UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 0404
23 March – 08 April 2004

CC Reference 06-05
31 August 2006

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093-0227

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

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INTRODUCTION

The data presented in this report were collected during cruise 0404* 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. SIO staff members from the Ocean Data Facility participate in the chemical analysis of nutrient samples 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 P144. 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 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 15 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) *Underway Sea Surface xCO2.* Continuous measurements of the partial pressure of CO2 were made from the ship's uncontaminated seawater system. The seawater was equilibrated in a membrane contactor with a gas loop that was analyzed with a Licor 6262 infrared CO2/H2O analyzer. One-minute averages were recorded and the mole fraction of CO2 (xCO2) at sea surface temperature was calculated. The system was calibrated with standard gases traceable to CMDL every two hours; at that time absolute zero and atmospheric samples were also collected. (G. Friederich, MBARI)

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

5) *Iron Limited Experiments.* Seawater samples from the surface and at depth were obtained for iron analysis (dissolved and total iron) using a trace metal-clean pole sampler and trace metal-clean GO-flo bottles. Iron addition incubations were also performed to assay for iron limitation in the phytoplankton community (K. Barbeau, SIO).

6) *Stable isotopes composition of copepods and fish eggs.* Additional bongo tows were carried out to obtain samples for the analysis of stable carbon and nitrogen isotopes of anchovy eggs (Engralis mordax). (R. Gonzales-Quiros, SIO)

7) *Particulate Calcium*. Samples were taken from prodo bottles and filtered for particulate calcium. Calcium determined by Flame Atomic Absorption Spectroscopy of acidified samples and normalized to light levels. (V. Fabry, CSUSM)

8) *Marine mammal observations*. During daylight transits, visual line-transect surveys were conducted by marine mammal observers focusing on cetaceans. Acoustic line-transect surveys were performed using a towed hydrophone array which consists of multiple hydrophone elements that sample sounds up to 100 kHz allowing for localization of calling animals. Acoustic monitoring also takes place on individual stations using sonobuoys.

