

UNIVERSITY OF CALIFORNIA, SAN DIEGO   SCRIPPS INSTITUTION OF OCEANOGRAPHY

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# data report

**CalCOFI Cruise 1404  
28 March –18 April 2014**

**CC Reference 15 - 01  
2 June 2015**

**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 1404\* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the Stabbert Maritime ship RV Ocean Starr. 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 Wildlife, 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 cruise were collected and processed by personnel of the Integrative Oceanography Division and the Southwest Fisheries Science Center. CalCOFI data presented in this report and collected on previous cruises can be accessed at <http://www.calcofi.org>.

## STANDARD PROCEDURES

### *CTD/Rosette Cast Data*

A Sea-Bird Electronics, Inc., Conductivity-Temperature-Depth (CTD) instrument (Seabird 911+, Serial number 3161-936) with a rosette was deployed at each station on this cruise. The rosette was equipped with 24 ten-liter plastic (PVC) bottles equipped with epoxy-coated springs and Viton O-rings. Each CTD/rosette cast usually sampled 20 depths to a maximum sampling depth of 515 meters, bottom depth permitting. Occasional stations have multiple bottles tripped at the same depth to provide more water for ancillary programs. Additional bottle depths also appear in combined hydrographic and primary productivity casts. 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 were converted to depths by the Saunders (1981) pressure-to-depth conversion technique. CTD temperatures reported with the bottle data have been rounded to the nearest hundredth of a degree Celsius.

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

Dissolved oxygen analyses were performed with an Ocean Data Facility of Scripps Institution of Oceanography designed automated oxygen titrator using photometric end-point detection based on the absorption of 365nm wavelength ultra-violet light. A computer using PC software controlled the titration of the samples and the data logging. The method used a modified Winkler titration following the technique of Carpenter (1965) with modifications by Culberson (1991), but with higher concentrations of thiosulfate solution (50 g/l). Standard KIO<sub>3</sub> 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.

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

Nutrient samples were analyzed at sea using a QuAAtro continuous flow analyzer (SEAL Analytical). Dissolved silicate, nitrate, and nitrite were analyzed using a modification of the method described by Armstrong (1967) and Gordon et al. (1992). Phosphate was measured with a modification of the Murphy and Riley (1962) protocol and ammonium is analyzed using a modified fluorometric method described by Kerouel and Aminot (1997). Samples were collected in 45ml high-density polypropylene screw top tubes which were acid washed and rinsed with sample three times prior to filling. Standardizations and cadmium-reduction coil efficiency determinations were performed at the beginning of every run. Drift corrections were performed in each run using a high standard inserted before and after sample sets. A sample of reference material for nutrients in seawater (RMNS), produced by KANSO technos ([www.kanso.co.jp](http://www.kanso.co.jp)) was included in every run and those data were used to adjust values for nitrate, nitrite, phosphate, and silicate if appropriate. Samples not analyzed immediately after collection were refrigerated and run the following day.

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

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

#### *Primary Productivity Sampling*

Primary productivity samples were taken each day shortly before local apparent noon (LAN). Primary production was estimated from  $^{14}\text{C}$  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 9.481  $\mu\text{Ci}$  of  $^{14}\text{C}$  as  $\text{NaHCO}_3$  (50 $\mu\text{l}$  of stock solution) prepared in a 0.3 g/liter solution of sodium carbonate (Fitzwater et al., 1982). Samples were incubated from LAN to civil twilight in seawater-cooled incubators with neutral-density screens which simulate *in situ* light levels. At the end of the incubation, the samples were filtered onto Millipore HA filters and placed in scintillation vials. One half ml of 10% HCl was added to each sample. The sample was then allowed to sit, without a cap, at room temperature for 12 hours (after Lean and Burnison, 1979). Following this, 10 ml of scintillation cocktail were added to each sample and the samples were returned to SIO where the radioactivity was determined with a scintillation counter. Salinity, oxygen, nutrients, chlorophyll-*a* and phaeopigments were determined from all rosette productivity bottles.

#### *Macrozooplankton Net Tows*

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

## *Avifauna Observations (Farallon Institute of Advanced Ecosystem Research)*

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

## *Ancillary Programs*

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

- 1) *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. Measurements of particulate organic carbon and nitrogen, dissolved organic carbon and nitrogen, taxon-specific phytoplankton pigments, flow-cytometric counts of bacteria and picoautotrophs and the determination of mesozooplankton size structure using a Laser Optical Plankton Counter are sampled for all CalCOFI stations. On CalCOFI lines 90 and 80 measurements also include microscopic counts of heterotrophic and autotrophic phytoplankton for biomass and abundance and mesozooplankton community structure sampled with the Planktonic Rate Processes in Oligotrophic Ocean Systems (PRPOOS) tow net. (M. Ohman, SIO)
- 2) *Advanced Laser Fluorometer Analyzer (ALFA):* Continuous underway analysis of phytoplankton pigment groups and variable fluorescence ( $F_v/F_m$ ). A LFA, 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 ALFA 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. (R. Goericke, SIO)
- 3) *Southern California Coastal Ocean Observing System (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 hydrographic observations as well as a CalBOBL net tow, particulate organic carbon and nitrogen, dissolved organic carbon and nitrogen and taxon-specific phytoplankton pigments data. (R. Goericke, SIO)
- 4) *Inorganic Carbon System:* The CalCOFI group collected samples for the characterization of the inorganic carbon system at selected locations along the cruise track with 13 profile and 9 surface water stations. Total inorganic carbon and alkalinity will be measured which will allow the calculation of pH and  $pCO_2$ . 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)
- 5) *Marine Mammal Observations:* During daylight transits, visual line-transect surveys were conducted by marine mammal observers focusing on cetaceans. Acoustic line-transect surveys were performed using a towed hydrophone array which consists of multiple hydrophone elements that sample sounds up to 100 kHz allowing for localization of calling animals. Acoustic monitoring also takes place on individual stations using sonobuoys. (J. Hildebrand, SIO)
- 6) *Microbial Diversity and Gene Expression:* Samples suitable for purification of DNA and RNA from bacterial and microbial eukaryotic biomass are collected for molecular diversity assays targeted to various genetic marker loci (16S and 18S rRNA). DNA samples are collected at every station, in parallel with particulate organic matter (POM) samples, on Whatman GF/F filters. RNA samples are collected in parallel with primary productivity samples on 0.2  $\mu\text{m}$  sterilivex filters with a maximum filtration time of 30 min. Additional samples from the mixed layer and chlorophyll max are collected along lines 80 and 90. (A. Allen, SIO and JCVI)

## 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 discrete 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 ( $\text{cm}^3/1000\text{m}^3$  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 defined below each station, special notations are used for regularly occurring notations:

D: CTD value is listed in place of shipboard analyzed bottle data and is further defined as a footnote.

ISL: After a depth value indicates that this is an interpolated or extrapolated standard level, CTD values are used while nutrient and chlorophyll values are interpolated or extrapolated.

U: Uncertain value. Values which are not used in interpolation because they seem to be in error without apparent reason.

\*: All nutrients values below detection limits have been zeroed.

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## FIGURES

### Cruise 1404

1. CalCOFI Cruise 1404 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) chl orophyll-*a*; B) potential density; C) tem perature; and D) salinity.
4. Horizontal distributions at 200 meters: A) dy namic height anomaly (200 over 500 m); B) potential density; C) temperature; and D) salinity.
5. Sections along CalCOFI line 90 (vertical exaggeration, 1000): A) potential density; B) temperature; C) salinity; D) silicate; E) nitrate; F) phosphate; G) chlorophyll-*a*; H) oxygen saturation; I) oxygen; J) nitrite; and K) phaeopigments.

