.04	384	03	
400	ISL	6.43 D	6.40	34.201 D	26.876	123.0	0.715	0.67 D	9.7	63.4	2.85	36.7	0.03	0.03	0.03	403		
441	6.10	6.06	34.214	26.929	118.3	0.761	0.54	7.8	68.0	2.96	37.7	0.02	0.02	0.02	0.02	445	02	

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 29.0 N	117 46.2 W	30/03/2012	1956 UTC	74 m	340	02 kn			1015.1 mb	13.8 C	12.0 C					028	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.95	13.95	33.483	25.025	292.4	0.000	6.09	103.9	4.9	0.55	2.4	0.07	0.13	1.62	0.71	0	
2	13.95	13.95	33.483	25.025	292.4	0.006	6.09	103.9	4.9	0.55	2.4	0.07	0.13	1.62	0.71	2	08
5	13.94	13.94	33.478	25.025	292.6	0.015	6.07	103.5	4.8	0.54	2.3	0.06	0.25	1.62	0.59	5	07
10 ISL	13.68 D	13.69	33.498 D	25.091	286.4	0.030	6.06	102.8	4.6	0.54	2.1	0.06	0.18	1.18	0.46	10	
11	13.39	13.39	33.488	25.144	281.4	0.032	5.99	101.0	4.5	0.54	2.1	0.06	0.16	1.09	0.44	11	06
20	11.89	11.89	33.561	25.493	248.4	0.056	4.33	70.8	12.3	1.30	13.3	0.25	0.81	1.06	0.11	20	05
30	11.34	11.33	33.582	25.613	237.3	0.080	3.54	57.2	17.1	1.58	17.8	0.22	0.42	1.02	0.12	30	04
41	10.91	10.90	33.652	25.745	225.0	0.105	3.08	49.3	20.7	1.69	20.9	0.25	1.05	0.26	0.16	41	03
50 ISL	10.60 D	10.59	33.729 D	25.860	214.3	0.126	2.92	46.5	22.8	1.92	22.4	0.23	1.27	0.33	0.18	50	
51	10.55	10.55	33.741	25.877	212.7	0.127	2.84	45.1	23.0	1.95	22.6	0.23	1.29	0.34	0.18	51	02
60	10.45	10.44	33.796	25.938	207.0	0.146	2.46	39.1	25.6	2.04	23.7	0.17	0.57	0.33	0.30	60	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 25.1 N	117 53.9 W	30/03/2012	1722 UTC	614 m	150	02 kn			1015.9 mb	14.0 C	12.3 C					027	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.99	13.99	33.486	25.021	292.9	0.000	6.09	104.0	4.3	0.48	1.4	0.04	0.06	0.91	0.16	0	
2	13.99	13.99	33.486	25.021	292.9	0.006	6.09	104.0	4.3	0.48	1.4	0.04	0.06	0.91	0.16	2	21
10 ISL	13.93 D	13.93	33.486 D	25.033	291.9	0.030	6.10	103.9	4.3	0.52	1.5	0.04	0.08	0.93	0.37	10	
11	13.89	13.89	33.484	25.040	291.3	0.033										11	20
11	13.89	13.89	33.490	25.045	290.9	0.032	6.11	104.0	4.3	0.53	1.5	0.04	0.08	0.93	0.39	11	19
20	13.74	13.74	33.480	25.068	288.9	0.058	5.95	100.9	3.5	0.57	2.0	0.05	0.24	1.44	0.22	20	18
30 ISL	13.22 D	13.22	33.494 D	25.183	278.3	0.087	5.61	94.3	5.2	0.74	4.9	0.13	0.39	1.11	0.14	30	
31	12.79	12.78	33.491	25.268	270.2	0.089	5.39	89.8	5.3	0.76	5.2	0.14	0.41	1.08	0.13	31	17
40	12.17	12.17	33.528	25.416	256.3	0.113	4.43	72.8	11.1	1.19	11.5	0.23	0.59	0.40	0.16	40	16
50	11.25	11.24	33.574	25.624	236.8	0.138	3.32	53.6	17.8	1.62	18.4	0.08	0.03	0.32	0.14	50	15
60	10.75	10.74	33.670	25.787	221.5	0.161	2.95	47.0						0.15	0.14	60	14
70	10.59	10.58	33.721	25.856	215.1	0.182	2.74	43.6	22.6	1.88	22.3	0.08	0.00	0.18	0.08	71	13
75 ISL	10.40 D	10.39	33.745 D	25.907	210.3	0.194	2.61	41.4	23.7	1.93	23.0	0.08	0.00	0.14	0.08	76	
85	10.26	10.25	33.844	26.009	200.9	0.214	2.37	37.4	25.9	2.04	24.3	0.07	0.00	0.07	0.09	86	12
100	10.10	10.08	33.928	26.103	192.3	0.243	2.23	35.1	28.3	2.11	25.3	0.01	0.00	0.06	0.09	101	11
119	9.93	9.92	34.046	26.223	181.4	0.279	1.85	29.1	31.2	2.25	26.7	0.01	0.05	0.07	0.09	120	10
125 ISL	9.76 D	9.74	34.048 D	26.255	178.5	0.292	1.95	30.5	32.0	2.27	27.1	0.01	0.07	0.06	0.09	126	
141	9.56	9.54	34.120	26.344	170.3	0.317	1.70	26.5	34.1	2.33	28.0	0.01	0.11	0.03	0.08	142	09
150 ISL	9.49 D	9.47	34.137 D	26.370	168.0	0.335	1.70	26.4	34.8	2.35	28.2	0.01	0.08	0.03	0.07	151	
170	9.32	9.30	34.173	26.425	163.2	0.366	1.63	25.3	36.1	2.38	28.6	0.00	0.00	0.01	0.06	171	08
200 ISL	9.26 D	9.25	34.262 D	26.505	156.3	0.417	1.20	18.5	39.4	2.53	29.6	0.00	0.01	0.01	0.06	202	
201	9.22	9.20	34.262	26.512	155.7	0.415	1.19	18.5	39.5	2.53	29.6	0.00	0.01	0.01	0.06	203	07
231	8.84	8.82	34.276	26.584	149.3	0.461	1.04	15.9	39.5	2.53	29.5	0.00	0.02			233	06
250 ISL	8.72 D	8.69	34.276 D	26.604	147.7	0.493	1.02	15.6	41.3	2.57	30.1	0.00	0.02			252	
270	8.61	8.58	34.277	26.623	146.3	0.518	0.96	14.7	43.2	2.62	30.8	0.00	0.01			272	05
300 ISL	8.57 D	8.54	34.311 D	26.656	143.8	0.567	0.80	12.1	44.7	2.66	31.3	0.00	0.03			302	
320	8.21	8.18	34.312	26.712	138.7	0.590	0.76	11.4	45.6	2.68	31.6	0.00	0.05			323	04
381	7.74	7.70	34.340	26.806	130.6	0.672	0.53	7.9	49.9	2.79	32.9	0.00	0.07			384	03
400 ISL	7.54 D	7.50	34.314 D	26.814	130.0	0.704	0.51	7.6	52.0	2.83	33.4	0.00	0.07			403	
441	6.98	6.94	34.299	26.881	123.8	0.749	0.49	7.2	56.4	2.93	34.6	0.00	0.08			445	02
500 ISL	6.57 D	6.51	34.310 D	26.947	118.1	0.829	0.33	4.9	62.5	3.02	36.4	0.00	0.11			504	
516	6.46	6.41	34.314	26.964	116.6	0.839	0.29	4.2	64.1	3.04	36.9	0.00	0.12			520	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 15.0 N	118 15.3 W	30/03/2012	1325 UTC	379 m	320	03 kn			1017.1 mb	14.3 C	12.9 C					026	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.90	13.90	33.495	25.046	290.5	0.000	6.11	104.0	4.6	0.51	2.1	0.06	0.00	1.52	0.56	0	
2	13.90	13.90	33.495	25.046	290.5	0.006	6.11	104.0	4.6	0.51	2.1	0.06	0.00	1.52	0.56	2	19
10	13.88	13.88	33.496	25.051	290.3	0.029										10	18
10	13.88	13.88	33.495	25.050	290.4	0.029	6.11	104.0	4.6	0.52	2.1	0.05	0.03	1.52	0.62	10	17
20	13.01	13.01	33.523	25.249	271.7	0.057	5.86	98.0	5.8	0.68	5.0	0.12	0.02	1.19	0.43	20	16
30	11.66	11.66	33.546	25.525	245.6	0.083	3.79	61.6	14.8	1.42	15.5	0.28	0.26	0.80	0.16	30	15
40	11.20	11.19	33.598	25.651	233.9	0.107	3.54	57.0	17.5	1.59	18.0	0.34	0.88	0.66	0.10	40	14
50 ISL	10.79 D	10.79	33.652 D	25.765	223.3	0.131	2.97	47.4	20.9	1.78	21.2	0.23	0.13	0.19	0.08	50	
51	10.73	10.72	33.663	25.786	221.3	0.132	2.92	46.6	21.3	1.80	21.5	0.22	0.06	0.15	0.08	51	13
60	10.58	10.58	33.745	25.874	213.1	0.152	2.65	42.2	23.9	1.91	22.7	0.04	0.00	0.07	0.08	60	12
70	10.46	10.45	33.794	25.935	207.6	0.173	2.58	40.9	25.0	1.93	23.4	0.03	0.00	0.07	0.		

