UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 1301
11 January – 2 February 2013

CC Reference 14 -05
25 June 2014

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093-0227

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

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CONTENTS

INTRODUCTION

The data presented in this report were collected during cruise 1301* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the NOAA vessel FSV *Bell M. Shimada*. The CalCOFI program was organized in the late 1940's to study the causes of variations in population size of fishes of importance to the State of California. It is carried out by NOAA's National Marine Fisheries Service Southwest Fisheries Science Center, the California Department of Fish and 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 cruises were collected and processed by personnel of the Integrative Oceanography Division and the Southwest Fisheries Science Center. CalCOFI data presented in this report and collected on previous cruises can be accessed at http://www.calcofi.org.

STANDARD PROCEDURES

CTD/Rosette Cast Data

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

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

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

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

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

Nutrient samples were analyzed at sea using a QuAAtro continuous flow analyzer (SEAL Analytical). Dissolved silicate, nitrate, and nitrite were analyzed using a modification of the method described by Armstrong (1967) and Gordon et al. (1992). Phosphate was measured with a modification of the Murphy and Riley (1962) protocol and ammonium was analyzed using a modified fluorometric method described by Kerouel and Aminot (1997). Samples were collected in 45ml high-density polypropylene screw top tubes which were acid washed and rinsed with sample three times prior to filling. Standardizations and cadmium-reduction coil efficiency determinations were performed at the beginning of every run. Drift corrections were performed in each run using a high standard inserted before and after sample sets. A sample of reference material for nutrients in seawater (RMNS), produced by KANSO technos (www.kanso.co.jp) was included in one run per day to monitor the stability of the calibration standards and make adjustments to nitrate, nitrite, phosphate and silicate values 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}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 11.28 µCi of ^{14}C as $NaHCO_3$ (50µl of stock solution) prepared in a 0.3 g/liter solution of sodium carbonate (Fitzwater *et al*., 1982). Samples were incubated from LAN to civil twilight in seawater-cooled incubators with neutral-density screens which simulate *in situ* light levels. At the end of the incubation, the samples were filtered onto Millipore HA filters and placed in scintillation vials. One half ml of 10% HCl was added to each sample. The sample was then allowed to sit, without a cap, at room temperature for 12 hours (after Lean and Burnison, 1979). Following this, 10 ml of scintillation cocktail were added to each sample and the samples were returned to SIO where the radioactivity was determined with a scintillation counter. Salinity, oxygen, nutrients, chlorophyll-*a* and phaeopigments were determined from all rosette productivity bottles.

Macrozooplankton Net Tows

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

Avifauna Observations (Farallon Institute of Advanced Ecosystem Research)

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

Ancillary Programs

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

1) *Underway Data*: Continuous near surface measurements of temperature, salinity and *in vivo* chlorophyll fluorescence were recorded from seawater pumped through the ship's uncontaminated seawater system. Water was drawn from a depth of approximately 3 meters. The data were logged in one-minute averages using a Sea-Bird Electronics, Inc., SBE 45 MicroTSG and SBE-21 TSG Thermosalinographs and a Turner Designs Fluorometer Model 10-AU-005-CE.

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

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

4) *SCCOOS Nearshore Observations*: The objective of these observations is to extend CalCOFI time series to the nearshore. Nearshore observations consist of 6 stations at the ends and interspersed with current CalCOFI lines on the 20 m isobath with a standard set of CalCOFI observations. (R. Goericke, SIO)

5) *Inorganic Carbon System*: The CalCOFI group collected samples for the characterization of the inorganic carbon system at selected locations along the cruise track. Total inorganic carbon and alkalinity will be measured which will allow the calculation of pH and 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)

6) *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)

7) *Nitrate Isotope:* Seawater samples are acquired using the CTD-rosette and shipped frozen to Princeton University. The nitrogen and oxygen isotopic composition of nitrate is measured using strains of denitrifying bacteria that reduce nitrate to N2O. (P. Rafter, Princeton University)

8) *ALF (Advanced Laser Fluorometer)*: Continuous underway analysis of phytoplankton pigment groups and variable fluorescence (F_v/F_m). ALF, developed by A. Chekalyuk at Lamont-Doherty Earth Observatory, uses laser stimulated emission at 405 and 532 nm together with spectral deconvolution analysis to distinguish

fluorescence from three types of phycoerythrin, chlorophyll-*a*, and chromophoric dissolved organic matter (CDOM). The ALF is useful for differentiating the contribution of cyanobacteria and cryptophytes from other phytoplankton taxa present in natural phytoplankton assemblages, as well as for assessing phytoplankton photophysiological status.

9) *ARGO Drifter:* The international Argo program is a global array of over three thousand 2000m profiling floats (http://www.argo.ucsd.edu/index.html). Through NOAA funding, the IDG lab at SIO/UCSD is developing an Argo float to profile to 6000m. The first prototype will be deployed on the CalCOFI line 80 station 70, where it will perform 3-4 km profiles over a span of months before recovery and evaluation of its performance. The float is comprised of a 0.33 m diameter glass ball in a traditional plastic hard-hat, plus 0.36 m high antenna, and a SBE CTD mounted on the side. It weighs 26.5 kg in air, 0.9m high (including antenna and bottom mount), 0.6 x 0.6m wide, and is equipped with a short nylon lifting bridle. It will be deployed with the ship traveling at <2 knots, propellers dis-engaged, using either a crane or A-frame (to avoid the ship's side) equipped with an IDG-supplied quick-release system. Once released, the ship will let the float drift clear, and then slowly move away from the area (i.e. deploy 2 nm away from station 70, and then proceed to the station). An IDG-supplied Iridium phone will be used for communication between ship and shore. Status will be checked by IDG via Iridium messages from the float just prior to deployment, and immediately after deployment. (J. Sherman, SIO)

