UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 1004
27 April – 17 May 2010

CC Reference 10-06
8 October 2010

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 1004* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the NOAA vessel RV *Miller Freeman*. 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. Weight restrictions prevented the use of the 24-bottle rosette typically employed on CalCOFI cruises. The substitute rosette was equipped with 12 ten-liter plastic (PVC) bottles equipped with epoxy-coated springs. A shortage of Viton o-rings resulted in them being installed in only half of the bottles; the remainder of the bottles had neoprene o-rings. Every effort was made to insure that primary productivity samples were taken from bottles containing Viton o-rings, however an on board study (not included) determined that any potential toxic effect on the phytoplankton resulting in the use of neoprene o-rings was negligible. Therefore, some primary productivity samples were taken from these bottles. Each CTD/rosette cast usually sampled 12 depths to a maximum sampling depth of 525 meters, bottom depth permitting. Because of limitations with the 12 bottle rosette and the need to sample specific target depths, a second cast was often necessary to collect water for the primary productivity assay. 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 P150. 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.

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

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

Nutrient samples were analyzed at sea by the Scripps Ocean Data Facility for dissolved silicate, phosphate, nitrate, nitrite, and ammonium using procedures similar to those described in Gordon et al. (1993) and Koroleff (1969, 1970). Samples were collected in 45 ml high-density polypropylene screw-capped tubes which were acid washed and rinsed with sample three times prior to filling. Daily standardizations and drift corrections were accomplished by running freshly prepared mid-range standards at the beginning and end of each group of samples. Samples not analyzed immediately after collection were refrigerated and run the following day. In addition to daily standardizations, periodic full calibrations were performed with sets of six different concentration standards.

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 25.6 µCi of ^{14}C as $NaHCO_3$ (200 µl of 102.4 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

ongoing time series of data obtained from the catches of the integrative bongo net.

Avifauna Observations (Farallon Institute of Advanced Ecosystem Research)

Sea birds were counted within a 300-meter wide strip off to one side of the ship. Counts were made while underway between stations during periods of daylight. These counts were summed over 20 nautical mile (nm) intervals, or the distance between consecutive stations, whichever was less. 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 and salinity 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-21 TSG Thermosalinograph.

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 pCO_2 System*: The Pacific Marine Environmental Laboratory's underway pCO_2 system measures the partial pressure of CO_2 in the air and surface water while the ship is underway. The pCO_2 values, along with temperature and salinity data from the shipboard TSG are used to calculate the flux of CO_2 at the air-sea interface. The system determines CO_2 content with a Licor infrared detector and is calibrated with 4 gas cylinders provided by the Earth System Research Laboratory.

4) *California Current Ecosystem Long Term Ecological Research Program*: The CCE-LTER program augments standard CalCOFI measurements to further characterize the lower trophic levels as well as the carbon system. These additional samples, taken at all CalCOFI stations, are for measurements of particulate organic carbon and nitrogen, dissolved organic carbon and nitrogen, taxon-specific phytoplankton pigments, flow-cytometric counts of bacteria and picoautotrophs, microscopic counts of nano- microplankton, determination of mesozooplankton size structure using a Laser Optical Plankton Counter, and mesozooplankton community structure. (M. Ohman, SIO)

5) *SCCOOS Nearshore Observations*: The objective of these observations is to extend CalCOFI time series to the nearshore. Nearshore observations consist of 9 stations at the ends and interspersed with current CalCOFI lines on the 20 m isobath with a standard set of CalCOFI observations. (R. Goericke, SIO)

6) *Inorganic Carbon System*: The CalCOFI group collected samples for the characterization of the inorganic carbon system at selected locations along the cruise track. Total inorganic carbon and alkalinity will be measured which will allow the calculation of pH and pCO2. The objectives of these measurements are first the long-term characterization of the inorganic carbon system and its response to changing ocean climate and second measurements of pH in the coastal zone in order to monitor the impact of 'corrosive' waters on benthic ecosystems in the Southern California Bight. (R. Goericke, SIO)

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

(J. Hildebrand, SIO)

8) *Drifting Buoys.* Surface Velocity Program (SVP) drifters, drogued at 15 meters depth, were deployed at 7 stations. The drifter observations (position and SST every hour to every few hours following the 15-meter currents) supplement Eulerian current profiles, and will provide new insight into the connection between continental shelf flows and the larger scale California Current located further offshore. Drifter pairs were deployed at 6 of the 7 stations. Assessing the relative motion of drifter pairs gives an understanding of energy as a function of spatial scale. A subset of the drifter tracks are displayed in near real-time on the web (http://www.icess.ucsb.edu/drifter/realtime-SVP/index.php). (C. Ohlmann, UCSB)

9) *ALF (Advanced Laser Fluorometer).* Continuous underway analysis of phytoplankton pigment groups and variable fluorescence (F_v/F_m). ALF, developed by A. Chekalyuk at Lamont-Doherty Earth Observatory, uses laser stimulated emission at 405 and 532 nm together with spectral deconvolution analysis to distinguish fluorescence from three types of phycoerythrin, chlorophyll-*a*, and chromophoric dissolved organic matter (CDOM). The ALF is useful for differentiating the contribution of cyanobacteria and cryptophytes from other phytoplankton taxa present in natural phytoplankton assemblages, as well as for assessing phytoplankton photophysiological status.

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 1004

1. CalCOFI Cruise 0911 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.

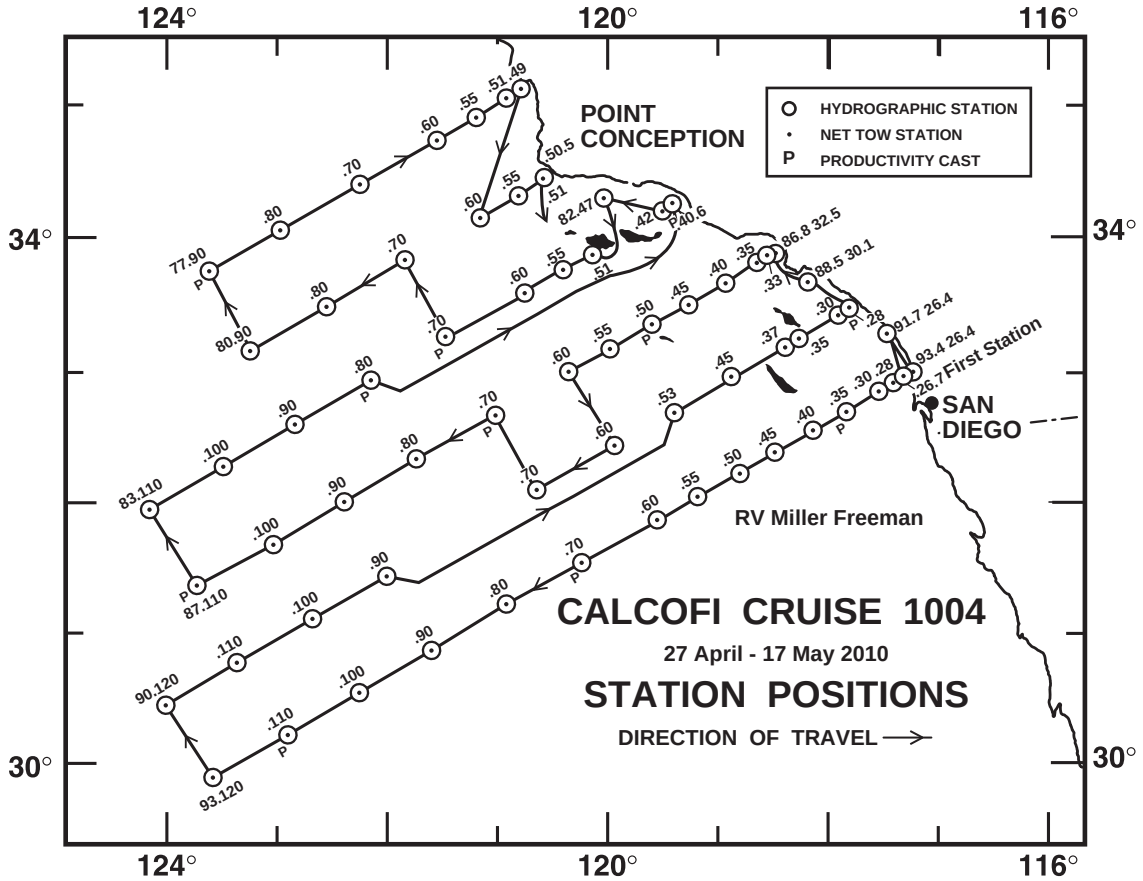


FIGURE 1

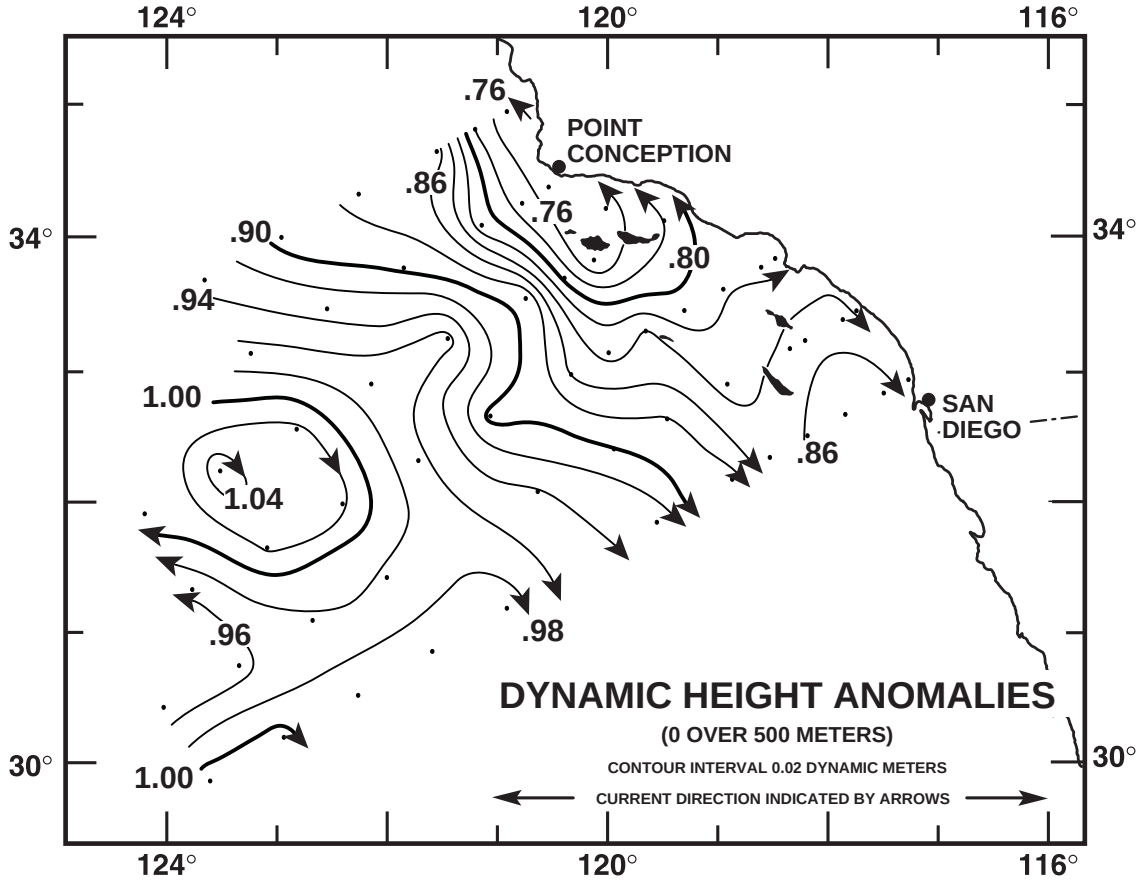


FIGURE 2

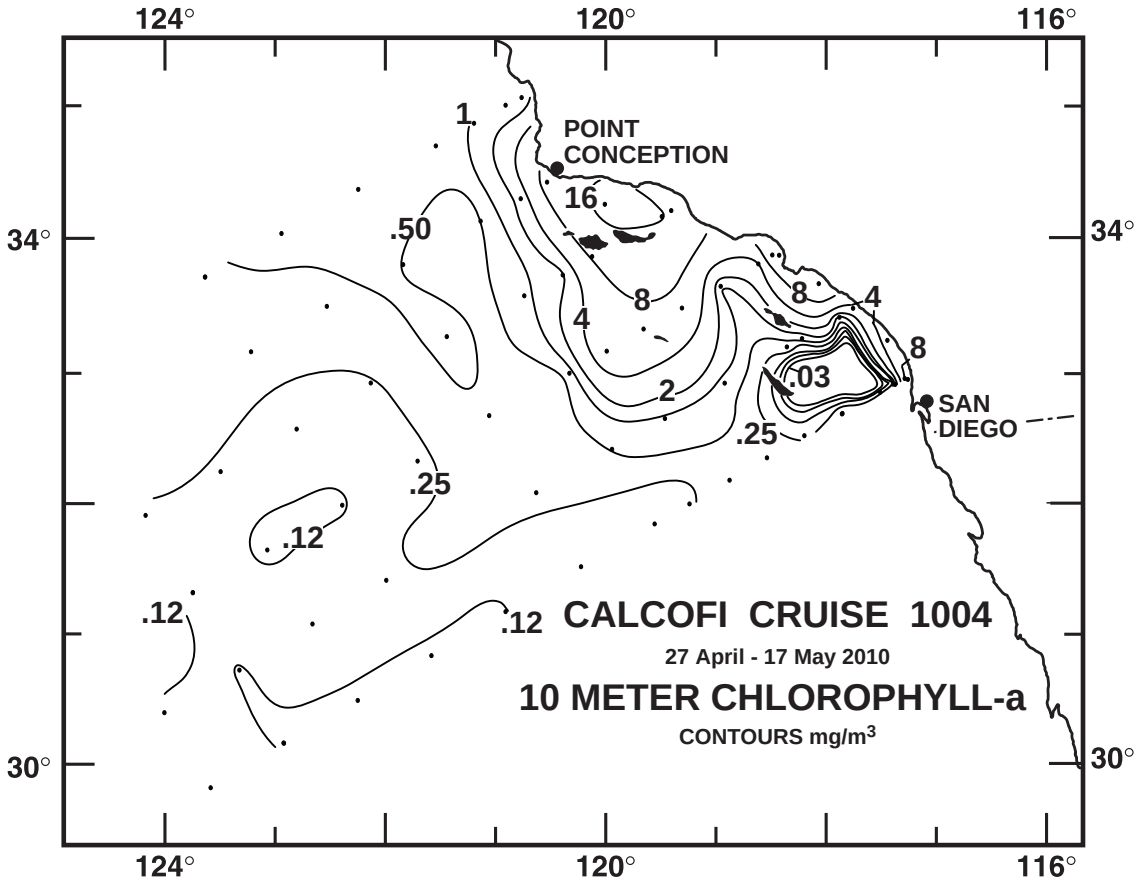
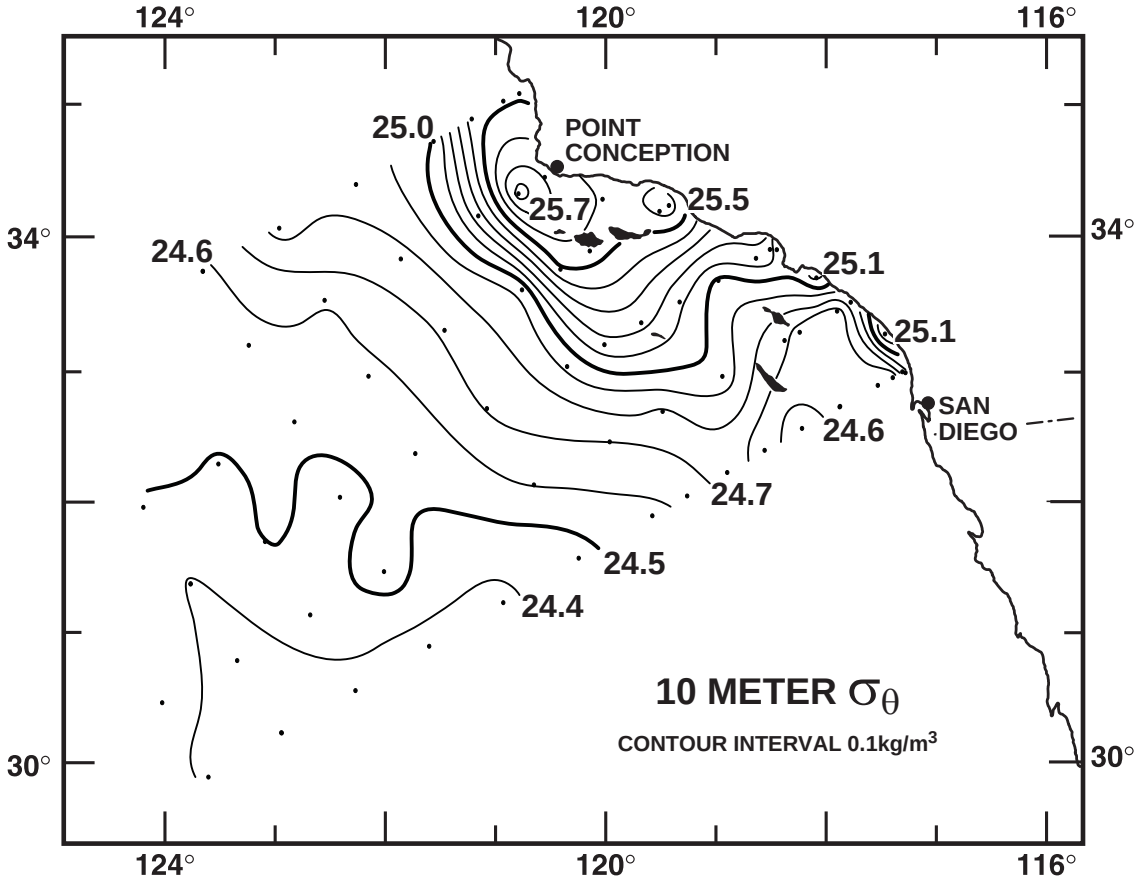


FIGURE 3A



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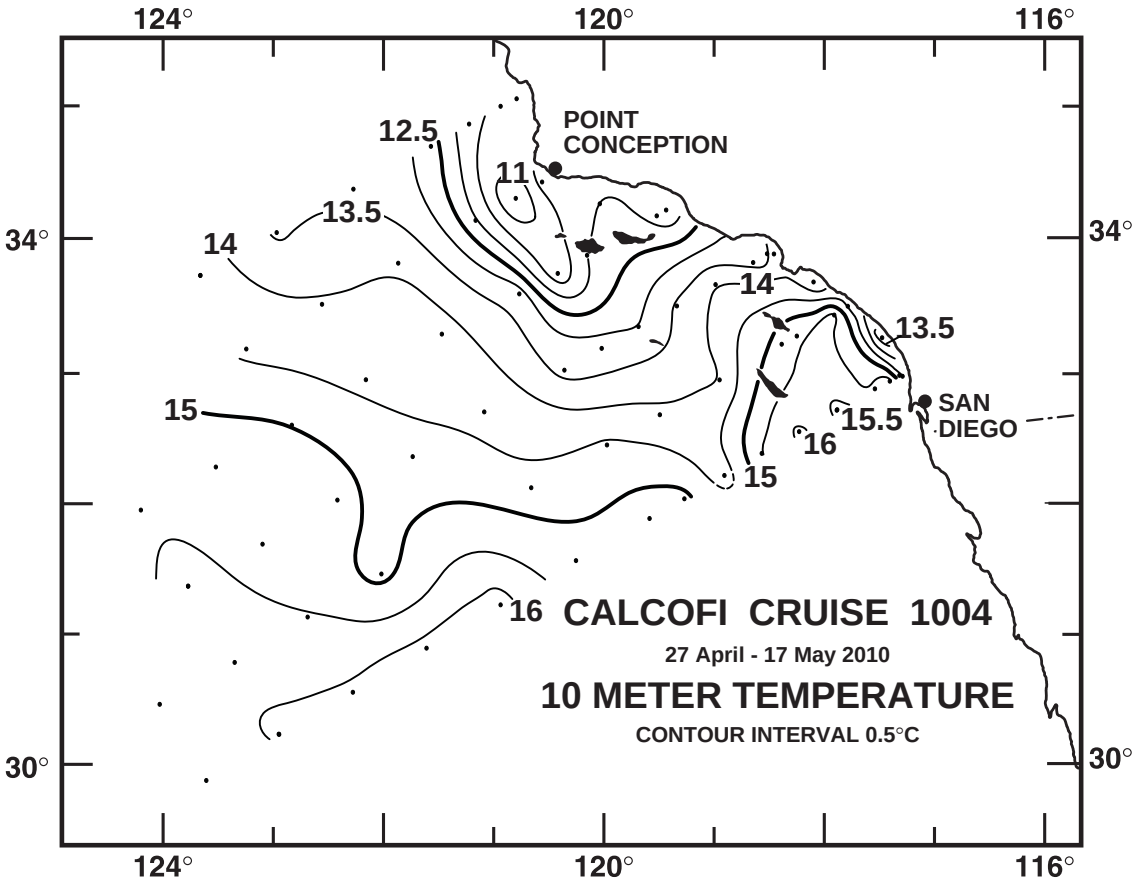

