UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI Cruise 0310
20 October – 03 November 2003

CC Reference 06-03
23 January 2006

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093-0227

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INTRODUCTION

The data presented in this report were collected during cruise 0310* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the RV *New Horizon* of Scripps Institution of Oceanography, University of California, San Diego. 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. Other SIO staff members and volunteers also assisted in the collection of data and chemical analyses at sea. 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 1049) 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 P134. 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

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

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.

Nutrient samples were analyzed at sea by the Scripps Ocean Data Facility for dissolved silicate, phosphate, nitrate and nitrite using procedures similar to those described in Gordon et al., 1993. Samples were collected in 45 ml high-density polypropylene screw-capped tubes, which were rinsed three times prior to filling. Standardizations were done at the beginning and end of each group of samples with a set of mid-concentration range standards prepared fresh for each run. Samples not analyzed immediately after collection were refrigerated and run the following day. Sets of six different concentration standards were analyzed periodically to determine the deviation from linearity as a function of concentration, for the silicate, nitrate and phosphate analyses. Final sample concentrations were corrected for deviations from linearity using a second order polynomial.

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 10 µCi of ^{14}C as $NaHCO_3$ (200 µl of 50 µCi/ml stock) 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). An Optical Plankton Counter (OPC, Dave Checkley, SIO) was routinely used in one side of the paired bongo net frame. The purpose of the OPC is to obtain information on the vertical distributions of size categories of zooplankton, using data from the counter, without affecting the ongoing time series of data obtained from the catches of the integrative bongo net.

Avifauna Observations (Point Reys Bird Observatory)

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. Included at the end of this report are individual maps of the most numerous bird species (individuals/nm).

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 Thermosalinograph and a Wetlabs Wetstar fluorometer.

2) *ADCP:* Continuous profiles of ocean currents and acoustic backscatter between 20 and 500 meters deep were measured along the shiptrack from a hull-mounted 150 kHz Acoustic Doppler Current Profiler (ADCP). The ADCP data were averaged over 3-minute intervals. Sixty 8-meter depth bins were recorded. (T. Chereskin, SIO)

3) *Taxon-specific pigments*: Water samples were collected from a depth of 10 m for the analysis of taxon-specific pigments (chlorophylls and carotenoids) by high-pressure liquid chromatography (R. Goericke, SIO).

4) *Organic carbon:* At each station several samples were drawn from the CTD for total organic carbon concentration profiles. At half of the stations 10 to 15L of surface water were filtered for stable isotope measurements of particulate organic carbon. Several solid phase extracts from filtered seawater were taken for chemical and isotope analyses of dissolved organic carbon. Size and chemically fractionated DOC samples were also drawn at several surface and deep (1000 m) sites to isolate colored dissolved organic matter (CDOM) for an investigation of chemical composition and both the extent and mechanism of CDOM photoreactivity (L. Aluwihare, SIO).

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 ($cm^3/1000m^3$ 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 0310