10) MBARI scientists collect samples for analysis of TCO2 (DIC+DOC), Nutrients (Phosphate, Silicate, Nitrate, Nitrite, and Ammonium), Chlorophyll, C14 and N15 Primary Production, and surface Phytoplankton samples of A*, HPLC, POC, FCM, and Quanitative Phytoplankton (QP) at stations occupied on CalCOFI line 66.7. From the underway surface water, pCO2 and fluorometeric samples are taken. These samples and the cruises they are collected on support the studies of physical, chemical and biological dynamics off the west coast of Central California and have resulted in a rich and consistent history of ocean dynamics, from seasonal variations to longterm trends, such as El Nino Southern Oscillation (ENSO) and the Pacifc Decadal Oscillation (PDO). Cycles which have direct effects on the coastal marine life and economy. (M. Blum, MBARI)

11*)* *Underway Sea Surface xCO2:* Continuous measurements of the partial pressure of CO_2 were made from the ship's uncontaminated seawater system on CalCOFI line 66.7. The seawater was equilibrated in a diffusion chamber that was then analyzed with a Licor 6262 infrared CO_2/H_2O analyzer. One-minute averages were recorded and the mole fraction of CO_2 (xCO_2) at sea surface temperature was calculated. The system was calibrated with standard gases traceable to CMDL every two hours; at that time absolute zero and atmospheric samples were also collected. (G. Friederich, MBARI)

TABULATED DATA

CTD/Rosette Cast Data

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

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

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

Primary Productivity Data

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

Macrozooplankton Data

Macrozooplankton biomass volumes are tabulated as total biomass volume ($cm^3/1000m^3$ strained) and as the total volume minus the volume of larger organisms under the heading "Small." Tow times are given in local PST (+8) time.

FOOTNOTES

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

D: CTD salinity value listed in place of normal shipboard salinity analysis.

ISL: After a depth value indicates that this is an interpolated or extrapolated standard level.

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

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FIGURES

Cruise 1301

1. CalCOFI Cruise 1301 track and station positions.

2. Horizontal distribution of dynamic height anomaly (0 over 500m). In areas shallower than 500 m, the dynamic heights were extrapolated on the basis of the offshore deeper steric height as described in Reid and Mantyla (1976).

3. Horizontal distributions at 10 meters: A) chlorophyll-*a*; B) potential density; C) temperature; and D) salinity.

4. Horizontal distributions at 200 meters: A) dynamic height anomaly (200 over 500 m); B) potential density; C) temperature; and D) salinity.

5. Sections along CalCOFI line 90 (vertical exaggeration, 1000): A) potential density; B) temperature; C) salinity; D) silicate; E) nitrate; F) phosphate; G) chlorophyll-*a*; H) oxygen saturation; I) oxygen; J) nitrite; and K) phaeopigments.