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
33 11.0 N	118 23.5 W	30/03/2012	1026 UTC	1182 m	280	12 kn			1016.7 mb	13.3 C	12.4 C					025	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.92	13.92	33.477	25.027	292.3	0.000	6.00	102.3	4.5	0.49	1.7	0.07	0.04	0.91	0.35	0	
2	13.92	13.92	33.477	25.027	292.3	0.006	6.00	102.3	4.5	0.49	1.7	0.07	0.04	0.91	0.35	2	20
10	13.93	13.93	33.476	25.025	292.7	0.029	6.02	102.7	4.7	0.50	1.9	0.07	0.08	0.94	0.32	10	19
20 ISL	13.64 D	13.64	33.477 D	25.086	287.2	0.059	6.07 D	102.9	5.8	0.55	2.8	0.09	0.06	1.03	0.34	20	20
21	13.56	13.55	33.476	25.102	285.7	0.061	6.02	101.8	5.9	0.56	2.9	0.09	0.06	1.04	0.35	21	18
30	13.38	13.38	33.477	25.139	282.5	0.087	5.85	98.6	6.3	0.61	3.7	0.12	0.12	0.87	0.42	30	17
41	12.89	12.88	33.490	25.248	272.4	0.117	5.83	97.3	8.6	0.72	5.5	0.16	0.36	0.70	0.27	41	16
50 ISL	11.61 D	11.59	33.545 D	25.536	245.1	0.141	3.67 D	59.6	15.6	1.40	15.8	0.13	0.14	0.34	0.15	50	50
51	11.47	11.46	33.549	25.564	242.5	0.143	3.53	57.1	16.4	1.48	16.9	0.13	0.12	0.30	0.14	51	15
60	11.13	11.13	33.603	25.667	232.9	0.164	3.17	50.9	19.2	1.65	19.3	0.13	0.23	0.39	0.11	60	14
71	10.71	10.70	33.679	25.802	220.3	0.189	2.86	45.6	22.1	1.78	21.6	0.02	0.14	0.07	0.09	72	13
75 ISL	10.64 D	10.62	33.719 D	25.847	216.1	0.199	2.75 D	43.8	23.4	1.84	22.4	0.02	0.10	0.05	0.09	76	
85	10.46	10.45	33.785	25.928	208.6	0.219	2.50	39.7	26.6	1.98	24.5	0.01	0.00	0.03	0.08	86	12
100	10.07	10.06	33.873	26.064	196.0	0.249	2.47	38.9	25.2	1.95	23.5	0.01	0.07	0.01	0.06	101	11
122	9.76	9.74	33.957	26.183	185.1	0.291	2.33	36.5	29.2	2.07	26.0	0.00	0.08	0.01	0.05	123	10
125 ISL	9.70 D	9.68	34.016 D	26.239	179.9	0.299	2.17 D	33.9	29.8	2.10	26.3	0.00	0.09	0.01	0.07	126	
141	9.60	9.59	34.061	26.291	175.3	0.325	1.87	29.1	32.8	2.26	27.7	0.03	0.17	0.01	0.18	142	09
150 ISL	9.47 D	9.45	34.104 D	26.347	170.2	0.343	1.79 D	27.9	34.2	2.28	28.2	0.02	0.15	0.01	0.14	151	
170	9.12	9.10	34.156	26.445	161.3	0.374	1.60	24.7	37.4	2.34	29.3	0.01	0.10	0.01	0.05	171	08
200 ISL	8.84 D	8.82	34.199 D	26.524	154.3	0.424	1.36 D	20.8	40.5	2.46	30.5	0.01	0.22	0.00	0.05	202	
201	8.83	8.81	34.193	26.520	154.7	0.423	1.35	20.7	40.6	2.46	30.5	0.01	0.22	0.00	0.05	203	07
231	8.70	8.68	34.240	26.578	149.8	0.468	1.06 D	16.3	43.8	2.56	31.4	0.01	0.05			233	06
250 ISL	8.50 D	8.47	34.259 D	26.625	145.6	0.499	1.00 D	15.2	45.8	2.60	32.0	0.01	0.07			252	
270	8.27	8.25	34.255	26.656	142.9	0.525	0.94	14.2	47.9	2.65	32.6	0.00	0.09			272	05
300 ISL	7.96 D	7.93	34.269 D	26.715	137.8	0.571	0.78 D	11.8	51.4	2.72	33.7	0.00	0.05			302	
321	7.75	7.72	34.061	26.738	135.8	0.596	0.84	12.5	53.9	2.77	34.5	0.00	0.03			324	04
381	7.19	7.16	34.284	26.838	127.0	0.675	0.51	7.5	61.7	2.93	36.5	0.00	0.07			384	03
400 ISL	7.09 D	7.05	34.289 D	26.858	125.4	0.703	0.51 D	7.5	63.6	2.95	37.0	0.00	0.08			403	
439	6.76	6.72	34.294	26.906	121.1	0.747	0.40	5.8	67.4	3.00	37.9	0.00	0.11			443	02
500 ISL	6.34 D	6.30	34.318 D	26.982	114.6	0.824	0.33 D	4.7	74.2	3.10	39.2	0.00	0.09			504	
515	6.28	6.23	34.319	26.992	113.8	0.836	0.28	4.1	75.9	3.12	39.5	0.00	0.08			519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
32 55.1 N	118 56.3 W	30/03/2012	0538 UTC	1694 m	280	08 kn	280 08 10	2	1016.8 mb	13.0 C	12.3 C	11 m		8/8	ST	024	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.97	13.97	33.473	25.015	293.4	0.000	6.07	103.5	4.4	0.48	1.9	0.06	0.08	0.60	0.10	0	
2	13.97	13.97	33.473	25.015	293.4	0.006	6.07	103.5	4.4	0.48	1.9	0.06	0.08	0.60	0.10	2	21
10	13.95	13.95	33.477	25.021	293.1	0.030										10	20
10	13.95	13.95	33.473	25.019	293.3	0.029	6.07	103.5	4.4	0.49	1.9	0.06	0.11	0.58	0.11	10	19
20 ISL	13.76 D	13.74	33.477 D	25.065	289.2	0.059	6.09 D	103.4	5.4	0.54	2.7	0.09	0.19	0.84	0.15	20	20
21	13.61	13.60	33.478	25.094	286.5	0.061	6.09	103.0	5.5	0.55	2.8	0.09	0.20	0.86	0.15	21	18
30	13.25	13.24	33.485	25.173	279.2	0.087	6.02	101.1	6.9	0.63	4.0	0.12	0.11	0.83	0.23	30	17
40	12.57	12.57	33.510	25.325	265.0	0.114	5.76	95.4	9.4	0.82	7.0	0.19	0.42	0.93	0.31	40	16
50 ISL	11.61 D	11.59	33.560 D	25.548	244.0	0.141	4.84 D	78.5	14.1	1.19	12.9	0.43	0.09	0.56	0.25	50	50
51	11.44	11.43	33.562	25.579	241.0	0.142	4.75	76.9	14.6	1.23	13.5	0.45	0.06	0.52	0.24	51	15
60	11.00	10.99	33.621	25.705	229.2	0.163	4.24	67.9	17.9	1.43	16.9	0.23	0.12	0.28	0.19	60	14
71	10.38	10.37	33.660	25.845	216.2	0.188	3.47	54.9	20.9	1.65	20.5	0.05	0.00	0.11	0.13	72	13
75 ISL	9.95 D	9.96	33.709 D	25.953	205.9	0.197	3.42 D	53.7	22.4	1.73	21.6	0.04	0.00	0.08	0.12	76	
85	9.63	9.62	33.784	26.068	195.2	0.216	2.80	43.7	26.4	1.92	24.5	0.01	0.00	0.02	0.10	86	12
100	9.36	9.35	33.889	26.194	183.5	0.245	2.44	37.9	29.8	2.05	26.4	0.01	0.00	0.02	0.11	101	11
121	9.00	8.99	33.955	26.304	173.4	0.282	2.30	35.4	32.6	2.14	27.9	0.00	0.07	0.01	0.06	122	10
125 ISL	8.98 D	8.97	33.970 D	26.319	172.1	0.291	2.29 D	35.3	33.0	2.15	28.1	0.00	0.07	0.01	0.06	126	
140	8.85	8.84	34.005	26.367	167.8	0.314	2.14	32.8	34.6	2.19	28.7	0.01	0.05	0.01	0.06	141	09
150 ISL	8.82 D	8.80	34.025 D	26.389	166.0	0.333	2.11 D	32.3	35.5	2.23	29.0	0.01	0.03	0.01	0.06	151	
170	8.80	8.78	34.092	26.445	161.1	0.364	1.80	27.6	37.4	2.31	29.6	0.00	0.00	0.01	0.05	171	08
200 ISL	8.50 D	8.48	34.165 D	26.548	151.8	0.413	1.48 D	22.6	41.6	2.45	31.1	0.00		0.00	0.04	202	
201	8.48	8.46	34.161	26.549	151.8	0.412	1.45	22.0	41.7	2.45	31.2	0.00		0.00	0.04	203	07
230	8.20	8.17	34.178	26.607	146.8	0.456	1.25	18.9	45.4	2.55	32.4	0.00				232	06
250 ISL	8.06 D	8.04	34.198 D	26.642	143.7	0.487	1.12 D	16.9	48.2	2.63	33.2	0.00				252	
270	7.88	7.85	34.225	26.691	139.3	0.513	0.93	13.9	50.9	2.70	33.9	0.00				272	05
300 ISL	7.69 D	7.66	34.232 D	26.725	136.6	0.558	0.81 D	12.1	54.0	2.78	34.7	0.00				302	
321	7.55	7.51	34.252	26.762	133.4	0.583	0.69	10.3	56.2	2.83	35.3	0.00				324	04
380</																	