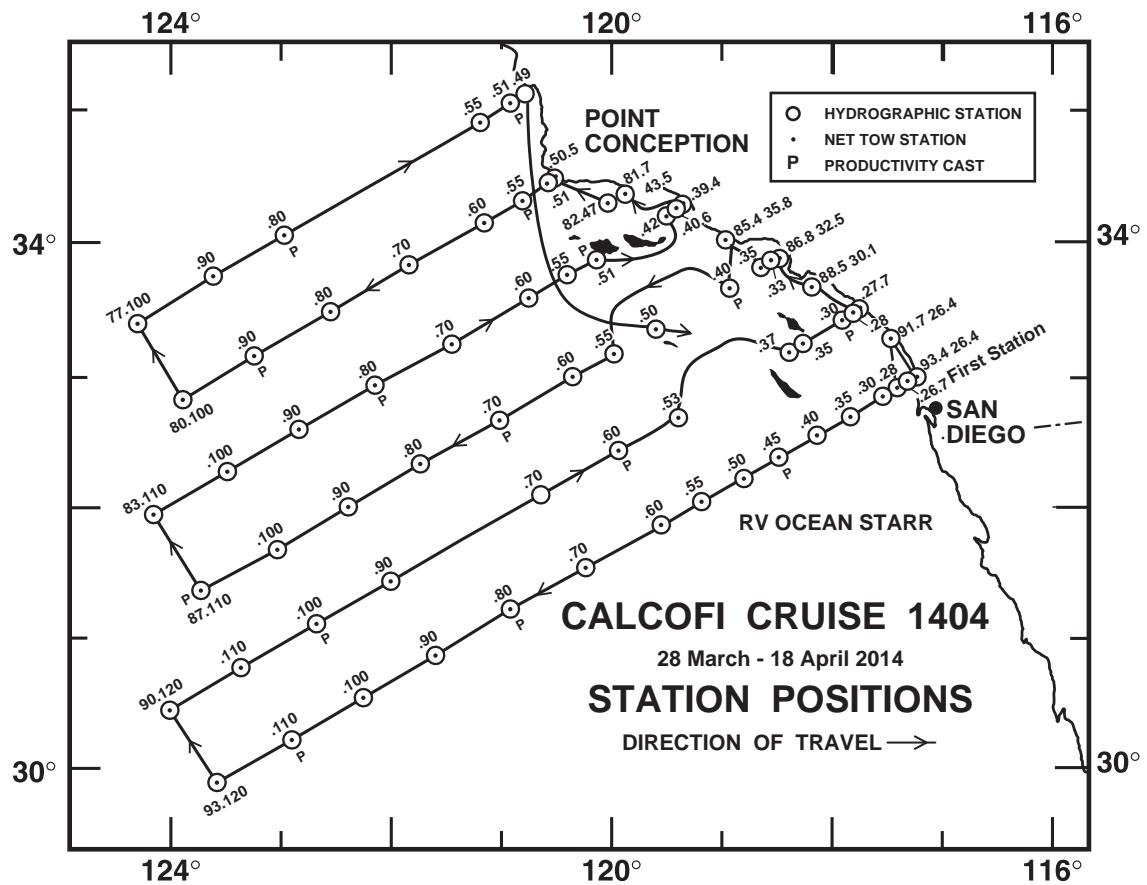


FIGURE 1

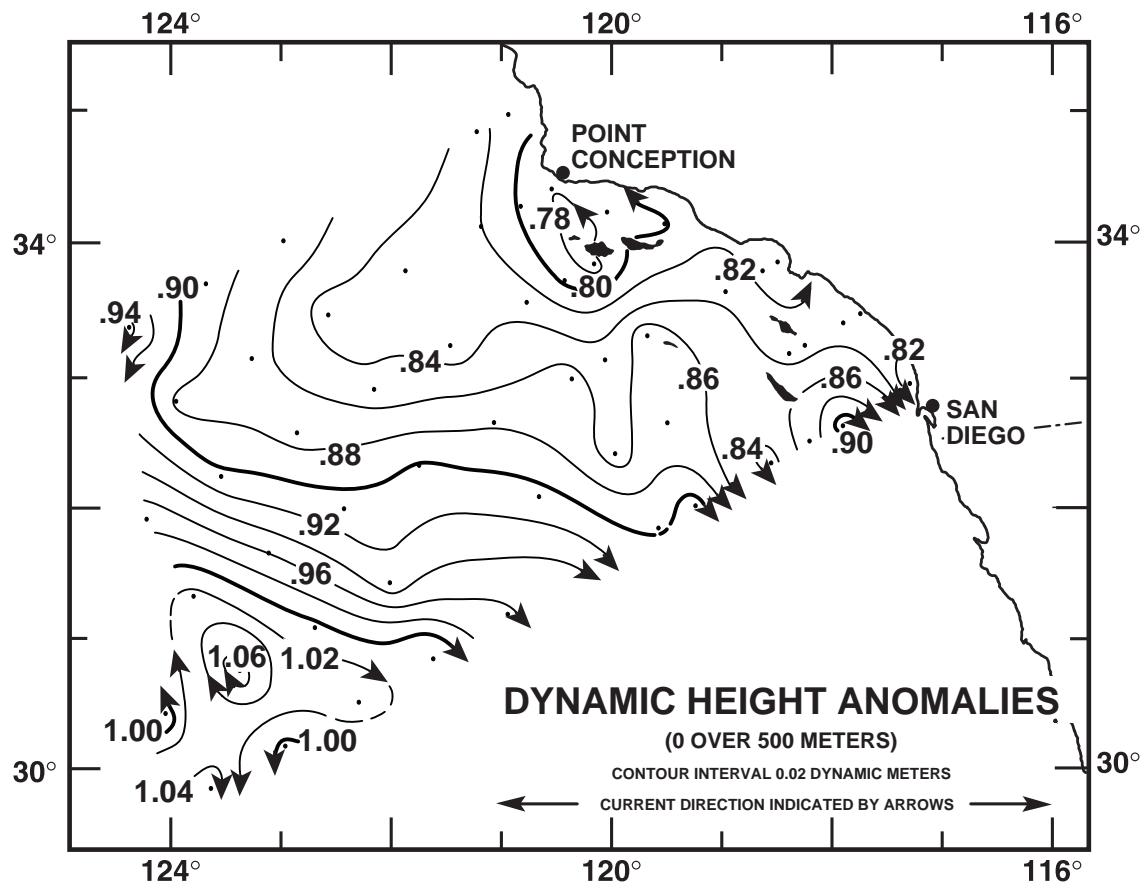


FIGURE 2

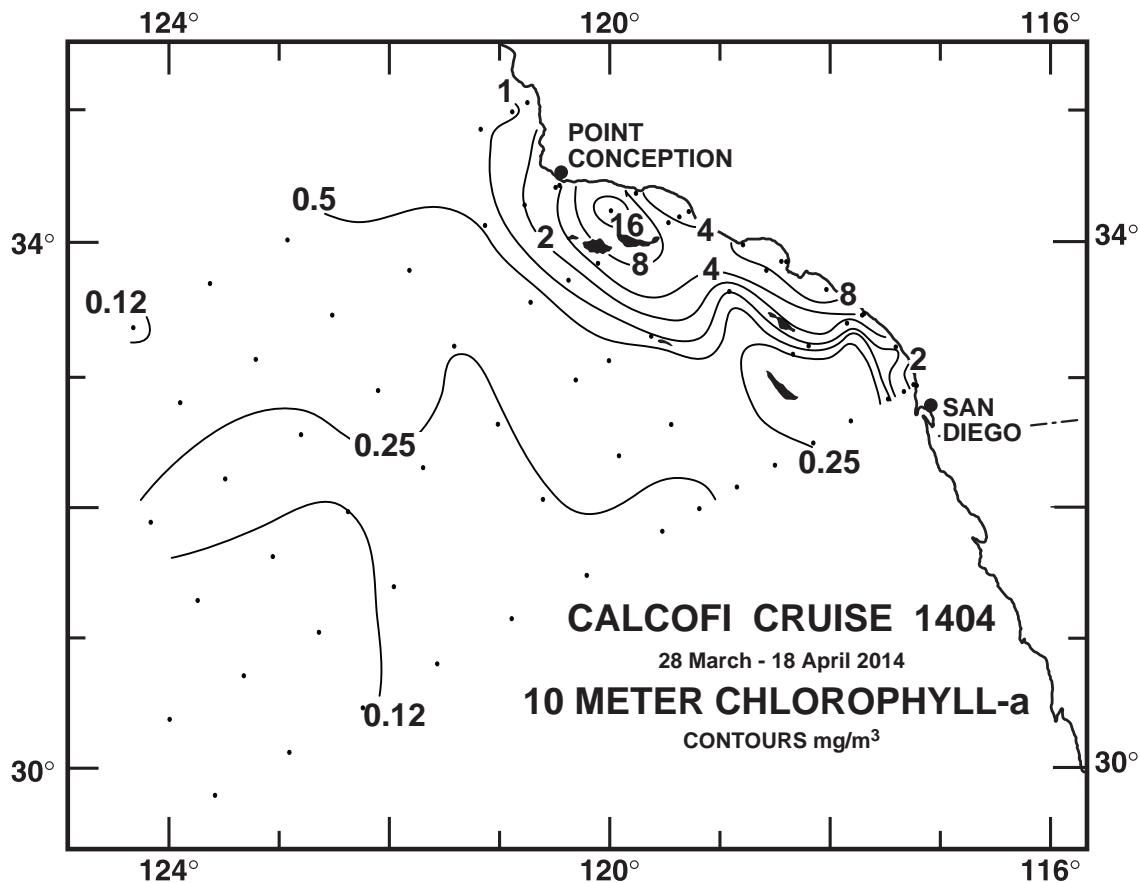


FIGURE 3A

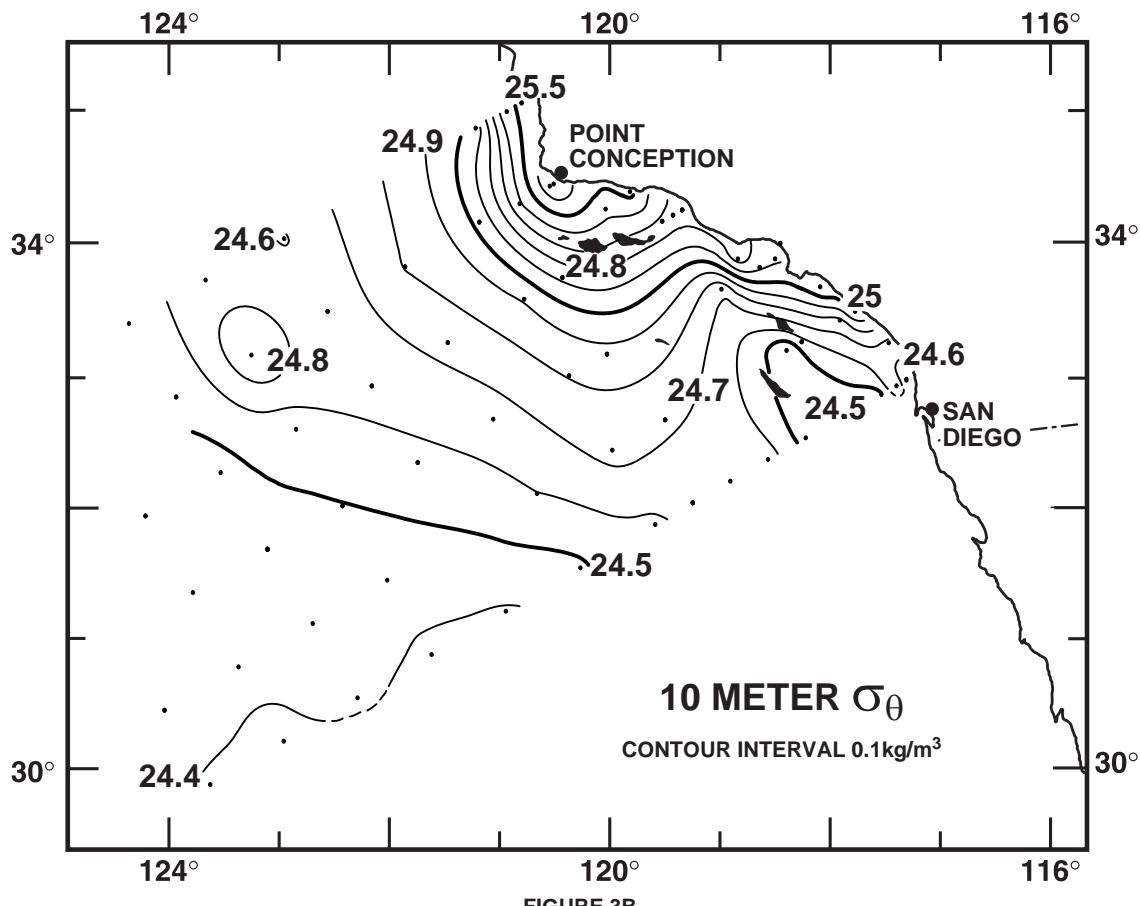


FIGURE 3B

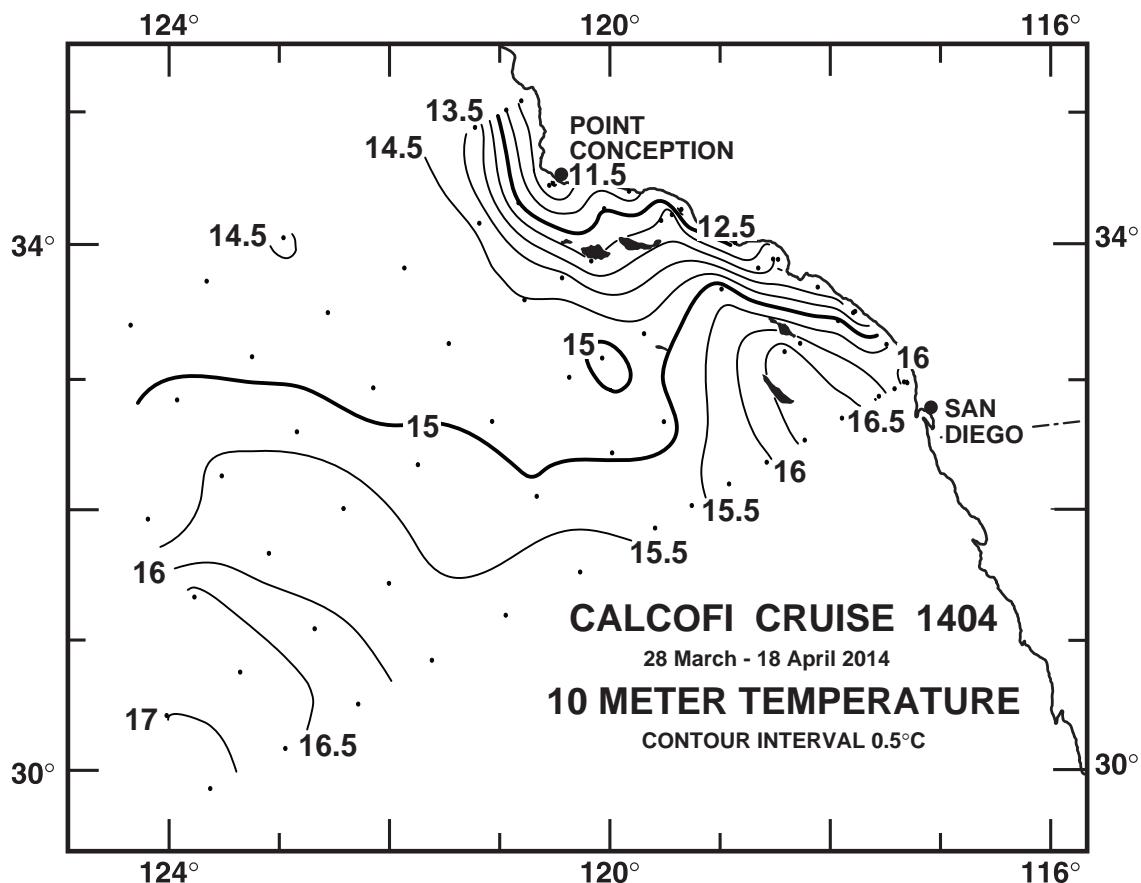


FIGURE 3C

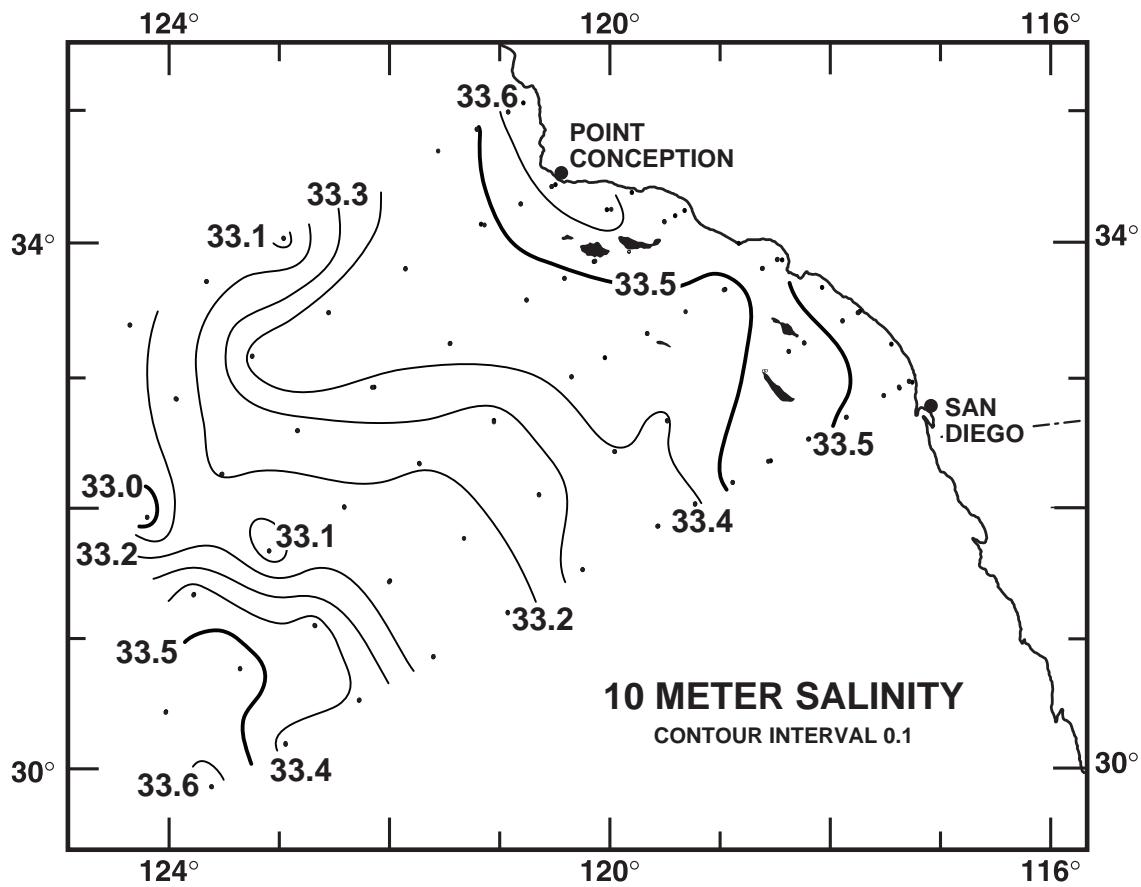


FIGURE 3D

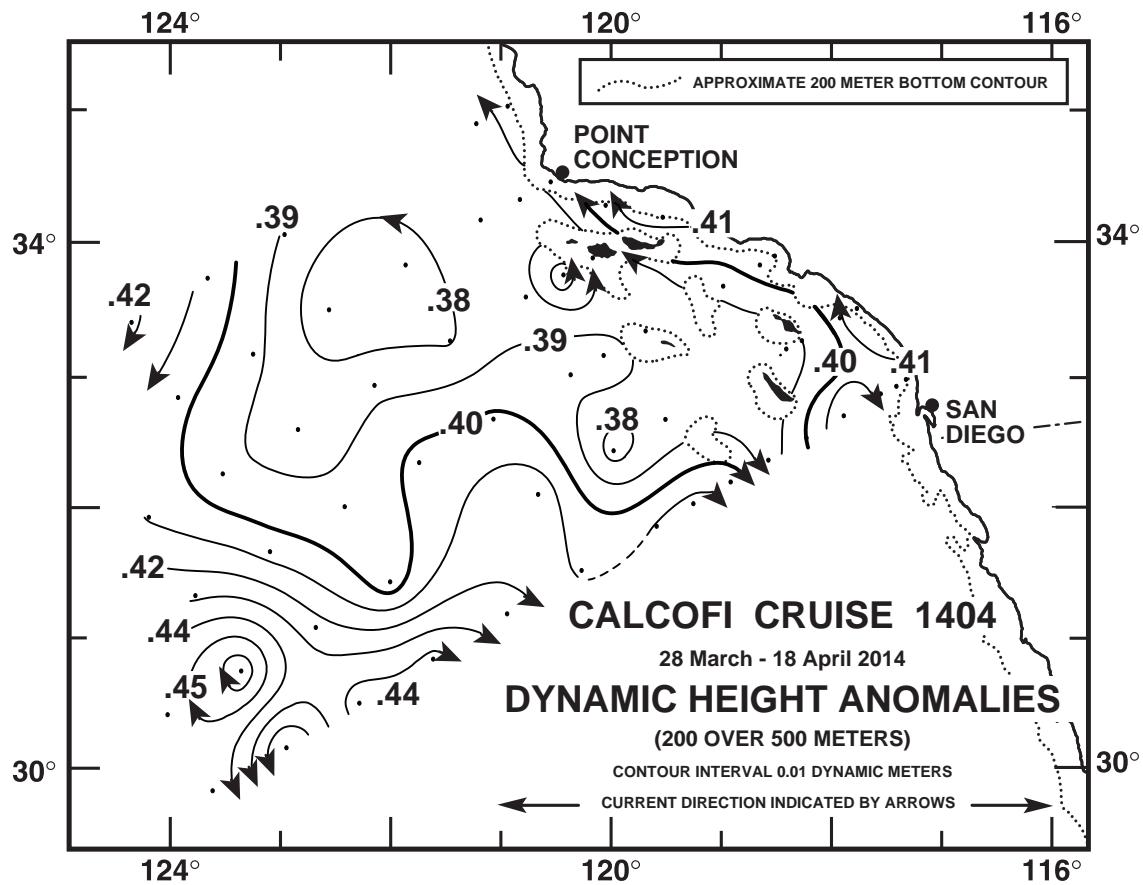


FIGURE 4A

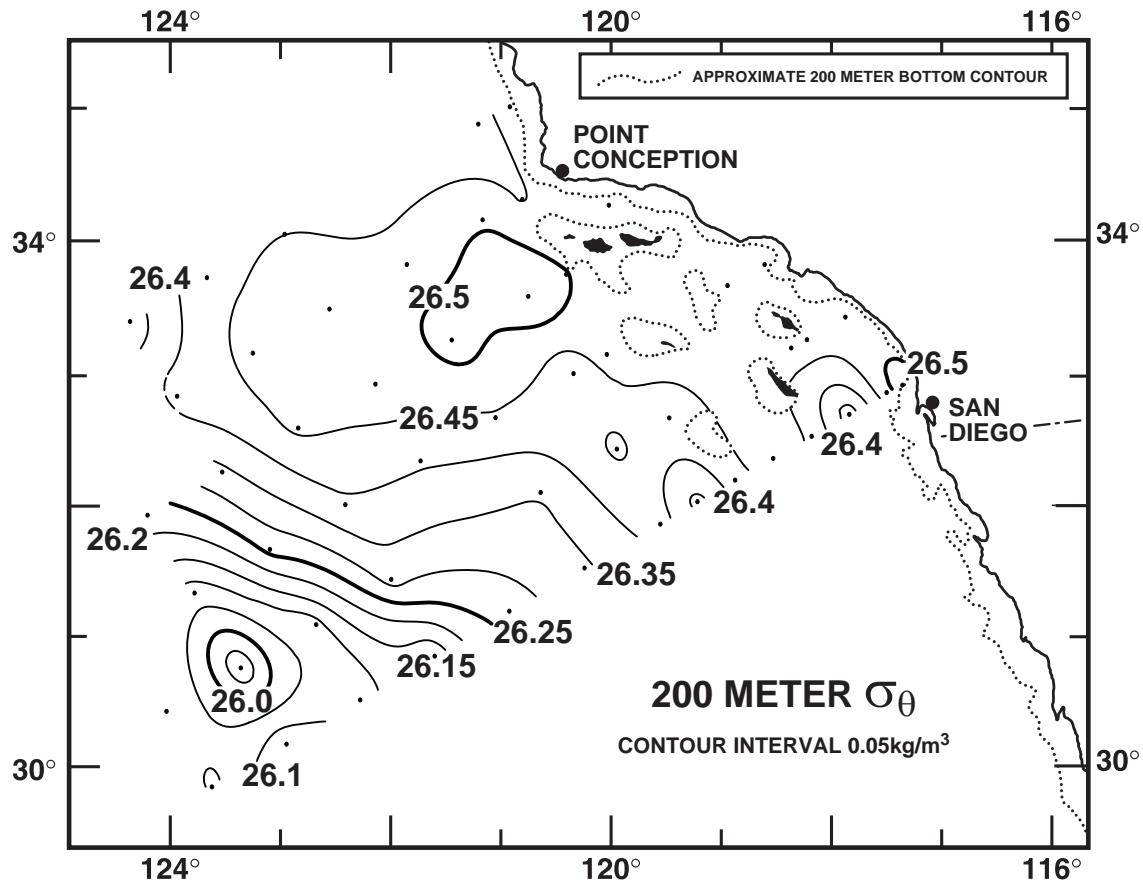


FIGURE 4B

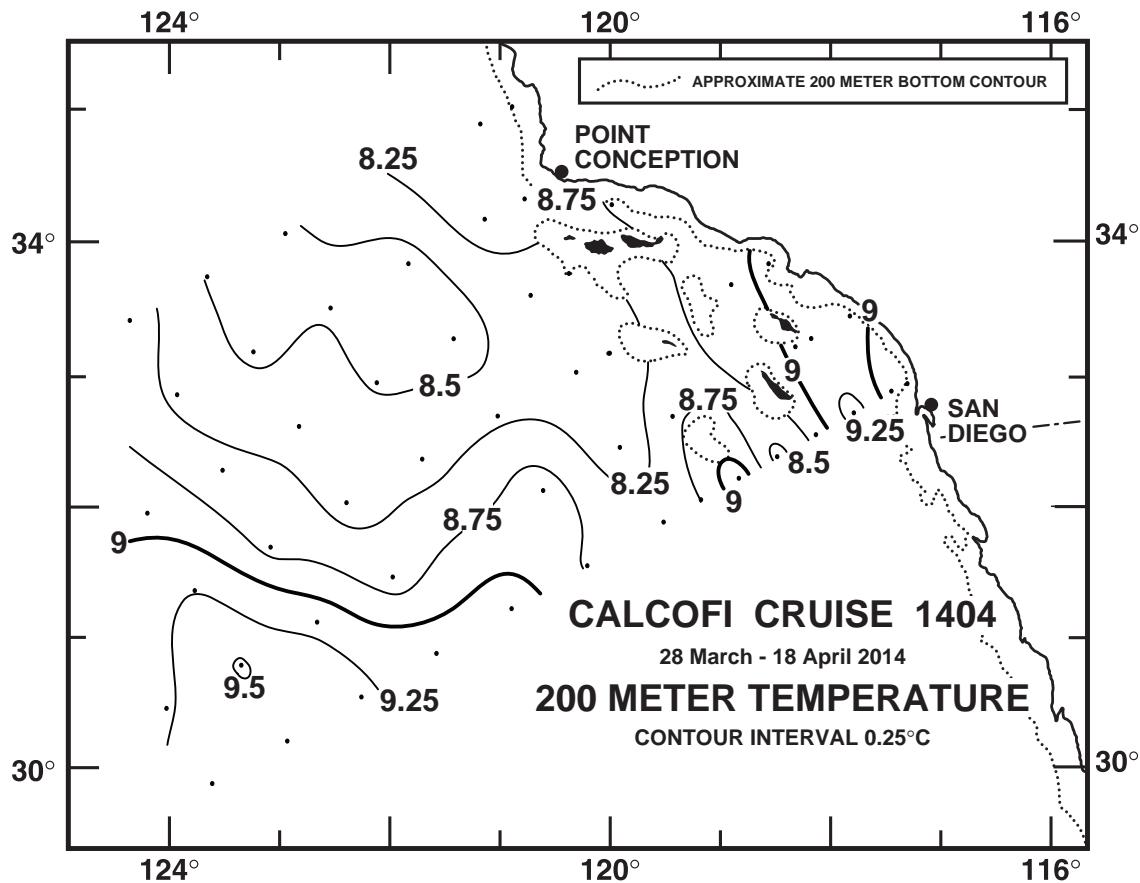


FIGURE 4C

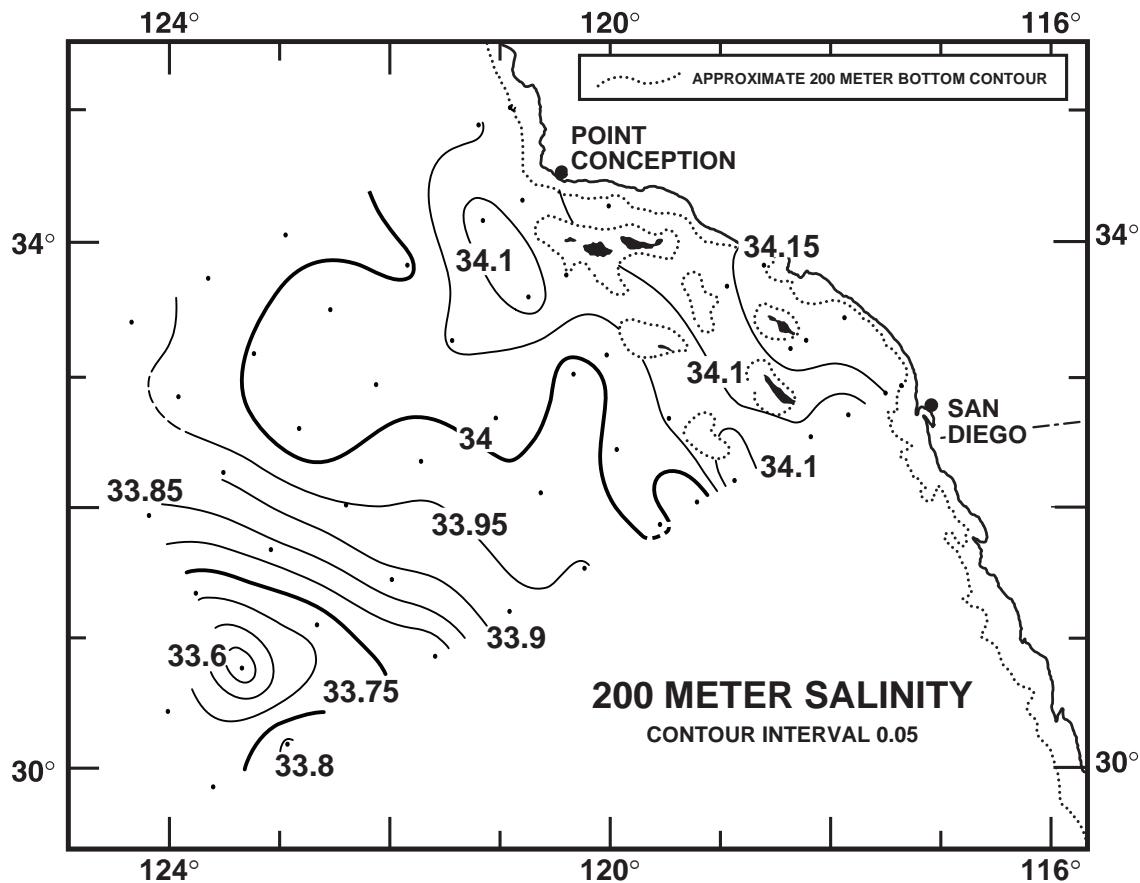


FIGURE 4D

# CALCOFI CRUISE 1404

28 March - 18 April 2014

## POTENTIAL DENSITY ( $\sigma_0$ ) ALONG CALCOFI LINE 90

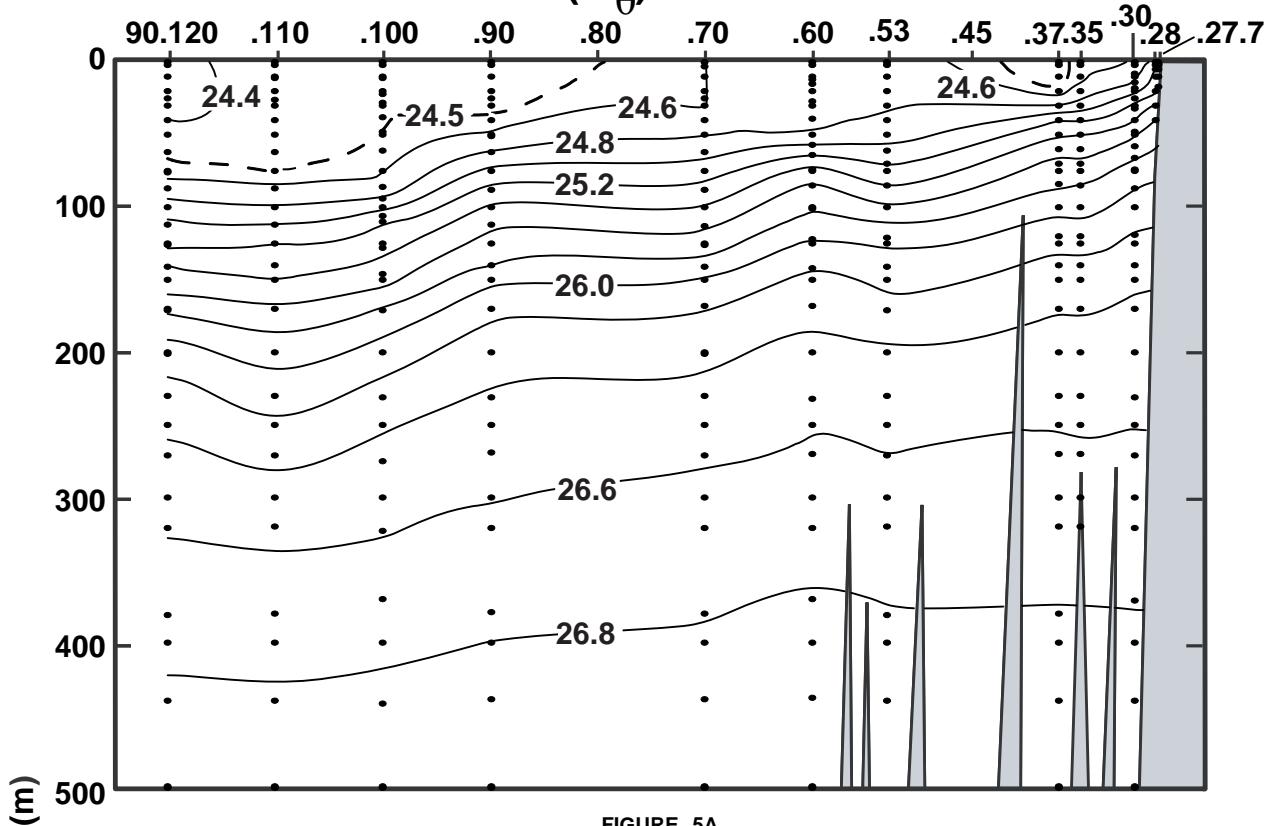


FIGURE 5A

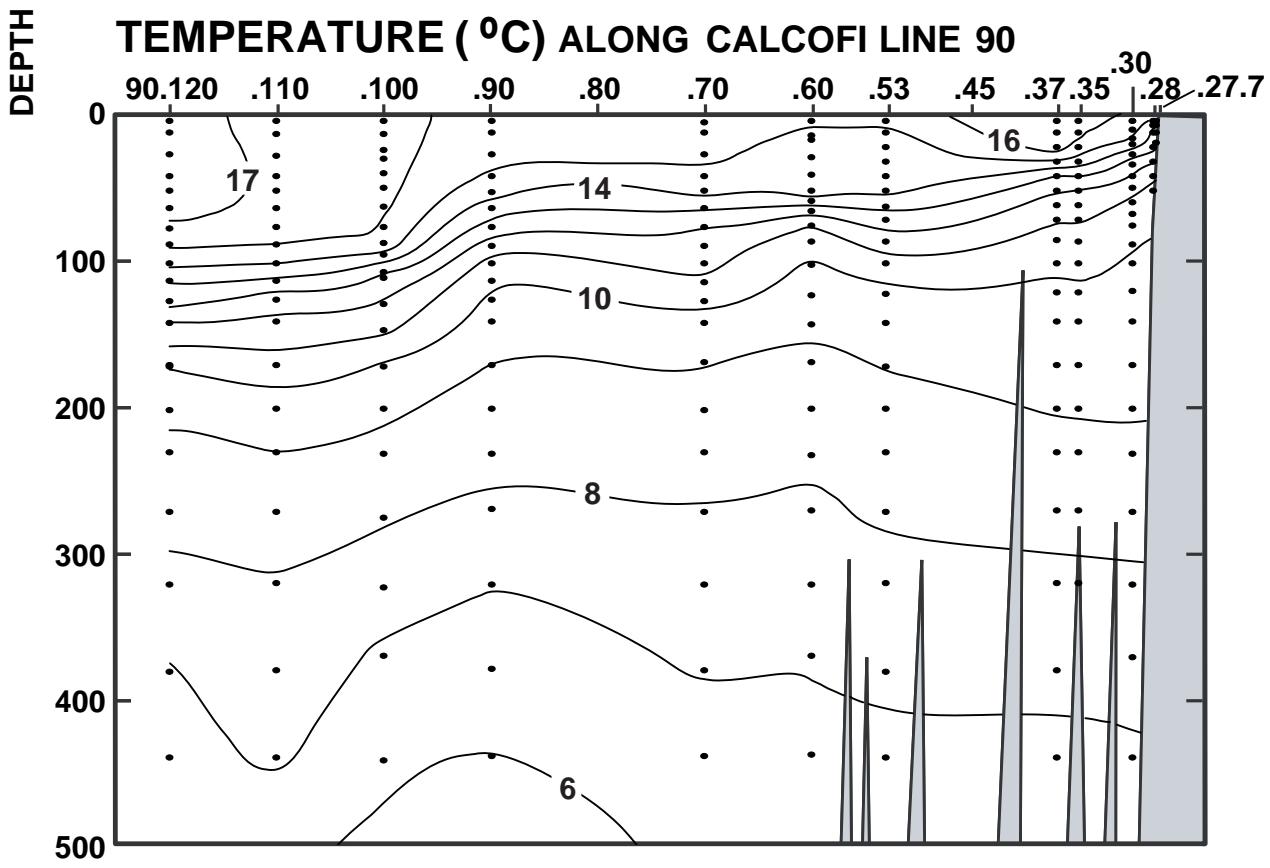
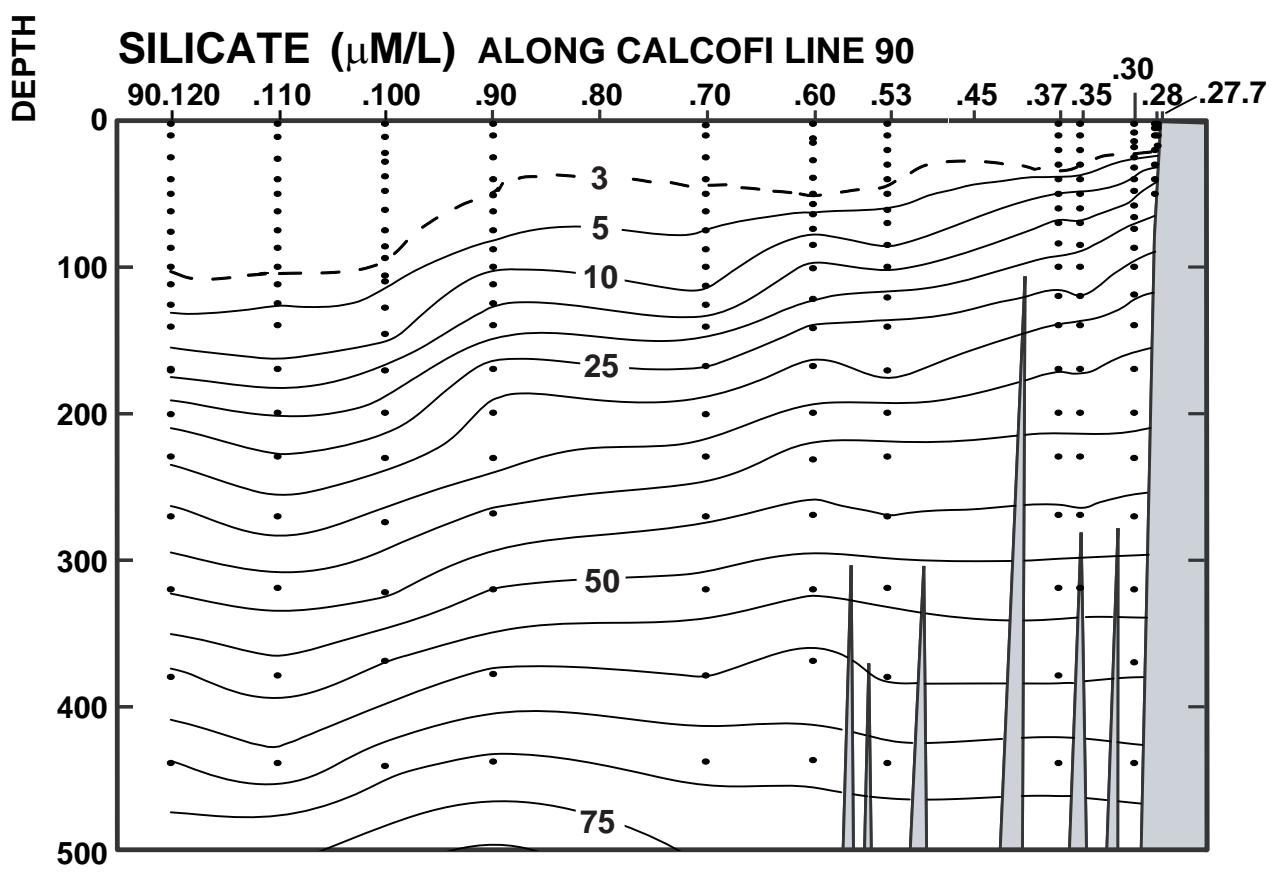
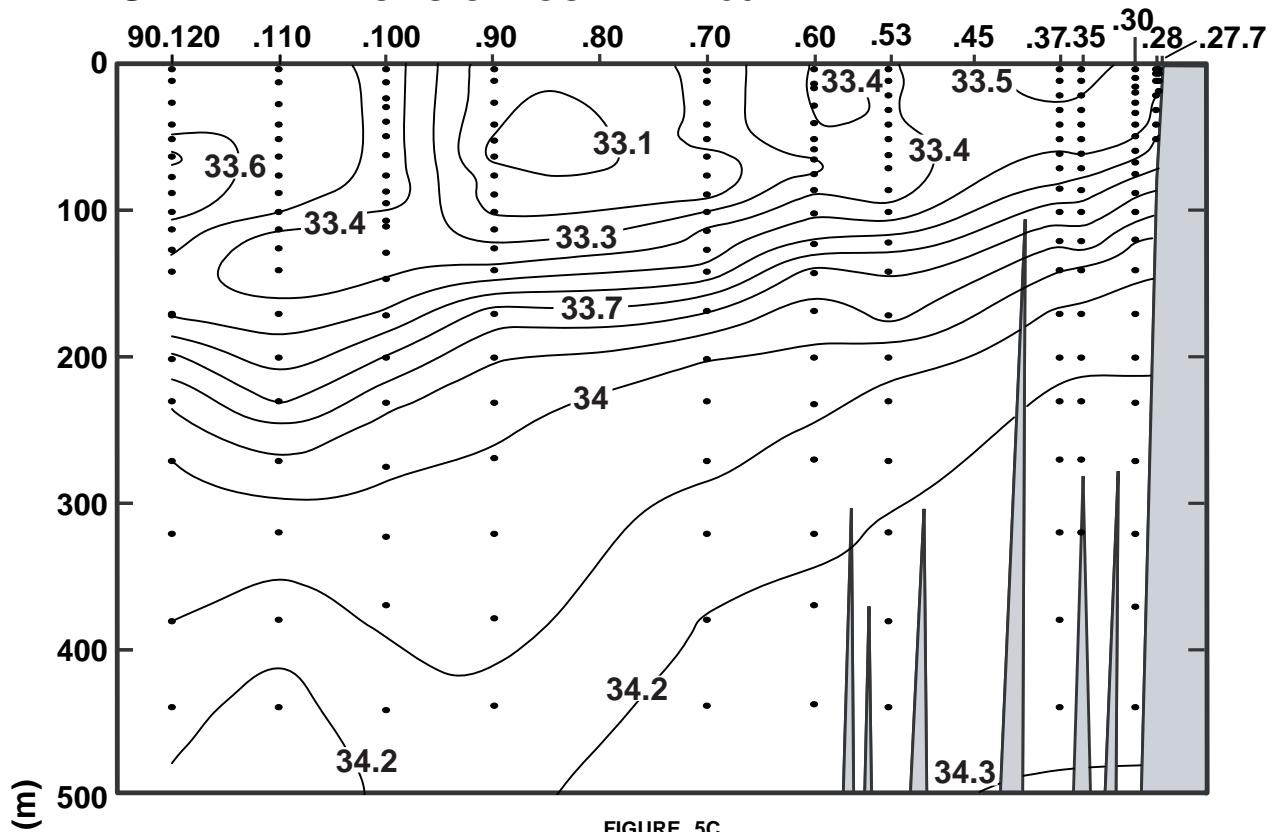


FIGURE 5B

# CALCOFI CRUISE 1404

28 March - 18 April 2014

## SALINITY ALONG CALCOFI LINE 90



# CALCOFI CRUISE 1404

28 March - 18 April 2014

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

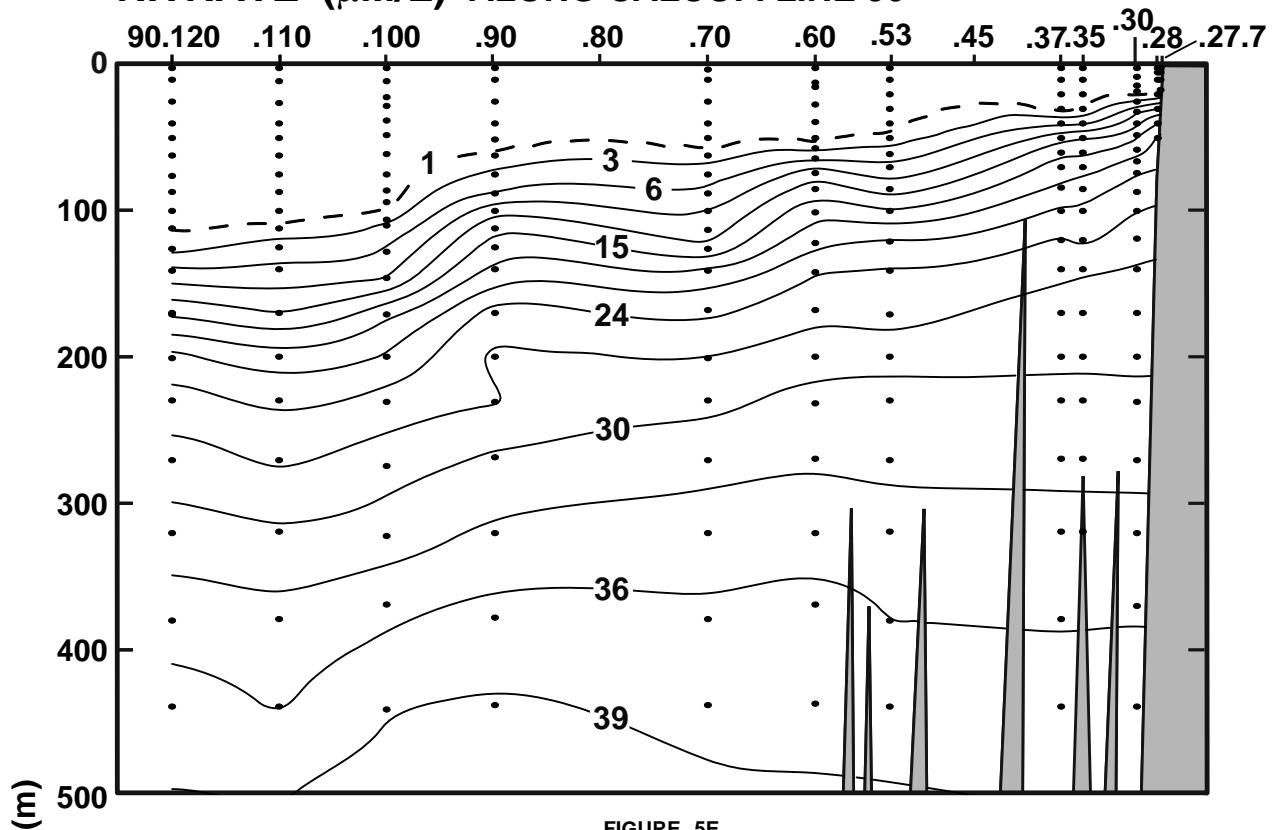


FIGURE 5E

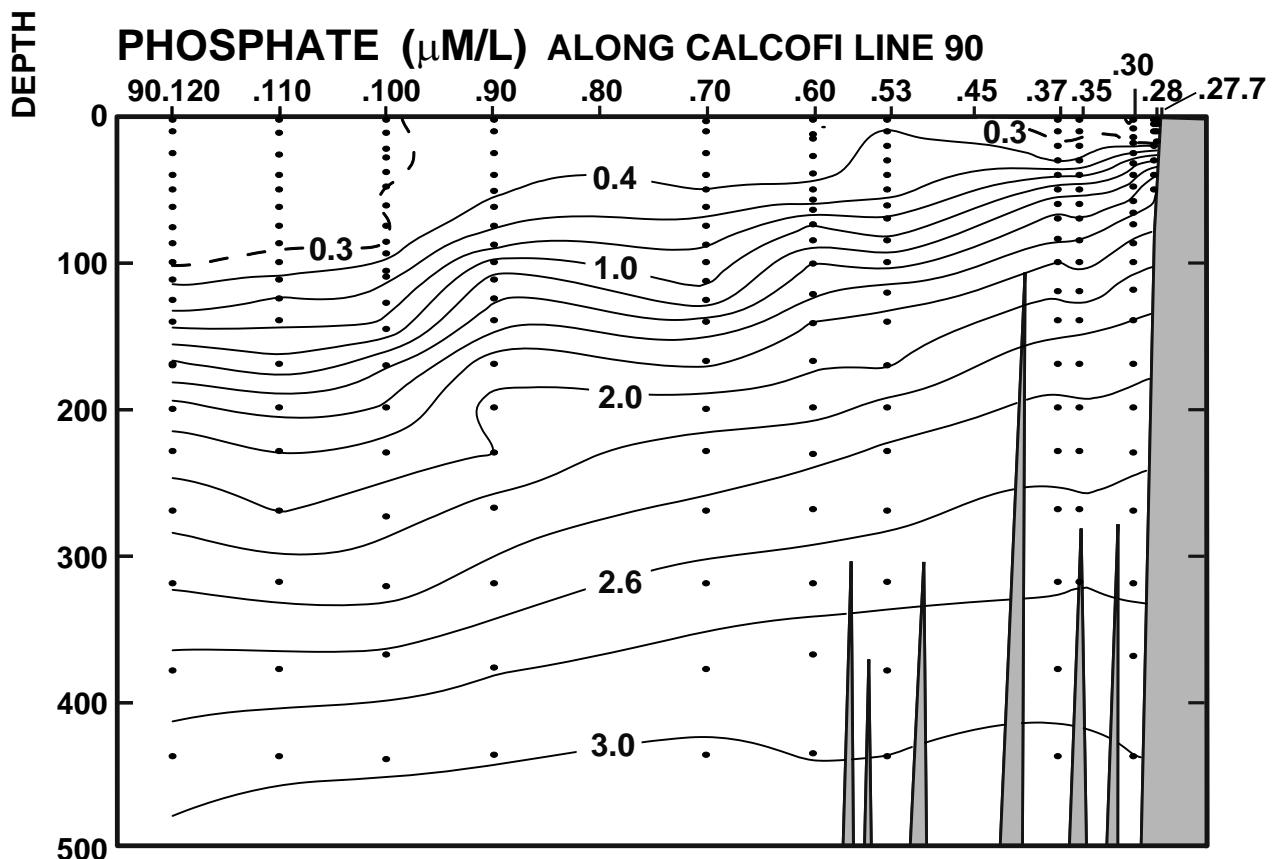


FIGURE 5F

# CALCOFI CRUISE 1404

28 March - 18 April 2014

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

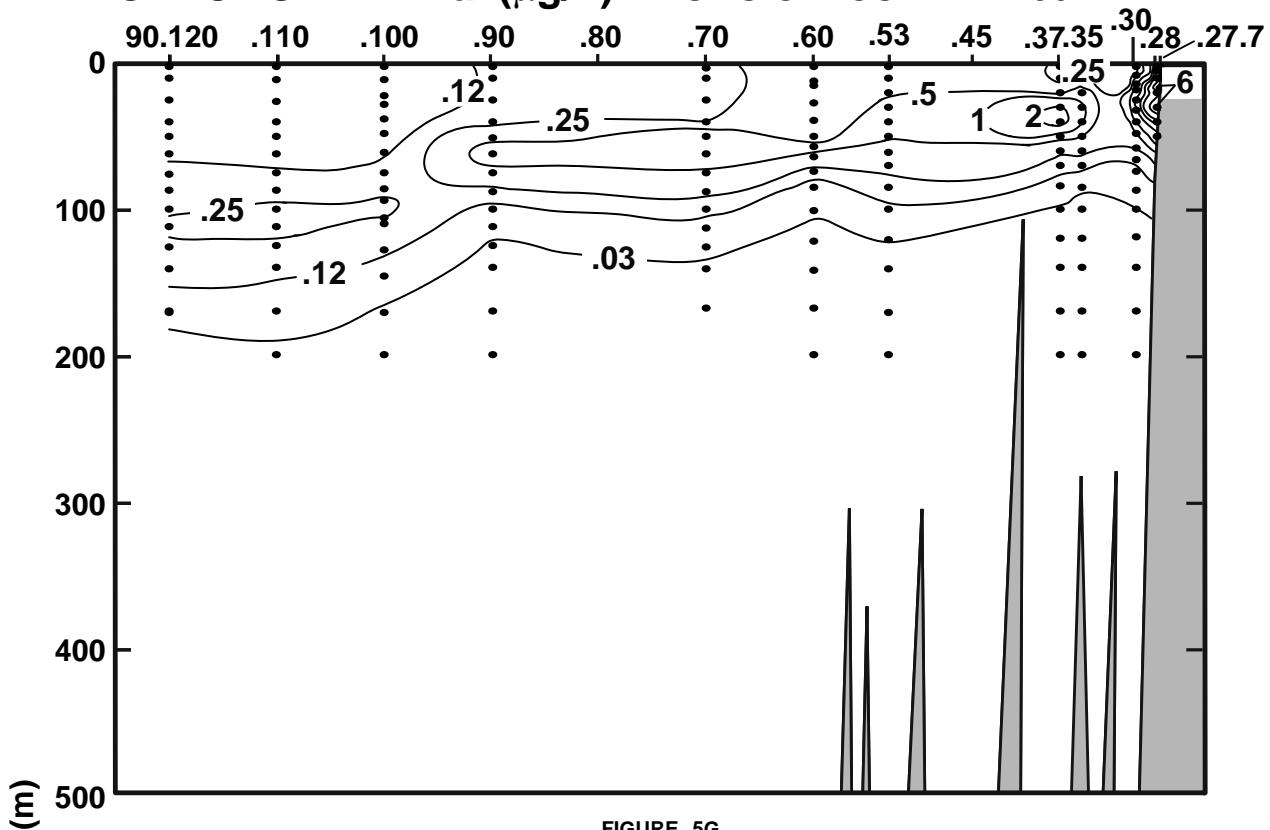


FIGURE 5G

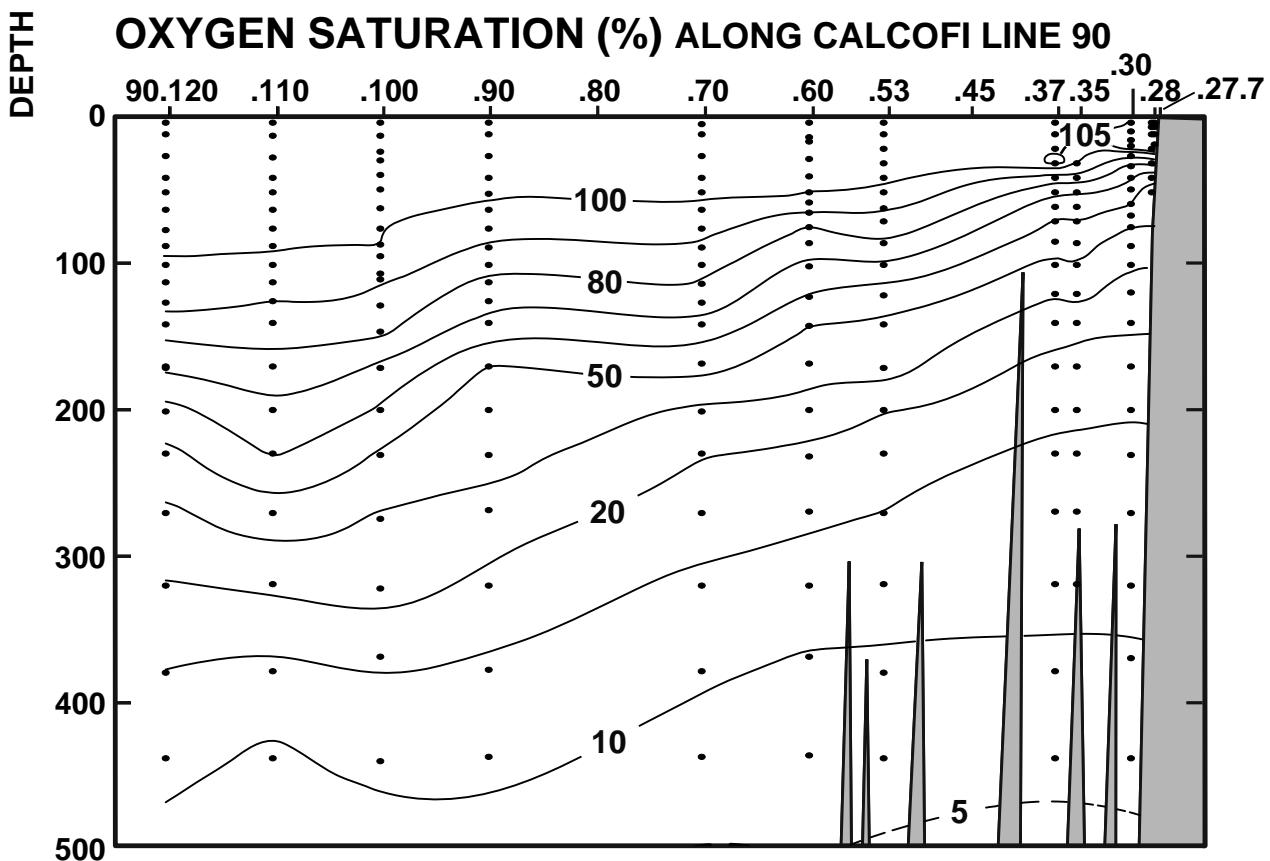


FIGURE 5H

## CALCOFI CRUISE 1404

28 March - 18 April 2014

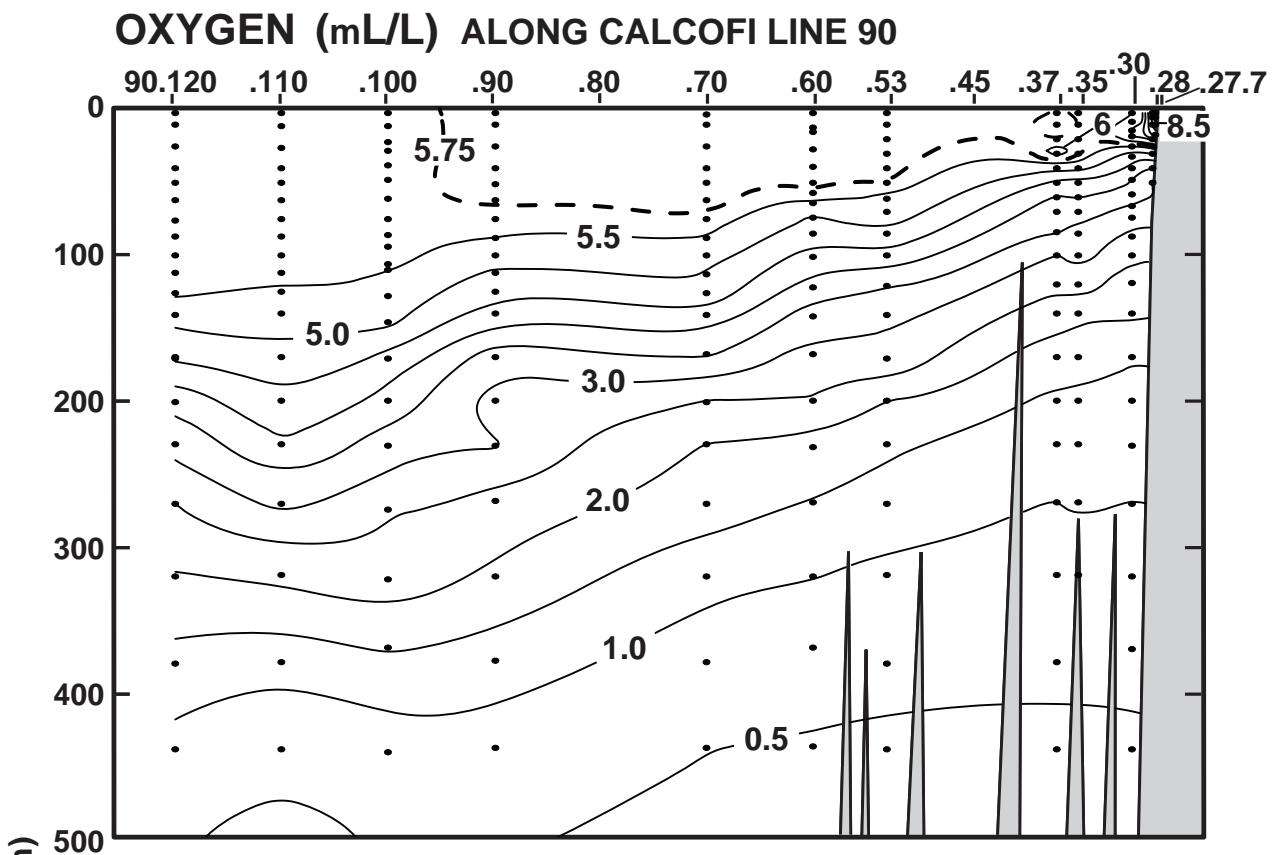
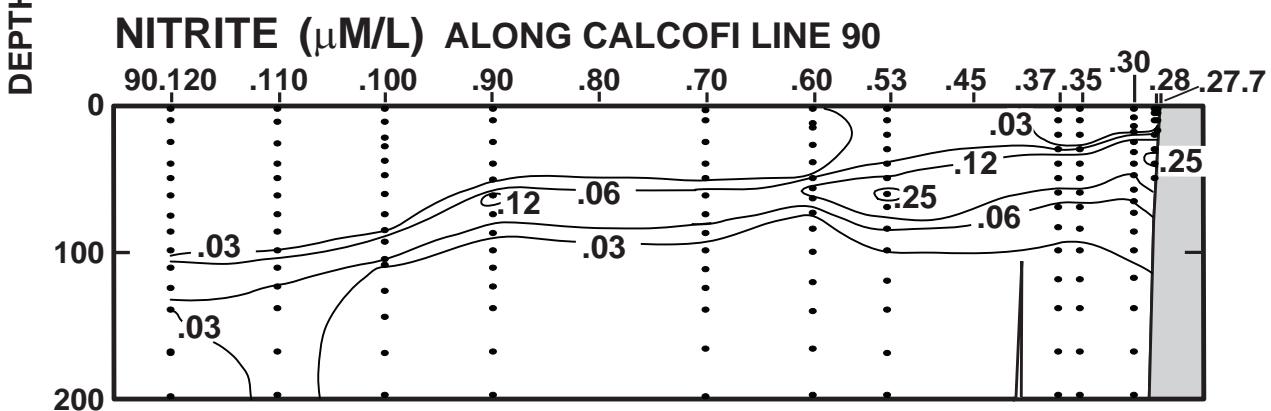


FIGURE 5I



**FIGURE 5J**

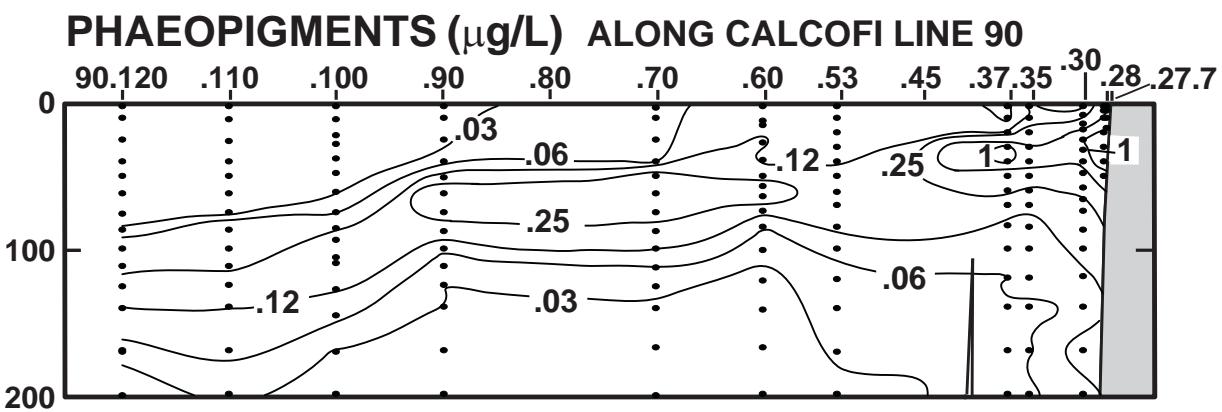


FIGURE 5K

## PERSONNEL

### CalCOFI Cruise 1404

#### SHIP'S CAPTAIN

Hanson, Bud, FV Ocean Starr

#### PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

Hays, Amy (Chief Scientist)	Fishery Biologist, NMFS
Breese, Dawn	Bird Observer, FIAER
Debich, Amanda	Marine Mammal Acoustician, MPL
Ekern, Lindsey	Staff Research Associate, SIO
Faber, David	Staff Research Associate, SIO
Gilmore, Kelsey	Volunteer
Manion, Sue	Fishery Biologist, NMFS
Overcash, Bryan	Fishery Biologist, NMFS
Roadman, Megan	Staff Research Associate, SIO
Rodgers-Wolgast, Jennifer	Staff Research Associate, SIO
Schnurle, Kirsten	Fishery Volunteer
Snouffer, Brian	Volunteer
Whitaker, Katherine	Marine Mammal Observer, MPL
Wilkinson, James	Staff Research Associate, SIO
Wolgast, David	Staff Research Associate, SIO

San Diego to San Diego, California, 28 March - 18 April, 2014

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 76.7 49.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C	THETA			ml/L	μmol/Kg	μM	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db
35	5.5 N	120 46.6 W	16/04/2014	2325	UTC	68 m	340	32 kn	330 07 05	0	1010.0 mb	15.1 C	12.8 C	0/8	0.52	0.52	0
0	11.31	11.31	33.608	25.637	234.2	0.000	4.53	197.6	73.1	18.8	1.51	17.8	0.23	0.18	0.87	0.52	0
2	11.31	11.31	33.608	25.637	234.3	0.005	4.53	197.6	73.1	18.8	1.51	17.8	0.23	0.18	0.87	0.52	2 09
5	11.33	11.32	33.606	25.632	234.8	0.012	4.51	196.7	72.8	18.7	1.49	17.2	0.20	0.04	0.85	0.54	5 08
10	11.33	11.33	33.604	25.630	235.1	0.023	4.55	198.4	73.4	18.6	1.48	17.3	0.21	0.12	0.88	0.55	10 06
10	11.33	11.33	33.606	25.632	235.0	0.024											10 07
20	11.21	11.21	33.611	25.658	232.7	0.047	4.41	192.3	71.0	18.9	1.49	17.5	0.22	0.01	0.87	0.51	20 05
30	11.06	11.05	33.677	25.737	225.4	0.070	4.14	180.7	66.5	21.6	1.61	19.3	0.22	0.05	0.80	0.46	30 04
39	10.83	10.83	33.692	25.789	220.7	0.090	3.89	169.9	62.2	22.5	1.66	19.6	0.22	0.05	0.72	0.50	39 03
50	10.13	10.12	33.758	25.963	204.4	0.113	3.04	132.8	47.9	25.5	1.87	22.9	0.16	0.06	0.35	0.35	50 02
60	9.55	9.54	33.845	26.128	188.9	0.133	2.50	109.0	38.9	30.2	2.05	25.8	0.18	0.08	0.13	0.30	60 01

D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T;

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 76.7 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C	THETA			ml/L	μmol/Kg	μM	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db
35	1.3 N	120 54.8 W	16/04/2014	1842	UTC	228 m	340	09 kn	300 05 07	0	1015.0 mb	15.4 C	13.9 C	13 m	0/8	0.68	0.68
0	12.45	12.45	33.561	25.385	258.1	0.000	5.51	240.7	91.1	15.6	1.18	11.8	0.24	0.04	1.00	0.63	0
2 A	12.45	12.45	33.561	25.386	258.1	0.005	5.51	240.7	91.1	15.6	1.18	11.8	0.24	0.04	1.00	0.63	2 20
8	12.19	12.14	33.600	25.475	249.8	0.021											8 18
9 A	12.06	12.06	33.608	25.497	247.8	0.023	5.28	230.7	86.6	17.9	1.28	13.7	0.23	0.03	1.15	0.66	9 17
9	12.06	12.13	33.608	25.484	249.0	0.023											9 19
10 ISL	12.00 D	12.00	33.624 D	25.522	245.4	0.008	5.23	0227.8 D	85.7	18.3	1.30	14.0	0.23	0.03	1.19	0.71	10
12 A	12.05	12.05	33.628	25.514	246.2	0.030	5.17	225.6	84.7	19.0	1.35	14.5	0.23	0.04	1.26	0.81	12 16
20 A	11.80	11.80	33.648	25.577	240.4	0.050	4.93	215.2	80.4	20.0	1.42	15.1	0.24	0.05	1.39	0.60	20 14
21	11.80	11.80	33.647	25.578	240.4	0.052											21 15
29	11.12	11.12	33.644	25.700	229.0	0.071	4.20	183.5	67.6	20.4	1.54	17.6	0.25	0.13	0.74	0.55	29 13
30 ISL	11.09 D	11.08	33.641 D	25.703	228.7	0.045	4.09	0178.2 D	65.8	20.3	1.55	17.8	0.23	0.12	0.69	0.52	30
38 A	10.55	10.55	33.601	25.767	222.8	0.091	3.68	160.7	58.4	19.3	1.63	19.4	0.10	0.03	0.27	0.30	38 12
48 A	10.28	10.27	33.686	25.880	212.2	0.113	3.17	138.3	50.0	22.4	1.78	21.6	0.13	0.11	0.13	0.17	48 11
50 ISL	10.24 D	10.24	33.683 D	25.885	211.8	0.089	3.26	0142.0 D	51.5	22.7	1.80	21.8	0.13	0.12	0.12	0.16	50
53	10.19	10.18	33.703	25.910	209.5	0.124	3.09	135.0	48.7	23.2	1.82	22.1	0.13	0.14	0.11	0.16	53 10
60	9.95	9.94	33.745	25.983	202.7	0.138	2.90	126.6	45.5	24.6	1.89	23.4	0.10	0.02	0.07	0.15	60 09
70	9.85	9.84	33.765	26.015	199.9	0.158	2.82	123.0	44.1	25.3	1.93	23.8	0.08	0.01	0.05	0.17	71 08
75 ISL	9.81 D	9.80	33.778 D	26.034	198.2	0.141	2.80	0121.9 D	43.8	26.0	1.95	24.1	0.07	0.01	0.05	0.17	76
85	9.66	9.65	33.817	26.088	193.3	0.188	2.63	114.8	41.0	27.3	1.99	24.7	0.05	0.00	0.05	0.17	86 07
100	9.59	9.58	33.828	26.109	191.6	0.217	2.59	112.9	40.2	28.1	2.02	25.1	0.08	0.02	0.06	0.18	101 06
119	9.23	9.22	33.924	26.243	179.3	0.252	2.23	97.3	34.4	31.5	2.15	26.9	0.17	0.11	0.05	0.24	120 05
125 ISL	9.09 D	9.08	33.952 D	26.288	175.1	0.235	2.16	094.2 D	33.3	32.5	2.18	27.4	0.15	0.11	0.05	0.24	126
140	8.92	8.90	34.026	26.373	167.3	0.288	2.01	87.7	30.8	34.9	2.25	28.5	0.09	0.12	0.03	0.22	141 04
150 ISL	8.97 D	8.96	34.063 D	26.394	165.5	0.278	1.71	0 D 74.5 D	26.3	36.9	2.33	29.1	0.13	0.11	0.03	0.23	151
168	8.83	8.81	34.095	26.443	161.3	0.334	1.43	62.4	21.9	40.4	2.47	30.1	0.19	0.08	0.02	0.25	169 03
200	8.58	8.56	34.103	26.488	157.5	0.385	1.38	60.3	21.0	43.2	2.56	30.8	0.22	0.09	0.02	0.28	202 02
220	8.34	8.32	34.132 D	26.547	152.2	0.390	1.31	57.2 D	19.9								222 01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 76.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C	THETA			ml/L	μmol/Kg	μM	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db
34	53.4 N	121 11.8 W	16/04/2014	1446	UTC	556 m	330	25 kn	280 08 09	1	1014.0 mb	13.8 C	12.6 C	12 m	7/8	0.67	0.67
0	13.91	13.91	33.481	25.032	291.7	0.000	5.81	253.8	99.0	5.2	0.54	2.3	0.14	0.05	0.83	0.36	0
2	13.91	13.91	33.481	25.032	291.7	0.006	5.81	253.8	99.0	5.2	0.54	2.3	0.14	0.05	0.83	0.36	2 21
9	13.90	13.90	33.480	25.035	291.7	0.027											9 20
10	13.91	13.91	33.489	25.040	291.3	0.029	5.81	253.8	99.0	5.2	0.53	2.3	0.13	0.06	0.80	0.32	10 19
20	13.83	13.82	33.481	25.052	290.5	0.058	5.80	253.4	98.6	5.2	0.56	2.4	0.13	0.07	0.84	0.33	20 18
29	13.71	13.70	33.485	25.080	288.1	0.084	5.63	246.1	95.6	6.1	0.63	3.5	0.17	0.08	0.69	0.31	29 17
30 ISL	13.71 D	13.70	33.481 D	25.076	288.4	0.076	5.60	0243.8 D	94.9	6.1	0.63	3.5	0.17	0.08	0.69	0.31	30
40	13.63	13.63	33.483	25.093	287.1	0											

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 76.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.45	14.45	33.051	24.588	334.0	0.000	5.99	261.7	102.9	3.4	0.35	0.0	0.00	0.07	0.26	0.06	0	
3 A	14.45	14.45	33.051	24.588	334.1	0.010	5.99	261.7	102.9	3.4	0.35	0.0	0.00	0.07	0.26	0.06	3 23	
10 A	14.45	14.45	33.051	24.588	334.3	0.033	5.98	261.2	102.7	3.4	0.36	0.0	0.00	0.08	0.26	0.06	10 21	
10	14.45	14.45	33.052	24.588	334.3	0.034											10 22	
14 A	14.43	14.43	33.053	24.595	333.8	0.047	5.99	261.6	102.8	3.4	0.36	0.0	0.00	0.03	0.25	0.07	14 20	
20 ISL	14.43	D 14.43	33.051 D	24.594	334.1	0.060	6.01	D 262.1	D 103.2	3.4	0.37	0.0	0.00	0.04	0.25	0.06	20	
22 A	14.42	14.42	33.064	24.606	333.0	0.073	5.98	261.3	102.7	3.4	0.37	0.0	0.00	0.04	0.25	0.06	22 19	
30 ISL	14.37	D 14.36	33.124 D	24.664	327.8	0.094	6.05	D 263.6	D 103.7	3.4	0.35	0.0	0.00	0.04	0.36	0.11	30	
32	14.27	14.26	33.198	24.742	320.4	0.106	6.07	265.0	103.9	3.4	0.35	0.0	0.00	0.04	0.39	0.12	32 18	
40 A	14.14	14.13	33.241	24.802	314.8	0.132	6.02	263.1	102.9	3.5	0.37	0.0	0.00	0.05	0.80	0.32	40 16	
40	14.14	14.13	33.241	24.802	314.8	0.130											40 17	
50 ISL	13.93	D 13.92	33.280 D	24.876	308.1	0.142	5.96	D 259.8	D 101.5	3.4	0.41	0.0	0.02	0.30	0.75	0.41	50	
51 A	13.92	13.91	33.273	24.872	308.5	0.166	5.94	259.6	101.1	3.4	0.41	0.0	0.02	0.33	0.74	0.41	51 15	
61	13.10	13.09	33.317	25.073	289.6	0.196	5.69	248.5	95.2	4.6	0.60	2.9	0.36	0.24	0.21	0.17	61 14	
68	12.52	12.51	33.316	25.186	279.0	0.216	5.60	244.6	92.6	5.1	0.66	4.2	0.25	0.08	0.15	0.16	69 13	
75 ISL	11.76	D 11.75	33.189 D	25.232	274.7	0.215	5.49	D 239.1	D 89.2	6.2	0.77	6.2	0.17	0.07	0.14	0.15	76	
87	10.64	10.63	33.218 D	25.455	253.6	0.246	5.28	230.5	83.7	8.2	0.97	9.7	0.03	0.05	0.12	0.13	88 12	
100	9.91	9.90	33.328	25.665	233.8	0.299	4.63	202.4	72.4	13.9	1.34	15.5	0.01	0.09	0.04	0.08	101 11	
120	9.47	9.45	33.505	25.877	214.0	0.344	4.13	180.4	64.0	19.3	1.63	19.2	0.01	0.07	0.02	0.04	121 10	
125 ISL	9.44	D 9.42	33.514 D	25.889	213.0	0.334	4.09	D 178.1	D 63.3	20.6	1.68	20.4	0.01	0.06	0.01	0.04	126	
139	9.17	9.16	33.669	26.054	197.6	0.383	3.50	153.0	53.9	24.3	1.82	23.6	0.00	0.03	0.01	0.04	140 09	
150 ISL	8.98	D 8.96	33.765 D	26.159	187.8	0.384	3.30	D 143.8	D 50.7	26.7	1.89	24.8	0.01	0.04	0.01	0.04	151	
176	8.53	8.51	33.924	26.354	169.7	0.451	2.77	121.1	42.2	32.5	2.05	27.5	0.01	0.07	0.00	0.03	177 08	
200	8.19	8.16	33.981	26.452	160.8	0.491	2.56	112.0	38.7	36.5	2.12	28.7	0.00	0.03	0.00	0.02	202 07	
230	7.89	7.87	34.014	26.522	154.2	0.538	2.37	103.4	35.5	40.3	2.20	30.1	0.00	0.05			232 06	
250 ISL	7.63	D 7.60	34.012 D	26.559	151.3	0.550	2.20	D 95.5	D 32.7	43.0	2.29	31.2	0.00	0.04			252	
268	7.46	7.44	34.024	26.593	148.3	0.595	2.02	88.3	30.0	45.5	2.37	32.1	0.00	0.03			270 05	
300 ISL	7.20	D 7.17	34.066 D	26.663	142.1	0.624	1.50	D 65.1	D 22.1	51.2	2.55	34.1	0.00	0.04			302	
320	7.11	7.08	34.098	26.702	138.6	0.670	1.22	53.3	18.0	54.7	2.67	35.3	0.00	0.04			323 04	
369	6.68	6.65	34.134	26.788	131.0	0.736	0.83	D 36.1	D 12.1	62.0	2.85	37.3	0.00	0.05			372 03	
400 ISL	6.36	D 6.32	34.141 D	26.838	126.5	0.759	0.76	D 32.9	D 10.9	66.5	2.93	37.6	0.00	0.05			403	
442	6.09	6.06	34.182	26.904	120.6	0.828	0.57	25.0	8.2	72.7	3.04	37.9	0.00	0.06			446 02	
500 ISL	5.68	D 5.63	34.215 D	26.983	113.5	0.880	0.40	D 17.6	D 5.8	80.5	3.14	40.2	0.00	0.09			504	
514	5.61	5.56	34.221	26.996	112.4	0.912	0.38	16.8	5.5	82.4	3.16	40.8	0.00	0.10			518 01	