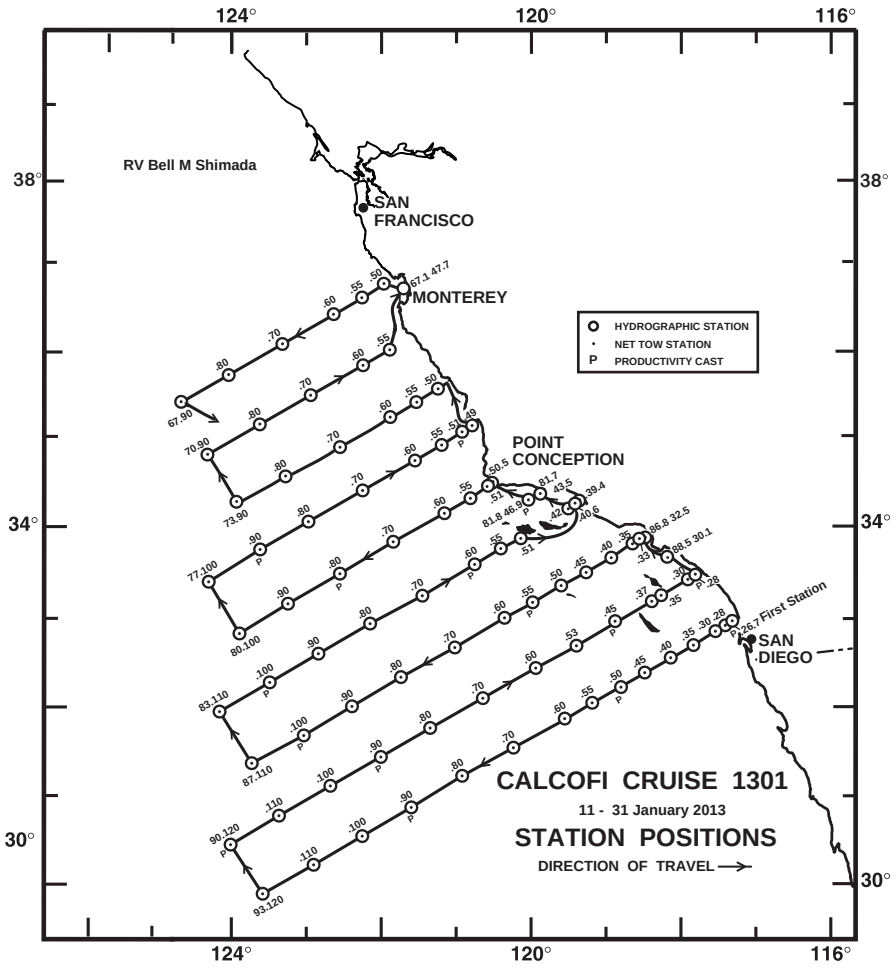

FIGURE 1

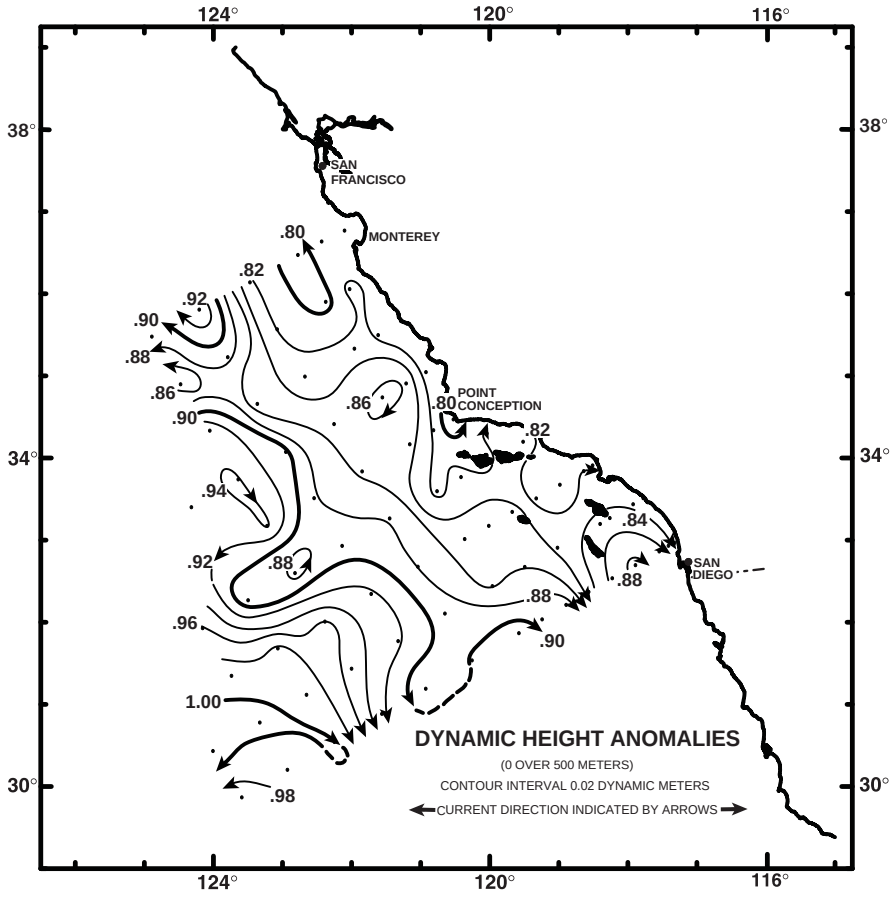

FIGURE 2

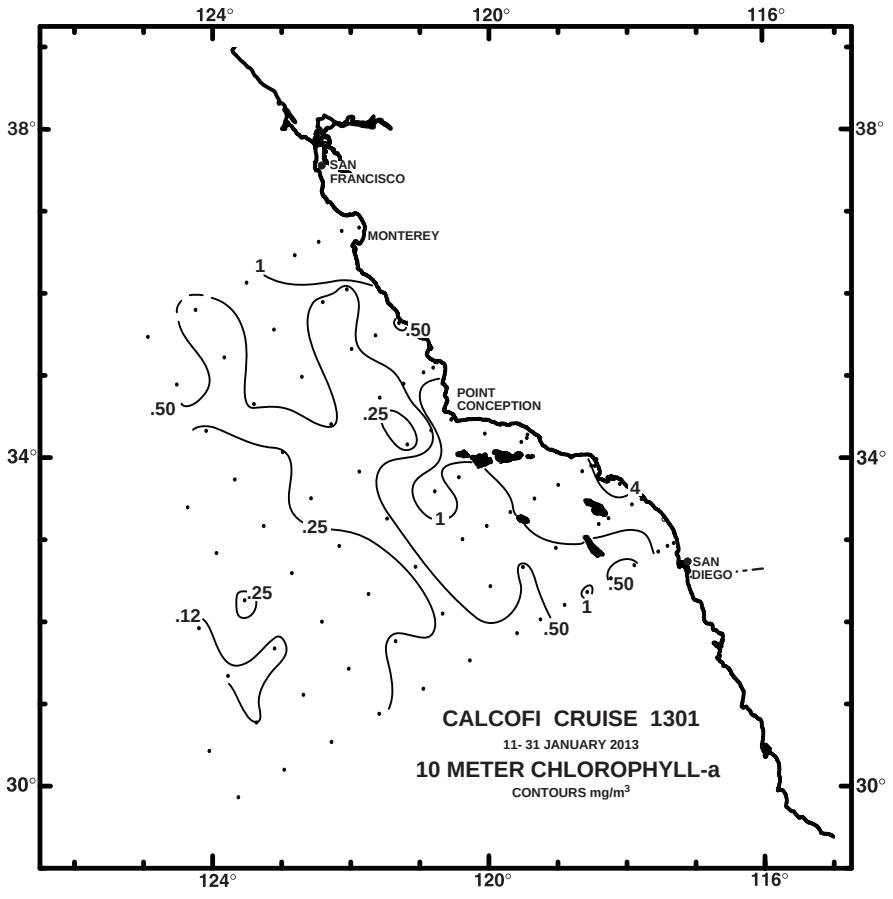

FIGURE 3A

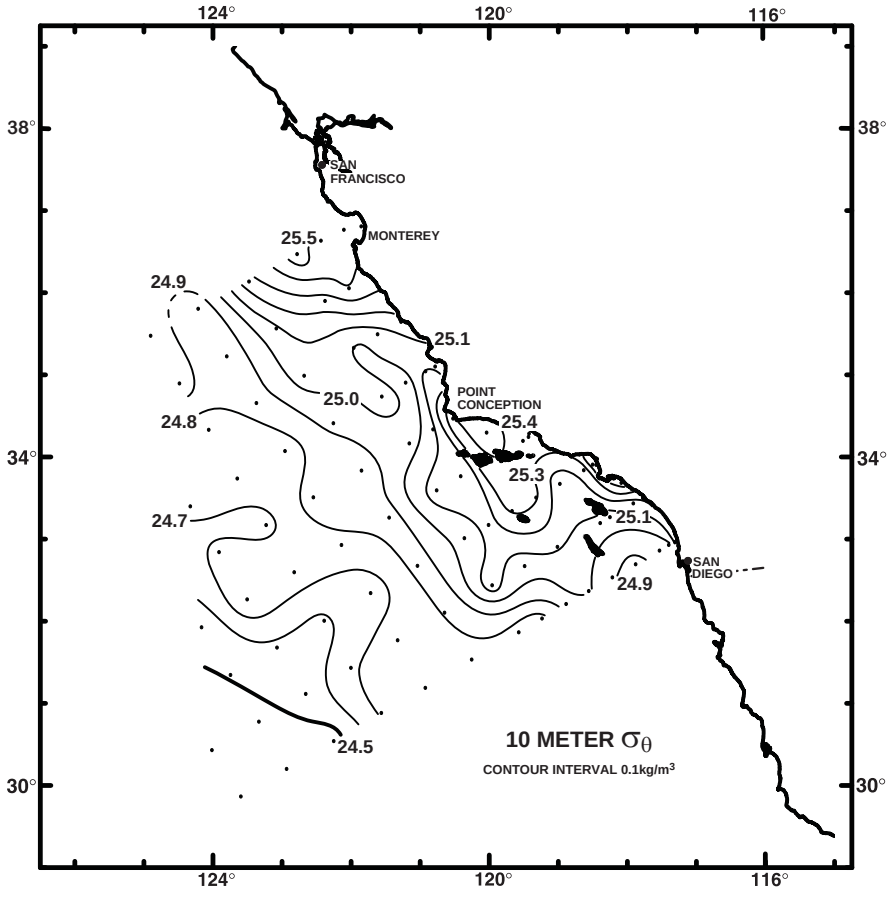