1. CalCOFI Cruise 0310 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.

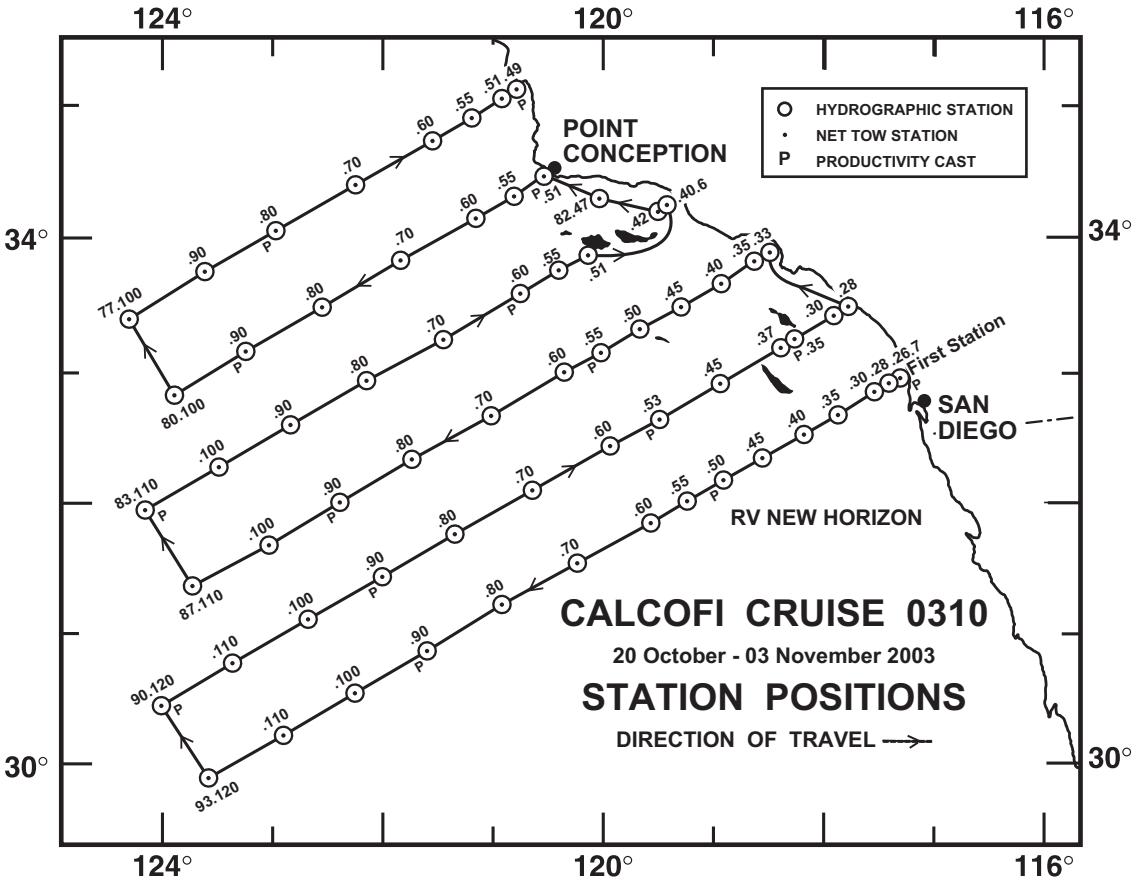


FIGURE 1

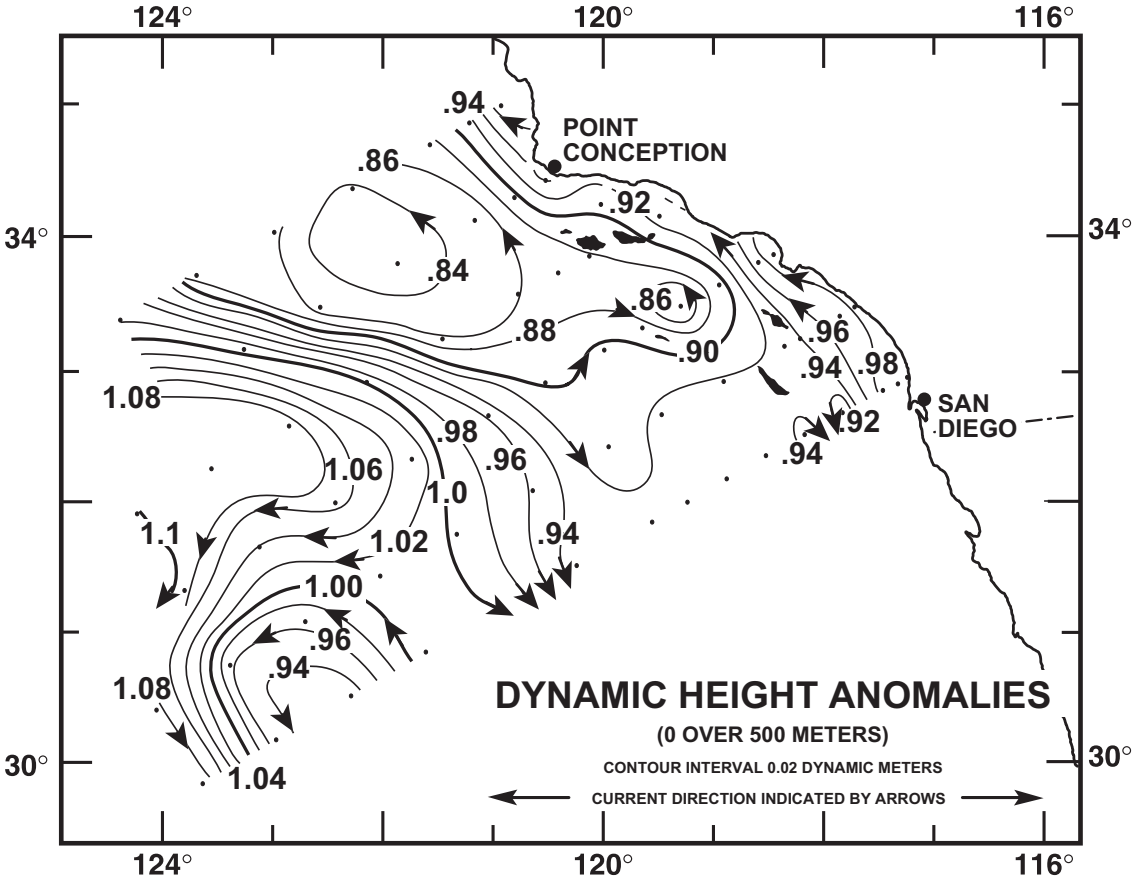


FIGURE 2

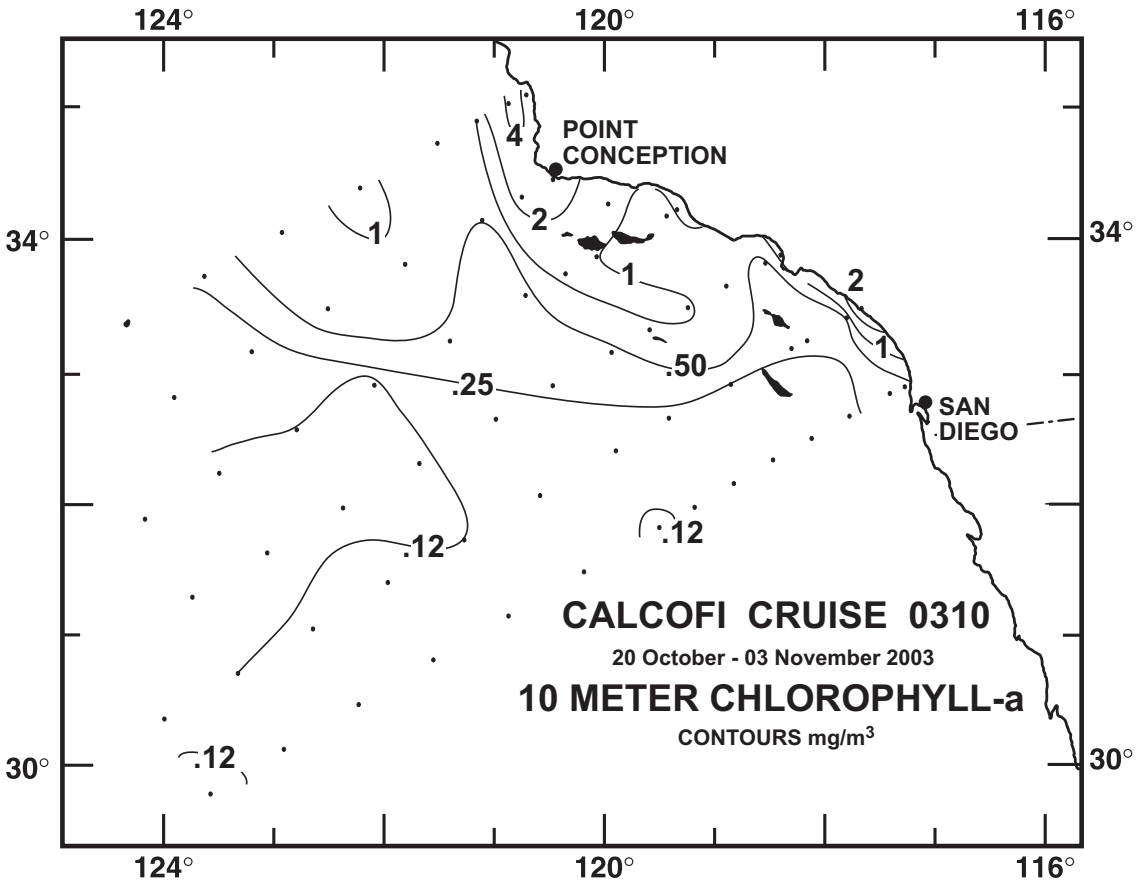


FIGURE 3A

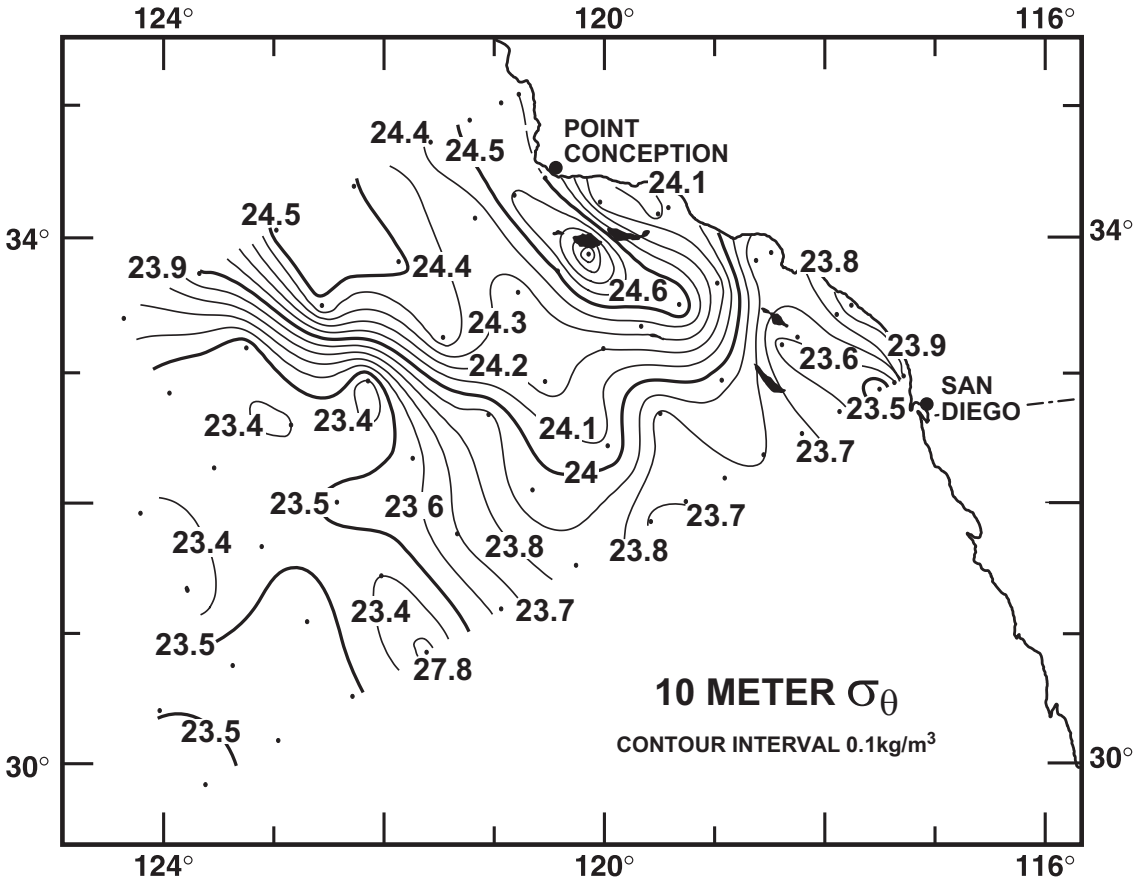


FIGURE 3B

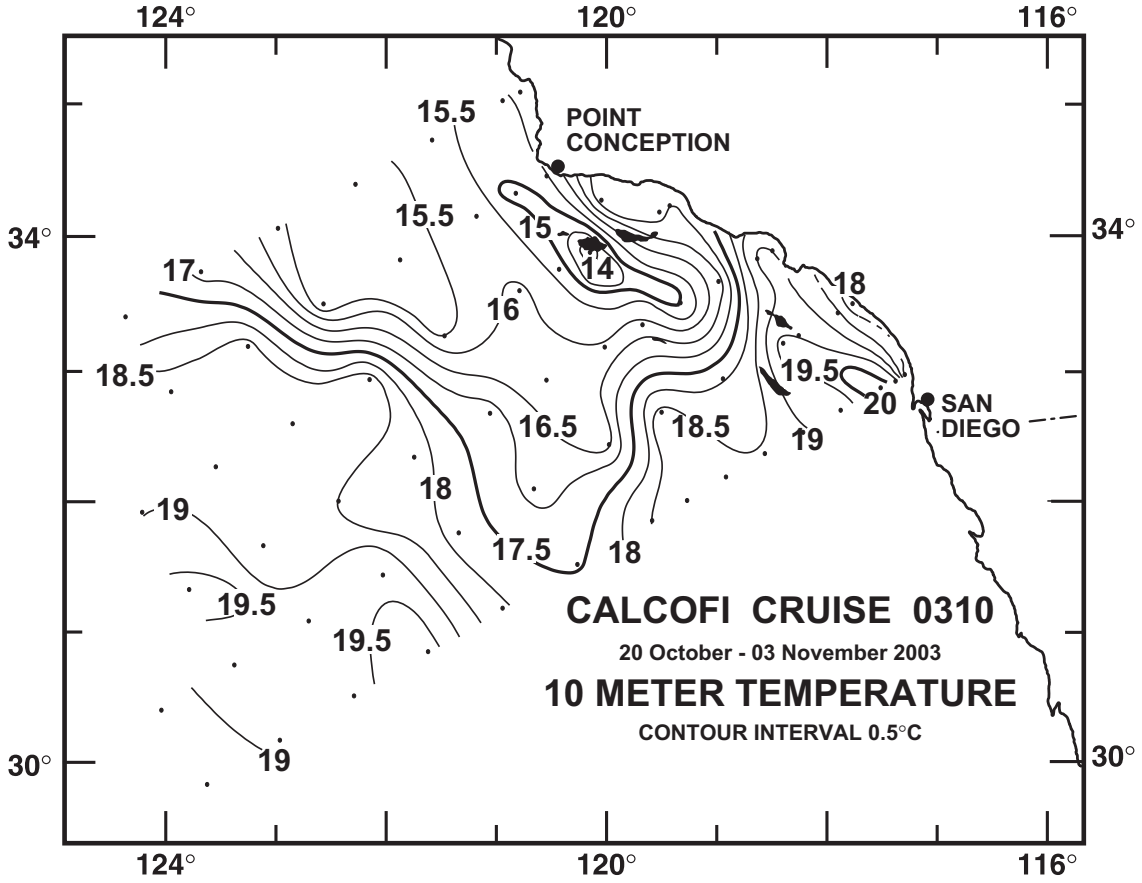


FIGURE 3C

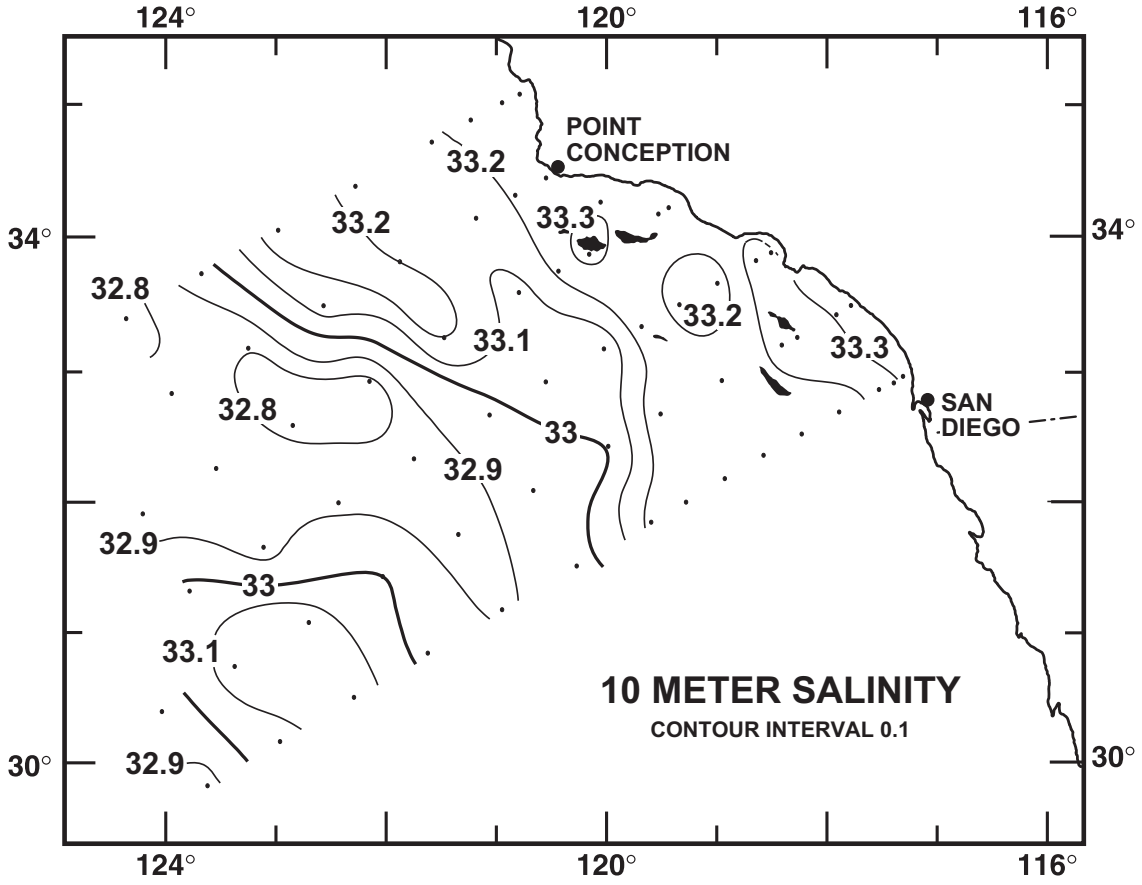


FIGURE 3D

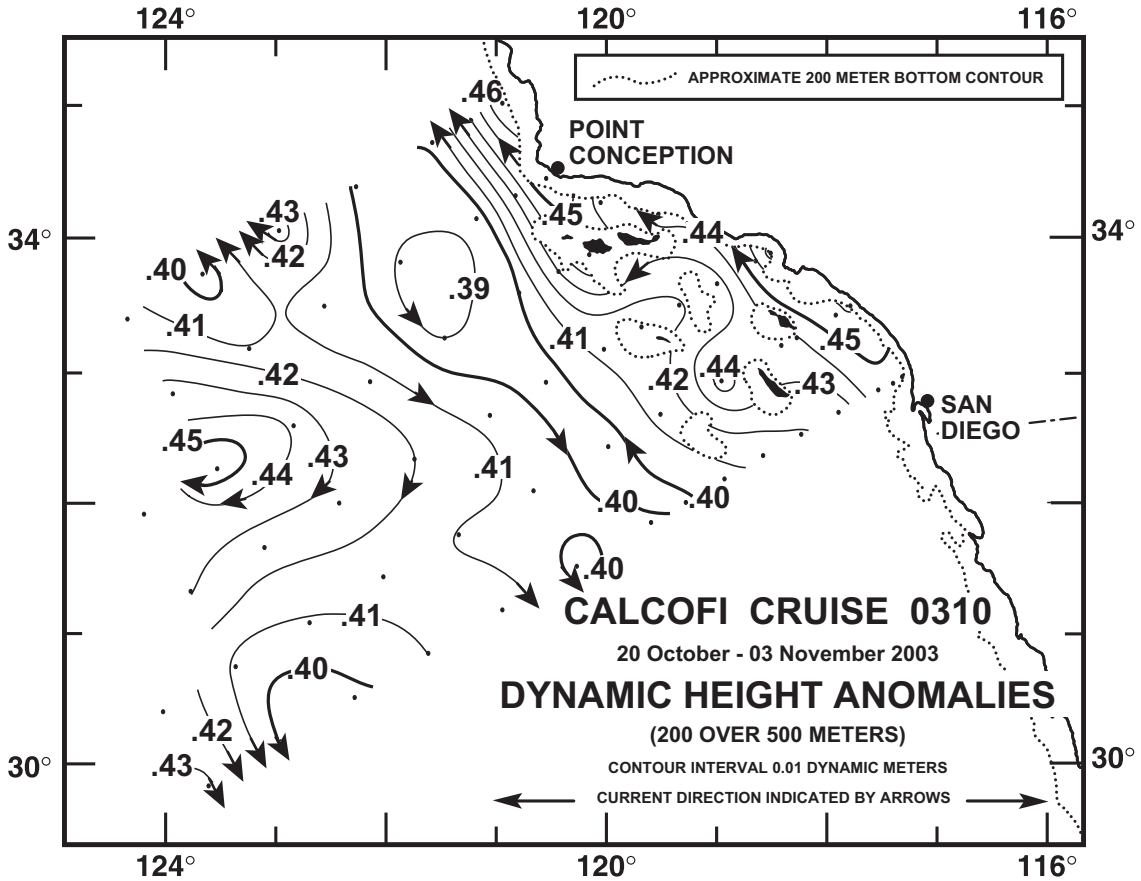


FIGURE 4A

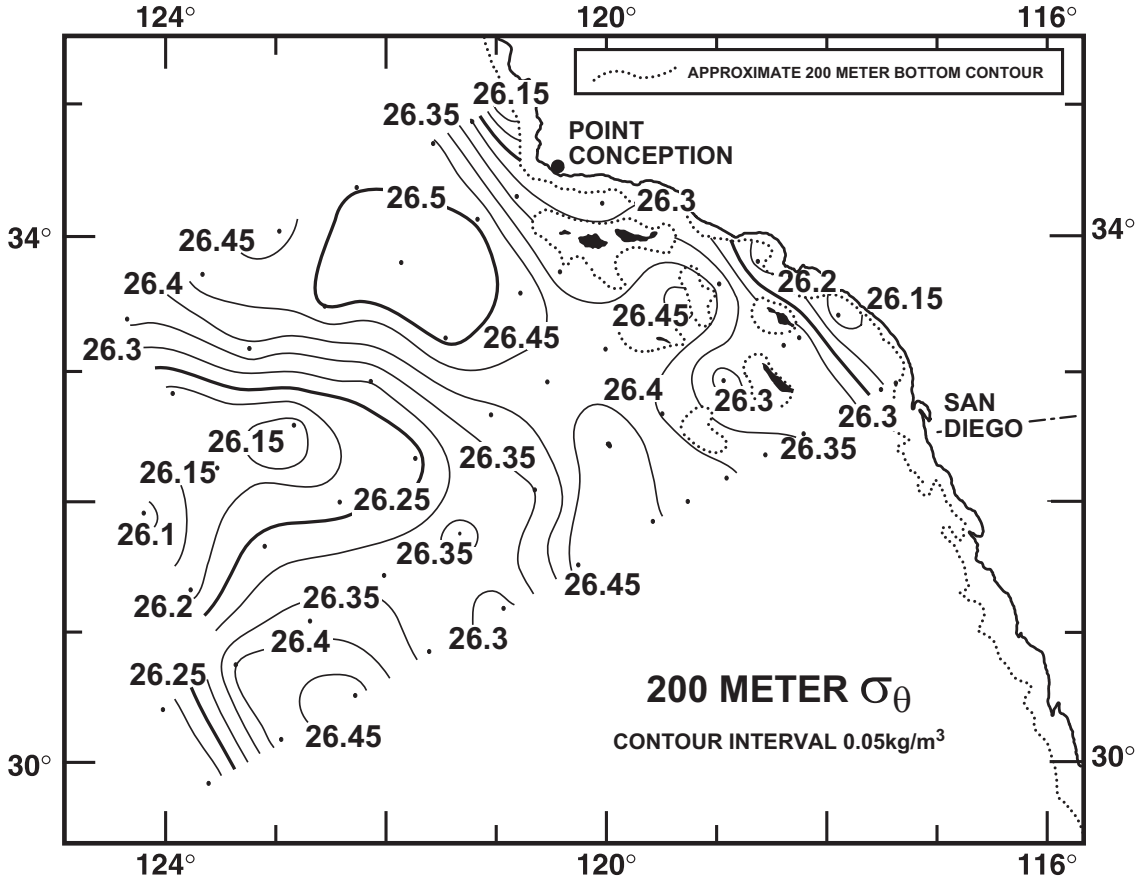


FIGURE 4B

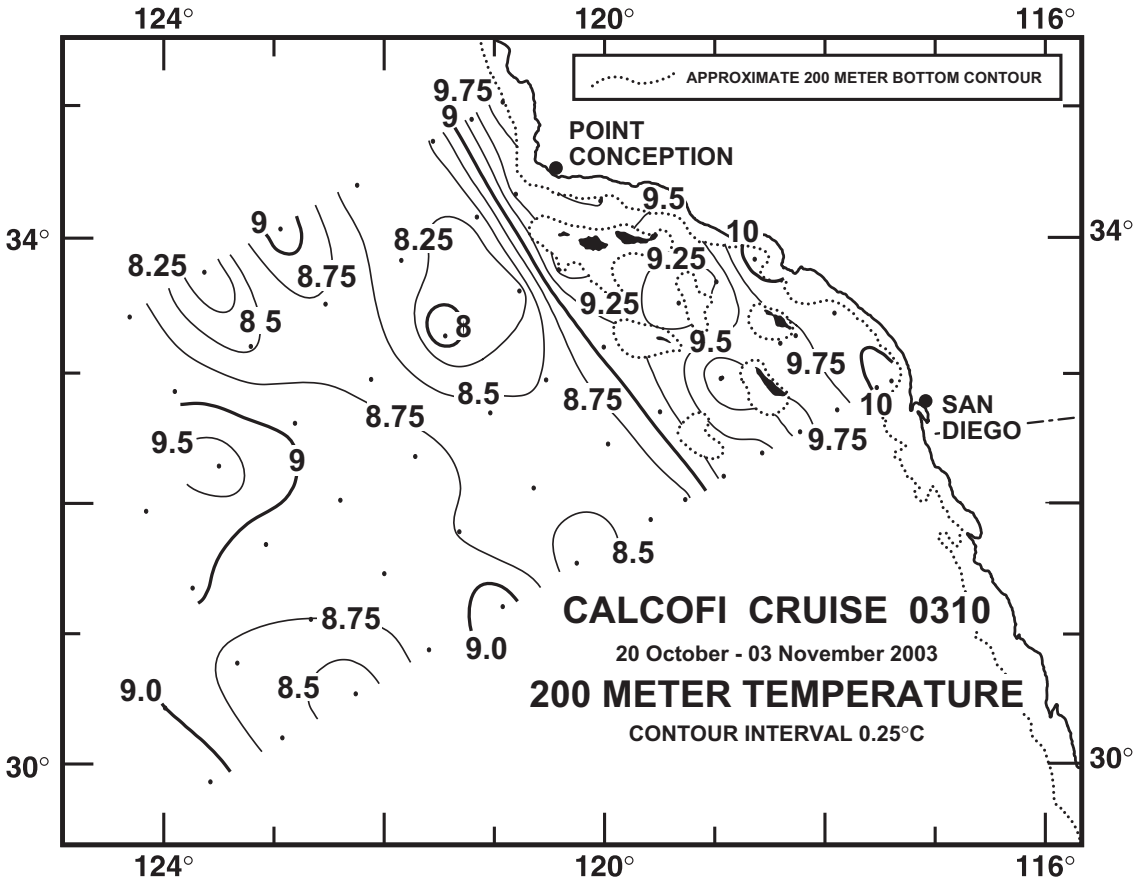


FIGURE 4C

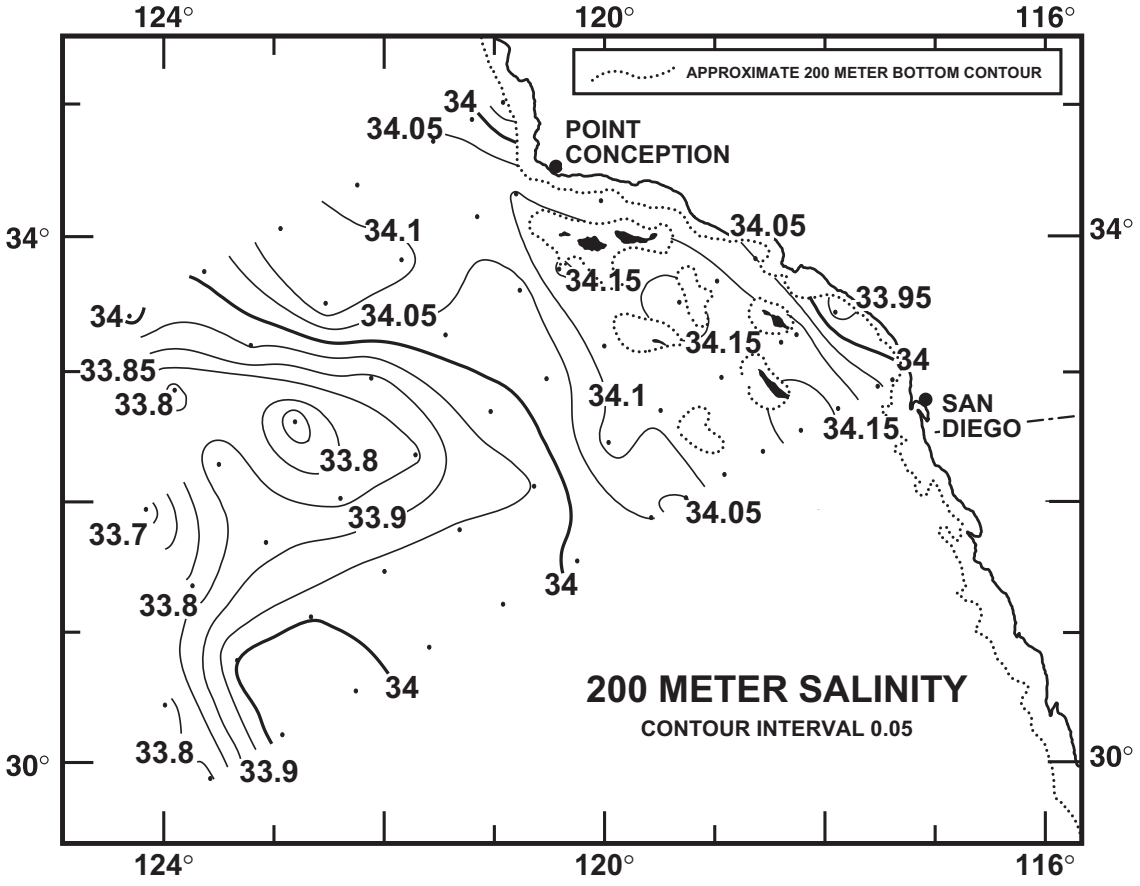


FIGURE 4D

CALCOFI CRUISE 0310

23 - 26 October 2003

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

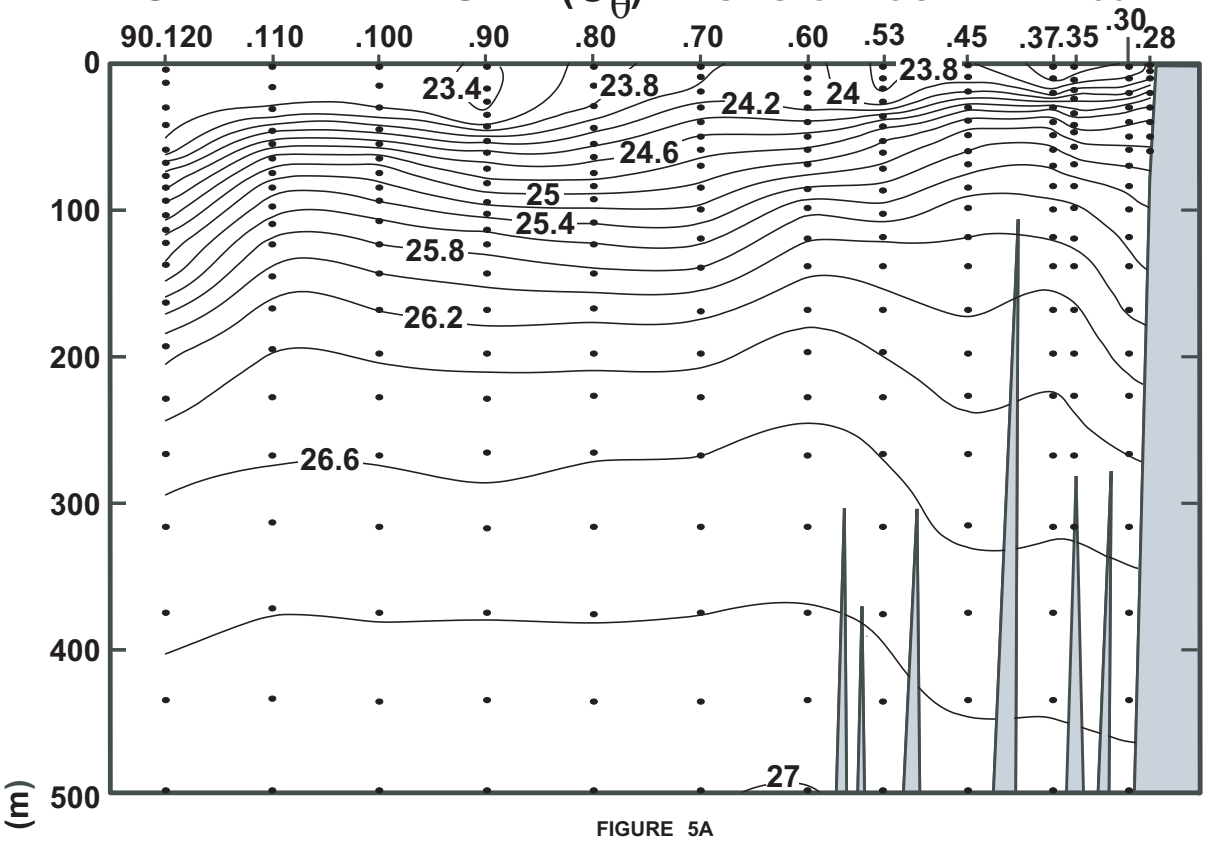


FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

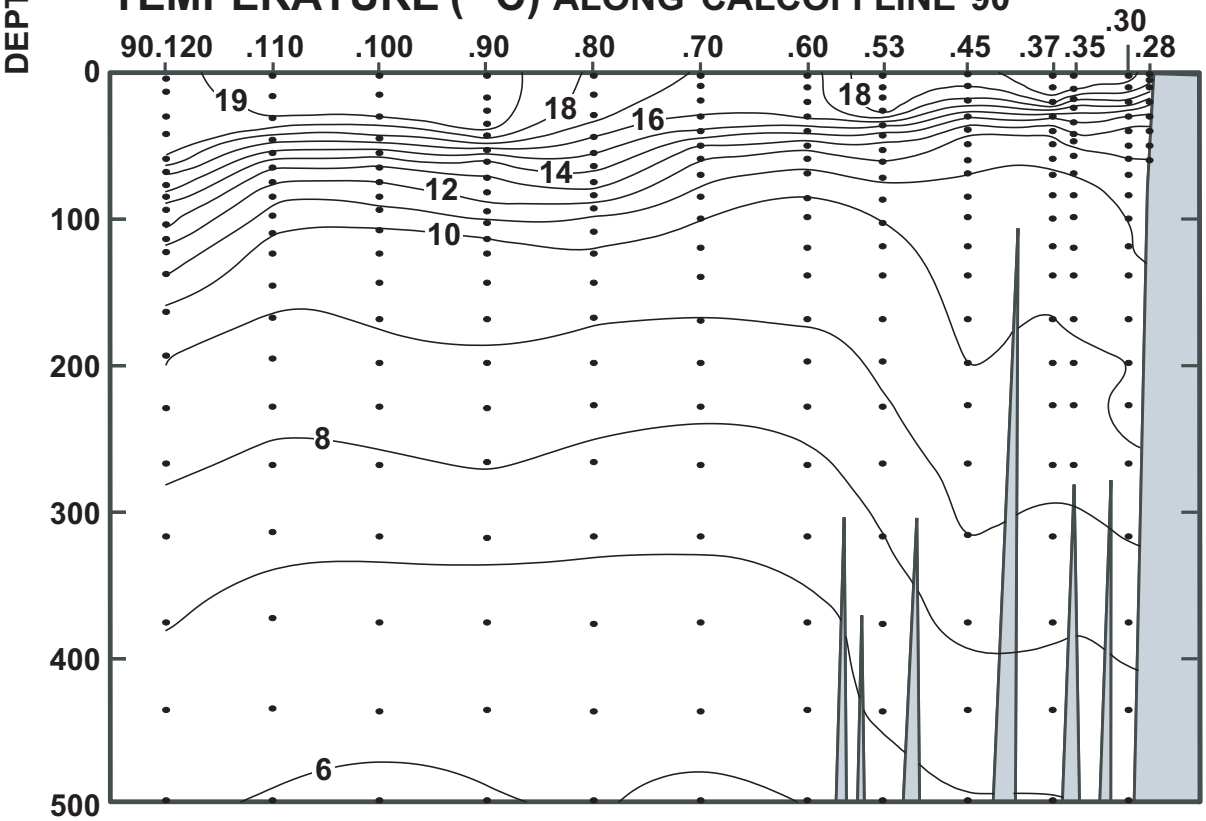


FIGURE 5B

CALCOFI CRUISE 0310

23 - 26 October 2003

SALINITY ALONG CALCOFI LINE 90

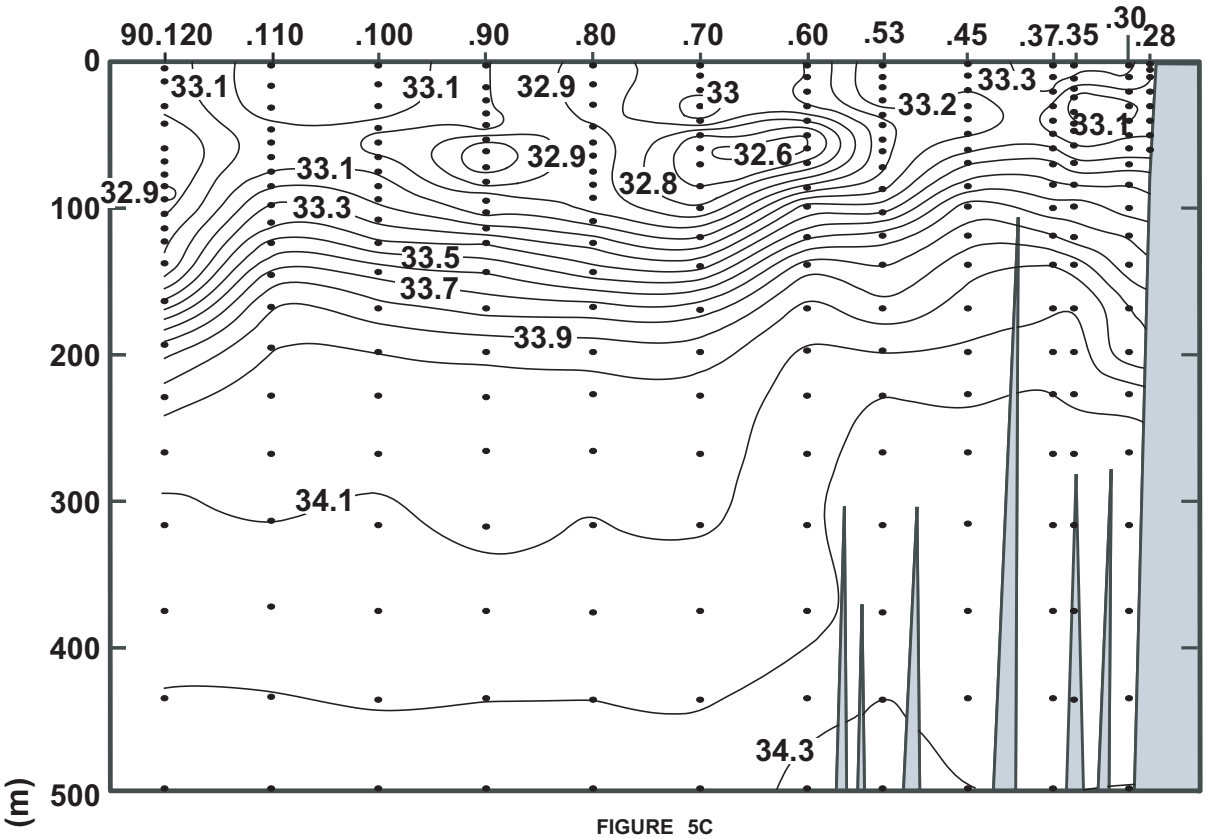


FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

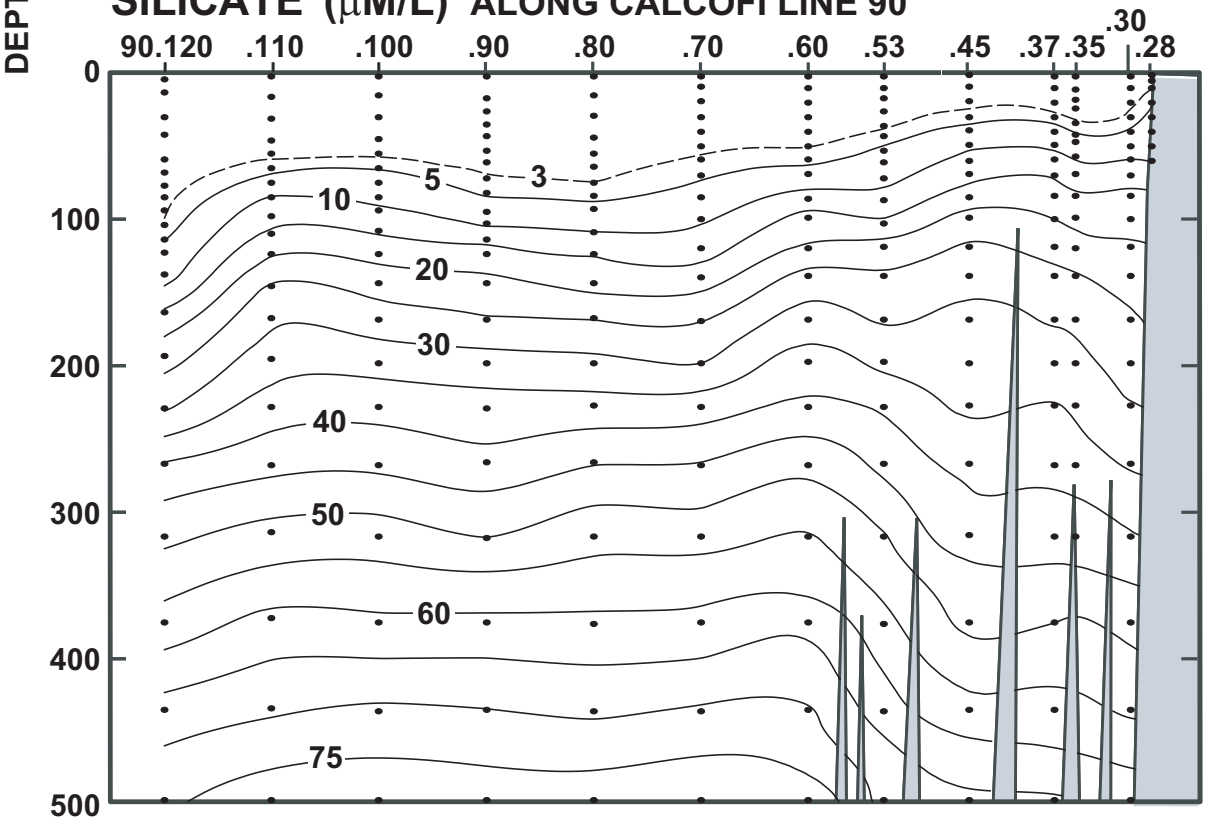


FIGURE 5D

CALCOFI CRUISE 0310

23 - 26 October 2003

NITRATE (μM/L) ALONG CALCOFI LINE 90

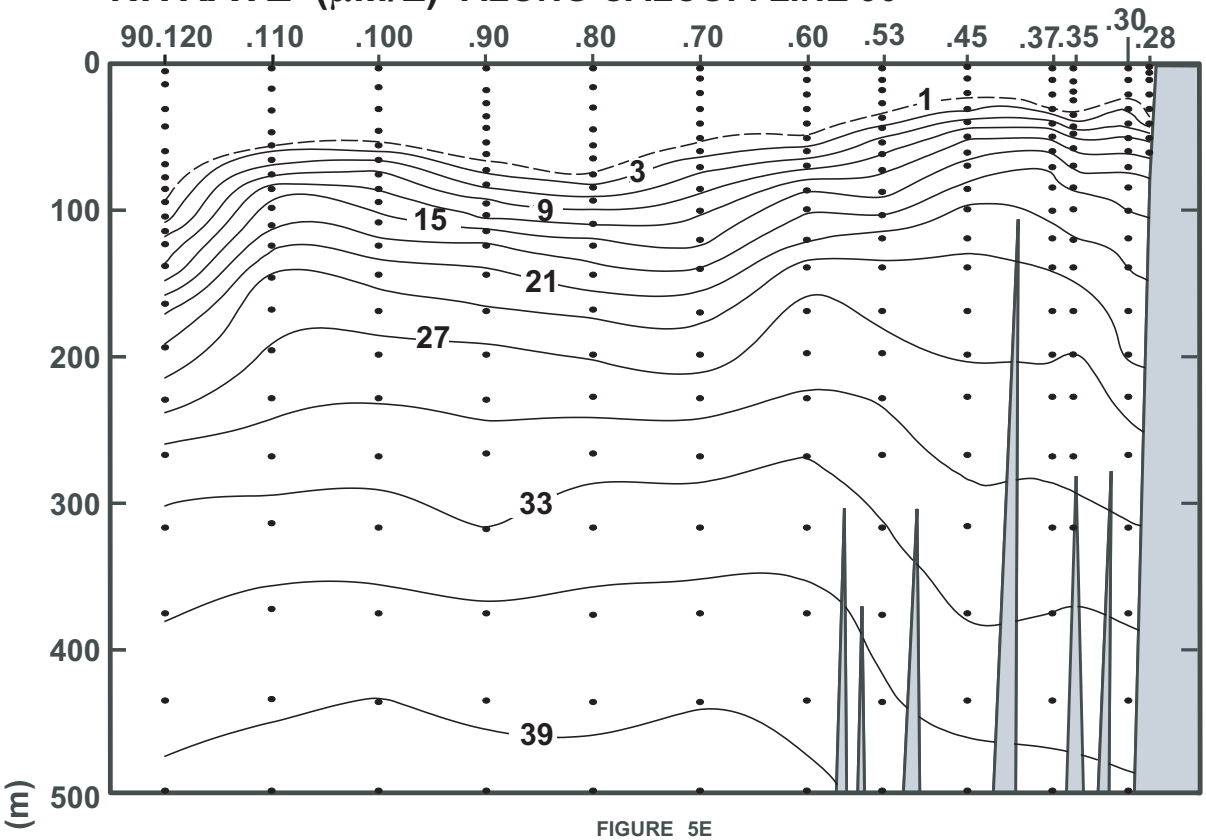


FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

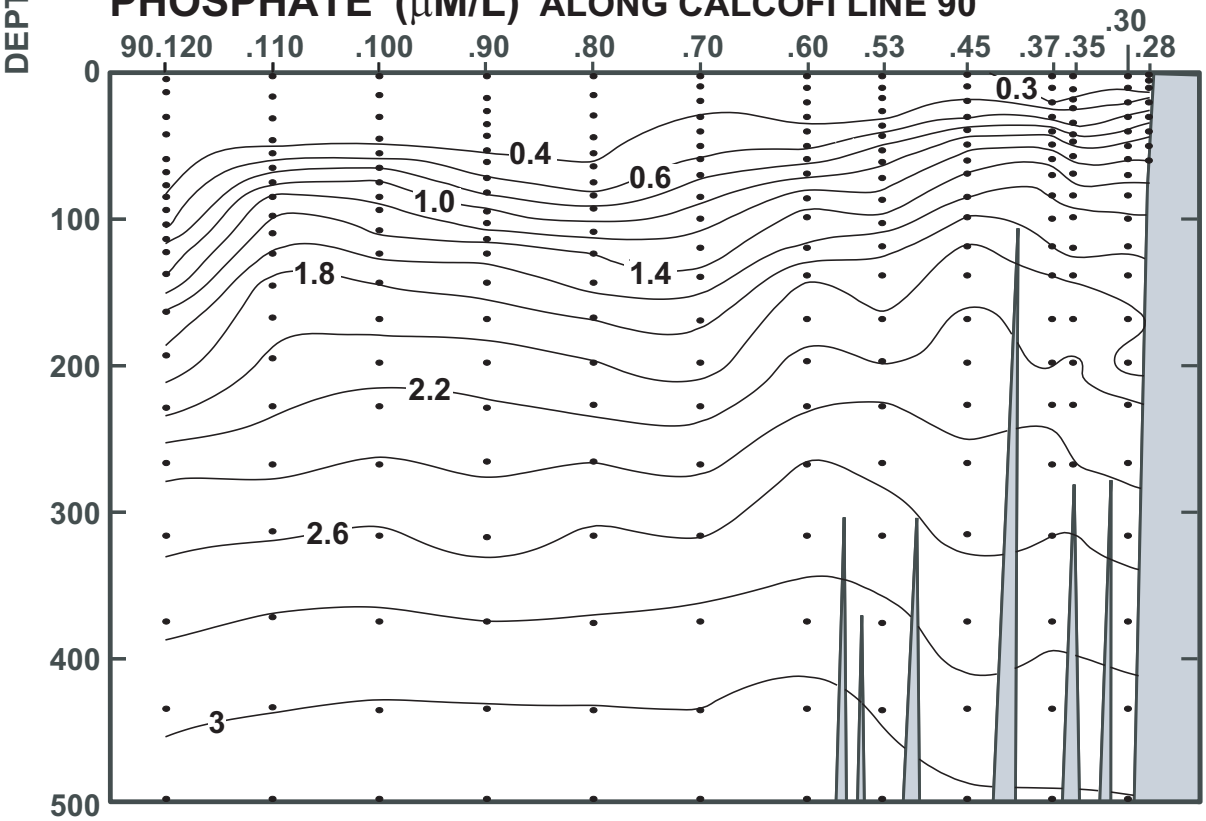


FIGURE 5F

CALCOFI CRUISE 0310

23 - 26 October 2003

CHLOROPHYLL-a (μg/L) ALONG CALCOFI LINE 90

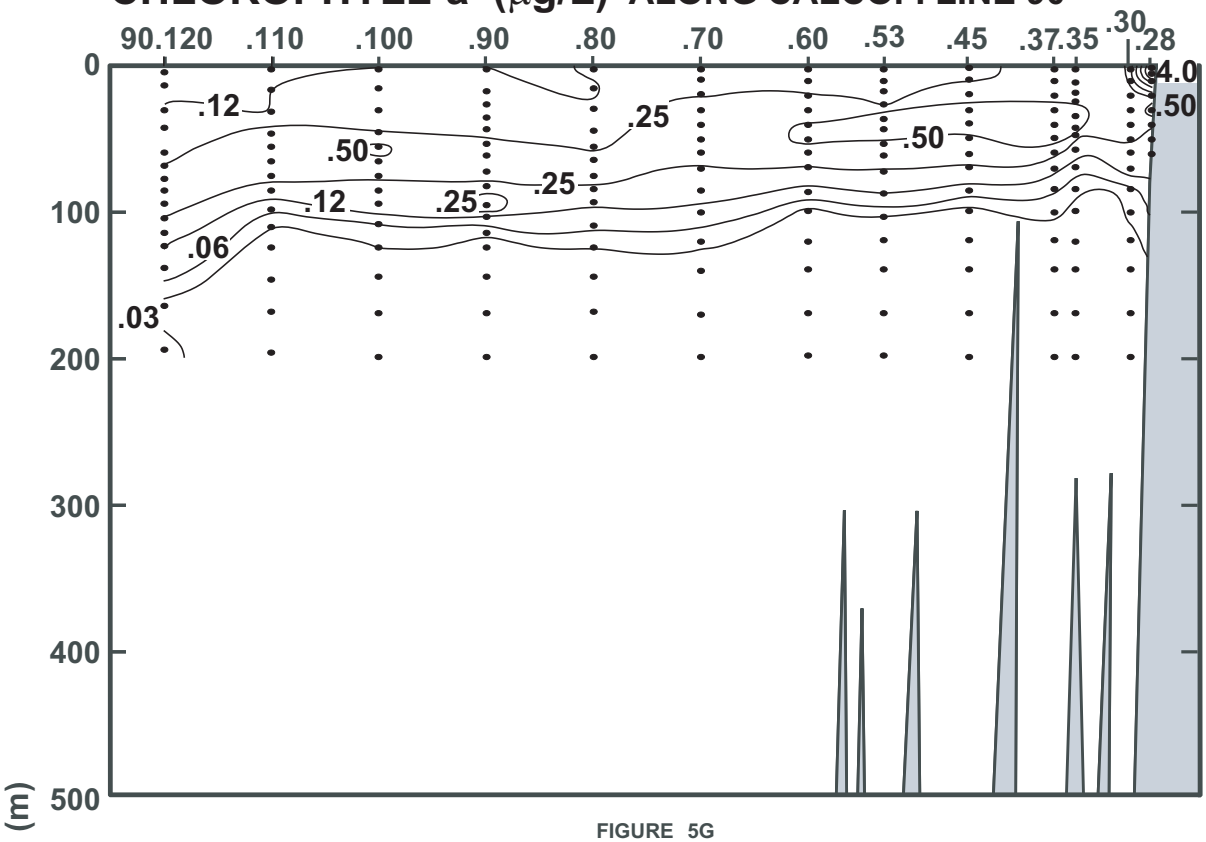


FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

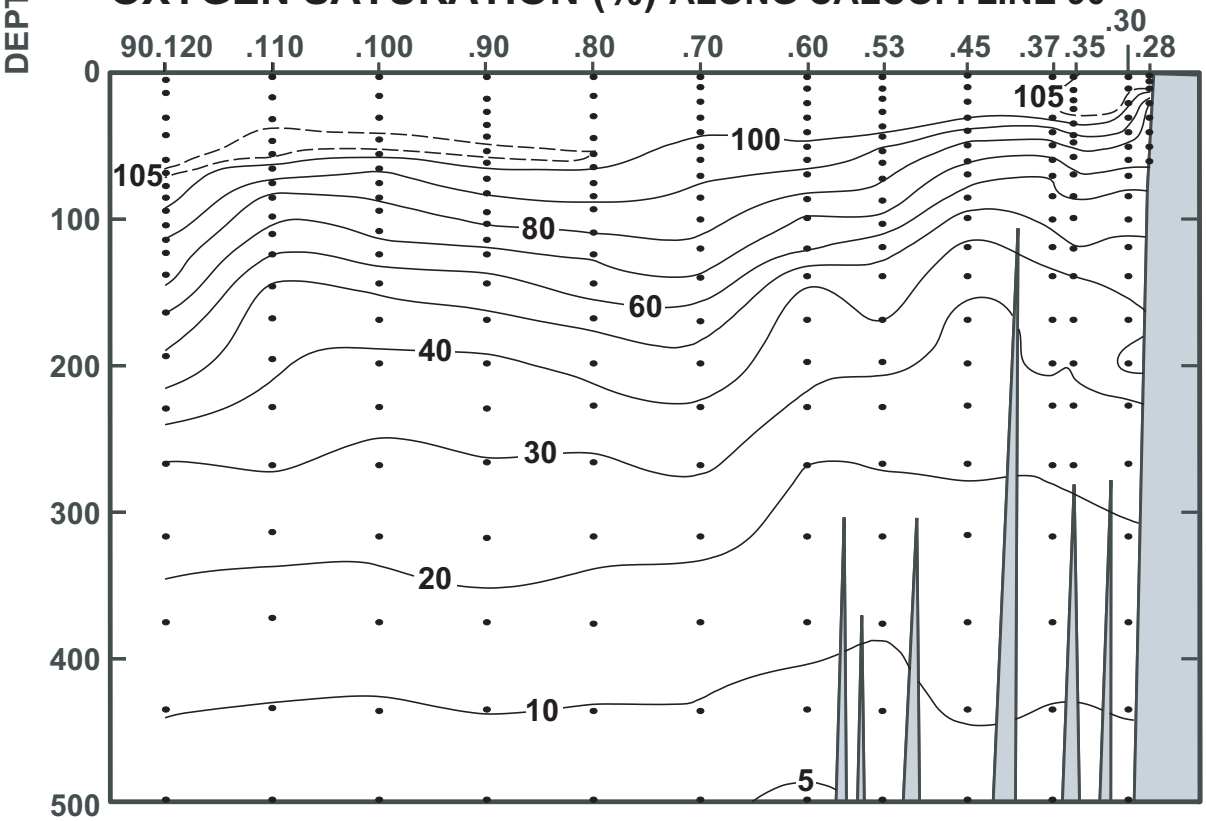


FIGURE 5H

CALCOFI CRUISE 0310

23 - 26 October 2003

OXYGEN (ml/L) ALONG CALCOFI LINE 90

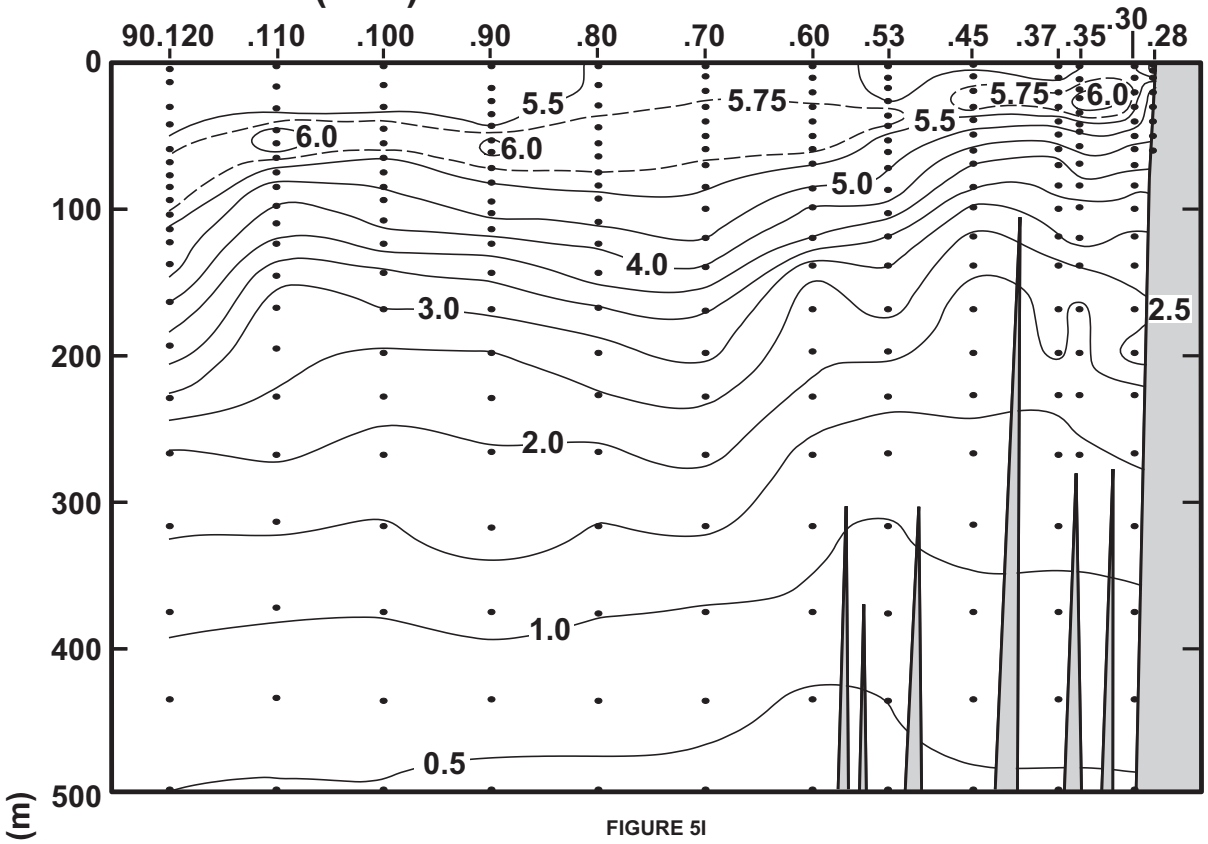


FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

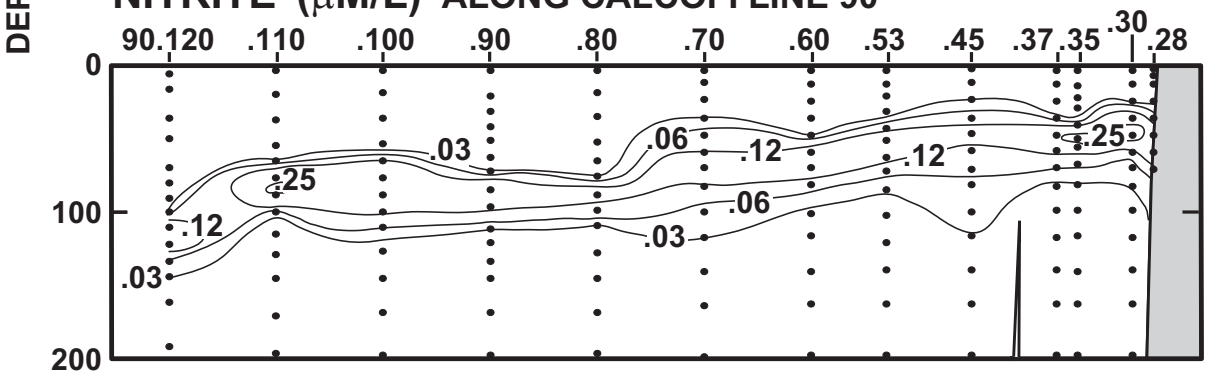


FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

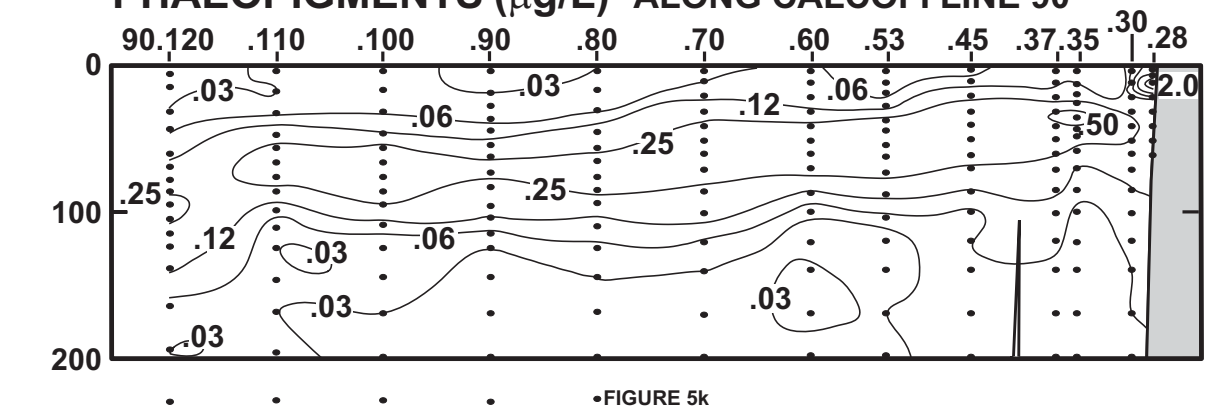


FIGURE 5k

PERSONNEL

CalCOFI Cruise 0310

SHIP'S CAPTAIN

Murray A. Stein, RV *New Horizon*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Legs)
Wolgast, David M. (Chief Scientist)	Staff Research Associate, SIO	1,2
Abramenkoff, Dimitry N.	Fishery Biologist, NMFS	1,2
Afghan, Justine	Staff Research Associate, SIO	1,2
de Jesus, Roman P.	Graduate Student, SIO	1,2
Ekern, Lindsey, J	Volunteer	1
Granholm, Robert	Volunteer	2
Hays, Amy E.	Fishery Biologist, NMFS	1,2
Herszage, Julian	Post Graduate Researcher, SIO	1
Keiper, Carol A.	Seabird Biologist, Point Reyes Bird Observatory	1,2
Powell, Jesse	Staff Research Associate, SIO	1,2
Ramiez, Fernando	Staff Research Associate, SIO	1,2
Ramirez, Leticia	Volunteer, CICESE	1,2
Sheldon, Jennifer L.	Scientific Aid, California Dept. of Fish and Game	1,2
Wilkinson, James R.	Programmer Analyst, SIO	1,2
Wolgast, Michael M.	Volunteer	2

Leg 1: San Diego to Dana Point, California, 20-26 October, 2003
Leg 2: Dana Point to San Diego, California, 26 October – 4 November, 2003

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 77 49

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
35 5.3 N	120 45.8 W	03/11/03	1803 UTC	68 m	220 02 kn	300 02 05	1	1018.2 mb	14.8 C	13.5 C	11m	6/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.75	15.75	33.286	24.487	343.7	0.000	5.85	103.3	1.2	0.29	0.2	0.00	2.61	0.96	0	
1 A	15.75	15.75	33.286	24.487	343.7	0.003	5.85	103.3	1.2	0.29	0.2	0.00	2.61	0.96	1	209
6 A	15.73	15.73	33.286	24.491	343.4	0.021	5.83	102.9	1.2	0.29	0.2	0.00	2.62	0.92	6	208
10 ISL	15.67	15.67	33.284	24.503	342.4	0.034	5.80	102.3	1.4	0.31	0.3	0.00	2.49	0.85	10	
15 A	15.59	15.59	33.282	24.520	341.0	0.051	5.76	101.4	1.6	0.33	0.4	0.00	2.00	0.74	15	207
20 ISL	14.59	14.59	33.270	24.728	321.3	0.068	5.37	92.6	4.1	0.61	3.0	0.11	0.85	0.64	20	
22 A	14.17	14.17	33.268	24.815	313.0	0.074	5.21	89.1	5.1	0.73	4.1	0.16	0.43	0.61	22	206
29 A	13.68	13.68	33.266	24.915	303.7	0.096	5.06	85.7	6.2	0.84	5.5	0.21	0.37	0.63	29	205
30 ISL	13.65	13.65	33.267	24.922	303.1	0.099	5.04	85.3	6.3	0.85	5.6	0.21	0.35	0.63	30	
36	13.50	13.49	33.272	24.956	299.9	0.117	4.95	83.5	6.9	0.90	6.3	0.22	0.27	0.59	36	204
42 A	13.16	13.15	33.271	25.024	293.7	0.135	4.84	81.1	7.6	0.97	7.3	0.27	0.26	0.56	42	203
50	12.60	12.59	33.267	25.131	283.6	0.158	4.61	76.3	9.0	1.09	9.1	0.36	0.20	0.39	50	202
59	11.89	11.88	33.309	25.298	267.9	0.183	4.11	67.0	14.0	1.36	12.4	0.24	0.16	0.51	59	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 77 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
35 1.4 N	120 55.3 W	03/11/03	1443 UTC	245 m	030 03 kn	280 04 06	1	1015.6 mb	14.0 C	13.1 C		7/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.20	15.20	33.156	24.508	341.6	0.000	5.88	102.6	1.7	0.30	0.1	0.01	4.21	0.68	0	
2	15.20	15.20	33.156	24.508	341.7	0.007	5.88	102.6	1.7	0.30	0.1	0.01	4.21	0.68	2	215
10	15.34	15.34	33.273	24.568	336.2	0.034	5.91	103.5	1.9	0.31	0.1	0.00	4.39	0.89	10	214
20	15.33	15.33	33.278	24.574	335.9	0.068	5.89	103.1	1.9	0.29	0.1	0.00	3.39	0.87	20	213
30	14.93	14.93	33.261	24.648	329.1	0.101	5.57	96.7	3.1	0.47	0.8	0.12	1.79	0.80	30	212
40	14.36	14.35	33.239	24.753	319.4	0.133	5.23	89.8	4.6	0.65	2.1	0.33	0.88	0.92	40	211
49	13.40	13.39	33.213	24.931	302.7	0.161	4.92	82.8	6.6	0.86	4.8	0.54	0.41	0.43	49	210
50 ISL	13.30	13.29	33.210	24.949	301.0	0.164	4.90	82.3	6.7	0.88	5.0	0.54	0.38	0.43	50	
59	12.51	12.50	33.219	25.111	285.7	0.191	4.70	77.6	8.2	1.02	7.6	0.42	0.23	0.39	59	209
69	11.87	11.86	33.325	25.315	266.5	0.218	4.22	68.8	11.9	1.28	12.0	0.24	0.15	0.25	69	208
75 ISL	11.47	11.46	33.384	25.435	255.2	0.234	4.00	64.7	13.5	1.40	14.2	0.17	0.12	0.20	75	
84	10.98	10.97	33.460	25.582	241.4	0.256	3.74	59.9	15.4	1.53	16.7	0.12	0.09	0.16	84	207
99	10.68	10.67	33.533	25.692	231.2	0.292	3.50	55.7	17.3	1.64	18.4	0.11	0.07	0.16	99	206
100 ISL	10.66	10.65	33.539	25.700	230.4	0.294	3.48	55.3	17.5	1.65	18.5	0.11	0.07	0.16	100	
119	10.44	10.43	33.657	25.831	218.4	0.337	3.14	49.7	20.7	1.78	20.7	0.12	0.06	0.15	120	205
125 ISL	10.38	10.37	33.683	25.862	215.6	0.350	3.07	48.6	21.3	1.81	21.1	0.12	0.05	0.14	126	
139	10.27	10.25	33.735	25.922	210.3	0.379	2.93	46.3	22.5	1.87	22.0	0.11	0.04	0.12	140	204
150 ISL	10.20	10.18	33.785	25.973	205.6	0.402	2.77	43.7	23.8	1.93	22.8	0.11	0.03	0.12	151	
170	10.09	10.07	33.864	26.053	198.4	0.443	2.51	39.5	25.9	2.02	24.0	0.11	0.02	0.12	171	203
200 ISL	9.99	9.97	33.899	26.098	194.8	0.502	2.39	37.5	27.1	2.07	24.8	0.12	0.02	0.15	201	
201	9.98	9.96	33.901	26.101	194.5	0.504	2.39	37.5	27.2	2.07	24.8	0.12	0.02	0.15	202	202
230	9.64	9.61	34.067	26.288	177.3	0.558	1.95	30.4	31.8	2.25	27.3	0.13			231	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 77 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 53.5 N	121 12.3 W	03/11/03	1120 UTC	567 m	280 16 kn			1016.1 mb	14.5 C	13.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.25	15.25	33.225	24.550	337.6	0.000	5.94	103.8	1.0	0.36	0.3	0.02	0.86	0.36	0	
1	15.25	15.25	33.225	24.550	337.6	0.003	5.94	103.8	1.0	0.36	0.3	0.02	0.86	0.36	1	220
10	15.24	15.24	33.225	24.553	337.7	0.034	5.94	103.8	1.0	0.34	0.3	0.01	0.87	0.32	10	219
19	15.15	15.15	33.218	24.567	336.6	0.064	5.94	103.6	1.1	0.36	0.3	0.02	0.86	0.33	19	218
20 ISL	15.14	15.14	33.219	24.570	336.3	0.067	5.92	103.2	1.2	0.36	0.4	0.02	0.85	0.33	20	
30	14.37	14.37	33.180	24.705	323.7	0.100	5.76	98.9	2.3	0.53	1.5	0.10	0.69	0.33	30	217
39	12.15	12.14	33.072	25.065	289.5	0.128	5.12	83.8	7.3	1.03	8.5	0.34	0.43	0.32	39	216
50	10.95	10.94	33.017	25.242	272.9	0.159	5.04	80.4	9.6	1.21	12.0	0.25	0.34	0.31	50	215
60	10.49	10.48	33.086	25.376	260.3	0.186	4.82	76.2	11.8	1.33	14.3	0.21	0.25	0.27	60	214
69	10.29	10.28	33.214	25.510	247.7	0.209	4.49	70.7	14.1	1.44	16.2	0.16	0.17	0.23	69	213
75 ISL	10.36	10.35	33.329	25.588	240.5	0.223	4.19	66.1	15.4	1.51	17.3	0.14	0.13	0.21	75	
84	10.51	10.50	33.488	25.687	231.4	0.244	3.76	59.6	17.0	1.60	18.7	0.11	0.09	0.18	84	212
100	10.35	10.34	33.595	25.798	221.1	0.281	3.41	53.9	19.4	1.72	20.3	0.09	0.06	0.13	100	211
119	10.16	10.15	33.795	25.987	203.6	0.321	2.72	42.9	24.3	1.94	23.1	0.08	0.02	0.13	120	210
125 ISL	10.08	10.07	33.824	26.023	200.3	0.333	2.68	42.2	25.0	1.97	23.6	0.08	0.02	0.12	126	
139	9.89	9.87	33.865	26.087	194.4	0.361	2.59	40.6	26.0	2.00	24.4	0.07	0.01	0.09	140	209
150 ISL	9.79	9.77	33.900	26.131	190.5	0.382	2.53	39.6	26.9	2.03	25.0	0.07	0.01	0.09	151	
169	9.64	9.62	33.956	26.200	184.3	0.417	2.41	37.6	28.4	2.08	25.9	0.07	0.01	0.08	170	208
198	9.38	9.36	34.028	26.300	175.4	0.470	2.19	34.0	31.3	2.17	27.4	0.06	0.01	0.09	199	207
200 ISL	9.37	9.35	34.031	26.304	175.0	0.473	2.18	33.8	31.4	2.17	27.4	0.06			201	
229	9.30	9.27	34.072	26.348	171.5	0.523	2.05	31.7	32.9	2.24	28.0	0.05			230	206
250 ISL	9.12	9.09	34.105	26.403	166.6	0.559	1.92	29.6	35.0	2.30	28.9	0.04			251	
268	8.95	8.92	34.131	26.451	162.3	0.588	1.80	27.7	37.0	2.36	29.7	0.04			270	205
300 ISL	8.73	8.70	34.163	26.511	157.2	0.640	1.59	24.3	40.3	2.47	30.7	0.05			302	
318	8.60	8.57	34.177	26.542	154.5	0.668	1.47	22.4	42.3	2.53	31.3	0.05			320	204
377	7.97	7.93	34.223	26.674	142.6	0.755	1.05	15.8	50.2	2.74	33.9	0.04			379	203
400 ISL	7.57	7.53	34.217	26.728	137.6	0.787	0.93	13.9	55.1	2.83	35.2	0.03			403	
439	6.84	6.80	34.208	26.823	128.6	0.839	0.74	10.8	64.8	2.99	37.5	0.02			442	202
500 ISL	5.89	5.85	34.261	26.988	112.8	0.913	0.41	5.9	82.4	3.21	40.3	0.07			503	
512	5.70	5.66	34.273	27.021	109.7	0.926	0.35	5.0	85.9	3.25	40.9	0.08			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 77 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 43.5 N	121 33.4 W	03/11/03	0705 UTC	913 m	300 13 kn			1017.0 mb	14.6 C	12.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.75	15.75	33.196	24.417	350.3	0.000	5.80	102.4	1.9	0.36	0.3	0.02	0.71	0.31	0	
2	15.75	15.75	33.196	24.417	350.3	0.007	5.80	102.4	1.9	0.36	0.3	0.02	0.71	0.31	2	220
10	15.76	15.76	33.197	24.416	350.7	0.035	5.80	102.4	1.9	0.36	0.3	0.02	0.75	0.34	10	219
20	15.76	15.76	33.191	24.412	351.4	0.070	5.80	102.4	1.9	0.36	0.3	0.01	0.71	0.31	20	218
30	15.74	15.74	33.188	24.414	351.5	0.105	5.81	102.5	1.9	0.36	0.3	0.01	0.67	0.29	30	217
40	15.21	15.20	33.142	24.496	343.9	0.140	5.76	100.5	2.3	0.44	0.8	0.09	0.62	0.33	40	216
50	12.01	12.00	32.964	25.008	295.2	0.172	5.41	88.3	6.1	0.96	7.7	0.29	0.50	0.38	50	215
59	11.44	11.43	33.180	25.281	269.4	0.197	4.83	78.0	10.0	1.27	13.2	0.08	0.22	0.23	59	214
69	10.22	10.21	33.270	25.566	242.4	0.223	4.44	69.8	15.2	1.52	17.7	0.08	0.10	0.15	69	213
75 ISL	9.78	9.77	33.296	25.660	233.6	0.237	4.34	67.6	17.1	1.59	19.0	0.08	0.07	0.12	75	
85	9.42	9.41	33.359	25.768	223.4	0.260	4.16	64.3	19.4	1.66	20.4	0.08	0.04	0.09	85	212
99	9.49	9.48	33.611	25.954	206.1	0.290	3.44	53.3	22.8	1.82	23.2	0.08	0.01	0.07	99	211
100 ISL	9.48	9.47	33.622	25.964	205.2	0.292	3.43	53.2	23.0	1.82	23.2	0.08	0.01	0.07	100	
120	9.11	9.10	33.764	26.135	189.3	0.332	3.31	50.9	25.5	1.85	24.2	0.08	0.01	0.10	121	210
125 ISL	9.06	9.05	33.787	26.161	186.9	0.341	3.29	50.6	25.9	1.86	24.4	0.08	0.01	0.09	126	
139	8.97	8.96	33.840	26.217	181.8	0.367	3.19	49.0	27.1	1.89	24.9	0.08	0.00	0.05	140	209
150 ISL	8.96	8.94	33.886	26.255	178.5	0.387	3.00	46.1	28.3	1.95	25.6	0.08	0.00	0.06	151	
169	8.93	8.91	33.962	26.320	172.7	0.420	2.62	40.2	31.1	2.07	27.2	0.07	0.00	0.07	170	208
199	8.50	8.48	34.055	26.460	159.9	0.470	2.19	33.3	37.2	2.25	30.0	0.07	0.00	0.05	200	207
200 ISL	8.48	8.46	34.057	26.464	159.4	0.472	2.17	33.0	37.4	2.26	30.1	0.07			201	
228	8.03	8.01	34.108	26.573	149.5	0.515	1.79	26.9	43.4	2.44	32.3	0.06			229	206
250 ISL	7.85	7.83	34.116	26.606	146.7	0.547	1.68	25.2	45.6	2.50	33.1	0.05			251	
268	7.74	7.71	34.117	26.623	145.3	0.574	1.63	24.4	47.0	2.53	33.5	0.05			270	205
300 ISL	7.46	7.43	34.140	26.681	140.2	0.619	1.39	20.6	51.1	2.64	34.7	0.05			302	
317	7.31	7.28	34.156	26.715	137.1	0.643	1.25	18.5	53.5	2.71	35.4	0.05			319	204
378	6.94	6.90	34.222	26.819	128.0	0.724	0.77	11.3	61.7	2.93	37.5	0.05			380	203
400 ISL	6.83	6.79	34.236	26.845	125.8	0.752	0.67	9.8	64.0	2.98	38.1	0.05			403	
438	6.64	6.60	34.256	26.887	122.3	0.799	0.54	7.9	67.9	3.05	39.0	0.04			441	202
500 ISL	6.29	6.24	34.292	26.962	115.8	0.873	0.36	5.2	75.1	3.16	40.4	0.04			503	
512	6.22	6.17	34.299	26.977	114.5	0.887	0.33	4.8	76.5	3.18	40.7	0.04			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 77 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 23.4 N	122 14.8 W	03/11/03	0105 UTC	4023 m	310 12 kn	330 05 07	1	1016.8 mb	14.9 C	12.0 C		4/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.26	15.26	33.176	24.510	341.4	0.000	5.95	104.0	0.9	0.36	0.2	0.01	1.02	0.26	0	
2	15.26	15.26	33.176	24.510	341.5	0.007	5.95	104.0	0.9	0.36	0.2	0.01	1.02	0.26	2	220
10	15.26	15.26	33.178	24.512	341.5	0.034	5.97	104.3	0.9	0.36	0.1	0.00	1.16	0.33	10	219
20	15.24	15.24	33.180	24.518	341.2	0.068	5.96	104.1	0.9	0.36	0.0	0.00	0.80	0.26	20	218
29	14.07	14.07	33.222	24.800	314.6	0.098	5.45	93.0	4.1	0.74	3.8	0.41	0.86	0.44	29	217
30 ISL	13.93	13.93	33.230	24.836	311.3	0.101	5.39	91.7	4.5	0.78	4.4	0.42	0.82	0.43	30	
40	12.46	12.45	33.316	25.195	277.2	0.130	4.75	78.4	9.1	1.18	11.4	0.48	0.38	0.28	40	216
49	11.23	11.22	33.376	25.471	251.1	0.154	4.21	67.7	13.6	1.48	16.7	0.08	0.23	0.32	49	215
50 ISL	11.12	11.11	33.386	25.499	248.5	0.157	4.16	66.8	14.1	1.51	17.1	0.08	0.22	0.31	50	
59	10.37	10.36	33.470	25.696	229.9	0.178	3.83	60.5	17.8	1.67	20.0	0.06	0.16	0.22	59	214
70	10.04	10.03	33.523	25.794	220.8	0.203	3.71	58.2	19.4	1.72	21.2	0.04	0.07	0.17	70	213
75 ISL	9.89	9.88	33.568	25.854	215.2	0.214	3.58	56.0	20.6	1.76	21.9	0.04	0.05	0.16	75	
85	9.62	9.61	33.657 D	25.969	204.5	0.235	3.33	51.8	22.8	1.84	23.3	0.04	0.03	0.15	85	212
99	9.44	9.43	33.704	26.035	198.4	0.263	3.25	50.4	23.9	1.88	24.0	0.04	0.02	0.13	100	211
100 ISL	9.43	9.42	33.712	26.043	197.7	0.265	3.23	50.1	24.1	1.89	24.1	0.04	0.02	0.13	101	
119	9.22	9.21	33.868	26.199	183.2	0.301	2.75	42.5	28.1	2.02	26.1	0.03	0.01	0.10	120	210
125 ISL	9.12	9.11	33.904	26.243	179.1	0.312	2.68	41.3	29.2	2.04	26.5	0.03	0.01	0.10	126	
138	8.92	8.91	33.965	26.323	171.8	0.335	2.60	39.9	31.1	2.08	27.3	0.03	0.01	0.09	139	209
150 ISL	8.81	8.79	33.992	26.362	168.3	0.355	2.58	39.5	32.1	2.09	27.7	0.03	0.01	0.09	151	
169	8.66	8.64	34.013	26.402	164.8	0.387	2.56	39.1	33.7	2.11	28.2	0.03	0.01	0.08	170	208
198	8.31	8.29	34.061	26.493	156.6	0.434	2.30	34.8	38.4	2.26	30.0	0.03	0.01	0.07	199	207
200 ISL	8.27	8.25	34.061	26.499	156.0	0.437	2.29	34.6	38.8	2.27	30.1	0.03			201	
228	7.83	7.81	34.073	26.574	149.2	0.479	2.05	30.7	43.6	2.38	31.9	0.03			229	206
250 ISL	7.84	7.82	34.131	26.619	145.4	0.512	1.66	24.9	46.3	2.52	32.8	0.03			252	
268	7.84	7.81	34.172	26.651	142.7	0.538	1.34	20.1	48.4	2.63	33.5	0.03			270	205
300 ISL	7.57	7.54	34.194	26.708	137.7	0.583	1.09	16.2	52.8	2.75	34.9	0.02			302	
318	7.36	7.33	34.192	26.737	135.2	0.607	1.02	15.1	55.4	2.80	35.7	0.02			320	204
378	6.66	6.63	34.165	26.812	128.5	0.686	0.92	13.4	63.4	2.92	37.9	0.02			380	203
400 ISL	6.48	6.44	34.169	26.839	126.1	0.714	0.85	12.3	66.1	2.96	38.6	0.02			403	
437	6.23	6.19	34.185	26.885	122.1	0.760	0.71	10.2	70.5	3.03	39.6	0.02			440	202
500 ISL	5.90	5.86	34.225	26.958	115.6	0.835	0.47	6.7	77.9	3.15	41.0	0.01			504	
512	5.84	5.80	34.233	26.972	114.4	0.849	0.43	6.2	79.3	3.17	41.3	0.01			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 3.4 N	122 56.7 W	02/11/03	1906 UTC	4241 m	330 11 kn	330 04 08	1	1019.0 mb	17.5 C	14.0 C	14m	3/8	CU

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	15.61	15.61	33.282	24.515	341.0	0.000	5.88	103.6	0.9	0.42	0.9	0.07	0.88	0.27	0	
2	A	15.61	15.61	33.282	24.515	341.1	0.007	5.88	103.6	0.9	0.42	0.9	0.07	0.88	0.27	2	221
9	A	15.58	15.58	33.281	24.521	340.7	0.031	5.89	103.7	0.9	0.41	0.9	0.07	0.86	0.24	9	220
10	ISL	15.58	15.58	33.281	24.521	340.7	0.034	5.89	103.7	0.9	0.41	0.9	0.07	0.86	0.24	10	
19	A	15.56	15.56	33.286	24.529	340.2	0.065	5.87	103.3	1.0	0.42	0.9	0.07	0.80	0.28	19	219
20	ISL	15.56	15.56	33.289	24.532	340.0	0.068	5.87	103.3	1.0	0.42	0.9	0.07	0.79	0.28	20	
26	A	15.57	15.57	33.307	24.544	339.0	0.088	5.85	102.9	1.0	0.44	1.2	0.08	0.73	0.28	26	218
30	ISL	15.12	15.12	33.338	24.667	327.4	0.102	5.57	97.2	2.3	0.59	3.1	0.35	0.71	0.29	30	
37	A	13.72	13.71	33.412	25.020	293.9	0.124	4.79	81.2	6.8	1.00	8.7	0.71	0.63	0.30	37	217
46		11.07	11.06	33.545	25.631	235.8	0.147	3.48	55.9	17.0	1.66	19.6	0.14	0.32	0.30	46	216
50	ISL	10.55	10.54	33.632	25.791	220.7	0.157	3.09	49.1	20.2	1.82	21.9	0.13	0.22	0.26	50	
54	A	10.29	10.28	33.712	25.898	210.5	0.165	2.81	44.4	22.6	1.92	23.3	0.11	0.14	0.21	54	215
62		10.04	10.03	33.813	26.020	199.1	0.182	2.48	39.0	25.3	2.03	24.8	0.11	0.08	0.18	62	214
70		9.91	9.90	33.869	26.086	193.1	0.197	2.34	36.7	26.8	2.09	25.6	0.09	0.02	0.11	70	213
75	ISL	9.86	9.85	33.892	26.112	190.7	0.207	2.28	35.7	27.4	2.11	25.9	0.09	0.02	0.11	75	
85		9.81	9.80	33.922	26.144	187.9	0.226	2.20	34.4	28.2	2.13	26.3	0.08	0.02	0.10	85	212
99		9.75	9.74	33.950	26.176	185.1	0.252	2.14	33.5	29.0	2.16	26.5	0.08	0.01	0.10	100	211
100	ISL	9.74	9.73	33.953	26.180	184.7	0.254	2.13	33.3	29.1	2.16	26.5	0.08	0.01	0.10	101	
119		9.62	9.61	34.003	26.240	179.5	0.288	2.01	31.3	30.7	2.21	27.3	0.07	0.01	0.07	120	210
125	ISL	9.59	9.58	34.014	26.253	178.3	0.299	1.98	30.9	31.1	2.22	27.5	0.07	0.01	0.07	126	
140		9.52	9.50	34.040	26.285	175.6	0.326	1.90	29.6	32.0	2.26	28.0	0.06	0.01	0.08	141	209
150	ISL	9.44	9.42	34.067	26.320	172.5	0.343	1.82	28.3	33.1	2.30	28.4	0.06	0.01	0.08	151	
169		9.28	9.26	34.118	26.386	166.6	0.375	1.68	26.0	35.3	2.36	29.2	0.06	0.01	0.07	170	208
200		9.14	9.12	34.154	26.437	162.3	0.426	1.55	23.9	37.1	2.41	29.9	0.05	0.01	0.05	201	207
229		8.96	8.94	34.202	26.504	156.5	0.472	1.37	21.1	39.7	2.50	30.8	0.05			230	206
250	ISL	8.87	8.84	34.218	26.531	154.3	0.505	1.29	19.8	40.8	2.54	31.2	0.04			252	
269		8.80	8.77	34.223	26.546	153.2	0.534	1.24	19.0	41.7	2.56	31.4	0.04			271	205
300	ISL	8.65	8.62	34.223	26.570	151.5	0.582	1.15	17.6	43.5	2.61	31.9	0.04			302	
318		8.55	8.52	34.222	26.585	150.4	0.609	1.10	16.8	44.7	2.64	32.3	0.04			320	204
379		8.03	7.99	34.255	26.690	141.2	0.698	0.88	13.3	50.6	2.77	34.0	0.04			381	203
400	ISL	7.95	7.91	34.262	26.708	139.8	0.727	0.84	12.6	51.6	2.80	34.3	0.04			403	
438		7.76	7.72	34.265	26.739	137.4	0.780	0.78	11.7	54.0	2.84	34.9	0.04			441	202
500	ISL	6.96	6.91	34.245	26.836	128.4	0.862	0.64	9.4	63.7	2.97	37.4	0.04			503	
511		6.82	6.77	34.242	26.853	126.9	0.876	0.62	9.1	65.4	2.99	37.8	0.04			515	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 77 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 43.7 N	123 38.3 W	02/11/03	1330 UTC	4204 m	340 18 kn			1017.8 mb	14.7 C	12.1 C			