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 0404

1. CalCOFI Cruise 0404 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.

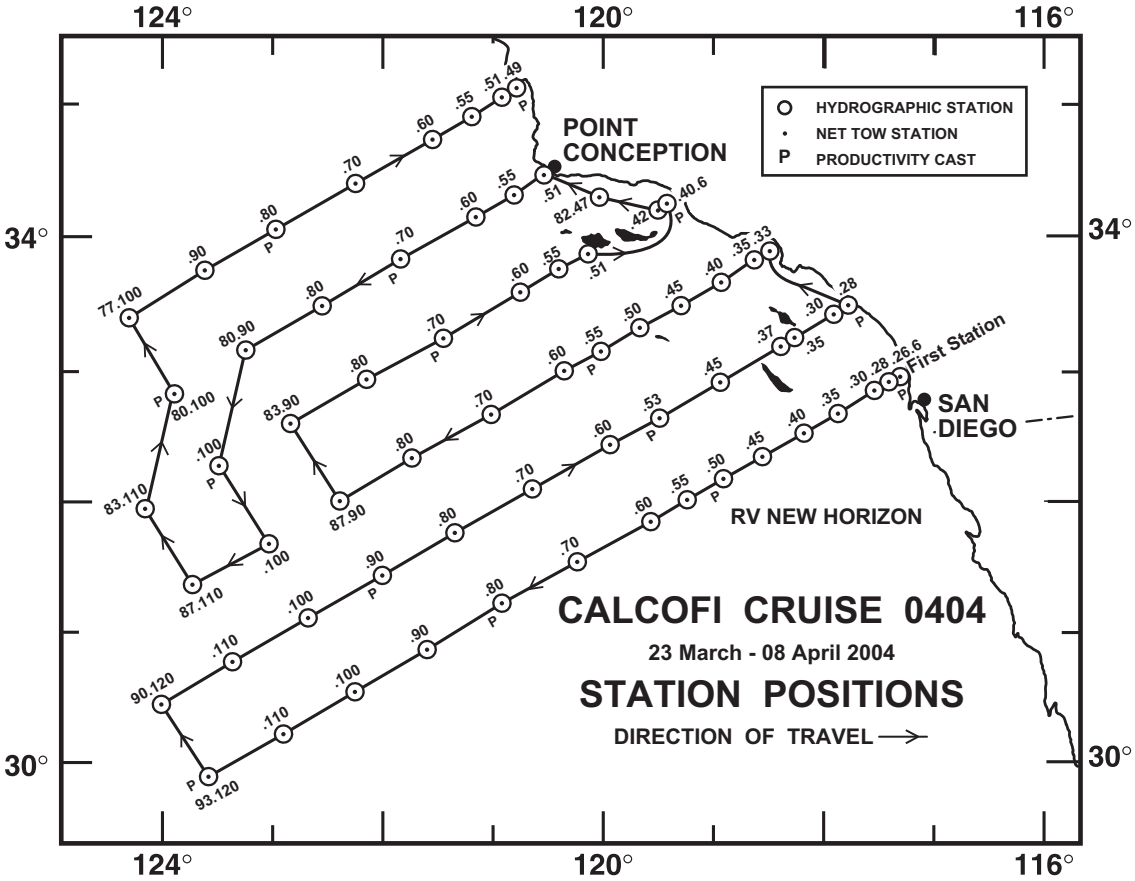


FIGURE 1

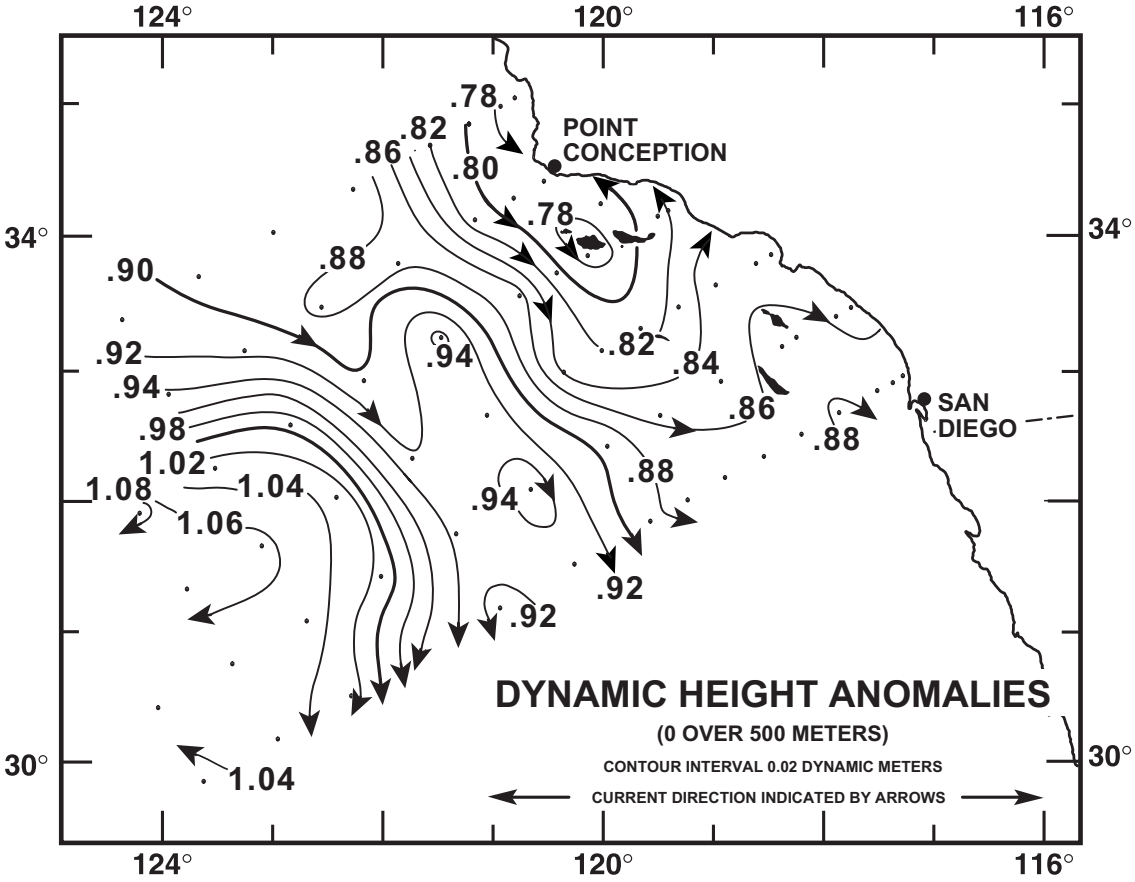


FIGURE 2

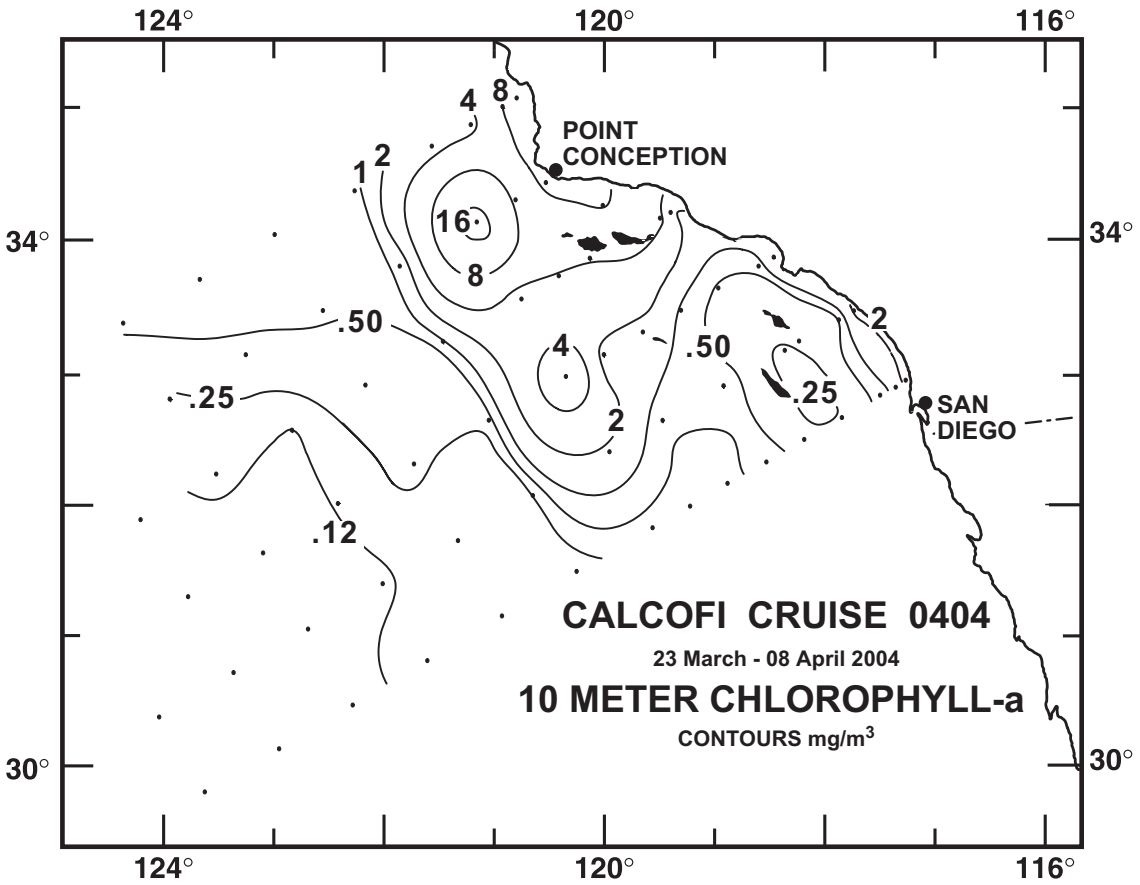


FIGURE 3A

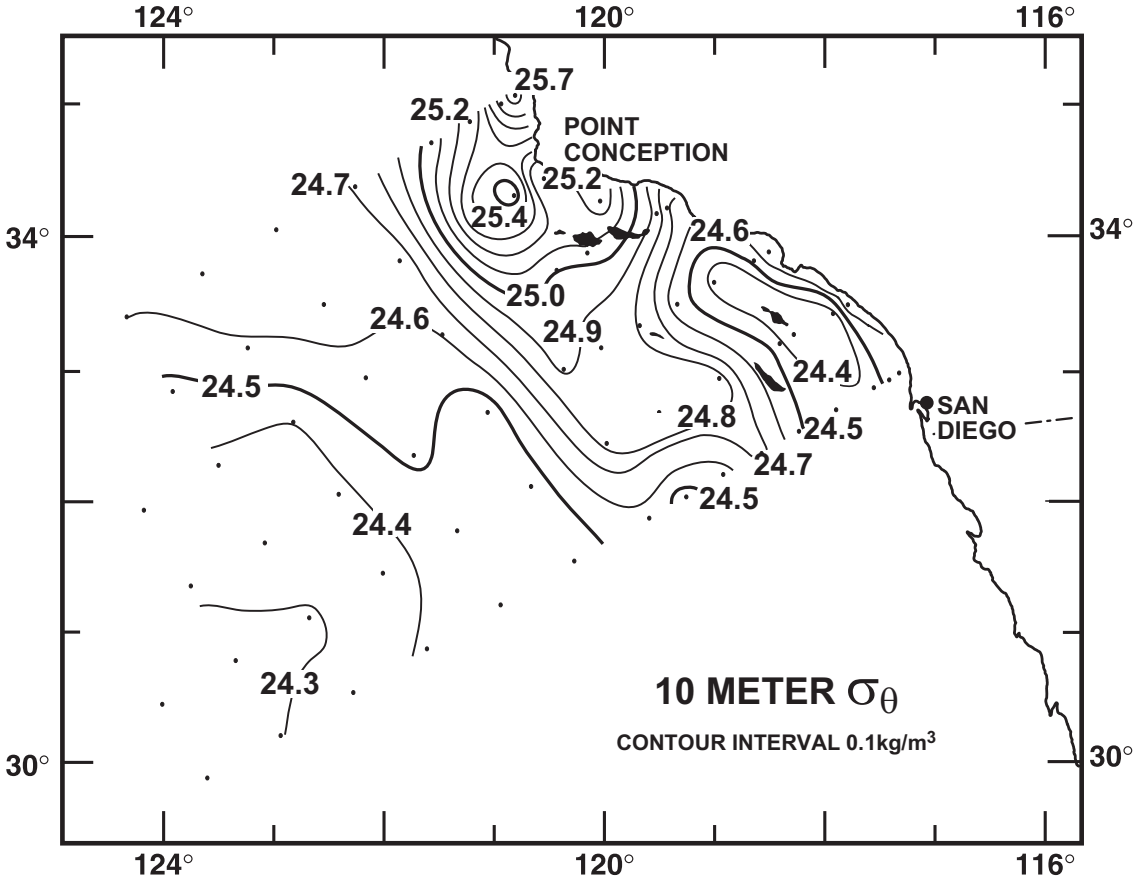


FIGURE 3B

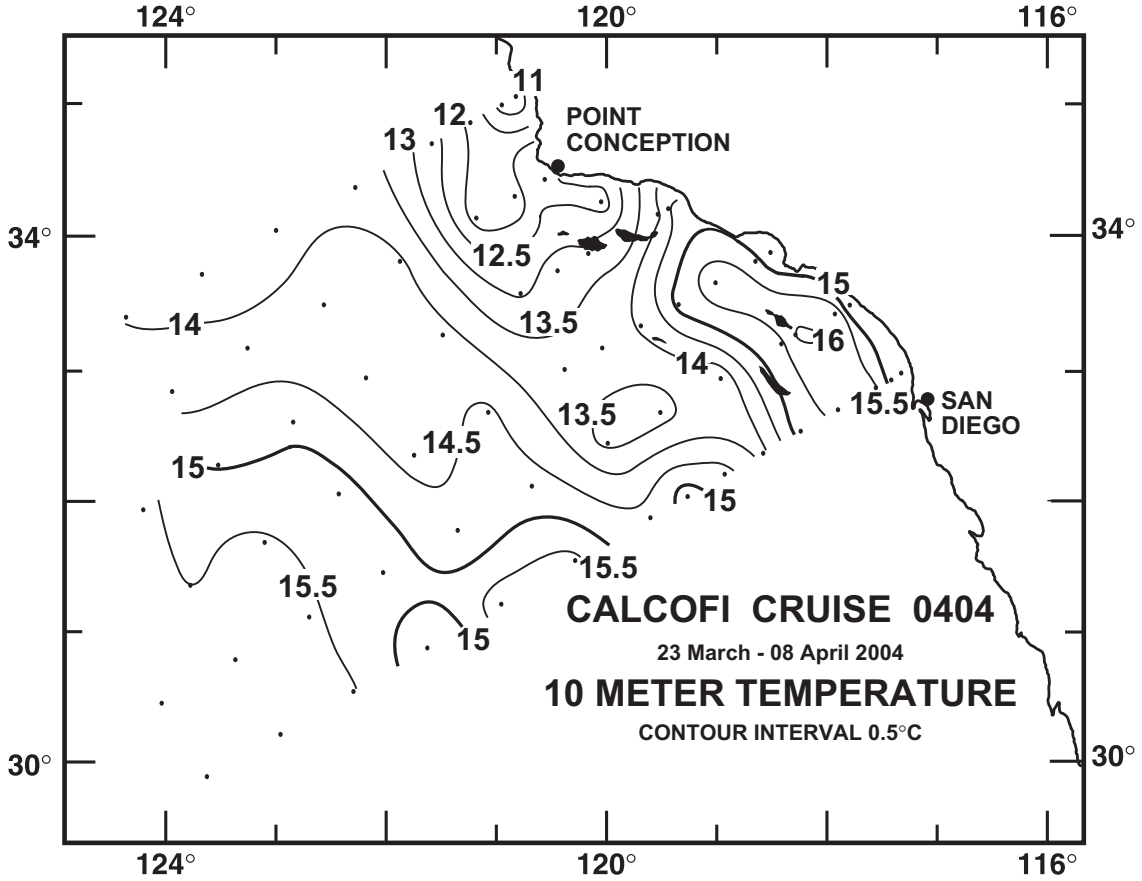


FIGURE 3C

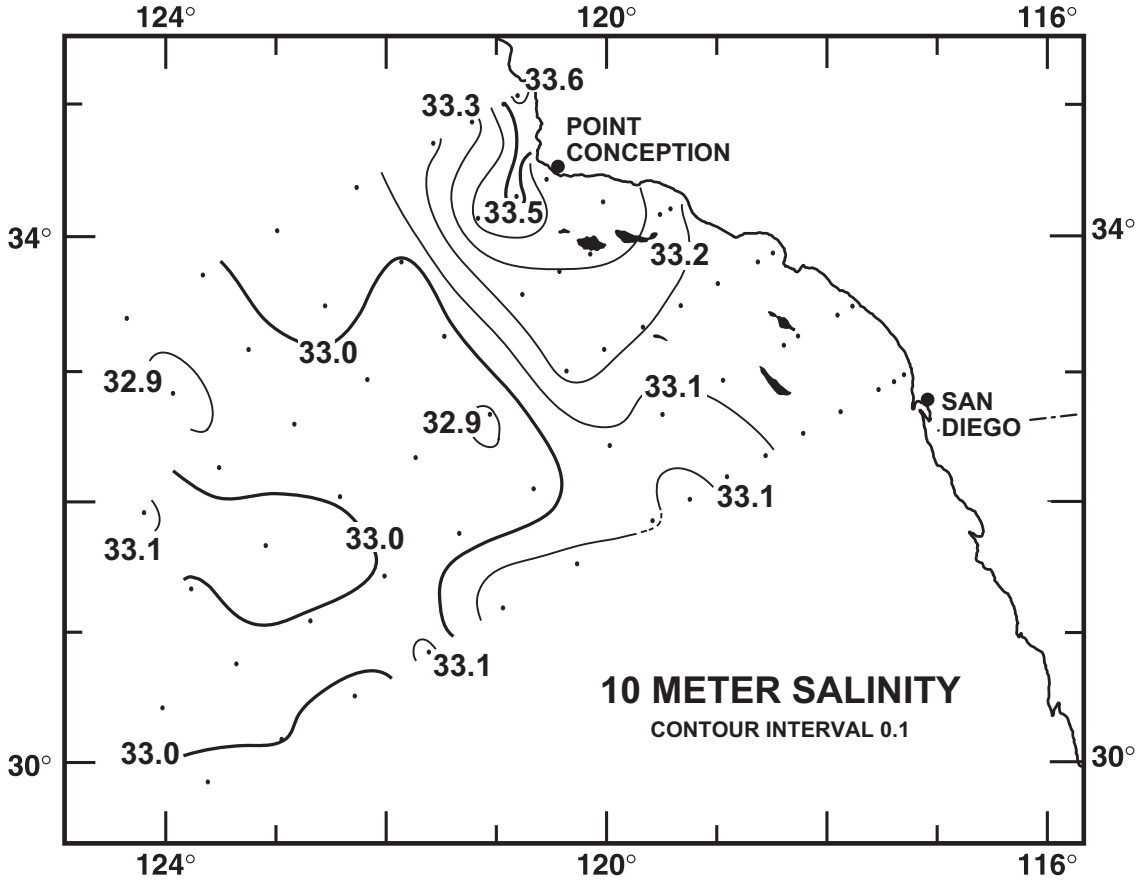


FIGURE 3D

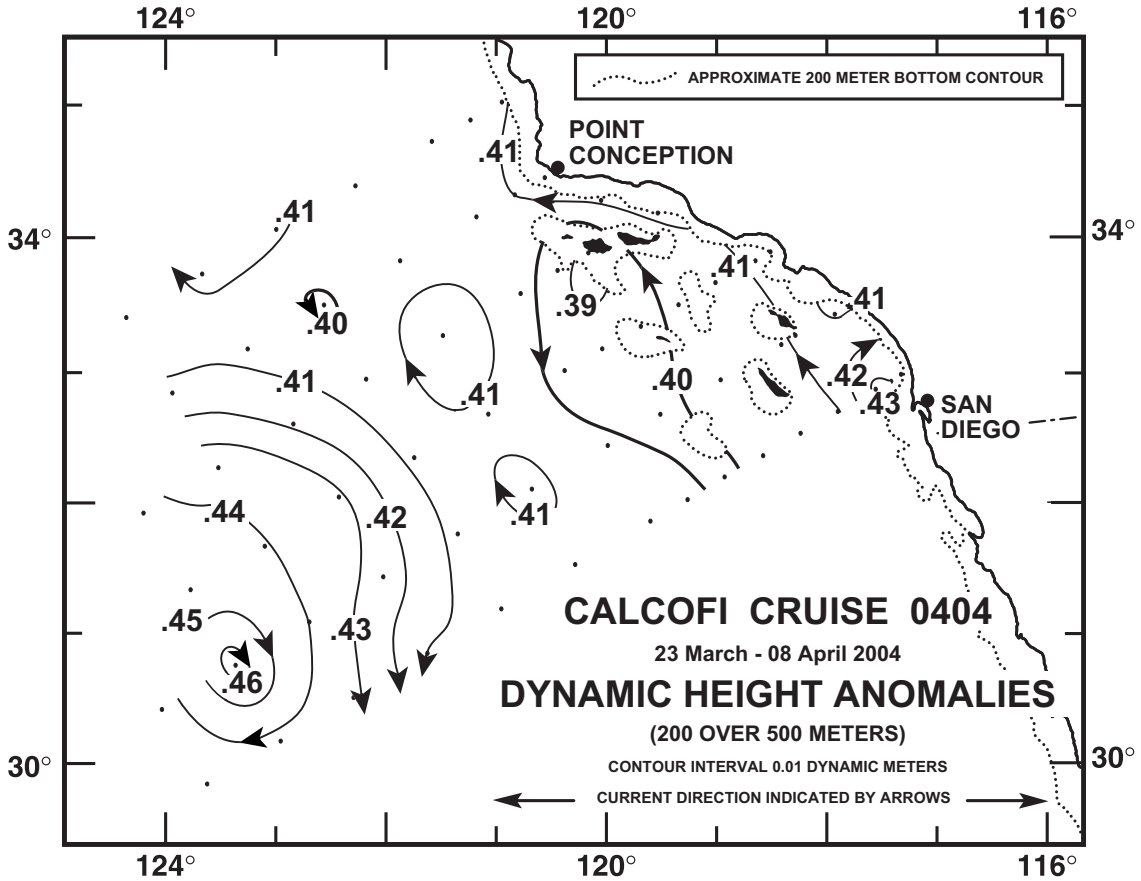


FIGURE 4A

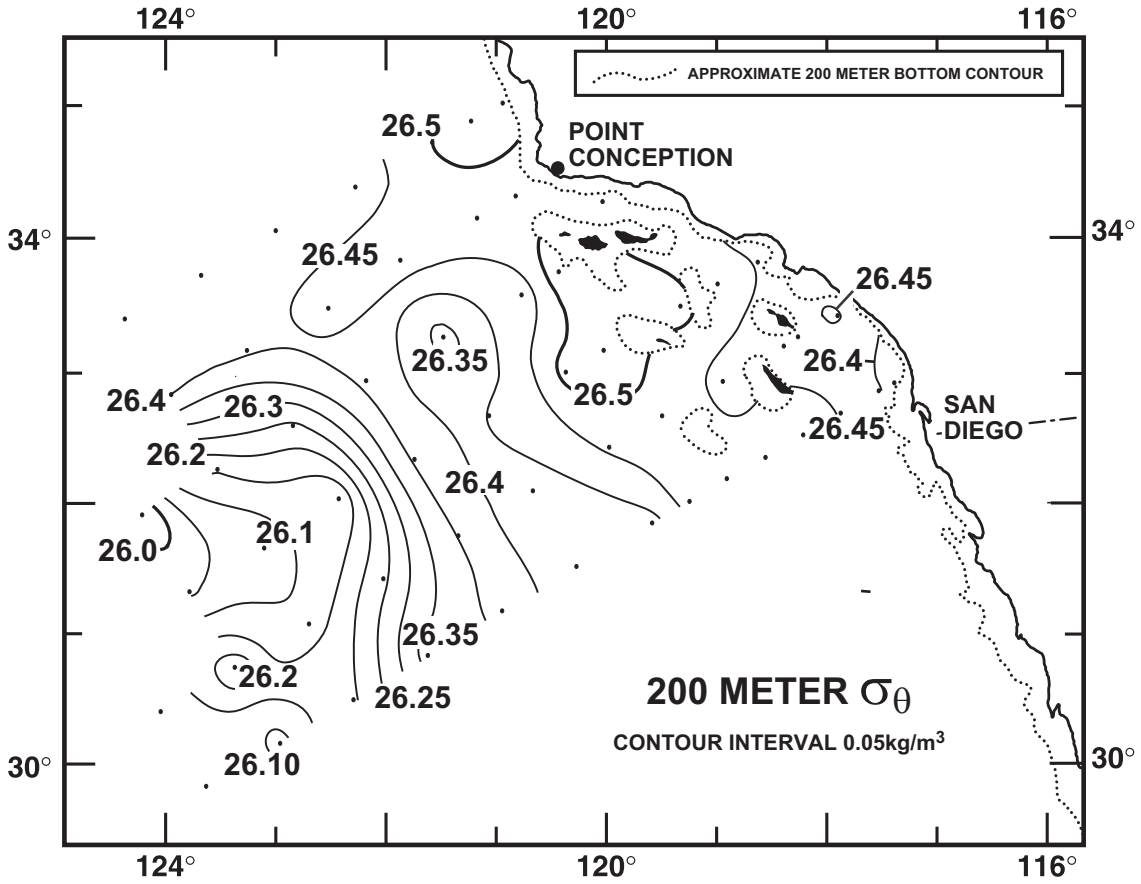


FIGURE 4B

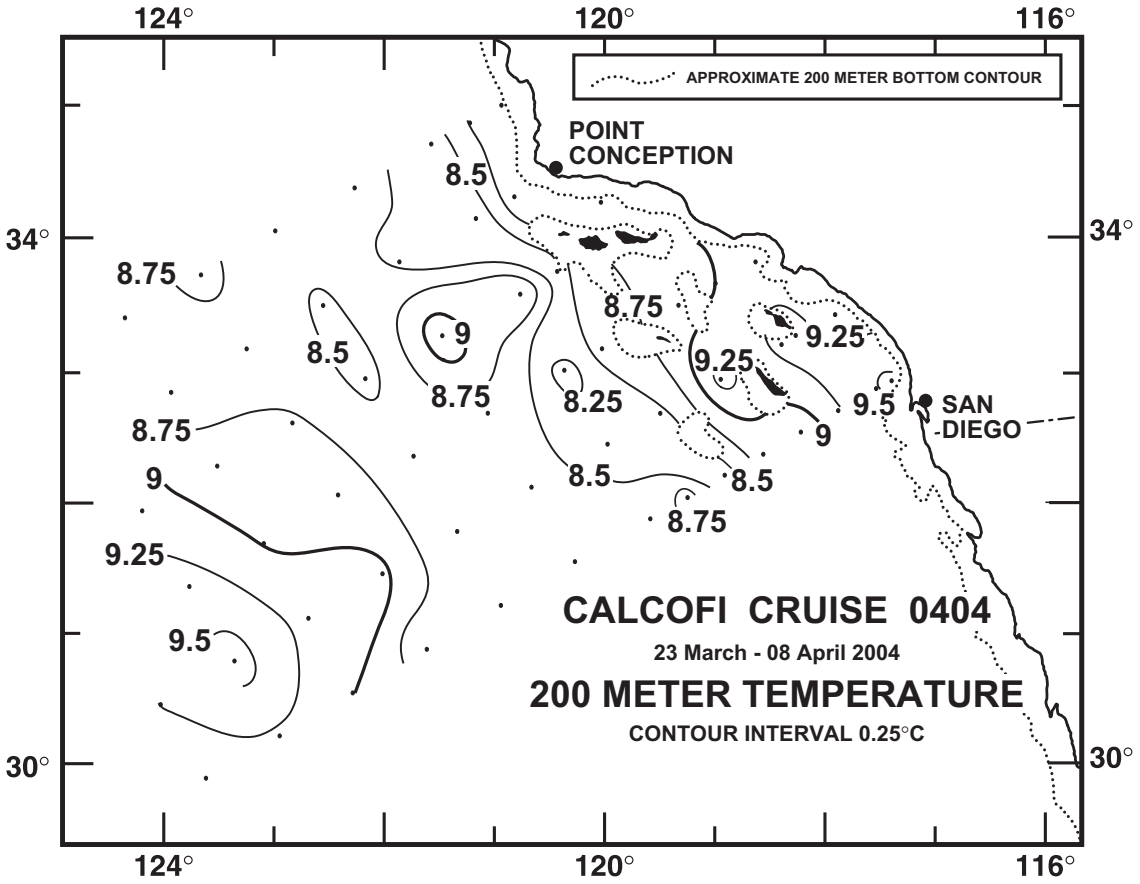


FIGURE 4C

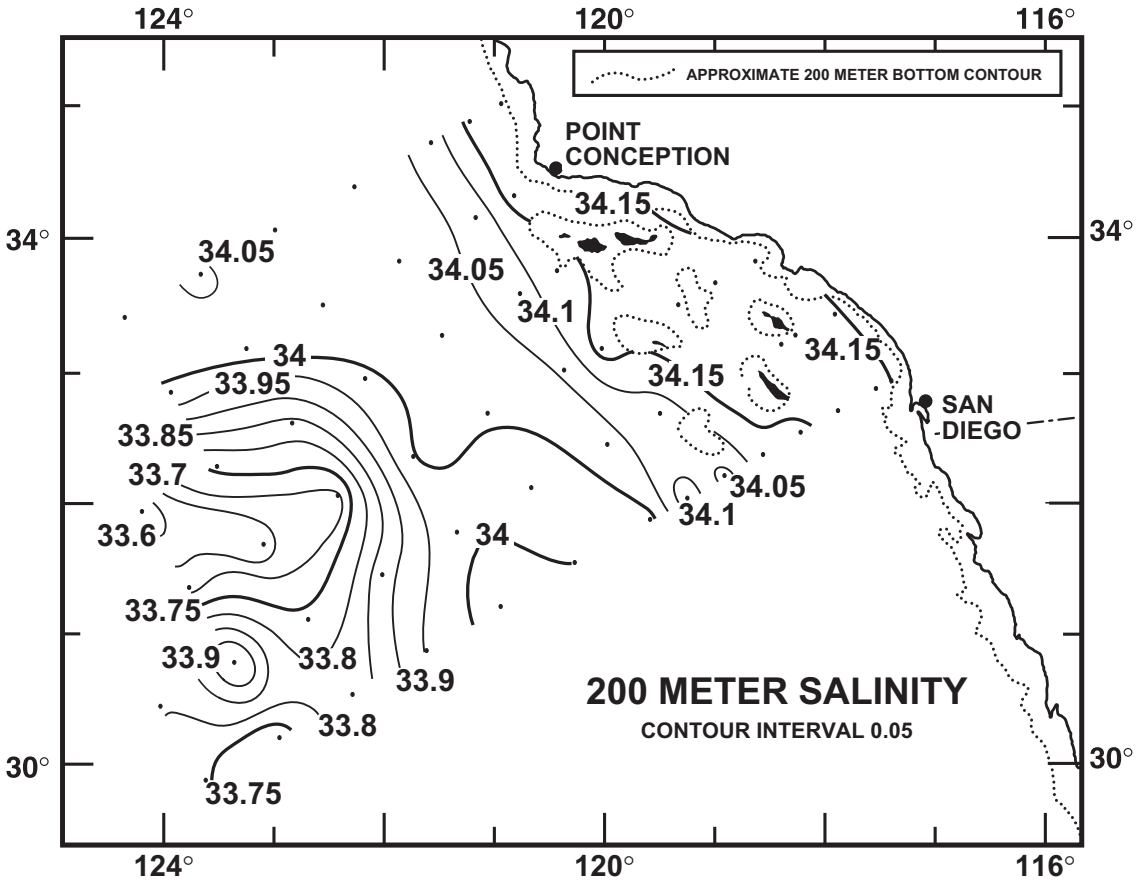


FIGURE 4D

CALCOFI CRUISE 0404

26 - 29 March 2004

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

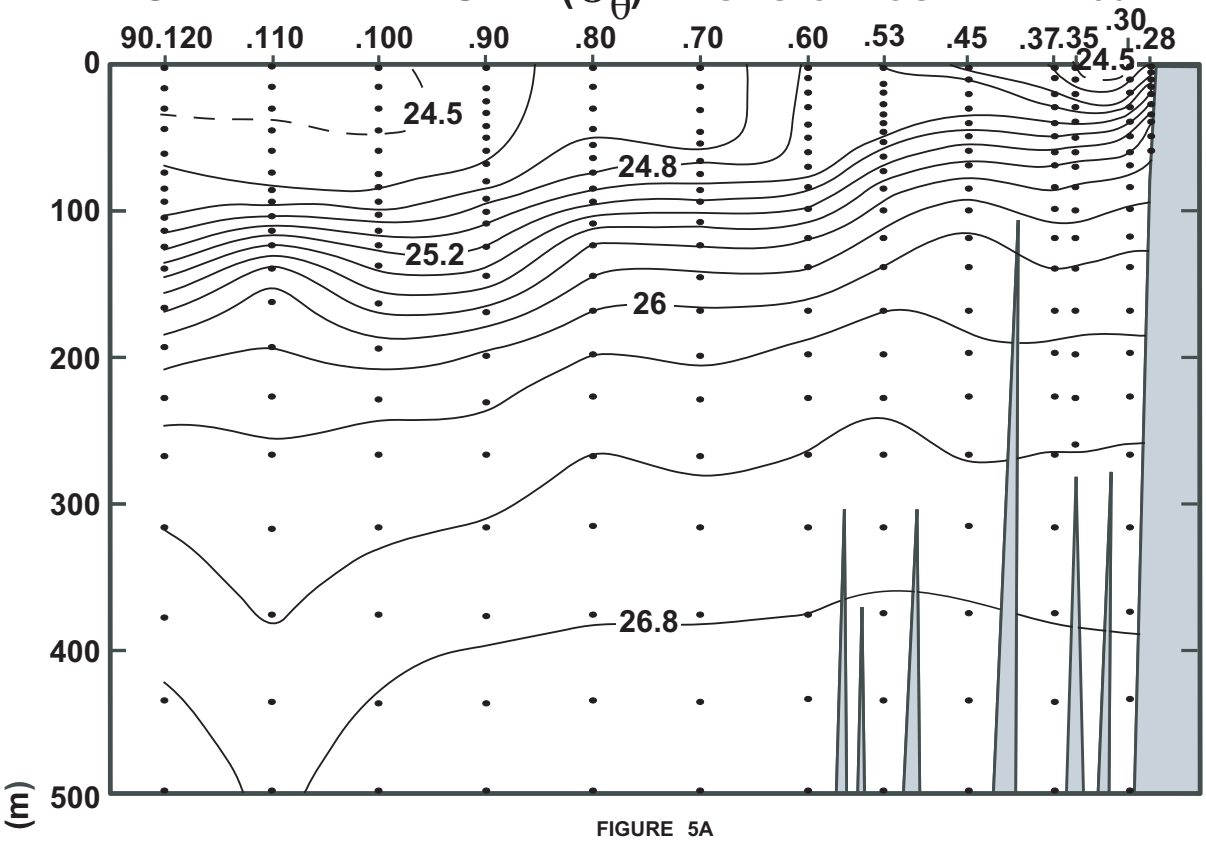


FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

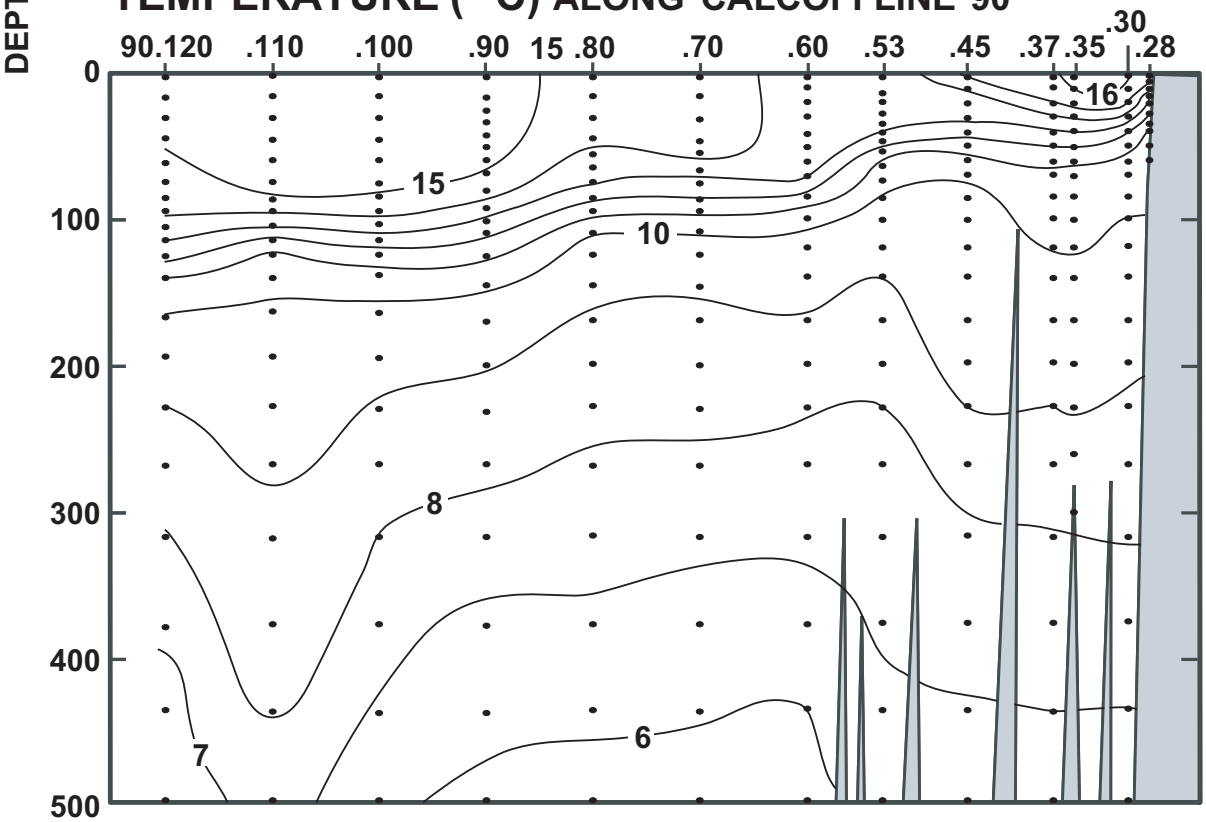


FIGURE 5B

CALCOFI CRUISE 0404

26 - 29 March 2004

SALINITY ALONG CALCOFI LINE 90

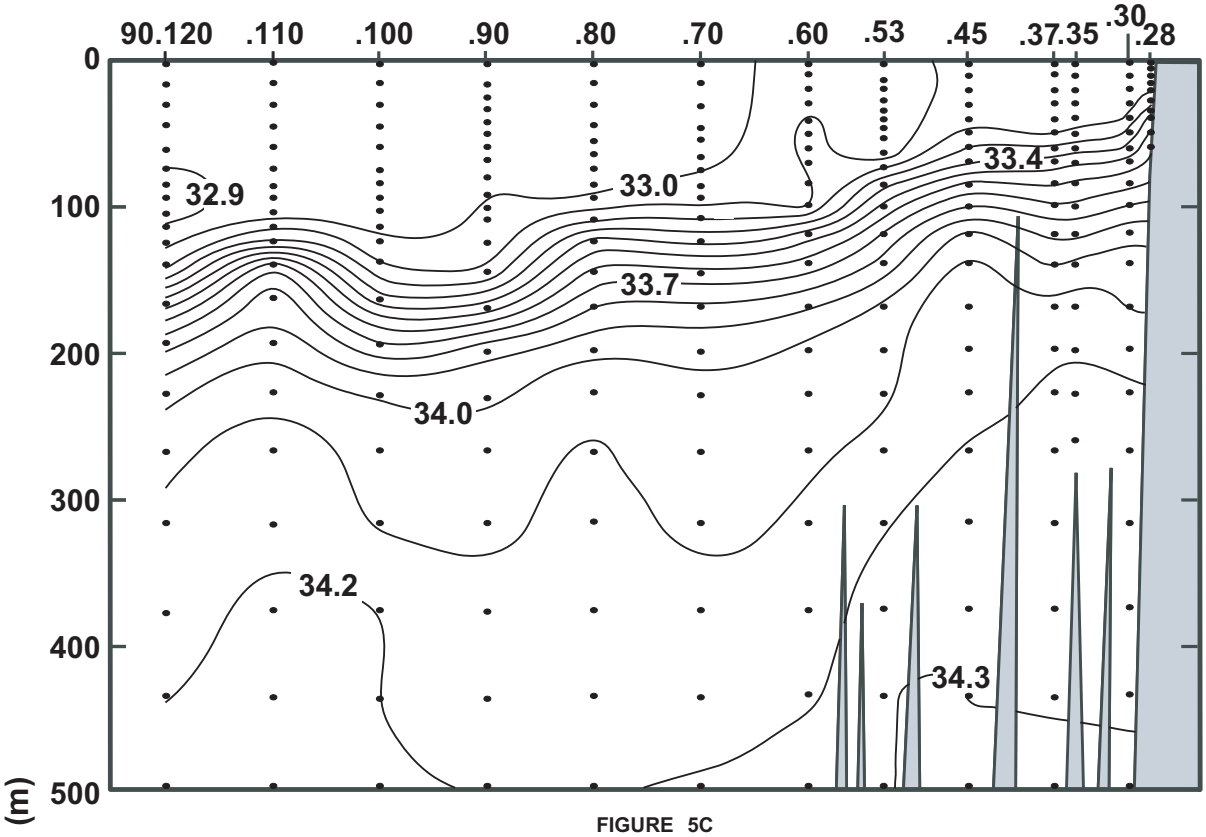


FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

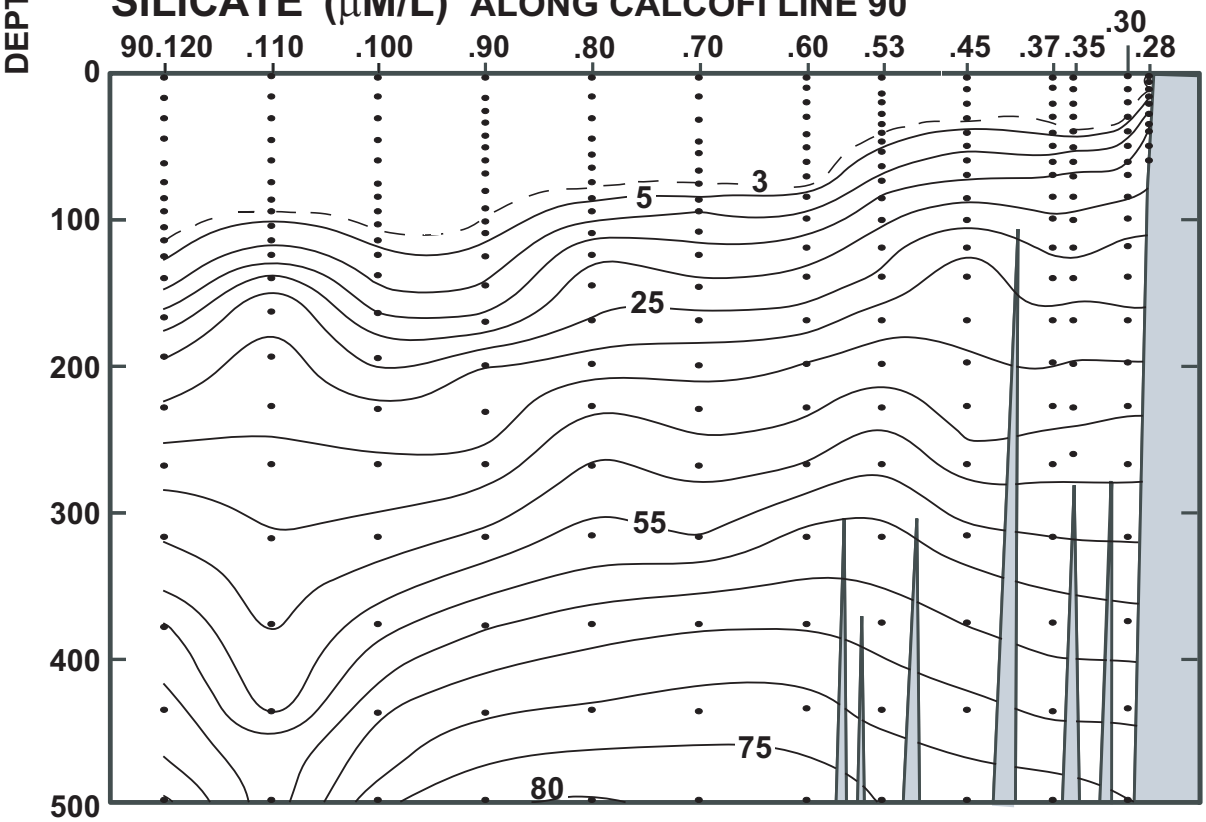


FIGURE 5D

CALCOFI CRUISE 0404

26 - 29 March 2004

NITRATE (μM/L) ALONG CALCOFI LINE 90

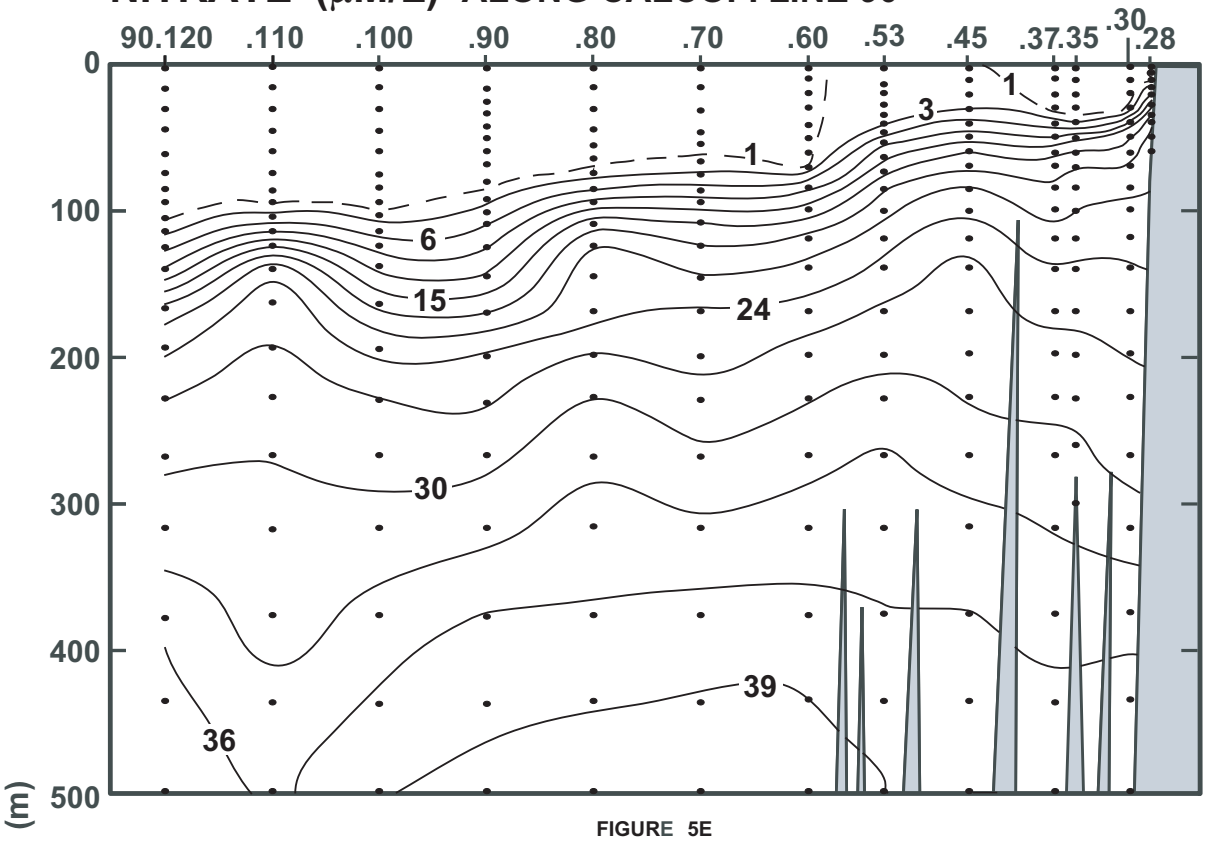


FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

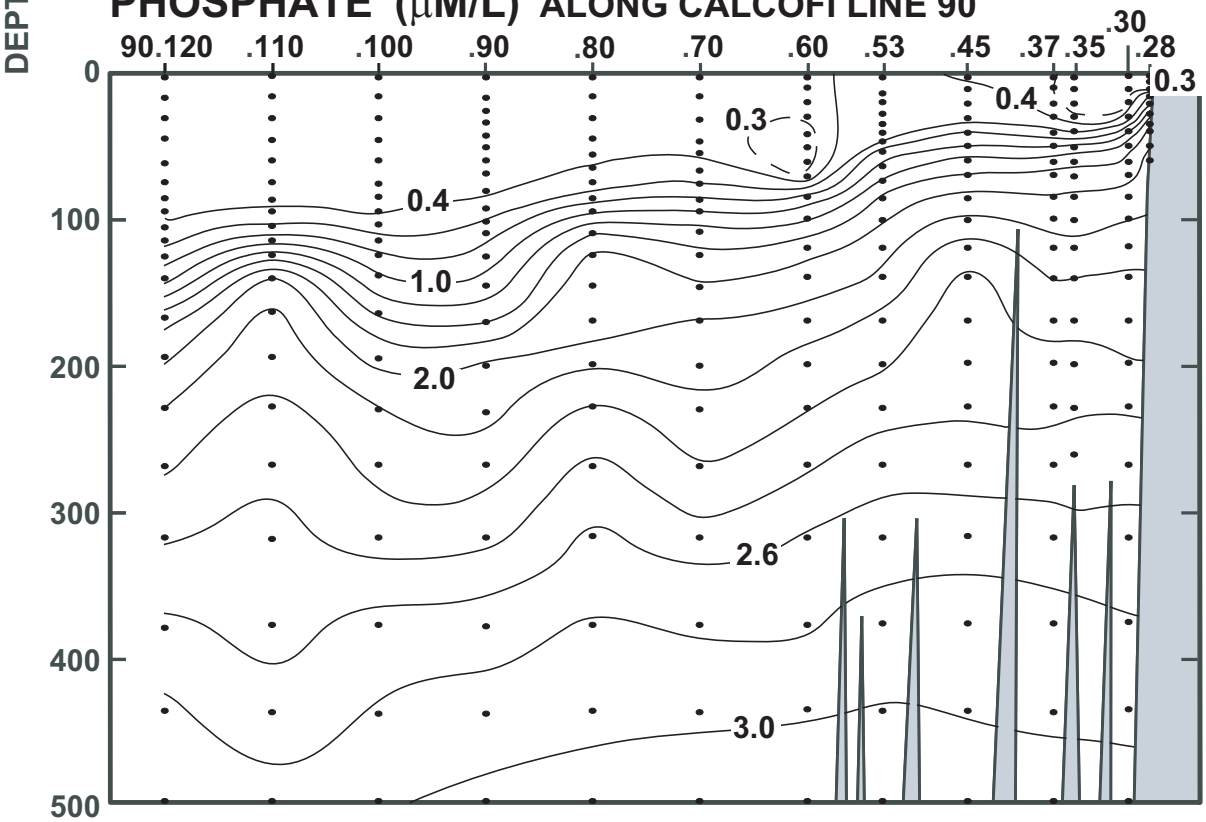


FIGURE 5F

CALCOFI CRUISE 0404

26 - 29 March 2004

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

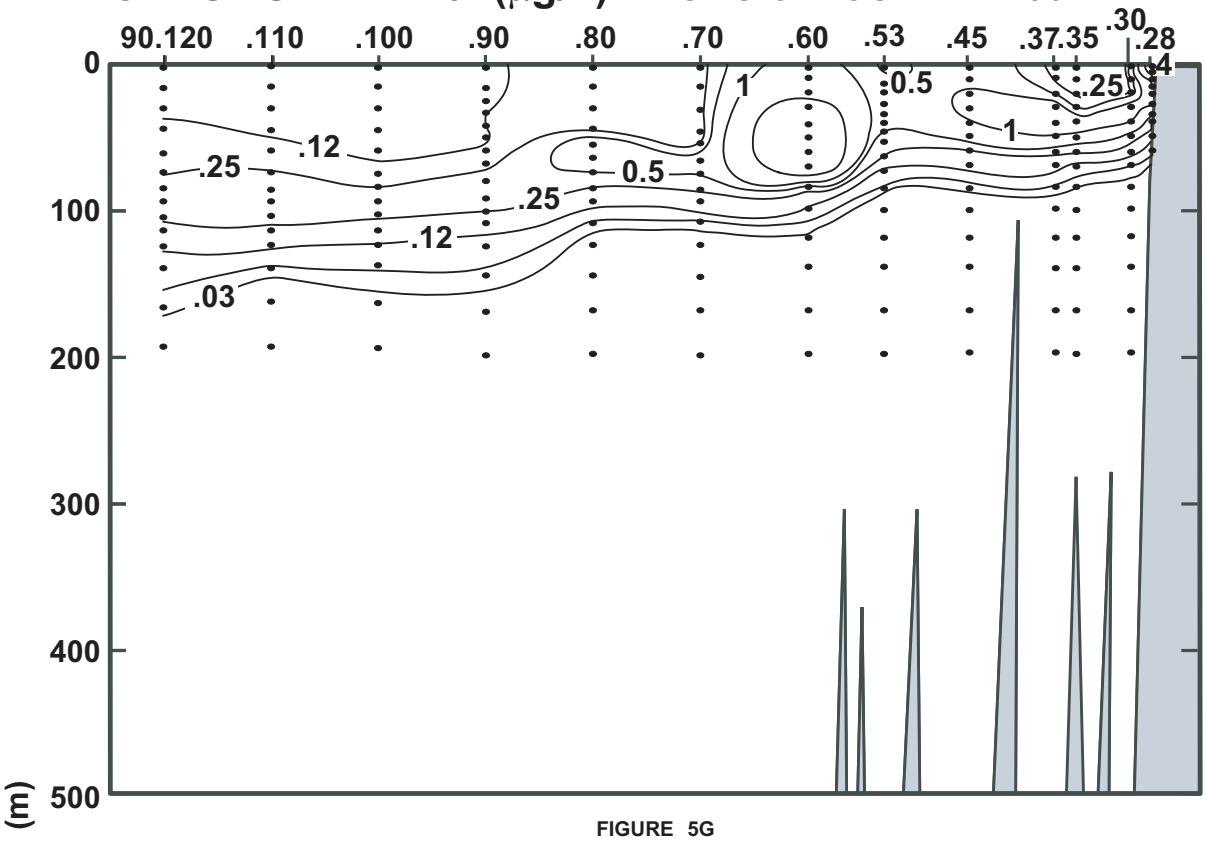


FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

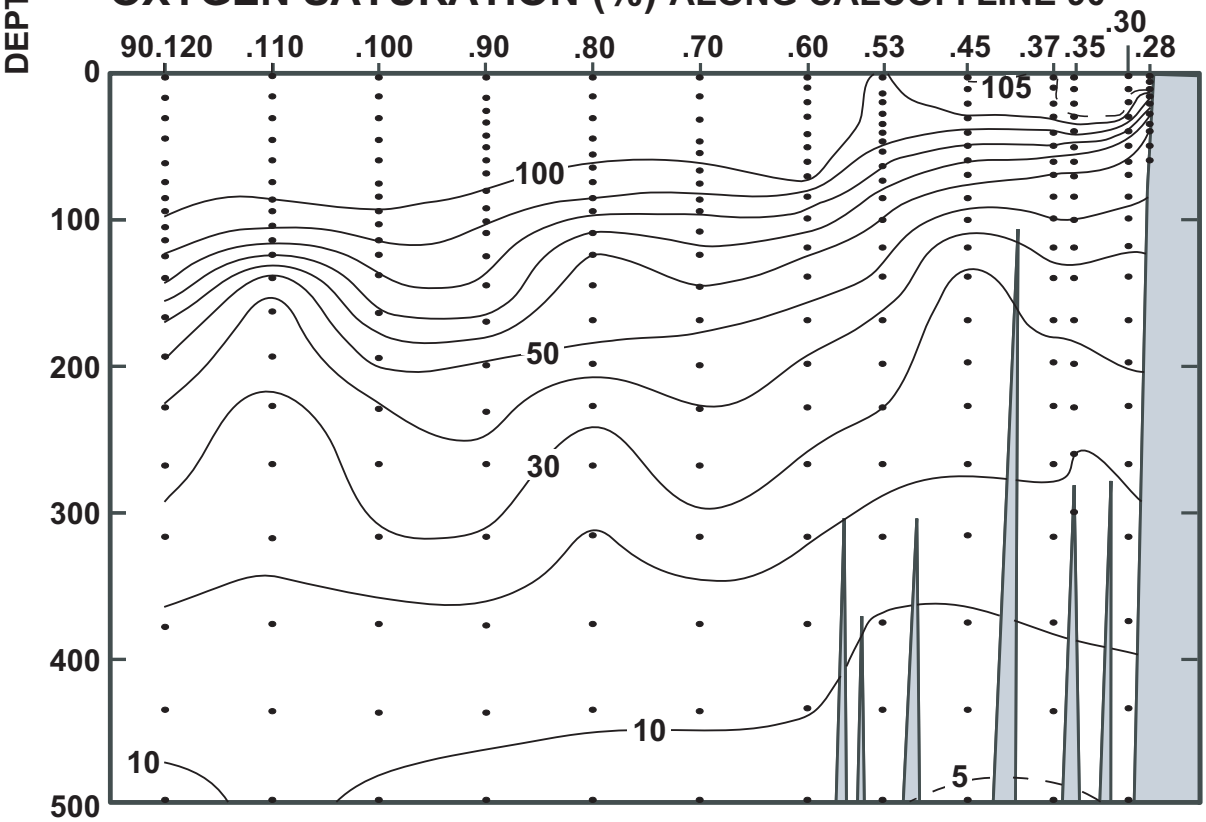


FIGURE 5H

CALCOFI CRUISE 0404

26 - 29 March 2004

OXYGEN (mL/L) ALONG CALCOFI LINE 90

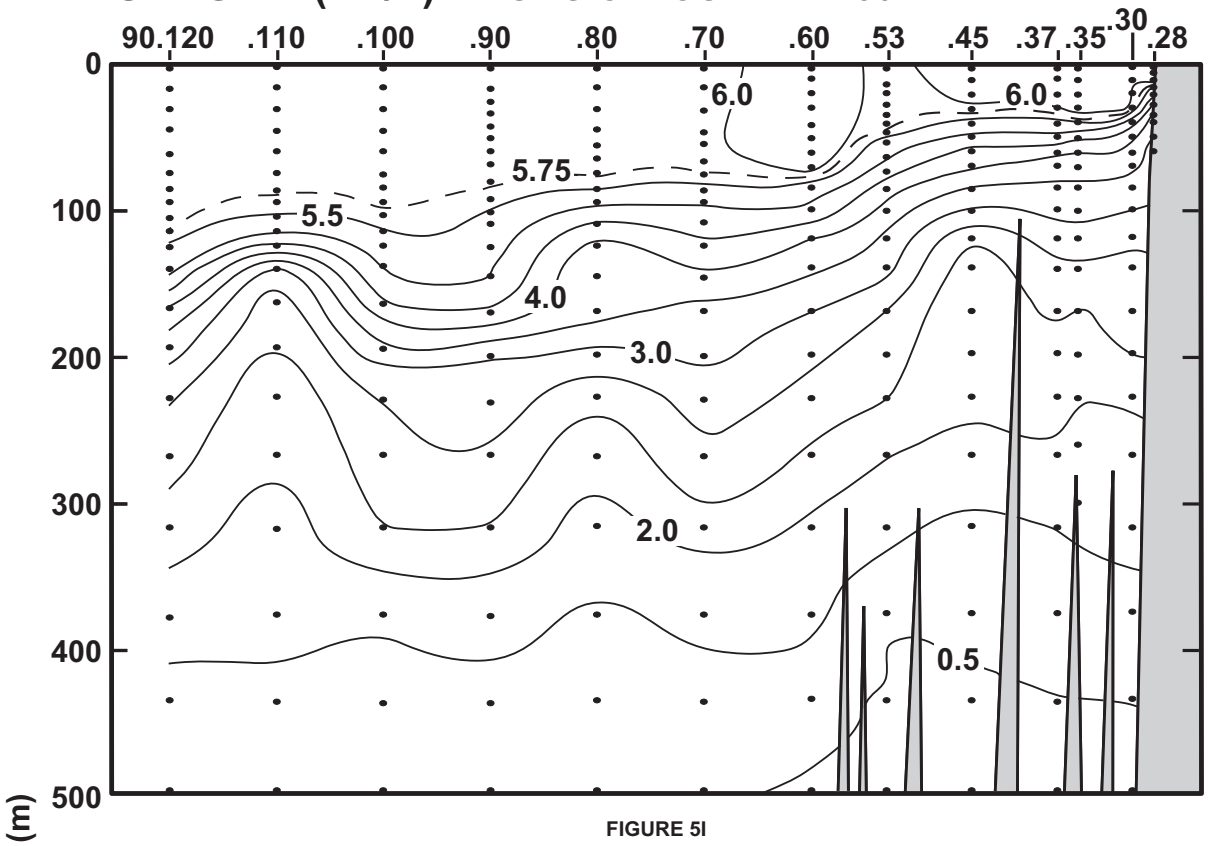


FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

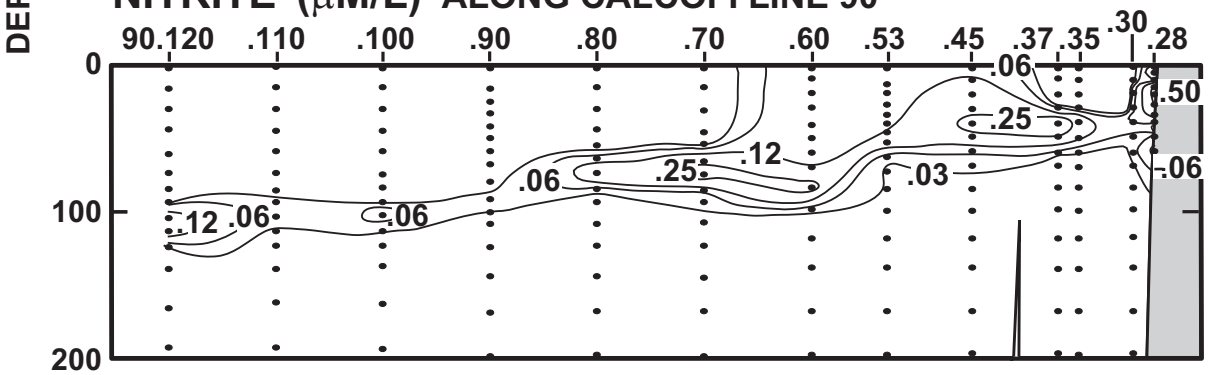


FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

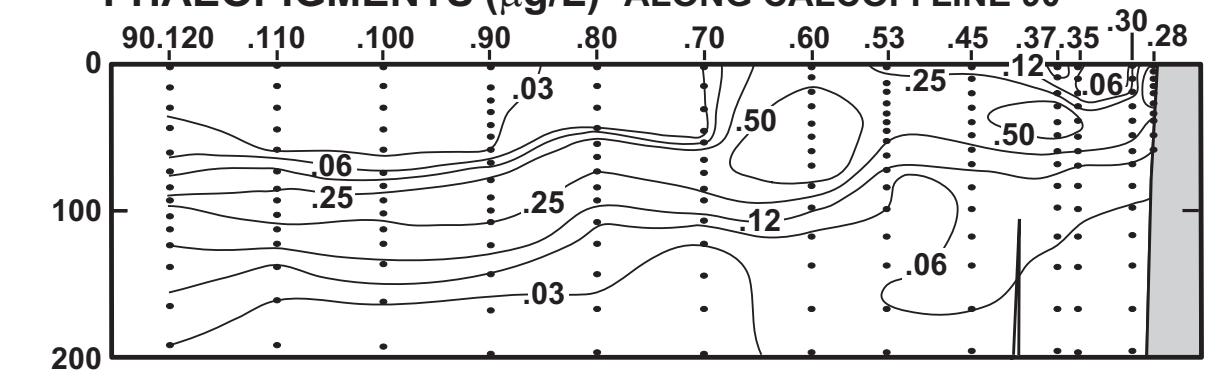


FIGURE 5K

PERSONNEL

CalCOFI Cruise 0404

SHIP'S CAPTAIN

John Manion, RV *New Horizon*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

Wilkinson, James R. (Chief Scientist)	Programmer Analyst, SIO
Abramenkoff, Dimitry	Fishery Biologist, NMFS
Cannon, Valerie A.	Fishery Biologist, NMFS
Faber, David N.	Graduate Student, CSUSM
DeJesus, Roman P.	Graduate Student, SIO
Dotson, Ronald C.	Fishery Biologist, NMFS
Gonzalez-Quiros, Rafael	Post Doctoral Fellow, SIO
Keiper, Carol A.	Seabird Biologist, Pt. Reyes Bird Observatory
Hays, Amy E.	Fishery Biologist, NMFS
King, Andrew L.	Graduate Student, SIO
McCann, Sherry L.	Staff Research Associate, SIO
Powell, Jesse R.	Staff Research Associate, SIO
Ramirez, Fernando	Staff Research Associate, SIO
Roe, Kelly	Staff Research Associate, SIO
Sheldon, Jennifer L.	Scientific Aid, CDFG
Schuller, Daniel G	Staff Research Associate, SIO
Soldevilla, Melissa S.	Graduate Student, SIO

San Diego - San Diego, California, 23 March – 8 April, 2004

RV NEW HORIZON CALCOFI CRUISE 0404 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 47.7 W	08/04/04	1759 UTC	82 m	320 14 kn			1015.2 mb			07m		