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
32 38.8 N	119 29.5 W	30/03/2012	0015 UTC	1294 m	300	16 kn	290 07 09	1	1019.1 mb	13.1 c	11.9 c	27 m	3/8	SC	023		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.09	13.09	33.472	25.191	276.6	0.000	6.21	103.9	7.1	0.63	4.6	0.13	0.25	0.56	0.13	0	
2 A	13.09	13.09	33.472	25.191	276.6	0.006	6.21	103.9	7.1	0.63	4.6	0.13	0.25	0.56	0.13	2	22
8 A	13.09	13.09	33.469	25.190	276.9	0.022	6.21	104.0	7.1	0.63	4.7	0.13	0.18	0.55	0.12	8	21
10 A	13.09	13.09	33.471	25.192	276.8	0.028	6.18	103.4	7.1	0.64	4.7	0.13	0.19	0.64	0.13	10	20
20 A	13.05	13.04	33.470	25.200	276.3	0.055	6.18	103.4	7.2	0.64	4.6	0.13	0.19	0.59	0.19	20	19
27	12.90	12.90	33.463	25.224	274.3	0.075	6.15	102.6	7.0	0.64	4.5	0.13	0.28	0.68	0.14	27	18
30 ISL	12.84 D	12.84	33.459 D	25.232	273.6	0.083	6.09	101.5	7.1	0.64	4.6	0.14	0.24	0.68	0.16	30	
36 A	12.77	12.77	33.453	25.242	272.8	0.099	6.08	101.2	7.1	0.65	4.7	0.15	0.17	0.70	0.18	36	17
44 A	12.39	12.39	33.436	25.303	267.2	0.121	5.84	96.4	8.2	0.73	5.9	0.19	0.26	0.46	0.19	44	16
50 ISL	11.96 D	11.95	33.436 D	25.386	259.5	0.138	5.43	88.7	9.5	0.88	8.3	0.19	0.16	0.24	0.14	50	
52	11.88	11.88	33.435	25.399	258.2	0.142	5.29	86.3	9.9	0.93	9.1	0.19	0.13	0.17	0.12	52	15
60	11.56	11.55	33.444	25.465	252.1	0.162	4.69	76.1	11.5	1.11	12.0	0.03	0.13	0.10	0.09	60	14
69	10.63	10.62	33.478	25.660	233.7	0.184	4.09	65.0	15.7	1.39	17.0	0.01	0.00	0.05	0.07	70	13
75 ISL	10.31 D	10.29	33.538 D	25.763	224.0	0.199	3.87	61.1	18.1	1.51	18.7	0.01	0.03	0.05	0.08	76	
84	10.14	10.13	33.657	25.883	212.8	0.218	3.48	54.8	21.6	1.68	21.2	0.00	0.07	0.05	0.09	85	12
99	9.50	9.49	33.773	26.080	194.3	0.248	2.98	46.3	25.7	1.86	24.1	0.01	0.06	0.03	0.10	100	11
100 ISL	9.50 D	9.49	33.819 D	26.116	190.9	0.251	2.77	43.1	26.0	1.87	24.2	0.01	0.06	0.03	0.09	101	
119	9.25	9.24	33.925	26.241	179.4	0.285	2.41	37.3	30.8	2.07	27.0	0.00	0.04	0.01	0.06	120	10
125 ISL	9.19 D	9.18	33.931 D	26.255	178.3	0.298	2.39	36.9	31.7	2.10	27.3	0.00	0.04	0.01	0.06	126	
140	9.01	9.00	33.983	26.325	171.9	0.322	2.19	33.7	33.9	2.16	28.2	0.00	0.04	0.01	0.06	141	09
150 ISL	9.11 D	9.10	34.051 D	26.362	168.6	0.341	2.01	31.0	34.9	2.22	28.6	0.00	0.05	0.01	0.06	151	
170	9.02	9.00	34.122	26.434	162.3	0.372	1.70	26.1	37.0	2.33	29.4	0.01	0.07	0.01	0.06	171	08
200 ISL	8.65 D	8.63	34.185 D	26.542	152.5	0.422	1.34	20.5	41.2	2.45	30.9	0.00	0.00	0.04	0.04	202	
202	8.65	8.63	34.185	26.541	152.6	0.423	1.37	20.9	41.4	2.46	31.0	0.00	0.00	0.04	0.04	204	07
230	8.26	8.24	34.201	26.614	146.1	0.464	1.12	17.0	46.2	2.57	32.7	0.01				232	06
250 ISL	8.00 D	7.97	34.216 D	26.666	141.4	0.496	0.95	14.3	48.9	2.63	33.5	0.03				252	
271	7.79	7.76	34.196	26.682	140.2	0.523	0.99	14.8	51.8	2.69	34.4	0.06				273	05
300 ISL	7.48 D	7.45	34.195 D	26.727	136.3	0.567	0.96	14.2	54.5	2.73	35.0	0.03				302	
320	7.37	7.34	34.204	26.749	134.5	0.590	0.88	13.0	56.4	2.75	35.4	0.01				323	04
381	6.96	6.92	34.253	26.846	126.1	0.669	0.57	8.4	63.8	2.92	37.1	0.00				384	03
400 ISL	6.84 D	6.80	34.257 D	26.866	124.3	0.698	0.56	8.1	65.3	2.95	37.4	0.00				403	
440	6.68	6.64	34.275	26.902	121.4	0.742	0.46	6.7	68.7	3.01	38.1	0.00				444	02
500 ISL	6.13 D	6.08	34.315 D	27.007	111.8	0.818	0.31	4.4								504	
515	5.96	5.92	34.325 D	27.027	109.5	0.835	0.30	4.0								519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
32 24.9 N	119 57.7 W	29/03/2012	1917 UTC	913 m	320	19 kn			1018.6 mb	14.1 c	12.5 c				022		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db	
0	13.64	13.64	33.419	25.040	291.0	0.000	6.12	103.6	5.6	0.45	2.1	0.07	0.05	0.64	0.07	0	
2	13.64	13.64	33.419	25.040	291.0	0.006	6.12	103.6	5.6	0.45	2.1	0.07	0.05	0.64	0.07	2	20
10 ISL	13.63 D	13.63	33.420 D	25.043	291.0	0.029	6.11	103.5	5.6	0.47	2.1	0.07	0.06	0.64	0.05	10	
11	13.64	13.64	33.417	25.040	291.3	0.032	6.11	103.4	5.6	0.47	2.1	0.07	0.06	0.65	0.05	11	19
20	13.57	13.57	33.423	25.059	289.8	0.058	6.12	103.5	5.7	0.48	2.2	0.07	0.02	0.67	0.10	20	18
30	13.23	13.23	33.429	25.132	283.1	0.087	6.12	102.8	6.3	0.51	2.8	0.10	0.04	0.97	0.11	30	17
41	13.01	13.00	33.456	25.198	277.2	0.118	6.06	101.3	7.3	0.60	4.1	0.13	0.22	0.79	0.18	41	16
50 ISL	12.89 D	12.87	33.466 D	25.231	274.2	0.144	5.92	98.7	7.8	0.66	4.7	0.17	0.34	0.60	0.18	50	
51	12.88	12.87	33.462	25.228	274.5	0.145	5.94	99.0	7.8	0.67	4.8	0.17	0.35	0.58	0.18	51	15
61	12.41	12.40	33.525	25.369	261.4	0.172	5.79	95.6	10.8	0.88	7.6	0.18	0.56	0.32	0.20	61	14
70	11.96	11.95	33.510	25.444	254.5	0.195	5.36	87.6	11.3	0.99	9.7	0.24	0.32	0.21	0.10	71	13
75 ISL	11.60 D	11.57	33.539 D	25.538	245.6	0.209	5.07	82.3	12.7	1.09	11.4	0.27	0.23	0.17	0.10	76	
85	11.24	11.23	33.563	25.618	238.2	0.232	4.59	73.9	15.4	1.29	14.7	0.32	0.05	0.10	0.10	86	12
100 ISL	10.86 D	10.84	33.587 D	25.706	230.1	0.269	4.13	66.0	17.4	1.43	17.0	0.13	0.00	0.08	0.10	101	
101	10.80	10.79	33.586	25.715	229.3	0.269	4.12	65.7	17.5	1.44	17.2	0.12	0.00	0.08	0.10	102	11
121	9.97	9.95	33.681	25.933	208.9	0.313	3.21	50.4	22.5	1.68	22.1	0.00	0.08	0.02	0.06	122	10
125 ISL	9.92 D	9.90	33.712 D	25.966	205.8	0.323	3.14	49.2	23.7	1.74	22.8	0.00	0.09	0.02	0.05	126	
142	9.38	9.36	33.871	26.179	185.9	0.355	2.62	40.6	29.0	2.02	25.9	0.01	0.13	0.00	0.04	143	09
150 ISL	9.24 D	9.22	33.935 D	26.252	179.1	0.371	2.44	37.7	30.5	2.07	26.6	0.01	0.12	0.00	0.04	151	
170	8.92	8.90	34.019	26.369	168.3	0.404	2.16	33.1	34.4	2.21	28.4	0.01	0.08	0.01	0.03	171	08
198	8.53	8.51	34.129	26.517	154.8	0.449	1.66	25.3	40.5	2.40	30.7	0.00		0.00	0.03	200	07
200 ISL	8.52 D	8.50	34.137 D	26.524	154.1	0.455	1.62	24.7	40.6	2.41	30.8	0.00		0.00	0.03	202	
230	8.43	8.41	34.167	26.562	151.1	0.498	1.42	21.6	43.0	2.48	31.5	0.00				232	06
250 ISL	8.16 D	8.14	34.178 D	26.612	146.6	0.531	1.30	19.6	44.9	2.54	32.1	0.00				252	
271	8.13																