FIGURE 3C

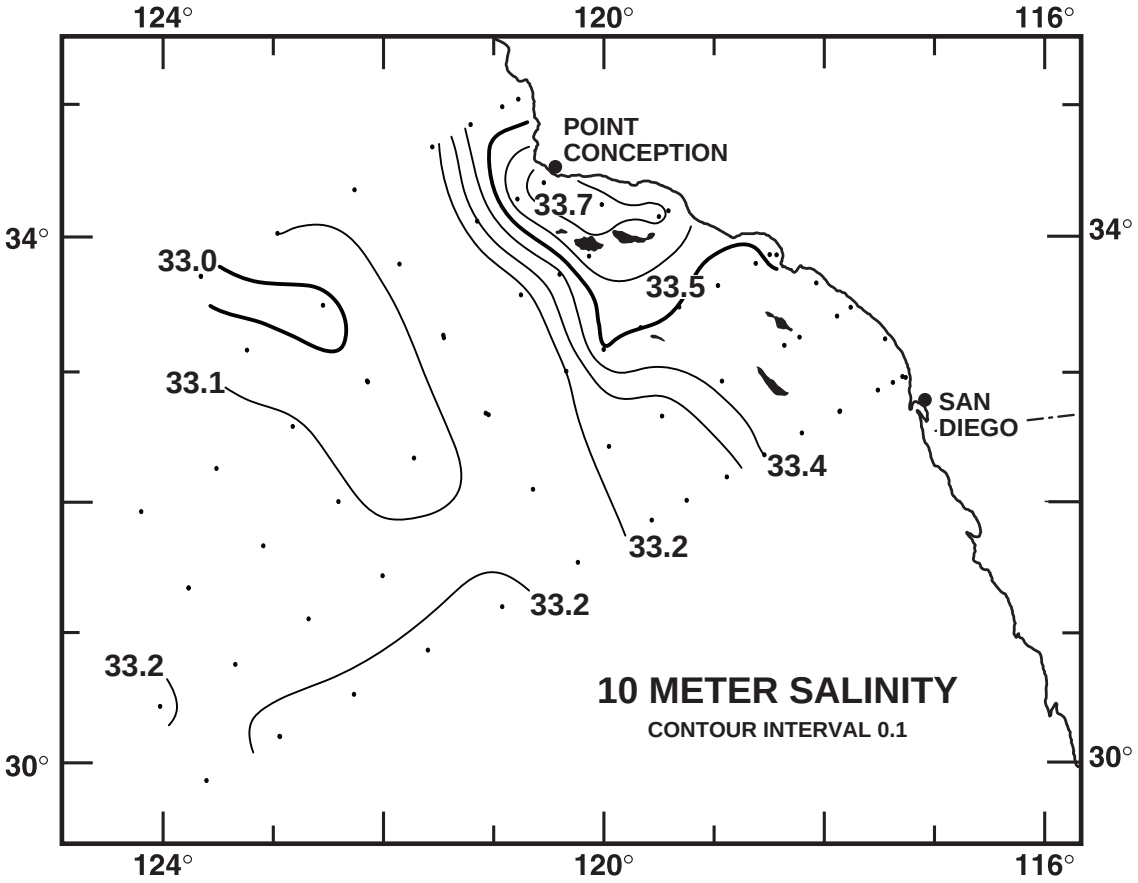

FIGURE 3D

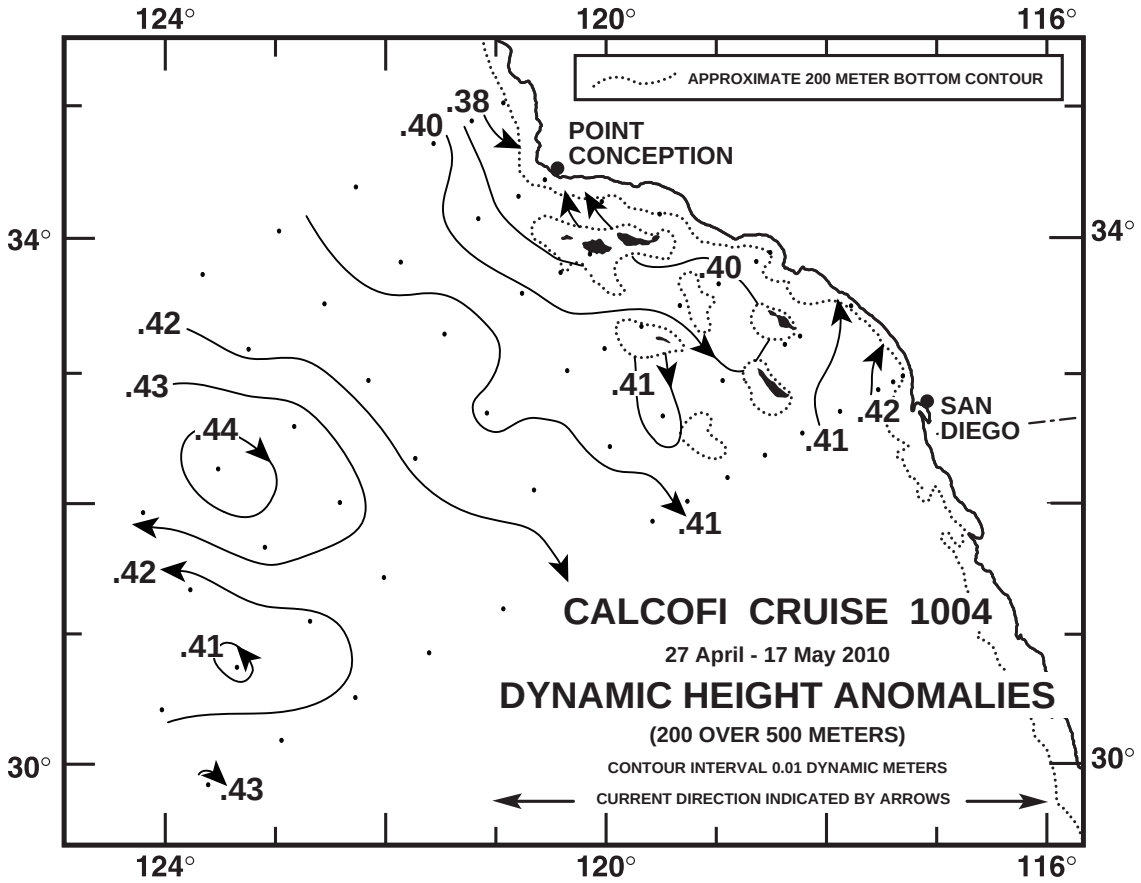

FIGURE 4A

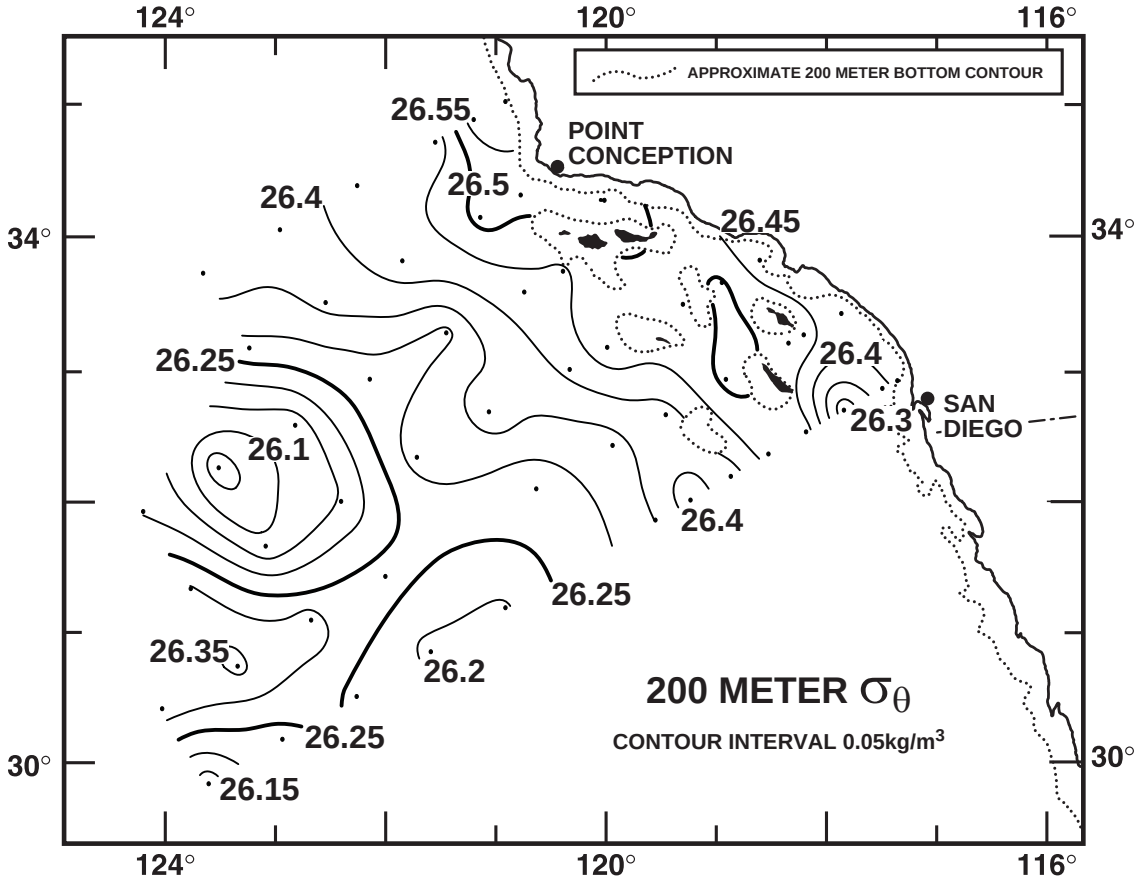

FIGURE 4B

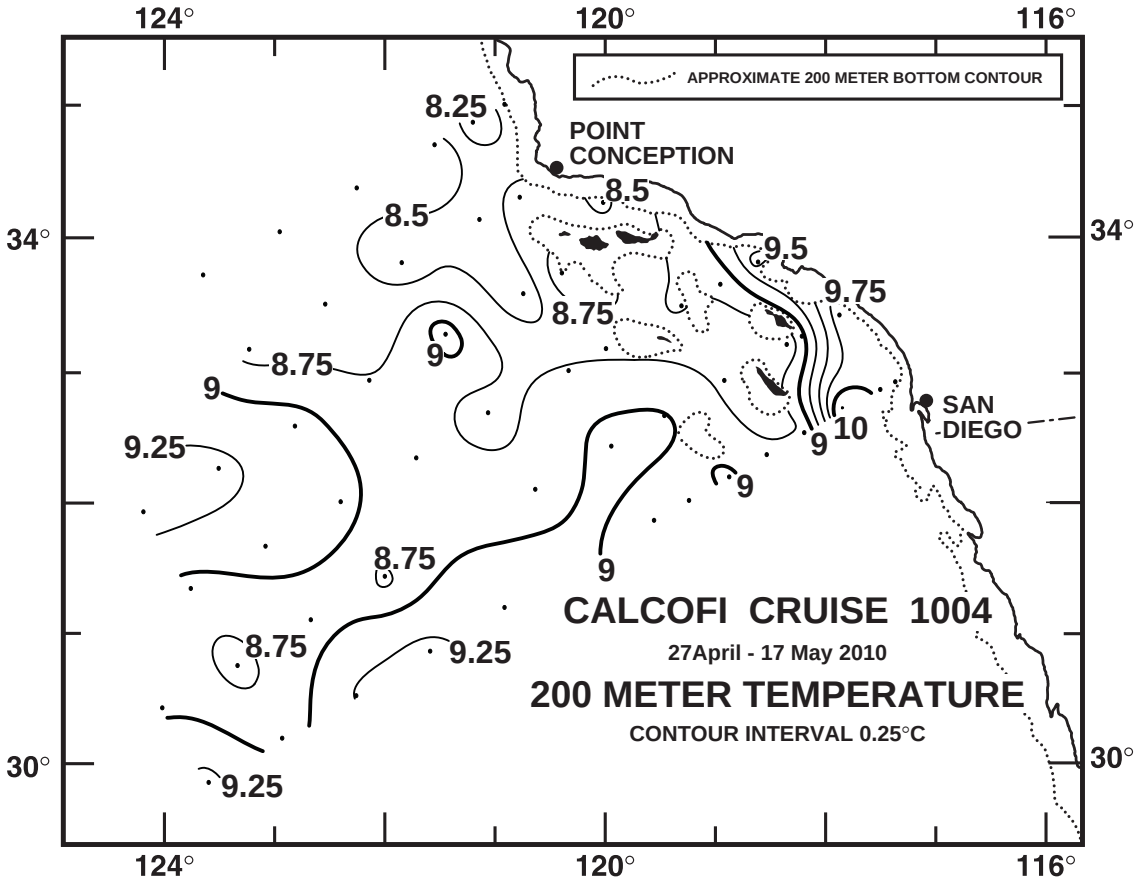

FIGURE 4C

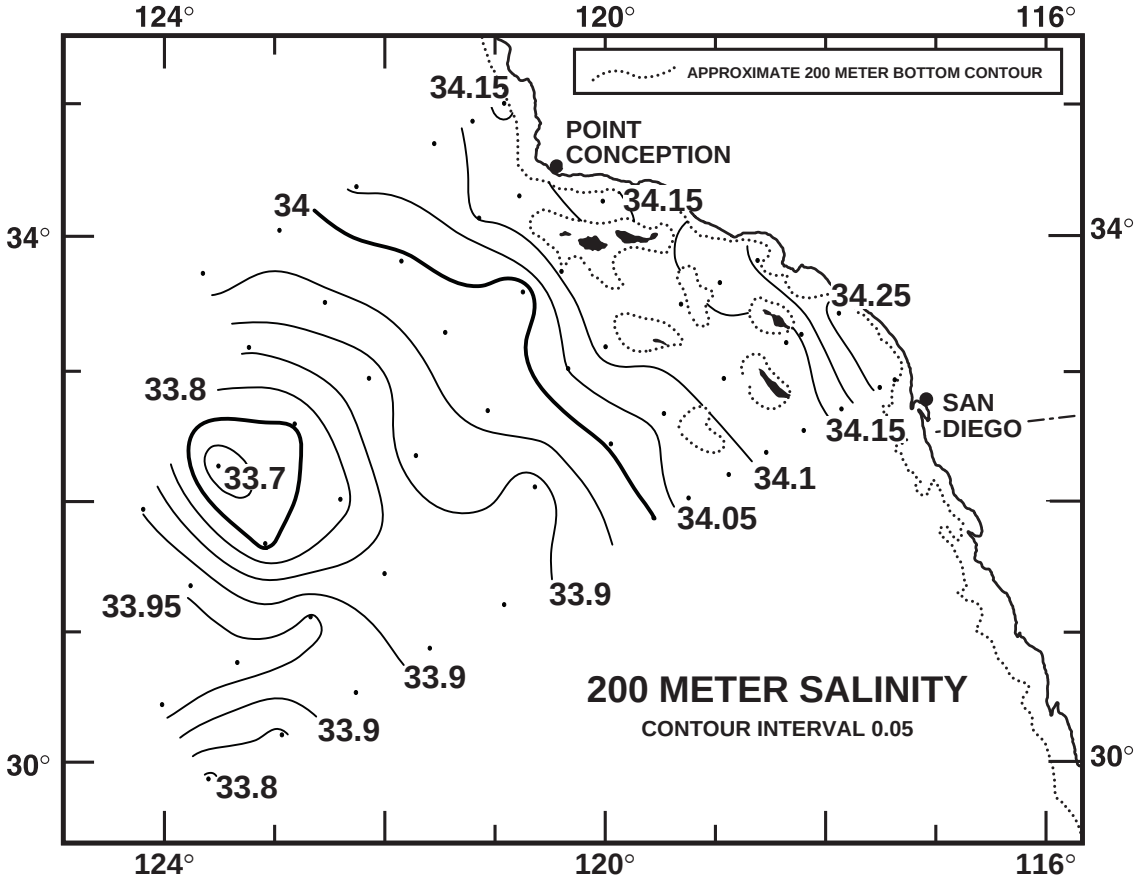

FIGURE 4D

CALCOFI CRUISE 1004

30 April - 4 May 2010

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

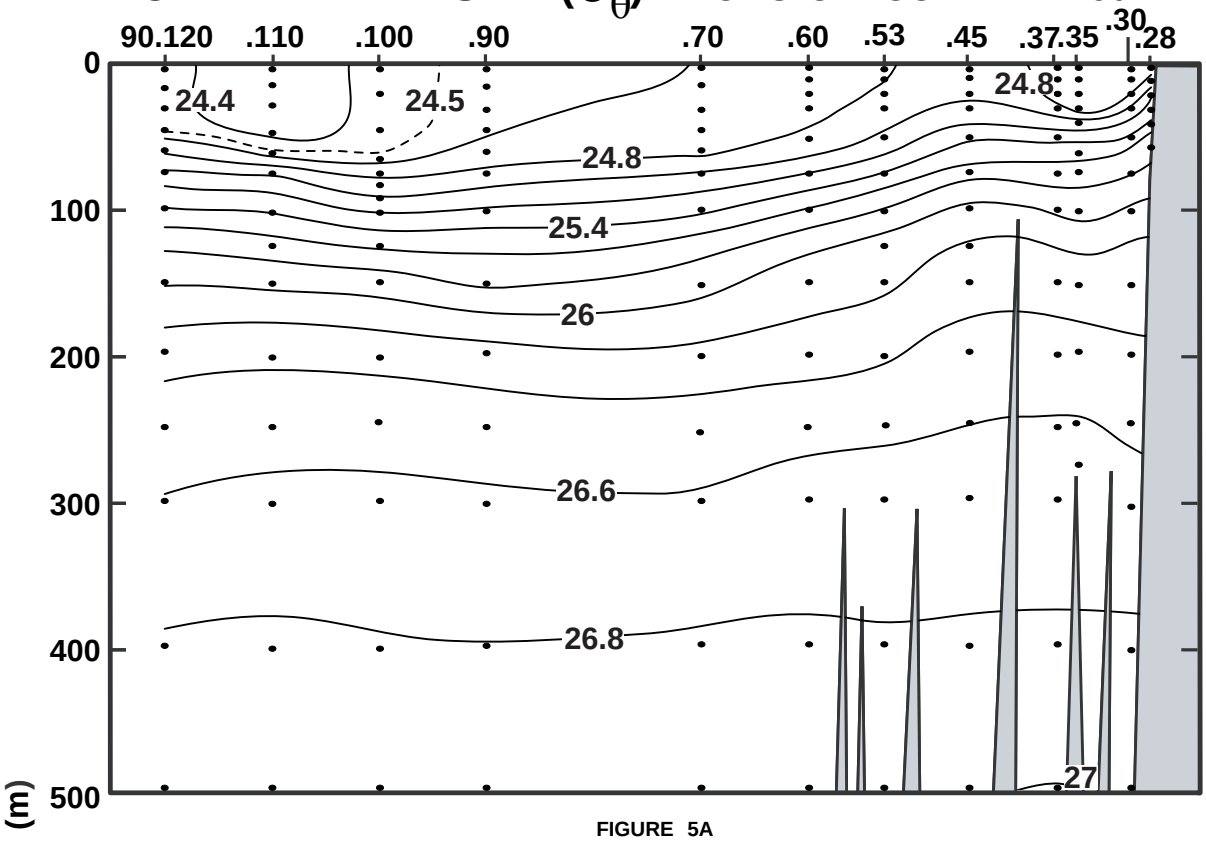

FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

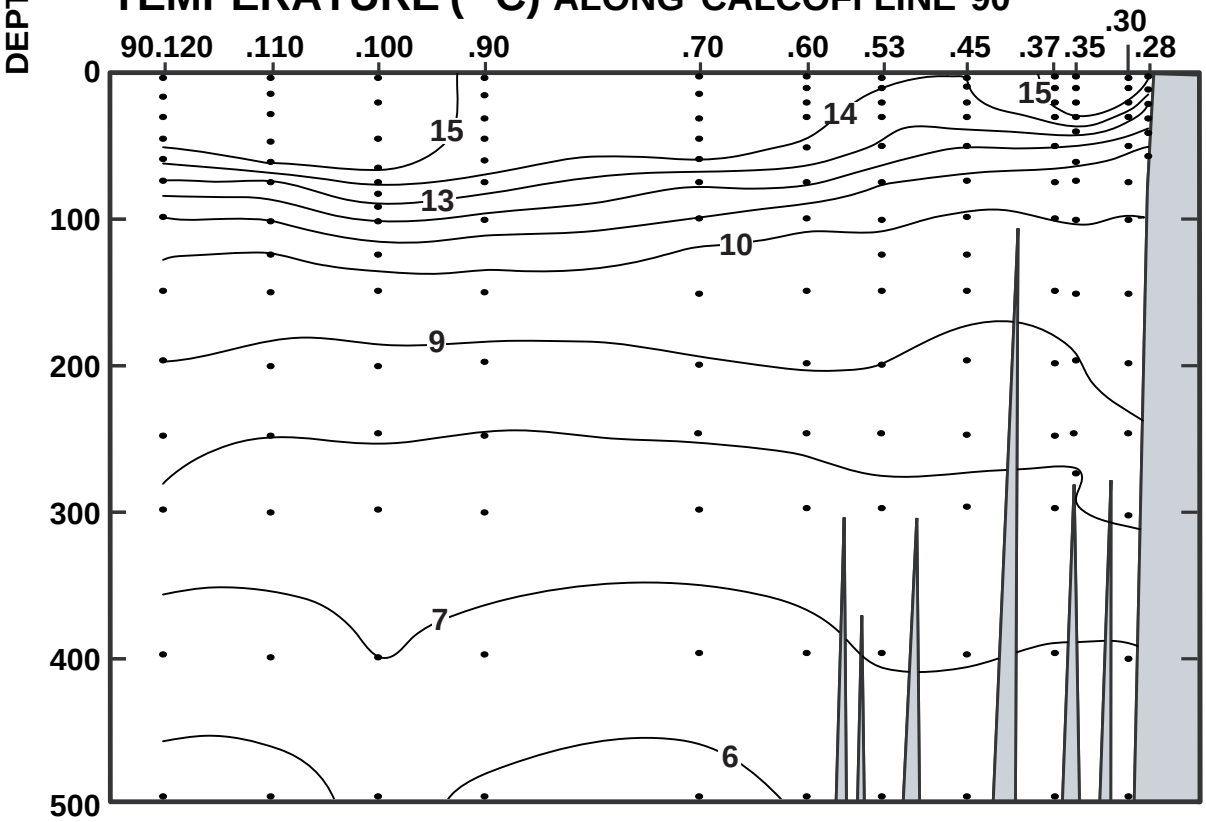

FIGURE 5B

CALCOFI CRUISE 1004

30 April - 4 May 2010

SALINITY ALONG CALCOFI LINE 90

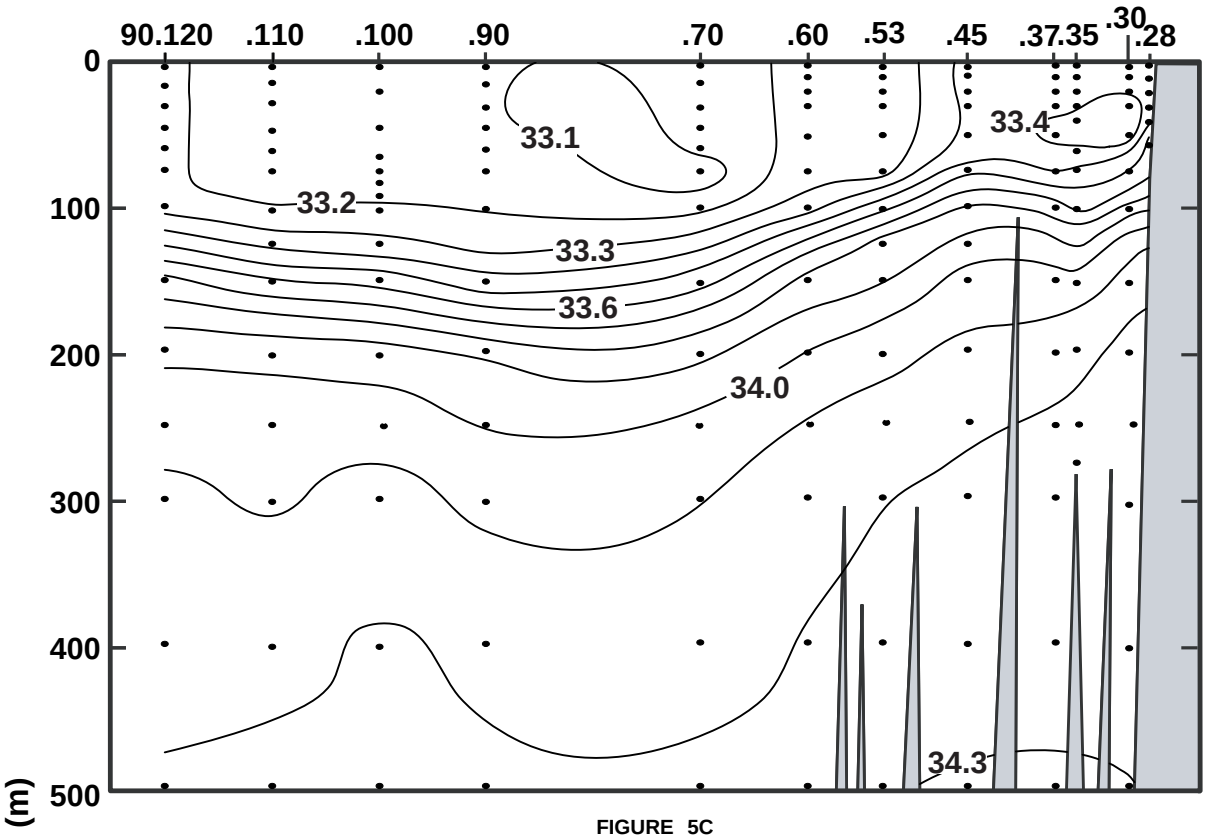

FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

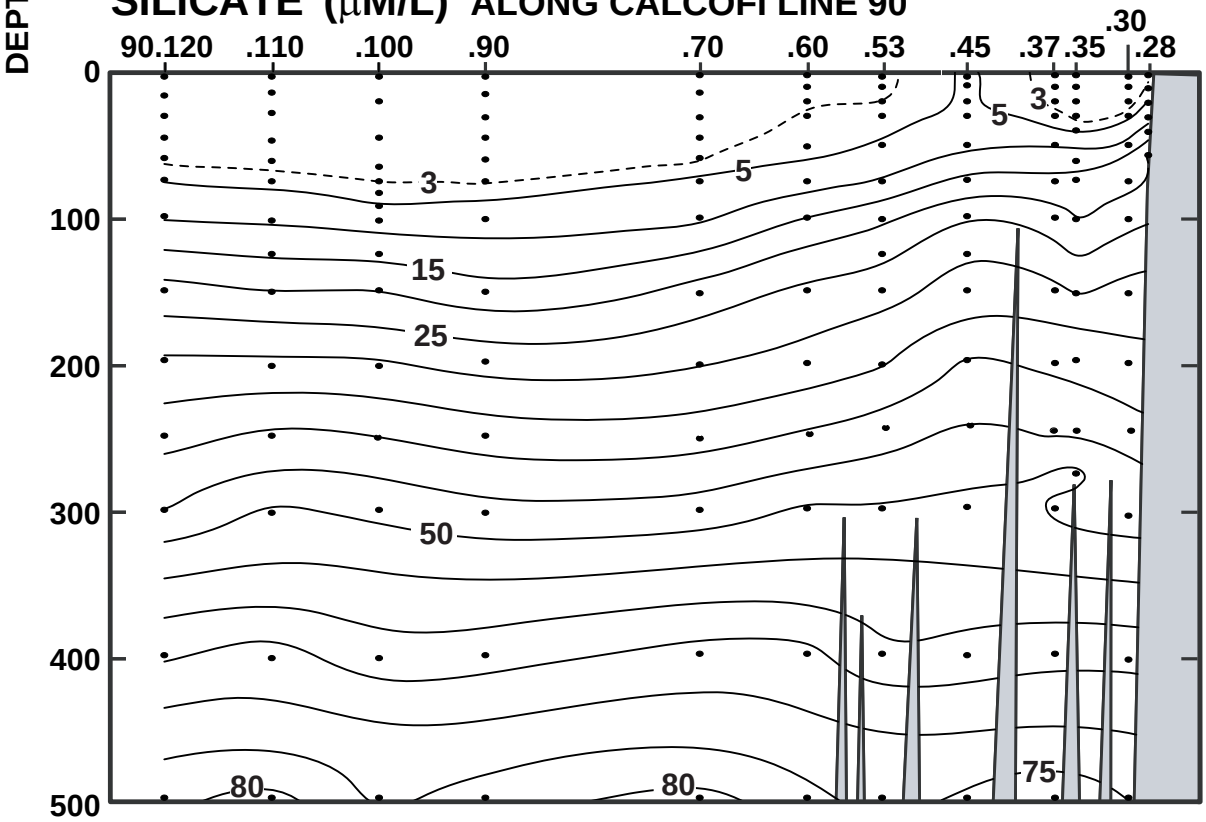

FIGURE 5D

CALCOFI CRUISE 1004

30 April - 4 May 2010

NITRATE (μM/L) ALONG CALCOFI LINE 90

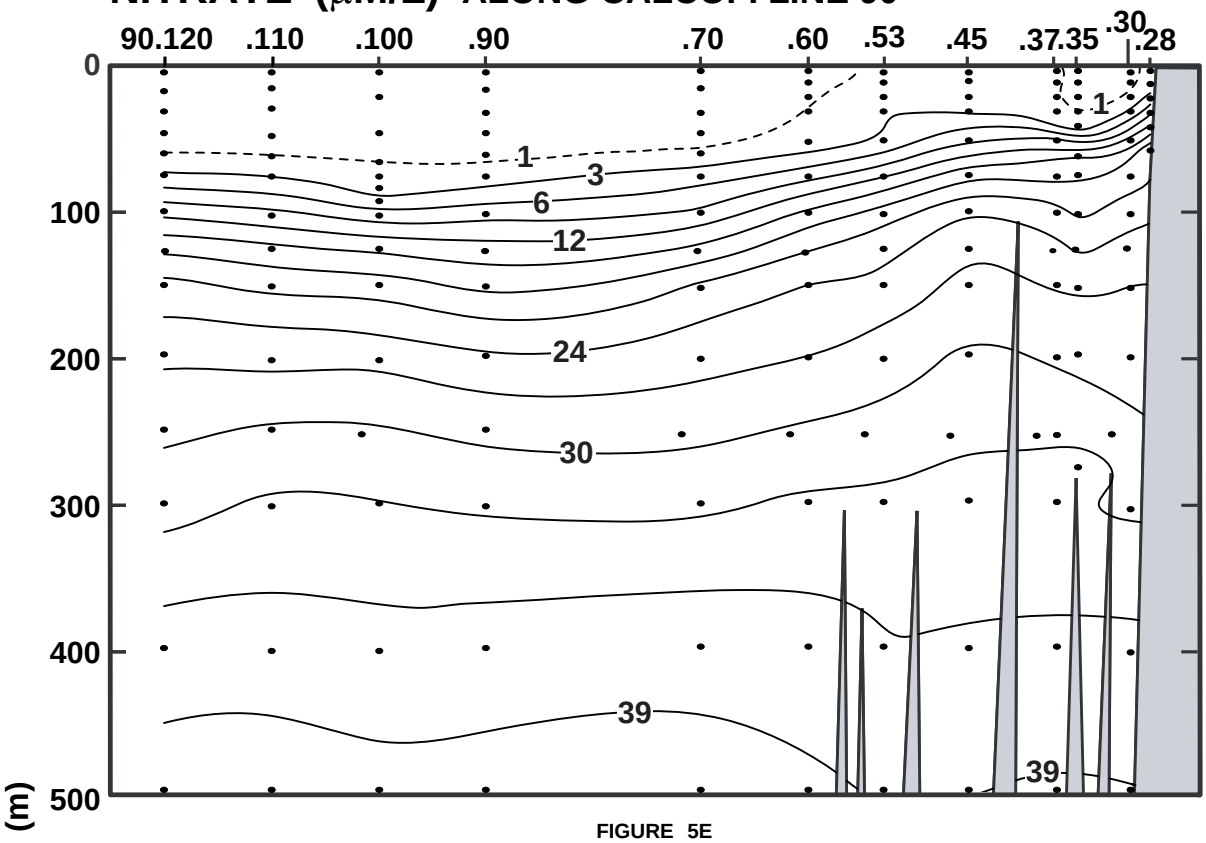

FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

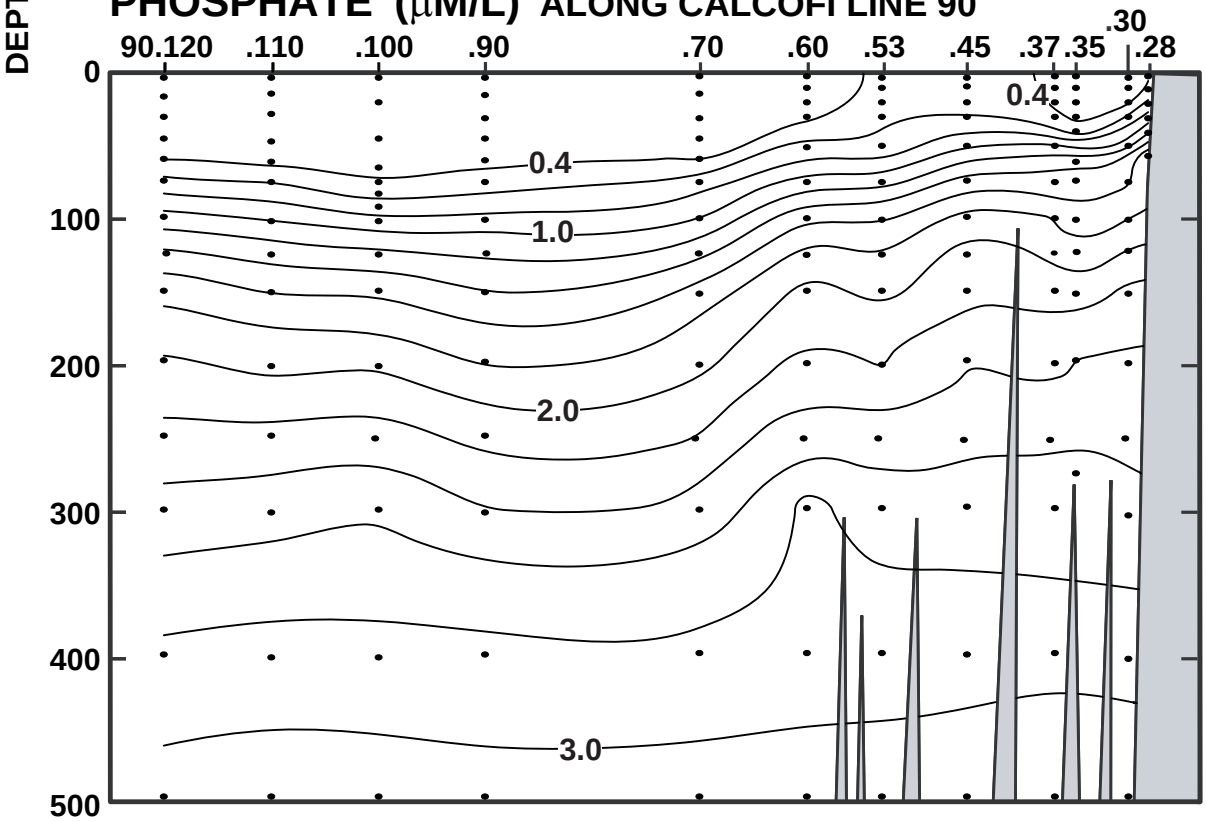

FIGURE 5F

CALCOFI CRUISE 1004

30 April - 4 May 2010

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

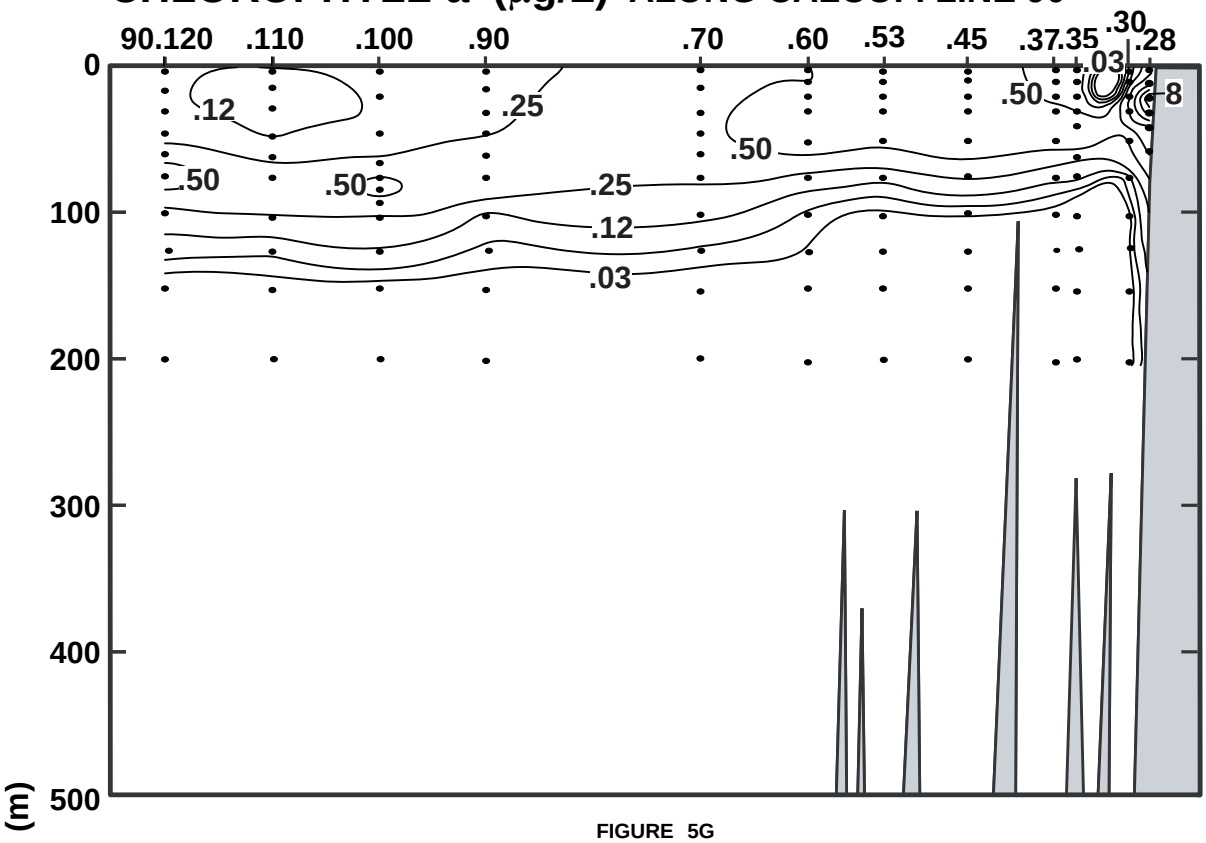

FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

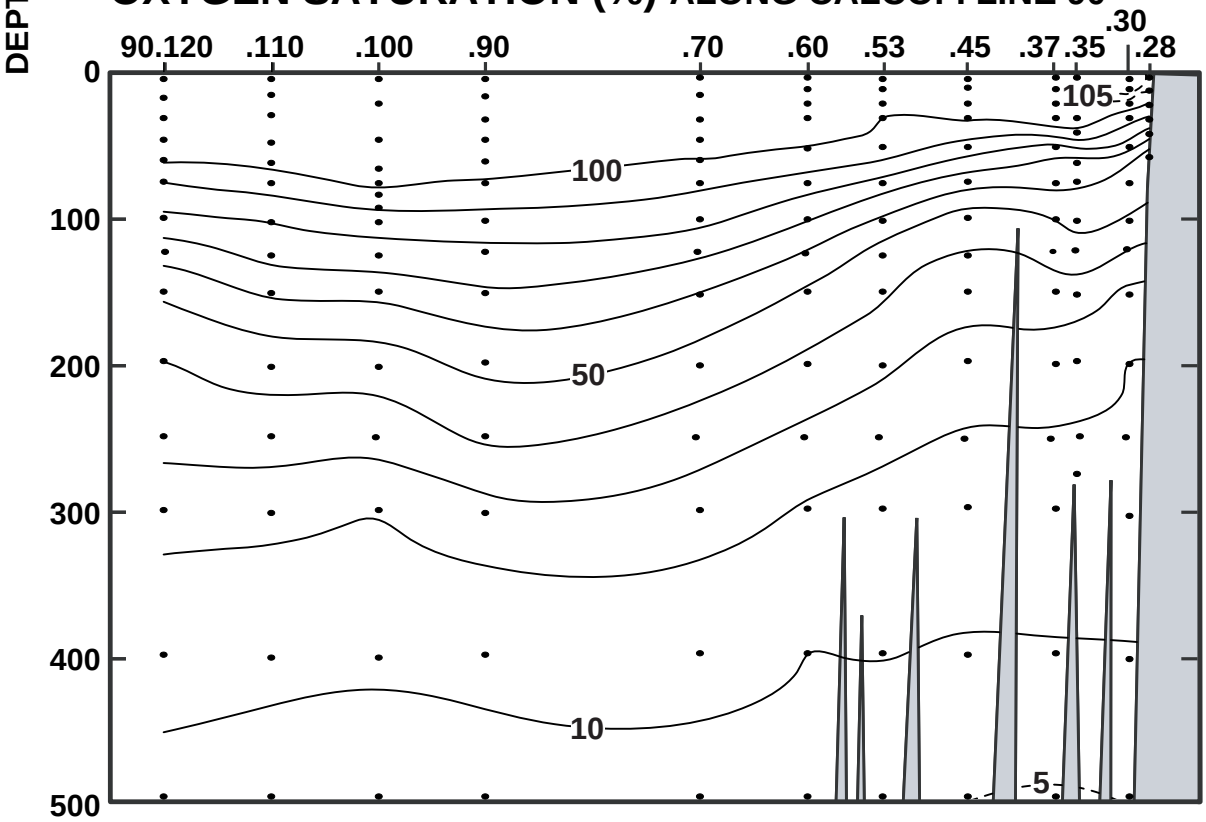

FIGURE 5H

CALCOFI CRUISE 1004

30 April - 4 May 2010

OXYGEN (mL/L) ALONG CALCOFI LINE 90

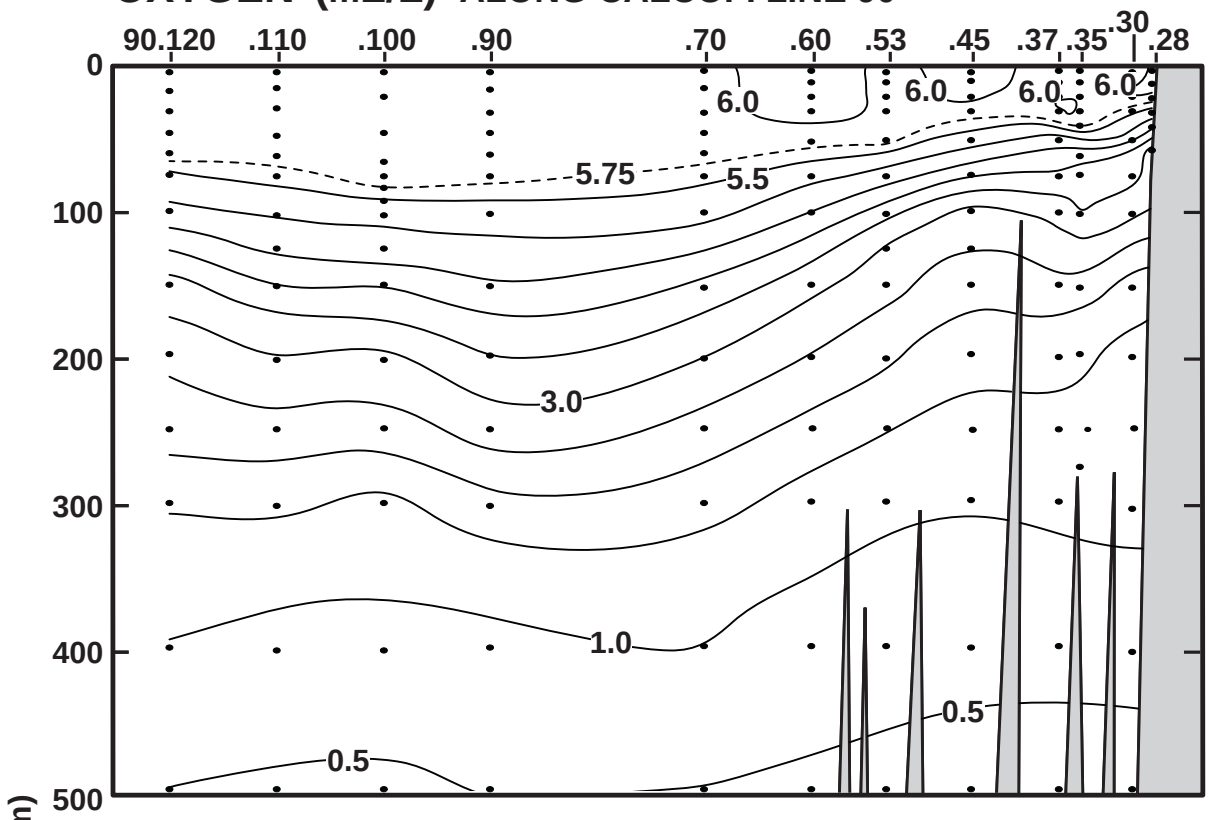

FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

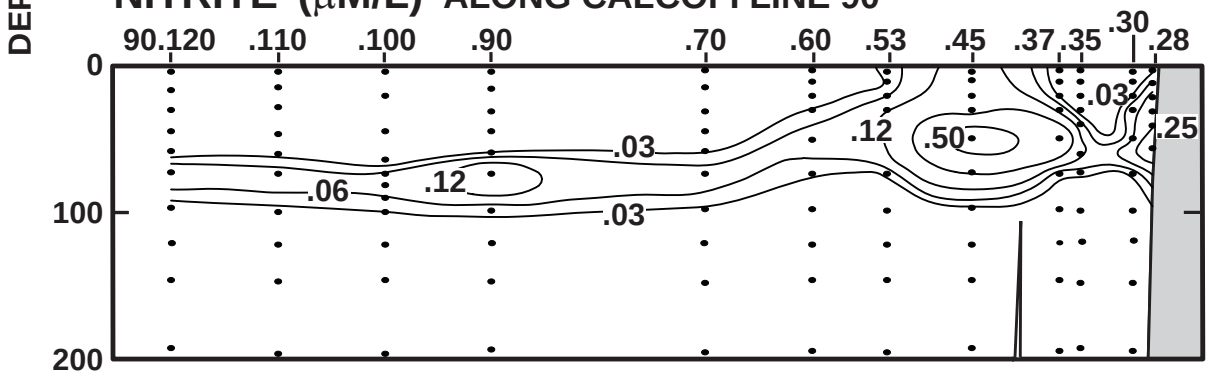

FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

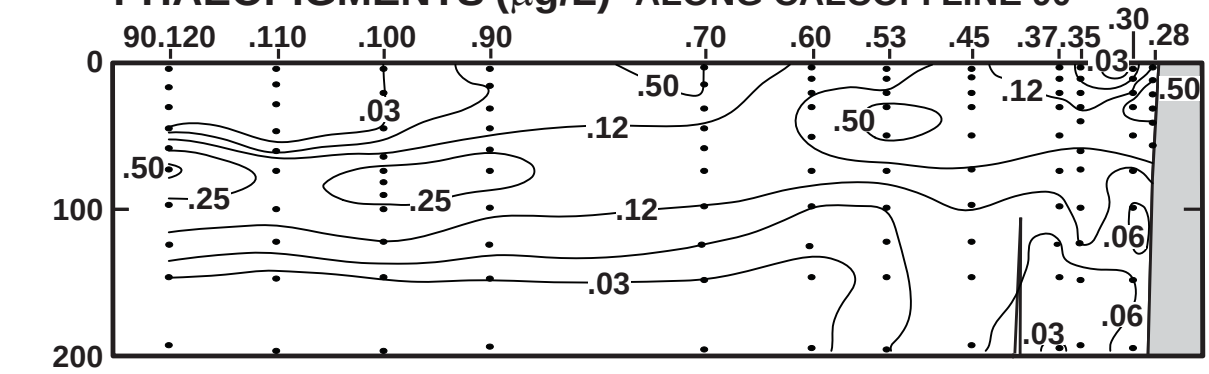

FIGURE 5K

PERSONNEL

CalCOFI Cruise 1004

SHIP'S CAPTAIN

Mike Hopkins, RV *Miller Freeman*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

Griffith, Dave (Chief Scientist)	Fishery Biologist, NMFS
Becker, Susan	Staff Research Associate, SIO
Breese, Dawn	Bird Observer, FIAER
Dovel, Shonna	Staff Research Associate, SIO
Faber, David N.	Staff Research Associate, SIO
Manion, Sue	Fishery Biologist, NMFS
Overcash, Bryan	Staff Research Associate, SIO
Renfree, Josiah	Acoustic Technician, SWFSC
Roadman, Megan	Staff Research Associate, SIO
Wilkinson, James R.	Programmer Analyst, SIO
Wolgast, David M.	Staff Research Associate, SIO