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.51	14.51	33.126	24.632	329.8	0.000	5.97	260.9	102.8	3.3	0.36	0.1	0.00	0.06	0.27	0.08	0	
3	14.51	14.51	33.126	24.632	329.9	0.010	5.97	260.9	102.8	3.3	0.36	0.1	0.00	0.06	0.27	0.08	3 20	
10	14.51	14.51	33.124	24.631	330.2	0.033	5.95	259.8	102.3	3.3	0.35	0.0	0.00	0.02	0.26	0.07	10 19	
20	14.53	14.53	33.142	24.641	329.6	0.066	5.93	259.1	102.1	3.3	0.35	0.0	0.00	0.05	0.26	0.07	20 18	
30	14.48	14.48	33.249	24.736	320.9	0.099	5.99	261.6	103.1	3.6	0.35	0.0	0.00	0.10	0.43	0.14	30 17	
40	14.36	14.35	33.255	24.768	318.2	0.131	5.95	259.7	102.1	3.6	0.37	0.0	0.00	0.20	0.69	0.27	40 16	
50	13.74	13.74	33.259	24.898	306.0	0.162	5.83	254.5	98.8	3.8	0.43	0.5	0.10	0.16	0.82	0.42	50 15	
60	13.26	13.25	33.299	25.027	294.0	0.192	5.63	246.1	94.6	4.6	0.57	2.7	0.33	0.13	0.39	0.23	60 14	
70	12.10	12.09	33.202	25.178	279.8	0.220	5.43	237.2	88.9	5.8	0.77	6.4	0.03	0.04	0.23	0.22	71 13	
75 ISL	11.76	D 11.75	33.226 D	25.260	272.0	0.236	5.31	D 231.1	D 86.2	7.4	0.90	8.5	0.02	0.03	0.18	0.17	76	
85	11.13	11.11	33.319	25.448	254.3	0.261	4.76	207.7	76.3	10.6	1.16	12.7	0.01	0.02	0.08	0.08	86 12	
100 ISL	9.88	D 9.87	33.459 D	25.773	223.5	0.299	4.11	D 178.8	D 64.2	16.7	1.52	18.6	0.00	0.02	0.03	0.04	101	
101	9.75	9.74	33.455	25.792	221.8	0.299	4.10	179.2	64.0	17.1	1.54	19.0	0.00	0.02	0.03	0.04	102 11	
120	9.26	9.25	33.585	25.973	204.9	0.339	3.90	170.0	60.1	21.1	1.66	21.4	0.00	0.03	0.01	0.03	121 10	
125 ISL	9.20	D 9.18	33.637 D	26.024	200.1	0.352	3.80	D 165.4	D 58.6	22.1	1.70	22.0	0.00	0.03	0.01	0.03	126	
140	8.97	8.96	33.755	26.152	188.2	0.378	3.48	151.8	53.3	25.0	1.81	23.9	0.01	0.04	0.01	0.03	141 09	
150 ISL	8.85	D 8.83	33.818 D	26.222	181.8	0.400	3.34	D 145.2	D 51.1	26.5	1.83	24.4	0.01	0.05	0.01	0.02	151	
170	8.54	8.52	33.900	26.335	171.4	0.432	3.23	141.0	49.1	29.5	1.87	25.4	0.01	0.08	0.00	0.02	171 08	
200	8.23	8.21	33.965	26.433	162.6	0.482	2.84	124.1	42.9	34.0	2.03	27.6	0.01	0.02	0.00	0.02	202 07	
230	7.85	7.83	34.012	26.526	154.1	0.530	2.34	102.0	35.0	40.3	2.24	30.1	0.01	0.02			232 06	
250 ISL	7.74</td																	

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 76.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.57	14.57	33.001	24.523	340.2	0.000	5.95	259.9	102.5	3.0	0.37	0.0	0.01	0.04	0.22	0.05	0	
2	14.57	14.57	33.001	24.524	340.2	0.007	5.95	259.9	102.5	3.0	0.37	0.0	0.01	0.04	0.22	0.05	2 20	
10	14.58	14.58	33.004	24.525	340.3	0.034	5.94	259.1	102.2	3.0	0.36	0.0	0.02	0.02	0.21	0.04	10 19	
20	14.58	14.58	33.007	24.528	340.4	0.068	5.92	258.6	102.0	3.0	0.37	0.0	0.01	0.02	0.22	0.05	20 18	
30	14.53	14.52	33.015	24.545	339.0	0.102	5.94	259.4	102.2	3.0	0.36	0.0	0.02	0.02	0.23	0.06	30 17	
40	14.37	14.36	33.052	24.608	333.3	0.136	6.03	263.1	103.4	3.2	0.36	0.0	0.02	0.03	0.51	0.17	40 16	
50	14.23	14.23	33.186	24.740	321.1	0.168	6.00	262.0	102.7	3.3	0.36	0.0	0.02	0.03	0.84	0.39	50 15	
60	13.53	13.53	33.194	24.891	306.9	0.200	5.85	255.4	98.7	3.7	0.47	0.6	0.18	0.34	0.76	0.50	60 14	
70	13.27	13.26	33.248	24.987	298.1	0.230	5.63	245.9	94.5	4.0	0.51	2.6	0.35	0.03	0.42	0.31	71 13	
75 ISL	12.86	D 12.85	33.224	D 25.049	292.3	0.247	5.56	D 242.2	D 92.5	4.5	0.58	3.8	0.26	0.02	0.36	0.28	76	
86	11.85	11.84	33.188	25.214	276.7	0.276	5.42	236.5	88.2	5.5	0.74	6.4	0.06	0.01	0.23	0.20	87 12	
100	11.04	11.03	33.211	25.381	261.1	0.314	5.12	223.4	81.9	8.4	0.88	10.0	0.03	0.02	0.13	0.11	101 11	
120	9.73	9.72	33.369	25.727	228.3	0.363	4.51	197.0	70.3	15.2	1.32	17.0	0.02	0.04	0.03	0.03	121 10	
125 ISL	9.69	D 9.67	33.446	D 25.796	221.9	0.376	4.35	D 189.3	D 67.7	16.5	1.38	18.0	0.02	0.04	0.03	0.03	126	
140	9.53	9.52	33.600	25.941	208.4	0.406	3.85	168.2	59.8	20.2	1.54	20.8	0.02	0.04	0.02	0.02	141 09	
150 ISL	9.26	D 9.24	33.660	D 26.033	199.8	0.429	3.72	D 161.8	D 57.4	22.0	1.61	21.9	0.02	0.04	0.01	0.02	151	
170	8.96	8.94	33.760	26.159	188.2	0.465	3.46	150.8	53.0	25.6	1.74	24.2	0.02	0.03	0.01	0.03	171 08	
200	8.64	8.62	33.896	26.316	173.8	0.520	3.24	141.4	49.4	28.8	1.80	25.4	0.02	0.03	0.00	0.02	202 07	
230	8.20	8.18	33.964	26.438	162.7	0.570	2.94	128.3	44.4	33.8	1.95	27.5	0.02	0.01			232 06	
250 ISL	7.84	D 7.82	34.007	D 26.524	154.7	0.606	2.45	D 106.6	D 36.7	38.8	2.15	29.7	0.01	0.03			252	
270	7.67	7.64	34.036	26.573	150.4	0.632	2.04	89.1	30.5	43.9	2.34	31.8	0.01	0.04			272 05	
300 ISL	7.39	D 7.36	34.077	D 26.646	143.8	0.681	1.54	D 67.0	D 22.8	49.4	2.53	33.9	0.01	0.03			302	
320	7.26	7.23	34.123	26.701	138.9	0.705	1.18	51.6	17.5	53.1	2.65	35.3	0.01	0.03			323 04	
381	6.92	6.89	34.178	26.792	131.1	0.787	0.81	35.2	11.9	60.1	2.90	37.1	0.02	0.04			384 03	
400 ISL	6.84	D 6.80	34.193	D 26.816	129.1	0.818	0.71	D 30.7	D 10.3	62.4	2.95	37.6	0.02	0.04			403	
440	6.55	6.51	34.214	26.870	124.3	0.863	0.56	24.5	8.2	67.1	3.05	38.5	0.02	0.04			444 02	
500 ISL	6.18	D 6.13	34.266	D 26.961	116.2	0.942	0.37	D 16.0	D 5.3	74.4	3.12	40.3	0.01	0.10			504	
514	6.11	6.06	34.282	26.983	114.3	0.951	0.32	13.9	4.6	76.2	3.14	40.7	0.01	0.11			518 01	

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 80.0 50.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	11.37	11.37	33.654	25.661	231.9	0.000	4.68	204.3	75.6	11.9	1.28	12.4	0.17	0.61	4.74	0.81	0	
2	11.37	11.37	33.654	25.661	231.9	0.005	4.68	204.3	75.6	11.9	1.28	12.4	0.17	0.61	4.74	0.81	2 04	
5	11.31	11.31	33.654	25.673	230.9	0.012	4.60	200.7	74.2	12.2	1.28	12.7	0.18	0.77	4.76	0.75	5 03	
10	10.89	10.88	33.656	25.751	223.6	0.023	3.77	164.6	60.3	14.8	1.51	16.2	0.20	0.75	3.40	0.71	10 02	
14	10.53	10.53	33.674	25.827	216.5	0.032	3.05	133.3	48.4	17.6	1.78	19.6	0.21	0.56	2.46	0.68	14 01	

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 80.0 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	11.39	11.39	33.615	25.627	235.1	0.000	4.77	208.2	77.1	10.2	1.19	12.2	0.16	0.45	2.57	0.45	0	
2	11.39	11.39	33.615	25.627	235.2	0.005	4.77	208.2	77.1	10.2	1.19	12.2	0.16	0.45	2.57	0.45	2 09	
5	11.38	11.38	33.617	25.630	235.0	0.012	4.77	208.3	77.1	10.1	1.19	12.2	0.16	0.44	2.75	0.51	5 08	
10	11.12	11.12	33.621	25.682	230.2	0.023	4.26	186.2	68.5	11.8	1.33	14.2	0.17	0.45	3.25	0.60	10 07	
20	10.77	10.77	33.640	25.759	223.1	0.046	3.67	160.1	58.5	14.6	1.52	16.9	0.18	0.38	3.42	0.80	20 06	
30	10.54	10.53	33.655	25.811	218.4	0.068	3.36	146.8	53.4	16.5	1.62	18.7	0.17	0.33	3.03	0.59	30 05	
40	10.08	10.07	33.746	25.962	204.2	0.089	2.66	116.3	41.9	23.0	1.90	22.4	0.19	0.26	1.54	0.54	40 04	
50	9.82	9.81	33.832	26.073	194.0	0.109	2.45	106.8	38.3	27.5	2.00	24.3	0.14	0.17	0.91	0.67	50 02	
60	9.89	9.89	33.816	26.048	196.5	0.129	2.50	109.0	39.1	26.7	1.98	24.0	0.14	0.13	0.95	0.51	60 01	

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 80.0 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	12.48	12.48	33.570	25.388	257.9	0.000	5.55	242.2	91.7	13.9	1.01	9.7	0.23	0.09	2.22	0.70	0	
2 A	12.48	12.48	33.570	25.388	257.9	0.005	5.55	242.2	91.7	13.9	1.01	9.7	0.23	0.09	2.22	0.70	2 24	
8 A	12.48	12.47	33.570	25.388	258.1	0.021	5.54	241.8	91.6	13.9	0.99	9.8	0.23	0.30	2.34	0.71	8 23	
10 ISL	12.46 D	12.46	33.569 D	25.391	257.8	0.026	5.54	241.1	91.6	13.9	0.98	9.7	0.24	0.17	2.16	0.74	10	
11 A	12.45	12.45	33.569	25.393	257.7	0.029	5.54	241.8	91.5	13.9	0.98	9.7	0.24	0.10	2.07	0.76	11 21	
20 A	12.07	12.06	33.565	25.463	251.3	0.051	5.28	230.7	86.6	14.8	1.07	10.9	0.27	0.10	0.96	0.75	20 20	
26	11.88	11.87	33.575	25.508	247.2	0.066	4.78	208.9	78.1	15.7	1.21	13.0	0.34	0.29	0.45	0.48	26 19	
30 ISL	11.84 D	11.84	33.571 D	25.512	246.9	0.065	4.74	206.3 D	77.3	15.6	1.24	13.3	0.35	0.38	0.40	0.42	30	
34 A	11.71	11.70	33.572	25.538	244.6	0.086	4.63	202.1	75.3	15.5	1.26	13.6	0.36	0.46	0.35	0.37	34 18	
44 A	10.98	10.98	33.688 D	25.759	223.7	0.099	4.66	203.3	74.6	15.8	1.25	13.5	0.38	0.52	0.37	0.35	44 17	
50 ISL	10.96 D	10.96	33.689 D	25.763	223.5	0.112	4.63	201.7 D	74.3	16.0	1.37	14.7	0.32	1.02	2.80	0.95	50	
52	10.96	10.95	33.689	25.765	223.3	0.128	4.56	199.2	73.1	16.1	1.41	15.1	0.30	1.18	3.61	1.14	52 15	
60	10.87	10.86	33.691	25.783	221.9	0.145	4.39	191.8	70.3	17.0	1.47	15.9	0.29	1.10	3.89	1.30	60 14	
75	10.05	10.04	33.626	25.874	213.4	0.178	3.45	150.6	54.2	20.3	1.67	21.0	0.11	0.09	0.54	0.74	76 13	
85	9.86	9.85	33.708	25.970	204.5	0.199	3.15	137.7	49.3	22.8	1.76	22.2	0.06	0.07			86 12	
100	9.55	9.53	33.741	26.049	197.3	0.229	3.04	132.8	47.3	24.3	1.85	23.2	0.14	0.28	0.20	0.47	101 11	
121	9.38	9.36	33.914	26.212	182.3	0.269	2.39	104.3	37.0	29.8	2.04	26.0	0.04	0.13	0.05	0.18	122 10	
125 ISL	9.27 D	9.26	33.935 D	26.246	179.1	0.257	2.36	2102.7 D	36.5	30.1	2.05	26.2	0.04	0.11	0.05	0.20	126	
140	9.17	9.16	33.964	26.285	175.7	0.303	2.31	100.9	35.7	31.0	2.09	26.9	0.03	0.05	0.05	0.28	141 09	
150 ISL	9.15 D	9.13	33.997 D	26.314	173.2	0.301	2.17	94.5 D	33.5	32.3	2.14	27.4	0.03	0.05	0.04	0.25	151	
171	8.96	8.94	34.043	26.382	167.2	0.356	1.98	86.5	30.5	34.8	2.23	28.5	0.03	0.04	0.17	172 08		
200	8.67	8.65	34.067	26.446	161.6	0.404	1.84	80.2	28.0	37.4	2.30	29.5	0.05	0.07	0.04	0.18	202 07	
230	8.47	8.45	34.143	26.537	153.5	0.451	1.42	62.2	21.7	42.1	2.46	31.1	0.02	0.02			232 06	
250 ISL	8.13 D	8.11	34.143 D	26.589	148.8	0.464	1.42	61.6 D	21.4	44.5	2.53	31.8	0.02	0.03			252	
281	8.07	8.04	34.194	26.640	144.6	0.526	1.05	45.8	15.8	48.1	2.63	33.0	0.01	0.04			283 05	
300 ISL	7.90 D	7.87	34.200 D	26.670	142.0	0.537	0.98	42.5 D	14.7	50.3	2.67	33.7	0.01	0.07			302	
321	7.69	7.65	34.205	26.705	138.9	0.583	0.91	39.7	13.6	52.8	2.71	34.4	0.00	0.11			324 04	
370	7.25	7.21	34.230	26.788	131.6	0.649	0.69	30.2	10.2	58.9	2.85	36.0	0.01	0.03			373 03	
400 ISL	6.99 D	6.96	34.244 D	26.834	127.5	0.673	0.57	24.9 D	8.4	62.0	2.90	36.7	0.00	0.03			403	
440	6.74	6.70	34.249	26.874	124.2	0.739	0.52	22.7	7.6	66.1	2.97	37.7	0.00	0.03			444 02	
500 ISL	6.22 D	6.17	34.244 D	26.939	118.4	0.797	0.42 D	18.1 D	6.0	73.5	3.08	39.4	0.01	0.05			504	
514	6.08	6.04	34.242	26.955	116.9	0.828	0.41	17.7	5.8	75.2	3.10	39.8	0.01	0.05			518 01	

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.49	14.49	33.455	24.891	305.1	0.000	5.96	260.5	102.8	3.6	0.42	0.3	0.05	0.12	0.64	0.15	0	
2	14.49	14.49	33.455	24.891	305.2	0.006	5.96	260.5	102.8	3.6	0.42	0.3	0.05	0.12	0.64	0.15	2 22	
10	14.44	14.43	33.468	24.914	303.3	0.030	5.99	261.8	103.2	3.7	0.42	0.3	0.06	0.13	0.51	0.20	10 20	
10	14.44	14.43	33.455	24.903	304.3	0.031											10 21	
20	13.79	13.79	33.474	25.054	290.3	0.060	5.94	259.6	101.0	4.5	0.54	1.9	0.11	0.33	0.56	0.27	20 19	
30	13.61	13.61	33.511	25.119	284.4	0.089	6.04	263.8	102.3	2.6	0.52	1.7	0.09	0.67	0.56	0.29	30 18	
40	13.02	13.01	33.511	25.239	273.2	0.117	5.67	247.9	94.9	9.4	0.87	6.8	0.19	0.66	0.34	0.46	40 17	
50	11.81	11.80	33.536	25.491	249.4	0.143	4.86	212.1	79.2	11.3	1.12	10.3	0.18	1.12	0.37	0.38	50 16	
60	11.14	11.13	33.554	25.627	236.7	0.167	4.24	185.3	68.2	14.5	1.37	14.3	0.19	0.91	0.37	0.45	60 15	
70	10.33	10.32	33.590	25.797	220.6	0.190	3.57	155.7	56.3	18.9	1.63	19.6	0.09	0.05	0.27	0.49	71 13	
70	10.33	10.32	33.591	25.799	220.5	0.190											71 14	
75 ISL	10.07 D	10.06	33.627 D	25.872	213.6	0.182	3.41	148.4 D	53.5	20.5	1.70	20.5	0.08	0.05	0.24	0.48	76	
87	9.84	9.83	33.752	26.008	200.9	0.226	2.99	130.7	46.8	24.3	1.86	22.8	0.08	0.04	0.17	0.48	88 12	
100 ISL	9.57 D	9.55	33.871 D	26.147	188.0	0.232	2.55	110.8 D	39.6	28.1	2.01	24.9	0.05	0.04	0.09	0.30	101	
101	9.56	9.55	33.879	26.154	187.4	0.253	2.54	110.7	39.4	28.4	2.02	25.1	0.04	0.04	0.08	0.28	102 11	
119	9.42	9.41	33.934	26.220	181.5	0.286	2.29	100.0	35.6	30.6	2.14	26.4	0.04	0.06	0.08	0.27	120 10	
125 ISL	9.38 D	9.36	33.958 D	26.247	179.1	0.279	2.24	97.5 D	34.7	31.3	2.17	26.7	0.04	0.05	0.07	0.27	126	
140	9.24	9.23	34.008	26.308	173.6	0.324	2.06	90.1	31.9	33.2	2.23	27.6	0.03	0.03	0.06	0.27	141 09	
150 ISL	9.17 D	9.15	34.033 D	26.340	170.7	0.323	1.93	84.1 D	29.8	34.5	2.27	28.2	0.03	0.03	0.06	0.24	151	
170	8.95	8.93	34.094	26.423	163.3	0.374	1.68	73.3	25.8	37.2	2.35	29.3	0.03	0.04	0.04	0.18	171 08	
200	8.68	8.65	34.134	26.498	156.7	0.422	1.53	66.8	23.4	40.6	2.44	30.4	0.03	0.03	0.02	0.12	202 07	
230	8.52	8.50	34.162	26.545	152.8	0.469	1.31	57.2	19.9	42.8	2.52	31.2	0.03	0.02			232 06	
250 ISL	8.39 D	8.37	34.181 D	26.57														

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 80.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.77	14.77	33.421	24.805	313.4	0.000	5.97	260.5	103.4	3.0	0.37	0.0	0.02	0.06	0.33	0.07	0		
2	14.77	14.77	33.421	24.805	313.4	0.006	5.97	260.5	103.4	3.0	0.37	0.0	0.02	0.06	0.33	0.07	2	22	
10	14.76	14.76	33.432	24.816	312.6	0.031	5.99	261.6	103.9	3.0	0.36	0.0	0.02	0.06	0.34	0.10	10	20	
10	14.76	14.76	33.421	24.808	313.4	0.031											10	21	
20	14.77	14.76	33.420	24.807	313.8	0.063	6.00	262.0	104.0	3.0	0.48	0.0	0.02	0.08	0.38	0.02	20	19	
30	14.58	14.58	33.414	24.842	310.8	0.094	5.95	259.8	102.7	3.0	0.43	0.0	0.01	0.09	0.40	0.10	30	18	
40	14.04	14.03	33.396	24.943	301.5	0.125	5.94	259.5	101.4	3.2	0.48	0.2	0.03	0.06	0.75	0.29	40	16	
40	14.04	14.03	33.399	24.945	301.3	0.126											40	17	
50	12.87	D 12.87	33.355	D 25.147	282.2	0.124	5.44	D 236.9	D 90.6	5.0	0.73	4.8	0.08	0.10	0.52	0.21	50		
51	12.80	12.79	33.359	25.165	280.6	0.157	5.43	237.3	90.4	5.2	0.76	5.3	0.08	0.10	0.49	0.21	51	15	
60	11.90	11.90	33.340	25.321	265.8	0.181	5.11	223.3	83.4	7.6	0.95	8.7	0.06	0.08	0.26	0.14	60	14	
70	11.10	11.09	33.450	25.554	243.9	0.207	4.38	191.1	70.3	12.7	1.29	14.6	0.04	0.06	0.13	0.15	71	13	
75	ISL 10.51	D 10.50	33.479	D 25.681	231.9	0.190	4.23	D 184.3	D 67.1	14.4	1.38	16.2	0.03	0.05	0.10	0.13	76		
84	10.45	10.44	33.542	25.740	226.5	0.239	3.75	163.6	59.4	17.5	1.54	19.0	0.03	0.04	0.05	0.09	85	12	
100	9.82	9.80	33.627	25.915	210.1	0.274	3.40	148.5	53.1	21.2	1.75	22.4	0.03	0.03	0.07	101	11		
121	9.16	9.14	33.747	26.117	191.3	0.316	3.03	132.4	46.7	26.2	1.95	25.7	0.02	0.07	0.01	0.04	122	10	
125	ISL 9.10	D 9.09	33.776	D 26.148	188.3	0.296	2.99	D 130.3	D 46.1	26.9	1.97	26.0	0.02	0.06	0.01	0.04	126		
140	8.89	8.88	33.847	26.238	180.1	0.351	2.78	121.5	42.7	29.2	2.05	27.1	0.02	0.04	0.01	0.05	141	09	
150	ISL 8.74	D 8.73	33.892	D 26.296	174.7	0.341	2.68	D 116.8	D 41.0	30.6	2.07	27.6	0.02	0.06	0.01	0.04	151		
170	8.45	8.44	33.948	26.385	166.6	0.403	2.56	111.8	38.9	33.4	2.11	28.5	0.02	0.10	0.01	0.03	171	08	
200	8.13	8.11	33.989	26.467	159.3	0.452	2.36	102.9	35.5	37.0	2.18	29.6	0.02	0.04	0.01	0.03	202	07	
231	7.60	7.58	34.020	26.569	150.0	0.500	2.06	89.9	30.7	43.7	2.35	31.9	0.02	0.03		233	06		
250	ISL 7.41	D 7.38	34.043	D 26.615	145.8	0.501	1.81	D 78.9	D 26.9	47.1	2.45	33.1	0.01	0.05		252			
271	7.14	7.12	34.052	26.660	141.8	0.558	1.59	69.6	23.5	50.9	2.56	34.4	0.01	0.07		273	05		
300	ISL 7.01	D 6.98	34.080	D 26.701	138.3	0.573	1.30	D 56.6	D 19.1	54.6	2.68	35.6	0.01	0.06		302			
320	6.89	6.86	34.107	26.738	135.1	0.626	1.09	47.3	15.9	57.2	2.76	36.4	0.01	0.06		323	04		
380	6.55	6.51	34.164	26.831	127.1	0.705	0.70	30.5	10.2	65.0	2.93	38.1	0.01	0.06		383	03		
400	ISL 6.35	D 6.31	34.171	D 26.863	124.1	0.705	0.66	D 28.7	D 9.5	67.9	2.97	38.6	0.01	0.05		403			
439	6.12	6.08	34.213	26.926	118.5	0.777	0.48	20.9	6.9	73.4	3.06	39.6	0.01	0.02		443	02		
500	ISL 5.78	D 5.73	34.274	D 27.018	110.4	0.824	0.29	D 12.8	D 4.2	81.2	3.18	40.6	0.01	0.14		504			
513	5.70	5.65	34.283	27.035	108.9	0.861	0.28	12.3	4.0	82.8	3.21	40.8	0.01	0.17		517	01		

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 80.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.61	14.61	33.466	24.875	306.7	0.000	5.98	261.0	103.3	3.5	0.36	0.1	0.03	0.11	0.36	0.09	0		
2	14.61	14.61	33.466	24.875	306.7	0.006	5.98	261.0	103.3	3.5	0.36	0.1	0.03	0.11	0.36	0.09	2	22	
10	14.61	14.61	33.466	24.875	307.0	0.031	5.96	260.2	103.0	3.5	0.36	0.0	0.02	0.11	0.37	0.10	10	20	
10	14.61	14.61	33.466	24.875	307.0	0.030											10	21	
20	14.61	14.60	33.472	24.881	306.8	0.061	5.97	260.8	103.2	3.6	0.36	0.0	0.02	0.11	0.37	0.12	20	19	
30	14.19	14.18	33.476	24.973	298.3	0.092	6.06	264.5	103.8	4.3	0.41	0.3	0.08	0.37	0.57	0.32	30	18	
39	14.13	14.12	33.471	24.982	297.7	0.120											39	17	
40	14.11	14.10	33.478	24.991	296.9	0.121	5.96	260.2	102.0	4.4	0.45	0.7	0.11	0.32	0.74	0.38	40	16	
50	13.67	13.66	33.474	25.081	288.6	0.151	5.79	252.7	98.1	5.3	0.53	2.0	0.33	0.34	0.62	0.37	50	15	
60	12.48	12.48	33.460	25.304	267.5	0.179	5.12	223.4	84.6	8.8	0.91	8.5	0.15	0.08	0.46	0.36	60	14	
70	11.46	11.45	33.449	25.489	250.1	0.204	4.64	202.6	75.1	10.8	1.13	12.3	0.10	0.03	0.22	0.21	71	13	
75	ISL 11.25	D 11.24	33.485	D 25.554	244.0	0.188	4.31	D 187.6	D 69.4	12.5	1.23	13.9	0.08	0.03	0.17	0.19	76		
85	10.86	10.85	33.521	25.653	234.8	0.241	3.95	172.2	63.0	15.7	1.43	17.2	0.03	0.02	0.06	0.16	86	12	
100	10.17	10.15	33.690	25.905	211.1	0.274	3.20	139.5	50.4	22.3	1.74	21.5	0.03	0.03	0.03	0.14	101	11	
120	9.32	9.31	33.676	26.034	199.1	0.315	3.28	143.1	50.7	24.2	1.87	24.2	0.03	0.02	0.01	0.06	121	10	
125	ISL 9.29	D 9.28	33.730	D 26.082	194.7	0.297	3.09	D 134.4	D 47.7	25.2	1.90	24.7	0.03	0.03	0.01	0.06	126		
140	8.97	8.95	33.821	26.205	183.2	0.353	2.77	121.1	42.6	28.1	1.98	26.3	0.02	0.04	0.01	0.07	141	09	
150	ISL 8.87	D 8.85	33.898	D 26.282	176.1	0.343	2.59	D 112.8	D 39.7	30.0	2.03	27.1	0.02	0.04	0.01	0.07	151		
170	8.58	8.56	33.961	26.376	167.5	0.406	2.36	102.8	35.9	33.9	2.12	28.6	0.02	0.04	0.01	0.05	171	08	
200	8.25	8.22	34.031	26.482	157.9	0.454	1.98	86.5	30.0	38.8	2.29	30.4	0.02	0.02	0.01	0.05	202	07	
230	8.00	7.98	34.091	26.567	150.4	0.501	1.53	66.6	23.0	44.2	2.47	32.2	0.02	0.00		232	06		
250	ISL 7.82	D 7.79	34.115	D 26.614	146.3	0.504	1.32	D 57.5	D 19.8	47.0	2.54	33.1	0.02</td						

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 80.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db
0	14.76	14.76	33.436	24.818	312.1	0.000	5.91	258.2	102.5	3.2	0.35	0.0	0.03	0.04	0.32	0.11	0
2 A	14.76	14.76	33.436	24.818	312.1	0.006	5.91	258.2	102.5	3.2	0.35	0.0	0.03	0.04	0.32	0.11	2 24
10	14.76	14.76	33.432	24.817	312.6	0.031	5.94	259.6	103.0	3.2	0.38	0.0	0.00	0.02	0.32	0.08	10 23
13 A	14.76	14.76	33.431	24.817	312.7	0.041	5.93	259.0	102.8	3.2	0.35	0.0	0.01	0.02	0.31	0.10	13 22
17 A	14.75	14.75	33.432	24.819	312.6	0.053	5.92	258.5	102.6	3.2	0.35	0.0	0.01	0.04	0.32	0.07	17 21
20 ISL	14.75	D 14.75	33.430	D 24.818	312.8	0.063	5.91	D257.7	D102.4	3.2	0.35	0.0	0.01	0.05	0.33	0.08	20
30 ISL	14.74	D 14.73	33.428	D 24.819	313.0	0.095	5.91	D257.7	D102.4	3.2	0.35	0.0	0.01	0.10	0.35	0.09	30
32 A	14.73	14.73	33.429	24.821	312.8	0.100	5.91	257.9	102.3	3.2	0.35	0.0	0.01	0.11	0.35	0.09	32 20
42	14.56	14.56	33.398	24.834	311.9	0.131	5.91	258.2	102.0	3.3	0.39	0.1	0.08	0.15	0.55	0.21	42 19
50 ISL	13.89	D 13.88	33.380	D 24.961	300.0	0.157	5.84	D254.6	D 99.4	3.2	0.44	0.6	0.26	0.18	0.62	0.29	50
54 A	13.80	13.79	33.383	24.983	298.0	0.168	5.79	252.8	98.3	3.2	0.47	0.8	0.35	0.20	0.65	0.33	54 17
54	13.80	13.79	33.385	24.985	297.9	0.168											54 18
62	12.68	12.67	33.289	25.134	283.8	0.191	5.51	240.5	91.3	5.0	0.67	4.6	0.22	0.07	0.34	0.23	63 16
70 A	11.99	11.98	33.261	25.245	273.4	0.213	5.36	234.0	87.5	6.2	0.79	7.1	0.06	0.01	0.23	0.14	71 15
74	11.82	11.81	33.278	25.290	269.2	0.224	5.22	227.7	84.9	7.2	0.89	8.6	0.04	0.05	0.17	0.11	75 14
75 ISL	11.80	D 11.79	33.289	D 25.302	268.0	0.216	5.12	D223.1	D 85.4	7.5	0.92	9.1	0.04	0.05	0.16	0.10	76
85	10.82	10.81	33.327	25.509	248.5	0.253	4.70	205.1	74.9	11.1	1.19	13.7	0.03	0.02	0.07	0.06	86 13
94	10.07	10.06	33.382	25.681	232.2	0.274	4.32	188.7	67.8	15.1	1.41	15.3	0.05	0.06	0.04	0.04	95 12
100 ISL	9.89	D 9.88	33.414	D 25.736	227.1	0.278	4.27	D186.0	D 66.8	17.0	1.49	17.3	0.05	0.06	0.03	0.04	101
110	9.49	9.47	33.543	25.903	211.3	0.310	3.84	167.6	59.5	20.1	1.63	20.5	0.07	0.06	0.02	0.03	111 11
125 ISL	9.06	D 9.05	33.713	D 26.106	192.4	0.331	3.45	150.2	53.0	24.7	1.78	23.8	0.04	0.02	0.01	0.03	126
126	9.03	9.01	33.705	26.104	192.5	0.342	3.42	149.5	52.6	25.0	1.79	24.0	0.03	0.02	0.01	0.03	127 10
144	8.76	8.74	33.838	26.252	178.8	0.376	3.08	134.5	47.1	28.9	1.92	26.0	0.02	0.03	0.01	0.03	145 09
150 ISL	8.66	D 8.64	33.881	D 26.301	174.2	0.377	2.99	D129.9	D 45.5	29.7	1.94	26.3	0.02	0.03	0.01	0.02	151
170	8.47	8.45	33.936	26.373	167.8	0.421	2.77	120.7	42.0	32.4	2.00	27.5	0.02	0.04	0.00	0.02	171 08
200	8.17	8.15	34.003	26.472	158.8	0.470	2.49	108.8	37.6	36.6	2.12	29.1	0.02	0.02	0.00	0.02	202 07
230	7.83	7.80	34.030	26.545	152.4	0.516	2.09	91.4	31.4	41.7	2.26	31.2	0.02	0.05			232 06
250 ISL	7.77	D 7.74	34.094	D 26.604	147.1	0.538	1.49	D 64.8	D 22.3	45.3	2.42	32.7	0.02	0.05			252
270	7.64	7.61	34.118	26.642	143.8	0.575	1.20	52.2	17.9	49.0	2.58	34.1	0.01	0.05			272 05
300 ISL	7.44	D 7.41	34.157	D 26.702	138.5	0.610	0.93	D 40.3	D 13.8	52.7	2.66	35.1	0.01	0.03			302
320	7.30	7.27	34.153	26.719	137.3	0.645	0.92	39.9	13.5	55.2	2.71	35.7	0.01	0.01			323 04
380	6.76	6.72	34.214	26.842	126.2	0.724	0.54	23.5	7.9	65.1	2.93	37.7	0.01	0.04			383 03
400 ISL	6.64	D 6.61	34.222	D 26.865	124.3	0.742	0.49	D 21.2	D 7.1	67.0	2.96	38.1	0.01	0.04			403
441	6.40	6.36	34.242	26.913	120.1	0.799	0.40	17.6	5.8	71.1	3.01	38.9	0.00	0.03			445 02
500 ISL	6.04	D 6.00	34.274	D 26.986	113.8	0.863	0.31	D 13.4	D 4.4	77.7	3.09	40.0	0.01	0.02			504
515	5.94	5.90	34.272	26.996	112.9	0.885	0.31	13.4	4.4	79.4	3.11	40.3	0.01	0.02			519 01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 80.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db
0	15.19	15.19	33.159	24.512	341.2	0.000	5.88	256.6	102.6	3.0	0.37	0.4	0.01	0.18	0.25	0.03	0
2	15.19	15.19	33.159	24.512	341.3	0.007	5.88	256.6	102.6	3.0	0.37	0.4	0.01	0.18	0.25	0.03	2 22
9	15.19	15.18	33.159	24.514	341.4	0.031											9 21
10	15.18	15.17	33.156	24.514	341.4	0.034	5.91	258.2	103.2	3.0	0.35	0.2	0.00	0.16	0.30	0.01	10 20
20	15.19	15.18	33.198	24.545	338.8	0.068	5.86	255.8	102.3	3.1	0.36	0.2	0.00	0.19	0.29	0.03	20 19
30 ISL	15.16	D 15.15	33.244	D 24.588	335.0	0.089	5.87	D256.0	D 102.5	3.2	0.36	0.1	0.00	0.16	0.33	0.03	30
31	15.15	15.15	33.252	24.594	334.5	0.105	5.87	256.3	102.4	3.2	0.36	0.1	0.00	0.16	0.33	0.03	31 18
40	15.11	15.11	33.256	24.607	335.3	0.135	5.87	256.2	102.3	3.2	0.45	0.1	0.00	0.29	0.36	0.01	40 17
50	15.04	15.03	33.251	24.620	332.6	0.169	5.86	255.6	101.9	3.2	0.36	0.0	0.00	0.09	0.40	0.07	50 15
51	14.78	14.77	33.250	24.674	327.5	0.171											51 16
60	12.91	12.90	33.112	24.953	301.0	0.200	5.81	253.5	96.7	4.0	0.56	1.8	0.20	0.21	0.94	0.43	60 14
71	11.88	11.87	33.135	25.168	280.7	0.232	5.59	243.9	91.0	5.8	0.75	6.3	0.06	0.10	0.41	0.12	72 13
75 ISL	11.63	D 11.62	33.169	D 25.241	273.9	0.215	5.50	D239.6	D 89.1	6.8	0.83	7.5	0.04	0.10	0.33	0.11	76
84	10.94	10.93	33.194	25.384	260.4	0.267	5.27	229.8	84.1	8.9	1.00	10.3	0.01	0.11	0.14	0.06	85 12
100	10.36	10.35	33.331	25.593	240.8	0.307	4.82	210.5	76.1	12.6	1.24	14.2	0.00	0.15	0.06	0.03	101 11
120	9.55	9.53	33.437	25.811	220.3	0.353	4.32	188.3	66.9	17.6	1.49	18.6	0.00	0.07	0.02	0.02	121 10
125 ISL	9.40	D 9.39	33.523	D 29.002	211.7	0.337	4.10	D178.4	D 63.4	18.9	1.55	19.6	0.00	0.07	0.02	0.02	126
140	9.36	9.34	33.716	26.061	197.0	0.395	3.66	159.6	56.6	22.9	1.74	22.5	0.00				

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 81.8 46.9

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	12.53	12.53	33.642	25.435	253.4	0.000	7.31	319.3	121.2	0.6	0.24	0.3	0.03	0.05	20.78	2.21	0	
2	12.53	12.53	33.642	25.435	253.5	0.005	7.31	319.3	121.2	0.6	0.24	0.3	0.03	0.05	20.78	2.21	2 24	
10	12.53	12.53	33.640	25.433	253.9	0.025	7.33	320.0	121.4	0.7	0.24	0.4	0.02	0.10	21.52	2.27	10 23	
20	11.18	11.17	33.705	25.737	225.2	0.049	4.43	193.2	71.3	16.9	1.48	14.7	0.23	1.71	5.80	1.66	20 22	
30	10.52	10.51	33.712	25.860	213.8	0.071	3.44	150.2	54.6	21.7	1.72	19.8	0.22	0.34	1.11	1.03	30 21	
40	10.00	9.99	33.690	25.931	207.2	0.092	3.27	142.7	51.3	22.4	1.77	21.8	0.10	0.08	0.50	0.76	40 20	
50	9.59	9.58	33.728	26.030	198.0	0.113	3.09	135.0	48.1	24.1	1.86	23.3	0.03	0.03	0.20	0.60	50 19	
60	9.51	9.51	33.811	26.107	190.9	0.132	2.89	126.4	45.0	25.7	1.89	24.0	0.04	0.05	0.13	0.46	60 18	
70	9.50	9.50	33.854	26.142	187.8	0.151	2.59	113.0	40.2	27.8	1.99	24.8	0.07	0.01	0.12	0.44	71 17	
75 ISL	9.55 D	9.54	33.902 D	26.173	184.9	0.162	2.28	99.0 D	35.4	29.0	2.03	25.3	0.06	0.03	0.12	0.45	76	
85	9.49	9.48	33.923	26.199	182.8	0.179	2.11	92.1	32.8	31.3	2.12	26.2	0.04	0.06	0.13	0.48	86 16	
100	9.42	9.41	33.968	26.246	178.6	0.206	1.98	86.3	30.7	32.3	2.18	26.9	0.04	0.01	0.10	0.37	101 15	
120	9.32	9.30	34.013	26.299	174.0	0.241	1.87	81.5	28.9	33.2	2.24	27.6	0.02	0.02	0.06	0.33	121 14	
125 ISL	9.24 D	9.22	34.024 D	26.321	172.0	0.252	1.90 D	82.6 D	29.4	33.9	2.26	27.9	0.02	0.02	0.05	0.31	126	
140	9.12	9.11	34.058	26.366	168.0	0.275	1.71	74.5	26.3	35.7	2.31	28.6	0.02	0.03	0.04	0.24	141	
150 ISL	9.06 D	9.04	34.089 D	26.401	164.9	0.294	1.54 D	66.8 D	23.7	37.3	2.36	29.0	0.02	0.02	0.06	0.23	151	
170	8.92	8.90	34.128	26.453	160.3	0.324	1.36	59.2	20.8	40.3	2.45	29.7	0.02	0.01	0.10	0.21	171 12	
200	8.78	8.76	34.158	26.501	156.4	0.372	1.17	50.8	17.8	43.4	2.53	30.4	0.01	0.02	0.05	0.21	202 11	
230	8.48	8.46	34.173	26.559	151.4	0.418	0.98	42.5	14.8	47.1	2.64	31.6	0.03	0.03		232 10		
250 ISL	8.35 D	8.32	34.178 D	26.584	149.4	0.452	0.83	36.2 D	12.6	49.7	2.70	32.1	0.03	0.03		252		
270	8.20	8.17	34.191	26.617	146.5	0.478	0.71	31.0	10.7	52.2	2.75	32.6	0.03	0.02		272 09		
300 ISL	7.95 D	7.91	34.203 D	26.665	142.4	0.526	0.59 D	25.6 D	8.8	56.9	2.84	32.9	0.03	0.01		302		
321	7.78	7.75	34.213	26.698	139.6	0.551	0.46	19.9	6.8	60.2	2.91	33.1	0.03	0.01		324 08		
380	7.20	7.16	34.231	26.795	131.0	0.630	0.30	13.1	4.5	70.2	3.07	33.3	0.02	0.00		383 07		
400 ISL	7.05 D	7.01	34.237 D	26.822	128.8	0.662	0.17 D	7.2 D	2.4	75.8	3.17	32.0	0.02	0.01		403		
440	6.78	6.74	34.244	26.865	125.1	0.707	0.05	2.2	0.8	87.0	3.38	29.3	0.02	0.04		444 06		
480	6.66	6.61	34.255	26.890	123.2	0.757	0.03	1.3	0.4	94.8	3.57	25.2	0.02	0.07		484 05		
500 ISL	6.64 D	6.59	34.255 D	26.893	123.2	0.788	0.07 D	3.0 D	1.0	96.9	3.58	24.1	0.03	0.04		504		
515	6.61	6.56	34.254	26.897	123.1	0.800	0.05	2.0	0.7	98.5	3.59	23.2	0.03	0.01		519 04		
532	6.59	6.54	34.251	26.897	123.3	0.821	0.05	2.1	0.7	101.7	3.68	20.7	0.03	0.00		537 03		
560	6.44	6.39	34.236	26.906	122.7	0.855	0.29	12.5	4.2	82.8	3.23	34.0	0.16	0.19		565 02		
564	6.44	6.39	34.236	26.906	122.8	0.860	0.29	12.7	4.2	83.2	3.22	34.0	0.16	0.17		569 01		

A) SANTA BARBARA BASIN STATION.