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	16.79	16.79	32.961	24.000	390.1	0.000	5.61	100.9	1.3	0.38	0.2	0.01	0.28	0.09	0	
2		16.79	16.79	32.961	24.000	390.1	0.008	5.61	100.9	1.3	0.38	0.2	0.01	0.28	0.09	2	220
10		16.79	16.79	32.957	23.997	390.6	0.039	5.60	100.7	1.3	0.38	0.2	0.00	0.28	0.09	10	219
20		16.68	16.68	33.086	24.122	379.1	0.078	5.68	102.0	1.2	0.38	0.2	0.01	0.44	0.15	20	218
30	ISL	15.87	15.87	33.274	24.451	348.0	0.114	5.73	101.4	1.2	0.47	1.1	0.10	0.59	0.24	30	
31		15.73	15.73	33.288	24.494	344.0	0.117	5.73	101.1	1.2	0.48	1.3	0.11	0.60	0.25	31	217
39		14.06	14.05	33.279	24.847	310.5	0.144	5.54	94.5	2.6	0.76	4.1	0.49	0.65	0.33	39	216
50		12.41	12.40	33.263	25.164	280.4	0.176	4.96	81.8	7.2	1.16	10.9	0.65	0.40	0.31	50	215
59		11.90	11.89	33.305	25.293	268.3	0.201	4.59	74.9	9.6	1.35	14.6	0.26	0.31	0.32	59	214
70		11.20	11.19	33.364	25.468	251.9	0.229	4.19	67.4	13.1	1.55	18.0	0.07	0.20	0.29	70	213
75	ISL	10.77	10.76	33.401	25.573	242.0	0.242	4.06	64.7	15.2	1.62	19.3	0.07	0.15	0.25	75	
86		9.94	9.93	33.495	25.789	221.6	0.267	3.82	59.8	19.6	1.74	21.5	0.07	0.05	0.14	86	212
100		9.67	9.66	33.605	25.920	209.4	0.297	3.47	54.0	22.4	1.84	23.3	0.05	0.02	0.08	100	211
119		9.42	9.41	33.752	26.076	194.9	0.336	3.03	47.0	26.0	1.95	25.1	0.05	0.01	0.09	120	210
125	ISL	9.26	9.25	33.785	26.128	190.1	0.347	2.95	45.6	27.3	1.99	25.8	0.05	0.01	0.09	126	
140		8.86	8.85	33.857	26.248	178.9	0.375	2.82	43.2	30.1	2.06	27.2	0.05	0.01	0.07	141	209
150	ISL	8.77	8.75	33.914	26.307	173.5	0.393	2.80	42.8	31.1	2.06	27.5	0.05	0.01	0.07	151	
168		8.65	8.63	33.997	26.391	165.9	0.423	2.76	42.1	32.7	2.07	27.7	0.04	0.01	0.06	169	208
198		8.13	8.11	34.010	26.480	157.7	0.472	2.73	41.2	37.1	2.13	29.1	0.04	0.00	0.03	199	207
200	ISL	8.09	8.07	34.010	26.486	157.2	0.475	2.75	41.4	37.4	2.13	29.1	0.04			201	
229		7.57	7.55	34.008	26.561	150.4	0.519	2.87	42.7	41.7	2.15	29.8	0.03			230	206
250	ISL	7.22	7.20	34.013	26.614	145.5	0.550	2.54	37.5	46.4	2.30	31.8	0.03			251	
268		6.95	6.93	34.019	26.656	141.6	0.576	2.17	31.8	50.6	2.45	33.8	0.03			270	205
300	ISL	6.62	6.59	34.029	26.709	136.9	0.621	1.82	26.5	55.8	2.61	35.8	0.02			302	
319		6.48	6.45	34.039	26.735	134.6	0.647	1.65	23.9	58.4	2.68	36.7	0.02			321	204
379		6.17	6.14	34.108	26.831	126.3	0.725	1.00	14.4	67.5	2.95	39.4	0.02			381	203
400	ISL	5.96	5.93	34.116	26.864	123.3	0.751	0.94	13.5	70.8	2.99	40.1	0.02			403	
438		5.57	5.53	34.128	26.921	117.9	0.797	0.84	11.9	76.8	3.05	41.1	0.02			441	202
500	ISL	5.28	5.24	34.177	26.995	111.4	0.868			85.6	3.19	42.7	0.01			503	
513		5.22	5.18	34.188	27.011	110.0	0.882			87.4	3.22	43.0	0.01			517	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 77 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 23.2 N	124 19.1 W	02/11/03	0739 UTC	4585 m	020 12 kn			1019.0 mb	15.0 C	12.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.56	17.56	32.753	23.659	422.6	0.000	5.56	101.4	1.4	0.39	0.0	0.00	0.13	0.04	0	
2	17.56	17.56	32.753	23.659	422.6	0.008	5.56	101.4	1.4	0.39	0.0	0.00	0.13	0.04	2	220
10 ISL	17.55	17.55	32.753	23.662	422.6	0.042	5.56	101.4	1.4	0.39	0.0	0.00	0.13	0.05	10	
15	17.55	17.55	32.754	23.663	422.7	0.063	5.56	101.4	1.4	0.39	0.0	0.00	0.13	0.05	15	219
20 ISL	17.55	17.55	32.757	23.665	422.7	0.085	5.56	101.4	1.4	0.39	0.0	0.00	0.13	0.05	20	
29	17.56	17.56	32.763	23.668	422.7	0.123	5.56	101.4	1.4	0.38	0.0	0.00	0.14	0.05	29	218
30 ISL	17.46	17.46	32.760	23.689	420.7	0.127	5.59	101.8	1.4	0.38	0.0	0.00	0.15	0.06	30	
44	15.57	15.56	32.705	24.081	383.6	0.183	6.06	106.2	1.7	0.40	0.0	0.00	0.26	0.19	44	217
50 ISL	14.71	14.70	32.679	24.248	367.9	0.206	6.10	105.1	1.9	0.42	0.1	0.00	0.30	0.24	50	
55	13.94	13.93	32.655	24.390	354.4	0.224	6.14	104.1	2.1	0.43	0.1	0.00	0.31	0.28	55	216
64	12.35	12.34	32.610	24.670	327.8	0.254	6.03	98.9	3.0	0.58	1.1	0.14	0.27	0.32	64	215
75	11.37	11.36	32.672	24.899	306.1	0.289	5.69	91.4	4.7	0.80	5.0	0.10	0.20	0.23	75	214
85	10.51	10.50	32.772	25.128	284.4	0.319	5.46	86.1	7.2	1.02	9.0	0.04	0.14	0.17	85	213
94	10.09	10.08	32.825	25.241	273.8	0.344	5.34	83.5	9.1	1.14	11.1	0.03	0.10	0.14	94	212
100 ISL	9.90	9.89	32.916	25.344	264.1	0.360	5.25	81.8	10.2	1.18	12.0	0.02	0.07	0.10	100	
110	9.63	9.62	33.089	25.523	247.2	0.386	5.05	78.3	12.3	1.24	13.6	0.02	0.04	0.05	110	211
124	9.18	9.17	33.262	25.731	227.6	0.419	4.66	71.6	16.4	1.45	17.3	0.03	0.02	0.03	125	210
125 ISL	9.16	9.15	33.274	25.744	226.5	0.421	4.64	71.3	16.7	1.46	17.5	0.03	0.02	0.03	126	
144	8.94	8.92	33.502	25.957	206.5	0.462	4.09	62.6	21.6	1.69	21.3	0.03	0.00	0.02	145	209
150 ISL	9.01	8.99	33.595	26.019	200.8	0.474	3.76	57.7	23.4	1.78	22.6	0.03	0.00	0.02	151	
170	9.26	9.24	33.873	26.197	184.4	0.513	2.69	41.6	28.7	2.04	26.4	0.03	0.01	0.04	171	208
198	8.94	8.92	34.007	26.354	170.1	0.563	2.29	35.2	33.1	2.17	28.6	0.02	0.00	0.04	199	207
200 ISL	8.91	8.89	34.014	26.364	169.1	0.566	2.26	34.7	33.5	2.18	28.8	0.02			201	
228	8.53	8.51	34.085	26.479	158.6	0.612	1.93	29.4	38.5	2.33	30.8	0.02			229	206
250 ISL	8.22	8.19	34.104	26.541	153.0	0.646	1.82	27.5	41.8	2.41	31.9	0.02			251	
268	7.95	7.92	34.102	26.580	149.5	0.673	1.78	26.7	44.3	2.46	32.7	0.02			269	205
300 ISL	7.36	7.33	34.071	26.641	143.9	0.720	1.74	25.8	49.1	2.53	34.3	0.02			302	
319	7.02	6.99	34.051	26.673	140.9	0.747	1.71	25.1	52.1	2.58	35.3	0.02			321	204
377	6.34	6.31	34.066	26.776	131.6	0.826	1.29	18.7	61.9	2.81	38.2	0.02			379	203
400 ISL	6.20	6.16	34.098	26.819	127.7	0.856	1.08	15.6	65.6	2.90	39.0	0.02			402	
437	5.99	5.95	34.150	26.887	121.6	0.902	0.79	11.3	71.6	3.02	40.1	0.01			440	202
500 ISL	5.39	5.35	34.152	26.962	114.6	0.977	0.63	8.9	82.3	3.12	42.0	0.01			503	
518	5.22	5.18	34.154	26.984	112.6	0.997	0.59	8.3	85.3	3.15	42.6	0.01			521	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 27.2 N	120 31.5 W	31/10/03	1905 UTC	74 m	210 12 kn	180 02 09	1	1012.0 mb	16.4 C	13.9 C	07m	7/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.26	16.26	33.233	24.331	358.5	0.000	5.94	105.9	3.1	0.28	0.1	0.01	4.11	0.90	0	
2 A	16.26	16.26	33.233	24.331	358.6	0.007	5.94	105.9	3.1	0.28	0.1	0.01	4.11	0.90	2	211
4 A	16.31	16.31	33.232	24.319	359.8	0.014	5.96	106.4	3.1	0.28	0.1	0.01	4.25	0.98	4	210
9 A	15.77	15.77	33.226	24.436	348.7	0.032	5.77	101.9	3.4	0.34	0.1	0.01	3.12	0.80	9	209
10 ISL	15.45	15.45	33.211	24.496	343.1	0.036	5.66	99.3	3.7	0.39	0.2	0.04	2.71	0.71	10	
14 A	14.13	14.13	33.158	24.738	320.1	0.049	5.21	89.0	5.3	0.62	1.3	0.19	1.13	0.38	14	208
19 A	13.28	13.28	33.139	24.897	305.1	0.064	5.02	84.2	6.6	0.82	3.7	0.36	0.40	0.23	19	207
20 ISL	13.25	13.25	33.135	24.900	304.8	0.067	5.03	84.3	6.6	0.83	3.9	0.38	0.39	0.24	20	
26 A	13.04	13.04	33.113	24.925	302.6	0.086	5.11	85.3	6.2	0.86	4.7	0.48	0.32	0.28	26	206
30 ISL	12.80	12.80	33.120	24.977	297.7	0.098	5.00	83.0	6.7	0.92	5.7	0.49	0.28	0.26	30	
34	12.59	12.59	33.133	25.028	293.0	0.110	4.88	80.7	7.4	0.97	6.7	0.49	0.24	0.24	34	205
39	12.53	12.52	33.138	25.044	291.6	0.124	4.85	80.1	7.7	0.99	7.2	0.46	0.22	0.23	39	204
50	11.90	11.89	33.220	25.227	274.4	0.155	4.54	74.0	10.0	1.17	10.8	0.15	0.16	0.20	50	203
59	11.78	11.77	33.245	25.269	270.6	0.180	4.47	72.7	10.7	1.21	11.5	0.16	0.14	0.19	59	202
65	11.67	11.66	33.267	25.307	267.2	0.196	4.38	71.1	11.3	1.24	12.1	0.14	0.15	0.21	65	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 19.3 N	120 48.2 W	31/10/03	2206 UTC	751 m	270 07 kn	310 05 10	1	1011.5 mb	14.9 C	12.9 C	12m	5/8	AC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.94	14.94	33.222	24.615	331.4	0.000	5.64	98.0	3.9	0.52	1.5	0.14	2.57	0.74	0	
1	14.94	14.94	33.222	24.615	331.4	0.003	5.64	98.0	3.9	0.52	1.5	0.14	2.57	0.74	1	220
9	14.97	14.97	33.222	24.609	332.3	0.030	5.64	98.0	3.9	0.52	1.5	0.13	2.51	0.87	9	219
10 ISL	14.93	14.93	33.222	24.618	331.5	0.033	5.63	97.8	3.9	0.53	1.6	0.13	2.48	0.85	10	
20 ISL	14.53	14.53	33.224	24.705	323.4	0.066	5.46	94.0	4.5	0.60	2.4	0.18	2.09	0.63	20	
21	14.48	14.48	33.224	24.716	322.4	0.069	5.44	93.6	4.6	0.61	2.5	0.19	2.04	0.60	21	218
30	14.34	14.34	33.217	24.740	320.4	0.098	5.35	91.8	4.9	0.64	2.8	0.22	1.62	0.56	30	217
39	13.13	13.12	33.242	25.007	295.2	0.126	4.91	82.2	7.4	0.92	7.0	0.19	0.82	0.37	39	216
50	11.50	11.49	33.344	25.397	258.2	0.156	4.19	67.8	12.3	1.32	13.8	0.08	0.18	0.19	50	215
59	11.33	11.32	33.358	25.440	254.4	0.179	4.09	65.9	13.0	1.37	14.5	0.06	0.14	0.16	59	214
69	10.93	10.92	33.493	25.616	237.7	0.204	3.62	57.9	16.5	1.56	17.5	0.04	0.09	0.17	69	213
75 ISL	10.69	10.68	33.582	25.728	227.2	0.218	3.35	53.3	18.6	1.67	19.2	0.03	0.07	0.15	75	
84	10.42	10.41	33.694	25.863	214.6	0.238	3.03	48.0	21.3	1.80	21.1	0.03	0.04	0.10	84	212
100	10.35	10.34	33.747	25.916	209.9	0.272	2.82	44.6	22.9	1.87	22.0	0.03	0.03	0.08	101	211
120	10.27	10.26	33.804	25.975	204.8	0.313	2.66	42.0	24.4	1.94	22.8	0.03	0.03	0.07	121	210
125 ISL	10.22	10.21	33.832	26.005	202.0	0.323	2.58	40.7	25.1	1.97	23.2	0.03	0.03	0.07	126	
139	10.08	10.06	33.915	26.094	193.8	0.351	2.34	36.8	27.2	2.07	24.5	0.02	0.02	0.06	140	209
150 ISL	10.01	9.99	33.956	26.138	189.9	0.372	2.23	35.1	28.3	2.11	25.1	0.02	0.03	0.06	151	
169	9.89	9.87	34.011	26.202	184.2	0.408	2.08	32.6	29.9	2.17	25.9	0.02	0.04	0.06	170	208
198	9.59	9.57	34.099	26.321	173.5	0.460	1.81	28.2	33.5	2.29	27.6	0.02	0.03	0.06	199	207
200 ISL	9.56	9.54	34.105	26.331	172.6	0.463	1.79	27.9	33.8	2.30	27.7	0.02			201	
228	9.21	9.18	34.181	26.448	161.9	0.510	1.51	23.3	38.2	2.44	29.4	0.02			229	206
250 ISL	8.99	8.96	34.198	26.496	157.7	0.545	1.42	21.9	40.2	2.49	30.2	0.01			251	
268	8.84	8.81	34.201	26.523	155.5	0.573	1.38	21.2	41.4	2.52	30.7	0.01			270	205
300 ISL	8.58	8.55	34.225	26.582	150.3	0.622	1.23	18.8	44.1	2.60	31.6	0.01			302	
318	8.43	8.40	34.238	26.616	147.4	0.649	1.14	17.3	45.8	2.65	32.1	0.01			320	204
377	7.81	7.77	34.252	26.720	138.1	0.733	0.91	13.6	52.3	2.79	34.1	0.01			379	203
400 ISL	7.64	7.60	34.257	26.749	135.7	0.765	0.84	12.5	54.1	2.83	34.6	0.01			403	
438	7.34	7.30	34.260	26.795	131.7	0.815	0.73	10.8	57.8	2.90	35.6	0.01			441	202
500 ISL	6.55	6.50	34.241	26.888	123.1	0.894	0.56	8.1	69.2	3.05	38.4	0.01			503	
513	6.38	6.33	34.238	26.908	121.2	0.910	0.52	7.5	71.6	3.08	39.0	0.01			517	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 8.9 N	121 9.4 W	01/11/03	0218 UTC	2232 m	290 08 kn			1012.6 mb	14.6 C	12.3 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.83	15.83	33.093	24.320	359.5	0.000	5.85	103.4	1.5	0.38	0.2	0.01	0.54	0.20	0	
2	15.83	15.83	33.093	24.320	359.6	0.007	5.85	103.4	1.5	0.38	0.2	0.01	0.54	0.20	2	220
10	15.85	15.85	33.093	24.316	360.2	0.036	5.86	103.6	1.5	0.38	0.1	0.01	0.52	0.21	10	219
20	15.81	15.81	33.091	24.324	359.8	0.072	5.84	103.1	1.5	0.38	0.1	0.01	0.56	0.23	20	218
30	14.39	14.39	33.058	24.607	333.1	0.107	5.81	99.7	3.0	0.58	2.5	0.21	0.75	0.45	30	217
39	12.21	12.20	33.048	25.035	292.4	0.135	5.36	87.9	6.7	1.01	9.1	0.26	0.63	0.61	39	216
50	10.93	10.92	33.251	25.428	255.2	0.165	4.59	73.3	12.4	1.43	16.0	0.03	0.20	0.24	50	215
60	10.69	10.68	33.376	25.567	242.2	0.190	4.22	67.1	15.1	1.57	18.3	0.03	0.11	0.14	60	214
70	10.48	10.47	33.430	25.646	234.9	0.214	4.01	63.5	16.7	1.63	19.5	0.03	0.08	0.11	70	213
75 ISL	10.28	10.27	33.467	25.709	228.9	0.225	3.87	61.0	18.0	1.68	20.4	0.03	0.06	0.10	75	
85	9.79	9.78	33.547	25.854	215.3	0.247	3.62	56.5	20.9	1.78	22.1	0.03	0.03	0.08	85	212
98	9.13	9.12	33.636	26.031	198.7	0.274	3.55	54.6	24.5	1.86	23.6	0.02	0.01	0.06	98	211
100 ISL	9.12	9.11	33.657	26.050	197.0	0.278	3.53	54.3	24.8	1.86	23.7	0.02	0.01	0.06	100	
120	8.99	8.98	33.803	26.185	184.5	0.316	3.27	50.2	26.7	1.90	24.7	0.02	0.01	0.05	121	210
125 ISL	8.95	8.94	33.832	26.214	181.9	0.326	3.19	48.9	27.5	1.92	25.1	0.02	0.01	0.05	126	
139	8.84	8.83	33.903	26.287	175.2	0.351	2.95	45.2	29.9	2.00	26.4	0.02	0.01	0.04	140	209
150 ISL	8.78	8.76	33.952	26.335	170.8	0.370	2.81	43.0	31.4	2.05	27.0	0.02	0.01	0.04	151	
170	8.65	8.63	34.019	26.408	164.3	0.403	2.58	39.4	34.1	2.14	28.0	0.02	0.00	0.04	171	208
199	8.31	8.29	34.065	26.496	156.3	0.450	2.24	33.9	39.0	2.29	30.0	0.02	0.00	0.05	200	207
200 ISL	8.30	8.28	34.065	26.498	156.2	0.451	2.24	33.9	39.1	2.29	30.0	0.02			201	
228	7.92	7.90	34.057	26.549	151.7	0.494	2.23	33.5	42.1	2.32	31.0	0.02			229	206
250 ISL	7.63	7.61	34.081	26.610	146.2	0.527	1.90	28.3	46.5	2.47	32.7	0.02			251	
270	7.38	7.35	34.110	26.669	140.8	0.556	1.54	22.8	50.9	2.63	34.3	0.02			272	205
300 ISL	7.09	7.06	34.138	26.731	135.2	0.597	1.26	18.6	55.7	2.76	35.6	0.02			302	
317	6.95	6.92	34.151	26.761	132.5	0.620	1.15	16.9	58.0	2.81	36.2	0.02			319	204
378	6.61	6.58	34.194	26.841	125.6	0.699	0.79	11.5	65.2	2.98	38.0	0.01			380	203
400 ISL	6.57	6.53	34.226	26.872	123.1	0.726	0.65	9.5	67.5	3.05	38.4	0.01			403	
436	6.50	6.46	34.276	26.921	118.9	0.770	0.45	6.5	71.3	3.14	39.0	0.01			439	202
500 ISL	6.06	6.02	34.309	27.005	111.5	0.843	0.32	4.6	79.4	3.22	40.3	0.01			503	
512	5.98	5.94	34.315	27.020	110.2	0.857	0.29	4.2	80.9	3.24	40.6	0.01			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 80 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 49.1 N	121 50.7 W	01/11/03	0757 UTC	3633 m	300 09 kn			1014.3 mb	14.4 C	11.5 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.28	15.28	33.202	24.526	339.9	0.000	5.98	104.6	0.9	0.43	0.2	0.03	1.00	0.25	0	
1	15.28	15.28	33.202	24.526	339.9	0.003	5.98	104.6	0.9	0.43	0.2	0.03	1.00	0.25	1	220
10	15.28	15.28	33.202	24.526	340.2	0.034	5.97	104.4	0.9	0.40	0.2	0.03	0.96	0.25	10	219
19	15.19	15.19	33.207	24.550	338.2	0.065	5.98	104.4	0.9	0.41	0.3	0.04	1.03	0.26	19	218
20 ISL	15.12	15.12	33.210	24.568	336.6	0.068	5.97	104.1	1.0	0.42	0.4	0.05	1.33	0.32	20	
30	14.08	14.08	33.260	24.828	312.0	0.100	5.82	99.3	2.0	0.63	2.8	0.20	3.90	0.81	30	217
39	12.88	12.87	33.319	25.116	284.8	0.127	5.13	85.4	7.6	1.01	8.0	0.44	2.56	0.56	39	216
49	10.92	10.91	33.453	25.587	240.1	0.153	3.86	61.7	16.3	1.63	19.0	0.07	0.17	0.30	49	215
50 ISL	10.84	10.83	33.465	25.610	237.9	0.156	3.80	60.7	16.8	1.64	19.2	0.07	0.16	0.29	50	
60	10.40	10.39	33.554	25.756	224.2	0.179	3.46	54.7	19.7	1.79	21.6	0.05	0.07	0.23	60	214
70	9.96	9.95	33.612	25.877	212.9	0.201	3.35	52.5	21.9	1.84	22.6	0.04	0.07	0.19	70	213
75 ISL	9.83	9.82	33.648	25.927	208.3	0.211	3.26	51.0	22.9	1.87	23.1	0.04	0.06	0.17	75	
84	9.68	9.67	33.711	26.001	201.4	0.230	3.08	48.0	24.5	1.93	24.0	0.04	0.03	0.16	84	212
100	9.51	9.50	33.799	26.098	192.5	0.261	2.88	44.7	26.2	1.98	25.0	0.04	0.03	0.18	101	211
119	9.29	9.28	33.930	26.236	179.7	0.297	2.51	38.8	29.7	2.10	26.6	0.04	0.01	0.13	120	210
125 ISL	9.20	9.19	33.947	26.264	177.2	0.307	2.50	38.6	30.3	2.11	27.0	0.04	0.01	0.13	126	
139	8.98	8.97	33.973	26.320	172.1	0.332	2.49	38.3	31.6	2.12	27.7	0.04	0.02	0.13	140	209
150 ISL	8.88	8.86	34.008	26.363	168.2	0.350	2.36	36.2	33.2	2.17	28.5	0.04	0.02	0.11	151	
170	8.73	8.71	34.071	26.436	161.6	0.383	2.05	31.3	36.5	2.29	29.8	0.04	0.01	0.08	171	208
200	8.43	8.41	34.122	26.523	153.9	0.431	1.74	26.4	40.7	2.44	31.2	0.03	0.01	0.08	201	207
229	8.04	8.02	34.118	26.579	148.9	0.475	1.72	25.9	44.3	2.49	32.4	0.03			230	206
250 ISL	7.92	7.89	34.166	26.635	144.0	0.505	1.42	21.3	47.8	2.62	33.4	0.03			252	
268	7.84	7.81	34.212	26.683	139.7	0.531	1.13	16.9	50.9	2.75	34.2	0.03			270	205
300 ISL	7.52	7.49	34.234	26.747	134.0	0.575	0.87	12.9	55.9	2.87	35.4	0.03			302	
317	7.33	7.30	34.234	26.774	131.6	0.597	0.79	11.7	58.3	2.91	36.0	0.03			319	204
377	6.78	6.75	34.232	26.849	125.1	0.674	0.64	9.4	65.6	3.03	37.8	0.03			379	203
400 ISL	6.38	6.34	34.197	26.874	122.7	0.703	0.70	10.1	69.4	3.04	38.7	0.03			403	
437	5.80	5.76	34.158	26.917	118.6	0.748	0.76	10.9	75.4	3.06	40.1	0.03			440	202
500 ISL	5.82	5.78	34.269	27.003	111.3	0.820	0.38	5.4	81.4	3.21	41.0	0.03			504	
513	5.82	5.78	34.292	27.021	109.8	0.834	0.30	4.3	82.6	3.24	41.2	0.03			517	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 80 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 29.1 N	122 32.1 W	01/11/03	1341 UTC	3979 m	350 10 kn			1016.1 mb	13.9 C	11.9 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.14	15.14	33.156	24.521	340.4	0.000	5.93	103.4	1.2	0.43	0.8	0.07	0.63	0.24	0	
1	15.14	15.14	33.156	24.521	340.4	0.003	5.93	103.4	1.2	0.43	0.8	0.07	0.63	0.24	1	220
10	15.15	15.15	33.157	24.520	340.8	0.034	5.92	103.2	1.2	0.43	0.8	0.07	0.69	0.20	10	219
20	15.13	15.13	33.156	24.524	340.7	0.068	5.93	103.3	1.2	0.43	0.8	0.07	0.68	0.22	20	218
30	14.22	14.22	33.261	24.799	314.8	0.101	5.67	97.1	1.6	0.62	2.7	0.24	1.07	0.36	30	217
40	11.68	11.67	33.252	25.293	267.9	0.130	4.67	75.8	9.9	1.30	13.8	0.31	0.37	0.35	40	216
50	10.57	10.56	33.390	25.599	238.9	0.155	4.07	64.6	16.0	1.56	18.3	0.08	0.16	0.29	50	215
58	10.35	10.34	33.454	25.687	230.7	0.174	3.86	61.0	18.0	1.64	19.7	0.06	0.09	0.17	58	214
70	10.09	10.08	33.575	25.826	217.8	0.201	3.49	54.8	20.8	1.78	21.8	0.05	0.08	0.17	70	213
75 ISL	10.05	10.04	33.611	25.861	214.5	0.212	3.37	52.9	22.4	1.85	22.8	0.05	0.07	0.17	75	
85	9.98	9.97	33.670	25.919	209.2	0.233	3.18	49.9	25.1	1.95	24.3	0.05	0.04	0.17	85	212
100	9.69	9.68	33.747	26.028	199.2	0.264	2.98	46.5	25.1	1.95	24.3	0.05	0.04	0.16	101	211
119	9.44	9.43	33.855	26.153	187.6	0.300	2.74	42.5	27.8	2.03	25.5	0.05	0.02	0.14	120	210
125 ISL	9.37	9.36	33.879	26.184	184.9	0.312	2.65	41.1	28.6	2.06	26.1	0.05	0.02	0.13	126	
138	9.22	9.20	33.925	26.244	179.4	0.335	2.46	38.0	30.3	2.13	27.3	0.04	0.02	0.12	139	209
150 ISL	9.10	9.08	33.975	26.302	174.0	0.356	2.32	35.7	32.0	2.18	28.1	0.04	0.02	0.11	151	
169	8.94	8.92	34.052	26.389	166.2	0.389	2.10	32.3	34.8	2.26	29.1	0.04	0.01	0.09	170	208
198	8.72	8.70	34.145	26.496	156.5	0.436	1.63	24.9	39.6	2.47	30.7	0.05	0.01	0.07	199	207
200 ISL	8.72	8.70	34.149	26.500	156.2	0.439	1.61	24.6	39.8	2.48	30.8	0.05			201	
228	8.66	8.64	34.191	26.542	152.7	0.482	1.41	21.5	42.0	2.57	31.5	0.04			229	206
250 ISL	8.37	8.34	34.203	26.596	147.9	0.515	1.26	19.1	45.3	2.65	32.6	0.04			251	
269	8.06	8.03	34.205	26.645	143.5	0.543	1.16	17.5	48.5	2.72	33.6	0.04			271	205
300 ISL	7.62	7.59	34.191	26.699	138.6	0.586	1.11	16.6	52.6	2.79	34.8	0.05			302	
319	7.38	7.35	34.182	26.726	136.2	0.613	1.08	16.0	55.1	2.83	35.5	0.05			321	204
378	6.85	6.81	34.209	26.821	127.8	0.690	0.76	11.1	63.7	3.01	37.6	0.04			380	203
400 ISL	6.69	6.65	34.217	26.849	125.3	0.718	0.68	9.9	66.2	3.06	38.3	0.04			403	
438	6.44	6.40	34.230	26.893	121.5	0.765	0.57	8.3	70.3	3.12	39.3	0.04			441	202
500 ISL	6.04	6.00	34.254	26.964	115.3	0.839	0.42	6.0	77.6	3.22	40.7	0.04			503	
511	5.97	5.93	34.258	26.976	114.2	0.851	0.39	5.6	78.9	3.24	41.0	0.04			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 9.8 N	123 12.9 W	01/11/03	1901	UTC	4230 m	010	11 kn	340 08 08	1	1019.0 mb	17.1 C	13.5 C	28m	3/8	CU

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	18.75	18.75	32.801	23.405	446.8	0.000	5.41	101.0	1.4	0.37	0.1	0.00	0.12	0.04	0	
3	A	18.75	18.75	32.801	23.405	446.9	0.013	5.41	101.0	1.4	0.37	0.1	0.00	0.12	0.04	3	221
10		18.74	18.74	32.801	23.408	446.9	0.045	5.41	101.0	1.4	0.37	0.1	0.00	0.13	0.04	10	220
18	A	18.39	18.39	32.787	23.484	439.9	0.080	5.49	101.8	1.5	0.38	0.0	0.00	0.16	0.05	18	219
20	ISL	18.11	18.11	32.783	23.550	433.7	0.089	5.53	102.0	1.5	0.38	0.0	0.00	0.18	0.06	20	
28		16.99	16.99	32.784	23.818	408.3	0.123	5.69	102.7	1.6	0.40	0.0	0.00	0.27	0.12	28	218
30	ISL	16.87	16.87	32.786	23.848	405.5	0.131	5.71	102.8	1.6	0.40	0.0	0.00	0.29	0.13	30	
37	A	16.64	16.63	32.801	23.913	399.5	0.159	5.75	103.0	1.6	0.40	0.1	0.00	0.36	0.15	37	217
46		16.45	16.44	32.856	23.999	391.6	0.194	5.77	103.0	1.6	0.40	0.1	0.00	0.38	0.17	46	216
50	ISL	15.48	15.47	32.754	24.139	378.3	0.210	5.95	104.2	1.8	0.40	0.1	0.00	0.33	0.16	50	
55	A	14.16	14.15	32.629	24.325	360.6	0.228	6.17	105.1	2.0	0.41	0.0	0.00	0.26	0.16	55	215
65		13.15	13.14	32.597	24.505	343.6	0.264	6.17	102.9	2.4	0.47	0.1	0.01	0.29	0.20	65	214
75	A	12.77	12.76	32.672	24.637	331.2	0.297	5.87	97.1	2.9	0.55	1.0	0.12	0.28	0.23	75	213
92		11.46	11.45	32.859	25.029	294.2	0.350	5.47	88.1	5.7	0.84	6.4	0.03	0.15	0.20	92	212
100	ISL	10.79	10.78	32.891	25.173	280.5	0.373	5.35	85.0	7.6	0.98	8.9	0.02	0.10	0.15	100	
108	A	10.19	10.18	32.936	25.311	267.5	0.395	5.21	81.7	9.9	1.13	11.4	0.02	0.06	0.09	108	211
122		9.53	9.52	33.157	25.593	240.8	0.431	4.74	73.4	15.0	1.41	16.1	0.03	0.02	0.03	123	210
125	ISL	9.45	9.44	33.183	25.626	237.7	0.438	4.71	72.8	15.4	1.43	16.5	0.03	0.02	0.03	126	
140		9.19	9.17	33.302	25.761	225.1	0.473	4.57	70.3	17.1	1.47	17.7	0.02	0.01	0.03	141	209
150	ISL	9.03	9.01	33.473	25.921	210.2	0.495	4.27	65.5	20.1	1.58	19.7	0.02	0.01	0.03	151	
169		8.76	8.74	33.795	26.215	182.5	0.532	3.62	55.3	26.3	1.80	23.6	0.02	0.00	0.02	170	208
198		8.48	8.46	33.951	26.381	167.3	0.583	3.07	46.6	32.1	1.98	26.6	0.02	0.00	0.02	199	207
200	ISL	8.46	8.44	33.957	26.389	166.6	0.586	3.06	46.5	32.4	1.98	26.7	0.02			201	
228		8.13	8.11	34.001	26.474	158.9	0.632	2.95	44.5	36.2	2.04	27.9	0.02			229	206
250	ISL	7.80	7.78	34.013	26.532	153.6	0.666	2.71	40.5	40.3	2.16	29.6	0.02			251	
271		7.47	7.44	34.016	26.582	149.0	0.698	2.45	36.4	44.5	2.30	31.4	0.01			272	205
300	ISL	7.06	7.03	34.017	26.640	143.8	0.740	2.17	31.9	49.8	2.44	33.3	0.01			302	
326		6.73	6.70	34.021	26.688	139.4	0.777	1.92	28.0	54.4	2.55	34.9	0.01			328	204
376		6.22	6.19	34.061	26.787	130.4	0.844	1.38	19.9	62.9	2.79	37.6	0.01			378	203
400	ISL	6.05	6.02	34.083	26.826	126.9	0.875	1.16	16.7	66.7	2.88	38.7	0.01			402	
437		5.85	5.81	34.118	26.879	122.2	0.921	0.87	12.4	72.3	3.00	40.0	0.01			440	202
500	ISL	5.53	5.49	34.170	26.960	115.0	0.996	0.57	8.1	80.9	3.13	41.5	0.00			503	
509		5.49	5.45	34.178	26.971	114.0	1.006	0.53	7.5	82.1	3.15	41.7	0.00			512	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 80 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 49.2 N	123 54.4 W	02/11/03	0122	UTC	4402 m	030	13 kn	360 06 07	1	1018.1 mb	15.5 C	13.0 C		5/8	SC

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	18.81	18.81	32.822	23.406	446.7	0.000	5.41	101.1	1.3	0.37	0.2	0.00	0.12	0.04	0	
2		18.81	18.81	32.822	23.406	446.8	0.009	5.41	101.1	1.3	0.37	0.2	0.00	0.12	0.04	2	220
10	ISL	18.82	18.82	32.823	23.405	447.2	0.045	5.40	100.9	1.3	0.37	0.1	0.00	0.13	0.04	10	
15		18.83	18.83	32.823	23.403	447.6	0.067	5.39	100.8	1.3	0.37	0.1	0.00	0.13	0.04	15	219
20	ISL	18.83	18.83	32.822	23.402	447.8	0.089	5.39	100.8	1.3	0.37	0.1	0.00	0.13	0.04	20	
30		18.83	18.82	32.821	23.402	448.2	0.134	5.40	101.0	1.3	0.37	0.0	0.00	0.13	0.04	30	218
45		18.83	18.82	32.821	23.402	448.7	0.202	5.40	100.9	1.3	0.37	0.0	0.00	0.13	0.05	45	217
50	ISL	18.38	18.37	32.794	23.494	440.1	0.224	5.54	102.7	1.3	0.37	0.0	0.00	0.18	0.07	50	
60		16.97	16.96	32.725	23.779	413.1	0.266	5.85	105.5	1.3	0.38	0.0	0.00	0.26	0.14	60	216
74		14.15	14.14	32.660	24.351	358.6	0.320	6.07	103.4	1.8	0.42	0.0	0.00	0.23	0.25	74	215
75	ISL	14.04	14.03	32.659	24.373	356.6	0.324	6.07	103.1	1.8	0.42	0.0	0.01	0.24	0.26	75	
84		13.26	13.25	32.664	24.535	341.2	0.355	5.96	99.6	2.1	0.49	0.2	0.08	0.28	0.30	84	214
95		12.40	12.39	32.745	24.766	319.5	0.392	5.67	93.1	3.4	0.65	2.8	0.05	0.19	0.32	95	213
100	ISL	12.01	12.00	32.784	24.870	309.6	0.407	5.58	90.9	4.1	0.74	4.3	0.03	0.17	0.26	100	
105		11.70	11.69	32.828	24.961	301.0	0.423	5.51	89.2	4.8	0.81	5.6	0.02	0.15	0.20	105	212
115		11.61	11.60	32.935	25.061	291.7	0.452	5.41	87.5	5.7	0.85	6.6	0.02	0.12	0.20	115	211
124		11.31	11.29	33.065	25.217	277.1	0.478	5.31	85.4	6.5	0.88	7.4	0.01	0.10	0.17	124	210
125	ISL	11.24	11.22	33.076	25.238	275.1	0.481	5.29	84.9	6.8	0.90	7.7	0.01	0.10	0.16	125	
141		10.00	9.98	33.242	25.583	242.3	0.522	4.87	76.2	12.0	1.22	13.5	0.00	0.03	0.04	142	209
150	ISL	9.68	9.66	33.332	25.706	230.7	0.543	4.64	72.1	14.2	1.35	15.7	0.00	0.02	0.03	151	
165		9.42	9.40	33.474	25.859	216.4	0.577	4.32	66.8	17.3	1.49	18.3	0.00	0.01	0.02	166	208
193		8.98	8.96	33.729	26.130	191.2	0.634	4.07	62.4	21.9	1.60	20.7	0.00	0.00	0.02	194	207
200	ISL	8.91	8.89	33.779	26.180	186.5	0.647	3.98	61.0	23.0	1.63	21.3	0.00			201	
228		8.67	8.65	33.928	26.334	172.4	0.697	3.59	54.8	27.5	1.77	23.8	0.01			229	206
250	ISL	8.43	8.40	33.983	26.415	165.1	0.735	3.39	51.4	31.1	1.86	25.4	0.01			251	
269		8.20	8.17	34.006	26.468	160.3	0.765	3.20	48.3	34.4	1.95	26.8	0.01			270	205
300	ISL	7.73	7.70	34.029	26.555	152.2	0.814	2.61	39.0	41.3	2.21	30.2	0.01			302	
318		7.45	7.42	34.036	26.601	148.0	0.841	2.25	33.4	45.3	2.36	32.2	0.01			320	204
378		6.73	6.70	34.055	26.716	137.6	0.927	1.66	24.2	55.0	2.63	35.7	0.01			380	203
400	ISL	6.50	6.46	34.071	26.759	133.6	0.956	1.41	20.5	59.3	2.74	37.1	0.01			402	
437		6.16	6.12	34.103	26.829	127.3	1.005	1.02	14.7	66.4	2.92	39.1	0.01			440	202
500	ISL	5.72	5.68	34.149	26.920	119.0	1.082	0.69	9.8	76.0	3.08	41.0	0.00			503	
512		5.64	5.60	34.158	26.937	117.5	1.096	0.63	9.0	77.8	3.11	41.4	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 82 47

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 16.2 N	120 1.9 W	31/10/03	1438 UTC	581 m	300 07 kn	250 03 07	1	1011.5 mb	14.8 C	11.7 C	15m	4/8	CC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.35	17.35	33.289	24.120	378.6	0.000	5.66	103.2	1.9	0.31	0.1	0.01	1.14	0.40	0	
2 A	17.35	17.35	33.289	24.120	378.7	0.008	5.66	103.2	1.9	0.31	0.1	0.01	1.14	0.40	2	224
10	17.36	17.36	33.289	24.118	379.2	0.038	5.67	103.4	1.9	0.31	0.1	0.01	1.23	0.32	10	223
19	16.99	16.99	33.285	24.202	371.4	0.072	5.64	102.1	2.2	0.34	0.4	0.02	1.27	0.46	19	222
20 ISL	16.63	16.63	33.271	24.276	364.4	0.075	5.59	100.4	2.6	0.39	1.0	0.04	1.21	0.45	20	
30	12.95	12.95	33.229	25.032	292.5	0.108	4.96	82.7	7.7	0.96	8.0	0.26	0.51	0.28	30	221
39	12.17	12.16	33.284	25.226	274.3	0.134	4.58	75.1	10.2	1.15	11.1	0.17	0.37	0.25	39	220
49	11.36	11.35	33.375	25.447	253.4	0.160	4.12	66.5	13.4	1.38	14.8	0.09	0.17	0.15	49	219
50 ISL	11.28	11.27	33.391	25.474	250.9	0.163	4.06	65.4	13.9	1.40	15.2	0.08	0.16	0.15	50	
59	10.68	10.67	33.545	25.701	229.5	0.184	3.56	56.7	17.9	1.61	18.4	0.05	0.08	0.12	59	218
69	10.59	10.58	33.679	25.821	218.3	0.207	3.12	49.6	20.9	1.77	20.2	0.03	0.03	0.08	69	217
75 ISL	10.57	10.56	33.712	25.850	215.6	0.220	3.00	47.7	21.6	1.81	20.6	0.03	0.03	0.08	75	
84	10.56	10.55	33.730	25.866	214.3	0.239	2.91	46.2	22.1	1.83	20.8	0.03	0.02	0.07	84	216
99	10.47	10.46	33.745	25.894	212.0	0.271	2.84	45.0	22.8	1.87	21.6	0.03	0.02	0.08	99	215
100 ISL	10.46	10.45	33.751	25.901	211.4	0.273	2.82	44.7	23.0	1.88	21.7	0.03	0.02	0.08	101	
119	10.26	10.25	33.869	26.027	199.8	0.312	2.43	38.4	26.3	2.02	23.6	0.02	0.01	0.07	120	214
125 ISL	10.23	10.22	33.884	26.044	198.3	0.324	2.39	37.7	26.6	2.04	23.8	0.02	0.01	0.07	126	
139	10.18	10.16	33.907	26.071	196.1	0.352	2.34	36.9	27.1	2.06	24.1	0.02	0.01	0.07	140	213
150 ISL	10.09	10.07	33.939	26.112	192.4	0.373	2.26	35.6	28.0	2.10	24.7	0.02	0.01	0.07	151	
169	9.93	9.91	33.998	26.185	185.8	0.409	2.11	33.1	29.8	2.17	25.7	0.02	0.01	0.06	170	212
198	9.79	9.77	34.067	26.263	179.1	0.462	1.90	29.7	32.0	2.25	26.8	0.02	0.01	0.06	199	211
200 ISL	9.77	9.75	34.071	26.269	178.5	0.465	1.89	29.6	32.2	2.26	26.9	0.02			201	
228	9.46	9.43	34.126	26.364	170.0	0.514	1.64	25.5	35.7	2.38	28.4	0.02			229	210
250 ISL	9.12	9.09	34.168	26.452	161.9	0.551	1.31	20.2	40.6	2.53	30.1	0.02			251	
268	8.85	8.82	34.196	26.517	156.0	0.579	1.05	16.1	44.7	2.64	31.5	0.02			270	209
300 ISL	8.52	8.49	34.214	26.583	150.2	0.628	0.91	13.9	48.7	2.73	32.6	0.02			302	
318	8.35	8.32	34.216	26.611	147.8	0.655	0.88	13.3	50.6	2.77	32.9	0.02			320	208
377	7.69	7.65	34.222	26.714	138.6	0.740	0.61	9.1	60.5	2.96	34.5	0.02			379	207
400 ISL	7.43	7.39	34.225	26.754	135.0	0.771	0.53	7.9	64.6	3.03	34.7	0.02			403	
437	7.04	7.00	34.231	26.813	129.6	0.820	0.39	5.7	72.4	3.16	34.9	0.01			440	206
500 ISL	6.55	6.50	34.243	26.890	122.9	0.900	0.07	1.0	93.3	3.47	31.7	0.01			503	
512	6.49	6.44	34.245	26.899	122.1	0.914	0.02	0.3	96.8	3.52	31.1	0.01			516	205
531	6.43	6.38	34.249	26.910	121.3	0.937	0.01	0.1	99.4	3.55	30.7	0.01			535	204
550	6.40	6.35	34.253	26.918	120.8	0.960	0.00	0.0	103.0	3.61	29.3	0.01			554	203
563	6.39	6.34	34.253	26.919	120.9	0.976	0.00	0.0	105.3	3.65	28.0	0.01			567	202
570	6.37	6.32	34.256	26.924	120.5	0.985	0.00	0.0	108.0	3.71	27.0	0.01			574	201

A) SANTA BARBARA BASIN STATION.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 13.7 N	119 25.0 W	31/10/03	1031 UTC	37 m	250 15 kn			1010.7 mb	15.5 C	13.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.16	18.16	33.308	23.939	395.9	0.000	5.62	104.0	1.7	0.27	0.1	0.00	1.02	0.25	0	
2	18.16	18.16	33.308	23.939	396.0	0.008	5.62	104.0	1.7	0.27	0.1	0.00	1.02	0.25	2	205
5	18.18	18.18	33.306	23.932	396.7	0.020	5.63	104.3	1.7	0.27	0.1	0.00	0.96	0.22	5	204
10	16.90	16.90	33.237	24.186	372.6	0.039	5.30	95.7	3.7	0.41	0.2	0.03	1.28	0.44	10	203
20	14.51	14.51	33.167	24.665	327.2	0.074	5.25	90.4	5.2	0.69	2.8	0.24	0.82	0.32	20	202
29	13.78	13.78	33.153	24.807	314.0	0.103	5.07	86.0	6.3	0.82	4.3	0.38	0.57	0.27	29	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 10.8 N	119 30.6 W	31/10/03	0828 UTC	122 m	270 13 kn			1010.3 mb	15.4 C	13.5 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.47	17.47	33.249	24.060	384.3	0.000	5.68	103.7	1.7	0.31	0.2	0.01	0.47	0.18	0	
2	17.47	17.47	33.249	24.060	384.4	0.008	5.68	103.7	1.7	0.31	0.2	0.01	0.47	0.18	2	211
10	17.48	17.48	33.250	24.059	384.7	0.038	5.70	104.1	1.7	0.31	0.2	0.00	0.44	0.21	10	210
20	15.52	15.52	33.143	24.428	349.8	0.075	5.90	103.6	1.9	0.40	1.0	0.07	0.65	0.32	20	209
30	13.63	13.63	33.154	24.838	311.0	0.108	5.35	90.4	5.2	0.79	5.9	0.27	0.59	0.34	30	208
40	12.56	12.55	33.169	25.062	289.9	0.138	5.00	82.6	7.7	1.01	9.5	0.23	0.40	0.28	40	207
49	12.22	12.21	33.187	25.141	282.5	0.164	4.89	80.3	8.3	1.08	10.6	0.22	0.35	0.28	49	206
50 ISL	12.18	12.17	33.187	25.149	281.8	0.167	4.87	79.9	8.3	1.09	10.7	0.21	0.34	0.28	50	
60	11.63	11.62	33.225	25.281	269.4	0.194	4.60	74.6	9.8	1.19	12.1	0.11	0.24	0.22	60	205
70	10.86	10.85	33.381	25.542	244.9	0.220	4.03	64.3	14.1	1.44	16.4	0.04	0.16	0.16	70	204
75 ISL	10.84	10.83	33.452	25.601	239.4	0.232	3.85	61.4	15.4	1.50	17.3	0.03	0.11	0.13	75	
83	10.80	10.79	33.513	25.655	234.4	0.251	3.63	57.9	16.9	1.57	18.0	0.02	0.05	0.10	83	203
100	10.60	10.59	33.645	25.794	221.6	0.290	3.21	51.0	20.0	1.74	19.9	0.02	0.03	0.08	100	202
110	10.60	10.59	33.691	25.830	218.4	0.312	3.01	47.9	21.1	1.78	20.5	0.02	0.03	0.08	111	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 52.5 N	120 8.1 W	31/10/03	0212 UTC	106 m	310 25 kn			1010.4 mb	14.5 C	12.8 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.11	14.11	33.319	24.866	307.5	0.000	5.16	88.2	7.4	0.85	7.1	0.13	1.37	0.54	0	
2	14.11	14.11	33.319	24.866	307.6	0.006	5.16	88.2	7.4	0.85	7.1	0.13	1.37	0.54	2	210
10	13.45	13.45	33.325	25.006	294.4	0.030	4.87	82.1					0.98	0.39	10	209
19	12.68	12.68	33.341	25.172	278.9	0.056	4.58	76.0	10.4	1.12	10.9	0.14	0.77	0.36	19	208
20 ISL	12.59	12.59	33.337	25.186	277.6	0.059	4.57	75.7	10.5	1.13	11.1	0.14	0.74	0.35	20	
30	11.65	11.65	33.334	25.362	261.1	0.086	4.35	70.6	12.0	1.29	13.4	0.11	0.38	0.24	30	207
40	10.79	10.79	33.510	25.654	233.5	0.110	3.69	58.9	17.0	1.58	17.9	0.07	0.13	0.14	40	206
50	10.67	10.66	33.534	25.694	229.9	0.134	3.61	57.4	17.6	1.61	18.4	0.06	0.10	0.12	50	205
59	10.60	10.59	33.562	25.728	226.9	0.154	3.51	55.8	18.3	1.65	19.1	0.05	0.08	0.10	59	204
70	10.37	10.36	33.678	25.859	214.7	0.178	3.18	50.3	20.7	1.76	20.7	0.04	0.04	0.07	70	203
75 ISL	10.31	10.30	33.720	25.902	210.7	0.189	3.05	48.2	21.9	1.82	21.3	0.04	0.03	0.07	75	
79	10.28	10.27	33.748	25.929	208.2	0.198	2.95	46.6	22.7	1.86	21.8	0.04	0.03	0.07	79	202
92	10.19	10.18	33.811	25.994	202.4	0.224	2.73	43.1	24.4	1.98	22.9	0.05	0.02	0.07	92	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 44.8 N	120 24.8 W	30/10/03	2147 UTC	1034 m	320 24 kn	320 14 08	1	1011.0 mb	14.8 C	12.4 C	08m	2/8	CU