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	10.62	10.62	33.626	25.773	221.2	0.000	5.03	80.0	15.7	1.33	15.3	0.18	9.17	2.39	0	
2 A	10.62	10.62	33.626	25.773	221.3	0.004	5.03	80.0	15.7	1.33	15.3	0.18	9.17	2.39	2	211
5 A	10.60	10.60	33.627	25.778	220.9	0.011	4.97	79.0	15.6	1.34	15.3	0.17	9.92	2.26	5	210
10 A	10.60	10.60	33.628	25.778	221.0	0.022	4.94	78.5	15.5	1.34	15.3	0.17	9.61	3.42	10	209
15 A	10.55	10.55	33.645	25.801	219.0	0.033	4.68	74.3	16.0	1.38	16.0	0.17	9.85	2.20	15	208
20 A	10.53	10.53	33.649	25.807	218.5	0.044	4.62	73.3	16.4	1.41	16.3	0.18	9.73	1.91	20	207
27 A	10.55	10.55	33.645	25.801	219.2	0.059	4.64	73.7	16.2	1.40	16.1	0.18	10.32	2.42	27	206
30 ISL	10.55	10.55	33.645	25.801	219.3	0.066	4.65	73.8	16.2	1.40	16.1	0.18	9.74	2.83	30	
34	10.55	10.55	33.645	25.801	219.4	0.075	4.66	74.0	16.2	1.41	16.2	0.18	9.02	3.08	34	205
39	10.54	10.54	33.647	25.804	219.2	0.086	4.65	73.8	16.3	1.38	16.2	0.18	9.45	2.17	39	204
50	10.51	10.50	33.654	25.815	218.4	0.110	4.54	72.0	16.9	1.45	16.7	0.18	8.62	2.19	50	203
60	10.39	10.38	33.673	25.851	215.2	0.131	4.22	66.8	18.5	1.56	18.0	0.19	6.98	1.93	60	202
69	10.05	10.04	33.778	25.991	202.1	0.150	3.06	48.1	25.0	1.91	22.1	0.23	2.06	1.63	69	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 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	08/04/04	1402 UTC	245 m	330 22 kn	330 06 06	2	1013.6 mb	11.5 C	11.0 C	07m	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	10.78	10.78	33.488	25.638	234.1	0.000	5.33	85.0	12.8	1.22	14.0	0.13	9.01	2.20	0	
2	10.78	10.78	33.488	25.638	234.2	0.005	5.33	85.0	12.8	1.22	14.0	0.13	9.01	2.20	2	215
10	10.78	10.78	33.488	25.638	234.3	0.023	5.36	85.5	12.2	1.20	14.0	0.13	8.05	2.21	10	214
20	10.71	10.71	33.494	25.655	232.9	0.047	5.11	81.4	13.3	1.26	14.9	0.14	1.12	1.13	20	213
30	10.32	10.32	33.534	25.754	223.7	0.070	3.79	59.8	18.8	1.60	19.4	0.12	0.95	1.05	30	212
39	10.22	10.22	33.588	25.813	218.3	0.090	3.56	56.1	20.1	1.66	20.4	0.11	0.30	0.70	39	211
50	10.03	10.02	33.716	25.946	205.9	0.113	2.92	45.9	23.4	1.83	22.5	0.06	0.14	0.66	50	210
60	9.94	9.93	33.820	26.042	197.0	0.133	2.64	41.4	25.6	1.92	23.8	0.04	0.10	0.55	60	209
70	9.80	9.79	33.903	26.131	188.8	0.152	2.40	37.5	28.0	2.01	25.0	0.03	0.06	0.42	70	208
75 ISL	9.75	9.74	33.935	26.164	185.7	0.162	2.31	36.1	28.8	2.04	25.4	0.03	0.06	0.43	75	
84	9.66	9.65	33.980	26.214	181.1	0.178	2.17	33.9	30.0	2.09	26.0	0.03	0.07	0.44	84	207
100	9.52	9.51	34.025	26.273	175.9	0.207	2.00	31.1	32.5	2.19	27.0	0.04	0.04	0.33	101	206
119	9.38	9.37	34.054	26.319	171.9	0.240	1.86	28.9	34.3	2.25	27.6	0.06	0.03	0.19	120	205
125 ISL	9.35	9.34	34.070	26.336	170.4	0.250	1.83	28.4	34.7	2.26	27.8	0.05	0.03	0.19	126	
140	9.29	9.27	34.111	26.378	166.7	0.275	1.75	27.1	35.5	2.28	28.3	0.03	0.03	0.19	141	204
150 ISL	9.24	9.22	34.125	26.397	165.1	0.292	1.71	26.5	36.1	2.30	28.6	0.03	0.04	0.21	151	
170	9.10	9.08	34.145	26.436	161.8	0.325	1.61	24.8	37.7	2.35	29.1	0.04	0.05	0.24	171	203
197	8.83	8.81	34.186	26.511	155.1	0.367	1.41	21.6	42.0	2.47	30.1	0.06	0.12	0.22	198	202
200 ISL	8.81	8.79	34.188	26.516	154.7	0.372	1.40	21.5	42.2	2.47	30.2	0.06			201	
229	8.59	8.57	34.210	26.568	150.3	0.416	1.28	19.5	44.1	2.52	31.1	0.04			230	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 77 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 53.2 N	121 12.4 W	08/04/04	1005 UTC	566 m	330 20 kn			1013.8 mb	12.8 C	12.0 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	11.95	11.95	33.239	25.231	272.8	0.000	5.80	94.7	5.1	0.79	7.5	0.20	0.15	0.04	0	
2	11.95	11.95	33.239	25.232	272.8	0.005	5.80	94.7	5.1	0.79	7.5	0.20	0.15	0.04	2	222
10	11.88	11.88	33.246	25.250	271.2	0.027	5.74	93.6	5.5	0.82	7.9	0.20	3.09	1.21	10	219
20	11.78	11.78	33.266	25.285	268.2	0.054	5.66	92.1	6.3	0.88	8.6	0.19	2.33	1.09	20	218
30	11.39	11.39	33.323	25.401	257.3	0.080	5.23	84.4	8.8	1.05	11.1	0.17	2.74	1.55	30	217
41	10.37	10.37	33.504	25.722	227.0	0.107	4.01	63.4	16.9	1.50	18.0	0.11	1.06	0.85	41	216
50	10.33	10.32	33.514	25.737	225.8	0.127	3.93	62.1	17.3	1.51	18.3	0.11	1.07	1.05	50	215
59	10.08	10.07	33.566	25.820	218.0	0.147	3.65	57.3	19.3	1.61	19.9	0.09	0.61	0.87	59	214
70	9.58	9.57	33.696	26.005	200.7	0.170	3.17	49.3	23.6	1.79	23.0	0.06	0.14	0.53	70	213
75 ISL	9.44	9.43	33.737	26.060	195.5	0.180	3.05	47.3	23.6	1.79	23.0	0.06	0.11	0.45	75	
85	9.26	9.25	33.798	26.137	188.4	0.200	2.92	45.1	23.6	1.79	23.0	0.06	0.06	0.35	85	212
99	9.13	9.12	33.851	26.200	182.7	0.226	2.81	43.3	28.1	1.92	25.6	0.03	0.04	0.29	100	211
100 ISL	9.11	9.10	33.856	26.207	182.1	0.227	2.81	43.3	28.3	1.92	25.7	0.03	0.04	0.29	101	
119	8.85	8.84	33.948	26.320	171.6	0.261	2.66	40.7	31.1	1.99	26.7	0.03	0.03	0.22	120	210
125 ISL	8.87	8.86	33.975	26.339	170.0	0.271	2.55	39.1	31.9	2.03	27.0	0.03	0.03	0.22	126	
140	8.98	8.96	34.036	26.369	167.5	0.297	2.23	34.3	33.7	2.13	27.6	0.02	0.03	0.24	141	209
150 ISL	8.99	8.97	34.070	26.394	165.3	0.313	2.03	31.2	35.0	2.20	28.1	0.02	0.03	0.22	151	
169	9.01	8.99	34.134	26.442	161.2	0.344	1.72	26.5	37.3	2.31	28.9	0.02	0.03	0.17	170	208
199	8.78	8.76	34.164	26.502	156.0	0.392	1.56	23.9	40.1	2.39	29.8	0.02	0.02	0.14	200	207
200 ISL	8.77	8.75	34.165	26.504	155.8	0.393	1.55	23.7	40.2	2.39	29.8	0.02			201	
229	8.55	8.53	34.198	26.565	150.6	0.438	1.39	21.2	43.2	2.48	30.9	0.02			230	206
250 ISL	8.28	8.25	34.204	26.611	146.4	0.469	1.27	19.2	46.2	2.54	31.8	0.01			252	
269	8.03	8.00	34.205	26.649	143.0	0.496	1.18	17.8	48.9	2.59	32.5	0.01			271	205
300 ISL	7.78	7.75	34.211	26.691	139.5	0.540	1.09	16.3	51.7	2.65	33.2	0.01			302	
318	7.66	7.63	34.213	26.710	137.9	0.565	1.05	15.7	53.2	2.68	33.6	0.01			320	204
377	7.19	7.15	34.216	26.780	131.9	0.645	0.86	12.7	59.7	2.79	35.3	0.01			380	203
400 ISL	6.96	6.92	34.217	26.813	129.0	0.675	0.80	11.8	62.8	2.83	36.0	0.01			403	
437	6.61	6.57	34.219	26.862	124.6	0.722	0.70	10.2	67.7	2.89	37.2	0.01			440	202
500 ISL	6.20	6.16	34.228	26.923	119.3	0.799	0.53	7.6	74.3	3.00	38.6	0.02			504	
512	6.12	6.07	34.230	26.935	118.3	0.813	0.50	7.2	75.6	3.02	38.9	0.02			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 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	08/04/04	0552	UTC	916 m	330	21 kn			1015.6 mb	13.0 C	12.5 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	12.72	12.72	33.175	25.035	291.5	0.000	6.30	104.5	1.2	0.46	3.1	0.17	0.85	0.23	0	
2	12.72	12.72	33.175	25.035	291.5	0.006	6.30	104.5	1.2	0.46	3.1	0.17	0.85	0.23	2	221
10	12.72	12.72	33.175	25.035	291.7	0.029	6.30	104.5	1.2	0.44	3.1	0.17	3.05	0.84	10	219
20	12.73	12.73	33.176	25.034	292.0	0.058	6.30	104.5	1.3	0.44	3.1	0.17	3.76	1.07	20	218
30	12.71	12.71	33.177	25.039	291.8	0.088			1.4	0.46	3.2	0.17	2.99	0.84	30	217
40	11.56	11.56	33.235	25.302	267.0	0.115	4.84	78.4	8.7	1.05	11.0	0.19	0.70	0.62	40	216
49	10.73	10.72	33.328	25.523	246.2	0.139	4.19	66.7	13.5	1.37	16.2	0.15	0.30	0.55	49	215
50 ISL	10.70	10.69	33.331	25.530	245.5	0.141	4.16	66.1	13.7	1.38	16.4	0.15	0.28	0.54	50	
60	10.50	10.49	33.385	25.607	238.3	0.165	3.93	62.2	15.5	1.49	18.0	0.13	0.18	0.48	60	214
70	10.05	10.04	33.610	25.860	214.5	0.188	3.25	51.0	20.7	1.73	21.4	0.06	0.08	0.39	70	213
75 ISL	9.99	9.98	33.654	25.905	210.4	0.198	3.17	49.7	21.7	1.78	21.8	0.05	0.08	0.39	75	
84	9.94	9.93	33.692	25.943	207.0	0.217	3.04	47.6	22.6	1.81	22.4	0.04	0.08	0.41	84	212
99	9.56	9.55	33.795	26.086	193.6	0.247	2.86	44.5	25.1	1.88	23.8	0.04	0.05	0.33	100	211
100 ISL	9.53	9.52	33.803	26.098	192.5	0.249	2.84	44.1	25.3	1.89	23.9	0.04	0.05	0.32	101	
119	9.11	9.10	33.946	26.278	175.7	0.284	2.58	39.8	29.6	2.00	26.2	0.04	0.03	0.21	120	210
125 ISL	9.04	9.03	33.968	26.306	173.2	0.295	2.55	39.2	30.4	2.02	26.5	0.04	0.03	0.19	126	
140	8.91	8.90	33.999	26.351	169.1	0.320	2.50	38.4	31.8	2.04	27.0	0.03	0.02	0.16	141	209
150 ISL	8.77	8.75	34.015	26.386	166.0	0.337	2.46	37.6	32.9	2.06	27.5	0.03	0.02	0.14	151	
169	8.53	8.51	34.040	26.443	160.9	0.368	2.37	36.1	35.1	2.11	28.4	0.03	0.01	0.12	170	208
199	8.34	8.32	34.075	26.500	156.0	0.416	2.13	32.3	38.6	2.21	29.7	0.02	0.01	0.11	200	207
200 ISL	8.32	8.30	34.075	26.503	155.7	0.417	2.12	32.1	38.8	2.21	29.8	0.02			201	
229	7.78	7.76	34.075	26.583	148.4	0.461	1.95	29.2	44.0	2.30	31.7	0.02			230	206
250 ISL	7.52	7.50	34.086	26.630	144.2	0.492	1.77	26.3	47.3	2.41	32.8	0.02			252	
268	7.36	7.33	34.097	26.661	141.5	0.518	1.61	23.9	49.8	2.50	33.5	0.02			270	205
300 ISL	7.13	7.10	34.109	26.703	137.9	0.562	1.45	21.4	53.2	2.58	34.5	0.02			302	
318	7.04	7.01	34.121	26.725	136.0	0.587	1.35	19.9	55.0	2.62	35.0	0.02			320	204
377	7.02	6.98	34.237	26.820	128.0	0.665	0.73	10.7	61.7	2.86	36.2	0.01			380	203
400 ISL	6.92	6.88	34.245	26.840	126.4	0.694	0.70	10.3	63.5	2.89	36.6	0.01			403	
437	6.66	6.62	34.238	26.870	123.9	0.741	0.64	9.3	66.6	2.92	37.4	0.01			440	202
500 ISL	5.99	5.95	34.220	26.943	117.2	0.817	0.50	7.2	75.6	3.01	39.4	0.01			504	
511	5.87	5.83	34.218	26.957	115.9	0.829	0.48	6.9	77.2	3.02	39.8	0.01			515	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 77 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
34 23.3 N	122 15.0 W	07/04/04	2253	UTC	4025 m	340	21 kn	340 07 06	1	1017.0 mb	15.0 C	13.1 C	09m		2/8	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	13.88	13.88	33.050	24.706	322.8	0.000	6.02	102.2	2.1	0.37	0.3	0.05	0.75	0.21	0	
2	13.88	13.88	33.050	24.706	322.8	0.006	6.02	102.2	2.1	0.37	0.3	0.05	0.75	0.21	2	220
10	13.88	13.88	33.051	24.707	322.9	0.032	6.24 U	105.9 U	2.1	0.37	0.3	0.05	0.75	0.22	10	219
20	13.85	13.85	33.050	24.713	322.7	0.065	6.02	102.1	2.1	0.37	0.3	0.06	0.77	0.25	20	218
30	13.83	13.83	33.050	24.717	322.6	0.097	6.02	102.1	2.1	0.37	0.3	0.06	0.79	0.25	30	217
40	13.78	13.77	33.051	24.728	321.8	0.129	6.00	101.7	2.1	0.37	0.3	0.06	0.83	0.26	40	216
50	13.76	13.75	33.052	24.734	321.5	0.161	5.99	101.4	2.2	0.38	0.5	0.07	0.74	0.24	50	215
60	13.57	13.56	33.060	24.779	317.5	0.193	5.85	98.7	2.5	0.45	1.4	0.16	0.36	0.17	60	214
70	11.94	11.93	33.175	25.185	278.9	0.223	5.20	84.8	6.4	0.86	8.7	0.03	0.16	0.15	70	213
75 ISL	11.53	11.52	33.211	25.289	269.1	0.237	4.91	79.4	8.3	1.01	11.0	0.03	0.14	0.14	75	
85	11.02	11.01	33.260	25.419	256.8	0.263	4.45	71.2	11.9	1.25	14.3	0.03	0.10	0.12	85	212
99	10.11	10.10	33.344	25.643	235.8	0.297	4.08	64.0	16.0	1.48	18.2	0.02	0.06	0.11	99	211
100 ISL	10.06	10.05	33.351	25.657	234.5	0.300	4.07	63.8	16.2	1.49	18.4	0.02	0.06	0.11	100	
118	9.40	9.39	33.498	25.881	213.4	0.340	3.95	61.1	19.5	1.58	20.3	0.03	0.02	0.06	119	210
125 ISL	9.27	9.26	33.560	25.950	206.9	0.355	3.88	59.9	20.6	1.61	20.9	0.03	0.02	0.06	126	
139	9.12	9.10	33.687	26.074	195.5	0.383	3.66	56.3	22.9	1.67	22.1	0.03	0.01	0.05	140	209
150 ISL	9.10	9.08	33.795	26.162	187.3	0.404	3.32	51.1	25.3	1.77	23.4	0.03	0.01	0.05	151	
169	9.08	9.06	33.948	26.285	176.1	0.439	2.74	42.2	29.4	1.95	25.7	0.02	0.01	0.05	170	208
199	8.66	8.64	34.014	26.403	165.3	0.490	2.44	37.2	33.9	2.07	28.2	0.02	0.01	0.06	200	207
200 ISL	8.64	8.62	34.016	26.408	164.9	0.491	2.43	37.1	34.1	2.08	28.3	0.02			201	
229	8.20	8.18	34.057	26.507	155.8	0.538	2.16	32.6	39.3	2.22	30.3	0.02			230	206
250 ISL	7.91	7.88	34.064	26.556	151.4	0.570	2.01	30.2	42.6	2.30	31.4	0.04			251	
270	7.65	7.62	34.064	26.594	148.0	0.600	1.89	28.2	45.6	2.36	32.3	0.06			272	205
300 ISL	7.27	7.24	34.068	26.651	142.9	0.644	1.73	25.6	50.0	2.47	33.7	0.03			302	
318	7.06	7.03	34.072	26.684	139.9	0.669	1.63	24.0	52.7	2.53	34.5	0.01			320	204
377	6.52	6.49	34.109	26.786	130.7	0.749	1.15	16.7	62.0	2.75	36.9	0.01			379	203
400 ISL	6.36	6.32	34.126	26.821	127.7	0.779	0.99	14.3	65.3	2.82	37.8	0.01			403	
437	6.14	6.10	34.153	26.871	123.3	0.825	0.78	11.2	70.3	2.91	39.0	0.01			440	202
500 ISL	5.78	5.74	34.189	26.945	116.8	0.901	0.54	7.7	78.0	3.03	40.3	0.00			503	
511	5.72	5.68	34.196	26.958	115.6	0.914	0.50	7.1	79.4	3.05	40.5	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 3.5 N	122 58.1 W	07/04/04	1709 UTC	4239 m	340 24 kn	340 08 06	1	1020.0 mb	14.0 C	12.0 C	13m	4/8	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	13.80	13.80	33.021	24.700	323.3	0.000	6.01	101.9	2.2	0.38	0.2	0.03	0.85	0.23	0	
3 A	13.80	13.80	33.021	24.700	323.4	0.010	6.01	101.9	2.2	0.38	0.2	0.03	0.85	0.23	3	221
9 A	13.79	13.79	33.021	24.702	323.4	0.029	6.02	102.0	2.2	0.37	0.2	0.03	0.85	0.21	9	220
10 ISL	13.79	13.79	33.021	24.702	323.4	0.032	6.02	102.0	2.2	0.37	0.2	0.03	0.85	0.21	10	
18 A	13.79	13.79	33.022	24.703	323.5	0.058	6.02	102.0	2.3	0.37	0.2	0.03	0.88	0.25	18	219
20 ISL	13.79	13.79	33.022	24.703	323.6	0.065	6.02	102.0	2.3	0.37	0.2	0.03	0.88	0.25	20	
27 A	13.80	13.80	33.022	24.702	323.9	0.087	6.01	101.9	2.3	0.37	0.2	0.03	0.89	0.25	27	218
30 ISL	13.80	13.80	33.022	24.702	324.0	0.097	6.01	101.9	2.3	0.37	0.2	0.03	0.88	0.25	30	
37 A	13.79	13.78	33.022	24.704	324.0	0.120	6.02	102.0	2.3	0.37	0.2	0.03	0.87	0.25	37	217
45	13.79	13.78	33.021	24.703	324.3	0.146	6.01	101.8	2.3	0.37	0.2	0.03	0.88	0.23	45	216
50 A	13.78	13.77	33.021	24.705	324.2	0.162	6.00	101.6	2.3	0.38	0.3	0.03	0.89	0.25	50	215
60	13.74	13.73	33.020	24.713	323.7	0.194	5.97	101.0	2.5	0.39	0.5	0.04	0.83	0.22	60	214
71	10.73	10.72	33.097	25.343	263.7	0.227	4.66	74.0	10.9	1.24	14.2	0.00	0.22	0.15	71	213
75 ISL	10.58	10.57	33.178	25.433	255.3	0.237	4.48	71.0	12.3	1.30	15.1	0.00	0.19	0.13	75	
85	10.22	10.21	33.220	25.527	246.5	0.262	4.28	67.3	14.2	1.44	17.4	0.02	0.12	0.10	85	212
100	9.82	9.81	33.379	25.719	228.5	0.298	3.92	61.1	17.7	1.60	19.9	0.01	0.04	0.07	100	211
119	9.35	9.34	33.601	25.969	205.0	0.339	3.46	53.5	22.5	1.76	22.9	0.01	0.01	0.07	120	210
125 ISL	9.25	9.24	33.663	26.034	199.0	0.351	3.34	51.5	23.8	1.79	23.6	0.01	0.01	0.06	126	
139	9.09	9.07	33.790	26.159	187.4	0.378	3.07	47.2	26.4	1.86	24.9	0.01	0.01	0.05	140	209
150 ISL	9.01	8.99	33.866	26.231	180.7	0.398	2.82	43.3	28.4	1.94	26.0	0.01	0.01	0.05	151	
170	8.87	8.85	33.960	26.327	172.0	0.434	2.47	37.9	31.6	2.05	27.7	0.01	0.01	0.05	171	208
200 ISL	8.55	8.53	34.013	26.419	163.8	0.484	2.51	38.2	34.1	2.06	28.2	0.01	0.01	0.04	201	
202	8.53	8.51	34.015	26.424	163.3	0.487	2.51	38.2	34.3	2.06	28.2	0.01	0.01	0.04	203	207
229	8.37	8.35	34.088	26.506	156.0	0.530	2.08	31.5	38.1	2.22	30.1	0.01			230	206
250 ISL	8.12	8.09	34.096	26.550	152.1	0.563	1.91	28.8	41.5	2.31	31.2	0.01			251	
272	7.82	7.79	34.088	26.588	148.7	0.596	1.79	26.8	45.1	2.39	32.2	0.00			274	205
300 ISL	7.48	7.45	34.099	26.646	143.5	0.637	1.59	23.6	49.2	2.49	33.4	0.00			302	
318	7.29	7.26	34.109	26.681	140.4	0.662	1.46	21.6	51.7	2.55	34.1	0.00			320	204
378	6.90	6.86	34.159	26.775	132.2	0.744	1.01	14.8	59.6	2.76	36.2	0.00			380	203
400 ISL	6.69	6.65	34.165	26.808	129.2	0.773	0.90	13.1	62.8	2.82	37.0	0.00			403	
438	6.28	6.24	34.168	26.865	124.0	0.821	0.76	11.0	68.6	2.90	38.3	0.00			441	202
500 ISL	5.63	5.59	34.163	26.943	116.8	0.895	0.62	8.8	79.2	3.01	40.3	0.00			503	
509	5.53	5.49	34.163	26.955	115.7	0.906	0.60	8.5	80.7	3.03	40.6	0.00			513	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 77 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 43.2 N	123 38.4 W	07/04/04	0836 UTC	4122 m	340 18 kn			1021.0 mb	12.0 C	11.0 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	13.72	13.72	32.981	24.685	324.7	0.000	6.07	102.7	2.2	0.37	0.2	0.03	0.74	0.20	0	
2	13.72	13.72	32.981	24.685	324.8	0.006	6.07	102.7	2.2	0.37	0.2	0.03	0.74	0.20	2	220
10	13.72	13.72	32.978	24.683	325.2	0.032	6.07	102.7	2.1	0.37	0.2	0.03	0.81	0.20	10	219
20	13.73	13.73	32.980	24.683	325.5	0.065	6.07	102.7	2.1	0.37	0.2	0.03	0.81	0.13	20	218
30	13.73	13.73	32.978	24.682	325.9	0.098	6.06	102.5	2.1	0.37	0.2	0.03	0.75	0.17	30	217
40	13.73	13.72	32.979	24.683	326.1	0.130	6.06	102.5	2.1	0.37	0.2	0.03	0.76	0.21	40	216
49	13.72	13.71	32.981	24.687	325.9	0.160	6.05	102.3	2.2	0.37	0.2	0.03	0.77	0.19	49	215
50 ISL	13.65	13.64	32.970	24.693	325.4	0.163	6.03	101.8	2.3	0.39	0.4	0.05	0.74	0.18	50	
59	12.72	12.71	32.903	24.826	312.9	0.192	5.69	94.2	3.9	0.64	4.2	0.17	0.47	0.12	59	214
70	11.25	11.24	33.079	25.237	273.8	0.224	4.83	77.6	9.0	1.12	12.3	0.04	0.29	0.06	70	213
75 ISL	10.88	10.87	33.155	25.362	262.0	0.237	4.53	72.2	11.0	1.27	14.6	0.04	0.22	0.07	75	
84	10.40	10.39	33.274	25.539	245.4	0.260	4.14	65.4	14.3	1.46	17.6	0.03	0.11	0.11	84	212
100	9.45	9.44	33.422	25.813	219.5	0.297	3.89	60.2	19.2	1.64	21.0	0.02	0.05	0.10	100	211
120	9.45	9.44	33.620	25.968	205.2	0.340	3.36	52.1	22.5	1.78	23.2	0.02	0.02	0.04	121	210
125 ISL	9.37	9.36	33.680	26.028	199.6	0.350	3.21	49.7	23.9	1.82	23.9	0.02	0.02	0.04	126	
139	9.13	9.11	33.835	26.188	184.7	0.377	2.84	43.7	27.6	1.94	25.8	0.02	0.01	0.04	140	209
150 ISL	9.09	9.07	33.905	26.249	179.1	0.397	2.66	41.0	29.1	1.99	26.6	0.02	0.01	0.04	151	
169	9.03	9.01	33.964	26.305	174.1	0.430	2.45	37.7	30.8	2.06	27.5	0.01	0.02	0.03	170	208
199	8.85	8.83	34.054	26.405	165.2	0.481	2.10	32.2	34.5	2.18	28.9	0.01	0.01	0.04	200	207
200 ISL	8.84	8.82	34.057	26.409	164.9	0.483	2.09	32.0	34.7	2.18	29.0	0.01			201	
229	8.52	8.50	34.111	26.501	156.5	0.529	1.78	27.1	39.3	2.32	30.6	0.01			230	206
250 ISL	8.27	8.24	34.122	26.548	152.4	0.562	1.68	25.4	41.9	2.38	31.4	0.01			251	
268	8.07	8.04	34.124	26.580	149.6	0.589	1.63	24.6	43.9	2.43	32.0	0.01			270	205
300 ISL	7.77	7.74	34.135	26.633	145.0	0.636	1.49	22.3	47.4	2.51	32.9	0.00			302	
318	7.60	7.57	34.142	26.663	142.3	0.662	1.39	20.7	49.5	2.56	33.5	0.00			320	204
379	6.96	6.92	34.173	26.778	131.9	0.746	0.95	14.0	59.6	2.79	36.3	0.00			381	203
400 ISL	6.72	6.68	34.178	26.814	128.6	0.773	0.85	12.4	63.2	2.85	37.2	0.00			403	
437	6.34	6.30	34.188	26.873	123.3	0.820	0.70	10.1	69.2	2.93	38.5	0.00			440	202
500 ISL	5.99	5.95	34.226	26.948	116.7	0.895	0.50	7.2	76.8	3.04	39.8	0.00			503	
512	5.92	5.88	34.233	26.962	115.5	0.909	0.46	6.6	78.3	3.06	40.1	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 77 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 23.4 N	124 19.7 W	07/04/04	0124 UTC	4501 m	350 15 kn	340 04 07	2	1021.2 mb	12.5 C	10.9 C	10m	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	13.95	13.95	32.932	24.600	332.8	0.000	6.07	103.1	2.0	0.38	0.0	0.00	0.52	0.16	0	
2	13.95	13.95	32.932	24.600	332.9	0.007	6.07	103.1	2.0	0.38	0.0	0.00	0.52	0.16	2	220
10 ISL	13.95	13.95	32.932	24.601	333.1	0.033	6.06	103.0	1.9	0.38	0.0	0.00	0.54	0.13	10	
15	13.95	13.95	32.932	24.601	333.2	0.050	6.05	102.8	1.9	0.38	0.0	0.00	0.55	0.11	15	219
20 ISL	13.93	13.93	32.933	24.606	332.9	0.067	6.06	102.9	1.9	0.38	0.0	0.00	0.56	0.12	20	
30	13.88	13.88	32.935	24.618	332.0	0.100	6.07	103.0					0.58	0.15	30	218
44	13.83	13.82	32.939	24.632	331.1	0.146	6.07	102.9	1.9	0.38	0.0	0.00	0.66	0.17	44	217
50 ISL	13.77	13.76	32.941	24.646	329.9	0.166	6.03	102.1	2.0	0.39	0.1	0.01	0.68	0.19	50	
54	13.73	13.72	32.942	24.655	329.1	0.179	6.01	101.6	2.0	0.40	0.1	0.02	0.69	0.22	54	216
64	12.32	12.31	32.900	24.900	305.9	0.211	5.62	92.3	3.7	0.67	4.4	0.14	0.47	0.39	64	215
74	11.09	11.08	32.944	25.161	281.2	0.240	5.26	84.1	6.8	0.95	9.2	0.05	0.27	0.23	74	214
75 ISL	11.01	11.00	32.952	25.181	279.2	0.243	5.22	83.4	7.2	0.98	9.7	0.05	0.26	0.22	75	
85	10.42	10.41	33.039	25.352	263.1	0.270	4.85	76.5	10.5	1.23	13.6	0.02	0.16	0.11	85	213
95	10.09	10.08	33.132	25.481	251.1	0.296	4.60	72.1	12.7	1.35	15.8	0.02	0.12	0.08	95	212
100 ISL	9.96	9.95	33.214	25.567	243.0	0.308	4.36	68.1	14.5	1.45	17.4	0.02	0.09	0.07	100	
109	9.76	9.75	33.370	25.722	228.4	0.330	3.95	61.5	17.7	1.62	20.2	0.02	0.05	0.05	110	211
124	9.44	9.43	33.546	25.912	210.6	0.362	3.70	57.3	20.7	1.71	22.0	0.01	0.02	0.04	125	210
125 ISL	9.42	9.41	33.559	25.925	209.3	0.365	3.66	56.6	21.0	1.72	22.2	0.01	0.02	0.04	126	
144	9.16	9.14	33.783	26.143	189.1	0.402	2.97	45.8	26.3	1.94	25.7	0.01	0.01	0.05	145	209
150 ISL	9.09	9.07	33.833	26.193	184.4	0.414	2.85	43.9	27.5	1.97	26.2	0.01	0.01	0.05	151	
169	8.90	8.88	33.947	26.313	173.4	0.448	2.60	39.9	30.5	2.04	27.4	0.01	0.01	0.04	170	208
198	8.59	8.57	34.043	26.437	162.1	0.496	2.22	33.8	35.3	2.20	29.7	0.01	0.00	0.04	199	207
200 ISL	8.57	8.55	34.047	26.443	161.5	0.500	2.19	33.4	35.6	2.21	29.8	0.01			201	
229	8.25	8.23	34.084	26.521	154.5	0.545	1.89	28.6	40.0	2.33	31.4	0.01			230	206
250 ISL	7.92	7.89	34.088	26.573	149.8	0.577	1.84	27.6	43.3	2.39	32.2	0.00			251	
269	7.61	7.58	34.085	26.616	145.9	0.605	1.82	27.1	46.4	2.44	32.9	0.00			271	205
300 ISL	7.20	7.17	34.089	26.678	140.3	0.650	1.63	24.1	51.3	2.55	34.4	0.00			302	
318	6.98	6.95	34.091	26.710	137.4	0.675	1.50	22.0	54.2	2.62	35.3	0.00			320	204
379	6.25	6.22	34.093	26.809	128.4	0.756	1.19	17.2	64.4	2.79	38.1	0.00			381	203
400 ISL	6.04	6.01	34.099	26.840	125.5	0.782	1.07	15.4	68.0	2.89	39.0	0.00			403	
438	5.78	5.74	34.128	26.896	120.6	0.829	0.83	11.9	73.9	3.05	40.2	0.00			441	202
500 ISL	5.85	5.81	34.262	26.994	112.3	0.901	0.42	6.0	80.1	3.09	40.9	0.00			503	
513	5.86	5.82	34.290	27.015	110.5	0.916	0.33	4.7	81.4	3.10	41.0	0.00			517	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 27.0 N	120 32.0 W	04/04/04	0438 UTC	82 m	300 11 kn			1015.5 mb	12.9 C	12.2 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	13.38	13.38	33.335	25.028	292.1	0.000	6.53	109.9	2.7	0.29	1.1	0.05	8.86	1.34	0	
2	13.38	13.38	33.335	25.028	292.2	0.006	6.53	109.9	2.7	0.29	1.1	0.05	8.86	1.34	2	209
5	13.38	13.38	33.336	25.029	292.2	0.015	6.54	110.1	2.6	0.28	1.0	0.05	8.93	1.38	5	208
10	13.38	13.38	33.335	25.028	292.4	0.029	6.54	110.1	2.4	0.28	0.9	0.05	8.71	0.96	10	207
20	12.10	12.10	33.413	25.339	263.0	0.057	4.94	81.0	9.7	0.91	9.6	0.18	5.57	1.04	20	206
30	10.50	10.50	33.644	25.809	218.5	0.081	3.30	52.3	19.7	1.65	19.7	0.12	1.14	0.61	30	205
40	10.16	10.16	33.748	25.948	205.5	0.102	2.89	45.5	23.0	1.85	22.3	0.04	0.13	0.45	40	204
50	10.11	10.10	33.794	25.993	201.5	0.123	2.76	43.4	24.0	1.88	22.9	0.05	0.09	0.25	50	203
60	9.97	9.96	33.834	26.048	196.4	0.143	2.65	41.6	25.6	1.95	23.7	0.05	0.07	0.30	60	202
70	9.85	9.84	33.898	26.118	190.0	0.162	2.47	38.7	27.3	2.02	24.5	0.05	0.04	0.25	70	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 19.2 N	120 48.3 W	04/04/04	0758 UTC	755 m	320 07 kn			1016.3 mb	12.8 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	12.21	12.21	33.508	25.391	257.5	0.000	6.05	99.5	13.0	1.03	10.9	0.14	5.52	1.39	0	
2	12.21	12.21	33.508	25.391	257.6	0.005	6.05	99.5	13.0	1.03	10.9	0.14	5.52	1.39	2	220
9	11.55	11.55	33.537	25.537	243.9	0.023	5.46	88.5	14.1	1.20	13.1	0.18	5.53	1.85	9	219
10 ISL	11.49	11.49	33.538	25.549	242.8	0.025	5.40	87.5	14.3	1.23	13.5	0.18	5.49	1.82	10	
19	11.15	11.15	33.544	25.616	236.6	0.047	4.90	78.8	16.9	1.48	17.3	0.17	5.14	1.59	19	218
20 ISL	11.13	11.13	33.543	25.619	236.4	0.049	4.84	77.8	17.3	1.51	17.7	0.16	4.99	1.58	20	
30	10.82	10.82	33.580	25.703	228.6	0.072	4.03	64.3	16.9 U	1.49 U	17.3 U	0.17 U	2.87	1.34	30	217
40	10.08	10.08	33.785	25.991	201.4	0.094	2.74	43.1	24.3	1.88	23.0	0.04	0.12	0.47	40	216
49	10.02	10.01	33.812	26.022	198.6	0.112	2.65	41.6	25.1	1.92	23.5	0.03	0.10	0.43	49	215
50 ISL	10.01	10.00	33.815	26.026	198.3	0.114	2.64	41.5	25.2	1.92	23.5	0.03	0.10	0.43	50	
60	9.94	9.93	33.845	26.062	195.1	0.133	2.55	40.0	26.1	1.97	24.0	0.03	0.08	0.40	60	214
70	9.82	9.81	33.896	26.122	189.6	0.153	2.40	37.6	27.7	2.03	24.9	0.02	0.07	0.36	70	213
75 ISL	9.79	9.78	33.914	26.141	187.9	0.162	2.35	36.8	28.2	2.05	25.2	0.02	0.07	0.35	75	
84	9.74	9.73	33.941	26.171	185.3	0.179	2.28	35.6	28.9	2.07	25.5	0.02	0.07	0.34	84	212
100	9.65	9.64	33.995	26.228	180.2	0.208	2.14	33.4	30.2	2.12	26.0	0.02	0.04	0.28	101	211
120	9.52	9.51	34.028	26.276	176.1	0.244	2.13	33.1	31.0	2.14	26.8	0.02	0.04	0.25	121	210
125 ISL	9.50	9.49	34.038	26.287	175.1	0.253	2.10	32.7	31.3	2.15	27.0	0.02	0.04	0.23	126	
139	9.44	9.42	34.068	26.320	172.2	0.277	1.99	30.9	32.3	2.18	27.4	0.02	0.04	0.17	140	209
150 ISL	9.37	9.35	34.091	26.350	169.6	0.296	1.91	29.6	33.3	2.21	27.8	0.02			151	
169	9.22	9.20	34.127	26.403	165.0	0.328	1.76	27.2	35.4	2.27	28.5	0.01	0.22 U	0.21 U	170	208
199	8.97	8.95	34.175	26.481	158.1	0.376	1.52	23.4	38.9	2.41	29.8	0.01	0.15 U	0.24 U	200	207
200 ISL	8.96	8.94	34.176	26.483	157.9	0.378	1.51	23.2	39.0	2.41	29.8	0.01			201	
228	8.74	8.72	34.199	26.536	153.3	0.421	1.37	21.0	41.8	2.48	30.7	0.01			229	206
250 ISL	8.57	8.54	34.215	26.575	150.0	0.454	1.30	19.8	44.0	2.54	31.3	0.01			252	
268	8.42	8.39	34.226	26.607	147.2	0.481	1.24	18.8	45.7	2.59	31.8	0.01			270	205
300 ISL	8.13	8.10	34.234	26.658	142.9	0.528	1.10	16.6	48.8	2.65	32.7	0.01			302	
318	7.96	7.93	34.236	26.685	140.5	0.553	1.02	15.3	50.6	2.68	33.3	0.01			320	204
377	7.39	7.35	34.246	26.776	132.5	0.634	0.80	11.9	58.2	2.83	35.3	0.00			380	203
400 ISL	7.20	7.16	34.243	26.800	130.4	0.664	0.73	10.8	61.4	2.88	35.7	0.00			403	
437	6.89	6.85	34.239	26.840	127.0	0.712	0.63	9.2	66.7	2.96	36.3	0.01			440	202
500 ISL	6.22	6.18	34.261	26.947	117.2	0.788	0.47	6.8	75.7	3.07	39.1	0.01			504	
514	6.07	6.02	34.267	26.970	114.9	0.805	0.43	6.2	77.7	3.09	39.7	0.01			518	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 9.2 N	121 9.2 W	04/04/04	1205 UTC	2207 m	330 11 kn			1015.0 mb	13.0 C	12.0 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	12.37	12.37	33.455	25.319	264.4	0.000	6.68	110.2	6.5	0.67	6.1	0.20	11.64	1.99	0	
1	12.37	12.37	33.455	25.319	264.4	0.003	6.68	110.2	6.5	0.67	6.1	0.20	11.64	1.99	1	220
10	11.77	11.77	33.440	25.421	254.9	0.026	6.15	100.1	6.6	0.79	7.5	0.21	18.71	1.47	10	219
20	11.73	11.73	33.445	25.433	254.1	0.051	5.75	93.6	9.4	1.00	10.0	0.25	7.88	1.59	20	218
30	11.64	11.64	33.466	25.466	251.2	0.077	5.63	91.4	11.0	1.09	11.4	0.26	5.52	1.34	30	217
39	11.61	11.61	33.467	25.473	250.8	0.099	5.53	89.7	11.3	1.12	11.8	0.26	5.34	1.16	39	216
49	11.44	11.43	33.458	25.497	248.7	0.124	5.14	83.1	12.2	1.21	17.1 U	0.25	4.52	1.12	49	215
50 ISL	11.39	11.38	33.457	25.505	247.9	0.127	5.04	81.4	12.4	1.23	14.6	0.25	4.31	1.12	50	
59	10.83	10.82	33.468	25.615	237.7	0.149	4.14	66.1	15.3	1.47	17.5	0.19	2.23	1.06	59	214
70	10.15	10.14	33.552	25.798	220.4	0.174	3.49	54.9	19.4	1.68	20.4	0.10	0.43	0.93	70	213
75 ISL	9.95	9.94	33.588	25.860	214.6	0.185	3.37	52.8	20.6	1.73	21.3	0.08	0.34	0.81	75	
84	9.70	9.69	33.646	25.947	206.5	0.204	3.27	51.0	22.2	1.79	22.4	0.05	0.18	0.59	84	212
100	9.51	9.50	33.727	26.042	197.8	0.236	3.09	48.0	24.2	1.85	23.5	0.05	0.10	0.37	101	211
119	9.36	9.35	33.910	26.209	182.3	0.272	2.57	39.8	28.4	2.02	25.8	0.03	0.06	0.23	120	210
125 ISL	9.27	9.26	33.944	26.251	178.5	0.283	2.49	38.5	29.4	2.04	26.3	0.03	0.05	0.20	126	
138	9.06	9.05	33.990	26.320	172.1	0.306	2.42	37.3	31.2	2.07	27.0	0.04	0.04	0.17	139	209
150 ISL	8.91	8.89	34.000	26.352	169.2	0.326	2.45	37.6	31.8	2.07	27.4	0.03	0.03	0.18	151	
169	8.70	8.68	34.001	26.386	166.3	0.358	2.51	38.3	32.9	2.07	27.9	0.02	0.03	0.20	170	208
199	8.29	8.27	34.062	26.497	156.2	0.406	2.23	33.8	38.3	2.20	29.7	0.01	0.02	0.13	200	207
200 ISL	8.28	8.26	34.063	26.499	156.0	0.408	2.22	33.6	38.4	2.20	29.8	0.01			201	
228	7.95	7.93	34.070	26.554	151.2	0.451	2.06	30.9	41.9	2.30	31.1	0.01			229	206
250 ISL	7.71	7.69	34.083	26.600	147.1	0.484	1.87	27.9	45.1	2.39	32.2	0.01			252	
268	7.52	7.49	34.096	26.638	143.8	0.510	1.71	25.4	47.8	2.46	33.0	0.01			270	205
300 ISL	7.23	7.20	34.115	26.694	138.8	0.555	1.47	21.7	52.2	2.58	34.4	0.01			302	
317	7.09	7.06	34.124 D	26.721	136.5	0.579	1.36	20.0	54.5	2.64	35.1	0.01			319	204
376	6.72	6.69	34.156	26.797	129.9	0.657	0.98	14.3	61.7	2.81	37.0	0.00			378	203
400 ISL	6.53	6.49	34.168	26.832	126.8	0.688	0.87	12.6	65.1	2.88	37.8	0.00			403	
437	6.23	6.19	34.189	26.888	121.8	0.734	0.71	10.2	70.5	2.97	39.0	0.00			440	202
500 ISL	5.89	5.85	34.244	26.975	114.1	0.808	0.44	6.3	78.4	3.08	40.3	0.00			504	
514	5.82	5.78	34.256	26.993	112.5	0.824	0.38	5.4	80.2	3.10	40.6	0.00			518	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 80 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 49.2 N	121 50.7 W	04/04/04	1840 UTC	3636 m	330 11 kn	330 02 06	1	1017.5 mb	14.0 C	12.0 C	20m	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	14.23	14.23	33.006	24.599	332.9	0.000	6.00	102.6	2.2	0.37	0.1	0.02	0.56	0.15	0	
2 A	14.23	14.23	33.006	24.599	333.0	0.007	6.00	102.6	2.2	0.37	0.1	0.02	0.56	0.15	2	222
10 ISL	14.09	14.09	33.000	24.624	330.8	0.033	6.01	102.5	2.2	0.38	0.1	0.02	0.65	0.18	10	
13 A	14.02	14.02	33.001	24.640	329.5	0.043	6.01	102.3	2.2	0.38	0.1	0.02	0.68	0.19	13	221
20	13.95	13.95	33.030	24.677	326.1	0.066	6.00	102.0	1.7	0.36	0.3	0.04	0.57	0.16	20	220
29 A	13.45	13.45	33.052	24.796	315.0	0.095	5.83	98.1	2.3	0.47	1.2	0.13	0.78	0.25	29	219
30 ISL	13.45	13.45	33.067	24.807	313.9	0.098	5.86	98.6	2.0	0.44	1.2	0.13	0.99	0.27	30	
35	13.44	13.44	33.128	24.857	309.4	0.114	6.06	102.0	0.3	0.27	0.9	0.12	2.07	0.38	35	218
42 A	13.40	13.39	33.148	24.880	307.3	0.135	6.32	106.3	0.0	0.21	0.4	0.07	2.67	0.44	42	217
49	13.25	13.24	33.160	24.920	303.7	0.157	6.08	102.0	0.0	0.24	1.0	0.10	4.34	0.67	49	216
50 ISL	13.23	13.22	33.159	24.923	303.4	0.160	6.06	101.6	0.0	0.25	1.1	0.12	4.24	0.69	50	
56 A	12.96	12.95	33.157	24.975	298.6	0.178	5.86	97.7	1.2	0.41	2.4	0.21	2.97	0.79	56	215
66	11.50	11.49	33.208	25.292	268.6	0.206	4.82	77.9	8.6	1.04	11.1	0.19	0.68	0.73	66	214
75 ISL	10.62	10.61	33.203	25.445	254.1	0.230	4.54	72.0	11.7	1.25	14.6	0.08	0.32	0.55	75	
77 A	10.48	10.47	33.207	25.473	251.5	0.235	4.50	71.1	12.2	1.28	15.1	0.05	0.24	0.50	77	213
88	10.17	10.16	33.390	25.668	233.1	0.261	3.92	61.6	16.5	1.53	18.9	0.03	0.12	0.27	88	212
99	9.79	9.78	33.492	25.812	219.7	0.286	3.64	56.8	19.4	1.67	21.1	0.02	0.06	0.27	99	211
100 ISL	9.77	9.76	33.499	25.821	218.8	0.288	3.62	56.4	19.6	1.68	21.3	0.02	0.06	0.27	100	
120	9.45	9.44	33.631	25.977	204.4	0.331	3.29	51.0	22.8	1.80	23.5	0.02	0.03	0.17	121	210
125 ISL	9.36	9.35	33.675	26.026	199.8	0.341	3.24	50.1	23.6	1.81	23.8	0.02	0.02	0.14	126	
140	9.09	9.07	33.806	26.172	186.2	0.370	3.09	47.5	26.0	1.85	24.7	0.01	0.01	0.06	141	209
150 ISL	8.97	8.95	33.875	26.245	179.4	0.388	2.92	44.8	27.9	1.91	25.6	0.01	0.01	0.06	151	
169	8.78	8.76	33.973	26.352	169.6	0.421	2.59	39.6	31.5	2.03	27.4	0.01	0.01	0.05	170	208
199	8.44	8.42	34.041	26.458	160.0	0.471	2.25	34.2	36.3	2.18	29.5	0.01	0.00	0.04	200	207
200 ISL	8.43	8.41	34.042	26.460	159.8	0.472	2.24	34.0	36.4	2.18	29.6	0.01			201	
229	8.12	8.10	34.066	26.526	154.0	0.518	2.04	30.8	40.2	2.27	30.9	0.01			230	206
250 ISL	7.84	7.82	34.069	26.570	150.0	0.550	1.93	28.9	43.2	2.34	31.9	0.01			251	
268	7.59	7.56	34.070	26.607	146.7	0.576	1.84	27.4	45.9	2.40	32.7	0.01			270	205
300 ISL	7.20	7.17	34.079	26.670	141.1	0.622	1.63	24.1	50.9	2.52	34.1	0.01			302	
318	7.01	6.98	34.089	26.704	138.0	0.648	1.49	21.9	53.7	2.59	34.9	0.01			320	204
377	6.65	6.62	34.162	26.811	128.5	0.726	0.89	13.0	62.9	2.85	37.2	0.01			379	203
400 ISL	6.50	6.46	34.176	26.842	125.8	0.755	0.77	11.2	65.9	2.91	37.8	0.01			403	
436	6.25	6.21	34.191	26.887	121.9	0.800	0.64	9.2	70.3	2.97	38.7	0.01			439	202
500 ISL	5.80	5.76	34.225	26.971	114.4	0.876	0.44	6.3	79.0	3.09	40.4	0.01			503	
513	5.71	5.67	34.232	26.987	112.8	0.890	0.40	5.7	80.8	3.11	40.7	0.01			517	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 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	05/04/04	0108 UTC	3997 m	340 13 kn	330 04 05	1	1017.3 mb	13.4 C	11.5 C	15m	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	14.18	14.18	33.049	24.643	328.8	0.000	6.01	102.7	1.8	0.39	0.5	0.06	0.85	0.21	0	
2	14.18	14.18	33.049	24.643	328.8	0.007	6.01	102.7	1.8	0.39	0.5	0.06	0.85	0.21	2	220
9	14.16	14.16	33.049	24.647	328.6	0.030	6.02	102.8	1.7	0.39	0.5	0.05	0.57	0.15	9	219
10 ISL	14.15	14.15	33.049	24.650	328.4	0.033	6.02	102.8	1.7	0.39	0.5	0.05	0.57	0.15	10	
20	14.04	14.04	33.046	24.670	326.7	0.066	6.02	102.5	1.7	0.38	0.5	0.06	0.56	0.16	20	218
30	13.81	13.81	33.044	24.716	322.6	0.098	6.02	102.1	1.7	0.39	0.6	0.07	0.75	0.24	30	217
40	13.77	13.76	33.044	24.725	322.1	0.130	5.99	101.5	1.8	0.40	0.7	0.09	0.71	0.24	40	216
50	13.74	13.73	33.056	24.741	320.9	0.162	5.96	100.9	1.8	0.41	0.8	0.10	0.73	0.29	50	215
59	13.47	13.46	33.057	24.797	315.8	0.191	5.84	98.3	2.1	0.45	1.7	0.15	0.57	0.26	59	214
70	11.59	11.58	33.069	25.168	280.5	0.224	4.95	80.1	7.4	1.01	10.3	0.06	0.44	0.40	70	213
75 ISL	11.09	11.08	33.106	25.287	269.2	0.238	4.69	75.1	9.4	1.17	13.0	0.04	0.35	0.34	75	
84	10.48	10.47	33.206	25.472	251.7	0.261	4.34	68.6	12.8	1.39	16.6	0.03	0.18	0.17	84	212
99	9.68	9.67	33.453	25.799	220.8	0.297	3.77	58.7	19.0	1.67	21.2	0.01	0.04	0.06	99	211
100 ISL	9.65	9.64	33.467	25.815	219.3	0.299	3.74	58.2	19.3	1.68	21.4	0.01	0.04	0.06	100	
119	9.30	9.29	33.687	26.045	197.9	0.338	3.24	50.1	23.8	1.83	24.1	0.02	0.01	0.05	120	210
125 ISL	9.22	9.21	33.736	26.096	193.1	0.350	3.14	48.4	24.8	1.86	24.6	0.02	0.01	0.05	126	
139	9.07	9.05	33.828	26.192	184.3	0.377	2.97	45.7	26.8	1.91	25.5	0.01	0.01	0.05	140	209
150 ISL	8.94	8.92	33.891	26.262	177.8	0.396	2.89	44.3	28.4	1.93	26.1	0.01	0.01	0.04	151	
169	8.73	8.71	33.975	26.361	168.7	0.429	2.76	42.2	31.2	1.98	27.0	0.01	0.00	0.03	170	208
198	8.48	8.46	34.046	26.456	160.2	0.477	2.34	35.6	36.0	2.15	29.1	0.01	0.00	0.03	199	207
200 ISL	8.46	8.44	34.049	26.461	159.7	0.480	2.31	35.1	36.3	2.16	29.2	0.01			201	
228	8.14	8.12	34.077	26.532	153.4	0.524	2.00	30.2	40.7	2.29	31.0	0.01			229	206
250 ISL	7.77	7.75	34.073	26.583	148.7	0.557	1.91	28.6	44.3	2.35	32.1	0.01			251	
268	7.45	7.42	34.066	26.624	145.0	0.584	1.87	27.8	47.3	2.40	33.0	0.01			270	205
300 ISL	7.00	6.97	34.067	26.688	139.2	0.629	1.66	24.4	52.4	2.54	34.6	0.01			302	
318	6.79	6.76	34.071	26.720	136.3	0.654	1.53	22.4	55.3	2.62	35.5	0.01			320	204
377	6.24	6.21	34.103	26.818	127.5	0.732	1.11	16.0	65.2	2.80	38.0	0.00			379	203
400 ISL	6.11	6.07	34.126	26.853	124.4	0.761	0.95	13.7	68.5	2.86	38.7	0.00			403	
436	5.95	5.91	34.166	26.905	119.9	0.805	0.71	10.2	73.5	2.96	39.6	0.00			439	202
500 ISL	5.57	5.53	34.226	27.000	111.4	0.879	0.42	6.0	83.4	3.12	41.1	0.00			503	
512	5.50	5.46	34.238	27.018	109.7	0.892	0.36	5.1	85.2	3.15	41.4	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 9.1 N	123 13.6 W	05/04/04	0739 UTC	4226 m	360 15 kn			1019.1 mb	13.2 C	12.0 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	14.18	14.18	32.983	24.592	333.6	0.000	6.02	102.8	2.2	0.37	0.1	0.00	0.40	0.12	0	
1	14.18	14.18	32.983	24.592	333.6	0.003	6.02	102.8	2.2	0.37	0.1	0.00	0.40	0.12	1	219
10	14.19	14.19	32.982	24.590	334.1	0.033	6.02	102.8	2.2	0.36	0.0	0.00	0.40	0.12	10	218
20	14.18	14.18	32.981	24.591	334.3	0.067	6.02	102.8	2.2	0.37	0.0	0.00	0.42	0.12	20	217
30	14.07	14.07	32.970	24.606	333.2	0.100	6.00	102.2	2.2	0.36	0.0	0.00	0.65	0.19	30	216
40	14.060	14.054	32.970 D	24.608	333.2	0.133									40	220
50	14.06	14.05	32.970	24.609	333.5	0.167	5.97	101.7	2.1	0.37	0.1	0.01	0.74	0.24	50	215
59	14.02	14.01	32.970	24.617	332.9	0.197	5.93	100.9	2.1	0.39	0.2	0.03	0.55	0.20	59	214
70	12.48	12.47	33.002	24.949	301.4	0.232	5.40	89.0	4.9	0.77	5.7	0.12	0.35	0.20	70	213
75 ISL	11.96	11.95	33.019	25.061	290.9	0.247	5.18	84.5	6.3	0.92	8.3	0.10	0.28	0.18	75	
84	11.19	11.18	33.076	25.246	273.3	0.272	4.79	76.8	9.2	1.15	12.6	0.03	0.18	0.14	84	212
100	10.15	10.14	33.322	25.619	238.1	0.313	4.10	64.4	15.5	1.51	18.5	0.02	0.09	0.11	100	211
119	9.36	9.35	33.455	25.854	216.0	0.356	4.18	64.6	18.3	1.52	19.4	0.01	0.01	0.04	120	210
125 ISL	9.22	9.21	33.529	25.934	208.5	0.369	4.06	62.5	19.8	1.57	20.3	0.01	0.01	0.03	126	
139	9.01	9.00	33.706	26.106	192.4	0.397	3.67	56.3	23.4	1.70	22.5	0.01	0.01	0.02	140	209
150 ISL	8.91	8.89	33.803	26.198	183.9	0.417	3.43	52.6	25.6	1.77	23.7	0.01	0.01	0.02	151	
168	8.81	8.79	33.918	26.304	174.1	0.450	3.05	46.7	28.8	1.87	25.5	0.01	0.01	0.03	169	208
199	8.63	8.61	34.027	26.418	163.9	0.502	2.33	35.5	34.4	2.13	28.7	0.01	0.00	0.03	200	207
200 ISL	8.62	8.60	34.028	26.420	163.7	0.504	2.33	35.5	34.6	2.13	28.8	0.01			201	
228	8.18	8.16	34.050	26.505	156.0	0.548	2.25	34.0	38.6	2.19	29.9	0.01			229	206
250 ISL	7.91	7.88	34.063	26.555	151.5	0.582	2.09	31.4	41.9	2.28	31.1	0.00			251	
268	7.70	7.67	34.069	26.591	148.3	0.609	1.93	28.8	44.8	2.37	32.1	0.00			270	205
300 ISL	7.19	7.16	34.063	26.659	142.1	0.656	1.73	25.5	50.5	2.49	34.0	0.00			302	
318	6.90	6.87	34.060	26.696	138.6	0.681	1.62	23.7	53.7	2.55	35.0	0.00			320	204
378	6.28	6.25	34.084	26.798	129.5	0.761	1.23	17.8	63.6	2.74	37.4	0.00			380	203
400 ISL	6.11	6.07	34.100	26.832	126.4	0.790	1.08	15.5	67.0	2.82	38.2	0.00			403	
437	5.89	5.85	34.132	26.885	121.6	0.835	0.83	11.9	72.5	2.96	39.3	0.00			440	202
500 ISL	5.62	5.58	34.198	26.971	114.1	0.910	0.49	7.0	80.7	3.10	40.7	0.00			503	
511	5.57	5.53	34.210	26.987	112.7	0.922	0.43	6.1	82.1	3.12	41.0	0.00			514	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 80 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 49.1 N	123 54.6 W	06/04/04	1913 UTC	4366 m	340 12 kn	360 04 04	2	1022.1 mb	14.0 C	12.0 C	22m	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	14.27	14.27	32.845	24.467	345.6	0.000	5.98	102.2	2.0	0.35	0.0	0.00	0.23	0.08	0	
2 A	14.27	14.27	32.845	24.467	345.6	0.007	5.98	102.2	2.0	0.35	0.0	0.00	0.23	0.08	2	221
10 ISL	14.27	14.27	32.846	24.468	345.7	0.035	5.97	102.1	1.9	0.35	0.0	0.00	0.22	0.07	10	
15 A	14.27	14.27	32.848	24.470	345.7	0.052	5.97	102.0	1.9	0.35	0.0	0.00	0.22	0.06	15	220
20 ISL	14.26	14.26	32.847	24.471	345.7	0.069	5.97	102.0	1.9	0.35	0.0	0.00	0.25	0.07	20	
30 ISL	14.20	14.20	32.838	24.477	345.4	0.104	5.99	102.2	1.9	0.35	0.0	0.00	0.30	0.09	30	
31 A	14.19	14.19	32.837	24.478	345.3	0.107	5.99	102.2	1.9	0.35	0.0	0.00	0.30	0.09	31	219
38	14.10	14.09	32.822	24.486	344.8	0.131	6.00	102.2	2.0	0.36	0.0	0.00	0.46	0.15	38	218
46 A	14.08	14.07	32.821	24.489	344.7	0.159	5.98	101.8	2.1	0.36	0.0	0.00	0.52	0.19	46	217
50 ISL	14.00	13.99	32.820	24.505	343.3	0.173	5.96	101.3	2.2	0.37	0.2	0.01	0.65	0.22	50	
54	13.82	13.81	32.828	24.548	339.3	0.186	5.94	100.6	2.2	0.39	0.3	0.04	0.76	0.28	54	216
61 A	13.13	13.12	32.888	24.734	321.8	0.209	5.78	96.5	2.9	0.48	1.7	0.17	0.72	0.48	61	215
74	12.10	12.09	33.017	25.033	293.5	0.249	5.46	89.3	4.7	0.68	5.4	0.09	0.37	0.35	74	214
75 ISL	11.97	11.96	33.013	25.054	291.5	0.252	5.44	88.7	5.0	0.71	5.8	0.08	0.35	0.33	75	
85 A	10.78	10.77	32.961	25.229	274.9	0.281	5.24	83.3	7.6	0.96	9.7	0.03	0.21	0.17	85	213
94	10.54	10.53	32.971	25.279	270.3	0.305	5.17	81.7	8.6	1.02	10.7	0.02	0.16	0.12	94	212
100 ISL	10.30	10.29	33.029	25.365	262.2	0.321	4.96	78.0	10.3	1.14	12.7	0.02	0.12	0.09	100	
110	9.90	9.89	33.166	25.539	245.8	0.347	4.53	70.7	13.8	1.37	16.4	0.02	0.06	0.06	110	211
125	9.52	9.51	33.378	25.768	224.3	0.382	4.04	62.6	18.1	1.56	19.6	0.01	0.02	0.04	126	210
144	9.37	9.35	33.680	26.028	199.9	0.422	3.19	49.4	24.1	1.82	23.7	0.01	0.01	0.04	145	209
150 ISL	9.27	9.25	33.726	26.080	195.1	0.434	3.14	48.5	25.3	1.86	24.4	0.01	0.01	0.04	151	
170	8.91	8.89	33.820	26.212	183.0	0.472	2.96	45.4	28.4	1.92	25.8	0.01	0.01	0.03	171	208
199	8.55	8.53	33.991	26.402	165.4	0.522	2.74	41.7	32.9	1.98	27.1	0.01	0.00	0.02	200	207
200 ISL	8.54	8.52	33.995	26.407	164.9	0.524	2.72	41.4	33.1	1.99	27.2	0.01			201	
229	8.42	8.40	34.078	26.490	157.5	0.571	2.00	30.4	38.4	2.23	29.8	0.01			230	206
250 ISL	8.23	8.20	34.101	26.538	153.3	0.603	1.81	27.4	41.2	2.31	30.8	0.01			251	
268	8.04	8.01	34.108	26.572	150.3	0.631	1.75	26.3	43.3	2.36	31.4	0.01			270	205
300 ISL	7.68	7.65	34.119	26.633	144.9	0.678	1.58	23.6	47.6	2.49	32.7	0.00			302	
318	7.44	7.41	34.117	26.666	141.9	0.704	1.51	22.4	50.2	2.55	33.4	0.00			320	204
379	6.39	6.36	34.061	26.765	132.6	0.787	1.46	21.1	60.4	2.65	36.1	0.01			381	203
400 ISL	6.11	6.07	34.059	26.800	129.4	0.815	1.36	19.6	64.4	2.71	37.0	0.01			403	
438	5.72	5.68	34.078	26.864	123.5	0.863	1.11	15.8	71.6	2.82	38.6	0.00			441	202
500 ISL	5.42	5.38	34.173	26.976	113.4	0.936	0.59	8.4	82.4	3.02	40.6	0.00			503	
512	5.36	5.32	34.191	26.997	111.5	0.950	0.49	6.9	84.5	3.06	41.0	0.00			515	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 82 47

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 16.7 N	120 1.3 W	03/04/04	2324 UTC	581 m	220 04 kn	260 03 08	1	1014.0 mb	16.9 C	16.0 C	07m	2/8	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	14.65	14.65	33.345	24.772	316.4	0.000	6.59	113.9	4.5	0.32	0.6	0.08	3.78	0.43	0	
2 A	14.65	14.65	33.345	24.772	316.5	0.006	6.59	113.9	4.5	0.32	0.6	0.08	3.78	0.43	2	224
10	12.36	12.36	33.406	25.284	268.0	0.030	5.32	87.7	9.6	0.83	7.7	0.31	8.34	0.68	10	223
19	10.93	10.93	33.530	25.644	233.9	0.052	3.64	58.2	16.8	1.51	17.3	0.19	0.60	0.36	19	222
20 ISL	10.86	10.86	33.540	25.664	232.0	0.055	3.60	57.5	17.2	1.52	17.7	0.18	0.58	0.36	20	
30	10.53	10.53	33.634	25.796	219.8	0.077	3.24	51.4	19.7	1.67	19.9	0.09	0.38	0.31	30	221
40	10.17	10.17	33.770	25.964	204.0	0.098	2.83	44.6	23.2	1.84	22.4	0.06	0.10	0.25	40	220
50	9.93	9.92	33.849	26.066	194.5	0.118	2.53	39.7	26.5	1.99	24.0	0.06	0.09	0.25	50	219
59	9.86	9.85	33.890	26.110	190.5	0.136	2.47	38.7	27.1	2.02	24.6	0.05	0.05	0.19	59	218
69	9.80	9.79	33.925	26.148	187.1	0.155	2.34	36.6	28.1	2.07	25.1	0.05	0.07	0.17	69	217
75 ISL	9.76	9.75	33.954	26.177	184.5	0.166	2.30	36.0	28.5	2.08	25.3	0.04	0.06	0.16	75	
85	9.69	9.68	34.002	26.227	180.0	0.184	2.23	34.8	29.3	2.10	25.8	0.03	0.04	0.14	85	216
99	9.58	9.57	34.041	26.276	175.6	0.209	2.04	31.8	31.1	2.17	26.7	0.02	0.03	0.16	100	215
100 ISL	9.58	9.57	34.043	26.277	175.5	0.211	2.04	31.8	31.1	2.17	26.7	0.02	0.03	0.16	101	
119	9.50	9.49	34.068	26.310	172.8	0.244	2.05	31.9	31.8	2.17	26.8	0.02	0.03	0.11	120	214
125 ISL	9.45	9.44	34.081	26.328	171.1	0.254	1.98	30.8	32.6	2.20	27.1	0.02	0.03	0.11	126	
139	9.32	9.30	34.113	26.375	167.0	0.278	1.77	27.4	34.9	2.30	28.1	0.01	0.02	0.11	140	213
150 ISL	9.24	9.22	34.129	26.401	164.8	0.296	1.64	25.4	36.4	2.36	28.7	0.01	0.02	0.12	151	
169	9.12	9.10	34.149	26.436	161.8	0.327	1.47	22.7	38.5	2.43	29.4	0.01	0.02	0.13	170	212
199	8.96	8.94	34.176	26.483	157.9	0.375	1.45	22.3	39.8	2.44	29.7	0.01	0.02	0.10	200	211
200 ISL	8.95	8.93	34.177	26.485	157.7	0.376	1.44	22.1	39.9	2.44	29.7	0.01			201	
227	8.74	8.72	34.188	26.527	154.1	0.419	1.24	19.0	43.5	2.55	30.7	0.01			228	210
250 ISL	8.47	8.44	34.195	26.575	149.9	0.453	1.08	16.4	47.1	2.64	31.8	0.01			252	
268	8.24	8.21	34.200	26.614	146.5	0.480	0.96	14.5	50.1	2.70	32.6	0.01			270	209
300 ISL	7.94	7.91	34.211	26.668	141.8	0.526	0.78	11.7	54.9	2.80	33.5	0.00			302	
318	7.79	7.76	34.216	26.694	139.5	0.552	0.70	10.5	57.5	2.85	33.8	0.00			320	208
377	7.20	7.16	34.225	26.786	131.4	0.632	0.57	8.4	66.4	3.00	34.4	0.00			380	207
400 ISL	7.08	7.04	34.230	26.807	129.7	0.662	0.54	8.0	68.0	3.03	34.6	0.00			403	
437	6.91	6.87	34.237	26.836	127.4	0.709	0.45	6.6	72.4	3.11	34.8	0.00			440	206
477	6.66	6.62	34.243	26.875	124.1	0.759	0.22	3.2	84.7	3.28	32.7	0.00			480	205
500 ISL	6.55	6.50	34.245	26.891	122.8	0.788	0.07	1.0	93.6	3.37	30.1	0.00			504	
512	6.51	6.46	34.247	26.898	122.2	0.802	0.02	0.3	97.5	3.43	28.8	0.00			516	204
536	6.48	6.43	34.253	26.907	121.7	0.832	0.08	1.2	99.7	3.57	27.3	0.00			540	203
561	6.42	6.37	34.254	26.916	121.2	0.862	0.00	0.0	118.9	4.18	15.8	0.28			565	202
565	6.42	6.37	34.254	26.916	121.2	0.867	0.01	0.1	119.1	4.18	15.7	0.27			569	201

A) SANTA BARBARA BASIN STATION.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 83 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 13.5 N	119 24.8 W	03/04/04	1855 UTC	36 m	170 08 kn	260 02 06	1	1014.8 mb	18.5 C	15.9 C	12m	6/8	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	15.63	15.63	33.204	24.450	347.1	0.000	6.02	106.0	1.4	0.27	0.3	0.03	1.11	0.12	0	
1 A	15.63	15.63	33.204	24.450	347.1	0.003	6.02	106.0	1.4	0.27	0.3	0.03	1.11	0.12	1	216
4	15.34	15.34	33.206	24.516	341.0	0.014	6.05	105.9	1.4	0.27	0.3	0.03	1.23	0.19	4	215
8 A	14.97	14.97	33.213	24.602	332.9	0.027	6.12	106.4	1.6	0.27	0.3	0.03	1.73	0.25	8	214
10 ISL	14.51	14.51	33.210	24.698	323.8	0.034	6.03	103.8	2.0	0.33	1.0	0.06	1.99	0.36	10	
17 A	12.88	12.88	33.226	25.043	291.1	0.055	5.51	91.7	4.1	0.62	4.6	0.18	2.49	0.74	17	213
20 ISL	12.66	12.66	33.242	25.099	285.9	0.064	5.31	88.0	5.1	0.70	5.9	0.20	2.33	0.75	20	
25 A	12.39	12.39	33.286	25.185	277.8	0.078	4.88	80.4	7.6	0.89	8.5	0.22	1.79	0.78	25	212
30 ISL	11.70	11.70	33.374	25.384	259.0	0.092	4.16	67.6	12.2	1.27	12.6	0.23	1.08	0.75	30	
32 A	11.43	11.43	33.411	25.462	251.6	0.097	3.87	62.5	14.0	1.42	14.2	0.24	0.80	0.74	32	211

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 10.9 N	119 30.5 W	03/04/04	1655 UTC	108 m	070 02 kn	320 02 08	1	1013.9 mb	17.0 C	15.9 C	11m	6/8	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	14.31	14.31	33.272	24.788	315.0	0.000	6.47	111.0	1.2	0.15	0.0	0.01	2.38	0.61	0	
2	14.31	14.31	33.272	24.788	315.0	0.006	6.47	111.0	1.2	0.15	0.0	0.01	2.38	0.61	2	210
9	13.95	13.95	33.275	24.866	307.8	0.028	6.42	109.3	1.4	0.18	0.0	0.02	4.01	1.06	9	209
10 ISL	13.89	13.89	33.275	24.878	306.7	0.031	6.38	108.5	1.6	0.19	0.1	0.03	4.53	1.17	10	
20	13.08	13.08	33.287	25.051	290.4	0.061	5.71	95.5	3.2	0.43	2.9	0.18	7.96	1.86	20	208
30	11.81	11.81	33.366	25.357	261.5	0.089	4.56	74.3	9.7	1.02	10.8	0.28	3.53	1.09	30	207
40	10.87	10.87	33.497	25.630	235.8	0.113	3.52	56.2	16.4	1.54	17.4	0.25	0.33	0.37	40	206
50	10.56	10.55	33.593	25.759	223.7	0.136	3.20	50.8	19.3	1.71	19.3	0.19	0.16	0.30	50	205
59	10.33	10.32	33.687	25.872	213.2	0.156	2.99	47.3	21.9	1.84	20.5	0.18	0.11	0.39	59	204
70	10.06	10.05	33.800	26.007	200.6	0.179	2.87	45.1	22.9	1.81	22.0	0.07	0.05	0.15	70	203
75 ISL	9.97	9.96	33.846	26.058	195.8	0.189	2.79	43.8	23.8	1.83	22.6	0.05	0.05	0.17	75	
84	9.84	9.83	33.914	26.133	188.9	0.206	2.63	41.2	25.5	1.90	23.6	0.03	0.05	0.21	84	202
99	9.75	9.74	33.975	26.196	183.2	0.234	2.43	38.0	27.6	1.99	24.4	0.04	0.09	0.25	100	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 52.8 N	120 8.3 W	03/04/04	1103 UTC	104 m	270 03 kn			1011.8 mb	13.1 C	12.2 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	13.37	13.37	33.292	24.997	295.1	0.000	5.83	98.1	4.8	0.51	3.7	0.09	3.26	0.69	0	
2	13.37	13.37	33.292	24.997	295.1	0.006	5.83	98.1	4.8	0.51	3.7	0.09	3.26	0.69	2	210
10	13.03	13.03	33.320	25.087	286.8	0.029	5.63	94.1	6.2	0.64	5.3	0.10	4.06	0.78	10	209
20	12.31	12.31	33.376	25.270	269.6	0.057	4.95	81.5	9.8	0.93	9.4	0.12	2.83	0.77	20	208
30	11.62	11.62	33.467	25.471	250.7	0.083	4.34	70.5	13.3	1.19	13.0	0.11	1.61	0.50	30	207
40	10.68	10.68	33.568	25.718	227.4	0.107	3.41	54.3	17.6	1.57	18.7	0.07	0.36	0.24	40	206
50	10.28	10.27	33.721	25.907	209.6	0.129	2.98	47.1	21.2	1.75	21.3	0.04	0.09	0.13	50	205
60	10.19	10.18	33.753	25.948	206.0	0.150	2.91	45.9	22.2	1.78	21.7	0.05	0.07	0.16	60	204
70	10.00	9.99	33.837	26.046	196.9	0.170	2.69	42.3	24.5	1.87	22.9	0.06	0.04	0.12	70	203
75 ISL	9.94	9.93	33.869	26.081	193.7	0.179	2.60	40.8	25.4	1.91	23.4	0.06	0.04	0.13	75	
79	9.90	9.89	33.889	26.103	191.6	0.187	2.55	40.0	26.0	1.93	23.8	0.06	0.04	0.13	79	202
89	9.84	9.83	33.916	26.135	188.9	0.206	2.47	38.7	26.9	1.97	24.2	0.06	0.03	0.15	89	201

RV NEW HORIZON CALCOFI CRUISE 0404 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 25.0 W	03/04/04	0638 UTC	1059 m	310 14 kn			1011.0 mb	12.9 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	13.38	13.38	33.279	24.985	296.2	0.000	6.18	104.0	2.9	0.42	2.7	0.12	3.89	0.85	0	
2	13.38	13.38	33.279	24.985	296.3	0.006	6.18	104.0	2.9	0.42	2.7	0.12	3.89	0.85	2	220
10	13.38	13.38	33.278	24.984	296.6	0.030	6.19	104.2	2.9	0.43	2.8	0.12	3.79	0.85	10	219
20	12.75	12.75	33.302	25.128	283.1	0.059	6.09	101.2	3.7	0.53	4.6	0.15	4.19	0.97	20	218
30	12.31	12.31	33.362	25.260	270.8	0.086	5.60	92.2	7.4	0.77	7.9	0.15	4.69	0.88	30	217
40	11.41	11.41	33.347	25.416	256.2	0.113	4.59	74.1	11.2	1.19	13.0	0.23	1.08	0.65	40	216
50	10.19	10.18	33.380	25.656	233.4	0.137	3.95	62.1	16.2	1.54	18.5	0.07	0.15	0.34	50	215
59	10.17	10.16	33.397	25.673	232.0	0.158	3.89	61.2	16.7	1.55	18.7	0.07	0.14	0.40	59	214
70	9.66	9.65	33.557	25.883	212.2	0.183	3.49	54.3	20.8	1.72	21.7	0.04	0.06	0.24	70	213
75 ISL	9.62	9.61	33.601	25.925	208.4	0.193	3.42	53.2	21.5	1.73	21.9	0.04	0.06	0.23	75	
85	9.53	9.52	33.648	25.976	203.7	0.214	3.35	52.0	22.3	1.75	22.4	0.03	0.05	0.22	85	212
99	9.38	9.37	33.756	26.085	193.6	0.241	3.14	48.6	24.5	1.82	23.5	0.03	0.05	0.29	100	211
100 ISL	9.37	9.36	33.766	26.095	192.8	0.243	3.11	48.1	24.7	1.83	23.6	0.03	0.05	0.29	101	
120	9.18	9.17	33.929	26.253	178.1	0.280	2.61	40.3	29.1	1.99	26.0	0.02	0.02	0.16	121	210
125 ISL	9.09	9.08	33.947	26.282	175.5	0.289	2.63	40.5	29.8	1.99	26.2	0.02	0.02	0.14	126	
139	8.83	8.82	33.978	26.347	169.5	0.313	2.67	40.9	31.3	2.00	26.7	0.02	0.02	0.12	140	209
150 ISL	8.71	8.69	34.000	26.383	166.2	0.332	2.62	40.0	32.5	2.02	27.2	0.02	0.02	0.11	151	
169	8.58	8.56	34.037	26.433	161.9	0.363	2.43	37.0	34.8	2.10	28.1	0.02	0.02	0.11	170	208
200	8.38	8.36	34.123	26.531	153.1	0.412	1.88	28.5	40.1	2.31	30.2	0.01	0.01	0.07	201	207
228	8.27	8.25	34.169	26.585	148.5	0.454	1.56	23.6	43.2	2.43	31.2	0.01			229	206
250 ISL	8.16	8.13	34.197	26.623	145.2	0.486	1.35	20.4	45.8	2.52	31.9	0.01			252	
268	8.06	8.03	34.215	26.653	142.7	0.512	1.20	18.1	47.9	2.59	32.5	0.01			270	205
300 ISL	7.81	7.78	34.233	26.704	138.3	0.557	1.01	15.1	51.4	2.68	33.5	0.01			302	
318	7.65	7.62	34.240	26.733	135.7	0.582	0.92	13.7	53.5	2.73	34.1	0.01			320	204
377	7.03	6.99	34.267	26.842	125.9	0.659	0.60	8.8	62.8	2.92	36.4	0.01			379	203
400 ISL	6.86	6.82	34.276	26.873	123.3	0.688	0.52	7.6	65.7	2.97	37.1	0.01			403	
438	6.63	6.59	34.288	26.914	119.8	0.734	0.43	6.3	69.7	3.02	38.0	0.00			441	202
500 ISL	6.34	6.29	34.302	26.964	115.7	0.807	0.36	5.2	74.3	3.08	39.0	0.00			504	
513	6.28	6.23	34.305	26.974	114.9	0.822	0.34	4.9	75.3	3.09	39.2	0.00			517	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 83 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 34.3 N	120 45.1 W	03/04/04	0121	UTC	1357 m	310 18 kn	320 06 08	0	1008.2 mb	13.7 C	12.1 C		0/8	