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 39.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	12.97	12.97	33.556	25.280	268.1	0.000	5.63	245.6	94.0	5.1	0.76	5.1	0.18	0.75	2.95	0.15	0	
2	12.97	12.97	33.556	25.281	268.1	0.005	5.63	245.6	94.0	5.1	0.76	5.1	0.18	0.75	2.95	0.15	2 06	
5	12.93	12.93	33.555	25.288	267.5	0.013	5.57	242.9	92.9	5.3	0.76	5.3	0.19	0.79	2.72	0.37	5 05	
10	11.20	11.19	33.592	25.645	233.7	0.026	3.28	143.4	52.9	11.2	1.55	16.2	0.31	1.36	2.58	0.48	10 02	
14	10.95	10.95	33.601	25.696	228.9	0.035	3.08	134.4	49.3	13.1	1.70	17.8	0.32	1.51	5.34	1.21	14 01	

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.15	14.15	33.559	25.043	290.7	0.000	7.20	314.4	123.4	0.4	0.17	0.1	0.02	0.03	3.53	0.21	0	
2	14.15	14.15	33.559	25.043	290.7	0.006	7.20	314.4	123.4	0.4	0.17	0.1	0.02	0.03	3.53	0.21	2 07	
5	14.14	14.14	33.559	25.046	290.6	0.015	7.19	313.9	123.1	0.4	0.18	0.0	0.02	0.00	3.30	0.37	5 06	
10	13.49	13.49	33.555	25.177	278.2	0.029	7.40	322.9	125.0	0.4	0.17	0.0	0.02	0.00	3.93	0.11	10 04	
15	11.70	11.70	33.559	25.262	245.1	0.042	5.06	220.9	82.3	7.7	1.09	9.5	0.29	1.18	3.74	0.14	15 03	
20	11.32	11.32	33.581	25.614	236.9	0.054	4.16	181.7	67.2	15.2	1.42	14.6	0.42	0.84	1.42	0.60	20 02	
28	10.95	10.95	33.618	25.710	227.9	0.073	3.15	137.6	50.5	17.3	1.74	17.5	0.31	1.96	1.82	0.86	28 01	

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	THETA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C				ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	13.00	13.00	33.533	25.256	270.4	0.000	6.10	266.5	102.1	3.7	0.56	2.7	0.08	0.52	3.85	1.32	0			
2 A	13.00	13.00	33.533	25.256	270.4	0.005	6.10	266.5	102.0	3.7	0.56	2.7	0.08	0.52	3.85	1.32	2	16		
7 A	13.00	13.00	33.529	25.254	270.8	0.019	6.11	266.7	102.1	3.5	0.55	2.6	0.08	0.45	3.61	1.54	7	15		
9 A	12.99	12.99	33.530	25.257	270.5	0.024	6.11	267.0	102.2	3.5	0.54	2.7	0.06	0.46	3.69	1.76	9	12		
9	12.99	12.99	33.534	25.260	270.3	0.025											9	14		
9	12.99	12.99	33.530	25.257	270.6	0.025											9	13		
10 ISL	13.00 D	12.99	33.529 D	25.256	270.7	0.019	6.06	D263.8	D101.3	3.6	0.55	2.8	0.06	0.49	3.70	1.71	10			
16 A	12.87	12.87	33.533	25.284	268.2	0.043	5.99	261.4	99.8	4.0	0.60	3.2	0.09	0.68	3.76	1.46	16	10		
16	12.87	12.87	33.533	25.284	268.2	0.043											16	11		
20 ISL	12.87 D	12.86	33.535 D	25.286	268.1	0.041	5.97	D259.8	D99.5	3.9	0.60	3.2	0.09	0.73	3.77	1.51	20			
22	12.85	12.85	33.538	25.292	267.6	0.059	6.02	262.7	100.3	3.9	0.60	3.2	0.09	0.75	3.78	1.54	22	09		
29 A	12.49	12.49	33.545	25.367	260.7	0.078	5.61	245.0	92.8	6.2	0.78	5.4	0.11	1.25	2.90	1.92	29	08		
30 ISL	12.30 D	12.30	33.546 D	25.404	257.2	0.067	5.05	D219.9	D83.2	7.1	0.84	6.3	0.12	1.22	2.67	1.79	30			
37 A	11.49	11.49	33.553	25.562	242.3	0.098	4.32	188.8	70.0	13.6	1.26	12.7	0.16	1.02	1.08	0.86	37	07		
44	11.36	11.35	33.561	25.593	239.6	0.115	4.22	184.1	68.1	14.1	1.31	13.5	0.15	0.99	1.08	0.76	44	06		
50 ISL	11.09 D	11.08	33.583 D	25.659	233.4	0.116	4.01	D174.5	D64.4	15.8	1.43	15.3	0.14	0.77	0.82	0.76	50			
51	11.03	11.02	33.586	25.672	232.1	0.131	3.94	172.1	63.2	16.1	1.45	15.6	0.14	0.73	0.78	0.76	51	05		
60	10.97	10.96	33.593	25.688	230.9	0.152	3.88	169.2	62.1	16.5	1.46	16.0	0.14	0.69	0.84	0.81	60	04		
75 ISL	10.64 D	10.63	33.653 D	25.794	221.2	0.174	3.52	D153.1	D56.0	19.5	1.60	18.1	0.14	0.72	0.90	1.74	76			
76	10.60	10.59	33.654	25.801	220.5	0.188	3.54	154.4	56.2	19.7	1.61	18.2	0.14	0.72	0.91	1.80	77	03		
83	10.26	10.25	33.731	25.920	209.3	0.203	3.14	136.9	49.5	23.4	1.77	20.7	0.12	0.63	0.85	2.08	84	02		
100 ISL	9.73 D	9.72	33.841 D	26.097	192.8	0.225	2.63	D114.5	D41.1	27.9	1.98	23.7	0.09	0.38	0.66	1.89	101			
101	9.73	9.72	33.841	26.096	192.9	0.239	2.65	115.6	41.4	28.1	1.99	23.9	0.09	0.36	0.64	1.88	102	01		

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	049		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	THETA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C				ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.23	14.23	33.477	24.964	298.2	0.000	5.95	259.9	102.0	1.8	0.43	0.8	0.06	0.18	1.01	0.42	0			
3	14.23	14.23	33.477	24.964	298.3	0.009	5.95	259.9	102.0	1.8	0.43	0.8	0.06	0.18	1.01	0.42	3	22		
10	14.27	14.26	33.476	24.955	299.3	0.030	5.98	261.0	102.5	1.9	0.42	0.7	0.06	0.16	0.98	0.36	10	20		
10	14.27	14.26	33.476	24.955	299.3	0.030											10	21		
20	14.21	14.21	33.488	24.977	297.6	0.060	5.98	261.0	102.5	1.6	0.42	0.6	0.06	0.19	1.04	0.38	20	18		
30	14.20	14.19	33.474	24.970	298.6	0.089	5.87	256.3	100.6	2.3	0.46	1.2	0.10	0.15	1.04	0.41	30	17		
40	12.16	12.15	33.477	25.379	259.9	0.117	4.65	203.0	76.3	10.3	1.06	10.3	0.21	0.02	0.58	0.33	40	16		
50	11.60	11.59	33.492	25.496	249.0	0.143	4.32	188.8	70.1	12.8	1.23	13.2	0.12	0.02	0.37	0.29	50	15		
60	10.97	10.96	33.537	25.646	234.9	0.167	3.94	172.1	65.1	15.9	1.43	16.2	0.07	0.01	0.25	0.24	60	14		
70	10.55	10.54	33.570	25.745	225.6	0.190	3.73	162.9	59.2	17.8	1.54	18.1	0.06	0.01	0.16	0.14	71	13		
75 ISL	10.22 D	10.22	33.597 D	25.822	218.4	0.173	3.65	D158.8	D57.5	19.5	1.62	19.4	0.05	0.01	0.11	0.12	76			
85	9.72	9.71	33.692	25.981	203.5	0.222	3.28	143.1	51.1	22.9	1.78	22.0	0.03	0.02	0.03	0.07	86	12		
100	9.26	9.25	33.765	26.113	191.2	0.252	3.10	135.4	47.9	25.5	1.86	23.7	0.02	0.00	0.01	0.07	101	11		
120	8.97	8.96	33.890	26.258	177.8	0.289	2.72	118.7	41.8	30.0	2.00	25.9	0.02	0.02	0.01	0.07	121	10		
125 ISL	8.83 D	8.81	33.910 D	26.297	174.2	0.270	2.62	D116.9	D41.1	30.7	2.03	26.3	0.02	0.02	0.01	0.07	126			
140	8.67	8.66	33.952	26.354	169.0	0.323	2.59	113.1	39.5	33.0	2.11	27.3	0.02	0.03	0.01	0.09	141	09		
150 ISL	8.61 D	8.60	33.965 D	26.374	167.3	0.313	2.44	D106.3	D37.2	34.3	2.15	27.9	0.02	0.03	0.01	0.08	151			
170	8.40	8.38	34.005	26.438	161.6	0.373	2.22	97.0	33.7	36.8	2.22	29.1	0.03	0.03	0.01	0.05	171	08		
200	8.31	8.29	34.069	26.502	156.1	0.421	1.79	78.1	27.1	40.9	2.37	30.2	0.02	0.03	0.01	0.06	202	07		
230	8.31	8.29	34.195	26.602	147.3	0.466	1.13	49.4	17.1	45.9	2.60	31.6	0.03	0.01		232				
250 ISL	8.12 D	8.10	34.201 D	26.636	144.3	0.469	1.03	D44.6	D15.5	48.2	2.67	32.2	0.03	0.02		252				
270	7.99	7.97	34.216	26.668	141.7	0.524	0.91	39.9	13.8	50.5	2.73	32.8	0.03	0.02		272	05			
300 ISL	7.72 D	7.69	34.231 D	26.720	137.1	0.540	0.78	D34.0	D11.7	54.0	2.79	33.8	0.03	0.01		302				
321	7.53	7.49	34.234	26.751	134.5	0.594	0.74	32.1	11.0	56.3	2.84	34.5	0.03	0.00		324	04			
381	7.13	7.10	34.253	26.822	128.4	0.673	0.59	25.6	8.7	62.1	2.93	35.9	0.02	0.02		384	03			
400 ISL	6.72 D	6.69	34.261	26.875	124.2	0.747	0.48	20.7	7.0	66.5	3.02	36.9	0.01	0.00		444	02			
500 ISL	6.38 D	6.33	34.287 D	26.952	117.4	0.796	0.37	D16.1	D5.4	74.0	3.12	38.6	0.01	0.03		504				
515	6.24	6.19	34.298	26.979	114.9	0.837	0.33	14.4	4.8	75.9	3.15	39.0	0.01	0.04		519	01			

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 60.0

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.84	14.84	33.447	24.810	312.8	0.000	5.95	259.8	103.3	2.9	0.36	0.0	0.01	0.04	0.29	0.05	0		
2	14.84	14.84	33.447	24.810	312.9	0.006	5.95	259.8	103.3	2.9	0.36	0.0	0.01	0.04	0.29	0.05	2	21	
10	14.80	14.80	33.444	24.816	312.6	0.031	5.99	261.5	103.9	2.8	0.49	0.0	0.02	0.11	0.25	0.07	10	19	
10	14.80	14.80	33.450	24.821	312.2	0.030											10	20	
20	14.61	14.61	33.460	24.870	307.8	0.062	6.00	261.9	103.6	2.1	0.42	0.0	0.04	0.06	0.69	0.15	20	18	
30	14.39	14.38	33.451	24.912	304.1	0.093	5.97	260.7	102.7	2.2	0.41	0.1	0.07	0.29	0.68	0.09	30	17	
40	14.24	14.23	33.462	24.952	300.6	0.123	6.04	263.6	103.5	1.6	0.40	0.2	0.07	0.28	0.74	0.19	40	16	
50	ISL	14.08	D 14.07	33.458	D 24.983	298.0	0.139	5.84	D 254.5	D 99.8	2.0	0.46	0.7	0.12	0.57	0.46	0.19	50	
51	13.99	13.98	33.459	25.002	296.2	0.156	5.88	256.6	100.3	2.1	0.47	0.7	0.13	0.60	0.43	0.19	51	15	
61	12.04	12.03	33.368	25.317	266.3	0.184	5.02	219.2	82.2	7.6	0.93	9.0	0.09	0.06	0.23	0.18	61	14	
70	11.23	11.22	33.378	25.475	251.4	0.207	4.63	202.0	74.4	11.1	1.20	13.2	0.06	0.06	0.13	0.12	71	13	
75	ISL	10.73	D 10.72	33.414	D 25.592	240.3	0.206	4.35	D 189.6	D 69.3	12.9	1.31	14.9	0.05	0.06	0.11	0.12	76	
85	10.14	10.13	33.482	25.747	225.7	0.243	4.01	174.9	63.0	16.7	1.52	18.4	0.04	0.05	0.07	0.10	86	12	
100	9.63	9.61	33.625	25.945	207.2	0.276	3.50	153.0	54.5	21.5	1.73	21.9	0.02	0.04	0.03	0.07	101	11	
121	9.06	9.04	33.821	26.191	184.2	0.317	2.87	125.3	44.2	27.8	1.95	25.5	0.03	0.02	0.02	0.06	122	10	
125	ISL	9.02	D 9.00	33.851	D 26.220	181.5	0.310	2.80	D 121.9	D 43.0	28.6	1.98	25.9	0.02	0.02	0.02	0.06	126	
140	8.73	8.72	33.917	26.318	172.5	0.350	2.58	112.5	39.4	31.7	2.07	27.2	0.01	0.04	0.02	0.08	141	09	
150	ISL	8.67	D 8.66	33.946	D 26.350	169.6	0.354	2.49	D 108.4	D 38.0	33.2	2.11	27.8	0.01	0.04	0.01	0.08	151	
171	8.40	8.38	34.008	26.441	161.3	0.402	2.22	96.8	33.6	36.5	2.20	29.0	0.01	0.04	0.01	0.06	172	08	
200	8.07	8.05	34.057	26.528	153.5	0.448	1.84	80.4	27.7	41.7	2.37	31.0	0.02	0.05	0.01	0.06	202	07	
230	7.74	7.72	34.081	26.597	147.4	0.493	1.51	65.8	22.5	46.5	2.51	32.8	0.03	0.07		232	06		
250	ISL	7.50	D 7.47	34.098	D 26.646	143.0	0.510	1.36	D 59.2	D 20.2	49.9	2.60	33.7	0.02	0.05		252		
269	7.31	7.28	34.112	26.684	139.6	0.549	1.21	53.0	18.0	53.2	2.68	34.6	0.02	0.04		271	05		
300	ISL	7.05	D 7.02	34.131	D 26.735	135.2	0.580	0.99	D 43.2	D 14.6	56.8	2.77	35.6	0.01	0.04		302		
320	6.92	6.89	34.135	26.756	133.4	0.618	0.92	40.3	13.6	59.1	2.83	36.2	0.01	0.04		323	04		
381	6.46	6.42	34.174	26.850	125.1	0.697	0.65	28.4	9.5	67.4	2.96	38.0	0.02	0.05		384	03		
400	ISL	6.32	D 6.28	34.199	D 26.888	121.7	0.710	0.52	D 22.8	D 7.6	70.1	3.01	38.4	0.02	0.05		403		
441	6.06	6.02	34.233	26.949	116.3	0.770	0.41	17.8	5.9	76.0	3.12	39.4	0.02	0.05		445	02		
500	ISL	5.77	D 5.73	34.280	D 27.023	109.9	0.827	0.27	D 11.9	D 3.9	81.6	4.01	40.1	0.02	0.07		504		
515	5.80	5.76	34.308	27.042	108.4	0.853	0.25	10.8	3.5	83.0	3.20	40.3	0.03	0.07		519	01		

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

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 83.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.79	14.79	33.405	24.790	314.8	0.000	5.97	260.9	103.5	3.2	0.38	0.0	0.02	0.16	0.34	0.09	0		
2	A	14.79	14.78	33.405	24.790	314.9	0.006	5.97	260.9	103.5	3.2	0.38	0.0	0.02	0.16	0.34	0.09	2	24
10	A	14.54	14.54	33.393	24.833	311.0	0.031	6.00	262.2	103.5	3.3	0.35	0.0	0.01	1.03	0.36	0.11	10	21
10	14.54	14.54	33.397	24.836	310.8	0.030											10	23	
14	A	14.43	14.43	33.373	24.841	310.4	0.044	6.06	264.6	104.2	3.2	0.36	0.0	0.01	0.34	0.41	0.13	14	20
20	ISL	14.31	D 14.31	33.366	D 24.862	308.5	0.057	6.05	D 263.5	D 103.8	3.2	0.37	0.0	0.02	0.28	0.52	0.20	20	
24	A	14.29	14.28	33.367	24.868	308.1	0.075	6.04	264.0	103.7	3.2	0.37	0.0	0.02	0.24	0.60	0.24	24	19
30	ISL	14.25	D 14.24	33.368	D 24.877	307.5	0.088	5.99	D 260.9	D 102.6	3.2	0.39	0.1	0.04	0.26	0.81	0.33	30	
34	14.24	14.23	33.372	24.883	307.0	0.105	5.92	258.4	101.4	3.2	0.40	0.1	0.06	0.27	0.95	0.39	34	18	
44	A	14.10	14.09	33.376	24.916	304.2	0.136	5.87	256.6	100.4	3.3	0.42	0.3	0.10	0.34	0.62	0.31	44	16
50	ISL	13.67	D 13.66	33.381	D 25.008	295.6	0.140	5.74	D 250.2	D 97.3	4.2	0.56	2.5	0.20	0.21	0.41	0.23	50	
54	A	13.12	13.11	33.358	25.101	286.7	0.166	5.54	242.0	92.7	4.7	0.65	3.9	0.27	0.12	0.27	0.18	54	15
62	12.44	12.43	33.353	25.231	274.6	0.188	5.42	236.8	89.5	5.7	0.74	5.8	0.07	0.05	0.18	0.13	62	14	
70	11.61	11.60	33.346	25.380	260.5	0.210	5.08	221.9	82.4	8.6	1.01	10.3	0.04	0.13	0.08	0.07	71	13	
75	ISL	10.64	D 10.63	33.360	D 25.566	242.8	0.208	4.83	D 210.4	D 76.7	11.2	1.18	12.9	0.03	0.14	0.06	0.06	76	
86	10.00	9.99	33.436	25.736	226.8	0.248	4.15	181.3	65.0	16.7	1.54	18.7	0.02	0.15	0.02	0.04	87	12	
100	9.70	9.69	33.518	25.849	216.3	0.279	3.78	165.0	58.8	19.5	1.69	21.1	0.02	0.05	0.02	0.04	101	11	
120	9.29	9.28	33.704	26.062	199.5	0.320	3.14	137.3	48.6	24.8	1.91	24.7	0.01	0.04	0.01	0.03	121	10	
125	ISL	9.21	D 9.19	33.757	D 26.116	191.4	0.317	3.01	D 131.2	D 46.5	25.9	1.95	25.3	0.01	0.04	0.01	0.03	126	
140	8.96	8.95	33.857	26.234	180.5	0.358	2.65	115.7	40.7	29.3	2.06	27.1	0.01	0.05	0.01	0.04	141	09	
150	ISL	8.86	D 8.84	33.896	D 26.281	176.2	0.363	2.56	D 111.2	D 39.1	30.7	2.10	27.7	0.00	0.05	0.00	0.03	151	
170	8.64	8.62	33.956	26.363	168.8	0.410	2.28	99.4	34.7	33									

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.49	15.49	33.255	24.520	340.4	0.000	5.81	253.9	102.1	3.0	0.34	0.0	0.01	0.01	0.16	0.03	0
2	15.49	15.49	33.255	24.521	340.5	0.007	5.81	253.9	102.1	3.0	0.34	0.0	0.01	0.01	0.16	0.03	2 21
9	15.47	15.47	33.255	24.525	340.3	0.031											9 20
10	15.47	15.47	33.255	24.525	340.3	0.034	5.81	253.8	102.0	3.0	0.34	0.0	0.01	0.01	0.16	0.03	10 19
20	15.47	15.47	33.258	24.529	340.3	0.068	5.81	253.8	102.0	3.0	0.35	0.0	0.01	0.00	0.16	0.04	20 18
30	15.12	15.11	33.266	24.613	332.6	0.102	5.89	257.2	102.7	3.2	0.35	0.0	0.02	0.01	0.29	0.07	30 17
40	14.81	14.81	33.272	24.684	326.2	0.135	5.93	259.2	102.8	3.4	0.36	0.0	0.01	0.02	0.34	0.08	40 16
50	13.34	13.33	33.147	24.895	306.3	0.166	6.04	263.9	101.5	3.8	0.45	0.6	0.05	0.01	1.21	0.52	50 15
60	12.93	12.92	33.214	25.027	293.9	0.196	5.66	247.4	94.4	4.2	0.59	3.0	0.19	0.02	0.62	0.44	60 14
70	12.05	12.05	33.217	25.198	277.8	0.225	5.41	236.2	88.4	5.7	0.78	6.2	0.06	0.00	0.28	0.23	71 13
75	ISL 11.52	D 11.51	33.243	D 25.317	266.6	0.226	5.24	D 228.2	D 84.7	6.7	0.83	7.3	0.05	0.00	0.23	0.19	76
85	11.02	11.01	33.310	25.461	253.1	0.264	5.16	225.4	82.6	8.5	0.93	9.5	0.03	0.00	0.13	0.10	86 12
100	9.96	9.94	33.391	25.707	229.8	0.301	4.49	195.9	70.2	15.0	1.37	16.3	0.02	0.01	0.04	0.04	101 11
120	9.40	9.39	33.670	26.017	200.7	0.344	3.57	155.9	55.3	22.4	1.73	22.0	0.01	0.01	0.01	0.02	121 10
125	ISL 9.31	D 9.29	33.722	D 26.073	195.5	0.342	3.38	D 147.0	D 52.2	23.4	1.77	22.6	0.02	0.01	0.01	0.02	126
140	9.11	9.09	33.797	26.164	187.1	0.382	3.10	135.1	47.7	26.4	1.89	24.5	0.02	0.02	0.01	0.03	141 09
150	ISL 9.00	D 8.99	33.867	D 26.236	180.5	0.390	2.80	D 121.9	D 43.0	28.1	1.96	25.4	0.02	0.02	0.01	0.03	151
170	8.81	8.79	33.933	26.319	173.0	0.436	2.54	110.8	38.9	31.5	2.09	27.2	0.02	0.01	0.00	0.02	171 08
200	8.50	8.47	34.052	26.461	160.1	0.486	1.92	83.7	29.2	37.5	2.31	29.7	0.02	0.00	0.00	0.02	202 07
230	8.14	8.11	34.098	D 26.552	151.9	0.523	1.57	D 68.3	D 23.7								232 06
250	ISL 7.85	D 7.82	34.116	D 26.610	146.6	0.553	1.41	D 61.3	D 21.1	45.4	2.52	32.1	0.02	0.00			252
270	7.72	7.69	34.141	D 26.648	143.3	0.582	1.20	D 52.2	D 17.9								272 05
300	ISL 7.47	D 7.44	34.174	D 26.712	137.7	0.625	0.95	D 41.5	D 14.2	53.4	2.74	34.5	0.01	0.00			302
320	7.32	7.29	34.196	26.749	134.4	0.661	0.80	35.0	11.9	56.5	2.82	35.4	0.01	0.00			323 04
380	6.72	6.68	34.237	26.866	123.9	0.739	0.52	22.6	7.6	66.0	2.99	37.6	0.01	0.01			383 03
400	ISL 6.53	D 6.50	34.246	D 26.898	121.1	0.755	0.44	D 19.2	D 6.4	68.6	3.03	38.1	0.01	0.01			403
440	6.27	6.23	34.268	26.950	116.5	0.811	0.37	16.3	5.4	73.7	3.10	39.1	0.01	0.00			444 02
500	ISL 5.88	D 5.83	34.303	D 27.028	109.6	0.871	0.27	D 11.6	D 3.8	80.6	3.20	40.3	0.01	0.00			504
515	5.81	5.76	34.311	27.044	108.2	0.895	0.25	10.8	3.5	82.3	3.22	40.6	0.01	0.00			519 01

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.62	15.62	33.211	24.458	346.4	0.000	5.81	254.0	102.4	3.0	0.35	0.1	0.02	0.09	0.14	0.02	0
2	15.62	15.62	33.211	24.458	346.5	0.007	5.81	254.0	102.4	3.0	0.35	0.1	0.02	0.09	0.14	0.02	2 21
10	15.63	15.63	33.214	24.459	346.7	0.035	5.82	254.3	102.5	3.0	0.34	0.0	0.02	0.08	0.14	0.03	10 19
11	15.63	15.63	33.214	24.459	346.6	0.036											10 20
20	ISL 15.62	D 15.62	33.249	D 24.488	344.2	0.052	5.81	D 253.4	D 102.4	3.0	0.33	0.0	0.01	0.05	0.16	0.01	20
24	15.60	15.60	33.256	24.498	343.4	0.083	5.82	254.1	102.4	3.1	0.32	0.0	0.01	0.04	0.17	0.00	24 18
30	ISL 15.49	D 15.49	33.258	D 24.525	341.1	0.087	5.84	D 254.4	D 102.6	3.1	0.33	0.0	0.02	0.15	0.25	0.01	30
40	15.11	15.10	33.260	24.610	333.2	0.137	5.89	257.4	102.7	3.1	0.35	0.0	0.02	0.32	0.39	0.02	40 17
50	14.43	14.42	33.264	24.760	319.2	0.170	5.97	260.7	102.6	3.3	0.38	0.0	0.02	0.22	0.69	0.31	50 16
62	13.26	13.25	33.217	24.965	300.0	0.207	5.79	253.0	97.2	3.8	0.51	1.7	0.14	0.03	1.03	0.48	62 15
75	12.09	12.08	33.218	25.193	278.5	0.245	5.55	242.7	90.9	5.2	0.69	5.3	0.09	0.03	0.45	0.26	76 14
87	11.20	11.19	33.217	25.356	263.1	0.277	5.30	231.5	85.1	7.8	0.93	9.2	0.04	0.09	0.22	0.10	88 13
100	10.50	10.49	33.347	25.581	241.9	0.310	4.98	217.7	78.9	10.6	1.05	11.9	0.02	0.05	0.10	0.04	101 12
112	10.15	10.14	33.371	25.659	234.7	0.338	4.85	211.7	76.1	12.1	1.13	13.5	0.03	0.00	0.07	0.03	113 11
125	9.75	9.74	33.430	25.772	224.2	0.368	4.54	198.4	70.8	15.4	1.34	16.6	0.02	0.05	0.03	0.02	126 10
140	9.38	9.37	33.544	25.922	210.2	0.401	4.12	179.7	63.6	19.9	1.58	20.2	0.03	0.03	0.01	0.02	141 09
150	ISL 9.12	D 9.10	33.701	D 26.088	194.5	0.407	3.86	D 167.8	D 59.3	21.6	1.62	21.2	0.02	0.03	0.01	0.02	151
170	8.88	8.86	33.806	26.209	183.5	0.459	3.69	161.0	56.5	25.1	1.71	23.1	0.01	0.02	0.00	0.02	171 08
200	8.57	8.55	33.909	26.338	171.8	0.512	3.08	134.5	46.9	30.8	1.95	26.5	0.01	0.05	0.00	0.01	202 07
230	8.00	7.98	33.983	26.482	158.4	0.562	2.59	113.2	39.0	37.4	2.12	29.2	0.02	0.02			232 06
250	ISL 7.61	D 7.59	34.001	D 26.553	151.8	0.580	2.42	D 105.1	D 36.0	41.8	2.23	30.7	0.02	0.01			252
270	7.29	7.26	34.013	26.609	146.7	0.623	2.19	95.4	32.3	46.2	2.33	32.1	0.02	0.00			272 05
300	ISL 7.09	D 7.06	34.067	D 26.679	140.5	0.653	1.65	D 71.9	D 24.3	51.8	2.55	34.1	0.02	0.02			302
320	7.12	7.09	34.125	26.722	136.8	0.693	1.19	52.0	17.6	55.6	2.69	35.4	0.02	0.03			323 04
380	6.58	6.55	34.174	26.834	126.8	0.772	0.76	33.0	11.0	64.8	2.89	37.8	0.02	0.01			383 03
400	ISL 6.29	D 6.25	34.161	D 26.863													

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SV A	DYN HT	OXYGEN ml/L	OXYGEN μmol/Kg	OXY PCT	SI03* μM	P04* μM	N03* μM	N02* μM	NH4* μM	CHL-A μg/L	PHAEAO μg/L	PRES db
0	15.03	15.03	32.945	24.384	353.5	0.000	5.88	257.0	102.2	2.7	0.44	0.1	0.01	0.66	0.11	0.02	0
2	15.03	15.03	32.945	24.384	353.5	0.007	5.88	257.0	102.2	2.7	0.44	0.1	0.01	0.66	0.11	0.02	2 24
10	14.90	14.90	32.941	D 24.408	351.5	0.036	5.87	D 256.0	D 101.7	2.7	0.37	0.0	0.01	0.31	0.12	0.03	10
10	14.90	14.90	32.942	24.409	351.4	0.036											23
11	14.89	14.89	32.942	24.411	351.2	0.039	5.90	257.6	102.1	2.7	0.36	0.0	0.01	0.27	0.12	0.03	11
20	14.83	14.83	32.936	D 24.420	350.7	0.069	5.89	D 256.9	D 101.9	2.7	0.40	0.0	0.01	0.24	0.15	0.03	20
25	14.83	14.83	32.942	24.425	350.4	0.088	5.90	257.6	102.0	2.8	0.42	0.0	0.01	0.23	0.16	0.03	25
30	14.81	14.81	32.944	D 24.430	350.0	0.105	5.88	D 256.2	D 101.6	2.7	0.40	0.0	0.01	0.16	0.18	0.04	30
40	14.73	14.73	32.946	24.449	348.5	0.140	5.91	258.4	102.1	2.7	0.36	0.0	0.01	0.02	0.22	0.07	40
50	14.94	14.93	33.034	24.474	346.5	0.175	5.88	257.1	102.1	2.8	0.39	0.0	0.01	0.25	0.25	0.07	50
62	14.20	14.19	32.931	24.552	339.4	0.216	5.98	261.2	102.1	2.8	0.38	0.0	0.02	0.11	0.38	0.17	62
75	14.18	14.16	33.172	24.744	321.5	0.259	5.91	258.2	101.0	3.2	0.44	0.0	0.03	0.16	0.61	0.29	76
87	13.56	13.55	33.173	24.871	309.7	0.297	5.76	251.6	97.2	3.7	0.49	1.3	0.21	0.21	0.38	0.28	88
100	12.77	12.76	33.188	25.040	293.9	0.336	5.68	248.0	94.3	4.3	0.60	3.1	0.30	0.22	0.29	0.20	101
112	11.94	11.92	33.196	25.206	278.2	0.371	5.49	239.8	89.6	5.5	0.77	6.1	0.04	0.07	0.16	0.15	113
125	10.87	D 10.85	33.236	D 25.431	256.9	0.387	5.24	D 228.1	D 83.5	9.1	1.01	10.3	0.03	0.08	0.07	0.06	126
126	11.35	11.34	33.435	D 25.299	269.5	0.408	5.28	230.7	85.1	9.3	1.03	10.6	0.03	0.08	0.06	0.06	127
140	10.58	10.57	33.511	25.696	232.1	0.443	4.92	214.6	78.0	10.3	0.97	10.9	0.02	0.08	0.04	0.04	141
150	9.99	D 9.97	33.550	D 25.828	219.6	0.447	4.62	D 200.9	D 72.3	13.2	1.14	13.6	0.02	0.11	0.03	0.03	151
170	9.45	9.43	33.674	26.015	202.1	0.508	4.17	182.0	64.6	19.1	1.47	18.9	0.02	0.17	0.01	0.02	171
200	8.93	8.91	33.837	26.225	182.6	0.566	3.55	154.8	54.4	25.7	1.75	23.2	0.01	0.07	0.00	0.01	202
231	8.41	8.38	33.949	26.395	166.9	0.620	3.09	135.0	46.9	31.9	1.93	26.1	0.02	0.04		233	
250	8.04	D 8.01	33.983	D 26.477	159.3	0.633	2.76	D 120.0	D 41.5	35.9	2.07	28.0	0.02	0.03		252	
271	7.81	7.78	33.998	26.524	155.2	0.684	2.40	104.8	35.9	40.4	2.22	30.1	0.02	0.01		273	
300	7.42	D 7.39	34.012	D 26.591	149.1	0.711	2.12	D 92.2	D 31.4	46.0	2.37	32.1	0.02	0.08		302	
320	7.12	7.09	34.021	26.639	144.6	0.757	1.88	82.0	27.7	49.8	2.48	33.4	0.02	0.13		323	
381	6.60	6.56	34.100	26.773	132.5	0.842	1.07	46.6	15.5	61.3	2.80	37.0	0.02	0.06		384	
400	6.44	D 6.40	34.114	D 26.806	129.6	0.851	0.98	D 42.8	D 14.3	64.0	2.85	37.6	0.02	0.09		403	
439	6.26	6.22	34.157	26.864	124.6	0.916	0.68	29.7	9.8	69.4	2.96	38.8	0.02	0.16		443	
500	5.82	D 5.78	34.212	D 26.963	115.6	0.975	0.43	D 18.6	D 6.1	79.6	3.09	40.7	0.02	0.06		504	
514	5.52	5.48	34.186	26.979	113.9	1.006	0.48	20.9	6.8	82.0	3.12	41.1	0.02	0.04		518	

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 85.4 35.8

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SV A	DYN HT	OXYGEN ml/L	OXYGEN μmol/Kg	OXY PCT	SI03* μM	P04* μM	N03* μM	N02* μM	NH4* μM	CHL-A μg/L	PHAEAO μg/L	PRES db
0	12.42	12.42	33.549	25.583	258.4	0.000	5.94	259.3	98.1	5.6	0.61	4.3	0.13	0.45	12.54	1.43	0
2	12.42	12.42	33.549	25.383	258.4	0.005	5.94	259.3	98.1	5.6	0.61	4.3	0.13	0.45	12.54	1.43	2 05
5	12.41	12.41	33.557	25.391	257.8	0.013	5.98	261.3	98.8	5.3	0.66	4.0	0.13	0.45	12.28	1.30	5 04
10	12.24	12.24	33.578	25.440	253.2	0.026	5.68	248.0	93.5	6.2	0.73	5.4	0.14	0.53	13.85	1.36	10 02
10	12.24	12.24	33.579	25.441	253.1	0.026											10 03
15	12.07	12.06	33.590	25.483	249.2	0.038	5.39	235.4	88.4	7.3	0.85	7.0	0.17	0.60	14.74	1.38	15 01

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 33.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SV A	DYN HT	OXYGEN ml/L	OXYGEN μmol/Kg	OXY PCT	SI03* μM	P04* μM	N03* μM	N02* μM	NH4* μM	CHL-A μg/L	PHAEAO μg/L	PRES db
0	14.64	14.64	33.485	24.882	306.0	0.000	7.71	336.8	133.3	0.2	0.12	0.1	0.02	0.00	5.05	0.68	0
2	14.64	14.64	33.485	24.882	306.1	0.006	7.71	336.8	133.3	0.2	0.12	0.1	0.02	0.00	5.05	0.68	2 08
5	14.20	14.20	33.489	24.979	297.0	0.015	7.37	321.6	126.2	0.4	0.17	0.1	0.02	0.00	9.22	1.33	5 07
10	13.55	13.55	33.502	25.123	283.4	0.030	6.72	293.5	113.7	1.0	0.29	0.1	0.02	0.00	14.87	2.05	10 06
15	12.93	12.93	33.515	25.257	270.8	0.044	5.97	260.7	99.7	2.8	0.53	2.3	0.07	0.11	19.78	2.59	15 05
20	11.71	11.71	33.547	25.516	246.2	0.056	4.44	193.9	72.3	12.4	1.20	12.7	0.20	0.54	6.74	1.45	20 04
30	11.24	11.23	33.572	25.623	236.3	0.081	4.02	175.3	64.7	15.3	1.40	15.6	0.20	0.48	2.48	0.98	30 03
40	10.73	10.72	33.599	25.735	225.8	0.104	3.58	156.2	57.0	17.8	1.59	18.1	0.25	1.66	1.14	0.64	40 02
50	10.28	10.27	33.738	25.921	208.4	0.125	2.82	123.1	44.5	23.5	1.89	23.0	0.33	2.26	0.37	0.38	50 01

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.18	14.18	33.524	25.009	294.0	0.000	7.81	341.3	133.9	0.8	0.20	0.1	0.02	0.31	4.15	0.29	0	
2	14.18	14.18	33.524	25.009	294.0	0.006	7.81	341.3	133.9	0.8	0.20	0.1	0.02	0.31	4.15	0.29	2	
10	13.20	13.20	33.525	25.212	274.9	0.029	8.18	357.4	137.4	1.0	0.23	0.0	0.01	0.04	4.04	0.19	10	
10	13.20	13.20	33.525	25.212	274.9	0.029											20	
20	12.63	12.62	33.522	25.323	264.6	0.056	5.78	252.4	95.9	5.3	0.67	5.1	0.10	0.61	11.61	1.18	20	
30	11.79	11.79	33.550	25.504	247.6	0.081	4.31	188.3	70.2	13.0	1.25	12.7	0.27	0.43	4.80	1.15	30	
40	11.02	11.01	33.534	25.633	235.6	0.106	3.89	169.9	62.4	15.2	1.42	15.9	0.10	0.07	1.74	0.78	40	
50	10.60	10.60	33.603	25.760	223.7	0.129	3.57	155.9	56.7	17.6	1.56	18.1	0.06	0.04	2.27	1.19	50	
60	10.34	10.34	33.654	25.846	215.8	0.151	3.37	147.4	53.3	19.4	1.66	19.5	0.05	0.02	2.06	0.78	60	
70	10.05	10.04	33.767	25.983	202.9	0.171	2.92	127.5	45.9	23.5	1.86	22.3	0.03	0.05	0.60	0.35	71	
75	ISL	10.00 D	9.99	33.823	26.036	198.1	0.169	2.80	0121.7	43.9	24.4	1.90	22.8	0.03	0.06	0.49	0.31	76
85	9.87	9.86	33.850	26.078	194.2	0.201	2.63	114.8	41.2	26.1	1.98	23.9	0.03	0.09	0.25	0.21	86	
100	9.80	9.78	33.917	26.145	188.3	0.230	2.41	105.2	37.7	27.8	2.05	24.9	0.04	0.12	0.10	0.18	101	
120	9.70	9.68	33.963	26.198	183.7	0.267	2.26	98.6	35.3	29.4	2.12	25.7	0.03	0.04	0.06	0.14	121	
125	ISL	9.66 D	9.64	33.970	26.210	182.6	0.264	2.23	097.2	34.9	30.0	2.14	26.0	0.04	0.05	0.15	126	
140	9.45	9.43	34.015	26.281	176.2	0.303	2.03	88.7	31.5	31.8	2.21	26.9	0.05	0.07	0.04	0.17	141	
150	ISL	9.32 D	9.30	34.044	26.324	172.3	0.309	2.02	088.0	31.3	33.1	2.26	27.4	0.04	0.09	0.04	0.15	151
170	9.29	9.27	34.132	26.398	165.8	0.354	1.60	70.0	24.8	35.7	2.37	28.5	0.03	0.14	0.03	0.10	171	
200	9.06	9.04	34.184	26.476	158.9	0.403	1.36	59.2	20.9	38.9	2.48	29.6	0.03	0.18	0.02	0.09	202	
230	8.78	8.75	34.211	26.543	153.1	0.450	1.19	51.9	18.2	42.4	2.56	30.7	0.02	0.03			232	
250	ISL	8.62 D	8.60	34.221	26.576	150.3	0.470	1.10	47.8	16.8	44.1	2.60	31.3	0.02	0.03			252
270	8.40	8.37	34.233	26.621	146.4	0.510	1.04	45.3	15.8	45.8	2.64	31.8	0.02	0.02			272	
300	ISL	8.20 D	8.17	34.225	26.645	144.5	0.544	0.99	42.9	14.9	48.6	2.71	32.6	0.02	0.06			302
320	8.04	8.01	34.222	26.666	142.8	0.582	0.89	38.9	13.4	50.5	2.75	33.2	0.03	0.08			323	
380	7.51	7.47	34.253	26.770	135.7	0.665	0.65	28.4	9.7	57.6	2.89	35.1	0.02	0.06			383	
400	ISL	7.37 D	7.33	34.260	26.796	131.5	0.683	0.58	25.2	8.6	59.1	2.91	35.5	0.02	0.05			403
440	7.20	7.15	34.270	26.829	129.0	0.744	0.51	22.4	7.6	62.3	2.96	36.3	0.03	0.03			444	
500	ISL	6.79 D	6.75	34.297	26.906	122.2	0.812	0.35	15.1	5.1	70.7	3.08	37.6	0.03	0.07			504
515																	519	
																	01	