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.65	15.65	33.232	24.467	345.5	0.000	5.81	102.4	2.6	0.42	1.6	0.06	0.39	0.15	0	
1	15.65	15.65	33.232	24.467	345.5	0.003	5.81	102.4	2.6	0.42	1.6	0.06	0.39	0.15	1	220
9	15.64	15.64	33.234	24.471	345.4	0.031	5.79	102.0	2.5	0.42	1.6	0.06	1.17	0.44	9	219
10 ISL	15.48	15.48	33.229	24.503	342.4	0.035	5.77	101.3	2.7	0.44	1.8	0.07	1.16	0.45	10	
19	13.60	13.60	33.212	24.889	305.9	0.064	5.44	91.9	5.3	0.75	5.2	0.17	1.09	0.56	19	218
20 ISL	13.40	13.40	33.217	24.933	301.7	0.067	5.36	90.2	5.8	0.80	5.9	0.17	1.05	0.55	20	
30	11.78	11.78	33.297	25.309	266.1	0.095	4.58	74.5	10.8	1.24	12.6	0.18	0.60	0.38	30	217
40	11.19	11.19	33.370	25.474	250.6	0.121	4.20	67.5	13.6	1.43	15.6	0.10	0.39	0.29	40	216
49	10.98	10.97	33.419	25.550	243.6	0.143	4.02	64.3	15.1	1.52	16.9	0.08	0.24	0.21	49	215
50 ISL	10.92	10.91	33.432	25.570	241.7	0.146	3.97	63.5	15.5	1.54	17.2	0.08	0.22	0.20	50	
58	10.41	10.40	33.542	25.745	225.2	0.164	3.60	57.0	18.6	1.71	19.7	0.05	0.11	0.16	58	214
69	10.14	10.13	33.635	25.864	214.1	0.188	3.33	52.4	21.3	1.82	21.5	0.05	0.05	0.15	69	213
75 ISL	10.01	10.00	33.699	25.936	207.4	0.201	3.15	49.4	22.8	1.88	22.4	0.04	0.03	0.13	75	
85	9.86	9.85	33.800	26.040	197.7	0.221	2.86	44.8	25.0	1.98	23.7	0.04	0.02	0.09	85	212
99	9.89	9.88	33.878	26.097	192.7	0.249	2.60	40.7	26.7	2.06	24.3	0.07	0.02	0.08	100	211
100 ISL	9.89	9.88	33.883	26.101	192.3	0.251	2.58	40.4	26.8	2.07	24.3	0.07	0.02	0.08	101	
119	9.88	9.87	33.965	26.167	186.5	0.287	2.31	36.2	28.7	2.16	25.2	0.09	0.01	0.08	120	210
125 ISL	9.86	9.85	33.980	26.182	185.1	0.298	2.27	35.6	29.0	2.17	25.4	0.09	0.01	0.08	126	
139	9.78	9.76	34.006	26.216	182.2	0.323	2.22	34.7	29.7	2.20	25.9	0.07	0.01	0.07	140	209
150 ISL	9.67	9.65	34.026	26.250	179.2	0.343	2.14	33.4	30.2	2.23	26.2	0.06	0.01	0.06	151	
169	9.52	9.50	34.066 D	26.306	174.2	0.377									170	208
198	9.60	9.58	34.155	26.363	169.5	0.427	1.75	27.3	33.9	2.39	27.8	0.04	0.01	0.04	199	207
200 ISL	9.58	9.56	34.160	26.370	168.8	0.430	1.73	27.0	34.1	2.40	27.9	0.04			201	
229	9.20	9.17	34.212	26.473	159.5	0.478	1.50	23.2	38.0	2.52	29.5	0.04			230	206
250 ISL	8.99	8.96	34.241	26.530	154.5	0.511	1.32	20.3	40.7	2.61	30.4	0.03			252	
268	8.84	8.81	34.258	26.567	151.3	0.538	1.19	18.3	42.8	2.67	31.0	0.03			270	205
300 ISL	8.62	8.59	34.263	26.606	148.1	0.586	1.10	16.8	44.9	2.73	31.7	0.03			302	
318	8.50	8.47	34.260	26.622	146.8	0.613	1.07	16.3	46.0	2.75	32.0	0.03			320	204
378	7.95	7.91	34.272	26.715	138.7	0.698	0.84	12.6	52.4	2.89	33.8	0.03			380	203
400 ISL	7.81	7.77	34.274	26.738	136.9	0.729	0.80	12.0	53.9	2.93	34.3	0.03			403	
435	7.58	7.54	34.275	26.772	134.0	0.776	0.74	11.0	56.7	2.98	35.1	0.03			438	202
500 ISL	6.87	6.82	34.274	26.871	125.0	0.860	0.54	7.9	66.6	3.13	37.5	0.03			503	
512	6.74	6.69	34.275	26.890	123.3	0.875	0.50	7.3	68.4	3.16	38.0	0.03			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 35.1 N	120 46.2 W	30/10/03	1752 UTC	1513 m	330 24 kn	320 12 08	1	1012.1 mb	16.1 C	13.8 C	15m	3/8	CU

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	16.07	16.07	33.069	24.248	366.4	0.000	5.77	102.4	1.6	0.38	0.1	0.00	0.40	0.16	0	
3	A	16.07	16.07	33.069	24.248	366.5	0.011	5.77	102.4	1.6	0.38	0.1	0.00	0.40	0.16	3	221
10	A	16.07	16.07	33.069	24.248	366.7	0.037	5.78	102.6	1.6	0.38	0.1	0.00	0.39	0.15	10	220
20	ISL	15.96	15.96	33.075	24.278	364.2	0.073	5.81	102.9	1.6	0.38	0.1	0.01	0.48	0.17	20	
21	A	15.95	15.95	33.076	24.281	363.9	0.077	5.81	102.9	1.6	0.38	0.1	0.01	0.49	0.17	21	219
29		14.55	14.55	33.140	24.636	330.2	0.105	5.75	99.0	2.6	0.59	2.5	0.22	0.82	0.48	29	218
30	ISL	14.32	14.32	33.121	24.670	327.0	0.108	5.74	98.4	2.8	0.62	2.8	0.24	0.80	0.47	30	
40	A	12.11	12.10	32.944	24.974	298.3	0.139	5.50	89.9	5.7	0.91	7.1	0.41	0.44	0.37	40	217
49		10.99	10.98	33.021	25.238	273.3	0.165	5.12	81.8	9.0	1.19	12.3	0.08	0.26	0.27	49	216
50	ISL	10.87	10.86	33.033	25.269	270.4	0.168	5.08	80.9	9.6	1.22	12.8	0.08	0.24	0.25	50	
58	A	10.11	10.10	33.158	25.497	248.7	0.188	4.71	73.8	14.0	1.43	16.4	0.04	0.12	0.15	58	215
64		9.92	9.91	33.279	25.623	236.8	0.203	4.39	68.6	16.3	1.53	18.3	0.04	0.06	0.13	64	214
70		9.90	9.89	33.304	25.646	234.8	0.217	4.33	67.6	16.7	1.55	18.6	0.04	0.06	0.12	70	213
75	ISL	9.90	9.89	33.379	25.705	229.3	0.229	4.08	63.8	18.0	1.62	19.7	0.04	0.05	0.11	75	
85		9.91	9.90	33.550	25.837	217.0	0.251	3.53	55.2	20.9	1.77	22.1	0.03	0.03	0.09	85	212
99		9.60	9.59	33.609	25.934	208.0	0.281	3.41	53.0	23.1	1.83	23.2	0.03	0.05	0.09	99	211
100	ISL	9.57	9.56	33.613	25.943	207.2	0.283	3.40	52.8	23.3	1.83	23.3	0.03	0.05	0.09	100	
117		9.15	9.14	33.694	26.074	195.0	0.317	3.31	51.0	25.6	1.88	24.4	0.03	0.01	0.07	118	210
125	ISL	9.02	9.01	33.744	26.134	189.4	0.332	3.36	51.6	26.1	1.86	24.4	0.03	0.01	0.06	126	
139		8.84	8.83	33.834	26.233	180.3	0.358	3.42	52.3	27.2	1.84	24.3	0.02	0.01	0.05	140	209
150	ISL	8.69	8.67	33.901	26.309	173.3	0.378	3.27	49.9	29.3	1.89	25.1	0.02	0.01	0.04	151	
170		8.44	8.42	33.995	26.421	162.9	0.411	2.91	44.2	33.6	2.01	27.1	0.02	0.00	0.03	171	208
199		8.11	8.09	34.024	26.494	156.4	0.458	2.63	39.6	38.1	2.14	29.0	0.01	0.00	0.03	200	207
200	ISL	8.10	8.08	34.026	26.497	156.2	0.459	2.61	39.3	38.3	2.15	29.1	0.01			201	
228		7.88	7.86	34.072	26.566	150.0	0.502	2.01	30.1	43.7	2.38	31.6	0.01			229	206
250	ISL	7.67	7.65	34.083	26.606	146.6	0.535	1.83	27.3	46.5	2.47	32.7	0.01			251	
269		7.49	7.46	34.086	26.634	144.1	0.562	1.74	25.9	48.7	2.52	33.4	0.01			271	205
300	ISL	7.19	7.16	34.101	26.688	139.3	0.606	1.45	21.4	53.2	2.65	34.9	0.01			302	
318		7.04	7.01	34.112	26.718	136.7	0.631	1.29	19.0	55.7	2.72	35.7	0.01			320	204
380		6.71	6.67	34.163	26.804	129.3	0.714	0.96	14.0	62.4	2.88	37.0	0.01			382	203
400	ISL	6.51	6.47	34.169	26.835	126.5	0.739	0.86	12.5	65.7	2.93	37.8	0.01			403	
441		6.14	6.10	34.186	26.897	120.9	0.790	0.66	9.5	72.1	3.04	39.4	0.01			444	202
500	ISL	6.05	6.01	34.256	26.964	115.3	0.859	0.42	6.0	77.1	3.15	40.0	0.01			503	
506		6.04	6.00	34.263	26.971	114.7	0.866	0.40	5.8	77.6	3.16	40.1	0.01			510	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 14.6 N	121 26.7 W	30/10/03	1005 UTC	3805 m	340 23 kn			1010.6 mb	15.2 C	13.0 C			

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	15.88	15.88	33.187	24.381	353.7	0.000	5.81	102.8	1.3	0.39	0.1	0.02	0.47	0.22	0	
3		15.88	15.88	33.187	24.381	353.8	0.011	5.81	102.8	1.3	0.39	0.1	0.02	0.47	0.22	3	220
10	ISL	15.50	15.50	33.219	24.491	343.6	0.035	5.88	103.3	1.3	0.41	0.1	0.02	0.45	0.22	10	
11		15.43	15.43	33.225	24.511	341.7	0.038	5.89	103.3	1.3	0.41	0.1	0.02	0.45	0.22	11	219
20		15.00	15.00	33.241	24.618	331.8	0.069	5.85	101.7	1.3	0.46	0.5	0.05	0.63	0.33	20	218
30		14.96	14.96	33.241	24.626	331.2	0.102	5.81	101.0	1.0	0.46	0.5	0.06	0.60	0.24	30	217
40		14.53	14.52	33.270	24.741	320.6	0.134	5.69	98.0	1.5	0.57	1.6	0.12	1.03	0.26	40	216
50		13.72	13.71	33.316	24.946	301.3	0.166	5.37	91.0	6.4	0.83	4.2	0.31	0.96	0.25	50	215
60		11.90	11.89	33.298	25.288	268.9	0.194	4.53	73.9	10.4	1.33	14.2	0.25	0.28	0.27	60	214
70		11.38	11.37	33.357	25.430	255.5	0.220	4.23	68.3	13.3	1.47	16.7	0.07	0.34	0.41	70	213
75	ISL	11.10	11.09	33.401	25.515	247.6	0.233	4.04	64.8	15.0	1.55	18.0	0.06	0.28	0.38	75	
84		10.61	10.60	33.477	25.661	233.8	0.255	3.74	59.4	17.7	1.67	20.0	0.05	0.13	0.29	84	212
99		10.03	10.02	33.536	25.806	220.3	0.289	3.63	56.9	20.1	1.73	21.3	0.04	0.08	0.27	99	211
100	ISL	10.01	10.00	33.544	25.816	219.3	0.291	3.61	56.6	20.3	1.74	21.4	0.04	0.08	0.27	100	
119		9.60	9.59	33.706	26.011	201.2	0.331	3.13	48.7	24.2	1.89	23.6	0.03	0.03	0.20	120	210
125	ISL	9.35	9.34	33.756	26.091	193.7	0.343	3.02	46.7	26.3	1.95	24.7	0.03	0.02	0.16	126	
139		8.76	8.75	33.863	26.268	176.9	0.369	2.81	42.9	31.1	2.07	27.2	0.02	0.01	0.08	140	209
150	ISL	8.55	8.53	33.923	26.348	169.5	0.388	2.73	41.5	33.1	2.09	27.6	0.01	0.01	0.08	151	
170		8.34	8.32	33.992	26.434	161.7	0.421	2.67	40.4	35.6	2.12	28.4	0.01	0.01	0.07	171	208
199		7.96	7.94	34.027	26.519	154.0	0.467	2.58	38.7	39.6	2.18	29.5	0.02	0.00	0.04	200	207
200	ISL	7.95	7.93	34.028	26.521	153.8	0.468	2.56	38.4	39.8	2.19	29.6	0.02			201	
229		7.59	7.57	34.057	26.597	147.0	0.512	2.08	31.0	45.9	2.41	32.0	0.01			230	206
250	ISL	7.27	7.25	34.051	26.637	143.3	0.542	1.98	29.3	49.3	2.48	33.0	0.01			251	
268		7.01	6.98	34.043	26.667	140.7	0.568	1.93	28.4	51.7	2.52	33.7	0.01			270	205
300	ISL	6.80	6.77	34.063	26.712	136.8	0.612	1.65	24.1	55.2	2.63	35.0	0.01			302	
318		6.70	6.67	34.076	26.736	134.8	0.637	1.48	21.6	57.3	2.70	35.7	0.01			320	204
378		5.93	5.90	34.079	26.838	125.3	0.715	1.15	16.5	68.8	2.90	38.5	0.01			380	203
400	ISL	5.71	5.68	34.084	26.869	122.5	0.742	1.06	15.1	72.5	2.95	39.2	0.01			403	
437		5.43	5.39	34.103	26.918	118.1	0.786	0.89	12.6	78.1	3.03	40.2	0.01			440	202
500	ISL	5.31	5.27	34.194	27.005	110.5	0.858	0.49	6.9	85.7	3.19	41.5	0.01			503	
511		5.29	5.25	34.210	27.020	109.2	0.870	0.42	5.9	87.0	3.22	41.7	0.01			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 54.7 N	122 7.2 W	30/10/03	0420 UTC	4179 m	350 19 kn			1009.9 mb	17.3 C	15.2 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.84	18.84	32.769	23.358	451.3	0.000	5.38	100.6	1.4	0.37	0.1	0.00	0.11	0.03	0	
2	18.84	18.84	32.769	23.358	451.4	0.009	5.38	100.6	1.4	0.37	0.1	0.00	0.11	0.03	2	220
10 ISL	18.85	18.85	32.770	23.357	451.8	0.045	5.40	101.0	1.4	0.37	0.1	0.00	0.11	0.03	10	
15	18.85	18.85	32.770	23.357	451.9	0.068	5.41	101.2	1.4	0.37	0.1	0.00	0.11	0.03	15	219
20 ISL	18.84	18.84	32.770	23.360	451.9	0.090	5.41	101.1	1.4	0.37	0.1	0.00	0.12	0.04	20	
30	18.82	18.81	32.771	23.366	451.6	0.136	5.42	101.3	1.4	0.37	0.0	0.00	0.14	0.05	30	218
45	14.98	14.97	32.661	24.176	374.6	0.197	6.16	106.7	1.8	0.39	0.1	0.00	0.21	0.13	45	217
50 ISL	14.35	14.34	32.658	24.307	362.2	0.216	6.11	104.5	2.0	0.41	0.1	0.00	0.23	0.18	50	
54	14.00	13.99	32.658	24.380	355.3	0.230	6.07	103.1	2.1	0.42	0.1	0.00	0.24	0.23	54	216
65	13.42	13.41	32.671	24.508	343.3	0.269	5.98	100.3	2.4	0.46	0.0	0.03	0.32	0.32	65	215
75	12.75	12.74	32.697	24.661	329.0	0.302	5.84	96.6	3.0	0.56	1.2	0.16	0.35	0.38	75	214
85	11.65	11.64	32.690	24.863	309.9	0.334	5.67	91.6	4.4	0.77	5.0	0.12	0.28	0.27	85	213
94	11.13	11.12	32.701	24.965	300.2	0.362	5.58	89.2	5.5	0.87	6.8	0.10	0.20	0.23	94	212
100 ISL	10.80	10.79	32.774	25.080	289.4	0.379	5.47	86.8	6.7	0.95	8.3	0.07	0.15	0.18	100	
109	10.33	10.32	32.903	25.262	272.2	0.405	5.29	83.2	8.9	1.09	10.8	0.03	0.09	0.10	109	211
124	9.60	9.59	33.002	25.461	253.4	0.444	5.02	77.7	13.0	1.32	14.8	0.02	0.05	0.06	125	210
125 ISL	9.56	9.55	33.020	25.481	251.5	0.447	4.99	77.2	13.3	1.33	15.0	0.02	0.05	0.06	126	
144	9.09	9.07	33.388	25.844	217.3	0.491	4.55	69.8	17.8	1.48	18.2	0.01	0.02	0.04	145	209
150 ISL	9.08	9.06	33.460	25.903	211.9	0.504	4.54	69.7	18.3	1.48	18.3	0.01	0.01	0.03	151	
169	9.06	9.04	33.616	26.028	200.4	0.543	4.49	69.0	19.4	1.46	18.6	0.01	0.00	0.02	170	208
198	8.67	8.65	33.865	26.285	176.5	0.598	4.13	63.0	25.0	1.60	21.4	0.01	0.01	0.01	199	207
200 ISL	8.64	8.62	33.877	26.299	175.2	0.601	4.03	61.4	25.8	1.63	21.9	0.01			201	
229	8.19	8.17	33.996	26.461	160.2	0.650	2.65	40.0	36.9	2.13	28.7	0.01			230	206
250 ISL	7.92	7.89	34.019	26.519	154.9	0.683	2.61	39.2	39.9	2.17	29.4	0.00			251	
268	7.71	7.68	34.023	26.553	151.9	0.711	2.57	38.4	41.7	2.21	30.0	0.00			269	205
300 ISL	7.30	7.27	34.065	26.645	143.5	0.758	1.92	28.4	49.3	2.49	33.0	0.01			302	
318	7.08	7.05	34.086	26.692	139.2	0.783	1.53	22.5	53.7	2.65	34.8	0.01			320	204
378	6.42	6.39	34.074	26.772	132.0	0.865	1.33	19.3	61.4	2.78	36.8	0.00			380	203
400 ISL	6.21	6.17	34.086	26.808	128.7	0.893	1.19	17.2	65.1	2.85	37.7	0.00			402	
437	5.88	5.84	34.111	26.870	123.1	0.940	0.94	13.5	71.8	2.98	39.2	0.00			440	202
500 ISL	5.32	5.28	34.134	26.956	115.1	1.015	0.71	10.0	82.5	3.10	41.0	0.00			503	
513	5.21	5.17	34.139	26.973	113.6	1.030	0.66	9.3	84.7	3.13	41.4	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 34.7 N	122 48.8 W	29/10/03	2223 UTC	4274 m	310 08 kn	310 03 06	2	1010.0 mb	19.0 C	16.5 C	27m	8/8 SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.80	18.80	32.799	23.391	448.2	0.000	5.43	101.5	1.6	0.37	0.0	0.00	0.12	0.03	0	
2	18.80	18.80	32.799	23.391	448.2	0.009	5.43	101.5	1.6	0.37	0.0	0.00	0.12	0.03	2	220
10 ISL	18.79	18.79	32.798	23.393	448.3	0.045	5.43	101.4	1.6	0.37	0.0	0.00	0.12	0.03	10	
15	18.79	18.79	32.797	23.393	448.5	0.067	5.43	101.4	1.6	0.37	0.0	0.00	0.12	0.03	15	219
20 ISL	18.71	18.71	32.792	23.409	447.1	0.090	5.44	101.5	1.6	0.37	0.0	0.00	0.13	0.03	20	
30	18.54	18.53	32.784	23.446	444.0	0.134	5.45	101.3	1.6	0.38	0.0	0.00	0.15	0.04	30	218
45	18.46	18.45	32.787	23.468	442.3	0.201	5.47	101.5	1.6	0.38	0.0	0.00	0.23	0.17	45	217
50 ISL	18.37	18.36	32.789	23.492	440.2	0.223	5.50	101.9	1.6	0.38	0.0	0.00	0.24	0.13	50	
54	18.18	18.17	32.790	23.540	435.8	0.240	5.53	102.1	1.6	0.38	0.0	0.00	0.24	0.09	54	216
64	16.78	16.77	32.801	23.882	403.4	0.282	5.87	105.5	1.8	0.38	0.1	0.00	0.27	0.15	64	215
75	14.69	14.68	32.809	24.353	358.6	0.324	5.97	102.9	2.2	0.40	0.0	0.00	0.29	0.26	75	214
84	14.02	14.01	32.832	24.511	343.7	0.356	5.91	100.5	2.4	0.44	0.1	0.04	0.27	0.26	84	213
94	13.21	13.20	32.780	24.635	332.0	0.390	5.85	97.8	2.9	0.50	0.6	0.17	0.22	0.23	94	212
100 ISL	12.87	12.86	32.800	24.718	324.2	0.409	5.76	95.6	3.3	0.56	1.6	0.14	0.19	0.21	100	
109	12.43	12.42	32.856	24.846	312.1	0.438	5.61	92.3	4.1	0.66	3.5	0.06	0.15	0.19	109	211
124	11.61	11.59	32.926	25.054	292.6	0.483	5.48	88.6	5.6	0.79	6.1	0.03	0.10	0.13	124	210
125 ISL	11.53	11.51	32.927	25.070	291.1	0.486	5.47	88.3	5.8	0.80	6.3	0.03	0.10	0.13	125	
144	10.01	9.99	33.010	25.400	259.8	0.538	5.19	81.1	10.5	1.13	11.8	0.02	0.04	0.06	145	209
150 ISL	9.71	9.69	33.104	25.523	248.1	0.554	4.95	76.9	13.1	1.27	14.1	0.02	0.03	0.05	151	
169	9.14	9.12	33.430	25.870	215.4	0.598	4.19	64.4	20.8	1.66	20.6	0.02	0.01	0.02	170	208
199	8.98	8.96	33.702	26.109	193.3	0.659	3.89	59.7	23.6	1.69	21.9	0.02	0.00	0.02	200	207
200 ISL	8.98	8.96	33.710	26.115	192.7	0.661	3.91	60.0	23.6	1.68	21.8	0.02			201	
229	8.83	8.81	33.909	26.295	176.2	0.714	4.27	65.4	24.1	1.52	20.3	0.02			230	206
250 ISL	8.58	8.55	33.986	26.394	167.1	0.750	3.50	53.3	29.9	1.80	24.2	0.02			251	
269	8.30	8.27	34.022	26.465	160.6	0.782	2.67	40.4	36.1	2.11	28.4	0.02			270	205
300 ISL	7.86	7.83	34.033	26.540	153.8	0.830	2.52	37.8	41.2	2.24	30.4	0.02			302	
319	7.59	7.56	34.027	26.574	150.7	0.859	2.43	36.2	43.7	2.27	30.9	0.02			321	204
378	6.78	6.75	34.048	26.704	138.8	0.945	1.75	25.6	54.5	2.61	35.0	0.02			380	203
400 ISL	6.51	6.47	34.067	26.755	134.1	0.975	1.47	21.3	59.5	2.74	36.5	0.02			402	
437	6.12	6.08	34.102	26.833	126.8	1.023	1.04	15.0	67.7	2.92	38.7	0.02			440	202
500 ISL	5.70	5.66	34.151	26.924	118.6	1.100	0.68	9.7	77.4	3.09	40.5	0.02			503	
512	5.62	5.58	34.161	26.942	117.0	1.114	0.61	8.7	79.3	3.12	40.9	0.02			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 15.1 N	123 30.3 W	29/10/03	1720 UTC	4118 m	260 14 kn	290 04 06	1	1011.2 mb	20.1 C	18.0 C	27m	6/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.84	18.84	32.831	23.405	446.8	0.000	5.41	101.2	1.5	0.36	0.0	0.01	0.12	0.03	0	
2 A	18.84	18.84	32.831	23.406	446.8	0.009	5.41	101.2	1.5	0.36	0.0	0.01	0.12	0.03	2	222
10 ISL	18.79	18.79	32.829	23.417	446.0	0.045	5.41	101.1	1.6	0.36	0.0	0.01	0.11	0.04	10	
17 A	18.71	18.71	32.826	23.435	444.6	0.076	5.42	101.1	1.6	0.36	0.0	0.01	0.11	0.05	17	221
20 ISL	18.69	18.69	32.826	23.440	444.2	0.089	5.42	101.1	1.6	0.36	0.0	0.01	0.11	0.05	20	
26	18.63	18.63	32.825	23.454	443.0	0.116	5.43	101.1	1.5	0.36	0.0	0.01	0.13	0.04	26	220
30 ISL	18.59	18.58	32.820	23.461	442.6	0.133	5.43	101.1	1.5	0.36	0.0	0.01	0.15	0.05	30	
36 A	18.50	18.49	32.815	23.479	441.0	0.160	5.44	101.1	1.6	0.36	0.0	0.01	0.17	0.06	36	219
44	18.33	18.32	32.824	23.529	436.6	0.195	5.46	101.1	1.5	0.36	0.0	0.01	0.16	0.05	44	218
50 ISL	18.30	18.29	32.841	23.549	434.8	0.221	5.46	101.1	1.5	0.37	0.0	0.01	0.17	0.06	50	
53 A	18.29	18.28	32.849	23.558	434.1	0.234	5.46	101.0	1.5	0.37	0.0	0.01	0.18	0.06	53	217
61	17.39	17.38	32.867	23.789	412.2	0.268	5.67	103.1	1.6	0.36	0.0	0.01	0.25	0.12	61	216
72 A	15.11	15.10	32.931	24.357	358.2	0.310	5.97	103.8	2.1	0.37	0.0	0.01	0.26	0.21	72	215
75 ISL	14.71	14.70	32.925	24.438	350.5	0.321	5.94	102.5	2.2	0.39	0.0	0.01	0.26	0.21	75	
82	14.01	14.00	32.918	24.580	337.1	0.345	5.86	99.7	2.6	0.45	0.1	0.05	0.27	0.20	82	214
93	13.25	13.24	33.034	24.824	314.1	0.381	5.59	93.7	3.6	0.56	1.9	0.21	0.20	0.17	93	213
100 ISL	12.95	12.94	33.045	24.892	307.7	0.403	5.52	91.9	4.1	0.62	3.0	0.15	0.17	0.18	100	
104 A	12.65	12.64	33.025	24.935	303.7	0.415	5.49	90.8	4.5	0.67	4.0	0.10	0.16	0.19	104	212
112	11.21	11.20	32.935	25.133	284.7	0.439	5.43	87.1	6.5	0.86	7.4	0.03	0.12	0.15	112	211
124	10.03	10.02	33.006	25.393	260.0	0.471	5.22	81.6	10.3	1.12	11.7	0.02	0.06	0.08	124	210
125 ISL	10.01	10.00	33.022	25.409	258.5	0.474	5.20	81.3	10.5	1.13	11.9	0.02	0.06	0.08	125	
143	9.65	9.63	33.262	25.656	235.3	0.518	4.74	73.6	14.7	1.35	15.6	0.02	0.02	0.04	144	209
150 ISL	9.66	9.64	33.400	25.762	225.4	0.534	4.32	67.1	18.2	1.53	18.4	0.02	0.01	0.04	151	
169	9.77	9.75	33.741	26.011	202.3	0.575	3.14	49.0	27.4	2.02	25.5	0.02	0.00	0.03	170	208
199	9.52	9.50	33.881	26.162	188.5	0.634	2.45	38.1	31.4	2.19	27.9	0.02	0.00	0.03	200	207
200 ISL	9.51	9.49	33.885	26.167	188.0	0.635	2.43	37.8	31.5	2.19	28.0	0.02			201	
229	9.23	9.20	33.974	26.282	177.6	0.688	1.96	30.3	34.7	2.31	29.4	0.02			230	206
250 ISL	9.08	9.05	34.018	26.341	172.4	0.725	1.78	27.4	36.5	2.36	30.1	0.02			251	
269	8.94	8.91	34.047	26.386	168.4	0.758	1.68	25.8	38.0	2.40	30.7	0.02			270	205
300 ISL	8.64	8.61	34.090	26.467	161.2	0.809	1.56	23.8	40.6	2.46	31.6	0.01			302	
318	8.42	8.39	34.106	26.514	157.0	0.837	1.51	22.9	42.5	2.50	32.1	0.01			320	204
379	7.32	7.28	34.105	26.675	142.0	0.929	1.43	21.2	52.5	2.65	34.6	0.01			381	203
400 ISL	6.94	6.90	34.100	26.723	137.4	0.958	1.35	19.8	56.8	2.72	35.7	0.01			402	
438	6.32	6.28	34.096	26.803	129.9	1.009	1.16	16.8	64.5	2.86	37.7	0.01			441	202
500 ISL	5.79	5.75	34.125	26.893	121.7	1.087	0.83	11.9	74.1	3.01	39.8	0.01			503	
514	5.67	5.63	34.132	26.913	119.8	1.104	0.76	10.8	76.3	3.05	40.3	0.01			517	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 83 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 54.5 N	124 10.1 W	29/10/03	0955 UTC	4212 m	260 13 kn			1011.4 mb	19.0 C	17.5 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.08	19.08	32.839	23.351	452.0	0.000	5.41	101.6	1.6	0.38	0.0	0.00	0.10	0.02	0	
2	19.08	19.08	32.839	23.351	452.0	0.009	5.41	101.6	1.6	0.38	0.0	0.00	0.10	0.02	2	220
10 ISL	18.98	18.98	32.832	23.372	450.4	0.045	5.42	101.6	1.6	0.38	0.0	0.00	0.09	0.02	10	
14	18.90	18.90	32.825	23.386	449.1	0.063	5.43	101.7	1.6	0.38	0.0	0.00	0.09	0.02	14	219
20 ISL	18.78	18.78	32.810	23.405	447.5	0.090	5.44	101.6	1.6	0.38	0.0	0.00	0.09	0.02	20	
29	18.62	18.61	32.787	23.428	445.6	0.130	5.46	101.6	1.6	0.38	0.0	0.00	0.10	0.03	29	218
30 ISL	18.61	18.60	32.785	23.429	445.6	0.135	5.46	101.6	1.6	0.38	0.0	0.00	0.10	0.03	30	
45	18.45	18.44	32.766	23.455	443.6	0.201	5.48	101.7	1.6	0.38	0.0	0.00	0.15	0.05	45	217
50 ISL	18.38	18.37	32.773	23.477	441.6	0.223	5.49	101.7	1.6	0.38	0.0	0.00	0.17	0.06	50	
59	18.25	18.24	32.787	23.520	437.8	0.263	5.52	102.0	1.6	0.38	0.0	0.00	0.20	0.09	59	216
74	15.19	15.18	32.809	24.245	368.9	0.324	6.05	105.3	2.1	0.38	0.0	0.00	0.22	0.15	74	215
75 ISL	15.16	15.15	32.834	24.271	366.4	0.327	6.05	105.3	2.1	0.38	0.0	0.00	0.22	0.15	75	
85	14.91	14.90	32.987	24.443	350.3	0.363	5.91	102.4	2.3	0.38	0.0	0.00	0.22	0.19	85	214
95	14.31	14.30	33.012	24.590	336.5	0.397	5.82	99.6	2.5	0.42	0.1	0.04	0.25	0.21	95	213
100 ISL	13.97	13.96	33.046	24.687	327.4	0.414	5.74	97.6	2.8	0.45	0.4	0.13	0.22	0.22	100	
105	13.62	13.61	33.080	24.785	318.1	0.430	5.66	95.6	3.2	0.48	0.9	0.21	0.19	0.23	105	212
114	12.95	12.93	33.109	24.942	303.4	0.458	5.54	92.3	4.0	0.58	3.0	0.12	0.15	0.19	114	211
123	11.81	11.79	33.053	25.116	286.7	0.485	5.46	88.7	5.5	0.73	5.7	0.03	0.10	0.15	123	210
125 ISL	11.63	11.61	33.051	25.148	283.7	0.490	5.43	87.9	5.9	0.77	6.3	0.03	0.09	0.14	125	
138	10.74	10.72	33.091	25.338	265.7	0.526	5.20	82.6	8.6	1.01	9.9	0.02	0.07	0.10	139	209
150 ISL	10.24	10.22	33.183	25.496	250.8	0.557	4.90	77.0	11.4	1.20	13.0	0.01	0.05	0.06	151	
164	9.85	9.83	33.318	25.667	234.7	0.591	4.56	71.1	14.7	1.37	16.0	0.01	0.03	0.03	165	208
194	9.08	9.06	33.602	26.015	202.2	0.657	4.12	63.3	20.7	1.59	20.1	0.01	0.01	0.02	195	207
200 ISL	9.02	9.00	33.666	26.074	196.6	0.669	3.92	60.2	22.2	1.66	21.2	0.01			201	
228	8.82	8.80	33.920	26.305	175.2	0.721	2.99	45.8	29.7	1.96	25.9	0.01			229	206
250 ISL	8.47	8.44	34.000	26.422	164.4	0.758	2.61	39.6	34.9	2.12	28.4	0.01			251	
267	8.18	8.15	34.026	26.486	158.5	0.785	2.42	36.5	38.6	2.22	29.8	0.01			268	205
300 ISL	7.76	7.73	34.059	26.575	150.4	0.836	2.02	30.2	44.6	2.41	32.1	0.01			302	
318	7.54	7.51	34.065	26.611	147.1	0.863	1.84	27.4	47.5	2.50	33.1	0.01			320	204
377	6.75	6.72	34.079	26.732	136.0	0.947	1.49	21.8	57.0	2.70	35.8	0.01			379	203
400 ISL	6.56	6.52	34.084	26.761	133.4	0.978	1.36	19.8	60.1	2.77	36.6	0.01			402	
438	6.30	6.26	34.098	26.807	129.5	1.028	1.14	16.5	65.2	2.88	37.9	0.01			441	202
500 ISL	5.89	5.85	34.162	26.910	120.2	1.105	0.69	9.9	75.1	3.07	40.0	0.01			503	
512	5.81	5.77	34.175	26.930	118.3	1.119	0.60	8.6	77.0	3.11	40.4	0.01			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 33

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 53.2 N	118 29.5 W	26/10/03	2312	UTC	58 m	050	12 kn	260 02 07	4	1018.8 mb	25.4 C	20.0 C	10m	7/8	CU

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.56	19.56	33.317	23.594	428.8	0.000	6.45	122.6	2.3	0.12	0.1	0.01	2.14	0.38	0	
1	19.56	19.56	33.317	23.594	428.8	0.004	6.45	122.6	2.3	0.12	0.1	0.01	2.14	0.38	1	207
5	19.41	19.41	33.318	23.633	425.2	0.021	6.50	123.2	2.3	0.12	0.1	0.01	1.75	0.32	5	206
10	19.00	19.00	33.308	23.730	416.2	0.042	6.60	124.1	2.3	0.17	0.1	0.02	1.30	0.33	10	205
20	15.79	15.79	33.182	24.398	352.7	0.081	5.13	90.6	4.2	0.34	0.1	0.03	0.73	0.35	20	204
30	14.03	14.03	33.111	24.723	322.0	0.115	5.62	95.7	4.1	0.56	0.1	0.03	0.60	0.28	30	203
40	12.53	12.52	33.159	25.060	290.1	0.145	4.90	80.9	7.3	0.96	6.8	0.33	0.29	0.26	40	202
50	12.35	12.34	33.184	25.114	285.2	0.174	4.74	78.0	8.1	1.03	8.4	0.25			50	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 49.6 N	118 37.7 W	27/10/03	0149	UTC	630 m	330	05 kn			1018.4 mb	23.0 C	19.8 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.44	19.44	33.355	23.654	423.1	0.000	5.65	107.2	1.7	0.23	0.1	0.01	0.34	0.16	0	
2	19.44	19.44	33.355	23.654	423.2	0.008	5.65	107.2	1.7	0.23	0.1	0.01	0.34	0.16	2	224
10	19.18	19.18	33.347	23.714	417.7	0.042	5.67	107.0	1.9	0.24	0.0	0.01	0.33	0.17	10	223
20	17.86	17.86	33.268	23.982	392.5	0.083	5.81	106.9	2.2	0.29	0.0	0.01	0.81	0.37	20	222
30	15.12	15.12	33.112	24.492	344.0	0.119	5.97	104.0	2.5	0.43	0.1	0.01	0.54	0.26	30	221
40	13.27	13.26	33.060	24.838	311.2	0.152	5.64	94.6	4.3	0.62	0.1	0.04	0.50	0.29	40	220
49	12.33	12.32	33.196	25.127	283.9	0.179	4.68	77.0	8.8	1.07	9.1	0.10	0.25	0.25	49	219
50 ISL	12.29	12.28	33.205	25.142	282.5	0.182	4.63	76.1	9.1	1.08	9.3	0.10	0.25	0.25	50	
59	12.12	12.11	33.248	25.208	276.5	0.207	4.40	72.1	10.4	1.18	11.0	0.05	0.64 U	0.30 U	59	218
69	11.79	11.78	33.250	25.271	270.6	0.234	4.41	71.7	10.8	1.21	12.2	0.04	0.15	0.19	69	217
75 ISL	11.45	11.44	33.346	25.409	257.7	0.250	4.11	66.4	13.0	1.34	14.2	0.04	0.11	0.15	75	
84	10.99	10.98	33.517	25.625	237.3	0.272	3.58	57.3	16.8	1.55	17.3	0.03	0.06	0.10	84	216
100	10.82	10.81	33.641	25.752	225.6	0.309	3.15	50.3	19.8	1.71	19.3	0.02	0.04	0.08	100	215
119	10.73	10.72	33.716	25.827	218.9	0.352			21.6	1.80	20.5	0.01	0.03	0.10	120	214
125 ISL	10.77	10.75	33.762	25.855	216.3	0.365	2.51	40.1	22.8	1.86	21.1	0.01	0.02	0.09	126	
139	10.83	10.81	33.867	25.927	209.9	0.395	2.30	36.8	25.5	1.99	22.3	0.01	0.01	0.06	140	213
150 ISL	10.64	10.62	33.893	25.981	205.0	0.417	2.41	38.4	25.4	1.98	22.6	0.01	0.01	0.04	151	
170	10.25	10.23	33.920	26.070	196.9	0.458	2.61	41.2	25.3	1.93	23.0	0.01	0.01	0.03	171	212
199	10.23	10.21	34.048	26.174	187.7	0.513	2.12	33.5	28.5	2.10	24.7	0.01	0.02	0.05	200	211
200 ISL	10.22	10.20	34.050	26.177	187.4	0.515	2.11	33.3	28.6	2.10	24.8	0.01			201	
228	9.87	9.84	34.086	26.265	179.5	0.567	1.99	31.2	30.7	2.18	26.2	0.01			229	210
250 ISL	9.69	9.66	34.142	26.339	172.9	0.605	1.80	28.1	33.0	2.27	27.3	0.01			251	
268	9.57	9.54	34.189	26.396	167.9	0.636	1.62	25.2	35.0	2.35	28.1	0.01			270	209
300 ISL	9.36	9.33	34.242	26.472	161.2	0.689	1.38	21.4	37.8	2.45	29.1	0.01			302	
318	9.22	9.18	34.261	26.510	157.9	0.717	1.26	19.5	39.5	2.50	29.7	0.01			320	208
377	8.37	8.33	34.265	26.647	145.5	0.807	0.99	15.0	47.3	2.68	32.2	0.01			379	207
400 ISL	8.13	8.09	34.273	26.690	141.7	0.840	0.88	13.3	50.1	2.74	33.0	0.01			403	
437	7.77	7.73	34.285	26.753	136.1	0.891	0.71	10.6	54.9	2.84	34.2	0.01			440	206
478	7.34	7.29	34.288	26.817	130.3	0.946	0.55	8.2	61.0	2.96	35.7	0.01			481	205
500 ISL	6.93	6.88	34.298	26.882	124.1	0.974	0.45	6.6	67.3	3.05	36.9	0.01			503	
513	6.69	6.64	34.305	26.920	120.4	0.990	0.40	5.8	71.2	3.10	37.5	0.01			516	204
566	6.20	6.15	34.329	27.004	112.7	1.052	0.24	3.5	80.4	3.20	38.5	0.03			570	203
600 ISL	5.99	5.94	34.341	27.040	109.5	1.089	0.20	2.9	84.8	3.23	38.8	0.03			604	
618	5.89	5.84	34.347	27.057	108.0	1.109	0.19	2.7	86.9	3.26	38.9	0.03			622	202
623	5.86	5.81	34.349	27.063	107.5	1.114	0.19	2.7	87.5	3.28	38.9	0.02			627	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 40

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 39.3 N	118 58.6 W	27/10/03	0602 UTC	722 m	090 05 kn			1019.0 mb	20.0 C	17.1 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.78	16.78	33.163	24.157	375.1	0.000	5.93	106.8	1.3	0.31	0.1	0.01	0.65	0.26	0	
2	16.78	16.78	33.163	24.157	375.1	0.008	5.93	106.8	1.3	0.31	0.1	0.01	0.65	0.26	2	220
10	16.20	16.20	33.143	24.276	364.1	0.037	5.93	105.6	1.6	0.33	0.3	0.03	0.75	0.30	10	219
20	14.84	14.84	33.121	24.560	337.3	0.072	5.80	100.5	2.7	0.50	2.0	0.16	0.73	0.44	20	218
30	14.01	14.01	33.151	24.758	318.7	0.105	5.51	93.9	4.2	0.70	4.4	0.33	0.75	0.49	30	217
40	12.79	12.78	33.131	24.988	297.0	0.136	5.20	86.3	6.5	0.90	7.8	0.32	0.51	0.34	40	216
50	11.13	11.12	33.346	25.466	251.6	0.163	4.23	67.9	13.0	1.37	15.5	0.07	0.15	0.17	50	215
60	10.91	10.90	33.397	25.545	244.3	0.188	4.05	64.7	14.0	1.43	16.6	0.04	0.11	0.16	60	214
70	10.77	10.76	33.435	25.600	239.3	0.212	3.93	62.6	14.8	1.48	17.3	0.03	0.09	0.12	70	213
75 ISL	10.67	10.66	33.458	25.635	236.1	0.224	3.87	61.5	15.4	1.51	17.7	0.03	0.08	0.11	75	
84	10.47	10.46	33.517	25.716	228.5	0.245	3.71	58.8	17.0	1.57	18.7	0.02	0.06	0.10	84	212
100	10.17	10.16	33.710	25.918	209.7	0.280	3.15	49.6	20.9	1.75	21.4	0.01	0.03	0.06	100	211
119	10.06	10.05	33.928	26.107	192.1	0.318	2.29	36.0	27.4	2.05	24.6	0.01	0.01	0.05	120	210
125 ISL	10.00	9.99	33.964	26.146	188.6	0.330	2.27	35.7	28.2	2.07	25.0	0.01	0.01	0.05	126	
139	9.86	9.84	34.014	26.209	182.9	0.356	2.21	34.6	29.0	2.10	25.4	0.02	0.01	0.06	140	209
150 ISL	9.77	9.75	34.027	26.234	180.7	0.376	2.21	34.6	29.4	2.11	25.6	0.03	0.01	0.06	151	
169	9.61	9.59	34.038	26.270	177.7	0.410	2.21	34.5	30.2	2.13	26.1	0.04	0.01	0.07	170	208
198	9.27	9.25	34.109	26.381	167.7	0.460	1.95	30.2	33.8	2.26	27.8	0.02	0.01	0.07	199	207
200 ISL	9.25	9.23	34.117	26.391	166.8	0.463	1.91	29.5	34.2	2.28	27.9	0.02			201	
229	9.03	9.01	34.221	26.508	156.2	0.510	1.38	21.3	39.4	2.49	29.8	0.03			230	206
250 ISL	8.91	8.88	34.236	26.539	153.6	0.542	1.32	20.3	41.0	2.54	30.4	0.05			251	
269	8.79	8.76	34.233	26.556	152.3	0.571	1.26	19.3	41.9	2.56	30.7	0.07			271	205
300 ISL	8.49	8.46	34.244	26.611	147.5	0.618	1.13	17.2	44.8	2.63	31.6	0.04			302	
318	8.30	8.27	34.252	26.647	144.4	0.644	1.05	15.9	46.7	2.67	32.2	0.01			320	204
378	7.81	7.77	34.276	26.739	136.4	0.728	0.78	11.7	53.2	2.82	34.0	0.01			380	203
400 ISL	7.66	7.62	34.281	26.765	134.2	0.758	0.70	10.5	55.3	2.87	34.5	0.01			403	
437	7.39	7.35	34.288	26.810	130.4	0.807	0.57	8.5	59.1	2.94	35.4	0.00			440	202
500 ISL	6.77	6.72	34.302	26.907	121.5	0.886	0.39	5.7	68.5	3.08	37.6	0.00			503	
512	6.65	6.60	34.305	26.925	119.9	0.901	0.35	5.1	70.3	3.11	38.0	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 29.6 N	119 19.2 W	27/10/03	1018 UTC	1654 m	310 07 kn			1019.0 mb	18.8 C	16.7 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.05	17.05	33.283	24.186	372.3	0.000	5.97	108.2	0.4	0.18	0.1	0.01	1.03	0.25	0	
2	17.05	17.05	33.283	24.186	372.4	0.007	5.97	108.2	0.4	0.18	0.1	0.01	1.03	0.25	2	220
9	14.77	14.77	33.169	24.611	332.1	0.032	5.76	99.7	2.2	0.46	2.1	0.09	1.32	0.47	9	219
10 ISL	14.74	14.74	33.165	24.615	331.8	0.035	5.75	99.4	2.2	0.47	2.2	0.09	1.31	0.47	10	
20	14.44	14.44	33.122	24.646	329.1	0.068	5.67	97.4	3.0	0.55	3.0	0.13	1.25	0.43	20	218
30	12.78	12.78	33.201	25.044	291.4	0.099	4.98	82.7	7.7	1.03	9.5	0.34	0.44	0.38	30	217
39	11.52	11.52	33.273	25.338	263.5	0.124	4.54	73.5	11.5	1.29	13.9	0.12	0.28	0.26	39	216
50	10.93	10.92	33.393	25.538	244.7	0.152	4.10	65.5	14.5	1.47	16.8	0.03	0.10	0.17	50	215
60	10.55	10.54	33.440	25.642	235.1	0.176	3.96	62.8	16.0	1.53	18.0	0.02	0.06	0.13	60	214
69	10.39	10.38	33.547	25.753	224.7	0.197			18.1	1.64	19.5	0.02	0.04	0.09	69	213
75 ISL	10.22	10.21	33.609	25.830	217.4	0.210	3.50	55.2	19.8	1.71	20.6	0.02	0.03	0.08	75	
84	9.99	9.98	33.690	25.933	207.9	0.229	3.21	50.4	22.1	1.80	22.1	0.01	0.02	0.07	84	212
99	9.88	9.87	33.798	26.036	198.4	0.260	2.97	46.5	23.5	1.86	23.0	0.01	0.02	0.08	100	211
100 ISL	9.87	9.86	33.806	26.044	197.7	0.262	2.95	46.2	23.7	1.87	23.1	0.01	0.02	0.08	101	
119	9.75	9.74	33.950	26.177	185.5	0.298	2.50	39.1	27.4	2.03	25.1	0.01	0.00	0.06	120	210
125 ISL	9.71	9.70	33.983	26.209	182.5	0.309	2.40	37.5	28.2	2.07	25.5	0.01	0.00	0.06	126	
139	9.62	9.60	34.050	26.277	176.4	0.335	2.21	34.5	30.2	2.15	26.4	0.01	0.01	0.07	140	209
150 ISL	9.56	9.54	34.106	26.331	171.5	0.354	2.03	31.6	33.3	2.25	27.6	0.01	0.01	0.06	151	
169	9.41	9.39	34.179	26.412	164.1	0.386	1.78	27.6	38.0	2.40	29.3	0.01	0.01	0.05	170	208
198	8.99	8.97	34.185	26.485	157.7	0.432	1.71	26.3	38.1	2.40	29.3	0.01	0.04	0.08	199	207
200 ISL	8.97	8.95	34.186	26.489	157.3	0.435	1.69	26.0	38.3	2.41	29.4	0.01			201	
228	8.79	8.77	34.210	26.537	153.3	0.479	1.43	21.9	41.4	2.53	30.5	0.01			229	206
250 ISL	8.64	8.61	34.233	26.579	149.7	0.512	1.24	18.9	43.7	2.61	31.2	0.01			251	
268	8.51	8.48	34.250	26.612	146.8	0.539	1.11	16.9	45.5	2.67	31.8	0.01			270	205
300 ISL	8.26	8.23	34.269	26.666	142.2	0.585	0.93	14.1	48.8	2.76	32.8	0.01			302	
318	8.12	8.09	34.275	26.692	140.0	0.610	0.86	13.0	50.5	2.80	33.3	0.01			320	204
377	7.74	7.70	34.276	26.749	135.3	0.692	0.78	11.7	54.6	2.87	34.4	0.02			379	203
400 ISL	7.63	7.59	34.276	26.766	134.1	0.723	0.74	11.0	56.0	2.90	34.8	0.02			403	
437	7.44	7.40	34.278	26.795	131.8	0.772	0.65	9.7	58.7	2.95	35.5	0.01			440	202
500 ISL	6.96	6.91	34.297	26.877	124.6	0.853	0.47	6.9	65.8	3.08	37.3	0.01			503	
512	6.87	6.82	34.301	26.893	123.2	0.868	0.43	6.3	67.2	3.10	37.6	0.01			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 19.6 N	119 39.7 W	27/10/03	1416 UTC	79 m	330 03 kn	330 02 06	4	1019.0 mb	19.9 C	16.1 C	13m	4/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.93	16.93	33.311	24.236	367.6	0.000	5.87	106.1	1.0	0.28	0.1	0.01	1.15	0.35	0	
2	16.93	16.93	33.311	24.236	367.6	0.007	5.87	106.1	1.0	0.28	0.1	0.01	1.15	0.35	2	209
5	16.66	16.66	33.304	24.293	362.2	0.018	5.88	105.7	1.1	0.28	0.1	0.01	1.17	0.40	5	208
10	16.27	16.27	33.264	24.353	356.8	0.036	5.80	103.5	1.6	0.34	0.6	0.03	0.94	0.36	10	207
20	13.01	13.01	33.092	24.914	303.5	0.069	5.33	88.9	6.1	0.86	6.9	0.23	0.67	0.42	20	206
29	11.83	11.83	33.088	25.137	282.4	0.096	5.07	82.5	8.7	1.09	10.4	0.20	0.48	0.36	29	205
30 ISL	11.73	11.73	33.082	25.151	281.1	0.098	5.06	82.1	8.9	1.10	10.6	0.19	0.47	0.36	30	
40	11.00	11.00	33.046	25.255	271.4	0.126	5.01	80.0	10.4	1.19	12.2	0.11	0.34	0.32	40	204
50	10.75	10.74	33.119	25.357	262.0	0.153	4.76	75.7	12.1	1.29	13.9	0.10	0.20	0.21	50	203
60	10.40	10.39	33.269	25.534	245.3	0.178	4.34	68.5	15.0	1.45	16.5	0.08	0.15	0.17	60	202
69	10.08	10.07	33.498	25.767	223.3	0.199	3.70	58.1	19.7	1.69	20.0	0.07	0.08	0.13	69	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 9.5 N	120 0.1 W	27/10/03	1759 UTC	1202 m	320 06 kn	360 01 08	0	1019.0 mb	20.0 C	18.8 C	17m	0/8	CI