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	13.01	13.01	33.215	25.009	293.9	0.000	6.00	100.2	4.2	0.56	4.5	0.13	2.42	0.52	0	
2	13.01	13.01	33.215	25.009	294.0	0.006	6.00	100.2	4.2	0.56	4.5	0.13	2.42	0.52	2	220
10	12.93	12.93	33.212	25.023	292.9	0.029	5.94	99.0	4.0	0.58	4.7	0.13	2.31	0.54	10	219
19	12.71	12.71	33.186	25.046	290.9	0.056	5.81	96.4	3.9	0.61	5.1	0.12	2.24	0.71	19	218
20 ISL	12.72	12.72	33.200	25.055	290.1	0.059	5.81	96.4	4.1	0.61	5.2	0.12	2.33	0.73	20	
29	12.76	12.76	33.322	25.142	282.1	0.084	5.82	96.7	6.3	0.65	5.9	0.15	3.07	0.84	29	217
30 ISL	12.76	12.76	33.323	25.142	282.0	0.087	5.82	96.7	6.4	0.66	5.9	0.15	3.05	0.84	30	
39	12.72	12.71	33.330	25.156	281.0	0.112	5.79	96.1	7.0	0.70	6.2	0.14	2.64	0.82	39	216
49	12.70	12.69	33.344	25.171	279.8	0.140	5.76	95.6	7.2	0.71	6.5	0.15	2.53	0.71	49	215
50 ISL	12.70	12.69	33.344	25.171	279.8	0.143	5.76	95.6	7.2	0.71	6.5	0.15	2.54	0.72	50	
59	12.66	12.65	33.345	25.180	279.2	0.168	5.74	95.2	7.1	0.72	6.6	0.15	2.62	0.77	59	214
70	12.17	12.16	33.338	25.269	271.0	0.199	5.30	87.0	8.9	0.90	9.2	0.16	1.37	0.55	70	213
75 ISL	11.45	11.44	33.280	25.357	262.6	0.212	5.03	81.3	10.2	1.06	11.5	0.13	0.93	0.49	75	
84	10.15	10.14	33.214	25.534	245.7	0.235	4.54	71.3	13.0	1.34	15.9	0.06	0.35	0.40	84	212
100	9.64	9.63	33.403	25.767	223.9	0.272	4.01	62.3	17.8	1.58	20.1	0.03	0.09	0.18	100	211
119	9.21	9.20	33.567	25.965	205.4	0.313	3.95	60.9	20.3	1.59	21.0	0.02	0.02	0.07	120	210
125 ISL	9.14	9.13	33.631	26.026	199.7	0.325	3.84	59.1	21.4	1.63	21.6	0.02	0.02	0.07	126	
139	9.08	9.06	33.778	26.151	188.1	0.353	3.47	53.4	24.4	1.74	23.3	0.01	0.01	0.07	140	209
150 ISL	9.12	9.10	33.874	26.220	181.8	0.373	3.07	47.3	26.8	1.85	24.7	0.01	0.01	0.08	151	
168	9.19	9.17	33.995	26.304	174.3	0.405	2.45	37.8	30.5	2.03	26.8	0.01	0.01	0.09	169	208
198	8.97	8.95	34.080	26.406	165.1	0.456	2.12	32.6	34.5	2.17	28.5	0.01	0.01	0.06	199	207
200 ISL	8.94	8.92	34.084	26.414	164.4	0.459	2.10	32.3	34.8	2.18	28.6	0.01			201	
229	8.55	8.53	34.139	26.518	154.9	0.505	1.77	27.0	39.9	2.32	30.4	0.01			230	206
250 ISL	8.38	8.35	34.171	26.570	150.4	0.538	1.53	23.2	42.8	2.42	31.4	0.01			251	
268	8.26	8.23	34.191	26.604	147.4	0.564	1.35	20.4	44.9	2.49	32.1	0.01			270	205
300 ISL	8.05	8.02	34.209	26.650	143.5	0.611	1.18	17.8	48.0	2.58	33.0	0.00			302	
318	7.89	7.86	34.210	26.675	141.4	0.637	1.13	17.0	49.9	2.62	33.5	0.00			320	204
378	6.92	6.88	34.168	26.779	131.8	0.718	1.02	15.0	59.4	2.75	36.5	0.00			380	203
400 ISL	6.67	6.63	34.172	26.816	128.4	0.747	0.90	13.1	63.3	2.82	37.5	0.00			403	
437	6.31	6.27	34.190	26.878	122.8	0.794	0.68	9.8	69.8	2.94	39.1	0.00			440	202
500 ISL	5.81	5.77	34.217	26.963	115.1	0.868	0.48	6.9	78.9	3.07	40.9	0.00			503	
512	5.72	5.68	34.223	26.979	113.6	0.882	0.44	6.3	80.6	3.09	41.2	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 15.2 N	121 27.4 W	02/04/04	1821	UTC	3804 m	310 22 kn	300 08 05	0	1009.0 mb	16.7 C	13.2 C	16m	0/8	

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	14.14	14.14	32.993	24.608	332.1	0.000	5.95	101.5	2.0	0.37	0.2	0.04	0.60	0.20	0	
2 A	14.14	14.14	32.993	24.608	332.1	0.007	5.95	101.5	2.0	0.37	0.2	0.04	0.60	0.20	2	220
10 ISL	14.14	14.14	32.993	24.608	332.3	0.033	5.94	101.4	1.8	0.37	0.1	0.04	0.57	0.19	10	
11 A	14.14	14.14	32.993	24.608	332.4	0.037	5.94	101.4	1.8	0.37	0.1	0.04	0.57	0.19	11	219
20 ISL	14.14	14.14	32.992	24.608	332.7	0.066	5.94	101.4	1.8	0.37	0.1	0.04	0.56	0.19	20	
23 A	14.14	14.14	32.992	24.608	332.7	0.076	5.94	101.4	1.8	0.37	0.1	0.04	0.56	0.19	23	218
30 ISL	14.14	14.14	32.993	24.609	332.9	0.100	5.95	101.5	1.9	0.36	0.1	0.04	0.57	0.18	30	
32 A	14.14	14.14	32.994	24.610	332.8	0.106	5.95	101.5	1.9	0.36	0.1	0.04	0.58	0.18	32	217
45 A	14.12	14.11	32.992	24.613	332.9	0.150	5.95	101.5	1.9	0.37	0.2	0.04	0.60	0.21	45	216
50 ISL	14.11	14.10	32.992	24.615	332.8	0.166	5.94	101.3	1.9	0.37	0.2	0.04	0.61	0.22	50	
53	14.11	14.10	32.992	24.615	332.9	0.176	5.94	101.3	1.9	0.37	0.2	0.04	0.61	0.23	53	215
60 A	14.05	14.04	32.994	24.629	331.8	0.200	5.93	101.0	1.9	0.37	0.3	0.07	0.55	0.22	60	214
70	13.71	13.70	33.011	24.713	324.1	0.232	5.87	99.3	2.2	0.44	1.2	0.17	0.44	0.20	70	213
75 ISL	13.23	13.22	33.054	24.843	311.8	0.248	5.73	96.0	3.1	0.54	3.1	0.14	0.34	0.17	75	
86	12.09	12.08	33.162	25.147	282.9	0.281	5.32	87.1	5.7	0.80	7.8	0.02	0.12	0.12	86	212
100 ISL	11.32	11.31	33.197	25.317	267.0	0.319	4.88	78.6	9.1	1.05	11.4	0.02	0.08	0.11	100	
102	11.23	11.22	33.202	25.337	265.1	0.325	4.81	77.3	9.6	1.08	11.9	0.02	0.07	0.11	102	211
120	10.24	10.23	33.398	25.663	234.3	0.370	4.03	63.5	16.2	1.46	17.9	0.01	0.02	0.09	121	210
125 ISL	10.10	10.09	33.455	25.732	227.9	0.381	3.85	60.5	17.6	1.53	19.0	0.01	0.02	0.09	126	
140	9.84	9.82	33.622	25.906	211.6	0.414	3.35	52.4	21.3	1.71	21.6	0.01	0.02	0.10	141	209
150 ISL	9.68	9.66	33.735	26.021	200.9	0.435	3.04	47.4	23.9	1.81	23.1	0.01	0.02	0.10	151	
170	9.44	9.42	33.922	26.207	183.6	0.473	2.55	39.6	28.2	1.98	25.5	0.01	0.01	0.09	171	208
196	9.29	9.27	34.023	26.310	174.3	0.520	2.24	34.7	31.2	2.10	26.9	0.01	0.01	0.08	197	207
200 ISL	9.24	9.22	34.031	26.325	173.0	0.527	2.22	34.3	31.6	2.11	27.1	0.01			201	
230	8.81	8.79	34.062	26.418	164.6	0.577	2.15	32.9	35.0	2.17	28.6	0.01			231	206
250 ISL	8.48	8.45	34.082	26.485	158.5	0.610	2.07	31.5	37.9	2.22	29.6	0.01			251	
269	8.17	8.14	34.095	26.542	153.2	0.639	1.99	30.0	40.9	2.28	30.6	0.01			271	205
300 ISL	7.71	7.68	34.090	26.606	147.4	0.686	1.83	27.3	45.5	2.38	32.3	0.01			302	
318	7.48	7.45	34.088	26.638	144.6	0.712	1.72	25.6	48.1	2.45	33.2	0.01			320	204
378	7.08	7.04	34.173	26.761	133.6	0.796	1.15	16.9	57.2	2.72	35.3	0.01			380	203
400 ISL	6.75	6.71	34.173	26.807	129.4	0.825	0.98	14.3	62.0	2.80	36.6	0.01			403	
437	6.22	6.18	34.171	26.875	123.0	0.871	0.74	10.7	69.7	2.91	38.7	0.01			440	202
500 ISL	6.02	5.98	34.240	26.955	116.1	0.947	0.46	6.6	76.3	3.04	39.9	0.01			503	
512	5.98	5.94	34.253	26.971	114.7	0.960	0.41	5.9	77.6	3.07	40.1	0.01			515	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 55.4 N	122 9.2 W	02/04/04	0858 UTC	4183 m	330 24 kn			1011.5 mb	12.8 C	12.0 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	14.11	14.11	32.952	24.583	334.5	0.000	5.96	101.6	2.1	0.37	0.0	0.01	0.40	0.15	0	
3	14.11	14.11	32.952	24.583	334.6	0.010	5.96	101.6	2.1	0.37	0.0	0.01	0.40	0.15	3	220
9	14.11	14.11	32.951	24.582	334.8	0.030	5.96	101.6	2.1	0.37	0.0	0.01	0.41	0.15	9	219
10 ISL	14.11	14.11	32.951	24.582	334.8	0.033	5.96	101.6	2.1	0.37	0.0	0.01	0.41	0.15	10	
19	14.11	14.11	32.952	24.583	335.0	0.064	5.96	101.6	2.0	0.37	0.0	0.00	0.41	0.15	19	218
20 ISL	14.11	14.11	32.952	24.583	335.0	0.067	5.96	101.6	2.0	0.37	0.0	0.00	0.41	0.15	20	
30	14.11	14.11	32.951	24.583	335.3	0.100	5.97	101.8	2.0	0.37	0.0	0.01	0.39	0.16	30	217
40	14.12	14.11	32.952	24.582	335.7	0.134	5.96	101.6	2.0	0.36	0.0	0.01	0.38	0.15	40	216
50	14.11	14.10	32.951	24.583	335.9	0.168	5.96	101.6	2.0	0.37	0.0	0.01	0.40	0.15	50	215
59	13.59	13.58	32.963	24.700	325.0	0.197	5.92	99.8	2.7	0.43	0.6	0.10	0.58	0.29	59	214
70	12.33	12.32	33.059	25.022	294.5	0.231	5.25	86.3	5.2	0.81	6.6	0.09	0.31	0.19	70	213
75 ISL	11.59	11.58	33.151	25.232	274.6	0.246	4.76	77.1	8.7	1.09	11.2	0.06	0.21	0.15	75	
84	10.39	10.38	33.322	25.578	241.7	0.269	4.00	63.2	15.1	1.52	18.7	0.01	0.09	0.09	84	212
99	9.68	9.67	33.401	25.759	224.7	0.304	4.00	62.2	17.9	1.58	20.0	0.01	0.03	0.05	99	211
100 ISL	9.66	9.65	33.408	25.768	223.8	0.306	3.99	62.0	18.1	1.59	20.1	0.01	0.03	0.05	100	
118	9.36	9.35	33.550	25.928	209.0	0.345	3.68	56.9	21.1	1.68	22.0	0.00	0.01	0.04	119	210
125 ISL	9.22	9.21	33.609	25.996	202.5	0.359	3.61	55.6	22.3	1.70	22.5	0.00	0.01	0.04	126	
138	9.00	8.99	33.715	26.115	191.5	0.385	3.50	53.7	24.4	1.74	23.4	0.00	0.01	0.03	139	209
150 ISL	8.91	8.89	33.800	26.196	184.1	0.408	3.37	51.6	26.0	1.78	24.1	0.00	0.01	0.03	151	
168	8.81	8.79	33.900	26.290	175.5	0.440	3.20	49.0	28.1	1.82	25.0	0.00	0.00	0.02	169	208
200	8.44	8.42	33.984	26.413	164.2	0.494	3.19	48.4	31.8	1.85	26.0	0.00	0.00	0.02	201	207
229	8.04	8.02	34.013	26.496	156.7	0.541	2.79	42.0	37.4	2.03	28.5	0.01			230	206
250 ISL	7.79	7.77	34.036	26.552	151.8	0.573	2.38	35.6	41.7	2.20	30.4	0.01			251	
269	7.58	7.55	34.059	26.600	147.4	0.602	2.01	29.9	45.6	2.36	32.1	0.00			271	205
300 ISL	7.29	7.26	34.099	26.673	140.8	0.646	1.54	22.8	51.4	2.55	34.2	0.00			302	
318	7.14	7.11	34.122	26.712	137.3	0.671	1.32	19.5	54.5	2.64	35.1	0.00			320	204
377	6.71	6.68	34.178	26.815	128.1	0.750	0.84	12.3	63.4	2.86	37.2	0.00			379	203
400 ISL	6.55	6.51	34.191	26.847	125.4	0.779	0.73	10.6	66.4	2.93	37.9	0.00			403	
437	6.28	6.24	34.205	26.894	121.3	0.824	0.60	8.7	71.1	3.02	38.9	0.00			440	202
500 ISL	5.73	5.69	34.209	26.967	114.7	0.899	0.50	7.1	80.2	3.10	40.6	0.00			503	
512	5.63	5.59	34.210	26.980	113.5	0.912	0.48	6.8	81.9	3.12	40.9	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 83 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 35.0 N	122 48.8 W	01/04/04	2308 UTC	4292 m	330 25 kn	340 10 07	0	1015.0 mb	14.1 C	13.2 C		0/8

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	14.90	14.90	32.935	24.403	351.7	0.000	5.86	101.5	1.5	0.34	0.0	0.00	0.11	0.04	0	
2	14.90	14.90	32.935	24.403	351.7	0.007	5.86	101.5	1.5	0.34	0.0	0.00	0.11	0.04	2	220
10 ISL	14.91	14.91	32.935	24.401	352.1	0.035	5.86	101.5	1.4	0.34	0.0	0.00	0.11	0.03	10	
15	14.91	14.91	32.936	24.402	352.2	0.053	5.86	101.5	1.4	0.34	0.0	0.00	0.11	0.03	15	219
20 ISL	14.91	14.91	32.936	24.402	352.3	0.070	5.86	101.5	1.4	0.34	0.0	0.00	0.11	0.03	20	
29	14.91	14.91	32.938	24.404	352.4	0.102	5.85	101.4	1.3	0.34	0.0	0.00	0.11	0.03	29	218
30 ISL	14.91	14.91	32.939	24.405	352.4	0.106	5.85	101.4	1.3	0.34	0.0	0.00	0.11	0.03	30	
44	14.93	14.92	32.948	24.408	352.5	0.155	5.85	101.4	1.3	0.34	0.0	0.00	0.11	0.03	44	217
50 ISL	14.94	14.93	32.949	24.406	352.8	0.176	5.85	101.4	1.3	0.33	0.0	0.00	0.11	0.03	50	
55	14.94	14.93	32.950	24.407	352.8	0.194	5.85	101.4	1.3	0.33	0.0	0.00	0.11	0.03	55	216
65	14.94	14.93	32.965	24.419	352.0	0.229	5.84	101.3	1.4	0.34	0.0	0.00	0.13	0.04	65	215
75	14.71	14.70	32.962	24.467	347.8	0.264	5.83	100.6	1.5	0.34	0.0	0.00	0.22	0.10	75	214
85	14.26	14.25	33.033	24.617	333.7	0.298	5.82	99.6	1.8	0.36	0.2	0.01	0.52	0.33	85	213
94	13.27	13.26	33.063	24.842	312.3	0.327	5.68	95.2	2.8	0.49	2.1	0.11	0.39	0.31	94	212
100 ISL	12.93	12.92	33.113	24.948	302.3	0.346	5.62	93.6	3.2	0.52	2.8	0.09	0.36	0.30	100	
109	12.48	12.47	33.162	25.074	290.5	0.372	5.53	91.2	3.9	0.58	4.1	0.05	0.34	0.26	109	211
124	11.03	11.01	33.052	25.257	273.2	0.415	5.25	83.9	7.0	0.91	9.0	0.03	0.18	0.12	125	210
125 ISL	10.95	10.93	33.056	25.274	271.6	0.417	5.21	83.1	7.4	0.94	9.5	0.03	0.17	0.11	126	
143	9.84	9.82	33.216	25.589	241.7	0.463	4.43	69.1	14.4	1.44	17.5	0.01	0.04	0.05	144	209
150 ISL	9.60	9.58	33.295	25.690	232.2	0.480	4.39	68.1	15.7	1.45	17.9	0.01	0.03	0.04	151	
169	9.21	9.19	33.516	25.926	210.1	0.522	4.28	65.9	18.2	1.47	19.0	0.00	0.01	0.02	170	208
199	8.80	8.78	33.825	26.233	181.4	0.581	3.59	54.9	25.6	1.73	23.4	0.00	0.00	0.02	200	207
200 ISL	8.79	8.77	33.832	26.240	180.8	0.583	3.58	54.7	25.7	1.73	23.5	0.00			201	
228	8.54	8.52	33.955	26.376	168.4	0.632	3.29	50.0	29.7	1.82	25.2	0.00			229	206
250 ISL	8.18	8.15	33.999	26.465	160.2	0.668	3.01	45.4	34.5	1.94	27.1	0.00			251	
268	7.83	7.80	34.013	26.528	154.3	0.696	2.78	41.6	38.8	2.06	28.8	0.00			269	205
300 ISL	7.24	7.21	34.016	26.615	146.3	0.744	2.43	35.9	45.8	2.25	31.5	0.00			302	
318	6.93	6.90	34.013	26.655	142.5	0.770	2.23	32.7	49.7	2.35	32.9	0.00			320	204
378	6.11	6.08	34.041	26.785	130.5	0.852	1.47	21.1	63.0	2.70	37.2	0.00			380	203
400 ISL	6.03	6.00	34.076	26.823	127.1	0.880	1.20	17.2	66.3	2.80	38.1	0.00			402	
438	5.97	5.93	34.138	26.880	122.2	0.928	0.81	11.6	71.2	2.93	39.2	0.00			441	202
500 ISL	5.56	5.52	34.171	26.957	115.3	1.001	0.58	8.2	80.0	3.05	40.8	0.00			503	
514	5.47	5.43	34.179	26.974	113.8	1.017	0.53	7.5	82.0	3.08	41.1	0.00			517	201

RV NEW HORIZON CALCOFI CRUISE 0404 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 29.6 W	05/04/04	1725 UTC	4143 m	010 15 kn	360 03 05	2	1019.6 mb	15.0 C	11.8 C	29m	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	14.92	14.92	32.912	24.381	353.8	0.000	6.25	108.3	1.5	0.34	0.0	0.00	0.16	0.05	0	
2 A	14.92	14.92	32.912	24.381	353.8	0.007	6.25	108.3	1.5	0.34	0.0	0.00	0.16	0.05	2	223
10	14.96	14.96	32.921	24.379	354.2	0.035			1.5	0.34	0.0	0.00	0.15	0.04	10	222
20 A	14.94	14.94	32.919	24.382	354.2	0.071	6.24	108.2	1.5	0.34	0.0	0.00	0.15	0.04	20	221
30	14.97	14.97	32.928	24.383	354.4	0.106	6.24	108.2	1.5	0.34	0.0	0.00	0.14	0.04	30	220
41 A	15.01	15.00	32.938	24.383	354.8	0.145	6.23	108.2	1.5	0.33	0.0	0.00	0.15	0.05	41	219
50	14.81	14.80	32.871	24.374	355.8	0.177	6.27	108.4	1.5	0.34	0.0	0.00	0.24	0.07	50	218
60 A	14.59	14.58	32.832	24.391	354.5	0.213	6.30	108.4	1.6	0.35	0.0	0.00	0.32	0.10	60	217
71	15.06	15.05	33.052	24.461	348.3	0.251	6.18	107.5	1.5	0.31	0.0	0.00	0.27	0.11	71	216
75 ISL	14.97	14.96	33.048	24.477	346.8	0.265	6.17	107.1	1.6	0.32	0.0	0.00	0.29	0.15	75	
82 A	14.81	14.80	33.091	24.545	340.5	0.289	6.16	106.6	1.7	0.33	0.0	0.00	0.35	0.23	82	215
91	13.67	13.66	33.088	24.781	318.2	0.319	6.09	103.0	2.6	0.43	1.2	0.07	0.38	0.32	91	214
100 ISL	13.18	13.17	33.102	24.891	307.9	0.347	6.02	100.7	3.0	0.48	2.3	0.10	0.33	0.32	100	
101	13.14	13.13	33.103	24.899	307.1	0.350	6.01	100.5	3.1	0.49	2.4	0.10	0.32	0.32	101	213
111 A	12.28	12.27	33.095	25.060	291.9	0.380	5.88	96.6	4.3	0.61	4.5	0.07	0.27	0.20	111	212
118	12.04	12.02	33.141	25.141	284.2	0.400	5.83	95.3	4.8	0.64	5.3	0.05	0.22	0.19	118	211
125	11.41	11.39	33.123	25.244	274.5	0.420	5.74	92.5	5.9	0.75	7.0	0.04	0.16	0.13	126	210
140	10.43	10.41	33.125	25.418	258.0	0.460	5.55	87.6	8.7	0.95	10.3	0.02	0.09	0.08	141	209
150 ISL	9.90	9.88	33.227	25.588	242.0	0.485	5.31	82.9	11.6	1.11	13.1	0.01	0.05	0.06	151	
164	9.34	9.32	33.415	25.826	219.5	0.517	4.93	76.1	15.7	1.32	16.7	0.01	0.02	0.05	165	208
194	8.97	8.95	33.705	26.112	192.8	0.579	4.39	67.3	21.3	1.51	20.3	0.01	0.00	0.04	195	207
200 ISL	8.92	8.90	33.751	26.156	188.8	0.590	4.27	65.4	22.4	1.55	21.0	0.01			201	
229	8.70	8.68	33.918	26.322	173.6	0.643	3.69	56.3	27.7	1.74	24.0	0.01			230	206
250 ISL	8.51	8.48	33.978	26.399	166.6	0.679	3.36	51.1	31.1	1.86	25.8	0.01			251	
268	8.32	8.29	34.005	26.449	162.1	0.708	3.12	47.2	33.9	1.95	27.1	0.01			269	205
300 ISL	7.87	7.84	34.028	26.534	154.3	0.759	2.77	41.5	39.4	2.11	29.4	0.01			302	
318	7.60	7.57	34.034	26.578	150.3	0.786	2.57	38.3	42.6	2.20	30.6	0.01			320	204
377	6.85	6.81	34.076	26.716	137.6	0.871	1.66	24.3	54.4	2.57	34.8	0.01			379	203
400 ISL	6.64	6.60	34.095	26.760	133.7	0.902	1.39	20.2	58.4	2.68	36.1	0.01			402	
439	6.33	6.29	34.126	26.825	127.8	0.953	1.02	14.8	65.1	2.83	38.0	0.00			442	202
500 ISL	5.75	5.71	34.167	26.931	118.0	1.028	0.73	10.4	76.8	3.00	40.1	0.00			503	
516	5.60	5.56	34.179	26.959	115.4	1.047	0.65	9.2	79.9	3.04	40.7	0.00			519	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 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 10.3 W	06/04/04	1106 UTC	4227 m	360 14 kn			1020.3 mb	13.8 C	11.0 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	15.78	15.78	33.139	24.367	355.1	0.000	5.75	101.5	1.2	0.32	0.0	0.00	0.09	0.02	0	
2	15.78	15.78	33.139	24.367	355.1	0.007	5.75	101.5	1.2	0.32	0.0	0.00	0.09	0.02	2	220
10 ISL	15.79	15.79	33.142	24.367	355.4	0.036	5.75	101.5	1.1	0.32	0.0	0.00	0.08	0.02	10	
14	15.79	15.79	33.143	24.368	355.4	0.050	5.75	101.5	1.1	0.32	0.0	0.00	0.08	0.02	14	219
20 ISL	15.79	15.79	33.143	24.368	355.6	0.071	5.75	101.5	1.1	0.32	0.0	0.00	0.08	0.02	20	
29	15.80	15.80	33.143	24.366	356.0	0.103	5.74	101.4	1.2	0.32	0.0	0.00	0.09	0.03	29	218
30 ISL	15.80	15.80	33.143	24.366	356.1	0.107	5.74	101.4	1.2	0.32	0.0	0.00	0.09	0.03	30	
45	15.81	15.80	33.143	24.365	356.7	0.160	5.75	101.6	1.2	0.32	0.0	0.00	0.09	0.02	45	217
50 ISL	15.81	15.80	33.142	24.364	356.9	0.178	5.75	101.6	1.2	0.32	0.0	0.00	0.09	0.02	50	
59	15.81	15.80	33.141	24.364	357.2	0.210	5.75	101.6	1.2	0.31	0.0	0.00	0.09	0.02	59	216
75	15.81	15.80	33.142	24.365	357.6	0.267	5.74	101.4	1.2	0.31	0.0	0.00	0.09	0.02	75	215
84	15.85	15.84	33.158	24.369	357.5	0.299	5.75	101.6	1.2	0.31	0.0	0.00	0.14	0.04	84	214
95	15.84	15.83	33.157	24.370	357.7	0.339	5.74	101.4	1.2	0.31	0.0	0.00	0.15	0.05	95	213
100 ISL	15.82	15.80	33.155	24.374	357.6	0.357	5.73	101.2	1.2	0.31	0.0	0.00	0.16	0.06	100	
104	15.81	15.79	33.153	24.374	357.6	0.371	5.73	101.2	1.3	0.31	0.0	0.00	0.17	0.06	104	212
114	14.93	14.91	33.101	24.528	343.1	0.406	5.74	99.6	1.7	0.35	0.2	0.01	0.36	0.23	114	211
125	13.53	13.51	33.130	24.843	313.2	0.442	5.60	94.4	3.1	0.48	2.1	0.05	0.31	0.32	126	210
139	12.62	12.60	33.141	25.031	295.4	0.485	5.47	90.5	4.3	0.61	4.4	0.03	0.27	0.25	140	209
150 ISL	11.46	11.44	33.146	25.253	274.3	0.516	5.24	84.6	7.2	0.85	8.3	0.02	0.18	0.16	151	
164	10.07	10.05	33.196	25.535	247.3	0.553	4.91	76.9	11.4	1.16	13.4	0.01	0.06	0.06	165	208
194	9.32	9.30	33.473	25.875	215.4	0.622	4.53	69.9	16.6	1.36	17.3	0.00	0.01	0.02	195	207
200 ISL	9.23	9.21	33.539	25.941	209.2	0.635	4.40	67.8	17.9	1.41	18.2	0.00			201	
228	8.88	8.86	33.817	26.215	183.8	0.690	3.79	58.0	24.3	1.63	22.2	0.00			229	206
250 ISL	8.62	8.59	33.943	26.354	170.9	0.729	3.42	52.1	28.9	1.77	24.5	0.00			251	
267	8.41	8.38	34.001	26.432	163.7	0.757	3.17	48.1	32.3	1.86	26.0	0.00			268	205
300 ISL	7.98	7.95	34.035	26.524	155.4	0.810	2.74	41.2	38.3	2.05	28.7	0.00			302	
319	7.71	7.68	34.032	26.561	152.0	0.839	2.50	37.3	41.7	2.16	30.1	0.00			321	204
377	6.84	6.80	34.056	26.702	139.0	0.923	1.73	25.3	53.8	2.52	34.5	0.00			379	203
400 ISL	6.58	6.54	34.076	26.753	134.3	0.955	1.43	20.8	58.8	2.65	36.0	0.00			402	
437	6.23	6.19	34.113	26.828	127.4	1.003	1.02	14.7	66.4	2.83	38.1	0.00			440	202
500 ISL	5.84	5.80	34.173	26.925	118.7	1.081	0.63	9.0	76.2	3.00	40.0	0.00			503	
513	5.76	5.72	34.186	26.945	116.9	1.096	0.55	7.9	78.2	3.03	40.4	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 33

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 53.3 N	118 29.2 W	30/03/04	0052	UTC	59 m	230	01 kn	260 01 08	1	1011.8 mb	18.5 C	16.1 C	08m	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	16.23	16.23	33.191	24.305	361.0	0.000	6.35	113.2	2.7	0.27	0.2	0.03	2.75	0.45	0	
1	16.23	16.23	33.191	24.305	361.0	0.004	6.35	113.2	2.7	0.27	0.2	0.03	2.75	0.45	1	217
5	15.53	15.53	33.188	24.460	346.3	0.018	6.33	111.2	2.2	0.23	0.0	0.00	0.93	0.26	5	216
10	14.35	14.35	33.185	24.713	322.4	0.034	6.44	110.5	2.9	0.26	0.2	0.03	1.77	0.63	10	215
20	12.01	12.01	33.264	25.240	272.4	0.064	4.60	75.2	9.0	1.03	11.0	0.44	2.53	0.74	20	214
30	11.48	11.48	33.330	25.390	258.4	0.091	3.99	64.5	12.0	1.31	15.4	0.12	0.97	0.44	30	213
40	11.10	11.10	33.424	25.532	245.1	0.116	3.55	57.0	15.1	1.49	17.8	0.09	0.40	0.29	40	212
50	10.57	10.56	33.640	25.794	220.4	0.139	2.90	46.1	21.7	1.83	20.6	0.33	0.10	0.29	50	211

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 49.2 N	118 37.4 W	30/03/04	0301	UTC	645 m	280	12 kn	280 01 11	1	1011.3 mb	16.6 C	15.3 C		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	15.94	15.94	33.165	24.351	356.6	0.000	6.11	108.2	1.1	0.23	0.1	0.00	0.31	0.06	0	
1	15.94	15.94	33.165	24.351	356.6	0.004	6.11	108.2	1.1	0.23	0.1	0.00	0.31	0.06	1	220
10	15.22	15.22	33.165	24.511	341.7	0.035	6.20	108.3	1.0	0.23	0.0	0.00	0.53	0.19	10	219
20	14.15	14.15	33.162	24.737	320.4	0.068	6.00	102.5	2.3	0.35	0.9	0.12	1.59	0.56	20	218
30	12.14	12.14	33.222	25.183	278.1	0.098	4.56	74.7	8.4	1.04	10.8	0.14	0.79	0.33	30	217
40	11.47	11.47	33.279	25.352	262.2	0.125	4.25	68.7	11.0	1.23	13.7	0.06	0.48	0.29	40	216
50	11.06	11.05	33.339	25.473	250.9	0.151	4.05	64.9	12.7	1.34	15.3	0.04	0.30	0.22	50	215
60	10.75	10.74	33.430	25.599	239.2	0.175	3.84	61.2	14.8	1.45	17.0	0.03			60	214
69	10.59	10.58	33.532	25.707	229.1	0.196	3.57	56.7	16.9	1.54	18.5	0.02	0.15	0.20	69	213
75 ISL	10.39	10.38	33.605	25.798	220.5	0.210	3.42	54.1	18.5	1.61	19.6	0.01	0.12	0.17	75	
85	10.06	10.05	33.727	25.950	206.3	0.231	3.17	49.8	21.3	1.72	21.3	0.00	0.08	0.12	85	212
99	9.90	9.89	33.881	26.097	192.6	0.259	2.76	43.3	24.9	1.87	23.3	0.01	0.03	0.06	100	211
100 ISL	9.89	9.88	33.887	26.104	192.0	0.261	2.74	42.9	25.0	1.88	23.4	0.01	0.03	0.06	101	
119	9.79	9.78	33.953	26.172	185.9	0.297	2.58	40.4	26.8	1.95	24.2	0.01	0.02	0.05	120	210
125 ISL	9.77	9.76	33.966	26.186	184.7	0.308	2.56	40.0	27.1	1.96	24.4	0.01	0.02	0.05	126	
140	9.69	9.67	33.997	26.224	181.5	0.335	2.50	39.0	28.0	1.98	24.9	0.00	0.02	0.06	141	209
150 ISL	9.59	9.57	34.037	26.272	177.1	0.353	2.40	37.4	29.3	2.02	25.5	0.00	0.02	0.06	151	
170	9.39	9.37	34.120	26.370	168.2	0.388	2.16	33.5	32.3	2.13	26.8	0.00	0.02	0.05	171	208
199	9.23	9.21	34.185	26.447	161.4	0.436	1.80	27.8	35.9	2.29	28.2	0.00	0.01	0.05	200	207
200 ISL	9.21	9.19	34.186	26.451	161.0	0.437	1.79	27.7	36.1	2.29	28.3	0.00			201	
229	8.73	8.71	34.207	26.544	152.6	0.483	1.59	24.3	40.6	2.42	29.9	0.00			230	206
250 ISL	8.54	8.51	34.218	26.582	149.3	0.514	1.44	21.9	43.0	2.49	30.6	0.00			252	
269	8.41	8.38	34.225	26.608	147.2	0.543	1.32	20.1	44.9	2.55	31.2	0.00			271	205
300 ISL	8.16	8.13	34.239	26.657	142.9	0.588	1.16	17.5	48.0	2.64	32.3	0.00			302	
318	8.01	7.98	34.246	26.685	140.5	0.613	1.07	16.1	49.8	2.69	32.9	0.00			320	204
378	7.45	7.41	34.259	26.777	132.4	0.695	0.79	11.7	57.4	2.85	35.1	0.00			380	203
400 ISL	7.33	7.29	34.271	26.804	130.2	0.724	0.69	10.2	59.7	2.90	35.6	0.00			403	
439	7.13	7.09	34.294	26.851	126.2	0.774	0.50	7.4	63.8	2.99	36.5	0.00			442	202
500 ISL	6.62	6.57	34.314	26.936	118.6	0.849									503	
515	6.50	6.45	34.319 D	26.956	116.8	0.866									519	201