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA				ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.83	15.83	33.473	24.613	331.7	0.000	6.12	267.3	108.4	0.2	0.28	0.0	0.06	0.07	0.49	0.22	0	
2 A	15.83	15.83	33.473	24.613	331.7	0.007	6.12	267.3	108.4	0.2	0.28	0.0	0.06	0.07	0.49	0.22	24	
8 A	15.42	15.42	33.470	24.702	323.5	0.026	6.21	271.2	109.0	0.2	0.29	0.0	0.01	0.05	0.58	0.29	8	
10 ISL	15.34 D	15.34	33.467	24.717	322.1	0.033	6.18	0269.4	0108.4	0.2	0.28	0.0	0.02	0.04	0.55	0.27	10	
10	15.34	15.34	33.469	24.719	321.9	0.034											22	
11 A	15.31	15.31	33.469	24.726	321.2	0.036	6.22	271.7	109.0	0.2	0.28	0.0	0.02	0.04	0.54	0.25	11	
19 A	14.94	14.94	33.464	24.804	314.1	0.062	6.39	279.2	111.2	0.4	0.28	0.0	0.00	0.03	0.86	0.51	19	
20 ISL	14.93 D	14.92	33.464	24.806	313.9	0.063	6.34	0276.3	0110.3	0.5	0.29	0.0	0.01	0.04	0.95	0.58	20	
26	14.43	14.42	33.456	24.907	304.5	0.083	6.03	263.5	103.8	1.1	0.37	0.0	0.02	0.11	1.52	1.00	26	
30 ISL	14.29 D	14.29	33.454	24.934	302.0	0.094	5.87	0255.6	0100.7	2.4	0.47	1.3	0.06	0.28	1.98	1.22	30	
34 A	13.88	13.88	33.447	25.015	294.4	0.107	5.57	243.1	94.7	3.7	0.57	2.5	0.10	0.44	2.44	1.45	34	
34	13.88	13.88	33.449	25.016	294.3	0.108											18	
44 A	11.88	11.88	33.478	25.431	254.9	0.135	4.41	192.8	72.1	11.2	1.14	11.5	0.17	0.23	0.47	0.40	44	
50 ISL	11.48 D	11.48	33.487	25.513	247.3	0.134	4.23	0184.9	0087.0	12.4	1.22	13.0	0.15	0.12	0.32	0.32	50	
52	11.44	11.43	33.488	25.522	246.5	0.155	4.20	183.3	67.9	12.8	1.25	13.5	0.14	0.08	0.28	0.29	52	
60	11.37	11.36	33.482	25.531	245.9	0.174	4.19	183.1	67.7	13.0	1.25	13.8	0.12	0.08	0.24	0.25	60	
70	10.99	10.98	33.492	25.607	238.8	0.199	4.07	177.8	65.2	14.1	1.32	15.1	0.07	0.05	0.17	0.21	71	
75 ISL	10.83 D	10.82	33.567	25.694	230.6	0.195	3.86	0168.1	0161.6	15.8	1.41	16.5	0.05	0.04	0.14	0.17	76	
85	10.48	10.47	33.654	25.823	218.6	0.233	3.42	149.5	54.3	19.3	1.60	19.3	0.02	0.03	0.08	0.11	86	
100	10.13	10.11	33.726	25.940	207.8	0.265	3.15	137.7	49.6	22.0	1.73	21.3	0.02	0.04	0.08	0.10	11	
120	9.91	9.89	33.774	26.015	201.1	0.306	2.98	130.3	46.7	23.8	1.80	22.6	0.02	0.03	0.03	0.07	121	
125 ISL	9.78 D	9.76	33.813	26.067	196.2	0.301	2.90	0126.1	0145.3	25.0	1.86	23.3	0.02	0.03	0.03	0.08	126	
140	9.63	9.62	33.929	26.182	185.6	0.344	2.36	103.1	36.8	28.6	2.05	25.5	0.02	0.03	0.03	0.12	141	
150 ISL	9.53 D	9.51	33.973	26.234	180.9	0.348	2.23	096.9	34.6	30.2	2.10	26.3	0.02	0.03	0.03	0.11	151	
170	9.28	9.26	34.060	26.344	170.8	0.398	1.91	83.5	29.6	33.4	2.21	27.8	0.00	0.03	0.03	0.08	171	
200	8.92	8.90	34.141	26.466	159.8	0.447	1.57	68.7	24.2									

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db
0	15.28	15.28	33.467	24.729	320.5	0.000	5.89	257.3	103.2	2.4	0.38	0.1	0.04	0.13	0.30	0.05	0
2	15.28	15.28	33.467	24.730	320.6	0.006	5.89	257.3	103.2	2.4	0.38	0.1	0.04	0.13	0.30	0.05	2 22
10	15.27	15.26	33.462	24.729	320.9	0.032	5.92	258.4	103.6	2.4	0.38	0.1	0.03	0.14	0.31	0.04	10 20
10	15.27	15.26	33.461	24.729	320.9	0.032											10 21
20	14.60	14.60	33.456	24.869	307.9	0.064	5.97	260.8	103.2	2.4	0.38	0.2	0.04	0.07	0.38	0.08	20 19
30	14.41	14.40	33.460	24.915	303.9	0.094	5.91	258.3	101.8	2.4	0.41	0.4	0.06	0.05	0.56	0.20	30 18
39	14.42	14.41	33.456	24.910	304.6	0.122	5.90	257.4	101.4	2.4	0.41	0.6	0.08	0.22	0.66	0.21	39 17
50	13.66	13.65	33.437	25.054	291.2	0.154	5.55	242.3	94.0	4.2	0.61	3.4	0.25	0.22	0.49	0.22	50 16
60	13.02	13.02	33.427	25.174	280.0	0.183	5.21	227.3	87.0	6.5	0.80	6.3	0.18	0.11	0.45	0.36	60 15
70	11.23	11.22	33.444	25.527	246.5	0.209	4.31	188.3	69.4	13.0	1.30	14.7	0.04	0.14	0.16	0.17	71 14
75 ISL	10.87 D	10.86	33.469 D	25.610	238.6	0.207	4.09	178.1 D	65.3	15.0	1.39	16.3	0.04	0.10	0.13	0.17	76
86	10.13	10.12	33.595	25.837	217.2	0.246	3.62	158.0	56.9	19.4	1.60	19.9	0.02	0.01	0.07	0.17	87 13
100	9.86	9.85	33.677	25.947	207.1	0.276	3.34	146.0	52.3	22.1	1.71	21.7	0.03	0.04	0.04	0.10	101 12
113	9.60	9.59	33.723	26.026	199.8	0.303	3.21	140.0	49.9	23.7	1.79	22.8	0.02	0.04	0.03	0.09	114 11
124	9.44	9.43	33.791	26.106	192.4	0.324	2.95	128.9	45.8	25.9	1.88	24.1	0.02	0.08	0.02	0.07	125 10
125 ISL	9.43 D	9.42	33.800 D	26.114	191.7	0.312	2.93	127.5 D	45.4	26.0	1.88	24.1	0.02	0.08	0.02	0.07	126
140	9.32	9.30	33.824	26.152	188.4	0.355	2.87	125.2	44.4	27.1	1.92	24.7	0.02	0.03	0.02	0.07	141 09
150 ISL	9.11 D	9.09	33.884 D	26.232	181.0	0.360	2.70	117.3 D	41.5	28.9	1.98	25.7	0.02	0.04	0.01	0.07	151
171	8.67	8.65	33.959	26.361	169.0	0.410	2.48	108.3	37.9	32.6	2.11	27.7	0.01	0.06	0.01	0.07	172 08
200 ISL	8.24 D	8.22	34.016 D	26.471	158.9	0.444	2.18 D	95.0 D	33.0	37.7	2.23	29.8	0.02	0.27	0.00	0.03	202
201	8.22	8.20	34.016	26.475	158.6	0.459	2.19	95.7	33.1	37.8	2.23	29.9	0.02	0.28	0.00	0.03	203 07
230	7.87	7.85	34.054	26.556	151.3	0.504	1.90	82.8	28.4	42.8	2.38	31.5	0.02	0.06			232 06
250 ISL	7.62 D	7.60	34.069 D	26.605	146.9	0.521	1.73 D	75.1 D	25.7	45.7	2.47	32.4	0.01	0.07			252
270	7.61	7.59	34.121	26.647	143.3	0.563	1.39	60.8	20.8	48.5	2.56	33.2	0.01	0.07			272 05
300 ISL	7.46 D	7.43	34.164 D	26.703	138.5	0.593	1.06 D	46.2 D	15.8	53.3	2.68	34.7	0.01	0.05			302
321	7.09	7.06	34.150	26.746	134.6	0.634	0.99	43.3	14.6	56.7	2.76	35.7	0.01	0.03			324 04
380	6.70	6.66	34.209	26.846	125.8	0.710	0.67	29.1	9.7	64.5	2.92	37.4	0.01	0.04			383 03
400 ISL	6.69 D	6.66	34.211 D	26.849	125.8	0.725	0.64 D	27.7 D	9.3	66.6	2.96	37.8	0.01	0.08			403
441	6.31	6.27	34.241	26.923	119.0	0.786	0.49	21.3	7.1	70.9	3.04	38.7	0.02	0.16			445 02
500 ISL	6.03 D	5.98	34.303 D	27.010	111.5	0.844	0.31 D	13.4 D	4.4	77.3	3.15	39.8	0.02	0.14			504
513	6.01	5.97	34.317	27.023	110.4	0.868	0.28	12.1	4.0	78.7	3.17	40.0	0.02	0.13			517 01

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db
0	14.72	14.72	33.427	24.820	311.9	0.000	5.95	259.8	103.0	2.8	0.39	0.1	0.02	0.07	0.52	0.12	0
2	14.72	14.72	33.427	24.820	312.0	0.006	5.95	259.8	103.0	2.8	0.39	0.1	0.02	0.07	0.52	0.12	21
10	14.60	14.60	33.426	24.846	309.8	0.031	5.94	259.6	102.7	2.8	0.40	0.1	0.02	0.20	0.52	0.14	10 19
10	14.60	14.60	33.425	24.845	309.9	0.030											10 20
20	14.42	14.42	33.400	24.865	308.2	0.062	5.91	258.3	101.7	3.0	0.39	0.2	0.04	0.14	0.62	0.21	20 18
30	14.35	14.34	33.419	24.895	305.7	0.093	5.89	257.0	101.1	2.9	0.40	0.4	0.05	0.31	0.74	0.24	30 17
39	14.33	14.33	33.429	24.907	304.9	0.120	5.86	255.7	100.6	2.8	0.42	0.5	0.06	0.57	0.57	0.21	39 16
50	14.27	14.26	33.438	24.928	303.3	0.154	5.84	255.2	100.2	2.7	0.44	0.6	0.05	0.25	0.49	0.21	50 15
60	13.99	13.98	33.410	24.965	300.0	0.184	5.75	251.0	98.0	3.2	0.48	1.6	0.09	0.24	0.41	0.20	60 14
70	12.91	12.90	33.328	25.121	285.3	0.213	5.47	238.8	91.1	5.0	0.71	5.0	0.11	0.26	0.32	0.26	71 13
75 ISL	11.84 D	11.83	33.267 D	25.276	270.5	0.213	5.26	229.2 D	85.7	6.8	0.85	7.4	0.09	0.19	0.26	0.21	76
86	10.79	10.78	33.279	25.477	251.6	0.256	4.79	209.1	76.2	10.6	1.16	12.8	0.03	0.04	0.14	0.11	87 12
100 ISL	10.09 D	10.07	33.387 D	25.682	232.2	0.276	4.43	192.8 D	69.5	15.0	1.39	16.8	0.01	0.04	0.06	0.05	101
101	10.02	10.01	33.399	25.703	230.2	0.292	4.34	189.7	68.1	15.3	1.41	17.1	0.01	0.04	0.05	0.04	102 11
120	9.42	9.40	33.640	25.991	203.2	0.333	3.65	159.4	56.5	21.7	1.70	21.8	0.01	0.12	0.02	0.02	121 10
125 ISL	9.40 D	9.39	33.650 D	26.001	202.4	0.330	3.63	158.1 D	56.2	22.4	1.73	22.3	0.01	0.09	0.02	0.03	126
140	9.13	9.12	33.756	26.128	190.6	0.373	3.31	144.7	51.0	24.7	1.81	23.8	0.01	0.01	0.01	0.03	141 09
150 ISL	8.99 D	8.97	33.829 D	26.209	183.1	0.379	3.14 D	136.5 D	48.2	26.4	1.84	24.4	0.00	0.03	0.01	0.03	151
170	8.64	8.62	33.914	26.330	171.9	0.427	3.09	134.8	47.1	29.7	1.91	25.6	0.00	0.07	0.00	0.03	171 08
200	8.41	8.39	33.970	26.410	164.9	0.478	2.71	118.2	41.1	33.6	2.06	27.5	0.01	0.03	0.00	0.02	202 07
230	8.00	7.97	34.027	26.518	155.1	0.526	2.16	94.1	32.4	40.0	2.29	30.4	0.01	0.03			232 06
250 ISL	7.65 D	7.63	34.035 D	26.574	149.9	0.544	1.97 D	85.6 D	29.3	43.1	2.37	31.5	0.01	0.03			252
270	7.48	7.45	34.043	26.605	147.2	0.586	1.87	81.7	27.8	46.2	2.44	32.5	0.00	0.02</td			

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA				ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.97	14.97	33.263	24.640	329.0	0.000	5.91	258.0	102.7	3.2	0.35	0.0	0.02	0.04	0.22	0.08	0.08	0	
2 A	14.97	14.97	33.263	24.640	329.1	0.007	5.91	258.0	102.7	3.2	0.35	0.0	0.02	0.04	0.22	0.08	0.08	2 24	
10 ISL	14.92	D 14.92	33.261 D	24.650	328.4	0.033	5.92	258.0	102.8	3.2	0.35	0.0	0.02	0.10	0.23	0.07	0.07	10	
12 A	14.89	14.89	33.261	24.658	327.8	0.040	5.92	258.7	102.8	3.2	0.35	0.0	0.02	0.11	0.23	0.07	0.07	12 22	
12 A	14.89	14.89	33.263	24.659	327.7	0.039												12 23	
16 A	14.88	14.88	33.260	24.657	327.9	0.053	5.92	258.5	102.7	3.2	0.35	0.0	0.01	0.03	0.24	0.06	0.06	16 21	
20 ISL	14.81	D 14.81	33.282 D	24.690	324.9	0.060	5.96	259.9	103.3	3.3	0.36	0.0	0.01	0.09	0.30	0.08	0.08	20	
22	14.79	14.79	33.286	24.698	324.3	0.072	5.99	261.4	103.7	3.3	0.37	0.0	0.01	0.12	0.33	0.09	0.09	22 20	
29 A	14.44	14.43	33.269	24.760	318.5	0.095	5.99	261.6	103.0	3.4	0.37	0.0	0.01	0.12	0.43	0.21	0.21	29 19	
30 ISL	14.42	D 14.42	33.252 D	24.750	319.5	0.092	5.97	D260.1	D102.6	3.4	0.37	0.0	0.01	0.12	0.46	0.22	0.22	30	
40	14.08	14.08	33.228	24.804	314.7	0.130	6.00	261.8	102.3	3.4	0.39	0.1	0.02	0.14	0.78	0.34	0.40	18	
50 ISL	13.76	D 13.75	33.195 D	24.846	310.9	0.156	5.92	D258.1	D100.4	3.6	0.44	0.6	0.06	0.09	0.89	0.42	0.50	50	
52 A	13.70	13.69	33.196	24.859	309.8	0.167	5.91	257.9	100.0	3.6	0.45	0.7	0.07	0.08	0.91	0.44	0.52	17	
58	13.47	13.46	33.187	24.899	306.1	0.186	5.86	255.9	98.7	3.7	0.48	1.2	0.10	0.14	0.79	0.49	0.58	15	
58	13.47	13.46	33.186	24.899	306.1	0.184												58 16	
66 A	13.15	13.14	33.251	25.012	295.6	0.210	5.66	247.1	94.8	4.1	0.58	2.8	0.18	0.06	0.54	0.33	0.67	14	
75 ISL	12.25	D 12.24	33.311 D	25.234	274.6	0.218	5.32	D231.5	D87.4	5.9	0.78	6.8	0.06	0.04	0.23	0.16	0.16	76	
76	12.28	12.27	33.315	25.231	274.9	0.238	5.31	231.9	87.4	6.1	0.80	7.2	0.04	0.04	0.20	0.14	0.77	13	
85	11.49	11.48	33.326	25.388	260.1	0.262	5.06	220.8	81.8	8.8	1.02	10.6	0.03	0.01	0.11	0.09	0.86	12	
100	10.54	10.53	33.358	25.583	241.7	0.300	4.55	198.5	72.0	12.9	1.30	15.3	0.03	0.03	0.06	0.06	101	11	
120	9.70	9.69	33.583	25.900	211.9	0.345	3.56	155.4	55.4	20.8	1.73	22.2	0.02	0.05	0.02	0.04	121	10	
125 ISL	9.66	D 9.64	33.598 D	25.919	210.2	0.339	3.51	D152.8	D54.6	21.7	1.77	22.7	0.02	0.07	0.02	0.04	0.04	126	
140	9.39	9.37	33.696	26.041	198.9	0.387	3.15	137.6	48.8	24.1	1.88	24.3	0.02	0.14	0.01	0.04	141	09	
150 ISL	9.10	D 9.08	33.830 D	26.192	184.7	0.389	3.12	D135.6	D48.0	26.4	1.93	25.2	0.02	0.11	0.01	0.03	0.151		
170	8.78	8.76	33.928	26.319	173.0	0.442	2.64	115.0	40.3	30.9	2.03	27.0	0.02	0.05	0.00	0.02	171	08	
200 ISL	8.44	D 8.42	34.020 D	26.445	161.6	0.476	2.10	D91.2	D31.8	36.0	2.18	29.1	0.02	0.03	0.00	0.02	202		
201	8.45	8.43	34.013	26.438	162.2	0.493	2.23	97.1	33.8	36.1	2.19	29.2	0.02	0.03	0.00	0.02	203	07	
230	8.01	7.98	34.067	26.547	152.2	0.539	1.80	78.4	27.0	41.9	2.38	31.5	0.02	0.06			232 06		
250 ISL	7.82	D 7.79	34.081 D	26.587	148.8	0.554	1.63	D71.0	D24.5	44.7	2.45	32.5	0.02	0.06			252		
271	7.67	7.64	34.105	26.628	145.2	0.600	1.39	60.7	20.8	47.6	2.53	33.5	0.02	0.06			273 05		
300 ISL	7.45	D 7.42	34.142 D	26.689	139.8	0.626	1.10	D47.9	D16.4	52.2	2.65	34.7	0.01	0.04			302		
320	7.25	7.22	34.164	26.734	135.8	0.669	0.96	41.8	14.2	55.4	2.74	35.6	0.01	0.03			323 04		
371	6.82	6.79	34.202	26.824	127.8	0.736	0.65	28.2	9.4	62.5	2.90	37.3	0.02	0.01			374 03		
400 ISL	6.55	D 6.52	34.214 D	26.869	123.7	0.759	0.54	D23.3	D7.8	66.7	2.96	38.2	0.02	0.02			403		
441	6.16	6.12	34.221	26.926	118.6	0.822	0.46	20.2	6.7	72.6	3.05	39.4	0.02	0.04			445 02		
500 ISL	5.84	D 5.80	34.256 D	26.996	112.6	0.878	0.32	D14.0	D4.6	79.6	3.13	40.4	0.01	0.03			504		
515	5.76	5.71	34.268	27.016	110.8	0.907	0.29	12.6	4.1	81.3	3.15	40.7	0.01	0.03			519 01		

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA				ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.69	15.69	33.191	24.428	349.2	0.000	5.82	254.2	102.6	3.1	0.1	0.00	0.23	0.14	0.03	0			
2	15.69	15.69	33.191	24.428	349.3	0.007	5.82	254.2	102.6	3.1	0.1	0.00	0.23	0.14	0.03	2 21			
10	15.40	15.40	33.198	24.498	343.0	0.035	5.84	255.1	102.3	3.0	0.33	0.0	0.00	0.07	0.16	0.03	10 19		
10	15.40	15.40	33.198	24.497	343.0	0.033											10 20		
20 ISL	15.38	D 15.38	33.202 D	24.505	342.5	0.052	5.84	D254.5	D102.3	3.0	0.33	0.0	0.01	0.08	0.20	0.04	20		
25	15.36	15.36	33.203	24.510	342.3	0.086	5.84	255.0	102.2	3.0	0.33	0.0	0.00	0.08	0.22	0.05	25 18		
30 ISL	15.33	D 15.32	33.204 D	24.519	341.6	0.087	5.85	D255.0	D102.4	3.0	0.34	0.0	0.01	0.15	0.24	0.06	30		
40	15.31	15.30	33.206	24.525	341.3	0.137	5.84	D254.4	D102.1	3.0	0.37	0.0	0.00	0.30	0.30	0.09	40 17		
50	15.15	15.14	33.198	24.555	338.8	0.171	5.84	255.3	101.9	3.0	0.39	0.0	0.00	0.08	0.47	0.18	50 16		
62	13.30	13.29	33.153	24.906	305.6	0.210	5.86	256.0	98.4	4.0	0.55	1.6	0.09	0.16	0.66	0.36	62 15		
75	12.30	12.29	33.138	25.091	288.2	0.249	5.66	247.3	93.0	4.9	0.67	4.3	0.09	0.05	0.40	0.30	76 14		
87	11.47	11.46	33.178	25.277	270.7	0.282	5.44	237.6	87.8	7.0	0.86	7.7	0.03	0.03	0.13	0.10	88 13		
100	10.68	10.67	33.240	25.465	252.9	0.316	5.08	222.0	80.7	10.2	1.11	11.7	0.02	0.03	0.07	0.06	101 12		
112	9.78	9.77	33.371	25.722	228.7	0.345	4.56	199.0	71.0	15.5	1.42	16.6	0.02	0.02	0.03	0.03	113 11		
125	9.42	9.41	33.510	25.888	213.1	0.374	4.15	181.4	64.3	19.5	1.59	19.7	0.00	0.05	0.01	0.03	126 10		
140	9.18	9.16	33.614	26.009	201.8	0.405	3.81	166.2	58.6	22.5	1.76	21.8	0.00	0.04	0.01	0.03	141 09		
15																			

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
31 59.7 N	122 23.4 W	10/04/2014	0435	UTC	4094 m	340 16 kn			1027.0 mb	14.2 C	13.1 C					040	
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db
0	15.82	15.82	33.157	24.371	354.7	0.000	5.77	252.3	102.0	3.1	0.34	0.1	0.02	0.06	0.13	0.02	0
2	15.82	15.82	33.157	24.371	354.7	0.007	5.77	252.3	102.0	3.1	0.34	0.1	0.02	0.06	0.13	0.02	2 21
10	15.76	15.76	33.156	24.384	353.7	0.035	5.79	253.1	102.2	3.0	0.36	0.0	0.01	0.14	0.12	0.03	10 19
10	15.76	15.76	33.156	24.385	353.7	0.035											10 20
20	ISL 15.55 D	15.55	33.152 D	24.429	349.8	0.053	5.81	253.5	102.2	3.0	0.35	0.0	0.01	0.07	0.17	0.06	20
25	15.47	15.47	33.153	24.447	348.2	0.088	5.83	254.6	102.2	3.0	0.34	0.0	0.01	0.19	0.08	0.25	18
30	ISL 15.41 D	15.41	33.153 D	24.461	347.1	0.089	5.82	253.8	102.0	3.0	0.34	0.0	0.01	0.05	0.20	0.07	30
40	15.35	15.34	33.147	24.470	346.6	0.140	5.84	255.2	102.2	3.0	0.33	0.0	0.01	0.06	0.22	0.06	40 17
50	15.29	15.29	33.153	24.488	345.2	0.175	5.83	254.7	101.9	3.1	0.34	0.0	0.01	0.12	0.33	0.07	50 16
62	13.25	13.24	33.127	24.897	306.4	0.214	6.16	269.2	103.3	3.7	0.43	0.1	0.02	0.04	1.44	0.67	62 15
75	ISL 12.25 D	12.24	33.099 D	25.071	290.1	0.237	5.82	253.7	95.6	4.9	0.63	3.5	0.13	0.05	1.14	0.68	76
76	12.08	12.07	33.099	25.102	287.1	0.256	5.81	253.9	95.0	5.0	0.65	3.8	0.14	0.05	1.11	0.68	77 14
87	11.28	11.27	33.149	25.289	269.5	0.286	5.52	241.3	88.8	7.1	0.87	8.0	0.05	0.05	0.28	0.32	88 13
100	10.32	10.31	33.235	25.523	247.4	0.320	5.06	221.3	79.8	11.2	1.15	12.9	0.02	0.01	0.08	0.06	101 12
112	9.84	9.83	33.344	25.690	231.7	0.349	4.62	201.7	72.0	14.9	1.47	16.2	0.02	0.09	0.03	0.04	113 11
125	9.45	9.44	33.490	25.869	214.9	0.378	4.14	181.0	64.1	19.1	1.57	19.6	0.02	0.02	0.01	0.02	126 10
141	9.15	9.14	33.651	26.043	198.7	0.411	3.76	164.1	57.8	23.2	1.71	22.2	0.02	0.01	0.01	0.02	142 09
150	ISL 9.00 D	8.98	33.738 D	26.135	190.0	0.413	3.45	0150.2 D	53.0	25.2	1.78	23.4	0.02	0.02	0.01	0.02	151
170	8.71	8.69	33.846	26.266	178.0	0.465	3.06	133.8	46.7	29.7	1.95	26.0	0.02	0.03	0.00	0.02	171 08
200	8.42	8.40	33.946	26.390	166.8	0.517	3.11	136.0	47.2	32.0	1.91	25.9	0.02	0.04	0.00	0.01	202 07
231	7.96	7.94	33.982	26.487	158.0	0.567	2.94	128.5	44.2	36.4	2.00	27.3	0.02	0.01			233 06
250	ISL 7.74 D	7.71	33.991 D	26.527	154.4	0.583	2.70	0117.6 D	40.4	40.7	2.14	29.2	0.02	0.01			252
271	7.38	7.35	34.011	26.595	148.1	0.628	2.18	95.1	32.3	45.5	2.29	31.4	0.02	0.00			273 05
300	ISL 7.03 D	7.00	34.026 D	26.656	142.6	0.658	1.95	085.0 D	28.7	50.6	2.43	33.1	0.02	0.01			302
320	6.81	6.78	34.038	26.695	139.1	0.699	1.71	74.5	24.9	54.1	2.53	34.2	0.02	0.01			323 04
380	6.26	6.23	34.095	26.812	128.5	0.779	1.04	45.2	15.0	65.6	2.81	37.6	0.02	0.03			383 03
400	ISL 6.03 D	5.99	34.116 D	26.860	124.1	0.792	0.83	036.3 D	12.0	69.5	2.88	38.3	0.01	0.03			403
440	5.72	5.68	34.150	26.926	118.1	0.853	0.63	27.6	9.0	77.1	3.02	39.7	0.01	0.02			444 02
500	ISL 5.37 D	5.33	34.211 D	27.016	110.0	0.910	0.39	016.9 D	5.5	86.0	3.12	41.1	0.01	0.04			504
515	5.23	5.19	34.205	27.028	108.9	0.938	0.41	18.0	5.8	88.2	3.14	41.4	0.01	0.05			519 01

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD	
31 39.3 N	123 4.0 W	10/04/2014	1041	UTC	4141 m	340 10 kn			1023.5 mb	14.4 C	12.9 C					041	
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db
0	15.67	15.67	33.056	24.327	358.9	0.000	5.78	252.3	101.7	2.6	0.33	0.0	0.01	0.19	0.08	0.02	0
2	15.67	15.67	33.056	24.327	358.9	0.007	5.78	252.3	101.7	2.6	0.33	0.0	0.01	0.19	0.08	0.02	2 24
10	15.66	15.66	33.044	24.320	359.9	0.036	5.79	252.8	101.9	2.5	0.34	0.0	0.01	0.09	0.08	0.01	10 19
10	15.66	15.66	33.048	24.324	359.5	0.036											10 20
20	ISL 15.43 D	15.42	33.026 D	24.360	356.4	0.054	5.80	0252.8 D	101.6	2.5	0.34	0.0	0.01	0.07	0.09	0.03	20
25	15.31	15.31	33.026	24.386	354.1	0.090	5.82	254.1	101.7	2.5	0.34	0.0	0.01	0.06	0.09	0.03	25 18
30	ISL 15.18 D	15.18	33.016 D	24.405	352.4	0.090	5.81	0253.2 D	101.2	2.6	0.33	0.0	0.01	0.07	0.11	0.03	30
40	15.00	15.00	33.017	24.446	348.9	0.142	5.85	255.3	101.5	2.6	0.32	0.0	0.00	0.09	0.15	0.03	40 17
50	14.71	14.70	33.014	24.507	343.4	0.177	5.87	256.6	101.4	2.6	0.33	0.0	0.00	0.06	0.22	0.07	50 16
62	14.24	14.23	33.013	24.607	334.1	0.218	5.91	258.1	101.1	2.8	0.37	0.0	0.01	0.01	0.50	0.27	62 15
75	ISL 14.21 D	14.20	33.300 D	24.835	312.8	0.244	5.72	0249.3 D	97.9	3.0	0.39	0.7	0.05	0.05	0.41	0.18	76
76	14.10	14.09	33.310	24.865	310.0	0.263	5.74	250.6	98.0	3.0	0.39	0.7	0.05	0.05	0.41	0.17	77 14
87	12.27	12.26	33.161	25.115	286.2	0.296	5.58	243.5	91.6	4.6	0.63	4.3	0.07	0.10	0.29	0.17	88 13
100	11.87	11.86	33.243	25.255	273.2	0.332	5.38	235.1	87.7	5.8	0.73	6.2	0.06	0.04	0.20	0.15	101 12
112	11.20	11.19	33.285	25.409	258.7	0.364	5.19	226.5	83.3	7.5	0.87	8.6	0.04	0.04	0.13	0.13	113 11
125	10.69	10.67	33.388	25.582	242.5	0.397	4.91	214.3	78.0	10.6	1.04	11.8	0.02	0.05	0.06	0.08	126 10
140	10.22	10.20	33.478	25.732	228.5	0.432	4.74	206.9	74.6	12.8	1.14	13.6	0.02	0.05	0.04	0.04	141 09
150	ISL 10.13 D	10.11	33.498 D	25.763	225.7	0.440	4.62	0201.2 D	72.6	16.7	1.37	17.0	0.02	0.04	0.03	0.03	151
170	9.27	9.27	33.689	26.052	198.5	0.497	3.32	144.8	51.2	24.4	1.83	23.7	0.02	0.01	0.01	0.02	171 08
200	8.66	8.64	33.834	26.266	178.6	0.554	3.14	137.0	47.8	29.5	1.92	26.0	0.01	0.06	0.00	0.02	202 07
230	8.22	8.19	33.954	26.428	163.7	0.605	2.94	128.3	44.4	33.5	1.97	27.0	0.02	0.01			232 06
250	ISL 8.01 D	7.98	33.984 D	26.483	158.7	0.623	2.66	0115.9 D	40.0	37.4	2.09	28.6	0.01	0.01			252
270	7.65	7.63	34.000	26.547	152.8	0.668	2.42	105.5	36.0	41.2	2.21	30.1	0.01	0.00			272 05
300	ISL 7.22 D	7.19	34.022 D	26.626</													

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.74	16.74	33.467	24.400	351.9	0.000	5.61	244.9	101.1	2.4	0.48	0.1	0.01	0.50	0.06	0.01	0	
2 A	16.74	16.74	33.467	24.400	352.0	0.007	5.61	244.9	101.1	2.4	0.48	0.1	0.01	0.50	0.06	0.01	2 24	
10 ISL	16.72 D	16.72	33.468	24.405	351.8	0.036	5.57	0242.9	0100.4	2.4	0.36	0.1	0.01	0.19	0.07	0.01	10	
13	16.72	16.72	33.467	24.405	351.9	0.046	5.63	245.6	101.4	2.4	0.31	0.1	0.01	0.07	0.01	0.01	13 21	
13	16.72	16.72	33.467	24.405	351.9	0.046											13 22	
20 ISL	16.45 D	16.45	33.469	24.469	346.0	0.058	5.65	0246.3	0101.3	2.4	0.32	0.0	0.01	0.18	0.07	0.01	20	
24 A	16.42	16.42	33.466	24.474	345.8	0.084	5.68	248.0	101.7	2.4	0.33	0.0	0.01	0.24	0.07	0.01	24 20	
30 ISL	16.40 D	16.40	33.465	24.479	345.5	0.093	5.62	0245.0	0100.7	2.4	0.33	0.1	0.00	0.21	0.07	0.02	30	
32 A	16.42	16.41	33.469	24.478	345.7	0.112	5.66	246.9	101.3	2.4	0.33	0.1	0.00	0.20	0.07	0.02	32 19	
44	16.40	16.39	33.472	24.485	345.4	0.153	5.64	246.2	101.0	2.4	0.31	0.0	0.00	0.04	0.09	0.02	44 18	
50 ISL	16.39 D	16.38	33.471	24.487	345.4	0.163	5.60	0244.2	0100.3	2.4	0.31	0.0	0.00	0.06	0.09	0.02	50	
56 A	16.37	16.36	33.470	24.491	345.2	0.195	5.64	246.3	100.9	2.4	0.30	0.0	0.00	0.08	0.10	0.02	56 17	
71	16.05	16.04	33.460	24.558	339.4	0.246	5.67	247.4	100.8	2.4	0.29	0.1	0.00	0.06	0.17	0.06	72 16	
75 ISL	16.04 D	16.03	33.469	24.567	338.6	0.249	5.64	0245.7	0100.2	2.4	0.31	0.1	0.00	0.09	0.18	0.08	76	
86	15.36	15.34	33.429	24.690	327.2	0.296	5.67	247.5	99.4	2.5	0.35	0.0	0.00	0.17	0.20	0.13	87 15	
100 A	14.81	14.79	33.402	24.789	318.1	0.341	5.66	247.3	98.2	2.9	0.37	0.4	0.05	0.04	0.22	0.13	101 13	
100	14.81	14.79	33.402	24.790	318.1	0.342											101 14	
108	14.12	14.11	33.388	24.923	305.5	0.366	5.61	244.9	95.9	3.3	0.44	1.3	0.10	0.05	0.22	0.13	109 12	
120	13.15	13.13	33.345	25.088	289.9	0.402	5.54	242.0	92.8	4.1	0.54	2.9	0.06	0.04	0.20	0.13	121 11	
125 ISL	12.92 D	12.90	33.327	25.121	287.0	0.394	5.51	0239.9	0118.4	4.3	0.57	3.3	0.06	0.05	0.20	0.13	126	
128 A	12.92	12.90	33.326	25.119	287.2	0.425	5.51	240.5	91.8	4.4	0.58	3.5	0.05	0.05	0.19	0.12	129 10	
145	11.65	11.63	33.311	25.350	265.3	0.472	5.23	228.2	84.8	7.0	0.80	7.4	0.02	0.06	0.13	0.11	146 09	
150 ISL	11.48 D	11.46	33.316	25.384	262.2	0.464	5.19	0225.8	0138.8	8.0	0.86	8.5	0.02	0.05	0.11	0.10	151	
171	10.35	10.33	33.482	25.715	230.9	0.537	4.74	207.1	74.9	12.2	1.11	13.1	0.01	0.03	0.03	0.04	172 08	
200	9.26	9.24	33.708	26.072	197.2	0.599	4.05	177.0	62.6	20.9	1.62	20.1	0.01	0.03	0.00	0.02	202 07	
231	8.79	8.77	33.884	26.285	177.5	0.657	3.51	153.1	53.6	27.0	1.78	23.6	0.01	0.03			233 06	
250 ISL	8.53 D	8.50	33.942	26.372	169.6	0.670	3.39	0147.6	51.6	30.0	1.85	24.8	0.01	0.02			252	
271	8.24	8.21	33.969	26.437	163.6	0.725	3.14	137.1	47.5	33.4	1.93	26.2	0.01	0.00			273 05	
300 ISL	7.93 D	7.90	34.001	26.508	157.2	0.752	2.56	0111.2	38.3	39.7	2.16	29.0	0.01	0.02			302	
320	7.55	7.51	34.018	26.578	150.8	0.803	2.23	97.5	33.2	44.0	2.32	31.0	0.01	0.03			323 04	
371	7.13	7.10	34.069	26.677	141.9	0.877	1.50	65.7	22.2	52.5	2.60	34.4	0.01	0.02			374 03	
400 ISL	6.78 D	6.74	34.091	26.743	135.9	0.899	1.25	054.3	18.2	57.9	2.73	35.8	0.01	0.04			403	
440	6.50	6.46	34.144	26.823	128.7	0.970	0.83	36.3	12.1	65.5	2.90	37.8	0.00	0.06			444 02	
500 ISL	5.79 D	5.74	34.169	26.933	118.4	1.027	0.62	026.8	8.8	76.6	3.08	39.9	0.01	0.05			504	
512	5.66	5.62	34.172	26.951	116.7	1.059	0.57	24.8	8.1	78.9	3.11	40.3	0.01	0.05			516 01	

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.8 32.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.77	15.77	33.487	24.636	329.4	0.000	7.57	330.7	133.9	0.2	0.11	0.0	0.04	0.00	4.13	0.32	0	
2	15.77	15.77	33.487	24.636	329.5	0.007	7.57	330.7	133.9	0.2	0.11	0.0	0.04	0.00	4.13	0.32	2 05	
5	14.95	14.95	33.486	24.816	312.4	0.016	7.66	334.6	133.3	0.2	0.08	0.0	0.03	0.00	4.31	0.42	5 04	
10	13.09	13.09	33.505	25.218	274.3	0.031	6.15	268.7	103.0	3.8	0.49	2.7	0.15	0.14	15.91	1.64	10 03	
15	11.95	11.95	33.543	25.468	250.7	0.044	4.44	193.9	72.6	12.2	1.21	12.3	0.31	1.59	8.85	0.99	15 02	
20	11.83	11.83	33.554	25.499	247.8	0.057	4.20	183.3	68.5	13.3	1.30	13.8	0.41	2.03	7.76	1.15	20 01	

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 88.5 30.1

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.14	14.14	33.464	24.971	297.5	0.000	9.27	404.9	158.7	4.6	0.75	7.8	0.33	0.66	9.21	0.52	0	
2	14.14	14.14	33.464	24.971	297.6	0.006	9.27	404.9	158.7	4.6	0.75	7.8	0.33	0.66	9.21	0.52	2 04	
5	14.02	14.02	33.464	24.997	291.5	0.015	9.27	404.7	158.2	0.3	0.10	0.0	0.03	0.06	9.74	0.58	5 03	
10	13.62	13.62	33.467	25.081	287.4	0.030	9.08	396.7	153.8	0.2	0.09	0.0	0.04	0.03	12.29	0.79	10 02	
15	11.84	11.83	33.504	25.459	251.5	0.043	5.35	233.6	87.2	0.2	0.08	0.1	0.03	0.05	24.28	2.56	15 01	

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

RV OCEAN STARR

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	14.44	14.44	33.502	24.938	300.7	0.000	7.25	316.4	124.8	0.9	0.23	0.0	0.02	0.16	2.08	0.41	0
2	14.44	14.44	33.502	24.938	300.7	0.006	7.25	316.4	124.8	0.9	0.23	0.0	0.02	0.16	2.08	0.41	2 07
5	14.23	14.23	33.505	24.985	296.4	0.015	7.15	312.3	122.6	0.8	0.23	0.0	0.01	0.06	2.08	0.44	5 06
10	14.03	14.03	33.501	25.023	292.9	0.030	7.40	323.1	126.4	0.9	0.21	0.0	0.02	0.06	2.98	0.46	10 05
20	13.35	13.35	33.505	25.167	279.5	0.058	6.36	277.8	107.1	2.4	0.41	0.7	0.04	0.17	4.99	1.16	20 04
30	12.10	12.10	33.533	25.432	254.5	0.085	5.00	218.3	82.0	8.9	1.02	9.5	0.24	0.79	9.05	1.64	30 03
40	11.15	11.15	33.550	25.621	236.8	0.110	3.88	169.2	62.3	14.5	1.41	15.6	0.27	0.46	3.55	1.55	40 02
50	10.70	10.69	33.612	25.751	224.6	0.133	3.41	149.0	54.4	18.2	1.61	18.7	0.22	0.32	1.42	0.72	50 01

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.82	15.82	33.492	24.629	330.1	0.000	5.92	258.7	104.8	1.5	0.31	0.2	0.01	0.18	0.28	0.08	0
2 A	15.82	15.82	33.492	24.629	330.1	0.007	5.92	258.7	104.8	1.5	0.31	0.2	0.01	0.18	0.28	0.08	2 24
8	15.36	15.36	33.488	24.729	320.9	0.026	6.21	271.5	109.0	1.0	0.29	0.1	0.00	0.08	0.48	0.21	8 22
8	15.36	15.36	33.488	24.729	320.9	0.027											8 23
10 ISL	15.22 D	15.22	33.490	D 24.761	317.9	0.030	6.19	D 269.6	D 108.2	0.9	0.29	0.1	0.00	0.08	0.56	0.26	10
14 A	14.95	14.95	33.485	24.816	312.8	0.045	6.47	282.9	112.6	0.7	0.29	0.1	0.00	0.08	0.71	0.34	14 21
18 A	14.60	14.60	33.476	24.885	306.3	0.058	6.61	288.8	114.1	0.7	0.26	0.0	0.01	0.03	0.89	0.46	18 20
20 ISL	14.26 D	14.26	33.459	D 24.944	300.8	0.061	6.59	D 287.2	D 113.1	1.7	0.36	0.8	0.05	0.06	1.19	0.61	20
25	13.35	13.35	33.435	25.112	284.9	0.078	5.46	238.8	92.0	4.2	0.61	2.8	0.16	0.15	1.95	0.98	25 19
30 ISL	12.65 D	12.64	33.425	D 25.244	272.4	0.090	4.89	D 213.1	D 81.1	7.3	0.85	7.1	0.21	0.15	1.46	0.84	30
32 A	12.46	12.46	33.430	25.284	268.6	0.098	4.66	203.6	76.9	8.5	0.95	8.8	0.23	0.15	1.26	0.78	32 18
40	11.99	11.98	33.437	25.380	259.7	0.119	4.42	193.1	72.3	10.0	1.08	10.8	0.22	0.13	0.85	0.53	40 17
48	11.37	11.36	33.497	25.542	244.5	0.139	4.04	176.7	65.3	13.2	1.27	14.2	0.09	0.05	0.44	0.38	48 16
50 ISL	11.28 D	11.27	33.516	D 25.572	241.7	0.142	4.04	D 175.7	D 65.0	13.7	1.30	14.7	0.09	0.04	0.42	0.37	50
58 A	10.83	10.82	33.554	25.683	231.3	0.163	3.79	165.6	60.5	15.9	1.42	16.7	0.08	0.02	0.34	0.32	58 15
66	10.56	10.56	33.619	25.781	222.2	0.181	3.46	151.2	55.0	18.6	1.58	18.9	0.06	0.04	0.14	0.23	67 14
74 A	10.23	10.22	33.685	25.889	212.0	0.198	3.17	138.4	50.0	21.1	1.70	20.8	0.05	0.04	0.10	0.18	75 13
75 ISL	10.22 D	10.21	33.710	D 25.911	210.0	0.198	3.09	D 134.6	D 48.8	21.3	1.71	20.9	0.04	0.04	0.10	0.17	76
87	10.06	10.05	33.786	25.997	202.0	0.225	2.91	126.9	45.7	23.6	1.83	22.5	0.03	0.04	0.06	0.15	88 12
100	9.91	9.90	33.854	26.076	194.8	0.251	2.63	115.0	41.3	25.7	1.93	23.9	0.04	0.04	0.04	0.17	101 11
119	9.74	9.72	33.999	26.219	181.7	0.287	2.17	94.7	33.9	29.7	2.11	25.9	0.02	0.04	0.02	0.10	120 10
125 ISL	9.64 D	9.62	34.015	D 26.248	179.0	0.296	2.15	D 93.4	D 33.5	30.5	2.14	26.3	0.02	0.03	0.02	0.09	126
140	9.50	9.48	34.074	26.319	172.7	0.324	2.09	91.3	32.5	32.6	2.20	27.2	0.02	0.01	0.01	0.07	141 09
150 ISL	9.37 D	9.35	34.127	D 26.381	166.9	0.340	1.71	D 74.4	D 26.5	33.9	2.26	27.8	0.02	0.02	0.01	0.10	151
170	9.24	9.22	34.153	26.422	163.4	0.374	1.53	66.9	23.7	36.6	2.37	28.9	0.02	0.05	0.02	0.16	171 08
200	9.08	9.06	34.185	26.475	159.1	0.422	1.34	58.6	20.7	38.8	2.44	29.6	0.03	0.09	0.01	0.10	202 07
231	8.82	8.80	34.213	26.538	153.6	0.471	1.18	51.6	18.1	41.7	2.58	30.4	0.04	0.07			233 06
250 ISL	8.53 D	8.50	34.230	D 26.597	148.3	0.500	1.04	D 45.1	D 15.8	44.4	2.61	31.3	0.03	0.07			252
271	8.35	8.32	34.233	26.628	145.7	0.530	0.99	43.2	15.0	47.3	2.65	32.2	0.02	0.08			273 05
300 ISL	8.00 D	7.97	34.231	D 26.680	141.1	0.573	0.92	D 39.9	D 13.8	50.2	2.71	33.2	0.02	0.08			302
321	7.85	7.82	34.241	26.709	138.6	0.601	0.82	35.8	12.3	52.3	2.76	33.9	0.01	0.08			324 04
371	7.37	7.33	34.255	26.791	131.4	0.669	0.61	26.8	9.1	59.0	2.89	35.7	0.01	0.08			374 03
400 ISL	7.13 D	7.09	34.266	D 26.833	127.7	0.708	0.51	D 22.3	D 7.6	62.1	2.94	36.4	0.01	0.08			403
440	6.86	6.82	34.278	26.880	123.7	0.757	0.43	18.8	6.3	66.3	3.00	37.3	0.01	0.07			444 02
500 ISL	6.43 D	6.38	34.308	D 26.963	116.4	0.832	0.28	D 12.3	D 4.1	73.9	3.12	38.6	0.01	0.14			504
515	6.31	6.27	34.316	26.984	114.5	0.846	0.25	11.0	3.6	75.8	3.15	38.9	0.01	0.16			519 01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.20	16.20	33.521	24.566	336.1	0.000	5.77	251.9	102.9	2.2	0.29	0.3	0.01	0.41	0.14	0	
2	16.20	16.20	33.521	24.566	336.2	0.007	5.77	251.9	102.9	2.2	0.29	0.3	0.01	0.41	0.14	2 18	
10	16.18	16.17	33.521	24.571	335.9	0.034	5.77	251.9	102.8	2.2	0.29	0					