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
32 5.0 N	120 38.8 W	29/03/2012	1337 UTC	3842 m	330	13 kn			1020.2 mb	13.8 c	12.7 c					021	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	PCT	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db		
0	13.87	13.87	33.404	24.982	296.5	0.000	6.19	105.3	5.8	0.45	1.8	0.07	0.04	0.67	0.11	0	
2	13.87	13.87	33.404	24.982	296.5	0.006	6.19	105.3	5.8	0.45	1.8	0.07	0.04	0.67	0.11	2	20
10	13.78	13.78	33.406	25.002	294.9	0.030	6.20	105.3	5.8	0.46	1.8	0.07	0.10	0.64	0.11	10	19
20 ISL	13.24 D	13.24	33.392 D	25.102	285.7	0.059	6.23 D	104.6	5.9	0.46	1.9	0.07	0.31	0.87	0.22	20	
21	13.23	13.22	33.392	25.104	285.5	0.062	6.22	104.4	5.9	0.46	1.9	0.07	0.33	0.90	0.23	21	18
30	13.11	13.10	33.408	25.141	282.3	0.087	6.05	101.3	6.1	0.51	2.7	0.10	0.16	0.65	0.22	30	17
41	13.05	13.04	33.423	25.165	280.3	0.118	6.01	100.5	6.4	0.54	3.0	0.13	0.21	0.61	0.22	41	16
50 ISL	12.94 D	12.94	33.416 D	25.179	279.2	0.144	5.92 D	98.8	6.6	0.59	3.5	0.17	0.30	0.48	0.21	50	
51	12.95	12.94	33.414	25.178	279.3	0.146	5.94	99.2	6.6	0.59	3.5	0.17	0.31	0.47	0.21	51	15
61	12.62	12.61	33.439	25.262	271.6	0.173	5.74	95.1	7.5	0.68	4.9	0.26	0.35	0.32	0.19	61	14
71	11.43	11.42	33.359	25.424	256.3	0.200	5.19	83.8	9.4	0.96	9.8	0.09	0.00	0.12	0.10	72	13
75 ISL	11.25 D	11.24	33.334 D	25.437	255.1	0.212	5.19 D	83.5	10.5	1.04	11.2	0.08	0.00	0.11	0.10	76	
86	10.81	10.80	33.422	25.585	241.3	0.237	4.36	69.5	13.5	1.27	14.9	0.04	0.00	0.07	0.08	87	12
100 ISL	10.20 D	10.19	33.536 D	25.780	223.0	0.272	3.70 D	58.9	18.0	1.45	19.3	0.03	0.00	0.04	0.06	101	
101	10.16	10.15	33.542	25.791	222.0	0.272	3.74	58.3	18.3	1.46	19.6	0.03	0.00	0.04	0.06	102	11
120	9.68	9.66	33.765	26.046	198.1	0.312	2.97	46.3	24.9	1.87	24.0	0.02	0.00	0.01	0.04	121	10
125 ISL	9.63 D	9.62	33.814 D	26.092	193.9	0.324	2.83 D	44.1	26.0	1.93	24.7	0.02	0.01	0.01	0.04	126	
140	9.34	9.33	33.965	26.258	178.4	0.350	2.37	36.7	29.4	2.10	26.8	0.02	0.02	0.00	0.04	141	09
150 ISL	9.16 D	9.14	34.008 D	26.322	172.5	0.370	2.24 D	34.6	31.1	2.14	27.4	0.02	0.01	0.00	0.04	151	
170	8.98	8.96	34.051	26.385	166.9	0.401	2.06	31.7	34.5	2.22	28.6	0.01	0.00	0.00	0.04	171	08
200	8.53	8.51	34.087	26.483	158.0	0.450	1.92	29.2	38.7	2.30	30.1	0.01	0.00	0.00	0.03	202	07
231	7.97	7.94	34.108	26.585	148.6	0.497	1.72	25.9	43.7	2.42	32.0	0.00				233	06
250 ISL	8.19 D	8.17	34.215 D	26.636	144.3	0.530	1.14 D	17.3	46.9	2.55	33.0	0.00				252	
270	7.88	7.85	34.210	26.680	140.4	0.554	1.00	15.0	50.3	2.69	34.0	0.00				272	05
300 ISL	7.58 D	7.55	34.224 D	26.735	135.6	0.600	0.86 D	12.8	54.1	2.77	35.1	0.00				302	
321	7.36	7.33	34.230	26.770	132.5	0.623	0.78	11.5	56.8	2.82	35.9	0.00				324	04
381	6.79	6.76	34.263	26.876	123.0	0.700	0.48	7.0	66.0	3.00	37.9	0.00				384	03
400 ISL	6.68 D	6.64	34.282 D	26.907	120.3	0.729	0.43 D	6.3	68.4	3.03	38.4	0.00				403	
441	6.37	6.33	34.300	26.963	115.4	0.771	0.33	4.7	73.5	3.11	39.4	0.01				445	02
500 ISL	6.01 D	5.96	34.324 D	27.029	109.6	0.845	0.28 D	4.0	80.0	3.19	40.6	0.00				504	
517	5.90	5.85	34.330	27.048	108.0	0.856	0.23	3.4	81.8	3.21	40.9	0.00				521	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
31 44.9 N	121 19.2 W	29/03/2012	0754 UTC	3744 m	300	09 kn	290 05 10	1	1018.6 mb	16.3 c	14.9 c			6/8	CS	020	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	PCT	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	db		
0	15.28	15.28	33.376	24.661	327.2	0.000	5.86	102.5	2.5	0.31	0.0	0.02	0.26	0.10	0.02	0	
2	15.28	15.28	33.376	24.661	327.2	0.007	5.86	102.5	2.5	0.31	0.0	0.02	0.26	0.10	0.02	2	20
10 ISL	14.81 D	14.77	33.376 D	24.771	316.9	0.033	5.89 D	102.1	2.4	0.30	0.0	0.02	0.03	0.10	0.02	10	
11	14.75	14.75	33.373	24.773	316.8	0.036	5.88	101.8	2.4	0.30	0.0	0.02	0.00	0.10	0.02	11	19
20 ISL	14.61 D	14.61	33.371 D	24.801	314.4	0.064	5.91 D	102.0	2.4	0.30	0.0	0.02	0.02	0.11	0.02	20	
26	14.56	14.55	33.367	24.811	313.7	0.083	5.96	102.7	2.4	0.30	0.0	0.02	0.03	0.12	0.03	26	18
30 ISL	14.55 D	14.55	33.369 D	24.814	313.5	0.096	5.92 D	102.0	2.4	0.30	0.0	0.02	0.03	0.12	0.03	30	
42	14.51	14.50	33.365	24.820	313.3	0.133	5.89	101.5	2.4	0.30	0.0	0.02	0.04	0.14	0.04	42	17
50	14.50	14.49	33.365	24.823	313.2	0.158	5.89	101.4	2.5	0.33	0.0	0.02	0.09	0.17	0.04	50	16
64	14.45	14.44	33.365	24.834	312.7	0.202	5.88	101.3	2.5	0.31	0.0	0.02	0.01	0.25	0.07	65	15
74	14.34	14.33	33.353	24.848	311.7	0.233	5.86	100.6	2.6	0.31	0.0	0.03	0.04	0.31	0.09	75	14
75 ISL	14.34 D	14.32	33.354 D	24.851	311.3	0.238	5.88 D	100.9	2.6	0.31	0.0	0.04	0.06	0.37	0.10	76	
88	13.56	13.55	33.299	24.968	300.5	0.276	5.89	99.4	3.2	0.37	0.5	0.10	0.26	1.24	0.23	89	13
100	12.11	12.09	33.310	25.263	272.6	0.310	5.27	86.3	5.9	0.68	5.8	0.12	0.02	0.19	0.11	101	12
111	11.28	11.26	33.372	25.464	253.5	0.339	4.76	76.6	10.2	1.00	11.0	0.05	0.16	0.10	0.06	112	11
125	10.60	10.58	33.431	25.630	237.9	0.374	4.42	70.1	13.0	1.17	13.9	0.04	0.05	0.07	0.05	126	10
140	9.85	9.83	33.604	25.893	213.1	0.407	3.76	58.7	19.9	1.56	20.0	0.04	0.11	0.02	0.02	141	09
150 ISL	9.54 D	9.52	33.726 D	26.039	199.4	0.431	3.37 D	52.4	22.9	1.69	21.9	0.04	0.10	0.01	0.02	151	
170	9.13	9.11	33.864	26.214	183.1	0.466	2.79	42.9	29.0	1.96	25.7	0.03	0.08	0.00	0.02	171	08
200 ISL	8.77 D	8.75	34.023 D	26.396	166.4	0.522	2.23 D	34.1	34.2	2.14	28.1	0.02		0.00	0.02	202	
201	8.75	8.73	34.003	26.384	167.5	0.520	2.27	34.6	34.4	2.15	28.2	0.02		0.00	0.02	203	07
230	8.41	8.39	34.079 D	26.496	157.4	0.567	1.91 D	29.0								232	06
250 ISL	8.19 D	8.16	34.119 D	26.562	151.4	0.602	1.59 D	24.0	42.5	2.41	30.9	0.02				252	
270	8.07	8.04	34.147 D	26.602	147.9	0.628	1.35 D	20.4								272	05
300 ISL	7.88 D	7.86	34.221 D	26.688	140.2	0.675	0.87 D	13.0	50.7	2.68	33.6	0.02				302	
321	7.71	7.68	34.241	26.730	136.5	0.700	0.72	10.7	54.1	2.79	34.7	0.02				324	04
380	7.38	7.35	34.269	26.800	130.8	0.779	0.56	8.4	59.7	2.88	35.9	0.02				383	03
400 ISL	7.28 D	7.24	34.276 D	26.821	129.0	0.810	0.53 D	7.8	61.4	2.91	36.3	0.02				403	
441	7.00	6.96	34.279	26.863	125.6	0.858	0.44	6.5	64.9	2.97	37.1	0.02				445	02
500 ISL	6.50 D	6.46	34.300 D	26.947	118.0	0.935	0.37 D	5.3	72.5	3.07	38.7	0.02				504	
515	6.32	6.27	34.291	26.964	116.4	0.947	0.33	4.8	74.5	3.09	39.1	0.02				519	01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
31 25.7 N	121 59.6 W	29/03/2012	0218 UTC	3860 m	240	08 kn	280 04 10	1	1020.6 mb	16.1 c	14.9 c	23 m		4/8	CS	019	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	14.70	14.70	33.342	24.760	317.8	0.000	5.89	101.9	2.6	0.30	0.0	0.02	0.05	0.11	0.02		0
3 A	14.70	14.70	33.342	24.760	317.8	0.010	5.89	101.9	2.6	0.30	0.0	0.02	0.05	0.11	0.02		3 22
10 ISL	14.66 D	14.66	33.342 D	24.768	317.2	0.032	5.89	D101.9	2.6	0.31	0.0	0.02	0.04	0.12	0.02		10
14 A	14.57	14.56	33.335	24.783	315.9	0.044	5.91	102.0	2.6	0.31	0.0	0.02	0.03	0.12	0.03		14 21
19 A	14.43	14.43	33.328	24.807	313.8	0.060	5.92	101.9	2.6	0.31	0.0	0.02	0.05	0.13	0.04		19 20
20 ISL	14.43 D	14.43	33.330 D	24.809	313.6	0.064	5.93	D102.0	2.6	0.31	0.0	0.02	0.05	0.13	0.04		20
30 ISL	14.40 D	14.39	33.329 D	24.815	313.3	0.095	5.94	D102.1	2.6	0.31	0.0	0.02	0.07	0.16	0.04		30
37 A	14.38	14.37	33.327	24.819	313.2	0.116	5.92	101.8	2.6	0.31	0.0	0.02	0.09	0.17	0.05		37 19
46	14.22	14.21	33.315	24.843	311.1	0.145	5.96	102.0	2.8	0.32	0.0	0.02	0.15	0.29	0.09		46 18
50 ISL	14.13 D	14.12	33.304 D	24.855	310.2	0.158	6.00	D102.5	2.9	0.32	0.0	0.02	0.12	0.34	0.10		50
57	13.95	13.94	33.297	24.885	307.5	0.179	5.99	102.0	3.1	0.33	0.1	0.03	0.08	0.42	0.13		57 17
66 A	13.57	13.56	33.248	24.926	303.8	0.206	6.02	101.6	3.5	0.36	0.3	0.05	0.14	0.45	0.15		67 16
74	13.40	13.39	33.243	24.956	301.2	0.230	6.05	101.9	3.8	0.38	0.6	0.07	0.22	0.40	0.15		75 15
75 ISL	13.42 D	13.41	33.309 D	25.004	296.6	0.235	6.02	D101.4	3.9	0.38	0.6	0.07	0.25	0.40	0.16		76
82 A	13.44	13.43	33.328	25.015	295.8	0.254	6.03	101.7	4.3	0.40	0.9	0.07	0.42	0.39	0.17		83 14
89	13.24	13.23	33.350	25.072	290.6	0.274	5.98	100.3	4.4	0.43	1.2	0.10	0.57	0.34	0.16		90 13
95	12.82	12.81	33.329	25.139	284.3	0.292	5.92	98.5	4.9	0.51	2.2	0.20	0.70	0.26	0.15		96 12
100 ISL	12.54 D	12.53	33.301 D	25.171	281.4	0.308	5.81	D 96.0	5.3	0.56	3.1	0.23	0.61	0.21	0.12		101
111	12.14	12.12	33.359	25.295	269.8	0.336	5.70	93.4	6.3	0.67	5.0	0.31	0.42	0.09	0.08		112 11
125	11.31	11.30	33.326	25.422	257.9	0.373	4.94	79.6	9.1	0.94	10.2	0.04	0.08	0.08	0.08		126 10
145	10.00	9.98	33.540	25.819	220.3	0.421	3.98	62.4	17.4	1.42	18.3	0.02	0.10	0.02	0.03		146 09
150 ISL	9.72 D	9.70	33.639 D	25.943	208.6	0.435	3.91	D 61.0	18.7	1.47	19.1	0.02	0.10	0.02	0.03		151
171	9.29	9.27	33.761	26.108	193.2	0.474	3.45	53.3	24.1	1.68	22.7	0.01	0.11	0.01	0.02		172 08
200 ISL	8.78 D	8.77	33.920 D	26.312	174.3	0.530	3.06	D 46.9	29.8	1.85	25.6	0.01	0.00	0.00	0.02		202
201	8.76	8.75	33.920	26.317	173.8	0.529	3.03	46.3	29.9	1.86	25.7	0.01	0.00	0.00	0.02		203 07
230	8.40	8.38	34.017	26.449	161.8	0.577	2.61	39.6	35.1	2.04	28.1	0.00	0.00	0.00	0.00		232 06
250 ISL	8.17 D	8.14	34.077 D	26.532	154.2	0.613	1.98	D 29.9	39.4	2.20	29.9	0.01	0.00	0.00	0.00		252
270	7.99	7.96	34.098	26.575	150.4	0.639	1.74	26.2	43.6	2.36	31.6	0.01	0.00	0.00	0.00		272 05
300 ISL	7.63 D	7.60	34.115 D	26.641	144.5	0.688	1.57	D 23.3	48.1	2.49	33.2	0.01	0.00	0.00	0.00		302
321	7.52	7.49	34.144	26.681	141.1	0.714	1.20	17.8	51.3	2.58	34.3	0.01	0.00	0.00	0.00		324 04
379	6.91	6.88	34.158	26.778	132.4	0.793	0.90	13.2	59.8	2.76	36.7	0.01	0.00	0.00	0.00		382 03
400 ISL	6.73 D	6.69	34.172 D	26.814	129.2	0.826	0.82	D 12.0	63.2	2.82	37.4	0.01	0.00	0.00	0.00		403
440	6.33	6.29	34.196	26.886	122.6	0.871	0.62	8.9	69.7	2.93	38.8	0.01	0.00	0.00	0.00		444 02
500 ISL	5.79 D	5.75	34.220 D	26.974	114.6	0.949	0.51	D 7.2	78.8	3.04	40.4	0.01	0.00	0.00	0.00		504
515	5.67	5.63	34.229	26.995	112.7	0.959	0.43	6.1	81.1	3.07	40.8	0.01	0.00	0.00	0.00		519 01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
31 5.0 N	122 39.7 W	28/03/2012	02043 UTC	4038 m	240	11 kn			1018.8 mb	16.0 c	14.2 c					018	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	15.09	15.09	33.352	24.684	325.0	0.000	5.82	101.4	2.3	0.31	0.0	0.02	0.00	0.07	0.02		0
2	15.09	15.09	33.352	24.684	325.0	0.007	5.82	101.4	2.3	0.31	0.0	0.02	0.00	0.07	0.02		2 20
10	15.09	15.09	33.353	24.684	325.2	0.033	5.81	101.4	2.3	0.29	0.0	0.01	0.00	0.07	0.01		10 19
20 ISL	15.10 D	15.09	33.354 D	24.685	325.5	0.065	5.82	D101.5	2.3	0.31	0.0	0.01	0.00	0.07	0.02		20
25	15.09	15.08	33.356	24.688	325.3	0.081	5.82	101.5	2.3	0.32	0.0	0.01	0.00	0.07	0.02		25 18
30 ISL	15.08 D	15.08	33.358 D	24.691	325.2	0.098	5.81	D101.3	2.3	0.32	0.0	0.01	0.00	0.07	0.02		30
40	15.06	15.06	33.359	24.697	325.0	0.130	5.82	101.4	2.3	0.31	0.0	0.01	0.00	0.08	0.02		40 17
50 ISL	15.05 D	15.04	33.359 D	24.701	324.9	0.164	5.81	D101.3	2.3	0.30	0.0	0.01	0.00	0.10	0.02		50
51	15.05	15.04	33.359	24.701	325.0	0.166	5.82	101.3	2.3	0.30	0.0	0.01	0.00	0.10	0.02		51 16
62	15.01	15.00	33.353	24.706	324.8	0.202	5.82	101.2	2.3	0.31	0.0	0.01	0.00	0.12	0.03		62 15
75	14.80	14.79	33.340	24.741	321.9	0.244	5.85	101.4	2.3	0.31	0.0	0.01	0.00	0.14	0.04		76 14
87	14.40	14.39	33.319	24.810	315.6	0.282	5.88	101.0	2.3	0.33	0.0	0.01	0.00	0.19	0.06		88 13
100 ISL	13.99 D	13.97	33.271 D	24.862	311.1	0.325	5.88	D100.1	2.6	0.34	0.1	0.04	0.00	0.35	0.15		101
101	13.89	13.87	33.276	24.885	308.8	0.326	5.89	100.2	2.6	0.34	0.1	0.04	0.00	0.36	0.16		102 12
110	13.44	13.42	33.253	24.960	302.0	0.353	5.78	97.3	3.2	0.41	1.0	0.20	0.02	0.30	0.14		111 11
125	12.43	12.42	33.339	25.224	277.0	0.397	5.54	91.4	4.1	0.50	3.1	0.07	0.00	0.23	0.11		126 10
141	10.82	10.80	33.281	25.476	253.0	0.439	5.14	81.8	7.9	0.85	8.6	0.03	0.01	0.10	0.04		142 09
150 ISL	10.57 D	10.55	33.344 D	25.569	244.3	0.465	5.01	D 79.4	10.5	0.99	11.1	0.03	0.04	0.07	0.03		151
171	9.75	9.73	33.512	25.838	219.0	0.510	4.36	67.9	16.5	1.33	17.0	0.02	0.11	0.01	0.02		172 08
200 ISL	9.18 D	9.15	33.775 D	26.138	190.9	0.574	3.81	D 58.7	23.1	1.59	21.5	0.01	0.00	0.00	0.01		202
201	9.16	9.14	33.774	26.139	190.9	0.571	3.80	58.5	23.4	1.60	21.7	0.01	0.00	0.00	0.01		203 07
230	8.65	8.62	33.893	26.314	174.7	0.624	3.52	53.6	28.1	1.74	24.1	0.01	0.00	0.00	0.00		232 06
250 ISL	8.25 D	8.23	33.971 D	26.436	163.3	0.663	2.96	D 44.7	32.7	1.89	26.2	0.01	0.00	0.00	0.00		252
270	7.93	7.91	33.979	26.490	158.4	0.690	2.85	42.7	37.4	2.03	28.3	0.01	0.00	0.00	0.00		272 05
300 ISL	7.64 D	7.61	34.026 D	26.570	151.2	0.742	2.27	D 33.8	44.0	2.25	31.1	0.00	0.00	0.00	0.00		302
320	7.31	7.28	34.044	26.631	145.6	0.766	1.91	28.3	48.3	2.40	33.0	0.00	0.00	0.00	0.00		323 04
381	6.69	6.66	34.096	26.758	134.1	0.852	1.27	18.5	58.8	2.67	36.3	0.01	0.00	0.00	0.00		384 03
400 ISL	6.35 D	6.31	34.114 D	26.817	128.4	0.883	1.06	D 15.3	62.5	2.75	37.2	0.01	0.00	0.00	0.00		403
441	6.20	6.16	34														