RV NEW HORIZON CALCOFI CRUISE 0404 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 59.1 W	30/03/04	0713	UTC	694 m	310	07 kn			1013.0 mb	15.5 C	15.0 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	16.11	16.11	33.165	24.313	360.3	0.000	6.10	108.4	0.9	0.22	0.1	0.00	0.38	0.06	0	
1	16.11	16.11	33.165	24.313	360.3	0.004	6.10	108.4	0.9	0.22	0.1	0.00	0.38	0.06	1	224
9	16.01	16.01	33.160	24.332	358.7	0.032	6.11	108.4	0.9	0.20	0.0	0.00	0.41	0.08	9	223
10 ISL	15.92	15.92	33.159	24.351	356.9	0.036	6.12	108.4	0.9	0.20	0.0	0.00	0.42	0.09	10	
19	14.76	14.76	33.154	24.602	333.2	0.067	6.17	106.7	1.2	0.28	0.0	0.00	0.49	0.13	19	222
20 ISL	14.63	14.63	33.154	24.630	330.6	0.070	6.16	106.3	1.3	0.29	0.2	0.01	0.71	0.20	20	
30	13.19	13.19	33.174	24.942	301.1	0.102	5.68	95.1	3.7	0.54	2.6	0.10	2.51	0.82	30	221
39	11.76	11.76	33.242	25.270	270.0	0.128	4.64	75.4	8.5	1.06	11.0	0.18	1.31	0.54	39	220
50	11.22	11.21	33.305	25.418	256.2	0.157	4.30	69.1	11.4	1.23	13.9	0.07	0.50	0.29	50	219
60	10.81	10.80	33.407	25.571	241.9	0.181	3.91	62.3	14.1	1.40	16.5	0.03	0.54	0.29	60	218
70	10.58	10.57	33.479	25.667	232.9	0.205	3.77	59.8	15.8	1.49	17.8	0.02	0.12	0.14	70	217
75 ISL	10.47	10.46	33.520	25.718	228.2	0.217	3.66	58.0	16.7	1.53	18.5	0.02	0.10	0.13	75	
84	10.28	10.27	33.597	25.811	219.5	0.237	3.47	54.8	18.3	1.60	19.7	0.01	0.06	0.11	84	216
100	9.98	9.97	33.733	25.968	204.9	0.271	3.25	51.0	21.0	1.70	21.3	0.01	0.03	0.06	100	215
119	9.83	9.82	33.898	26.123	190.6	0.308	2.77	43.4	24.8	1.87	23.4	0.01	0.01	0.05	120	214
125 ISL	9.79	9.78	33.936	26.159	187.3	0.320	2.68	41.9	25.7	1.91	23.9	0.01	0.01	0.05	126	
140	9.68	9.66	34.010	26.235	180.3	0.347	2.49	38.9	27.8	1.98	24.9	0.01	0.01	0.05	141	213
150 ISL	9.59	9.57	34.050	26.282	176.1	0.365	2.36	36.8	29.2	2.03	25.6	0.00	0.01	0.05	151	
170	9.38	9.36	34.110	26.364	168.8	0.400	2.09	32.4	32.3	2.14	27.0	0.00	0.01	0.05	171	212
200 ISL	9.00	8.98	34.162	26.466	159.6	0.449	1.66	25.5	37.8	2.34	29.1	0.04	0.01	0.08	201	
202	8.98	8.96	34.164	26.470	159.1	0.452	1.63	25.1	38.2	2.35	29.2	0.04	0.01	0.08	203	211
229	8.75	8.73	34.199	26.534	153.5	0.494	1.41	21.6	41.3	2.45	30.2	0.04			230	210
250 ISL	8.55	8.52	34.210	26.574	150.0	0.526	1.37	20.9	42.8	2.48	30.7	0.02			251	
270	8.34	8.31	34.218	26.613	146.7	0.556	1.34	20.3	44.5	2.51	31.3	0.00			272	209
300 ISL	8.00	7.97	34.244	26.685	140.2	0.599	1.05	15.8	49.6	2.66	32.9	0.00			302	
317	7.81	7.78	34.259	26.725	136.6	0.622	0.87	13.0	52.7	2.75	33.8	0.00			319	208
377	7.27	7.23	34.284	26.823	128.0	0.702	0.59	8.7	60.7	2.90	35.8	0.00			379	207
400 ISL	7.10	7.06	34.291	26.852	125.4	0.731	0.51	7.5	63.4	2.95	36.4	0.00			403	
438	6.84	6.80	34.302	26.897	121.6	0.778	0.40	5.9	67.5	3.02	37.3	0.00			441	206
500 ISL	6.47	6.42	34.320	26.961	116.1	0.852	0.30	4.4	74.0	3.10	38.5	0.00			503	
512	6.40	6.35	34.324	26.973	115.0	0.865	0.29	4.2	75.4	3.11	38.7	0.00			516	205
564	6.05	6.00	34.341	27.032	109.8	0.924	0.24	3.5	83.1	3.18	39.3	0.00			568	204
600 ISL	5.89	5.84	34.350	27.060	107.5	0.963	0.20	2.9	86.6	3.21	39.4	0.01			604	
619	5.81	5.76	34.355	27.074	106.3	0.983	0.18	2.6	88.4	3.23	39.4	0.01			624	203
667	5.53	5.47	34.372	27.122	102.0	1.033	0.16	2.3	95.2	3.28	39.5	0.00			672	202
686	5.48	5.42	34.377	27.132	101.2	1.053	0.14	2.0	97.1	3.30	39.5	0.01			691	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 29.2 N	119 19.2 W	30/03/04	1128 UTC	1630 m	280 14 kn			1012.6 mb	13.2 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	15.18	15.18	33.189	24.538	338.8	0.000	6.15	107.3	1.2	0.27	0.0	0.00	0.82	0.26	0	
2	15.18	15.18	33.189	24.538	338.9	0.007	6.15	107.3	1.2	0.27	0.0	0.00	0.82	0.26	2	220
10	15.17	15.17	33.178	24.532	339.7	0.034	6.15	107.3	1.1	0.26	0.0	0.00	0.85	0.27	10	219
19	13.30	13.30	33.184	24.928	302.2	0.063	5.75	96.5	2.5	0.48	3.1	0.18	2.48	0.98	19	218
20 ISL	13.21	13.21	33.184	24.946	300.5	0.066	5.72	95.9	2.6	0.50	3.3	0.19	2.49	0.99	20	
29	12.60	12.60	33.210	25.086	287.3	0.092	5.30	87.7	4.6	0.71	6.2	0.26	2.57	1.08	29	217
30 ISL	12.47	12.47	33.224	25.122	283.9	0.095	5.17	85.3	5.3	0.77	7.1	0.25	2.42	1.02	30	
40	11.18	11.18	33.376	25.480	250.0	0.122	3.96	63.6	12.7	1.30	15.2	0.08	0.75	0.39	40	216
50	10.67	10.66	33.426	25.610	237.9	0.146	3.91	62.2	15.0	1.40	16.9	0.06	0.39	0.28	50	215
57	10.45	10.44	33.459	25.674	232.0	0.163	3.89	61.6	16.2	1.44	17.6	0.07	0.39	0.27	57	214
69	10.09	10.08	33.556	25.811	219.1	0.190	3.63	57.0	19.3	1.56	19.5	0.09	0.24	0.25	69	213
75 ISL	9.91	9.90	33.613	25.886	212.1	0.203	3.46	54.2	21.0	1.63	20.6	0.08	0.17	0.22	75	
86	9.70	9.69	33.722	26.006	200.9	0.225	3.11	48.5	23.8	1.76	22.6	0.04	0.07	0.17	86	212
99	9.80	9.79	33.850	26.090	193.3	0.251	2.64	41.3	25.6	1.90	24.2	0.02	0.03	0.16	100	211
100 ISL	9.80	9.79	33.860	26.098	192.6	0.253	2.60	40.7	25.8	1.91	24.3	0.02	0.03	0.16	101	
118	9.63	9.62	34.005	26.240	179.5	0.286	2.06	32.1	30.1	2.11	26.4	0.02	0.02	0.16	119	210
125 ISL	9.54	9.53	34.040	26.282	175.6	0.299	2.03	31.6	31.1	2.14	26.9	0.02	0.02	0.14	126	
140	9.36	9.34	34.091	26.351	169.3	0.325	1.96	30.4	32.8	2.18	27.6	0.02	0.02	0.10	141	209
150 ISL	9.29	9.27	34.113	26.380	166.7	0.342	1.93	29.9	33.6	2.21	27.9	0.02	0.02	0.08	151	
172	9.14	9.12	34.148	26.432	162.2	0.378	1.80	27.8	35.7	2.28	28.7	0.01	0.01	0.06	173	208
198	8.84	8.82	34.194	26.516	154.7	0.419	1.43	21.9	40.3	2.44	30.4	0.01	0.01	0.07	199	207
200 ISL	8.82	8.80	34.197	26.521	154.2	0.422	1.41	21.6	40.6	2.45	30.5	0.01			201	
230	8.56	8.54	34.235	26.592	148.0	0.467	1.17	17.8	43.8	2.57	31.6	0.01			231	206
250 ISL	8.40	8.37	34.246	26.626	145.1	0.497	1.07	16.3	46.0	2.63	32.3	0.01			252	
270	8.26	8.23	34.252	26.652	142.9	0.525	1.00	15.1	48.0	2.67	32.9	0.01			272	205
300 ISL	8.09	8.06	34.260	26.684	140.3	0.568	0.91	13.7	50.3	2.73	33.5	0.01			302	
319	7.98	7.95	34.264	26.704	138.8	0.594	0.86	12.9	51.7	2.76	33.8	0.01			321	204
378	7.50	7.46	34.284	26.790	131.3	0.674	0.62	9.2	58.3	2.91	35.7	0.01			380	203
400 ISL	7.35	7.31	34.288	26.815	129.2	0.703	0.56	8.3	60.4	2.95	36.2	0.01			403	
438	7.08	7.04	34.296	26.859	125.4	0.751	0.47	6.9	64.5	3.01	37.0	0.00			441	202
500 ISL	6.50	6.45	34.324	26.960	116.2	0.826	0.31	4.5	74.8	3.15	38.7	0.01			503	
516	6.35	6.30	34.332	26.986	113.8	0.844	0.27	3.9	77.4	3.19	39.2	0.01			520	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 19.4 N	119 39.7 W	30/03/04	1509 UTC	81 m	310 17 kn	310 05 05	1	1013.7 mb	14.0 C	13.1 C	10m	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	14.15	14.15	33.211	24.774	316.3	0.000	6.14	104.9	2.1	0.31	0.8	0.04	1.89	0.66	0	
2	14.15	14.15	33.211	24.774	316.3	0.006	6.14	104.9	2.1	0.31	0.8	0.04	1.89	0.66	2	209
5	14.13	14.13	33.212	24.779	315.9	0.016	6.14	104.9	2.1	0.30	0.8	0.04	1.64	0.77	5	208
10	14.07	14.07	33.213 D	24.793	314.8	0.032	6.13	104.6	2.2	0.29	0.8	0.04	1.88	0.66	10	207
20	12.85	12.85	33.274	25.087	287.1	0.062	5.54	92.2	5.5	0.64	5.8	0.15	1.20	0.61	20	206
30	11.44	11.44	33.324	25.392	258.2	0.089	4.87	78.7	10.1	1.00	11.3	0.19	0.67	0.51	30	205
41	10.15	10.15	33.367	25.653	233.5	0.116	4.32	67.9	15.0	1.33	16.5	0.09	0.29	0.31	41	204
49	9.71	9.70	33.597	25.906	209.6	0.134	3.51	54.7	21.0	1.63	21.0	0.06	0.11	0.18	49	203
50 ISL	9.71	9.70	33.601	25.909	209.4	0.136	3.50	54.5	21.1	1.64	21.0	0.06	0.11	0.18	50	
61	9.71	9.70	33.649	25.947	206.0	0.159	3.34	52.1	22.4	1.70	21.5	0.07	0.07	0.16	61	202
69	9.67	9.66	33.706	25.998	201.3	0.175	3.14	48.9	23.7	1.77	22.7	0.07	0.06	0.16	69	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 9.2 N	120 0.7 W	30/03/04	1832 UTC	1203 m	310 18 kn	310 05 05	1	1015.2 mb	13.9 C	12.8 C	08m	7/8	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	13.89	13.89	33.227	24.841	310.0	0.000	6.12	104.0	4.0	0.37	1.5	0.05	1.89	0.92	0	
2 A	13.89	13.89	33.227	24.841	310.0	0.006	6.12	104.0	4.0	0.37	1.5	0.05	1.89	0.92	2	222
5 A	13.89	13.89	33.227	24.841	310.1	0.016	6.12	104.0	4.0	0.37	1.5	0.05	1.82	0.86	5	221
10 ISL	13.86	13.86	33.227	24.847	309.6	0.031	6.11	103.8	3.9	0.37	1.5	0.05	1.87	0.90	10	
11 A	13.86	13.86	33.227	24.847	309.6	0.034	6.11	103.8	3.9	0.37	1.5	0.05	1.88	0.91	11	220
17 A	13.49	13.49	33.235	24.929	302.0	0.052	5.92	99.8	4.0	0.45	2.6	0.09	1.56	0.78	17	219
20 ISL	13.01	13.01	33.255	25.040	291.5	0.061	5.65	94.3	4.8	0.57	4.5	0.16	1.20	0.64	20	
23 A	12.54	12.54	33.279	25.151	281.0	0.070	5.39	89.1	5.7	0.70	6.4	0.23	0.84	0.51	23	218
30 ISL	12.32	12.32	33.291	25.203	276.3	0.089	5.28	86.9	6.5	0.77	7.4	0.26	0.63	0.43	30	
31 A	12.29	12.29	33.293	25.210	275.6	0.092	5.26	86.5	6.6	0.78	7.6	0.26	0.60	0.42	31	217
40	12.14	12.13	33.302	25.246	272.4	0.117	5.16	84.6	7.2	0.82	8.3	0.28	0.54	0.39	40	216
50	11.81	11.80	33.335	25.333	264.3	0.144	4.92	80.1	8.9	0.94	10.0	0.29	0.47	0.42	50	215
60	10.37	10.36	33.406	25.646	234.6	0.169	4.29	67.8	15.0	1.32	16.0	0.15	0.19	0.23	60	214
70	9.76	9.75	33.511	25.831	217.2	0.191			19.2	1.57	19.9	0.04	0.07	0.21	70	213
75 ISL	9.58	9.57	33.558	25.897	211.0	0.202	3.75	58.3	20.4	1.60	20.8	0.04	0.06	0.19	75	
85	9.39	9.38	33.629	25.984	202.9	0.223	3.59	55.6	21.7	1.66	21.5	0.04	0.03	0.15	85	212
100	9.33	9.32	33.654	26.014	200.4	0.253	3.55	54.9	22.1	1.67	21.8	0.03	0.03	0.18	101	211
118	9.09	9.08	33.792	26.160	186.8	0.288	3.27	50.3	25.3	1.75	23.6	0.03	0.02	0.14	119	210
125 ISL	9.00	8.99	33.827	26.202	183.0	0.301	3.21	49.3	26.3	1.78	24.1	0.03	0.02	0.13	126	
139	8.86	8.85	33.886	26.271	176.7	0.326	3.07	47.0	28.3	1.85	25.1	0.03	0.02	0.12	140	209
150 ISL	8.78	8.76	33.943	26.328	171.5	0.345	2.83	43.3	30.4	1.93	26.2	0.03	0.02	0.11	151	
169	8.71	8.69	34.042	26.417	163.5	0.377	2.33	35.6	34.3	2.08	28.0	0.03	0.01	0.11	170	208
200	8.70	8.68	34.171	26.520	154.3	0.426	1.52	23.2	40.4	2.37	30.1	0.02	0.01	0.11	201	207
228	8.11	8.09	34.137	26.583	148.5	0.468	1.71	25.8	43.1	2.37	31.1	0.02			229	206
250 ISL	7.91	7.88	34.156	26.628	144.6	0.501	1.53	23.0	46.1	2.45	32.0	0.01			252	
270	7.80	7.77	34.184	26.667	141.2	0.529	1.29	19.3	49.1	2.55	32.9	0.01			272	205
300 ISL	7.52	7.49	34.200	26.720	136.6	0.571	1.09	16.2	53.2	2.65	34.1	0.01			302	
318	7.35	7.32	34.206	26.749	134.0	0.595	1.00	14.8	55.6	2.70	34.8	0.01			320	204
378	6.89	6.85	34.233	26.835	126.5	0.673	0.69	10.1	63.4	2.86	36.7	0.01			380	203
400 ISL	6.71	6.67	34.239	26.864	124.0	0.701	0.61	8.9	66.1	2.91	37.4	0.01			403	
437	6.44	6.40	34.252	26.910	119.9	0.746	0.50	7.3	70.4	3.00	38.5	0.01			440	202
500 ISL	6.19	6.15	34.304	26.984	113.6	0.820	0.32	4.6	76.8	3.13	39.5	0.01			503	
512	6.14	6.09	34.314	26.999	112.3	0.833	0.28	4.0	78.0	3.15	39.7	0.01			516	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 59.3 N	120 21.2 W	30/03/04	2243 UTC	749 m	340 19 kn	340 06 05	2	1014.0 mb	14.0 C	13.1 C	07m	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	13.64	13.64	33.240	24.902	304.1	0.000	6.60	111.6	0.0	0.12	0.1	0.00	6.83	0.58	0	
2	13.64	13.64	33.240	24.902	304.2	0.006	6.60	111.6	0.0	0.12	0.1	0.00	6.83	0.58	2	220
9	13.64	13.64	33.241	24.903	304.3	0.027	6.61	111.8	0.0	0.11	0.0	0.00	6.19	0.56	9	219
10 ISL	13.60	13.60	33.240	24.910	303.6	0.030	6.58	111.2	0.0	0.12	0.1	0.01	6.34	0.58	10	
20	13.19	13.19	33.225	24.981	297.1	0.060	6.20	103.9	0.4	0.22	1.4	0.09	7.31	0.88	20	218
29	13.08	13.08	33.223	25.002	295.4	0.087	6.03	100.8	0.9	0.29	2.1	0.12	4.64	1.28	29	217
30 ISL	13.08	13.08	33.223	25.002	295.4	0.090	6.02	100.6	0.9	0.30	2.1	0.12	4.47	1.29	30	
40	13.07	13.06	33.226	25.007	295.2	0.120	5.95	99.4	1.2	0.35	2.4	0.14	2.87	1.37	40	216
50	10.90	10.89	33.375	25.530	245.6	0.147	4.04	64.5	13.9	1.32	15.7	0.05	0.24	0.48	50	215
60	10.77	10.76	33.386 D	25.561	242.8	0.171	4.00	63.7	14.6	1.38	16.4	0.04	0.23	0.49	60	214
70	10.53	10.52	33.486	25.681	231.6	0.195	3.59	56.9	17.4	1.54	18.5	0.02	0.21	0.38	70	213
75 ISL	10.43	10.42	33.527	25.731	227.0	0.206	3.44	54.4	18.5	1.60	19.3	0.02	0.14	0.27	75	
84	10.26	10.25	33.590	25.809	219.7	0.226	3.23	50.9	20.1	1.69	20.4	0.02	0.04	0.12	84	212
100	10.01	10.00	33.674	25.917	209.7	0.261	3.01	47.2	22.4	1.79	22.0	0.02	0.19	0.39	101	211
119	9.24	9.23	33.764	26.115	191.2	0.299	3.10	47.9	25.1	1.82	23.9	0.01	0.06	0.18	120	210
125 ISL	9.29	9.28	33.828	26.157	187.4	0.310	2.87	44.4	26.4	1.88	24.5	0.01	0.05	0.20	126	
138	9.49	9.47	33.968	26.234	180.4	0.334	2.31	35.9	29.3	2.04	25.8	0.01	0.04	0.28	139	209
150 ISL	9.40	9.38	34.043	26.307	173.7	0.355	2.18	33.8	31.6	2.12	26.8	0.01	0.03	0.25	151	
169	9.02	9.00	34.095	26.410	164.3	0.387	1.98	30.5	34.8	2.18	28.1	0.01	0.03	0.17	170	208
199	8.11	8.09	34.055	26.519	154.1	0.435	2.23	33.6	39.3	2.20	29.8	0.03	0.02	0.11	200	207
200 ISL	8.11	8.09	34.057	26.520	154.0	0.437	2.22	33.5	39.4	2.20	29.8	0.03			201	
228	7.98	7.96	34.103	26.576	149.2	0.479	1.88	28.3	42.8	2.33	31.0	0.02			229	206
250 ISL	7.84	7.82	34.126	26.615	145.8	0.512	1.69	25.3	45.3	2.42	31.8	0.01			251	
269	7.70	7.67	34.142	26.648	142.9	0.539	1.54	23.0	47.6	2.49	32.5	0.01			271	205
300 ISL	7.42	7.39	34.173	26.713	137.1	0.582	1.23	18.3	52.5	2.62	33.9	0.01			302	
318	7.26	7.23	34.191	26.750	133.9	0.607	1.06	15.7	55.4	2.69	34.7	0.01			320	204
378	6.83	6.79	34.238	26.847	125.3	0.685	0.67	9.8	63.7	2.90	36.9	0.00			380	203
400 ISL	6.65	6.61	34.236	26.870	123.4	0.712	0.62	9.0	66.2	2.93	37.6	0.00			403	
438	6.33	6.29	34.229	26.906	120.2	0.758	0.57	8.2	70.5	2.97	38.6	0.00			441	202
500 ISL	5.88	5.84	34.258	26.987	112.9	0.830	0.39	5.6	79.1	3.10	40.3	0.00			503	
513	5.78	5.74	34.264	27.004	111.4	0.845	0.35	5.0	80.9	3.13	40.6	0.00			517	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 39.5 N	121 2.7 W	31/03/04	0539 UTC	3734 m	330 23 kn			1014.7 mb	13.1 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	14.58	14.58	32.880	24.429	349.2	0.000	5.90	101.5	1.6	0.35	0.0	0.00	0.22	0.05	0	
2	14.58	14.58	32.880	24.429	349.2	0.007	5.90	101.5	1.6	0.35	0.0	0.00	0.22	0.05	2	220
10 ISL	14.59	14.59	32.881	24.427	349.6	0.035	5.90	101.5	1.5	0.34	0.0	0.00	0.21	0.05	10	
15	14.59	14.59	32.881	24.428	349.7	0.052	5.90	101.5	1.5	0.34	0.0	0.00	0.21	0.05	15	219
20 ISL	14.59	14.59	32.881	24.428	349.8	0.070	5.90	101.5	1.5	0.34	0.0	0.00	0.21	0.05	20	
30	14.59	14.59	32.881	24.428	350.1	0.105	5.90	101.5	1.6	0.35	0.0	0.00	0.21	0.05	30	218
44	14.59	14.58	32.880	24.428	350.5	0.154	5.90	101.5	1.6	0.35	0.0	0.00	0.21	0.06	44	217
50 ISL	14.21	14.20	32.880	24.508	343.1	0.175	5.97	101.9	1.7	0.37	0.0	0.01	0.42	0.16	50	
54	13.85	13.84	32.884	24.585	335.7	0.188	5.99	101.5	1.8	0.38	0.0	0.01	0.57	0.24	54	216
65	12.61	12.60	32.927	24.866	309.2	0.224	5.67	93.7	3.4	0.60	3.3	0.08	0.65	0.45	65	215
75 ISL	12.18	12.17	32.937	24.956	300.9	0.254	5.52	90.4	4.1	0.69	4.9	0.04	0.43	0.36	75	
76	12.14	12.13	32.937	24.963	300.2	0.257	5.51	90.1	4.2	0.70	5.1	0.03	0.40	0.35	76	214
84	11.45	11.44	32.933	25.088	288.4	0.281	5.30	85.4	5.8	0.85	8.0	0.03	0.26	0.30	84	213
96	10.86	10.85	33.042	25.278	270.5	0.314	4.86	77.4	9.2	1.14	12.5	0.02	0.14	0.13	96	212
100 ISL	10.52	10.51	33.082	25.369	261.9	0.325	4.76	75.3	10.6	1.22	13.8	0.02	0.10	0.10	100	
109	9.78	9.77	33.185	25.574	242.4	0.348	4.59	71.4	13.6	1.37	16.3	0.01	0.04	0.06	109	211
125	9.28	9.27	33.391	25.816	219.6	0.385	4.39	67.7	17.1	1.43	18.2	0.01	0.01	0.03	126	210
145	9.07	9.05	33.682	26.078	195.2	0.426	3.63	55.8	22.9	1.68	22.3	0.01	0.01	0.03	146	209
150 ISL	9.04	9.02	33.745	26.132	190.2	0.436	3.39	52.1	24.6	1.75	23.4	0.01	0.01	0.03	151	
169	8.94	8.92	33.927	26.291	175.5	0.471	2.61	40.1	30.1	1.99	26.9	0.01	0.00	0.04	170	208
197	8.67	8.65	34.004	26.394	166.2	0.518	2.44	37.2	33.4	2.06	28.1	0.01	0.00	0.04	198	207
200 ISL	8.62	8.60	34.007	26.404	165.2	0.523	2.47	37.7	33.7	2.06	28.1	0.01			201	
231	8.07	8.05	34.028	26.504	156.1	0.573	2.68	40.3	37.4	2.06	28.1	0.01			232	206
250 ISL	7.82	7.80	34.047	26.556	151.4	0.602	2.37	35.5	41.3	2.18	29.9	0.01			251	
270	7.59	7.56	34.065	26.603	147.1	0.632	1.96	29.2	45.7	2.34	32.1	0.00			272	205
300 ISL	7.19	7.16	34.080	26.672	140.9	0.675	1.67	24.6	50.8	2.49	33.9	0.00			302	
320	6.96	6.93	34.088	26.710	137.4	0.703	1.54	22.6	53.8	2.57	34.7	0.00			322	204
378	6.61	6.58	34.121	26.784	131.1	0.781	1.17	17.0	61.1	2.75	36.6	0.00			380	203
400 ISL	6.42	6.38	34.131	26.817	128.1	0.810	1.02	14.8	64.6	2.81	37.4	0.00			403	
438	6.09	6.05	34.153	26.877	122.7	0.857	0.78	11.2	70.8	2.92	38.8	0.00			441	202
500 ISL	5.79	5.75	34.224	26.971	114.3	0.931	0.48	6.9	79.3	3.07	40.4	0.00			503	
510	5.74	5.70	34.236	26.987	112.9	0.942	0.43	6.1	80.7	3.09	40.7	0.00			513	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 19.7 N	121 43.0 W	31/03/04	1245 UTC	4064 m	330 24 kn			1014.9 mb	13.0 C	11.0 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	14.32	14.32	32.926	24.519	340.6	0.000	6.09	104.3	1.7	0.35	0.0	0.00	0.29	0.11	0	
3	14.32	14.32	32.926	24.519	340.7	0.010	6.09	104.3	1.7	0.35	0.0	0.00	0.29	0.11	3	220
9	14.32	14.32	32.925	24.518	340.9	0.031	6.09	104.3	1.7	0.35	0.0	0.00	0.34	0.11	9	219
10 ISL	14.32	14.32	32.925	24.518	340.9	0.034	6.09	104.3	1.7	0.35	0.0	0.00	0.34	0.11	10	
19	14.33	14.33	32.925	24.517	341.3	0.065	6.08	104.1	1.7	0.35	0.0	0.01	0.30	0.11	19	218
20 ISL	14.33	14.33	32.925	24.517	341.4	0.068	6.08	104.1	1.7	0.35	0.0	0.01	0.30	0.11	20	
30	14.33	14.33	32.924	24.516	341.7	0.102	6.09	104.3	1.7	0.35	0.0	0.00	0.31	0.11	30	217
41	14.31	14.30	32.922	24.519	341.7	0.140	6.10	104.4	1.7	0.35	0.0	0.01	0.30	0.12	41	216
50	13.47	13.46	32.889	24.666	327.9	0.170	6.13	103.1	1.8	0.37	0.1	0.04	0.54	0.24	50	215
59	12.78	12.77	32.881	24.797	315.6	0.199	5.94	98.5	2.7	0.53	2.4	0.15	0.62	0.45	59	214
71	12.51	12.50	32.933	24.890	307.1	0.236	5.77	95.1	3.5	0.64	4.2	0.05	0.41	0.15	71	213
75 ISL	12.16	12.15	32.956	24.974	299.1	0.249	5.62	92.0	4.5	0.74	5.9	0.05	0.34	0.16	75	
84	11.33	11.32	33.023	25.180	279.6	0.275	5.23	84.1	7.3	0.98	10.1	0.04	0.20	0.18	84	212
98	10.72	10.71	33.142	25.381	260.7	0.312	4.79	76.1	10.7	1.20	13.8	0.02	0.13	0.13	98	211
100 ISL	10.63	10.62	33.172	25.420	257.1	0.318	4.69	74.4	11.5	1.24	14.5	0.02	0.12	0.12	100	
122	9.70	9.69	33.520	25.849	216.6	0.370	3.66	57.0	19.7	1.68	21.7	0.01	0.03	0.06	123	210
125 ISL	9.61	9.60	33.554	25.890	212.7	0.376	3.58	55.6	20.5	1.71	22.2	0.01	0.02	0.06	126	
140	9.24	9.22	33.696	26.062	196.7	0.407	3.33	51.4	23.8	1.79	23.8	0.00	0.01	0.05	141	209
150 ISL	9.06	9.04	33.772	26.150	188.5	0.426	3.33	51.2	25.2	1.79	24.3	0.00	0.01	0.05	151	
168	8.81	8.79	33.879	26.273	177.0	0.459	3.33	50.9	27.3	1.80	24.7	0.01	0.01	0.04	169	208
198	8.52	8.50	33.999	26.413	164.3	0.510	3.06	46.5	31.8	1.89	26.3	0.01	0.00	0.03	199	207
200 ISL	8.50	8.48	34.003	26.419	163.7	0.513	3.02	45.9	32.2	1.90	26.5	0.01			201	
229	8.18	8.16	34.045	26.501	156.4	0.560	2.47	37.3	37.5	2.13	29.2	0.01			230	206
250 ISL	7.92	7.89	34.060	26.551	151.8	0.592	2.24	33.6	40.8	2.23	30.5	0.01			251	
270	7.67	7.64	34.069	26.595	147.9	0.622	2.08	31.0	43.8	2.31	31.5	0.01			272	205
300 ISL	7.27	7.24	34.078	26.659	142.1	0.666	1.83	27.1	49.1	2.44	33.3	0.00			302	
317	7.06	7.03	34.085	26.694	139.0	0.690	1.69	24.9	52.1	2.51	34.2	0.00			319	204
377	6.68	6.65	34.143	26.792	130.4	0.770	1.06	15.5	60.9	2.77	36.7	0.00			379	203
400 ISL	6.48	6.44	34.156	26.829	127.0	0.800	0.92	13.4	64.4	2.84	37.6	0.00			403	
436	6.15	6.11	34.172	26.884	122.0	0.845	0.75	10.8	70.1	2.93	38.8	0.00			439	202
500 ISL	5.64	5.60	34.209	26.978	113.5	0.920	0.54	7.7	80.5	3.07	40.7	0.00			503	
517	5.50	5.46	34.219	27.003	111.2	0.939	0.48	6.8	83.3	3.11	41.2	0.00			520	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 1.8 N	122 24.0 W	31/03/04	2125 UTC	3995 m	340 25 kn	340 12 09	1	1017.5 mb	13.8 C	11.0 C		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	15.24	15.24	32.996	24.376	354.2	0.000	5.91	103.1	1.3	0.33	0.0	0.00	0.14	0.04	0	
2	15.24	15.24	32.996	24.376	354.3	0.007	5.91	103.1	1.3	0.33	0.0	0.00	0.14	0.04	2	220
10 ISL	15.24	15.24	32.998	24.378	354.3	0.035	5.90	103.0	1.3	0.33	0.0	0.00	0.13	0.03	10	
15	15.24	15.24	32.999	24.379	354.4	0.053	5.90	103.0	1.3	0.33	0.0	0.00	0.12	0.03	15	219
20 ISL	15.24	15.24	32.997	24.377	354.7	0.071	5.90	102.9	1.3	0.33	0.0	0.00	0.12	0.03	20	
28	15.24	15.24	32.994	24.375	355.1	0.099	5.91	103.1	1.3	0.33	0.0	0.00	0.12	0.04	28	218
30 ISL	15.24	15.24	32.994	24.375	355.1	0.106	5.91	103.1	1.3	0.33	0.0	0.00	0.12	0.04	30	
45	15.24	15.23	32.992 D	24.374	355.7	0.160	5.91	103.1	1.3	0.33	0.0	0.00	0.12	0.03	45	217
50 ISL	15.25	15.24	32.995	24.375	355.8	0.177	5.91	103.1	1.3	0.33	0.0	0.00	0.12	0.03	50	
60	15.27	15.26	33.005	24.378	355.8	0.213	5.90	103.0	1.3	0.32	0.0	0.00	0.14	0.04	60	216
75	15.33	15.32	33.060	24.408	353.4	0.266	5.90	103.2	1.3	0.32	0.0	0.00	0.21	0.08	75	215
86	15.22	15.21	33.069	24.439	350.8	0.305	5.89	102.8	1.4	0.32	0.0	0.00	0.25	0.12	86	214
93	14.64	14.63	32.984	24.499	345.2	0.329	5.91	101.9	1.5	0.34	0.1	0.01	0.35	0.20	93	213
100 ISL	14.12	14.11	32.981	24.606	335.1	0.353	5.87	100.1	1.8	0.37	0.4	0.03	0.35	0.29	100	
105	13.72	13.71	33.004	24.706	325.7	0.370	5.84	98.8	2.2	0.42	1.0	0.05	0.35	0.32	105	212
115	12.63	12.61	33.052	24.960	301.5	0.401	5.63	93.1	3.6	0.59	3.7	0.07	0.32	0.24	115	211
125	11.78	11.76	33.042	25.113	287.1	0.430	5.50	89.3	5.3	0.75	6.6	0.04	0.22	0.28	126	210
140	10.34	10.32	33.048	25.374	262.2	0.472	5.25	82.7	9.0	1.04	11.3	0.01	0.12	0.10	141	209
150 ISL	9.85	9.83	33.156	25.540	246.5	0.497	5.03	78.4	11.5	1.18	13.9	0.01	0.07	0.07	151	
165	9.46	9.44	33.359	25.763	225.5	0.532	4.68	72.4	15.0	1.34	17.1	0.01	0.02	0.03	166	208
194	9.02	9.00	33.632	26.047	199.0	0.594	4.14	63.5	20.9	1.56	21.1	0.00	0.00	0.03	195	207
200 ISL	8.97	8.95	33.685	26.097	194.4	0.606	4.02	61.6	22.0	1.60	21.8	0.00			201	
229	8.74	8.72	33.893	26.296	176.0	0.660	3.47	53.0	27.4	1.77	24.7	0.00			230	206
250 ISL	8.52	8.49	33.973	26.393	167.1	0.696	3.13	47.6	31.2	1.89	26.6	0.00			251	
267	8.30	8.27	34.010	26.456	161.4	0.724	2.88	43.6	34.3	1.99	28.1	0.00			268	205
300 ISL	7.74	7.71	34.040	26.563	151.6	0.775	2.44	36.5	41.4	2.18	30.9	0.00			302	
320	7.39	7.36	34.043	26.615	146.7	0.805	2.20	32.6	45.8	2.30	32.4	0.00			322	204
378	6.60	6.57	34.060	26.737	135.5	0.887	1.55	22.6	56.5	2.60	36.1	0.00			380	203
400 ISL	6.41	6.37	34.085	26.782	131.4	0.916	1.31	19.0	60.9	2.70	37.5	0.00			402	
436	6.18	6.14	34.131	26.848	125.4	0.962	0.95	13.7	67.7	2.84	39.6	0.00			439	202
500 ISL	5.81	5.77	34.186	26.939	117.4	1.040	0.60	8.6	76.9	3.01	41.3	0.00			503	
512	5.74	5.70	34.196	26.955	115.9	1.054	0.53	7.6	78.6	3.04	41.6	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 39.4 N	123 4.3 W	05/04/04	2243 UTC	4132 m	010 11 kn	340 02 08	2	1019.4 mb	14.5 C	13.1 C	31m	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	15.61	15.61	33.103	24.377	354.1	0.000	6.15	108.2	1.7	0.32	0.0	0.00	0.08	0.02	0	
1	15.61	15.61	33.103	24.377	354.1	0.004	6.15	108.2	1.7	0.32	0.0	0.00	0.08	0.02	1	220
10 ISL	15.60	15.60	33.104	24.380	354.1	0.035	6.16	108.3	1.6	0.32	0.0	0.00	0.08	0.02	10	
15	15.59	15.59	33.104	24.383	354.0	0.053	6.16	108.3	1.5	0.32	0.0	0.00	0.08	0.02	15	219
20 ISL	15.58	15.58	33.104	24.385	354.0	0.071	6.15	108.1	1.5	0.32	0.0	0.00	0.08	0.02	20	
30	15.57	15.57	33.103	24.387	354.1	0.106	6.13	107.7	1.5	0.32	0.0	0.00	0.09	0.02	30	218
45	15.56	15.55	33.102	24.389	354.4	0.159	6.14	107.9	1.5	0.32	0.0	0.00	0.09	0.02	45	217
50 ISL	15.54	15.53	33.097	24.390	354.5	0.177	6.14	107.8	1.5	0.32	0.0	0.00	0.09	0.03	50	
60	15.50	15.49	33.088	24.392	354.5	0.213	6.14	107.7	1.5	0.32	0.0	0.00	0.11	0.05	60	216
75	15.51	15.50	33.097	24.397	354.5	0.266	6.15	107.9	1.5	0.31	0.0	0.00	0.16	0.04	75	215
84	15.47	15.46	33.092	24.402	354.3	0.298	6.15	107.8	1.7	0.32	0.0	0.00	0.18	0.05	84	214
94	15.43	15.42	33.089	24.409	353.9	0.333	6.16	107.9	1.7	0.32	0.0	0.00	0.21	0.08	94	213
100 ISL	15.25	15.23	33.086	24.446	350.5	0.354	6.15	107.4	1.8	0.33	0.0	0.00	0.30	0.15	100	
104	15.06	15.04	33.085	24.487	346.7	0.368	6.15	107.0	1.8	0.33	0.1	0.00	0.36	0.20	104	212
114	14.36	14.34	33.100	24.648	331.6	0.402	6.10	104.6	2.4	0.39	0.5	0.03	0.37	0.34	114	211
125	13.51	13.49	33.083	24.810	316.3	0.438	6.02	101.4	3.1	0.47	1.7	0.07	0.36	0.34	126	210
138	11.89	11.87	33.029	25.083	290.3	0.477	5.75	93.6	5.4	0.74	6.1	0.03	0.24	0.25	139	209
150 ISL	11.04	11.02	33.101	25.294	270.3	0.511	5.63	90.0	7.0	0.86	8.4	0.02	0.16	0.16	151	
164	10.40	10.38	33.242	25.515	249.4	0.547	5.47	86.3	9.4	0.97	10.8	0.01	0.09	0.08	165	208
193	9.03	9.01	33.543	25.976	205.7	0.613	4.53	69.5	20.0	1.53	20.0	0.00	0.00	0.03	194	207
200 ISL	8.98	8.96	33.636	26.057	198.2	0.627	4.33	66.4	21.8	1.60	21.2	0.00			201	
229	8.78	8.76	33.905	26.299	175.7	0.681	3.63	55.5	27.6	1.77	24.2	0.00			230	206
250 ISL	8.58	8.55	33.980	26.390	167.5	0.717	3.31	50.4	31.1	1.89	25.9	0.00			251	
268	8.37	8.34	34.002	26.439	163.1	0.747	3.09	46.8	34.0	1.98	27.2	0.00			269	205
300 ISL	7.92	7.89	34.026	26.525	155.2	0.798	2.73	41.0	39.7	2.14	29.7	0.00			302	
318	7.65	7.62	34.029	26.567	151.4	0.826	2.54	37.9	43.1	2.23	31.0	0.00			320	204
377	6.73	6.70	34.054	26.715	137.6	0.911	1.84	26.9	54.8	2.55	34.9	0.00			379	203
400 ISL	6.45	6.41	34.067	26.762	133.2	0.942	1.58	22.9	59.7	2.65	36.2	0.00			402	
437	6.09	6.05	34.093	26.830	127.1	0.990	1.20	17.3	67.2	2.80	38.1	0.00			440	202
500 ISL	5.68	5.64	34.147	26.924	118.6	1.068	0.79	11.3	76.7	2.98	40.1	0.00			503	
511	5.61	5.57	34.157	26.940	117.1	1.081	0.72	10.2	78.4	3.01	40.4	0.00			514	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 19.6 N	123 44.7 W	06/04/04	0446 UTC	3888 m	020 10 kn			1020.1 mb	13.6 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	15.49	15.49	32.975	24.305	361.0	0.000	5.79	101.5	1.2	0.33	0.0	0.00	0.11	0.02	0	
2	15.49	15.49	32.975	24.305	361.0	0.007	5.79	101.5	1.2	0.33	0.0	0.00	0.11	0.02	2	221
10 ISL	15.50	15.50	32.976	24.304	361.4	0.036	5.79	101.5	1.2	0.32	0.0	0.00	0.11	0.02	10	
15	15.50	15.50	32.976	24.304	361.5	0.054	5.79	101.5	1.2	0.32	0.0	0.00	0.11	0.02	15	220
20 ISL	15.50	15.50	32.976	24.304	361.7	0.072	5.79	101.5	1.2	0.32	0.0	0.00	0.08	0.02	20	
30	15.50	15.50	32.978	24.306	361.8	0.108	5.79	101.5	1.2	0.32	0.0	0.00	0.02	0.03	30	219
45	15.49	15.48	32.979	24.310	361.9	0.163	5.79	101.5	1.2	0.33	0.0	0.00	0.04	0.01	45	218
50 ISL	15.48	15.47	32.979	24.312	361.8	0.181	5.79	101.5	1.2	0.33	0.0	0.00	0.04	0.01	50	
60	15.47	15.46	32.978	24.314	362.0	0.217	5.79	101.5	1.2	0.33	0.0	0.00	0.04	0.03	60	217
75	15.43	15.42	32.978	24.323	361.5	0.271	5.80	101.6	1.2	0.36	0.0	0.00	0.05	0.04	75	216
85	14.70	14.69	32.904	24.424	352.1	0.307	5.87	101.2	1.3	0.37	0.0	0.00	0.08	0.06	85	215
94	14.24	14.23	32.873	24.498	345.3	0.338	5.88	100.4	1.5	0.39	0.0	0.02	0.12	0.04	94	214
100 ISL	14.16	14.15	32.932	24.560	339.5	0.359	5.82	99.3	1.6	0.41	0.3	0.10	0.11	0.07	100	
104	14.07	14.06	32.972	24.610	334.9	0.372	5.76	98.1	1.8	0.44	0.6	0.15	0.11	0.09	104	213
115	13.13	13.11	32.928	24.766	320.1	0.408	5.65	94.4	2.7	0.56	2.5	0.14	0.09	0.08	115	212
125	12.35	12.33	32.947	24.932	304.4	0.440	5.46	89.7	4.0	0.72	5.1	0.03	0.09	0.01	126	211
140	10.99	10.97	32.967	25.198	279.1	0.483	5.21	83.1	7.0	0.99	9.6	0.01	0.03	0.03	141	210
150 ISL	10.42	10.40	33.048	25.360	263.8	0.511	5.05	79.6	9.0	1.12	11.8	0.01	0.03	0.02	151	
164	9.91	9.89	33.206	25.570	244.0	0.546	4.78	74.6	12.0	1.28	14.6	0.01	0.02	0.01	165	209
194	9.39	9.37	33.609	25.970	206.5	0.614	3.75	58.0	20.4	1.69	21.1	0.00	0.00	0.01	195	208
200 ISL	9.31	9.29	33.677	26.037	200.3	0.626	3.57	55.2	22.0	1.75	22.1	0.00	0.00	0.01	201	
229	8.96	8.94	33.926	26.288	176.9	0.681	2.84	43.6	28.7	1.99	26.1	0.00	0.00	0.01	230	207
250 ISL	8.76	8.73	34.008	26.384	168.2	0.717	2.56	39.1	32.1	2.10	27.6	0.00			251	
268	8.57	8.54	34.040	26.438	163.3	0.747	2.40	36.5	34.7	2.17	28.6	0.00			269	206
300 ISL	8.03	8.00	34.064	26.539	154.0	0.797	2.15	32.3	40.7	2.32	30.7	0.00			302	
318	7.71	7.68	34.075	26.595	148.8	0.825	2.02	30.2	44.5	2.37	31.9	0.00			320	204
319	7.71	7.68	34.071	26.592	149.1	0.826	2.00	29.9	44.4	2.41	31.9	0.00			321	205
378	7.30	7.26	34.164	26.724	137.3	0.911	1.22	18.1	53.9	2.70	34.6	0.00			380	203
400 ISL	7.12	7.08	34.179	26.761	134.0	0.940	1.05	15.5	56.8	2.78	35.5	0.00			402	
438	6.84	6.80	34.199	26.815	129.2	0.990	0.84	12.3	61.4	2.90	36.9	0.00			441	202
500 ISL	6.56	6.51	34.264	26.905	121.5	1.068	0.50	7.3	69.0	3.02	38.3	0.00			503	
512	6.50	6.45	34.277	26.923	119.9	1.083	0.44	6.4	70.5	3.04	38.6	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 29.0 N	117 46.1 W	29/03/04	1826 UTC	67 m	350 01 kn	340 01 07	1	1015.0 mb	21.0 C	17.1 C	07m	2/8	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	15.67	15.67	33.170	24.415	350.5	0.000	6.38	112.4	3.2	0.25	0.7	0.14	5.30	0.49	0	
1 A	15.67	15.67	33.170	24.415	350.5	0.004	6.38	112.4	3.2	0.25	0.7	0.14	5.30	0.49	1	220
5 A	15.08	15.08	33.179	24.552	337.6	0.017	6.24	108.7	3.7	0.29	1.4	0.24	4.41	0.95	5	219
10 A	14.42	14.42	33.166	24.683	325.2	0.034	6.23	107.0	2.6	0.27	0.4	0.09	2.28	0.76	10	218
15 A	13.07	13.07	33.177	24.968	298.2	0.049	5.47	91.4	4.8	0.60	4.3	0.54	2.02	0.89	15	217
20 A	12.77	12.77	33.189	25.036	291.8	0.064	5.17	85.9	6.0	0.75	6.2	0.60	1.70	0.79	20	216
27 A	11.97	11.97	33.274	25.255	271.1	0.084	4.37	71.4	11.1	1.12	11.2	0.52	1.13	0.58	27	215
30 ISL	11.69	11.69	33.296	25.325	264.6	0.092	4.10	66.6	12.9	1.24	12.9	0.47	0.87	0.50	30	
34	11.32	11.32	33.340	25.427	255.0	0.102	3.83	61.7	14.7	1.38	15.1	0.40	0.54	0.37	34	214
39	10.76	10.76	33.467	25.626	236.2	0.115	3.68	58.6	15.7	1.50	17.8	0.04	0.19	0.16	39	213
49	10.61	10.60	33.523	25.696	229.7	0.138	3.47	55.1	17.3	1.59	18.9	0.06	0.14	0.14	49	212
50 ISL	10.60	10.59	33.530	25.703	229.0	0.140	3.44	54.6	17.5	1.60	19.1	0.07	0.13	0.14	50	
59	10.49	10.48	33.597	25.774	222.5	0.160	3.22	51.0	19.4	1.70	20.5	0.16	0.08	0.12	59	211

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 30

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 24.9 N	117 54.2 W	29/03/04	1406 UTC	617 m	240 03 kn	300 01 05	1	1013.8 mb	17.0 C	15.9 C	23m	2/8	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	16.02	16.02	33.161	24.330	358.6	0.000	5.97	105.9	0.8	0.27	0.0	0.00	0.31	0.06	0	
1	16.02	16.02	33.161	24.330	358.6	0.004	5.97	105.9	0.8	0.27	0.0	0.00	0.31	0.06	1	220
10	16.00	16.00	33.164	24.337	358.2	0.036	5.98	106.1	0.8	0.26	0.0	0.00	0.31	0.06	10	219
19	15.28	15.28	33.166	24.499	343.1	0.067	6.08	106.3	0.8	0.29	0.0	0.00	0.20	0.09	19	218
20 ISL	15.14	15.14	33.164	24.528	340.3	0.071	6.08	106.0	0.9	0.30	0.0	0.00	0.32	0.13	20	
29	13.72	13.72	33.158	24.823	312.4	0.100	6.09	103.1	1.9	0.38	0.0	0.02	1.42	0.46	29	217
30 ISL	13.55	13.55	33.160	24.859	309.0	0.103	5.97	100.7	2.4	0.43	0.8	0.04	1.39	0.46	30	
39	12.18	12.17	33.208	25.165	280.1	0.130	4.76	78.1	7.3	0.96	9.0	0.17	1.13	0.45	39	216
49	11.28	11.27	33.320	25.419	256.1	0.157	4.14	66.7	11.8	1.29	14.4	0.04	0.37	0.29	49	215
50 ISL	11.23	11.22	33.329	25.435	254.6	0.159	4.11	66.1	12.1	1.31	14.7	0.04	0.34	0.28	50	
60	10.83	10.82	33.419	25.576	241.3	0.184	3.87	61.7	14.3	1.44	16.5	0.03	0.16	0.18	60	214
69	10.47	10.46	33.540	25.734	226.5	0.205	3.61	57.2	16.8	1.55	18.2	0.02	0.06	0.10	69	213
75 ISL	10.35	10.34	33.595	25.797	220.6	0.218	3.48	55.0	18.0	1.60	19.0	0.02	0.04	0.09	75	
84	10.24	10.23	33.665	25.871	213.8	0.238	3.31	52.2	19.6	1.67	20.1	0.02	0.02	0.07	84	212
99	9.97	9.96	33.799	26.021	199.8	0.269	3.01	47.2	22.8	1.79	21.9	0.01	0.01	0.06	99	211
100 ISL	9.97	9.96	33.809	26.029	199.1	0.271	2.99	46.9	23.0	1.80	22.0	0.01	0.01	0.06	100	
118	9.90	9.89	33.961	26.160	187.1	0.306	2.59	40.6	26.0	1.94	23.4	0.01	0.01	0.05	119	210
125 ISL	9.88	9.87	33.995	26.190	184.4	0.319	2.51	39.4	26.8	1.97	23.7	0.01	0.01	0.05	126	
139	9.81	9.79	34.041	26.238	180.1	0.344	2.41	37.7	28.1	2.02	24.1	0.01	0.01	0.06	140	209
150 ISL	9.73	9.71	34.064	26.270	177.3	0.364	2.34	36.6	29.0	2.05	24.4	0.01	0.01	0.06	151	
169	9.52	9.50	34.094	26.328	172.1	0.397	2.24	34.9	30.7	2.09	25.1	0.01	0.01	0.05	170	208
198	9.06	9.04	34.153	26.449	161.1	0.445	2.03	31.3	35.1	2.21	26.8	0.01	0.00	0.05	199	207
200 ISL	9.05	9.03	34.158	26.455	160.6	0.449	2.00	30.8	35.4	2.22	26.9	0.01			201	
228	8.89	8.87	34.216	26.526	154.4	0.493	1.59	24.4	39.3	2.38	28.0	0.01			229	206
250 ISL	8.62	8.59	34.230	26.579	149.6	0.526	1.43	21.8	41.7	2.45	28.4	0.01			251	
268	8.39	8.36	34.234	26.618	146.2	0.553	1.36	20.6	43.6	2.50	28.7	0.01			270	205
300 ISL	8.16	8.13	34.253	26.668	141.9	0.599	1.30	19.6	47.4	2.62	30.4	0.01			302	
318	8.05	8.02	34.262	26.692	139.9	0.624	1.26	19.0	49.6	2.68	31.5	0.01			320	204
376	7.47	7.43	34.262	26.777	132.5	0.703	0.79	11.7	56.5	2.81	34.9	0.01			378	203
400 ISL	7.26	7.22	34.271	26.814	129.2	0.735	0.66	9.8	59.6	2.87	35.9	0.01			403	
436	6.99	6.95	34.289	26.866	124.6	0.780	0.51	7.5	64.0	2.96	37.0	0.01			439	202
500 ISL	6.66	6.61	34.311	26.929	119.4	0.858	0.37	5.4	70.1	3.06	38.1	0.01			503	
514	6.59	6.54	34.316	26.942	118.3	0.875	0.34	5.0	71.4	3.08	38.4	0.01			518	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 15.3 N	118 15.6 W	29/03/04	0956 UTC	310 m	360 05 kn			1013.5 mb	18.1 C	16.8 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	16.26	16.26	33.166	24.279	363.4	0.000	5.97	106.4	0.7	0.26	0.1	0.00	0.31	0.08	0	
2	16.26	16.26	33.166	24.279	363.5	0.007	5.97	106.4	0.7	0.26	0.1	0.00	0.31	0.08	2	217
10	16.08	16.08	33.159	24.315	360.3	0.036	6.02	106.9	0.6	0.25	0.0	0.00	0.29	0.08	10	216
20	15.47	15.47	33.160	24.452	347.5	0.072	6.06	106.3	1.0	0.28	0.0	0.00	0.23	0.07	20	215
29	14.12	14.12	33.155	24.738	320.5	0.102	6.15	105.0	1.3	0.32	0.0	0.00	0.30	0.13	29	214
30 ISL	14.02	14.02	33.155	24.759	318.6	0.105	6.13	104.4	1.4	0.33	0.0	0.02	0.42	0.17	30	
39	13.14	13.13	33.169	24.949	300.7	0.133	5.68	95.0	3.0	0.52	2.3	0.22	1.34	0.55	39	213
50	11.69	11.68	33.232	25.276	269.8	0.164	4.51	73.2	9.2	1.11	11.7	0.11	0.70 A	0.44 A	50	212
60	11.12	11.11	33.365	25.483	250.2	0.190	3.97	63.7	12.9	1.35	15.5	0.03	0.26	0.25	60	211
70	10.61	10.60	33.486	25.667	232.9	0.214	3.72	59.1	15.8	1.50	17.9	0.02	0.09	0.11	70	210
75 ISL	10.47	10.46	33.538	25.732	226.8	0.226	3.60	57.0	16.9	1.55	18.7	0.02	0.07	0.10	75	
84	10.33	10.32	33.617	25.818	218.8	0.246	3.41	53.9	18.5	1.63	19.8	0.02	0.03	0.07	84	209
100	10.15	10.14	33.720	25.929	208.6	0.280	3.18	50.1	20.8	1.72	21.1	0.01	0.01	0.07	100	208
119	10.03	10.02	33.873	26.070	195.7	0.318	2.81	44.2	23.7	1.84	22.8	0.01	0.01	0.05	120	207
125 ISL	10.00	9.99	33.923	26.114	191.6	0.330	2.67	42.0	24.8	1.89	23.4	0.01	0.01	0.05	126	
140	9.90	9.88	34.035	26.218	182.0	0.358	2.35	36.9	27.6	2.01	24.8	0.01	0.00	0.05	141	206
150 ISL	9.80	9.78	34.088	26.277	176.7	0.376	2.18	34.1	29.4	2.08	25.6	0.01	0.00	0.05	151	
169	9.60	9.58	34.156	26.363	168.8	0.409	1.94	30.3	32.3	2.19	26.9	0.01	0.00	0.04	170	205
199	9.36	9.34	34.201	26.438	162.3	0.459	1.69	26.2	35.4	2.30	28.1	0.01	0.00	0.04	200	204
200 ISL	9.35	9.33	34.202	26.441	162.1	0.460	1.68	26.1	35.5	2.30	28.1	0.01			201	
229	9.11	9.08	34.227	26.500	157.0	0.506	1.51	23.3	38.3	2.38	29.2	0.01			230	203
250 ISL	8.85	8.82	34.244	26.554	152.1	0.539	1.36	20.9	41.0	2.46	30.0	0.01			251	
261	8.71	8.68	34.251	26.582	149.6	0.555	1.28	19.6	42.4	2.50	30.4	0.01			263	202
300 ISL	8.25	8.22	34.249	26.651	143.5	0.613	1.12	17.0	46.8	2.60	31.9	0.01			302	
301	8.24	8.21	34.249	26.653	143.4	0.614	1.12	16.9	46.9	2.60	31.9	0.01			303	201

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

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 37

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
33 11.1 N	118 23.3 W	29/03/04	0651	UTC	1181 m	300	11 kn			1014.2 mb	17.7 C	15.0 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	15.86	15.86	33.178	24.379	353.9	0.000	5.91	104.5	1.1	0.31	0.0	0.00	0.20	0.04	0	
2	15.86	15.86	33.178	24.379	354.0	0.007	5.91	104.5	1.1	0.31	0.0	0.00	0.20	0.04	2	220
9	15.48	15.48	33.173	24.460	346.5	0.032	5.96	104.6	1.2	0.30	0.0	0.00	0.20	0.05	9	219
10 ISL	15.39	15.39	33.171	24.478	344.8	0.035	5.97	104.6	1.2	0.30	0.0	0.00	0.22	0.06	10	
20	14.43	14.43	33.154	24.672	326.6	0.069	6.07	104.3	1.6	0.32	0.0	0.00	0.42	0.17	20	218
29	13.82	13.82	33.157	24.802	314.5	0.097	6.03	102.3	2.3	0.37	0.0	0.02	1.53	0.68	29	217
30 ISL	13.74	13.74	33.157	24.818	312.9	0.101	5.96	101.0	2.5	0.40	0.3	0.06	1.52	0.68	30	
40	12.82	12.81	33.167	25.010	294.9	0.131	5.23	86.9	4.6	0.71	4.8	0.41	1.42	0.66	40	216
49	11.98	11.97	33.185	25.185	278.4	0.157	4.94	80.7	7.1	0.94	8.6	0.24	1.02	0.57	49	215
50 ISL	11.89	11.88	33.195	25.210	276.1	0.160	4.86	79.2	7.6	0.98	9.2	0.22	0.95	0.54	50	
60	11.17	11.16	33.323	25.441	254.2	0.186	4.09	65.7	12.2	1.31	14.3	0.03	0.29	0.26	60	214
69	10.87	10.86	33.442	25.587	240.5	0.208	3.73	59.6	14.8	1.46	16.3	0.02	0.16	0.16	69	213
75 ISL	10.68	10.67	33.505	25.670	232.8	0.223	3.58	57.0	16.2	1.53	17.3	0.01	0.11	0.13	75	
84	10.44	10.43	33.585	25.774	223.0	0.243	3.43	54.3	17.9	1.61	18.5	0.01	0.06	0.11	84	212
99	10.20	10.19	33.707	25.911	210.4	0.276	3.18	50.1	20.5	1.71	19.8	0.01	0.02	0.08	99	211
100 ISL	10.19	10.18	33.716	25.920	209.5	0.278	3.16	49.8	20.7	1.72	19.9	0.01	0.02	0.08	100	
119	10.02	10.01	33.878	26.075	195.2	0.316	2.73	42.9	24.2	1.87	21.6	0.01	0.01	0.07	120	210
125 ISL	9.96	9.95	33.914	26.114	191.7	0.328	2.64	41.4	25.1	1.91	22.3	0.01	0.01	0.06	126	
140	9.82	9.80	33.989	26.196	184.2	0.356	2.45	38.4	27.1	1.99	24.1	0.01	0.01	0.05	141	209
150 ISL	9.74	9.72	34.035	26.245	179.7	0.374	2.34	36.6	28.3	2.02	24.8	0.01	0.01	0.05	151	
169	9.60	9.58	34.106	26.324	172.5	0.408	2.15	33.5	30.6	2.08	25.8	0.00	0.00	0.05	170	208
198	9.32	9.30	34.172	26.422	163.8	0.456	1.86	28.8	34.5	2.24	27.7	0.00	0.01	0.04	199	207
200 ISL	9.30	9.28	34.175	26.428	163.3	0.460	1.85	28.7	34.7	2.25	27.8	0.00			201	
228	8.99	8.97	34.205	26.501	156.7	0.504	1.68	25.9	37.8	2.34	28.9	0.01			229	206
250 ISL	8.62	8.59	34.208	26.562	151.3	0.538	1.56	23.8	41.0	2.42	30.1	0.01			251	
268	8.32	8.29	34.210	26.610	146.9	0.565	1.45	22.0	43.8	2.49	31.1	0.00			270	205
300 ISL	8.06	8.03	34.238	26.671	141.5	0.611	1.17	17.6	47.8	2.63	32.2	0.00			302	
318	7.96	7.93	34.254	26.699	139.2	0.636	1.01	15.2	50.0	2.71	32.8	0.00			320	204
377	7.42	7.38	34.270	26.790	131.2	0.716	0.71	10.5	57.5	2.85	35.0	0.00			379	203
400 ISL	7.26	7.22	34.278	26.820	128.7	0.746	0.62	9.2	59.9	2.89	35.5	0.00			403	
438	7.00	6.96	34.292	26.867	124.6	0.794	0.49	7.2	64.1	2.96	36.3	0.00			441	202
500 ISL	6.48	6.43	34.322	26.961	116.1	0.869	0.31	4.5	72.9	3.09	38.9	0.00			503	
512	6.38	6.33	34.328	26.979	114.5	0.883	0.28	4.1	74.6	3.11	39.4	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 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 56.3 W	29/03/04	0047	UTC	1692 m	280	04 kn	310 04 07	0	1014.0 mb	17.3 C	16.9 C	15m	0/8		