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 37.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.84	16.84	33.552	24.442	347.9	0.000	5.72	249.8	103.3	2.4	0.29	0.0	0.02	0.05	0.23	0.05	0	
2	16.84	16.84	33.552	24.442	348.0	0.007	5.72	249.8	103.3	2.4	0.29	0.0	0.02	0.05	0.23	0.05	2 22	
10	16.81	16.81	33.551	24.448	347.7	0.035	5.70	248.9	102.9	2.4	0.29	0.0	0.01	0.00	0.22	0.05	10 20	
10	16.81	16.81	33.551	24.448	347.7	0.033											10 21	
20	16.50	16.49	33.545	24.517	341.5	0.069	5.72	250.0	102.7	2.5	0.31	0.0	0.01	0.01	0.25	0.07	20 19	
30	14.88	14.88	33.447	24.803	314.5	0.102	6.24	272.8	108.4	0.9	0.34	0.0	0.03	0.01	2.19	1.17	30 18	
40	12.87	12.86	33.425	25.202	276.7	0.132	5.10	222.7	84.9	5.9	0.78	5.4	0.26	0.12	2.61	1.12	40 16	
50	12.13	12.12	33.455	25.368	261.2	0.159	4.40	192.2	72.2	10.2	1.09	10.9	0.23	0.02	0.60	0.39	50 15	
60	11.45	11.44	33.511	25.539	245.1	0.184	3.97	173.4	64.2	13.2	1.30	14.3	0.07	0.04	0.28	0.28	60 14	
70	11.06	11.05	33.563	25.650	234.7	0.208	3.70	161.5	59.3	15.6	1.45	16.5	0.06	0.01	0.16	0.17	71 13	
75 ISL	10.86	D 10.85	33.582	D 25.701	230.0	0.189	3.72	D 161.8	D 59.4	16.3	1.49	17.2	0.05	0.01	0.13	0.15	76	
84	10.66	10.65	33.614	25.761	224.5	0.240	3.53	154.1	56.1	17.7	1.57	18.4	0.04	0.01	0.08	0.11	85 12	
100	10.18	10.16	33.761	25.959	206.0	0.274	2.97	129.7	46.8	22.2	1.81	21.5	0.03	0.01	0.02	0.07	101 11	
120	9.77	9.76	33.888	26.127	190.5	0.314	2.59	113.2	40.5	26.6	1.98	24.3	0.02	0.01	0.01	0.06	121 10	
125 ISL	9.73 D	9.71	33.927	D 26.164	187.0	0.294	2.54	D 110.7	D 39.7	27.5	2.02	24.8	0.03	0.01	0.01	0.06	126	
140	9.59	9.57	33.996	26.242	179.9	0.351	2.27	99.1	35.3	30.2	2.12	26.2	0.03	0.01	0.01	0.06	141 09	
150 ISL	9.36 D	9.34	34.003	D 26.285	176.0	0.339	2.29	D 99.7	D 35.5	31.8	2.19	26.9	0.03	0.01	0.01	0.06	151	
170	9.28	9.26	34.120	26.391	166.4	0.403	1.72	75.3	26.7	34.9	2.33	28.3	0.01	0.00	0.00	0.05	171 08	
200	9.06	9.04	34.184	26.477	158.9	0.452	1.41	61.6	21.7	38.6	2.45	29.5	0.03	0.02	0.00	0.04	202 07	
230	8.70	8.68	34.211	26.555	151.9	0.498	1.21	52.9	18.5	42.0	2.54	30.7	0.03	0.02			232 06	
250 ISL	8.53 D	8.51	34.224	D 26.592	148.7	0.500	1.09	D 47.2	D 16.5	44.4	2.60	31.5	0.05	0.07			252	
270	8.27	8.25	34.225	26.633	145.2	0.558	0.99	43.4	15.1	46.8	2.66	32.3	0.06	0.12			272 05	
300 ISL	8.04 D	8.01	34.238	D 26.679	141.3	0.573	0.88	D 38.2	D 13.2	49.9	2.73	33.2	0.03	0.07			302	
320	7.80	7.77	34.236	26.713	138.2	0.629	0.84	36.6	12.5	52.0	2.77	33.8	0.01	0.03			323 04	
380	7.27	7.23	34.260	26.809	129.8	0.709	0.60	26.2	8.9	59.3	2.92	35.7	0.02	0.02			383 03	
400 ISL	7.15 D	7.11	34.265	D 26.830	128.0	0.708	0.53	D 23.2	D 7.9	62.1	2.97	36.4	0.02	0.02			403	
440	6.71	6.67	34.282	26.904	121.3	0.785	0.41	17.7	5.9	67.7	3.06	37.7	0.02	0.01			444 02	
500 ISL	6.35 D	6.30	34.305	D 26.971	115.6	0.831	0.30	D 13.2	D 4.4	74.0	3.15	38.8	0.02	0.02			504	
514	6.28	6.23	34.313	26.987	114.2	0.872	0.27	11.7	3.9	75.5	3.17	39.0	0.02	0.02			518 01	

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 53.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.31	15.31	33.394	24.668	326.4	0.000	5.85	255.7	102.5	2.9	0.40	0.5	0.05	0.09	0.36	0.08	0	
2	15.31	15.31	33.394	24.668	326.4	0.007	5.85	255.7	102.5	2.9	0.40	0.5	0.05	0.09	0.36	0.08	2 22	
10	14.77	14.77	33.391	24.782	315.8	0.032	5.92	258.8	102.6	2.9	0.40	0.5	0.04	0.03	0.41	0.09	10 20	
10	14.77	14.77	33.391	24.783	315.8	0.033											10 21	
20	14.74	14.73	33.396	24.794	315.0	0.064	5.89	257.5	102.0	2.8	0.42	0.5	0.04	0.12	0.47	0.07	20 19	
30	14.72	14.71	33.397	24.800	314.8	0.095	5.88	256.9	101.7	2.8	0.41	0.4	0.05	0.07	0.56	0.06	30 17	
30	14.72	14.71	33.397	24.800	314.8	0.096											30 18	
40	14.70	14.70	33.398	24.804	314.8	0.127	5.85	255.8	101.3	2.8	0.45	0.5	0.06	0.20	0.59	0.10	40 16	
50	14.30	14.29	33.386	24.882	307.6	0.158	5.74	251.0	98.5	3.3	0.48	1.4	0.12	0.17	0.51	0.17	50 15	
61	13.17	13.16	33.356	25.090	288.0	0.191	5.37	234.7	90.0	5.2	0.71	4.7	0.33	0.13	0.42	0.22	61 14	
70	12.55	12.54	33.337	25.197	278.1	0.216	5.32	232.5	88.0	6.5	0.81	6.8	0.18	0.05	0.31	0.20	71 13	
75 ISL	12.34 D	12.33	33.332	D 25.233	274.7	0.200	5.14	D 224.0	D 84.7	7.5	0.88	8.1	0.14	0.05	0.27	0.18	76	
85	11.52	11.51	33.347	25.399	259.0	0.257	4.84	211.6	78.3	9.6	1.03	10.7	0.06	0.05	0.18	0.14	86 12	
100	10.65	10.64	33.436	25.624	237.9	0.294	4.33	189.2	68.8	14.1	1.31	15.3	0.03	0.04	0.11	0.08	101 11	
121	9.74	9.73	33.650	25.946	207.6	0.341	3.53	154.2	55.0	21.3	1.69	21.3	0.02	0.17	0.03	0.04	122 10	
125 ISL	9.71 D	9.70	33.662	D 25.961	206.3	0.320	3.54	D 154.2	D 55.2	22.2	1.72	21.9	0.02	0.14	0.03	0.04	126	
141	9.32	9.30	33.783	26.120	191.4	0.381	3.14	137.2	48.6	26.0	1.85	24.2	0.02	0.02	0.02	0.05	142 09	
150 ISL	9.22 D	9.21	33.819	D 26.163	187.5	0.369	2.98	D 129.8	D 46.0	26.7	1.89	24.6	0.02	0.10	0.02	0.04	151	
171	9.05	9.03	33.865	26.227	181.8	0.437	2.89	126.0	44.4	28.4	1.98	25.6	0.02	0.29	0.01	0.04	172 08	
200	8.71	8.69	34.058	26.433	162.8	0.487	2.00	87.3	30.5	36.6	2.26	29.1	0.02	0.09	0.00	0.03	202 07	
230	8.38	8.35	34.126	26.539	153.3	0.534	1.60	69.9	24.3	41.5	2.43	30.9	0.03	0.03			232 06	
250 ISL	8.28 D	8.25	34.158	D 26.579	149.8	0.537	1.39	D 60.6	D 21.1	43.1	2.48	31.4	0.03	0.03			252	
271	8.18	8.16	34.166	26.600	148.2	0.596	1.32	57.4	19.9	44.9	2.54	32.0	0.03	0.02			273 05	
300 ISL	7.96 D	7.93	34.189	D 26.652	143.7	0.611	1.09	D 47.5	D 16.4	49.8	2.66	33.5	0.02	0.01			302	
320	7.66	7.62	34.217	26.718	137.6	0.666	0.87	38.0	13.0	53.1	2.74	34.5	0.02	0.01			323 04	
381	7.2																	

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db		
0	15.06	15.06	33.408	24.733	320.2	0.000	5.86	256.1	102.2	2.5	0.40	0.0	0.03	0.34	0.34	0.10	0		
2 A	15.06	15.06	33.408	24.733	320.3	0.006	5.86	256.1	102.2	2.5	0.40	0.0	0.03	0.34	0.34	0.10	2	24	
10 ISL	14.96 D	14.96	33.406 D	24.754	318.5	0.032	5.86	D255.3	D101.9	2.5	0.40	0.0	0.01	0.15	0.33	0.10	10		
12 A	14.93	14.92	33.408	24.762	317.8	0.038	5.89	257.2	102.4	2.5	0.40	0.0	0.01	0.10	0.33	0.10	12	22	
12	14.93	14.92	33.410	24.764	317.7	0.038											12	23	
15 A	14.86	14.86	33.407	24.776	316.6	0.048	5.87	256.5	101.9	2.5	0.37	0.0	0.02	0.26	0.34	0.11	15	21	
20 ISL	14.84 D	14.84	33.405 D	24.779	316.5	0.059	5.88	D256.4	D102.1	2.5	0.37	0.0	0.02	0.17	0.36	0.12	20		
27 A	14.81	14.81	33.403	24.784	316.2	0.086	5.89	257.2	102.1	2.5	0.37	0.0	0.01	0.05	0.39	0.13	27	20	
30 ISL	14.81 D	14.81	33.402 D	24.783	316.4	0.091	5.87	D255.8	D101.8	2.5	0.37	0.0	0.01	0.08	0.38	0.13	30		
39	14.78	14.78	33.400	24.789	316.2	0.124	5.85	255.6	101.4	2.5	0.38	0.0	0.02	0.17	0.34	0.12	39	19	
50 A	14.69	14.68	33.392	24.804	315.1	0.159	5.81	253.8	100.5	2.7	0.43	0.2	0.03	0.37	0.31	0.14	50	17	
50	14.69	14.68	33.383	24.796	315.8	0.157											50	18	
57	13.50	13.49	33.332	25.005	296.0	0.180	5.69	248.6	96.0	3.9	0.53	2.3	0.17	0.07	0.64	0.38	57	16	
64 A	12.40	12.39	33.296	25.193	278.2	0.200	5.45	238.1	89.9	5.1	0.69	5.2	0.11	0.04	0.46	0.38	65	15	
74	11.04	11.04	33.333 D	25.442	254.6	0.227	4.95	216.2	79.3	9.1	1.00	10.9	0.02	0.05	0.17	0.14	75	14	
75 ISL	11.02 D	11.01	33.342 D	25.484	250.6	0.215	5.04	D219.3	D80.6	9.4	1.01	11.1	0.02	0.05	0.16	0.13	76		
85	10.48	10.47	33.389	25.616	238.3	0.253	4.79	209.3	75.9	11.9	1.11	13.1	0.02	0.02	0.07	0.06	86	12	
100 ISL	9.91 D	9.90	33.491 D	25.792	221.7	0.257	4.31	D187.8	D67.5	15.9	1.39	16.9	0.01	0.09	0.04	0.04	101		
101	9.91	9.90	33.486	25.788	222.1	0.290	4.30	188.0	67.3	16.2	1.41	17.2	0.01	0.09	0.04	0.04	102	11	
122	9.64	9.62	33.624	25.943	207.9	0.335	3.81	166.3	59.2	19.7	1.57	20.1	0.02	0.00	0.02	0.02	123	10	
125 ISL	9.48 D	9.46	33.733 D	26.055	197.3	0.310	3.43	D149.4	D53.2	20.6	1.61	20.7	0.02	0.00	0.02	0.02	126		
142	9.20	9.19	33.842	26.184	185.3	0.374	3.24	141.5	50.0	25.8	1.81	23.8	0.01	0.02	0.01	0.02	143	09	
150 ISL	9.12 D	9.10	33.904 D	26.246	179.6	0.357	3.10	D134.7	D47.7	27.4	1.86	24.6	0.01	0.02	0.00	0.01	151		
168	8.79	8.77	33.968	26.349	170.1	0.420	2.79	122.0	42.7	31.1	1.97	26.3	0.01	0.03	0.00	0.01	169	08	
200	8.32	8.30	34.018	26.462	159.9	0.473	2.46	107.5	37.3	36.3	2.12	28.5	0.03	0.06	0.00	0.01	202	07	
232	8.02	7.99	34.078	26.554	151.6	0.523	1.82	79.3	27.3	42.4	2.36	31.3	0.02	0.06			234	06	
250 ISL	7.90 D	7.88	34.108 D	26.595	148.1	0.519	1.65	D71.6	D24.7	44.3	2.43	31.9	0.02	0.05			252		
270	7.85	7.82	34.120	26.614	146.7	0.579	1.48	64.7	22.2	46.5	2.50	32.6	0.02	0.03			272	05	
300 ISL	7.68 D	7.65	34.156 D	26.666	142.2	0.593	1.19	D51.6	D17.7	51.2	2.62	34.1	0.01	0.03			302		
321	7.35	7.32	34.162	26.719	137.3	0.652	1.02	44.4	15.1	54.5	2.70	35.2	0.01	0.03			324	04	
370	7.03	6.99	34.229	26.817	128.6	0.717	0.65	28.3	9.6	61.6	2.90	36.6	0.01	0.00			373	03	
400 ISL	6.74 D	6.70	34.237 D	26.864	124.5	0.726	0.56	D24.1	D8.1	64.7	2.94	37.3	0.01	0.01			403		
438	6.55	6.51	34.251	26.901	121.4	0.802	0.48	21.1	7.0	68.6	2.99	38.2	0.01	0.03			442	02	
500 ISL	6.18 D	6.14	34.275 D	26.968	115.6	0.848	0.37	D16.1	D5.3	74.8	3.05	39.4	0.01	0.07			504		
516	6.10	6.06	34.283	26.985	114.2	0.893	0.34	15.0	5.0	76.4	3.07	39.7	0.01	0.08			520	01	

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db		
0	15.03	15.03	33.229	24.601	332.8	0.000	5.85	255.4	101.8	3.0	0.34	0.1	0.01	0.08	0.21	0.05	0		
3	15.03	15.03	33.229	24.601	332.8	0.010	5.85	255.4	101.8	3.0	0.34	0.1	0.01	0.08	0.21	0.05	3	22	
9	15.03	15.03	33.235	24.606	332.6	0.031											9	21	
10 ISL	15.03 D	15.03	33.233	24.605	332.7	0.033	5.88	256.7	102.3	2.9	0.35	0.1	0.00	0.07	0.22	0.05	10	20	
25	15.03	15.03	33.233	24.605	333.2	0.083	5.85	255.5	101.8	2.9	0.34	0.0	0.00	0.04	0.21	0.05	25	19	
30 ISL	15.03 D	15.02	33.227 D	24.602	333.7	0.089	5.86	D255.6	D102.0	2.9	0.34	0.0	0.00	0.04	0.22	0.05	30		
40	14.96	14.95	33.228	24.619	332.4	0.133	5.84	255.2	101.5	2.9	0.34	0.0	0.00	0.05	0.23	0.05	40	18	
50	14.38	14.38	33.304	24.800	315.4	0.166	5.90	257.9	101.4	3.1	0.40	0.3	0.02	0.10	0.88	0.32	50	17	
62	13.10	13.09	33.128	24.928	303.5	0.203	5.88	257.0	98.3	3.8	0.50	1.6	0.08	0.09	0.75	0.40	62	16	
74	12.03	12.02	33.106	25.117	285.6	0.239											75	15	
75	12.02	12.01	33.106	25.119	285.5	0.241	5.64	246.6	92.2	5.0	0.69	5.0	0.08	0.05	0.48	0.30	76	14	
88	11.52	11.51	33.166	25.259	272.5	0.277	5.49	239.8	88.7	6.0	0.78	6.6	0.04	0.06	0.29	0.21	89	13	
100	11.27	11.26	33.306	25.412	258.2	0.309	5.14	224.6	82.7	8.1	0.91	9.2	0.02	0.05	0.15	0.12	101	12	
113	10.84	10.82	33.421	25.580	242.4	0.342	4.97	217.0	79.3	9.6	0.97	10.7	0.01	0.05	0.08	0.06	114	11	
125 ISL	10.41 D	10.40	33.447 D	25.675	233.6	0.342	4.81	D209.2	D76.0	11.5	1.08	12.6	0.01	0.06	0.05	0.04	126		
126	10.33	10.32	33.446	25.687	232.4	0.373	4.81	210.2	76.0	11.7	1.09	12.8	0.01	0.06	0.05	0.04	127	10	
141	9.50	9.48	33.537	25.898	212.5	0.406	4.25	185.8	65.9	18.0	1.47	18.7	0.01	0.03	0.02	0.02	142	09	
150 ISL	9.30 D	9.28	33.655 D	26.023	200.8	0.396													

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 90.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.50	15.50	33.138	24.428	349.3	0.000	5.82	254.1	102.2	3.0	0.34	0.3	0.01	0.20	0.13	0.02	0		
2	15.50	15.50	33.138	24.428	349.3	0.007	5.82	254.1	102.2	3.0	0.34	0.3	0.01	0.20	0.13	0.02	2	22	
10	15.51	15.50	33.136	24.426	349.8	0.035	5.86	255.8	102.8	3.0	0.35	0.1	0.00	0.03	0.14	0.02	10	20	
10	15.51	15.50	33.136	24.426	349.8	0.034											10	21	
20	ISL	15.50	15.50	33.135	D 24.426	350.1	0.053	5.83	D 254.3	D 102.4	3.0	0.34	0.0	0.00	0.04	0.13	0.02	20	
25	15.51	15.51	33.136	24.426	350.3	0.088	5.83	254.6	102.4	3.0	0.33	0.0	0.00	0.04	0.13	0.02	25	19	
30	ISL	15.50	15.49	33.135	D 24.428	350.3	0.088	5.84	D 254.6	D 102.5	3.0	0.34	0.0	0.00	0.04	0.16	0.03	30	
40	14.80	14.79	33.112	24.563	337.7	0.139	5.86	255.8	101.4	3.0	0.35	0.0	0.00	0.05	0.20	0.04	40	18	
50	ISL	14.54	14.53	33.096	D 24.607	333.8	0.157	5.95	D 259.1	D 102.3	3.0	0.36	0.0	0.01	0.03	0.39	0.14	50	
51	14.46	14.45	33.089	24.619	332.7	0.176	5.93	259.0	101.9	3.0	0.36	0.0	0.01	0.03	0.41	0.14	51	17	
61	13.54	13.53	33.069	24.794	316.2	0.209											61	16	
62	13.41	13.40	33.063	24.815	314.2	0.212	5.79	253.0	97.4	3.5	0.48	1.4	0.14	0.09	0.72	0.40	62	15	
75	12.66	12.65	33.174	25.049	292.3	0.251	5.62	245.4	93.1	4.3	0.58	3.6	0.08	0.05	0.38	0.31	76	14	
88	11.48	11.47	33.155	25.257	272.6	0.288	5.50	240.0	88.8	5.7	0.73	6.0	0.03	0.05	0.21	0.17	89	13	
100	10.67	10.66	33.187	25.426	256.7	0.320	5.31	232.0	84.3	9.4	1.06	11.0	0.02	0.05	0.08	0.06	101	12	
112	10.19	10.18	33.265	25.570	243.2	0.350	4.92	214.8	77.3	12.3	1.26	14.2	0.01	0.10	0.04	0.04	113	11	
125	9.85	9.84	33.315	25.666	234.3	0.381	4.66	203.5	72.7	14.7	1.38	16.4	0.01	0.04	0.02	0.03	126	10	
140	9.63	9.62	33.432	25.794	222.4	0.415	4.34	189.6	67.5	17.5	1.51	18.6	0.03	0.03	0.01	0.03	141	09	
150	ISL	9.29	D 9.27	33.569	D 25.958	207.0	0.405	4.11	D 178.8	D 63.4	20.7	1.65	20.8	0.02	0.03	0.01	0.03	151	
170	8.97	8.96	33.752	26.151	189.0	0.476	3.23	140.9	49.5	27.1	1.93	25.3	0.01	0.04	0.00	0.02	171	08	
200	8.59	8.57	33.891	26.321	173.4	0.531	2.82	122.9	42.9	31.7	2.07	27.5	0.01	0.05	0.00	0.02	202	07	
231	8.29	8.27	33.959	26.420	164.4	0.583	3.04	132.6	45.9	33.2	1.99	26.8	0.00	0.06			233	06	
250	ISL	8.04	D 8.01	33.981	D 26.476	159.4	0.584	2.95	D 128.1	D 44.3	37.0	2.13	28.6	0.01	0.06			252	
269	7.79	7.76	34.005	26.531	154.4	0.644	2.35	102.5	35.1	40.9	2.27	30.4	0.02	0.06			271	05	
300	ISL	7.44	D 7.41	34.013	D 26.588	149.3	0.661	2.11	D 91.7	D 31.3	46.4	2.40	32.3	0.02	0.05			302	
321	7.03	7.00	34.019	26.650	143.5	0.721	1.90	83.0	28.0	50.1	2.48	33.6	0.02	0.05			324	04	
379	6.48	6.44	34.066	26.763	133.4	0.802	1.22	53.4	17.8	60.9	2.78	37.1	0.01	0.06			382	03	
400	ISL	6.28	D 6.24	34.084	D 26.802	129.8	0.801	1.06	D 46.3	D 15.4	64.4	2.85	37.9	0.01	0.05			403	
439	5.98	5.94	34.114	26.865	124.1	0.879	0.84	36.5	12.0	71.0	2.98	39.3	0.02	0.03			443	02	
500	ISL	5.45	D 5.41	34.160	D 26.967	114.8	0.924	0.56	D 24.4	D 8.0	81.0	3.12	40.9	0.03	0.05			504	
514	5.37	5.33	34.172	26.985	113.1	0.968	0.52	22.5	7.3	83.3	3.15	41.3	0.03	0.05			518	01	

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

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.29	16.29	33.454	24.493	343.0	0.000	5.65	246.7	100.9	2.4	0.30	0.2	0.01	0.52	0.07	0.01	0		
2 A	16.29	16.29	33.454	24.494	343.1	0.007	5.65	246.7	100.9	2.4	0.30	0.2	0.01	0.52	0.07	0.01	2	24	
10 ISL	16.29	D 16.28	33.452	D 24.494	343.3	0.035	5.66	D 246.8	D 101.1	2.4	0.29	0.1	0.01	0.31	0.07	0.01	10		
11	16.29	16.28	33.454	24.495	343.2	0.038	5.65	246.6	100.9	2.4	0.29	0.1	0.01	0.28	0.07	0.01	11	22	
11	16.29	16.28	33.455	24.496	343.1	0.037											11	23	
20 ISL	16.29	D 16.28	33.452	D 24.494	343.7	0.054	5.66	D 246.6	D 101.1	2.4	0.29	0.0	0.01	0.16	0.06	0.01	20		
22 A	16.29	16.28	33.453	24.495	343.6	0.076	5.65	246.8	101.0	2.4	0.29	0.0	0.01	0.13	0.06	0.01	22	21	
28 A	16.28	16.28	33.454	24.497	343.7	0.096	5.64	246.4	100.8	2.4	0.29	0.0	0.01	0.04	0.07	0.01	28	20	
30 ISL	16.28	D 16.28	33.453	D 24.496	343.8	0.088	5.65	D 246.4	D 101.0	2.4	0.29	0.0	0.01	0.05	0.07	0.01	30		
38	16.29	16.28	33.454	24.497	344.0	0.131	5.65	246.8	101.0	2.4	0.29	0.0	0.01	0.10	0.07	0.01	38	19	
48 A	16.28	16.27	33.455	24.500	344.1	0.165	5.65	246.5	100.8	2.3	0.30	0.0	0.01	0.13	0.08	0.01	48	18	
50 ISL	16.27	16.27	33.455	D 24.502	344.0	0.158	5.68	D 247.4	D 101.4	2.3	0.30	0.0	0.01	0.15	0.08	0.02	50		
61	16.15	16.14	33.460	24.534	341.3	0.210	5.67	247.5	101.0	2.4	0.31	0.0	0.01	0.27	0.10	0.03	61	17	
75	15.88	15.87	33.454	24.592	336.2	0.257	5.65	246.6	100.1	2.4	0.29	0.0	0.00	0.08	0.15	0.06	76	16	
86 A	15.73	15.72	33.483	24.648	331.3	0.294	5.67	247.6	100.2	2.5	0.29	0.0	0.01	0.09	0.18	0.10	87	15	
94	14.79	14.78	33.449	24.828	314.2	0.320	5.63	245.7	97.5	2.8	0.35	0.3	0.09	0.08	0.28	0.22	95	14	
100 ISL	14.00	D 13.98	33.384	D 24.946	303.1	0.325	5.74	D 249.9	D 97.8	3.3	0.42	1.3	0.08	0.11	0.27	0.20	101		
105	13.09	13.08	33.337	25.092	289.1	0.352											106	13	
106	13.04	13.03	33.335	25.100	288.3	0.356	5.59	244.2	93.4	3.7	0.49	2.3	0.08	0.13	0.26	0.18	107	12	
110 A	12.79	12.78	33.379	25.185	280.3	0.367	5.48	239.2	91.0	4.5	0.55	3.6	0.03	0.05	0.20	0.20	111	11	
125 ISL	12.06	D 12.05	33.356	D 25.308	269.0	0.387	5.38	D 234.3	D 88.1	6.0	0.69	6.0	0.02	0.03	0.15	0.14	126		
128	11.88	11.86																	

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP	
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μg/L	μg/L	db		
0	16.89	16.89	33.578	24.450	347.1	0.000	5.58	243.4	100.9	2.3	0.28	0.0	0.01	0.04	0.07	0.01	0
2	16.89	16.89	33.578	24.450	347.2	0.007	5.58	243.4	100.9	2.3	0.28	0.0	0.01	0.04	0.07	0.01	2 20
10 ISL	16.90 D	16.89	33.571 D	24.444	348.1	0.035	5.60	D244.1	D101.3	2.3	0.28	0.0	0.00	0.06	0.07	0.01	10
11	16.89	16.89	33.579	24.451	347.5	0.038	5.59	244.0	101.1	2.3	0.28	0.0	0.00	0.06	0.07	0.01	11 19
20 ISL	16.90 D	16.90	33.571 D	24.444	348.5	0.070	5.60	D244.1	D101.3	2.3	0.29	0.0	0.00	0.05	0.07	0.01	20
26	16.90	16.89	33.571	24.445	348.6	0.090	5.59	243.9	101.1	2.3	0.29	0.0	0.01	0.05	0.07	0.01	26 18
30 ISL	16.90 D	16.89	33.571 D	24.445	348.7	0.105	5.60	D244.1	D101.3	2.3	0.29	0.0	0.01	0.08	0.07	0.01	30
40	16.89	16.89	33.572	24.448	348.9	0.139	5.59	244.1	101.2	2.3	0.29	0.0	0.01	0.16	0.07	0.01	40 17
50	16.85	16.84	33.568	24.456	348.4	0.174	5.60	D244.3	D101.3	2.3	0.29	0.0	0.01	0.13	0.08	0.01	50 16
62	16.79	16.78	33.559	24.464	348.1	0.216	5.61	244.7	101.2	2.3	0.29	0.0	0.01	0.06	0.11	0.01	62 15
75	16.61	16.60	33.529	24.483	346.8	0.261	5.61	244.9	100.9	2.3	0.29	0.0	0.01	0.09	0.12	0.02	76 14
87	15.99	15.98	33.548	24.460	332.1	0.302	5.65	246.5	100.3	2.5	0.29	0.0	0.01	0.03	0.18	0.11	88 13
100	15.03	15.02	33.505	24.819	315.3	0.344	5.67	247.7	98.9	2.8	0.33	0.1	0.03	0.04	0.29	0.12	101 12
112	13.81	13.80	33.411	25.005	297.8	0.381	5.61	245.1	95.4	3.4	0.42	1.4	0.09	0.05	0.30	0.10	113 11
125	12.42	12.40	33.304	25.199	279.4	0.418	5.44	237.7	89.8	4.9	0.62	4.4	0.06	0.04	0.22	0.16	126 10
140	11.82	11.81	33.326	25.329	267.2	0.459	5.26	229.6	85.6	6.4	0.75	6.7	0.04	0.03	0.14	0.12	141 09
150 ISL	11.61 D	11.59	33.362 D	25.397	261.0	0.490	5.22	D227.3	D 84.6	8.0	0.86	8.5	0.04	0.03	0.12	0.11	151
170	10.66	10.64	33.448	25.635	238.5	0.536	4.80	209.7	76.3	11.2	1.07	12.0	0.04	0.04	0.07	0.07	171 08
200	9.54	9.52	33.549	25.902	213.5	0.603	4.38	191.0	67.9	19.6	1.53	19.2	0.04	0.04	0.02	0.04	202 07
230	9.00	8.97	33.689	26.100	195.1	0.665	3.96	173.0	60.8	2.5	1.79	23.2	0.04	0.05			232 06
250 ISL	8.73 D	8.70	33.806 D	26.234	182.7	0.708	3.74	D162.6	D 57.0	28.4	1.89	24.8	0.03	0.04			252
271	8.57	8.54	33.912	26.342	172.8	0.740	3.10	135.1	47.1	31.7	1.99	26.5	0.02	0.03			273 05
300 ISL	8.28 D	8.25	34.023 D	26.474	160.7	0.794	2.48	D107.9	D 37.5	37.7	2.18	28.7	0.02	0.05			302
320	7.95	7.92	34.053	26.546	154.1	0.820	2.11	92.2	31.7	41.8	2.31	30.3	0.02	0.07			323 04
380	7.61	7.57	34.174	26.694	141.0	0.908	1.16	50.5	17.3	51.3	2.67	33.6	0.03	0.03			383 03
400 ISL	7.49 D	7.45	34.196 D	26.727	138.1	0.944	0.98	D 42.8	D 14.6	54.5	2.76	34.3	0.02	0.03			403
440	7.26	7.21	34.283	26.830	128.9	0.990	0.52	22.8	7.7	60.7	2.94	35.8	0.01	0.03			444 02
500 ISL	6.50 D	6.46	34.311 D	26.955	117.2	1.072	0.30	D 13.1	D 4.4	72.3	3.12	38.4	0.01	0.01			504
515	6.27	6.22	34.313	26.988	114.1	1.081	0.28	12.4	4.1	75.2	3.16	39.0	0.01	0.01			519 01

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP	
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μg/L	μg/L	db		
0	17.01	17.01	33.528	24.384	353.4	0.000	5.58	243.4	101.1	2.3	0.30	0.1	0.02	0.46	0.07	0.00	0
2	17.01	17.01	33.528	24.384	353.5	0.007	5.58	243.4	101.1	2.3	0.30	0.1	0.02	0.46	0.07	0.00	2 23
10	17.01	17.00	33.523	24.382	354.0	0.035	5.59	243.8	101.3	2.3	0.29	0.1	0.00	0.07	0.01	0.01	10 21
10 ISL	17.02 D	17.01	33.521 D	24.378	354.7	0.054	5.59	D243.8	D101.4	2.3	0.31	0.1	0.00	0.14	0.07	0.01	20
25	17.04	17.04	33.532	24.381	354.7	0.089	5.61	244.6	101.7	2.3	0.32	0.1	0.01	0.18	0.07	0.01	25 20
30 ISL	17.06 D	17.06	33.556 D	24.395	353.5	0.089	5.59	D243.7	D101.5	2.3	0.30	0.1	0.01	0.17	0.07	0.01	30
40	17.10	17.09	33.571	24.398	353.6	0.142	5.58	243.4	101.3	2.2	0.27	0.0	0.00	0.16	0.08	0.00	40 19
50	17.12	17.11	33.613	24.426	351.3	0.177	5.57	243.0	101.2	2.2	0.26	0.0	0.00	0.12	0.09	0.01	50 18
62	17.26	17.25	33.732	24.485	346.2	0.219	5.55	242.2	101.2	2.3	0.26	0.0	0.00	0.24	0.12	0.02	62 17
75 ISL	16.87 D	16.85	33.671 D	24.532	342.1	0.248	5.61	D244.7	D101.6	2.3	0.26	0.0	0.02	0.11	0.13	0.00	76
76	16.83	16.82	33.655	24.528	342.5	0.267	5.59	243.8	101.0	2.4	0.26	0.0	0.02	0.10	0.13	0.00	77 16
87	16.15	16.13	33.681	24.707	325.8	0.304	5.64	246.0	100.6	2.6	0.25	0.0	0.00	0.04	0.18	0.04	88 15
100	15.29	15.28	33.652	24.876	310.0	0.345	5.66	247.0	99.3	2.9	0.28	0.0	0.00	0.10	0.24	0.09	101 14
112	14.05	14.03	33.537	25.053	293.3	0.381	5.56	242.7	95.0	3.4	0.38	0.9	0.09	0.12	0.27	0.10	113 12
112	14.05	14.03	33.540	25.056	293.0	0.382											113 13
125 ISL	13.60 D	13.58	33.518 D	25.133	286.0	0.385	5.48	D238.6	D 92.7	4.0	0.46	2.1	0.10	0.13	0.23	0.14	126
126	13.42	13.40	33.517	25.169	282.6	0.422	5.57	243.0	93.9	4.0	0.47	2.2	0.10	0.13	0.23	0.15	127 11
141	11.93	11.91	33.452	25.407	259.9	0.462	5.16	225.3	84.3	6.8	0.73	6.7	0.03	0.03	0.18	0.12	142 10
150 ISL	11.62 D	11.60	33.459 D	25.470	254.1	0.452	5.11	D222.5	D 82.9	8.9	0.89	9.1	0.03	0.05	0.14	0.09	151
170	10.28	10.26	33.490	25.732	229.2	0.534	4.61	201.2	72.7	13.6	1.24	14.5	0.02	0.10	0.05	0.04	171 08
171	10.05	10.03	33.491	25.772	225.3	0.536	4.56	199.0	71.5	13.6	1.22	14.6	0.01	0.12	0.05	0.04	172 09
200 ISL	9.21 D	9.18	33.736 D	26.103	194.3	0.564	3.66	D159.4	D 56.5	22.8	1.67	21.9	0.00	0.02	0.01	0.01	202
201	9.20	9.18	33.732	26.100	194.6	0.599	3.65	159.3	56.3	23.1	1.69	22.1	0.00	0.02	0.00	0.01	203 07
230	8.77	8.75	33.891	26.294	176.7	0.652	3.11	135.6	47.5	29.1	1.90	25.2	0.00	0.12			232 06
250 ISL	8.61 D	8.58	33.933 D	26.352	171.4	0.656	2.94	D127.9	D 44.8	32.7	2.02	26.8	0.00	0.16			252
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RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.30	16.30	33.458	24.494	343.0	0.000	6.11	266.3	109.2	4.4	0.28	0.4	0.08	0.36	2.10	0.63	0
2	16.30	16.30	33.458	24.494	343.0	0.007	6.11	266.3	109.2	4.4	0.28	0.4	0.08	0.36	2.10	0.63	2 08
4	16.30	16.30	33.459	24.495	343.0	0.014	6.05	263.7	108.1	4.5	0.29	0.5	0.06	0.30	2.12	0.63	4 07
10	16.30	16.30	33.458	24.495	343.2	0.034	6.05	263.8	108.2	4.4	0.27	0.3	0.06	0.22	2.13	0.66	10 06
20	13.50	13.50	33.435	25.081	287.6	0.066	5.95	259.1	100.4	5.0	0.37	0.3	0.05	0.35	2.30	0.81	20 05
30	11.64	11.64	33.500	25.493	248.7	0.093	3.80	165.5	61.7	14.0	1.35	15.5	0.07	0.27	0.54	0.36	30 04
40	11.06	11.06	33.581	25.661	232.9	0.117	3.46	150.8	55.6	17.2	1.52	17.9	0.11	0.22	0.23	0.24	40 03
49	10.69	10.69	33.662	25.790	220.9	0.137	3.17	138.2	50.6	19.9	1.67	20.0	0.19	0.33	0.08	0.14	49 02
50	10.67 D	10.66	33.673 D	25.804	219.6	0.141	3.15	0137.2 D	50.2	20.1	1.69	20.2	0.21	0.33	0.07	0.14	50
55	10.56	10.56	33.701	25.844	215.9	0.150	3.01	131.1	47.9	21.2	1.77	21.1	0.33	0.30	0.04	0.14	55 01

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	S103*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db		
0	15.70	15.70	33.466	24.637	329.3	0.000	6.35	277.0	112.1	2.0	0.30	0.2	0.02	0.10	2.05	0.38	0		
2	15.70	15.69	33.466	24.637	329.4	0.007	6.35	277.0	112.1	2.0	0.30	0.2	0.02	0.10	2.05	0.38	2 20		
10	15.37	15.36	33.460	24.706	323.1	0.033	6.47	282.3	113.5	2.1	0.30	0.0	0.01	0.03	2.15	0.42	10 19		
20	15.04	15.03	33.458	24.778	316.6	0.065	6.37	278.0	111.0	2.2	0.32	0.0	0.01	0.10	3.46	0.74	20 18		
30	12.77	12.76	33.408	25.208	275.9	0.094	5.20	227.0	86.5	6.5	0.74	5.1	0.22	0.27	0.98	0.40	30 17		
40	11.76	11.75	33.444	25.428	255.1	0.121	4.33	189.2	70.6	12.0	1.18	13.6	1.05	0.28	1.25	0.46	40 16		
50	11.18	11.17	33.520	25.593	239.6	0.146	3.69	161.1	59.4	15.3	1.45	18.1	0.13	0.08	0.40	0.20	50 15		
60	10.78	10.77	33.627	25.748	225.2	0.169	3.36	146.6	53.6	18.3	1.63	19.5	0.04	0.23	0.11	0.11	60 14		
70	10.65	10.64	33.689	25.820	218.5	0.191	3.14	137.2	50.0	19.9	1.71	20.2	0.03	0.14	0.06	0.07	71 13		
75	10.53 D	10.52	33.735 D	25.878	213.2	0.203	3.10	0134.9 D	49.2	21.4	1.79	21.3	0.02	0.14	0.05	0.07	76		
85	10.29	10.28	33.848	26.007	201.1	0.223	2.57	112.1	40.6	24.5	1.95	23.5	0.02	0.13	0.01	0.06	86 12		
100	10.07	10.06	33.927	26.106	192.0	0.252	2.30	100.1	36.1	27.0	2.04	25.0	0.01	0.06	0.01	0.05	101 11		
120	9.60	9.59	33.991	26.235	180.1	0.289	2.22	97.0	34.7	29.5	2.13	26.6	0.01	0.09	0.00	0.04	121 10		
125	9.52 D	9.51	34.020 D	26.272	176.7	0.300	2.22	96.8 D	34.6	30.2	2.15	26.9	0.01	0.11	0.00	0.04	126		
140	9.21	9.20	34.052	26.347	169.9	0.324	2.07	90.5	32.1	32.2	2.20	27.8	0.01	0.18	0.00	0.04	141 09		
150	9.09 D	9.07	34.052 D	26.367	168.1	0.343	2.15	093.4 D	33.1	33.5	2.23	28.3	0.02	0.15	0.00	0.04	151		
170	8.84	8.82	34.093	26.439	161.6	0.374	1.90	83.0	29.2	36.1	2.30	29.4	0.02	0.08	0.00	0.04	171 08		
200	8.78	8.76	34.194	26.529	153.8	0.421	1.34	58.6	20.6	40.6	2.50	31.0	0.03	0.13	0.00	0.03	202 07		
230	8.62	8.59	34.224	26.578	149.7	0.467	1.15	50.0	17.5	43.3	2.60	31.6	0.04	0.19			232 06		
250	8.44 D	8.41	34.234 D	26.614	146.6	0.500	1.06	046.1 D	16.1	45.5	2.65	32.5	0.03	0.16			252		
270	8.25	8.22	34.246	26.654	143.2	0.525	0.93	40.5	14.1	47.6	2.69	33.3	0.02	0.12			272 05		
300	8.08 D	8.05	34.255 D	26.686	140.5	0.572	0.87	037.8 D	13.1	51.0	2.76	34.1	0.01	0.11			302		
320	7.73	7.70	34.243	26.729	136.7	0.596	0.79	34.3	11.8	53.2	2.81	34.7	0.01	0.10			323 04		
380	7.22	7.18	34.261	26.817	129.0	0.675	0.57	25.0	8.5	60.1	2.93	36.6	0.01	0.23			383 03		
400	6.96 D	6.93	34.265 D	26.855	125.5	0.706	0.54	023.5 D	8.0	62.4	2.97	37.2	0.01	0.24			403		
440	6.76	6.72	34.282	26.898	122.0	0.750	0.42	18.2	6.1	66.9	3.04	38.3	0.01	0.25			444 02		
500	6.34 D	6.29	34.315 D	26.980	114.7	0.828	0.28	012.3 D	4.1	75.5	3.18	39.4	0.02	0.38			504		
514	6.23	6.19	34.333	27.007	112.2	0.837	0.23	9.9	3.3	77.5	3.21	39.6	0.03	0.41			518 01		