San Diego to San Diego, California, California, 27 April – 17 May, 2010

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 76.7 49.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
35 5.1 N	120 46.3 W	16/05/10	1943 UTC	69 m	290 08 kn	320 02 05	2	1015.0 mb	11.5 C	11.5 C		8/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	11.28	11.28	33.418	25.494	247.8	0.000	5.64	90.9	16.2	1.23	13.9	0.14	0.20	0.88	0.35	0	
2	11.28	11.28	33.418	25.494	247.8	0.005	5.64	90.9	16.2	1.23	13.9	0.14	0.20	0.88	0.35	2	208
5	11.33	11.33	33.412	25.480	249.2	0.012	5.66	91.3	16.2	1.22	13.8	0.14	0.20	0.88	0.40	5	207
10	11.28	11.28	33.411	25.489	248.5	0.025	5.66	91.2	16.2	1.23	13.8	0.14	0.20	0.74	0.51	10	206
20	11.06	11.06	33.435	25.547	243.2	0.049	5.47	87.7	16.8	1.29	14.8	0.14	0.22	0.59	0.40	20	205
30	10.52	10.52	33.496	25.690	229.8	0.073	4.82	76.4	19.4	1.48	17.8	0.15	0.25	0.51	0.36	30	204
40	10.15	10.15	33.610	25.842	215.5	0.095	4.22	66.4	22.2	1.64	20.5	0.11	0.11	1.39	0.51	40	203
50	9.83	9.82	33.833	26.071	194.0	0.116	3.64	57.0	26.1	1.84	23.3	0.14	0.25	2.83	0.94	50	202
60	9.28	9.27	33.904	26.217	180.4	0.135	2.50	38.7	33.1	2.10	26.3	0.13	0.45	0.85	0.66	60	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 76.7 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
35 1.6 N	120 55.0 W	16/05/10	1727 UTC	237 m	320 05 kn	320 03 05	2	1014.9 mb	11.2 C	11.1 C	16m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	11.36	11.36	33.412	25.475	249.6	0.000	5.83	94.1	16.1	1.25	13.5	0.14	0.23	0.99	0.47	0	
2	11.36	11.36	33.412	25.475	249.7	0.005	5.83	94.1	16.1	1.25	13.5	0.14	0.23	0.99	0.47	2	212
10	11.34	11.34	33.407	25.475	249.9	0.025	5.82	93.9	16.0	1.22	13.6	0.14	0.24	0.83	0.50	10	211
20	11.28	11.28	33.412	25.490	248.7	0.050	5.76	92.8	16.3	1.24	13.9	0.14	0.26	0.88	0.49	20	210
30	10.56	10.56	33.481	25.671	231.6	0.074	5.07	80.4	19.1	1.43	17.2	0.13	0.29	0.59	0.53	30	209
40	10.00	10.00	33.540	25.813	218.3	0.096	4.29	67.3	21.5	1.62	20.4	0.11	0.18	0.35	0.28	40	208
50	10.02	10.01	33.617	25.870	213.1	0.118	4.25	66.7	23.4	1.69	21.5	0.16	0.22	0.39	0.33	50	207
60	9.84	9.83	33.713	25.975	203.3	0.139	3.95	61.8	25.6	1.81	23.1	0.19	0.23	0.32	0.33	60	206
75	9.35	9.34	33.785	26.112	190.6	0.168	3.04	47.1	27.6	1.92	25.5	0.05	0.00	0.07	0.18	75	205
100	9.10	9.09	33.911	26.251	177.8	0.214	2.57	39.6	31.0	2.05	27.3	0.01	0.00	0.04	0.22	101	204
125 ISL	8.66 D	8.65	34.031 D	26.415	162.7	0.257	2.21	33.7	35.3	2.18	29.0	0.01	0.00	0.03	0.23	126	
150	8.43	8.41	34.072	26.483	156.7	0.297	1.91	29.0	39.6	2.30	30.4	0.02	0.00	0.02	0.24	151	203
200	8.30	8.28	34.154	26.568	149.6	0.373	1.39	21.1	45.6	2.49	31.8	0.04	0.08	0.01	0.20	201	202
223	8.23	8.21	34.157	26.581	148.7	0.408	1.34	20.3	46.8	2.54	32.1	0.04	0.08			224	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 76.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 53.4 N	121 12.1 W	16/05/10	1415 UTC	562 m	310 11 kn	330 02 04	2	1014.9 mb	10.8 C	10.6 C	14m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	11.64	11.64	33.436	25.442	252.7	0.000	5.90	95.8	15.7	1.16	12.5	0.18	0.15	1.05	0.44	0	
3	11.64	11.64	33.436	25.442	252.8	0.008	5.90	95.8	15.7	1.16	12.5	0.18	0.15	1.05	0.44	3	212
10	11.64	11.64	33.437	25.443	252.9	0.025	5.93	96.3	15.6	1.16	12.5	0.18	0.16	1.02	0.41	10	211
20	11.63	11.63	33.440	25.448	252.7	0.051	5.89	95.6	15.5	1.16	12.5	0.18	0.16	1.02	0.39	20	210
30	10.84	10.84	33.514	25.648	233.8	0.075	5.23	83.5	18.8	1.42	16.6	0.20	0.18	0.90	0.38	30	209
50	10.49	10.48	33.571	25.754	224.2	0.121	4.89	77.5	21.0	1.57	19.0	0.26	0.20	0.78	0.33	50	208
75	9.83	9.82	33.610	25.897	211.1	0.175	4.11	64.2	23.6	1.74	22.0	0.16	0.13	0.32	0.24	75	207
100	9.49	9.48	33.823	26.120	190.4	0.225	3.16	49.1	28.7	1.96	25.5	0.12	0.05	0.22	0.25	101	206
125 ISL	9.19 D	9.18	33.931 D	26.253	178.2	0.271	2.63	40.6	31.5	2.06	27.3	0.06	0.01	0.11	0.20	126	
150	8.84	8.82	33.985	26.351	169.3	0.315	2.30	35.2	34.2	2.14	28.5	0.01	0.00	0.03	0.13	151	205
200 ISL	8.05 D	8.03	34.117 D	26.576	148.7	0.394	1.59	23.9	44.6	2.43	32.2	0.00	0.00	0.01	0.05	201	
201	8.05	8.03	34.110	26.571	149.2	0.396	1.58	23.8	44.8	2.44	32.3	0.00	0.00	0.01	0.05	202	204
250 ISL	7.69 D	7.67	34.156 D	26.660	141.4	0.467	1.20	17.9	51.2	2.62	34.3	0.00	0.00			252	
300	7.27	7.24	34.171	26.732	135.2	0.536	0.97	14.3	56.6	2.74	35.7	0.00	0.00			302	203
400	6.41	6.37	34.228	26.895	120.8	0.664	0.52	7.5	70.7	2.99	38.6	0.00	0.00			403	202
500 ISL	5.79 D	5.75	34.289 D	27.023	109.5	0.779	0.32	4.6	83.1	3.14	40.2	0.02	0.00			504	
515	5.73	5.69	34.288	27.029	109.0	0.796	0.29	4.1	85.0	3.16	40.4	0.02	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 76.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 43.1 N	121 32.8 W	16/05/10	1037 UTC	936 m	320 15 kn			1015.0 mb	11.9 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	12.75	12.75	33.143	25.004	294.4	0.000	6.08	100.9	6.1	0.64	4.0	0.10	0.25	0.58	0.19	0	
2	12.75	12.75	33.143	25.004	294.4	0.006	6.08	100.9	6.1	0.64	4.0	0.10	0.25	0.58	0.19	2	212
10	12.76	12.76	33.143	25.002	294.8	0.029	6.07	100.7	6.0	0.63	4.0	0.10	0.24	0.58	0.19	10	211
20	12.76	12.76	33.141	25.001	295.2	0.059	6.08	100.9	6.1	0.62	4.0	0.09	0.24	0.57	0.18	20	210
30	12.76	12.76	33.142	25.002	295.3	0.088	6.09	101.1	6.1	0.61	3.9	0.09	0.24	0.58	0.19	30	209
50	12.52	12.51	33.168	25.069	289.5	0.147	5.99	98.9	6.9	0.68	4.9	0.12	0.32	0.46	0.17	50	208
75	10.76	10.75	33.383	25.561	243.1	0.214	4.95	78.8	14.9	1.28	14.7	0.14	0.12	0.36	0.27	75	207
100	10.31	10.30	33.586	25.798	221.1	0.272	3.56	56.2	20.4	1.65	20.5	0.01	0.00	0.05	0.13	101	206
125 CSL	9.68 D	9.67	33.742 D	26.026	199.9	0.324	3.07 D	47.8	25.0	1.87	23.8	0.01	0.00	0.04	0.14	126	
150	9.59	9.57	33.868	26.140	189.6	0.373	2.53	39.4	28.9	2.00	25.8	0.01	0.00	0.03	0.16	151	205
199	8.88	8.86	34.035	26.385	167.1	0.460	2.10	32.2	35.2	2.18	28.4	0.00	0.00	0.02	0.10	200	204
200 ISL	8.76 D	8.74	34.055 D	26.420	163.8	0.462	2.09	32.0	35.3	2.18	28.4	0.00	0.00			201	
250 ISL	8.41 D	8.38	34.121 D	26.526	154.5	0.542	1.65	25.0	41.7	2.38	30.7	0.00	0.00			251	
300 ISL	7.91 D	7.88	34.172 D	26.642	144.2	0.616	1.25	18.8	48.8	2.59	33.0	0.00	0.00			302	
301	7.92	7.89	34.173	26.641	144.3	0.618	1.24	18.6	48.9	2.59	33.0	0.00	0.00			303	203
400 ISL	6.52 D	6.48	34.200 D	26.858	124.3	0.751	0.67	9.7	67.4	2.95	37.9	0.00	0.00			403	
401	6.52	6.48	34.195	26.854	124.7	0.752	0.67	9.7	67.6	2.95	37.9	0.00	0.00			404	202
500 ISL	5.95 D	5.91	34.266 D	26.985	113.2	0.870	0.40	5.7	78.5	3.10	39.5	0.00	0.00			503	
516	5.92	5.87	34.265	26.988	113.1	0.888	0.36	5.2	80.3	3.12	39.8	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 76.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 23.3 N	122 14.9 W	16/05/10	0437 UTC	4017 m	340 15 kn			1016.8 mb	12.5 C	11.9 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.36	13.36	33.112	24.859	308.2	0.000	6.16	103.5	3.9	0.42	0.9	0.05	0.10	0.82	0.24	0	
2	13.36	13.36	33.112	24.859	308.2	0.006	6.16	103.5	3.9	0.42	0.9	0.05	0.10	0.82	0.24	2	212
10	13.37	13.37	33.111	24.857	308.7	0.031	6.15	103.4	3.9	0.41	0.9	0.05	0.12	0.81	0.23	10	211
20	13.37	13.37	33.112	24.858	308.8	0.062	6.14	103.2	3.8	0.42	0.9	0.05	0.09	0.83	0.22	20	210
30	13.32	13.32	33.112	24.868	308.1	0.093	6.14	103.1	3.8	0.42	1.0	0.05	0.10	0.86	0.24	30	209
50	13.08	13.07	33.094	24.903	305.4	0.154	6.05	101.0	4.4	0.50	2.0	0.08	0.32	0.52	0.22	50	208
74	10.92	10.91	33.365	25.519	247.1	0.220	4.39	70.1	14.1	1.31	15.3	0.02	0.00	0.11	0.13	74	207
75 ISL	10.87 D	10.86	33.385 D	25.543	244.8	0.223	4.36	69.6	14.4	1.33	15.6	0.02	0.00	0.11	0.13	75	
99	10.02	10.01	33.539	25.810	219.9	0.278	3.78	59.3	20.6	1.65	20.8	0.02	0.00	0.06	0.11	99	206
100 ISL	10.02 D	10.01	33.579 D	25.841	216.9	0.281	3.75	58.8	20.9	1.66	21.0	0.02	0.00	0.06	0.11	100	
125 CSL	9.40 D	9.39	33.747 D	26.075	195.1	0.332	3.16 D	48.9	27.1	1.92	24.8	0.02	0.00	0.04	0.14	126	
150	9.34	9.32	33.948	26.243	179.7	0.379	2.26	35.0	32.2	2.11	27.3	0.01	0.00	0.03	0.17	151	205
200	8.69	8.67	34.056	26.431	162.7	0.465	1.94	29.6	37.4	2.25	29.7	0.01	0.00	0.01	0.12	201	204
250 CSL	7.85 D	7.83	34.075 D	26.573	149.7	0.543	1.71 D	25.6	44.8	2.45	32.5	0.01	0.00			251	
300	7.40	7.37	34.128	26.680	140.2	0.615	1.18	17.5	52.9	2.65	35.0	0.01	0.00			302	203
400	6.65	6.61	34.205	26.845	125.7	0.748	0.63	9.2	66.8	2.95	38.0	0.01	0.00			403	202
500 ISL	6.02 D	5.98	34.265 D	26.975	114.2	0.868	0.39	5.6	77.9	3.11	39.9	0.00	0.00			503	
516	5.92	5.87	34.266	26.989	113.1	0.886	0.35	5.0	79.7	3.13	40.2	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 76.6 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 3.2 N	122 56.5 W	15/05/10	2320 UTC	4231 m	320 14 kn	320 03 05	2	1018.2 mb	13.1 C	12.7 C	13m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.44	13.44	33.104	24.837	310.3	0.000	6.07	102.2	4.3	0.48	1.9	0.09	0.18	0.95	0.20	0	
2	13.44	13.44	33.104	24.837	310.3	0.006	6.07	102.2	4.3	0.48	1.9	0.09	0.18	0.95	0.20	2	212
10	13.41	13.41	33.104	24.844	309.9	0.031	6.07	102.1	4.3	0.48	1.9	0.09	0.16	0.63	0.21	10	211
20	13.32	13.32	33.119	24.873	307.4	0.062	6.08	102.1	4.4	0.49	2.2	0.10	0.16	0.67	0.23	20	210
30 ISL	13.22 D	13.22	33.121 D	24.895	305.6	0.093	6.05	101.4	4.4	0.51	2.4	0.11	0.15	0.71	0.30	30	
31	13.21	13.21	33.115	24.893	305.8	0.096	6.05	101.3	4.4	0.51	2.4	0.11	0.15	0.71	0.31	31	209
50	12.52	12.51	33.196	25.091	287.4	0.152	5.69	94.0	7.3	0.78	5.9	0.22	0.84	0.19	0.15	50	208
75	11.82	11.81	33.326	25.325	265.7	0.221	5.28	86.0	11.3	1.06	10.6	0.39	0.51	0.14	0.16	75	207
100 ISL	10.53	10.52	33.401	25.616	238.5	0.284	4.14	65.6	16.3	1.43	17.5	0.05	0.02	0.08	0.17	100	
101	10.55	10.54	33.405	25.615	238.5	0.286	4.09	64.8	16.5	1.45	17.8	0.03	0.00	0.08	0.17	101	206
125 CSL	9.91 D	9.90	33.758 D	26.000	202.4	0.339	2.90 D	45.4	22.6	1.75	22.6	0.02	0.00	0.05	0.19	126	
150	9.52	9.50	33.850	26.137	189.8	0.388	2.64	41.0	28.4	1.97	26.0	0.01	0.00	0.03	0.20	151	205
200	8.66	8.64	33.967	26.366	168.8	0.478	2.60	39.7	33.4	2.04	27.9	0.02	0.00	0.01	0.10	201	204
250 ISL	7.77 D	7.75	34.028 D	26.548	152.1	0.558	2.22	33.2	41.1	2.23	30.8	0.01	0.00			251	
300 ISL	7.20	7.17	34.040	26.639	144.0	0.632	1.72	25.4	49.8	2.46	33.9	0.00	0.00			302	
301	7.24	7.21	34.040	26.634	144.5	0.634	1.71	25.3	50.0	2.47	34.0	0.00	0.00			303	203
400	6.28	6.24	34.100	26.811	128.6	0.769	1.01	14.6	66.2	2.82	38.3	0.00	0.00			403	202
500 ISL	5.98 D	5.94	34.235 D	26.956	115.9	0.891	0.49	7.0	77.2	3.04	40.0	0.00	0.00			503	
515	5.88	5.84	34.237	26.971	114.7	0.908	0.41	5.9	78.9	3.07	40.3	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 76.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 43.4 N	123 37.9 W	15/05/10	1729 UTC	4263 m	350 13 kn	340 03 05	2	1019.2 mb	13.9 C	13.3 C	16m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.20	14.20	32.964	24.573	335.4	0.000	5.99	102.3	2.9	0.35	0.0	0.00	0.00	0.26	0.08	0	
3	14.20	14.20	32.964	24.573	335.5	0.010	5.99	102.3	2.9	0.35	0.0	0.00	0.00	0.26	0.08	3	212
10 ISL	14.20 D	14.20	32.961 D	24.571	335.9	0.034	5.99	102.3	2.9	0.34	0.0	0.00	0.00	0.27	0.08	10	
15	14.18	14.18	32.968	24.581	335.1	0.050	5.99	102.3	2.9	0.34	0.0	0.00	0.00	0.27	0.08	15	211
20 ISL	14.18 D	14.18	32.961 D	24.576	335.7	0.067	5.99	102.3	2.9	0.34	0.0	0.00	0.00	0.27	0.08	20	
30	14.18	14.18	32.964	24.578	335.8	0.101	5.99	102.3	2.9	0.34	0.0	0.00	0.00	0.26	0.08	30	210
45	14.13	14.12	32.965	24.590	335.1	0.151	5.97	101.8	2.8	0.35	0.0	0.00	0.00	0.34	0.11	45	209
50 ISL	14.12 D	14.11	32.964 D	24.591	335.1	0.168	5.97	101.8	2.8	0.35	0.0	0.00	0.00	0.36	0.11	50	
60	14.13	14.12	32.967	24.592	335.3	0.201	5.96	101.6	2.7	0.34	0.0	0.00	0.00	0.38	0.13	60	208
75	13.96	13.95	33.012	24.662	329.0	0.251	5.87	99.8	2.9	0.37	0.1	0.03	0.14	0.36	0.20	75	207
100	10.36	10.35	33.251	25.528	246.7	0.323	4.59	72.4	14.5	1.34	15.9	0.01	0.00	0.05	0.05	100	206
125 ISL	9.35 D	9.34	33.490 D	25.883	213.4	0.381	3.72	57.5	22.2	1.77	23.0	0.00	0.00	0.03	0.04	126	
150	9.19	9.17	33.729	26.096	193.6	0.431	3.12	48.1	27.4	1.93	25.7	0.00	0.00	0.01	0.03	151	205
200	8.63	8.61	33.987	26.386	166.9	0.522	2.30	35.1	34.7	2.16	28.9	0.00	0.00	0.00	0.03	201	204
250 CSL	7.62 D	7.60	33.975 D	26.528	153.9	0.602	2.89 D	43.0	42.3	2.30	31.2	0.00	0.00			251	
300	7.06	7.03	34.018	26.641	143.7	0.676	2.00	29.4	50.2	2.42	33.2	0.00	0.00			302	203
400 ISL	6.06 D	6.03	34.079 D	26.822	127.3	0.812	1.13	16.2	66.9	2.84	38.3	0.00	0.00			403	
401	6.09	6.05	34.084	26.822	127.3	0.813	1.12	16.1	67.1	2.84	38.3	0.00	0.00			404	202
500 ISL	5.54 D	5.50	34.166 D	26.956	115.5	0.933	0.61	8.7	80.4	3.06	40.6	0.00	0.00			503	
516	5.47	5.43	34.178	26.974	113.9	0.951	0.53	7.5	82.5	3.10	41.0	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 76.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 43.3 N	123 38.0 W	15/05/10	1925 UTC	4208 m	350 13 kn	340 03 05	2	1019.2 mb	13.9 C	13.3 C	16m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.26	14.26	32.956	24.555	337.2	0.000	5.99	102.4	2.8	0.36	0.0	0.00	0.00	0.24	0.07	0	
2 A	14.26	14.26	32.956	24.555	337.2	0.007	5.99	102.4	2.8	0.36	0.0	0.00	0.00	0.24	0.07	2	206
10 ISL	14.24 D	14.24	32.961 D	24.563	336.7	0.034	5.98	102.2	2.6	0.37	0.0	0.00	0.04	0.24	0.07	10	
12 A	14.24	14.24	32.954	24.558	337.2	0.040	5.98	102.2	2.6	0.37	0.0	0.00	0.05	0.24	0.07	12	205
20 ISL	14.20 D	14.20	32.961 D	24.572	336.1	0.067	5.99	102.3	2.6	0.36	0.0	0.00	0.02	0.25	0.07	20	
23 A	14.19	14.19	32.952	24.567	336.7	0.077	5.99	102.3	2.6	0.36	0.0	0.00	0.00	0.25	0.07	23	204
30 ISL	14.19 D	14.19	32.960 D	24.573	336.3	0.101	5.99	102.3	2.6	0.36	0.0	0.00	0.00	0.26	0.08	30	
34 A	14.19	14.19	32.964	24.576	336.1	0.114	5.99	102.3	2.6	0.36	0.0	0.00	0.00	0.27	0.08	34	203
44 A	14.16	14.15	32.952	24.574	336.6	0.148	5.98	102.0	2.6	0.35	0.0	0.00	0.00	0.28	0.08	44	202
50 ISL	14.14 D	14.13	32.963 D	24.586	335.6	0.168	5.98	102.0	2.6	0.35	0.0	0.00	0.00	0.31	0.09	50	
61 A	14.14	14.13	32.954	24.580	336.5	0.205	5.98	102.0	2.6	0.35	0.0	0.00	0.00	0.37	0.11	61	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 80.0 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 26.6 N	120 32.5 W	17/05/10	0848 UTC	91 m	340 11 kn			1013.3 mb	11.8 C	11.2 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	11.70	11.70	33.772	25.692	228.9	0.000	6.16	100.4	6.6	0.93	7.4	0.19	0.61	9.76	2.19	0	
2	11.70	11.70	33.772	25.692	229.0	0.005	6.16	100.4	6.6	0.93	7.4	0.19	0.61	9.76	2.19	2	210
5	11.70	11.70	33.765	25.687	229.6	0.011	6.18	100.7	6.5	0.91	7.4	0.19	0.61	9.82	2.08	5	209
10	11.69	11.69	33.767	25.690	229.4	0.023	6.14	100.0	6.6	0.93	7.4	0.19	0.61	9.79	1.87	10	208
20	11.45	11.45	33.766	25.734	225.4	0.046	5.41	87.7	9.7	1.15	10.7	0.22	0.91	7.89	2.05	20	207
30	10.46	10.46	33.859	25.983	202.0	0.067	3.09	49.0	22.7	1.89	21.5	0.30	0.81	2.82	2.27	30	206
40	10.32	10.32	33.893	26.034	197.3	0.087	2.84	44.9	25.2	1.95	23.0	0.29	0.56	2.14	0.94	40	205
50	10.00	9.99	33.934	26.121	189.3	0.106	2.26	35.5	26.8	2.06	25.1	0.28	0.14	1.24	0.94	50	204
60	9.90	9.89	33.966	26.163	185.5	0.125	2.07	32.5	27.6	2.12	25.8	0.27	0.07	1.32	1.24	60	203
70	9.85	9.84	33.987	26.188	183.4	0.144	2.04	32.0	29.1	2.14	26.0	0.26	0.07	1.02	0.97	70	202
75 ISL	9.78 D	9.77	34.005 D	26.214	181.0	0.153	2.02	31.6	29.7	2.15	26.2	0.25	0.07	0.93	0.99	75	
86	9.73	9.72	34.007	26.224	180.3	0.173	1.98	30.9	30.9	2.17	26.5	0.23	0.08	0.72	1.04	86	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 80.0 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 19.0 N	120 46.8 W	17/05/10	0549 UTC	726 m	310 12 kn			1014.1 mb	11.5 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	10.82	10.82	33.698	25.794	219.2	0.000	5.38	86.0	20.8	1.52	18.0	0.23	0.33	2.11	0.76	0	
2	10.82	10.82	33.698	25.794	219.3	0.004	5.38	86.0	20.8	1.52	18.0	0.23	0.33	2.11	0.76	2	212
10 ISL	10.45 D	10.45	33.671 D	25.838	215.3	0.022	5.19	82.3	20.6	1.52	18.2	0.21	0.31	2.50	1.59	10	
15	10.44	10.44	33.667	25.837	215.5	0.033	5.03	79.7	20.5	1.52	18.4	0.19	0.31	2.67	2.30	15	211
20 ISL	10.41 D	10.41	33.670 D	25.844	214.9	0.043	4.91	77.7	20.8	1.54	18.7	0.19	0.34	2.21	2.74	20	
29	10.38	10.38	33.679	25.857	213.9	0.063	4.78	75.6	21.3	1.58	19.1	0.20	0.39	1.38	3.23	29	210
30 ISL	10.39 D	10.39	33.685 D	25.860	213.7	0.065	4.79	75.8	21.3	1.58	19.1	0.20	0.39	1.41	3.21	30	
45	10.42	10.41	33.704	25.870	213.1	0.097	4.94	78.3	21.2	1.55	18.9	0.20	0.40	2.22	2.86	45	209
50 ISL	10.36 D	10.35	33.724 D	25.896	210.7	0.107	4.88	77.2	21.3	1.56	19.0	0.20	0.41	2.23	2.15	50	
60	10.34	10.33	33.727	25.902	210.4	0.128	4.77	75.4	22.2	1.61	19.7	0.19	0.42	2.24	0.79	60	208
75	10.23	10.22	33.815	25.990	202.4	0.159	4.08	64.4	26.0	1.82	22.2	0.29	0.62	0.80	0.76	75	207
100	9.62	9.61	33.827	26.102	192.2	0.209	2.83	44.1	28.0	1.96	25.4	0.11	0.00	0.12	0.63	101	206
125 ISL	9.20 D	9.19	33.940 D	26.259	177.7	0.255	2.24	34.6	30.6	2.08	27.1	0.06	0.00	0.06	0.47	126	
150	9.28	9.26	34.005	26.297	174.6	0.299	1.94	30.0	34.1	2.20	28.3	0.02	0.00	0.01	0.33	151	205
200	8.59	8.57	34.145	26.516	154.6	0.381	1.20	18.3	44.7	2.51	31.5	0.01	0.00	0.00	0.24	201	204
250 CSL	7.26 D	7.24	34.093 D	26.672	140.1	0.455	1.45 D	21.4	52.2	2.64	34.2	0.00	0.00			252	
299	6.90	6.87	34.101	26.728	135.3	0.522	1.20	17.6	58.0	2.71	36.2	0.00	0.00			301	203
300 ISL	6.88 D	6.85	34.113 D	26.740	134.2	0.524	1.19	17.4	58.1	2.71	36.2	0.00	0.00			302	
400	6.59	6.55	34.243	26.883	122.0	0.652	0.55	8.0	69.1	2.97	38.0	0.00	0.00			403	202
500 ISL	5.91 D	5.87	34.297 D	27.014	110.4	0.768	0.34	4.9	80.5	3.11	40.0	0.00	0.00			504	
515	5.86	5.82	34.301	27.024	109.7	0.785	0.31	4.4	82.2	3.13	40.3	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 80.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 8.8 N	121 8.6 W	17/05/10	0151 UTC	2142 m	320 10 kn	300 02 05	2	1013.7 mb	12.5 C	12.0 C		8/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	12.55	12.55	33.193	25.082	287.0	0.000	5.93	98.0	7.4	0.74	5.6	0.14	0.22	0.44	0.26	0	
2	12.55	12.55	33.193	25.082	287.1	0.006	5.93	98.0	7.4	0.74	5.6	0.14	0.22	0.44	0.26	2	212
10 ISL	12.03 D	12.03	33.295 D	25.260	270.3	0.028	5.89	96.4	9.6	0.87	7.9	0.15	0.23	0.42	0.25	10	
15	12.00	12.00	33.298	25.268	269.6	0.042	5.85	95.6	11.4	0.98	9.7	0.15	0.23	0.40	0.25	15	211
20 ISL	11.87 D	11.87	33.318 D	25.308	265.9	0.055	5.78	94.2	12.0	1.03	10.4	0.15	0.27	0.38	0.29	20	
30	11.72	11.72	33.337	25.351	262.1	0.081	5.68	92.3	12.8	1.09	11.3	0.16	0.34	0.35	0.35	30	210
45	11.61	11.60	33.392	25.415	256.4	0.120	5.80	94.1	14.6	1.17	12.6	0.16	0.33	0.40	0.29	45	209
50 ISL	11.36 D	11.35	33.433 D	25.492	249.1	0.133	5.34	86.2	15.1	1.26	14.1	0.23	0.24	0.34	0.23	50	
57	10.27	10.26	33.360 D	25.627	236.3	0.150	4.65	73.3	16.1	1.40	16.5	0.33	0.12	0.24	0.17	57	208
75	10.48	10.47	33.626	25.799	220.5	0.191	4.34	68.8	21.9	1.63	20.3	0.35	0.20	0.17	0.32	75	207
100 ISL	9.47 D	9.46	33.737 D	26.056	196.5	0.243	3.17	49.2	26.3	1.88	24.7	0.04	0.01	0.06	0.18	101	
101	9.48	9.47	33.737	26.054	196.6	0.245	3.12	48.4	26.4	1.89	24.8	0.03	0.00	0.06	0.17	102	206
125 ISL	9.15 D	9.14	33.864 D	26.207	182.6	0.291	2.57	39.6	29.9	2.03	26.8	0.03	0.00	0.04	0.14	126	
150 ISL	8.92 D	8.90	33.992 D	26.344	170.0	0.335	2.27	34.8	33.4	2.13	28.1	0.02	0.00	0.01	0.11	151	
151	8.99	8.97	33.989	26.331	171.3	0.336	2.26	34.7	33.5	2.13	28.1	0.02	0.00	0.01	0.11	152	205
200 ISL	8.36 D	8.34	34.106 D	26.521	154.0	0.416	1.71	25.9	41.6	2.37	30.9	0.02	0.00	0.01	0.13	201	
201	8.35	8.33	34.101	26.519	154.3	0.418	1.70	25.8	41.8	2.37	31.0	0.02	0.00	0.01	0.13	202	204
250 ISL	7.61 D	7.59	34.128 D	26.650	142.4	0.490	1.36	20.3	48.7	2.54	33.4	0.02	0.00			252	
300	7.29	7.26	34.143	26.708	137.5	0.560	1.10	16.3	55.2	2.69	35.4	0.01	0.00			302	203
399	6.48	6.44	34.210	26.871	123.0	0.689	0.58	8.4	68.6	2.97	38.4	0.01	0.00			402	202
400 ISL	6.47 D	6.43	34.216 D	26.877	122.5	0.690	0.58	8.4	68.7	2.97	38.4	0.01	0.00			403	
500 ISL	5.91 D	5.87	34.294 D	27.012	110.7	0.807	0.33	4.7	80.3	3.13	40.4	0.00	0.00			504	
514	5.84	5.80	34.300	27.025	109.5	0.822	0.30	4.3	81.9	3.15	40.7	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 80.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 49.0 N	121 50.6 W	15/05/10	0103 UTC	3628 m	330 20 kn	320 04 05	2	1016.6 mb	13.5 C	13.0 C	10m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.95	13.95	33.136	24.758	317.8	0.000	6.01	102.2	3.2	0.35	0.1	0.01	0.00	0.54	0.19	0	
3	13.95	13.95	33.136	24.758	317.9	0.010	6.01	102.2	3.2	0.35	0.1	0.01	0.00	0.54	0.19	3	212
9	13.95	13.95	33.137	24.759	318.0	0.029	6.04	102.8	3.3	0.36	0.1	0.01	0.00	0.48	0.22	9	211
10 ISL	13.95 D	13.95	33.135 D	24.757	318.1	0.032	6.04	102.8	3.3	0.36	0.1	0.01	0.00	0.48	0.22	10	
18	13.95	13.95	33.142	24.763	317.8	0.057	6.04	102.8	3.3	0.35	0.1	0.01	0.00	0.53	0.16	18	210
20 ISL	13.95 D	13.95	33.135 D	24.758	318.4	0.064	6.04	102.8	3.3	0.35	0.1	0.01	0.01	0.53	0.16	20	
30	13.93	13.93	33.137	24.764	318.1	0.095	6.06	103.0	3.3	0.35	0.1	0.01	0.06	0.54	0.17	30	209
48	13.85	13.84	33.128	24.774	317.7	0.153	5.98	101.5	3.2	0.36	0.1	0.02	0.12	0.48	0.19	48	208
50 ISL	13.85 D	13.84	33.127 D	24.773	317.8	0.159	5.96	101.2	3.3	0.38	0.3	0.03	0.11	0.46	0.19	50	
74	11.61	11.60	33.008	25.117	285.4	0.231	5.58	90.3	5.9	0.69	5.1	0.09	0.00	0.19	0.19	74	207
75 ISL	11.34 D	11.33	33.017 D	25.173	280.1	0.234	5.57	89.6	6.1	0.71	5.4	0.09	0.00	0.18	0.19	75	
100	9.73	9.72	33.120	25.531	246.3	0.300	5.10	79.3	12.7	1.16	13.4	0.02	0.00	0.05	0.05	100	206
125 ISL	9.36 D	9.35	33.558 D	25.934	208.5	0.357	4.14	64.0	20.1	1.57	20.4	0.01	0.00	0.03	0.03	126	
149	9.17	9.15	33.777	26.136	189.8	0.405	3.22	49.6	26.9	1.88	25.5	0.01	0.00	0.01	0.02	150	205
150 ISL	9.12 D	9.10	33.805 D	26.166	186.9	0.407	3.20	49.3	27.1	1.89	25.6	0.01	0.00	0.01	0.02	151	
200 ISL	8.22 D	8.20	33.989 D	26.450	160.6	0.493	2.56	38.7	36.4	2.12	29.5	0.00	0.00	0.00	0.01	201	
201	8.22	8.20	33.989	26.450	160.7	0.495	2.55	38.5	36.6	2.12	29.5	0.00	0.00	0.00	0.01	202	204
250 ISL	7.65 D	7.63	34.038 D	26.573	149.6	0.571	1.97	29.4	44.3	2.34	32.6	0.00	0.00			251	
300 ISL	7.14 D	7.11	34.067 D	26.669	141.1	0.644	1.53	22.5	51.8	2.55	35.2	0.00	0.00			302	
301	7.12	7.09	34.067	26.671	140.9	0.645	1.52	22.4	51.9	2.55	35.2	0.00	0.00			303	203
400 CSL	6.24	6.20	34.134	26.843	125.5	0.777	1.04 D	15.0	68.4	2.88	39.1	0.00	0.00			403	202
500 ISL	5.31 D	5.27	34.201 D	27.011	110.0	0.895	0.57	8.1	85.4	3.10	41.9	0.00	0.00			503	
515	5.25	5.21	34.216	27.030	108.3	0.911	0.44	6.2	87.9	3.13	42.3	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 80.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 30.0 N	122 31.9 W	15/05/10	0629 UTC	3985 m	330 19 kn			1018.1 mb	13.5 C	12.9 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.06	14.06	32.975	24.611	331.8	0.000	6.01	102.4	2.8	0.34	0.0	0.00	0.00	0.28	0.08	0	
3	14.06	14.06	32.975	24.611	331.9	0.010	6.01	102.4	2.8	0.34	0.0	0.00	0.00	0.28	0.08	3	212
10 ISL	14.07 D	14.07	32.964 D	24.601	333.1	0.033	6.01	102.4	2.8	0.34	0.0	0.00	0.00	0.28	0.08	10	
16	14.07	14.07	32.971	24.606	332.7	0.053	6.00	102.2	2.8	0.34	0.0	0.00	0.00	0.29	0.08	16	211
20 ISL	14.06 D	14.06	32.965 D	24.604	333.1	0.067	6.00	102.2	2.8	0.34	0.0	0.00	0.00	0.29	0.08	20	
30	14.06	14.06	32.975	24.612	332.6	0.100	6.00	102.2	2.9	0.35	0.0	0.00	0.00	0.32	0.09	30	210
45	13.95	13.94	32.979	24.638	330.5	0.150	5.97	101.5	3.0	0.35	0.0	0.01	0.05	0.41	0.15	45	209
50 ISL	13.81 D	13.80	32.970 D	24.660	328.5	0.166	5.96	101.0	3.0	0.35	0.0	0.03	0.11	0.40	0.18	50	
60	13.67	13.66	32.980	24.697	325.3	0.199	5.93	100.2	3.2	0.38	0.1	0.07	0.20	0.38	0.22	60	208
75 ISL	12.61 D	12.60	32.947 D	24.881	308.0	0.246	5.80	95.8	4.0	0.50	1.4	0.34	0.07	0.25	0.21	75	
76	12.57	12.56	32.949	24.891	307.1	0.249	5.79	95.6	4.0	0.51	1.6	0.36	0.06	0.24	0.21	76	207
100	10.52	10.51	33.133	25.408	258.1	0.317	5.06	80.0	11.8	1.13	12.3	0.01	0.00	0.05	0.05	100	206
125 CSL	9.19 D	9.18	33.377 D	25.820	219.3	0.377	4.65 D	71.5	18.8	1.49	18.9	0.00	0.00	0.03	0.03	126	
149	9.05	9.03	33.665	26.068	196.2	0.427	3.87	59.4	24.2	1.67	22.3	0.00	0.00	0.01	0.01	150	205
150 ISL	9.04 D	9.02	33.682 D	26.083	194.8	0.429	3.86	59.3	24.3	1.67	22.4	0.00	0.00	0.01	0.01	151	
200 ISL	8.52 D	8.50	33.940 D	26.366	168.7	0.519	3.54	53.8	29.8	1.76	24.3	0.00	0.00	0.00	0.01	201	
201	8.52	8.50	33.944	26.370	168.4	0.521	3.54	53.8	29.9	1.76	24.3	0.00	0.00	0.00	0.01	202	204
250 ISL	7.80 D	7.78	34.004 D	26.525	154.3	0.600	2.75	41.1	39.3	2.07	28.6	0.00	0.00			251	
300	7.19	7.16	34.042	26.642	143.7	0.675	1.87	27.6	49.9	2.43	33.3	0.00	0.00			302	203
400 ISL	6.34 D	6.30	34.109 D	26.810	128.7	0.811	0.98	14.2	65.6	2.85	38.1	0.00	0.00			403	
401	6.34	6.30	34.111	26.812	128.5	0.812	0.97	14.0	65.7	2.85	38.1	0.00	0.00			404	202
500 ISL	5.57 D	5.53	34.178 D	26.962	114.9	0.933	0.59	8.4	80.4	3.05	40.6	0.00	0.00			503	
515	5.49	5.45	34.173	26.967	114.5	0.950	0.53	7.5	82.6	3.08	41.0	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 80.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 9.3 N	123 13.0 W	15/05/10	1204 UTC	4223 m	340 17 kn			1017.8 mb	13.6 C	12.8 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.37	14.37	33.017	24.579	334.9	0.000	5.96	102.2	3.1	0.36	0.0	0.00	0.00	0.28	0.06	0	
2	14.37	14.37	33.017	24.579	334.9	0.007	5.96	102.2	3.1	0.36	0.0	0.00	0.00	0.28	0.06	2	212
10 ISL	14.37 D	14.37	33.017 D	24.579	335.2	0.034	5.97	102.4	3.1	0.36	0.0	0.00	0.00	0.28	0.06	10	
15	14.38	14.38	33.016	24.576	335.6	0.050	5.98	102.6	3.1	0.36	0.0	0.00	0.00	0.28	0.06	15	211
20 ISL	14.37 D	14.37	33.017 D	24.579	335.4	0.067	5.97	102.4	3.1	0.35	0.0	0.00	0.00	0.28	0.06	20	
30	14.36	14.36	33.025	24.588	334.9	0.101	5.96	102.2	3.0	0.34	0.0	0.00	0.00	0.28	0.06	30	210
45	14.28	14.27	33.011	24.594	334.7	0.151	5.98	102.3	2.9	0.34	0.0	0.00	0.00	0.34	0.08	45	209
50 ISL	14.25 D	14.24	33.010 D	24.600	334.3	0.168	5.97	102.1	2.8	0.34	0.0	0.00	0.00	0.38	0.10	50	
60	14.11	14.10	32.995	24.618	332.9	0.201	5.96	101.6	2.7	0.35	0.0	0.00	0.00	0.42	0.15	60	208
75	13.39	13.38	32.917	24.705	324.9	0.250	5.96	100.1	2.6	0.38	0.1	0.03	0.18	0.33	0.19	75	207
100	11.58	11.57	33.005	25.120	285.7	0.327	5.56	89.9	6.4	0.71	5.3	0.07	0.00	0.14	0.17	100	206
125 ISL	9.73 D	9.72	33.162 D	25.564	243.6	0.393	4.99	77.6	12.5	1.12	12.2	0.05	0.00	0.05	0.10	126	
150	9.43	9.41	33.457	25.844	217.5	0.450	4.36	67.4	19.2	1.50	18.9	0.01	0.00	0.01	0.02	151	205
200	8.62	8.60	33.857	26.286	176.4	0.549	3.26	49.6	30.4	1.89	25.9	0.00	0.00	0.00	0.01	201	204
250 CSL	7.80 D	7.78	33.984 D	26.509	155.8	0.632	3.00 D	44.9	39.9	2.13	29.7	0.00	0.00			251	
300	7.13	7.10	34.013	26.628	145.0	0.707	2.22	32.7	48.5	2.33	32.2	0.00	0.00			302	203
400	6.53	6.49	34.147	26.815	128.4	0.844	0.86	12.5	64.9	2.85	37.8	0.00	0.00			402	202
500 ISL	5.81 D	5.77	34.200 D	26.950	116.3	0.966	0.53	7.6	78.7	3.05	40.2	0.00	0.00			503	
515	5.68	5.64	34.204	26.969	114.6	0.983	0.48	6.8	80.8	3.08	40.6	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 81.8 46.9

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 16.5 N	120 1.2 W	14/05/10	0007 UTC	578 m	280 16 kn	290 03 05	1	1011.9 mb	12.8 C	12.5 C	03m	2/8	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	12.24	12.24	33.723	25.552	242.2	0.000	7.80	128.5	3.3	0.62	1.3	0.14	0.07	18.44	7.04	0	
3 A	12.24	12.24	33.723	25.552	242.3	0.007	7.80	128.5	3.3	0.62	1.3	0.14	0.07	18.44	7.04	3	212
10 ISL	12.00 D	12.00	33.719 D	25.595	238.4	0.024	7.22	118.4	3.9	0.65	3.0	0.16	0.10	19.16	6.56	10	
11	11.93	11.93	33.717	25.607	237.4	0.026	7.09	116.0	4.0	0.65	3.4	0.16	0.11	19.33	6.47	11	211
20	11.58	11.58	33.739	25.689	229.7	0.047	5.81	94.4	8.7	1.14	8.6	0.21	0.60	21.23	6.18	20	210
30	10.07	10.07	33.876	26.063	194.3	0.069	3.16	49.7	23.7	1.80	20.9	0.18	0.73	9.05	3.52	30	209
40	9.64	9.64	33.996	26.229	178.8	0.087	1.93	30.1	32.2	2.18	27.3	0.10	0.00	0.73	1.45	40	208
50	9.45	9.44	34.046	26.300	172.3	0.105	1.80	28.0	34.2	2.25	28.1	0.07	0.00	0.28	1.12	50	207
61	9.28	9.27	34.067	26.344	168.3	0.124	1.80	27.9	35.7	2.34	28.9	0.07	0.00	0.18	1.20	61	206
71	9.23	9.22	34.082	26.364	166.6	0.140	1.61	24.9	36.5	2.32	29.1	0.06	0.00	0.13	0.72	71	205
75 ISL	9.10 D	9.09	34.100 D	26.399	163.3	0.147	1.60	24.7	37.0	2.33	29.3	0.05	0.00	0.11	0.62	75	
85	9.06	9.05	34.109	26.413	162.3	0.163	1.56	24.0	38.3	2.38	29.7	0.03	0.00	0.07	0.50	85	204
100 ISL	8.92 D	8.91	34.122 D	26.445	159.4	0.187	1.46	22.4	39.9	2.42	30.1	0.03	0.00	0.06	0.49	101	
101	8.94	8.93	34.116	26.438	160.2	0.189	1.45	22.3	40.0	2.42	30.1	0.03	0.00	0.06	0.49	102	203
120	8.77	8.76	34.136	26.480	156.5	0.219	1.31	20.1	42.2	2.47	31.0	0.05	0.00	0.05	0.67	121	202
125 ISL	8.75 D	8.74	34.142 D	26.488	155.8	0.227	1.29	19.7	42.5	2.48	31.1	0.05	0.00	0.05	0.65	126	
150 ISL	8.67 D	8.65	34.150 D	26.507	154.5	0.266	1.20	18.3	44.2	2.54	31.5	0.04	0.00	0.04	0.55	151	
170	8.55	8.53	34.165	26.538	152.0	0.296	1.13	17.2	45.5	2.59	31.8	0.03	0.00	0.04	0.47	171	201

A) SANTA BARBARA BASIN STATION.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 81.8 46.9

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 16.6 N	120 1.7 W	14/05/10	0217 UTC	575 m	280 16 kn	290 03 05	1	1011.9 mb	12.8 C	12.5 C	03m	2/8	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
140	8.77	8.76	34.141	26.484	156.5	0.250	1.33	20.4	42.5	2.48	30.9	0.03	0.00	0.05	0.50	141	212
150 ISL	8.75 D	8.73	34.144 D	26.490	156.1	0.266	1.28	19.6	43.4	2.51	31.1	0.03	0.00			151	
200	8.44	8.42	34.165	26.555	150.8	0.342	1.03	15.7	47.9	2.63	32.4	0.03	0.00	0.04	0.49	201	211
231	8.28	8.26	34.176	26.589	148.2	0.389	0.95	14.4	50.0	2.65	32.9	0.03	0.00			232	210
250 ISL	8.15 D	8.12	34.186 D	26.616	145.9	0.417	0.90	13.6	51.5	2.71	33.2	0.03	0.00			252	
271	8.04	8.01	34.194	26.639	144.0	0.447	0.84	12.7	53.4	2.78	33.5	0.02	0.00			273	209
300 ISL	7.75 D	7.72	34.208 D	26.693	139.2	0.488	0.81	12.1	55.8	2.82	33.9	0.01	0.00			302	
320	7.69	7.66	34.205	26.700	138.9	0.516	0.77	11.5	58.0	2.85	34.2	0.01	0.00			322	208
380	7.19	7.15	34.231	26.792	130.9	0.597	0.41	6.1	69.5	3.05	34.4	0.00	0.00			383	207
400 ISL	7.03 D	6.99	34.234 D	26.817	128.7	0.623	0.32	4.7	75.4	3.12	33.3	0.00	0.00			403	
441	6.75	6.71	34.239	26.859	125.1	0.675	0.22	3.2	84.5	3.23	31.4	0.00	0.00			444	206
479	6.65	6.61	34.257	26.887	123.0	0.722	0.31	4.5	83.2	3.26	32.5	0.01	0.00			482	205
500 ISL	6.55 D	6.50	34.252 D	26.897	122.2	0.748	0.18	2.6	96.7	3.50	26.3	0.00	0.00			504	
515	6.55	6.50	34.251	26.896	122.5	0.766	0.08	1.2	106.0	3.66	22.0	0.00	0.00			519	204
541	6.55	6.50	34.251	26.896	122.9	0.798	0.08	1.2	105.8	3.66	22.2	0.00	0.00			545	203
563	6.53	6.48	34.252	26.900	122.9	0.825	0.13	1.9	100.9	3.64	24.9	0.05	0.00			567	202
571	6.51	6.46	34.255	26.905	122.5	0.835	0.19	2.8	94.7	3.54	28.4	0.16	0.10			575	201