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	33.169	24.518	340.7	0.000	6.11	106.6	0.8	0.35	1.2	0.10	0.71	0.18	0	
2	15.20	15.20	33.169	24.518	340.7	0.007	6.11	106.6	0.8	0.35	1.2	0.10	0.71	0.18	2	220
10	13.61	13.61	33.121	24.816	312.5	0.033	6.05	102.2	2.3	0.48	2.1	0.13	0.68	0.30	10	219
20	13.52	13.52	33.133	24.844	310.2	0.064	6.07	102.3	1.8	0.47	2.1	0.15	1.19	0.38	20	218
30	13.35	13.35	33.137	24.882	306.9	0.095	5.96	100.1	1.9	0.50	2.7	0.18	1.19	0.45	30	217
40	12.16	12.15	33.166	25.136	282.8	0.124	5.26	86.2	6.2	0.84	7.4	0.35	0.95	0.49	40	216
49	11.71	11.70	33.220	25.263	271.0	0.149	4.93	80.1	8.2	0.99	10.2	0.18	0.72	0.32	49	215
50 ISL	11.60	11.59	33.228	25.289	268.5	0.152	4.87	78.9	8.7	1.02	10.7	0.16	0.67	0.30	50	
59	10.65	10.64	33.304	25.518	246.8	0.175	4.32	68.6	12.7	1.30	15.2	0.06	0.23	0.20	59	214
69	10.30	10.29	33.371	25.631	236.3	0.199	4.11	64.8	13.8	1.40	16.9	0.04	0.16	0.15	69	213
75 ISL	10.04	10.03	33.463	25.747	225.3	0.213	3.87	60.7	15.7	1.50	18.7	0.03	0.11	0.12	75	
85	9.69	9.68	33.634	25.939	207.3	0.235	3.44	53.6	19.3	1.68	21.5	0.02	0.04	0.08	85	212
100	9.73	9.72	33.800	26.062	195.9	0.265	2.94	45.9	23.4	1.83	23.3	0.02	0.02	0.07	100	211
119	9.74	9.73	34.021	26.234	180.1	0.301	2.11	33.0	29.3	2.09	26.2	0.03	0.02	0.07	120	210
125 ISL	9.73	9.72	34.058	26.264	177.3	0.312	1.97	30.8	30.4	2.14	26.7	0.03	0.02	0.07	126	
139	9.69	9.67	34.110	26.312	173.1	0.336	1.77	27.7	31.9	2.23	27.6	0.02	0.01	0.07	140	209
150 ISL	9.68	9.66	34.134	26.333	171.4	0.355	1.66	25.9	32.3	2.27	27.9	0.02	0.01	0.07	151	
169	9.65	9.63	34.163	26.361	169.1	0.387	1.56	24.4	32.7	2.30	28.3	0.03	0.01	0.06	170	208
198	9.37	9.35	34.183	26.423	163.7	0.436	1.55	24.1	35.9	2.34	29.1	0.02	0.00	0.06	199	207
200 ISL	9.35	9.33	34.183	26.426	163.5	0.439	1.55	24.0	36.0	2.34	29.1	0.02			201	
228	9.06	9.04	34.179	26.470	159.8	0.484	1.54	23.7	37.4	2.38	29.8	0.02			229	206
250 ISL	8.76	8.73	34.192	26.528	154.6	0.519	1.48	22.7	39.8	2.43	30.5	0.01			251	
268	8.50	8.47	34.209	26.582	149.7	0.546	1.39	21.2	42.4	2.49	31.2	0.01			270	205
300 ISL	8.07	8.04	34.241	26.672	141.5	0.593	1.06	16.0	48.3	2.65	33.1	0.01			302	
317	7.86	7.83	34.257	26.716	137.5	0.616	0.88	13.2	51.5	2.73	34.1	0.01			319	204
377	7.31	7.27	34.278	26.812	129.0	0.696	0.63	9.3	59.7	2.88	36.1	0.01			379	203
400 ISL	7.15	7.11	34.286	26.841	126.5	0.726	0.55	8.1	62.5	2.93	36.6	0.01			403	
437	6.92	6.88	34.298	26.883	123.0	0.772	0.43	6.3	66.6	2.99	37.4	0.01			440	202
500 ISL	6.55	6.50	34.317	26.948	117.4	0.848	0.32	4.7	72.7	3.09	39.0	0.00			503	
512	6.48	6.43	34.321	26.960	116.4	0.862	0.30	4.4	73.9	3.11	39.3	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 53

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 39.4 N	119 29.1 W	28/03/04	1821 UTC	1315 m	320 08 kn	320 08 08	1	1016.1 mb	17.0 C	15.0 C	19m	1/8	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	13.28	13.28	33.018	24.803	313.5	0.000	5.94	99.6	2.0	0.49	2.2	0.08	0.43	0.18	0	
2 A	13.28	13.28	33.018	24.803	313.6	0.006	5.94	99.6	2.0	0.49	2.2	0.08	0.43	0.18	2	222
10 ISL	13.20	13.20	33.036	24.833	310.9	0.031	5.94	99.4	2.0	0.48	2.3	0.09	0.56	0.30	10	
13 A	13.17	13.17	33.046	24.847	309.7	0.041	5.94	99.4	2.0	0.48	2.3	0.09	0.62	0.35	13	221
19	13.20	13.20	33.059	24.851	309.5	0.059	5.95	99.6	2.0	0.47	2.2	0.09	0.67	0.31	19	220
20 ISL	13.20	13.20	33.061	24.853	309.3	0.062	5.95	99.6	2.0	0.47	2.2	0.09	0.67	0.31	20	
27 A	13.20	13.20	33.075	24.864	308.5	0.084	5.93	99.3	1.9	0.46	2.3	0.09	0.65	0.32	27	219
30 ISL	13.18	13.18	33.072	24.865	308.4	0.093	5.92	99.1	2.3	0.46	2.3	0.09	0.67	0.33	30	
34	13.15	13.15	33.065	24.866	308.4	0.105	5.90	98.7	2.9	0.47	2.4	0.09	0.69	0.35	34	218
40 A	13.09	13.08	33.050	24.866	308.6	0.124	5.89	98.4	2.9	0.49	2.6	0.09	0.61	0.36	40	217
46	12.67	12.66	33.019	24.925	303.1	0.142	5.73	94.8	2.8	0.58	3.7	0.11	0.48	0.31	46	216
50 ISL	11.95	11.94	33.021	25.063	290.0	0.154	5.45	88.8	4.8	0.76	6.5	0.15	0.38	0.28	50	
53 A	11.38	11.37	33.031	25.176	279.3	0.163	5.23	84.2	6.6	0.90	8.8	0.17	0.31	0.25	53	215
63	10.68	10.67	33.027	25.297	267.9	0.190	5.06	80.3	8.4	1.06	11.3	0.04	0.21	0.18	63	214
73 A	10.43	10.42	33.193	25.470	251.7	0.216	4.71	74.4	11.5	1.23	14.1	0.02	0.11	0.10	73	213
75 ISL	10.34	10.33	33.226	25.511	247.8	0.221	4.62	72.8	12.3	1.27	14.8	0.02	0.09	0.09	75	
85	9.87	9.86	33.376	25.708	229.3	0.245	4.18	65.3	15.8	1.45	17.9	0.02	0.04	0.07	85	212
100	9.56	9.55	33.528	25.878	213.4	0.278	3.84	59.6	18.9	1.58	20.0	0.02	0.02	0.06	100	211
119	9.29	9.28	33.713	26.067	195.8	0.317	3.39	52.4	23.3	1.74	22.8	0.01	0.01	0.04	120	210
125 ISL	9.21	9.20	33.752	26.110	191.8	0.329	3.32	51.2	24.0	1.77	23.3	0.01	0.01	0.04	126	
139	9.02	9.01	33.830	26.202	183.3	0.355	3.16	48.6	25.7	1.83	24.4	0.02	0.01	0.05	140	209
150 ISL	8.89	8.87	33.909	26.284	175.7	0.375	2.92	44.8	28.3	1.91	25.6	0.02	0.01	0.06	151	
169	8.69	8.67	34.025	26.406	164.4	0.407	2.50	38.2	33.2	2.06	27.6	0.01	0.01	0.06	170	208
199	8.38	8.36	34.070	26.490	157.0	0.455	2.24	34.0	37.9	2.18	29.3	0.01	0.00	0.04	200	207
200 ISL	8.37	8.35	34.070	26.491	156.8	0.457	2.23	33.8	38.1	2.18	29.4	0.01			201	
229	7.94	7.92	34.083	26.566	150.1	0.501	2.02	30.3	42.7	2.31	31.0	0.01			230	206
250 ISL	7.65	7.63	34.106	26.627	144.6	0.532	1.76	26.3	46.4	2.43	32.3	0.01			251	
268	7.46	7.43	34.130	26.673	140.4	0.558	1.52	22.6	49.6	2.53	33.3	0.01			270	205
300 ISL	7.42	7.39	34.172	26.712	137.2	0.602	1.25	18.6	54.3	2.64	34.1	0.01			302	
318	7.39	7.36	34.189	26.730	135.8	0.627	1.12	16.6	56.6	2.69	34.4	0.01			320	204
377	7.17	7.13	34.277	26.831	127.1	0.704	0.58	8.6	62.9	2.91	36.1	0.01			379	203
400 ISL	7.05	7.01	34.291	26.859	124.8	0.733	0.49	7.2	64.9	2.96	36.7	0.01			403	
437	6.83	6.79	34.300	26.896	121.6	0.779	0.42	6.2	68.0	3.01	37.5	0.01			440	202
500 ISL	6.33	6.28	34.292	26.957	116.3	0.854	0.36	5.2	74.6	3.09	39.0	0.01			503	
511	6.24	6.19	34.291	26.968	115.3	0.867	0.35	5.1	75.8	3.10	39.3	0.01			515	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 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 57.7 W	28/03/04	1329 UTC	980 m	320 11 kn			1014.7 mb	13.2 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	13.38	13.38	33.071	24.824	311.6	0.000	6.13	103.0	1.1	0.36	0.7	0.10	1.30	0.45	0	
2	13.38	13.38	33.071	24.824	311.6	0.006	6.13	103.0	1.1	0.36	0.7	0.10	1.30	0.45	2	220
9	13.38	13.38	33.072	24.825	311.7	0.028	6.15	103.4	1.1	0.35	0.7	0.11	1.82	0.45	9	219
10 ISL	13.38	13.38	33.070	24.823	311.9	0.031	6.15	103.4	1.1	0.35	0.7	0.11	1.83	0.46	10	
19	13.40	13.40	33.065	24.816	312.8	0.059	6.13	103.1	1.0	0.35	0.6	0.10	1.91	0.53	19	218
20 ISL	13.39	13.39	33.066	24.818	312.6	0.062	6.13	103.0	1.0	0.35	0.6	0.10	1.92	0.53	20	
29	13.29	13.29	33.081	24.850	309.8	0.090	6.11	102.5	1.0	0.33	0.9	0.11	2.28	0.61	29	217
30 ISL	13.29	13.29	33.083	24.852	309.7	0.094	6.12	102.7	0.9	0.32	0.9	0.11	2.42	0.65	30	
41	13.36	13.35	33.110	24.859	309.3	0.128	6.19	104.0	0.3	0.28	0.5	0.10	3.70	0.97	41	216
50	13.37	13.36	33.116	24.862	309.3	0.155	6.18	103.9	0.3	0.29	0.5	0.10	3.36	0.84	50	215
60	13.37	13.36	33.117	24.863	309.4	0.186	6.20	104.2	0.3	0.27	0.5	0.10	3.36	0.82	60	214
70	13.37	13.36	33.120	24.866	309.5	0.217	6.19	104.0	0.3	0.27	0.5	0.10	3.43	0.93	70	213
75 ISL	12.88	12.87	33.109	24.954	301.1	0.233	5.86	97.5	2.2	0.47	3.1	0.19	2.33	0.77	75	
84	11.73	11.72	33.091	25.159	281.6	0.259	5.19	84.2	6.5	0.88	8.6	0.32	0.22	0.39	84	212
99	10.20	10.19	33.071	25.415	257.4	0.299	4.93	77.4	11.5	1.17	13.0	0.02	0.12	0.13	99	211
100 ISL	10.18	10.17	33.092	25.434	255.6	0.302	4.89	76.7	11.8	1.19	13.3	0.02	0.11	0.13	100	
119	9.72	9.71	33.448	25.789	222.2	0.347	4.00	62.3	17.4	1.52	19.0	0.01	0.03	0.05	120	210
125 ISL	9.62	9.61	33.514	25.857	215.8	0.360	3.85	59.8	18.7	1.58	20.0	0.01	0.03	0.05	126	
139	9.40	9.38	33.634	25.987	203.7	0.390	3.60	55.7	21.4	1.68	21.7	0.01	0.03	0.05	140	209
150 ISL	9.24	9.22	33.736	26.093	193.9	0.412	3.38	52.2	23.5	1.76	23.0	0.01	0.02	0.05	151	
169	8.94	8.92	33.889	26.261	178.3	0.447	3.01	46.2	27.4	1.89	25.2	0.01	0.01	0.05	170	208
199	8.38	8.36	34.026	26.455	160.2	0.498	2.53	38.4	35.2	2.09	28.3	0.01	0.00	0.04	200	207
200 ISL	8.37	8.35	34.028	26.458	160.0	0.499	2.52	38.2	35.4	2.09	28.4	0.01			201	
229	8.10	8.08	34.048	26.515	155.0	0.545	2.31	34.8	39.0	2.19	29.8	0.01			230	206
250 ISL	7.87	7.85	34.066	26.563	150.7	0.577	2.10	31.5	42.0	2.28	31.0	0.01			251	
268	7.67	7.64	34.082	26.605	146.9	0.604	1.91	28.5	45.1	2.37	32.0	0.01			270	205
300 ISL	7.32	7.29	34.111	26.678	140.3	0.650	1.57	23.2	52.6	2.54	33.6	0.01			302	
318	7.13	7.10	34.123	26.714	137.1	0.675	1.40	20.6	56.7	2.62	34.5	0.01			320	204
378	6.46	6.43	34.116	26.800	129.4	0.755	1.12	16.2	64.4	2.77	37.0	0.00			380	203
400 ISL	6.25	6.21	34.136	26.843	125.5	0.783	0.98	14.1	67.3	2.85	37.9	0.00			403	
436	5.97	5.93	34.176	26.910	119.4	0.827	0.74	10.6	72.0	2.98	39.3	0.00			439	202
500 ISL	5.71	5.67	34.225	26.982	113.2	0.901	0.46	6.6	79.7	3.11	40.5	0.00			503	
513	5.66	5.62	34.235	26.996	112.0	0.916	0.40	5.7	81.3	3.14	40.8	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 5.4 N	120 39.0 W	28/03/04	0705 UTC	3791 m	330 22 kn			1017.5 mb	14.1 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	14.68	14.68	32.924	24.441	348.0	0.000	5.91	101.9	1.4	0.38	0.1	0.00	0.17	0.06	0	
2	14.68	14.68	32.924	24.441	348.0	0.007	5.91	101.9	1.4	0.38	0.1	0.00	0.17	0.06	2	220
10 ISL	14.68	14.68	32.924	24.442	348.2	0.035	5.92	102.1	1.4	0.38	0.0	0.00	0.16	0.05	10	
15	14.68	14.68	32.924	24.442	348.4	0.052	5.92	102.1	1.4	0.38	0.0	0.00	0.16	0.05	15	219
20 ISL	14.68	14.68	32.924	24.442	348.5	0.070	5.92	102.1	1.4	0.38	0.0	0.00	0.16	0.05	20	
30 ISL	14.68	14.68	32.925	24.443	348.7	0.105	5.92	102.1	1.3	0.38	0.0	0.00	0.17	0.05	30	
31	14.68	14.68	32.925	24.443	348.7	0.108	5.92	102.1	1.3	0.38	0.0	0.00	0.17	0.05	31	218
46	14.68	14.67	32.924	24.443	349.2	0.160	5.92	102.1	1.3	0.37	0.0	0.00	0.17	0.04	46	217
50 ISL	14.60	14.59	32.927	24.462	347.4	0.174	5.94	102.3	1.3	0.37	0.0	0.00	0.19	0.06	50	
54	14.44	14.43	32.932	24.500	343.9	0.188	5.95	102.1	1.3	0.37	0.0	0.00	0.23	0.08	54	216
66	13.12	13.11	32.970	24.799	315.6	0.228	5.86	97.9	2.5	0.51	1.9	0.21	0.63	0.50	66	215
75	12.82	12.81	33.006	24.886	307.6	0.256	5.73	95.1	2.7	0.59	3.2	0.35	0.47	0.40	75	214
86	11.90	11.89	33.029	25.080	289.3	0.289	5.33	86.8	5.3	0.84	7.5	0.05	0.23	0.25	86	213
94	11.30	11.29	33.057	25.212	276.8	0.311	5.06	81.4	10.1	1.00	10.1	0.04	0.21	0.23	94	212
100 ISL	10.68	10.67	33.105	25.359	262.9	0.327	4.89	77.6	12.0	1.13	12.3	0.03	0.14	0.16	100	
108	9.92	9.91	33.191	25.555	244.2	0.348	4.71	73.5	13.5	1.28	15.1	0.02	0.05	0.07	108	211
124	9.36	9.35	33.372	25.789	222.3	0.385	4.42	68.2	16.5	1.44	18.0	0.01	0.02	0.03	125	210
125 ISL	9.34	9.33	33.385	25.802	221.0	0.387	4.40	67.9	16.7	1.45	18.2	0.01	0.02	0.03	126	
146	9.08	9.06	33.635	26.039	198.8	0.431	3.90	59.9	21.3	1.62	21.2	0.01	0.01	0.02	147	209
150 ISL	9.04	9.02	33.672	26.075	195.6	0.439	3.79	58.2	22.2	1.66	21.8	0.01	0.01	0.02	151	
169	8.87	8.85	33.814	26.213	182.8	0.475	3.35	51.3	26.5	1.81	24.3	0.01	0.00	0.02	170	208
200	8.60	8.58	33.965	26.374	168.1	0.529	3.15	48.0	33.2	1.87	25.6	0.01	0.00	0.02	201	207
230	8.38	8.36	34.020	26.451	161.2	0.579	2.63	39.9	37.4	2.07	28.3	0.01			231	206
250 ISL	8.03	8.00	34.030	26.512	155.7	0.611	2.53	38.1	40.3	2.14	29.5	0.01			251	
269	7.68	7.65	34.034	26.566	150.6	0.640	2.46	36.7	43.0	2.20	30.4	0.01			271	205
300 ISL	7.37	7.34	34.059	26.630	144.9	0.685	2.04	30.2	47.3	2.37	32.4	0.00			302	
318	7.23	7.20	34.074	26.662	142.1	0.711	1.76	26.0	50.1	2.48	33.6	0.00			320	204
378	6.53	6.50	34.112	26.787	130.7	0.793	1.19	17.3	64.2	2.76	36.8	0.00			380	203
400 ISL	6.34	6.30	34.132	26.828	127.0	0.821	1.01	14.6	67.5	2.85	37.8	0.00			402	
438	6.07	6.03	34.168	26.891	121.3	0.869	0.75	10.8	72.0	2.97	39.1	0.00			441	202
500 ISL	5.80	5.76	34.208	26.957	115.6	0.942	0.55	7.9	78.9	3.07	40.3	0.00			503	
513	5.74	5.70	34.217	26.972	114.3	0.957	0.51	7.3	80.4	3.09	40.5	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 45.0 N	121 19.3 W	27/03/04	2346 UTC	3738 m	340 25 kn	340 10 08	1	1019.9 mb	15.0 C	13.9 C	16m	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	14.61	14.61	32.930	24.461	346.1	0.000	5.93	102.1	1.8	0.37	0.1	0.00	0.20	0.05	0	
2	14.61	14.61	32.930	24.461	346.2	0.007	5.93	102.1	1.8	0.37	0.1	0.00	0.20	0.05	2	220
10 ISL	14.62	14.62	32.931	24.460	346.5	0.035	5.93	102.1	1.7	0.36	0.0	0.00	0.19	0.05	10	
15	14.62	14.62	32.931	24.460	346.6	0.052	5.93	102.1	1.7	0.36	0.0	0.00	0.18	0.05	15	219
20 ISL	14.61	14.61	32.930	24.461	346.6	0.069	5.93	102.1	1.7	0.36	0.0	0.00	0.18	0.05	20	
30	14.60	14.60	32.929	24.463	346.8	0.104	5.92	101.9	1.7	0.36	0.0	0.00	0.19	0.04	30	218
44	14.52	14.51	32.926	24.478	345.7	0.152	5.94	102.1	1.7	0.35	0.0	0.00	0.22	0.05	44	217
50 ISL	14.02	14.01	32.952	24.603	334.0	0.173	5.99	101.9	1.9	0.36	0.0	0.01	0.51	0.21	50	
55	13.62	13.61	32.975	24.703	324.6	0.189	6.02	101.6	2.0	0.37	0.0	0.01	0.76	0.35	55	216
64	13.49	13.48	32.983	24.735	321.7	0.218	5.91	99.5	2.1	0.41	0.2	0.07	0.89	0.40	64	215
74	13.18	13.17	32.964	24.783	317.4	0.250	5.81	97.2	2.4	0.47	1.1	0.23	0.50	0.25	74	214
75 ISL	13.09	13.08	32.961	24.798	315.9	0.254	5.79	96.6	2.5	0.49	1.4	0.22	0.47	0.24	75	
85	12.11	12.10	32.959	24.986	298.2	0.284	5.53	90.4	4.3	0.72	5.8	0.03	0.23	0.17	85	213
94	11.48	11.47	33.011	25.143	283.4	0.310	5.12	82.6	7.2	0.96	9.7	0.02	0.16	0.14	94	212
100 ISL	10.85	10.84	33.064	25.297	268.7	0.327	4.84	77.1	9.6	1.14	12.7	0.02	0.11	0.11	100	
109	9.98	9.97	33.179	25.536	246.1	0.350	4.44	69.4	13.4	1.39	16.9	0.01	0.05	0.06	109	211
124	9.51	9.50	33.441	25.818	219.5	0.385	3.86	59.8	19.3	1.63	20.8	0.00	0.01	0.05	125	210
125 ISL	9.50	9.49	33.453	25.829	218.5	0.387	3.83	59.3	19.5	1.64	21.0	0.00	0.01	0.05	126	
145	9.30	9.28	33.625	25.997	203.0	0.429	3.43	53.0	22.7	1.77	23.1	0.00	0.01	0.04	146	209
150 ISL	9.21	9.19	33.664	26.042	198.8	0.439	3.48	53.6	23.2	1.75	23.0	0.00	0.01	0.04	151	
169	8.86	8.84	33.801	26.204	183.6	0.476	3.68	56.3	25.3	1.67	22.7	0.01	0.00	0.02	170	208
199	8.51	8.49	33.982	26.401	165.4	0.528	2.83	43.0	32.5	1.98	27.2	0.00	0.00	0.02	200	207
200 ISL	8.50	8.48	33.986	26.406	165.0	0.530	2.80	42.6	32.8	1.99	27.3	0.00			201	
228	8.32	8.30	34.063	26.494	157.1	0.575	2.14	32.4	39.3	2.22	30.0	0.00			229	206
250 ISL	8.06	8.03	34.093	26.557	151.4	0.609	1.84	27.7	43.0	2.35	31.5	0.00			251	
269	7.81	7.78	34.109	26.606	146.9	0.637	1.66	24.9	45.7	2.44	32.5	0.00			270	205
300 ISL	7.53	7.50	34.131	26.664	141.8	0.682	1.41	21.0	49.6	2.57	33.8	0.00			302	
317	7.39	7.36	34.141	26.692	139.4	0.706	1.29	19.1	51.8	2.63	34.4	0.00			319	204
378	6.91	6.87	34.180	26.790	130.7	0.788	0.88	12.9	62.7	2.83	36.4	0.00			380	203
400 ISL	6.66	6.62	34.176	26.821	128.0	0.817	0.82	12.0	65.7	2.88	37.2	0.00			402	
437	6.22	6.18	34.167	26.872	123.3	0.863	0.75	10.8	70.5	2.95	38.6	0.00			440	202
500 ISL	5.67	5.63	34.195	26.963	114.9	0.938	0.51	7.3	80.3	3.08	40.6	0.00			503	
511	5.57	5.53	34.200	26.979	113.4	0.951	0.47	6.7	82.0	3.10	40.9	0.00			514	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 25.5 N	121 59.9 W	27/03/04	1738 UTC	3825 m	340 24 kn	340 10 05	2	1024.8 mb	15.0 C	13.5 C	24m	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	15.40	15.40	33.002	24.346	357.1	0.000	5.77	101.0	1.4	0.35	0.1	0.00	0.10	0.01	0	
2 A	15.40	15.40	33.002	24.346	357.2	0.007	5.77	101.0	1.4	0.35	0.1	0.00	0.10	0.01	2	222
10 ISL	15.41	15.41	33.001	24.343	357.7	0.036	5.77	101.0	1.4	0.35	0.0	0.00	0.10	0.02	10	
16 A	15.41	15.41	33.001	24.343	357.8	0.057	5.77	101.0	1.4	0.35	0.0	0.00	0.10	0.02	16	221
20 ISL	15.41	15.41	33.002	24.344	357.9	0.072	5.76	100.9	1.4	0.35	0.0	0.00	0.10	0.01	20	
25	15.41	15.41	33.002	24.344	358.0	0.089	5.76	100.9	1.4	0.34	0.0	0.00	0.10	0.01	25	220
30 ISL	15.40	15.40	33.003	24.347	357.8	0.107	5.77	101.0	1.4	0.34	0.0	0.00	0.11	0.02	30	
33 A	15.40	15.39	33.003	24.347	357.9	0.118	5.77	101.0	1.4	0.34	0.0	0.00	0.12	0.03	33	219
42	15.40	15.39	33.004	24.349	358.1	0.150	5.77	101.0	1.4	0.34	0.0	0.00	0.12	0.02	42	218
50 A	15.41	15.40	33.003	24.346	358.6	0.179	5.76	100.8	1.4	0.33	0.0	0.00	0.10	0.02	50	217
59	15.34	15.33	32.996	24.356	357.9	0.211	5.78	101.0	1.4	0.33	0.0	0.00	0.14	0.03	59	216
68 A	15.00	14.99	32.980	24.418	352.2	0.243	5.81	100.9	1.3	0.34	0.0	0.00	0.20	0.07	68	215
75 ISL	14.86	14.85	32.978	24.447	349.7	0.268	5.82	100.7	1.4	0.35	0.0	0.00	0.28	0.19	75	
80	14.67	14.66	32.978	24.488	345.9	0.285	5.83	100.5	1.4	0.35	0.0	0.00	0.33	0.28	80	214
92 A	13.35	13.34	32.974	24.757	320.4	0.325	5.60	94.0	2.4	0.53	2.5	0.05	0.37	0.41	92	213
100 ISL	12.88	12.87	32.996	24.868	310.0	0.350	5.49	91.2	3.2	0.60	3.7	0.03	0.26	0.33	100	
101	12.83	12.82	32.998	24.879	308.9	0.353	5.48	91.0	3.3	0.61	3.9	0.03	0.24	0.32	101	212
109	12.22	12.21	32.997	24.995	297.9	0.378	5.33	87.4	3.8	0.73	5.9	0.01	0.17	0.25	109	211
125	11.17	11.15	33.021	25.208	277.9	0.424	5.20	83.3	6.7	0.88	8.8	0.01	0.10	0.15	126	210
145	10.18	10.16	33.132	25.466	253.5	0.477	4.99	78.3	10.5	1.08	12.3	0.00	0.05	0.05	146	209
150 ISL	9.97	9.95	33.187	25.545	246.1	0.489	4.91	76.7	11.5	1.14	13.4	0.00	0.04	0.04	151	
170	9.34	9.32	33.456	25.858	216.6	0.536	4.40	67.9	16.7	1.39	17.9	0.00	0.01	0.02	171	208
200	9.07	9.05	33.885	26.238	181.1	0.595	3.03	46.6	29.9	1.84	24.7	0.00	0.00	0.02	201	207
232	8.67	8.65	33.983	26.378	168.4	0.651	2.81	42.9	32.0	1.94	26.7	0.00			233	206
250 ISL	8.48	8.45	34.019	26.435	163.1	0.681	2.63	40.0	34.2	2.02	27.9	0.00			251	
268	8.29	8.26	34.043	26.483	158.8	0.710	2.43	36.8	37.0	2.10	29.0	0.00			269	205
300 ISL	7.83	7.80	34.064	26.568	151.1	0.760	2.14	32.0	42.7	2.25	30.9	0.00			302	
318	7.55	7.52	34.070	26.614	146.9	0.786	1.97	29.3	46.3	2.34	32.0	0.00			320	204
379	6.64	6.61	34.098	26.762	133.2	0.872	1.28	18.6	59.5	2.68	36.2	0.00			381	203
400 ISL	6.47	6.43	34.119	26.801	129.7	0.899	1.09	15.8	63.1	2.76	37.1	0.00			402	
439	6.21	6.17	34.159	26.866	123.8	0.949	0.81	11.7	69.3	2.89	38.4	0.00			442	202
500 ISL	5.72	5.68	34.196	26.958	115.5	1.022	0.57	8.1	79.1	3.05	40.1	0.00			503	
513	5.62	5.58	34.204	26.976	113.8	1.037	0.52	7.4	81.2	3.09	40.5	0.00			516	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 5.0 N	122 40.1 W	27/03/04	1058 UTC	3957 m	350 24 kn			1024.3 mb	14.2 C	12.2 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	15.55	15.55	32.962	24.282	363.2	0.000	5.79	101.6	1.3	0.36	0.1	0.00	0.08	0.01	0	
2	15.55	15.55	32.962	24.282	363.2	0.007	5.79	101.6	1.3	0.36	0.1	0.00	0.08	0.01	2	220
10 ISL	15.56	15.56	32.962	24.280	363.7	0.036	5.79	101.7	1.3	0.35	0.1	0.00	0.08	0.01	10	
15	15.56	15.56	32.962	24.280	363.8	0.055	5.79	101.7	1.3	0.35	0.1	0.00	0.08	0.01	15	219
20 ISL	15.56	15.56	32.962	24.280	363.9	0.073	5.79	101.7	1.3	0.35	0.1	0.00	0.08	0.01	20	
30	15.56	15.56	32.961	24.280	364.3	0.109	5.79	101.7	1.3	0.35	0.1	0.00	0.08	0.01	30	218
45	15.53	15.52	32.961	24.287	364.1	0.164	5.80	101.8	1.3	0.34	0.0	0.00	0.09	0.00	45	217
50 ISL	15.41	15.40	32.950	24.305	362.5	0.182	5.81	101.7	1.3	0.34	0.0	0.00	0.09	0.00	50	
59	15.17	15.16	32.928	24.341	359.3	0.214	5.83	101.5	1.3	0.35	0.0	0.00	0.10	0.02	59	216
75	15.05	15.04	32.919	24.360	357.9	0.272	5.82	101.1	1.3	0.35	0.0	0.00	0.14	0.06	75	215
84	14.94	14.93	32.920	24.385	355.8	0.304	5.82	100.9	1.3	0.35	0.0	0.00	0.24	0.15	84	214
94	14.57	14.56	32.896	24.446	350.3	0.339	5.82	100.1	1.5	0.37	0.0	0.02	0.38	0.37	94	213
100 ISL	13.92	13.91	32.933	24.610	334.7	0.360	5.72	97.1	2.1	0.46	1.1	0.09	0.29	0.30	100	
103	13.56	13.55	32.956	24.702	326.0	0.370	5.66	95.4	2.5	0.51	1.9	0.12	0.23 A	0.25 A	103	212
114	12.56	12.54	32.987	24.923	305.0	0.404	5.48	90.5	4.0	0.66	4.7	0.03	0.19	0.24	114	211
124	11.45	11.43	33.002	25.142	284.1	0.434	5.28	85.1	6.2	0.84	7.9	0.02	0.10	0.18	124	210
125 ISL	11.38	11.36	33.007	25.159	282.6	0.437	5.26	84.7	6.4	0.85	8.1	0.02	0.10	0.17	126	
138	10.75	10.73	33.100	25.344	265.2	0.472	5.05	80.2	8.5	1.01	10.9	0.01	0.07	0.10	139	209
150 ISL	10.22	10.20	33.202	25.514	249.1	0.503	4.80	75.4	11.2	1.17	13.7	0.01	0.04	0.06	151	
164	9.73	9.71	33.341	25.705	231.1	0.537	4.45	69.2	14.9	1.36	16.9	0.01	0.02	0.03	165	208
195	9.27	9.25	33.708	26.067	197.3	0.603	3.45	53.3	23.4	1.72	22.8	0.00	0.00	0.02	196	207
200 ISL	9.21	9.19	33.759	26.117	192.7	0.613	3.29	50.7	24.6	1.77	23.6	0.00			201	
230	8.89	8.87	33.988	26.347	171.3	0.667	2.54	38.9	30.9	2.01	27.1	0.00			231	206
250 ISL	8.70	8.67	34.040	26.418	164.9	0.701	2.36	36.0	33.8	2.09	28.2	0.00			251	
268	8.52	8.49	34.054	26.457	161.5	0.730	2.30	35.0	36.0	2.14	28.9	0.00			269	205
300 ISL	8.15	8.12	34.076	26.531	154.9	0.781	2.12	32.0	39.9	2.24	30.3	0.00			302	
318	7.95	7.92	34.088	26.570	151.3	0.809	1.99	29.9	42.3	2.31	31.1	0.00			320	204
378	7.49	7.45	34.200	26.725	137.4	0.895	1.10	16.4	52.8	2.68	34.1	0.00			380	203
400 ISL	7.25	7.21	34.205	26.763	133.9	0.925	0.96	14.2	57.3	2.75	35.1	0.00			402	
439	6.81	6.77	34.199	26.819	128.8	0.976	0.83	12.1	65.0	2.83	36.7	0.00			442	202
500 ISL	6.27	6.23	34.211	26.901	121.5	1.053	0.61	8.8	73.3	2.97	38.7	0.00			503	
515	6.14	6.09	34.215	26.921	119.7	1.071	0.56	8.1	75.4	3.01	39.2	0.00			518	201

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

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 45.3 N	123 20.2 W	27/03/04	0446 UTC	4010 m	360 14 kn			1025.6 mb	14.0 C	12.2 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	15.72	15.72	32.997	24.271	364.2	0.000	5.78	101.8	1.2	0.36	0.1	0.00	0.08	0.01	0	
1	15.72	15.72	32.997	24.271	364.2	0.004	5.78	101.8	1.2	0.36	0.1	0.00	0.08	0.01	1	220
10 ISL	15.72	15.72	32.996	24.271	364.6	0.036	5.77	101.7	1.2	0.35	0.0	0.00	0.08	0.01	10	
15	15.72	15.72	32.995	24.270	364.8	0.055	5.76	101.5	1.2	0.35	0.0	0.00	0.08	0.01	15	219
20 ISL	15.72	15.72	32.996	24.271	364.8	0.073	5.76	101.5	1.2	0.35	0.0	0.00	0.08	0.01	20	
30	15.71	15.71	32.998	24.275	364.8	0.109	5.77	101.6	1.2	0.35	0.0	0.00	0.08	0.02	30	218
45	15.46	15.45	32.989	24.324	360.5	0.164	5.79	101.5	1.2	0.35	0.0	0.00	0.10	0.02	45	217
50 ISL	15.41	15.40	32.991	24.337	359.5	0.182	5.79	101.4	1.2	0.35	0.0	0.00	0.12	0.02	50	
59	15.32	15.31	32.991	24.357	357.8	0.214	5.78	101.0	1.2	0.34	0.0	0.00	0.16	0.02	59	216
74	15.06	15.05	32.961	24.391	355.0	0.268	5.78	100.5	1.3	0.35	0.0	0.00	0.26	0.14	74	215
75 ISL	15.06	15.05	32.961	24.391	355.0	0.271	5.78	100.5	1.3	0.35	0.0	0.00	0.26	0.14	75	
86	15.03	15.02	32.966	24.401	354.3	0.310	5.77	100.2	1.3	0.35	0.0	0.00	0.32	0.20	86	214
94	14.27	14.26	32.937	24.541	341.2	0.338	5.71	97.6	1.7	0.42	0.7	0.06	0.46	0.33	94	213
100 ISL	13.66	13.65	32.959	24.683	327.7	0.358	5.57	94.1	4.5	0.53	2.4	0.06	0.39	0.31	100	
104	13.19	13.18	32.981	24.795	317.1	0.371	5.45	91.2	6.7	0.63	4.0	0.06	0.31	0.30	104	212
114	11.68	11.67	33.024	25.117	286.4	0.401	5.11	82.8	9.2	0.91	8.7	0.02	0.21	0.20	114	211
124	10.82	10.81	33.199	25.408	258.8	0.428	4.43	70.5	11.9	1.29	14.7	0.01	0.15	0.14	124	210
125 ISL	10.77	10.76	33.227	25.439	255.9	0.431	4.33	68.9	12.4	1.33	15.3	0.01	0.14	0.13	126	
140	10.26	10.24	33.635	25.845	217.5	0.466	2.94	46.4	21.3	1.82	23.0	0.00	0.05	0.05	141	209
150 ISL	10.06	10.04	33.766	25.982	204.7	0.487	2.52	39.6	25.8	1.96	24.3	0.00	0.02	0.04	151	
163	9.91	9.89	33.851	26.073	196.3	0.514	2.27	35.6	30.0	2.03	25.9	0.00	0.00	0.03	164	208
194	9.71	9.69	33.968	26.199	185.0	0.573	2.00	31.2	32.1	2.13	27.2	0.00	0.00	0.02	195	207
200 ISL	9.67	9.65	33.986	26.219	183.1	0.584	1.96	30.6	32.2	2.15	27.4	0.00			201	
228	9.49	9.46	34.057	26.305	175.6	0.634	1.77	27.5	33.0	2.24	28.4	0.00			229	206
250 ISL	9.31	9.28	34.111	26.377	169.1	0.672	1.61	24.9	35.1	2.32	29.3	0.00			251	
268	9.17	9.14	34.148	26.429	164.5	0.702	1.50	23.2	37.0	2.37	29.9	0.00			269	205
300 ISL	9.02	8.99	34.186	26.483	160.0	0.754	1.38	21.2	39.2	2.43	30.5	0.00			302	
319	8.94	8.91	34.200	26.507	158.0	0.784	1.32	20.3	40.4	2.45	30.8	0.00			321	204
378	8.61	8.57	34.234	26.586	151.5	0.875	1.12	17.1	44.3	2.53	31.8	0.00			380	203
400 ISL	8.48	8.44	34.242	26.613	149.3	0.908	1.05	16.0	45.8	2.57	32.2	0.00			402	
438	8.19	8.14	34.249	26.663	145.0	0.964	0.93	14.1	49.1	2.66	33.2	0.00			441	202
500 ISL	7.40	7.35	34.235	26.767	135.4	1.051	0.78	11.6	58.0	2.80	35.5	0.00			503	
511	7.26	7.21	34.233	26.786	133.7	1.066	0.75	11.1	59.6	2.83	35.9	0.00			514	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 120

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 25.2 N	124 0.3 W	26/03/04	2222 UTC	4206 m	200 12 kn	030 05 06	1	1025.4 mb	16.0 C	13.0 C	31m	4/8	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	15.84	15.84	32.945	24.204	370.6	0.000	5.78	102.0	1.5	0.36	0.0	0.00	0.07	0.01	0	
2	15.84	15.84	32.945	24.204	370.6	0.007	5.78	102.0	1.5	0.36	0.0	0.00	0.07	0.01	2	220
10 ISL	15.80	15.80	32.950	24.217	369.6	0.037	5.78	102.0	1.5	0.35	0.0	0.00	0.07	0.02	10	
16	15.76	15.76	32.957	24.232	368.4	0.059	5.78	101.9	1.5	0.35	0.0	0.00	0.07	0.02	16	219
20 ISL	15.73	15.73	32.960	24.241	367.7	0.074	5.78	101.8	1.5	0.35	0.0	0.00	0.07	0.02	20	
30	15.66	15.66	32.982	24.274	364.9	0.111	5.78	101.7	1.5	0.35	0.0	0.00	0.08	0.02	30	218
44	15.11	15.10	32.933	24.357	357.3	0.161	5.86	101.9	1.6	0.35	0.0	0.00	0.16	0.05	44	217
50 ISL	15.01	15.00	32.920	24.369	356.4	0.182	5.87	101.9	1.7	0.35	0.0	0.00	0.16	0.05	50	
61	14.90	14.89	32.906	24.382	355.4	0.222	5.88	101.8	1.8	0.35	0.0	0.00	0.16	0.05	61	216
74	14.74	14.73	32.901	24.413	352.8	0.268	5.87	101.3	1.7	0.35	0.0	0.00	0.23	0.09	74	215
75 ISL	14.71	14.70	32.898	24.417	352.5	0.271	5.87	101.3	1.7	0.35	0.0	0.00	0.24	0.10	75	
85	14.42	14.41	32.862	24.451	349.5	0.306	5.91	101.3	1.8	0.36	0.0	0.00	0.35	0.20	85	214
94	14.15	14.14	32.830	24.483	346.6	0.338	5.89	100.4	2.2	0.37	0.0	0.01	0.47	0.27	94	213
100 ISL	13.87	13.86	32.839	24.548	340.6	0.358	5.88	99.7	2.2	0.40	0.3	0.11	0.38	0.24	100	
105	13.59	13.58	32.860	24.621	333.7	0.375	5.85	98.6	2.2	0.44	0.5	0.19	0.28	0.20	105	212
114	13.01	12.99	32.913	24.778	318.9	0.404	5.73	95.4	3.1	0.54	2.4	0.17	0.19	0.16	114	211
125	12.37	12.35	32.976	24.951	302.6	0.439	5.41	88.9	4.5	0.70	5.3	0.02	0.13	0.12	125	210
140	10.97	10.95	33.069	25.281	271.2	0.482	5.17	82.5	7.4	0.92	9.2	0.02	0.09	0.08	141	209
150 ISL	10.45	10.43	33.204	25.477	252.7	0.508	4.75	75.0	10.7	1.14	12.9	0.02	0.07	0.07	151	
167	9.94	9.92	33.458	25.762	225.9	0.549	3.95	61.8	16.8	1.50	18.9	0.01	0.04	0.05	168	208
194	9.33	9.31	33.754	26.094	194.8	0.605	3.28	50.7	24.7	1.76	23.2	0.00	0.00	0.03	195	207
200 ISL	9.26	9.24	33.802	26.142	190.3	0.617	3.14	48.5	25.9	1.81	24.0	0.00			201	
229	8.99	8.97	33.966	26.314	174.5	0.670	2.56	39.3	30.6	2.00	26.9	0.00			230	206
250 ISL	8.70	8.67	34.028	26.409	165.8	0.706	2.36	36.0	34.4	2.10	28.4	0.00			251	
269	8.43	8.40	34.062	26.477	159.5	0.736	2.24	34.0	37.7	2.17	29.4	0.00			270	205
300 ISL	8.12	8.09	34.107	26.559	152.1	0.785	1.94	29.3	42.1	2.30	30.9	0.00			302	
318	7.94	7.91	34.123	26.599	148.6	0.812	1.76	26.4	44.6	2.38	31.7	0.00			320	204
380	7.10	7.06	34.141	26.734	136.3	0.900	1.25	18.4	55.6	2.65	35.2	0.00			382	203
400 ISL	6.94	6.90	34.159	26.770	133.0	0.927	1.08	15.8	58.5	2.73	36.0	0.00			402	
437	6.70	6.66	34.196	26.832	127.5	0.975	0.81	11.8	63.4	2.85	37.2	0.00			440	202
500 ISL	6.32	6.27	34.239	26.916	120.1	1.053	0.53	7.7	71.0	3.00	38.9	0.00			503	
511	6.25	6.20	34.247	26.932	118.7	1.066	0.48	6.9	72.3	3.03	39.2	0.00			514	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 26.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 57.6 N	117 18.1 W	23/03/04	1940 UTC	59 m	170 08 kn	200 03 06	2	1014.5 mb	15.2 C	15.0 C	08m	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	15.45	15.45	33.092	24.404	351.6	0.000	6.14	107.7	1.7	0.19	0.0	0.01	1.92	0.49	0	
1 A	15.45	15.45	33.092	24.404	351.6	0.004	6.14	107.7	1.7	0.19	0.0	0.01	1.92	0.49	1	215
5 A	15.37	15.37	33.090	24.420	350.2	0.018	6.16	107.8	1.7	0.19	0.0	0.01	2.17	0.56	5	213
10 ISL	14.81	14.81	33.097	24.547	338.2	0.035	5.86	101.4	2.5	0.25	0.2	0.07	2.35	0.72	10	
11 A	14.65	14.65	33.101	24.584	334.7	0.038	5.79	99.9	2.7	0.27	0.2	0.08	2.39	0.75	11	211
17 A	13.52	13.52	33.153	24.859	308.6	0.057	5.62	94.8	2.5	0.41	0.5	0.14	1.68	0.68	17	209
20 ISL	12.98	12.98	33.178	24.987	296.6	0.066	5.17	86.2	4.3	0.65	4.1	0.54	1.23	0.55	20	
23 A	12.49	12.49	33.204	25.102	285.6	0.075	4.66	76.9	6.5	0.90	8.3	0.91	0.83	0.42	23	207
30 ISL	11.62	11.62	33.270	25.318	265.3	0.095	4.03	65.3	10.5	1.22	13.4	0.45	0.47	0.37	30	
32 A	11.45	11.45	33.290	25.364	260.9	0.100	3.93	63.5	11.4	1.27	14.3	0.24	0.44	0.36	32	205
41	11.11	11.11	33.394	25.507	247.5	0.123	3.68	59.1	14.3	1.43	16.4	0.34	0.22	0.31	41	203
50 ISL	10.90	10.89	33.468	25.602	238.7	0.145	3.43	54.8	16.2	1.54	18.0	0.47	0.16	0.26	50	
52	10.85	10.84	33.485	25.624	236.6	0.149	3.38	54.0	16.6	1.56	18.4	0.50	0.15	0.25	52	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 28