FIGURE 3B

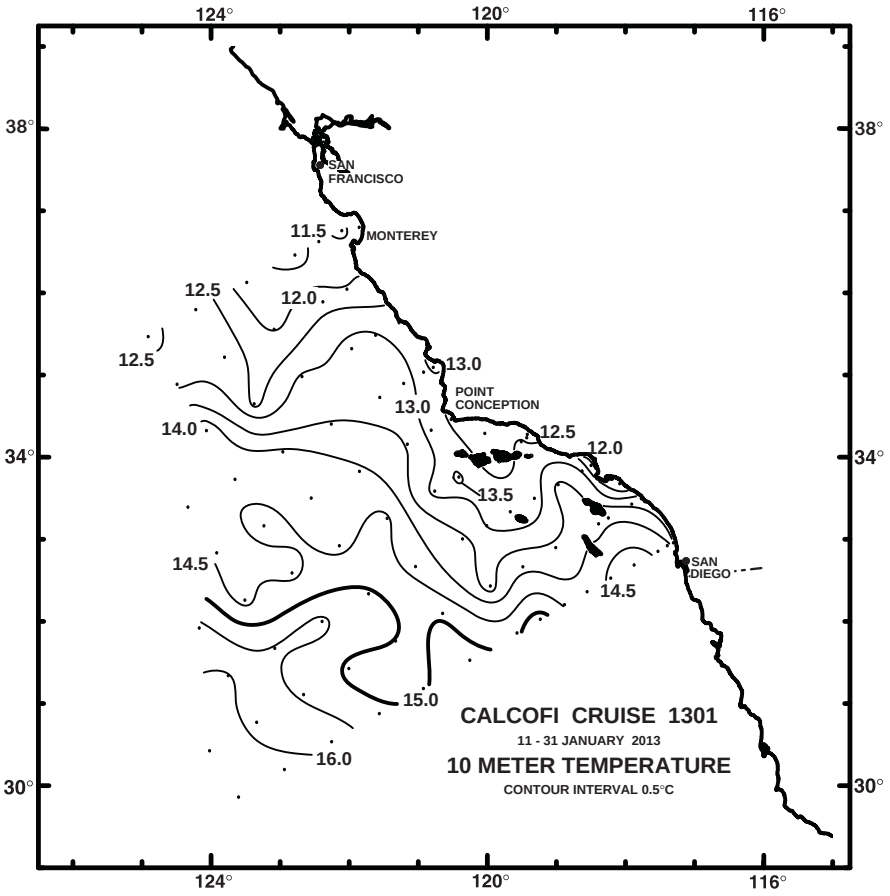

FIGURE 3C

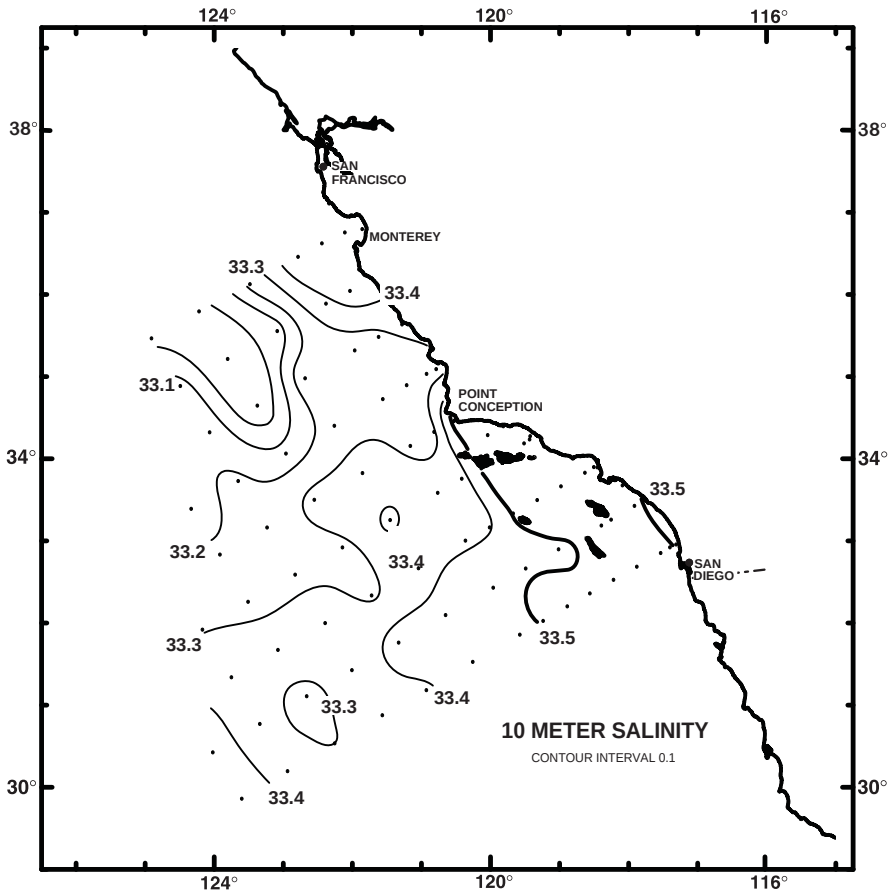

FIGURE 3D

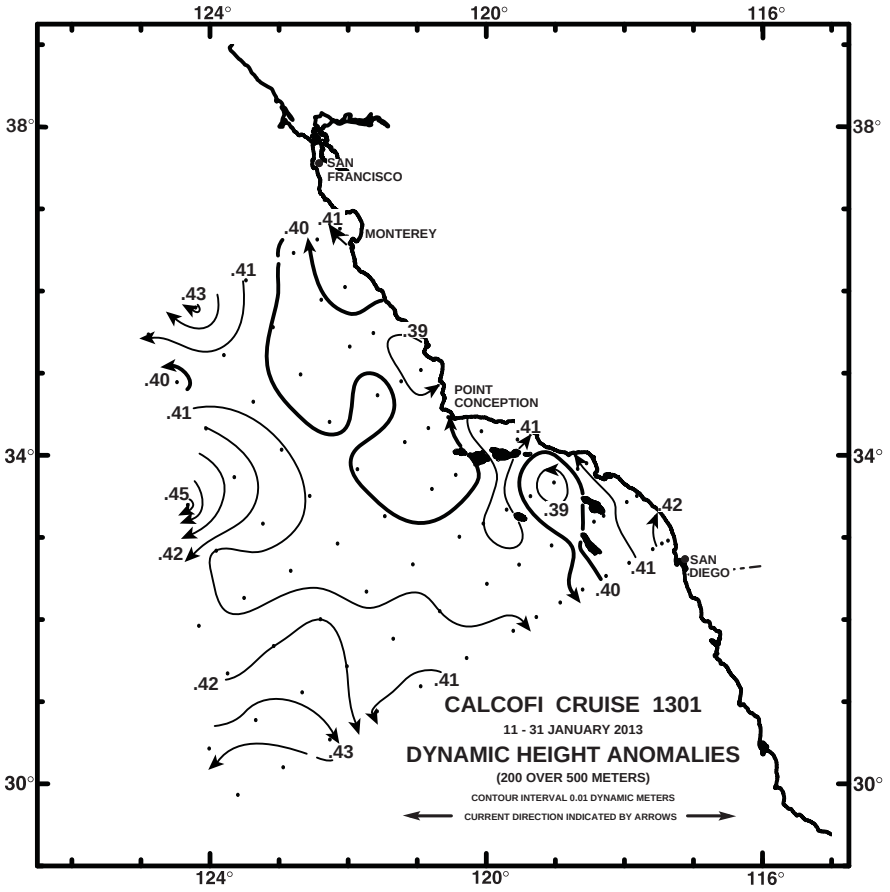