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
30 44.8 N	123 20.1 W	28/03/2012	1529 UTC	3846 m	230	10 kn			1020.0 mb	16.1 c	14.1 c					017		
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP	
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db		
0	15.04	15.04	33.336	24.683	325.1	0.000	5.85	101.8	2.4	0.31	0.0	0.01	0.05	0.07	0.01	0		
2	15.04	15.04	33.336	24.683	325.1	0.007	5.85	101.8	2.4	0.31	0.0	0.01	0.05	0.07	0.01	2	20	
10	ISL	15.04	D 15.04	33.337	D 24.683	325.3	0.033	5.84	D101.7	2.4	0.31	0.0	0.01	0.07	0.01	10		
11	15.04	15.04	33.336	24.682	325.4	0.036	5.85	101.9	2.4	0.31	0.0	0.01	0.00	0.07	0.01	11	19	
20	ISL	14.90	D 14.89	33.332	D 24.712	322.9	0.065	5.86	D101.7	2.4	0.31	0.0	0.01	0.08	0.02	20		
25	14.83	14.83	33.325	24.720	322.3	0.081	5.87	101.8	2.4	0.31	0.0	0.01	0.02	0.08	0.02	25	18	
30	ISL	14.81	D 14.81	33.325	D 24.725	322.0	0.098	5.86	D101.5	2.4	0.31	0.0	0.01	0.09	0.02	30		
40	14.77	14.76	33.322	24.732	321.6	0.129	5.88	101.8	2.4	0.30	0.0	0.00	0.00	0.10	0.03	40	17	
50	14.69	14.69	33.319	24.746	320.6	0.162	5.88	101.7	2.4	0.29	0.0	0.00	0.00	0.14	0.04	50	16	
62	14.29	14.28	33.303	24.821	313.8	0.200	5.85	100.4	2.5	0.31	0.2	0.02	0.00	0.37	0.14	62	15	
75	13.73	13.72	33.293	24.929	303.8	0.240	5.73	97.2	3.1	0.39	1.2	0.08	0.00	0.39	0.18	76	14	
87	13.20	13.19	33.287	25.031	294.4	0.276	5.56	93.2	4.1	0.49	2.8	0.10	0.00	0.32	0.17	88	13	
100	11.47	11.46	33.294	25.367	262.4	0.312	4.98	80.5	8.0	0.85	8.9	0.02	0.00	0.22	0.14	101	12	
112	11.03	11.02	33.325	25.472	252.7	0.343	4.76	76.2	9.7	0.98	11.1	0.01	0.00	0.15	0.10	113	11	
125	10.34	10.33	33.460	25.697	231.5	0.374	4.16	65.6	15.1	1.33	16.6	0.01	0.06	0.06	0.04	126	10	
140	9.74	9.73	33.682	25.972	205.6	0.407	3.05	47.6	23.8	1.81	23.8	0.01	0.02	0.01	0.02	141	09	
150	ISL	9.59	D 9.58	33.787	D 26.078	195.7	0.430	2.75	D 42.8	25.9	1.91	25.1	0.01	0.03	0.01	0.02	151	
170	9.44	9.42	33.910	26.200	184.6	0.465	2.19	34.1	30.3	2.11	27.6	0.01	0.05	0.00	0.02	171	08	
200	9.28	9.26	34.035	26.325	173.4	0.519	1.78	27.5	34.0	2.24	29.1	0.01	0.00	0.00	0.02	202	07	
231	9.13	9.10	34.115	26.413	165.6	0.571	1.43	22.1	37.4	2.37	30.4	0.00	0.00	0.00	0.00	233	06	
250	ISL	9.06	D 9.03	34.145	D 26.448	162.7	0.607	1.33	D 20.5	39.0	2.42	30.8	0.00	0.00	0.00	252		
270	8.92	8.89	34.188	26.504	157.7	0.635	1.17	17.9	40.7	2.47	31.3	0.00	0.00	0.00	0.00	272	05	
300	ISL	8.72	D 8.69	34.212	D 26.555	153.5	0.686	1.01	D 15.4	43.4	2.54	32.0	0.01	0.00	0.00	302		
320	8.63	8.60	34.226	26.581	151.4	0.712	0.93	14.2	45.1	2.58	32.5	0.01	0.00	0.00	0.00	323	04	
380	7.99	7.95	34.227	26.680	142.7	0.800	0.91	13.7	50.4	2.64	34.0	0.01	0.00	0.00	0.00	383	03	
400	ISL	7.73	D 7.69	34.201	D 26.699	141.0	0.835	0.90	D 13.4	53.1	2.69	34.7	0.01	0.00	0.00	403		
440	7.32	7.28	34.221	26.773	134.4	0.883	0.74	11.0	58.4	2.78	36.1	0.01	0.00	0.00	0.00	444	02	
500	ISL	6.68	D 6.63	34.227	D 26.866	125.8	0.970	0.58	D 8.4	67.2	2.91	38.0	0.01	0.00	0.00	504		
517	6.50	6.45	34.226	26.889	123.7	0.983	0.53	7.7	69.7	2.95	38.5	0.01	0.00	0.00	0.00	521	01	