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 54.4 N	117 23.5 W	23/03/04	2206 UTC	560 m	170 10 kn	210 04 06	2	1014.9 mb	16.0 C	14.9 C	09m	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	16.15	16.15	33.088	24.244	366.8	0.000	6.31	112.2	1.0	0.15	0.0	0.01	1.33	0.25	0	
1	16.15	16.15	33.088	24.244	366.8	0.004	6.31	112.2	1.0	0.15	0.0	0.01	1.33	0.25	1	220
8	15.07	15.07	33.108	24.500	342.7	0.028	6.12	106.5	1.1	0.24	0.1	0.01	1.17	0.40	8	219
10 ISL	14.75	14.75	33.114	24.573	335.7	0.035	6.09	105.3	1.4	0.27	0.3	0.03	1.34	0.47	10	
20	13.24	13.24	33.165	24.925	302.4	0.067	5.70	95.6	2.7	0.52	1.6	0.15	2.09	0.72	20	218
30 ISL	11.99	11.99	33.248	25.232	273.5	0.096	4.57	74.7	8.2	1.03	10.0	0.32	1.25	0.60	30	
31	11.89	11.89	33.257	25.257	271.1	0.099	4.46	72.7	8.8	1.08	10.9	0.32	1.13	0.57	31	217
39	11.36	11.36	33.323	25.406	257.1	0.120	4.08	65.8	11.8	1.29	14.3	0.10	0.51	0.37	39	216
50	11.02	11.01	33.389 D	25.519	246.6	0.148	3.89	62.3	13.7	1.40	16.1	0.06	0.28	0.30	50	215
60	10.85	10.84	33.437	25.587	240.3	0.172	3.74	59.7	15.4	1.50	17.7	0.10	0.22	0.25	60	214
70	10.73	10.72	33.469	25.633	236.1	0.196	3.65	58.1	15.8	1.50	17.7	0.10	0.17	0.22	70	213
75 ISL	10.60	10.59	33.498	25.678	231.9	0.207	3.66	58.1	16.3	1.52	18.1	0.08	0.14	0.19	75	
84	10.33	10.32	33.560	25.774	223.1	0.228	3.67	58.0	17.5	1.57	19.0	0.04	0.09	0.14	84	212
99	9.94	9.93	33.666	25.923	209.2	0.260	3.48	54.5	19.8	1.63	20.1	0.02	0.04	0.09	99	211
100 ISL	9.94	9.93	33.679	25.933	208.2	0.262	3.45	54.1	20.0	1.64	20.2	0.02	0.04	0.09	101	
120	9.86	9.85	33.889	26.111	191.8	0.302	2.84	44.5	24.3	1.85	23.0	0.01	0.02	0.09	121	210
125 ISL	9.83	9.82	33.911	26.133	189.8	0.312	2.78	43.5	24.8	1.87	23.3	0.01	0.02	0.08	126	
140	9.74	9.72	33.955	26.182	185.4	0.340	2.66	41.6	26.0	1.92	24.0	0.01	0.02	0.06	141	209
150 ISL	9.74	9.72	34.007	26.223	181.7	0.358	2.47	38.6	27.5	1.98	24.7	0.01	0.03	0.06	151	
168	9.76	9.74	34.095	26.289	175.9	0.391	2.14	33.5	30.1	2.09	25.8	0.01	0.04	0.07	169	208
200	9.57	9.55	34.149	26.363	169.5	0.446	1.93	30.1	32.4	2.19	26.8	0.01	0.01	0.06	201	207
230	9.39	9.36	34.208	26.440	162.8	0.496	1.66	25.8	35.5	2.31	28.1	0.01			231	206
250 ISL	9.16	9.13	34.233	26.497	157.7	0.528	1.52	23.5	37.9	2.38	29.0	0.01			251	
268	8.93	8.90	34.248	26.545	153.4	0.556	1.42	21.8	40.0	2.44	29.7	0.01			270	205
300 ISL	8.62	8.59	34.253	26.598	148.8	0.604	1.29	19.7	43.1	2.52	30.5	0.00			302	
318	8.45	8.42	34.250	26.622	146.8	0.631	1.22	18.5	44.8	2.56	31.0	0.00			320	204
378	7.79	7.75	34.248	26.720	138.1	0.716	0.96	14.4	51.6	2.74	33.4	0.00			380	203
400 ISL	7.62	7.58	34.256	26.751	135.4	0.746	0.85	12.7	54.2	2.79	34.0	0.01			403	
437	7.37	7.33	34.273	26.801	131.2	0.796	0.67	9.9	58.6	2.87	35.0	0.02			440	202
500 ISL	6.92	6.87	34.300	26.885	123.8	0.876	0.44	6.5	65.5	2.99	37.0	0.01			503	
503	6.90	6.85	34.301	26.889	123.5	0.880	0.43	6.3	65.8	3.00	37.1	0.01			506	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 30

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 50.8 N	117 31.9 W	24/03/04	0148 UTC	854 m	280 05 kn	280 03 06	2	1013.3 mb	15.9 C	14.2 C		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	15.70	15.70	33.133	24.380	353.8	0.000	6.11	107.7	0.6	0.23	0.0	0.01	0.59	0.22	0	
2	15.70	15.70	33.133	24.380	353.9	0.007	6.11	107.7	0.6	0.23	0.0	0.01	0.59	0.22	2	220
10	15.61	15.61	33.136	24.403	352.0	0.035	6.12	107.7	0.6	0.22	0.0	0.01	0.60	0.22	10	219
20	14.18	14.18	33.145	24.718	322.2	0.069	6.03	103.1	1.2	0.31	0.1	0.02	1.00	0.44	20	218
30	12.75	12.75	33.191	25.042	291.5	0.100	5.01	83.2	4.9	0.77	6.2	0.48	1.46	0.70	30	217
39	11.71	11.71	33.256	25.290	268.1	0.125	4.36	70.8	9.5	1.13	11.9	0.23	0.70	0.53	39	216
50	11.05	11.04	33.397	25.520	246.5	0.153	3.86	61.9	13.8	1.37	16.0	0.04	0.30	0.30	50	215
60	10.69	10.68	33.521	25.680	231.4	0.177	3.59	57.1	16.6	1.50	18.1	0.03	0.18	0.21	60	214
69	10.10	10.09	33.657	25.888	211.8	0.197	3.44	54.1	19.4	1.61	20.0	0.02	0.06	0.12	69	213
75 ISL	10.06	10.05	33.754	25.971	204.1	0.210	3.27	51.4	21.0	1.67	20.9	0.02	0.04	0.09	75	
84	10.00	9.99	33.839	26.047	197.0	0.228	2.98	46.8	22.9	1.76	22.0	0.02	0.02	0.08	84	212
100	10.05	10.04	33.947	26.124	190.2	0.259	2.61	41.1	25.4	1.88	23.2	0.01	0.02	0.06	101	211
119	10.03	10.02	33.994	26.164	186.8	0.294	2.43	38.2	26.5	1.94	23.9	0.01	0.02	0.05	120	210
125 ISL	9.99	9.98	34.010	26.183	185.0	0.306	2.39	37.6	27.0	1.96	24.2	0.01	0.02	0.05	126	
139	9.90	9.88	34.044	26.225	181.3	0.331	2.31	36.2	28.1	1.99	24.7	0.01	0.01	0.05	140	209
150 ISL	9.87	9.85	34.061	26.244	179.8	0.351	2.26	35.4	28.5	2.01	24.9	0.01	0.01	0.05	151	
169	9.80	9.78	34.093	26.281	176.7	0.385	2.14	33.5	29.6	2.06	25.4	0.01	0.01	0.05	170	208
198	9.50	9.48	34.186	26.404	165.6	0.435	1.78	27.7	34.1	2.22	27.5	0.01	0.01	0.05	199	207
200 ISL	9.49	9.47	34.188	26.407	165.3	0.438	1.77	27.5	34.2	2.22	27.5	0.01			201	
229	9.31	9.28	34.206	26.451	161.7	0.485	1.69	26.2	35.7	2.27	27.9	0.00			230	206
250 ISL	9.12	9.09	34.223	26.495	157.8	0.519	1.56	24.1	37.8	2.32	28.6	0.00			251	
268	8.95	8.92	34.235	26.532	154.7	0.547	1.45	22.3	39.7	2.37	29.3	0.00			270	205
300 ISL	8.65	8.62	34.238	26.582	150.4	0.596	1.35	20.6	42.2	2.43	30.2	0.00			302	
317	8.51	8.48	34.239	26.604	148.5	0.621	1.30	19.8	43.5	2.46	30.6	0.00			319	204
378	8.18	8.14	34.277	26.685	141.8	0.710	0.93	14.1	48.6	2.67	32.2	0.00			380	203
400 ISL	7.94	7.90	34.275	26.720	138.7	0.741	0.85	12.8	51.8	2.72	33.1	0.00			403	
438	7.49	7.45	34.271	26.782	133.0	0.792	0.73	10.9							441	202
500 ISL	6.85	6.80	34.304	26.898	122.5	0.871	0.43	6.3	66.6	2.97	37.1	0.00			503	
521	6.63	6.58	34.317	26.938	118.8	0.897	0.33	4.8	69.7	3.02	37.9	0.00			525	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 40.7 N	117 52.5 W	24/03/04	0557	UTC	614 m	280 06 kn			1015.3 mb	15.5 C	14.3 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	15.72	15.72	33.160	24.396	352.3	0.000	5.89	103.9	0.7	0.27	0.0	0.00	0.31	0.10	0	
2	15.72	15.72	33.160	24.396	352.3	0.007	5.89	103.9	0.7	0.27	0.0	0.00	0.31	0.10	2	220
10 ISL	15.62	15.62	33.174	24.430	349.4	0.035	5.82	102.4	1.2	0.32	0.0	0.00	0.27	0.07	10	
12	15.59	15.59	33.178	24.439	348.5	0.042	5.80	102.0	1.3	0.34	0.0	0.00	0.26	0.06	12	219
20	15.54	15.54	33.176	24.449	347.8	0.070	5.80	101.9	1.4	0.34	0.0	0.00	0.27	0.07	20	218
30	15.27	15.27	33.165	24.501	343.3	0.105	5.84	102.1	1.5	0.35	0.0	0.01	0.39	0.14	30	217
39	13.90	13.89	33.118	24.755	319.1	0.134	5.72	97.2	2.7	0.49	1.5	0.10	0.96	0.63	39	216
50	11.78	11.77	33.137	25.185	278.4	0.167	4.89	79.5	7.5	0.98	9.4	0.13	0.55	0.47	50	215
59	11.34	11.33	33.207	25.320	265.7	0.192	4.58	73.8	9.7	1.15	12.2	0.07	0.34	0.37	59	214
70	10.99	10.98	33.286	25.445	254.1	0.220	4.31	68.9	11.5	1.27	14.2	0.04	0.26	0.30	70	213
75 ISL	10.89	10.88	33.326	25.494	249.5	0.233	4.18	66.7	12.3	1.32	15.1	0.03	0.22	0.25	75	
85	10.66	10.65	33.426	25.612	238.5	0.257	3.90	62.0	14.5	1.42	16.9	0.02	0.13	0.15	85	212
99	10.07	10.06	33.631	25.874	213.9	0.289	3.47	54.5	19.5	1.64	20.2	0.00	0.03	0.09	99	211
100 ISL	10.05	10.04	33.640	25.884	212.9	0.291	3.45	54.2	19.7	1.65	20.3	0.00	0.03	0.09	100	
120	9.82	9.81	33.773	26.027	199.7	0.332	3.15	49.3	22.0	1.75	22.0	0.00	0.01	0.05	121	210
125 ISL	9.79	9.78	33.800	26.053	197.4	0.342	3.08	48.1	22.6	1.78	22.3	0.00	0.01	0.05	126	
140	9.72	9.70	33.886	26.132	190.2	0.371	2.84	44.3	24.6	1.87	23.4	0.00	0.01	0.05	141	209
150 ISL	9.67	9.65	33.975	26.210	183.0	0.390	2.55	39.8	27.0	1.98	24.5	0.00	0.01	0.05	151	
169	9.56	9.54	34.128	26.348	170.3	0.424	2.03	31.6	31.5	2.18	26.6	0.00	0.01	0.04	170	208
199	9.24	9.22	34.185	26.445	161.6	0.473	1.78	27.5	35.2	2.28	28.1	0.00	0.00	0.04	200	207
200 ISL	9.23	9.21	34.186	26.448	161.4	0.475	1.77	27.4	35.4	2.28	28.2	0.00			201	
228	8.85	8.83	34.214	26.531	153.9	0.519	1.53	23.5	40.2	2.41	29.6	0.00			229	206
250 ISL	8.58	8.55	34.224	26.581	149.4	0.552	1.39	21.2	42.5	2.48	30.5	0.00			251	
268	8.38	8.35	34.229	26.616	146.4	0.579	1.29	19.6	44.2	2.53	31.2	0.00			270	205
300 ISL	8.05	8.02	34.244	26.677	140.9	0.625	1.08	16.3	48.4	2.63	32.5	0.00			302	
319	7.87	7.84	34.252	26.711	138.1	0.652	0.97	14.6	50.9	2.69	33.2	0.00			321	204
377	7.46	7.42	34.270	26.785	131.7	0.730	0.73	10.9	56.8	2.82	34.9	0.00			379	203
400 ISL	7.34	7.30	34.275	26.806	130.0	0.760	0.66	9.8	58.5	2.86	35.4	0.00			403	
437	7.12	7.08	34.284	26.844	126.8	0.807	0.56	8.3	61.8	2.93	36.2	0.00			440	202
500 ISL	6.53	6.48	34.320	26.953	116.9	0.884	0.34	4.9	71.9	3.07	38.2	0.00			503	
512	6.42	6.37	34.328	26.974	115.0	0.898	0.30	4.4	73.8	3.10	38.6	0.00			515	201

RV NEW HORIZON CALCOFI CRUISE 0404 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 12.8 W	24/03/04	0954	UTC	1656 m	290 11 kn			1015.5 mb	14.5 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	15.26	15.26	33.171	24.506	341.8	0.000	5.87	102.6	1.6	0.36	0.0	0.00	0.27	0.06	0	
2	15.26	15.26	33.171	24.506	341.8	0.007	5.87	102.6	1.6	0.36	0.0	0.00	0.27	0.06	2	220
9	15.26	15.26	33.172 D	24.507	342.0	0.031	5.88	102.8	1.5	0.35	0.0	0.00	0.29	0.07	9	219
10 ISL	15.26	15.26	33.172	24.507	342.0	0.034	5.88	102.8	1.5	0.35	0.0	0.00	0.29	0.07	10	
20	15.26	15.26	33.170	24.506	342.4	0.068	5.89	102.9	1.4	0.34	0.0	0.00	0.27	0.06	20	218
30	13.81	13.81	33.048	24.720	322.3	0.102	6.22	105.4	1.5	0.36	0.1	0.03	0.71	0.28	30	217
40	12.77	12.76	33.077	24.950	300.6	0.133	5.76	95.6	3.2	0.58	3.4	0.32	0.88	0.44	40	216
50	11.88	11.87	33.112	25.147	282.0	0.162	5.19	84.5	6.5	0.88	8.3	0.11	0.53	0.37	50	215
60	11.10	11.09	33.234	25.384	259.6	0.189	4.53	72.6	10.5	1.17	12.9	0.06	0.32	0.26	60	214
70	10.34	10.33	33.269	25.545	244.5	0.214	4.48	70.6	12.8	1.30	15.1	0.03	0.13	0.14	70	213
75 ISL	10.27	10.26	33.377	25.641	235.5	0.226	4.22	66.5	14.6	1.39	16.6	0.02	0.09	0.11	75	
84	10.14	10.13	33.559	25.805	220.0	0.247	3.67	57.7	17.9	1.55	19.1	0.02	0.05	0.08	84	212
99	9.86	9.85	33.719	25.978	204.0	0.278	3.26	51.0	21.0	1.69	21.4	0.01	0.02	0.04	99	211
100 ISL	9.85	9.84	33.727	25.985	203.2	0.281	3.24	50.7	21.2	1.70	21.5	0.01	0.02	0.04	100	
119	9.68	9.67	33.849	26.109	191.9	0.318	2.95	46.0	24.9	1.83	23.3	0.01	0.01	0.03	120	210
125 ISL	9.63	9.62	33.872	26.136	189.5	0.330	2.93	45.7	25.3	1.85	23.6	0.01	0.01	0.03	126	
138	9.51	9.49	33.918	26.192	184.4	0.354	2.87	44.6	26.2	1.88	24.3	0.01	0.00	0.03	139	209
150 ISL	9.40	9.38	33.988	26.264	177.7	0.376	2.65	41.1	28.2	1.96	25.2	0.01	0.00	0.03	151	
169	9.19	9.17	34.090	26.378	167.2	0.408	2.26	34.9	31.8	2.09	26.8	0.01	0.01	0.03	170	208
199	8.77	8.75	34.137	26.482	157.9	0.457	1.98	30.3	36.6	2.24	28.6	0.01	0.00	0.03	200	207
200 ISL	8.76	8.74	34.138	26.485	157.6	0.459	1.97	30.1	36.7	2.24	28.7	0.01			201	
229	8.49	8.47	34.167	26.550	152.0	0.504	1.72	26.2	40.4	2.34	30.0	0.01			230	206
250 ISL	8.41	8.38	34.195	26.584	149.0	0.535	1.49	22.6	42.5	2.43	30.7	0.00			251	
269	8.34	8.31	34.217	26.612	146.7	0.563	1.29	19.6	44.4	2.51	31.3	0.00			271	205
300 ISL	8.04	8.01	34.231	26.669	141.8	0.608	1.10	16.6	48.3	2.61	32.5	0.00			302	
318	7.83	7.80	34.236	26.704	138.6	0.633	1.01	15.1	50.8	2.66	33.2	0.00			320	204
377	7.28	7.24	34.267	26.808	129.4	0.712	0.68	10.1	58.9	2.84	35.5	0.00			379	203
400 ISL	7.06	7.02	34.280	26.849	125.7	0.742	0.57	8.4	62.6	2.91	36.4	0.00			403	
437	6.74	6.70	34.299	26.908	120.4	0.787	0.42	6.1	68.3	3.01	37.6	0.00			440	202
500 ISL	6.31	6.26	34.321	26.982	113.9	0.861	0.29	4.2	75.6	3.09	39.0	0.00			503	
512	6.23	6.18	34.326	26.997	112.6	0.875	0.27	3.9	77.0	3.11	39.3	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 20.6 N	118 33.2 W	24/03/04	1409 UTC	1386 m	310 14 kn	300 03 06	2	1015.8 mb	14.0 C	12.9 C		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	13.87	13.87	33.075	24.727	320.7	0.000	6.10	103.6	1.8	0.39	0.8	0.05	0.96	0.35	0	
2	13.87	13.87	33.075	24.727	320.8	0.006	6.10	103.6	1.8	0.39	0.8	0.05	0.96	0.35	2	220
10	13.88	13.88	33.079	24.729	320.9	0.032	6.10	103.6	1.7	0.38	0.8	0.05	0.75	0.28	10	219
20	13.81	13.81	33.072	24.738	320.3	0.064	6.08	103.1	1.7	0.39	0.9	0.06	0.77	0.25	20	218
30	13.19	13.19	33.053	24.849	310.0	0.096	5.98	100.1	2.5	0.48	2.2	0.12	0.83	0.41	30	217
40	12.80	12.79	33.063	24.933	302.1	0.126	5.79	96.1	3.6	0.57	3.4	0.20	0.75	0.44	40	216
49	12.25	12.24	33.083	25.055	290.8	0.153	5.53	90.8	4.9	0.71	5.7	0.34	0.60	0.38	49	215
50 ISL	12.15	12.14	33.085	25.076	288.8	0.156	5.48	89.7	5.2	0.74	6.1	0.34	0.57	0.37	50	
59	11.28	11.27	33.111	25.256	271.7	0.181	5.06	81.4	8.2	0.96	10.1	0.32	0.34	0.29	59	214
70	10.84	10.83	33.146	25.362	261.9	0.210	4.85	77.3	11.4	1.10	12.5	0.09	0.27	0.23	70	213
75 ISL	10.61	10.60	33.245	25.480	250.8	0.223	4.52	71.7	13.3	1.23	14.6	0.07	0.22	0.21	75	
84	10.25	10.24	33.447	25.699	230.1	0.245	3.89	61.3	16.5	1.46	18.2	0.03	0.13	0.18	84	212
99	10.11	10.10	33.611	25.851	216.0	0.278	3.47	54.6	19.4	1.59	20.2	0.02	0.05	0.12	99	211
100 ISL	10.09	10.08	33.626	25.866	214.6	0.280	3.44	54.1	19.7	1.60	20.4	0.02	0.05	0.12	100	
119	9.64	9.63	33.888	26.146	188.3	0.319	2.89	45.0	24.9	1.79	23.5	0.02	0.01	0.06	120	210
125 ISL	9.56	9.55	33.925	26.189	184.4	0.330	2.80	43.6	25.9	1.82	23.9	0.02	0.01	0.06	126	
139	9.42	9.40	33.975	26.251	178.8	0.355			27.6	1.86	24.6	0.02	0.00	0.06	140	209
150 ISL	9.34	9.32	34.012	26.293	175.0	0.375	2.51	38.9	28.9	1.90	25.2	0.02	0.00	0.06	151	
169	9.21	9.19	34.066	26.356	169.3	0.408	2.39	36.9	31.2	1.99	26.3	0.02	0.01	0.05	170	208
198	8.88	8.86	34.141	26.468	159.2	0.455	2.03	31.2	35.9	2.14	28.2	0.01	0.00	0.04	199	207
200 ISL	8.86	8.84	34.144	26.474	158.7	0.458	2.02	31.0	36.1	2.15	28.3	0.01			201	
228	8.63	8.61	34.165	26.526	154.2	0.502	1.86	28.4	38.9	2.24	29.3	0.01			229	206
250 ISL	8.48	8.45	34.176	26.558	151.5	0.536	1.73	26.3	40.8	2.31	30.0	0.01			251	
268	8.34	8.31	34.185	26.587	149.1	0.563	1.60	24.3	42.6	2.37	30.7	0.01			270	205
300 ISL	8.00	7.97	34.210	26.658	142.7	0.610	1.29	19.4	47.5	2.51	32.3	0.00			302	
319	7.79	7.76	34.226	26.702	138.8	0.636	1.10	16.5	50.7	2.59	33.3	0.00			321	204
378	7.34	7.30	34.272	26.803	129.9	0.716	0.68	10.1	58.6	2.78	35.4	0.00			380	203
400 ISL	7.18	7.14	34.284	26.835	127.1	0.744	0.58	8.6	61.1	2.83	36.1	0.00			403	
437	6.90	6.86	34.297	26.885	122.8	0.790	0.45	6.6	65.3	2.89	37.1	0.00			440	202
500 ISL	6.33	6.28	34.300	26.963	115.7	0.865	0.34	4.9	73.6	2.95	39.0	0.00			503	
514	6.20	6.15	34.301	26.981	114.1	0.881	0.31	4.5	75.5	2.96	39.4	0.00			518	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 10.9 N	118 54.1 W	24/03/04	1820 UTC	1481 m	330 09 kn	320 04 04	2	1017.4 mb	15.0 C	13.9 C	23m	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	14.74	14.74	33.073	24.543	338.3	0.000	5.90	102.0	2.0	0.36	0.0	0.00	0.27	0.09	0	
2 A	14.74	14.74	33.073	24.543	338.3	0.007	5.90	102.0	2.0	0.36	0.0	0.00	0.27	0.09	2	222
8	14.73	14.73	33.073	24.546	338.3	0.027	5.90	101.9	2.0	0.35	0.0	0.00	0.28	0.09	8	221
10 ISL	14.72	14.72	33.073	24.548	338.1	0.034	5.90	101.9	2.0	0.35	0.0	0.00	0.28	0.09	10	
15 A	14.71	14.71	33.073	24.550	338.1	0.051	5.90	101.9	2.0	0.35	0.0	0.00	0.28	0.08	15	220
20 ISL	14.70	14.70	33.072	24.552	338.0	0.068	5.90	101.9	2.0	0.35	0.0	0.00	0.29	0.09	20	
25	14.70	14.70	33.071	24.551	338.2	0.085	5.91	102.1	2.1	0.35	0.0	0.00	0.31	0.10	25	219
30 ISL	14.65	14.65	33.070	24.561	337.4	0.101	5.92	102.1	2.6	0.35	0.0	0.00	0.33	0.11	30	
32 A	14.61	14.61	33.064	24.565	337.1	0.108	5.92	102.0	2.7	0.35	0.0	0.00	0.34	0.12	32	218
40	14.20	14.19	33.055	24.645	329.8	0.135	6.00	102.5	2.1	0.35	0.0	0.01	0.56	0.22	40	217
47 A	12.95	12.94	33.057	24.900	305.6	0.157	5.61	93.4	3.9	0.59	3.3	0.21	0.81	0.60	47	216
50 ISL	12.64	12.63	33.064	24.966	299.3	0.166	5.46	90.3	4.6	0.67	4.6	0.21	0.75	0.61	50	
56	12.21	12.20	33.088	25.067	289.8	0.184	5.17	84.8	6.1	0.80	7.0	0.22	0.55	0.63	56	215
65 A	11.60	11.59	33.160	25.237	273.8	0.209	4.77	77.2	8.6	1.01	10.5	0.14	0.38	0.49	65	214
75 ISL	11.13	11.12	33.256	25.396	258.8	0.236	4.46	71.5	10.8	1.17	13.0	0.07	0.25	0.31	75	
76	11.09	11.08	33.266	25.411	257.4	0.238	4.44	71.2	11.0	1.18	13.2	0.06	0.24	0.29	76	213
88 A	10.52	10.51	33.387	25.606	239.1	0.268	4.20	66.5	14.2	1.39	16.3	0.03	0.13	0.18	88	212
100 ISL	10.07	10.06	33.595	25.845	216.6	0.296	3.60	56.5	18.7	1.57	19.7	0.01	0.04	0.08	100	
103	9.99	9.98	33.644	25.897	211.7	0.302	3.45	54.1	19.7	1.61	20.4	0.01	0.03	0.06	103	211
119	9.85	9.84	33.709	25.972	204.9	0.335	3.28	51.3	21.2	1.68	21.5	0.02	0.02	0.05	120	210
125 ISL	9.80	9.79	33.765	26.024	200.1	0.347	3.13	48.9	22.5	1.73	22.2	0.02	0.02	0.04	126	
140	9.65	9.63	33.907	26.160	187.5	0.377	2.75	42.9	25.9	1.87	23.9	0.01	0.01	0.03	141	209
150 ISL	9.57	9.55	33.951	26.208	183.1	0.395	2.63	40.9	27.2	1.92	24.6	0.01	0.01	0.03	151	
169	9.33	9.31	33.990	26.278	176.8	0.429	2.53	39.2	29.3	1.98	25.7	0.01	0.00	0.03	170	208
199	8.41	8.39	34.026	26.451	160.7	0.480	2.53	38.4	34.9	2.06	28.2	0.01	0.00	0.03	200	207
200 ISL	8.41	8.39	34.031	26.455	160.3	0.481	2.51	38.1	35.1	2.07	28.3	0.01			201	
230	8.30	8.28	34.141	26.558	151.1	0.528	1.81	27.4	41.0	2.33	30.3	0.01			231	206
250 ISL	7.97	7.94	34.159	26.622	145.2	0.558	1.56	23.5	45.4	2.45	31.8	0.01			251	
268	7.65	7.62	34.165	26.673	140.5	0.584	1.39	20.7	49.0	2.54	33.0	0.01			270	205
300 ISL	7.50	7.47	34.213	26.733	135.3	0.628	1.05	15.6	53.0	2.67	34.1	0.01			302	
319	7.48	7.45	34.242	26.759	133.2	0.653	0.88	13.1	54.8	2.74	34.5	0.01			321	204
377	7.11	7.07	34.283	26.844	125.8	0.728	0.56	8.3	61.5	2.92	36.2	0.00			379	203
400 ISL	6.98	6.94	34.292	26.869	123.7	0.757	0.48	7.1	64.0	2.96	36.8	0.00			403	
438	6.78	6.74	34.304	26.906	120.6	0.803	0.39	5.7	68.1	3.02	37.6	0.00			441	202
500 ISL	6.39	6.34	34.322	26.973	114.9	0.876	0.29	4.2	74.5	3.10	38.7	0.00			503	
514	6.30	6.25	34.327	26.989	113.5	0.892	0.27	3.9	76.0	3.12	39.0	0.00			517	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 0.6 N	119 14.3 W	24/03/04	2221 UTC	1607 m	330 18 kn	320 05 05	2	1016.7 mb	14.7 C	13.9 C	15m	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	15.32	15.32	33.153	24.479	344.4	0.000	5.84	102.2	1.3	0.34	0.0	0.00	0.28	0.08	0	
2	15.32	15.32	33.153	24.479	344.4	0.007	5.84	102.2	1.3	0.34	0.0	0.00	0.28	0.08	2	220
10	15.32	15.32	33.154	24.480	344.6	0.034	5.83	102.0	1.3	0.34	0.0	0.00	0.31	0.09	10	219
20	15.28	15.28	33.151	24.487	344.2	0.069	5.83	101.9	1.3	0.34	0.0	0.00	0.30	0.09	20	218
28	15.07	15.07	33.136	24.522	341.1	0.096	5.88	102.3	1.5	0.34	0.0	0.00	0.38	0.14	28	217
30 ISL	14.74	14.74	33.127	24.586	335.1	0.103	5.84	101.0	1.8	0.38	0.5	0.02	0.44	0.19	30	
39	13.15	13.14	33.107	24.899	305.5	0.132	5.59	93.5	3.6	0.58	3.1	0.13	0.71	0.42	39	216
50	12.70	12.69	33.097	24.980	298.0	0.165	5.41	89.6	4.6	0.70	5.0	0.20	0.71	0.50	50	215
61	11.19	11.18	33.123	25.282	269.4	0.196	4.87	78.2	8.4	1.04	11.0	0.06	0.30	0.31	61	214
70	10.55	10.54	33.189	25.446	253.9	0.220	4.65	73.6	10.9	1.19	13.5	0.03	0.19	0.21	70	213
75 ISL	10.36	10.35	33.284	25.553	243.8	0.232	4.39	69.3	12.8	1.30	15.2	0.03	0.14	0.16	75	
85	10.15	10.14	33.465	25.730	227.2	0.256	3.92	61.6	16.2	1.47	18.1	0.02	0.07	0.09	85	212
99	9.98	9.97	33.487	25.776	223.1	0.287	3.87	60.6	17.3	1.50	18.7	0.01	0.05	0.07	99	211
100 ISL	9.95	9.94	33.497	25.789	221.9	0.290	3.85	60.3	17.5	1.51	18.9	0.01	0.05	0.07	100	
118	9.38	9.37	33.705	26.046	197.8	0.327	3.39	52.5	22.6	1.70	22.3	0.01	0.01	0.05	119	210
125 ISL	9.28	9.27	33.766	26.110	191.8	0.341	3.25	50.2	24.0	1.76	23.2	0.01	0.01	0.04	126	
140	9.17	9.15	33.876	26.214	182.3	0.369	2.95	45.5	26.6	1.86	24.7	0.00	0.01	0.03	141	209
150 ISL	9.14	9.12	33.949	26.276	176.6	0.387	2.71	41.8	28.5	1.93	25.6	0.00	0.01	0.03	151	
167	9.11	9.09	34.053	26.362	168.7	0.416	2.33	35.9	31.5	2.05	26.9	0.00	0.00	0.04	168	208
200 ISL	8.83	8.81	34.137	26.473	158.8	0.470	1.93	29.6	36.4	2.23	28.8	0.00	0.00	0.03	201	
201	8.82	8.80	34.138	26.475	158.6	0.472	1.92	29.4	36.5	2.23	28.8	0.00	0.00	0.03	202	207
228	8.63	8.61	34.160	26.522	154.6	0.514	1.78	27.2	38.8	2.30	29.6	0.00			229	206
250 ISL	8.49	8.46	34.186	26.565	150.9	0.548	1.57	23.9	41.4	2.39	30.4	0.00			251	
271	8.33	8.30	34.211	26.609	147.0	0.579	1.34	20.3	44.3	2.48	31.3	0.00			273	205
300 ISL	7.97	7.94	34.234	26.682	140.5	0.621	1.08	16.2	49.2	2.61	32.7	0.00			302	
321	7.70	7.67	34.246	26.731	136.1	0.650	0.91	13.6	52.8	2.70	33.8	0.00			323	204
378	7.24	7.20	34.250 D	26.800	130.1	0.726									380	203
400 ISL	7.06	7.02	34.264	26.836	126.9	0.754	0.65	9.6	62.1	2.86	35.9	0.00			403	
440	6.75	6.71	34.295 D	26.903	120.9	0.804									443	202
500 ISL	6.39	6.34	34.321	26.972	115.0	0.874	0.32	4.6	74.0	3.05	38.6	0.00			503	
519	6.27	6.22	34.329	26.994	113.0	0.896	0.26	3.8	76.2	3.09	39.1	0.00			523	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 50.8 N	119 34.5 W	25/03/04	0221 UTC	1902 m	320 18 kn	320 08 08	1	1016.8 mb	14.9 C	13.8 C		4/8	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	14.64	14.64	33.087	24.575	335.2	0.000	5.94	102.5	1.6	0.35	0.0	0.00	0.29	0.10	0	
2	14.64	14.64	33.087	24.576	335.3	0.007	5.94	102.5	1.6	0.35	0.0	0.00	0.29	0.10	2	220
10	14.65	14.65	33.085	24.572	335.8	0.034	5.94	102.5	1.6	0.34	0.0	0.00	0.31	0.10	10	219
20 ISL	14.65	14.65	33.084	24.572	336.2	0.067	5.95	102.6	1.6	0.34	0.0	0.00	0.28	0.10	20	
21	14.65	14.65	33.084	24.572	336.2	0.071	5.95	102.6	1.6	0.34	0.0	0.00	0.28	0.10	21	218
29	14.49	14.49	33.077	24.600	333.7	0.097	5.98	102.8	1.7	0.35	0.1	0.01	0.34	0.15	29	217
30 ISL	14.37	14.37	33.073	24.623	331.6	0.101	5.98	102.6	1.7	0.36	0.2	0.02	0.37	0.17	30	
39	13.05	13.04	33.045	24.870	308.2	0.129	5.95	99.3	2.6	0.47	1.7	0.18	0.65	0.35	39	216
49	12.03	12.02	33.055	25.075	288.9	0.159	5.54	90.5	5.1	0.74	6.0	0.34	0.70	0.55	49	215
50 ISL	11.94	11.93	33.056	25.093	287.2	0.162	5.50	89.7	5.4	0.77	6.4	0.32	0.69	0.54	50	
59	11.20	11.19	33.086	25.251	272.2	0.187	5.09	81.7	8.0	0.99	10.1	0.10	0.51	0.46	59	214
69	10.47	10.46	33.177	25.451	253.4	0.214	4.67	73.8	11.3	1.20	13.8	0.04	0.30	0.25	69	213
75 ISL	10.30	10.29	33.227	25.519	247.0	0.229	4.51	71.0	12.5	1.27	15.1	0.03	0.21	0.18	75	
84	10.18	10.17	33.307	25.602	239.3	0.251	4.31	67.7	14.2	1.35	16.5	0.02	0.12	0.13	84	212
100	9.76	9.75	33.493	25.818	219.1	0.287	3.82	59.5	19.1	1.59	19.8	0.01	0.03	0.08	100	211
120	9.54	9.53	33.633	25.964	205.7	0.330	3.50	54.3	21.3	1.69	21.6	0.01	0.02	0.08	121	210
125 ISL	9.45	9.44	33.683	26.017	200.6	0.340	3.39	52.5	22.5	1.73	22.3	0.01	0.02	0.08	126	
139	9.20	9.18	33.815	26.161	187.2	0.367	3.10	47.8	25.9	1.83	24.2	0.01	0.01	0.09	140	209
150 ISL	9.12	9.10	33.864	26.212	182.5	0.387	2.98	45.9	27.1	1.87	24.9	0.01	0.01	0.09	151	
168	9.02	9.00	33.905	26.261	178.3	0.420	2.87	44.1	28.4	1.91	25.5	0.01	0.01	0.08	169	208
199	8.64	8.62	33.981	26.380	167.5	0.473	2.73	41.6	32.1	1.98	27.0	0.01	0.00	0.09	200	207
200 ISL	8.63	8.61	33.983	26.383	167.2	0.475	2.72	41.5	32.2	1.98	27.1	0.01			201	
229	8.21	8.19	34.027	26.482	158.2	0.522	2.49	37.6	36.9	2.11	28.9	0.01			230	206
250 ISL	7.92	7.89	34.044	26.539	153.0	0.555	2.28	34.2	40.6	2.21	30.4	0.00			251	
268	7.70	7.67	34.059	26.583	149.1	0.582	2.06	30.8	43.8	2.31	31.6	0.00			270	205
300 ISL	7.41	7.38	34.115	26.669	141.3	0.629	1.58	23.4	49.8	2.52	33.3	0.00			302	
317	7.29	7.26	34.148	26.712	137.4	0.652	1.32	19.5	52.8	2.63	34.1	0.00			319	204
378	7.06	7.02	34.244	26.820	128.1	0.733	0.72	10.6	60.6	2.87	35.9	0.00			380	203
400 ISL	6.86	6.82	34.249	26.852	125.3	0.761	0.64	9.4	63.6	2.92	36.7	0.00			403	
440	6.47	6.43	34.249	26.904	120.6	0.810	0.55	8.0	69.0	2.99	38.1	0.00			443	202
500 ISL	6.13	6.09	34.290	26.981	113.8	0.881	0.36	5.2	76.2	3.10	39.4	0.00			503	
513	6.06	6.01	34.299	26.997	112.4	0.895	0.32	4.6	77.7	3.12	39.7	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 31.1 N	120 15.4 W	25/03/04	0842 UTC	3941 m	330 20 kn			1018.8 mb	15.0 C	14.2 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	15.59	15.59	33.148	24.416	350.4	0.000	5.79	101.8	1.5	0.35	0.0	0.00	0.14	0.03	0	
2	15.59	15.59	33.148	24.416	350.5	0.007	5.79	101.8	1.5	0.35	0.0	0.00	0.14	0.03	2	220
10 ISL	15.60	15.60	33.148	24.414	350.9	0.035	5.77	101.5	1.5	0.34	0.0	0.00	0.14	0.04	10	
14	15.60	15.60	33.148	24.414	351.0	0.049	5.76	101.3	1.5	0.34	0.0	0.00	0.14	0.04	14	219
20 ISL	15.60	15.60	33.148	24.414	351.2	0.070	5.76	101.3	1.5	0.34	0.0	0.00	0.14	0.04	20	
30	15.60	15.60	33.148	24.415	351.4	0.105	5.76	101.3	1.5	0.34	0.0	0.00	0.14	0.03	30	218
45	15.59	15.58	33.149	24.418	351.6	0.158	5.77	101.5	1.5	0.33	0.0	0.00	0.14	0.03	45	217
50 ISL	15.36	15.35	33.145	24.466	347.2	0.175	5.81	101.7	1.5	0.33	0.0	0.00	0.20	0.07	50	
55	15.16	15.15	33.148	24.512	342.9	0.193	5.84	101.8	1.6	0.34	0.0	0.00	0.26	0.11	55	216
64	15.21	15.20	33.188	24.532	341.2	0.224	5.81	101.4	1.9	0.34	0.0	0.00	0.29	0.13	64	215
74	14.54	14.53	33.128	24.631	332.1	0.257	5.71	98.3	2.5	0.42	0.7	0.07	0.44	0.22	74	214
75 ISL	14.39	14.38	33.119	24.655	329.8	0.261	5.69	97.6	2.6	0.44	1.0	0.09	0.44	0.22	75	
83	12.96	12.95	33.067	24.906	305.9	0.286	5.45	90.8	4.2	0.66	4.5	0.21	0.41	0.24	83	213
96	10.81	10.80	33.098	25.331	265.5	0.323	4.93	78.4	9.2	1.07	11.7	0.03	0.20	0.15	96	212
100 ISL	10.53	10.52	33.145	25.416	257.4	0.334	4.79	75.8	10.5	1.15	13.2	0.03	0.17	0.14	100	
110	10.15	10.14	33.289	25.593	240.7	0.358	4.46	70.0	13.5	1.31	16.0	0.02	0.12	0.11	110	211
122	9.67	9.66	33.463	25.809	220.3	0.386	4.08	63.5	17.3	1.48	18.9	0.01	0.05	0.06	123	210
125 ISL	9.62	9.61	33.495	25.843	217.2	0.393	3.99	62.0	18.0	1.51	19.4	0.01	0.05	0.06	126	
143	9.45	9.43	33.654	25.995	203.1	0.430	3.49	54.1	21.5	1.68	22.1	0.00	0.03	0.04	144	209
150 ISL	9.36	9.34	33.729	26.068	196.3	0.444	3.29	50.9	23.3	1.75	23.1	0.00	0.02	0.04	151	
170	9.10	9.08	33.914	26.255	178.9	0.482	2.82	43.4	28.0	1.91	25.6	0.00	0.00	0.04	171	208
199	8.69	8.67	33.998	26.386	166.9	0.532	2.67	40.8	31.9	1.99	27.2	0.00	0.00	0.03	200	207
200 ISL	8.68	8.66	34.000	26.389	166.7	0.534	2.66	40.6	32.1	1.99	27.3	0.00			201	
229	8.27	8.25	34.048	26.490	157.5	0.581	2.36	35.7	37.3	2.13	29.2	0.00			230	206
250 ISL	7.91	7.88	34.059	26.552	151.8	0.613	2.24	33.6	40.9	2.21	30.3	0.00			251	
271	7.58	7.55	34.068	26.607	146.7	0.645	2.10	31.3	44.5	2.29	31.3	0.00			272	205
300 ISL	7.40	7.37	34.113	26.669	141.3	0.686	1.68	24.9	49.5	2.46	32.9	0.00			302	
318	7.32	7.29	34.139	26.701	138.5	0.712	1.41	20.9	52.5	2.56	33.8	0.00			320	204
378	6.60	6.57	34.136	26.797	129.8	0.792	1.12	16.3	60.9	2.73	36.4	0.00			380	203
400 ISL	6.59	6.55	34.181	26.834	126.6	0.820	0.90	13.1	63.3	2.82	37.0	0.00			402	
439	6.56	6.52	34.259	26.900	121.0	0.869	0.52	7.6	67.7	2.96	37.9	0.00			442	202
500 ISL	6.06	6.02	34.295	26.994	112.5	0.940	0.32	4.6	77.1	3.08	39.7	0.00			503	
514	5.95	5.90	34.304	27.015	110.6	0.955	0.28	4.0	79.2	3.11	40.1	0.00			517	201

RV NEW HORIZON CALCOFI CRUISE 0404 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 55.6 W	25/03/04	1818 UTC	3874 m	330 18 kn	330 08 06	1	1022.1 mb	15.9 C	15.0 C	24m	6/8	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	15.58	15.58	33.210	24.466	345.6	0.000	5.76	101.3	1.6	0.35	0.0	0.00	0.17	0.04	0	
1 A	15.58	15.58	33.210	24.466	345.6	0.003	5.76	101.3	1.6	0.35	0.0	0.00	0.17	0.04	1	221
10 ISL	15.57	15.57	33.212	24.470	345.6	0.035	5.77	101.5	1.6	0.34	0.0	0.00	0.16	0.05	10	
15 A	15.57	15.57	33.212	24.470	345.7	0.052	5.78	101.7	1.6	0.34	0.0	0.00	0.16	0.05	15	220
20 ISL	15.56	15.56	33.216	24.476	345.3	0.069	5.78	101.6	1.6	0.34	0.0	0.00	0.16	0.05	20	
30 ISL	15.53	15.53	33.223	24.488	344.5	0.104	5.78	101.6	1.6	0.34	0.0	0.00	0.17	0.04	30	
31 A	15.53	15.53	33.224	24.489	344.4	0.107	5.78	101.6	1.6	0.34	0.0	0.00	0.17	0.04	31	219
40	15.52	15.51	33.221	24.489	344.7	0.138	5.77	101.4	1.6	0.33	0.0	0.00	0.19	0.05	40	218
49 A	14.41	14.40	33.035	24.586	335.6	0.169	5.94	101.9	1.6	0.35	0.0	0.00	0.35	0.15	49	217
50 ISL	14.33	14.32	33.028	24.597	334.6	0.172	5.94	101.8	1.6	0.35	0.1	0.01	0.43	0.19	50	
56	13.83	13.82	33.016	24.692	325.7	0.192	5.91	100.2	2.0	0.40	0.4	0.06	0.85	0.43	56	216
65 A	12.63	12.62	33.045	24.953	300.9	0.220	5.46	90.3	4.1	0.65	4.6	0.20	0.58	0.43	65	215
75 ISL	11.53	11.52	33.064	25.175	279.9	0.249	5.08	82.1	7.1	0.92	9.3	0.09	0.33	0.38	75	
76	11.44	11.43	33.067	25.194	278.2	0.252	5.05	81.4	7.4	0.95	9.7	0.07	0.31	0.37	76	214
88 A	10.63	10.62	33.191	25.434	255.4	0.284	4.64	73.6	11.1	1.20	13.9	0.03	0.17	0.22	88	213
99	10.17	10.16	33.310	25.606	239.3	0.311	4.34	68.2	13.9	1.34	16.5	0.02	0.12	0.16	99	212
100 ISL	10.14	10.13	33.325	25.623	237.7	0.313	4.30	67.5	14.2	1.36	16.8	0.02	0.12	0.16	100	
109	9.94	9.93	33.458	25.760	224.8	0.334	3.92	61.3	17.0	1.51	19.1	0.02	0.08	0.12	109	211
125	9.75	9.74	33.607	25.909	211.0	0.369	3.54	55.2	20.0	1.63	21.2	0.01	0.04	0.06	126	210
146	9.22	9.20	33.719	26.083	194.8	0.412	3.52	54.3	22.7	1.66	22.1	0.01	0.01	0.03	147	209
150 ISL	9.16	9.14	33.753	26.119	191.4	0.419	3.43	52.8	23.6	1.69	22.6	0.01	0.01	0.03	151	
170	8.97	8.95	33.921	26.281	176.4	0.456	2.88	44.2	28.5	1.88	25.5	0.01	0.00	0.04	171	208
199	8.71	8.69	34.035	26.412	164.5	0.506	2.40	36.7	33.5	2.05	27.8	0.01	0.00	0.04	200	207
200 ISL	8.70	8.68	34.038	26.416	164.2	0.507	2.39	36.5	33.7	2.06	27.9	0.01			201	
228	8.32	8.30	34.084	26.510	155.6	0.552	2.11	32.0	38.3	2.19	29.6	0.01			229	206
250 ISL	7.96	7.93	34.087	26.567	150.4	0.586	2.01	30.2	41.7	2.27	30.7	0.01			251	
269	7.68	7.65	34.088	26.609	146.6	0.614	1.92	28.7	44.6	2.33	31.5	0.01			271	205
300 ISL	7.46	7.43	34.132	26.675	140.8	0.659	1.51	22.4	49.5	2.49	33.1	0.00			302	
318	7.35	7.32	34.157	26.710	137.6	0.684	1.27	18.8	52.4	2.58	34.0	0.00			320	204
377	6.56	6.53	34.143	26.808	128.8	0.762	0.99	14.4	62.4	2.77	36.9	0.00			379	203
400 ISL	6.41	6.37	34.166	26.846	125.4	0.791	0.83	12.0	66.2	2.84	37.7	0.00			402	
437	6.22	6.18	34.208	26.904	120.3	0.837	0.59	8.5	72.1	2.95	38.7	0.00			440	202
500 ISL	5.71	5.67	34.228	26.984	113.0	0.910	0.43	6.1	80.4	3.06	40.3	0.00			503	
514	5.60	5.56	34.233	27.002	111.4	0.926	0.40	5.7	82.3	3.08	40.7	0.00			517	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 50.7 N	121 35.8 W	25/03/04	2317 UTC	4115 m	320 10 kn	340 05 05	0	1021.2 mb	16.3 C	15.0 C	23m	0/8