FIGURE 4A

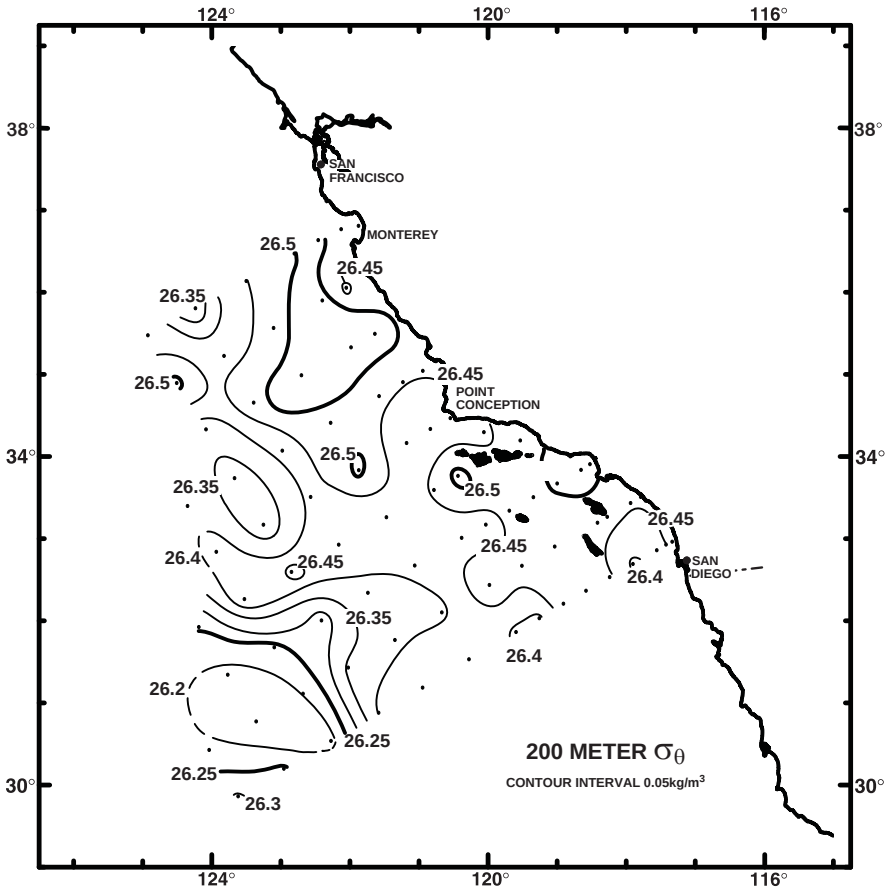

FIGURE 4B

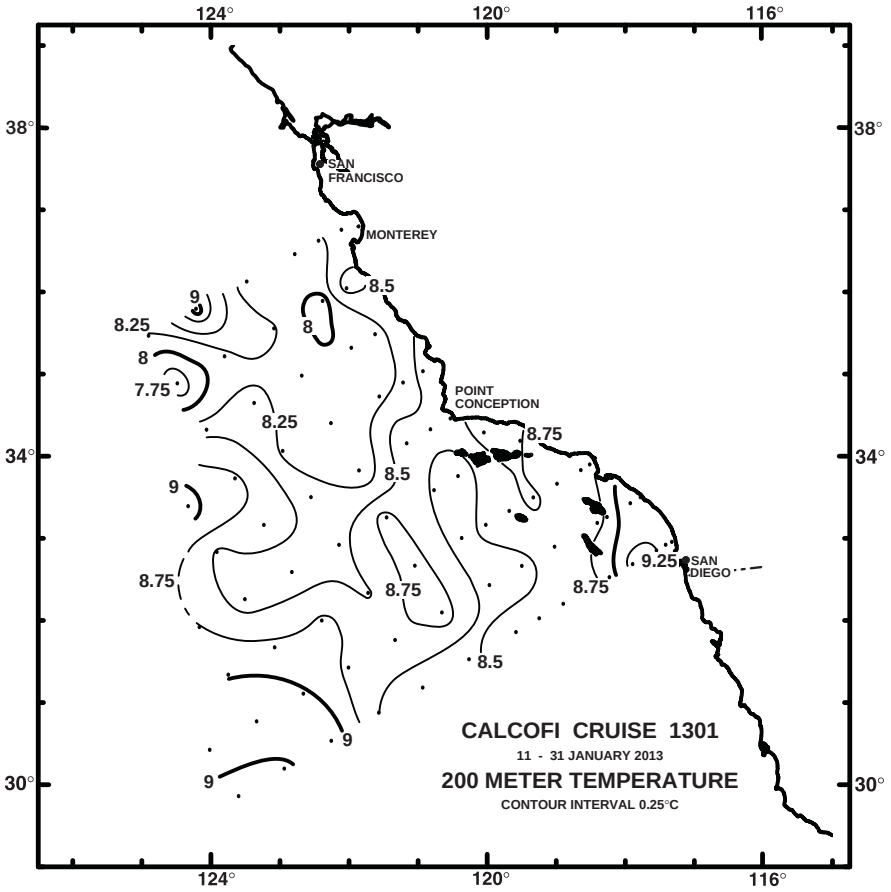

FIGURE 4C

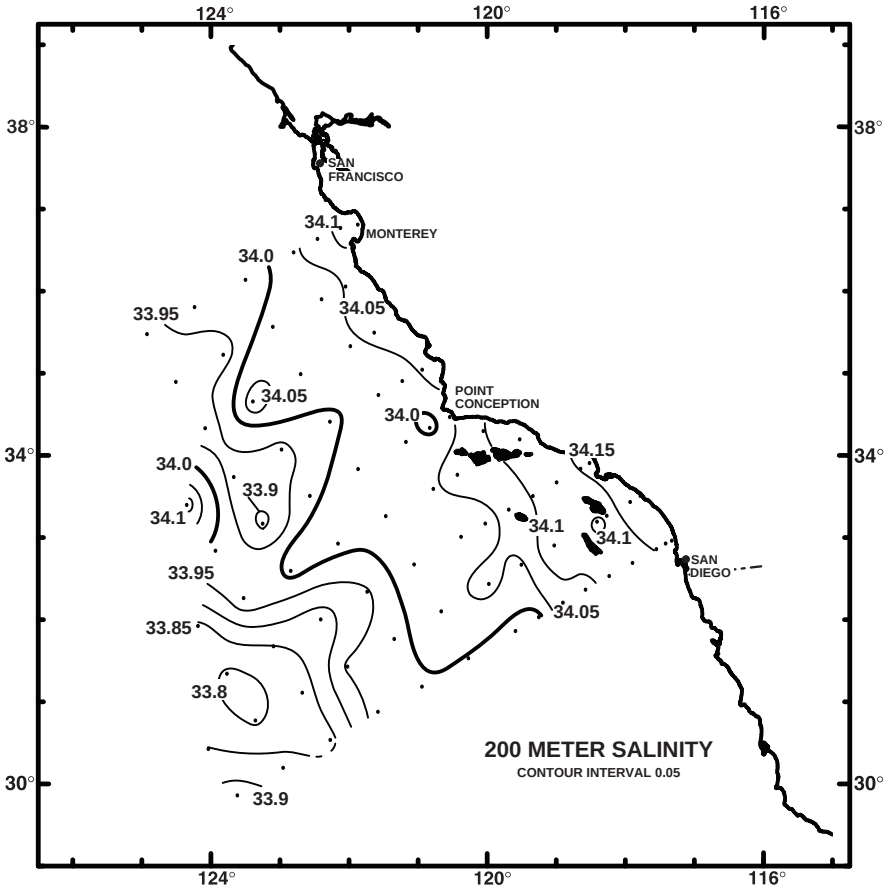

FIGURE 4D

CALCOFI CRUISE 1301