A) SANTA BARBARA BASIN STATION.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
34 13.6 N	119 25.2 W	13/05/10	1859 UTC	35 m	280 08 kn	290 01 04	0	1013.9 mb	13.0 C	13.0 C	05m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	12.47	12.47	33.719	25.505	246.7	0.000	7.13	118.0	6.8	0.62	3.3	0.25	0.11	19.13	0.21	0	
3 A	12.47	12.47	33.719	25.505	246.8	0.007	7.13	118.0	6.8	0.62	3.3	0.25	0.11	19.13	0.21	3	207
4 A	12.33	12.33	33.725	25.537	243.8	0.010	7.05	116.4	7.1	0.63	3.7	0.25	0.11	16.88	0.75	4	206
7 A	12.24	12.24	33.716	25.547	242.9	0.017	6.73	110.9	8.1	0.81	5.3	0.26	0.16	16.89	0.35	7	205
10 ISL	11.52 D	11.52	33.697 D	25.667	231.5	0.024	5.76	93.4	11.2	1.05	9.8	0.30	0.22	13.73	1.04	10	
11 A	11.52	11.52	33.700	25.670	231.3	0.027	5.46	88.6	12.2	1.12	11.1	0.31	0.24	12.70	1.27	11	204
14 A	11.51	11.51	33.698	25.670	231.4	0.034	5.41	87.7	12.4	1.13	11.2	0.31	0.24	13.00 B	0.83 B	14	203
19 A	11.51	11.51	33.693	25.666	231.9	0.045	5.41	87.7	12.2	1.14	11.3	0.30	0.23	14.44	0.41	19	202
20 ISL	11.48 D	11.48	33.698 D	25.676	231.0	0.047	5.32	86.2	12.6	1.17	11.6	0.31	0.34	13.66	0.51	20	
30	11.06	11.06	33.724 D	25.772	222.0	0.070	4.47	71.8	17.1	1.47	15.0	0.38	1.42	5.86	1.53	30	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
B) FIRST FLUOROMETER READING NOT RECORDED, CHLOROPHYLL AND PHAEOPIGMENT
CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 42.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
34 10.9 N	119 30.3 W	13/05/10	2035 UTC	100 m	250 12 kn	290 01 04	0	1013.3 mb	14.1 C	13.5 C	04m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	12.67	12.67	33.717	25.465	250.6	0.000	8.01	133.2	2.4	0.46	0.4	0.14	0.09	17.16	2.84	0	
2	12.67	12.67	33.717	25.465	250.6	0.005	8.01	133.2	2.4	0.46	0.4	0.14	0.09	17.16	2.84	2	210
10	11.84	11.84	33.716	25.623	235.8	0.024	7.72	126.1	2.8	0.45	1.0	0.15	0.14	16.81	3.68	10	209
20	11.77	11.77	33.719	25.638	234.5	0.048	6.67	108.8	4.1	0.67	4.0	0.20	1.03	18.31	4.32	20	208
30	11.59	11.59	33.730	25.681	230.8	0.071	6.21	100.9	7.3	1.00	6.0	0.20	2.25	15.29	5.76	30	207
40	11.28	11.28	33.747	25.751	224.3	0.094	5.59	90.2	12.4	1.24	9.9	0.24	2.43	8.10	2.95	40	206
50	10.83	10.82	33.758	25.840	216.0	0.116	4.77	76.3	17.7	1.51	14.4	0.27	2.17	5.30	2.94	50	205
60	10.46	10.45	33.792	25.932	207.5	0.137	3.59	56.9	22.9	1.79	19.3	0.31	1.53	4.92	2.40	60	204
70	10.09	10.08	33.889	26.071	194.5	0.157	2.44	38.4	26.8	2.00	24.3	0.24	0.29	1.67	1.76	70	203
75 ISL	9.94 D	9.93	33.948 D	26.142	187.8	0.167	2.39	37.5	27.8	2.04	24.8	0.18	0.29	1.08	1.34	75	
80	9.90	9.89	33.973	26.169	185.4	0.176	2.34	36.7	28.5	2.06	25.2	0.12	0.29	0.83	0.96	80	202
90	9.75	9.74	34.018	26.229	179.9	0.194	2.15	33.6	30.1	2.11	26.0	0.10	0.11	0.37	0.66	91	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 52.7 N	120 8.1 W	14/05/10	0601 UTC	101 m	300 26 kn			1013.1 mb	12.5 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	12.05	12.05	33.671	25.548	242.6	0.000	6.00	98.4	8.5	0.91	7.5	0.23	0.80	8.53	1.08	0	
2	12.05	12.05	33.671	25.548	242.7	0.005	6.00	98.4	8.5	0.91	7.5	0.23	0.80	8.53	1.08	2	209
5	12.05	12.05	33.664	25.543	243.3	0.012	6.01	98.6	8.7	0.90	7.5	0.23	0.78	7.87	0.87	5	208
10	12.01	12.01	33.670	25.555	242.2	0.024	5.95	97.5	9.1	0.93	7.7	0.23	0.84	8.37	1.13	10	207
20	11.37	11.37	33.738	25.727	226.1	0.048	5.21	84.3	13.5	1.24	11.1	0.24	1.18	8.62	1.54	20	206
30	10.74	10.74	33.789	25.880	211.8	0.070	4.20	67.0	19.0	1.51	16.0	0.25	1.07	6.66	1.63	30	205
40	10.29	10.29	33.840	25.998	200.8	0.090	2.98	47.1	24.7	1.84	21.9	0.22	0.45	2.98	1.67	40	204
50	10.07	10.06	33.879	26.066	194.5	0.110	2.61	41.1	27.3	1.96	24.0	0.18	0.13	1.46	1.00	50	203
74	9.91	9.90	33.940	26.141	187.9	0.156	2.39	37.5	29.7	2.04	25.0	0.19	0.26	0.89	1.12	74	202
75 ISL	9.92 D	9.91	33.937 D	26.137	188.3	0.158	2.39	37.5	29.7	2.04	25.0	0.19	0.26	0.89	1.11	75	
90	9.90	9.89	33.949	26.150	187.4	0.186	2.37	37.2	30.2	2.04	25.0	0.19	0.29	0.92	0.99	91	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 44.3 N	120 24.0 W	14/05/10	0857 UTC	895 m	320 23 kn			1013.9 mb	11.1 C	10.9 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	11.09	11.09	33.377	25.496	247.6	0.000	5.37	86.1	14.7	1.20	13.1	0.15	0.11	1.63	0.28	0	
3	11.09	11.09	33.377	25.496	247.6	0.007	5.37	86.1	14.7	1.20	13.1	0.15	0.11	1.63	0.28	3	212
10 ISL	11.09 D	11.09	33.371 D	25.492	248.2	0.025	5.38	86.3	14.8	1.20	13.1	0.15	0.10	1.61	0.27	10	
15	11.10	11.10	33.377	25.495	248.1	0.037	5.39	86.5	14.8	1.20	13.2	0.15	0.10	1.60	0.26	15	211
20 ISL	11.11 D	11.11	33.388 D	25.502	247.5	0.050	5.39	86.5	14.8	1.21	13.2	0.16	0.11	1.83	0.27	20	
30	11.09	11.09	33.421	25.531	245.0	0.074	5.38	86.3	14.7	1.22	13.3	0.17	0.13	3.07	0.35	30	210
45	11.35	11.34	33.682 D	25.688	230.5	0.110	5.78 D	93.4								45	209
50 ISL	11.26 D	11.25	33.680 D	25.702	229.2	0.121	5.46	88.1	13.4	1.15	12.0	0.19	0.75	12.44	0.74	50	
60	11.21	11.20	33.687	25.717	228.0	0.144	5.50	88.6	12.8	1.12	11.3	0.20	0.94	14.95	0.98	60	208
75 ISL	10.19 D	10.18	33.711 D	25.915	209.4	0.177	3.79	59.7	22.7	1.79	20.9	0.16	0.41	6.44	1.26	75	
76	10.12	10.11	33.705	25.922	208.7	0.179	3.67	57.7	23.4	1.83	21.6	0.16	0.37	5.77	1.27	76	207
100	9.40	9.39	33.814	26.127	189.7	0.227	2.86	44.3	28.5	1.96	25.6	0.02	0.00	0.23	0.37	101	206
125 ISL	9.57 D	9.56	34.012 D	26.255	178.1	0.273	2.26	35.2	32.0	2.10	26.7	0.02	0.00	0.16	0.31	126	
150	9.47	9.45	34.038	26.292	175.1	0.317	1.89	29.4	34.4	2.21	27.8	0.03	0.00	0.09	0.26	151	205
200 ISL	8.92 D	8.90	34.116 D	26.442	161.7	0.401	1.81	27.8	38.5	2.31	29.2	0.01	0.00	0.05	0.19	201	
201	8.94	8.92	34.119	26.442	161.8	0.403	1.81	27.8	38.6	2.31	29.2	0.01	0.00	0.05	0.19	202	204
250 ISL	7.82 D	7.80	34.167 D	26.650	142.5	0.477	1.40	21.0	47.2	2.52	31.9	0.01	0.00			252	
300 ISL	7.44 D	7.41	34.208 D	26.738	134.8	0.547	0.94	14.0	56.9	2.75	34.8	0.00	0.00			302	
301	7.45	7.42	34.206	26.735	135.2	0.548	0.93	13.8	57.1	2.75	34.9	0.00	0.00			303	203
400 ISL	6.55 D	6.51	34.228 D	26.876	122.6	0.676	0.61	8.9	69.1	2.96	37.9	0.00	0.00			403	
401	6.55	6.51	34.233	26.880	122.3	0.677	0.61	8.9	69.2	2.96	37.9	0.00	0.00			404	202
500 ISL	6.16 D	6.12	34.294 D	26.980	113.9	0.794	0.38	5.5	78.1	3.12	39.6	0.00	0.00			504	
515	6.06	6.01	34.295	26.994	112.7	0.811	0.34	4.9	79.4	3.14	39.9	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 83.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 34.8 N	120 44.9 W	14/05/10	1253 UTC	1265 m	310 20 kn			1014.3 mb	12.6 C	12.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.27	13.27	33.158	24.913	303.0	0.000	6.06	101.7	5.0	0.53	2.7	0.08	0.12	0.93	0.29	0	
3	13.27	13.27	33.158	24.913	303.1	0.009	6.06	101.7	5.0	0.53	2.7	0.08	0.12	0.93	0.29	3	212
10 ISL	13.27 D	13.27	33.148 D	24.906	304.0	0.030	6.05	101.5	5.0	0.54	2.7	0.08	0.12	0.87	0.27	10	
15	13.27	13.27	33.152	24.909	303.9	0.046	6.05	101.5	5.0	0.54	2.7	0.08	0.12	0.83	0.26	15	211
20 ISL	13.27 D	13.27	33.148 D	24.906	304.3	0.061	6.05	101.5	5.1	0.54	2.7	0.08	0.12	0.84	0.28	20	
30	13.27	13.27	33.150	24.908	304.4	0.091	6.06	101.7	5.2	0.53	2.7	0.08	0.13	0.88	0.32	30	210
45	13.27	13.26	33.150	24.908	304.7	0.137	6.05	101.5	5.2	0.53	2.7	0.08	0.12	0.85	0.29	45	209
50 ISL	13.27 D	13.26	33.149 D	24.908	304.9	0.152	6.05	101.5	5.2	0.53	2.7	0.08	0.13	0.88	0.27	50	
60	13.27	13.26	33.152	24.910	304.9	0.183	6.05	101.5	5.2	0.53	2.7	0.08	0.14	0.93	0.24	60	208
74	13.27	13.26	33.148	24.907	305.6	0.225	6.05	101.5	5.2	0.54	2.7	0.08	0.13	0.88	0.32	74	207
75 ISL	13.26 D	13.25	33.150 D	24.911	305.3	0.228	6.03	101.1	5.3	0.55	2.9	0.08	0.13	0.85	0.32	75	
100	10.18	10.17	33.057	25.407	258.2	0.299	5.28	82.8	10.0	1.00	10.3	0.04	0.00	0.14	0.14	100	206
125 ISL	9.38 D	9.37	33.426 D	25.828	218.6	0.358	4.47	69.1	17.5	1.41	17.3	0.01	0.00	0.08	0.06	126	
149	8.97	8.95	33.691	26.101	193.1	0.408	3.75	57.5	24.9	1.72	22.9	0.00	0.00	0.02	0.04	150	205
150 ISL	9.00 D	8.98	33.781 D	26.167	186.9	0.410	3.73	57.3	25.1	1.73	23.0	0.00	0.00	0.02	0.04	151	
200	8.28	8.26	33.970	26.426	162.9	0.497	2.80	42.3	34.3	2.03	27.9	0.00	0.00	0.01	0.02	201	204
250 ISL	7.61 D	7.59	34.044 D	26.584	148.6	0.575	1.96	29.2	44.0	2.34	31.8	0.00	0.00			251	
300 ISL	7.28 D	7.25	34.117 D	26.689	139.3	0.647	1.28	18.9	53.0	2.61	34.7	0.00	0.00			302	
301	7.28	7.25	34.116	26.688	139.4	0.648	1.27	18.8	53.2	2.62	34.7	0.00	0.00			303	203
400	6.68	6.64	34.217	26.851	125.2	0.779	0.64	9.3	66.5	2.92	37.4	0.00	0.00			403	202
500 ISL	5.96 D	5.92	34.262 D	26.980	113.7	0.899	0.37	5.3	79.6	3.09	39.8	0.00	0.00			503	
515	5.85	5.81	34.270	27.000	111.8	0.916	0.33	4.7	81.6	3.12	40.2	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 16.2 N	121 26.9 W	14/05/10	2009 UTC	3790 m	330 20 kn	310 04 05	2	1017.4 mb	13.5 C	13.1 C	14m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.22	14.22	33.145	24.709	322.5	0.000	5.98	102.3	3.1	0.35	0.0	0.01	0.17	0.55	0.18	0	
2	14.22	14.22	33.145	24.709	322.6	0.006	5.98	102.3	3.1	0.35	0.0	0.01	0.17	0.55	0.18	2	212
10	14.22	14.22	33.144	24.708	322.8	0.032	5.99	102.5	3.1	0.37	0.0	0.02	0.32	0.57	0.19	10	211
20	14.21	14.21	33.149	24.715	322.5	0.065	6.00	102.6	3.0	0.36	0.0	0.01	0.11	0.58	0.19	20	210
30	14.22	14.22	33.144	24.709	323.3	0.097	5.98	102.3	3.0	0.35	0.0	0.01	0.11	0.54	0.19	30	209
50	14.21	14.20	33.146	24.713	323.5	0.162	5.97	102.1	3.1	0.35	0.0	0.01	0.07	0.53	0.18	50	208
75	13.99	13.98	33.152	24.764	319.3	0.242	5.93	101.0	3.2	0.41	0.4	0.06	0.37	0.29	0.14	75	207
100 ISL	13.53 D	13.52	33.167 D	24.871	309.8	0.321	5.77	97.3	4.4	0.53	2.2	0.21	0.35	0.16	0.12	100	
101	13.43	13.42	33.169	24.892	307.8	0.324	5.76	96.9	4.5	0.54	2.3	0.22	0.35	0.16	0.12	101	206
125 ISL	10.33 D	10.32	33.276 D	25.553	244.9	0.390	4.86	76.6	11.6	1.03	10.6	0.15	0.18	0.07	0.11	126	
150	9.99	9.97	33.548	25.823	219.7	0.448	3.74	58.6	20.5	1.59	20.2	0.01	0.00	0.02	0.10	151	205
200 ISL	9.18 D	9.16	33.971 D	26.287	176.5	0.547	2.53	39.0	31.3	2.01	26.5	0.00	0.00	0.03	0.07	201	
201	9.18	9.16	33.974	26.290	176.3	0.549	2.51	38.7	31.5	2.01	26.6	0.00	0.00	0.03	0.07	202	204
250 CSL	8.11 D	8.08	34.017 D	26.490	157.8	0.631	2.38 D	35.9	40.5	2.26	30.3	0.00	0.00			251	
299	7.56	7.53	34.082	26.621	145.9	0.705	1.71	25.5	48.3	2.44	32.7	0.00	0.00			301	203
300 ISL	7.53 D	7.50	34.081 D	26.625	145.5	0.707	1.70	25.3	48.4	2.44	32.7	0.00	0.00			302	
400 ISL	6.93 D	6.89	34.193 D	26.798	130.4	0.844	0.84	12.3	61.5	2.81	36.3	0.00	0.00			403	
402	6.88	6.84	34.194	26.806	129.6	0.847	0.83	12.2	61.7	2.82	36.4	0.00	0.00			405	202
500 ISL	5.98 D	5.94	34.215 D	26.941	117.4	0.968	0.50	7.2	75.4	3.03	39.5	0.00	0.00			503	
519	5.89	5.84	34.235	26.968	115.0	0.990	0.44	6.3	78.0	3.07	40.1	0.00	0.00			522	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 15.0 N	121 26.6 W	14/05/10	1825 UTC	3798 m	330 20 kn	310 04 05	2	1017.4 mb	13.5 C	13.1 C	14m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.22	14.22	33.145	24.709	322.5	0.000	5.97	102.1	3.0	0.37	0.1	0.02	0.09	0.51	0.19	0	
2 A	14.22	14.22	33.145	24.709	322.6	0.006	5.97	102.1	3.0	0.37	0.1	0.02	0.09	0.51	0.19	2	207
10 A	14.22	14.22	33.145	24.709	322.8	0.032	5.96	102.0	2.8	0.36	0.1	0.02	0.07	0.52	0.19	10	205
10	14.22	14.22	33.144	24.708	322.8	0.032										10	206
20 A	14.22	14.22	33.144	24.709	323.1	0.065	5.96	102.0	2.9	0.36	0.1	0.02	0.05	0.51	0.21	20	204
30 A	14.22	14.22	33.150	24.714	322.9	0.097	5.95	101.8	2.9	0.36	0.0	0.02	0.06	0.55	0.18	30	203
37 A	14.22	14.21	33.144	24.709	323.5	0.119	5.95	101.8	2.7	0.35	0.1	0.01	0.08	0.51	0.18	37	202
50 ISL	14.22 D	14.21	33.144 D	24.710	323.9	0.162	5.95	101.8	3.0	0.35	0.1	0.02	0.09	0.50	0.18	50	
55 A	14.22	14.21	33.146	24.711	323.8	0.178	5.95	101.8	3.1	0.35	0.1	0.02	0.10	0.49	0.18	55	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 55.1 N	122 8.1 W	06/05/10	2001 UTC	4180 m	330 26 kn	330 07 05	1	1019.5 mb	13.0 C	12.5 C	17m	1/8	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.37	14.37	33.011	24.574	335.3	0.000	6.15	105.5	2.3	0.35	0.0	0.01	0.00	0.20	0.07	0	
4	14.37	14.37	33.011	24.574	335.4	0.013	6.15	105.5	2.3	0.35	0.0	0.01	0.00	0.20	0.07	4	212
10 ISL	14.36 D	14.36	33.009 D	24.575	335.6	0.034	6.11	104.7	2.5	0.35	0.0	0.00	0.03	0.21	0.07	10	
15	14.35	14.35	33.017	24.583	334.9	0.050	6.06	103.9	2.6	0.35	0.0	0.00	0.05	0.21	0.07	15	211
20 ISL	14.35 D	14.35	33.008 D	24.576	335.7	0.067	6.03	103.3	2.5	0.35	0.0	0.00	0.04	0.21	0.07	20	
30 ISL	14.33 D	14.33	33.008 D	24.581	335.5	0.101	5.98	102.4	2.4	0.34	0.0	0.00	0.00	0.21	0.07	30	
31	14.33	14.33	33.010	24.583	335.4	0.104	5.98	102.4	2.4	0.34	0.0	0.00	0.00	0.21	0.07	31	210
45	14.32	14.31	33.011	24.586	335.5	0.151	5.98	102.4	1.8	0.34	0.0	0.00	0.05	0.22	0.08	45	209
50 ISL	14.32 D	14.31	33.009 D	24.584	335.8	0.168	6.02	103.1	2.0	0.34	0.0	0.00	0.08	0.22	0.08	50	
61	14.32	14.31	33.010	24.586	336.0	0.205	6.08	104.1	2.6	0.35	0.0	0.00	0.13	0.23	0.08	61	208
74	13.74	13.73	32.985	24.687	326.7	0.248	6.01	101.7	2.6	0.39	0.1	0.01	0.12	0.57	0.38	74	207
75 ISL	13.37 D	13.36	32.982 D	24.759	319.7	0.251	6.00	100.7	2.6	0.40	0.2	0.01	0.12	0.57	0.38	75	
100	12.06	12.05	33.045	25.063	291.3	0.327	5.64	92.2	5.2	0.63	4.1	0.09	0.00	0.24	0.32	100	206
125 ISL	10.21 D	10.20	33.118 D	25.450	254.6	0.396	5.23	82.1	10.1	0.99	10.2	0.07	0.00	0.08	0.17	126	
150 ISL	9.54	9.52	33.367	25.756	225.9	0.456	4.72	73.2	16.3	1.37	16.7	0.02	0.00	0.02	0.03	151	
152	9.54	9.52	33.384	25.769	224.7	0.460	4.68	72.5	16.9	1.40	17.2	0.01	0.00	0.02	0.02	153	205
200	8.76	8.74	33.870	26.275	177.5	0.557	3.30	50.4	30.1	1.93	26.2	0.00	0.00	0.00	0.01	201	204
250 CSL	7.87 D	7.85	33.983 D	26.498	156.9	0.640	3.08 D	46.1	40.3	2.20	30.5	0.00	0.00			251	
300 ISL	7.12 D	7.09	34.014 D	26.630	144.8	0.716	2.14	31.5	49.0	2.37	32.6	0.00	0.00			302	
301	7.14	7.11	34.020	26.632	144.6	0.717	2.13	31.4	49.2	2.37	32.6	0.00	0.00			303	203
400 ISL	6.16 D	6.12	34.103 D	26.828	126.8	0.852	1.04	15.0	67.2	2.85	38.3	0.00	0.00			402	
401	6.19	6.15	34.093	26.817	127.9	0.853	1.03	14.8	67.4	2.85	38.3	0.00	0.00			403	202
500 ISL	5.56 D	5.52	34.185 D	26.968	114.3	0.973	0.55	7.8	81.3	3.08	40.8	0.00	0.00			503	
515	5.50	5.46	34.193	26.982	113.1	0.990	0.48	6.8	83.4	3.11	41.2	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 54.6 N	122 7.7 W	06/05/10	1836 UTC	4181 m	330 26 kn	330 07 05	1	1019.5 mb	13.0 C	12.5 C	17m	1/8	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.43	14.43	33.012	24.562	336.5	0.000	5.95	102.1	2.1	0.33	0.1	0.00	0.00	0.19	0.06	0	
4 A	14.43	14.43	33.012	24.562	336.6	0.013	5.95	102.1	2.1	0.33	0.1	0.00	0.00	0.19	0.06	4	207
10 ISL	14.42 D	14.42	33.013 D	24.565	336.5	0.034	5.96	102.3	2.4	0.34	0.0	0.00	0.00	0.19	0.07	10	
12	14.43	14.43	33.014	24.564	336.6	0.040										12	206
13 A	14.43	14.43	33.015	24.565	336.6	0.044	5.96	102.3	2.5	0.34	0.0	0.00	0.00	0.19	0.07	13	205
20 ISL	14.41 D	14.41	33.014 D	24.568	336.4	0.067	5.95	102.1	2.0	0.34	0.0	0.00	0.00	0.19	0.06	20	
24 A	14.41	14.41	33.013	24.568	336.6	0.081	5.95	102.1	1.7	0.34	0.0	0.00	0.00	0.19	0.06	24	204
30 ISL	14.39 D	14.39	33.015 D	24.574	336.2	0.101	5.97	102.4	1.9	0.34	0.0	0.00	0.00	0.20	0.06	30	
36 A	14.38	14.37	33.015	24.576	336.2	0.121	5.98	102.5	2.0	0.33	0.0	0.00	0.00	0.21	0.07	36	203
47 A	14.36	14.35	33.014	24.580	336.1	0.158	5.95	102.0	2.6	0.32	0.0	0.00	0.00	0.21	0.08	47	202
50 ISL	14.36 D	14.35	33.015 D	24.581	336.1	0.168	5.95	102.0	2.6	0.32	0.0	0.00	0.00	0.21	0.08	50	
65 A	14.34	14.33	33.012	24.583	336.3	0.219	5.96	102.1	2.8	0.32	0.0	0.00	0.00	0.23	0.09	65	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 34.1 N	122 48.3 W	06/05/10	1152 UTC	2986 m	340 25 kn			1019.3 mb	13.2 C	12.8 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.02	15.02	33.121	24.520	340.5	0.000	5.87	102.1	2.6	0.34	0.1	0.00	0.00	0.11	0.02	0	
3	15.02	15.02	33.121	24.520	340.5	0.010	5.87	102.1	2.6	0.34	0.1	0.00	0.00	0.11	0.02	3	212
10 ISL	15.02 D	15.02	33.118 D	24.518	341.0	0.034	5.86	101.9	2.6	0.34	0.1	0.00	0.04	0.11	0.02	10	
20	15.02	15.02	33.121	24.521	341.0	0.068	5.86	101.9	2.6	0.34	0.1	0.00	0.09	0.12	0.02	20	211
30 ISL	15.02 D	15.02	33.119 D	24.520	341.4	0.102	5.89	102.4	2.2	0.34	0.1	0.00	0.06	0.12	0.02	30	
45	15.02	15.01	33.123	24.523	341.5	0.154	5.92	102.9	1.8	0.34	0.0	0.00	0.00	0.12	0.02	45	210
50 ISL	15.02 D	15.01	33.119 D	24.520	342.0	0.171	5.90	102.6	1.9	0.33	0.0	0.00	0.00	0.12	0.02	50	
64	15.00	14.99	33.121	24.526	341.8	0.218	5.85	101.6	2.2	0.32	0.0	0.00	0.00	0.12	0.02	64	209
75 ISL	14.46 D	14.45	33.040 D	24.580	337.0	0.256	5.91	101.5	2.2	0.33	0.0	0.00	0.00	0.21	0.03	75	
80	14.45	14.44	33.039	24.581	337.0	0.273	5.94	102.0	2.2	0.33	0.0	0.00	0.00	0.26	0.03	80	208
91	14.31	14.30	32.986 D	24.570	338.3	0.310	5.99	D102.5								91	207
100 ISL	13.36 D	13.35	32.962 D	24.746	321.6	0.339	5.93	99.5	2.7	0.38	0.4	0.07	0.00	0.48	0.21	100	
101	13.36	13.35	32.960	24.745	321.8	0.343	5.93	99.5	2.7	0.39	0.4	0.07	0.00	0.49	0.22	101	206
125 ISL	12.14 D	12.12	33.265 D	25.219	277.1	0.415	5.60	91.8	5.9	0.68	5.1	0.04	0.00	0.34	0.14	126	
149	10.50	10.48	33.255 D	25.508	249.8	0.478	5.04	79.7	11.1	1.07	11.8	0.01	0.00	0.06	0.06	150	205
150 ISL	10.10 D	10.08	33.231 D	25.557	245.0	0.480	5.01	78.5	11.4	1.09	12.1	0.01	0.00	0.06	0.06	151	
200	9.17	9.15	33.748	26.115	192.8	0.590	3.34	51.5	26.4	1.87	24.8	0.00	0.00	0.00	0.01	201	204
250 ISL	8.57 D	8.54	34.004 D	26.410	165.6	0.679	2.63	40.0	35.3	2.15	27.8	0.00	0.00			251	
300 ISL	7.71 D	7.68	34.032 D	26.561	151.7	0.759	2.30	34.3	42.3	2.25	30.7	0.00	0.00			302	
301	7.71	7.68	34.019	26.550	152.7	0.760	2.30	34.3	42.4	2.25	30.8	0.00	0.00			303	203
399	6.48	6.44	34.067	26.759	133.6	0.900	1.32	19.2	61.0	2.70	36.8	0.00	0.00			401	202
400 ISL	6.45 D	6.41	34.073 D	26.767	132.8	0.902	1.31	19.0	61.2	2.70	36.8	0.00	0.00			402	
500 ISL	5.71 D	5.67	34.155 D	26.926	118.4	1.027	0.71	10.1	76.5	3.00	40.0	0.00	0.00			503	
514	5.62	5.58	34.164	26.945	116.8	1.044	0.62	8.8	78.7	3.04	40.5	0.00	0.00			517	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 14.7 N	123 29.5 W	06/05/10	0524 UTC	4139 m	330 24 kn			1022.1 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.38	15.38	33.195	24.499	342.5	0.000	5.82	102.0	2.6	0.34	0.1	0.00	0.00	0.11	0.00	0	
4	15.38	15.38	33.195	24.499	342.6	0.014	5.82	102.0	2.6	0.34	0.1	0.00	0.00	0.11	0.00	4	212
10 ISL	15.39 D	15.39	33.183 D	24.487	343.9	0.034	5.82	102.0	2.6	0.34	0.1	0.00	0.00	0.11	0.00	10	
20 ISL	15.39 D	15.39	33.184 D	24.489	344.1	0.069	5.81	101.8	2.6	0.33	0.1	0.00	0.00	0.12	0.01	20	
21	15.39	15.39	33.186	24.490	344.0	0.072	5.81	101.8	2.6	0.33	0.1	0.00	0.00	0.12	0.01	21	211
30 ISL	15.39 D	15.39	33.184 D	24.489	344.4	0.103	5.81	101.8	2.6	0.32	0.1	0.00	0.00	0.11	0.01	30	
45	15.38	15.37	33.195	24.500	343.8	0.155	5.82	102.0	2.7	0.32	0.1	0.00	0.00	0.10 A	0.01 A	45	210
50 ISL	15.38 D	15.37	33.184 D	24.492	344.7	0.172	5.82	101.9	2.7	0.32	0.1	0.00	0.00	0.10	0.01	50	
65	15.41	15.40	33.209	24.505	343.9	0.224	5.81	101.8	2.7	0.33	0.0	0.00	0.00	0.13	0.03	65	209
75 ISL	15.40 D	15.39	33.223 D	24.518	343.0	0.258	5.80	101.7	2.6	0.32	0.0	0.00	0.00	0.16	0.04	75	
81	15.40	15.39	33.227	24.521	342.8	0.278	5.79	101.5	2.6	0.32	0.0	0.00	0.00	0.19	0.04	81	208
91	14.90	14.89	33.234	24.636	332.2	0.312	5.80	100.6	2.6	0.33	0.0	0.00	0.00	0.27	0.14	91	207
100 ISL	13.48 D	13.47	33.155 D	24.871	309.8	0.341	5.72	96.4	3.1	0.45	1.2	0.03	0.00	0.38	0.30	100	
103	13.56	13.55	33.150	24.851	311.8	0.350	5.68	95.8	3.3	0.50	1.8	0.04	0.00	0.42	0.35	103	206
125 ISL	12.13 D	12.11	33.165 D	25.143	284.3	0.416	5.43	88.9	5.7	0.75	5.8	0.03	0.00	0.34	0.24	126	
150	10.89	10.87	33.199	25.396	260.5	0.484	5.09	81.2	9.6	1.00	10.5	0.01	0.00	0.08	0.11	151	205
200 ISL	9.33 D	9.31	33.652 D	26.014	202.5	0.600	4.26	65.8	19.3	1.47	18.8	0.00	0.00	0.00	0.02	201	
201	9.36	9.34	33.664 D	26.018	202.1	0.602	4.24	65.6	19.5	1.48	19.0	0.00	0.00	0.00	0.02	202	204
250 ISL	8.68 D	8.65	33.958 D	26.357	170.7	0.693	3.29	50.2	29.2	1.86	24.9	0.00	0.00			251	
300 ISL	8.28 D	8.25	34.083 D	26.517	156.3	0.775	2.37	35.9	38.6	2.18	29.4	0.00	0.00			302	
302	8.16	8.13	34.059	26.516	156.3	0.778	2.33	35.2	39.0	2.19	29.5	0.00	0.00			304	203
400 ISL	7.06 D	7.02	34.129 D	26.730	136.9	0.922	1.16	17.1	54.7	2.67	35.0	0.00	0.00			402	
401	7.27	7.23	34.155	26.721	137.9	0.923	1.15	17.0	54.9	2.67	35.0	0.00	0.00			403	202
500 ISL	5.85 D	5.81	34.163 D	26.916	119.6	1.051	0.69	9.9	74.0	2.97	39.3	0.00	0.00			503	
516	5.78	5.74	34.171	26.931	118.3	1.070	0.62	8.9	77.1	3.02	40.0	0.00	0.00			519	201

A) SECOND FLUOROMETER READING NOT RECORDED, CHLOROPHYLL AND PHAEOPIGMENT
CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 54.8 N	124 10.2 W	05/05/10	2332 UTC	4194 m	350 25 kn	350 10 07	1	1021.9 mb	14.0 C	13.0 C		2/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.46	15.46	33.196	24.482	344.1	0.000	5.82	102.1	3.0	0.31	0.0	0.00	0.00	0.09	0.03	0	
3	15.46	15.46	33.196	24.482	344.2	0.010	5.82	102.1	3.0	0.31	0.0	0.00	0.00	0.09	0.03	3	212
10 ISL	15.46 D	15.46	33.194 D	24.480	344.6	0.034	5.82	102.1	3.0	0.31	0.0	0.00	0.00	0.09	0.03	10	
20	15.46	15.46	33.195	24.482	344.8	0.069	5.82	102.1	3.0	0.30	0.0	0.00	0.00	0.09	0.03	20	211
30 ISL	15.45 D	15.45	33.194 D	24.483	344.9	0.103	5.82	102.1	2.7	0.30	0.0	0.00	0.00	0.09	0.03	30	
46	15.42	15.41	33.207	24.500	343.7	0.158	5.83	102.2	2.3	0.30	0.0	0.00	0.00	0.10	0.03	46	210
50 ISL	15.41 D	15.40	33.194 D	24.493	344.6	0.172	5.83	102.2	2.3	0.30	0.0	0.00	0.00	0.10	0.03	50	
65	15.36	15.35	33.191	24.502	344.2	0.224	5.82	101.9	2.3	0.30	0.0	0.00	0.00	0.11	0.03	65	209
75 ISL	15.30 D	15.29	33.179 D	24.506	344.1	0.258	5.83	101.9	2.5	0.30	0.0	0.00	0.00	0.14	0.04	75	
80	15.29	15.28	33.185	24.513	343.6	0.276	5.83	101.9	2.7	0.30	0.0	0.00	0.00	0.15	0.05	80	208
90	15.26	15.25	33.273 D	24.588	336.8	0.310	5.82	D101.7								90	207
100	13.57	13.56	33.223	24.906	306.5	0.342	5.66	95.6	4.3	0.45	1.4	0.06	0.00	0.45	0.46	100	206
125 ISL	11.06 D	11.04	33.095 D	25.285	270.6	0.414	5.17	82.7	9.1	0.84	7.7	0.03	0.00	0.33	0.25	126	
150 ISL	10.04	10.02	33.381	25.684	232.9	0.477	4.58	71.8	15.4	1.28	15.3	0.00	0.00	0.04	0.05	151	
151	10.05	10.03	33.387	25.688	232.6	0.479	4.55	71.3	15.7	1.30	15.6	0.00	0.00	0.03	0.04	152	205
199	9.48	9.46	33.890	26.176	187.2	0.580	2.88 D	44.7	28.3	1.90	24.6	0.00	0.00	0.00	0.02	200	204
200 CSL	9.40 D	9.38	33.895 D	26.193	185.6	0.582	2.86 D	44.3	28.5	1.91	24.7	0.00	0.00			201	
250 ISL	8.35 D	8.32	34.008 D	26.447	162.0	0.669	2.83	42.9	37.5	2.17	29.1	0.00	0.00			251	
300 ISL	7.68 D	7.65	34.048 D	26.578	150.1	0.747	2.13	31.8	44.7	2.31	31.2	0.00	0.00			302	
301	7.70	7.67	34.036	26.565	151.3	0.748	2.12	31.6	44.8	2.31	31.2	0.00	0.00			303	203
400	6.91	6.87	34.154	26.770	133.0	0.889	1.01	14.8	60.4	2.78	36.2	0.00	0.00			402	202
500 ISL	6.14 D	6.10	34.227 D	26.930	118.6	1.015	0.51	7.3	73.2	3.02	38.8	0.00	0.00			503	
516	6.13	6.08	34.256	26.954	116.5	1.033	0.43	6.2	75.3	3.06	39.2	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 33.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 53.4 N	118 30.4 W	03/05/10	0156 UTC	56 m	280 10 kn	270 01 03	0	1015.5 mb	15.0 C	14.0 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.24	14.24	33.484	24.966	298.0	0.000	8.31	142.5	0.0	0.16	0.0	0.00	0.07	9.80	0.62	0	
2	14.24	14.24	33.484	24.966	298.0	0.006	8.31	142.5	0.0	0.16	0.0	0.00	0.07	9.80	0.62	2	208
5	14.17	14.17	33.484	24.981	296.7	0.015	8.33	142.7	0.0	0.21	0.0	0.01	0.08	10.16	0.75	5	207
10	13.04	13.04	33.509	25.231	273.1	0.029	7.61	127.3	0.2	0.20	0.1	0.02	0.08	12.27	0.49	10	205
10	13.04	13.04	33.509	25.231	273.1	0.029										10	206
20	12.82	12.82	33.522	25.285	268.2	0.056	6.85	114.1	1.0	0.30	0.9	0.05	0.16	15.27	0.65	20	204
30	11.76	11.76	33.560	25.517	246.3	0.082	4.42	72.0	10.6	1.24	12.9	0.39	1.86	13.66	0.97	30	203
41	10.81	10.81	33.630	25.744	225.0	0.108	3.22	51.4	17.7	1.74	20.2	0.37	3.18	11.43	1.07	41	202
50	10.44	10.43	33.742	25.896	210.7	0.127	2.88	45.7	21.3	1.78	22.1	0.27	0.16	3.53	0.40	50	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 49.3 N	118 38.0 W	03/05/10	0357 UTC	698 m	080 09 kn			1016.8 mb	14.5 C	14.0 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.83	13.83	33.480	25.048	290.2	0.000	7.48	127.2	0.0	0.22	0.1	0.01	0.06	2.75	0.29	0	
3	13.83	13.83	33.480	25.048	290.2	0.009	7.48	127.2	0.0	0.22	0.1	0.01	0.06	2.75	0.29	3	212
10	13.38	13.38	33.486	25.145	281.2	0.029	7.34	123.7	0.5	0.24	0.1	0.02	0.05	3.15	0.32	10	211
20	12.68	12.68	33.491	25.288	267.9	0.056	6.66	110.6	2.1	0.42	1.7	0.09	0.12	13.12	0.56	20	210
30	12.47	12.47	33.491	25.329	264.3	0.083	5.86	96.9	4.3	0.73	6.0	0.26	0.18	19.13	0.31	30	209
50	10.88	10.87	33.617	25.722	227.3	0.132	3.41	54.5	16.8	1.56	19.4	0.34	0.48	3.36	0.60	50	208
74	10.15	10.14	33.765 D	25.964	204.7	0.184	3.07 D	48.4								74	207
75 ISL	10.31 D	10.30	33.885 D	26.030	198.5	0.186	2.95	46.7	23.8	1.75	22.1	0.21	0.32	2.19	0.48	75	
100	9.95	9.94	33.958	26.149	187.7	0.234	2.50	39.3	26.3	1.95	24.8	0.02	0.00	1.03	0.19	101	206
125 ISL	9.89 D	9.88	34.076 D	26.252	178.5	0.280	2.19	34.4	29.0	2.07	26.1	0.02	0.00	0.39	0.10	126	
150	9.78	9.76	34.101	26.290	175.4	0.324	1.93	30.2	31.2	2.16	27.0	0.02	0.00	0.05	0.07	151	205
200	9.54	9.52	34.205	26.412	164.9	0.409	1.46	22.7	36.1	2.34	28.8	0.03	0.00	0.14	0.11	201	204
250 ISL	8.45 D	8.42	34.205 D	26.586	148.9	0.488	1.20	18.2	43.0	2.51	31.2	0.04	0.00			252	
300	7.94	7.91	34.231	26.683	140.3	0.560	1.03	15.5	50.5	2.66	33.6	0.04	0.00			302	203
400	7.00	6.96	34.250	26.833	127.1	0.694	0.63	9.3	63.3	2.89	37.1	0.00	0.00			403	202
500 ISL	6.38 D	6.33	34.305 D	26.961	116.0	0.815	0.34	4.9	75.0	3.07	38.8	0.00	0.00			504	
515	6.31	6.26	34.313	26.976	114.7	0.832	0.30	4.3	76.7	3.10	39.0	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 39.1 N	118 58.4 W	03/05/10	0734 UTC	668 m	080 09 kn			1018.2 mb	14.3 C	14.1 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.43	14.43	33.413	24.871	307.0	0.000	5.85	100.7	4.9	0.53	2.3	0.14	0.12	0.73	0.20	0	
2 A	14.43	14.43	33.413	24.871	307.1	0.006	5.85	100.7	4.9	0.53	2.3	0.14	0.12	0.73	0.20	2	212
10	14.00	14.00	33.412	24.961	298.8	0.030	5.87	100.1	5.0	0.54	2.5	0.15	0.08	0.89	0.26	10	211
20	13.59	13.59	33.420	25.052	290.4	0.060	5.66	95.7	5.6	0.63	4.0	0.20	0.09	1.12	0.40	20	210
30	12.69	12.69	33.449	25.254	271.4	0.088	5.13	85.2	8.6	0.90	8.1	0.26	0.09	1.11	0.42	30	209
50	11.39	11.38	33.455	25.504	248.1	0.140	4.28	69.1	13.3	1.25	14.1	0.17	0.00	0.56	0.33	50	208
75	10.60	10.59	33.644	25.792	221.1	0.199	3.44	54.7	19.0	1.61	19.8	0.02	0.00	0.15	0.14	75	207
100	10.06	10.05	33.865	26.058	196.4	0.251	2.73	42.9	25.1	1.89	23.9	0.01	0.00	0.03	0.08	101	206
125 ISL	9.57 D	9.56	33.983 D	26.232	180.3	0.298	2.27	35.3	29.5	2.07	26.4	0.01	0.00	0.02	0.07	126	
150 ISL	9.23 D	9.21	34.074 D	26.359	168.7	0.341	1.91	29.5	33.5	2.22	28.3	0.00	0.00	0.02	0.06	151	
200	8.81	8.79	34.177	26.507	155.5	0.422	1.50	23.0	39.9	2.40	30.5	0.00	0.00	0.01	0.05	201	205
250 ISL	8.20 D	8.17	34.204 D	26.623	145.3	0.498	1.16	17.5	47.4	2.59	33.0	0.00	0.00			252	
300 ISL	7.58 D	7.55	34.218 D	26.726	136.1	0.568	0.93	13.9	54.3	2.74	35.0	0.00	0.00			302	
301	7.57	7.54	34.215	26.725	136.2	0.569	0.93	13.9	54.4	2.74	35.0	0.00	0.00			303	204
400	6.96	6.92	34.255	26.843	126.2	0.699	0.58	8.5	64.3	2.95	37.2	0.00	0.00			403	203
500 ISL	6.20 D	6.16	34.334 D	27.007	111.5	0.818	0.26	3.8	78.4	3.14	39.2	0.00	0.00			504	
515	6.17	6.12	34.336	27.012	111.1	0.835	0.22	3.2	80.5	3.16	39.4	0.00	0.00			519	202
600 ISL	5.76 D	5.71	34.363 D	27.086	104.8	0.927	0.17	2.4	88.4	3.22	39.5	0.01	0.00			604	
676	5.54	5.48	34.375	27.123	102.0	1.005	0.12	1.7	95.5	3.28	39.5	0.01	0.00			681	201