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
30 25.0 N	123 59.8 W	28/03/2012	1011 UTC	4258 m	210	13 kn	200 04 05	1	1018.2 mb	16.8 c	14.0 c					016	
DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SI03	P04	NO3	NO2	NH4	CHL-A	PHAE0	PRES	SAMP
m	DEG C	DEG C		THETA			mL/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/l	ug/l	db	
0	15.36	15.36	33.359	24.630	330.1	0.000	5.80	101.6	2.3	0.29	0.0	0.01	0.00	0.07	0.01	0	
3	15.36	15.36	33.359	24.630	330.1	0.010	5.80	101.6	2.3	0.29	0.0	0.01	0.00	0.07	0.01	3	21
10	ISL	15.34	D 15.34	33.361	D 24.636	329.8	0.033	5.82	D101.9	2.3	0.29	0.0	0.00	0.07	0.01	10	
11	15.32	15.32	33.359	24.638	329.6	0.036	5.80	101.6	2.3	0.29	0.0	0.00	0.00	0.07	0.01	11	20
20	ISL	15.11	D 15.10	33.361	D 24.689	325.1	0.066	5.84	D101.8	2.3	0.29	0.0	0.00	0.07	0.01	20	
25	15.06	15.06	33.358	24.695	324.7	0.082	5.81	101.2	2.3	0.29	0.0	0.00	0.00	0.08	0.01	25	19
30	ISL	15.05	D 15.04	33.358	D 24.699	324.4	0.099	5.83	D101.6	2.3	0.27	0.0	0.00	0.08	0.01	30	
41	15.03	15.02	33.358	24.703	324.5	0.134	5.80	101.1	2.3	0.27	0.0	0.00	0.00	0.08	0.02	41	18
50	ISL	15.02	D 15.01	33.358	D 24.706	324.5	0.164	5.83	D101.5	2.3	0.28	0.0	0.00	0.09	0.02	50	
51	15.02	15.01	33.357	24.705	324.6	0.166	5.82	101.2	2.3	0.28	0.0	0.00	0.00	0.09	0.02	51	17
64	14.84	14.83	33.342	24.734	322.2	0.208	5.82	100.9	2.4	0.29	0.0	0.00	0.09	0.12	0.03	65	15
75	ISL	14.19	D 14.18	33.273	D 24.819	314.4	0.245	5.95	D101.7	2.5	0.30	0.0	0.00	0.21	0.07	76	
76	14.18	14.17	33.275	24.822	314.1	0.246	5.91	101.0	2.5	0.30	0.0	0.00	0.00	0.21	0.07	77	14
87	13.66	13.64	33.263	24.921	304.9	0.280	5.82	98.5	2.9	0.36	0.6	0.10	0.00	0.36	0.15	88	13
100	12.34	12.32	33.281	25.196	278.9	0.318	5.44	89.6	4.6	0.57	4.1	0.04	0.00	0.25	0.13	101	12
113	11.86	11.84	33.294	25.297	269.6	0.354	5.23	85.2	6.1	0.70	6.4	0.03	0.00	0.18	0.09	114	11
125	11.48	11.47	33.328	25.393	260.7	0.386	5.07	81.9	7.4	0.79	8.1	0.03	0.00	0.11	0.06	126	10
139	11.30	11.29	33.395	25.478	252.9	0.422	5.09	82.1	7.7	0.77	8.1	0.03	0.00	0.08	0.05	140	09
150	ISL	10.49	D 10.47	33.457	D 25.672	234.6	0.452	4.87	D 77.1	11.8	1.00	11.8	0.03	0.06	0.04	151	
172	9.45	9.43	33.678	26.017	202.0	0.497	4.08	63.3	20.0	1.45	19.3	0.02	0.00	0.00	0.01	173	08
200	8.96	8.93	33.848	26.230	182.1	0.550	3.19	49.0	27.8	1.82	24.6	0.01	0.00	0.00	0.01	202	07
230	8.69	8.66	33.988	26.383	168.2	0.603	2.47	37.8	34.0	2.08	28.0	0.00	0.00	0.00	0.00	232	06
250	ISL	8.51	D 8.49	34.063	D 26.468	160.4	0.640	2.07	D 31.5	37.9	2.20	29.5	0.00	0.00	0.00	252	
271	8.26	8.23	34.095	26.534	154.5	0.669	1.76	26.6	41.9	2.33	31.0	0.00	0.00	0.00	0.00	273	05
300	ISL	7.98	D 7.95	34.130	D 26.603	148.4	0.717	1.49	D 22.4	46.3	2.47	32.5	0.00	0.00	0.00	302	
320	7.75	7.72	34.154	26.656	143.6	0.742	1.22	18.3	49.3	2.57	33.6	0.00	0.00	0.00	0.00	323	04
380	7.18	7.14	34.180	26.758	134.5	0.826	0.88	12.9	57.6	2.74	36.0	0.00	0.00	0.00	0.00	383	03
400	ISL	6.95	D 6.91	34.200	D 26.806	130.1	0.857	0.75	D 11.0	60.4	2.79	36.7	0.00	0.00	0.00	403	
441	6.63	6.58	34.210	26.858	1												

Table with 20 columns: LATITUDE, LONGITUDE, DAY/MO/YR, CAST TIME, BOTTOM, WIND, SPEED, WAVES, WEA, BAROMETER, DRY, WET, SECCHI, CLD, AMT, TYPE, ORD. Data rows from 32 to 519.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED 02;

Table with 20 columns: LATITUDE, LONGITUDE, DAY/MO/YR, CAST TIME, BOTTOM, WIND, SPEED, WAVES, WEA, BAROMETER, DRY, WET, SECCHI, CLD, AMT, TYPE, ORD. Data rows from 31 to 517.

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED 02;

PRIMARY PRODUCTIVITY CASTS

RV BELL M SHIMADA										CALCOFI CRUISE 1203					STATION 76.7 80.0				
LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD										
34 3.8 N	122 56.2 W	04/04/2012	0122 UTC	14 m	1215 - 1900 PST	1215 PST	1900 PST	456.4 mg C/m2	050										
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)					
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK		
2	12.53	33.260	25.138	6.39	105.6	8.4	0.57	3.5	0.13	0.26	0.65	0.19	80. A	12.4	13.8	13.1	0.31		
10	12.53	33.262	25.140	6.36	105.1	8.1	0.57	3.5	0.13	0.17	0.86	0.20	33.	16.3	15.8	16.1	0.19		
12	12.52	33.261	25.141	6.38	105.4	8.2	0.56	3.5	0.13	0.03	0.78	0.20	27.		14.4	14.4	0.13		
23	12.49	33.260	25.146	6.36	105.1	8.2	0.57	3.5	0.13	0.10	0.75	0.19	8.0	13.2	13.0	13.1	0.18		
32	12.49	33.260	25.147	6.36	105.1	8.2	0.57	3.5	0.13	0.09	0.70	0.21							
40	12.50	33.260	25.146	6.32	104.5	8.3	0.58	3.7	0.14	0.34	0.61	0.88	1.2	2.6	2.1	2.3	0.16		
50	11.56	33.315	25.365	6.02	97.4	9.7	0.82	7.0	0.37	0.57	0.55	0.28	0.42	1.0	0.99	1.0	0.05		

RV BELL M SHIMADA										CALCOFI CRUISE 1203					STATION 80.0 51.0				
LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD										
34 26.9 N	120 31.6 W	03/04/2012	0039 UTC	10 m	1200 - 1855 PST	1205 PST	1850 PST	1767.7 mg C/m2	044										
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)					
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK		
2	11.03	33.737	25.788	5.34	85.7	12.2	1.12	12.8	0.29	0.97	5.04	0.11	74. A	71.3	61.4	66.3	0.74		
7	11.03	33.737	25.789	5.34	85.7	12.2	1.11	12.9	0.29	0.99	5.72	0.68	34.	81.6	118.9	100.3	0.90		
8	11.02	33.736	25.788	5.34	85.7	12.3	1.13	12.9	0.29	1.47	6.48	0.44	29.	57.1	72.6	64.9	1.4		
17	10.93	33.737	25.806	5.24	84.0	12.6	1.14	13.2	0.29	0.99	8.54	1.21		58.4	57.5	57.9	0.49		
22	10.52	33.786	25.916	3.82	60.7	21.5	1.67	19.4	0.38	0.97	2.09	0.48	3.4	58.4	57.5	57.9	0.49		
31	10.11	33.813	26.008	3.17	49.9	25.5	1.89	22.3	0.38	0.78	0.94	0.41	0.86	2.1	1.9	2.0	0.20		
36	10.14	33.824	26.012	3.07	48.4	26.0	1.92	22.7	0.40	0.69	0.93	0.35	0.40	0.31	1.3	0.78	0.40		