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.59	16.59	33.024	24.094	381.0	0.000	5.76	103.3	2.0	0.38	0.1	0.00	0.25	0.09	0	
2 B	16.59	16.59	33.024	24.094	381.1	0.008	5.76	103.3	2.0	0.38	0.1	0.00	0.25	0.09	2	221
10 ISL	16.05	16.05	32.999	24.199	371.4	0.038	5.82	103.2	1.9	0.39	0.1	0.00	0.35	0.17	10	
11 B	15.95	15.95	32.993	24.217	369.7	0.041	5.83	103.2	1.9	0.39	0.1	0.00	0.37	0.18	11	220
20 ISL	15.11	15.11	32.917	24.344	357.8	0.074	5.92	103.0	2.1	0.42	0.2	0.01	0.60	0.29	20	
24 B	14.63	14.63	32.871	24.412	351.5	0.088	5.95	102.5	2.3	0.44	0.3	0.02	0.69	0.35	24	219
30 ISL	13.67	13.67	32.785	24.545	338.9	0.109	5.97	100.8	2.7	0.51	0.9	0.08	0.71	0.48	30	
34 B	13.03	13.03	32.732	24.632	330.7	0.122	5.98	99.6	3.1	0.56	1.4	0.13	0.73	0.56	34	218
45 B	11.82	11.81	32.640	24.792	315.7	0.158	5.83	94.6	4.2	0.71	3.6	0.22	0.49	0.55	45	217
50 ISL	11.48	11.47	32.687	24.891	306.4	0.174	5.69	91.6	5.2	0.82	5.5	0.23	0.38	0.47	50	
56	11.17	11.16	32.764	25.006	295.5	0.192	5.53	88.5	6.4	0.95	7.9	0.25	0.27	0.37	56	216
67 B	10.71	10.70	32.828	25.137	283.2	0.223	5.36	85.0	8.3	1.07	10.2	0.09	0.21	0.32	67	215
75 ISL	10.56	10.55	32.868	25.194	277.9	0.246	5.27	83.3	9.1	1.13	11.3	0.05	0.12	0.31	75	
76	10.53	10.52	32.876	25.206	276.8	0.249	5.26	83.1	9.3	1.14	11.5	0.05	0.11 A	0.31 A	76	214
84	10.05	10.04	32.999	25.383	260.1	0.270	5.01	78.4	12.0	1.29	14.1	0.03	0.06	0.22	84	213
99	9.45	9.44	33.271	25.695	230.7	0.307	4.55	70.3	16.7	1.48	17.7	0.02	0.03	0.05	99	212
100 ISL	9.42	9.41	33.287	25.712	229.0	0.309	4.53	70.0	16.9	1.49	17.9	0.02	0.03	0.05	100	
120	9.12	9.11	33.589	25.997	202.4	0.352	3.98	61.2	20.6	1.65	20.8	0.02	0.01	0.03	121	211
125 ISL	9.13	9.12	33.671	26.059	196.6	0.362	3.70	56.9	22.4	1.73	22.0	0.02	0.01	0.03	126	
140	9.21	9.19	33.879	26.210	182.7	0.391	2.91	44.9	27.7	1.95	25.1	0.02	0.00	0.04	141	210
150 ISL	9.18	9.16	33.924	26.250	179.0	0.409	2.84	43.8	28.9	1.97	25.4	0.02	0.00	0.04	151	
169	9.10	9.08	33.955	26.287	175.9	0.443	2.71	41.7	29.9	2.02	26.0	0.02	0.00	0.03	170	209
199	9.10	9.08	34.120	26.417	164.2	0.494	2.07	31.9	34.9	2.24	27.9	0.02	0.00	0.04	200	208
200 ISL	9.09	9.07	34.122	26.420	163.9	0.495	2.06	31.8	35.1	2.25	28.0	0.02			201	
229	8.73	8.71	34.160	26.507	156.1	0.542	1.78	27.2	39.0	2.38	29.6	0.02			230	206
250 ISL	8.59	8.56	34.184	26.548	152.6	0.574	1.61	24.5	41.2	2.46	30.3	0.02			251	
268	8.49	8.46	34.203	26.578	150.0	0.601	1.46	22.2	43.0	2.52	30.9	0.02			270	205
300 ISL	8.21	8.18	34.238	26.649	143.8	0.648	1.14	17.2	47.3	2.66	32.2	0.02			302	
319	8.04	8.01	34.256	26.689	140.2	0.675	0.97	14.6	50.0	2.74	33.0	0.02			321	204
378	7.56	7.52	34.279	26.778	132.5	0.756	0.69	10.3	56.8	2.90	34.9	0.02			380	203
400 ISL	7.37	7.33	34.283	26.808	129.9	0.785	0.62	9.2	59.4	2.95	35.6	0.02			403	
438	7.03	6.99	34.288	26.860	125.3	0.833	0.51	7.5	64.0	3.02	36.8	0.01			441	202
500 ISL	6.47	6.42	34.306	26.950	117.2	0.908	0.35	5.1	72.6	3.14	38.7	0.02			503	
511	6.37	6.32	34.310	26.966	115.7	0.921	0.32	4.6	74.1	3.16	39.0	0.02			514	201

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

B) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 63

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 54.5 N	120 31.6 W	27/10/03	2317	UTC	1838 m	310 07 kn	350 02 07	0	1016.3 mb	19.2 C	17.5 C	18m	0/8	CI

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.77	16.77	33.072	24.090	381.5	0.000	5.78	104.0	1.7	0.37	0.1	0.01	0.32	0.12	0	
2	16.77	16.77	33.072	24.090	381.6	0.008	5.78	104.0	1.7	0.37	0.1	0.01	0.32	0.12	2	220
9	16.12	16.12	33.083	24.248	366.7	0.034	5.82	103.4	1.6	0.37	0.1	0.01	0.28	0.14	9	219
10 ISL	16.08	16.08	33.077	24.252	366.3	0.037	5.82	103.3	1.6	0.37	0.1	0.01	0.30	0.15	10	
19	15.93	15.93	33.076	24.285	363.4	0.070	5.80	102.7	1.6	0.37	0.1	0.01	0.52	0.25	19	218
20 ISL	15.90	15.90	33.068	24.286	363.4	0.074	5.80	102.6	1.6	0.37	0.1	0.01	0.53	0.26	20	
30	15.56	15.56	33.057	24.354	357.3	0.110	5.83	102.4	1.6	0.41	0.2	0.03	0.62	0.33	30	217
39	13.83	13.82	32.834	24.550	338.7	0.141	5.94	100.6	2.3	0.49	0.6	0.08	0.79	0.48	39	216
50	13.31	13.30	32.906	24.712	323.6	0.178	5.76	96.6	3.4	0.65	2.8	0.23	0.45	0.35	50	215
59	12.69	12.68	32.984	24.894	306.4	0.206	5.54	91.7	5.2	0.85	6.0	0.41	0.47	0.28	59	214
70	11.64	11.63	33.154	25.225	275.1	0.238	5.02	81.4	8.9	1.21	12.4	0.21	0.22	0.23	70	213
75 ISL	11.39	11.38	33.213	25.316	266.5	0.252	4.83	77.9	10.2	1.31	14.1	0.14	0.16	0.22	75	
84	10.95	10.94	33.277	25.445	254.4	0.275	4.60	73.5	12.4	1.42	16.1	0.05	0.10	0.20	84	212
99	9.49	9.48	33.268	25.686	231.5	0.311	4.58	70.9	16.3	1.47	17.4	0.04	0.03	0.06	99	211
100 ISL	9.49	9.48	33.280	25.695	230.7	0.314	4.55	70.4	16.6	1.48	17.6	0.04	0.03	0.06	100	
119	9.41	9.40	33.479	25.864	215.0	0.356	3.81	58.9	21.7	1.76	21.8	0.04	0.02	0.05	120	210
125 ISL	9.31	9.30	33.559	25.943	207.6	0.369	3.61	55.7	23.3	1.82	22.8	0.04	0.02	0.05	126	
139	9.06	9.05	33.739	26.124	190.7	0.397	3.23	49.6	26.7	1.92	24.7	0.03	0.01	0.04	140	209
150 ISL	8.90	8.88	33.840	26.228	181.0	0.417	3.18	48.7	28.4	1.92	25.0	0.03	0.01	0.04	151	
168	8.70	8.68	33.950	26.346	170.1	0.449	3.09	47.2	30.5	1.93	25.6	0.03	0.00	0.04	169	208
199	8.54	8.52	34.003	26.413	164.3	0.501	2.84	43.2	33.5	2.01	26.9	0.04	0.00	0.03	200	207
200 ISL	8.53	8.51	34.006	26.417	164.0	0.502	2.81	42.7	33.7	2.02	27.0	0.04			201	
229	8.18	8.16	34.075	26.524	154.2	0.548	1.93	29.1	41.4	2.36	31.0	0.03			230	206
250 ISL	7.62	7.60	34.058	26.593	147.7	0.580	1.98	29.5	46.1	2.43	32.4	0.03			251	
268	7.14	7.11	34.036	26.644	142.9	0.606	2.02	29.8	49.7	2.45	33.1	0.03			270	205
300 ISL	6.81	6.78	34.063	26.710	136.9	0.651	1.66	24.3	54.9	2.61	34.8	0.03			302	
318	6.73	6.70	34.085	26.739	134.5	0.675	1.40	20.4	57.5	2.71	35.7	0.03			320	204
377	6.32	6.29	34.120	26.821	127.3	0.753	1.01	14.6	65.6	2.89	37.8	0.02			379	203
400 ISL	6.13	6.09	34.140	26.861	123.6	0.781	0.85	12.2	69.7	2.97	38.7	0.02			403	
436	5.84	5.80	34.173	26.924	117.9	0.825	0.63	9.0	76.1	3.08	39.9	0.02			439	202
500 ISL	5.55	5.51	34.222	26.999	111.4	0.898	0.41	5.8	83.7	3.19	41.1	0.02			503	
512	5.49	5.45	34.231	27.013	110.1	0.912	0.37	5.2	85.1	3.21	41.3	0.02			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 39.4 N	121 2.1 W	28/10/03	0429	UTC	3794 m	280 08 kn			1015.4 mb	19.2 C	18.0 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.79	17.79	32.947	23.752	413.7	0.000	5.61	102.9	1.6	0.39	0.1	0.00	0.17	0.06	0	
2	17.79	17.79	32.947	23.752	413.7	0.008	5.61	102.9	1.6	0.39	0.1	0.00	0.17	0.06	2	220
10	17.26	17.26	32.939	23.873	402.5	0.041	5.63	102.2	1.6	0.39	0.1	0.00	0.14	0.05	10	219
20	17.11	17.11	32.945	23.914	399.0	0.081	5.63	101.9	1.6	0.39	0.1	0.00	0.15	0.06	20	218
30	17.00	17.00	32.977	23.964	394.5	0.121	5.67	102.4	1.6	0.39	0.1	0.00	0.22	0.09	30	217
40	15.47	15.46	32.762	24.147	377.2	0.159	5.96	104.3	1.8	0.40	0.1	0.00	0.24	0.16	40	216
50	13.80	13.79	32.630	24.399	353.3	0.196	6.13	103.6	2.3	0.43	0.1	0.00	0.27	0.25	50	215
59	13.12	13.11	32.631	24.537	340.4	0.227	6.05	100.8	2.6	0.48	0.3	0.05	0.34	0.27	59	214
69	12.27	12.26	32.727	24.776	317.8	0.260	5.67	92.9	3.9	0.70	3.8	0.09	0.23	0.33	69	213
75 ISL	11.81	11.80	32.750	24.880	308.0	0.279	5.57	90.4	4.7	0.79	5.4	0.08	0.19	0.30	75	
84	11.18	11.17	32.778	25.016	295.2	0.306	5.49	87.9	6.2	0.91	7.6	0.04	0.15	0.23	84	212
100	10.18	10.17	32.908	25.291	269.2	0.351	5.21	81.7	9.7	1.14	11.7	0.03	0.08	0.11	100	211
120	9.46	9.45	33.139	25.590	241.0	0.402	4.87	75.2	14.2	1.33	15.3	0.02	0.03	0.05	121	210
125 ISL	9.35	9.34	33.208	25.662	234.3	0.414	4.72	72.8	15.6	1.40	16.5	0.02	0.03	0.04	126	
139	9.14	9.13	33.407	25.851	216.5	0.445	4.25	65.3	19.6	1.61	19.9	0.02	0.02	0.03	140	209
150 ISL	9.00	8.98	33.566	25.998	202.8	0.469	3.82	58.6	23.1	1.75	22.3	0.02	0.01	0.03	151	
170	8.82	8.80	33.810	26.218	182.3	0.507	3.14	48.0	28.7	1.95	25.6	0.01	0.00	0.02	171	208
199	8.65	8.63	33.982	26.379	167.5	0.558	2.74	41.8	33.0	2.05	27.3	0.01	0.00	0.03	200	207
200 ISL	8.64	8.62	33.985	26.383	167.2	0.559	2.73	41.6	33.2	2.05	27.4	0.01			201	
228	8.20	8.18	34.020	26.478	158.5	0.605	2.45	37.0	37.9	2.19	29.5	0.01			229	206
250 ISL	7.90	7.87	34.035	26.535	153.4	0.639	2.25	33.7	41.6	2.29	31.0	0.01			251	
269	7.64	7.61	34.041	26.577	149.6	0.668	2.09	31.2	44.8	2.38	32.1	0.01			270	205
300 ISL	7.13	7.10	34.043	26.651	142.8	0.713	1.90	28.0	50.5	2.51	33.7	0.01			302	
318	6.85	6.82	34.044	26.690	139.2	0.739	1.80	26.3	53.7	2.58	34.6	0.01			320	204
378	6.29	6.26	34.064	26.781	131.1	0.820	1.38	19.9	62.4	2.78	37.0	0.01			380	203
400 ISL	6.08	6.05	34.082	26.822	127.3	0.848	1.17	16.8	66.9	2.87	38.1	0.01			402	
437	5.78	5.74	34.123	26.892	120.9	0.894	0.83	11.8	74.3	3.02	39.8	0.01			440	202
500 ISL	5.69	5.65	34.223	26.983	113.1	0.968	0.43	6.1	81.4	3.19	40.9	0.01			503	
512	5.67	5.63	34.242	27.000	111.6	0.981	0.35	5.0	82.8	3.22	41.1	0.01			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 19.5 N	121 43.1 W	28/10/03	1026	UTC	4055 m	330 08 kn			1014.5 mb	18.6 C	18.0 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.29	18.29	32.836	23.546	433.4	0.000	5.46	101.0	1.6	0.39	0.1	0.00	0.10	0.02	0	
1	18.29	18.29	32.836	23.546	433.4	0.004	5.46	101.0	1.6	0.39	0.1	0.00	0.10	0.02	1	220
10 ISL	18.27	18.27	32.837	23.552	433.2	0.043	5.46	101.0	1.6	0.38	0.0	0.00	0.10	0.03	10	
15	18.24	18.24	32.832	23.555	433.0	0.065	5.46	100.9	1.6	0.37	0.0	0.00	0.10	0.03	15	219
20 ISL	18.19	18.19	32.835	23.570	431.7	0.087	5.47	101.0	1.6	0.37	0.0	0.00	0.11	0.03	20	
29	18.10	18.10	32.843	23.599	429.3	0.125	5.48	101.0	1.6	0.38	0.0	0.00	0.15	0.04	29	218
30 ISL	18.10	18.09	32.846	23.601	429.1	0.130	5.49	101.2	1.6	0.38	0.0	0.00	0.15	0.04	30	
45	17.36	17.35	32.868	23.796	411.0	0.193	5.63	102.4	1.7	0.39	0.0	0.00	0.22	0.09	45	217
50 ISL	16.60	16.59	32.859	23.967	394.8	0.213	5.81	104.1	1.9	0.38	0.0	0.00	0.26	0.13	50	
54	15.97	15.96	32.857	24.109	381.3	0.228	5.95	105.2	2.0	0.37	0.0	0.00	0.29	0.17	54	216
65	14.88	14.87	32.887	24.372	356.5	0.269	6.01	104.0	2.3	0.38	0.0	0.00	0.26	0.24	65	215
75	13.17	13.16	32.699	24.580	336.8	0.304	5.98	99.8	2.7	0.48	0.2	0.10	0.28	0.29	75	214
84	13.26	13.25	32.888	24.708	324.8	0.333	5.73	95.9	3.3	0.53	1.1	0.16	0.22	0.26	84	213
95	12.02	12.01	32.882	24.943	302.5	0.368	5.54	90.4	4.8	0.73	4.5	0.08	0.16	0.24	95	212
100 ISL	11.67	11.66	32.904	25.026	294.7	0.383	5.44	88.1	5.7	0.82	6.0	0.06	0.14	0.23	100	
110	11.21	11.20	32.972	25.162	281.9	0.412	5.27	84.5	7.4	0.96	8.6	0.04	0.11	0.20	110	211
125	10.79	10.78	33.096	25.333	265.9	0.453	5.11	81.3	9.3	1.04	10.2	0.03	0.08	0.11	125	210
144	9.99	9.97	33.268	25.604	240.3	0.501	4.59	71.8	14.3	1.35	15.4	0.02	0.03	0.05	145	209
150 ISL	9.78	9.76	33.347	25.701	231.2	0.515	4.42	68.9	16.1	1.44	16.9	0.02	0.02	0.04	151	
169	9.27	9.25	33.595	25.978	205.2	0.556	3.90	60.2	21.4	1.66	20.8	0.02	0.01	0.02	170	208
199	8.90	8.88	33.832	26.223	182.4	0.615	3.34	51.2	27.7	1.85	24.3	0.02	0.00	0.02	200	207
200 ISL	8.89	8.87	33.838	26.229	181.9	0.616	3.32	50.9	27.9	1.86	24.4	0.02			201	
228	8.56	8.54	33.980	26.392	166.8	0.665	2.76	42.0	33.8	2.06	27.5	0.02			229	206
250 ISL	8.25	8.22	34.039	26.486	158.2	0.701	2.35	35.5	38.6	2.23	29.7	0.02			251	
269	7.96	7.93	34.063	26.548	152.5	0.730	2.06	30.9	42.6	2.36	31.3	0.02			270	205
300 ISL	7.47	7.44	34.065	26.621	145.9	0.777	1.89	28.1	47.9	2.47	32.9	0.02			302	
318	7.19	7.16	34.056	26.653	142.9	0.803	1.85	27.3	50.6	2.51	33.6	0.02			320	204
378	6.42	6.39	34.052	26.754	133.7	0.886	1.55	22.5	58.3	2.71	36.4	0.02			380	203
400 ISL	6.21	6.17	34.074	26.799	129.6	0.915	1.33	19.2	63.2	2.81	37.6	0.02			402	
437	5.93	5.89	34.121	26.872	123.0	0.961	0.95	13.6	71.4	2.96	39.3	0.02			440	202
500 ISL	5.75	5.71	34.186	26.946	116.6	1.037	0.63	9.0	78.3	3.08	40.5	0.02			503	
512	5.72	5.68	34.198	26.959	115.5	1.051	0.57	8.1	79.6	3.10	40.7	0.02			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 59.5 N	122 24.0 W	28/10/03	1727	UTC	4170 m	310 08 kn	340 02 08	4	1014.0 mb	19.9 C	19.0 C	32m	2/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.58	18.58	32.876	23.505	437.3	0.000	5.43	101.1	1.6	0.38	0.0	0.00	0.10	0.03	0	
2 A	18.58	18.58	32.876	23.505	437.4	0.009	5.43	101.1	1.6	0.38	0.0	0.00	0.10	0.03	2	223
10 ISL	18.50	18.50	32.879	23.527	435.5	0.044	5.43	100.9	1.6	0.37	0.0	0.00	0.11	0.02	10	
11	18.49	18.49	32.880	23.530	435.2	0.048	5.43	100.9	1.6	0.37	0.0	0.00	0.11	0.02	11	221
19 A	18.42	18.42	32.888	23.554	433.2	0.083	5.43	100.8	1.6	0.37	0.0	0.00	0.11	0.02	19	220
20 ISL	18.41	18.41	32.889	23.557	433.0	0.087	5.43	100.7	1.6	0.37	0.0	0.00	0.11	0.02	20	
30 ISL	18.30	18.29	32.891	23.586	430.5	0.130	5.44	100.7	1.6	0.37	0.0	0.00	0.10	0.03	30	
32	18.28	18.27	32.890	23.591	430.2	0.139	5.44	100.7	1.6	0.37	0.0	0.00	0.10	0.03	32	219
43 A	18.25	18.24	32.880	23.591	430.6	0.186	5.44	100.6	1.7	0.37	0.0	0.00	0.13	0.04	43	218
50 ISL	18.12	18.11	32.867	23.613	428.7	0.216	5.45	100.5	1.7	0.38	0.0	0.00	0.19	0.06	50	
53	18.07	18.06	32.862	23.622	428.0	0.229	5.46	100.6	1.7	0.38	0.0	0.00	0.21	0.08	53	217
63 A	16.40	16.39	32.761	23.938	397.9	0.270	5.86	104.5	1.8	0.38	0.0	0.00	0.23	0.18	63	216
75	14.64	14.63	32.779	24.340	359.8	0.316	6.03	103.8	2.2	0.39	0.0	0.00	0.23	0.24	75	215
84 A	13.59	13.58	32.708	24.503	344.4	0.348	5.99	100.9	2.5	0.45	0.0	0.07	0.20	0.26	84	214
97	13.37	13.36	32.935	24.723	323.7	0.391	5.74	96.3	3.1	0.50	0.6	0.16	0.27	0.28	97	213
100 ISL	13.30	13.29	32.976	24.769	319.4	0.401	5.70	95.6	3.3	0.51	0.9	0.16	0.24	0.27	100	
111	12.75	12.74	33.045	24.931	304.2	0.435	5.54	91.8	4.3	0.61	2.9	0.14	0.12	0.20	111	212
122 A	11.44	11.42	32.959	25.111	287.1	0.467	5.35	86.2	6.4	0.87	6.8	0.04	0.10	0.12	122	211
125 ISL	11.20	11.18	32.968	25.161	282.3	0.476	5.29	84.8	7.1	0.93	7.8	0.04	0.09	0.11	125	
133	10.70	10.68	33.037	25.303	268.9	0.498	5.10	80.9	9.2	1.08	10.4	0.04	0.07	0.09	134	210
144	10.22	10.20	33.210	25.521	248.4	0.527	4.74	74.5	12.5	1.27	14.0	0.04	0.04	0.05	145	209
150 ISL	9.92	9.90	33.290	25.633	237.7	0.541	4.57	71.4	14.7	1.37	15.9	0.04	0.03	0.04	151	
170	9.08	9.06	33.529	25.957	207.1	0.586	4.04	62.0	21.5	1.65	21.0	0.04	0.00	0.02	171	208
199	8.91	8.89	33.829	26.219	182.8	0.642	3.32	50.9	27.4	1.85	24.6	0.03	0.00	0.02	200	207
200 ISL	8.90	8.88	33.836	26.226	182.2	0.644	3.31	50.7	27.5	1.85	24.7	0.03			201	
228	8.53	8.51	33.976	26.394	166.7	0.693	3.18	48.4	31.4	1.90	25.9	0.03			229	206
250 ISL	8.29	8.26	34.018	26.463	160.4	0.729	2.87	43.4	35.2	2.03	27.7	0.03			251	
269	8.08	8.05	34.030	26.505	156.7	0.759	2.57	38.7	38.6	2.16	29.5	0.03			270	205
300 ISL	7.67	7.64	34.046	26.577	150.1	0.806	2.20	32.8	43.9	2.33	31.8	0.03			302	
318	7.45	7.42	34.053	26.615	146.8	0.833	2.01	29.8	46.8	2.42	32.9	0.03			320	204
378	6.97	6.93	34.110	26.727	136.8	0.918	1.46	21.4	55.3	2.66	35.3	0.03			380	203
400 ISL	6.73	6.69	34.130	26.775	132.3	0.948	1.23	18.0	59.8	2.77	36.5	0.03			402	
438	6.33	6.29	34.166	26.857	124.8	0.997	0.85	12.3	67.6	2.95	38.6	0.03			441	202
500 ISL	5.97	5.93	34.231	26.954	116.1	1.071	0.51	7.3	76.7	3.11	40.5	0.04			503	
514	5.89	5.85	34.246	26.976	114.1	1.087	0.43	6.2	78.7	3.15	40.9	0.04			517	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 39.3 N	123 4.6 W	28/10/03	2210 UTC	4108 m	280 06 kn	330 02 08	0	1012.9 mb	22.5 C	20.0 C	35m	0/8	CI

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.96	18.96	32.846	23.387	448.6	0.000	5.44	102.0	1.6	0.38	0.0	0.00	0.08	0.02	0	
1	18.96	18.96	32.846	23.387	448.6	0.004	5.44	102.0	1.6	0.38	0.0	0.00	0.08	0.02	1	220
10 ISL	18.64	18.64	32.844	23.466	441.4	0.045	5.44	101.4	1.6	0.38	0.0	0.00	0.08	0.02	10	
15	18.39	18.39	32.845	23.529	435.6	0.066	5.44	100.9	1.6	0.38	0.0	0.00	0.08	0.02	15	219
20 ISL	18.25	18.25	32.849	23.566	432.1	0.088	5.45	100.8	1.6	0.38	0.0	0.00	0.09	0.02	20	
30	18.04	18.03	32.860	23.626	426.7	0.131	5.48	100.9	1.6	0.38	0.0	0.00	0.11	0.04	30	218
45	17.79	17.78	32.875	23.699	420.3	0.195	5.53	101.4	1.6	0.38	0.0	0.00	0.16	0.07	45	217
50 ISL	17.01	17.00	32.870	23.881	403.1	0.215	5.72	103.3	1.7	0.38	0.0	0.00	0.19	0.10	50	
55	16.10	16.09	32.864	24.085	383.6	0.235	5.91	104.8	1.9	0.38	0.0	0.00	0.22	0.13	55	216
65	14.60	14.59	32.832	24.389	354.8	0.272	6.01	103.4	2.2	0.40	0.0	0.00	0.21	0.22	65	215
75	14.00	13.99	32.843	24.524	342.2	0.307	5.93	100.8	2.5	0.43	0.0	0.10	0.21 A	0.22 A	75	214
84	13.41	13.40	32.871	24.665	328.9	0.337	5.80	97.4	3.0	0.51	0.8	0.13	0.26	0.28	84	213
95	12.69	12.68	32.979	24.891	307.6	0.372	5.52	91.4	4.3	0.67	3.5	0.07	0.16	0.20	95	212
100 ISL	12.23	12.22	32.983	24.983	298.9	0.387	5.44	89.2	5.1	0.76	4.9	0.06	0.13	0.17	100	
109	11.33	11.32	32.975	25.143	283.7	0.413	5.33	85.7	6.9	0.92	7.8	0.05	0.10	0.13	109	211
123	10.07	10.06	33.025	25.401	259.2	0.451	5.10	79.8	11.1	1.19	12.7	0.04	0.05	0.07	123	210
125 ISL	9.99	9.98	33.041	25.427	256.8	0.456	5.07	79.2	11.5	1.21	13.1	0.04	0.05	0.06	125	
144	9.59	9.57	33.246	25.653	235.6	0.503	4.71	73.0	15.1	1.38	16.1	0.04	0.02	0.03	145	209
150 ISL	9.45	9.43	33.337	25.747	226.7	0.517	4.54	70.2	16.8	1.45	17.4	0.04	0.01	0.03	151	
169	9.05	9.03	33.620	26.033	199.9	0.558	3.98	61.1	22.2	1.65	21.4	0.03	0.00	0.02	170	208
199	8.79	8.77	33.870	26.270	177.9	0.614	3.45	52.7	27.3	1.81	24.3	0.03	0.00	0.02	200	207
200 ISL	8.78	8.76	33.876	26.276	177.4	0.616	3.42	52.3	27.5	1.82	24.4	0.03			201	
229	8.59	8.57	33.999	26.402	165.9	0.666	2.75	41.9	33.4	2.05	27.8	0.03			230	206
250 ISL	8.25	8.22	34.020	26.471	159.6	0.700	2.73	41.3	36.7	2.10	28.9	0.03			251	
269	7.91	7.88	34.022	26.523	154.8	0.730	2.72	40.8	39.5	2.14	29.6	0.03			270	205
300 ISL	7.55	7.52	34.052	26.599	148.0	0.777	2.23	33.2	45.1	2.35	32.2	0.03			302	
319	7.36	7.33	34.071	26.641	144.2	0.805	1.87	27.7	48.6	2.49	33.8	0.03			321	204
379	6.78	6.74	34.109	26.752	134.3	0.888	1.29	18.9	58.4	2.76	36.8	0.03			381	203
400 ISL	6.66	6.62	34.141	26.793	130.6	0.916	1.04	15.2	62.2	2.86	37.8	0.03			402	
441	6.44	6.40	34.205	26.873	123.4	0.968	0.62	9.0	69.3	3.03	39.4	0.03			444	202
500 ISL	6.02	5.98	34.247	26.961	115.6	1.038	0.43	6.2	77.1	3.15	40.9	0.03			503	
513	5.93	5.89	34.257	26.980	113.8	1.053	0.39	5.6	78.8	3.18	41.2	0.03			516	201

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

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 87 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 19.4 N	123 44.7 W	29/10/03	0345 UTC	3874 m	260 09 kn			1011.4 mb	20.0 C	18.8 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.96	19.96	33.027	23.269	459.8	0.000	5.29	101.1	1.6	0.34	0.0	0.00	0.07	0.02	0	
2	19.96	19.96	33.027	23.269	459.9	0.009	5.29	101.1	1.6	0.34	0.0	0.00	0.07	0.02	2	220
10 ISL	19.87	19.87	33.026	23.292	458.0	0.046	5.30	101.2	1.6	0.34	0.0	0.00	0.08	0.02	10	
15	19.79	19.79	33.024	23.312	456.3	0.069	5.31	101.2	1.6	0.34	0.0	0.00	0.08	0.02	15	219
20 ISL	19.77	19.77	33.020	23.314	456.2	0.092	5.31	101.2	1.6	0.34	0.0	0.00	0.08	0.02	20	
29	19.75	19.74	33.014	23.315	456.5	0.133	5.31	101.1	1.6	0.35	0.0	0.00	0.09	0.02	29	218
30 ISL	19.74	19.73	33.013	23.317	456.3	0.137	5.31	101.1	1.6	0.35	0.0	0.00	0.09	0.02	30	
45	19.58	19.57	32.999	23.348	453.9	0.205	5.33	101.2	1.5	0.34	0.0	0.00	0.14	0.05	45	217
50 ISL	19.26	19.25	32.952	23.394	449.7	0.228	5.40	101.8	1.5	0.35	0.0	0.00	0.14	0.05	50	
60	18.26	18.25	32.859	23.573	432.8	0.272	5.59	103.4	1.5	0.36	0.0	0.00	0.14	0.06	60	216
74	16.06	16.05	32.865	24.096	383.2	0.329	5.94	105.3	1.7	0.36	0.0	0.00	0.20	0.15	74	215
75 ISL	15.96	15.95	32.864	24.118	381.2	0.333	5.94	105.0	1.7	0.36	0.0	0.00	0.20	0.16	75	
84	15.25	15.24	32.865	24.276	366.3	0.367	5.95	103.7	1.9	0.37	0.0	0.00	0.18	0.25	84	214
95	14.46	14.45	32.934	24.499	345.3	0.406	5.88	100.9	2.2	0.40	0.0	0.01	0.21	0.33	95	213
100 ISL	14.07	14.06	32.977	24.613	334.4	0.423	5.76	98.1	2.6	0.45	0.2	0.13	0.20	0.30	100	
104	13.72	13.71	33.003	24.705	325.7	0.436	5.65	95.6	3.0	0.51	0.7	0.21	0.19	0.27	104	212
114	12.59	12.57	32.974	24.907	306.5	0.468	5.51	91.0	4.3	0.69	3.9	0.03	0.12	0.20	114	211
125	11.64	11.62	32.982	25.092	289.0	0.500	5.37	86.9	6.0	0.85	6.7	0.02	0.08	0.14	125	210
140	10.63	10.61	33.085	25.353	264.3	0.542	5.10	80.8	9.3	1.07	10.8	0.01	0.05	0.07	141	209
150 ISL	10.18	10.16	33.201	25.520	248.5	0.568	4.87	76.5	11.7	1.20	13.2	0.01	0.03	0.04	151	
164	9.73	9.71	33.387	25.741	227.7	0.601	4.49	69.9	15.2	1.38	16.3	0.01	0.01	0.02	165	208
195	9.16	9.14	33.768	26.132	191.1	0.666	3.44	53.0	24.3	1.78	22.8	0.01	0.00	0.01	196	207
200 ISL	9.09	9.07	33.809	26.175	187.1	0.675	3.34	51.4	25.5	1.82	23.5	0.01			201	
229	8.71	8.69	33.970	26.361	169.9	0.727	2.92	44.6	31.3	1.99	26.3	0.01			230	206
250 ISL	8.44	8.41	34.025	26.446	162.1	0.762	2.65	40.2	35.2	2.11	28.0	0.01			251	
269	8.19	8.16	34.048	26.502	157.0	0.792	2.42	36.5	38.6	2.21	29.4	0.01			270	205
300 ISL	7.70	7.67	34.067	26.590	149.0	0.840	2.07	30.9	44.5	2.38	31.7	0.01			302	
318	7.43	7.40	34.073	26.633	145.0	0.866	1.88	27.9	47.9	2.48	32.9	0.01			320	204
378	6.89	6.85	34.117	26.743	135.1	0.950	1.29	18.9	57.3	2.75	35.9	0.01			380	203
400 ISL	6.71	6.67	34.123	26.772	132.6	0.980	1.18	17.2	60.2	2.81	36.6	0.01			402	
438	6.39	6.35	34.130	26.820	128.3	1.029	1.03	14.9	65.1	2.90	37.8	0.01			441	202
500 ISL	5.83	5.79	34.154	26.911	120.0	1.106	0.75	10.7	75.1	3.05	40.0	0.01			503	
512	5.72	5.68	34.159	26.928	118.4	1.120	0.70	10.0	77.0	3.08	40.4	0.01			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 29.2 N	117 46.2 W	26/10/03	1032 UTC	69 m	280 01 kn			1018.6 mb	18.2 C	17.2 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.26	18.26	33.227	23.852	404.2	0.000	6.15	114.0	2.5	0.18	0.3	0.01	4.98	0.85	0	
1	18.26	18.26	33.227	23.852	404.2	0.004	6.15	114.0	2.5	0.18	0.3	0.01	4.98	0.85	1	208
5	18.24	18.24	33.228	23.858	403.8	0.020	6.15	114.0	2.4	0.19	0.2	0.01	5.67	0.91	5	207
10	17.64	17.64	33.206	23.987	391.6	0.040	5.77	105.7	2.9	0.22	0.2	0.01	3.46	3.57	10	206
20	15.31	15.31	33.160	24.488	344.2	0.077	4.55	79.6	4.8	0.49	0.2	0.02	0.35	0.19	20	205
30	13.72	13.72	33.162	24.826	312.1	0.110	4.32	73.2	6.1	0.70	0.2	0.07	0.61	0.16	30	204
40	12.74	12.73	33.174	25.031	292.8	0.140	4.43	73.5	7.7	0.95	1.3	0.18	0.26	0.17	40	203
50	12.34	12.33	33.194	25.124	284.2	0.169	4.55	74.9	8.6	1.09	8.1	0.27	0.14	0.19	50	202
60	11.96	11.95	33.239	25.231	274.3	0.197	4.45	72.7	9.7	1.19	11.1	0.09	0.12	0.18	60	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 30

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 25.0 N	117 54.1 W	26/10/03	1252 UTC	620 m	240 02 kn			1019.1 mb	18.5 C	18.2 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.44	19.44	33.327	23.632	425.1	0.000	5.65	107.2	1.4	0.24	0.2	0.00	0.68	0.22	0	
2	19.44	19.44	33.327	23.632	425.2	0.009	5.65	107.2	1.4	0.24	0.2	0.00	0.68	0.22	2	220
10	18.61	18.61	33.304	23.825	407.1	0.042	5.57	104.0	1.7	0.30	0.2	0.00	0.29	0.12	10	219
20	16.87	16.87	33.195	24.161	375.3	0.081	5.92	106.8	2.2	0.37	0.3	0.01	0.32	0.17	20	218
30	13.78	13.78	33.057	24.733	321.1	0.116	5.73	97.1	3.4	0.64	3.3	0.22	0.40	0.23	30	217
40	12.77	12.76	33.088	24.959	299.7	0.147	5.33	88.4	5.2	0.81	5.4	0.33	0.43	0.31	40	216
50	12.23	12.22	33.200	25.150	281.8	0.176	4.67	76.7	8.5	1.07	9.7	0.05	0.28	0.25	50	215
59	12.04	12.03	33.246	25.221	275.2	0.201	4.36	71.3	10.3	1.20	11.6	0.04	0.22	0.23	59	214
70	11.57	11.56	33.353	25.392	259.2	0.230	4.18	67.7	11.4	1.30	14.1	0.03	0.17	0.15	70	213
75 ISL	11.44	11.43	33.411	25.461	252.7	0.243	3.93	63.5	13.5	1.40	15.3	0.03	0.12	0.13	75	
84	11.27	11.26	33.502	25.563	243.2	0.265	3.50	56.4	17.1	1.56	17.1	0.02	0.05	0.12	84	212
100	11.03	11.02	33.554	25.647	235.6	0.304	3.45	55.3	17.4	1.61	17.9	0.02	0.04	0.09	100	211
119	10.97	10.96	33.693	25.766	224.7	0.347	2.87	46.0	21.0	1.79	20.2	0.01	0.02	0.08	120	210
125 ISL	10.93	10.91	33.711	25.787	222.8	0.361	2.82	45.2	21.4	1.81	20.5	0.01	0.02	0.07	126	
139	10.82	10.80	33.743	25.832	218.9	0.392	2.76	44.1	22.0	1.85	20.9	0.01	0.01	0.06	140	209
150 ISL	10.79	10.77	33.796	25.879	214.7	0.416	2.58	41.2	23.5	1.94	21.6	0.01	0.01	0.06	151	
169	10.74	10.72	33.898	25.968	206.7	0.456	2.35	37.5	25.7	2.05	22.8	0.01	0.01	0.06	170	208
199	9.99	9.97	33.922	26.116	193.1	0.516	2.77	43.5	24.8	1.90	23.4	0.01	0.01	0.05	200	207
200 ISL	10.00	9.98	33.930	26.121	192.6	0.518	2.74	43.0	25.0	1.91	23.5	0.01			201	
228	10.28	10.25	34.160	26.253	180.9	0.570	1.76	27.9	30.5	2.24	26.1	0.01			229	206
250 ISL	10.07	10.04	34.220	26.336	173.4	0.609	1.65	26.0	32.9	2.32	27.2	0.01			251	
268	9.77	9.74	34.232	26.396	167.9	0.640	1.56	24.4	34.4	2.35	27.8	0.01			270	205
300 ISL	9.32	9.29	34.257	26.491	159.5	0.692	1.34	20.8	38.1	2.46	29.3	0.01			302	
318	9.06	9.03	34.263	26.537	155.2	0.720	1.21	18.7	40.4	2.52	30.2	0.01			320	204
377	8.28	8.24	34.276	26.669	143.3	0.808	0.90	13.6	48.3	2.72	32.7	0.00			379	203
400 ISL	8.07	8.03	34.279	26.704	140.3	0.841	0.82	12.4	50.5	2.77	33.4	0.00			403	
437	7.77	7.73	34.284	26.752	136.2	0.892	0.70	10.5	54.1	2.85	34.4	0.00			440	202
500 ISL	7.17	7.12	34.301	26.852	127.2	0.975	0.45	6.6	63.0	3.01	36.4	0.01			503	
511	7.06	7.01	34.305	26.870	125.5	0.989	0.41	6.0	64.6	3.04	36.7	0.01			514	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 14.7 N	118 15.3 W	26/10/03	1801 UTC	487 m	350 03 kn	240 03 08	4	1020.5 mb	19.9 C	18.8 C	18m	7/8	CU

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	19.74	19.74	33.317	23.547	433.2	0.000	5.48	104.5	1.6	0.24	0.1	0.00			0	
2	A	19.74	19.74	33.317	23.547	433.3	0.009	5.48	104.5	1.6	0.24	0.1	0.00			2	220
10	ISL	19.36	19.36	33.295	23.629	425.8	0.043	5.58	105.7	1.7	0.24	0.1	0.00			10	
11	A	19.31	19.31	33.292	23.639	424.9	0.047	5.59	105.8	1.7	0.24	0.1	0.00	0.42	0.15	11	219
18		17.05	17.05	33.163	24.095	381.6	0.076	5.96	107.9	1.9	0.31	0.1	0.00	0.45	0.21	18	218
20	ISL	16.54	16.54	33.128	24.187	372.9	0.083	6.03	108.1	1.9	0.34	0.1	0.00	0.44	0.22	20	
24	A	15.66	15.66	33.071	24.342	358.2	0.098	6.11	107.6	2.0	0.40	0.1	0.00	0.42	0.24	24	217
30	ISL	14.57	14.57	33.036	24.552	338.3	0.119	6.04	104.0	2.5	0.45	0.4	0.03	0.72	0.54	30	
34	A	13.99	13.99	33.041	24.677	326.5	0.132	5.99	101.9	3.1	0.51	0.6	0.05	0.87	0.70	34	216
42		13.07	13.06	33.118	24.923	303.2	0.157	5.36	89.5	4.8	0.78	4.6	0.42	0.46	0.41	42	215
47	A	12.45	12.44	33.158	25.075	288.8	0.172	5.04	83.1	6.5	0.94	7.9	0.13	0.29	0.33	47	214
50	ISL	12.13	12.12	33.165	25.141	282.6	0.180	4.93	80.7	7.3	1.01	9.2	0.11	0.23	0.29	50	
57		11.54	11.53	33.182	25.264	271.0	0.200	4.76	77.0	9.0	1.12	11.2	0.07	0.15	0.20	57	213
69	A	11.09	11.08	33.323	25.456	253.0	0.231	4.32	69.3	11.7	1.30	14.1	0.03	0.08	0.11	69	212
75	ISL	10.84	10.83	33.394	25.555	243.7	0.246	4.14	66.0	13.3	1.38	15.6	0.03	0.06	0.09	75	
84		10.54	10.53	33.498	25.689	231.1	0.268	3.87	61.4	15.7	1.49	17.6	0.02	0.04	0.07	84	211
99		10.46	10.45	33.654	25.825	218.6	0.301	3.35	53.1	18.9	1.66	19.8	0.02	0.02	0.05	99	210
100	ISL	10.44	10.43	33.659	25.832	217.9	0.303	3.34	52.9	19.0	1.66	19.9	0.02	0.02	0.05	100	
120		10.15	10.14	33.753	25.956	206.6	0.346	3.20	50.4	21.1	1.72	21.1	0.02	0.01	0.04	121	209
125	ISL	10.16	10.15	33.803	25.993	203.1	0.356	3.04	47.9	22.2	1.78	21.7	0.02	0.01	0.04	126	
139		10.24	10.22	33.948	26.093	194.0	0.384	2.54	40.1	25.5	1.95	23.3	0.02	0.01	0.04	140	208
150	ISL	10.24	10.22	34.024	26.152	188.6	0.405	2.23	35.2	27.4	2.06	24.3	0.02	0.01	0.04	151	
169		10.23	10.21	34.129	26.236	181.1	0.440	1.88	29.7	29.9	2.19	25.7	0.01	0.00	0.04	170	207
199		9.67	9.65	34.144	26.343	171.4	0.493	1.84	28.7	32.7	2.25	27.3	0.01	0.00	0.04	200	206
200	ISL	9.67	9.65	34.146	26.345	171.3	0.495	1.84	28.7	32.8	2.25	27.3	0.01			201	
228		9.60	9.57	34.173	26.378	168.7	0.542	1.72	26.8	34.2	2.30	27.8	0.02			229	205
250	ISL	9.50	9.47	34.204	26.419	165.3	0.579	1.57	24.4	35.6	2.35	28.3	0.02			251	
269		9.36	9.33	34.229	26.462	161.6	0.610	1.43	22.2	37.2	2.40	28.8	0.02			271	204
300	ISL	8.95	8.92	34.251	26.545	154.1	0.659	1.23	18.9	41.4	2.53	30.3	0.02			302	
318		8.68	8.65	34.258	26.593	149.7	0.686	1.12	17.1	44.1	2.61	31.3	0.02			320	203
377		8.01	7.97	34.266	26.702	140.0	0.772	0.89	13.4	50.9	2.75	33.3	0.01			379	202
400	ISL	7.86	7.82	34.274	26.731	137.6	0.804	0.80	12.0	53.0	2.80	33.9	0.01			403	
438		7.62	7.58	34.288	26.777	133.7	0.855	0.64	9.5	56.5	2.89	34.9	0.01			441	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 37

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 11.2 N	118 23.7 W	26/10/03	0350 UTC	1181 m	300 15 kn			1017.4 mb	19.8 C	18.0 C			

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	19.85	19.85	33.337	23.534	434.5	0.000	5.44	104.0	1.6	0.25	0.1	0.00	0.33	0.12	0	
2		19.85	19.85	33.337	23.534	434.6	0.009	5.44	104.0	1.6	0.25	0.1	0.00	0.33	0.12	2	220
10		19.84	19.84	33.335	23.536	434.7	0.043	5.45	104.2	1.6	0.24	0.1	0.00	0.30	0.11	10	219
20		18.44	18.44	33.305	23.868	403.3	0.085	5.62	104.6	1.7	0.29	0.1	0.00	0.29	0.13	20	218
30		14.21	14.21	33.198	24.753	319.2	0.121	5.90	100.9	3.8	0.53	0.9	0.04	0.70	0.51	30	217
40		12.23	12.22	33.177	25.132	283.3	0.152	5.10	83.7	6.7	0.95	7.6	0.22	0.80	0.43	40	216
49		11.60	11.59	33.190	25.259	271.3	0.177	4.82	78.1	8.8	1.12	11.1	0.14	0.69	0.49	49	215
50	ISL	11.55	11.54	33.201	25.277	269.6	0.179	4.77	77.2	9.1	1.14	11.5	0.13	0.65	0.47	50	
59		11.16	11.15	33.317	25.438	254.5	0.203	4.25	68.2	12.1	1.34	14.8	0.06	0.30	0.26	59	214
70		10.88	10.87	33.429	25.576	241.6	0.230	3.79	60.5	14.5	1.51	17.6	0.02	0.15	0.23	70	213
75	ISL	10.70	10.69	33.462	25.633	236.3	0.242	3.74	59.5	15.6	1.55	18.2	0.02	0.11	0.20	75	
84		10.42	10.41	33.514	25.722	228.0	0.263	3.69	58.4	17.5	1.59	18.8	0.01	0.07	0.15	84	212
100		10.32	10.31	33.631	25.831	218.0	0.299	3.30	52.1	20.0	1.70	20.3	0.01	0.04	0.08	100	211
119		10.22	10.21	33.802	25.982	204.1	0.339	2.98	47.0	22.5	1.80	21.7	0.01	0.02	0.10	120	210
125	ISL	10.22	10.21	33.865	26.031	199.5	0.351	2.80	44.2	23.8	1.86	22.4	0.01	0.02	0.08	126	
139		10.21	10.19	33.995	26.135	190.0	0.378	2.39	37.7	26.7	2.00	23.9	0.01	0.01	0.04	140	209
150	ISL	10.13	10.11	34.039	26.183	185.7	0.399	2.24	35.3	28.0	2.06	24.6	0.01	0.01	0.04	151	
169		9.94	9.92	34.071	26.240	180.6	0.434	2.14	33.6	29.4	2.11	25.5	0.01	0.01	0.05	170	208
199		9.60	9.58	34.120	26.336	172.1	0.487	2.12	33.1	31.6	2.16	26.6	0.01	0.00	0.04	200	207
200	ISL	9.60	9.58	34.123	26.338	171.9	0.488	2.10	32.7	31.7	2.17	26.7	0.01			201	
228		9.58	9.55	34.212	26.412	165.5	0.535	1.59	24.8	35.4	2.35	28.3	0.01			229	206
250	ISL	9.41	9.38	34.242	26.463	161.0	0.571	1.41	21.9	37.6	2.43	29.1	0.00			251	
269		9.21	9.18	34.253	26.505	157.4	0.602	1.33	20.6	39.2	2.48	29.7	0.00			271	205
300	ISL	8.92	8.89	34.266	26.562	152.5	0.650	1.17	18.0	42.1	2.56	30.7	0.01			302	
318		8.75	8.72	34.270	26.592	149.9	0.677	1.08	16.5	43.8	2.60	31.2	0.01			320	204
377		8.20	8.16	34.287	26.690	141.3	0.763	0.84	12.7	49.9	2.75	33.0	0.00			379	203
400	ISL	7.93	7.89	34.285	26.729	137.8	0.795	0.76	11.4	52.9	2.81	33.9	0.00			403	
437		7.49	7.45	34.283	26.792	132.2	0.845	0.65	9.7	57.9	2.89	35.3	0.00			440	202
500	ISL	6.94	6.89	34.299	26.882	124.1	0.926	0.44	6.5	65.9	3.02	37.2	0.00			503	
513		6.83	6.78	34.303	26.900	122.5	0.942	0.40	5.9	67.5	3.05	37.6	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 55.1 N	118 56.2 W	25/10/03	2152 UTC	1691 m	290 08 kn	290 03 06	4	1017.5 mb	17.1 C	16.9 C	22m	8/8	CI