A) SANTA MONICA BASIN STATION.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 29.2 N	119 19.4 W	03/05/10	1204 UTC	1626 m	160 06 kn			1019.2 mb	14.0 C	13.8 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.66	13.66	33.504	25.102	285.1	0.000	6.79	115.1	0.6	0.37	0.7	0.06	0.11	6.28	1.33	0	
2	13.66	13.66	33.504	25.102	285.1	0.006	6.79	115.1	0.6	0.37	0.7	0.06	0.11	6.28	1.33	2	212
9 CSL	13.64	13.64	33.498	25.102	285.4	0.026	7.02 D	118.9	0.4	0.48	1.0	0.09	0.31	6.34	1.20	9	211
10 CSL	13.58 D	13.58	33.501 D	25.116	284.0	0.029	6.99	118.3	0.5	0.51	1.2	0.09	0.31	6.44	1.22	10	
20	12.87	12.87	33.504	25.261	270.5	0.056	6.14	102.4	1.8	0.81	3.2	0.14	0.32	7.59	1.50	20	210
30	12.71	12.71	33.505	25.293	267.7	0.083	5.75	95.5	4.1	1.15	5.0	0.18	0.46	8.05	1.72	30	209
50	11.15	11.14	33.579	25.644	234.7	0.133	4.08	65.6	14.8	1.66	15.6	0.18	0.24	4.98	1.90	50	208
75	10.06	10.05	33.756	25.972	204.0	0.188	2.98	46.8	23.4	1.91	22.7	0.03	0.00	0.26	0.51	75	207
100	9.77	9.76	33.863	26.105	191.9	0.238	2.58	40.3	27.2	2.01	24.8	0.01	0.00	0.17	0.41	101	206
125 ISL	9.71 D	9.70	33.974 D	26.202	183.2	0.285	2.26	35.3	29.4	2.09	26.1	0.01	0.00	0.13	0.32	126	
150 ISL	9.51 D	9.49	34.048 D	26.293	175.0	0.329	2.00	31.1	31.4	2.18	27.2	0.00	0.00	0.11	0.23	151	
151	9.50	9.48	34.047	26.294	174.9	0.331	1.99	30.9	31.5	2.18	27.2	0.00	0.00	0.11	0.23	152	205
200 ISL	8.76 D	8.74	34.132 D	26.480	158.1	0.413	1.65	25.3	38.3	2.37	29.8	0.00	0.00	0.02	0.10	201	
201	8.77	8.75	34.131	26.478	158.3	0.414	1.64	25.1	38.5	2.37	29.9	0.00	0.00	0.02	0.10	202	204
250 ISL	8.30 D	8.27	34.182 D	26.591	148.4	0.489	1.25	18.9	46.0	2.56	32.3	0.00	0.00			252	
300	7.66	7.63	34.226	26.720	136.6	0.561	0.88	13.1	53.4	2.74	34.4	0.00	0.00			302	203
400 ISL	6.95 D	6.91	34.293 D	26.874	123.2	0.691	0.42	6.2	65.5	2.99	37.2	0.00	0.00			403	
401	6.95	6.91	34.296	26.876	123.0	0.692	0.42	6.2	65.6	2.99	37.2	0.00	0.00			404	202
500 ISL	6.09 D	6.05	34.342 D	27.027	109.4	0.807	0.23	3.3	80.4	3.17	39.1	0.00	0.00			504	
516	6.00	5.95	34.345	27.041	108.2	0.824	0.20	2.9	82.8	3.20	39.4	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 19.7 N	119 40.2 W	03/05/10	1609 UTC	82 m	100 05 kn	290 02 06	0	1022.6 mb	14.3 C	14.0 C	08m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.49	13.49	33.499	25.133	282.2	0.000	6.64	112.1	2.1	0.43	1.3	0.14	0.20	8.61	1.10	0	
3 A	13.49	13.49	33.499	25.133	282.2	0.008	6.64	112.1	2.1	0.43	1.3	0.14	0.20	8.61	1.10	3	211
6 A	13.35	13.35	33.502	25.163	279.4	0.017	6.47	109.0	3.1	0.50	2.4	0.20	0.17	7.30	1.10	6	210
10 ISL	13.00 D	13.00	33.502 D	25.233	272.8	0.028	6.19	103.5	4.5	0.60	4.0	0.22	0.16	6.29	1.08	10	
11 A	12.96	12.96	33.503	25.242	272.0	0.031	6.12	102.2	4.9	0.63	4.4	0.22	0.16	6.09	1.08	11	208
11	13.00	13.00	33.504	25.235	272.7	0.031										11	209
18 A	12.72	12.72	33.506	25.292	267.5	0.050	5.70	94.7	7.5	0.77	6.6	0.25	0.24	4.27	0.85	18	207
20 ISL	12.67 D	12.67	33.505 D	25.301	266.7	0.055	5.66	94.0	7.7	0.78	6.8	0.26	0.26	4.01	0.81	20	
22 A	12.63	12.63	33.506	25.309	265.9	0.060	5.60	92.9	7.9	0.80	7.0	0.27	0.27	3.78	0.77	22	206
30 ISL	11.67 D	11.67	33.562 D	25.535	244.6	0.081	4.75	77.2	12.0	1.10	11.9	0.24	0.22	2.01	0.63	30	
32 A	11.37	11.37	33.556	25.586	239.8	0.085	4.47	72.2	13.5	1.20	13.6	0.22	0.19	1.53	0.58	32	205
40	10.21	10.21	33.645	25.860	213.9	0.104	3.49	55.0	20.9	1.62	20.5	0.14	0.07	0.32 B	0.28 B	40	204
49	10.00	9.99	33.663	25.909	209.4	0.123	3.40	53.3	22.1	1.68	21.7	0.11	0.05	0.20	0.39	49	203
50 ISL	10.05 D	10.04	33.651 D	25.892	211.1	0.125	3.38	53.1	22.3	1.69	21.8	0.11	0.05	0.19	0.39	50	
60	9.79	9.78	33.698	25.972	203.6	0.146	3.23	50.5	23.7	1.74	22.7	0.09	0.05	0.11	0.31	60	202
71	9.73	9.72	33.732	26.009	200.4	0.168	3.13	48.8	24.9	1.78	23.2	0.09	0.05	0.06	0.24	71	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
B) SECOND FLUOROMETER READING NOT RECORDED, CHLOROPHYLL AND PHAEOPIGMENT
CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 9.6 N	120 0.2 W	03/05/10	2038 UTC	1195 m	190 05 kn	280 05 05	1	1024.2 mb	15.5 C	15.0 C	09m	4/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.07	14.07	33.508	25.020	292.8	0.000	6.53	111.6	2.9	0.51	2.2	0.18	0.28	4.94	1.30	0	
2	14.07	14.07	33.508	25.020	292.9	0.006	6.53	111.6	2.9	0.51	2.2	0.18	0.28	4.94	1.30	2	212
10	13.32	13.32	33.509	25.175	278.4	0.029	6.48	109.1	3.0	0.55	2.3	0.17	0.11	6.28	1.74	10	211
20	13.21	13.21	33.509	25.197	276.5	0.056	6.07	101.9	4.0	0.58	3.8	0.18	0.11	5.98	1.54	20	210
29	13.16	13.16	33.508	25.207	275.9	0.081	5.94	99.6	4.5	0.63	4.3	0.19	0.18	5.24	1.39	29	209
30 ISL	13.16 D	13.16	33.507 D	25.206	276.0	0.084	5.93	99.5	4.6	0.63	4.4	0.19	0.19	5.18	1.38	30	
49	13.07	13.06	33.509	25.226	274.6	0.136	5.70	95.4	6.1	0.70	5.4	0.23	0.29	3.87	1.13	49	208
50 ISL	12.98 D	12.97	33.508 D	25.243	273.0	0.139	5.62	93.9	6.5	0.73	5.9	0.23	0.28	3.72	1.10	50	
75	10.78	10.77	33.655	25.769	223.4	0.201	3.41	54.4	18.8	1.53	18.9	0.17	0.05	0.32	0.50	75	207
100 ISL	10.10 D	10.09	33.777 D	25.982	203.6	0.255	2.84	44.7	23.6	1.77	23.0	0.04	0.00	0.12	0.50	101	
101	10.12	10.11	33.775	25.978	204.1	0.257	2.84	44.7	23.7	1.77	23.1	0.04	0.00	0.11	0.50	102	206
125 CSL	9.27 D	9.26	33.845 D	26.173	185.8	0.303	2.92 D	45.1	28.2	1.90	25.6	0.03	0.00	0.08	0.36	126	
150	8.92	8.90	33.987	26.340	170.4	0.348	2.45	37.6	32.5	2.01	27.3	0.02	0.00	0.04	0.20	151	205
200 ISL	8.66 D	8.64	34.125 D	26.490	157.1	0.430	1.70	26.0	39.1	2.28	30.0	0.01	0.00	0.02	0.12	201	
201	8.67	8.65	34.124	26.488	157.3	0.431	1.68	25.7	39.2	2.29	30.0	0.01	0.00	0.02	0.12	202	204
250 ISL	8.22 D	8.19	34.175 D	26.597	147.7	0.506	1.30	19.7	45.2	2.47	32.0	0.01	0.00			251	
300	7.83	7.80	34.202	26.677	140.8	0.578	1.07	16.0	51.2	2.60	33.8	0.01	0.00			302	203
400	6.96	6.92	34.253	26.841	126.3	0.712	0.61	9.0	64.4	2.86	37.1	0.00	0.00			403	202
500 ISL	6.21 D	6.17	34.294 D	26.974	114.6	0.832	0.40	5.8	75.0	3.00	39.3	0.00	0.00			503	
515	6.19	6.14	34.297	26.979	114.3	0.849	0.37	5.3	76.6	3.02	39.6	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 59.5 N	120 20.4 W	04/05/10	0117 UTC	732 m	270 06 kn	340 08 06	0	1022.3 mb	15.0 C	14.5 C	18m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.65	14.65	33.187	24.650	328.1	0.000	5.96	102.9	5.2	0.56	2.6	0.12	0.38	0.44	0.06	0	
3	14.65	14.65	33.187	24.651	328.1	0.010	5.96	102.9	5.2	0.56	2.6	0.12	0.38	0.44	0.06	3	212
10	13.31	13.31	33.183	24.925	302.2	0.032	5.96	100.1	5.1	0.56	2.8	0.13	0.31	0.55	0.07	10	211
19	12.32	12.32	33.208	25.138	282.1	0.058	5.98	98.4	6.1	0.65	4.5	0.16	0.15	1.49	0.30	19	210
20 ISL	12.48 D	12.48	33.302 D	25.180	278.1	0.061	6.00	99.1	6.1	0.65	4.5	0.16	0.16	1.86	0.31	20	
30 ISL	12.58 D	12.58	33.377 D	25.219	274.7	0.089	6.17	102.2	5.8	0.66	4.3	0.15	0.40	5.55	0.39	30	
31	12.58	12.58	33.379	25.221	274.6	0.091	6.19	102.5	5.8	0.66	4.3	0.15	0.43	5.91	0.40	31	209
49	12.40	12.39	33.428	25.294	268.1	0.140	6.00	99.0	7.5	0.79	5.4	0.20	0.77	5.40	0.86	49	208
50 ISL	12.39 D	12.38	33.429 D	25.297	267.8	0.143	5.98	98.6	7.5	0.80	5.5	0.20	0.76	5.29	0.90	50	
75	10.63	10.62	33.226	25.461	252.6	0.208	5.17	82.0	11.0	1.05	11.0	0.07	0.27	2.04	1.43	75	207
100	9.35	9.34	33.592	25.962	205.3	0.265	3.68	56.9	23.5	1.63	22.0	0.02	0.00	0.05	0.12	100	206
125 ISL	9.53 D	9.52	33.837 D	26.125	190.5	0.315	2.94	45.7	26.5	1.75	23.5	0.01	0.00	0.04	0.11	126	
150	9.37	9.35	33.921	26.217	182.2	0.361	2.60	40.3	29.4	1.86	25.0	0.00	0.00	0.03	0.10	151	205
200 ISL	8.78 D	8.76	34.053 D	26.415	164.2	0.448	2.17	33.2	36.0	2.08	27.9	0.00	0.00	0.02	0.08	201	
201	8.81	8.79	34.049	26.407	165.0	0.450	2.16	33.1	36.1	2.08	28.0	0.00	0.00	0.02	0.08	202	204
250 ISL	8.26 D	8.23	34.128 D	26.554	151.8	0.527	1.64	24.8	43.5	2.31	30.5	0.00	0.00			251	
300	7.82	7.79	34.187	26.667	141.8	0.601	1.15	17.2	50.9	2.54	32.7	0.00	0.00			302	203
400 ISL	7.02 D	6.98	34.248 D	26.829	127.5	0.735	0.66	9.7	62.5	2.85	36.0	0.00	0.00			403	
401	7.03	6.99	34.252	26.831	127.4	0.736	0.66	9.7	62.6	2.85	36.0	0.00	0.00			404	202
500 ISL	6.28 D	6.24	34.282 D	26.955	116.4	0.857	0.42	6.1	73.1	3.01	38.3	0.00	0.00			503	
515	6.26	6.21	34.288	26.963	115.9	0.875	0.38	5.5	74.7	3.03	38.7	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 40.2 N	121 3.9 W	04/05/10	1957 UTC	3755 m	330 25 kn	340 07 07	0	1020.6 mb	14.8 C	14.2 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.35	14.35	33.187	24.714	322.0	0.000	6.00	102.9	2.5	0.37	0.0	0.02	0.06	0.52	0.19	0	
3	14.35	14.35	33.187	24.714	322.1	0.010	6.00	102.9	2.5	0.37	0.0	0.02	0.06	0.52	0.19	3	212
10	14.36	14.36	33.186	24.711	322.5	0.032	6.00	103.0	2.5	0.36	0.0	0.02	0.00	0.50	0.18	10	211
20	14.33	14.33	33.187	24.719	322.1	0.064	6.01	103.1	2.5	0.37	0.0	0.02	0.12	0.51	0.19	20	210
30	14.23	14.23	33.190	24.742	320.2	0.097	5.95	101.8	2.4	0.38	0.1	0.04	0.15	0.57	0.25	30	209
49	12.38	12.37	33.070	25.020	294.1	0.155	5.60	92.2	4.8	0.68	4.2	0.12	0.15	0.30	0.24	49	208
50 ISL	11.97 D	11.96	33.056 D	25.087	287.7	0.158	5.58	91.0	5.0	0.69	4.4	0.12	0.14	0.29	0.24	50	
75 ISL	10.92	10.91	33.154	25.354	262.8	0.227	5.11	81.5	9.7	1.05	10.6	0.03	0.01	0.10	0.12	75	
76	10.88	10.87	33.161	25.367	261.6	0.229	5.09	81.2	9.9	1.06	10.9	0.02	0.00	0.10	0.12	76	207
100 ISL	9.88 D	9.87	33.333 D	25.673	232.9	0.289	4.61	72.0	15.4	1.37	16.3	0.02	0.00	0.03	0.07	100	
102	9.86	9.85	33.334	25.677	232.5	0.293	4.57	71.3	15.9	1.39	16.7	0.02	0.00	0.03	0.07	102	206
125 ISL	9.65 D	9.64	33.562 D	25.890	212.8	0.344	3.98	61.9	20.9	1.63	20.8	0.02	0.00	0.02	0.05	126	
150 ISL	9.22 D	9.20	33.733 D	26.094	193.8	0.395	3.38	52.1	25.7	1.83	24.1	0.01	0.00	0.01	0.04	151	
151	9.22	9.20	33.730	26.092	194.0	0.397	3.36	51.8	25.9	1.84	24.2	0.01	0.00	0.01	0.04	152	205
200 ISL	8.57 D	8.55	33.976 D	26.387	166.8	0.486	2.83	43.1	33.1	2.03	27.1	0.01	0.00	0.00	0.03	201	
201	8.57	8.55	33.974	26.385	166.9	0.487	2.82	42.9	33.2	2.03	27.1	0.01	0.00	0.00	0.03	202	204
250 CSL	8.02 D	7.99	34.087 D	26.558	151.3	0.565	1.92	28.9	40.9	2.28	30.0	0.01	0.00			251	
300 ISL	7.62 D	7.59	34.130 D	26.651	143.2	0.639	1.46	21.8	49.3	2.54	33.0	0.00	0.00			302	
302	7.65	7.62	34.132	26.648	143.5	0.642	1.43	21.3	49.6	2.55	33.1	0.00	0.00			304	203
400 ISL	6.25 D	6.21	34.141 D	26.847	125.1	0.773	0.87	12.6	67.6	2.91	38.2	0.00	0.00			403	
401	6.26	6.22	34.139	26.844	125.4	0.775	0.87	12.6	67.8	2.91	38.2	0.00	0.00			404	202
500 ISL	5.91 D	5.87	34.241 D	26.970	114.6	0.893	0.45	6.4	77.0	3.07	39.7	0.00	0.00			503	
516	5.94	5.89	34.265	26.985	113.4	0.912	0.38	5.4	78.5	3.10	39.9	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 39.5 N	121 2.4 W	04/05/10	1811 UTC	3749 m	330 25 kn	340 07 07	0	1020.6 mb	14.8 C	14.2 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.34	14.34	33.186	24.715	321.9	0.000	6.00	102.9	2.6	0.37	0.0	0.02	0.05	0.47	0.20	0	
2 A	14.34	14.34	33.186	24.715	321.9	0.006	6.00	102.9	2.6	0.37	0.0	0.02	0.05	0.47	0.20	2	206
10 ISL	14.31 D	14.31	33.184 D	24.720	321.7	0.032	5.99	102.7	2.5	0.37	0.0	0.02	0.05	0.47	0.19	10	
11 A	14.33	14.33	33.185	24.717	322.0	0.035	5.99	102.7	2.5	0.37	0.0	0.02	0.05	0.47	0.19	11	205
20 ISL	14.30 D	14.30	33.185 D	24.724	321.7	0.064	5.99	102.7	2.4	0.37	0.0	0.02	0.06	0.52	0.19	20	
21 A	14.30	14.30	33.186	24.724	321.6	0.068	5.99	102.7	2.4	0.37	0.0	0.02	0.06	0.53	0.19	21	204
30 ISL	14.29 D	14.29	33.189 D	24.729	321.4	0.097	5.98	102.5	2.4	0.36	0.0	0.02	0.06	0.56	0.24	30	
31 A	14.29	14.29	33.189	24.729	321.5	0.100	5.98	102.5	2.4	0.36	0.0	0.02	0.06	0.56	0.25	31	203
42 A	14.21	14.20	33.186	24.744	320.4	0.135	5.92	101.3	2.4	0.39	0.1	0.06	0.10	0.52	0.24	42	202
50 ISL	13.80 D	13.79	33.182 D	24.826	312.8	0.160	5.74	97.4	3.9	0.54	2.5	0.09	0.05	0.39	0.27	50	
57 A	12.29	12.28	33.059	25.029	293.5	0.182	5.58	91.6	5.3	0.68	4.6	0.11	0.00	0.27	0.30	57	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 19.5 N	121 42.7 W	05/05/10	0014 UTC	3985 m	330 20 kn	310 07 05	0	1018.9 mb	14.0 C	13.0 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.61	14.61	33.007	24.520	340.5	0.000	5.97	102.9	2.7	0.34	0.0	0.00	0.00	0.15	0.03	0	
3	14.61	14.61	33.007	24.520	340.5	0.010	5.97	102.9	2.7	0.34	0.0	0.00	0.00	0.15	0.03	3	212
10 ISL	14.61 D	14.61	33.005 D	24.519	340.9	0.034	5.98	103.0	2.8	0.34	0.0	0.00	0.00	0.16	0.03	10	
15	14.60	14.60	33.007	24.523	340.7	0.051	5.98	103.0	2.8	0.34	0.0	0.00	0.00	0.16	0.03	15	211
20 ISL	14.60 D	14.60	33.006 D	24.522	340.9	0.068	5.97	102.8	2.8	0.34	0.0	0.00	0.00	0.16	0.03	20	
30 ISL	14.61 D	14.61	33.008 D	24.522	341.2	0.102	5.95	102.5	2.8	0.34	0.0	0.00	0.00	0.15	0.03	30	
31	14.61	14.61	33.007	24.521	341.3	0.106	5.95	102.5	2.8	0.34	0.0	0.00	0.00	0.15	0.03	31	210
44	14.54	14.53	33.020	24.546	339.2	0.150	5.95	102.4	2.8	0.33	0.0	0.00	0.00	0.18	0.04	44	209
50 ISL	14.49 D	14.48	33.027 D	24.563	337.9	0.170	5.95	102.3	2.8	0.33	0.0	0.00	0.00	0.24	0.07	50	
60	14.42	14.41	33.049	24.595	335.1	0.204	5.94	102.0	2.8	0.34	0.0	0.00	0.00	0.33	0.14	60	208
75 ISL	13.32 D	13.31	33.008 D	24.789	316.9	0.253	5.83	97.8	3.6	0.46	1.2	0.17	0.00	0.36	0.33	75	
76	13.21	13.20	33.014	24.816	314.3	0.256	5.82	97.4	3.7	0.47	1.3	0.18	0.00	0.36	0.34	76	207
100 ISL	11.97	11.96	33.174	25.180	280.2	0.327	5.48	89.4	5.8	0.68	5.1	0.05	0.00	0.20	0.21	100	
101	11.93	11.92	33.183	25.194	278.8	0.330	5.46	89.0	5.9	0.69	5.3	0.04	0.00	0.19	0.20	101	206
125 ISL	10.12 D	10.11	33.267 D	25.582	242.1	0.393	4.95	77.7	11.2	1.04	11.5	0.02	0.00	0.08	0.09	126	
150	9.58	9.56	33.523	25.871	215.0	0.450	4.31	66.9	18.2	1.44	18.2	0.00	0.00	0.02	0.02	151	205
200 ISL	8.77 D	8.75	33.933 D	26.323	173.0	0.547	2.82	43.1	31.2	2.00	26.9	0.00	0.00	0.00	0.02	201	
201	8.78	8.76	33.927	26.316	173.6	0.548	2.79	42.7	31.4	2.01	27.0	0.00	0.00	0.00	0.02	202	204
250 CSL	7.86 D	7.84	34.004 D	26.516	155.1	0.629	2.45	36.7	40.8	2.29	31.3	0.00	0.00			251	
299	7.38	7.35	34.044	26.617	146.1	0.703	1.74	25.8	48.5	2.45	33.4	0.00	0.00			301	203
300 ISL	7.36 D	7.33	34.046 D	26.621	145.7	0.704	1.73	25.6	48.7	2.45	33.4	0.00	0.00			302	
400 ISL	6.71 D	6.67	34.165 D	26.806	129.5	0.842	0.89	13.0	62.6	2.81	36.7	0.00	0.00			402	
401	6.76	6.72	34.177	26.808	129.3	0.843	0.88	12.9	62.7	2.81	36.7	0.00	0.00			403	202
500 ISL	6.02 D	5.98	34.226 D	26.944	117.1	0.965	0.50	7.2	75.0	3.03	39.3	0.00	0.00			503	
515	6.02	5.97	34.241	26.956	116.2	0.983	0.44	6.3	76.9	3.06	39.7	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 59.4 N	122 23.6 W	05/05/10	0522 UTC	4079 m	330 22 kn			1019.9 mb	15.2 C	13.0 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.26	15.26	33.117	24.465	345.7	0.000	5.83	101.9	2.6	0.33	0.1	0.00	0.00	0.09	0.01	0	
3	15.26	15.26	33.117	24.465	345.8	0.010	5.83	101.8	2.6	0.33	0.1	0.00	0.00	0.09	0.01	3	212
10 ISL	15.26 D	15.26	33.117 D	24.465	346.0	0.035	5.83	101.8	2.7	0.33	0.1	0.00	0.00	0.09	0.01	10	
20	15.26	15.26	33.119	24.467	346.1	0.069	5.84	102.0	3.0	0.32	0.0	0.00	0.00	0.09	0.02	20	211
30 ISL	15.25 D	15.25	33.117 D	24.468	346.4	0.104	5.85	102.2	3.1	0.32	0.0	0.00	0.00	0.10	0.02	30	
45	15.05	15.04	33.100	24.499	343.8	0.156	5.87	102.1	3.3	0.33	0.0	0.00	0.00	0.11	0.02	45	210
50 ISL	15.05 D	15.04	33.103 D	24.501	343.8	0.173	5.88	102.3	3.6	0.35	0.4	0.00	0.00	0.12	0.02	50	
65	15.05	15.04	33.114	24.510	343.4	0.224	5.89	102.4						0.18	0.04	65	209
75 ISL	14.99 D	14.98	33.112 D	24.522	342.5	0.259	5.87	102.0	5.6	0.46	2.4	0.00	0.00	0.22	0.07	75	
80	14.96	14.95	33.109	24.526	342.3	0.276	5.86	101.7						0.25	0.10	80	208
89	14.69	14.68	33.081	24.563	339.0	0.306	5.89	101.7						0.31	0.20	89	207
100	13.82	13.81	33.259	24.883	308.8	0.342	5.66	96.1						0.31	0.41	100	206
125 ISL	11.67 D	11.65	33.266 D	25.307	268.6	0.414	5.43	88.1	10.6	0.72	7.0	0.00	0.00			126	
150 ISL	10.39 D	10.37	33.249 D	25.522	248.4	0.479	5.15	81.3	13.8	0.88	9.6	0.00	0.00			151	
152	10.38	10.36	33.234	25.512	249.4	0.484	5.13	80.9								153	205
200 ISL	9.12	9.10	33.778	26.146	189.8	0.589	3.49	53.7	21.4	1.22	15.3	0.00	0.00			201	
202	9.19	9.17	33.802	26.154	189.2	0.593	3.42	52.7								203	204
250 ISL	8.29 D	8.26	33.977 D	26.431	163.4	0.678	3.10	46.9	30.7	1.62	21.8	0.00	0.00			251	
300 ISL	7.57 D	7.54	33.989 D	26.547	152.9	0.757	2.77	41.2	41.7	2.08	29.0	0.00	0.00			302	
301	7.61	7.58	33.987	26.540	153.7	0.758	2.76	41.1	41.9	2.09	29.2	0.00	0.00			303	203
399	6.53	6.49	34.076	26.759	133.6	0.899	1.25	18.2	62.8	2.73	36.8	0.00	0.00			401	202
400 ISL	6.53 D	6.49	34.082 D	26.764	133.2	0.900	1.24	18.0	63.0	2.73	36.8	0.00	0.00			402	
500 ISL	5.76 D	5.72	34.179 D	26.939	117.3	1.026	0.69	9.8	78.1	3.01	39.8	0.00	0.00			503	
516	5.73	5.69	34.183	26.946	116.8	1.044	0.60	8.6	80.5	3.05	40.3	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 39.0 N	123 4.2 W	05/05/10	1036 UTC	3900 m	330 30 kn			1019.2 mb	14.9 C	13.2 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.26	15.26	33.177	24.511	341.3	0.000	5.83	101.9	2.8	0.34	0.0	0.00	0.00	0.09	0.03	0	
3	15.26	15.26	33.177	24.511	341.4	0.010	5.83	101.9	2.8	0.34	0.0	0.00	0.00	0.09	0.03	3	212
10 ISL	15.26 D	15.26	33.165 D	24.502	342.5	0.034	5.83	101.9	2.7	0.33	0.0	0.00	0.00	0.09	0.03	10	
20	15.26	15.26	33.168	24.505	342.5	0.068	5.84	102.1	2.5	0.32	0.0	0.00	0.00	0.09	0.03	20	211
30 ISL	15.26 D	15.26	33.163 D	24.501	343.2	0.103	5.85	102.2	2.5	0.32	0.0	0.00	0.00	0.09	0.03	30	
45	15.26	15.25	33.169	24.506	343.2	0.154	5.85	102.2	2.5	0.32	0.0	0.00	0.00	0.10	0.03	45	210
50 ISL	15.25 D	15.24	33.157 D	24.500	344.0	0.171	5.85	102.2	2.6	0.32	0.0	0.00	0.00	0.10	0.03	50	
66	15.04	15.03	33.119	24.516	342.8	0.226	5.84	101.6	3.0	0.33	0.0	0.00	0.00	0.12	0.04	66	209
75 ISL	15.04 D	15.03	33.117 D	24.515	343.2	0.257	5.85	101.7	3.1	0.32	0.0	0.00	0.00	0.14	0.04	75	
80	15.04	15.03	33.119	24.517	343.2	0.274	5.86	101.9	3.2	0.31	0.0	0.00	0.00	0.16	0.04	80	208
90	15.29	15.28	33.204	24.528	342.4	0.309	5.79	101.2	3.2	0.31	0.0	0.00	0.00	0.23	0.09	90	207
99	14.70	14.69	33.351	24.769	319.7	0.338	5.68	98.2	3.5	0.35	0.2	0.04	0.00	0.39	0.34	99	206
100 ISL	14.42 D	14.41	33.377 D	24.849	312.1	0.342	5.67	97.5	3.6	0.36	0.4	0.04	0.00	0.38	0.33	100	
125 ISL	12.16 D	12.14	33.317 D	25.255	273.6	0.415	5.32	87.3	6.8	0.68	5.4	0.02	0.00	0.22	0.20	126	
150	10.40	10.38	33.333	25.586	242.3	0.479	4.94	78.0	11.6	1.07	12.2	0.01	0.00	0.05	0.06	151	205
200 ISL	9.14 D	9.12	33.733 D	26.108	193.5	0.588	4.10	63.1	22.3	1.54	20.5	0.00	0.00	0.00	0.02	201	
201	9.15	9.13	33.729	26.103	194.0	0.590	4.08	62.8	22.5	1.55	20.6	0.00	0.00	0.00	0.02	202	204
250 CSL	8.37 D	8.34	34.011 D	26.446	162.1	0.677	2.69 D	40.8	34.0	2.00	26.9	0.00	0.00			251	
300	7.93	7.90	34.092	26.576	150.5	0.756	1.86	27.9	44.9	2.38	31.7	0.00	0.00			302	203
400 ISL	7.07 D	7.03	34.184 D	26.772	133.0	0.897	0.91	13.4	59.9	2.80	36.3	0.00	0.00			402	
401	7.07	7.03	34.181	26.769	133.2	0.899	0.91	13.4	60.0	2.80	36.3	0.00	0.00			403	202
500 ISL	6.31 D	6.26	34.255 D	26.930	118.8	1.023	0.48	6.9	73.2	3.06	38.9	0.00	0.00			503	
517	6.24	6.19	34.266	26.948	117.3	1.043	0.41	5.9	75.5	3.10	39.4	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 19.6 N	123 44.6 W	05/05/10	1540 UTC	3941 m	350 24 kn	330 06 06	0	1021.6 mb	14.9 C	14.1 C	20m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.67	15.67	33.136	24.389	353.0	0.000	5.80	102.2	2.7	0.32	0.0	0.00	0.00	0.13	0.04	0	
3	15.67	15.67	33.136	24.389	353.1	0.011	5.80	102.2	2.7	0.32	0.0	0.00	0.00	0.13	0.04	3	212
10 ISL	15.66 D	15.66	33.132 D	24.388	353.3	0.035	5.80	102.1	2.5	0.33	0.0	0.00	0.00	0.14	0.04	10	
15	15.66	15.66	33.135	24.391	353.3	0.053	5.80	102.1	2.4	0.33	0.0	0.00	0.00	0.15	0.04	15	211
20 ISL	15.66 D	15.66	33.132 D	24.389	353.6	0.071	5.80	102.1	2.6	0.33	0.0	0.00	0.00	0.14	0.04	20	
30 ISL	15.66 D	15.66	33.133 D	24.390	353.8	0.106	5.79	102.0	3.0	0.32	0.0	0.00	0.00	0.13	0.05	30	
32	15.66	15.66	33.137	24.393	353.6	0.113	5.79	102.0	3.1	0.32	0.0	0.00	0.00	0.13	0.05	32	210
46	15.67	15.66	33.132	24.387	354.5	0.163	5.80	102.2	3.1	0.32	0.0	0.00	0.00	0.15	0.04	46	209
50 ISL	15.66 D	15.65	33.135 D	24.392	354.2	0.177	5.80	102.1	3.1	0.32	0.0	0.00	0.00	0.29	0.16	50	
61	15.66	15.65	33.137	24.394	354.4	0.216	5.79	102.0	3.2	0.32	0.0	0.00	0.00	0.59	0.43	61	208
75	13.20	13.19	33.178	24.945	302.1	0.262	5.66	94.8	4.8	0.52	2.2	0.08	0.00	0.27	0.19	75	207
100	11.45	11.44	33.168	25.271	271.4	0.333	5.18	83.6	8.1	0.90	8.6	0.05	0.00	0.26	0.22	100	206
125 CSL	10.19 D	10.18	33.376 D	25.655	235.2	0.397	4.65 D	73.1	14.7	1.31	15.5	0.02	0.00	0.14	0.14	126	
150 ISL	9.87 D	9.85	33.681 D	25.947	207.9	0.452	3.52	55.1	21.8	1.67	21.4	0.00	0.00	0.02	0.03	151	
151	9.87	9.85	33.678	25.945	208.2	0.454	3.49	54.6	22.1	1.68	21.6	0.00	0.00	0.01	0.03	152	205
200 ISL	8.91 D	8.89	33.941 D	26.307	174.5	0.548	2.90	44.5	30.4	1.95	26.2	0.00	0.00	0.00	0.02	201	
201	8.94	8.92	33.933	26.296	175.6	0.550	2.89	44.3	30.5	1.95	26.2	0.00	0.00	0.00	0.02	202	204
250 ISL	8.45 D	8.42	34.075 D	26.484	158.5	0.632	2.16	32.8	39.3	2.25	29.9	0.00	0.00			251	
300	7.77	7.74	34.139	26.636	144.6	0.707	1.46	21.8	48.3	2.54	33.0	0.00	0.00			302	203
400 ISL	6.68 D	6.64	34.198 D	26.836	126.6	0.843	0.76	11.1	64.8	2.91	37.3	0.00	0.00			402	
401	6.70	6.66	34.195	26.831	127.1	0.844	0.76	11.1	65.0	2.91	37.3	0.00	0.00			403	202
500 ISL	6.03 D	5.99	34.285 D	26.990	112.9	0.963	0.41	5.9	78.5	3.13	39.7	0.00	0.00			503	
516	5.92	5.87	34.287	27.005	111.5	0.981	0.35	5.0	80.7	3.16	40.1	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.7 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 19.5 N	123 44.6 W	05/05/10	1713 UTC	3941 m	350 24 kn	330 06 06	0	1021.6 mb	14.9 C	14.1 C	20m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.65	15.65	33.124	24.384	353.4	0.000	5.80	102.1	2.9	0.37	0.0	0.00	0.00	0.14	0.04	0	
4 A	15.65	15.65	33.124	24.384	353.5	0.014	5.80	102.1	2.9	0.37	0.0	0.00	0.00	0.14	0.04	4	207
10	15.65	15.65	33.130	24.389	353.3	0.035										10	206
15 A	15.65	15.65	33.123	24.384	353.9	0.053	5.79	101.9	2.8	0.35	0.0	0.00	0.00	0.14	0.04	15	205
20 ISL	15.64 D	15.64	33.123 D	24.386	353.8	0.071	5.79	101.9	2.7	0.35	0.0	0.00	0.00	0.14	0.04	20	
29 A	15.65	15.65	33.124	24.385	354.2	0.103	5.80	102.1	2.4	0.35	0.0	0.00	0.00	0.13	0.05	29	204
30 ISL	15.65 D	15.65	33.124 D	24.385	354.3	0.106	5.80	102.1	2.4	0.35	0.0	0.00	0.00	0.16	0.07	30	
43 A	15.65	15.64	33.124	24.386	354.6	0.152	5.80	102.1	2.4	0.35	0.0	0.00	0.06	0.49	0.26	43	203
50 ISL	15.65 D	15.64	33.124 D	24.386	354.8	0.177	5.79	101.9	2.2	0.34	0.0	0.00	0.09	0.40	0.14	50	
56 A	15.65	15.64	33.142	24.400	353.6	0.198	5.79	101.9	2.1	0.34	0.0	0.00	0.10	0.29	0.03	56	202
75 ISL	14.25 D	14.24	33.159 D	24.716	324.0	0.263	5.91	101.2	2.3	0.39	0.0	0.00	0.06	0.45	0.24	75	
77 A	14.24	14.23	33.158	24.717	323.9	0.269	5.92	101.3	2.3	0.39	0.0	0.00	0.06	0.47	0.26	77	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 88.5 30.1