RV BELL M SHIMADA										CALCOFI CRUISE 1203					STATION 80.0 55.0				
LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD										
34 18.7 N	120 49.1 W	06/04/2012	2354 UTC	10 m	1205 - 1856 PST	1205 PST	1854 PST	951.4 mg C/m2	056										
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)					
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK		
2	10.44	33.755	25.906	5.08	80.5	20.0	1.50	19.1	0.22	0.37	1.78	0.41	74. A	43.1	44.1	43.6	0.23		
7	10.43	33.756	25.907	5.05	80.1	19.9	1.49	19.1	0.22	0.47	1.68	0.42	34.	43.3	38.7	41.0	0.23		
9	10.42	33.755	25.909	5.10	80.9	20.1	1.51	19.1	0.23	0.62	1.85	0.41	25.	42.6	42.4	42.5	0.23		
16	10.44	33.755	25.906	5.04	79.9	20.1	1.51	19.1	0.22	0.43	1.78	0.77	8.6	37.3	34.7	36.0	0.30		
22	10.44	33.757	25.908	5.08	80.5	20.1	1.51	19.1	0.22	0.49	2.11	0.31							
30	10.43	33.756	25.908	5.04	79.8	20.1	1.51	19.1	0.22	0.42	1.86	0.40	1.00	4.2	3.5	3.9	0.21		
36	10.42	33.753	25.909	4.99	79.1	20.1	1.52	19.2	0.22	0.40	2.23	0.34	0.40	1.3	1.2	1.3	0.15		

RV BELL M SHIMADA										CALCOFI CRUISE 1203					STATION 80.0 90.0				
LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD										
33 8.7 N	123 14.3 W	04/04/2012	2313 UTC	16 m	1217 - 1900 PST	1216 PST	1900 PST	118.4 mg C/m2	054										
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)					
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK		
3	13.67	33.099	24.786	6.04	102.2	3.2	0.36	0.0	0.00	0.18	0.19	0.04	75. A	2.3	2.1	2.2	0.07		
10	13.67	33.098	24.786	6.07	102.7	3.1	0.32	0.0	0.00	0.00	0.17	0.04	38.	3.5	3.6	3.6	0.07		
13	13.67	33.098	24.787	6.06	102.4	3.2	0.32	0.0	0.00	0.00	0.19	0.04	29.	3.4	2.4	2.9	0.06		
25	13.68	33.099	24.787	6.05	102.3	3.2	0.32	0.0	0.00	0.06	0.18	0.04	9.1	3.2	3.4	3.3	0.10		
37	13.65	33.109	24.800	6.05	102.2	3.2	0.33	0.0	0.00	0.08	0.19	0.04							
47	13.59	33.090	24.799	6.06	102.2	3.2	0.32	0.0	0.00	0.05	0.22	0.05	1.1	0.52	0.41	0.46	0.21		
56	13.44	33.084	24.825	6.07	102.2	3.3	0.31	0.1	0.00	0.00	0.25	0.05	0.46	0.19	0.16	0.18	0.10		

RV BELL M SHIMADA										CALCOFI CRUISE 1203					STATION 86.7 35.0				
LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD										
33 49.1 N	118 37.5 W	02/04/2012	0027 UTC	10 m	1158 - 1845 PST	1158 PST	1841 PST	1047.6 mg C/m2	039										
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)					
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK		
2	13.50	33.486	25.122	6.03	101.8	3.8	0.52	2.0	0.08	0.16	1.97	0.41	74. A	33.0	53.9	43.4	0.36		
6	13.49	33.486	25.122	6.02	101.7	3.8	0.52	2.1	0.08	0.22	3.20	0.43	40.	53.2	53.1	53.1	0.31		
9	13.49	33.486	25.122	6.04	102.0	3.8	0.52	2.0	0.09	0.35	3.59	0.37	25.	35.3	48.4	41.8	0.42		
16	13.46	33.492	25.134	5.98	101.0	3.9	0.54	2.2	0.09	1.33	3.40	0.58	8.6	42.1	40.5	41.3	0.50		
22	13.29	33.487	25.165	5.79	97.3	3.9	0.55	2.1	0.10	1.03	2.72	0.43							
29	11.31	33.543	25.587	3.99	64.4	5.1	0.60	3.4	0.13	0.23	2.37	0.42	1.2	6.5	6.3	6.4	0.23		
36	10.90	33.642	25.737	3.20	51.1	13.2	1.37	14.7	0.30	0.11	0.40	0.17	0.40	0.35	0.64	0.49	0.11		

A) INCUBATION LIGHT INTENSITIES WERE 54.3 ,38.0 ,27.5 ,9.1 ,1.2 ,0.45 PERCENT RESPECTIVELY.

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 86.7 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD								
33 39.4 N	118 58.5 W	31/03/2012	0245 UTC	11 m	1203 - 1842 PST	1200 PST	1841 PST	585.6 mg C/m2	029								
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)			
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK
2	13.58	33.495d	25.112	6.15	104.1	6.8	0.58	2.9	0.08	0.13	0.96	0.21	76. A	25.2	33.8	29.5	0.28
7	13.53	33.497	25.124	6.19	104.8	6.7	0.63	2.9	0.07	0.24	0.98	0.22	38.7	24.2	33.0	28.6	0.26
9	13.49	33.495	25.131	6.12	103.5	6.6	0.61	2.9	0.07	0.17	1.01	0.22	28.8	28.6	28.6	28.6	0.29
17	13.35	33.495	25.160	6.09	102.6	6.7	0.60	3.2	0.08	0.12	1.07	0.18	9.3	20.5	20.2	20.3	0.16
24	12.42	33.519	25.362	5.54	91.5					0.00	0.70	0.32					
32	12.24	33.558	25.426	5.45	89.8	9.4	0.84	7.0	0.19	0.27	0.63	0.31	1.1	1.8	1.5	1.7	0.09
39	11.70	33.577	25.544	4.79	78.1	12.6	1.01	9.5	0.23	0.23	0.75	0.30	0.43	0.56	0.54	0.55	0.12

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD								
32 39.5 N	121 2.0 W	31/03/2012	2346 UTC	12 m	1206 - 1850 PST	1208 PST	1848 PST	541.3 mg C/m2	034								
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)			
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK
3	13.42	33.326	25.014	6.35	107.0	6.8	0.46	1.8	0.10	0.15	0.81	0.22	68. A	21.9	23.8	22.8	0.15
9	13.38	33.325	25.022	6.37	107.2	6.8	0.47	1.8	0.09	0.16	0.95	0.11	32.	23.0	25.6	23.3	0.20
11	13.37	33.325	25.022	6.31	106.2	6.8	0.47	1.7	0.09	0.15	0.97	0.13	24.	22.0	22.0	22.0	0.15
20	13.36	33.325	25.024	6.30	106.0	6.8	0.48	1.7	0.08	0.33	0.86	0.23	7.7	13.2	13.6	13.4	0.21
27	13.11	33.312	25.065	6.25	104.7	6.8	0.51	2.1	0.10	0.38	1.12	0.01					
35	12.55	33.395	25.241	6.19	102.4	7.7	0.63	3.8	0.19	0.20	1.03	0.27	1.1	2.2	2.0	2.1	0.09
43	12.51	33.438	25.281	6.02	99.6	8.2	0.71	4.8	0.24	0.40	0.87	0.33	0.41	1.1	1.3	1.2	0.08

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 90.0 53.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD								
32 38.8 N	119 29.5 W	30/03/2012	0015 UTC	27 m	1205 - 1840 PST	1202 PST	1841 PST	429.6 mg C/m2	023								
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)			
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK
2	13.09	33.472	25.191	6.21	103.9	7.1	0.63	4.6	0.13	0.25	0.56	0.13	89. A	20.1	16.6	18.3	0.15
8	13.09	33.469	25.190	6.21	104.0	7.1	0.63	4.7	0.13	0.18	0.55	0.12	63.	20.3	18.9	19.6	0.12
10	13.09	33.471	25.192	6.18	103.4	7.1	0.64	4.7	0.13	0.19	0.64	0.13	57.	18.6	18.3	18.4	0.16
20	13.05	33.470	25.200	6.18	103.4	7.2	0.64	4.6	0.13	0.19	0.59	0.19	32.	10.5	10.5	10.5	0.14
27	12.90	33.463	25.224	6.15	102.6	7.0	0.64	4.5	0.13	0.28	0.68	0.14					
36	12.77	33.453	25.242	6.08	101.2	7.1	0.65	4.7	0.15	0.17	0.70	0.18	13.	1.0	0.79	0.91	0.27
44	12.39	33.436	25.303	5.84	96.4	8.2	0.73	5.9	0.19	0.26	0.46	0.19	8.2	0.53	0.34	0.43	0.07

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 90.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD								
31 25.7 N	121 59.6 W	29/03/2012	0218 UTC	23 m	1212 - 1850 PST	1213 PST	1850 PST	206.7 mg C/m2	019								
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)			
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK
3	14.70	33.342	24.760	5.89	101.9	2.6	0.30	0.0	0.02	0.05	0.11	0.02	82. A	1.8	3.3	2.5	0.07
14	14.57	33.335	24.783	5.91	102.0	2.6	0.31	0.0	0.02	0.03	0.12	0.03	39.	3.5	3.7	3.6	0.13
19	14.43	33.328	24.807	5.92	101.9	2.6	0.31	0.0	0.02	0.05	0.13	0.04	28.	2.8	1.3	2.1	0.12
37	14.38	33.327	24.819	5.92	101.8	2.6	0.31	0.0	0.02	0.09	0.17	0.05	8.5	3.4	3.5	3.4	0.10
46	14.22	33.315	24.843	5.96	102.0	2.8	0.32	0.0	0.02	0.15	0.29	0.09					
57	13.95	33.297	24.885	5.99	102.0	3.1	0.33	0.1	0.03	0.08	0.42	0.13					
66	13.57	33.248	24.926	6.02	101.6	3.5	0.36	0.3	0.05	0.14	0.45	0.15	1.2	2.2	1.9	2.0	0.06
74	13.40	33.243	24.956	6.05	101.9	3.8	0.38	0.6	0.07	0.22	0.40	0.15					
82	13.44	33.328	25.015	6.03	101.7	4.3	0.40	0.9	0.07	0.42	0.39	0.17	0.42	0.80	0.77	0.79	0.07

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 93.3 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD								
32 31.3 N	118 12.6 W	26/03/2012	0242 UTC	09 m	1205 - 1830 PST	1159 PST	1833 PST	395.4 mg C/m2	005								
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03	P04	N03	N02	NH4	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m3)			
m	DEG C		THETA	ml/L	PCT	uM/L	uM/L	uM/L	uM/L	uM/L	ug/L	ug/L	PCT	1	2	MEAN	DARK
2	14.31	33.496	24.960	5.94	102.0						0.95	0.27	71. A	27.5	27.8	27.6	0.30
6	14.30	33.498	24.965	5.93	101.8						0.93	0.27	36.	23.4	22.8	23.1	0.27
9	14.30	33.495	24.963	5.96	102.3	2.6	0.42	0.3	0.02	0.03	0.94	0.27	22.	21.6	12.3	16.9	0.21
14	14.25	33.495	24.973	5.95	102.1	2.6	0.42	0.3	0.02	0.00	0.93	0.29	9.2	13.9	13.9	13.9	0.19
26	13.11	33.495	25.207	4.71	78.9	9.1	0.97	8.4	0.20	0.12	0.84	0.41	1.2	1.7	1.9	1.8	0.11
32	12.18	33.507	25.399	4.10	67.4	12.7	1.25	12.6	0.22	0.08	0.66	0.36	0.43	0.61	0.89	0.75	0.07

A) INCUBATION LIGHT INTENSITIES WERE 54.3 ,38.0 ,27.5 ,9.1 ,1.2 ,0.45 PERCENT RESPECTIVELY.