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	S103*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db		
0	16.53	16.53	33.492	24.469	345.4	0.000	5.83	254.5	104.7	2.0	0.29	0.0	0.01	0.12	0.23	0.01	0		
2	16.53	16.53	33.492	24.469	345.4	0.007	5.83	254.5	104.7	2.0	0.29	0.0	0.01	0.12	0.23	0.01	2 20		
10	16.51	16.51	33.492	24.473	345.3	0.035	5.81	253.7	104.3	2.0	0.29	0.0	0.00	0.12	0.23	0.00	10 19		
20	16.12	16.12	33.487	24.559	337.5	0.069	5.84	255.1	104.1	2.2	0.32	0.0	0.01	0.31	0.23	0.01	20 18		
30	14.70	14.70	33.428	24.826	312.3	0.101	6.04	263.7	104.6	2.6	0.38	0.0	0.02	0.10	0.29	0.07	30 17		
40	13.28	13.28	33.414	25.110	285.5	0.131	5.27	230.1	88.6	5.7	0.70	4.5	0.40	0.14	0.86	0.24	40 16		
50	12.51	12.50	33.419	25.268	270.7	0.159	4.72	206.1	78.1	8.5	0.95	9.3	0.36	0.12	0.62	0.13	50 15		
60	11.66	11.66	33.459	25.459	252.7	0.185	4.26	186.0	69.2	11.7	1.19	13.3	0.09	0.08	0.28	0.17	60 14		
71	11.12	11.11																	

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.56	16.56	33.493	24.462	346.0	0.000	5.77	252.0	103.7	1.9	0.29	0.2	0.01	0.18	0.27	0.01	0
2	16.56	16.56	33.493	24.462	346.1	0.007	5.77	252.0	103.7	1.9	0.29	0.2	0.01	0.18	0.27	0.01	2 20
10	16.56	16.56	33.494	24.463	346.3	0.035	5.77	252.2	103.7	1.9	0.28	0.1	0.00	0.43	0.25	0.03	10 19
20	16.43	16.43	33.494	24.493	343.8	0.069	5.81	253.8	104.1	1.9	0.30	0.0	0.01	0.40	0.26	0.04	20 18
30	ISL 15.75 D	15.75	33.451 D	24.615	332.5	0.104	6.00	0261.4	0106.0	2.4	0.32	0.0	0.01	0.34	0.28	0.03	30
31	15.65	15.65	33.454	24.639	330.2	0.106	5.93	259.2	104.7	2.5	0.32	0.0	0.01	0.33	0.29	0.03	31 17
40	13.85	13.84	33.423	25.003	295.7	0.134	5.76	251.6	97.9	3.9	0.47	0.8	0.14	0.66	0.91	0.30	40 16
50	12.62	12.61	33.411	25.239	273.4	0.163	4.76	207.7	78.8	7.6	0.90	8.7	0.43	0.73	0.73	0.22	50 15
60	12.02	12.01	33.428	25.368	261.4	0.190	4.46	194.7	73.0	9.4	1.08	11.0	0.17	0.93	0.57	0.20	60 14
69	11.69	11.68	33.454	25.451	253.7	0.213	4.23	184.8	68.8	11.2	1.19	13.0	0.06	0.55	0.35	0.19	70 13
75	ISL 11.42 D	11.41	33.492 D	25.529	246.4	0.229	4.11	0178.8	066.4	12.5	1.27	14.3	0.05	0.51	0.28	0.16	76
86	11.00	10.99	33.546	25.647	235.4	0.254	3.81	166.4	61.1	14.8	1.41	16.7	0.03	0.44	0.14	0.11	87 12
100	10.56	10.55	33.627	25.789	222.2	0.286	3.49	152.4	55.4	18.0	1.57	19.3	0.02	0.29	0.07	0.08	101 11
120	10.38	10.37	33.778	25.938	208.6	0.329	2.87	125.2	45.4	22.5	1.81	21.8	0.00	0.39	0.02	0.06	121 10
125	ISL 10.21 D	10.19	33.854 D	26.028	200.1	0.342	2.75	0119.9	043.5	23.3	1.84	22.3	0.01	0.47	0.02	0.06	126
139	10.04	10.03	33.871	26.069	196.5	0.367	2.59	113.1	40.7	25.5	1.93	23.7	0.01	0.68	0.01	0.05	140 09
150	ISL 9.88 D	9.86	33.920 D	26.135	190.4	0.391	2.49	0108.2 D	039.0	26.8	1.99	24.6	0.01	0.74	0.01	0.05	151
170	9.87	9.85	33.998	26.199	184.8	0.426	2.17	94.6	34.0	29.2	2.11	26.1	0.00	0.84	0.01	0.04	171 08
199	9.40	9.38	34.043	26.312	174.6	0.478	2.07	90.4	32.1	32.0	2.17	27.4	0.00	0.62	0.01	0.06	201 07
200	ISL 9.39 D	9.37	34.051 D	26.320	173.9	0.483	2.08	090.3 D	032.2	32.1	2.18	27.4	0.00	0.61			202
230	9.33	9.31	34.172	26.425	164.6	0.531	1.64	71.4	25.4	35.8	2.34	28.4	0.00	0.27			232 06
250	ISL 9.13 D	9.10	34.230 D	26.503	157.5	0.567	1.31	057.1 D	020.3	38.7	2.45	29.5	0.01	0.40			252
270	8.95	8.92	34.260	26.556	152.9	0.594	1.09	47.7	16.8	41.6	2.55	30.6	0.01	0.53			272 05
300	ISL 8.49 D	8.46	34.281 D	26.644	144.9	0.643	0.86	037.5 D	031.3	46.1	2.65	31.8	0.00	0.58			302
320	8.21	8.17	34.273	26.682	141.5	0.667	0.80	34.9	12.1	49.1	2.72	32.6	0.00	0.62			323 04
380	7.37	7.33	34.278	26.809	129.9	0.749	0.58	25.1	8.5	58.7	2.88	35.7	0.01	0.87			383 03
400	ISL 7.18 D	7.14	34.281 D	26.838	127.3	0.780	0.51	022.1 D	07.5	61.5	2.93	36.5	0.00	0.85			403
440	6.75	6.71	34.293	26.907	121.1	0.824	0.41	17.7	5.9	67.2	3.02	38.0	0.00	0.82			444 02
500	ISL 6.38 D	6.33	34.314 D	26.974	115.3	0.902	0.30	012.9 D	04.3	74.3	3.12	39.5	0.00	0.47			504
515	6.22	6.18	34.322	27.001	112.8	0.912	0.26	11.5	3.8	76.0	3.15	39.6	0.00	0.38			519 01

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.62	16.62	33.513	24.462	346.0	0.000	5.71	249.5	102.8	2.3	0.29	0.0	0.01	0.39	0.23	0.04	0
2	16.62	16.62	33.513	24.462	346.1	0.007	5.71	249.5	102.8	2.3	0.29	0.0	0.01	0.39	0.23	0.04	2 21
9	16.64	16.64	33.507	24.455	347.1	0.032											9 20
10	16.64	16.64	33.512	24.459	346.7	0.035	5.71	249.3	102.7	2.3	0.30	0.0	0.01	1.19	0.23	0.03	10 19
20	16.64	16.63	33.505	24.455	347.4	0.069	5.72	249.7	102.9	2.3	0.29	0.0	0.00	0.34	0.23	0.04	20 18
30	15.08	15.08	33.473	24.780	316.7	0.103	5.86	255.8	102.2	2.9	0.32	0.0	0.01	0.31	0.40	0.04	30 17
40	14.58	14.57	33.428	24.854	309.9	0.134	5.83	254.8	100.7	3.6	0.40	0.6	0.02	0.58	0.73	0.06	40 16
50	13.48	13.48	33.374	25.040	292.5	0.164	5.63	245.8	94.9	4.8	0.55	2.6	0.08	0.58	0.81	0.09	50 15
60	12.48	12.47	33.365	25.231	274.5	0.192	5.14	224.7	85.0	7.0	0.79	6.6	0.18	0.56	0.75	0.20	60 14
70	11.56	11.55	33.395	25.428	255.9	0.219	4.62	201.9	74.9	10.0	1.06	11.4	0.13	0.36	0.40	0.21	71 13
75	ISL 11.03 D	11.02	33.450 D	25.567	242.8	0.219	4.54	0197.7 D	027.7	12.1	1.19	13.4	0.09	0.40	0.33	0.18	76
86	10.84	10.83	33.588	25.709	229.5	0.257	3.64	158.8	58.1	16.5	1.48	17.7	0.01	0.50	0.16	0.10	87 12
100	10.07	10.06	33.697	25.928	209.0	0.288	3.33	145.5	52.4	20.7	1.65	21.0	0.02	0.18	0.03	0.05	101 11
119	9.61	9.59	33.692	26.001	202.3	0.327	3.63	158.6	56.5	21.1	1.62	21.3	0.03	0.83	0.01	0.04	120 10
125	ISL 9.60 D	9.59	33.743 D	26.042	198.6	0.328	3.45	0150.1 D	053.7	22.8	1.70	22.3	0.03	0.72	0.01	0.04	126
139	9.41	9.40	33.861	26.166	187.1	0.366	2.91	126.9	45.1	26.5	1.87	24.6	0.02	0.46	0.00	0.03	140 09
150	ISL 9.25 D	9.23	33.938 D	26.253	179.0	0.375	2.69	0117.0 D	041.5	28.1	1.93	25.4	0.03	0.41	0.00	0.03	151
171	9.07	9.05	33.987	26.321	173.0	0.423	2.48	108.3	38.2	31.1	2.05	27.0	0.03	0.30	0.00	0.03	172 08
200	8.84	8.82	34.096	26.442	162.0	0.472	2.00	87.2	30.6	36.2	2.24	28.8	0.01	0.69	0.00	0.03	202 07
230	8.54	8.51	34.148	26.531	154.1	0.519	1.64	71.6	25.0	40.5	2.39	30.6	0.02	0.51			232 06
250	ISL 8.36 D	8.33	34.165 D	26.573	150.5	0.540	1.49	044.9 D	022.6	42.9	2.49	31.3	0.03	0.76			252
270	8.37	8.34	34.224	26.617	146.7	0.579	1.14	49.9	17.4	45.3	2.58	32.0	0.04	1.01			272 05
300	ISL 8.06 D	8.03	34.249 D	26.685	140.7	0.613	0.92	040.1 D	039.9	49.3	2.67	33.2	0.03	0.79			302
321	7.85	7.81	34.248	26.715	138.0	0.652	0.81	35.4	12.2	52							

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.91	15.91	33.554	24.458	327.4	0.000	5.75	251.2	102.1	2.8	0.32	0.0	0.02	0.41	0.37	0.06	0
2 A	15.91	15.90	33.554	24.658	327.4	0.007	5.75	251.2	102.1	2.8	0.32	0.0	0.02	0.41	0.37	0.06	2 24
10 ISL	15.91 D	15.90	33.550	24.655	328.0	0.033	5.74	250.1	101.8	2.7	0.33	0.1	0.01	0.28	0.36	0.05	10
12 A	15.89	15.89	33.551	24.659	327.7	0.039	5.73	250.4	101.7	2.7	0.33	0.1	0.01	0.25	0.36	0.05	12 21
12	15.89	15.89	33.552	24.660	327.6	0.039											12 23
15 A	15.90	15.89	33.551	24.659	327.8	0.049	5.75	251.1	102.0	2.7	0.33	0.0	0.00	0.64	0.39	0.06	15 20
20 ISL	15.87 D	15.87	33.548	24.663	327.6	0.061	5.75	250.5	101.9	2.8	0.33	0.0	0.01	0.52	0.41	0.07	20
27	15.80	15.79	33.550	24.682	326.0	0.089											27 19
28 A	15.71	15.71	33.551	24.701	324.2	0.092	5.75	251.0	101.6	2.8	0.33	0.0	0.01	0.34	0.45	0.08	28 18
30 ISL	15.56 D	15.55	33.532	24.721	322.4	0.081	5.79	d252.3	d102.0	3.0	0.35	0.2	0.02	0.37	0.55	0.13	30
39	13.67	13.67	33.470	25.076	288.8	0.126	5.73	250.1	97.1	4.0	0.44	0.9	0.05	0.51	0.99	0.33	39 17
50 A	11.64	11.63	33.483	25.482	250.3	0.155	4.85	211.7	78.7	8.6	0.88	8.5	0.11	0.30	0.55	0.28	50 16
57	11.58	11.57	33.473	25.484	250.2	0.173	4.23	184.7	68.6	12.0	1.20	13.3	0.14	0.61	0.45	0.35	57 15
64 A	10.95	10.94	33.560	25.667	232.9	0.190	3.75	163.6	60.0	15.6	1.42	16.8	0.06	0.48	0.20	0.19	65 14
75	10.79	10.78	33.622	25.743	226.0	0.215	3.46	150.9	55.1	17.8	1.55	18.5	0.04	0.65	0.14	0.13	76 13
84	10.77	10.76	33.639	25.761	224.5	0.235	3.39	147.9	54.0	18.4	1.57	19.0	0.04	0.68	0.12	0.14	85 12
100 ISL	10.29 D	10.27	33.798	25.969	205.1	0.254	2.79	d121.5	d44.1	23.3	1.81	22.7	0.02	0.57	0.03	0.07	101
101	10.28	10.27	33.801	25.972	204.8	0.272	2.76	120.6	43.6	23.6	1.83	22.9	0.02	0.56	0.02	0.06	102 11
120	9.98	9.97	33.883	26.088	194.2	0.310	2.51	109.6	39.4	26.3	1.96	24.3	0.04	0.68	0.01	0.07	121 10
125 ISL	9.46 D	9.45	33.836	26.137	189.5	0.304	2.81	d122.4	d43.6	27.2	1.99	24.9	0.04	0.57	0.01	0.07	126
140	9.54	9.52	33.984	26.241	180.0	0.347	2.22	97.0	34.6	29.7	2.08	26.5	0.03	0.24	0.01	0.06	141 09
150 ISL	9.03 D	9.01	33.959	26.304	174.1	0.350	2.53	d110.0	d38.9	31.4	2.10	27.2	0.03	0.34	0.01	0.05	151
170	8.62	8.60	34.001	26.401	165.2	0.398	2.30	100.2	35.0	34.8	2.14	28.7	0.03	0.55	0.00	0.04	171 08
200	8.39	8.37	34.066	26.488	157.4	0.447	1.95	85.3	29.6	39.1	2.28	30.3	0.02	0.44	0.00	0.03	202 07
228	8.42	8.39	34.151	26.552	152.0	0.490	1.49	65.2	22.7	42.5	2.44	31.5	0.02	0.37			230 06
250 ISL	8.44 D	8.42	34.224	26.606	147.4	0.509	1.24	d53.9	d18.8	45.0	2.52	32.1	0.02	0.49			252
270	8.08	8.06	34.218	26.655	142.9	0.552	1.08	47.1	16.3	47.2	2.60	32.7	0.02	0.59			272 05
300 ISL	7.77 D	7.74	34.229	26.711	138.0	0.581	0.91	d39.7	d13.7	52.2	2.70	34.3	0.01	0.54			302
320	7.55	7.52	34.242	26.754	134.2	0.621	0.74	32.5	11.1	55.6	2.77	35.4	0.01	0.51			323 04
380	6.97	6.94	34.257	26.847	126.0	0.699	0.56	24.6	8.3	62.8	2.91	37.4	0.02	0.17			383 03
400 ISL	6.77 D	6.73	34.256	26.874	123.5	0.713	0.51	d22.4	d7.5	65.1	2.94	37.8	0.02	0.18			403
439	6.57	6.53	34.278	26.919	119.7	0.772	0.42	18.1	6.1	69.4	3.00	38.7	0.02	0.21			443 02
500 ISL	6.21 D	6.17	34.311	26.992	113.4	0.832	0.31	d13.3	d4.4	75.9	3.10	39.7	0.01	0.23			504
515	6.15	6.10	34.317	27.006	112.3	0.860	0.28	12.3	4.1	77.5	3.12	40.0	0.00	0.23			519 01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA		ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.03	16.03	33.543	24.620	330.9	0.000	5.80	253.1	103.1	2.7	0.32	0.2	0.01	0.31	0.05	0	
1	16.03	16.03	33.543	24.620	331.0	0.003	5.80	253.1	103.1	2.7	0.32	0.2	0.01	0.31	0.05	1 20	
10	16.04	16.04	33.538	24.616	331.7	0.033	5.76	251.5	102.4	2.7	0.32	0.0	0.02	0.22	0.29	0.05	10 19
20	15.95	15.95	33.535	24.634	330.3	0.066	5.76	251.5	102.3	2.7	0.32	0.0	0.01	0.16	0.32	0.06	20 18
30	15.36	15.36	33.519	24.754	319.2	0.099	5.77	251.9	101.2	3.2	0.35	0.3	0.04	0.28	0.77	0.16	30 17
40	12.94	12.94	33.462	25.216	275.4	0.128	5.30	231.4	88.4	6.9	0.72	4.7	0.14	0.09	1.70	0.57	40 16
50 ISL	11.91 D	11.90	33.477	25.427	255.5	0.156	4.38	d190.7	d71.5	10.7	1.10	11.2	0.22	0.12	0.96	0.41	50
51	11.88	11.87	33.482	25.436	254.7	0.158	4.30	188.0	70.3	11.1	1.14	11.9	0.22	0.12	0.88	0.39	51 15
59	11.42	11.41	33.545	25.571	242.0	0.177	3.83	167.3	61.9	14.3	1.35	15.3	0.10	0.14	0.60	0.34	59 14
73	10.90	10.89	33.607	25.713	228.8	0.210	3.53	154.0	56.4	16.9	1.50	17.8	0.05	0.11	0.28	0.22	74 13
75 ISL	10.72 D	10.71	33.650	25.777	222.7	0.216	3.50	d152.4	d55.8	17.6	1.54	18.3	0.05	0.14	0.24	0.20	76
85	10.55	10.54	33.724	25.865	214.6	0.237	3.02	131.9	48.0	21.0	1.72	20.8	0.03	0.26	0.07	0.10	86 12
100 ISL	10.14 D	10.13	33.852	26.036	198.7	0.270	2.63	d114.3	d41.4	24.5	1.89	23.0	0.01	0.14	0.04	0.07	101
103	10.02	10.01	33.855	26.059	196.6	0.274	2.59	113.1	40.7	25.2	1.92	23.4	0.01	0.11	0.03	0.07	104 11
121	9.69	9.68	33.924	26.168	186.6	0.308	2.46	107.5	38.4	27.6	2.00	25.0	0.02	0.16	0.01	0.04	122 10
125 ISL	9.56 D	9.55	33.930	26.194	184.1	0.318	2.50	d109.0	d39.0	28.3	2.03	25.3	0.02	0.16	0.01	0.04	126
139	9.59	9.58	34.011	26.253	178.9	0.341	2.17	94.9	33.9	30.7	2.12	26.4	0.02	0.17	0.01	0.04	140 09
150 ISL	9.60 D	9.58	34.079	26.307	174.1	0.363	1.90	d82.6	d29.6	31.9	2.18	26.8	0.02	0.19	0.01	0.04	151
170	9.53	9.51	34.139	26.365	169.0	0.395	1.70	74.1	26.4	34.1	2.29	27.5	0.02	0.24	0.01	0.04	171 08
199	9.21	9.19	34.152	26.427	163.6	0.443	1.62	70.8	25.1	36.3	2.34	28.3	0.0				

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 93.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.27	15.27	33.386	24.671	326.1	0.000	5.85	255.5	102.4						0.18	0.03	0	
2	15.27	15.26	33.386	24.671	326.2	0.007	5.85	255.5	102.4						0.18	0.03	2 21	
9	15.27	15.27	33.388	24.672	326.3	0.029	5.87	256.3	102.7	2.9	0.23	0.1	0.02	0.19	0.19	0.04	9 22	
9	15.27	15.27	33.390	24.673	326.2	0.028											9 20	
10	ISL	15.27	D 15.27	33.382	D 24.667	326.8	0.031	5.86	255.6	102.6	2.9	0.25	0.1	0.02	0.18	0.19	0.04	10
20	ISL	15.27	D 15.27	33.383	D 24.669	327.0	0.064	5.85	254.8	102.3	2.9	0.44	0.0	0.01	0.08	0.22	0.01	20
21	15.28	15.27	33.398	24.680	326.0	0.069	5.84	255.2	102.3	2.9	0.46	0.0	0.01	0.07	0.23	0.01	21 18	
30	15.22	15.22	33.393	24.688	325.5	0.098	5.86	256.0	102.5	2.9	0.44	0.0	0.00	0.07	0.23	0.02	30 17	
40	14.58	14.57	33.399	24.832	312.1	0.130	6.00	262.2	103.6	2.9	0.46	0.0	0.00	0.10	0.48	0.05	40 16	
50	14.15	14.14	33.369	24.900	305.9	0.161	5.90	257.8	101.0	3.2	0.46	0.6	0.15	0.06	0.91	0.37	50 15	
60	13.55	13.54	33.335	24.996	297.0	0.191	5.66	247.4	95.7	3.7	0.51	2.1	0.63	0.21	0.65	0.36	60 14	
72	12.55	12.54	33.294	25.164	281.2	0.226	5.42	236.7	89.6	5.0	0.56	5.1	0.17	0.03	0.49	0.29	73 13	
75	ISL	12.20	D 12.19	33.247	D 25.194	278.4	0.234	5.40	D 235.3	D 88.6	5.5	0.59	5.9	0.14	0.03	0.44	0.25	76
85	11.53	11.52	33.219	D 25.297	268.7	0.262	5.17	225.9	83.7	7.3	0.71	8.6	0.05	0.03	0.27	0.15	86 12	
99	10.32	10.30	33.328	25.598	240.3	0.297	4.68	204.2	73.7	12.5	0.91	14.3	0.03	0.02	0.10	0.05	100 11	
100	ISL	10.25	D 10.24	33.399	D 25.663	234.0	0.300	4.54	D 197.6	D 71.5	12.7	0.92	14.5	0.03	0.02	0.10	0.04	101
121	9.93	9.91	33.578	25.859	215.9	0.347	3.90	170.3	61.0	18.4	1.18	19.3	0.01	0.02	0.03	0.03	122 10	
125	ISL	9.82	D 9.81	33.595	D 25.889	213.1	0.356	3.91	D 170.1	D 61.0	19.3	1.25	19.8	0.02	0.02	0.02	0.03	126
139	9.35	9.34	33.698	26.048	198.3	0.384	3.66	160.1	56.7	22.4	1.49	21.7	0.04	0.03	0.01	0.02	140 09	
150	ISL	9.42	D 9.40	33.771	D 26.094	194.1	0.406	3.30	D 143.8	D 51.2	24.9	1.55	23.2	0.03	0.04	0.01	0.02	151
169	9.06	9.04	33.921	26.270	177.7	0.441	2.78	121.4	42.8	29.3	1.66	25.9	0.01	0.07	0.00	0.02	170 08	
200	ISL	8.75	D 8.73	33.938	D 26.333	172.3	0.497	2.81	D 122.1	D 42.9	31.1	1.92	26.5	0.00	0.02	0.00	0.01	202
201	8.74	8.71	33.938	26.335	172.1	0.497	2.77	121.1	42.4	31.2	1.93	26.5	0.00	0.02	0.00	0.01	203 07	
232	8.31	8.28	33.994	26.445	162.1	0.549	2.48	108.1	37.5	36.1	1.95	28.7	0.02	0.04			234 06	
250	ISL	8.06	D 8.03	34.025	D 26.507	156.5	0.580	2.21	D 96.3	D 33.3	40.0	2.02	30.3	0.02	0.04			252
269	7.82	7.80	34.059	26.569	150.9	0.606	1.83	79.8	27.4	44.0	2.09	32.0	0.03	0.03			271 05	
300	ISL	7.49	D 7.46	34.105	D 26.654	143.2	0.655	1.38	D 60.1	D 20.5	49.6	2.26	34.0	0.03	0.05			302
318	7.29	7.26	34.124	26.698	139.2	0.677	1.20	52.5	17.8	52.9	2.36	35.1	0.03	0.06			321 04	
381	6.68	6.65	34.165	26.814	128.7	0.762	0.79	34.4	11.5	63.3	2.61	36.7	0.01	0.08			384 03	
400	ISL	6.50	D 6.46	34.168	D 26.840	126.4	0.790	0.73	D 31.9	D 10.7	66.2	2.69	37.7	0.02	0.07			403
438	6.14	6.10	34.197	26.910	120.0	0.833	0.56	24.6	8.1	71.8	2.85	39.8	0.02	0.06			442 02	
500	ISL	5.79	D 5.74	34.266	D 27.010	111.2	0.910	0.35	D 15.1	D 5.0	80.5	2.94	40.7	0.00	0.12			504
514	5.68	5.64	34.277	27.032	109.2	0.920	0.32	13.9	4.5	82.5	2.96	40.9	0.00	0.13			518 01	

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

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 93.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.46	15.46	33.330	24.586	334.2	0.000	5.78	252.6	101.6	2.8	0.32	0.0	0.00	0.03	0.15	0.03	0	
3	15.46	15.45	33.330	24.586	334.3	0.010	5.78	252.6	101.6	2.8	0.32	0.0	0.00	0.03	0.15	0.03	3 20	
10	15.47	15.47	33.338	24.589	334.3	0.033	5.80	253.1	101.8	2.8	0.32	0.0	0.00	0.03	0.17	0.01	10 19	
20	15.47	15.46	33.329	24.584	335.0	0.067	5.80	253.1	101.8	2.8	0.32	0.0	0.00	0.03	0.15	0.02	20 18	
30	15.45	15.44	33.327	24.587	335.1	0.100	5.80	253.4	101.8	2.8	0.33	0.0	0.00	0.07	0.15	0.03	30 17	
40	14.55	14.55	33.319	24.775	317.5	0.133	5.92	258.7	102.1	2.9	0.36	0.0	0.01	0.05	0.28	0.10	40 16	
50	12.82	12.81	33.283	25.102	286.6	0.163	5.55	242.6	92.4	4.3	0.58	3.1	0.20	0.01	0.60	0.46	50 15	
61	12.38	12.37	33.269	25.176	279.7	0.194	5.31	232.1	87.6	5.6	0.73	5.9	0.02	0.04	0.29	0.27	61 14	
70	11.88	11.87	33.253	D 25.259	272.0	0.221	5.29	D 230.5	D 86.2								71 13	
75	ISL	11.43	D 11.42	33.261	D 25.348	263.6	0.234	5.22	D 227.5	D 84.3	8.4	0.94	9.4	0.02	0.04	0.19	0.17	76
85	10.77	10.76	33.306	25.502	249.2	0.258	4.83	210.9	76.9	10.4	1.09	11.9	0.01	0.04	0.11	0.10	86 12	
100	10.35	10.34	33.434	25.674	233.1	0.294	4.43	193.5	69.9	14.0	1.29	15.3	0.01	0.02	0.06	0.04	101 11	
121	9.63	9.61	33.642	25.959	206.4	0.340	3.74	163.3	58.2	20.4	1.60	20.6	0.02	0.01	0.02	0.02	122 10	
125	ISL	9.50	D 9.49	33.700	D 26.024	200.2	0.351	3.49	D 152.0	D 54.2	21.3	1.65	21.3	0.02	0.01	0.02	0.02	126
142	9.47	9.46	33.767	26.082	195.1	0.382	3.04	132.8	47.2	25.3	1.86	24.2	0.02	0.01	0.01	0.02	143 09	
150	ISL	9.24	D 9.22	33.821	D 26.162	187.6	0.400	2.95	D 128.3	D 45.5	27.3	1.92	25.1	0.02	0.02	0.01	0.03	151
172	8.71	8.70	33.957	26.352	169.9	0.437	2.50	109.1	38.2	32.8	2.10	27.6	0.02	0.06	0.01	0.03	173 08	
199	8.57	8.55	34.013	26.419	164.1	0.482	2.17	94.9	33.1	36.5	2.21	29.0	0.02	0.02	0.00	0.04	201 07	
200	ISL	8.57	D 8.55	34.016	D 26.422	163.8	0.487	2.18	D 94.9	D 33.2	36.6	2.22	29.1	0.02	0.02			202
230	8.39	8.37	34.087	26.506	156.4	0.531	1.74	76.1	26.4	40.6	2.37	31.0	0.01	0.03			232 06	
250	ISL	8.20	D 8.18	34.135	D 26.572	150.4	0.566	1										

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 93.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
31 30.8 N	120 14.6 W	03/04/2014	1417	UTC	3937 m	340	17 kn	360 06 10	1	1025.0 mb	14.2 C	11.2 C	25 m	4/8	SC	012			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.05	16.05	33.364	24.478	344.5	0.000	5.75	250.9	102.2	2.6	0.34	0.0	0.02	0.04	0.13	0.02	0		
2	16.05	16.05	33.364	24.478	344.5	0.007	5.75	250.9	102.2	2.6	0.34	0.0	0.02	0.04	0.13	0.02	2	20	
10	16.05	16.05	33.365	24.481	344.6	0.035	5.70	248.8	101.3	2.5	0.34	0.0	0.02	0.12	0.13	0.02	10	19	
20	ISL	16.05	D 16.05	33.365	D 24.481	344.9	0.069	5.70	248.5	101.3	2.5	0.33	0.0	0.02	0.07	0.12	0.15	20	
25	16.05	16.05	33.365	D 24.481	345.1	0.087	5.70	248.9	101.4	2.5	0.33	0.0	0.02	0.05	0.12	0.22	25	18	
30	ISL	16.05	D 16.05	33.364	D 24.481	345.3	0.104	5.70	248.6	101.4	2.5	0.33	0.0	0.02	0.05	0.13	0.15	30	
40	16.05	16.04	33.366	24.484	345.3	0.138	5.71	249.1	101.4	2.5	0.32	0.0	0.02	0.05	0.13	0.02	40	17	
50	16.03	16.02	33.367	24.491	345.0	0.172	5.72	249.8	101.7	2.5	0.32	0.0	0.02	0.03	0.17	0.03	50	16	
62	14.26	14.25	33.309	24.830	312.9	0.212	5.92	258.5	101.5	2.8	0.36	0.0	0.03	0.03	0.38	0.17	62	15	
75	ISL	12.89	D 12.88	33.245	D 25.060	291.3	0.253	5.67	D 247.1	D 94.4	4.1	0.55	2.8	0.09	0.03	0.59	0.47	76	
76	12.80	12.79	33.256	25.086	288.8	0.254	5.60	244.4	93.1	4.2	0.56	3.0	0.10	0.03	0.61	0.49	77	14	
87	12.24	12.22	33.229	25.175	280.6	0.285	5.44	237.3	89.2	5.1	0.69	5.1	0.08	0.10	0.44	0.35	88	13	
100	11.72	11.71	33.267	25.300	268.9	0.321	5.11	223.1	83.0	7.1	0.88	8.1	0.05	0.02	0.24	0.22	101	12	
112	11.16	11.14	33.307	25.435	256.3	0.353	4.94	215.8	79.4	8.5	0.97	9.9	0.03	0.01	0.16	0.17	113	11	
125	ISL	10.27	D 10.25	33.457	D 25.707	230.5	0.387	4.45	D 193.5	D 70.1	13.8	1.29	14.8	0.03	0.01	0.07	0.06	126	
126	10.27	10.25	33.448	25.700	231.2	0.387	4.42	192.9	69.7	14.2	1.31	15.2	0.03	0.01	0.06	0.05	127	10	
140	9.67	9.65	33.584	25.907	211.7	0.418	3.99	174.3	62.2	18.7	1.53	19.0	0.02	0.02	0.02	0.02	141	09	
150	ISL	9.36	D 9.35	33.706	D 26.053	198.0	0.441	3.89	D 169.5	D 60.3	20.8	1.60	20.3	0.02	0.02	0.01	0.02	151	
170	9.04	9.02	33.805	26.183	186.0	0.476	3.48	151.7	53.4	24.9	1.74	22.9	0.03	0.02	0.00	0.01	171	08	
200	ISL	8.72	D 8.69	33.944	D 26.343	171.4	0.534	3.15	D 137.2	D 48.2	29.9	1.88	24.7	0.02	0.01	0.00	0.01	202	
201	8.67	8.65	33.944	26.349	170.7	0.532	3.14	137.1	47.9	30.1	1.88	24.8	0.02	0.01	0.00	0.01	203	07	
230	8.35	8.32	34.052	26.485	158.4	0.579	2.32	101.4	35.2	37.6	2.20	28.8	0.03	0.01			232	06	
250	ISL	8.10	D 8.07	34.084	D 26.548	152.6	0.615	2.15	D 93.4	D 32.3	41.6	2.26	30.2	0.02	0.01			252	
271	7.31	7.28	34.012	26.606	147.1	0.642	2.22	97.0	32.9	45.7	2.32	31.7	0.02	0.01			273	05	
300	ISL	7.00	D 6.97	34.057	D 26.683	140.0	0.688	1.72	D 74.8	D 25.3	51.5	2.53	33.7	0.02	0.02			302	
320	6.93	6.90	34.093	26.722	136.6	0.711	1.32	57.7	19.4	55.6	2.67	35.1	0.02	0.02			323	04	
381	6.66	6.63	34.159	26.811	129.0	0.792	0.86	37.4	12.5	62.9	2.87	37.3	0.01	0.02			384	03	
400	ISL	6.52	D 6.48	34.183	D 26.850	125.6	0.822	0.72	D 31.4	D 10.5	66.1	2.93	38.0	0.01	0.02			403	
440	6.11	6.07	34.203	26.918	119.3	0.866	0.55	24.0	7.9	72.9	3.05	39.5	0.02	0.02			444	02	
500	ISL	5.99	D 5.94	34.263	D 26.983	114.0	0.942	0.40	D 17.5	D 5.8	76.8	3.13	39.8	0.01	0.00			504	
516	6.00	5.96	34.279	26.994	113.1	0.954	0.34	14.8	4.9	77.8	3.15	39.9	0.01	0.00			520	01	

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

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 93.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE	ORD		
31 11.1 N	120 55.1 W	03/04/2014	2052	UTC	3806 m	330	08 kn	330 05 08	1	1024.0 mb	16.9 C	12.9 C	22 m	7/8	ST	013			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN	HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C	THETA			ml/L	μmol/Kg	PCT	μM	μM	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.72	15.72	33.105	24.354	356.3	0.000	5.80	253.4	102.3	2.9	0.35	0.0	0.01	0.42	0.11	0.02	0		
2	A	15.72	33.105	24.355	356.3	0.007	5.80	253.4	102.3	2.9	0.35	0.0	0.01	0.42	0.11	0.02	2	24	
10	15.56	15.56	33.102	24.389	353.3	0.036	5.84	254.9	102.6	2.9	0.34	0.0	0.01	0.15	0.12	0.02	10	23	
14	A	15.53	15.53	33.102	24.394	352.9	0.050	5.82	253.4	102.2	2.9	0.35	0.0	0.01	0.09	0.12	0.02	14	22
20	A	15.51	15.51	33.103	24.400	352.6	0.071	5.80	253.4	101.8	2.9	0.35	0.0	0.01	0.08	0.13	0.02	20	21
30	ISL	15.47	D 15.46	33.103	D 24.411	351.9	0.107	5.86	D 255.3	D 102.7	2.9	0.34	0.0	0.00	0.19	0.14	0.03	30	
35	A	15.42	15.41	33.108	24.425	350.7	0.124	5.82	254.0	101.9	2.9	0.34	0.0	0.00	0.25	0.15	0.03	35	20
44	15.41	15.40	33.130	24.446	349.0	0.155	5.82	254.4	102.0	2.8	0.33	0.0	0.01	0.05	0.16	0.03	44	19	
50	ISL	15.14	D 15.14	33.151	D 24.520	342.2	0.177	5.90	D 257.1	D 102.8	2.8	0.36	0.0	0.00	0.07	0.24	0.07	50	
54	15.12	15.11	33.165	24.535	340.8	0.190	5.84	255.3	101.8	2.8	0.38	0.0	0.00	0.09	0.29	0.10	54	18	
62	15.21	15.20	33.292	24.616	333.5	0.218											62	17	
64	A	14.87	14.86	33.282	24.681	327.3	0.223	5.74	250.8	99.6	2.7	0.34	0.0	0.02	0.08	0.59	0.28	65	16
72	14.57	14.56	33.278	24.741	321.8	0.249	5.71	249.4	98.5	2.9	0.37	0.3	0.08	0.07	0.66	0.36	73	15	
75	ISL	14.15	D 14.14	33.211	D 24.779	318.2	0.244	5.82	D 253.7	D 99.5	3.2	0.43	1.0	0.12	0.08	0.55	0.31	76	
81	A	13.09	13.08	33.191	24.979	299.2	0.277	5.65	246.9	94.5	3.9	0.54	2.5	0.18	0.09	0.32	0.21	82	14
87	12.89	12.88	33.193	25.019	295.5	0.295	5.65	246.7	94.0	4.1	0.57	3.0	0.16	0.13	0.27	0.17	88	13	
96	12.10	12.09	33.175	25.158	282.3	0.321	5.58	243.6	91.3	4.6	0.64	4.3	0.09	0.03	0.22	0.15	97	12	
100	ISL	11.76	D 11.75	33.139	D 25.194	279.0	0.318	5.60	D 244.1	D 91.0	5.4	0.71	5.4	0.07	0.04	0.18	0.13	101	
110	11.37	11.36</td																	

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 93.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	15.69	15.69	33.100	24.356	356.1	0.000	5.83	254.4	102.6	2.8	0.33	0.1	0.01	0.42	0.12	0.01	0	
1	15.69	15.69	33.100	24.356	356.1	0.004	5.83	254.4	102.6	2.8	0.33	0.1	0.01	0.42	0.12	0.01	1	
10	15.69	15.69	33.103	24.360	356.0	0.036	5.81	253.8	102.4	2.8	0.34	0.0	0.00	0.33	0.10	0.01	10	
20	ISL 15.50 D	15.50	33.113	24.410	351.7	0.071	5.79	252.5	101.7	2.7	0.33	0.0	0.00	0.22	0.12	0.01	20	
25	15.58	15.58	33.139	24.413	351.6	0.089	5.78	252.5	101.7	2.7	0.33	0.0	0.00	0.16	0.13	0.01	25	
30	ISL 15.83 D	15.83	33.255	24.446	348.5	0.107	5.74	250.3	101.5	2.7	0.32	0.0	0.00	0.19	0.11	0.01	30	
40	16.23	16.23	33.483	24.532	340.7	0.141	5.66	247.2	101.1	2.5	0.30	0.0	0.00	0.25	0.08	0.01	40	
50	16.19	16.18	33.476	24.538	340.6	0.175	5.70	d248.4	d101.6	2.5	0.30	0.0	0.01	0.20	0.10	0.00	50	
62	16.16	16.15	33.480	24.547	340.1	0.216	5.66	247.1	100.9	2.5	0.30	0.0	0.01	0.11	0.01	62		
75	ISL 16.09 D	16.08	33.479	24.564	339.0	0.261	5.68	d247.6	d101.1	2.5	0.30	0.0	0.00	0.25	0.17	0.02	76	
76	16.09	16.08	33.489	24.571	338.4	0.263	5.66	246.9	100.7	2.5	0.30	0.0	0.00	0.26	0.17	0.02	77	
88	15.53	15.52	33.441	24.660	330.1	0.303	5.66	247.9	99.9	2.8	0.32	0.0	0.01	0.17	0.21	0.13	89	
100	ISL 14.27 D	14.25	33.404	24.905	307.0	0.344	5.71	d248.6	d97.8	3.3	0.39	0.7	0.11	0.14	0.28	0.15	101	
101	14.23	14.21	33.405	24.914	306.2	0.344	5.66	247.1	97.0	3.4	0.40	0.8	0.11	0.14	0.29	0.15	102	
112	13.41	13.39	33.348	25.039	294.4	0.377	5.62	245.5	94.7	3.8	0.48	1.8	0.11	0.16	0.28	0.17	113	
125	12.52	12.51	33.306	25.181	281.1	0.415	5.49	239.5	90.7	4.9	0.61	4.1	0.06	0.21	0.26	0.15	126	
140	11.62	11.60	33.345	25.382	262.1	0.456	5.24	228.7	84.9	7.1	0.80	7.3	0.02	0.34	0.13	0.07	141	
150	ISL 11.17 D	11.15	33.359	25.474	255.3	0.485	5.15	d224.2	d82.7	9.5	0.95	9.9	0.02	0.31	0.09	0.06	151	
169	10.06	10.04	33.461	25.747	227.7	0.527	4.67	203.7	73.2	14.0	1.24	14.8	0.03	0.24	0.03	0.03	170	
200	9.24	9.22	33.749	26.107	193.9	0.592	3.98	173.6	61.4	21.6	1.55	20.4	0.02	0.03	0.00	0.01	202	
229	8.76	8.74	33.905	26.306	175.5	0.646	3.06	133.6	46.8	29.8	1.91	25.3	0.00	0.08		231		
250	ISL 8.42 D	8.40	33.970	26.409	166.0	0.687	2.83	d123.0	d42.9	34.3	2.06	27.5	0.00	0.09		252		
271	8.08	8.05	34.016	26.498	157.8	0.716	2.38	103.9	35.9	38.8	2.21	29.6	0.01	0.10		273		
300	ISL 7.63 D	7.60	34.048	26.589	149.4	0.766	2.01	d87.4	d29.9	43.6	2.33	31.4	0.01	0.15		302		
320	7.54	7.50	34.061	26.613	147.4	0.790	1.87	81.4	27.7	46.8	2.42	32.6	0.01	0.19		323		
380	7.02	6.98	34.104	26.721	137.9	0.876	1.31	57.3	19.3	55.6	2.68	35.1	0.02	0.34		383		
400	ISL 6.84 D	6.80	34.125	26.761	134.2	0.910	1.13	d49.2	d16.6	59.3	2.76	36.1	0.02	0.32		403		
440	6.41	6.37	34.161	26.847	126.3	0.955	0.81	35.1	11.7	66.6	2.93	38.2	0.01	0.29		444		
500	ISL 5.95 D	5.90	34.214	26.949	117.1	1.036	0.53	d23.2	d7.7							504		
518	5.94	5.90	34.240	26.970	115.3	1.057	0.45	d19.6	d6.5							522		