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 40.3 N	118 5.2 W	02/05/10	2110 UTC	19 m	190 09 kn	150 01 04	0	1015.4 mb	16.5 C	15.6 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.69	13.69	33.486	25.082	287.0	0.000	7.59	128.7	3.5	0.46	1.3	0.18	0.12	14.64	1.34	0	
2	13.69	13.69	33.486	25.082	287.0	0.006	7.59	128.7	3.5	0.46	1.3	0.18	0.12	14.64	1.34	2	204
5	13.64	13.64	33.487	25.093	286.1	0.014	7.60	128.8	3.2	0.43	1.1	0.18	0.12	14.66	1.68	5	203
10	13.34	13.34	33.491	25.157	280.1	0.028	7.48	125.9	3.1	0.42	1.6	0.19	0.16	15.49	1.84	10	202
15	11.88	11.88	33.539	25.478	249.7	0.042	5.00	81.7	8.2	1.08	11.0	0.37	0.36	18.67	4.02	15	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 86.8 32.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 53.3 N	118 26.7 W	03/05/10	0044 UTC	24 m	270 10 kn	270 01 03	0	1015.3 mb	15.5 C	14.5 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.33	14.33	33.515	24.971	297.5	0.000	7.34	126.1	1.6	0.28	0.2	0.03	0.11	9.87	1.69	0	
2	14.33	14.33	33.515	24.971	297.6	0.006	7.34	126.1	1.6	0.28	0.2	0.03	0.11	9.87	1.69	2	205
5	14.45	14.45	33.506	24.939	300.7	0.015	8.02	138.2	0.4	0.18	0.1	0.01	0.08	8.27	1.33	5	204
10	14.31	14.31	33.523	24.982	296.8	0.030	7.31	125.6	1.5	0.27	0.1	0.02	0.10	11.28	1.60	10	203
14	14.07	14.07	33.525	25.034	291.9	0.042	6.83	116.8	3.1	0.40	0.8	0.06	0.16	10.92	1.65	14	202
20	13.80	13.80	33.527	25.092	286.6	0.059	6.61	112.4	3.1	0.40	1.2	0.06	0.16	10.47	1.58	20	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 90.0 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 29.1 N	117 46.6 W	02/05/10	1749 UTC	87 m	140 08 kn	240 01 05	1	1015.8 mb	16.0 C	15.1 C	15m	2/8 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.11	15.11	33.434	24.742	319.4	0.000	6.04	105.4	2.7	0.39	0.3	0.02	0.09	1.53	0.25	0	
2 A	15.11	15.11	33.434	24.742	319.4	0.006	6.04	105.4	2.7	0.39	0.3	0.02	0.09	1.53	0.25	2	206
10 ISL	14.54 D	14.54	33.412 D	24.848	309.6	0.032	6.13	105.7	3.3	0.42	0.7	0.06	0.08	3.00	0.44	10	
11 A	14.39	14.39	33.421	24.886	305.9	0.035	6.14	105.6	3.4	0.42	0.8	0.07	0.08	3.18	0.48	11	205
20 ISL	13.05 D	13.05	33.435 D	25.172	279.0	0.061	5.94	99.4	5.1	0.65	4.1	0.15	0.10	9.68	0.93	20	
21 A	13.01	13.01	33.438	25.182	278.0	0.064	5.90	98.6	5.4	0.68	4.6	0.16	0.10	10.29	0.97	21	204
30 ISL	12.34 D	12.34	33.446 D	25.319	265.2	0.088	5.37	88.5	8.1	0.90	8.3	0.19	0.14	7.46	0.93	30	
31 A	12.32	12.32	33.447	25.324	264.8	0.091	5.30	87.3	8.4	0.92	8.7	0.19	0.15	7.15	0.92	31	203
41 A	11.85	11.84	33.482	25.440	253.9	0.117	4.57	74.6	12.6	1.19	12.9	0.23	0.32	1.46	0.45	41	202
50 ISL	10.91 D	10.90	33.623 D	25.721	227.4	0.138	3.83	61.3	16.9	1.52	17.3	0.38	1.06	1.25	0.47	50	
57 A	10.87	10.86	33.632	25.735	226.2	0.154	3.25	52.0	20.2	1.77	20.8	0.49	1.64	1.08	0.48	57	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 25.0 N	117 54.0 W	02/05/10	1447 UTC	619 m	140 14 kn	150 01 04	1	1013.6 mb	15.1 C	13.8 C	14m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.79	15.79	33.449	24.603	332.6	0.000	5.83	103.1	1.4	0.33	0.0	0.00	0.09	0.27	0.07	0	
3	15.79	15.79	33.449	24.603	332.7	0.010	5.83	103.1	1.4	0.33	0.0	0.00	0.09	0.27	0.07	3	212
10	15.63	15.63	33.443	24.634	329.9	0.033	5.92	104.4	1.1	0.33	0.0	0.00	0.08	0.36	0.11	10	211
20	15.18	15.18	33.426	24.721	322.0	0.066	6.03	105.4	1.3	0.33	0.2	0.01	0.11	0.89	0.23	20	210
30	13.31	13.31	33.308	25.022	293.5	0.097	5.55	93.3	3.6	0.62	3.0	0.09	0.10	1.68	0.65	30	209
50	11.27	11.26	33.276	25.386	259.2	0.152	4.75	76.4	10.5	1.10	11.7	0.06	0.07	0.46	0.35	50	208
75	10.41	10.40	33.604	25.794	221.0	0.212	3.62	57.3	18.4	1.57	19.3	0.00	0.00	0.07	0.08	75	207
100 ISL	9.94 D	9.93	33.822 D	26.045	197.6	0.264	3.07	48.1	23.5	1.80	22.9	0.00	0.00	0.02	0.05	101	
101	9.96	9.95	33.878 D	26.085	193.8	0.266	3.05	47.9	23.7	1.81	23.0	0.00	0.00	0.02	0.05	102	206
125 ISL	10.03 D	10.02	34.079 D	26.230	180.6	0.311	2.37	37.3	28.1	2.04	25.4	0.00	0.00	0.02	0.05	126	
150 ISL	9.96 D	9.94	34.151 D	26.299	174.6	0.355	1.74	27.4	31.8	2.25	27.0	0.00	0.00	0.01	0.06	151	
152	9.93	9.91	34.148	26.302	174.4	0.359	1.69	26.6	32.1	2.26	27.1	0.00	0.00	0.01	0.06	153	205
200	9.79	9.77	34.278	26.428	163.5	0.440	1.25	19.6	36.3	2.44	28.4	0.00	0.00	0.01	0.07	201	204
250 ISL	8.82 D	8.79	34.236 D	26.553	152.2	0.519	1.22	18.7	41.2	2.53	30.3	0.00	0.00			251	
300 ISL	8.15 D	8.12	34.210 D	26.636	144.9	0.593	1.18	17.8	47.1	2.61	32.5	0.00	0.00			302	
305	8.08	8.05	34.205	26.642	144.4	0.600	1.18	17.8	47.7	2.62	32.7	0.00	0.00			307	203
400 ISL	6.93 D	6.89	34.251 D	26.844	126.1	0.729	0.64	9.4	63.2	2.93	36.8	0.00	0.00			403	
404	6.91	6.87	34.250	26.846	125.9	0.734	0.62	9.1	63.9	2.94	37.0	0.00	0.00			407	202
500 ISL	6.22 D	6.18	34.301 D	26.978	114.2	0.849	0.36	5.2	74.8	3.11	39.1	0.00	0.00			503	
515	6.16	6.11	34.306	26.990	113.2	0.866	0.32	4.6	76.5	3.14	39.4	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 90.0 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 15.3 N	118 14.3 W	02/05/10	1036 UTC	278 m	150 10 kn			1010.1 mb	14.2 C	12.9 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.55	15.55	33.436	24.646	328.4	0.000	5.89	103.7	2.2	0.39	0.1	0.00	0.05	0.39	0.11	0	
2	15.55	15.55	33.436	24.646	328.5	0.007	5.89	103.7	2.2	0.39	0.1	0.00	0.05	0.39	0.11	2	212
10	15.48	15.48	33.435	24.661	327.3	0.033	5.89	103.6	2.1	0.37	0.1	0.00	0.00	0.40	0.12	10	211
20	15.31	15.31	33.431	24.696	324.3	0.065	5.97	104.6	2.4	0.36	0.0	0.00	0.00	0.46	0.16	20	210
30	15.26	15.26	33.427	24.704	323.8	0.098	5.98	104.7	2.4	0.36	0.0	0.00	0.00	0.50	0.17	30	209
40	13.60	13.59	33.384	25.022	293.7	0.129	5.90	99.8	4.2	0.48	1.0	0.06	0.07	1.03	0.42	40	208
49	11.99	11.98	33.339 D	25.303	267.2	0.154										49	207
50 ISL	11.78 D	11.77	33.354 D	25.354	262.4	0.157	5.05	82.2	8.8	0.89	7.5	0.09	0.05	0.79	0.33	50	
61	11.10	11.09	33.441	25.546	244.3	0.184	4.07	65.3	13.9	1.35	15.1	0.13	0.00	0.29	0.23	61	206
74	10.77	10.76	33.517	25.663	233.4	0.215	3.89	62.0	16.0	1.47	17.1	0.05	0.00	0.17	0.19	74	205
75 ISL	10.56 D	10.55	33.514 D	25.698	230.1	0.218	3.88	61.6	16.1	1.48	17.2	0.05	0.00	0.16	0.19	75	
100 ISL	10.21 D	10.20	33.654 D	25.868	214.5	0.273	3.52	55.5	19.7	1.63	20.3	0.02	0.00	0.03	0.22	100	
101	10.22	10.21	33.635	25.851	216.1	0.276	3.50	55.2	19.8	1.64	20.4	0.02	0.00	0.03	0.22	101	204
125 ISL	9.73 D	9.72	33.867 D	26.115	191.4	0.324	3.00	46.8	24.2	1.84	23.4	0.02	0.00	0.02	0.14	126	
150 ISL	9.52 D	9.50	33.999 D	26.253	178.8	0.371	2.45	38.1	29.3	2.05	26.1	0.02	0.00	0.01	0.05	151	
152	9.49	9.47	34.007	26.265	177.8	0.374	2.40	37.3	29.7	2.07	26.3	0.02	0.00	0.01	0.04	153	203
198	8.93	8.91	34.164	26.478	158.3	0.452	1.64	25.2	38.6	2.40	29.5	0.02	0.00	0.01	0.05	199	202
200 ISL	8.92 D	8.90	34.161 D	26.478	158.4	0.455	1.62	24.9	38.9	2.41	29.6	0.02	0.00			201	
250 ISL	8.12 D	8.09	34.211 D	26.640	143.6	0.530	1.25	18.9	46.8	2.58	32.6	0.01	0.00			251	
276	7.95	7.92	34.215	26.669	141.2	0.567	1.05	15.8	50.9	2.67	34.2	0.00	0.00			278	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 90.0 37.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 11.5 N	118 22.5 W	02/05/10	0740 UTC	1169 m	270 28 kn			1011.5 mb	13.8 C	13.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.19	15.19	33.430	24.721	321.3	0.000	5.90	103.1	2.3	0.36	0.1	0.01	0.16	0.40	0.15	0	
2	15.19	15.19	33.430	24.721	321.4	0.006	5.90	103.1	2.3	0.36	0.1	0.01	0.16	0.40	0.15	2	212
10	15.20	15.20	33.430	24.719	321.8	0.032	5.93	103.7	2.2	0.37	0.1	0.01	0.15	0.40	0.14	10	211
20	15.17	15.17	33.420	24.719	322.2	0.064	5.94	103.8	2.3	0.37	0.1	0.02	0.15	0.41	0.15	20	210
30	14.35	14.35	33.411	24.888	306.3	0.096	6.04	103.8	3.8	0.45	1.1	0.10	0.14	0.60	0.43	30	209
50	11.98	11.97	33.375	25.333	264.4	0.153	4.63	75.7	9.9	1.07	10.2	0.51	0.12	0.54	0.29	50	208
75	10.58	10.57	33.487	25.673	232.4	0.215	3.96	62.9	16.0	1.47	17.3	0.02	0.09	0.14	0.19	75	207
100	10.04	10.03	33.769	25.986	203.2	0.269	3.13	49.2	22.5	1.79	22.2	0.00	0.06	0.02	0.05	100	206
125 ISL	9.40 D	9.39	33.962 D	26.244	179.2	0.317	2.66	41.3	27.3	1.98	24.9	0.00	0.07	0.01	0.04	126	
150	9.27	9.25	34.033	26.321	172.4	0.361	2.39	37.0	31.2	2.10	26.6	0.00	0.08	0.01	0.03	151	205
200	8.52	8.50	34.102	26.494	156.7	0.443	1.98	30.1	38.8	2.32	29.6	0.00	0.07	0.00	0.02	201	204
250 CSL	8.33 D	8.30	34.213 D	26.610	146.5	0.519	1.28 D	19.4	44.4	2.52	31.5	0.00	0.07			251	
300	7.97	7.94	34.228	26.677	141.0	0.591	1.07	16.1	49.7	2.70	33.1	0.00	0.07			302	203
400	6.92	6.88	34.243	26.839	126.5	0.725	0.64	9.4	63.5	2.96	36.9	0.00	0.00			403	202
500 ISL	6.12 D	6.08	34.324 D	27.009	111.2	0.844	0.31	4.5	79.2	3.17	39.4	0.00	0.00			503	
521	5.98	5.93	34.335	27.036	108.8	0.867	0.24	3.4	82.5	3.22	39.9	0.00	0.00			525	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 90.0 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 55.0 N	118 56.2 W	02/05/10	0234 UTC	1690 m	280 21 kn	280 05 04	1	1012.0 mb	13.6 C	13.0 C		2/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.99	13.99	33.433	24.979	296.8	0.000	6.03	102.9	5.4	0.59	2.6	0.17	0.07	0.70	0.28	0	
3	13.99	13.99	33.433	24.979	296.8	0.009	6.03	102.9	5.4	0.59	2.6	0.17	0.07	0.70	0.28	3	212
9	14.00	14.00	33.432	24.976	297.3	0.027	6.02	102.7	5.3	0.58	2.5	0.17	0.06	0.71	0.25	9	211
10 ISL	13.99 D	13.99	33.430 D	24.977	297.3	0.030	6.02	102.7	5.3	0.58	2.5	0.17	0.06	0.72	0.25	10	
20	13.87	13.87	33.428	25.001	295.3	0.059	6.01	102.3	5.2	0.58	2.5	0.17	0.07	0.77	0.33	20	210
30	13.73	13.73	33.421	25.024	293.3	0.089	5.97	101.3	5.2	0.58	2.6	0.17	0.09	1.01	0.48	30	209
50	11.96	11.95	33.424	25.375	260.4	0.144	5.24	85.7	9.1	1.00	8.7	0.71	0.21	0.81	0.40	50	208
74	10.77	10.76	33.533	25.676	232.2	0.203	4.01	63.9	16.4	1.47	17.0	0.26	0.00	0.27	0.24	74	207
75 ISL	10.56 D	10.55	33.610 D	25.773	223.0	0.206	3.96	62.9	16.7	1.49	17.3	0.25	0.00	0.26	0.23	75	
99	9.91	9.90	33.817	26.046	197.5	0.256	2.85	44.7	24.4	1.87	23.6	0.01	0.00	0.03	0.13	99	206
100 ISL	9.89 D	9.88	33.835 D	26.063	195.9	0.258	2.82	44.2	24.6	1.88	23.7	0.01	0.00	0.03	0.13	101	
125 CSL	9.45 D	9.44	33.942 D	26.220	181.4	0.305	2.54 D	39.4	29.4	2.07	26.6	0.01	0.00	0.02	0.12	126	
150	9.29	9.27	34.038	26.321	172.3	0.349	2.08	32.2	32.9	2.17	27.8	0.01	0.00	0.02	0.11	151	205
198	8.66	8.64	34.143	26.504	155.7	0.428	1.58	24.1	40.3	2.39	30.6	0.00	0.00	0.01	0.07	199	204
200 ISL	8.62 D	8.60	34.149 D	26.515	154.7	0.431	1.57	24.0	40.5	2.40	30.7	0.00	0.00			201	
250 ISL	8.22 D	8.19	34.190 D	26.609	146.6	0.506	1.25	18.9	46.4	2.56	32.6	0.00	0.00			251	
299	7.78	7.75	34.208	26.689	139.7	0.577	1.04	15.6	51.3	2.69	33.9	0.00	0.00			301	203
300 ISL	7.74 D	7.71	34.212 D	26.698	138.8	0.578	1.04	15.6	51.4	2.69	33.9	0.00	0.00			302	
400 ISL	7.08 D	7.04	34.262 D	26.832	127.3	0.711	0.60	8.8	62.3	2.92	36.5	0.00	0.00			403	
401	7.09	7.05	34.259	26.828	127.7	0.712	0.60	8.8	62.4	2.92	36.5	0.00	0.00			404	202
500 ISL	6.27 D	6.23	34.312 D	26.980	114.0	0.832	0.35	5.1	75.8	3.11	38.9	0.00	0.00			503	
515	6.16	6.11	34.324	27.004	111.9	0.849	0.31	4.5	77.8	3.14	39.3	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 90.0 53.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 38.9 N	119 28.6 W	01/05/10	2139 UTC	1323 m	290 14 kn	310 08 06	0	1014.8 mb	14.2 C	14.0 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.13	14.13	33.209	24.777	316.0	0.000	5.95	101.6	2.6	0.43	0.4	0.04	0.04	0.56	0.22	0	
3	14.13	14.13	33.209	24.777	316.1	0.009	5.95	101.6	2.6	0.43	0.4	0.04	0.04	0.56	0.22	3	212
10	14.13	14.13	33.215	24.782	315.8	0.032	5.95	101.6	2.4	0.42	0.4	0.03	0.06	0.56	0.21	10	211
20	13.71	13.71	33.201	24.858	308.8	0.063	5.98	101.3	2.8	0.44	0.7	0.05	0.08	0.58	0.25	20	210
30	13.13	13.13	33.215	24.986	296.9	0.093	5.96	99.7	4.7	0.60	3.0	0.12	0.10	0.89	0.61	30	209
50	12.95	12.94	33.219	25.025	293.7	0.152	5.86	97.7	4.9	0.62	3.3	0.12	0.12	0.55	0.56	50	208
75	11.05	11.04	33.246	25.403	258.2	0.221	4.77	76.4	10.4	1.12	11.7	0.03	0.00	0.13	0.16	75	207
100 ISL	10.14	10.13	33.569	25.813	219.6	0.281	3.73	58.7	18.7	1.57	19.2	0.02	0.00	0.02	0.06	100	
101	10.17	10.16	33.584	25.820	219.0	0.283	3.69	58.1	19.0	1.59	19.5	0.02	0.00	0.02	0.06	101	206
125 CSL	9.84 D	9.83	33.855 D	26.088	194.1	0.333	2.87 D	44.9	23.6	1.81	22.9	0.01	0.00	0.01	0.05	126	
150	9.60	9.58	33.884	26.150	188.6	0.380	2.76	43.0	26.9	1.93	24.6	0.00	0.00	0.00	0.04	151	205
200 ISL	9.02 D	9.00	34.051 D	26.376	168.1	0.470	2.10	32.3	34.5	2.19	28.0	0.00	0.00	0.00	0.06	201	
201	9.02	9.00	34.046	26.372	168.5	0.471	2.09	32.2	34.6	2.19	28.1	0.00	0.00	0.00	0.06	202	204
250 ISL	8.39 D	8.36	34.161 D	26.560	151.3	0.550	1.53	23.2	42.7	2.44	31.0	0.00	0.00			251	
300	7.86	7.83	34.199	26.670	141.5	0.623	1.09	16.3	50.3	2.66	33.4	0.00	0.00			302	203
400	7.17	7.13	34.248	26.808	129.6	0.758	0.71	10.5	60.1	2.88	36.0	0.00	0.00			403	202
500 ISL	6.33 D	6.33	34.292 D	26.950	117.0	0.882	0.39	5.7	73.3	3.07	38.8	0.00	0.00			503	
514	6.24	6.19	34.295	26.971	115.1	0.898	0.34	4.9	75.2	3.10	39.2	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 90.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 24.9 N	119 57.3 W	04/05/10	0656 UTC	915 m	290 15 kn			1021.6 mb	14.0 C	13.8 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.78	14.78	33.236	24.660	327.1	0.000	6.05	104.8	2.6	0.36	0.0	0.00	0.00	0.50	0.14	0	
2	14.78	14.78	33.236	24.661	327.2	0.007	6.05	104.8	2.6	0.36	0.0	0.00	0.00	0.50	0.14	2	212
10	14.58	14.58	33.228	24.697	323.9	0.033	6.06	104.5	2.9	0.34	0.0	0.01	0.00	0.48	0.15	10	211
20	14.31	14.31	33.236	24.761	318.1	0.065	6.09	104.4	2.9	0.35	0.0	0.01	0.00	0.74	0.24	20	210
30	14.28	14.28	33.231	24.764	318.2	0.096	6.02	103.2	3.1	0.35	0.1	0.03	0.00	0.81	0.28	30	209
50 ISL	13.95 D	13.94	33.233 D	24.834	312.0	0.160	5.92	100.8	3.6	0.67	1.0	0.10	0.17	0.71	0.27	50	
51	13.93	13.92	33.227	24.834	312.0	0.163	5.91	100.5	3.6	0.69	1.0	0.10	0.18	0.70	0.27	51	208
75	12.21	12.20	33.275	25.212	276.5	0.233	5.13	84.2	7.9	1.09	8.2	0.03	0.00	0.18	0.16	75	207
100	10.27	10.26	33.350	25.620	238.0	0.298	4.49	70.7	15.2	1.57	15.9	0.00	0.00	0.05	0.06	100	206
125 ISL	9.62 D	9.61	33.650 D	25.964	205.8	0.353	3.76	58.5	21.5	1.87	20.9	0.00	0.00	0.03	0.04	126	
150	9.44	9.42	33.850	26.150	188.6	0.402	3.10	48.1	26.5	2.06	24.1	0.00	0.00	0.01	0.02	151	205
200	9.11	9.09	34.005	26.325	172.9	0.493	2.47	38.1	32.0	2.27	27.0	0.00	0.00	0.00	0.02	201	204
250 ISL	8.10 D	8.07	34.108 D	26.563	150.9	0.574	1.83	27.6	40.8	2.57	30.4	0.00	0.00			251	
300	7.69	7.66	34.164	26.667	141.7	0.647	1.27	19.0	50.5	2.84	33.7	0.00	0.00			302	203
400	6.66	6.62	34.216	26.852	125.0	0.780	0.68	9.9	66.8	2.95	37.7	0.00	0.00			403	202
500 ISL	6.08 D	6.04	34.257 D	26.961	115.6	0.900	0.42	6.0	76.5	3.09	39.5	0.00	0.00			503	
515	6.09	6.04	34.273	26.973	114.8	0.918	0.38	5.5	78.0	3.11	39.8	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 90.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 5.1 N	120 38.4 W	04/05/10	1211 UTC	3817 m	320 16 kn			1020.0 mb	14.0 C	13.8 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.64	14.64	33.133	24.611	331.8	0.000	5.95	102.7	2.4	0.36	0.0	0.00	0.00	0.27	0.06	0	
2	14.64	14.64	33.133	24.611	331.9	0.007	5.95	102.7	2.4	0.36	0.0	0.00	0.00	0.27	0.06	2	212
10 ISL	14.64 D	14.64	33.131 D	24.610	332.2	0.033	5.96	102.8	2.4	0.36	0.0	0.00	0.00	0.27	0.06	10	
14	14.61	14.61	33.133	24.618	331.6	0.046	5.96	102.8	2.4	0.36	0.0	0.00	0.00	0.27	0.06	14	211
20 ISL	14.40 D	14.40	33.128 D	24.658	327.9	0.066	5.96	102.3	2.5	0.36	0.0	0.00	0.00	0.31	0.06	20	
30 ISL	14.38 D	14.38	33.128 D	24.663	327.7	0.099	5.95	102.1	2.6	0.36	0.0	0.00	0.00	0.39	0.07	30	
31	14.38	14.38	33.131	24.665	327.5	0.102	5.95	102.1	2.6	0.36	0.0	0.00	0.00	0.40	0.07	31	210
45	14.31	14.30	33.126	24.677	326.9	0.148	5.97	102.3	2.7	0.37	0.0	0.01	0.06	0.48	0.14	45	209
50 ISL	14.29 D	14.28	33.124 D	24.679	326.7	0.164	5.95	101.9	2.7	0.37	0.0	0.01	0.08	0.44	0.15	50	
59	14.16	14.15	33.133	24.714	323.7	0.194	5.92	101.1	2.7	0.38	0.1	0.02	0.09	0.34	0.17	59	208
75	12.02	12.01	33.027	25.056	291.3	0.243	5.59	91.3	5.7	0.71	5.0	0.09	0.05	0.29	0.25	75	207
100	11.01	11.00	33.172	25.353	263.5	0.312	5.20	83.1	9.1	0.99	9.5	0.02	0.05	0.14	0.11	100	206
125 ISL	9.75 D	9.74	33.363 D	25.718	229.1	0.374	4.55	70.9	15.3	1.34	15.7	0.01	0.03	0.05	0.07	126	
150 ISL	9.42 D	9.40	33.564 D	25.930	209.4	0.429	3.88	60.1	21.9	1.67	21.4	0.00	0.00	0.01	0.03	151	
152	9.43	9.41	33.559	25.924	210.0	0.433	3.82	59.1	22.4	1.69	21.8	0.00	0.00	0.01	0.03	153	205
200 ISL	8.96 D	8.94	33.876 D	26.248	180.1	0.526	3.00	46.0	29.5	1.94	25.9	0.00	0.00	0.00	0.03	201	
201	8.96	8.94	33.871	26.244	180.5	0.528	2.99	45.9	29.6	1.94	25.9	0.00	0.00	0.00	0.03	202	204
250 ISL	8.04 D	8.01	34.026 D	26.507	156.1	0.611	2.29	34.5	37.7	2.20	29.2	0.00	0.00			251	
300 ISL	7.72 D	7.69	34.093 D	26.607	147.3	0.687	1.72	25.7	46.8	2.45	32.1	0.00	0.00			302	
301	7.73	7.70	34.094	26.606	147.4	0.688	1.71	25.6	47.0	2.45	32.2	0.00	0.00			303	203
400	6.28	6.24	34.108	26.817	128.0	0.824	1.02	14.7	66.6	2.83	37.9	0.00	0.00			402	202
500 ISL	5.71 D	5.67	34.227 D	26.983	113.1	0.945	0.49	7.0	80.5	3.08	40.3	0.00	0.00			503	
516	5.66	5.62	34.233	26.994	112.2	0.963	0.41	5.8	82.7	3.12	40.7	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 90.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 25.2 N	121 59.7 W	30/04/10	2119 UTC	3817 m	330 30 kn	330 12 08	1	1019.8 mb	14.2 C	12.0 C		4/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.78	14.78	33.110	24.563	336.3	0.000	5.90	102.1	2.9	0.38	0.1	0.00	0.06	0.23	0.08	0	
3	14.78	14.78	33.110	24.563	336.4	0.010	5.90	102.1	2.9	0.38	0.1	0.00	0.06	0.23	0.08	3	212
10 ISL	14.79 D	14.79	33.106 D	24.558	337.1	0.034	5.91	102.3	2.8	0.38	0.0	0.00	0.03	0.24	0.07	10	
15	14.80	14.80	33.111	24.560	337.1	0.051	5.91	102.3	2.7	0.37	0.0	0.00	0.00	0.24	0.06	15	211
20 ISL	14.78 D	14.78	33.106 D	24.561	337.2	0.067	5.91	102.2	2.5	0.37	0.0	0.00	0.00	0.23	0.06	20	
30 ISL	14.77 D	14.77	33.106 D	24.563	337.2	0.101	5.91	102.2	2.2	0.36	0.0	0.00	0.00	0.22	0.07	30	
31	14.78	14.78	33.111	24.565	337.1	0.104	5.91	102.2	2.2	0.36	0.0	0.00	0.00	0.22	0.07	31	210
45	14.73	14.72	33.108	24.574	336.7	0.152	5.96	103.0	2.6	0.36	0.0	0.00	0.00	0.23	0.07	45	209
50 ISL	14.70 D	14.69	33.103 D	24.577	336.6	0.168	5.97	103.1	2.6	0.36	0.0	0.00	0.01	0.30	0.12	50	
60	14.29	14.28	33.139	24.691	325.9	0.202	6.00	102.8	2.6	0.37	0.0	0.00	0.05	0.44	0.23	60	208
75	13.58	13.57	33.191	24.878	308.4	0.249	5.89	99.5	2.6	0.47	0.6	0.25	0.15	0.43	0.36	75	207
100 ISL	11.74	11.73	33.176 D	25.224	275.9	0.322	5.28	85.8	7.4	0.89	7.9	0.04	0.01	0.10	0.14	100	
101	11.66	11.65	33.203	25.260	272.5	0.325	5.25	85.1	7.7	0.91	8.3	0.02	0.00	0.09	0.13	101	206
125 ISL	10.24 D	10.23	33.254 D	25.551	245.1	0.387	4.84	76.1	11.9	1.18	13.2	0.01	0.00	0.05	0.08	126	
150 ISL	9.75 D	9.73	33.439 D	25.778	223.9	0.446	4.45	69.3	16.5	1.39	17.1	0.00	0.00	0.01	0.03	151	
151	9.78	9.76	33.420	25.758	225.8	0.448	4.44	69.2	16.7	1.40	17.2	0.00	0.00	0.01	0.03	152	205
199	8.73	8.71	33.868	26.278	177.2	0.545	3.51	53.6	27.8	1.78	24.2	0.00	0.00	0.00	0.02	200	204
200 ISL	8.69 D	8.67	33.880 D	26.293	175.7	0.546	3.49	53.2	28.0	1.79	24.3	0.00	0.00			201	
250 CSL	7.93 D	7.90	33.992 D	26.496	157.0	0.630	2.83 D	42.5	37.5	2.12	29.1	0.00	0.00			251	
300 ISL	7.42 D	7.39	34.057 D	26.622	145.8	0.705	1.89	28.0	46.0	2.40	32.4	0.00	0.00			302	
303	7.49	7.46	34.061	26.615	146.5	0.710	1.85	27.5	46.5	2.42	32.6	0.00	0.00			305	203
400 ISL	6.73 D	6.69	34.168 D	26.805	129.5	0.844	0.87	12.7	62.9	2.85	37.3	0.00	0.00			402	
401	6.75	6.71	34.165	26.800	130.0	0.845	0.86	12.6	63.1	2.85	37.3	0.00	0.00			403	202
500 ISL	5.83 D	5.79	34.216 D	26.960	115.4	0.966	0.52	7.4	77.3	3.06	40.1	0.00	0.00			503	
518	5.81	5.77	34.227	26.971	114.6	0.987	0.46	6.6	79.9	3.10	40.6	0.00	0.00			521	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 5.3 N	122 39.7 W	30/04/10	1457 UTC	3990 m	340 30 kn	340 09 09	1	1020.5 mb	13.1 C	10.2 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.53	15.53	33.162	24.440	348.1	0.000	5.79	101.7	2.8	0.35	0.0	0.00	0.10	0.14	0.03	0	
3	15.53	15.53	33.162	24.440	348.2	0.010	5.79	101.7	2.8	0.35	0.0	0.00	0.10	0.14	0.03	3	212
10 ISL	15.53 D	15.53	33.158 D	24.437	348.7	0.035	5.79	101.7	2.6	0.35	0.0	0.00	0.10	0.14	0.03	10	
20	15.53	15.53	33.162	24.441	348.7	0.070	5.80	101.9	2.3	0.34	0.0	0.00	0.10	0.13	0.03	20	211
30 ISL	15.53 D	15.53	33.159 D	24.439	349.2	0.105	5.80	101.9	2.5	0.34	0.0	0.00	0.10	0.13	0.03	30	
45	15.54	15.53	33.163	24.440	349.5	0.157	5.79	101.7	2.8	0.35	0.0	0.00	0.11	0.14	0.03	45	210
50 ISL	15.54 D	15.53	33.160 D	24.438	349.8	0.174	5.81	102.1	2.8	0.35	0.0	0.00	0.11	0.16	0.04	50	
65	15.24	15.23	33.189	24.527	341.8	0.226	5.85	102.2	2.7	0.35	0.0	0.00	0.10	0.28	0.12	65	209
75 CSL	14.06 D	14.05	33.186 D	24.776	318.2	0.259	6.07	D103.5	3.0	0.42	0.7	0.06	0.09	0.52	0.32	75	
83	13.55	13.54	33.171	24.869	309.5	0.284	5.72	96.5	3.3	0.51	1.3	0.09	0.09	0.62	0.43	83	208
92	12.95	12.94	33.194	25.007	296.6	0.312	5.49	91.5	5.4	0.67	4.0	0.05	0.69	0.38	0.34	92	207
100 ISL	12.17 D	12.16	33.204 D	25.165	281.6	0.335	5.17	84.8	7.4	0.84	6.9	0.03	0.25	0.25	0.23	100	
102	12.09	12.08	33.213	25.188	279.5	0.340	5.09	83.3	7.9	0.88	7.7	0.03	0.08	0.22	0.20	102	206
125 CSL	10.48 D	10.47	33.332 D	25.571	243.2	0.401	4.79 D	75.8	13.8	1.26	14.4	0.02	0.07	0.12	0.12	126	
150	9.57	9.55	33.567	25.907	211.6	0.457	4.00	62.1	20.0	1.57	19.7	0.00	0.06	0.01	0.03	151	205
200 ISL	8.88	8.86	33.960	26.326	172.7	0.553	2.86	43.8	30.5	1.97	26.2	0.00	0.05	0.01	0.02	201	
202	8.88	8.86	33.973	26.337	171.7	0.557	2.82	43.2	30.9	1.98	26.4	0.00	0.05	0.01	0.02	203	204
250 CSL	8.07 D	8.04	34.058 D	26.528	154.2	0.635	2.17 D	32.7	40.0	2.30	30.3	0.00	0.05			251	
300 ISL	7.89 D	7.86	34.163 D	26.637	144.6	0.710	1.35	20.3	48.3	2.58	33.0	0.00	0.05			302	
301	7.90	7.87	34.163	26.636	144.8	0.711	1.34	20.1	48.5	2.58	33.0	0.00	0.05			303	203
400 ISL	7.02 D	6.98	34.225 D	26.811	129.2	0.847	0.76	11.2	61.3	2.87	36.5	0.00	0.00			402	
403	7.05	7.01	34.220	26.803	130.1	0.851	0.75	11.0	61.7	2.88	36.6	0.00	0.00			405	202
500 ISL	6.26 D	6.22	34.276 D	26.953	116.6	0.970	0.41	5.9	74.1	3.08	39.3	0.00	0.00			503	
515	6.17	6.12	34.284	26.971	115.0	0.988	0.36	5.2	76.0	3.11	39.7	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 90.0 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 44.3 N	123 19.3 W	30/04/10	0946 UTC	3993 m	340 25 kn			1022.7 mb	13.9 C	11.9 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.82	15.82	33.127	24.349	356.8	0.000	5.78	102.1	2.1	0.37	0.1	0.00	0.00	0.12	0.01	0	
3	15.82	15.82	33.127	24.349	356.9	0.011	5.78	102.1	2.1	0.37	0.1	0.00	0.00	0.12	0.01	3	212
10 ISL	15.82 D	15.82	33.124 D	24.347	357.3	0.036	5.78	102.1	1.8	0.36	0.0	0.00	0.00	0.11	0.02	10	
14	15.82	15.82	33.127	24.349	357.2	0.050	5.78	102.1	1.7	0.35	0.0	0.00	0.00	0.11	0.02	14	211
20 ISL	15.83 D	15.83	33.124 D	24.345	357.8	0.071	5.78	102.1	1.9	0.35	0.0	0.00	0.00	0.11	0.02	20	
28	15.83	15.83	33.142	24.359	356.7	0.100	5.78	102.1	2.3	0.35	0.0	0.00	0.00	0.12	0.02	28	210
30 ISL	15.83 D	15.83	33.123 D	24.344	358.2	0.107	5.78	102.1	2.3	0.35	0.0	0.00	0.00	0.12	0.02	30	
47	15.83	15.82	33.129	24.349	358.2	0.168	5.78	102.1	2.1	0.35	0.0	0.00	0.00	0.12	0.02	47	209
50 ISL	15.82 D	15.81	33.146 D	24.365	356.8	0.179	5.80	102.5	2.0	0.35	0.0	0.00	0.00	0.13	0.02	50	
61	15.29	15.28	33.191	24.517	342.6	0.217	5.83	101.9	1.8	0.34	0.0	0.00	0.00	0.16	0.04	61	208
75	12.77	12.76	33.145	25.004	296.4	0.262	5.65	93.8	4.0	0.60	2.8	0.10	0.00	0.46	0.25	75	207
100 ISL	11.02 D	11.01	33.206 D	25.378	261.1	0.332	5.04	80.6	9.1	1.00	10.0	0.02	0.00	0.23	0.16	100	
102	10.99	10.98	33.216	25.391	259.9	0.337	4.99	79.8	9.5	1.03	10.6	0.01	0.00	0.19	0.15	102	206
125 CSL	9.94 D	9.93	33.364 D	25.687	232.0	0.393	4.70 D	73.5	14.4	1.32	15.7	0.01	0.00	0.07	0.08	126	
150 ISL	9.44	9.42	33.595	25.951	207.5	0.448	4.00	61.9	19.8	1.58	20.0	0.00	0.00	0.01	0.02	151	
151	9.47	9.45	33.604	25.953	207.3	0.450	3.98	61.7	20.0	1.59	20.1	0.00	0.00	0.01	0.02	152	205
200 ISL	8.63 D	8.61	33.964 D	26.368	168.6	0.543	2.99	45.6	30.9	1.94	26.0	0.00	0.00	0.00	0.02	201	
202	8.64	8.62	33.961	26.365	169.0	0.546	2.95	45.0	31.3	1.95	26.2	0.00	0.00	0.00	0.02	203	204
250 CSL	7.99 D	7.96	34.026 D	26.514	155.4	0.624	2.39 D	35.9	41.0	2.24	30.3	0.00	0.00			251	
300 ISL	7.31 D	7.28	34.077 D	26.653	142.7	0.698	1.65	24.4	50.4	2.50	33.4	0.00	0.00			302	
303	7.28	7.25	34.077	26.657	142.4	0.703	1.62	24.0	50.9	2.51	33.6	0.00	0.00			305	203
400 ISL	6.30 D	6.26	34.141 D	26.840	125.8	0.833	0.88	12.7	67.1	2.87	38.0	0.00	0.00			402	
403	6.30	6.26	34.146	26.844	125.4	0.836	0.86	12.4	67.6	2.88	38.1	0.00	0.00			405	202
500 ISL	5.59 D	5.55	34.231 D	27.001	111.3	0.951	0.44	6.3	81.5	3.11	40.6	0.00	0.00			503	
515	5.56	5.52	34.250	27.020	109.6	0.968	0.38	5.4	83.7	3.14	41.0	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 90.0 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 24.9 N	124 0.0 W	30/04/10	0410 UTC	4215 m	350 25 kn			1023.8 mb	14.5 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.73	15.73	33.226	24.445	347.6	0.000	5.82	102.7	1.9	0.35	0.0	0.00	0.09	0.13	0.02	0	
3	15.73	15.73	33.226	24.445	347.7	0.010	5.82	102.7	1.9	0.35	0.0	0.00	0.09	0.13	0.02	3	212
10 ISL	15.72 D	15.72	33.222 D	24.444	348.0	0.035	5.82	102.7	1.9	0.35	0.0	0.00	0.09	0.13	0.02	10	
16	15.73	15.73	33.225	24.445	348.2	0.056	5.82	102.7	2.0	0.35	0.0	0.00	0.09	0.13	0.02	16	211
20 ISL	15.73 D	15.73	33.222 D	24.443	348.5	0.070	5.82	102.7	2.0	0.35	0.0	0.00	0.09	0.13	0.02	20	
30	15.73	15.73	33.228	24.447	348.3	0.104	5.81	102.5	2.1	0.35	0.0	0.00	0.10	0.13	0.03	30	210
45	15.71	15.70	33.228	24.452	348.3	0.157	5.80	102.3	1.5	0.33	0.0	0.00	0.07	0.14	0.03	45	209
50 ISL	15.03 D	15.02	33.217 D	24.594	335.0	0.174	5.88	102.3	1.7	0.35	0.0	0.00	0.06	0.22	0.08	50	
59	14.25	14.24	33.222	24.764	319.0	0.203	5.94	101.7	2.4	0.38	0.0	0.00	0.06	0.39	0.21	59	208
74	13.00	12.99	33.226	25.021	294.7	0.249	5.41	90.3	4.7	0.65	3.5	0.10	0.07	0.67	0.56	74	207
75 ISL	12.52 D	12.51	33.217 D	25.108	286.4	0.252	5.39	89.0	4.9	0.67	3.8	0.10	0.07	0.66	0.55	75	
99	11.26	11.25	33.237	25.359	263.0	0.318	4.85	78.0	9.4	1.07	10.9	0.01	0.05	0.17	0.18	99	206
100 ISL	10.95 D	10.94	33.265 D	25.436	255.6	0.321	4.82	77.0	9.6	1.09	11.2	0.01	0.05	0.17	0.18	100	
125 ISL	10.03 D	10.02	33.489 D	25.770	224.3	0.381	4.03	63.2	15.7	1.45	17.3	0.00	0.05	0.08	0.10	126	
150	9.91	9.89	33.733	25.981	204.7	0.434	3.28	51.4	21.8	1.74	21.9	0.00	0.05	0.00	0.03	151	205
198	9.10	9.08	33.973	26.302	175.1	0.525	2.61	40.2	30.6	2.02	26.4	0.00	0.05	0.00	0.02	199	204
200 ISL	8.96 D	8.94	33.980 D	26.329	172.4	0.529	2.58	39.6	30.9	2.03	26.5	0.00	0.05			201	
250 CSL	8.24 D	8.21	34.056 D	26.501	156.8	0.611	2.22 D	33.6	37.9	2.26	29.3	0.00	0.03			251	
300 ISL	7.95 D	7.92	34.135 D	26.607	147.6	0.687	1.56	23.4	44.9	2.47	31.6	0.00	0.00			302	
301	8.03	8.00	34.143	26.601	148.2	0.689	1.55	23.3	45.0	2.47	31.6	0.00	0.00			303	203
400 ISL	6.41 D	6.37	34.134 D	26.821	127.7	0.825	0.98	14.2	64.0	2.84	37.4	0.00	0.00			402	
401	6.45	6.41	34.127	26.810	128.8	0.827	0.98	14.2	64.2	2.84	37.5	0.00	0.00			403	202
500 ISL	5.75 D	5.71	34.222 D	26.974	113.9	0.947	0.49	7.0	78.3	3.08	40.2	0.00	0.00			503	
515	5.68	5.64	34.231	26.990	112.6	0.964	0.41	5.8	80.4	3.12	40.6	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 93.4 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 56.7 N	117 16.9 W	27/04/10	0235 UTC	27 m	290 05 kn			1012.6 mb	14.5 C	13.5 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.75	15.75	33.441	24.606	332.3	0.000	7.41	131.0	5.5	0.29	0.0	0.00	0.00	2.35	0.57	0	
2	15.75	15.75	33.441	24.606	332.4	0.007	7.41	131.0	5.5	0.29	0.0	0.00	0.00	2.35	0.57	2	205
5	15.47	15.47	33.440	24.667	326.6	0.017	7.38	129.7	5.4	0.32	0.0	0.00	0.00	3.71	0.71	5	204
10	14.52	14.52	33.441	24.874	307.0	0.032	7.40	127.6	3.0	0.32	0.0	0.03	0.00	13.60	2.12	10	203
15	12.35	12.35	33.503	25.361	260.8	0.047	4.71	77.7	10.9	1.00	8.6	0.49	0.06	8.61	1.24	15	202
20 ISL	11.63	11.63	33.539	25.524	245.4	0.059	3.88	63.0	15.0	1.36	14.5	0.52	0.02	3.21	0.75	20	
22	11.34	11.34	33.555	25.590	239.2	0.064	3.55	57.3	16.6	1.50	16.8	0.53	0.00	1.05	0.56	22	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 91.7 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 14.5 N	117 28.0 W	27/04/10	0456 UTC	23 m	250 04 kn			1014.1 mb	15.0 C	14.0 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.37	14.37	33.464	24.923	302.1	0.000	6.47	111.2	5.9	0.43	1.5	0.12	0.11	5.98	1.11	0	
2	14.37	14.37	33.464 D	24.924	302.1	0.006	6.47	111.2	5.9	0.43	1.5	0.12	0.11	5.98	1.11	2	206
5	14.41	14.41	33.468 D	24.918	302.7	0.015	6.36	109.4	6.3	0.51	1.9	0.14	0.06	5.93	0.98	5	205
10	13.15	13.15	33.494	25.197	276.2	0.030	5.28	88.5	9.7	0.85	7.1	0.30	0.21	5.39	0.86	10	203
10	13.36	13.36	33.481	25.145	281.2	0.030										10	204
15	11.28	11.28	33.572	25.614	236.7	0.043	3.49	56.3	17.3	1.55	17.1	0.52	1.02	1.68	0.57	15	202
20 ISL	11.18	11.18	33.598 D	25.652	233.2	0.054	3.29	52.9	19.0	1.64	18.0	0.49	1.13	1.31	0.69	20	
21	11.16	11.16	33.597	25.655	233.0	0.057	3.25	52.3	19.3	1.66	18.2	0.48	1.15	1.24	0.71	21	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 57.1 N	117 18.6 W	27/04/10	0713 UTC	79 m	040 01 kn			1014.1 mb	13.9 C	13.6 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.31	15.31	33.412	24.681	325.2	0.000	7.84	137.3	5.9	0.37	0.0	0.01	0.00	5.48	0.56	0	
2	15.31	15.31	33.412	24.681	325.2	0.007	7.84	137.3	5.9	0.37	0.0	0.01	0.00	5.48	0.56	2	209
5	15.30	15.30	33.413	24.684	325.0	0.016	7.76	135.9	6.0	0.33	0.0	0.01	0.00	5.78	0.64	5	208
10	14.48	14.48	33.443	24.884	306.1	0.032	6.16	106.1	7.4	0.64	2.6	0.16	0.38	6.22	0.65	10	207
20	12.37	12.37	33.531	25.379	259.2	0.060	5.15	85.0	12.9	1.16	11.3	0.36	0.31	2.52	0.52	20	206
30	11.08	11.08	33.568	25.647	233.9	0.085	3.73	59.9	16.8	1.51	17.1	0.18	0.07	0.70	0.35	30	205
40	10.83	10.83	33.626	25.737	225.6	0.108	3.34	53.4	18.7	1.64	19.3	0.06	0.00	0.38	0.28	40	204
50	10.70	10.69	33.704	25.821	217.8	0.130	3.04	48.4	20.8	1.75	20.9	0.03	0.00	0.22	0.17	50	203
63	10.57	10.56	33.810	25.927	208.1	0.158	2.41	38.3	24.8	1.96	23.2	0.54	0.51	0.17	0.28	63	202
75 ISL	10.50 D	10.49	33.850 D	25.970	204.2	0.183	2.38	37.8	25.5	1.99	23.4	0.37	0.29	0.17	0.38	75	
78	10.50	10.49	33.853	25.973	204.1	0.189	2.37	37.6	25.7	2.00	23.5	0.33	0.24	0.17	0.40	78	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 54.4 N	117 23.8 W	27/04/10	0930 UTC	555 m	340 02 kn			1013.7 mb	14.0 C	13.8 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.94	15.94	33.439	24.562	336.5	0.000	5.86	104.0	1.8	0.35	0.0	0.00	0.05	0.21	0.04	0	
2	15.94	15.94	33.439	24.562	336.6	0.007	5.86	104.0	1.8	0.35	0.0	0.00	0.05	0.21	0.04	2	212
10	15.81	15.81	33.432	24.586	334.5	0.034	5.88	104.1	1.8	0.35	0.0	0.00	0.05	0.26	0.07	10	211
20	14.58	14.58	33.413	24.840	310.6	0.066	5.99	103.4	3.6	0.42	0.5	0.05	0.16	0.88	0.32	20	210
30	13.21	13.21	33.407	25.119	284.3	0.096	5.34	89.6	7.2	0.73	5.3	0.22	0.22	1.53	0.56	30	209
50	10.86	10.85	33.574	25.692	230.2	0.147	3.60	57.5	17.2	1.53	17.7	0.03	0.00	0.16	0.16	50	208
75 ISL	10.56 D	10.55	33.759 D	25.889	212.0	0.202	2.88	45.8	21.9	1.83	22.0	0.00	0.06	0.10	0.13	75	
76	10.55	10.54	33.774	25.902	210.7	0.204	2.87	45.6	22.0	1.83	22.0	0.00	0.06	0.10	0.13	76	207
100	10.46	10.45	33.916	26.029	199.2	0.254	2.40	38.1	25.9	1.99	23.8	0.00	0.05	0.03	0.07	101	206
125 ISL	9.83 D	9.82	34.021 D	26.219	181.6	0.301	2.26	35.4	28.7	2.07	25.2	0.00	0.02	0.03	0.06	126	
150	9.60	9.58	34.060	26.288	175.6	0.346	2.15	33.5	31.0	2.14	26.3	0.00	0.00	0.03	0.05	151	205
200	9.79	9.77	34.261	26.415	164.7	0.431	1.23	19.3	36.7	2.45	28.4	0.00	0.00	0.01	0.05	201	204
250 ISL	9.58 D	9.55	34.296 D	26.478	159.8	0.512	1.11	17.3	39.7	2.57	29.4	0.00	0.00			251	
300	9.08	9.05	34.298	26.561	152.6	0.590	0.98	15.1	43.0	2.61	30.4	0.00	0.00			302	203