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 93.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 30.7 N	120 15.1 W	27/03/2012	0034 UTC	18 m	1207 - 1845 PST	1206 PST	1841 PST	339.9 mg C/m2	010

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/L	OXY PCT	SI03 uM/L	P04 uM/L	N03 uM/L	N02 uM/L	NH4 uM/L	CHL-A ug/L	PHAE0 ug/L	LIGHT PCT	UPTAKE (mg C/m3)			
														1	2	MEAN	DARK
2	13.50	33.196	24.896	6.05	102.0	3.6	0.33	0.2	0.05	0.02	0.31	0.07	84. A	8.0	7.8	7.9	0.07
12	13.48	33.197	24.901	6.04	101.9	3.6	0.37	0.3	0.06	0.05	0.32	0.07	36.	8.6	8.5	8.6	0.16
15	13.48	33.207	24.909	6.05	101.9	3.6	0.34	0.3	0.05	0.03	0.30	0.07	28.	5.7	7.9	6.8	0.09
24	13.47	33.199	24.905	6.04	101.8	3.8	0.34	0.2	0.05	0.03	0.34	0.07					
28	13.48	33.202	24.907	6.05	101.9	3.7	0.34	0.3	0.05	0.16	0.35	0.08	9.2	7.6	7.2	7.4	0.07
41	13.08	33.260	25.033	6.12	102.2	4.4	0.39	0.8	0.06	0.07	0.62	0.14					
52	13.00	33.386	25.145	5.94	99.2	5.8	0.55	3.0	0.16	0.36	0.36	0.21	1.2	1.9	2.1	2.0	0.09
64	12.38	33.428	25.299	5.36	88.4	7.7	0.77	6.8	0.32	0.00	0.13	0.10	0.43	0.32	0.25	0.28	0.06

RV BELL M SHIMADA

CALCOFI CRUISE 1203

STATION 93.3 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
29 50.8 N	123 34.6 W	28/03/2012	0425 UTC	28 m	1330 - 1855 PST	1219 PST	1854 PST	129.2 mg C/m2	015

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN mL/L	OXY PCT	SI03 uM/L	P04 uM/L	N03 uM/L	N02 uM/L	NH4 uM/L	CHL-A ug/L	PHAE0 ug/L	LIGHT PCT	UPTAKE (mg C/m3)			
														1	2	MEAN	DARK
2	15.46	33.369	24.615	5.79	101.8	2.5	0.31	0.0	0.00	0.02	0.11	0.00	90. A	1.5	1.6	1.5	0.08
18	15.21	33.364	24.667	5.80	101.4	2.5	0.30	0.1	0.00	0.03	0.11	0.00	37.	1.9	1.9	1.9	0.07
25	15.18	33.366	24.676	5.80	101.2	2.4	0.31	0.0	0.00	0.03	0.12	0.00	25.	1.2	1.5	1.4	0.08
35	15.16	33.364	24.679	5.80	101.3	2.4	0.32	0.0	0.00	0.10	0.12	0.02					
45	15.03	33.362	24.706	5.81	101.1	2.4	0.30	0.0	0.00	0.11	0.16	0.02	8.5	1.5	1.5	1.5	0.19
57	14.72	33.339	24.756	5.84	101.1	2.4	0.31	0.0	0.00	0.13	0.20	0.03					
67	14.29	33.292	24.811	5.93	101.6	2.6	0.32	0.0	0.00	0.00	0.39	0.06					
75	13.74	33.296	24.929	5.81	98.5	3.1	0.37	0.6	0.08	0.00	0.65	0.39					
81	13.58	33.329	24.988	5.64	95.4	3.6	0.44	1.7	0.09	0.02	0.54	0.38	1.2	1.2	0.97	1.1	0.06
91	12.83	33.368	25.169	5.47	90.9	4.3	0.53	3.5	0.05	0.04	0.35	0.32					
100	12.38	33.340	25.235	5.31	87.4	5.3	0.63	5.2	0.02	0.06	0.20	0.17	0.42	0.23	0.24	0.24	0.01

A) INCUBATION LIGHT INTENSITIES WERE 54.3 ,38.0 ,27.5 ,9.1 ,1.2 ,0.45 PERCENT RESPECTIVELY.

CalCOFI Cruise 1203

MACROZOOPLANKTON BIOMASS

Net Mesh Size: 0.505mm

Line	Sta.	Latitude N	Longitude W	Date Mo/Day	Time (PST)		Water Volume Strained (m ³)	Max. Tow Depth (m)	Volume per 1000 m ³ Strained	
					Start	End			Total (cm ³)	Small (cm ³)
76.7	49.0	35 04.8	120 46.6	04/02	1428	1434	182	53	641	641
76.7	51.0	35 01.3	120 55.0	04/02	1639	1655	400	167	228	88
76.7	55.0	34 53.3	121 11.8	04/02	2004	2025	463	206	933	328
76.7	60.0	34 43.3	121 32.7	04/02	2347	0007	446	203	1327	767
76.7	70.0	34 23.5	122 14.6	04/03	0500	0520	487	206	1444	296
76.7	80.0	34 03.8	122 56.3	04/03	1028	1048	430	188	1815	442
76.7	90.0	33 43.3	123 37.8	04/03	1609	1630	469	201	494	296
76.7	100.0	33 23.1	124 19.7	04/03	2135	2156	491	202	838	483
80.0	51.0	34 27.0	120 31.4	04/02	0749	0755	152	51	4115	165
80.0	55.0	34 19.2	120 48.4	04/06	0844	0904	509	220	326	326
80.0	60.0	34 09.1	121 08.9	04/06	1241	1301	454	195	326	326
81.8	46.9	34 16.5	120 01.2	04/02	0400	0420	462	207	160	160
83.3	40.6	34 13.9	119 26.6	04/01	2352	2356	109	37	623	623
83.3	42.0	34 10.5	119 30.4	04/01	2204	2219	338	140	148	148
83.3	55.0	33 44.5	120 24.8	03/31	2306	2326	416	207	324	324
83.3	60.0	33 34.5	120 45.4	03/31	1908	1926	445	212	2855	247
83.3	70.0	33 14.5	121 26.5	03/31	1346	1406	540	207	44	44
86.7	33.0	33 52.9	118 30.5	04/01	1218	1222	128	29	624	624
86.7	35.0	33 49.4	118 37.7	04/01	0942	1003	528	216	250	250
86.7	40.0	33 39.4	118 58.5	03/30	1203	1223	427	202	208	208
86.7	45.0	33 29.3	119 19.2	03/30	1601	1621	433	205	286	286
86.7	50.0	33 19.3	119 39.9	03/30	1922	1927	130	56	386	386
86.7	55.0	33 09.3	120 00.3	03/30	2305	2326	433	209	287	287
86.7	60.0	32 59.5	120 20.9	03/31	0238	0258	461	206	156	156
86.7	70.0	32 39.5	121 02.0	03/31	0656	0716	420	213	1943	419
90.0	28.0	33 28.9	117 46.2	03/30	0439	0445	134	65	819	819
90.0	30.0	33 25.0	117 54.3	03/30	0228	0249	436	205	268	268
90.0	35.0	33 15.0	118 15.3	03/29	2234	2254	440	210	232	232
90.0	37.0	33 10.9	118 23.6	03/29	1937	1957	463	210	138	138
90.0	45.0	32 55.0	118 56.3	03/29	1447	1507	435	210	253	140
90.0	53.0	32 39.1	119 29.1	03/29	0942	1001	444	220	54	54
90.0	60.0	32 25.0	119 57.3	03/29	0424	0444	500	193	168	168
90.0	70.0	32 05.0	120 38.9	03/28	2251	2311	461	207	100	100
90.0	80.0	31 44.8	121 19.2	03/28	1711	1731	413	215	63	63
90.0	90.0	31 25.1	121 59.6	03/28	1139	1159	425	209	271	271
90.0	100.0	31 05.0	122 39.8	03/28	0547	0607	411	206	54	54
90.0	110.0	30 45.0	123 20.2	03/28	0029	0049	448	213	40	40
90.0	120.0	30 24.9	123 59.8	03/27	1918	1938	443	208	77	27
93.3	26.7	32 57.4	117 18.4	03/24	2237	2242	157	48	933	933
93.3	28.0	32 54.8	117 23.5	03/25	0048	0108	484	186	93	93
93.3	30.0	32 50.9	117 31.6	03/25	0335	0355	416	205	106	106
93.3	35.0	32 40.9	117 52.1	03/25	0724	0739	375	216	96	96
93.3	40.0	32 30.8	118 13.3	03/25	1204	1224	586	190	22	22
93.3	50.0	32 10.9	118 53.1	03/25	2018	2038	521	212	69	69
93.3	55.0	32 00.8	119 13.6	03/26	0001	0021	417	225	86	48
93.3	60.0	31 50.8	119 34.2	03/26	0418	0438	484	209	29	29
93.3	70.0	31 30.9	120 14.6	03/26	0946	1006	450	211	333	111
93.3	80.0	31 11.0	120 55.2	03/26	1541	1602	434	206	219	219
93.3	90.0	30 50.8	121 35.3	03/26	2124	2145	479	211	150	46
93.3	100.0	30 30.7	122 15.3	03/27	0232	0252	445	213	220	220
93.3	110.0	30 10.9	122 55.2	03/27	0755	0815	446	197	41	27
93.3	120.0	29 50.8	123 34.8	03/27	1335	1354	424	209	24	24