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	14.80	14.80	32.870	24.374	354.4	0.000	5.94	102.7	1.8	0.34	0.0	0.01	0.20	0.04	0	
1	14.80	14.80	32.870	24.374	354.4	0.004	5.94	102.7	1.8	0.34	0.0	0.01	0.20	0.04	1	220
10 ISL	14.60	14.60	32.869	24.416	350.7	0.035	5.94	102.2	2.0	0.34	0.0	0.00	0.20	0.05	10	
15	14.45	14.45	32.868	24.447	347.9	0.053	5.95	102.1	2.2	0.34	0.0	0.00	0.20	0.05	15	219
20 ISL	14.41	14.41	32.864	24.453	347.5	0.070	5.96	102.2	2.2	0.34	0.0	0.00	0.21	0.05	20	
29	14.37	14.37	32.858	24.457	347.3	0.101	5.97	102.3	2.2	0.34	0.0	0.01	0.22	0.06	29	218
30 ISL	14.36	14.36	32.859	24.460	347.1	0.105	5.97	102.2	2.2	0.34	0.0	0.01	0.23	0.06	30	
45	14.21	14.20	32.876	24.505	343.2	0.157	5.99	102.3	2.2	0.34	0.0	0.01	0.35	0.13	45	217
50 ISL	13.78	13.77	32.862	24.583	335.9	0.174	6.04	102.2	2.3	0.35	0.0	0.02	0.72	0.32	50	
55	13.39	13.38	32.858	24.659	328.8	0.190	6.07	101.9	2.4	0.37	0.1	0.04	1.04	0.49	55	216
65	13.48	13.47	32.933	24.699	325.2	0.223	5.98	100.6	2.4	0.38	0.3	0.09	0.82	0.46	65	215
75	12.86	12.85	32.906	24.801	315.7	0.255	5.78	96.0	3.0	0.52	2.3	0.20	0.47	0.31	75	214
85	12.36	12.35	32.955	24.936	303.0	0.286	5.60	92.0	4.0	0.63	4.4	0.06	0.28	0.23	85	213
95	11.78	11.77	32.975	25.060	291.3	0.316	5.41	87.8	5.0	0.70	5.7	0.08	0.23	0.20	95	212
100 ISL	11.33	11.32	32.993	25.157	282.2	0.330	5.32	85.6	6.2	0.79	7.2	0.07	0.19	0.16	100	
110	10.46	10.45	33.057	25.360	263.0	0.357	5.10	80.5	9.1	1.00	10.8	0.04	0.11	0.09	110	211
125	9.91	9.90	33.217	25.578	242.4	0.395	4.66	72.8	12.9	1.25	15.1	0.02	0.05	0.05	126	210
146	9.30	9.28	33.470	25.875	214.5	0.443	4.29	66.2	18.3	1.46	18.9	0.02	0.01	0.03	147	209
150 ISL	9.21	9.19	33.517	25.927	209.7	0.452	4.20	64.7	19.2	1.49	19.5	0.02	0.01	0.03	151	
168	8.90	8.88	33.710	26.127	190.9	0.488	3.79	58.0	23.3	1.62	21.9	0.03	0.00	0.02	169	208
199	8.55	8.53	33.950	26.370	168.4	0.543	3.14	47.8	30.4	1.82	25.4	0.02	0.00	0.02	200	207
200 ISL	8.54	8.52	33.955	26.375	167.9	0.545	3.11	47.3	30.8	1.83	25.5	0.02			201	
228	8.25	8.23	34.048	26.493	157.2	0.591	2.39	36.1	40.5	2.10	28.8	0.02			229	206
250 ISL	7.98	7.95	34.073	26.553	151.7	0.625	2.09	31.4	43.2	2.23	30.4	0.02			251	
269	7.75	7.72	34.079	26.591	148.3	0.653	1.93	28.9	44.3	2.31	31.4	0.02			270	205
300 ISL	7.42	7.39	34.091	26.648	143.2	0.698	1.70	25.2	48.4	2.42	32.7	0.02			302	
317	7.25	7.22	34.098	26.678	140.6	0.722	1.58	23.3	51.0	2.48	33.4	0.02			319	204
379	6.64	6.61	34.144	26.798	129.8	0.806	1.01	14.7	61.6	2.74	36.4	0.02			381	203
400 ISL	6.46	6.42	34.154	26.830	126.9	0.833	0.90	13.1	64.7	2.80	37.1	0.02			402	
437	6.16	6.12	34.170	26.882	122.3	0.879	0.76	11.0	69.9	2.88	38.2	0.02			440	202
500 ISL	5.72	5.68	34.201	26.962	115.1	0.954	0.53	7.6	79.0	3.01	39.9	0.02			503	
511	5.64	5.60	34.207	26.976	113.8	0.967	0.49	7.0	80.6	3.03	40.2	0.02			514	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 30.6 N	122 16.0 W	26/03/04	0438 UTC	4184 m	300 10 kn			1023.0 mb	15.7 C	15.0 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	15.61	15.61	33.010	24.305	360.9	0.000	5.76	101.3	1.0	0.35	0.0	0.00	0.08	0.02	0	
2	15.61	15.61	33.010	24.305	361.0	0.007	5.76	101.3	1.0	0.35	0.0	0.00	0.08	0.02	2	220
10 ISL	15.55	15.55	33.011	24.320	359.9	0.036	5.77	101.3	1.0	0.35	0.0	0.00	0.08	0.02	10	
15	15.50	15.50	33.012	24.332	358.9	0.054	5.78	101.4	1.0	0.35	0.0	0.00	0.08	0.02	15	219
20 ISL	15.47	15.47	33.013	24.339	358.3	0.072	5.77	101.2	1.0	0.35	0.0	0.00	0.08	0.02	20	
30	15.42	15.42	33.015	24.352	357.4	0.108	5.76	100.9	1.1	0.34	0.0	0.00	0.08	0.02	30	218
45	15.40	15.39	33.014	24.356	357.4	0.161	5.76	100.8	1.0	0.34	0.0	0.00	0.10	0.03	45	217
50 ISL	15.34	15.33	33.008	24.365	356.8	0.179	5.77	100.9	1.0	0.34	0.0	0.00	0.12	0.03	50	
60	15.20	15.19	32.997	24.387	354.9	0.215	5.78	100.8	1.1	0.34	0.0	0.00	0.16	0.05	60	216
75	15.10	15.09	32.997	24.410	353.2	0.268	5.77	100.4	1.1	0.34	0.0	0.00	0.27	0.12	75	215
85	14.97	14.96	32.984	24.428	351.8	0.303	5.78	100.3	1.1	0.35	0.0	0.00	0.35	0.20	85	214
95	13.98	13.97	32.900	24.572	338.2	0.338	5.83	99.1	1.5	0.39	0.2	0.04	0.43	0.25	95	213
100 ISL	13.66	13.65	32.920	24.653	330.5	0.354	5.74	96.9	1.7	0.44	0.9	0.05	0.40	0.26	100	
105	13.30	13.29	32.954	24.752	321.2	0.371	5.61	94.0	2.3	0.53	2.2	0.06	0.36	0.27	105	212
114	12.11	12.10	32.994	25.014	296.3	0.398	5.31	86.8	4.8	0.78	6.5	0.01	0.14	0.12	114	211
124	11.33	11.31	33.014	25.173	281.2	0.427	5.14	82.7	6.6	0.92	8.9	0.01	0.10	0.09	124	210
125 ISL	11.25	11.23	33.021	25.193	279.3	0.430	5.12	82.2	6.9	0.94	9.2	0.01	0.10	0.09	126	
139	10.25	10.23	33.153	25.471	253.0	0.467	4.84	76.1	10.7	1.15	13.2	0.01	0.05	0.05	140	209
150 ISL	9.78	9.76	33.255	25.629	238.0	0.494	4.68	72.9	13.0	1.26	15.3	0.01	0.03	0.03	151	
165	9.40	9.38	33.403	25.807	221.3	0.529	4.43	68.5	16.0	1.39	17.5	0.01	0.01	0.02	166	208
195	9.04	9.02	33.783	26.162	188.1	0.590	3.56	54.7	23.6	1.68	22.5	0.00	0.00	0.02	196	207
200 ISL	9.01	8.99	33.814	26.192	185.5	0.600	3.51	53.9	24.2	1.70	22.8	0.00			201	
230	8.85	8.83	33.929	26.307	175.1	0.654	3.23	49.5	27.6	1.79	24.3	0.00			231	206
250 ISL	8.64	8.61	34.006	26.401	166.5	0.688	2.72	41.5	32.4	1.98	26.8	0.00			251	
270	8.37	8.34	34.064	26.488	158.5	0.720	2.21	33.5	37.5	2.18	29.4	0.00			271	205
300 ISL	7.87	7.84	34.078	26.574	150.6	0.767	1.99	29.8	42.5	2.30	31.3	0.00			302	
318	7.56	7.53	34.073	26.615	146.8	0.793	1.94	28.9	45.4	2.35	32.1	0.00			320	204
377	6.82	6.78	34.106	26.744	135.0	0.877	1.34	19.6	59.5	2.64	35.4	0.00			379	203
400 ISL	6.58	6.54	34.114	26.783	131.5	0.907	1.17	17.0	62.4	2.72	36.5	0.00			402	
439	6.28	6.24	34.139	26.842	126.2	0.957	0.92	13.3	66.2	2.85	38.0	0.00			442	202
500 ISL	6.19	6.15	34.252	26.943	117.4	1.032	0.47	6.8	73.4	3.04	39.2	0.00			503	
513	6.17	6.12	34.276	26.965	115.5	1.047	0.37	5.3	74.9	3.08	39.4	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 10.8 N	122 55.7 W	26/03/04	1003	UTC	3776 m	300 13 kn			1022.3 mb	16.0 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	15.62	15.62	32.995	24.292	362.2	0.000	5.78	101.6	1.5	0.36	0.0	0.00	0.09	0.02	0	
2	15.62	15.62	32.995	24.292	362.3	0.007	5.78	101.6	1.5	0.36	0.0	0.00	0.09	0.02	2	220
10 ISL	15.62	15.62	32.997	24.293	362.4	0.036	5.78	101.6	1.5	0.36	0.0	0.00	0.09	0.02	10	
14	15.62	15.62	32.998	24.294	362.4	0.051	5.78	101.6	1.5	0.36	0.0	0.00	0.09	0.02	14	219
20 ISL	15.58	15.58	33.003	24.307	361.4	0.072	5.78	101.5	1.5	0.36	0.0	0.00	0.09	0.02	20	
30	15.51	15.51	33.014	24.332	359.4	0.108	5.78	101.4	1.4	0.35	0.0	0.00	0.09	0.02	30	218
44	15.45	15.44	33.035	24.361	356.9	0.159	5.80	101.6	1.4	0.34	0.0	0.00	0.11	0.02	44	217
50 ISL	15.38	15.37	33.023	24.368	356.5	0.180	5.81	101.7	1.4	0.34	0.0	0.00	0.12	0.02	50	
60	15.19	15.18	32.984	24.380	355.7	0.216	5.83	101.6	1.4	0.34	0.0	0.00	0.16	0.04	60	216
75	14.67	14.66	32.907	24.433	351.0	0.269	5.91	101.9	1.5	0.35	0.0	0.00	0.27	0.09	75	215
84	14.34	14.33	32.884	24.485	346.2	0.300	5.90	101.0	1.6	0.36	0.0	0.00	0.40	0.18	84	214
94	13.72	13.71	32.846	24.584	337.0	0.334	5.94	100.4	1.9	0.40	0.1	0.03	0.48	0.26	94	213
100 ISL	13.55	13.54	32.856	24.626	333.1	0.354	5.90	99.4	2.3	0.42	0.3	0.08	0.43	0.25	100	
104	13.45	13.44	32.876	24.662	329.8	0.368	5.88	98.8		0.44	0.5	0.10	0.38	0.25	104	212
115	12.86	12.84	32.981	24.860	311.1	0.403	5.51	91.5	3.3	0.61	3.6	0.07	0.22	0.23	115	211
122	11.99	11.97	33.005	25.045	293.5	0.424	5.34	87.1	4.9	0.75	6.0	0.05	0.19	0.18	122	210
125 ISL	11.72	11.70	33.015	25.103	288.0	0.433	5.30	86.0	5.5	0.79	6.8	0.04	0.17	0.17	125	
140	10.73	10.71	33.085	25.335	266.0	0.474	5.12	81.3	8.3	0.98	10.3	0.02	0.10	0.12	141	209
150 ISL	10.16	10.14	33.163	25.494	251.0	0.500	4.90	76.9	11.0	1.14	13.0	0.02	0.06	0.08	151	
163	9.60	9.58	33.288	25.685	233.0	0.532	4.57	70.9	14.6	1.34	16.4	0.01	0.02	0.03	164	208
195	9.26	9.24	33.649	26.023	201.5	0.601	3.68	56.8	21.7	1.65	21.6	0.01	0.00	0.02	196	207
200 ISL	9.21	9.19	33.702	26.072	196.9	0.611	3.53	54.4	22.9	1.70	22.4	0.01			201	
228	8.91	8.89	33.947	26.312	174.6	0.663	2.77	42.5	29.6	1.94	26.1	0.01			229	206
250 ISL	8.65	8.62	34.033	26.420	164.7	0.700	2.42	36.9	34.1	2.07	28.0	0.00			251	
268	8.42	8.39	34.062	26.479	159.4	0.729	2.24	34.0	37.4	2.16	29.1	0.00			269	205
300 ISL	7.95	7.92	34.074	26.559	152.1	0.779	2.09	31.4	41.8	2.26	30.6	0.00			302	
318	7.68	7.65	34.069	26.594	148.8	0.806	2.02	30.1	44.2	2.32	31.4	0.00			320	204
379	6.93	6.89	34.109	26.732	136.3	0.893	1.34	19.7	55.7	2.63	35.1	0.00			381	203
400 ISL	6.76	6.72	34.127	26.769	132.9	0.922	1.16	16.9	59.5	2.71	36.0	0.00			402	
441	6.46	6.42	34.158	26.833	127.2	0.975	0.88	12.8	66.9	2.85	37.4	0.00			444	202
500 ISL	5.89	5.85	34.183	26.926	118.6	1.047	0.60	8.6	77.7	3.00	39.6	0.00			503	
513	5.77	5.73	34.189	26.946	116.8	1.063	0.54	7.7	80.1	3.03	40.1	0.00			516	201

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 93 120

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
29 51.3 N	123 35.7 W	26/03/04	1713	UTC	4144 m	020 15 kn	010 05 07	1	1024.6 mb	17.0 C	15.1 C	23m	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	16.00	16.00	33.019	24.225	368.6	0.000	5.74	101.7	1.3	0.34	0.0	0.00	0.09	0.02	0	
2 A	16.00	16.00	33.019	24.225	368.6	0.007	5.74	101.7	1.3	0.34	0.0	0.00	0.09	0.02	2	221
10 ISL	15.99	15.99	33.019	24.228	368.6	0.037	5.74	101.7	1.3	0.33	0.0	0.00	0.10	0.02	10	
15 A	15.99	15.99	33.019	24.228	368.8	0.055	5.74	101.7	1.3	0.33	0.0	0.00	0.10	0.02	15	220
20 ISL	15.89	15.89	33.005	24.240	367.8	0.074	5.76	101.8	1.3	0.33	0.0	0.00	0.10	0.02	20	
30 ISL	15.57	15.57	32.967	24.282	364.1	0.110	5.80	101.9	1.3	0.33	0.0	0.00	0.11	0.03	30	
32 A	15.49	15.49	32.958	24.293	363.1	0.118	5.81	101.9	1.3	0.33	0.0	0.00	0.11	0.03	32	219
40	15.14	15.13	32.929	24.347	358.1	0.146	5.85	101.8	1.3	0.33	0.0	0.00	0.14	0.04	40	218
49 A	14.82	14.81	32.891	24.387	354.5	0.178	5.89	101.8	1.4	0.34	0.0	0.00	0.19	0.06	49	217
50 ISL	14.81	14.80	32.891	24.390	354.4	0.182	5.89	101.8	1.4	0.34	0.0	0.00	0.19	0.06	50	
56	14.78	14.77	32.895	24.399	353.6	0.203	5.89	101.8	1.5	0.34	0.0	0.00	0.22	0.08	56	216
65 A	14.69	14.68	32.883	24.410	352.9	0.235	5.91	101.9	1.5	0.34	0.0	0.00	0.26	0.09	65	215
75 ISL	14.22	14.21	32.867	24.496	344.8	0.270	5.93	101.3	1.6	0.36	0.0	0.00	0.49	0.22	75	
76	14.16	14.15	32.866	24.508	343.7	0.273	5.93	101.1	1.6	0.36	0.0	0.00	0.51	0.23	76	214
88 A	13.73	13.72	32.857	24.590	336.2	0.314	5.94	100.4	1.9	0.38	0.1	0.03	0.55	0.32	88	213
99	12.98	12.97	32.901	24.774	318.9	0.350	5.65	94.0	2.9	0.55	2.5	0.13	0.31	0.22	99	212
100 ISL	12.92	12.91	32.904	24.788	317.5	0.353	5.63	93.6	3.0	0.56	2.7	0.12	0.30	0.22	100	
109	12.35	12.34	32.938	24.925	304.7	0.381	5.49	90.2	4.1	0.67	4.6	0.03	0.20	0.21	109	211
124	11.33	11.31	33.011	25.171	281.4	0.425	5.14	82.7	7.0	0.92	8.8	0.02	0.14	0.15	124	210
125 ISL	11.28	11.26	33.021	25.188	279.8	0.428	5.11	82.1	7.2	0.94	9.1	0.02	0.14	0.15	125	
144	10.47	10.45	33.225	25.490	251.4	0.479	4.56	72.1	11.8	1.25	14.4	0.01	0.08	0.10	145	209
150 ISL	10.27	10.25	33.275	25.563	244.5	0.494	4.45	70.0	12.9	1.31	15.5	0.01	0.07	0.08	151	
170	9.71	9.69	33.435	25.782	224.0	0.540	4.16	64.7	16.4	1.45	18.1	0.00	0.03	0.04	171	208
198	9.10	9.08	33.715	26.100	194.2	0.599	3.84	59.1	21.8	1.59	21.0	0.00	0.00	0.02	199	207
200 ISL	9.07	9.05	33.733	26.119	192.4	0.603	3.80	58.4	22.3	1.60	21.3	0.00			201	
228	8.75	8.73	33.933	26.326	173.2	0.654	3.18	48.6	28.7	1.82	24.9	0.00			229	206
250 ISL	8.55	8.52	34.001	26.411	165.5	0.691	2.85	43.4	32.1	1.95	26.8	0.00			251	
270	8.35	8.32	34.026	26.461	161.0	0.724	2.61	39.5	35.1	2.06	28.2	0.00			271	205
300 ISL	7.82	7.79	34.055	26.563	151.6	0.771	2.24	33.5	41.9	2.25	30.7	0.00			302	
318	7.49	7.46	34.064	26.618	146.5	0.798	2.05	30.5	46.0	2.35	32.0	0.00			320	204
377	6.81	6.78	34.073	26.719	137.3	0.881	1.70	24.9	55.0	2.55	34.5	0.00			379	203
400 ISL	6.61	6.57	34.099	26.767	133.0	0.912	1.42	20.7	59.2	2.67	35.7	0.00			402	
437	6.34	6.30	34.149	26.842	126.2	0.960	0.96	13.9	66.2	2.85	37.7	0.00			440	202
500 ISL	5.91	5.87	34.210	26.945	116.9	1.037	0.55	7.9	77.0	3.05	40.0	0.00			503	
514	5.81	5.77	34.224	26.969	114.7	1.053	0.46	6.6	79.4	3.09	40.5	0.00			517	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 77 49

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
35 5.3 N	120 47.7 W	08/04/04	1759 UTC	7 m	1205 - 1855 PST	1205 PST	1852 PST	1810.9 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
2	10.62	33.626	25.773	5.03	80.0	15.7	1.33	15.3	0.18	9.17	2.39	64. A	139.4	133.6	136.5	0.26
5	10.60	33.627	25.778	4.97	79.0	15.6	1.34	15.3	0.17	9.92	2.26	33.	152.4	150.5	151.4	0.22
10	10.60	33.628	25.778	4.94	78.5	15.5	1.34	15.3	0.17	9.61	3.42	11.	91.4	100.1	95.8	0.23
15	10.55	33.645	25.801	4.68	74.3	16.0	1.38	16.0	0.17	9.85	2.20	3.7	38.2	35.8	37.0	0.19
20	10.53	33.649	25.807	4.62	73.3	16.4	1.41	16.3	0.18	9.73	1.91	1.2	8.5	11.4	9.9	0.20
27	10.55	33.645	25.801	4.64	73.7	16.2	1.40	16.1	0.18	10.32	2.42	0.27	1.2	1.2	1.2	0.29

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 3.5 N	122 58.1 W	07/04/04	1709 UTC	13 m	1213 - 1857 PST	1213 PST	1857 PST	307.7 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	13.80	33.021	24.700	6.01	101.9	2.2	0.38	0.2	0.03	0.85	0.23	70. A	1.2	1.6	1.4	0.12
9	13.79	33.021	24.702	6.02	102.0	2.2	0.37	0.2	0.03	0.85	0.21	35.	13.9	13.9	13.9	0.10
18	13.79	33.022	24.703	6.02	102.0	2.3	0.37	0.2	0.03	0.88	0.25	12.	12.3	11.7	12.0	0.10
27	13.80	33.022	24.702	6.01	101.9	2.3	0.37	0.2	0.03	0.89	0.25	4.1	6.6	6.2	6.4	0.11
37	13.79	33.022	24.704	6.02	102.0	2.3	0.37	0.2	0.03	0.87	0.25	1.3	1.9	2.3	2.1	0.11
45	13.79	33.021	24.703	6.01	101.8	2.3	0.37	0.2	0.03	0.88	0.23					
50	13.78	33.021	24.705	6.00	101.6	2.3	0.38	0.3	0.03	0.89	0.25	0.27	0.29	0.34	0.32	0.14

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 80 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 49.2 N	121 50.7 W	04/04/04	1840 UTC	20 m	1209 - 1858 PST	1210 PST	1858 PST	681.9 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
2	14.23	33.006	24.599	6.00	102.6	2.2	0.37	0.1	0.02	0.56	0.15	86. A	7.7	8.4	8.1	0.15
13	14.02	33.001	24.640	6.01	102.3	2.2	0.38	0.1	0.02	0.68	0.19	37.	12.7	12.5	12.6	0.19
20	13.95	33.030	24.677	6.00	102.0	1.7	0.36	0.3	0.04	0.57	0.16					
29	13.45	33.052	24.796	5.83	98.1	2.3	0.47	1.2	0.13	0.78	0.25	11.	9.3	9.2	9.2	0.16
35	13.44	33.128	24.857	6.06	102.0	0.3	0.27	0.9	0.12	2.07	0.38					
42	13.40	33.148	24.880	6.32	106.3	0.0	0.21	0.4	0.07	2.67	0.44	4.0	16.7	14.1	15.4	0.18
49	13.25	33.160	24.920	6.08	102.0	0.0	0.24	1.0	0.10	4.34	0.67					
56	12.96	33.157	24.975	5.86	97.7	1.2	0.41	2.4	0.21	2.97	0.79	1.4	5.3	6.2	5.8	0.15
66	11.50	33.208	25.292	4.82	77.9	8.6	1.04	11.1	0.19	0.68	0.73					
77	10.48	33.207	25.473	4.50	71.1	12.2	1.28	15.1	0.05	0.24	0.50	0.27	0.25	1.3	0.79	0.17

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 80 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 49.1 N	123 54.6 W	06/04/04	1913 UTC	22 m	1217 - 1906 PST	1218 PST	1906 PST	203.3 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	14.27	32.845	24.467	5.98	102.2	2.0	0.35	0.0	0.00	0.23	0.08	87. A	3.0	3.1	3.1	0.11
15	14.27	32.848	24.470	5.97	102.0	1.9	0.35	0.0	0.00	0.22	0.06	35.	3.6	3.8	3.7	0.09
31	14.19	32.837	24.478	5.99	102.2	1.9	0.35	0.0	0.00	0.30	0.09	11.	3.2	3.1	3.2	0.10
38	14.10	32.822	24.486	6.00	102.2	2.0	0.36	0.0	0.00	0.46	0.15					
46	14.08	32.821	24.489	5.98	101.8	2.1	0.36	0.0	0.00	0.52	0.19	4.0	2.7	2.7	2.7	0.09
54	13.82	32.828	24.548	5.94	100.6	2.2	0.39	0.3	0.04	0.76	0.28					
61	13.13	32.888	24.734	5.78	96.5	2.9	0.48	1.7	0.17	0.72	0.48	1.4	1.5	1.7	1.6	0.07
74	12.10	33.017	25.033	5.46	89.3	4.7	0.68	5.4	0.09	0.37	0.35					
85	10.78	32.961	25.229	5.24	83.3	7.6	0.96	9.7	0.03	0.21	0.17	0.27	0.13	0.20	0.17	0.07

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 83 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 13.5 N	119 24.8 W	03/04/04	1855 UTC	12 m	1203 - 1847 PST	1201 PST	1847 PST	882.7 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
1	15.63	33.204	24.450	6.02	106.0	1.4	0.27	0.3	0.03	1.11	0.12	88. A	29.5	30.9	30.2	0.19
4	15.34	33.206	24.516	6.05	105.9	1.4	0.27	0.3	0.03	1.23	0.19					
8	14.97	33.213	24.602	6.12	106.4	1.6	0.27	0.3	0.03	1.73	0.25	36.	47.6	44.4	46.0	0.27
17	12.88	33.226	25.043	5.51	91.7	4.1	0.62	4.6	0.18	2.49	0.74	11.	34.7	32.2	33.4	0.21
25	12.39	33.286	25.185	4.88	80.4	7.6	0.89	8.5	0.22	1.79	0.78	4.1	11.9	12.0	11.9	0.15
32	11.43	33.411	25.462	3.87	62.5	14.0	1.42	14.2	0.24	0.80	0.74	1.7	1.5	1.7	1.6	0.17

A) INCUBATION LIGHT INTENSITIES WERE 95, 36, 12, 4.1, 1.4, 0.28 PERCENT RESPECTIVELY.

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 15.2 N	121 27.4 W	02/04/04	1821 UTC	16 m	1206 - 1849 PST	1209 PST	1849 PST	319.7 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
2	14.14	32.993	24.608	5.95	101.5	2.0	0.37	0.2	0.04	0.60	0.20	83. A	2.2	2.0	2.1	0.14
11	14.14	32.993	24.608	5.94	101.4	1.8	0.37	0.1	0.04	0.57	0.19	35.	10.9	10.8	10.8	0.12
23	14.14	32.992	24.608	5.94	101.4	1.8	0.37	0.1	0.04	0.56	0.19	11.	9.2	10.3	9.7	0.11
32	14.14	32.994	24.610	5.95	101.5	1.9	0.36	0.1	0.04	0.58	0.18	4.6	5.8	5.9	5.8	0.11
45	14.12	32.992	24.613	5.95	101.5	1.9	0.37	0.2	0.04	0.60	0.21	1.3	1.6	2.1	1.8	0.20
53	14.11	32.992	24.615	5.94	101.3	1.9	0.37	0.2	0.04	0.61	0.23					
60	14.05	32.994	24.629	5.93	101.0	1.9	0.37	0.3	0.07	0.55	0.22	0.32	0.27	0.21	0.24	0.11

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 83 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 15.1 N	123 29.6 W	05/04/04	1725 UTC	29 m	1212 - 1900 PST	1217 PST	1859 PST	142.0 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	14.92	32.912	24.381	6.25	108.3	1.5	0.34	0.0	0.00	0.16	0.05	90. A	1.5	1.4	1.4	0.08
10	14.96	32.921	24.379			1.5	0.34	0.0	0.00	0.15	0.04					
20	14.94	32.919	24.382	6.24	108.2	1.5	0.34	0.0	0.00	0.15	0.04	35.	2.3	2.3	2.3	0.09
30	14.97	32.928	24.383	6.24	108.2	1.5	0.34	0.0	0.00	0.14	0.04					
41	15.01	32.938	24.383	6.23	108.2	1.5	0.33	0.0	0.00	0.15	0.05	11.	1.5	1.5	1.5	0.08
50	14.81	32.871	24.374	6.27	108.4	1.5	0.34	0.0	0.00	0.24	0.07					
60	14.59	32.832	24.391	6.30	108.4	1.6	0.35	0.0	0.00	0.32	0.10	4.2	1.6	1.6	1.6	0.07
71	15.06	33.052	24.461	6.18	107.5	1.5	0.31	0.0	0.00	0.27	0.11					
82	14.81	33.091	24.545	6.16	106.6	1.7	0.33	0.0	0.00	0.35	0.23	1.3	0.51	0.60	0.56	0.04
91	13.67	33.088	24.781	6.09	103.0	2.6	0.43	1.2	0.07	0.38	0.32					
101	13.14	33.103	24.899	6.01	100.5	3.1	0.49	2.4	0.10	0.32	0.32					
111	12.28	33.095	25.060	5.88	96.6	4.3	0.61	4.5	0.07	0.27	0.20	0.28	0.14	0.50	0.32	0.07

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 9.2 N	120 0.7 W	30/03/04	1832 UTC	8 m	1202 - 1848 PST	1204 PST	1848 PST	537.5 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	13.89	33.227	24.841	6.12	104.0	4.0	0.37	1.5	0.05	1.89	0.92	68. A	27.5	31.1	29.3	0.54
5	13.89	33.227	24.841	6.12	104.0	4.0	0.37	1.5	0.05	1.82	0.86	38.	43.5	44.5	44.0	0.38
11	13.86	33.227	24.847	6.11	103.8	3.9	0.37	1.5	0.05	1.88	0.91	12.	26.9	28.1	27.5	0.29
17	13.49	33.235	24.929	5.92	99.8	4.0	0.45	2.6	0.09	1.56	0.78	3.8	10.2	9.9	10.0	0.20
23	12.54	33.279	25.151	5.39	89.1	5.7	0.70	6.4	0.23	0.84	0.51	1.2	1.6	1.5	1.6	0.10
31	12.29	33.293	25.210	5.26	86.5	6.6	0.78	7.6	0.26	0.60	0.42	0.26	0.15	0.24	0.19	0.11

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 29.0 N	117 46.1 W	29/03/04	1826 UTC	7 m	1156 - 1839 PST	1156 PST	1839 PST	954.7 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
1	15.67	33.170	24.415	6.38	112.4	3.2	0.25	0.7	0.14	5.30	0.49	80. A	83.2	98.9	91.1	0.54
5	15.08	33.179	24.552	6.24	108.7	3.7	0.29	1.4	0.24	4.41	0.95	33.	90.1	98.5	94.3	0.46
10	14.42	33.166	24.683	6.23	107.0	2.6	0.27	0.4	0.09	2.28	0.76	11.	34.7	34.8	34.7	0.42
15	13.07	33.177	24.968	5.47	91.4	4.8	0.60	4.3	0.54	2.02	0.89	3.7	12.5	12.6	12.6	0.22
20	12.77	33.189	25.036	5.17	85.9	6.0	0.75	6.2	0.60	1.70	0.79	1.2	3.5	3.1	3.3	0.17
27	11.97	33.274	25.255	4.37	71.4	11.1	1.12	11.2	0.52	1.13	0.58	0.27	0.21	0.19	0.20	0.19

RV NEW HORIZON CALCOFI CRUISE 0404 STATION 90 53

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 39.4 N	119 29.1 W	28/03/04	1821 UTC	19 m	1202 - 1838 PST	1203 PST	1837 PST	490.4 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	13.28	33.018	24.803	5.94	99.6	2.0	0.49	2.2	0.08	0.43	0.18	85. A	6.9	7.0	7.0	0.08
13	13.17	33.046	24.847	5.94	99.4	2.0	0.48	2.3	0.09	0.62	0.35	35.	13.9	13.6	13.8	0.12
19	13.20	33.059	24.851	5.95	99.6	2.0	0.47	2.2	0.09	0.67	0.31					
27	13.20	33.075	24.864	5.93	99.3	1.9	0.46	2.3	0.09	0.65	0.32	11.	12.3	12.9	12.6	0.12
34	13.15	33.065	24.866	5.90	98.7	2.9	0.47	2.4	0.09	0.69	0.35					
40	13.09	33.050	24.866	5.89	98.4	2.9	0.49	2.6	0.09	0.61	0.36	3.9	6.0	6.1	6.0	0.10
46	12.67	33.019	24.925	5.73	94.8	2.8	0.58	3.7	0.11	0.48	0.31					
53	11.38	33.031	25.176	5.23	84.2	6.6	0.90	8.8	0.17	0.31	0.25	1.4	1.0	0.96	1.0	0.08
63	10.68	33.027	25.297	5.06	80.3	8.4	1.06	11.3	0.04	0.21	0.18					
73	10.43	33.193	25.470	4.71	74.4	11.5	1.23	14.1	0.02	0.11	0.10	0.27	0.06	0.09	0.08	0.03

A) INCUBATION LIGHT INTENSITIES WERE 95, 36, 12, 4.1, 1.4, 0.28 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 25.5 N	121 59.9 W	27/03/04	1738 UTC	24 m	1215 - 1845 PST	1213 PST	1844 PST	69.0 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	15.40	33.002	24.346	5.77	101.0	1.4	0.35	0.1	0.00	0.10	0.01	88. A	0.73	0.79	0.76	0.07
16	15.41	33.001	24.343	5.77	101.0	1.4	0.35	0.0	0.00	0.10	0.02	36.	1.6	1.6	1.6	0.07
25	15.41	33.002	24.344	5.76	100.9	1.4	0.34	0.0	0.00	0.10	0.01					
33	15.40	33.003	24.347	5.77	101.0	1.4	0.34	0.0	0.00	0.12	0.03	12.	1.3	1.2	1.2	0.07
42	15.40	33.004	24.349	5.77	101.0	1.4	0.34	0.0	0.00	0.12	0.02					
50	15.41	33.003	24.346	5.76	100.8	1.4	0.33	0.0	0.00	0.10	0.02	4.1	0.43	0.51	0.47	0.06
59	15.34	32.996	24.356	5.78	101.0	1.4	0.33	0.0	0.00	0.14	0.03					
68	15.00	32.980	24.418	5.81	100.9	1.3	0.34	0.0	0.00	0.20	0.07	1.3	0.28	0.32	0.30	0.09
80	14.67	32.978	24.488	5.83	100.5	1.4	0.35	0.0	0.00	0.33	0.28					
92	13.35	32.974	24.757	5.60	94.0	2.4	0.53	2.5	0.05	0.37	0.41	0.28	0.21	0.18	0.20	0.04

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 93 26.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 57.6 N	117 18.1 W	23/03/04	1940 UTC	8 m	1225 - 1830 PST	1155 PST	1829 PST	360.5 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
1	15.45	33.092	24.404	6.14	107.7	1.7	0.19	0.0	0.01	1.92	0.49	83. A	30.1	32.2	31.2	0.28
5	15.37	33.090	24.420	6.16	107.8	1.7	0.19	0.0	0.01	2.17	0.56	38.	28.0	28.8	28.4	0.36
11	14.65	33.101	24.584	5.79	99.9	2.7	0.27	0.2	0.08	2.39	0.75	12.	14.8	16.0	15.4	0.29
17	13.52	33.153	24.859	5.62	94.8	2.5	0.41	0.5	0.14	1.68	0.68	3.8	4.2	4.5	4.4	0.20
23	12.49	33.204	25.102	4.66	76.9	6.5	0.90	8.3	0.91	0.83	0.42	1.2	0.83	0.75	0.79	0.09
32	11.45	33.290	25.364	3.93	63.5	11.4	1.27	14.3	0.24	0.44	0.36	0.22	0.05	0.04	0.05	0.10

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 10.9 N	118 54.1 W	24/03/04	1820 UTC	23 m	1200 - 1835 PST	1200 PST	1835 PST	284.0 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	14.74	33.073	24.543	5.90	102.0	2.0	0.36	0.0	0.00	0.27	0.09	88. A	3.0	3.1	3.1	0.10
8	14.73	33.073	24.546	5.90	101.9	2.0	0.35	0.0	0.00	0.28	0.09					
15	14.71	33.073	24.550	5.90	101.9	2.0	0.35	0.0	0.00	0.28	0.08	37.	5.2	5.1	5.1	0.16
25	14.70	33.071	24.551	5.91	102.1	2.1	0.35	0.0	0.00	0.31	0.10					
32	14.61	33.064	24.565	5.92	102.0	2.7	0.35	0.0	0.00	0.34	0.12	12.	4.4	4.6	4.5	0.07
40	14.20	33.055	24.645	6.00	102.5	2.1	0.35	0.0	0.01	0.56	0.22					
47	12.95	33.057	24.900	5.61	93.4	3.9	0.59	3.3	0.21	0.81	0.60	4.3	5.3	5.4	5.3	0.07
56	12.21	33.088	25.067	5.17	84.8	6.1	0.80	7.0	0.22	0.55	0.63					
65	11.60	33.160	25.237	4.77	77.2	8.6	1.01	10.5	0.14	0.38	0.49	1.3	1.1	0.98	1.0	0.03
76	11.09	33.266	25.411	4.44	71.2	11.0	1.18	13.2	0.06	0.24	0.29					
88	10.52	33.387	25.606	4.20	66.5	14.2	1.39	16.3	0.03	0.13	0.18	0.28	0.07	0.14	0.10	0.03

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 10.9 N	120 55.6 W	25/03/04	1818 UTC	24 m	1209 - 1847 PST	1210 PST	1846 PST	139.2 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
1	15.58	33.210	24.466	5.76	101.3	1.6	0.35	0.0	0.00	0.17	0.04	94. A	0.81	0.72	0.76	0.08
15	15.57	33.212	24.470	5.78	101.7	1.6	0.34	0.0	0.00	0.16	0.05	38.	2.3	2.3	2.3	0.07
31	15.53	33.224	24.489	5.78	101.6	1.6	0.34	0.0	0.00	0.17	0.04	14.	2.0	2.0	2.0	0.09
40	15.52	33.221	24.489	5.77	101.4	1.6	0.33	0.0	0.00	0.19	0.05					
49	14.41	33.035	24.586	5.94	101.9	1.6	0.35	0.0	0.00	0.35	0.15	4.4	2.1	2.2	2.1	0.09
56	13.83	33.016	24.692	5.91	100.2	2.0	0.40	0.4	0.06	0.85	0.43					
65	12.63	33.045	24.953	5.46	90.3	4.1	0.65	4.6	0.20	0.58	0.43	1.6	1.5	1.3	1.4	0.06
76	11.44	33.067	25.194	5.05	81.4	7.4	0.95	9.7	0.07	0.31	0.37					
88	10.63	33.191	25.434	4.64	73.6	11.1	1.20	13.9	0.03	0.17	0.22	0.36	0.15	0.12	0.14	0.03

RV NEW HORIZON — CALCOFI CRUISE 0404 — STATION 93 120

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
29 51.3 N	123 35.7 W	26/03/04	1713 UTC	23 m	1215 - 1854 PST	1220 PST	1854 PST	76.1 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	16.00	33.019	24.225	5.74	101.7	1.3	0.34	0.0	0.00	0.09	0.02	88. A	1.2	1.2	1.2	0.07
15	15.99	33.019	24.228	5.74	101.7	1.3	0.33	0.0	0.00	0.10	0.02	37.	1.6	1.6	1.6	0.07
32	15.49	32.958	24.293	5.81	101.9	1.3	0.33	0.0	0.00	0.11	0.03	12.	1.2	1.1	1.2	0.07
40	15.14	32.929	24.347	5.85	101.8	1.3	0.33	0.0	0.00	0.14	0.04					
49	14.82	32.891	24.387	5.89	101.8	1.4	0.34	0.0	0.00	0.19	0.06	3.8	0.82	0.85	0.84	0.08
56	14.78	32.895	24.399	5.89	101.8	1.5	0.34	0.0	0.00	0.22	0.08					
65	14.69	32.883	24.410	5.91	101.9	1.5	0.34	0.0	0.00	0.26	0.09	1.3	0.26	0.35	0.31	0.07
76	14.16	32.866	24.508	5.93	101.1	1.6	0.36	0.0	0.00	0.51	0.23					
88	13.73	32.857	24.590	5.94	100.4	1.9	0.38	0.1	0.03	0.55	0.32	0.28	0.17	0.12	0.14	0.06

A) INCUBATION LIGHT INTENSITIES WERE 95, 36, 12, 4.1, 1.4, 0.28 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 05.3	120 47.2	04/08	0856	0903	140	63	236	236
77	51	35 02.1	120 56.2	04/08	0653	0715	422	206	90	90
77	55	34 53.1	121 13.4	04/08	0317	0340	457	191	129	111
77	60	34 44.2	121 34.3	04/07	2247	2309	454	213	77	77
77	70	34 23.8	122 15.7	04/07	1613	1634	431	211	46	46
77	80	34 02.8	122 59.9	04/07	0814	0837	482	209	62	62
77	90	33 43.3	123 39.1	04/07	0143	0205	447	195	98	98
77	100	33 23.9	124 20.8	04/06	1825	1847	441	207	66	66
80	51	34 26.8	120 33.0	04/03	2119	2128	171	78	94	94
80	55	34 19.6	120 49.1	04/04	0105	0127	435	202	78	78
80	60	34 09.5	121 10.2	04/04	0506	0527	414	208	123	123
80	70	33 49.1	121 50.3	04/04	1140	1203	446	196	119	119
80	80	33 29.4	122 33.0	04/04	1815	1837	424	204	116	116
80	90	33 09.3	123 14.7	04/05	0055	0117	430	209	70	70
80	100	32 49.3	123 55.6	04/06	1210	1233	474	197	23	23
82	46.9	34 17.5	120 01.8	04/03	1637	1658	411	207	58	58
83	40.6	34 13.3	119 24.4	04/03	1130	1133	59	21	119	119
83	42	34 11.6	119 30.2	04/03	0942	0952	196	90	66	66
83	51	33 53.2	120 08.7	04/03	0352	0400	169	76	47	47
83	55	33 44.7	120 27.0	04/03	0016	0038	442	208	113	113
83	60	33 33.9	120 45.5	04/02	1856	1918	428	207	128	128
83	70	33 15.9	121 28.7	04/02	1132	1157	609	189	30	30
83	100	32 14.9	123 29.9	04/05	0817	0839	430	212	21	21
83	110	31 54.8	124 10.7	04/06	0410	0431	433	206	21	21
87	33	33 53.2	118 29.8	03/29	1735	1741	118	49	26	26
87	35	33 48.9	118 37.7	03/29	2001	2023	396	215	38	38
87	40	33 39.0	119 00.8	03/30	0031	0053	439	200	128	43
87	45	33 28.8	119 20.6	03/30	0437	0458	426	206	70	70
87	50	33 19.4	119 40.5	03/30	0752	0800	158	70	51	51
87	55	33 08.7	120 02.0	03/30	1137	1159	460	197	80	80
87	60	32 59.1	120 22.7	03/30	1558	1619	429	195	166	166
87	100	31 39.3	123 04.8	04/05	1559	1621	434	206	14	14
87	110	31 20.4	123 45.3	04/05	2147	2209	427	209	42	42
90	28	33 29.1	117 46.5	03/29	0938	0948	187	92	32	32
90	30	33 25.3	117 54.7	03/29	0719	0741	405	210	52	52
90	35	33 15.8	118 16.1	03/29	0304	0326	432	200	49	49
90	37	33 11.4	118 24.2	03/28	2355	0017	417	216	60	60
90	45	32 55.2	118 57.0	03/28	1804	1826	421	208	83	83
90	53	32 39.5	119 30.1	03/28	1129	1152	454	211	92	92
90	60	32 25.6	119 58.0	03/28	0633	0654	416	212	324	192
90	70	32 05.8	120 40.6	03/28	0018	0043	589	195	44	44
90	80	31 45.5	121 20.1	03/27	1650	1717	565	202	50	50
90	90	31 26.1	121 60.7	03/27	1040	1102	470	210	26	26
90	100	31 05.1	122 41.1	03/27	0408	0430	443	215	27	27
90	110	30 45.2	123 21.6	03/26	2148	2209	434	218	16	16
90	120	30 26.0	124 02.3	03/26	1536	1560	546	191	20	20
93	26.7	32 56.7	117 17.9	03/23	1251	1256	101	34	20	20
93	28	32 52.8	117 22.8	03/23	1558	1620	437	206	101	46
93	30	32 50.7	117 31.7	03/23	1855	1917	428	212	35	35
93	35	32 40.1	117 53.2	03/23	2301	2322	419	206	41	41
93	40	32 30.5	118 13.3	03/24	0313	0335	430	213	130	65
93	45	32 20.4	118 33.6	03/24	0713	0735	432	206	90	90
93	50	32 11.1	118 55.5	03/24	1129	1151	438	209	37	37
93	55	32 00.8	119 16.3	03/24	1539	1603	548	196	71	71
93	60	31 51.1	119 35.4	03/24	1927	1949	430	213	135	135
93	70	31 31.4	120 16.7	03/25	0204	0228	491	202	55	55
93	80	31 10.8	120 55.6	03/25	0824	0846	446	213	40	40
93	90	30 50.3	121 37.1	03/25	1619	1640	472	194	32	32
93	100	30 30.0	122 17.7	03/25	2137	2159	453	209	40	40
93	110	30 10.7	122 56.7	03/26	0310	0333	490	207	27	27
93	120	29 50.8	123 35.6	03/26	0748	0809	429	214	19	19

FIGURES

Avifauna Observations

CalCOFI Cruise 0404

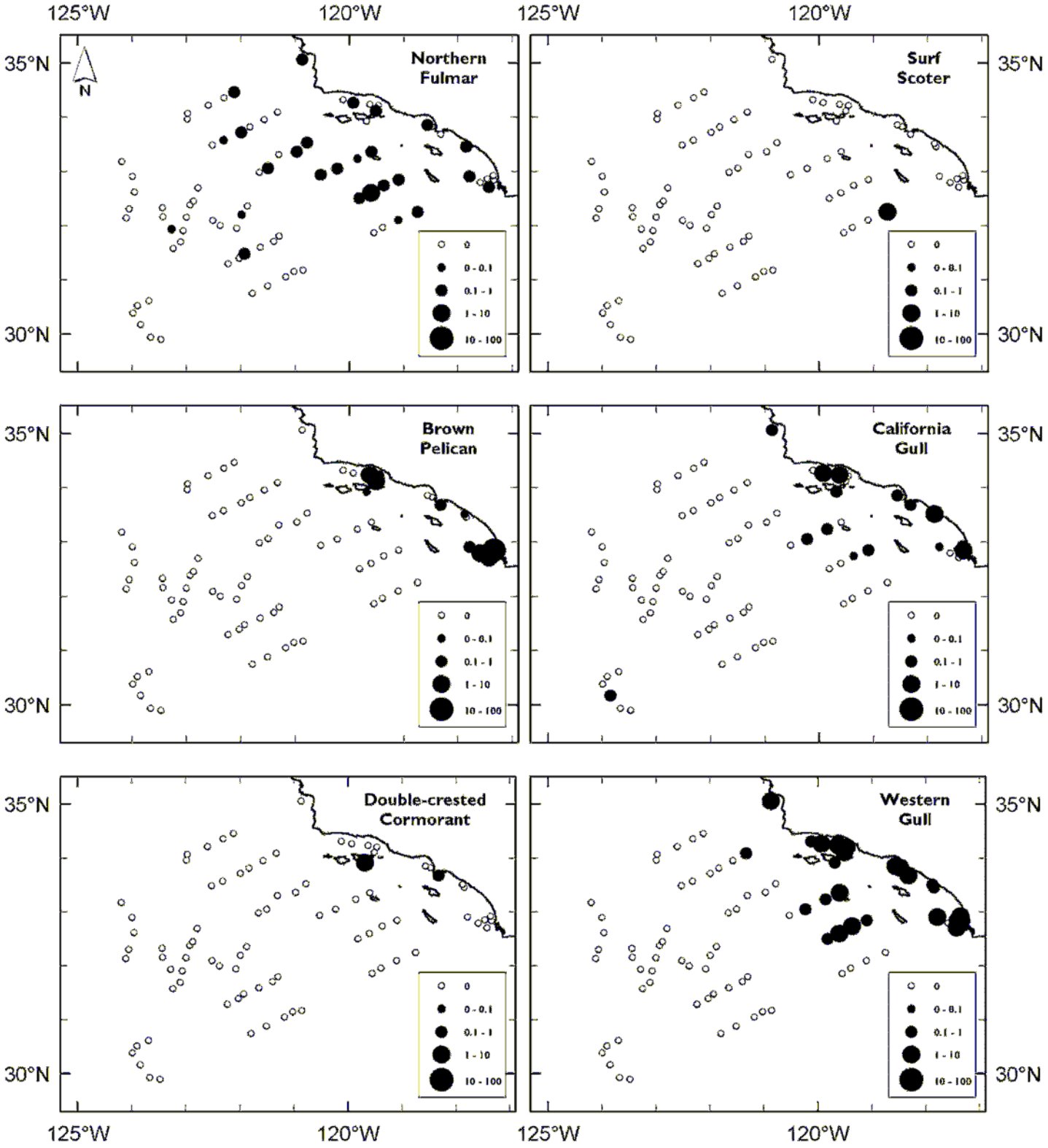
1a. Northern Fulmar distribution.

1b. Surf scooter distribution.

1c. Brown Pelican distribution.

1d. California Gull distribution.

1e. Double-crested Cormorant distribution.

1f. Western Gull distribution.

CalCOFI Cruise 0404NH