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.41	18.41	33.243	23.827	406.5	0.000	5.46	101.5	1.4	0.33	0.2	0.00	0.14	0.04	0	
1	18.41	18.41	33.243	23.827	406.5	0.004	5.46	101.5	1.4	0.33	0.2	0.00	0.14	0.04	1	220
9	18.05	18.05	33.241	23.915	398.5	0.036	5.54	102.3	1.5	0.34	0.2	0.01	0.22	0.08	9	219
10 ISL	17.98	17.98	33.239	23.930	397.1	0.040	5.57	102.7	1.5	0.34	0.2	0.01	0.24	0.09	10	
19	16.87	16.87	33.203	24.168	374.7	0.075	5.83	105.2	2.3	0.39	0.5	0.03	0.45	0.19	19	218
20 ISL	16.64	16.64	33.197	24.216	370.1	0.079	5.83	104.7	2.4	0.40	0.5	0.03	0.47	0.21	20	
30	14.13	14.13	33.157	24.738	320.6	0.113	5.87	100.2	3.9	0.57	2.3	0.08	0.60	0.41	30	217
39	12.45	12.44	33.129	25.052	290.8	0.141	5.35	88.2	6.0	0.87	7.0	0.17	0.64	0.50	39	216
49	11.40	11.39	33.183	25.291	268.3	0.169	4.79	77.2	9.3	1.15	11.7	0.09	0.44	0.38	49	215
50 ISL	11.39	11.38	33.195	25.302	267.3	0.171	4.75	76.6	9.5	1.16	11.9	0.09	0.43	0.37	50	
60	11.24	11.23	33.279	25.394	258.7	0.198	4.42	71.1	11.3	1.27	13.7	0.07	0.34	0.31	60	214
69	11.04	11.03	33.390	25.517	247.2	0.220	4.00	64.1	13.6	1.41	16.0	0.05	0.23	0.23	69	213
75 ISL	10.86	10.85	33.447	25.593	240.1	0.235	3.83	61.1	14.9	1.48	17.1	0.04	0.17	0.18	75	
85	10.58	10.57	33.546	25.720	228.3	0.258	3.56	56.5	17.2	1.59	18.8	0.04	0.08	0.11	85	212
99	10.39	10.38	33.752	25.913	210.2	0.289	2.91	46.1	22.1	1.81	21.6	0.03	0.02	0.05	99	211
100 ISL	10.39	10.38	33.761	25.920	209.5	0.291	2.88	45.6	22.3	1.82	21.7	0.03	0.02	0.05	100	
119	10.35	10.34	33.853	25.999	202.4	0.330	2.39	37.8	25.7	1.99	23.5	0.02	0.01	0.06	120	210
125 ISL	10.35	10.34	33.885	26.025	200.2	0.342	2.29	36.3	26.4	2.02	23.8	0.02	0.01	0.06	126	
139	10.36	10.34	33.956	26.078	195.4	0.370	2.11	33.4	27.8	2.08	24.4	0.02	0.01	0.05	140	209
150 ISL	10.31	10.29	33.995	26.118	191.9	0.391	1.92	30.4	29.4	2.15	25.1	0.02	0.01	0.05	151	
169	10.19	10.17	34.047	26.179	186.5	0.427	1.67	26.4	31.8	2.25	26.3	0.01	0.00	0.05	170	208
199	10.04	10.02	34.119	26.261	179.3	0.482	1.68	26.5	32.2	2.26	26.8	0.01	0.00	0.05	200	207
200 ISL	10.03	10.01	34.121	26.265	179.0	0.484	1.68	26.4	32.2	2.26	26.8	0.01			201	
228	9.79	9.76	34.178	26.350	171.5	0.533	1.62	25.4	33.7	2.31	27.7	0.01			229	206
250 ISL	9.52	9.49	34.220	26.428	164.4	0.570	1.47	22.9	36.3	2.39	28.7	0.01			251	
268	9.31	9.28	34.246	26.483	159.5	0.599	1.34	20.8	38.5	2.46	29.4	0.01			270	205
300 ISL	9.10	9.07	34.253	26.523	156.3	0.650	1.27	19.6	40.0	2.50	30.1	0.01			302	
317	8.99	8.96	34.249	26.537	155.2	0.676	1.25	19.2	40.8	2.52	30.4	0.01			319	204
377	8.23	8.19	34.267	26.670	143.2	0.766	0.95	14.4	48.6	2.70	32.7	0.01			379	203
400 ISL	7.96	7.92	34.266	26.710	139.7	0.798	0.88	13.2	51.3	2.75	33.5	0.01			403	
437	7.56	7.52	34.267	26.769	134.4	0.849	0.76	11.3	55.9	2.84	34.7	0.01			440	202
500 ISL	6.96	6.91	34.301	26.880	124.3	0.930	0.45	6.6	66.0	3.02	37.1	0.01			503	
512	6.84	6.79	34.308	26.902	122.3	0.945	0.39	5.7	67.9	3.06	37.6	0.01			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 53

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 39.9 N	119 29.4 W	25/10/03	1730 UTC	1323 m	250 02 kn	330 06 06	4	1019.0 mb	16.4 C	16.2 C	27m	8/8	CI

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.78	18.78	33.286	23.768	412.2	0.000	5.41	101.3	1.5	0.32	0.0	0.00	0.15	0.04	0	
2 A	18.78	18.78	33.286	23.768	412.2	0.008	5.41	101.3	1.5	0.32	0.0	0.00	0.15	0.04	2	221
10	18.75	18.75	33.286	23.776	411.8	0.041	5.41	101.3	1.4	0.32	0.0	0.00	0.15	0.03	10	220
17 A	18.70	18.70	33.286	23.789	410.8	0.070	5.41	101.2	1.4	0.32	0.0	0.00	0.17	0.05	17	219
20 ISL	18.66	18.66	33.285	23.798	410.0	0.082	5.42	101.3	1.4	0.32	0.0	0.00	0.19	0.06	20	
26	18.58	18.58	33.283	23.817	408.4	0.107	5.44	101.5	1.4	0.32	0.0	0.00	0.22	0.07	26	218
30 ISL	17.26	17.26	33.209	24.081	383.3	0.123	5.70	103.6	1.8	0.37	0.4	0.03	0.45	0.15	30	
36 A	15.02	15.01	33.121	24.521	341.4	0.144	6.01	104.5	2.7	0.48	1.0	0.07	0.74	0.30	36	217
43	13.61	13.60	33.064	24.773	317.5	0.168	5.71	96.4	3.8	0.66	3.5	0.29	0.64	0.43	43	216
50 ISL	12.72	12.71	33.058	24.945	301.3	0.189	5.43	90.0	5.1	0.82	6.3	0.19	0.50	0.43	50	
53 A	12.46	12.45	33.062	24.999	296.3	0.198	5.34	88.0	5.7	0.88	7.3	0.12	0.44	0.43	53	215
61	12.02	12.01	33.066	25.086	288.1	0.221	5.23	85.4	6.7	0.96	8.9	0.07	0.36	0.39	61	214
72 A	11.21	11.20	33.088	25.251	272.5	0.252	5.02	80.6	8.8	1.12	11.6	0.03	0.23	0.29	72	213
75 ISL	11.01	11.00	33.099	25.296	268.4	0.260	4.99	79.8	9.3	1.15	12.1	0.03	0.20	0.26	75	
87	10.35	10.34	33.181	25.475	251.5	0.292	4.81	75.8	11.6	1.25	14.0	0.02	0.12	0.14	87	212
100 ISL	10.07	10.06	33.350	25.654	234.7	0.323	4.32	67.7	15.1	1.44	17.2	0.01	0.04	0.06	100	
103 A	10.03	10.02	33.395	25.696	230.8	0.330	4.18	65.5	16.0	1.49	18.0	0.01	0.03	0.05	103	211
119	9.53	9.52	33.639	25.970	205.0	0.365	3.49	54.2	21.8	1.74	22.1	0.01	0.01	0.02	120	210
125 ISL	9.45	9.44	33.697	26.028	199.6	0.377	3.32	51.5	23.2	1.79	23.0	0.01	0.01	0.02	126	
139	9.34	9.32	33.793	26.121	191.0	0.405	3.03	46.9	25.5	1.88	24.4	0.01	0.01	0.02	140	209
150 ISL	9.23	9.21	33.843	26.178	185.8	0.425	2.89	44.6	26.9	1.93	25.2	0.01	0.01	0.02	151	
169	9.10	9.08	33.917	26.257	178.7	0.460	2.68	41.3	29.2	2.00	26.3	0.01	0.00	0.03	170	208
198	9.15	9.13	34.092	26.387	167.0	0.510	2.14	33.0	33.5	2.18	27.7	0.00	0.00	0.02	199	207
200 ISL	9.14	9.12	34.102	26.396	166.2	0.513	2.10	32.4	33.9	2.20	27.8	0.00			201	
229	8.87	8.85	34.200	26.516	155.3	0.560	1.58	24.2	39.4	2.42	29.8	0.01			230	206
250 ISL	8.66	8.63	34.218	26.564	151.1	0.592	1.43	21.8	41.8	2.49	30.6	0.01			251	
268	8.48	8.45	34.219	26.593	148.6	0.619	1.36	20.7	43.5	2.53	31.1	0.01			270	205
300 ISL	8.15	8.12	34.240	26.659	142.7	0.666	1.10	16.6	48.0	2.66	32.5	0.00			302	
318	7.97	7.94	34.252	26.696	139.5	0.691	0.96	14.4	50.5	2.73	33.2	0.00			320	204
378	7.55	7.51	34.278	26.778	132.4	0.773	0.69	10.3	56.6	2.87	34.9	0.00			380	203
400 ISL	7.41	7.37	34.286	26.805	130.2	0.802	0.61	9.1	58.7	2.91	35.5	0.00			403	
438	7.17	7.13	34.296	26.847	126.6	0.850	0.50	7.4	62.3	2.98	36.4	0.00			441	202
500 ISL	6.75	6.70	34.306	26.913	121.0	0.927	0.39	5.7	68.4	3.07	37.8	0.00			503	
514	6.66	6.61	34.309	26.927	119.7	0.944	0.36	5.3	69.8	3.09	38.1	0.00			517	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 25.2 N	119 57.8 W	25/10/03	1143 UTC	874 m	210 04 kn			1015.2 mb	15.9 C	15.8 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.50	16.50	33.003	24.099	380.6	0.000	5.68	101.6	1.5	0.39	0.1	0.00	0.21	0.07	0	
2	16.50	16.50	33.003	24.099	380.7	0.008	5.68	101.6	1.5	0.39	0.1	0.00	0.21	0.07	2	220
10	16.50	16.50	33.003	24.099	380.9	0.038	5.68	101.6	1.5	0.38	0.1	0.00	0.21	0.08	10	219
20	16.49	16.49	33.033	24.125	378.8	0.076	5.71	102.2	1.5	0.38	0.1	0.00	0.26	0.10	20	218
30	16.30	16.30	33.007	24.149	376.8	0.114	5.76	102.7	1.5	0.38	0.0	0.00	0.28	0.12	30	217
40	14.34	14.33	32.808	24.425	350.7	0.150	5.97	102.2	1.9	0.43	0.1	0.01	0.53	0.29	40	216
50	12.29	12.28	32.585	24.661	328.3	0.184	6.03	98.7	2.9	0.56	1.0	0.17	0.56	0.45	50	215
59	11.46	11.45	32.591	24.820	313.3	0.213	5.80	93.3	4.2	0.74	4.1	0.21	0.40	0.33	59	214
69	10.84	10.83	32.722	25.032	293.2	0.243	5.53	87.9	6.3	0.93	7.9	0.07	0.24	0.31	69	213
75 ISL	10.50	10.49	32.822	25.169	280.3	0.261	5.34	84.3	8.3	1.08	10.6	0.05	0.17	0.24	75	
86	9.96	9.95	33.040	25.430	255.6	0.290	4.95	77.3	12.5	1.33	15.0	0.02	0.09	0.10	86	212
99	9.48	9.47	33.345	25.748	225.7	0.321	4.46	69.0	16.7	1.46	17.7	0.01	0.02	0.03	99	211
100 ISL	9.45	9.44	33.359	25.764	224.2	0.324	4.44	68.7	16.9	1.47	17.8	0.01	0.02	0.03	100	
120	9.15	9.14	33.580	25.985	203.5	0.366	4.00	61.5	20.8	1.63	20.6	0.01	0.01	0.02	121	210
125 ISL	9.22	9.21	33.652	26.030	199.3	0.376	3.68	56.7	22.3	1.72	21.8	0.01	0.01	0.02	126	
139	9.43	9.41	33.844	26.147	188.7	0.404	2.78	43.1	26.7	1.96	25.2	0.01	0.01	0.04	140	209
150 ISL	9.38	9.36	33.935	26.226	181.3	0.424	2.46	38.1	29.1	2.06	26.5	0.01	0.01	0.04	151	
169	9.10	9.08	34.030	26.346	170.3	0.457	2.25	34.7	32.5	2.15	27.7	0.01	0.01	0.04	170	208
198	8.55	8.53	34.116	26.500	156.1	0.505	2.10	32.0	38.0	2.27	29.2	0.01	0.00	0.02	199	207
200 ISL	8.53	8.51	34.119	26.505	155.6	0.508	2.09	31.8	38.2	2.28	29.3	0.01			201	
229	8.35	8.33	34.143	26.552	151.6	0.552	1.84	27.9	41.1	2.38	30.3	0.01			230	206
250 ISL	8.07	8.04	34.162	26.609	146.5	0.584	1.56	23.5	45.2	2.51	31.7	0.00			251	
269	7.79	7.76	34.177	26.663	141.6	0.611	1.32	19.8	49.2	2.62	33.0	0.00			271	205
300 ISL	7.45	7.42	34.185	26.718	136.7	0.654	1.14	16.9	53.3	2.72	34.3	0.00			302	
318	7.27	7.24	34.182	26.741	134.7	0.679	1.08	16.0	55.4	2.76	34.9	0.00			320	204
377	6.55	6.52	34.145	26.811	128.5	0.756	0.94	13.7	64.0	2.88	37.4	0.00			379	203
400 ISL	6.53	6.49	34.195	26.853	124.8	0.785	0.74	10.8	66.6	2.96	37.8	0.00			403	
437	6.51	6.47	34.279	26.922	118.8	0.830	0.42	6.1	70.7	3.08	38.4	0.00			440	202
500 ISL	6.04	6.00	34.316	27.013	110.7	0.903	0.29	4.2	79.2	3.19	40.0	0.00			503	
512	5.95	5.91	34.323	27.030	109.2	0.916	0.27	3.9	80.8	3.21	40.3	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 5.1 N	120 38.4 W	25/10/03	0531 UTC	3816 m	250 05 kn			1014.6 mb	17.2 C	16.9 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.87	16.87	32.950	23.973	392.7	0.000	5.65	101.8	1.5	0.38	0.1	0.00	0.17	0.05	0	
2	16.87	16.87	32.950	23.973	392.7	0.008	5.65	101.8	1.5	0.38	0.1	0.00	0.17	0.05	2	220
9	16.80	16.80	32.948	23.988	391.5	0.035	5.66	101.8	1.5	0.38	0.1	0.00	0.17	0.06	9	219
10 ISL	16.79	16.79	32.948	23.990	391.3	0.039	5.66	101.8	1.5	0.38	0.1	0.00	0.17	0.06	10	
19	16.73	16.73	32.952	24.008	389.9	0.074	5.66	101.7	1.6	0.38	0.1	0.00	0.19	0.08	19	218
20 ISL	16.67	16.67	32.964	24.031	387.8	0.078	5.67	101.8	1.6	0.38	0.1	0.00	0.22	0.09	20	
30	15.88	15.88	33.072	24.294	363.0	0.116	5.81	102.7	1.6	0.40	0.3	0.03	0.52	0.23	30	217
40	15.06	15.05	33.014	24.430	350.2	0.151	5.77	100.3	2.0	0.48	0.9	0.08	0.41	0.26	40	216
50	12.85	12.84	32.674	24.623	332.0	0.186	5.96	98.8	2.7	0.52	0.7	0.11	0.35	0.34	50	215
59	12.07	12.06	32.624	24.733	321.6	0.215	5.87	95.7	3.2	0.61	1.8	0.23	0.29	0.34	59	214
70	11.42	11.41	32.641	24.866	309.2	0.250	5.69	91.5	4.6	0.77	5.1	0.10	0.24	0.31	70	213
75 ISL	11.15	11.14	32.653	24.924	303.7	0.265	5.63	90.0	5.2	0.83	6.3	0.07	0.22	0.28	75	
85	10.66	10.65	32.693	25.041	292.7	0.295	5.53	87.5	6.5	0.94	8.3	0.05	0.17	0.22	85	212
100	10.04	10.03	32.812	25.239	274.1	0.337	5.34	83.4	9.3	1.13	11.5	0.03	0.09	0.16	100	211
120	9.53	9.52	33.099	25.548	245.1	0.389	5.02	77.7	12.6	1.24	14.2	0.02	0.04	0.05	121	210
125 ISL	9.45	9.44	33.167	25.614	238.9	0.401	4.90	75.7	13.7	1.29	15.1	0.02	0.03	0.05	126	
140	9.27	9.25	33.367	25.799	221.5	0.436	4.48	69.0	17.4	1.47	18.1	0.01	0.02	0.03	141	209
150 ISL	9.17	9.15	33.510	25.927	209.6	0.457	4.15	63.8	20.0	1.58	20.0	0.01	0.01	0.02	151	
170	8.98	8.96	33.759	26.153	188.5	0.497	3.54	54.3	24.8	1.76	23.1	0.01	0.00	0.02	171	208
199	8.71	8.69	33.944	26.340	171.3	0.549	3.14	47.9	29.8	1.89	25.4	0.01	0.00	0.02	200	207
200 ISL	8.69	8.67	33.948	26.347	170.7	0.551	3.12	47.6	30.0	1.90	25.5	0.01			201	
229	8.20	8.18	34.032	26.488	157.6	0.599	2.59	39.1	37.4	2.13	28.8	0.00			230	206
250 ISL	7.84	7.82	34.048	26.554	151.6	0.631	2.33	34.9	41.8	2.25	30.5	0.00			251	
269	7.55	7.52	34.051	26.598	147.5	0.660	2.13	31.7	45.3	2.35	31.8	0.00			270	205
300 ISL	7.23	7.20	34.072	26.660	142.0	0.704	1.79	26.4	50.1	2.51	33.6	0.00			302	
318	7.10	7.07	34.087	26.690	139.4	0.730	1.59	23.4	52.7	2.59	34.4	0.00			320	204
377	6.79	6.76	34.168	26.797	130.0	0.809	0.96	14.0	61.1	2.84	36.6	0.00			379	203
400 ISL	6.57	6.53	34.176	26.833	126.8	0.839	0.83	12.1	64.7	2.91	37.5	0.00			402	
438	6.21	6.17	34.185	26.887	121.8	0.886	0.67	9.7	70.6	3.00	38.9	0.00			441	202
500 ISL	5.85	5.81	34.247	26.982	113.4	0.959	0.42	6.0	79.0	3.13	40.3	0.00			503	
511	5.79	5.75	34.258	26.998	111.9	0.971	0.38	5.4	80.5	3.15	40.5	0.00			514	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 45.1 N	121 19.0 W	24/10/03	2218 UTC	3665 m	320 09 kn	330 05 07	1	1013.5 mb	19.9 C	18.2 C	29m	6/8	AS

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.78	17.78	32.866	23.693	419.4	0.000	5.54	101.5	1.7	0.40	0.1	0.00	0.13	0.03	0	
2	17.78	17.78	32.866	23.693	419.4	0.008	5.54	101.5	1.7	0.40	0.1	0.00	0.13	0.03	2	221
10 ISL	17.67	17.67	32.865	23.719	417.2	0.042	5.53	101.1	1.7	0.39	0.1	0.00	0.12	0.04	10	
15	17.57	17.57	32.865	23.743	415.1	0.063	5.53	101.0	1.7	0.39	0.1	0.00	0.11	0.04	15	220
20 ISL	17.51	17.51	32.870	23.761	413.5	0.083	5.54	101.0	1.7	0.39	0.1	0.00	0.12	0.04	20	
29	17.39	17.39	32.879	23.797	410.4	0.120	5.56	101.1	1.7	0.39	0.0	0.00	0.13	0.05	29	219
30 ISL	17.31	17.31	32.880	23.817	408.5	0.125	5.59	101.5	1.7	0.39	0.0	0.00	0.14	0.06	30	
44	15.97	15.96	32.902	24.143	377.7	0.180	5.95	105.3	1.9	0.37	0.0	0.00	0.24	0.16	44	218
50 ISL	15.45	15.44	32.913	24.268	366.0	0.202	5.96	104.4	2.0	0.37	0.0	0.00	0.23	0.18	50	
55	15.04	15.03	32.928	24.369	356.5	0.220	5.97	103.7	2.1	0.37	0.0	0.00	0.22	0.19	55	217
64	14.31	14.30	32.979	24.564	338.2	0.251	5.86	100.3	2.4	0.42	0.1	0.02	0.31	0.35	64	216
75	13.38	13.37	32.920	24.709	324.5	0.288	5.76	96.7	3.0	0.50	1.0	0.16	0.33	0.34	75	215
84	12.63	12.62	32.970	24.896	306.9	0.316	5.56	91.9	4.2	0.64	3.6	0.09	0.21	0.29	84	214
93	11.50	11.49	32.930	25.077	289.7	0.343	5.43	87.6	6.1	0.84	7.1	0.03	0.14	0.18	93	213
100 ISL	10.87	10.86	32.968	25.219	276.2	0.363	5.31	84.5	7.7	0.97	9.3	0.02	0.10	0.13	100	
109	10.32	10.31	33.064	25.389	260.1	0.387	5.10	80.3	10.1	1.12	11.8	0.01	0.07	0.09	109	212
124	9.93	9.92	33.267	25.613	239.0	0.424	4.55	71.1	14.7	1.40	16.5	0.01	0.03	0.05	125	211
125 ISL	9.90	9.89	33.276	25.625	237.9	0.427	4.53	70.7	14.9	1.41	16.7	0.01	0.03	0.05	126	
144	9.41	9.39	33.447	25.840	217.8	0.470	4.26	65.9	18.2	1.52	18.9	0.01	0.01	0.03	145	210
150 ISL	9.30	9.28	33.521	25.915	210.8	0.483	4.07	62.8	19.8	1.59	20.0	0.01	0.01	0.03	151	
168	9.05	9.03	33.740	26.127	191.0	0.519	3.46	53.2	24.8	1.79	23.3	0.01	0.00	0.02	169	209
199	8.75	8.73	33.962	26.348	170.5	0.575	2.77	42.3	31.5	2.01	26.7	0.01	0.00	0.02	200	208
200 ISL	8.74	8.72	33.966	26.353	170.1	0.577	2.76	42.2	31.7	2.02	26.8	0.01			201	
228	8.33	8.31	34.032	26.468	159.5	0.623	2.47	37.4	36.8	2.15	28.9	0.01			229	207
250 ISL	8.02	7.99	34.065	26.541	152.9	0.657	2.15	32.3	41.3	2.29	30.6	0.00			251	
267	7.79	7.76	34.081	26.587	148.7	0.683	1.91	28.6	44.7	2.40	31.9	0.00			268	206
300 ISL	7.34	7.31	34.097	26.664	141.7	0.731	1.61	23.8	50.7	2.56	33.8	0.01			302	
318	7.12	7.09	34.103	26.700	138.5	0.756	1.48	21.8	53.6	2.63	34.7	0.01			320	204
378	6.70	6.67	34.145	26.791	130.5	0.837	1.02	14.9	61.2	2.82	36.8	0.01			380	205
400 ISL	6.57	6.53	34.164	26.823	127.6	0.865	0.88	12.8	64.1	2.89	37.4	0.01			402	
438	6.36	6.32	34.200	26.880	122.7	0.913	0.66	9.6	69.1	3.01	38.3	0.00			441	203
500 ISL	6.05	6.01	34.260	26.967	115.0	0.986	0.41	5.9	77.1	3.14	39.7	0.01			503	
512	5.99	5.95	34.272	26.984	113.5	1.000	0.36	5.2	78.7	3.16	40.0	0.01			515	202

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 26.0 N	122 0.0 W	24/10/03	1721 UTC	3821 m	330 13 kn	330 10 08	1	1015.0 mb	20.8 C	18.8 C	27m	4/8	AS

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.44	19.44	33.006	23.387	448.5	0.000	5.30	100.3	1.5	0.36	0.1	0.00	0.12	0.03	0	
2 A	19.44	19.44	33.006	23.387	448.6	0.009	5.30	100.3	1.5	0.36	0.1	0.00	0.12	0.03	2	222
10 ISL	19.43	19.43	33.006	23.390	448.6	0.045	5.30	100.3	1.6	0.37	0.1	0.00	0.13	0.03	10	
17 A	19.43	19.43	33.006	23.391	448.8	0.076	5.30	100.3	1.6	0.37	0.1	0.00	0.13	0.03	17	221
20 ISL	19.43	19.43	33.006	23.391	448.9	0.090	5.30	100.3	1.6	0.37	0.1	0.00	0.13	0.03	20	
26	19.43	19.43	33.007	23.392	449.0	0.117	5.31	100.5	1.6	0.36	0.1	0.00	0.12	0.04	26	220
30 ISL	19.43	19.42	33.008	23.393	449.1	0.135	5.31	100.5	1.6	0.36	0.1	0.00	0.12	0.04	30	
35 A	19.43	19.42	33.010	23.394	449.1	0.157	5.31	100.5	1.6	0.36	0.1	0.00	0.13	0.03	35	219
43	18.65	18.64	33.080	23.645	425.4	0.192	5.46	101.9	1.4	0.36	0.1	0.00	0.20	0.08	43	218
50 ISL	16.55	16.54	32.909	24.017	390.0	0.221	5.90	105.6	1.7	0.38	0.1	0.00	0.26	0.13	50	
53 A	15.55	15.54	32.825	24.178	374.7	0.232	6.07	106.5	1.9	0.39	0.1	0.00	0.28	0.15	53	217
61	13.78	13.77	32.690	24.450	348.8	0.261	6.07	102.6	2.3	0.44	0.0	0.00	0.31	0.24	61	216
72 A	12.91	12.90	32.777	24.691	326.0	0.298	5.75	95.5	3.3	0.62	2.4	0.26	0.43	0.32	72	215
75 ISL	12.73	12.72	32.792	24.738	321.6	0.308	5.68	94.0	3.6	0.66	3.2	0.24	0.34	0.26	75	
82	12.36	12.35	32.844	24.850	311.1	0.330	5.52	90.7	4.5	0.77	5.2	0.14	0.13	0.13	82	214
95	11.81	11.80	33.107	25.157	282.1	0.369	5.12	83.2	7.3	1.05	10.2	0.02	0.32	0.26	95	213
100 ISL	11.06	11.05	33.081	25.273	271.1	0.382	5.13	82.1	8.4	1.07	10.7	0.02	0.18	0.16	100	
103 A	10.60	10.59	33.066	25.342	264.5	0.390	5.13	81.2	9.2	1.08	11.0	0.02	0.09	0.10	103	212
114	9.94	9.93	33.229	25.582	241.8	0.418	4.72	73.7	13.9	1.36	15.7	0.01	0.04	0.05	114	211
124	9.85	9.84	33.388	25.721	228.8	0.442	4.27	66.6	17.0	1.53	18.5	0.01	0.01	0.03	124	210
125 ISL	9.84	9.83	33.401	25.733	227.7	0.444	4.23	66.0	17.3	1.54	18.7	0.01	0.01	0.03	125	
144	9.57	9.55	33.594	25.929	209.5	0.486	3.64	56.5	21.4	1.72	21.7	0.01	0.01	0.02	145	209
150 ISL	9.51	9.49	33.639	25.974	205.3	0.498	3.50	54.3	22.4	1.76	22.4	0.01	0.01	0.02	151	
169	9.30	9.28	33.761	26.103	193.3	0.536	3.10	47.9	25.4	1.89	24.3	0.01	0.01	0.03	170	208
199	8.82	8.80	33.970	26.344	171.0	0.591	2.48	38.0	32.2	2.11	27.8	0.01	0.00	0.02	200	207
200 ISL	8.81	8.79	33.974	26.348	170.6	0.592	2.47	37.8	32.4	2.11	27.9	0.01			201	
230	8.44	8.42	34.046	26.462	160.2	0.642	2.25	34.2	37.0	2.22	29.4	0.01			231	206
250 ISL	8.26	8.23	34.072	26.510	155.9	0.674	2.09	31.6	39.4	2.30	30.2	0.01			251	
267	8.09	8.06	34.084	26.545	152.9	0.700	1.97	29.7	41.5	2.36	30.9	0.01			268	205
300 ISL	7.55	7.52	34.083	26.624	145.7	0.749	1.88	28.0	46.7	2.45	32.2	0.01			302	
319	7.23	7.20	34.081	26.667	141.6	0.776	1.82	26.9	50.0	2.51	33.0	0.01			321	204
377	6.60	6.57	34.129	26.791	130.3	0.855	1.17	17.0	61.1	2.80	36.3	0.01			379	203
400 ISL	6.44	6.40	34.155	26.833	126.6	0.885	0.97	14.1	64.8	2.89	37.2	0.01			402	
437	6.25	6.21	34.198	26.892	121.4	0.931	0.71	10.3	70.1	3.01	38.4	0.01			440	202
500 ISL	5.96	5.92	34.261	26.979	113.8	1.005	0.40	5.7	77.6	3.14	39.9	0.00			503	
512	5.91	5.87	34.273	26.995	112.3	1.018	0.34	4.9	79.0	3.17	40.2	0.00			515	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 5.1 N	122 40.1 W	24/10/03	0907 UTC	3961 m	330 16 kn			1015.6 mb	18.1 C	17.1 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.23	19.23	33.170	23.566	431.5	0.000	5.36	101.2	1.4	0.37	0.2	0.00	0.12	0.04	0	
2	19.23	19.23	33.170	23.566	431.5	0.009	5.36	101.2	1.4	0.37	0.2	0.00	0.12	0.04	2	220
10 ISL	19.24	19.24	33.171	23.565	431.9	0.043	5.35	101.0	1.4	0.36	0.1	0.00	0.13	0.04	10	
15	19.25	19.25	33.172	23.563	432.3	0.065	5.34	100.8	1.4	0.36	0.1	0.00	0.13	0.04	15	219
20 ISL	19.25	19.25	33.171	23.563	432.5	0.086	5.34	100.8	1.4	0.36	0.1	0.00	0.13	0.04	20	
30	19.24	19.23	33.170	23.565	432.7	0.130	5.35	101.0	1.4	0.36	0.0	0.00	0.12	0.04	30	218
45	16.62	16.61	33.048	24.108	381.2	0.191	5.97	107.1	1.7	0.37	0.0	0.00	0.24	0.12	45	217
50 ISL	15.54	15.53	32.970	24.292	363.8	0.209	5.97	104.8	1.9	0.41	0.4	0.03	0.41	0.21	50	
55	14.48	14.47	32.919	24.481	345.7	0.227	5.97	102.5	2.4	0.48	0.8	0.09	0.55	0.29	55	216
65	12.77	12.76	33.016	24.904	305.6	0.260	5.50	91.2	4.8	0.81	6.0	0.30	0.42	0.30	65	215
75	11.99	11.98	33.104	25.121	285.1	0.289	5.16	84.2	7.0	1.03	9.9	0.12	0.26	0.29	75	214
85	11.40	11.39	33.126	25.247	273.3	0.317	5.04	81.2	8.6	1.13	11.7	0.14	0.20	0.31	85	213
94	10.85	10.84	33.179	25.387	260.1	0.341	4.84	77.1	10.8	1.26	13.8	0.06	0.18	0.25	94	212
100 ISL	10.42	10.41	33.216	25.490	250.3	0.356	4.75	75.0	12.3	1.31	14.8	0.03	0.13	0.18	100	
108	9.91	9.90	33.273	25.621	238.0	0.376	4.63	72.3	14.3	1.36	15.9	0.02	0.06	0.08	108	211
124	9.50	9.49	33.414	25.799	221.3	0.413	4.24	65.7	18.3	1.55	19.0	0.01	0.03	0.04	125	210
125 ISL	9.50	9.49	33.427	25.809	220.4	0.415	4.20	65.1	18.5	1.56	19.2	0.01	0.03	0.04	126	
144	9.45	9.43	33.661	26.000	202.6	0.455	3.39	52.5	22.9	1.79	22.9	0.01	0.01	0.04	145	209
150 ISL	9.37	9.35	33.710	26.052	197.9	0.467	3.27	50.6	24.0	1.83	23.6	0.01	0.01	0.04	151	
169	9.08	9.06	33.830	26.193	184.8	0.503	3.01	46.3	27.1	1.92	25.2	0.01	0.01	0.03	170	208
199	8.78	8.76	33.997	26.371	168.4	0.556	2.45	37.5	33.1	2.11	28.1	0.00	0.01	0.02	200	207
200 ISL	8.77	8.75	34.000	26.375	168.0	0.558	2.44	37.3	33.3	2.12	28.2	0.00			201	
229	8.38	8.36	34.060	26.482	158.2	0.605	2.17	32.9	38.2	2.26	29.8	0.01			230	206
250 ISL	8.11	8.08	34.080	26.539	153.1	0.638	1.99	30.0	41.3	2.35	30.9	0.01			251	
269	7.86	7.83	34.090	26.584	149.1	0.667	1.84	27.6	44.1	2.42	31.8	0.00			270	205
300 ISL	7.41	7.38	34.102	26.658	142.3	0.712	1.60	23.7	49.5	2.55	33.5	0.00			302	
318	7.17	7.14	34.109	26.698	138.7	0.737	1.46	21.5	52.7	2.63	34.5	0.00			320	204
377	6.71	6.68	34.143	26.788	130.8	0.817	1.03	15.0	60.9	2.84	36.9	0.00			379	203
400 ISL	6.52	6.48	34.163	26.829	127.0	0.846	0.86	12.5	64.7	2.91	37.8	0.00			402	
438	6.22	6.18	34.194	26.893	121.3	0.894	0.63	9.1	70.9	3.02	39.1	0.00			441	202
500 ISL	5.80	5.76	34.216	26.964	115.0	0.967	0.49	7.0	78.7	3.12	40.4	0.00			503	
514	5.70	5.66	34.222	26.981	113.5	0.983	0.46	6.6	80.5	3.14	40.7	0.00			517	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 45.1 N	123 20.3 W	24/10/03	0229 UTC	4026 m	340 21 kn			1015.0 mb	18.7 C	17.4 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.16	19.16	33.173	23.586	429.5	0.000	5.38	101.4	1.4	0.36	0.2	0.00	0.12	0.04	0	
2	19.16	19.16	33.173	23.586	429.6	0.009	5.38	101.4	1.4	0.36	0.2	0.00	0.12	0.04	2	220
10 ISL	19.17	19.17	33.173	23.584	430.1	0.043	5.37	101.3	1.5	0.36	0.1	0.00	0.12	0.03	10	
16	19.17	19.17	33.173	23.584	430.3	0.069	5.36	101.1	1.5	0.36	0.1	0.00	0.12	0.03	16	219
20 ISL	19.17	19.17	33.173	23.584	430.4	0.086	5.36	101.1	1.5	0.36	0.1	0.00	0.12	0.03	20	
30 ISL	19.16	19.15	33.173	23.587	430.5	0.129	5.37	101.2	1.4	0.35	0.1	0.00	0.12	0.04	30	
31	19.16	19.15	33.173	23.587	430.5	0.133	5.37	101.2	1.4	0.35	0.1	0.00	0.12	0.04	31	218
46	16.30	16.29	33.057	24.188	373.6	0.194	6.06	108.0	1.8	0.37	0.1	0.00	0.32	0.19	46	217
50 ISL	15.63	15.62	33.036	24.323	360.8	0.208	6.21	109.2	1.9	0.39	0.1	0.00	0.38	0.23	50	
55	14.80	14.79	33.021	24.492	344.8	0.226	6.29	108.8	2.2	0.42	0.1	0.01	0.44	0.28	55	216
65	12.99	12.98	33.057	24.892	306.8	0.259	5.79	96.5	4.3	0.74	4.8	0.24	0.39	0.33	65	215
75	12.16	12.15	33.092	25.080	289.1	0.288	5.36	87.8	6.2	0.94	8.3	0.28	0.31	0.36	75	214
85	11.18	11.17	33.194	25.340	264.5	0.316	4.79	76.9	10.5	1.25	13.6	0.02	0.16	0.18	85	213
98	10.79	10.78	33.314	25.502	249.2	0.349	4.45	70.9	13.3	1.40	16.2	0.02	0.07	0.07	98	212
100 ISL	10.66	10.65	33.321	25.531	246.5	0.354	4.44	70.5	13.7	1.41	16.4	0.02	0.06	0.06	100	
110	10.03	10.02	33.366	25.674	233.1	0.378	4.35	68.2	15.8	1.47	17.6	0.01	0.03	0.04	110	211
124	9.60	9.59	33.530	25.873	214.3	0.410	3.86	60.0	19.6	1.63	20.5	0.01	0.01	0.03	125	210
125 ISL	9.58	9.57	33.541	25.885	213.2	0.412	3.82	59.3	19.9	1.64	20.7	0.01	0.01	0.03	126	
146	9.28	9.26	33.737	26.087	194.4	0.455	3.15	48.7	25.7	1.90	24.7	0.01	0.01	0.04	147	209
150 ISL	9.22	9.20	33.772	26.125	190.9	0.462	3.07	47.4	26.5	1.92	25.1	0.01	0.01	0.04	151	
168	8.95	8.93	33.904	26.271	177.3	0.495	2.84	43.6	29.3	1.97	26.2	0.01	0.00	0.03	169	208
196	8.61	8.59	33.993	26.394	166.1	0.544	2.75	41.9	32.8	2.03	27.3	0.01	0.00	0.04	197	207
200 ISL	8.57	8.55	34.002	26.407	164.9	0.550	2.72	41.4	33.4	2.04	27.5	0.01			201	
229	8.28	8.26	34.048	26.488	157.6	0.597	2.43	36.8	37.6	2.17	29.2	0.01			230	206
250 ISL	8.02	7.99	34.065	26.541	152.9	0.630	2.24	33.7	40.7	2.26	30.4	0.01			251	
269	7.78	7.75	34.074	26.583	149.1	0.658	2.07	31.0	43.6	2.34	31.4	0.01			270	205
300 ISL	7.39	7.36	34.091	26.653	142.8	0.703	1.75	25.9	49.0	2.50	33.2	0.01			302	
315	7.21	7.18	34.099	26.684	139.9	0.725	1.60	23.6	51.7	2.57	34.0	0.01			317	204
374	6.68	6.65	34.144	26.793	130.2	0.804	1.07	15.6	61.3	2.81	36.7	0.01			376	203
400 ISL	6.53	6.49	34.169	26.833	126.8	0.838	0.90	13.1	64.7	2.89	37.5	0.01			402	
436	6.34	6.30	34.203	26.885	122.2	0.883	0.67	9.7	69.1	2.99	38.5	0.01			439	202
500 ISL	5.95	5.91	34.256	26.977	114.0	0.958			78.1	3.13	40.3	0.01			503	
510	5.89	5.85	34.264	26.991	112.7	0.970			79.5	3.15	40.6	0.01			513	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 90 120

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 24.6 N	123 59.7 W	23/10/03	1937 UTC	4227 m	000 16 kn	070 05 06	1	1019.0 mb	20.9 C	18.4 C	22m	5/8	SC

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	18.79	18.79	32.939	23.500	437.7	0.000	5.40	101.0	1.7	0.38	0.2	0.00	0.12	0.02	0	
4	A	18.79	18.79	32.939	23.501	437.8	0.018	5.40	101.0	1.7	0.38	0.2	0.00	0.12	0.02	4	221
10	ISL	18.78	18.78	32.939	23.503	437.8	0.044	5.41	101.1	1.6	0.38	0.2	0.00	0.11	0.03	10	
13	A	18.78	18.78	32.939	23.504	437.9	0.057	5.41	101.1	1.6	0.38	0.2	0.00	0.11	0.03	13	220
20	ISL	18.76	18.76	32.934	23.505	438.0	0.088	5.41	101.1	1.6	0.38	0.2	0.00	0.11	0.03	20	
30	A	18.72	18.71	32.935	23.516	437.3	0.131	5.41	101.0	1.6	0.37	0.1	0.00	0.13	0.03	30	219
42	A	18.37	18.36	32.860	23.546	434.8	0.184	5.44	100.8	1.7	0.37	0.1	0.00	0.16	0.05	42	218
50	ISL	18.18	18.17	32.862	23.595	430.5	0.218	5.50	101.6	1.7	0.37	0.1	0.00	0.20	0.07	50	
59	A	17.97	17.96	32.864	23.648	425.7	0.257	5.56	102.3	1.7	0.38	0.1	0.00	0.24	0.10	59	217
68		16.03	16.02	32.800	24.052	387.2	0.293	5.98	105.9	2.0	0.38	0.1	0.00	0.25	0.14	68	216
75	ISL	15.71	15.70	32.941	24.233	370.2	0.320	5.92	104.2	2.1	0.37	0.1	0.00	0.26	0.19	75	
77		15.65	15.64	32.969	24.268	366.9	0.327	5.89	103.6	2.1	0.37	0.1	0.00	0.26	0.20	77	215
85	A	14.50	14.49	32.779	24.370	357.2	0.356	6.00	103.0	2.2	0.41	0.1	0.00	0.30	0.24	85	214
94		13.51	13.50	32.789	24.582	337.1	0.387	5.89	99.1	2.8	0.52	1.1	0.23	0.31	0.28	94	213
100	ISL	13.30	13.29	32.850	24.672	328.7	0.407	5.78	96.8	3.0	0.54	1.4	0.20	0.27	0.27	100	
104		13.19	13.18	32.894	24.728	323.5	0.420	5.69	95.1	3.3	0.56	1.6	0.18	0.24	0.26	104	212
114		12.30	12.29	32.952	24.946	302.8	0.452	5.45	89.5	4.9	0.76	5.1	0.04	0.15	0.23	114	211
123		11.67	11.65	32.982	25.087	289.5	0.478	5.32	86.2	6.3	0.88	7.2	0.03	0.12	0.16	123	210
125	ISL	11.58	11.56	32.984	25.105	287.8	0.484	5.31	85.8	6.5	0.89	7.5	0.03	0.12	0.15	125	
138		11.06	11.04	33.012	25.220	277.0	0.521	5.22	83.5	7.7	0.98	9.1	0.02	0.09	0.13	139	209
150	ISL	10.46	10.44	33.124	25.413	258.8	0.553	4.93	77.9	11.1	1.18	12.5	0.01	0.05	0.09	151	
164		9.79	9.77	33.307	25.669	234.6	0.588	4.51	70.3	15.7	1.42	16.7	0.01	0.02	0.04	165	208
194		9.03	9.01	33.726	26.120	192.2	0.652	3.83	58.8	22.6	1.64	21.3	0.00	0.04	0.03	195	207
200	ISL	9.00	8.98	33.778	26.165	188.0	0.663	3.68	56.5	23.7	1.69	22.1	0.00			201	
230		8.91	8.89	33.949	26.314	174.5	0.717	2.92	44.8	29.4	1.94	25.7	0.00			231	206
250	ISL	8.58	8.55	34.029	26.428	163.9	0.751	2.37	36.1	35.2	2.16	28.6	0.00			251	
268		8.23	8.20	34.077	26.519	155.4	0.780	1.94	29.3	40.4	2.34	31.0	0.00			269	205
300	ISL	7.75	7.72	34.105	26.612	146.9	0.828	1.64	24.5	46.2	2.50	32.9	0.00			302	
318		7.53	7.50	34.107	26.646	143.9	0.855	1.56	23.2	48.7	2.55	33.5	0.00			320	204
377		7.05	7.01	34.147	26.745	135.1	0.937	1.13	16.6	56.7	2.75	35.8	0.00			379	203
400	ISL	6.86	6.82	34.171	26.790	131.0	0.967	0.96	14.1	60.7	2.84	36.6	0.00			402	
437		6.57	6.53	34.207	26.858	125.0	1.015	0.71	10.3	66.9	2.96	37.9	0.00			440	202
500	ISL	6.14	6.10	34.232	26.934	118.2	1.091	0.50	7.2	74.0	3.08	39.6	0.00			503	
513		6.05	6.00	34.238	26.950	116.8	1.107	0.46	6.6	75.5	3.10	39.9	0.00			516	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 57.0 N	117 18.0 W	20/10/03	1907 UTC	75 m	310 05 kn	060 01 06	1	1017.2 mb	22.5 C	21.1 C	1m	3/8	CS

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	20.49	20.49	33.284	23.326	454.4	0.000	10.57	204.4	2.4	0.20	0.4	0.03	55.25	2.21	0	
1	A	20.49	20.49	33.284	23.326	454.4	0.005	10.57	204.4	2.4	0.20	0.4	0.03	55.25	2.21	1	211
2	A	20.31	20.31	33.281	23.371	450.1	0.009	10.69	206.0	2.4	0.19	0.4	0.07	50.54	3.10	2	210
3	A	20.21	20.21	33.280	23.397	447.7	0.014	11.13	214.1	2.6	0.26	0.4	0.06	66.11	10.66	3	209
4	A	19.37	19.37	33.273	23.609	427.5	0.018	9.13	172.9	2.6	0.11	0.4	0.04	16.45	1.83	4	208
5	A	18.61	18.61	33.239	23.775	411.7	0.022	7.32	136.6	3.0	0.15	0.4	0.03	0.70	0.26	5	207
10	ISL	17.91	17.91	33.214	23.928	397.3	0.042	6.18	113.8	3.6	0.20	0.4	0.03	0.54	0.25	10	
12		17.63	17.63	33.206	23.990	391.5	0.050	5.72	104.8	3.8	0.22	0.4	0.03	0.47	0.24	12	206
20		16.74	16.74	33.156	24.162	375.3	0.081	5.58	100.4	3.5	0.29	0.4	0.02	0.46	0.27	20	205
30		14.43	14.43	33.089	24.622	331.6	0.116	5.47	93.9	4.0	0.53	0.4	0.06	0.70	0.33	30	204
40		13.94	13.93	33.138	24.763	318.5	0.149	4.75	80.8	6.0	0.67	0.3	0.07	0.28	0.21	40	203
49		13.41	13.40	33.153	24.883	307.3	0.177	4.69	78.9	6.6	0.78	1.2	0.22	0.19	0.21	49	202
50	ISL	13.31	13.30	33.159	24.907	305.0	0.180	4.66	78.2	6.9	0.81	1.8	0.22	0.18	0.21	50	
61		12.18	12.17	33.235	25.187	278.6	0.212	4.27	70.0	10.1	1.17	8.6	0.20	0.08	0.17	61	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 28

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 54.0 N	117 23.0 W	20/10/03	2144 UTC	640 m	340 06 kn	050 01 05	1	1013.8 mb	22.0 C	21.5 C	17m	3/8	CS