400 ISL	7.33 D	7.29	34.234 D	26.775	132.9	0.733	0.80	11.9	57.9	2.82	35.2	0.00	0.00			403	
403	7.31	7.27	34.239 D	26.782	132.3	0.737	0.79	11.7	58.4	2.83	35.4	0.00	0.00			406	202
500 ISL	6.28 D	6.24	34.292 D	26.963	115.6	0.857	0.41	5.9	73.6	3.07	38.9	0.00	0.07			503	
522	6.17	6.12	34.303	26.986	113.7	0.882	0.32	4.6	77.1	3.13	39.7	0.00	0.09			526	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 50.9 N	117 31.9 W	27/04/10	1208 UTC	846 m	190 03 kn			1013.5 mb	14.5 C	14.0 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.79	15.79	33.435	24.592	333.6	0.000	5.86	103.7	1.9	0.36	0.1	0.00	0.06	0.17	0.03	0	
2	15.79	15.79	33.435	24.592	333.7	0.007	5.86	103.7	1.9	0.36	0.1	0.00	0.06	0.17	0.03	2	212
10	15.50	15.50	33.424	24.649	328.5	0.033	5.92	104.1	2.1	0.33	0.0	0.00	0.06	0.19	0.04	10	211
20	15.19	15.19	33.423	24.716	322.4	0.066	5.92	103.5	2.3	0.34	0.0	0.00	0.06	0.25	0.08	20	210
30 ISL	14.94 D	14.94	33.419 D	24.768	317.8	0.098	5.87	102.1	2.9	0.38	0.3	0.03	0.19	0.47	0.19	30	
35	14.70	14.69	33.408	24.811	313.8	0.114	5.84	101.0	3.2	0.40	0.4	0.04	0.24	0.57	0.25	35	209
50	12.62	12.61	33.371	25.207	276.3	0.158	4.92	81.5	8.2	0.90	7.4	0.44	0.08	0.48	0.38	50	208
75	10.62	10.61	33.421	25.615	238.0	0.222	4.25	67.5	14.9	1.37	15.9	0.02	0.00	0.16	0.15	75	207
100	10.49	10.48	33.885	26.000	202.0	0.277	2.49	39.5	25.0	1.93	23.1	0.00	0.00	0.06	0.09	100	206
125 ISL	10.09 D	10.08	34.007 D	26.164	186.9	0.326	2.24	35.3	29.0	2.04	24.5	0.00	0.00	0.04	0.08	126	
150	10.10	10.08	34.174 D	26.293	175.2	0.371	2.00	31.5	30.4	2.14	25.9	0.00	0.00	0.02	0.06	151	205
200	9.97	9.95	34.264	26.387	167.5	0.457	1.28	20.1	35.2	2.39	27.9	0.01	0.00	0.02	0.06	201	204
250 ISL	9.46 D	9.43	34.290 D	26.493	158.3	0.538	1.19	18.5	39.6	2.50	29.5	0.01	0.00			251	
300	8.68	8.65	34.253	26.589	149.7	0.615	1.11	17.0	44.7	2.57	31.2	0.00	0.00			302	203
400 ISL	7.17 D	7.13	34.242 D	26.804	130.1	0.755	0.71	10.5	60.6	2.85	36.1	0.00	0.00			403	
401	7.17	7.13	34.241	26.803	130.2	0.756	0.71	10.5	60.8	2.85	36.1	0.00	0.00			404	202
500 ISL	6.29 D	6.24	34.285 D	26.957	116.3	0.878	0.41	5.9	73.9	3.07	39.0	0.00	0.00			503	
515	6.21	6.16	34.294	26.974	114.8	0.896	0.36	5.2	75.9	3.10	39.4	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 93.3 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 41.0 N	117 52.6 W	27/04/10	1556 UTC	614 m	160 06 kn	260 02 05	2	1014.6 mb	14.9 C	14.6 C		8/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.73	15.73	33.434	24.605	332.4	0.000	6.02	106.4	1.8	0.32	0.0	0.00	0.11	0.34	0.11	0	
2	15.73	15.73	33.434	24.605	332.5	0.007	6.02	106.4	1.8	0.32	0.0	0.00	0.11	0.34	0.11	2	212
10 ISL	15.41 D	15.41	33.411 D	24.659	327.6	0.033	6.06	106.4	1.6	0.33	0.0	0.00	0.12	0.36	0.11	10	
11	15.51	15.51	33.422	24.645	328.9	0.036	6.06	106.6	1.6	0.33	0.0	0.00	0.12	0.36	0.11	11	211
20 ISL	15.21 D	15.21	33.412 D	24.704	323.6	0.066	5.97	104.4	2.4	0.35	0.0	0.00	0.14	0.30	0.10	20	
21	15.26	15.26	33.410	24.691	324.8	0.069	5.96	104.3	2.5	0.35	0.0	0.00	0.14	0.30	0.10	21	210
30 ISL	14.86 D	14.86	33.417 D	24.784	316.3	0.098	5.90	102.4	3.1	0.42	0.2	0.01	0.25	0.39	0.21	30	
32	14.60	14.60	33.406	24.831	311.8	0.104	5.89	101.7	3.2	0.44	0.2	0.01	0.27	0.42	0.24	32	209
50	11.65	11.64	33.415	25.425	255.6	0.155	4.33	70.3	12.2	1.22	12.3	0.41	0.16	0.60	0.54	50	208
75	10.79	10.78	33.775	25.861	214.7	0.214	2.73	43.6	22.0	1.82	21.5	0.02	0.14	0.19	0.26	75	207
100	10.73	10.72	33.946	26.005	201.5	0.266	2.07	33.1	27.0	1.97	24.1	0.00	0.19	0.06	0.17	100	206
125 ISL	10.61 D	10.60	34.012 D	26.078	195.2	0.316	1.97	31.4	28.0	2.05	24.6	0.00	0.14	0.05	0.13	126	
149	10.59	10.57	34.034	26.100	193.7	0.362	1.87	29.8	28.9	2.11	25.0	0.00	0.07	0.04	0.12	150	205
150 ISL	10.54 D	10.52	34.053 D	26.123	191.5	0.364	1.86	29.6	29.0	2.11	25.0	0.00	0.07	0.04	0.12	151	
200 ISL	10.32 D	10.30	34.180 D	26.261	179.5	0.457	1.50	23.8	32.4	2.31	26.7	0.00	0.00	0.02	0.10	201	
201	10.30	10.28	34.188	26.271	178.6	0.459	1.49	23.6	32.5	2.31	26.7	0.00	0.00	0.02	0.10	202	204
250 ISL	9.33 D	9.30	34.297 D	26.519	155.7	0.541	1.23	19.1	38.0	2.48	28.8	0.00	0.00			251	
300 ISL	8.61 D	8.58	34.266 D	26.610	147.7	0.616	1.02	15.6	45.1	2.64	31.3	0.00	0.00			302	
301	8.60	8.57	34.273	26.617	147.1	0.618	1.02	15.6	45.3	2.64	31.4	0.00	0.00			303	203
400 ISL	7.00 D	6.96	34.247 D	26.831	127.3	0.754	0.63	9.3	63.0	2.92	36.8	0.00	0.00			403	
401	6.98	6.94	34.251	26.837	126.8	0.755	0.63	9.3	63.2	2.92	36.8	0.00	0.00			404	202
500 ISL	6.45 D	6.40	34.282 D	26.933	118.7	0.876	0.41	6.0	72.9	3.07	38.8	0.00	0.00			503	
516	6.34	6.29	34.292	26.956	116.7	0.895	0.37	5.4	74.5	3.09	39.1	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 93.3 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 41.2 N	117 52.4 W	27/04/10	1803 UTC	633 m	160 06 kn	260 02 05	2	1014.6 mb	14.9 C	14.6 C	21m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.87	15.87	33.452	24.587	334.1	0.000	6.06	107.4	3.0	0.32	0.1	0.00	0.06	0.41	0.17	0	
2 A	15.87	15.87	33.452	24.587	334.1	0.007	6.06	107.4	3.0	0.32	0.1	0.00	0.06	0.41	0.17	2	206
10 ISL	15.47 D	15.47	33.435 D	24.664	327.1	0.033	6.12	107.6	2.4	0.31	0.0	0.00	0.02	0.48	0.17	10	
15 A	15.27	15.27	33.421	24.697	324.1	0.049	6.16	107.8	2.0	0.30	0.0	0.00	0.00	0.54	0.17	15	205
20 ISL	15.07 D	15.07	33.404 D	24.728	321.3	0.066	6.14	107.0	2.0	0.31	0.0	0.00	0.01	0.57	0.19	20	
30 A	14.89	14.89	33.396	24.761	318.4	0.098	6.10	105.9	2.1	0.34	0.0	0.00	0.05	0.64	0.30	30	204
45 A	12.56	12.55	33.311 D	25.172	279.5	0.142	5.16	85.4	7.6	0.83	6.4	0.19	0.10	0.89	0.77	45	203
50 ISL	11.89 D	11.88	33.397 D	25.367	261.2	0.156	4.77	77.8	10.0	1.02	9.2	0.30	0.14	0.76	0.69	50	
57 A	11.66	11.65	33.450	25.451	253.3	0.174	4.19	68.1	13.5	1.28	13.2	0.41	0.20	0.51	0.51	57	202
75 ISL	10.81 D	10.80	33.783 D	25.864	214.4	0.216	2.70	43.2	22.8	1.85	21.0	0.09	0.14	0.17	0.26	75	
80 A	10.75	10.74	33.897	25.963	205.1	0.226	2.28	36.4	25.4	2.01	23.2	0.00	0.12	0.08	0.19	80	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 93.3 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 31.1 N	118 13.0 W	27/04/10	2025 UTC	1642 m	280 15 kn	350 04 05	2	1016.2 mb	15.0 C	15.0 C	17m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.27	16.27	33.443	24.490	343.4	0.000	5.84	104.3	1.9	0.34	0.0	0.00	0.15	0.18	0.05	0	
2	16.27	16.27	33.443	24.490	343.4	0.007	5.84	104.3	1.9	0.34	0.0	0.00	0.15	0.18	0.05	2	212
10	16.13	16.13	33.441	24.520	340.8	0.034	5.82	103.7	1.8	0.34	0.0	0.00	0.15	0.19	0.05	10	211
20	15.95	15.95	33.438	24.559	337.4	0.068	5.84	103.6	2.0	0.34	0.0	0.00	0.13	0.23	0.07	20	210
30 ISL	15.58 D	15.58	33.424 D	24.632	330.8	0.102	5.88	103.6	2.2	0.35	0.0	0.00	0.10	0.31	0.14	30	
31	15.54	15.54	33.426	24.642	329.8	0.105	5.88	103.5	2.2	0.35	0.0	0.00	0.10	0.32	0.15	31	209
50	11.83	11.82	33.347	25.339	263.8	0.161	4.72	76.9	10.4	1.09	11.0	0.03	0.11	0.51	0.37	50	208
75	10.67	10.66	33.582	25.732	226.9	0.223	3.68	58.6	17.7	1.54	18.6	0.01	0.07	0.08	0.11	75	207
100	10.15	10.14	33.686	25.903	211.1	0.277	3.39	53.4	21.0	1.69	21.2	0.00	0.08	0.04	0.06	100	206
125 ISL	9.68 D	9.67	33.893 D	26.144	188.7	0.327	2.97	46.3	25.2	1.86	23.8	0.00	0.07	0.02	0.05	126	
150 ISL	9.38 D	9.36	33.975 D	26.258	178.4	0.373	2.55	39.5	29.7	2.02	26.2	0.00	0.06	0.01	0.03	151	
151	9.37	9.35	33.983	26.265	177.6	0.375	2.53	39.2	29.9	2.03	26.3	0.00	0.06	0.01	0.03	152	205
199	8.77	8.75	34.107	26.459	160.1	0.456	1.96	30.0	37.5	2.29	29.4	0.00	0.09	0.01	0.04	200	204
200 ISL	8.73 D	8.71	34.118 D	26.474	158.7	0.458	1.95	29.8	37.6	2.30	29.5	0.00	0.09			201	
250 CSL	8.24 D	8.21	34.154 D	26.578	149.6	0.535	1.53 D	23.1	44.6	2.53	31.8	0.00	0.07			251	
300	7.95	7.92	34.248	26.695	139.2	0.607	0.94	14.1	51.1	2.72	33.7	0.00	0.05			302	203
400	6.95	6.91	34.247	26.838	126.6	0.740	0.65	9.5	63.5	2.92	37.2	0.00	0.09			403	202
500 ISL	6.39 D	6.34	34.293 D	26.950	117.1	0.862	0.40	5.8	73.2	3.08	39.4	0.00	0.07			503	
516	6.31	6.26	34.302	26.968	115.5	0.880	0.36	5.2	74.7	3.10	39.7	0.00	0.07			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 21.0 N	118 33.3 W	28/04/10	0008 UTC	1322 m	300 17 kn	310 04 05	2	1016.0 mb	14.5 C	13.9 C	14m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.52	15.52	33.406	24.630	330.0	0.000	6.00	105.6	1.6	0.34	0.1	0.00	0.11	0.42	0.11	0	
3	15.52	15.52	33.406	24.630	330.1	0.010	6.00	105.6	1.6	0.34	0.1	0.00	0.11	0.42	0.11	3	212
10	15.53	15.53	33.407	24.629	330.4	0.033	5.96	104.9	2.1	0.34	0.0	0.00	0.09	0.47	0.09	10	211
20	14.11	14.11	33.298	24.850	309.6	0.065	6.13	104.7	2.9	0.40	0.4	0.05	0.08	0.46	0.21	20	210
29	13.85	13.85	33.310	24.914	303.8	0.093	6.05	102.8	3.1	0.44	0.8	0.11	0.12	0.58	0.34	29	209
30 ISL	13.68 D	13.68	33.317 D	24.954	300.0	0.096	5.99	101.4	3.5	0.47	1.3	0.11	0.12	0.57	0.34	30	
50	11.29	11.28	33.411	25.488	249.6	0.151	4.45	71.7	12.9	1.25	13.8	0.02	0.05	0.11	0.18	50	208
75 ISL	10.34 D	10.33	33.564 D	25.775	222.8	0.210	3.74	59.1	18.7	1.57	18.9	0.00	0.00	0.05	0.13	75	
76	10.36	10.35	33.563	25.771	223.2	0.212	3.73	58.9	18.9	1.57	19.0	0.00	0.00	0.05	0.13	76	207
99	9.87	9.86	33.745	25.996	202.2	0.261	3.13	49.0	24.0	1.78	22.6	0.00	0.05	0.02	0.11	99	206
100 ISL	9.80 D	9.79	33.796 D	26.048	197.3	0.263	3.11	48.6	24.2	1.79	22.7	0.00	0.05	0.02	0.11	100	
125 ISL	9.62 D	9.61	33.939 D	26.190	184.4	0.310	2.63	41.0	28.1	1.96	25.0	0.00	0.04	0.01	0.08	126	
150	9.44	9.42	34.025	26.287	175.6	0.355	2.28	35.4	31.3	2.09	26.5	0.00	0.00	0.00	0.06	151	205
200	8.81	8.79	34.133	26.473	158.8	0.439	1.77	27.1	38.7	2.31	29.3	0.00	0.00	0.00	0.04	201	204
250 ISL	8.25 D	8.22	34.163 D	26.583	149.0	0.516	1.42	21.5	44.6	2.48	31.5	0.00	0.00			251	
300 ISL	7.80 D	7.77	34.193 D	26.674	141.1	0.589	1.14	17.1	50.3	2.63	33.3	0.00	0.00			302	
301	7.81	7.78	34.192	26.672	141.3	0.590	1.14	17.1	50.4	2.63	33.3	0.00	0.00			303	203
400 ISL	6.90 D	6.86	34.250 D	26.847	125.7	0.722	0.62	9.1	64.5	2.93	36.7	0.00	0.00			403	
401	6.90	6.86	34.254	26.850	125.5	0.723	0.62	9.1	64.6	2.93	36.7	0.00	0.00			404	202
500 ISL	6.16 D	6.12	34.307 D	26.991	112.9	0.841	0.35	5.0	76.6	3.11	39.1	0.00	0.00			503	
516	6.10	6.05	34.310	27.001	112.1	0.859	0.31	4.5	78.5	3.14	39.5	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 10.8 N	118 53.6 W	28/04/10	0340 UTC	1466 m	310 10 kn			1016.8 mb	14.5 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.28	14.28	33.231	24.763	317.4	0.000	6.10	104.5	2.7	0.39	0.1	0.01	0.14	0.45	0.17	0	
3	14.28	14.28	33.231	24.763	317.5	0.010	6.10	104.5	2.7	0.39	0.1	0.01	0.14	0.45	0.17	3	212
10	14.28	14.28	33.230	24.762	317.7	0.032	6.10	104.5	2.8	0.38	0.1	0.01	0.13	0.41	0.17	10	211
20	14.28	14.28	33.235	24.766	317.6	0.064	6.11	104.7	2.8	0.38	0.1	0.02	0.12	0.42	0.22	20	210
30	14.09	14.09	33.236	24.807	314.0	0.095	6.09	104.0	2.6	0.40	0.1	0.03	0.14	0.36	0.18	30	209
50	13.22	13.21	33.247	24.993	296.8	0.156	5.76	96.6	3.9	0.59	2.4	0.46	0.19	0.45	0.31	50	208
75	11.57	11.56	33.355	25.394	259.1	0.226	4.72	76.5	10.9	1.12	11.4	0.00	0.08	0.16	0.17	75	207
99	10.57	10.56	33.492	25.679	232.4	0.285	3.93	62.4	17.1	1.48	17.4	0.00	0.07	0.04	0.13	99	206
100 ISL	10.55 D	10.54	33.511 D	25.698	230.7	0.287	3.90	61.9	17.3	1.49	17.6	0.00	0.07	0.04	0.13	100	
125 CSL	10.27 D	10.26	33.780 D	25.956	206.6	0.342	3.01 D	47.5	22.2	1.76	21.6	0.00	0.07	0.02	0.09	126	
149	9.90	9.88	33.891	26.106	192.9	0.390	2.69	42.2	26.2	1.94	24.1	0.00	0.08	0.01	0.06	150	205
150 ISL	9.87 D	9.85	33.889 D	26.110	192.5	0.391	2.68	42.0	26.4	1.95	24.2	0.00	0.08	0.01	0.06	151	
199	9.03	9.01	34.055	26.377	167.9	0.480	2.16	33.2	34.1	2.16	27.7	0.00	0.07	0.01	0.03	200	204
200 ISL	9.04 D	9.02	34.053 D	26.374	168.3	0.481	2.15	33.1	34.3	2.16	27.8	0.00	0.07			201	
250 CSL	8.26 D	8.23	34.169 D	26.586	148.7	0.561	1.41 D	21.3	42.1	2.40	30.6	0.00	0.03			251	
300	7.95	7.92	34.195	26.654	143.1	0.634	1.16	17.4	49.7	2.62	32.9	0.00	0.00			302	203
400	6.91	6.87	34.253	26.848	125.6	0.768	0.58	8.5	63.7	2.94	36.9	0.00	0.00			403	202
500 ISL	6.34 D	6.29	34.296 D	26.959	116.2	0.889	0.37	5.4	74.0	3.09	38.9	0.00	0.00			503	
516	6.27	6.22	34.306	26.976	114.7	0.907	0.34	4.9	75.7	3.11	39.2	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 0.0 N	119 15.3 W	28/04/10	0908 UTC	1635 m	280 10 kn			1017.4 mb	16.5 C	16.2 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.15	15.15	33.284	24.617	331.2	0.000	5.85	102.1	2.0	0.40	0.1	0.00	0.07	0.20	0.04	0	
2	15.15	15.15	33.284	24.617	331.3	0.007	5.85	102.1	2.0	0.40	0.1	0.00	0.07	0.20	0.04	2	212
10 ISL	15.15 D	15.15	33.281 D	24.615	331.7	0.033	5.87	102.4	1.7	0.38	0.0	0.00	0.08	0.20	0.04	10	
15	15.15	15.15	33.281	24.616	331.8	0.050	5.88	102.6	1.4	0.37	0.0	0.00	0.08	0.20	0.04	15	211
20 ISL	15.12 D	15.12	33.281 D	24.622	331.3	0.066	5.87	102.4	1.4	0.37	0.0	0.00	0.08	0.21	0.05	20	
28	15.07	15.07	33.289	24.640	329.9	0.093	5.86	102.1	1.5	0.36	0.0	0.00	0.08	0.22	0.06	28	210
30 ISL	14.86 D	14.86	33.285 D	24.682	325.9	0.099	5.85	101.5	1.6	0.37	0.1	0.02	0.08	0.28	0.10	30	
50 ISL	14.07 D	14.06	33.320 D	24.877	307.9	0.163	5.70	97.3	3.4	0.49	0.9	0.15	0.05	0.73	0.42	50	
52	14.00	13.99	33.323	24.894	306.4	0.169	5.69	97.0	3.7	0.50	1.0	0.16	0.05	0.77	0.45	52	209
75 ISL	11.69	11.68	33.276	25.311	267.0	0.235	4.94	80.2	9.5	1.02	9.7	0.01	0.00	0.14	0.12	75	
76	11.58	11.57	33.276	25.331	265.2	0.237	4.90	79.4	9.8	1.04	10.1	0.00	0.00	0.11	0.10	76	208
100	10.39	10.38	33.415	25.651	235.1	0.297	4.22	66.7	15.8	1.40	16.5	0.00	0.05	0.04	0.05	100	206
125 CSL	9.82 D	9.81	33.786 D	26.037	198.9	0.352	3.18 D	49.7	21.9	1.69	21.3	0.00	0.04	0.03	0.04	126	
150 ISL	9.42	9.40	33.885	26.181	185.7	0.400	2.81	43.6	27.5	1.92	24.8	0.00	0.00	0.01	0.02	151	
151	9.49	9.47	33.894	26.176	186.1	0.402	2.78	43.2	27.7	1.93	24.9	0.00	0.00	0.01	0.02	152	205
200 ISL	8.88 D	8.86	34.093 D	26.431	162.8	0.487	1.98	30.4	36.2	2.25	28.7	0.00	0.00	0.00	0.02	201	
201	8.90	8.88	34.095	26.429	163.0	0.489	1.97	30.2	36.4	2.26	28.8	0.00	0.00	0.00	0.02	202	204
250 CSL	8.17 D	8.14	34.133 D	26.572	150.1	0.565	1.68 D	25.4	43.0	2.47	31.2	0.00	0.00			251	
300	7.86	7.83	34.173	26.650	143.4	0.639	1.26	18.9	49.2	2.63	33.0	0.00	0.00			302	203
400 ISL	6.89 D	6.85	34.232 D	26.834	126.9	0.774	0.67	9.8	64.0	2.91	36.8	0.00	0.00			403	
401	6.90	6.86	34.233	26.834	127.0	0.775	0.67	9.8	64.1	2.91	36.8	0.00	0.00			404	202
500 ISL	6.30 D	6.25	34.297 D	26.965	115.5	0.895	0.39	5.6	74.5	3.07	39.0	0.00	0.00			503	
516	6.22	6.17	34.297	26.975	114.7	0.914	0.34	4.9	76.2	3.10	39.4	0.00	0.00			519	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 50.9 N	119 34.2 W	28/04/10	1142 UTC	1833 m	290 10 kn			1016.5 mb	16.2 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.23	15.23	33.259	24.581	334.7	0.000	5.84	102.1	1.5	0.37	0.0	0.00	0.10	0.17	0.04	0	
2	15.23	15.23	33.259	24.581	334.8	0.007	5.84	102.1	1.5	0.37	0.0	0.00	0.10	0.17	0.04	2	212
10 ISL	15.23 D	15.23	33.250 D	24.574	335.6	0.034	5.85	102.2	1.6	0.36	0.0	0.00	0.09	0.16	0.04	10	
15	15.23	15.23	33.253	24.577	335.6	0.050	5.86	102.4	1.7	0.36	0.0	0.00	0.08	0.16	0.04	15	211
20 ISL	15.23 D	15.23	33.251 D	24.575	335.8	0.067	5.85	102.2	1.7	0.36	0.0	0.00	0.08	0.17	0.04	20	
29	15.07	15.07	33.255	24.613	332.5	0.097	5.85	101.9	1.7	0.36	0.0	0.00	0.08	0.18	0.05	29	210
30 ISL	15.04 D	15.04	33.245 D	24.612	332.6	0.100	5.85	101.8	1.7	0.36	0.0	0.00	0.08	0.19	0.05	30	
46	14.82	14.81	33.236	24.653	329.2	0.153	5.92	102.6	1.6	0.36	0.0	0.00	0.07	0.35	0.16	46	209
50 ISL	14.68 D	14.67	33.229 D	24.678	326.9	0.167	5.92	102.3	1.7	0.38	0.1	0.01	0.07	0.43	0.22	50	
60	14.62	14.61	33.267	24.720	323.2	0.199	5.92	102.2						0.57	0.35	60	208
75	13.08	13.07	33.220	25.001	296.7	0.246	5.54	92.6	4.3	0.63	3.3	0.06	0.07	0.32	0.28	75	207
100	11.04	11.03	33.213	25.380	261.0	0.315	4.98	79.7	10.8	1.08	11.2	0.00	0.07	0.06	0.08	100	206
125 ISL	9.87 D	9.86	33.366 D	25.701	230.8	0.377	4.37	68.2	16.1	1.39	16.7	0.00	0.06	0.04	0.05	126	
150	9.76	9.74	33.668	25.955	207.1	0.431	3.78	59.0	20.8	1.61	20.6	0.00	0.06	0.01	0.03	151	205
200 ISL	8.90 D	8.88	33.996 D	26.351	170.3	0.526	2.80	42.9	30.5	1.96	26.0	0.00	0.00	0.00	0.02	201	
201	8.91	8.89	33.992	26.347	170.8	0.528	2.78	42.6	30.7	1.97	26.1	0.00	0.00	0.00	0.02	202	204
250 ISL	8.34 D	8.31	34.098 D	26.519	155.2	0.607	2.05	31.1	39.4	2.26	29.8	0.00	0.00			251	
300 ISL	7.77 D	7.74	34.137 D	26.635	144.8	0.682	1.48	22.1	47.7	2.52	32.7	0.00	0.00			302	
301	7.79	7.76	34.140	26.634	144.9	0.684	1.47	22.0	47.9	2.52	32.7	0.00	0.00			303	203
400 ISL	6.97 D	6.93	34.239 D	26.829	127.5	0.819	0.65	9.6	62.9	2.91	36.7	0.00	0.00			402	
401	6.98	6.94	34.238	26.827	127.7	0.820	0.64	9.4	63.0	2.91	36.7	0.00	0.00			403	202
500 ISL	6.31 D	6.26	34.291 D	26.959	116.1	0.941	0.39	5.6	74.1	3.07	38.9	0.00	0.00			503	
515	6.26	6.21	34.297	26.970	115.2	0.958	0.35	5.1	75.8	3.09	39.2	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 31.4 N	120 14.1 W	28/04/10	1805 UTC	3935 m	320 16 kn	300 02 05	2	1018.5 mb	15.9 C	14.4 C	25m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.39	15.39	33.113	24.433	348.7	0.000	5.82	101.9	2.7	0.37	0.1	0.00	0.12	0.09	0.02	0	
3 A	15.39	15.39	33.113	24.433	348.8	0.010	5.82	101.9	2.7	0.37	0.1	0.00	0.12	0.09	0.02	3	206
10 ISL	15.35 D	15.35	33.099 D	24.432	349.2	0.035	5.82	101.8	2.7	0.36	0.1	0.00	0.10	0.09	0.02	10	
18 A	15.32	15.32	33.103	24.442	348.5	0.063	5.82	101.8	2.7	0.35	0.0	0.00	0.07	0.09	0.02	18	205
20 ISL	15.31 D	15.31	33.098 D	24.440	348.7	0.070	5.82	101.8	2.7	0.35	0.0	0.00	0.06	0.09	0.02	20	
30 ISL	15.20 D	15.20	33.090 D	24.458	347.3	0.105	5.83	101.7	2.4	0.35	0.0	0.00	0.02	0.10	0.03	30	
36 A	15.16	15.15	33.089	24.466	346.7	0.125	5.84	101.8	2.3	0.35	0.0	0.00	0.00	0.11	0.03	36	204
50 ISL	14.94 D	14.93	33.067 D	24.497	344.1	0.174	5.86	101.7	2.4	0.34	0.0	0.00	0.00	0.18	0.06	50	
53 A	14.93	14.92	33.065 D	24.498	344.1	0.184	5.87	101.8	2.4	0.34	0.0	0.00	0.00	0.20	0.07	53	203
67 A	14.54	14.53	33.130	24.632	331.8	0.231	5.95	102.4	2.6	0.37	0.0	0.00	0.00	0.35	0.21	67	202
75 ISL	13.76 D	13.75	33.083 D	24.758	319.9	0.257	5.80	98.2	3.8	0.49	1.9	0.00	0.00	0.31	0.21	75	
95	11.47	11.46	33.103	25.217	276.4	0.317	5.41	87.3	6.9	0.80	6.7	0.00	0.00	0.21	0.21	95	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 10.9 N	120 55.0 W	29/04/10	0000 UTC	3823 m	310 21 kn	320 06 05	1	1018.3 mb	15.3 C	13.0 C	21m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.27	16.27	33.264	24.352	356.5	0.000	5.72	102.1	1.9	0.32	0.1	0.00	0.07	0.08	0.02	0	
3	16.27	16.27	33.264	24.352	356.5	0.011	5.72	102.0	1.9	0.32	0.1	0.00	0.07	0.08	0.02	3	212
10 ISL	16.26 D	16.26	33.260 D	24.352	356.8	0.036	5.72	102.0	1.8	0.32	0.1	0.00	0.06	0.08	0.02	10	
16	16.19	16.19	33.272	24.377	354.6	0.057	5.73	102.1	1.8	0.32	0.0	0.00	0.06	0.08	0.02	16	211
20 ISL	16.18 D	16.18	33.294 D	24.396	352.9	0.071	5.73	102.1	1.9	0.32	0.0	0.00	0.06	0.08	0.02	20	
30 ISL	16.13 D	16.13	33.282 D	24.399	353.0	0.106	5.73	101.9	2.3	0.32	0.0	0.00	0.07	0.09	0.03	30	
31	16.13	16.13	33.285	24.401	352.8	0.110	5.73	101.9	2.3	0.32	0.0	0.00	0.07	0.09	0.03	31	210
45	16.04	16.03	33.265	24.407	352.7	0.159	5.73	101.8	2.1	0.33	0.0	0.00	0.06	0.10	0.03	45	209
50 ISL	15.97 D	15.96	33.265 D	24.423	351.3	0.177	5.75	102.0	2.0	0.33	0.0	0.00	0.07	0.12	0.04	50	
61	15.58	15.57	33.218	24.474	346.8	0.215	5.79	101.8	1.9	0.35	0.0	0.00	0.08	0.19	0.06	61	208
75	14.76	14.75	33.304	24.719	323.7	0.262	5.74	99.4	2.9	0.39	0.2	0.00	0.06	0.39	0.29	75	207
100	12.21	12.20	33.164	25.127	285.2	0.338	5.49	90.1	4.8	0.67	4.3	0.07	0.07	0.21	0.17	100	206
125 ISL	10.78 D	10.77	33.270 D	25.470	252.9	0.406	4.96	79.0	10.2	1.04	10.6	0.05	0.06	0.09	0.09	126	
150 ISL	9.91 D	9.89	33.490 D	25.791	222.7	0.465	4.33	67.7	16.6	1.41	16.9	0.00	0.04	0.02	0.04	151	
151	9.91	9.89	33.500 D	25.799	222.0	0.467	4.30	67.2	16.9	1.42	17.2	0.00	0.04	0.02	0.04	152	205
200	9.18	9.16	33.849	26.192	185.5	0.567	3.25	50.1	26.5	1.83	24.0	0.00	0.00	0.00	0.02	201	204
250 ISL	8.33 D	8.30	34.031 D	26.468	160.0	0.654	2.58	39.1	35.1	2.11	28.1	0.00	0.00			251	
300	7.77	7.74	34.064	26.577	150.2	0.731	2.09	31.3	43.4	2.32	30.9	0.00	0.00			302	203
400 ISL	6.58 D	6.54	34.132 D	26.797	130.2	0.871	1.05	15.3	61.7	2.80	37.0	0.00	0.00			402	
401	6.59	6.55	34.122	26.787	131.0	0.873	1.04	15.1	61.9	2.80	37.1	0.00	0.00			403	202
500 ISL	5.93 D	5.89	34.248 D	26.973	114.3	0.994	0.47	6.7	76.8	3.07	39.7	0.00	0.00			503	
515	5.93	5.89	34.263	26.985	113.4	1.011	0.38	5.4	79.0	3.11	40.1	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 93.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 50.9 N	121 35.2 W	29/04/10	0517 UTC	4084 m	340 19 kn			1019.7 mb	16.2 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.18	16.18	33.245	24.358	355.9	0.000	5.73	102.0	1.7	0.33	0.0	0.00	0.06	0.07	0.01	0	
3	16.18	16.18	33.245	24.358	356.0	0.011	5.73	102.0	1.7	0.33	0.0	0.00	0.06	0.07	0.01	3	212
10 ISL	16.19 D	16.19	33.239 D	24.352	356.8	0.036	5.73	102.0	1.6	0.33	0.0	0.00	0.06	0.07	0.01	10	
20 ISL	16.19 D	16.19	33.242 D	24.354	356.9	0.071	5.72	101.9	1.6	0.33	0.0	0.00	0.05	0.08	0.01	20	
21	16.19	16.19	33.244	24.356	356.8	0.075	5.72	101.9	1.6	0.33	0.0	0.00	0.05	0.08	0.01	21	211
30 ISL	16.14 D	16.14	33.277 D	24.393	353.6	0.107	5.74	102.1	1.8	0.33	0.0	0.00	0.03	0.09	0.01	30	
45	15.69	15.68	33.178	24.418	351.6	0.160	5.80	102.2	2.3	0.33	0.0	0.00	0.00	0.14	0.02	45	210
50 ISL	15.43 D	15.42	33.124 D	24.435	350.2	0.177	5.84	102.4	2.4	0.34	0.0	0.00	0.00	0.16	0.03	50	
64	14.80	14.79	33.221	24.647	330.3	0.225	5.91	102.3	2.5	0.37	0.0	0.00	0.00	0.28	0.12	64	209
75 ISL	14.07 D	14.06	33.195 D	24.781	317.8	0.261	5.85	99.8	2.7	0.41	0.4	0.03	0.03	0.54	0.32	75	
81	13.93	13.92	33.198	24.812	314.9	0.280	5.79	98.5	2.8	0.45	0.6	0.05	0.05	0.63	0.40	81	208
90	13.43	13.42	33.229	24.938	303.1	0.307	5.66	95.3	3.7	0.55	1.7	0.08	0.06	0.50	0.33	90	207
100	12.28	12.27	33.171	25.119	286.0	0.337	5.34	87.7	5.9	0.75	5.4	0.02	0.05	0.28	0.36	100	206
125 ISL	10.52 D	10.51	33.296 D	25.536	246.6	0.403	4.66	73.8	11.4	1.17	12.7	0.01	0.02	0.16	0.22	126	
150	10.14	10.12	33.488	25.751	226.6	0.463	4.08	64.1	16.8	1.50	17.9	0.00	0.00	0.03	0.03	151	205
199	9.46	9.44	33.864	26.159	188.8	0.564	3.06	47.5	26.2	1.88	24.2	0.00	0.00	0.00	0.02	200	204
200 ISL	9.38	9.36	33.868	26.175	187.3	0.566	3.04	47.1	26.4	1.89	24.3	0.00	0.00			201	
250 CSL	8.48 D	8.45	34.025 D	26.440	162.7	0.654	2.61 D	39.7	36.7	2.20	28.8	0.00	0.00			251	
300	7.62	7.59	34.075	26.607	147.3	0.731	1.85	27.6	46.6	2.45	32.1	0.00	0.00			302	203
399	6.73	6.69	34.150	26.791	130.8	0.869	1.00	14.6	62.1	2.81	36.7	0.00	0.00			401	202
400 ISL	6.63 D	6.59	34.154 D	26.807	129.2	0.870	1.00	14.6	62.2	2.81	36.7	0.00	0.00			402	
500 ISL	5.89 D	5.85	34.228 D	26.962	115.3	0.992	0.53	7.6	76.7	3.06	39.8	0.00	0.00			503	
517	5.83	5.79	34.240	26.979	113.9	1.012	0.45	6.4	79.1	3.10	40.3	0.00	0.00			520	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 93.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 30.5 N	122 15.2 W	29/04/10	1020 UTC	4176 m	330 24 kn			1020.3 mb	15.1 C	13.3 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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.06	16.06	33.211	24.359	355.8	0.000	5.73	101.8	2.8	0.36	0.1	0.00	0.00	0.09	0.01	0	
3	16.06	16.06	33.211	24.359	355.9	0.011	5.73	101.8	2.8	0.36	0.1	0.00	0.00	0.09	0.01	3	212
10 ISL	16.07 D	16.07	33.209 D	24.356	356.4	0.036	5.73	101.8	2.7	0.35	0.1	0.00	0.00	0.09	0.01	10	
20	16.07	16.07	33.212	24.358	356.5	0.071	5.73	101.8	2.4	0.34	0.1	0.00	0.00	0.09	0.01	20	211
30 ISL	15.84 D	15.84	33.184 D	24.389	353.9	0.107	5.75	101.7	2.2	0.34	0.1	0.00	0.00	0.10	0.01	30	
45	15.71	15.70	33.197	24.428	350.6	0.160	5.78	101.9	2.0	0.34	0.0	0.00	0.00	0.12	0.02	45	210
50 ISL	15.70 D	15.69	33.200 D	24.433	350.3	0.177	5.79	102.1	2.1	0.34	0.0	0.00	0.00	0.13	0.03	50	
65	15.17	15.16	33.163	24.522	342.3	0.229	5.81	101.3	2.4	0.34	0.0	0.00	0.00	0.18	0.06	65	209
75 ISL	15.25 D	15.24	33.316 D	24.623	333.0	0.263	5.77	100.9	2.6	0.34	0.0	0.00	0.00	0.24	0.14	75	
79	15.06	15.05	33.322	24.669	328.7	0.276	5.74	100.0	2.7	0.34	0.0	0.00	0.00	0.27	0.17	79	208
93	13.15	13.14	33.190	24.964	300.7	0.320	5.59	93.5	3.6	0.55	2.2	0.09	0.00	0.35	0.22	93	207
100	12.49	12.48	33.157	25.068	290.9	0.341	5.52	91.1	4.3	0.63	3.6	0.09	0.00	0.32	0.25	100	206
125 ISL	10.60 D	10.59	33.212 D	25.457	254.1	0.409	5.05	80.0	9.5	1.00	10.2	0.05	0.00	0.18	0.18	126	
149	9.95	9.93	33.419	25.729	228.6	0.467	4.42	69.2	15.9	1.38	16.6	0.00	0.00	0.05	0.05	150	205
150 ISL	9.89 D	9.87	33.454 D	25.766	225.0	0.469	4.39	68.6	16.2	1.39	16.8	0.00	0.00	0.05	0.05	151	
200 ISL	9.27	9.25	33.920	26.233	181.7	0.571	2.80	43.3	28.4	1.94	25.3	0.00	0.00	0.00	0.02	201	
201	9.28	9.26	33.929	26.239	181.2	0.573	2.77	42.8	28.6	1.95	25.4	0.00	0.00	0.00	0.02	202	204
250 CSL	8.39 D	8.36	34.054 D	26.477	159.2	0.656	2.25 D	34.1	38.0	2.25	29.8	0.00	0.00			251	
300 ISL	7.83 D	7.80	34.118 D	26.611	147.1	0.733	1.61	24.1	46.3	2.45	32.3	0.00	0.00			302	
302	7.79	7.76	34.116	26.615	146.7	0.736	1.60	23.9	46.6	2.46	32.4	0.00	0.00			304	203
400 ISL	6.83 D	6.79	34.205 D	26.821	128.1	0.870	0.76	11.1	62.6	2.85	36.7	0.00	0.00			402	
402	6.87	6.83	34.209	26.819	128.4	0.873	0.75	11.0	62.9	2.86	36.8	0.00	0.00			404	202
500 ISL	5.98 D	5.94	34.261 D	26.977	114.0	0.992	0.43	6.2	76.8	3.07	39.7	0.00	0.00			503	
518	5.94	5.89	34.280	26.997	112.3	1.012	0.37	5.3	79.3	3.11	40.2	0.00	0.00			521	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 11.0 N	122 55.2 W	29/04/10	1545 UTC	3778 m	340 27 kn	340 07 06	1	1023.8 mb	14.9 C	13.8 C		7/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.06	16.06	33.243	24.384	353.5	0.000	5.71	101.4	2.2	0.32	0.0	0.00	0.04	0.08	0.02	0	
3	16.06	16.06	33.243	24.384	353.6	0.011	5.71	101.4	2.2	0.32	0.0	0.00	0.04	0.08	0.02	3	212
10 ISL	16.07 D	16.07	33.237 D	24.377	354.4	0.035	5.72	101.6	2.1	0.32	0.0	0.00	0.03	0.08	0.02	10	
20 ISL	16.07 D	16.07	33.237 D	24.378	354.7	0.071	5.73	101.8	2.0	0.32	0.0	0.00	0.00	0.08	0.03	20	
21	16.07	16.07	33.241	24.381	354.4	0.074	5.73	101.8	2.0	0.32	0.0	0.00	0.00	0.08	0.03	21	211
30 ISL	16.07 D	16.07	33.238 D	24.379	354.9	0.106	5.74	102.0	2.0	0.32	0.0	0.00	0.00	0.08	0.03	30	
46	15.95	15.94	33.244	24.411	352.3	0.163	5.75	101.9	2.1	0.32	0.0	0.00	0.00	0.09	0.03	46	210
50 ISL	15.81 D	15.80	33.229 D	24.431	350.5	0.177	5.77	102.0	2.1	0.32	0.0	0.00	0.00	0.09	0.03	50	
66	15.77	15.76	33.274	24.475	346.8	0.233	5.80	102.4	2.1	0.31	0.0	0.00	0.00	0.11	0.04	66	209
75 ISL	15.70 D	15.69	33.316 D	24.523	342.5	0.264	5.75	101.4	2.0	0.31	0.0	0.00	0.00	0.15	0.08	75	
80	15.70	15.69	33.360	24.557	339.4	0.281	5.71	100.8	2.0	0.31	0.0	0.00	0.00	0.18	0.11	80	208
99	13.32	13.31	33.224	24.957	301.6	0.342	5.60	94.1	3.7	0.52	2.1	0.07	0.00	0.31	0.28	99	207
100 ISL	13.12 D	13.11	33.226 D	24.998	297.6	0.345	5.58	93.3	3.9	0.54	2.4	0.07	0.00	0.30	0.28	100	
125	11.01	10.99	33.192 D	25.369	262.5	0.415	5.06	80.9	9.2	0.99	9.9	0.00	0.00	0.09	0.10	126	206
150 ISL	10.10 D	10.08	33.428 D	25.711	230.4	0.476	4.43	69.5	15.0	1.36	15.9	0.00	0.00	0.02	0.03	151	
153	10.11	10.09	33.414	25.698	231.6	0.483	4.35	68.3	15.7	1.40	16.5	0.00	0.00	0.02	0.03	154	205
200 ISL	8.95 D	8.93	33.837 D	26.219	182.9	0.581	3.32	50.9	26.6	1.84	24.2	0.00	0.00	0.00	0.02	201	
201	8.97	8.95	33.835	26.214	183.3	0.582	3.30	50.6	26.8	1.85	24.3	0.00	0.00	0.00	0.02	202	204
250 ISL	8.29 D	8.26	34.002 D	26.451	161.6	0.667	2.71	41.0	35.2	2.08	28.0	0.00	0.00			251	
300 ISL	7.73 D	7.70	34.049 D	26.571	150.8	0.745	2.30	34.4	43.0	2.25	30.2	0.00	0.00			302	
302	7.74	7.71	34.056	26.575	150.4	0.748	2.29	34.2	43.3	2.25	30.2	0.00	0.00			304	203
399	6.51	6.47	34.106	26.785	131.1	0.885	1.24	18.0	61.9	2.74	36.3	0.00	0.00			401	202
400 ISL	6.45 D	6.41	34.104 D	26.792	130.5	0.886	1.23	17.8	62.1	2.74	36.3	0.00	0.00			402	
500 ISL	5.71 D	5.67	34.195 D	26.958	115.4	1.009	0.61	8.7	77.9	3.04	39.7	0.00	0.00			503	
520	5.64	5.60	34.211	26.979	113.6	1.032	0.49	7.0	81.1	3.10	40.4	0.00	0.00			523	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° 02;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 11.1 N	122 55.4 W	29/04/10	1742 UTC	3817 m	340 27 kn	340 07 06	1	1023.8 mb	14.9 C	13.8 C	20m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.11	16.11	33.253	24.380	353.8	0.000	5.81	103.3	2.3	0.34	0.1	0.00	0.00	0.08	0.02	0	
3 A	16.11	16.11	33.253	24.380	353.9	0.011	5.81	103.3	2.3	0.34	0.1	0.00	0.00	0.08	0.02	3	206
10 ISL	16.11 D	16.11	33.247 D	24.376	354.5	0.035	5.76	102.4	2.3	0.34	0.1	0.00	0.00	0.08	0.02	10	
16 A	16.10	16.10	33.253	24.383	354.1	0.057	5.72	101.7	2.2	0.33	0.0	0.00	0.00	0.08	0.02	16	205
20 ISL	16.11 D	16.11	33.248 D	24.377	354.7	0.071	5.74	102.1	2.1	0.33	0.0	0.00	0.00	0.08	0.02	20	
29 A	16.11	16.11	33.255	24.383	354.5	0.103	5.78	102.8	1.9	0.33	0.0	0.00	0.00	0.07	0.02	29	204
30 ISL	16.11 D	16.11	33.247 D	24.377	355.1	0.106	5.78	102.8	1.9	0.33	0.0	0.00	0.00	0.07	0.02	30	
43 A	16.11	16.10	33.242	24.373	355.8	0.153	5.72	101.7	1.9	0.32	0.0	0.00	0.00	0.07	0.02	43	203
50 ISL	16.09 D	16.08	33.245 D	24.380	355.4	0.177	5.73	101.8	1.8	0.32	0.0	0.00	0.00	0.08	0.02	50	
55 A	15.95	15.94	33.249	24.415	352.2	0.195	5.73	101.6	1.8	0.32	0.0	0.00	0.00	0.09	0.02	55	202
75 ISL	15.60 D	15.59	33.236 D	24.484	346.2	0.265	5.81	102.2	1.8	0.32	0.0	0.00	0.00	0.13	0.05	75	
77 A	15.61	15.60	33.247	24.490	345.7	0.272	5.82	102.4	1.8	0.32	0.0	0.00	0.00	0.13	0.05	77	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 93.3 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
29 50.7 N	123 34.9 W	29/04/10	2154 UTC	4079 m	340 22 kn	350 10 05	1	1023.7 mb	15.5 C	12.5 C	19m	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	NH4 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.76	15.76	33.124	24.360	355.8	0.000	5.83	102.9	2.3	0.33	0.0	0.00	0.08	0.10	0.02	0	
4	15.76	15.76	33.124	24.360	355.9	0.014	5.83	102.9	2.3	0.33	0.0	0.00	0.08	0.10	0.02	4	212
10 ISL	15.76 D	15.76	33.117 D	24.355	356.6	0.036	5.86	103.4	2.2	0.33	0.0	0.00	0.08	0.10	0.02	10	
19	15.72	15.72	33.120	24.366	355.7	0.068	5.92	104.4	2.0	0.33	0.0	0.00	0.07	0.10	0.02	19	211
20 ISL	15.72 D	15.72	33.114 D	24.362	356.2	0.071	5.92	104.4	2.0	0.33	0.0	0.00	0.07	0.10	0.02	20	
30 ISL	15.63 D	15.63	33.108 D	24.377	355.0	0.107	5.90	103.8	2.1	0.33	0.0	0.00	0.04	0.11	0.02	30	
45	15.26	15.25	33.091	24.446	348.9	0.160	5.87	102.5	2.3	0.33	0.0	0.00	0.00	0.13	0.03	45	210
50 ISL	15.19 D	15.18	33.084 D	24.456	348.1	0.177	5.87	102.4	2.3	0.33	0.0	0.00	0.00	0.15	0.06	50	
63	14.84	14.83	33.084	24.532	341.2	0.222	5.87	101.6	2.4	0.34	0.0	0.00	0.00	0.26	0.13	63	209
75 ISL	13.97 D	13.96	33.107 D	24.734	322.3	0.262	5.90	100.4	2.0	0.37	0.1	0.07	0.04	0.53	0.50	75	
81	13.91	13.90	33.134	24.767	319.2	0.281	5.91	100.4	1.9	0.40	0.1	0.11	0.05	0.59	0.62	81	208
91	13.59	13.58	33.200	24.884	308.4	0.312	5.73	96.8	2.6	0.50	1.3	0.18	0.00	0.28	0.38	91	207
100	13.10	13.09	33.207	24.988	298.6	0.340	5.58	93.3	4.1	0.61	3.3	0.01	0.00	0.19	0.22	100	206
125 CSL	11.03 D	11.01	33.167 D	25.346	264.7	0.410	5.16 D	82.5	8.5	0.95	9.2	0.01	0.00	0.11	0.13	126	
150 ISL	10.33 D	10.31	33.370 D	25.627	238.5	0.473	4.58	72.2	13.3	1.28	14.8	0.00	0.00	0.03	0.04	151	
151	10.36	10.34	33.357	25.612	239.9	0.475	4.56	72.0	13.5	1.29	15.0	0.00	0.00	0.03	0.04	152	205
200	9.34	9.32	33.781	26.113	193.1	0.581	3.46	53.5	24.1	1.74	23.1	0.00	0.00	0.00	0.02	201	204
250 CSL	8.39 D	8.36	33.988 D	26.425	164.1	0.671	2.78 D	42.1	34.0	2.06	28.0	0.00	0.00			251	
300 ISL	7.75 D	7.72	34.053 D	26.571	150.7	0.749	2.02	30.2	43.4	2.31	31.3	0.00	0.00			302	
302	7.74	7.71	34.056	26.575	150.4	0.752	2.00	29.9	43.8	2.32	31.4	0.00	0.00			304	203
399	6.62	6.58	34.122	26.784	131.4	0.889	1.05	15.3	61.7	2.78	37.0	0.00	0.00			401	202
400 ISL	6.61 D	6.57	34.127 D	26.789	130.9	0.890	1.05	15.3	61.8	2.78	37.0	0.00	0.00			402	
500 ISL	5.80 D	5.76	34.193 D	26.945	116.7	1.014	0.63	9.0	76.0	3.00	39.8	0.00	0.00			503	
515	5.75	5.71	34.202	26.959	115.6	1.032	0.57	8.1	78.1	3.03	40.2	0.00	0.00			518	201