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

RV OCEAN STARR

## CALCOFI CRUISE 1404

STATION 93.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
0	16.52	16.52	33.404	24.403	351.6	0.000	5.63	245.8	101.0	2.4	0.29	0.0	0.05	0.11	0.07	0.01	0	
2	16.52	16.51	33.404	24.403	351.7	0.007	5.63	245.8	101.0	2.4	0.29	0.0	0.05	0.11	0.07	0.01	2	
10	16.49	16.49	33.399	24.405	351.8	0.035	5.63	246.1	101.0	2.4	0.30	0.0	0.00	0.10	0.07	0.01	19	
20	ISL 16.42 D	16.41	33.393	d 24.419	350.9	0.071	5.67	d247.1	d101.5	2.4	0.29	0.0	0.00	0.09	0.08	0.01	20	
25	16.41	16.40	33.395	24.423	350.6	0.088	5.64	246.3	101.0	2.4	0.29	0.0	0.00	0.08	0.08	0.01	25	
30	ISL 16.41 D	16.40	33.392	d 24.421	351.0	0.106	5.67	d247.3	d101.5	2.4	0.29	0.0	0.00	0.08	0.08	0.01	30	
41	16.40	16.39	33.393	24.425	351.0	0.144	5.64	246.3	100.9	2.4	0.29	0.0	0.00	0.08	0.08	0.01	41	
50	ISL 16.38 D	16.37	33.392	d 24.429	350.9	0.177	5.68	d247.5	d101.6	2.4	0.29	0.0	0.00	0.07	0.08	0.01	50	
51	16.37	16.37	33.392	24.430	350.9	0.179	5.65	246.7	101.1	2.4	0.29	0.0	0.00	0.07	0.08	0.01	51	
62	16.17	16.16	33.396	24.481	346.4	0.217	5.67	247.8	101.1	2.4	0.29	0.0	0.00	0.08	0.11	0.03	62	
75	ISL 15.70 D	15.69	33.401	d 24.590	336.4	0.264	5.75	d250.5	d101.4	2.5	0.30	0.0	0.00	0.08	0.20	0.08	76	
76	15.70	15.69	33.403	24.593	336.2	0.265	5.69	248.6	100.5	2.5	0.30	0.0	0.00	0.08	0.20	0.09	77	
86	15.39	15.38	33.400	24.659	330.2	0.298	5.72	249.9	100.4	2.6	0.31	0.0	0.00	0.11	0.29	0.17	87	
100	14.23	14.22	33.340	24.863	311.0	0.343	5.69	248.3	97.4	3.1	0.40	0.8	0.12	0.06	0.30	0.25	101	
112	13.84	13.83	33.415	25.002	298.1	0.380	5.61	245.0	95.4	3.5	0.42	1.6	0.11	0.10	0.25	0.19	113	
125	13.31	13.29	33.423	25.117	287.4	0.418	5.53	241.3	92.9	4.0	0.48	2.7	0.07	0.10	0.22	0.20	126	
140	11.99	11.97	33.408	25.362	264.1	0.459	5.27	230.2	86.2	6.3	0.71	6.2	0.03	0.31	0.17	0.11	141	
150	ISL 11.45 D	11.43	33.402	d 25.458	255.2	0.489	5.21	d226.7	d84.1	8.4	0.85	8.7	0.02	0.37	0.12	0.09	151	
170	10.25	10.23	33.466	25.719	230.4	0.534	4.74	206.8	74.6	12.5	1.14	13.6	0.02	0.48	0.03	0.03	171	
200	9.32	9.29	33.712	26.067	197.7	0.598	3.92	171.0	60.6	21.0	1.59	20.4	0.01	0.07	0.00	0.02	202	
230	8.73	8.70	33.891	26.300	176.0	0.654	3.28	143.0	50.0	28.2	1.85	25.0	0.00	0.33		232		
250	ISL 8.39 D	8.37	33.960	d 26.407	166.2	0.693	2.89	d125.9	d 43.9	32.7	2.00	26.9	0.00	0.23		252		
270	8.11	8.08	33.997	26.479	159.6	0.721	2.59	113.2	39.1	37.2	2.14	28.8	0.00	0.12		272		
300	ISL 7.73 D	7.70	33.998	d 26.536	154.4	0.773	2.64	d114.7	d 39.4	41.6	2.25	30.5	0.00	0.28		302		
320	7.47	7.44	34.020	26.590	149.6	0.798	2.23	97.2	33.1	44.6								

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
30	10.4 N	122 55.1 W	04/04/2014	1636	UTC	2597 m	330	09 kn	310 04 07	1	1028.0 mb	16.5 C	14.2 C	44 m	6/8	SC	016	
0	16.64	16.64	33.370	24.349	356.8	0.000	5.67	247.8	102.0	2.5	0.31	0.1	0.02	0.23	0.08	0.01	0	
2	A	16.64	33.370	24.349	356.9	0.007	5.67	247.8	102.0	2.5	0.31	0.1	0.02	0.23	0.08	0.01	2	
10	ISL	16.61 D	16.61	33.369	24.355	356.6	0.036	5.66	D246.8	D101.7	2.5	0.31	0.0	0.02	0.33	0.08	0.01	10
16	16.60	16.60	33.369	24.357	356.6	0.057	5.64	246.4	101.4	2.5	0.31	0.0	0.02	0.41	0.08	0.01	16	
16	16.60	16.60	33.370	24.358	356.5	0.056											22	
20	ISL	16.60 D	16.59	33.369	24.359	356.6	0.065	5.68	D247.6	D102.1	2.5	0.31	0.0	0.02	0.31	0.08	0.01	20
30	ISL	16.57 D	16.57	33.369	24.365	356.3	0.101	5.68	D247.4	D101.9	2.5	0.31	0.0	0.01	0.05	0.09	0.01	30
31	A	16.57	16.57	33.369	24.365	356.4	0.111	5.67	247.5	101.8	2.5	0.31	0.0	0.01	0.02	0.09	0.01	31
40	A	16.56	16.55	33.374	24.373	355.9	0.143	5.64	246.5	101.3	2.5	0.31	0.0	0.01	0.06	0.09	0.01	40
50	16.29	16.28	33.361	24.426	351.3	0.178	5.68	248.2	101.5	2.4	0.28	0.0	0.02	0.05	0.11	0.02	50	
60	15.92	15.91	33.329	24.486	345.8	0.213	5.75	251.2	101.9	2.5	0.31	0.0	0.01	0.03	0.14	0.04	60	
71	A	15.57	15.56	33.341	24.574	337.8	0.251	5.79	253.0	101.9	2.5	0.31	0.0	0.00	0.06	0.16	0.04	72
75	ISL	15.39 D	15.38	33.310	24.590	336.4	0.259	5.85	D255.2	D102.6	2.6	0.32	0.0	0.00	0.05	0.19	0.07	76
88	14.82	14.81	33.282	24.693	326.9	0.307	5.81	253.8	100.7	2.7	0.35	0.0	0.00	0.03	0.26	0.14	89	
100	ISL	13.96 D	13.95	33.278	24.481	310.2	0.341	5.77	D251.4	D 98.2	3.4	0.45	1.5	0.10	0.04	0.27	0.18	101
107	13.06	13.04	33.246	25.030	295.1	0.367	5.67	247.7	94.7	3.8	0.51	2.3	0.16	0.04	0.28	0.20	108	
107	13.06	13.04	33.244	25.028	295.2	0.367											14	
125	ISL	11.91 D	11.89	33.223	D 25.233	276.0	0.387	5.51	D239.8	D 89.8	5.6	0.71	5.7	0.04	0.03	0.15	0.17	126
126	A	11.80	11.79	33.227	25.256	273.8	0.421	5.43	237.2	88.4	5.7	0.72	5.9	0.03	0.03	0.15	0.17	127
137	11.24	11.22	33.292	25.410	259.3	0.450	5.18	226.1	83.2	7.7	0.86	8.5	0.02	0.03	0.10	0.08	138	
150	10.57	10.55	33.407	25.617	239.8	0.482	4.71	205.6	74.7	11.9	1.14	13.1	0.02	0.05	0.05	0.05	151	
162	A	10.10	10.08	33.558	25.816	221.0	0.510	4.07	177.6	63.9	16.5	1.41	17.4	0.01	0.04	0.02	0.03	163
182	9.63	9.61	33.699	26.005	203.4	0.552	3.57	155.9	55.6	21.3	1.64	21.0	0.00	0.02	0.01	0.02	183	
200	9.35	9.32	33.815	26.143	190.6	0.588	3.18	138.7	49.2	25.2	1.81	23.5	0.00	0.04	0.00	0.02	202	
231	8.83	8.80	33.973	26.349	171.5	0.644	2.76	120.3	42.2	31.3	1.99	26.3	0.00	0.04			233	
250	ISL	8.83 D	8.80	34.058	D 26.416	165.5	0.646	2.34	D101.6	D 35.8	34.3	2.10	27.6	0.00	0.04			252
270		8.47	8.44	34.061	26.475	160.2	0.709	2.17	94.8	33.0	37.4	2.22	28.9	0.01	0.05			272
300	ISL	8.06 D	8.03	34.099	D 26.566	151.9	0.726	1.84	D 79.9	D 27.7	42.7	2.37	30.8	0.00	0.04			302
321	7.89	7.85	34.126	26.614	147.6	0.787	1.54	67.2	23.1	46.5	2.48	32.1	0.00	0.03			324	
382	7.00	6.96	34.147	26.757	134.5	0.873	1.11	48.3	16.3	57.8	2.73	35.6	0.00	0.06			385	
400	ISL	6.61 D	6.57	34.130	D 26.796	130.7	0.869	1.04	D 45.4	D 15.2	60.3	2.78	36.1	0.00	0.06			403
439	6.33	6.29	34.154	D 26.852	125.7	0.919	0.87	D 37.6	D 12.5									443
500	ISL	6.04 D	5.99	34.220	D 26.943	117.8	0.994	0.55	D 24.1	D 8.0	73.9	3.03	39.0	0.00	0.03			504
516		5.98	5.93	34.232	26.960	116.3	1.074	0.50	21.9	7.2	76.1	3.07	39.5	0.00	0.03			520

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

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

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD			
DEPTH	TEMP	POTTEMP	SALINITY	SIGMA	SV	DYN HT	OXYGEN	OXYGEN	OXY	SIO3*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	PRES	SAMP
m	DEG C	DEG C		THETA			ml/L	μmol/kg	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	db	
29	50.9 N	123 35.2 W	04/04/2014	2133	UTC	4246 m	360	18 kn	340 05 06	2	1026.7 mb	16.9 C	13.9 C	39 m	8/8	SC	017	
0	17.41	17.41	33.652	24.383	353.5	0.000	5.61	245.0	102.6	2.3	0.30	0.1	0.01	0.10	0.06	0.01	0	
2	A	17.41	33.652	24.383	353.6	0.007	5.61	245.0	102.6	2.3	0.30	0.1	0.01	0.10	0.06	0.01	20	
10	ISL	17.40 D	17.40	33.653	D 24.387	353.5	0.036	5.56	D242.3	D101.6	2.3	0.28	0.0	0.00	0.06	0.01	10	
11	17.40	17.40	33.661	24.393	353.0	0.039	5.54	241.9	101.3	2.3	0.28	0.0	0.00	0.05	0.06	0.01	11	
20	ISL	17.39 D	17.39	33.674	D 24.406	352.1	0.071	5.54	D241.3	D101.2	2.3	0.27	0.0	0.00	0.05	0.06	0.01	20
26	17.39	17.38	33.681	24.413	351.7	0.092	5.53	241.5	101.1	2.3	0.27	0.0	0.00	0.05	0.07	0.01	26	
30	ISL	17.39 D	17.39	33.678	D 24.411	352.0	0.107	5.54	D241.5	D101.3	2.3	0.27	0.0	0.00	0.05	0.07	0.01	30
40	17.39	17.39	33.686	24.417	351.9	0.141	5.53	241.6	101.2	2.3	0.28	0.0	0.00	0.05	0.07	0.01	40	
50	17.38	17.38	33.689	24.422	351.7	0.176	5.53	241.5	101.1	2.3	0.27	0.0	0.00	0.04	0.08	0.01	50	
62	17.29	17.28	33.693	24.449	349.6	0.218	5.55	242.3	101.2	2.2	0.27	0.0	0.00	0.04	0.11	0.02	62	
75	ISL	16.98 D	16.97	33.654	D 24.492	345.9	0.266	5.61	D244.5	D101.7	2.3	0.27	0.0	0.00	0.03	0.13	0.03	76
76	16.99	16.98	33.647	24.485	346.7	0.267	5.58	243.8	101.2	2.3	0.27	0.0	0.00	0.03	0.13	0.03	77	
88	16.98	16.96	33.883	24.670	329.5	0.308	5.54	242.0	100.6	2.4	0.24	0.0	0.00	0.06	0.17	0.08	89	
100	15.15	15.14	33.637	24.895	308.1	0.346	5.66	247.1	98.9	2.8	0.29	0.0	0.00	0.04	0.23	0.13	101	
113	14.01	13.99	33.583	25.098	289.1	0.385	5.53	241.5	94.4	3.6	0.40	1.1	0.07	0.09	0.23	0.15	114	
125	ISL	13.42 D	13.537	25.183	281.2	0.423	5.40	D235.2	D 91.1	4.4	0.50	2.8	0.08	0.07	0.23	0.17	126	
126	A	13.26	13.25	33.544	25.220	277.7	0.422	5.37	234.4	90.2	4.5	0.51	2.9	0.08	0.07	0.23	0.18	127
139	12.05	12.04	33.388	25.335	266.7	0.457	5.28	230.4	86.4	6.2	0.70	6.0</td						

## PRIMARY PRODUCTIVITY CASTS

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 76.7 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
35 1.3 N	120 54.8 W	16/04/2014	1842 UTC	13 m	1205 - 1905 PST	1205 PST	1904 PST	950.0 mg C/m <sup>2</sup>	068

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEOL	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	THETA	mL/L	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
2	12.45	33.561	25.386	5.51	91.1	15.6	1.18	11.8	0.24	0.04	1.00	0.63	79. A	41.4	38.8	40.1	0.31
9	12.06	33.608	25.497	5.28	86.6	17.9	1.28	13.7	0.23	0.03	1.15	0.66	35.	40.5	0.23	20.4	0.42
12	12.05	33.628	25.514	5.17	84.7	19.0	1.35	14.5	0.23	0.04	1.26	0.81	24.	36.7	21.7	29.2	0.48
20	11.80	33.648	25.577	4.93	80.4	20.0	1.42	15.1	0.24	0.05	1.39	0.60	9.4	34.4	33.8	34.1	0.33
29	11.12	33.644	25.700	4.20	67.6	20.4	1.54	17.6	0.25	0.13	0.74	0.55					
38	10.55	33.601	25.767	3.68	58.4	19.3	1.63	19.4	0.10	0.03	0.27	0.30	1.1	2.1	1.1	1.6	0.21
48	10.28	33.686	25.880	3.17	50.0	22.4	1.78	21.6	0.13	0.11	0.13	0.17	0.35	0.18	0.37	0.27	0.25

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 76.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 3.1 N	122 56.1 W	15/04/2014	2011 UTC	14 m	1317 - 1913 PST	1212 PST	1909 PST	126.5 mg C/m <sup>2</sup>	066

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEOL	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	THETA	mL/L	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
3	14.45	33.051	24.588	5.99	102.9	3.4	0.35	0.0	0.00	0.07	0.26	0.06	72. A	3.8	3.6	3.7	0.25
10	14.45	33.051	24.588	5.98	102.7	3.4	0.36	0.0	0.00	0.08	0.26	0.06	33.	3.7	3.8	3.8	0.31
14	14.43	33.053	24.595	5.99	102.8	3.4	0.36	0.0	0.00	0.03	0.25	0.07	22.	3.4	3.4	3.4	0.28
22	14.42	33.064	24.606	5.98	102.7	3.4	0.37	0.0	0.00	0.04	0.25	0.06	9.0	2.3	2.2	2.3	0.82
32	14.27	33.198	24.742	6.07	103.9	3.4	0.35	0.0	0.00	0.04	0.39	0.12					
40	14.14	33.241	24.802	6.02	102.9	3.5	0.37	0.0	0.00	0.05	0.80	0.32	1.2	2.3	1.4	1.9	0.35
51	13.92	33.273	24.872	5.94	101.1	3.4	0.41	0.0	0.02	0.33	0.74	0.41	0.37	0.87	0.81	0.84	0.29

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 80.0 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 19.0 N	120 48.1 W	13/04/2014	1710 UTC	12 m	1204 - 1902 PST	1202 PST	1857 PST	1678.3 mg C/m <sup>2</sup>	058

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEOL	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	THETA	mL/L	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
2	12.48	33.570	25.388	5.55	91.7	13.9	1.01	9.7	0.23	0.09	2.22	0.70	77. A	101.4	91.2	96.3	0.41
8	12.48	33.570	25.388	5.54	91.6	13.9	0.99	9.8	0.23	0.30	2.34	0.71	36.	89.8	92.3	91.1	0.38
11	12.45	33.569	25.393	5.54	91.5	13.9	0.98	9.7	0.24	0.10	2.07	0.76	24.	74.9	90.4	82.7	0.46
20	12.07	33.565	25.463	5.28	86.6	14.8	1.07	10.9	0.27	0.10	0.96	0.75	7.7	23.2	25.4	24.3	0.53
26	11.88	33.575	25.508	4.78	78.1	15.7	1.21	13.0	0.34	0.29	0.45	0.48					
34	11.71	33.572	25.538	4.63	75.3	15.5	1.26	13.6	0.36	0.46	0.35	0.37	1.3	0.88	0.50	0.69	0.76
44	10.98	33.578	25.674	4.66	74.6	15.8	1.25	13.5	0.38	0.52	0.37	0.35	0.36	0.45	0.82	0.63	0.25

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 80.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 8.9 N	123 13.2 W	14/04/2014	1707 UTC	19 m	1213 - 1910 PST	1213 PST	1908 PST	332.5 mg C/m <sup>2</sup>	062

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEOL	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	THETA	mL/L	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
2	14.76	33.436	24.818	5.91	102.5	3.2	0.35	0.0	0.03	0.04	0.32	0.11	85. A	9.2	8.7	8.9	0.33
10	14.76	33.432	24.817	5.94	103.0	3.2	0.38	0.0	0.00	0.02	0.32	0.08					
13	14.76	33.431	24.817	5.93	102.8	3.2	0.35	0.0	0.01	0.02	0.31	0.10	35.	6.4	6.1	6.2	3.3
17	14.75	33.432	24.819	5.92	102.6	3.2	0.35	0.0	0.01	0.04	0.32	0.07	25.	7.9	8.3	8.1	0.28
32	14.73	33.429	24.821	5.91	102.3	3.2	0.35	0.0	0.01	0.11	0.35	0.09	7.5	6.6	5.9	6.2	0.33
42	14.56	33.398	24.834	5.91	102.0	3.3	0.39	0.1	0.08	0.15	0.55	0.21					
54	13.80	33.383	24.983	5.79	98.3	3.2	0.47	0.8	0.35	0.20	0.65	0.33	1.3	1.6	1.0	1.3	0.71
62	12.68	33.289	25.134	5.51	91.3	5.0	0.67	4.6	0.22	0.07	0.34	0.23					
70	11.99	33.261	25.245	5.36	87.5	6.2	0.79	7.1	0.06	0.01	0.23	0.14	0.35	0.28	0.25	0.26	0.33

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 52.5 N	120 8.5 W	12/04/2014	1721 UTC	10 m	1201 - 1853 PST	1201 PST	1855 PST	1888.4 mg C/m <sup>2</sup>	050

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEOL	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	THETA	mL/L	PCT	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
2	13.00	33.533	25.256	6.10	102.0	3.7	0.56	2.7	0.08	0.52	3.85	1.32	74. A	118.5	75.5	97.0	2.0
7	13.00	33.529	25.254	6.11	102.1	3.5	0.55	2.6	0.08	0.45	3.61	1.54	34.	138.2	90.4	114.3	0.53
9	12.99	33.530	25.257	6.11	102.2	3.5	0.54	2.7	0.06	0.46	3.69	1.76	25.	75.1	82.8	78.9	0.45
16	12.87	33.533	25.284	5.99	99.8	4.0	0.60	3.2	0.09	0.68	3.76	1.46	8.6	60.7	60.3	60.5	0.82
22	12.85	33.538	25.292	6.02	100.3	3.9	0.60	3.2	0.09	0.75	3.78	1.54					
29	12.49	33.545	25.367	5.61	92.8	6.2	0.78	5.4	0.11	1.25	2.90	1.92	1.2	9.4	7.2	8.3	0.43
37	11.49	33.553	25.562	4.32	70.0	13.6	1.26	12.7	0.16	1.02	1.08	0.86	0.34	1.0	1.1	1.1	0.31

A) INCUBATION LIGHT INTENSITIES WERE 57, 35, 25, 8.5, 1.24, 0.35 PERCENT RESPECTIVELY.

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 83.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 54.7 N	122 7.2 W	11/04/2014	1827 UTC	15 m	1210 - 1907 PST	1210 PST	1905 PST	384.6 mg C/m <sup>2</sup>	046

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
2	14.79	33.405	24.790	5.97	103.5	3.2	0.38	0.0	0.02	0.16	0.34	0.09	81. A	10.9	11.8	11.3	0.34
10	14.54	33.393	24.833	6.00	103.5	3.3	0.35	0.0	0.01	1.03	0.36	0.11	36.	12.8	10.8	11.8	0.49
14	14.43	33.373	24.841	6.06	104.2	3.2	0.36	0.0	0.01	0.34	0.41	0.13	24.	8.7	9.7	9.2	0.38
24	14.29	33.367	24.868	6.04	103.7	3.2	0.37	0.0	0.02	0.24	0.60	0.24	8.6	10.4	9.6	10.0	0.48
34	14.24	33.372	24.883	5.92	101.4	3.2	0.40	0.1	0.06	0.27	0.95	0.39					
44	14.10	33.376	24.916	5.87	100.4	3.3	0.42	0.3	0.10	0.34	0.62	0.31	1.1	2.1	1.8	2.0	0.33
54	13.12	33.358	25.101	5.54	92.7	4.7	0.65	3.9	0.27	0.12	0.27	0.18	0.40	0.25	0.42	0.33	0.22

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 39.7 N	118 57.6 W	08/04/2014	1901 UTC	15 m	1216 - 1855 PST	1158 PST	1847 PST	635.7 mg C/m <sup>2</sup>	035

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
2	15.83	33.473	24.613	6.12	108.4	0.2	0.28	0.0	0.06	0.07	0.49	0.22		12.1	16.1	14.1	0.48
8	15.42	33.470	24.702	6.21	109.0	0.2	0.29	0.0	0.01	0.05	0.58	0.29		26.5	26.5	26.5	0.53
11	15.31	33.469	24.726	6.22	109.0	0.2	0.28	0.0	0.02	0.04	0.54	0.25		23.7	22.8	23.3	0.48
19	14.94	33.464	24.804	6.39	111.2	0.4	0.28	0.0	0.00	0.03	0.86	0.51		20.3	19.3	19.8	0.63
26	14.43	33.456	24.907	6.03	103.8	1.1	0.37	0.0	0.02	0.11	1.52	1.00					
34	13.88	33.447	25.015	5.57	94.7	3.7	0.57	2.5	0.10	0.44	2.44	1.45		7.8	6.2	7.0	0.57
44	11.89	33.478	25.431	4.41	72.1	11.2	1.14	11.5	0.17	0.23	0.47	0.40		0.49	0.61	0.55	0.17

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 39.4 N	121 2.5 W	09/04/2014	1729 UTC	18 m	1210 - 1900 PST	1206 PST	1855 PST	312.0 mg C/m <sup>2</sup>	038

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
2	14.97	33.263	24.640	5.91	102.7	3.2	0.35	0.0	0.02	0.04	0.22	0.08	84. A	3.8	4.0	3.9	0.50
12	14.89	33.261	24.658	5.92	102.8	3.2	0.35	0.0	0.02	0.11	0.23	0.07	36.	5.4	5.0	5.2	0.34
16	14.88	33.260	24.657	5.92	102.7	3.2	0.35	0.0	0.01	0.03	0.24	0.06	26.	4.2	4.6	4.4	0.24
22	14.79	33.286	24.698	5.99	103.7	3.3	0.37	0.0	0.01	0.12	0.33	0.09					
29	14.44	33.269	24.760	5.99	103.0	3.4	0.37	0.0	0.01	0.12	0.43	0.21	8.4	7.2	7.2	0.34	
40	14.08	33.228	24.804	6.00	102.3	3.4	0.39	0.1	0.02	0.14	0.78	0.34					
52	13.70	33.196	24.859	5.91	100.0	3.6	0.45	0.7	0.07	0.08	0.91	0.44	1.2	4.0	4.0	4.0	0.21
58	13.47	33.187	24.899	5.86	98.7	3.7	0.48	1.2	0.10	0.14	0.79	0.49					
66	13.15	33.251	25.012	5.66	94.8	4.1	0.58	2.8	0.18	0.06	0.54	0.33	0.36	0.86	1.1	0.96	0.18

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 86.7 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 19.4 N	123 44.6 W	10/04/2014	1757 UTC	18 m	1210 - 1900 PST	1216 PST	1855 PST	145.9 mg C/m <sup>2</sup>	042

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
2	16.74	33.467	24.400	5.61	101.1	2.4	0.48	0.1	0.01	0.50	0.06	0.01	92. A	1.4	1.5	1.4	0.24
13	16.72	33.467	24.405	5.63	101.4	2.4	0.31	0.1	0.01	0.07	0.07	0.01					
24	16.42	33.466	24.474	5.68	101.7	2.4	0.33	0.0	0.01	0.24	0.07	0.01	35.	1.6	1.4	1.5	0.19
32	16.42	33.469	24.478	5.66	101.3	2.4	0.33	0.1	0.00	0.20	0.07	0.02	25.	1.3	1.5	1.4	0.16
44	16.40	33.472	24.485	5.64	101.0	2.4	0.31	0.0	0.00	0.04	0.09	0.02					
56	16.37	33.470	24.491	5.64	100.9	2.4	0.30	0.0	0.00	0.08	0.10	0.02	8.6	1.5	1.5	1.5	0.17
71	16.05	33.460	24.558	5.67	100.8	2.4	0.29	0.1	0.00	0.06	0.17	0.06					
86	15.36	33.429	24.690	5.67	99.4	2.5	0.35	0.0	0.00	0.17	0.20	0.13					
100	14.81	33.402	24.789	5.66	98.2	2.9	0.37	0.4	0.05	0.04	0.22	0.13	1.2	0.73	0.87	0.80	0.10
108	14.12	33.388	24.923	5.61	95.9	3.3	0.44	1.3	0.10	0.05	0.22	0.13					
120	13.15	33.345	25.088	5.54	92.8	4.1	0.54	2.9	0.06	0.04	0.20	0.13					
128	12.92	33.326	25.119	5.51	91.8	4.4	0.58	3.5	0.05	0.05	0.19	0.12	0.36	0.27	0.27	0.27	0.13

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 25.3 N	117 54.1 W	07/04/2014	1758 UTC	20 m	1200 - 1844 PST	1154 PST	1842 PST	816.5 mg C/m <sup>2</sup>	027

DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAE0	LIGHT	UPTAKE (mg C/m <sup>3</sup> )			
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK
2	15.82	33.492	24.629	5.92	104.8	1.5	0.31	0.2	0.01	0.18	0.28	0.08	86. A	11.3	8.6	10.0	0.46
8	15.36	33.488	24.729	6.21	109.0	1.0	0.29	0.1	0.00	0.08	0.48	0.21					
14	14.95	33.485	24.816	6.47	112.6	0.7	0.29	0.1	0.00	0.08	0.71	0.34	34.	27.1	26.7	26.9	0.46
18	14.60	33.476	24.885	6.61	114.1	0.7	0.26	0.0	0.01	0.03	0.89	0.46	25.	18.0	27.0	22.5	0.48
25	13.35	33.435	25.112	5.46	92.0	4.2	0.61	2.8	0.16	0.15	1.95	0.98					
32	12.46	33.430	25.284	4.66	76.9	8.5	0.95	8.8	0.23	0.15	1.26	0.78	8.6	14.3	15.2	14.7	0.20
40	11.99	33.437	25.380	4.42	72.3	10.0	1.08	10.8	0.22	0.13	0.85	0.53					
48	11.37	33.497	25.542	4.04	65.3	13.2	1.27	14.2	0.09	0.05	0.44	0.38					
58	10.83	33.554	25.683	3.79	60.5	15.9	1.42	16.7	0.08	0.02	0.34	0.32	1.2	1.2	0.99	1.1	0.13
66	10.56	33.619	25.781	3.46	55.0	18.6	1.58	18.9	0.06	0.04	0.14	0.23					
74	10.23	33.685	25.889	3.17	50.0	21.1	1.70	20.8	0.05	0.04	0.10	0.18	0.34	0.18	0.15	0.17	0.16

A) INCUBATION LIGHT INTENSITIES WERE 57, 35, 25, 8.5, 1.24, 0.35 PERCENT RESPECTIVELY.

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD									
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	LIGHT	UPTAKE (mg C/m3)	1	2	MEAN	DARK
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK	
2	15.06	33.408	24.733	5.86	102.2	2.5	0.40	0.0	0.03	0.34	0.10	83. A	7.0	6.7	6.9	0.23		
12	14.93	33.408	24.762	5.89	102.4	2.5	0.40	0.0	0.01	0.10	0.33	0.10	34.	8.1	8.7	8.4	0.32	
15	14.86	33.407	24.776	5.87	101.9	2.5	0.37	0.0	0.02	0.26	0.34	0.11	26.	7.8	7.6	7.7	0.27	
27	14.81	33.403	24.784	5.89	102.1	2.5	0.37	0.0	0.01	0.05	0.39	0.13	8.7	7.5	8.2	7.9	0.24	
39	14.78	33.400	24.789	5.85	101.4	2.5	0.38	0.0	0.02	0.17	0.34	0.12						
50	14.69	33.392	24.804	5.81	100.5	2.7	0.43	0.2	0.03	0.37	0.31	0.14	1.1	1.8	5.4	3.6	0.15	
57	13.50	33.332	25.005	5.69	96.0	3.9	0.53	2.3	0.17	0.07	0.64	0.38						
64	12.40	33.296	25.193	5.45	89.9	5.1	0.69	5.2	0.11	0.04	0.46	0.38	0.31	0.75	0.78	0.76	0.17	

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD									
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	LIGHT	UPTAKE (mg C/m3)	1	2	MEAN	DARK
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK	
2	16.29	33.454	24.494	5.65	100.9	2.4	0.30	0.2	0.01	0.52	0.07	0.01	90. A	0.89	0.99	0.94	0.17	
11	16.29	33.454	24.495	5.65	100.9	2.4	0.29	0.1	0.01	0.28	0.07	0.01						
22	16.29	33.453	24.495	5.65	101.0	2.4	0.29	0.0	0.01	0.13	0.06	0.01	32.	1.2	1.3	1.3	0.11	
28	16.28	33.454	24.497	5.64	100.8	2.4	0.29	0.0	0.01	0.04	0.07	0.01	24.	1.1	1.1	1.1	0.11	
38	16.29	33.454	24.497	5.65	101.0	2.4	0.29	0.0	0.01	0.10	0.07	0.01						
48	16.28	33.455	24.500	5.65	100.8	2.3	0.30	0.0	0.01	0.13	0.08	0.01	8.6	0.97	1.2	1.1	0.11	
61	16.15	33.460	24.534	5.67	101.0	2.4	0.31	0.0	0.01	0.27	0.10	0.03						
75	15.88	33.454	24.592	5.65	100.1	2.4	0.29	0.0	0.00	0.08	0.15	0.06						
86	15.73	33.483	24.648	5.67	100.2	2.5	0.29	0.0	0.01	0.09	0.18	0.10	1.2	0.48	0.36	0.42	0.15	
94	14.79	33.449	24.828	5.63	97.5	2.8	0.35	0.3	0.09	0.08	0.28	0.22						
106	13.04	33.335	25.100	5.59	93.4	3.7	0.49	2.3	0.08	0.13	0.26	0.18						
110	12.79	33.379	25.185	5.48	91.0	4.5	0.55	3.6	0.03	0.05	0.20	0.20	0.36	0.43	0.05	0.24	0.09	

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD									
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	LIGHT	UPTAKE (mg C/m3)	1	2	MEAN	DARK
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK	
2	15.91	33.554	24.658	5.75	102.1	2.8	0.32	0.0	0.02	0.41	0.37	0.06	83. A	7.5	7.8	7.7	0.30	
12	15.89	33.551	24.659	5.73	101.7	2.7	0.33	0.1	0.01	0.25	0.36	0.05	34.	8.2	10.1	9.1	0.21	
15	15.90	33.551	24.659	5.75	102.0	2.7	0.33	0.0	0.00	0.64	0.39	0.06	26.	7.4	7.5	7.4	0.35	
28	15.71	33.551	24.701	5.75	101.6	2.8	0.33	0.0	0.01	0.34	0.45	0.08	8.0	8.1	8.8	8.4	0.22	
39	13.67	33.470	25.076	5.73	97.1	4.0	0.44	0.9	0.05	0.51	0.99	0.33						
50	11.64	33.483	25.482	4.85	78.7	8.6	0.88	8.5	0.11	0.30	0.55	0.28	1.1	1.9	2.2	2.1	0.12	
57	11.58	33.473	25.484	4.23	68.6	12.0	1.20	13.3	0.14	0.61	0.45	0.35						
64	10.95	33.560	25.667	3.75	60.0	15.6	1.42	16.8	0.06	0.48	0.20	0.19	0.31	0.26	0.34	0.30	0.16	

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD									
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	LIGHT	UPTAKE (mg C/m3)	1	2	MEAN	DARK
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK	
2	15.72	33.105	24.355	5.80	102.3	2.9	0.35	0.0	0.01	0.42	0.11	0.02	87. A	0.92	0.88	0.90	0.53	
10	15.56	33.102	24.389	5.84	102.6	2.9	0.34	0.0	0.01	0.15	0.12	0.02						
14	15.53	33.102	24.394	5.82	102.2	2.9	0.35	0.0	0.01	0.09	0.12	0.02	38.	1.1	1.3	1.2	0.21	
20	15.51	33.103	24.400	5.80	101.8	2.9	0.35	0.0	0.01	0.08	0.13	0.02	25.	1.1	1.0	1.1	0.21	
35	15.42	33.108	24.425	5.82	101.9	2.9	0.34	0.0	0.00	0.25	0.15	0.03	8.7	0.95	0.88	0.92	0.22	
44	15.41	33.130	24.446	5.82	102.0	2.8	0.33	0.0	0.01	0.05	0.16	0.03						
54	15.12	33.165	24.535	5.84	101.8	2.8	0.38	0.0	0.00	0.09	0.29	0.10						
64	14.87	33.282	24.681	5.74	99.6	2.7	0.34	0.0	0.02	0.08	0.59	0.28	1.1	0.79	0.82	0.80	0.18	
72	14.57	33.278	24.741	5.71	98.5	2.9	0.37	0.3	0.08	0.07	0.66	0.36						
81	13.09	33.191	24.979	5.65	94.5	3.9	0.54	2.5	0.18	0.09	0.32	0.21	0.35	0.23	0.19	0.21	0.11	

RV OCEAN STARR

CALCOFI CRUISE 1404

STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD									
DEPTH	TEMP	SALINITY	SIGMA	OXYGEN	OXY	SI03*	P04*	N03*	N02*	NH4*	CHL-A	PHAEAO	LIGHT	UPTAKE (mg C/m3)	1	2	MEAN	DARK
m	DEG C	THETA	ml/L	PCT	μM	μM	μM	μM	μM	μM	μg/L	μg/L	PCT	1	2	MEAN	DARK	
2	16.64	33.370	24.349	5.67	102.0	2.5	0.31	0.1	0.02	0.23	0.08	0.01	93. A	1.8	1.7	1.7	0.26	
16	16.80	33.369	24.357	5.64	101.4	2.5	0.31	0.0	0.02	0.41	0.08	0.01						
31																		

## CalCOFI Cruise 1404

## MACROZOOPLANKTON BIOMASS

Net Mesh Size: 0.505mm

Line	Sta.	Latitude N	Longitude W	Date Mo/Day	Time (PST)		Water Volume Strained (m <sup>3</sup> )	Max. Tow Depth (m)	Volume per 1000 m <sup>3</sup> Strained	
					Start	End			Total (cm <sup>3</sup> )	Small (cm <sup>3</sup> )
76.7	51.0	35 01.2	120 54.8	04/16	1141	1202	452	214	27	27
76.7	90.0	33 43.3	123 38.1	04/15	0628	0649	424	212	33	33
76.7	100.0	33 23.3	124 19.3	04/14	2257	2318	428	213	129	96
80.0	50.5	34 28.0	120 29.3	04/13	0515	0517	39	13	1371	1371
80.0	51.0	34 27.0	120 31.4	04/13	0652	0658	110	55	273	273
80.0	55.0	34 19.0	120 48.2	04/13	1042	1103	373	210	196	196
80.0	60.0	34 09.4	121 09.3	04/13	1536	1557	415	195	159	159
80.0	70.0	33 49.1	121 50.6	04/13	2151	2212	390	211	415	415
80.0	80.0	33 29.0	122 32.0	04/14	0410	0430	394	213	180	180
80.0	90.0	33 08.9	123 13.3	04/14	1035	1057	407	213	82	62
80.0	100.0	32 49.0	123 54.4	04/14	1641	1702	383	219	26	26
81.7	43.5	34 24.3	119 48.0	04/12	2137	2139	54	10	149	149
81.8	46.9	34 16.5	120 01.5	04/13	0108	0129	366	203	207	164
82.2	44.5	34 17.4	119 48.8	04/28	0041	0103	385	207	228	156
83.3	39.4	34 15.9	119 19.7	04/12	1832	1834	46	15	110	110
83.3	40.6	34 13.6	119 24.7	04/12	1728	1731	72	19	279	279
83.3	40.6	34 13.5	119 24.5	04/28	0754	0757	42	27	1127	1127
83.3	42.0	34 10.8	119 30.5	04/12	1531	1540	166	77	842	325
83.3	51.0	33 52.4	120 08.5	04/12	0835	0842	150	67	360	360
83.3	55.0	33 44.8	120 24.6	04/12	0543	0605	380	216	105	105
83.3	60.0	33 34.8	120 45.3	04/12	0118	0139	409	203	362	313
83.3	70.0	33 14.6	121 26.5	04/11	1820	1841	411	210	204	204
83.3	80.0	32 54.6	122 07.8	04/11	1131	1153	395	215	63	63
83.3	90.0	32 34.8	122 48.6	04/11	0440	0501	396	204	58	58
83.3	100.0	32 14.8	123 29.6	04/10	2214	2235	389	213	103	41
83.3	110.0	31 54.8	124 10.1	04/10	1621	1643	396	211	712	51
85.4	35.8	34 01.2	118 50.0	04/08	0455	0457	43	11	508	508
86.7	33.0	33 53.4	118 29.4	04/07	2259	2304	92	43	586	586
86.7	33.0	33 53.1	118 29.4	04/25	1912	1917	93	39	281	281
86.7	35.0	33 49.2	118 37.8	04/08	0204	0224	374	200	254	224
86.7	40.0	33 39.6	118 57.6	04/08	0942	1003	395	205	144	104
86.7	40.0	33 39.4	118 58.5	04/27	1007	1028	370	214	198	198
86.7	55.0	33 08.2	120 02.9	04/08	2226	2247	388	207	260	260
86.7	60.0	32 59.4	120 21.0	04/09	0358	0420	405	207	153	129
86.7	70.0	32 39.6	121 02.3	04/09	0831	0853	408	204	34	34
86.7	80.0	32 19.4	121 43.0	04/09	1551	1612	398	212	48	25
86.7	90.0	31 59.4	122 23.7	04/09	2149	2210	369	207	152	84
86.7	100.0	31 39.6	123 04.2	04/10	0400	0421	380	211	268	45
86.7	110.0	31 19.2	123 44.4	04/10	0855	0917	401	208	17	17
86.8	32.5	33 53.3	118 26.7	04/07	2122	2125	61	18	591	591
88.5	30.1	33 40.5	118 05.1	04/07	1745	1747	48	13	436	436
90.0	27.7	33 29.7	117 44.8	04/07	1455	1457	43	9	793	793
90.0	28.0	33 29.1	117 46.0	04/07	1346	1351	99	37	463	463
90.0	30.0	33 25.2	117 54.0	04/07	1124	1146	388	200	111	111
90.0	30.0	33 25.0	117 54.3	04/25	1201	1222	369	207	62	62
90.0	35.0	33 15.1	118 15.0	04/07	0701	0723	401	207	120	120
90.0	37.0	33 11.4	118 23.2	04/07	0403	0424	389	199	206	159
90.0	53.0	32 39.1	119 28.9	04/06	1833	1854	406	208	86	86
90.0	90.0	31 25.4	121 59.4	04/05	1704	1726	495	176	16	16
90.0	100.0	31 04.8	122 39.6	04/05	1051	1112	427	209	14	14
90.0	110.0	30 45.0	123 19.8	04/05	0355	0416	427	204	28	28
90.0	120.0	30 25.1	123 60.0	04/04	2129	2149	387	209	23	23
91.7	26.4	33 14.6	117 27.9	03/29	0025	0027	53	15	264	264
93.3	26.7	32 57.4	117 18.3	03/28	2023	2027	99	41	745	745
93.3	28.0	32 54.5	117 23.6	04/01	1808	1825	380	186	74	74
93.3	30.0	32 50.8	117 31.9	04/01	2102	2117	333	186	87	87
93.3	30.0	32 50.7	117 31.9	04/23	1440	1500	381	211	131	66
93.3	35.0	32 40.8	117 52.4	04/02	0120	0135	309	208	120	120
93.3	40.0	32 30.6	118 12.6	04/02	0551	0605	335	198	256	194
93.3	40.0	32 30.8	118 12.8	04/24	0022	0044	422	209	185	185
93.3	45.0	32 20.4	118 32.4	04/02	1121	1144	434	209	97	81
93.3	50.0	32 10.8	118 53.7	04/02	1540	1602	458	194	90	90
93.3	50.0	32 10.9	118 53.7	04/24	0945	1007	398	210	186	186
93.3	55.0	32 00.9	119 14.0	04/02	2007	2028	431	201	81	81
93.3	60.0	31 50.8	119 34.2	04/03	0114	0134	400	207	83	83
93.3	60.0	31 50.9	119 34.3	04/24	1514	1535	450	188	18	18
93.3	70.0	31 30.6	120 15.0	04/03	0737	0759	423	207	26	26
93.3	80.0	31 10.9	120 55.3	04/03	1400	1422	422	208	36	36
93.3	90.0	30 50.7	121 35.4	04/03	2020	2043	417	209	31	31
93.3	100.0	30 30.6	122 15.6	04/04	0237	0258	403	209	30	30
93.3	110.0	30 10.2	122 55.2	04/04	0725	0746	396	213	33	33
93.3	120.0	29 50.9	123 35.4	04/04	1446	1508	460	184	35	35
93.4	26.4	32 57.0	117 16.5	03/28	2123	2124	32	12	381	381