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.62	20.62	33.354	23.344	452.6	0.000	6.00	116.4	1.6	0.14	0.1	0.00	0.47	0.09	0	
1	20.62	20.62	33.354	23.345	452.6	0.005	6.00	116.4	1.6	0.14	0.1	0.00	0.47	0.09	1	220
10 ISL	19.79	19.79	33.358	23.566	431.8	0.044	6.11	116.7	1.6	0.15	0.1	0.00	0.33	0.08	10	
11	19.63	19.63	33.355	23.605	428.1	0.049	6.12	116.5	1.6	0.15	0.1	0.00	0.31	0.08	11	219
20 ISL	17.84	17.84	33.230	23.958	394.8	0.086	5.95	109.4	1.3	0.34	0.1	0.00	0.33	0.14	20	
21	17.58	17.58	33.210	24.005	390.3	0.090	5.93	108.5	1.3	0.36	0.1	0.00	0.33	0.15	21	218
29	14.80	14.80	33.042	24.508	342.5	0.119	6.02	104.1	1.9	0.45	0.1	0.00	1.02	0.60	29	217
30 ISL	14.64	14.64	33.040	24.540	339.4	0.122	6.01	103.6	2.0	0.46	0.1	0.00	1.02	0.60	30	
40	13.83	13.82	33.071	24.734	321.3	0.155	5.82	98.7	2.7	0.55	1.0	0.07	0.99	0.57	40	216
49	13.31	13.30	33.092	24.855	309.9	0.184	5.58	93.6	3.8	0.67	2.9	0.20	0.97	0.68	49	215
50 ISL	13.23	13.22	33.098	24.876	307.9	0.187	5.54	92.8	4.0	0.69	3.3	0.20	0.91	0.65	50	
60	12.45	12.44	33.157	25.075	289.2	0.217	5.12	84.4	6.4	0.90	7.2	0.18	0.33	0.29	60	214
70	12.07	12.06	33.166	25.154	281.9	0.245	4.97	81.3	7.4	0.99	8.9	0.10	0.21	0.25	70	213
75 ISL	11.83	11.82	33.176	25.207	276.9	0.259	4.89	79.6	8.0	1.04	9.9	0.08	0.17	0.23	75	
85	11.36	11.35	33.215	25.323	266.0	0.286	4.69	75.6	9.6	1.15	11.9	0.05	0.13	0.18	85	212
100	10.89	10.88	33.325	25.493	250.1	0.325	4.31	68.8	12.6	1.33	14.9	0.02	0.08	0.14	100	211
118	10.99	10.98	33.578	25.673	233.5	0.369	3.28	52.6	18.5	1.65	18.4	0.01	0.05	0.09	119	210
125 ISL	10.89	10.87	33.630	25.731	228.1	0.385	3.11	49.7	19.7	1.71	19.3	0.01	0.04	0.09	126	
138	10.65	10.63	33.703	25.831	218.9	0.414	2.94	46.8	21.2	1.78	20.6	0.01	0.03	0.09	139	209
150 ISL	10.50	10.48	33.794	25.928	210.0	0.440	2.76	43.8	23.0	1.85	21.6	0.01	0.02	0.07	151	
169	10.33	10.31	33.923	26.058	198.0	0.478	2.47	39.1	25.8	1.97	23.1	0.00	0.01	0.05	170	208
199	10.12	10.10	34.018	26.169	188.1	0.536	1.99	31.4	29.6	2.15	25.4	0.00	0.01	0.05	200	207
200 ISL	10.11	10.09	34.023	26.175	187.6	0.538	1.98	31.2	29.7	2.15	25.5	0.00			201	
228	9.75	9.72	34.144	26.330	173.3	0.589	1.81	28.3	32.5	2.25	27.1	0.00			229	206
250 ISL	9.56	9.53	34.200	26.406	166.5	0.626	1.62	25.2	34.8	2.33	28.1	0.00			251	
266	9.43	9.40	34.228	26.449	162.7	0.652	1.47	22.8	36.5	2.40	28.7	0.00			267	205
300 ISL	9.07	9.04	34.274	26.544	154.2	0.706	1.18	18.2	40.9	2.55	30.1	0.00			302	
318	8.87	8.84	34.288	26.587	150.4	0.734	1.05	16.1	43.2	2.62	30.8	0.00			320	204
377	8.35	8.31	34.289	26.669	143.4	0.820	0.87	13.2	48.4	2.74	32.4	0.00			379	203
400 ISL	8.08	8.04	34.289	26.710	139.8	0.853	0.78	11.8	51.3	2.79	33.3	0.00			402	
435	7.66	7.62	34.292	26.774	133.9	0.901	0.63	9.4	56.2	2.88	34.7	0.00			438	202
500 ISL	6.99	6.94	34.308	26.882	124.2	0.985	0.41	6.0	65.9	3.05	37.0	0.00			503	
521	6.77	6.72	34.314	26.917	121.0	1.010	0.34	5.0	69.0	3.11	37.7	0.00			524	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 30

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 51.0 N	117 31.0 W	21/10/03	0119 UTC	863 m	330 06 kn	070 01 04		1014.5 mb	21.2 C	20.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.76	20.76	33.352	23.306	456.3	0.000	5.32	103.4	1.4	0.23	0.0	0.00	0.30	0.05	0	
2	20.76	20.76	33.352	23.306	456.4	0.009	5.32	103.4	1.4	0.23	0.0	0.00	0.30	0.05	2	220
10 ISL	20.32	20.32	33.340	23.414	446.4	0.045	5.41	104.3	1.4	0.23	0.0	0.00	0.37	0.08	10	
11	20.23	20.23	33.337	23.435	444.4	0.050	5.43	104.5	1.4	0.23	0.0	0.00	0.38	0.09	11	219
20 ISL	19.49	19.49	33.278	23.583	430.6	0.089	5.52	104.8	1.4	0.24	0.0	0.00	0.44	0.17	20	
21	19.32	19.32	33.261	23.613	427.7	0.093	5.53	104.6	1.4	0.24	0.0	0.00	0.44	0.18	21	218
30	15.78	15.78	32.975	24.242	367.9	0.129	6.03	106.3	1.8	0.39	0.0	0.00	0.35	0.26	30	217
41	14.47	14.46	33.046	24.581	335.8	0.168	5.97	102.6	2.6	0.52	0.7	0.12	0.86	0.54	41	216
50	13.19	13.18	33.072	24.864	309.1	0.197	5.31	88.9	4.4	0.72	4.0	0.31	0.53	0.42	50	215
61	12.03	12.02	33.069	25.086	288.1	0.230	5.19	84.8	6.2	0.90	7.7	0.12	0.29	0.31	61	214
71	11.44	11.43	33.151	25.259	271.8	0.258	4.87	78.6	8.5	1.07	10.7	0.05	0.19	0.20	71	213
75 ISL	11.45	11.44	33.215	25.307	267.4	0.269	4.69	75.7	9.4	1.13	11.7	0.04	0.17	0.18	75	
86	11.47	11.46	33.362	25.418	257.1	0.297	4.20	67.9	11.7	1.29	14.0	0.03	0.13	0.14	86	212
100	11.31	11.30	33.518	25.568	243.1	0.332	3.72	60.0	14.4	1.46	16.3	0.02	0.06	0.11	100	211
120	10.90	10.89	33.612	25.716	229.5	0.380	3.20	51.2	19.2	1.68	19.1	0.01	0.04	0.11	121	210
125 ISL	10.86	10.84	33.667	25.766	224.9	0.391	3.01	48.1	20.6	1.75	19.9	0.01	0.04	0.10	126	
139	10.76	10.74	33.823	25.905	212.0	0.422	2.51	40.1	24.1	1.92	22.0	0.01	0.03	0.07	140	209
150 ISL	10.59	10.57	33.884	25.983	204.8	0.444	2.32	36.9	25.8	1.99	23.0	0.01	0.03	0.07	151	
169	10.29	10.27	33.947	26.084	195.5	0.483	2.15	34.0	27.8	2.07	24.3	0.01	0.03	0.07	170	208
199	10.06	10.04	34.056	26.209	184.3	0.540	1.92	30.2	30.4	2.18	26.0	0.01	0.04	0.08	200	207
200 ISL	10.05	10.03	34.060	26.214	183.8	0.541	1.91	30.1	30.5	2.18	26.0	0.01			201	
229	9.90	9.87	34.153	26.312	175.1	0.593	1.67	26.2	33.3	2.28	27.2	0.00			230	206
250 ISL	9.74	9.71	34.193	26.371	170.0	0.630	1.57	24.6	34.7	2.33	27.9	0.00			251	
268	9.57	9.54	34.217	26.418	165.8	0.660	1.50	23.4	35.9	2.37	28.5	0.00			269	205
300 ISL	9.19	9.16	34.261	26.515	157.1	0.712	1.26	19.5	39.7	2.49	29.8	0.00			302	
319	8.95	8.92	34.280	26.568	152.3	0.741	1.12	17.2	42.3	2.57	30.6	0.00			321	204
378	8.24	8.20	34.291	26.687	141.6	0.828	0.88	13.3	49.1	2.72	32.7	0.00			380	203
400 ISL	7.93	7.89	34.281	26.726	138.1	0.858	0.83	12.5	51.9	2.77	33.6	0.00			402	
438	7.42	7.38	34.263	26.786	132.6	0.910	0.74	11.0	57.1	2.85	35.2	0.00			441	202
500 ISL	6.82	6.77	34.278	26.881	124.0	0.989	0.50	7.3	66.2	3.01	37.5	0.00			503	
520	6.62	6.57	34.284	26.913	121.1	1.014	0.42	6.1	69.1	3.06	38.3	0.00			523	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 40.8 N	117 52.6 W	21/10/03	0518 UTC	599 m	340 07 kn			1015.9 mb	20.2 C	19.5 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.72	19.72	33.281	23.525	435.4	0.000	5.50	104.9	1.5	0.24	0.1	0.00	0.26	0.08	0	
2	19.72	19.72	33.281	23.525	435.4	0.009	5.50	104.9	1.5	0.24	0.1	0.00	0.26	0.08	2	220
10 ISL	19.18	19.18	33.243	23.635	425.2	0.043	5.65	106.6	1.5	0.25	0.1	0.00	0.22	0.09	10	
11	19.11	19.11	33.239	23.650	423.9	0.047	5.68	107.0	1.5	0.25	0.1	0.00	0.22	0.09	11	219
20 ISL	16.05	16.05	33.153	24.318	360.4	0.083	5.86	104.0	2.3	0.41	0.1	0.00	0.32	0.17	20	
21	15.67	15.67	33.149	24.400	352.6	0.086	5.87	103.4	2.4	0.43	0.1	0.00	0.33	0.19	21	218
30 ISL	13.87	13.87	33.127	24.768	317.7	0.116	5.61	95.3	3.5	0.65	2.2	0.29	0.72	0.42	30	
31	13.72	13.72	33.125	24.797	314.9	0.120	5.56	94.1	3.7	0.68	2.6	0.32	0.75	0.44	31	217
40	12.48	12.47	33.122	25.041	291.9	0.147	5.17	85.3	6.0	0.88	6.6	0.42	0.36	0.35	40	216
50	12.01	12.00	33.144	25.148	282.0	0.176	4.96	81.0	7.4	1.00	8.9	0.24	0.27	0.36	50	215
60	11.58	11.57	33.171	25.249	272.6	0.203	4.80	77.7	8.6	1.10	10.7	0.10	0.17	0.20	60	214
70	11.12	11.11	33.299	25.432	255.3	0.230	4.41	70.7	11.2	1.26	13.6	0.04	0.09	0.14	70	213
75 ISL	10.96	10.95	33.354	25.503	248.7	0.242	4.25	68.0	12.4	1.32	14.6	0.03	0.07	0.12	75	
85	10.69	10.68	33.452	25.627	237.1	0.267	3.99	63.5	14.5	1.43	16.4	0.02	0.05	0.09	85	212
100	10.28	10.27	33.576	25.795	221.4	0.301	3.65	57.6	17.4	1.57	19.0	0.02	0.03	0.05	100	211
120	10.12	10.11	33.754	25.961	206.0	0.344	3.00	47.2	22.0	1.81	22.2	0.01	0.01	0.05	121	210
125 ISL	10.14	10.13	33.803	25.996	202.8	0.354	2.84	44.7	23.1	1.86	22.7	0.01	0.01	0.05	126	
139	10.22	10.20	33.926	26.079	195.3	0.382	2.49	39.3	25.6	1.98	23.5	0.01	0.01	0.05	140	209
150 ISL	10.18	10.16	33.980	26.128	190.9	0.403	2.47	39.0	26.4	2.00	23.8	0.01	0.01	0.04	151	
170	10.00	9.98	34.042	26.208	183.7	0.440	2.42	38.1	27.6	2.02	24.4	0.01	0.00	0.03	171	208
199	9.63	9.61	34.141	26.347	171.0	0.492	2.04	31.8	32.0	2.20	26.6	0.01	0.00	0.04	200	207
200 ISL	9.64	9.62	34.147	26.350	170.7	0.494	2.01	31.4	32.1	2.21	26.7	0.01			201	
229	9.85	9.82	34.294	26.431	163.9	0.542	1.30	20.4	36.0	2.46	28.1	0.01			230	206
250 ISL	9.57	9.54	34.310	26.490	158.6	0.576	1.25	19.5	38.3	2.49	28.9	0.01			251	
268	9.20	9.17	34.295	26.539	154.1	0.604	1.20	18.6	40.1	2.52	29.6	0.01			270	205
300 ISL	8.56	8.53	34.263	26.615	147.2	0.652	1.21	18.4	43.6	2.56	30.9	0.01			302	
319	8.21	8.18	34.246	26.655	143.5	0.680	1.22	18.4	45.9	2.60	31.7	0.01			321	204
378	7.58	7.54	34.262	26.761	134.1	0.762	0.78	11.6	55.4	2.83	34.6	0.01			380	203
400 ISL	7.42	7.38	34.272	26.792	131.4	0.791	0.67	9.9	58.0	2.89	35.3	0.01			403	
438	7.16	7.12	34.289	26.843	127.0	0.840	0.53	7.8	62.1	2.98	36.3	0.01			441	202
500 ISL	6.62	6.57	34.309	26.932	119.0	0.916	0.35	5.1	70.4	3.11	38.3	0.01			503	
520	6.44	6.39	34.317	26.963	116.2	0.940	0.29	4.2	73.1	3.15	38.9	0.01			524	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 40

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 30.8 N	118 12.9 W	21/10/03	0913 UTC	1651 m	310 09 kn			1015.7 mb	18.9 C	18.1 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.96	18.96	33.288	23.724	416.3	0.000	5.43	102.1	1.3	0.33	0.1	0.00	0.12	0.04	0	
1	18.96	18.96	33.288	23.724	416.4	0.004	5.43	102.1	1.3	0.33	0.1	0.00	0.12	0.04	1	220
10 ISL	18.96	18.96	33.289	23.726	416.6	0.042	5.42	101.9	1.3	0.34	0.0	0.00	0.13	0.03	10	
11	18.96	18.96	33.289	23.726	416.6	0.046	5.42	101.9	1.3	0.34	0.0	0.00	0.13	0.03	11	219
20	18.95	18.95	33.293	23.732	416.4	0.083	5.42	101.8	1.3	0.33	0.0	0.00	0.13	0.04	20	218
30	17.78	17.77	33.142	23.905	400.1	0.124	5.65	103.7	1.3	0.35	0.0	0.00	0.16	0.08	30	217
40	15.15	15.14	33.090	24.469	346.5	0.161	5.94	103.5	2.3	0.46	0.8	0.06	0.67	0.43	40	216
50	13.53	13.52	33.009	24.747	320.2	0.195	5.81	97.9	3.2	0.65	2.9	0.21	0.56	0.55	50	215
60	12.35	12.34	33.046	25.008	295.6	0.226	5.27	86.7	5.6	0.92	8.0	0.06	0.32	0.36	60	214
70	11.58	11.57	33.101	25.194	277.9	0.254	4.98	80.6	7.9	1.10	11.1	0.01	0.17	0.22	70	213
75 ISL	11.19	11.18	33.131	25.289	269.1	0.268	4.86	78.0	9.3	1.18	12.5	0.01	0.11	0.15	75	
85	10.53	10.52	33.213	25.469	252.1	0.294	4.62	73.1	12.2	1.33	14.9	0.01	0.02	0.04	85	212
100	10.15	10.14	33.420	25.695	230.8	0.330	4.11	64.6	16.0	1.52	18.2	0.01	0.01	0.02	100	211
119	9.81	9.80	33.547	25.852	216.3	0.373	3.74	58.4	18.9	1.64	20.2	0.00	0.12	0.14	120	210
125 ISL	9.70	9.69	33.604	25.915	210.4	0.385	3.63	56.5	20.0	1.67	20.8	0.00	0.10	0.12	126	
140	9.52	9.50	33.762	26.068	196.2	0.416	3.28	50.9	23.0	1.77	22.4	0.00	0.01	0.03	141	209
150 ISL	9.63	9.61	33.882	26.144	189.2	0.435	2.90	45.2	25.2	1.89	23.5	0.00	0.01	0.03	151	
169	9.91	9.89	34.079	26.252	179.5	0.470	2.19	34.4	29.0	2.11	25.4	0.00	0.00	0.03	170	208
199	9.85	9.83	34.184	26.344	171.4	0.523	1.76	27.6	32.5	2.27	26.9	0.00	0.00	0.03	200	207
200 ISL	9.84	9.82	34.186	26.348	171.1	0.525	1.75	27.4	32.6	2.28	27.0	0.00			201	
228	9.46	9.43	34.232	26.447	162.1	0.571	1.44	22.4	36.6	2.42	28.8	0.00			229	206
250 ISL	9.23	9.20	34.254	26.502	157.3	0.606	1.31	20.3	38.8	2.48	29.6	0.00			251	
270	9.02	8.99	34.264	26.544	153.6	0.638	1.23	18.9	40.8	2.53	30.2	0.00			272	205
300 ISL	8.59	8.56	34.268	26.615	147.3	0.683	1.09	16.6	44.8	2.62	31.5	0.00			302	
318	8.32	8.29	34.267	26.655	143.6	0.709	1.00	15.2	47.4	2.68	32.3	0.00			320	204
379	7.54	7.50	34.255	26.762	134.0	0.793	0.36 U	5.4U	55.2	2.83	34.5	0.00			381	203
400 ISL	7.34	7.30	34.270	26.802	130.4	0.821	0.59	8.7	58.7	2.91	35.4	0.00			402	
439	7.01	6.97	34.303	26.874	123.9	0.871	0.43	6.3	65.2	3.04	37.0	0.00			442	202
500 ISL	6.54	6.49	34.321	26.952	117.0	0.944	0.30	4.4	72.6	3.13	38.6	0.00			503	
517	6.41	6.36	34.327	26.974	115.0	0.964	0.26	3.8	74.6	3.16	39.0	0.00			520	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 21.1 N	118 33.6 W	21/10/03	1307 UTC	1339 m	330 10 kn			1015.3 mb	18.4 C	17.9 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.53	18.53	33.250	23.803	408.8	0.000	5.45	101.6	1.5	0.35	0.1	0.00	0.18	0.04	0	
2	18.53	18.53	33.250	23.803	408.9	0.008	5.45	101.6	1.5	0.35	0.1	0.00	0.18	0.04	2	220
10	18.52	18.52	33.249	23.805	409.0	0.041	5.46	101.7	1.5	0.35	0.1	0.00	0.17	0.05	10	219
20	17.94	17.94	33.246	23.946	395.9	0.081	5.59	103.0	1.6	0.34	0.0	0.00	0.24	0.07	20	218
30	16.38	16.38	33.188	24.270	365.3	0.119	5.79	103.5	2.1	0.38	0.3	0.03	0.41	0.17	30	217
40	14.96	14.95	33.171	24.573	336.6	0.154	5.59	97.1	3.3	0.58	2.7	0.21	0.65	0.31	40	216
50	13.99	13.98	33.133	24.749	320.1	0.187	5.37	91.4	4.4	0.74	4.8	0.43	0.61	0.31	50	215
59	12.70	12.69	33.145	25.017	294.7	0.215	5.04	83.5	6.8	0.99	9.1	0.27	0.26	0.19	59	214
70	11.47	11.46	33.143	25.247	272.9	0.246	4.95	79.9	8.8	1.15	11.7	0.02	0.14	0.16	70	213
75 ISL	11.21	11.20	33.171	25.316	266.5	0.260	4.83	77.6	9.8	1.21	12.8	0.02	0.12	0.15	75	
84	10.94	10.93	33.246	25.423	256.5	0.283	4.55	72.7	11.8	1.32	14.7	0.01	0.09	0.12	84	212
100	10.33	10.32	33.433	25.675	232.8	0.322	3.98	62.8	16.4	1.56	18.7	0.01	0.04	0.06	100	211
120	9.69	9.68	33.665	25.964	205.7	0.366	3.37	52.5	21.8	1.76	22.2	0.01	0.01	0.03	121	210
125 ISL	9.58	9.57	33.715	26.021	200.3	0.376	3.27	50.8	22.9	1.79	22.8	0.01	0.01	0.03	126	
139	9.40	9.38	33.844	26.152	188.2	0.403	3.02	46.8	25.6	1.87	24.0	0.01	0.01	0.03	140	209
150 ISL	9.51	9.49	33.939	26.208	183.1	0.424	2.68	41.7	27.5	1.97	24.8	0.01	0.01	0.03	151	
169	9.74	9.72	34.066	26.270	177.7	0.458	2.15	33.6	30.3	2.13	26.0	0.00	0.00	0.03	170	208
199	9.38	9.36	34.122	26.373	168.4	0.510	2.03	31.5	33.3	2.22	27.4	0.00	0.00	0.03	200	207
200 ISL	9.37	9.35	34.126	26.378	168.0	0.512	2.02	31.3	33.5	2.23	27.5	0.00			201	
229	9.05	9.03	34.222	26.505	156.4	0.559	1.56	24.0	38.8	2.43	29.2	0.00			230	206
250 ISL	8.84	8.81	34.251	26.562	151.4	0.591	1.38	21.2	41.4	2.51	30.1	0.00			251	
269	8.63	8.60	34.258	26.600	148.0	0.619	1.27	19.4	43.6	2.57	30.8	0.00			271	205
300 ISL	8.15	8.12	34.244	26.663	142.4	0.665	1.12	16.9	48.2	2.67	32.3	0.00			302	
318	7.88	7.85	34.234	26.695	139.5	0.690	1.04	15.6	50.8	2.72	33.2	0.00			320	204
378	7.43	7.39	34.264	26.784	131.8	0.771	0.71	10.5	57.5	2.88	35.1	0.00			380	203
400 ISL	7.20	7.16	34.268	26.820	128.6	0.800	0.62	9.2	60.8	2.94	36.0	0.00			403	
440	6.80	6.76	34.276	26.882	123.0	0.850	0.49	7.2	66.8	3.04	37.4	0.00			443	202
500 ISL	6.48	6.43	34.314	26.955	116.7	0.922	0.32	4.6	73.2	3.14	38.6	0.00			503	
514	6.41	6.36	34.323	26.971	115.3	0.938	0.28	4.1	74.7	3.16	38.9	0.00			517	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 10.5 N	118 54.6 W	21/10/03	1820 UTC	1468 m	300 12 kn	070 04 06	2	1017.2 mb	17.2 C	16.8 C	22m	8/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.60	18.60	33.238	23.776	411.4	0.000	5.45	101.7	1.3	0.35	0.1	0.01	0.16	0.03	0	
3 A	18.60	18.60	33.238	23.776	411.5	0.012	5.45	101.7	1.3	0.35	0.1	0.01	0.16	0.03	3	221
10 ISL	18.56	18.56	33.235	23.784	411.0	0.041	5.45	101.6	1.3	0.35	0.0	0.01	0.16	0.03	10	
14 A	18.53	18.53	33.233	23.791	410.5	0.058	5.45	101.6	1.3	0.35	0.0	0.01	0.16	0.03	14	220
20 ISL	18.32	18.32	33.202	23.819	408.0	0.082	5.50	102.1	1.3	0.35	0.0	0.01	0.16	0.04	20	
21	18.28	18.28	33.197	23.825	407.5	0.086	5.51	102.2	1.3	0.35	0.0	0.01	0.16	0.04	21	219
30 A	14.78	14.78	32.977	24.462	346.9	0.120	6.03	104.2	1.9	0.42	0.0	0.01	0.39	0.21	30	218
36	14.52	14.51	32.973	24.514	342.1	0.141	5.94	102.1	2.2	0.43	0.1	0.05	0.51	0.28	36	217
43 A	13.91	13.90	32.993	24.657	328.6	0.164	5.79	98.3	2.7	0.54	1.4	0.29	0.58	0.41	43	216
50 ISL	13.08	13.07	33.051	24.869	308.5	0.187	5.45	91.0	4.1	0.76	5.3	0.09	0.37	0.35	50	
51	12.96	12.95	33.059	24.899	305.7	0.190	5.40	89.9	4.3	0.79	5.9	0.05	0.33	0.33	51	215
59 A	12.19	12.18	33.048	25.040	292.5	0.214	5.33	87.3	5.7	0.91	7.8	0.04	0.25	0.23	59	214
71	11.46	11.45	33.126	25.236	274.0	0.248	4.99	80.5	8.3	1.13	11.5	0.02	0.13	0.14	71	213
75 ISL	11.21	11.20	33.156	25.304	267.6	0.258	4.88	78.4	9.3	1.20	12.6	0.02	0.11	0.11	75	
84 A	10.73	10.72	33.230	25.447	254.1	0.282	4.65	73.9	11.7	1.33	14.7	0.02	0.07	0.07	84	212
100	10.32	10.31	33.375	25.631	236.9	0.321	4.25	67.0	15.1	1.49	17.4	0.01	0.04	0.05	100	211
119	10.29	10.28	33.647	25.849	216.7	0.364	3.29	51.9	19.8	1.72	20.6	0.01	0.02	0.03	120	210
125 ISL	10.25	10.24	33.699	25.897	212.3	0.377	3.13	49.4	20.8	1.77	21.2	0.01	0.02	0.03	126	
140	10.09	10.07	33.799	26.002	202.6	0.408	2.89	45.5	23.2	1.86	22.6	0.01	0.01	0.03	141	209
150 ISL	9.85	9.83	33.866	26.095	193.9	0.428	2.78	43.5	25.2	1.92	23.7	0.01	0.01	0.03	151	
169	9.41	9.39	33.987	26.262	178.3	0.463	2.55	39.6	29.1	2.04	25.8	0.01	0.00	0.02	170	208
198	9.35	9.33	34.158	26.406	165.3	0.513	1.85	28.7	34.6	2.29	28.0	0.01	0.00	0.03	199	207
200 ISL	9.33	9.31	34.165	26.415	164.5	0.517	1.82	28.2	34.9	2.30	28.1	0.01			201	
228	8.98	8.96	34.226	26.519	155.0	0.561	1.47	22.6	39.5	2.47	29.7	0.00			229	206
250 ISL	8.72	8.69	34.246	26.576	150.0	0.595	1.29	19.7	42.7	2.55	30.7	0.00			251	
268	8.51	8.48	34.250	26.612	146.8	0.622	1.19	18.1	45.1	2.60	31.4	0.01			270	205
300 ISL	8.08	8.05	34.240	26.670	141.7	0.668	1.10	16.6	49.0	2.68	32.6	0.00			302	
318	7.86	7.83	34.235	26.699	139.1	0.693	1.05	15.8	51.2	2.73	33.3	0.00			320	204
378	7.43	7.39	34.294	26.808	129.5	0.774	0.59	8.8	59.3	2.94	35.5	0.00			380	203
400 ISL	7.21	7.17	34.299	26.843	126.4	0.802	0.51	7.5	62.5	3.00	36.3	0.00			403	
437	6.86	6.82	34.302	26.894	121.9	0.848	0.42	6.2	67.4	3.07	37.5	0.01			440	202
500 ISL	6.53	6.48	34.317	26.951	117.2	0.923	0.34	4.9	72.9	3.15	38.5	0.01			503	
519	6.43	6.38	34.322	26.968	115.7	0.945	0.31	4.5	74.5	3.17	38.8	0.01			522	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 59.8 N	119 15.6 W	21/10/03	2248 UTC	1724 m	320 14 kn	110 05 05	2	1014.3 mb	18.3 C	17.2 C	20m	7/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.70	18.70	33.194	23.718	417.0	0.000	5.44	101.7	1.3	0.35	0.1	0.01	0.13	0.03	0	
1	18.70	18.70	33.194	23.718	417.0	0.004	5.44	101.7	1.3	0.35	0.1	0.01	0.13	0.03	1	220
9	18.70	18.70	33.194	23.718	417.3	0.038	5.44	101.7	1.3	0.35	0.1	0.01	0.14	0.03	9	219
10 ISL	18.70	18.70	33.196	23.720	417.1	0.042	5.44	101.7	1.3	0.35	0.1	0.01	0.14	0.03	10	
20	18.66	18.66	33.211	23.742	415.4	0.083	5.43	101.4	1.3	0.35	0.1	0.00	0.13	0.03	20	218
30	17.64	17.63	33.104	23.910	399.7	0.124	5.68	104.0	1.4	0.36	0.1	0.00	0.19	0.05	30	217
40	15.18	15.17	33.044	24.427	350.5	0.162	5.98	104.2	2.2	0.41	0.1	0.03	0.87	0.37	40	216
49	14.30	14.29	33.007	24.587	335.5	0.192	5.83	99.8	2.6	0.51	1.0	0.24	0.73	0.48	49	215
50 ISL	14.22	14.21	33.014	24.609	333.4	0.196	5.79	99.0	2.7	0.53	1.4	0.25	0.71	0.47	50	
59	13.40	13.39	33.081	24.829	312.6	0.225	5.45	91.6	4.2	0.76	5.1	0.37	0.47	0.42	59	214
69	12.12	12.11	33.061	25.063	290.5	0.255	5.26	86.1	6.1	0.93	8.4	0.03	0.25	0.29	69	213
75 ISL	11.51	11.50	33.090	25.199	277.7	0.272	5.09	82.2	7.8	1.06	10.5	0.03	0.18	0.22	75	
84	10.86	10.85	33.165	25.374	261.1	0.296	4.81	76.7	10.5	1.23	13.2	0.02	0.13	0.13	84	212
100	10.57	10.56	33.329	25.552	244.5	0.337	4.34	68.8	13.4	1.39	15.8	0.01	0.07	0.08	100	211
120	9.69	9.68	33.607	25.919	210.0	0.382	3.55	55.3	20.8	1.72	21.6	0.01	0.01	0.03	121	210
125 ISL	9.61	9.60	33.642	25.959	206.2	0.393	3.45	53.7	21.7	1.75	22.2	0.01	0.01	0.03	126	
139	9.47	9.45	33.719	26.042	198.5	0.421	3.23	50.1	23.5	1.82	23.4	0.01	0.00	0.03	140	209
150 ISL	9.31	9.29	33.818	26.146	188.9	0.442	2.99	46.2	26.0	1.90	24.7	0.01	0.00	0.03	151	
168	9.05	9.03	33.969	26.306	174.0	0.475	2.65	40.8	30.1	2.03	26.6	0.01	0.00	0.02	169	208
200	8.67	8.65	34.045	26.426	163.2	0.529	2.54	38.8	34.2	2.11	27.9	0.01	0.00	0.02	201	207
230	8.23	8.21	34.103	26.539	152.8	0.576	2.11	31.9	40.2	2.31	30.2	0.01			231	206
250 ISL	7.97	7.94	34.131	26.600	147.3	0.606	1.82	27.4	44.1	2.44	31.5	0.01			251	
271	7.74	7.71	34.154	26.652	142.7	0.637	1.54	23.0	47.8	2.56	32.7	0.01			273	205
300 ISL	7.48	7.45	34.176	26.707	137.8	0.677	1.26	18.7	52.1	2.69	34.1	0.01			302	
318	7.36	7.33	34.189	26.734	135.4	0.702	1.11	16.5	54.5	2.75	34.8	0.01			320	204
378	7.11	7.07	34.260	26.826	127.6	0.781	0.64	9.4	61.5	2.94	36.5	0.01			380	203
400 ISL	6.95	6.91	34.266	26.853	125.2	0.809	0.56	8.2	63.9	3.00	37.1	0.01			402	
435	6.68	6.64	34.270	26.893	121.7	0.852	0.48	7.0	67.8	3.09	38.1	0.01			438	202
500 ISL	6.26	6.22	34.315	26.984	113.7	0.928	0.31	4.5	76.0	3.18	39.6	0.01			503	
513	6.17	6.12	34.324	27.003	112.0	0.943	0.28	4.0	77.6	3.20	39.9	0.01			516	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 50.7 N	119 34.5 W	22/10/03	0130 UTC	1871 m	320 17 kn	100 05 06	2	1014.7 mb	17.0 C	16.4 C		8/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.86	18.86	33.213	23.692	419.4	0.000	5.40	101.3	1.1	0.34	0.0	0.00	0.11	0.04	0	
2	18.86	18.86	33.213	23.692	419.5	0.008	5.40	101.3	1.1	0.34	0.0	0.00	0.11	0.04	2	220
10 ISL	18.85	18.85	33.212	23.694	419.6	0.042	5.41	101.4	1.1	0.34	0.0	0.00	0.12	0.04	10	
16	18.85	18.85	33.211	23.694	419.8	0.067	5.41	101.4	1.1	0.34	0.0	0.00	0.12	0.04	16	219
20 ISL	18.63	18.63	33.202	23.742	415.3	0.084	5.44	101.5	1.2	0.34	0.0	0.00	0.13	0.04	20	
30 ISL	18.09	18.08	33.182	23.860	404.4	0.125	5.58	103.1	1.3	0.35	0.0	0.00	0.16	0.05	30	
31	18.04	18.03	33.180	23.871	403.4	0.129	5.60	103.3	1.3	0.35	0.0	0.00	0.16	0.05	31	218
45	15.02	15.01	33.120	24.521	341.8	0.181	6.04	105.0	2.2	0.45	0.0	0.00	0.32	0.22	45	217
50 ISL	13.73	13.72	33.051	24.739	321.0	0.198	5.81	98.3	3.3	0.60	2.5	0.10	0.41	0.32	50	
55	12.65	12.64	33.002	24.916	304.2	0.213	5.54	91.6	4.4	0.76	5.2	0.18	0.47	0.41	55	216
65	12.17	12.16	33.027	25.027	293.8	0.243	5.34	87.5	5.7	0.90	7.5	0.09	0.28	0.39	65	215
74	11.09	11.08	33.103	25.285	269.4	0.268	5.01	80.2	8.8	1.10	11.2	0.03	0.19	0.18	74	214
75 ISL	11.02	11.01	33.108	25.301	267.9	0.271	4.99	79.8	9.0	1.11	11.4	0.03	0.18	0.17	75	
85	10.51	10.50	33.163	25.433	255.4	0.297	4.87	77.0	10.6	1.19	12.8	0.01	0.11	0.11	85	213
95	10.02	10.01	33.271	25.601	239.6	0.322	4.66	73.0	12.9	1.29	14.8	0.01	0.06	0.07	95	212
100 ISL	9.87	9.86	33.308	25.655	234.6	0.334	4.60	71.8	13.7	1.33	15.5	0.01	0.05	0.06	100	
109	9.68	9.67	33.371	25.736	227.1	0.355	4.49	69.8	15.1	1.39	16.6	0.01	0.04	0.04	109	211
124	9.34	9.33	33.523	25.910	210.8	0.388	4.17	64.4	18.6	1.53	19.1	0.01	0.02	0.02	125	210
125 ISL	9.33	9.32	33.537	25.923	209.6	0.390	4.13	63.8	18.9	1.54	19.3	0.01	0.02	0.02	126	
144	9.17	9.15	33.794	26.150	188.4	0.427	3.27	50.4	25.1	1.82	23.6	0.01	0.00	0.02	145	209
150 ISL	9.14	9.12	33.843	26.193	184.4	0.439	3.09	47.6	26.4	1.88	24.4	0.01	0.00	0.02	151	
169	9.01	8.99	33.947	26.295	175.1	0.473	2.66	40.9	30.0	2.02	26.4	0.01	0.00	0.02	170	208
200	8.57	8.55	34.051	26.446	161.2	0.525	2.20	33.5	36.0	2.22	29.1	0.01	0.00	0.02	201	207
229	8.25	8.23	34.082	26.519	154.7	0.571	2.14	32.4	39.4	2.27	29.9	0.01			230	206
250 ISL	7.91	7.88	34.088	26.575	149.6	0.603	2.06	30.9	42.7	2.35	30.7	0.01			251	
269	7.61	7.58	34.093	26.623	145.3	0.631	1.95	29.1	45.9	2.43	31.6	0.01			271	205
300 ISL	7.32	7.29	34.119	26.685	139.8	0.675	1.63	24.1	50.5	2.57	33.1	0.00			302	
320	7.18	7.15	34.138	26.719	136.7	0.703	1.41	20.8	53.4	2.65	34.0	0.00			322	204
378	6.71	6.68	34.174	26.812	128.5	0.779	0.97	14.2	62.0	2.85	36.4	0.00			380	203
400 ISL	6.65	6.61	34.201	26.842	126.0	0.807	0.80	11.7	64.3	2.92	37.0	0.00			402	
435	6.57	6.53	34.244	26.887	122.2	0.851	0.57	8.3	67.8	3.02	37.8	0.01			438	202
500 ISL	6.13	6.09	34.292	26.983	113.7	0.927	0.34	4.9	76.4	3.16	39.6	0.01			503	
512	6.05	6.00	34.301	27.000	112.1	0.941	0.30	4.3	78.0	3.18	39.9	0.01			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 30.8 N	120 14.9 W	22/10/03	0726 UTC	3940 m	320 16 kn			1015.8 mb	16.2 C	15.7 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.46	17.46	32.956	23.838	405.5	0.000	5.55	101.2	1.3	0.39	0.1	0.00	0.15	0.05	0	
2	17.46	17.46	32.956	23.838	405.5	0.008	5.55	101.2	1.3	0.39	0.1	0.00	0.15	0.05	2	220
10 ISL	17.45	17.45	32.958	23.843	405.4	0.041	5.56	101.3	1.3	0.39	0.0	0.00	0.15	0.05	10	
15	17.45	17.45	32.958	23.843	405.5	0.061	5.56	101.3	1.3	0.39	0.0	0.00	0.15	0.05	15	219
20 ISL	17.43	17.43	32.964	23.852	404.8	0.081	5.56	101.3	1.3	0.39	0.0	0.00	0.15	0.05	20	
30 ISL	17.40	17.40	32.976	23.869	403.5	0.121	5.56	101.2	1.4	0.39	0.0	0.00	0.18	0.06	30	
31	17.40	17.39	32.977	23.870	403.5	0.126	5.56	101.2	1.4	0.39	0.0	0.00	0.18	0.06	31	218
45	14.72	14.71	32.724	24.280	364.7	0.179	6.01	103.6	1.9	0.42	0.0	0.00	0.26	0.17	45	217
50 ISL	13.62	13.61	32.675	24.471	346.5	0.197	5.98	100.7	2.4	0.47	0.4	0.07	0.37	0.28	50	
55	12.63	12.62	32.667	24.660	328.5	0.214	5.95	98.2	3.0	0.55	0.9	0.13	0.45	0.37	55	216
63	11.75	11.74	32.751	24.891	306.6	0.239	5.64	91.4	4.4	0.73	4.4	0.13	0.30	0.32	63	215
75	10.73	10.72	32.854	25.154	281.8	0.275	5.31	84.2	8.0	1.07	10.2	0.02	0.17	0.18	75	214
85	10.25	10.24	32.895	25.269	271.0	0.302	5.21	81.8	9.6	1.18	12.1	0.02	0.11	0.14	85	213
94	9.86	9.85	33.015	25.428	256.0	0.326	5.03	78.3	11.8	1.28	14.0	0.02	0.08	0.09	94	212
100 ISL	9.68	9.67	33.136	25.552	244.3	0.341	4.80	74.5	14.0	1.37	15.7	0.02	0.06	0.06	100	
110	9.47	9.46	33.345	25.750	225.7	0.365	4.37	67.6	17.7	1.53	18.5	0.01	0.02	0.03	110	211
125 ISL	9.28	9.27	33.565	25.953	206.7	0.397	3.91	60.3	21.1	1.68	21.2	0.01	0.01	0.03	126	
126	9.27	9.26	33.576	25.963	205.8	0.399	3.89	60.0	21.3	1.69	21.3	0.01	0.01	0.03	127	210
145	8.90	8.88	33.719	26.134	189.8	0.437	3.76	57.6	23.8	1.71	22.4	0.01	0.00	0.02	146	209
150 ISL	8.84	8.82	33.767	26.181	185.5	0.446	3.67	56.1	24.8	1.74	22.9	0.01	0.00	0.02	151	
170	8.65	8.63	33.937	26.344	170.4	0.482	3.26	49.7	29.4	1.88	25.2	0.01	0.00	0.01	171	208
195	8.32	8.30	34.006	26.449	160.8	0.523	2.80	42.4	34.9	2.05	27.9	0.01	0.00	0.01	196	207
200 ISL	8.27	8.25	34.016	26.464	159.4	0.531	2.70	40.8	35.9	2.09	28.4	0.01			201	
230	8.00	7.98	34.068	26.546	152.1	0.578	2.08	31.3	41.8	2.33	31.1	0.01			231	206
250 ISL	7.85	7.83	34.108	26.599	147.3	0.608	1.72	25.8	45.4	2.47	32.4	0.01			251	
268	7.73	7.70	34.144	26.645	143.2	0.634	1.44	21.5	48.3	2.58	33.3	0.01			269	205
300 ISL	7.58	7.55	34.200	26.711	137.4	0.679	1.06	15.8	52.6	2.73	34.3	0.00			302	
319	7.46	7.43	34.222	26.746	134.4	0.704	0.91	13.5	55.1	2.80	34.8	0.00			321	204
378	6.66	6.63	34.190	26.832	126.6	0.781	0.78	11.4	64.2	2.93	37.6	0.01			380	203
400 ISL	6.61	6.57	34.226	26.867	123.6	0.809	0.63	9.2	66.4	2.99	38.1	0.01			402	
438	6.57	6.53	34.293	26.926	118.6	0.855	0.38	5.5	69.9	3.10	38.6	0.01			441	202
500 ISL	6.02	5.98	34.284	26.990	112.8	0.927	0.33	4.7	77.5	3.22	40.0	0.01			503	
511	5.92	5.88	34.283	27.002	111.7	0.939	0.32	4.6	78.8	3.24	40.3	0.01			514	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 10.9 N	120 55.3 W	22/10/03	1310 UTC	3833 m	340 12 kn			1017.4 mb	16.1 C	15.8 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.08	18.08	32.877	23.628	425.5	0.000	5.46	100.7	1.4	0.39	0.2	0.00	0.11	0.03	0	
2	18.08	18.08	32.877	23.628	425.6	0.009	5.46	100.7	1.4	0.39	0.2	0.00	0.11	0.03	2	220
10 ISL	18.09	18.09	32.878	23.627	426.0	0.043	5.45	100.5	1.5	0.38	0.2	0.00	0.11	0.03	10	
15	18.09	18.09	32.878	23.627	426.1	0.064	5.45	100.5	1.5	0.38	0.2	0.00	0.11	0.03	15	219
20 ISL	18.09	18.09	32.878	23.628	426.3	0.085	5.45	100.5	1.5	0.38	0.2	0.00	0.11	0.03	20	
30	18.08	18.07	32.878	23.630	426.3	0.128	5.46	100.7	1.6	0.38	0.2	0.00	0.12	0.03	30	218
45	15.59	15.58	32.789	24.141	377.9	0.188	6.02	105.6	2.0	0.39	0.1	0.00	0.18	0.08	45	217
50 ISL	15.04	15.03	32.759	24.239	368.8	0.207	6.04	104.8	2.1	0.41	0.1	0.00	0.19	0.11	50	
54	14.70	14.69	32.746	24.302	362.9	0.221	6.06	104.4	2.1	0.42	0.1	0.00	0.20	0.13	54	216
64	14.25	14.24	32.805	24.442	349.7	0.257	5.98	102.1	2.3	0.42	0.1	0.00	0.25	0.20	64	215
74	12.97	12.96	32.749	24.658	329.3	0.291	5.84	97.1	3.1	0.55	1.2	0.16	0.41	0.34	74	214
75 ISL	12.83	12.82	32.746	24.683	326.9	0.294	5.82	96.5	3.3	0.57	1.6	0.15	0.40	0.34	75	
84	11.77	11.76	32.754	24.890	307.2	0.323	5.58	90.5	4.9	0.77	5.2	0.04	0.23	0.25	84	213
95	11.18	11.17	32.864	25.083	289.1	0.356	5.38	86.2	6.8	0.93	8.3	0.02	0.15	0.16	95	212
100 ISL	10.95	10.94	32.941	25.184	279.5	0.370	5.19	82.8	8.3	1.04	10.2	0.01	0.12	0.13	100	
110	10.65	10.64	33.109	25.367	262.3	0.397	4.78	75.8	11.3	1.26	13.8	0.01	0.07	0.08	110	211
124	10.68	10.67	33.319	25.526	247.5	0.433	4.34	69.0	13.7	1.41	16.4	0.01	0.04	0.06	124	210
125 ISL	10.66	10.65	33.332	25.540	246.3	0.435	4.31	68.5	13.9	1.42	16.6	0.01	0.04	0.06	126	
145	10.08	10.06	33.563	25.820	220.0	0.482	3.61	56.7	19.3	1.67	20.6	0.01	0.02	0.04	146	209
150 ISL	9.93	9.91	33.626	25.894	213.0	0.493	3.43	53.7	20.9	1.73	21.6	0.01	0.02	0.04	151	
169	9.45	9.43	33.835	26.137	190.2	0.531	2.85	44.2	26.4	1.93	24.7	0.01	0.01	0.03	170	208
198	9.20	9.18	33.964	26.279	177.3	0.584	2.50	38.6	30.1	2.06	26.6	0.00	0.00	0.03	199	207
200 ISL	9.15	9.13	33.970	26.292	176.1	0.588	2.51	38.7	30.4	2.06	26.7	0.00			201	
227	8.48	8.46	34.026	26.440	162.2	0.633	2.64	40.1	34.7	2.08	27.8	0.01			228	206
250 ISL	8.11	8.08	34.049	26.515	155.4	0.670	2.42	36.5	38.9	2.20	29.5	0.01			251	
269	7.89	7.86	34.060	26.556	151.7	0.699	2.17	32.5	42.3	2.31	30.9	0.01			270	205
300 ISL	7.59	7.56	34.084	26.619	146.2	0.745	1.91	28.4	46.5	2.43	32.2	0.00			302	
319	7.42	7.39	34.097	26.653	143.1	0.773	1.76	26.1	49.0	2.50	32.9	0.00			321	204
378	6.72	6.69	34.130	26.776	131.9	0.854	1.22	17.8	59.6	2.76	36.0	0.00			380	203
400 ISL	6.49	6.45	34.145	26.819	128.0	0.882	1.04	15.1	63.8	2.85	37.1	0.00			402	
438	6.16	6.12	34.178	26.888	121.7	0.930	0.76	11.0	70.5	2.98	38.7	0.01			441	202
500 ISL	5.92	5.88	34.261	26.984	113.2	1.003	0.41	5.9	78.5	3.14	40.1	0.00			503	
512	5.87	5.83	34.277	27.003	111.6	1.016	0.34	4.9	80.1	3.17	40.4	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 51.2 N	121 35.6 W	22/10/03	1901	UTC	4118 m	350	22 kn	070 05 07	1	1019.0 mb	19.2 C	14.9 C	24m	6/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.82	19.82	32.954	23.250	461.6	0.000	5.28	100.6	1.5	0.36	0.0	0.00	0.10	0.03	0	
3 A	19.82	19.82	32.954	23.250	461.7	0.014	5.28	100.6	1.5	0.36	0.0	0.00	0.10	0.03	3	222
10 ISL	19.81	19.81	32.955	23.254	461.6	0.046	5.28	100.6	1.6	0.36	0.0	0.00	0.10	0.03	10	
15 A	19.81	19.81	32.955	23.254	461.8	0.069	5.28	100.6	1.6	0.36	0.0	0.00	0.10	0.03	15	221
20 ISL	19.74	19.74	32.956	23.273	460.2	0.092	5.30	100.9	1.6	0.36	0.0	0.00	0.10	0.03	20	
30 ISL	19.48	19.47	32.992	23.368	451.5	0.138	5.35	101.4	1.5	0.36	0.0	0.00	0.12	0.04	30	
32 A	19.41	19.40	33.004	23.395	449.0	0.147	5.36	101.4	1.5	0.36	0.0	0.00	0.13	0.04	32	220
40	19.05	19.04	33.094	23.555	433.9	0.182	5.40	101.5	1.4	0.37	0.0	0.00	0.17	0.05	40	219
47 A	17.97	17.96	33.036	23.779	412.8	0.212	5.65	104.0	1.5	0.36	0.0	0.00	0.24	0.11	47	218
50 ISL	17.21	17.20	32.962	23.904	400.8	0.224	5.79	105.0	1.6	0.37	0.0	0.00	0.26	0.13	50	
57	15.48	15.47	32.789	24.166	376.0	0.251	6.05	105.9	1.8	0.39	0.0	0.00	0.28	0.17	57	217
63 A	14.63	14.62	32.698	24.280	365.2	0.273	6.11	105.1	2.0	0.41	0.0	0.00	0.28	0.22	63	216
73	13.62	13.61	32.684	24.478	346.4	0.309	6.01	101.2	2.3	0.47	0.1	0.08	0.45	0.32	73	215
75 ISL	13.40	13.39	32.687	24.525	342.0	0.316	5.96	100.0	2.5	0.50	0.5	0.14	0.43	0.32	75	
82	12.69	12.68	32.738	24.704	325.0	0.339	5.75	95.0	3.5	0.63	2.6	0.31	0.30	0.31	82	214
91 A	12.02	12.01	32.942	24.990	297.9	0.367	5.38	87.8	5.6	0.87	7.2	0.07	0.16	0.15	91	213
100	11.78	11.77	33.122	25.175	280.6	0.393	5.01	81.4	7.7	1.08	10.7	0.01	0.09	0.10	100	212
110	10.87	10.86	33.143	25.355	263.5	0.421	4.92	78.4	9.9	1.16	12.4	0.01	0.07	0.08	110	211
124	9.94	9.93	33.217	25.573	242.9	0.456	4.79	74.8	13.0	1.28	14.7	0.01	0.04	0.05	124	210
125 ISL	9.91	9.90	33.232	25.589	241.3	0.458	4.75	74.2	13.3	1.30	15.0	0.01	0.04	0.05	125	
143	9.57	9.55	33.527	25.876	214.4	0.499	3.93	61.0	19.5	1.61	20.0	0.00	0.01	0.03	144	209
150 ISL	9.43	9.41	33.609	25.963	206.3	0.514	3.71	57.4	21.3	1.68	21.3	0.00	0.01	0.03	151	
169	9.11	9.09	33.779	26.148	189.0	0.552	3.28	50.5	25.4	1.82	23.8	0.00	0.00	0.02	170	208
199	8.87	8.85	33.955	26.324	172.9	0.606	2.87	44.0	30.1	1.96	26.0	0.00	0.00	0.02	200	207
200 ISL	8.86	8.84	33.959	26.329	172.4	0.608	2.87	44.0	30.2	1.96	26.1	0.00			201	
231	8.42	8.40	34.038	26.459	160.5	0.659	2.68	40.7	35.4	2.07	27.8	0.00			232	206
250 ISL	8.10	8.07	34.062	26.526	154.3	0.689	2.33	35.1	39.7	2.22	29.7	0.00			251	
267	7.82	7.79	34.074	26.577	149.6	0.715	2.01	30.1	43.6	2.36	31.4	0.00			268	205
300 ISL	7.42	7.39	34.088	26.646	143.5	0.763	1.80	26.7	48.5	2.48	32.9	0.00			302	
318	7.23	7.20	34.092	26.676	140.8	0.789	1.74	25.7	50.8	2.53	33.4	0.00			320	204
378	6.57	6.54	34.124	26.792	130.3	0.870	1.19	17.3	61.5	2.78	36.5	0.00			380	203
400 ISL	6.44	6.40	34.153	26.832	126.7	0.899	0.97	14.1	65.0	2.87	37.3	0.00			402	
437	6.24	6.20	34.203	26.897	120.9	0.944	0.66	9.5	70.8	3.00	38.5	0.00			440	202
500 ISL	5.73	5.69	34.236	26.988	112.6	1.018	0.45	6.4	80.7	3.13	40.6	0.00			503	
513	5.62	5.58	34.243	27.007	110.9	1.033	0.41	5.8	82.8	3.16	41.0	0.00			516	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 31.1 N	122 15.6 W	23/10/03	0051	UTC	4180 m	000	20 kn	080 06 06	1	1017.1 mb	18.9 C	17.4 C		6/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.39	19.39	33.148	23.508	436.9	0.000	5.35	101.3	1.4	0.36	0.0	0.00	0.11	0.03	0	
2	19.39	19.39	33.148	23.508	437.0	0.009	5.35	101.3	1.4	0.36	0.0	0.00	0.11	0.03	2	220
9	19.39	19.39	33.149	23.510	437.2	0.039	5.35	101.3	1.3	0.35	0.0	0.00	0.11	0.03	9	219
10 ISL	19.39	19.39	33.150	23.510	437.1	0.044	5.35	101.3	1.3	0.35	0.0	0.00	0.11	0.03	10	
19	19.41	19.41	33.161	23.514	437.1	0.083	5.35	101.3	1.4	0.36	0.0	0.00	0.12	0.03	19	218
20 ISL	19.42	19.42	33.164	23.514	437.2	0.087	5.35	101.3	1.4	0.36	0.0	0.00	0.12	0.03	20	
30	19.51	19.50	33.246	23.554	433.7	0.131	5.34	101.4	1.4	0.35	0.0	0.00	0.14	0.05	30	217
39	18.99	18.98	33.233	23.677	422.3	0.169	5.43	102.1	1.4	0.35	0.0	0.00	0.25	0.09	39	216
49	15.01	15.00	32.996	24.428	350.7	0.208	6.07	105.4	2.4	0.45	0.6	0.04	0.56	0.25	49	215
50 ISL	14.81	14.80	32.996	24.471	346.7	0.212	6.06	104.8	2.5	0.46	0.7	0.06	0.55	0.25	50	
61	13.34	13.33	33.060	24.825	313.1	0.248	5.94	99.7	4.0	0.66	3.7	0.22	0.47	0.27	61	214
70	11.89	11.88	33.133	25.162	281.1	0.275	5.35	87.2	7.3	1.01	9.5	0.23	0.37	0.29	70	213
75 ISL	11.35	11.34	33.169	25.289	269.0	0.288	5.08	81.8	9.1	1.15	11.9	0.16	0.29	0.25	75	
85	10.59	10.58	33.251	25.488	250.3	0.314	4.62	73.2	12.6	1.36	15.5	0.02	0.14	0.15	85	212
100	9.76	9.75	33.449	25.783	222.4	0.350	4.05	63.1	18.0	1.58	19.6	0.01	0.05	0.06	100	211
120	9.40	9.39	33.668	26.014	200.9	0.392	3.38	52.3	23.4	1.81	23.2	0.01	0.01	0.03	121	210
125 ISL	9.39	9.38	33.724	26.059	196.6	0.402	3.21	49.7	24.4	1.86	23.8	0.01	0.01	0.03	126	
141	9.35	9.33	33.877	26.186	185.0	0.433	2.77	42.9	27.3	1.97	25.3	0.00	0.00	0.03	142	209
150 ISL	9.18	9.16	33.924	26.250	179.0	0.449	2.78	42.9	28.6	1.98	25.8	0.00	0.00	0.03	151	
169	8.74	8.72	33.980	26.363	168.5	0.482	2.81	42.9	31.4	1.99	26.7	0.00	0.00	0.03	170	208
199	8.26	8.24	34.030	26.477	158.2	0.531	2.47	37.4	37.3	2.15	29.2	0.00	0.00	0.02	200	207
200 ISL	8.25	8.23	34.031	26.479	158.0	0.533	2.46	37.2	37.4	2.15	29.3	0.00			201	
228	7.99	7.97	34.059	26.540	152.6	0.576	2.20	33.1	41.3	2.28	30.7	0.00			229	206
250 ISL	7.77	7.75	34.084	26.592	147.9	0.609	1.87	28.0	45.0	2.41	32.1	0.00			251	
269	7.56	7.53	34.103	26.638	143.8	0.637	1.59	23.7	48.3	2.52	33.4	0.00			270	205
300 ISL	7.15	7.12	34.112	26.703	137.9	0.681	1.34	19.8	53.6	2.65	35.1	0.00			302	
321	6.89	6.86	34.116	26.742	134.4	0.709	1.22	17.9	57.0	2.72	36.0	0.00			323	204
378	6.44	6.41	34.152	26.831	126.5	0.783	0.87	12.6	65.3	2.91	38.0	0.00			380	203
400 ISL	6.30	6.26	34.173	26.866	123.4	0.811	0.73	10.6	68.9	2.97	38.7	0.00			402	
438	6.07	6.03	34.211	26.925	118.1	0.857	0.52	7.5	74.9	3.06	39.7	0.00			441	202
500 ISL	5.70	5.66	34.250	27.003	111.2	0.928	0.36	5.1	81.9	3.14	41.0	0.00			503	
512	5.63	5.59	34.258	27.018	109.9	0.941	0.33	4.7	83.3	3.16	41.2	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 11.0 N	122 55.7 W	23/10/03	0808 UTC	3789 m	130 18 kn			1019.0 mb	19.0 C	17.5 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.13	19.13	33.058	23.506	437.2	0.000	5.38	101.3	1.4	0.37	0.2	0.00	0.11	0.04	0	
3	19.13	19.13	33.058	23.506	437.3	0.013	5.38	101.3	1.4	0.37	0.2	0.00	0.11	0.04	3	220
10	19.12	19.12	33.058	23.509	437.3	0.044	5.36	100.9	1.5	0.37	0.2	0.00	0.11	0.03	10	219
20	19.15	19.15	33.065	23.507	437.8	0.087	5.37	101.1	1.5	0.36	0.1	0.00	0.11	0.03	20	218
30	19.03	19.02	33.117	23.577	431.4	0.131	5.41	101.7	1.4	0.36	0.1	0.00	0.14	0.05	30	217
40	16.71	16.70	33.003	24.052	386.4	0.172	5.92	106.4	1.8	0.38	0.1	0.00	0.26	0.14	40	216
50	14.27	14.26	32.967	24.563	337.9	0.208	6.11	104.5	2.7	0.48	0.9	0.06	0.46	0.28	50	215
60	13.22	13.21	33.006 D	24.807	314.7	0.241	5.68	95.1	4.0	0.70	4.5	0.34	0.46	0.42	60	214
70	12.30	12.29	33.067	25.034	293.3	0.271	5.27	86.6	6.0	0.91	8.4	0.05	0.35	0.43	70	213
75 ISL	11.85	11.84	33.076	25.125	284.7	0.286	5.17	84.1	6.9	0.98	9.6	0.04	0.30	0.36	75	
85	11.07	11.06	33.108	25.292	268.9	0.313	5.00	80.0	9.1	1.10	11.8	0.02	0.20	0.18	85	212
100	10.34	10.33	33.279	25.553	244.3	0.352	4.51	71.1	14.0	1.40	16.4	0.01	0.08	0.07	100	211
120	9.68	9.67	33.507	25.842	217.2	0.398	3.90	60.7	19.5	1.64	20.6	0.01	0.01	0.03	120	210
125 ISL	9.58	9.57	33.556	25.897	212.1	0.409	3.75	58.2	20.6	1.69	21.4	0.01	0.01	0.03	126	
138	9.37	9.35	33.672	26.022	200.4	0.435	3.39	52.4	23.3	1.80	23.2	0.01	0.01	0.03	139	209
150 ISL	9.24	9.22	33.764	26.115	191.8	0.459	3.10	47.8	25.6	1.89	24.7	0.01	0.01	0.03	151	
169	9.05	9.03	33.886	26.241	180.2	0.494	2.72	41.8	29.3	2.02	26.7	0.00	0.00	0.03	170	208
199	8.59	8.57	34.038	26.433	162.5	0.546	2.28	34.7	35.6	2.19	29.2	0.00	0.00	0.02	200	207
200 ISL	8.58	8.56	34.040	26.436	162.2	0.547	2.27	34.6	35.8	2.19	29.2	0.00			201	
230	8.18	8.16	34.072	26.522	154.4	0.595	2.13	32.2	40.0	2.29	30.4	0.00			231	206
250 ISL	7.93	7.90	34.081	26.566	150.4	0.625	2.02	30.3	42.8	2.35	31.2	0.00			251	
268	7.71	7.68	34.087	26.603	147.1	0.652	1.90	28.4	45.5	2.42	32.1	0.00			269	205
300 ISL	7.28	7.25	34.106	26.680	140.2	0.698	1.57	23.2	51.3	2.58	34.0	0.00			302	
320	7.04	7.01	34.121	26.725	136.0	0.726	1.35	19.9	55.0	2.69	35.2	0.00			322	204
374	6.64	6.61	34.172	26.820	127.6	0.797	0.89	13.0	63.2	2.89	37.3	0.00			376	203
400 ISL	6.48	6.44	34.196	26.860	124.1	0.830	0.72	10.5	66.9	2.96	38.1	0.00			402	
438	6.24	6.20	34.230	26.919	118.9	0.876	0.53	7.7	72.3	3.06	39.1	0.00			441	202
500 ISL	5.79	5.75	34.279	27.015	110.2	0.947	0.46	6.6	81.3	3.20	40.8	0.00			503	
512	5.70	5.66	34.289	27.034	108.5	0.960	0.45	6.4	83.1	3.23	41.1	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0310 STATION 93 120