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS;PRIMARY T; PRIMARY CORRECTED S; STATION CORRECTED 2° O2;

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 76.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 43.3 N	123 38.0 W	15/05/10	1925 UTC	16 m	1208 - 1920 PST	1211 PST	1934 PST	113.7 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	14.26	32.956	24.555	5.99	102.4	2.8	0.36	0.0	0.00	0.24	0.07	83. A	3.7	3.8	3.7	0.11
12	14.24	32.954	24.558	5.98	102.2	2.6	0.37	0.0	0.00	0.24	0.07	32.	4.1	4.0	4.1	0.12
23	14.19	32.952	24.567	5.99	102.3	2.6	0.36	0.0	0.00	0.25	0.07	11.	2.7	2.5	2.6	0.13
34	14.19	32.964	24.576	5.99	102.3	2.6	0.36	0.0	0.00	0.27	0.08	3.8	1.1	0.87	0.97	0.11
44	14.16	32.952	24.574	5.98	102.0	2.6	0.35	0.0	0.00	0.28	0.08	1.5	0.36	0.43	0.40	0.10
61	14.14	32.954	24.580	5.98	102.0	2.6	0.35	0.0	0.00	0.37	0.11	0.29	0.07	0.06	0.07	0.05

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 13.6 N	119 25.2 W	13/05/10	1859 UTC	5 m	1154 - 1906 PST	1154 PST	1922 PST	3322.6 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	12.47	33.719	25.505	7.13	118.0	6.8	0.62	3.3	0.25	19.13	0.21	40.A	256.3	264.6	260.4	1.2
4	12.33	33.725	25.537	7.05	116.4	7.1	0.63	3.7	0.25	16.88	0.75					
7	12.24	33.716	25.547	6.73	110.9	8.1	0.81	5.3	0.26	16.89	0.35	12.	257.7	234.1	245.9	1.3
11	11.52	33.700	25.670	5.46	88.6	12.2	1.12	11.1	0.31	12.70	1.27	3.4	185.4	161.4	173.4	1.0
14	11.51	33.698	25.670	5.41	87.7	12.4	1.13	11.2	0.31	13.00 B	0.83 B	1.4	47.4	51.3	49.4	0.31
19	11.51	33.693	25.666	5.41	87.7	12.2	1.14	11.3	0.30	14.44	0.41	0.29	27.9	28.3	28.1	0.32
30	11.06			4.47		17.1	1.47	15.0	0.38	5.86	1.53	0.01	0.90	1.8	1.4	0.23

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

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 15.0 N	121 26.6 W	14/05/10	1825 UTC	14 m	1205 - 1918 PST	1202 PST	1930 PST	307.8 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.22	33.145	24.709	5.97	102.1	3.0	0.37	0.1	0.02	0.51	0.19	80. A	13.2	12.4	12.8	0.07
10	14.22	33.145	24.709	5.96	102.0	2.8	0.36	0.1	0.02	0.52	0.19	33.	13.5	13.5	13.5	0.08
20	14.22	33.144	24.709	5.96	102.0	2.9	0.36	0.1	0.02	0.51	0.21	11.	7.2	6.7	6.9	0.06
30	14.22	33.150	24.714	5.95	101.8	2.9	0.36	0.0	0.02	0.55	0.18	3.7	2.9	2.5	2.7	0.06
37	14.22	33.144	24.709	5.95	101.8	2.7	0.35	0.1	0.01	0.51	0.18	1.7	1.1	1.1	1.1	0.04
55	14.22	33.146	24.711	5.95	101.8	3.1	0.35	0.1	0.02	0.49	0.18	0.24	0.41	0.43	0.42	0.05

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 83.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 54.6 N	122 7.7 W	06/05/10	1836 UTC	17 m	1204 - 1908 PST	1205 PST	1919 PST	130.4 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
4	14.43	33.012	24.562	5.95	102.1	2.1	0.33	0.1	0.00	0.19	0.06	70. A	2.1	2.2	2.2	0.07
12	14.43	33.014	24.564													
13	14.43	33.015	24.565	5.96	102.3	2.5	0.34	0.0	0.00	0.19	0.07	31.	4.3	4.3	4.3	0.08
24	14.41	33.013	24.568	5.95	102.1	1.7	0.34	0.0	0.00	0.19	0.06	11.	3.6	3.6	3.6	0.04
36	14.38	33.015	24.576	5.98	102.5	2.0	0.33	0.0	0.00	0.21	0.07	3.9	1.4	1.2	1.3	0.07
47	14.36	33.014	24.580	5.95	102.0	2.6	0.32	0.0	0.00	0.21	0.08	1.4	0.80	0.78	0.79	0.07
65	14.34	33.012	24.583	5.96	102.1	2.8	0.32	0.0	0.00	0.23	0.09	0.28	0.05	0.15	0.10	0.05

A) INCUBATION LIGHT INTENSITIES WERE 94, 32, 11, 3.8, 1.5, 0.28 PERCENT RESPECTIVELY.

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 86.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 19.7 N	119 40.2 W	03/05/10	1609 UTC	8 m	1151 - 1912 PST	1203 PST	1905 PST	2035.5 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
3	13.49	33.499	25.133	6.64	112.1	2.1	0.43	1.3	0.14	8.61	1.10	56.A	132.9	116.4	124.7	0.38
6	13.35	33.502	25.163	6.47	109.0	3.1	0.50	2.4	0.20	7.30	1.10	32.	165.2	161.3	163.2	0.38
11	12.96	33.503	25.242	6.12	102.2	4.9	0.63	4.4	0.22	6.09	1.08	12.	92.8	91.8	92.3	0.37
18	12.72	33.506	25.292	5.70	94.7	7.5	0.77	6.6	0.25	4.27	0.85	3.2	33.1	30.8	31.9	0.17
22	12.63	33.506	25.309	5.60	92.9	7.9	0.80	7.0	0.27	3.78	0.77	1.5	12.6	13.1	12.9	0.13
32	11.37	33.556	25.586	4.47	72.2	13.5	1.20	13.6	0.22	1.53	0.58	0.22	0.32	0.48	0.40	0.07

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 39.5 N	121 2.4 W	04/05/10	1811 UTC	15 m	1206 - 1904 PST	1201 PST	1918 PST	412.0 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	14.34	33.186	24.715	6.00	102.9	2.6	0.37	0.0	0.02	0.47	0.20	81. A	4.9	4.9	4.9	0.10
11	14.33	33.185	24.717	5.99	102.7	2.5	0.37	0.0	0.02	0.47	0.19	32.	14.1	13.8	14.0	0.11
21	14.30	33.186	24.724	5.99	102.7	2.4	0.37	0.0	0.02	0.53	0.19	12.	11.9	12.1	12.0	0.12
31	14.29	33.189	24.729	5.98	102.5	2.4	0.36	0.0	0.02	0.56	0.25	4.2	6.9	5.6	6.3	0.09
42	14.21	33.186	24.744	5.92	101.3	2.4	0.39	0.1	0.06	0.52	0.24	1.4	4.6	4.4	4.5	0.05
57	12.29	33.059	25.029	5.58	91.6	5.3	0.68	4.6	0.11	0.27	0.30	0.29	0.39	0.28	0.34	0.03

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 86.7 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 19.5 N	123 44.6 W	05/05/10	1713 UTC	20 m	1218 - 1915 PST	1212 PST	1924 PST	74.7 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
4	15.65	33.124	24.384	5.80	102.1	2.9	0.37	0.0	0.00	0.14	0.04	74. A	1.2	1.0	1.1	0.08
10	15.65	33.130	24.389													
15	15.65	33.123	24.384	5.79	101.9	2.8	0.35	0.0	0.00	0.14	0.04	32.	2.8	2.7	2.7	0.08
29	15.65	33.124	24.385	5.80	102.1	2.4	0.35	0.0	0.00	0.13	0.05	11.	1.3	1.3	1.3	0.07
43	15.65	33.124	24.386	5.80	102.1	2.4	0.35	0.0	0.00	0.49	0.26	3.7	0.61	0.58	0.59	0.07
56	15.65	33.142	24.400	5.79	101.9	2.1	0.34	0.0	0.00	0.29	0.03	1.4	0.22	0.19	0.20	0.06
77	14.24	33.158	24.717	5.92	101.3	2.3	0.39	0.0	0.00	0.47	0.26	0.27	0.08	0.09	0.09	0.04

RV MILLER FREEMAN CALCOFI CRUISE 1004 STATION 90.0 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 29.1 N	117 46.6 W	02/05/10	1749 UTC	15 m	1148 - 1906 PST	1155 PST	1900 PST	2815.0 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	15.11	33.434	24.742	6.04	105.4	2.7	0.39	0.3	0.02	1.53	0.25	81. A	40.5	40.9	40.7	0.20
11	14.39	33.421	24.886	6.14	105.6	3.4	0.42	0.8	0.07	3.18	0.48	32.	96.8	90.9	93.8	0.15
21	13.01	33.438	25.182	5.90	98.6	5.4	0.68	4.6	0.16	10.29	0.97	12.	132.5	122.4	127.5	0.27
31	12.32	33.447	25.324	5.30	87.3	8.4	0.92	8.7	0.19	7.15	0.92	4.2	31.9	34.8	33.4	0.17
41	11.85	33.482	25.440	4.57	74.6	12.6	1.19	12.9	0.23	1.46	0.45	1.5	3.8	3.5	3.7	0.06
57	10.87	33.632	25.735	3.25	52.0	20.2	1.77	20.8	0.49	1.08	0.48	0.29	0.22	0.33	0.28	0.13

A) INCUBATION LIGHT INTENSITIES WERE 94, 32, 11, 3.8, 1.5, 0.28 PERCENT RESPECTIVELY.
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RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 41.2 N	117 52.4 W	27/04/10	1803 UTC	21 m	1155 - 1900 PST	1149 PST	1859 PST	826.6 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	15.87	33.452	24.587	6.06	107.4	3.0	0.32	0.1	0.00	0.41	0.17	86. A	16.9	17.1	17.0	0.20
15	15.27	33.421	24.697	6.16	107.8	2.0	0.30	0.0	0.00	0.54	0.17	33.	19.7	19.1	19.4	0.33
30	14.89	33.396	24.761	6.10	105.9	2.1	0.34	0.0	0.00	0.64	0.30	11.	14.9	14.6	14.8	0.37
45	12.56			5.16		7.6	0.83	6.4	0.19	0.89	0.77	3.7	10.2	9.7	9.9	0.08
57	11.66	33.450	25.451	4.19	68.1	13.5	1.28	13.2	0.41	0.51	0.51	1.6	3.0	3.2	3.1	0.05
80	10.75	33.897	25.963	2.28	36.4	25.4	2.01	23.2	0.00	0.08	0.19	0.29	0.05	0.06	0.05	0.03

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 31.4 N	120 14.1 W	28/04/10	1805 UTC	25 m	1203 - 1905 PST	1158 PST	1907 PST	101.3 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
3	15.39	33.113	24.433	5.82	101.9	2.7	0.37	0.1	0.00	0.09	0.02	83. A	0.05	0.04	0.04	0.00
18	15.32	33.103	24.442	5.82	101.8	2.7	0.35	0.0	0.00	0.09	0.02	33.	3.1	3.6	3.3	0.10
36	15.16	33.089	24.466	5.84	101.8	2.3	0.35	0.0	0.00	0.11	0.03	11.	1.9	1.9	1.9	0.10
53	14.93			5.87		2.4	0.34	0.0	0.00	0.20	0.07	3.9	0.59	0.47	0.53	0.06
67	14.54	33.130	24.632	5.95	102.4	2.6	0.37	0.0	0.00	0.35	0.21	1.6	0.20	0.22	0.21	0.05
95	11.47	33.103	25.217	5.41	87.3	6.9	0.80	6.7	0.00	0.21	0.21	0.29	0.04	0.04	0.04	0.04

RV MILLER FREEMAN — CALCOFI CRUISE 1004 — STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
30 11.1 N	122 55.4 W	29/04/10	1742 UTC	20 m	1209 - 1907 PST	1209 PST	1918 PST	42.0 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
3	16.11	33.253	24.380	5.81	103.3	2.3	0.34	0.1	0.00	0.08	0.02	79. A	1.2	1.1	1.1	0.02
16	16.10	33.253	24.383	5.72	101.7	2.2	0.33	0.0	0.00	0.08	0.02	29.	1.4	1.4	1.4	0.02
29	16.11	33.255	24.383	5.78	102.8	1.9	0.33	0.0	0.00	0.07	0.02	11.	0.62	0.62	0.62	0.02
43	16.11	33.242	24.373	5.72	101.7	1.9	0.32	0.0	0.00	0.07	0.02	3.7	0.24	0.20	0.22	0.04
55	15.95	33.249	24.415	5.73	101.6	1.8	0.32	0.0	0.00	0.09	0.02	1.5	0.11	0.11	0.11	0.00
77	15.61	33.247	24.490	5.82	102.4	1.8	0.32	0.0	0.00	0.13	0.05	0.27	0.01	0.02	0.02	0.01

A) INCUBATION LIGHT INTENSITIES WERE 94, 32, 11, 3.8, 1.5, 0.28 PERCENT RESPECTIVELY.
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CalCOFI Cruise 1004

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)
66.7	50.0	36 47.0	122 03.2	04-18	1135	1156	386	209	549	549
66.7	55.0	36 37.1	122 24.9	04-18	1757	1818	418	213	105	105
66.7	60.0	36 27.2	122 46.3	04-18	2245	2305	419	210	45	45
66.7	70.0	36 07.2	123 29.1	04-19	0818	0839	449	211	42	42
66.7	80.0	35 47.3	124 11.6	04-19	2225	2245	392	214	94	94
73.3	55.0	35 28.8	121 36.6	04-17	1900	1920	383	209	115	115
73.3	60.0	35 19.1	121 58.2	04-17	1433	1454	411	213	34	34
73.3	70.0	34 58.7	122 39.9	04-17	0718	0739	440	212	55	55
73.3	80.0	34 38.5	123 21.9	04-16	1841	1901	401	210	97	97
73.3	90.0	34 19.4	124 03.4	04-16	1403	1424	458	208	39	39
75.8	51.0	35 10.4	121 01.0	04-15	0234	0255	375	215	80	80
75.8	55.0	35 02.7	121 18.4	04-15	0623	0645	453	213	40	40
75.8	60.0	34 52.7	121 39.4	04-15	0914	0934	441	216	66	66
75.8	70.0	34 32.6	122 21.4	04-15	1410	1432	439	212	43	43
75.8	80.0	34 12.5	123 03.3	04-15	1853	1913	432	200	72	72
75.8	90.0	33 52.6	123 44.7	04-16	0955	1016	428	213	28	28
76.7	49.0	35 05.2	120 46.5	05-16	1236	1241	109	46	394	339
76.7	51.0	35 01.3	120 55.1	05-16	1020	1042	398	203	116	116
76.7	55.0	34 53.2	121 11.9	05-16	0715	0736	423	210	184	128
76.7	60.0	34 43.2	121 32.8	05-16	0334	0354	397	210	156	156
76.7	70.0	34 23.3	122 14.8	05-15	2208	2230	432	210	93	93
76.7	80.0	34 03.3	122 56.5	05-15	1620	1641	383	209	123	123
76.7	90.0	33 43.3	123 38.0	05-15	1030	1050	401	211	25	25
78.3	51.0	34 44.7	120 43.6	04-14	2220	2225	112	48	587	587
78.3	55.0	34 36.7	121 00.4	04-14	1828	1847	388	210	108	108
78.3	60.0	34 26.4	121 21.1	04-14	1522	1541	379	211	98	98
78.3	70.0	34 06.6	122 03.0	04-14	1021	1041	404	210	59	59
78.3	80.0	33 46.7	122 44.7	04-14	0555	0616	430	205	33	33
78.3	90.0	33 26.7	123 25.9	04-13	2344	0004	416	202	43	43
80.0	55.0	34 18.8	120 47.0	05-16	2259	2320	386	209	161	161
80.0	60.0	34 08.8	121 08.8	05-16	1908	1929	359	218	125	125
80.0	70.0	33 48.9	121 50.6	05-14	1820	1842	424	210	50	50
80.0	80.0	33 29.9	122 32.0	05-14	2349	0010	403	215	30	30
80.0	90.0	33 09.3	123 13.1	05-15	0515	0536	405	212	35	35
81.7	45.0	34 21.4	119 54.3	04-12	1332	1352	403	212	419	419
81.7	50.0	34 11.1	120 15.2	04-12	1623	1642	388	209	175	175
81.7	55.0	34 01.4	120 37.1	04-12	2127	2146	417	215	137	137
81.7	60.0	33 51.9	120 57.6	04-13	0145	0207	449	206	310	310
81.7	70.0	33 31.5	121 38.1	04-13	0841	0903	446	213	22	22
81.7	80.0	33 11.1	122 19.4	04-13	1320	1341	430	212	28	28
81.7	90.0	32 51.4	122 59.8	04-13	1756	1817	435	204	28	28
81.8	46.9	34 16.4	120 01.2	05-13	1715	1736	329	215	182	182
83.3	40.6	34 13.6	119 24.9	05-13	1147	1150	57	24	141	141
83.3	42.0	34 10.8	119 30.3	05-13	1332	1340	121	73	710	710
83.3	51.0	33 52.6	120 08.0	05-13	2301	2310	144	78	244	244
83.3	55.0	33 44.3	120 24.2	05-14	0215	0236	358	213	179	179
83.3	60.0	33 34.8	120 45.2	05-14	0611	0632	380	204	87	87
83.3	70.0	33 14.8	121 26.6	05-14	1122	1143	424	210	73	73
83.3	80.0	32 54.6	122 07.6	05-06	1107	1128	377	215	34	34
83.3	90.0	32 34.1	122 48.3	05-06	0440	0502	440	210	16	16
83.3	100.0	32 14.6	123 29.6	05-05	2207	2227	400	214	15	15
83.3	110.0	31 54.6	124 10.3	05-05	1613	1635	448	214	16	16
85.0	40.0	33 57.1	119 10.4	04-09	0701	0721	362	212	246	246
85.0	45.0	33 45.5	119 27.5	04-09	0215	0236	413	211	373	298
85.0	50.0	33 37.0	119 51.7	04-08	2105	2125	414	207	244	244
85.0	55.0	33 26.2	120 12.2	04-08	1703	1722	360	217	170	170
85.0	60.0	33 16.9	120 33.0	04-08	1350	1411	456	209	57	57
85.0	70.0	32 56.8	121 14.3	04-08	0906	0928	461	209	13	13
85.0	80.0	32 37.3	121 55.2	04-08	0424	0445	450	211	18	18
86.7	33.0	33 53.3	118 30.4	05-02	1851	1856	105	47	181	181
86.7	35.0	33 49.4	118 37.7	05-02	2110	2131	425	204	144	115
86.7	40.0	33 39.2	118 58.5	05-03	0055	0116	426	213	178	178
86.7	45.0	33 29.3	119 18.8	05-03	0532	0552	422	204	173	173
86.7	50.0	33 19.5	119 40.0	05-03	0915	0920	130	43	169	169
86.7	55.0	33 09.5	120 00.1	05-03	1426	1447	423	212	114	114
86.7	60.0	32 59.3	120 20.7	05-03	1857	1918	363	203	314	314
86.7	70.0	32 39.3	121 02.0	05-04	1108	1131	450	220	36	36
86.7	80.0	32 19.4	121 42.8	05-04	1716	1737	407	213	20	20
86.7	90.0	31 59.4	122 23.4	05-04	2222	2243	408	218	20	20
86.7	100.0	31 39.0	123 04.1	05-05	0343	0403	437	215	18	18
86.7	110.0	31 19.4	123 44.7	05-05	0816	0838	478	213	33	33
86.8	32.5	33 53.3	118 26.7	05-02	1700	1703	80	16	50	50
88.3	33.0	33 34.9	118 18.6	04-06	1745	1804	372	209	83	83
88.3	40.0	33 22.7	118 47.6	04-06	2243	2304	424	214	210	210
88.3	45.0	33 12.8	119 08.4	04-07	0253	0314	435	208	237	237
88.3	50.0	33 02.7	119 28.4	04-07	0550	0611	438	209	87	87
88.3	55.0	32 52.7	119 49.1	04-07	0843	0904	445	213	112	112
88.3	60.0	32 42.7	120 09.6	04-07	1137	1158	448	212	45	45
88.3	70.0	32 22.8	120 50.4	04-07	1601	1620	418	204	86	86
88.3	80.0	32 03.1	121 31.7	04-07	2134	2155	414	212	31	31
88.5	30.1	33 40.2	118 05.2	05-02	1325	1327	37	20	54	54
90.0	28.0	33 29.1	117 46.1	05-02	1050	1101	224	90	120	120
90.0	30.0	33 25.3	117 54.2	05-02	0809	0830	431	214	325	262

90.0	35.0	33 15.3	118 14.1	05-02	0412	0432	413	207	198	198
90.0	37.0	33 11.5	118 22.7	05-02	0057	0116	388	213	294	294
90.0	45.0	32 54.9	118 56.2	05-01	1952	2013	439	209	155	155
90.0	53.0	32 38.7	119 28.7	05-01	1505	1525	408	212	69	69
90.0	60.0	32 24.9	119 57.3	05-04	0015	0035	408	219	135	135
90.0	70.0	32 05.0	120 38.3	05-04	0533	0554	452	209	44	44
90.0	70.0	32 05.0	120 38.3	05-01	0528	0548	455	208	35	35
90.0	80.0	31 45.0	121 18.9	04-30	2054	2115	411	219	34	34
90.0	90.0	31 25.0	121 59.6	04-30	1430	1452	448	212	63	63
90.0	100.0	31 05.3	122 39.8	04-30	0746	0804	427	214	80	80
90.0	110.0	30 44.3	123 19.2	04-30	0225	0245	472	212	40	40
90.0	120.0	30 24.9	123 59.9	04-29	2108	2128	425	210	97	97
91.7	26.4	33 14.4	117 27.8	04-26	2108	2110	55	21	73	73
91.7	30.0	33 07.4	117 42.4	04-06	1254	1314	365	215	164	164
91.7	35.0	32 57.4	118 03.3	04-06	1004	1025	406	212	180	168
91.7	40.0	32 45.8	118 22.6	04-06	0701	0722	424	212	290	290
91.7	45.0	32 38.5	118 44.6	04-06	0320	0342	435	212	352	303
91.7	50.0	32 28.4	118 29.8	04-05	2205	2225	406	210	113	113
91.7	55.0	32 17.6	119 25.7	04-05	1635	1657	458	202	118	118
91.7	60.0	32 07.4	119 44.9	04-05	1352	1412	405	205	62	62
91.7	70.0	31 47.4	120 26.3	04-05	0920	0940	439	212	55	55
91.7	80.0	31 27.4	121 06.8	04-05	0323	0344	473	212	42	42
91.7	90.0	31 07.5	121 47.1	04-04	1906	1924	397	210	58	58
93.3	26.7	32 57.2	117 18.5	04-27	0014	0036	419	221	62	62
93.3	28.0	32 54.5	117 23.6	04-27	0234	0253	392	209	153	153
93.3	30.0	32 50.9	117 31.9	04-27	0512	0533	398	211	186	186
93.3	35.0	32 40.7	117 52.4	04-27	0900	0919	369	215	336	336
93.3	40.0	32 30.9	118 12.8	04-27	1337	1358	409	212	406	406
93.3	45.0	32 20.8	118 33.2	04-27	1715	1737	418	214	86	86
93.3	50.0	32 10.8	118 53.6	04-27	2041	2102	379	205	103	103
93.3	55.0	32 00.8	119 13.8	04-28	0013	0035	446	214	76	76
93.3	60.0	31 50.7	119 34.3	04-28	0500	0520	415	207	246	246
93.3	70.0	31 30.8	120 14.7	04-28	1056	1117	390	215	33	33
93.3	80.0	31 10.8	120 55.1	04-28	1710	1731	412	214	39	39
93.3	90.0	30 50.8	121 35.3	04-28	2213	2234	418	215	67	67
93.3	100.0	30 30.5	122 15.3	04-29	0326	0346	424	211	40	40
93.3	110.0	30 10.8	122 55.5	04-29	0842	0903	478	206	31	31
93.3	120.0	29 50.6	123 35.2	04-29	1502	1522	426	211	143	143
93.4	26.4	32 56.6	117 16.9	04-26	1850	1852	56	19	392	392
93.9	36.3	32 32.2	117 52.9	04-03	0323	0345	429	203	100	65
94.8	40.6	32 13.9	118 04.9	04-03	0628	0649	420	213	179	152
94.9	29.9	32 34.5	117 20.6	04-02	2133	2145	240	118	225	225
95.0	45.0	32 03.5	118 21.6	04-03	1049	1110	440	209	250	250
95.0	50.0	31 53.1	118 41.3	04-03	1347	1407	486	190	99	78
95.0	55.0	31 43.4	119 02.1	04-03	1650	1710	380	207	82	82
95.0	60.0	31 33.1	119 22.3	04-03	2130	2149	403	216	228	228
95.0	70.0	31 13.1	120 02.8	04-04	0432	0453	436	211	234	234
95.0	80.0	30 53.1	120 42.9	04-04	0929	0950	444	213	9	9
95.0	90.0	30 38.3	121 25.7	04-04	1446	1505	483	184	23	23
95.3	42.7	32 04.7	118 10.3	04-03	0843	0906	452	212	624	606