14 - 17 January 2013

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

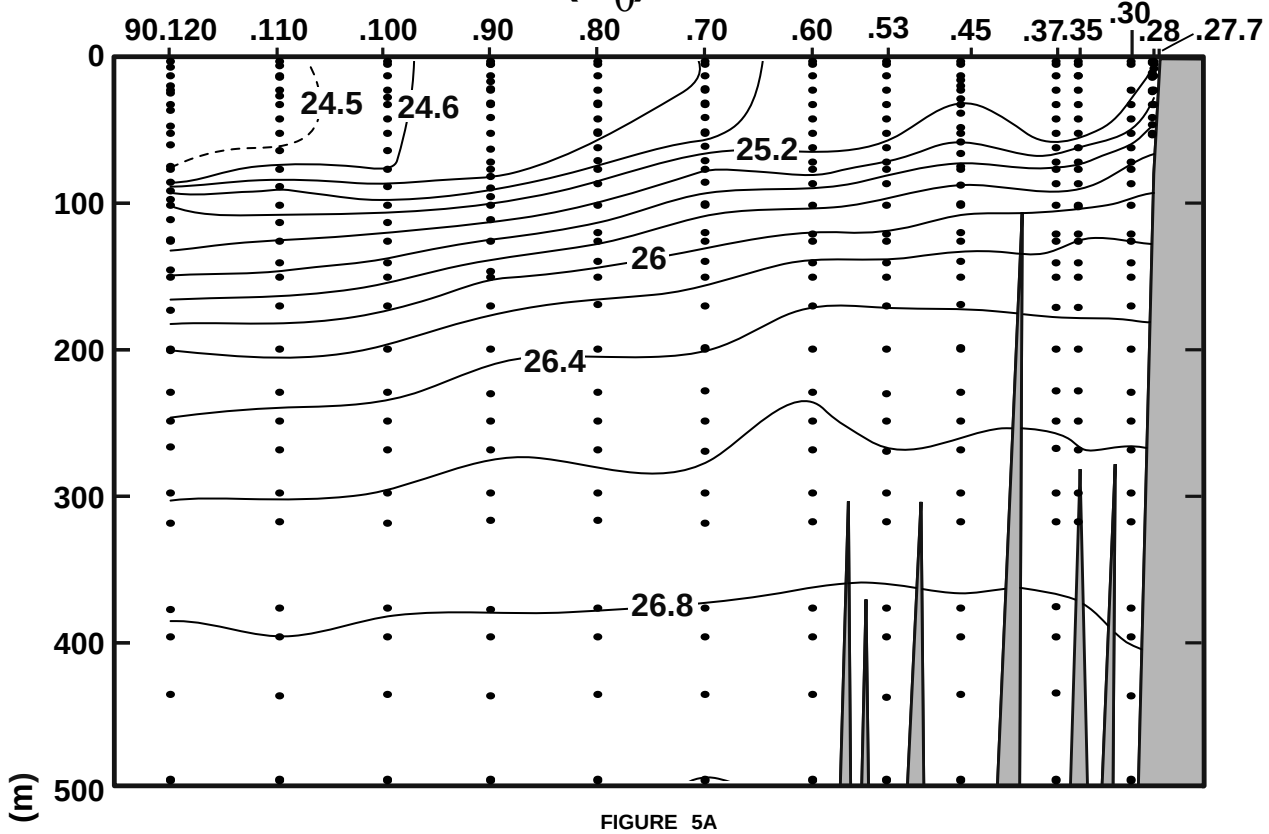

FIGURE 5A

TEMPERATURE (^{o}C) ALONG CALCOFI LINE 90