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
29 50.9 N	123 35.0 W	23/10/03	1353 UTC	4126 m	000 20 kn			1019.0 mb	19.0 C	17.8 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.91	18.91	32.884	23.428	444.6	0.000	5.37	100.6	2.0	0.38	0.1	0.00	0.14	0.04	0	
2	18.91	18.91	32.884	23.428	444.7	0.009	5.37	100.6	2.0	0.38	0.1	0.00	0.14	0.04	2	220
10 ISL	18.91	18.91	32.883	23.428	445.0	0.044	5.38	100.8	2.1	0.38	0.1	0.00	0.13	0.04	10	
15	18.91	18.91	32.882	23.428	445.2	0.067	5.38	100.8	2.1	0.38	0.1	0.00			15	219
20 ISL	18.91	18.91	32.882	23.428	445.4	0.089	5.38	100.8	2.1	0.38	0.1	0.00	0.12	0.04	20	
30	18.91	18.90	32.883	23.429	445.6	0.134	5.38	100.8	2.2	0.38	0.1	0.00	0.11	0.04	30	218
45	18.55	18.54	32.859	23.501	439.2	0.200	5.42	100.8	2.2	0.39	0.0	0.00	0.14	0.05	45	217
50 ISL	18.47	18.46	32.858	23.520	437.6	0.222	5.42	100.7	2.2	0.39	0.0	0.00	0.16	0.05	50	
55	18.39	18.38	32.859	23.541	435.8	0.244	5.43	100.7	2.2	0.40	0.0	0.00	0.18	0.06	55	216
65	18.24	18.23	32.863	23.581	432.2	0.287	5.46	100.9	2.3	0.41	0.0	0.00	0.22	0.08	65	215
75	16.78	16.77	33.116	24.124	380.7	0.328	5.87	105.7	2.7	0.37	0.0	0.00	0.22	0.12	75	214
85	15.42	15.41	33.069	24.396	354.9	0.364	5.81	101.8	3.1	0.41	0.0	0.00	0.21	0.19	85	213
94	14.54	14.53	33.049	24.570	338.4	0.396	5.74	98.8	3.6	0.46	0.1	0.05	0.22	0.23	94	212
100 ISL	14.23	14.22	33.028	24.619	333.9	0.416	5.72	97.8	3.7	0.48	0.4	0.08	0.21	0.23	100	
110	13.61	13.59	32.983	24.712	325.2	0.449	5.65	95.3	4.3	0.57	0.9	0.11	0.20	0.22	110	211
124	11.55	11.53	32.947	25.082	290.0	0.492	5.36	86.6	7.4	0.93	6.8	0.02	0.09	0.14	124	210
125 ISL	11.46	11.44	32.953	25.103	288.0	0.495	5.34	86.1	7.6	0.95	7.1	0.02	0.09	0.13	125	
144	10.33	10.31	33.132	25.441	255.9	0.546	4.94	77.8	12.2	1.23	12.0	0.01	0.04	0.05	145	209
150 ISL	10.06	10.04	33.196	25.537	246.9	0.562	4.80	75.2	13.8	1.31	13.5	0.01	0.03	0.04	151	
170	9.44	9.42	33.425	25.818	220.4	0.608	4.28	66.2	19.1	1.57	18.2	0.00	0.01	0.02	171	208
198	9.17	9.15	33.772	26.133	191.0	0.666	3.36	51.8	26.3	1.87	23.1	0.00	0.00	0.02	199	207
200 ISL	9.15	9.13	33.789	26.150	189.5	0.670	3.31	51.0	26.7	1.89	23.4	0.00			201	
229	8.83	8.81	33.957	26.332	172.7	0.722	2.75	42.1	32.5	2.10	26.6	0.01			230	206
250 ISL	8.57	8.54	34.021	26.423	164.3	0.758	2.60	39.6	35.8	2.18	27.8	0.01			251	
268	8.34	8.31	34.051	26.482	159.0	0.787	2.53	38.3	38.5	2.23	28.5	0.00			269	205
300 ISL	7.87	7.84	34.072	26.569	151.1	0.836	2.24	33.6	43.8	2.38	30.5	0.00			302	
319	7.59	7.56	34.075	26.612	147.1	0.865	2.05	30.5	47.1	2.48	31.7	0.00			321	204
379	6.90	6.86	34.102	26.730	136.4	0.950	1.51	22.1	57.2	2.74	35.0	0.00			381	203
400 ISL	6.65	6.61	34.116	26.775	132.3	0.978	1.30	18.9	61.4	2.84	36.2	0.00			402	
439	6.23	6.19	34.144	26.852	125.2	1.028	0.94	13.6	69.3	3.01	38.3	0.00			442	202
500 ISL	5.77	5.73	34.190	26.947	116.6	1.102	0.62	8.9	79.5	3.18	40.4	0.00			503	
511	5.69	5.65	34.198	26.963	115.1	1.115	0.56	8.0	81.3	3.21	40.8	0.00			514	201

PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 77 49

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
35 5.3 N	120 45.8 W	03/11/03	1803 UTC	11 m	1205 - 1738 PST	1147 PST	1736 PST	610.4 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	15.75	33.286	24.487	5.85	103.3	1.2	0.29	0.2	0.00	2.61	0.96	87. A	38.8	39.3	39.1	0.26
6	15.73	33.286	24.491	5.83	102.9	1.2	0.29	0.2	0.00	2.62	0.92	43.	44.1	43.8	44.0	0.24
15	15.59	33.282	24.520	5.76	101.4	1.6	0.33	0.4	0.00	2.00	0.74	12.	20.0	17.7	18.8	0.20
22	14.17	33.268	24.815	5.21	89.1	5.1	0.73	4.1	0.16	0.43	0.61	4.6	1.6	1.6	1.6	0.07
29	13.68	33.266	24.915	5.06	85.7	6.2	0.84	5.5	0.21	0.37	0.63	1.7	0.39	0.34	0.37	0.06
36	13.50	33.272	24.956	4.95	83.5	6.9	0.90	6.3	0.22	0.27	0.59					
42	13.16	33.271	25.024	4.84	81.1	7.6	0.97	7.3	0.27	0.26	0.56	0.28	0.04	0.04	0.04	0.06

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 3.4 N	122 56.7 W	02/11/03	1906 UTC	14 m	1157 - 1744 PST	1156 PST	1743 PST	314.1 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.61	33.282	24.515	5.88	103.6	0.9	0.42	0.9	0.07	0.88	0.27	80. A	16.2	15.9	16.1	0.14
9	15.58	33.281	24.521	5.89	103.7	0.9	0.41	0.9	0.07	0.86	0.24	37.	14.9	14.4	14.6	0.15
19	15.56	33.286	24.529	5.87	103.3	1.0	0.42	0.9	0.07	0.80	0.28	12.	7.7	8.2	7.9	0.12
26	15.57	33.307	24.544	5.85	102.9	1.0	0.44	1.2	0.08	0.73	0.28	5.8	2.9	3.1	3.0	0.08
37	13.72	33.412	25.020	4.79	81.2	6.8	1.00	8.7	0.71	0.63	0.30	1.7	0.75	0.25	0.50	0.11
46	11.07	33.545	25.631	3.48	55.9	17.0	1.66	19.6	0.14	0.32	0.30					
54	10.29	33.712	25.898	2.81	44.4	22.6	1.92	23.3	0.11	0.14	0.21	0.27	0.03	0.03	0.03	0.04

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 27.2 N	120 31.5 W	31/10/03	1905 UTC	7 m	1146 - 1743 PST	1146 PST	1739 PST	497.5 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	16.26	33.233	24.331	5.94	105.9	3.1	0.28	0.1	0.01	4.11	0.90	64. A	56.0	59.4	57.7	0.46
4	16.31	33.232	24.319	5.96	106.4	3.1	0.28	0.1	0.01	4.25	0.98	42.	59.3	58.0	58.6	0.47
9	15.77	33.226	24.436	5.77	101.9	3.4	0.34	0.1	0.01	3.12	0.80	14.	20.1	21.4	20.8	0.15
14	14.13	33.158	24.738	5.21	89.0	5.3	0.62	1.3	0.19	1.13	0.38	4.6	2.5	2.5	2.5	0.28
19	13.28	33.139	24.897	5.02	84.2	6.6	0.82	3.7	0.36	0.40	0.23	1.6	0.38	0.47	0.43	0.07
26	13.04	33.113	24.925	5.11	85.3	6.2	0.86	4.7	0.48	0.32	0.28	0.33	0.04	0.06	0.05	0.08

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 9.8 N	123 12.9 W	01/11/03	1901 UTC	28 m	1158 - 1758 PST	1157 PST	1756 PST	183.9 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
3	18.75	32.801	23.405	5.41	101.0	1.4	0.37	0.1	0.00	0.12	0.04	85. A	1.1	1.1	1.1	0.05
10	18.74	32.801	23.408	5.41	101.0	1.4	0.37	0.1	0.00	0.13	0.04					
18	18.39	32.787	23.484	5.49	101.8	1.5	0.38	0.0	0.00	0.16	0.05	37.	2.1	2.1	2.1	0.06
28	16.99	32.784	23.818	5.69	102.7	1.6	0.40	0.0	0.00	0.27	0.12					
37	16.64	32.801	23.913	5.75	103.0	1.6	0.40	0.1	0.00	0.36	0.15	13.	4.8	4.6	4.7	0.07
46	16.45	32.856	23.999	5.77	103.0	1.6	0.40	0.1	0.00	0.38	0.17					
55	14.16	32.629	24.325	6.17	105.1	2.0	0.41	0.0	0.00	0.26	0.16	4.9	1.5	1.5	1.5	0.04
65	13.15	32.597	24.505	6.17	102.9	2.4	0.47	0.1	0.01	0.29	0.20					
75	12.77	32.672	24.637	5.87	97.1	2.9	0.55	1.0	0.12	0.28	0.23	1.6	0.69	0.85	0.77	0.02
92	11.46	32.859	25.029	5.47	88.1	5.7	0.84	6.4	0.03	0.15	0.20					
108	10.19	32.936	25.311	5.21	81.7	9.9	1.13	11.4	0.02	0.06	0.09	0.27	0.02	0.08	0.05	0.05

A) INCUBATION LIGHT INTENSITIES WERE 89, 38, 13, 4.9, 1.7, 0.27 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 83 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 35.1 N	120 46.2 W	30/10/03	1752 UTC	15 m	1205 - 1736 PST	1147 PST	1736 PST	187.7 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
3	16.07	33.069	24.248	5.77	102.4	1.6	0.38	0.1	0.00	0.40	0.16	74. A	3.2	4.5	3.9	0.09
10	16.07	33.069	24.248	5.78	102.6	1.6	0.38	0.1	0.00	0.39	0.15	36.	8.4	6.4	7.4	0.09
21	15.95	33.076	24.281	5.81	102.9	1.6	0.38	0.1	0.01	0.49	0.17	12.	5.8	5.3	5.6	0.07
29	14.55	33.140	24.636	5.75	99.0	2.6	0.59	2.5	0.22	0.82	0.48					
40	12.11	32.944	24.974	5.50	89.9	5.7	0.91	7.1	0.41	0.44	0.37	1.7	0.65	0.57	0.61	0.03
49	10.99	33.021	25.238	5.12	81.8	9.0	1.19	12.3	0.08	0.26	0.27					
58	10.11	33.158	25.497	4.71	73.8	14.0	1.43	16.4	0.04	0.12	0.15	0.26	0.05	0.04	0.05	0.01

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 83 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 15.1 N	123 30.3 W	29/10/03	1720 UTC	27 m	1200 - 1756 PST	1158 PST	1752 PST	73.0 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	18.84	32.831	23.406	5.41	101.2	1.5	0.36	0.0	0.01	0.12	0.03	89. A	2.5	2.2	2.4	0.04
17	18.71	32.826	23.435	5.42	101.1	1.6	0.36	0.0	0.01	0.11	0.05	38.	1.4	1.5	1.5	0.05
26	18.63	32.825	23.454	5.43	101.1	1.5	0.36	0.0	0.01	0.13	0.04					
36	18.50	32.815	23.479	5.44	101.1	1.6	0.36	0.0	0.01	0.17	0.06	13.	0.82	0.79	0.81	0.05
44	18.33	32.824	23.529	5.46	101.1	1.5	0.36	0.0	0.01	0.16	0.05					
53	18.29	32.849	23.558	5.46	101.0	1.5	0.37	0.0	0.01	0.18	0.06	4.9	0.28	0.28	0.28	0.03
61	17.39	32.867	23.789	5.67	103.1	1.6	0.36	0.0	0.01	0.25	0.12					
72	15.11	32.931	24.357	5.97	103.8	2.1	0.37	0.0	0.01	0.26	0.21	1.7	0.19	0.16	0.18	0.02
82	14.01	32.918	24.580	5.86	99.7	2.6	0.45	0.1	0.05	0.27	0.20					
93	13.25	33.034	24.824	5.59	93.7	3.6	0.56	1.9	0.21	0.20	0.17					
104	12.65	33.025	24.935	5.49	90.8	4.5	0.67	4.0	0.10	0.16	0.19	0.27	0.04	0.03	0.03	0.02

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 9.5 N	120 0.1 W	27/10/03	1759 UTC	17 m	1146 - 1740 PST	1144 PST	1741 PST	292.0 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	16.59	33.024	24.094	5.76	103.3	2.0	0.38	0.1	0.00	0.25	0.09	83. A	5.3	5.9	5.6	0.18
11	15.95	32.993	24.217	5.83	103.2	1.9	0.39	0.1	0.00	0.37	0.18	37.	8.4	8.5	8.4	0.17
24	14.63	32.871	24.412	5.95	102.5	2.3	0.44	0.3	0.02	0.69	0.35	11.	5.4	9.6	7.5	0.12
34	13.03	32.732	24.632	5.98	99.6	3.1	0.56	1.4	0.13	0.73	0.56	4.6	5.0	5.0	5.0	0.08
45	11.82	32.640	24.792	5.83	94.6	4.2	0.71	3.6	0.22	0.49	0.55	1.7	1.2	1.5	1.4	0.04
56	11.17	32.764	25.006	5.53	88.5	6.4	0.95	7.9	0.25	0.27	0.37					
67	10.71	32.828	25.137	5.36	85.0	8.3	1.07	10.2	0.09	0.21	0.32	0.24	0.13	0.10	0.12	0.04

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 87 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 59.5 N	122 24.0 W	28/10/03	1727 UTC	32 m	1154 - 1750 PST	1154 PST	1749 PST	159.2 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	18.58	32.876	23.505	5.43	101.1	1.6	0.38	0.0	0.00	0.10	0.03	91. A	2.0	1.8	1.9	0.06
11	18.49	32.880	23.530	5.43	100.9	1.6	0.37	0.0	0.00	0.11	0.02					
19	18.42	32.888	23.554	5.43	100.8	1.6	0.37	0.0	0.00	0.11	0.02	40.	2.3	2.2	2.2	0.07
32	18.28	32.890	23.591	5.44	100.7	1.6	0.37	0.0	0.00	0.10	0.03					
43	18.25	32.880	23.591	5.44	100.6	1.7	0.37	0.0	0.00	0.13	0.04	13.	1.6	1.5	1.5	0.05
53	18.07	32.862	23.622	5.46	100.6	1.7	0.38	0.0	0.00	0.21	0.08					
63	16.40	32.761	23.938	5.86	104.5	1.8	0.38	0.0	0.00	0.23	0.18	4.9	1.5	1.7	1.6	0.04
75	14.64	32.779	24.340	6.03	103.8	2.2	0.39	0.0	0.00	0.23	0.24					
84	13.59	32.708	24.503	5.99	100.9	2.5	0.45	0.0	0.07	0.20	0.26	1.8	0.96	0.87	0.91	0.02
97	13.37	32.935	24.723	5.74	96.3	3.1	0.50	0.6	0.16	0.27	0.28					
111	12.75	33.045	24.931	5.54	91.8	4.3	0.61	2.9	0.14	0.12	0.20					
122	11.44	32.959	25.111	5.35	86.2	6.4	0.87	6.8	0.04	0.10	0.12	0.29	0.08	0.07	0.08	0.00

A) INCUBATION LIGHT INTENSITIES WERE 89, 38, 13, 4.9, 1.7, 0.27 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 14.7 N	118 15.3 W	26/10/03	1801 UTC	18 m	1138 - 1737 PST	1137 PST	1736 PST	294.4 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	19.74	33.317	23.547	5.48	104.5	1.6	0.24	0.1	0.00			84. A	12.2	12.0	12.1	0.18
11	19.31	33.292	23.639	5.59	105.8	1.7	0.24	0.1	0.00	0.42	0.15	39.	10.2	10.6	10.4	0.12
18	17.05	33.163	24.095	5.96	107.9	1.9	0.31	0.1	0.00	0.45	0.21					
24	15.66	33.071	24.342	6.11	107.6	2.0	0.40	0.1	0.00	0.42	0.24	13.	4.4	4.5	4.4	0.06
34	13.99	33.041	24.677	5.99	101.9	3.1	0.51	0.6	0.05	0.87	0.70	5.5	3.8	4.0	3.9	0.08
42	13.07	33.118	24.923	5.36	89.5	4.8	0.78	4.6	0.42	0.46	0.41					
47	12.45	33.158	25.075	5.04	83.1	6.5	0.94	7.9	0.13	0.29	0.33	1.8	0.29	0.35	0.32	0.03
57	11.54	33.182	25.264	4.76	77.0	9.0	1.12	11.2	0.07	0.15	0.20					
69	11.09	33.323	25.456	4.32	69.3	11.7	1.30	14.1	0.03	0.08	0.11	0.28	0.02	0.03	0.03	0.01

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 90 53

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 39.9 N	119 29.4 W	25/10/03	1730 UTC	27 m	1148 - 1738 PST	1142 PST	1736 PST	262.3 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	18.78	33.286	23.768	5.41	101.3	1.5	0.32	0.0	0.00	0.15	0.04	89. A	3.7	3.7	3.7	0.08
10	18.75	33.286	23.776	5.41	101.3	1.4	0.32	0.0	0.00	0.15	0.03					
17	18.70	33.286	23.789	5.41	101.2	1.4	0.32	0.0	0.00	0.17	0.05	38.	3.1	3.2	3.1	0.13
26	18.58	33.283	23.817	5.44	101.5	1.4	0.32	0.0	0.00	0.22	0.07					
36	15.02	33.121	24.521	6.01	104.5	2.7	0.48	1.0	0.07	0.74	0.30	13.	6.1	7.7	6.9	0.08
43	13.61	33.064	24.773	5.71	96.4	3.8	0.66	3.5	0.29	0.64	0.43					
53	12.46	33.062	24.999	5.34	88.0	5.7	0.88	7.3	0.12	0.44	0.43	4.9	2.2	2.2	2.2	0.05
61	12.02	33.066	25.086	5.23	85.4	6.7	0.96	8.9	0.07	0.36	0.39					
72	11.21	33.088	25.251	5.02	80.6	8.8	1.12	11.6	0.03	0.23	0.29	1.7	0.39	0.45	0.42	0.05
87	10.35	33.181	25.475	4.81	75.8	11.6	1.25	14.0	0.02	0.12	0.14					
103	10.03	33.395	25.696	4.18	65.5	16.0	1.49	18.0	0.01	0.03	0.05	0.29	0.00	0.01	0.01	0.02

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 26.0 N	122 0.0 W	24/10/03	1721 UTC	27 m	1157 - 1754 PST	1152 PST	1752 PST	133.8 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	19.44	33.006	23.387	5.30	100.3	1.5	0.36	0.1	0.00	0.12	0.03	89. A	1.6	1.6	1.6	0.09
17	19.43	33.006	23.391	5.30	100.3	1.6	0.37	0.1	0.00	0.13	0.03	38.	2.7	2.6	2.6	0.05
26	19.43	33.007	23.392	5.31	100.5	1.6	0.36	0.1	0.00	0.12	0.04					
35	19.43	33.010	23.394	5.31	100.5	1.6	0.36	0.1	0.00	0.13	0.03	14.	1.4	1.4	1.4	0.05
43	18.65	33.080	23.645	5.46	101.9	1.4	0.36	0.1	0.00	0.20	0.08					
53	15.55	32.825	24.178	6.07	106.5	1.9	0.39	0.1	0.00	0.28	0.15	4.9	1.4		1.4	0.07
61	13.78	32.690	24.450	6.07	102.6	2.3	0.44	0.0	0.00	0.31	0.24					
72	12.91	32.777	24.691	5.75	95.5	3.3	0.62	2.4	0.26	0.43	0.32	1.7	1.0	0.90	0.97	0.04
82	12.36	32.844	24.850	5.52	90.7	4.5	0.77	5.2	0.14	0.13	0.13					
95	11.81	33.107	25.157	5.12	83.2	7.3	1.05	10.2	0.02	0.32	0.26					
103	10.60	33.066	25.342	5.13	81.2	9.2	1.08	11.0	0.02	0.09	0.10	0.29	0.01	0.03	0.02	0.03

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 90 120

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
30 24.6 N	123 59.7 W	23/10/03	1937 UTC	22 m	1231 - 1801 PST	1200 PST	1801 PST	85.4 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
4	18.79	32.939	23.501	5.40	101.0	1.7	0.38	0.2	0.00	0.12	0.02	76. A	1.3	1.3	1.3	0.13
13	18.78	32.939	23.504	5.41	101.1	1.6	0.38	0.2	0.00	0.11	0.03	40.	2.2	2.1	2.2	0.08
30	18.72	32.935	23.516	5.41	101.0	1.6	0.37	0.1	0.00	0.13	0.03	12.	1.3	1.3	1.3	0.18
42	18.37	32.860	23.546	5.44	100.8	1.7	0.37	0.1	0.00	0.16	0.05	5.3	0.89	0.95	0.92	0.08
59	17.97	32.864	23.648	5.56	102.3	1.7	0.38	0.1	0.00	0.24	0.10	1.6	0.57	0.47	0.52	0.07
68	16.03	32.800	24.052	5.98	105.9	2.0	0.38	0.1	0.00	0.25	0.14					
77	15.65	32.969	24.268	5.89	103.6	2.1	0.37	0.1	0.00	0.26	0.20					
85	14.50	32.779	24.370	6.00	103.0	2.2	0.41	0.1	0.00	0.30	0.24	0.27	0.17	0.18	0.18	0.03

A) INCUBATION LIGHT INTENSITIES WERE 89, 38, 13, 4.9, 1.7, 0.27 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 93 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 57.0 N	117 18.0 W	20/10/03	1907 UTC	1 m	1211 - 1541 PST	1134 PST	1735 PST	2120.1 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	20.49	33.284	23.326	10.57	204.4	2.4	0.20	0.4	0.03	55.25	2.21	22. A	584.5	669.4	626.9	25.0
2	20.31	33.281	23.371	10.69	206.0	2.4	0.19	0.4	0.07	50.54	3.10	4.6		948.3	948.3	17.2
3	20.21	33.280	23.397	11.13	214.1	2.6	0.26	0.4	0.06	66.11	10.66	1.00	233.8	216.6	225.2	10.9
4	19.37	33.273	23.609	9.13	172.9	2.6	0.11	0.4	0.04	16.45	1.83	0.22	5.5	6.8	6.2	2.5
5	18.61	33.239	23.775	7.32	136.6	3.0	0.15	0.4	0.03	0.70	0.26	0.05	0.09	-0.01	0.04	0.47

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 10.5 N	118 54.6 W	21/10/03	1820 UTC	22 m	1146 - 1749 PST	1141 PST	1743 PST	221.1 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
3	18.60	33.238	23.776	5.45	101.7	1.3	0.35	0.1	0.01	0.16	0.03	81. A	3.7	5.8	4.8	0.13
14	18.53	33.233	23.791	5.45	101.6	1.3	0.35	0.0	0.01	0.16	0.03	38.	3.7	3.5	3.6	0.19
21	18.28	33.197	23.825	5.51	102.2	1.3	0.35	0.0	0.01	0.16	0.04					
30	14.78	32.977	24.462	6.03	104.2	1.9	0.42	0.0	0.01	0.39	0.21	12.	3.8	4.7	4.2	0.13
36	14.52	32.973	24.514	5.94	102.1	2.2	0.43	0.1	0.05	0.51	0.28					
43	13.91	32.993	24.657	5.79	98.3	2.7	0.54	1.4	0.29	0.58	0.41	5.0	3.7	3.5	3.6	0.09
51	12.96	33.059	24.899	5.40	89.9	4.3	0.79	5.9	0.05	0.33	0.33					
59	12.19	33.048	25.040	5.33	87.3	5.7	0.91	7.8	0.04	0.25	0.23	1.6	0.51	0.67	0.59	0.06
71	11.46	33.126	25.236	4.99	80.5	8.3	1.13	11.5	0.02	0.13	0.14					
84	10.73	33.230	25.447	4.65	73.9	11.7	1.33	14.7	0.02	0.07	0.07	0.28	0.41	0.62	0.52	0.04

RV NEW HORIZON — CALCOFI CRUISE 0310 — STATION 93 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
30 51.2 N	121 35.6 W	22/10/03	1901 UTC	24 m	1210 - 1753 PST	1151 PST	1752 PST	97.9 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
3	19.82	32.954	23.250	5.28	100.6	1.5	0.36	0.0	0.00	0.10	0.03	83. A	1.7	1.9	1.8	0.19
15	19.81	32.955	23.254	5.28	100.6	1.6	0.36	0.0	0.00	0.10	0.03	38.	1.9	1.9	1.9	0.11
32	19.41	33.004	23.395	5.36	101.4	1.5	0.36	0.0	0.00	0.13	0.04	13.	1.3	1.5	1.4	0.09
40	19.05	33.094	23.555	5.40	101.5	1.4	0.37	0.0	0.00	0.17	0.05					
47	17.97	33.036	23.779	5.65	104.0	1.5	0.36	0.0	0.00	0.24	0.11	4.9	1.2	1.2	1.2	0.11
57	15.48	32.789	24.166	6.05	105.9	1.8	0.39	0.0	0.00	0.28	0.17					
63	14.63	32.698	24.280	6.11	105.1	2.0	0.41	0.0	0.00	0.28	0.22	1.8	0.59	0.49	0.54	0.11
73	13.62	32.684	24.478	6.01	101.2	2.3	0.47	0.1	0.08	0.45	0.32					
82	12.69	32.738	24.704	5.75	95.0	3.5	0.63	2.6	0.31	0.30	0.31					
91	12.02	32.942	24.990	5.38	87.8	5.6	0.87	7.2	0.07	0.16	0.15	0.30	0.11	0.08	0.09	0.02

A) INCUBATION LIGHT INTENSITIES WERE 89, 38, 13, 4.9, 1.7, 0.27 PERCENT RESPECTIVELY.

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505mm

Line	Sta.	Latitude N	Longitude W	Date Mo/Day	Time (PST) Start	Time (PST) End	Water Volume Strained (m^3)	Max. Tow Depth (m)	Volume per 1000 m^3 Strained Total (cm^3)	Volume per 1000 m^3 Strained Small (cm^3)
77	49	35 05.4	120 46.0	11/03	0933	0938	114	45	35	35
77	51	35 01.7	120 56.3	11/03	0734	0755	453	204	102	102
77	55	34 53.9	121 13.1	11/03	0431	0453	450	213	622	622
77	60	34 43.8	121 34.8	11/03	0017	0038	458	208	221	221
77	70	34 23.5	122 15.1	11/02	1814	1835	440	211	193	193
77	80	34 03.6	122 57.8	11/02	1210	1232	464	202	287	287
77	90	33 44.5	123 38.9	11/02	0625	0646	452	213	951	951
77	100	33 23.2	124 18.6	11/02	0043	0105	428	208	82	82
80	51	34 27.4	120 31.0	10/31	1150	1156	124	47	8538	57
80	55	34 19.4	120 49.2	10/31	1527	1548	471	198	23	23
80	60	34 08.9	121 11.3	10/31	1930	1952	457	210	217	217
80	70	33 49.5	121 51.3	11/01	0110	0131	459	194	242	242
80	80	33 29.4	122 32.8	11/01	0635	0657	462	212	251	251
80	90	33 10.3	123 12.0	11/01	1201	1222	525	186	61	61
80	100	32 50.3	123 54.4	11/01	1830	1851	442	207	50	50
82	47	34 16.1	120 03.7	10/31	0801	0822	467	203	30	30
83	40.6	34 13.6	119 25.6	10/31	0315	0318	61	22	82	82
83	42	34 11.2	119 31.3	10/31	0117	0126	200	85	65	65
83	51	33 51.9	120 08.2	10/30	1908	1920	313	108	51	51
83	55	33 44.1	120 25.5	10/30	1508	1531	533	217	26	26
83	60	33 35.0	120 45.9	10/30	0843	0904	483	211	246	246
83	70	33 14.9	121 26.9	10/30	0319	0340	449	202	477	477
83	80	32 55.5	122 06.7	10/29	2125	2147	468	194	53	53
83	90	32 34.5	122 48.9	10/29	1534	1555	461	207	41	41
83	100	32 14.8	123 29.8	10/29	0819	0841	454	217	29	29
83	110	31 53.9	124 10.3	10/29	0301	0322	459	197	61	61
87	33	33 52.1	118 30.3	10/26	1622	1628	125	47	40	40
87	35	33 49.4	118 38.7	10/26	1909	1931	442	211	66	66
87	40	33 40.2	118 59.8	10/26	2319	2340	458	200	74	74
87	45	33 29.9	119 120.1	10/27	0336	0357	462	197	65	65
87	50	33 20.4	119 39.6	10/27	0709	0715	124	51	185	185
87	55	33 09.2	120 00.4	10/27	1109	1130	446	212	117	117
87	63	32 54.8	120 32.2	10/27	1638	1660	470	206	321	321
87	70	32 39.3	121 01.6	10/27	2144	2205	458	210	245	245
87	80	32 19.5	121 44.0	10/28	0331	0352	472	204	78	78
87	90	31 59.6	122 24.0	10/28	0824	0845	450	211	42	42
87	100	31 38.5	123 06.4	10/28	1524	1545	478	198	33	33
87	110	31 18.4	123 46.2	10/28	2053	2115	464	210	30	30
90	28	33 29.7	117 47.2	10/26	0322	0336	288	124	70	70
90	30	33 25.8	117 54.7	10/26	0557	0619	432	216	93	93
90	35	33 15.4	118 15.0	10/26	0907	0928	439	210	57	57
90	37	33 10.3	118 24.8	10/25	2106	2127	443	206	144	144
90	45	32 54.7	118 56.7	10/25	1518	1540	468	200	64	64
90	53	32 39.5	119 29.5	10/25	0833	0854	472	199	38	38
90	60	32 25.6	119 58.2	10/25	0452	0515	479	212	90	90
90	70	32 04.1	120 38.5	10/24	2252	2314	474	203	152	152
90	80	31 45.1	121 19.5	10/24	1552	1614	480	208	371	371
90	90	31 25.6	121 59.5	10/24	0818	0839	460	215	39	39
90	100	31 05.1	122 41.1	10/24	0220	0241	475	196	76	76
90	110	30 46.0	123 21.6	10/23	1941	2003	478	211	80	80
90	120	30 24.9	124 00.7	10/23	1251	1313	507	202	20	20
93	26.7	32 57.8	117 19.0	10/20	1213	1234	466	193	54	54
93	28	32 55.1	117 25.4	10/20	1543	1604	434	211	58	58
93	30	32 50.7	117 33.5	10/20	1838	1859	439	212	96	96
93	35	32 40.7	117 53.8	10/20	2238	2259	454	209	163	163
93	40	32 30.4	118 14.0	10/21	0235	0256	459	202	63	63
93	45	32 21.2	118 35.5	10/21	0640	0701	438	222	94	94
93	50	32 10.8	118 53.9	10/21	0925	0946	454	207	29	29
93	55	32 00.3	119 14.8	10/21	1351	1412	492	187	100	100
93	60	31 51.0	119 36.4	10/21	1852	1914	479	200	40	40
93	70	31 30.0	120 16.9	10/22	0044	0105	504	189	75	75
93	80	31 11.4	120 56.2	10/22	0610	0631	449	215	51	51
93	90	30 52.5	121 37.1	10/22	1213	1235	493	201	26	26
93	100	30 32.4	122 17.2	10/22	1803	1825	465	214	49	49
93	110	30 11.4	122 56.8	10/23	0118	0139	478	197	63	63
93	120	29 51.8	123 35.2	10/23	0655	0717	463	211	24	24

FIGURES

Avifauna Observations

CalCOFI Cruise 0310

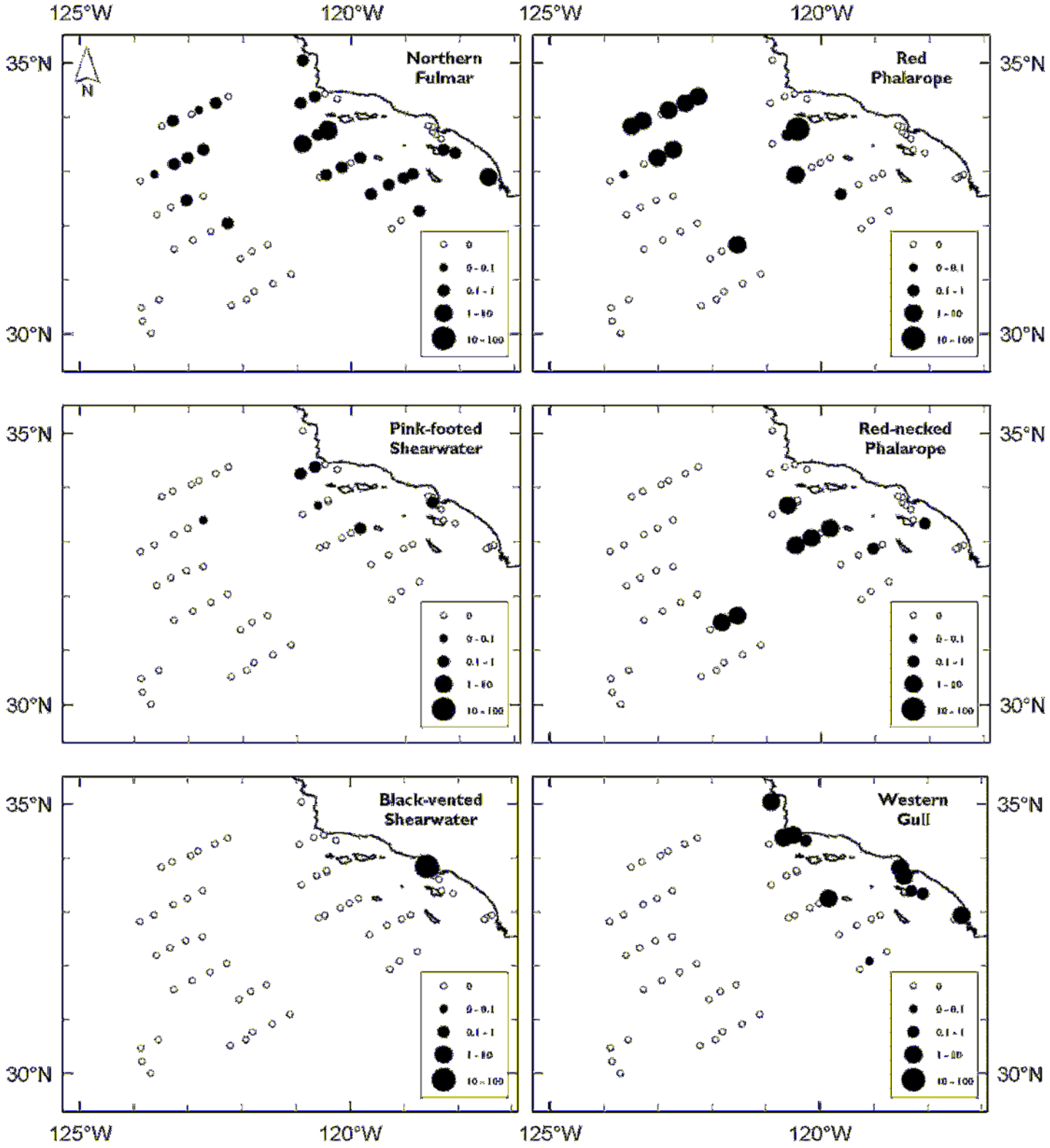
1a. Northern Fulmar distribution.

1b. Red Phalarope distribution.

1c. Pink-footed Shearwater distribution.

1d. Red-necked Phalarope distribution.

1e. Black-vented Shearwater distribution.

1f. Western Gull distribution.

CalCOFI Cruise 0310