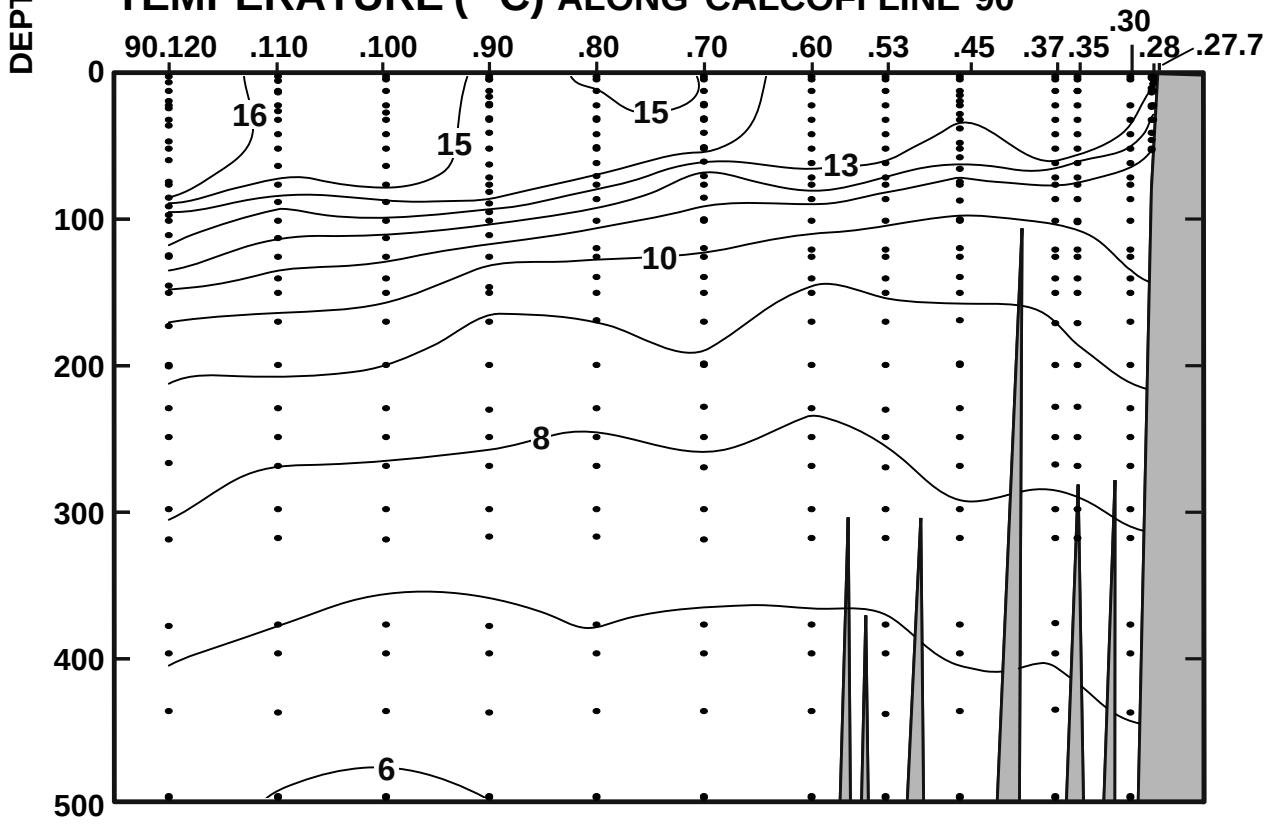

FIGURE 5B

CALCOFI CRUISE 1301

14 - 17 January 2013

SALINITY ALONG CALCOFI LINE 90

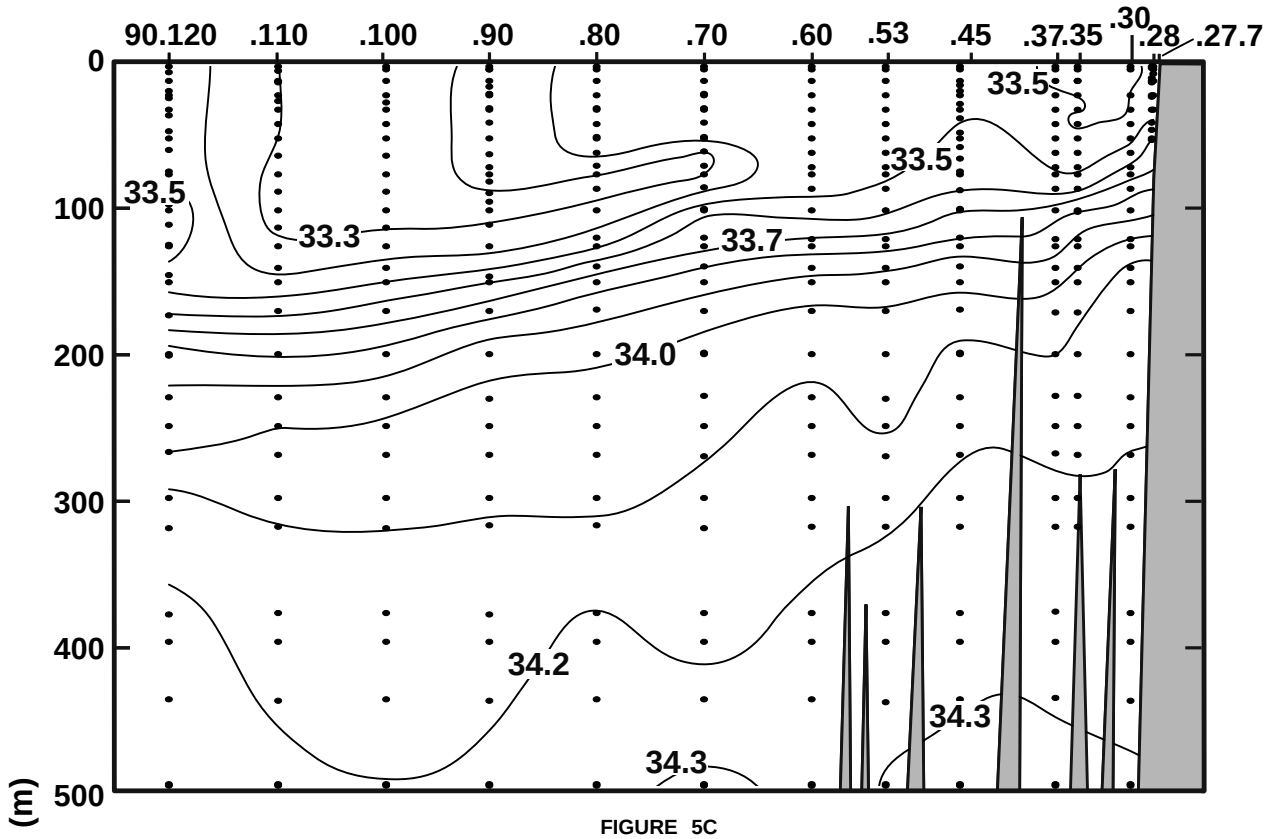

FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

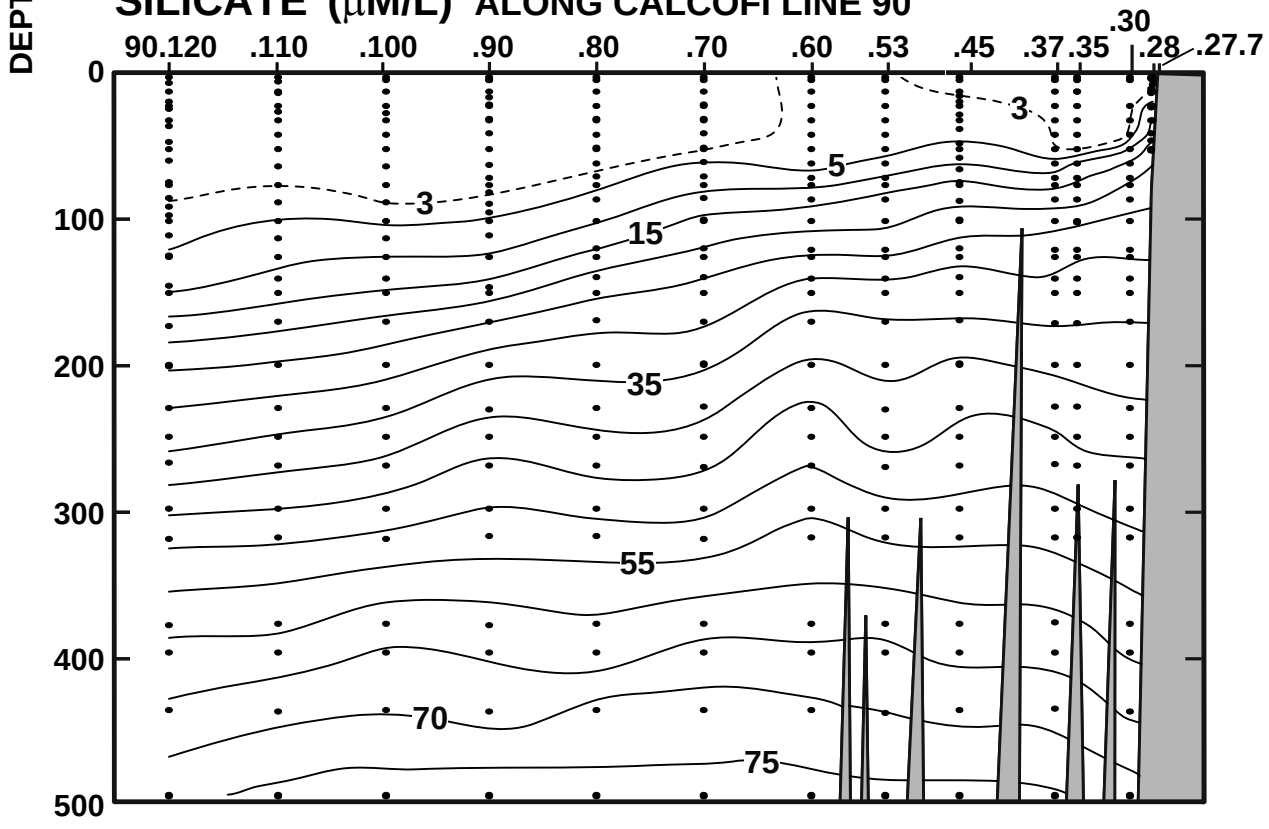

FIGURE 5D

CALCOFI CRUISE 1301

14 - 17 January 2013

NITRATE (μM/L) ALONG CALCOFI LINE 90

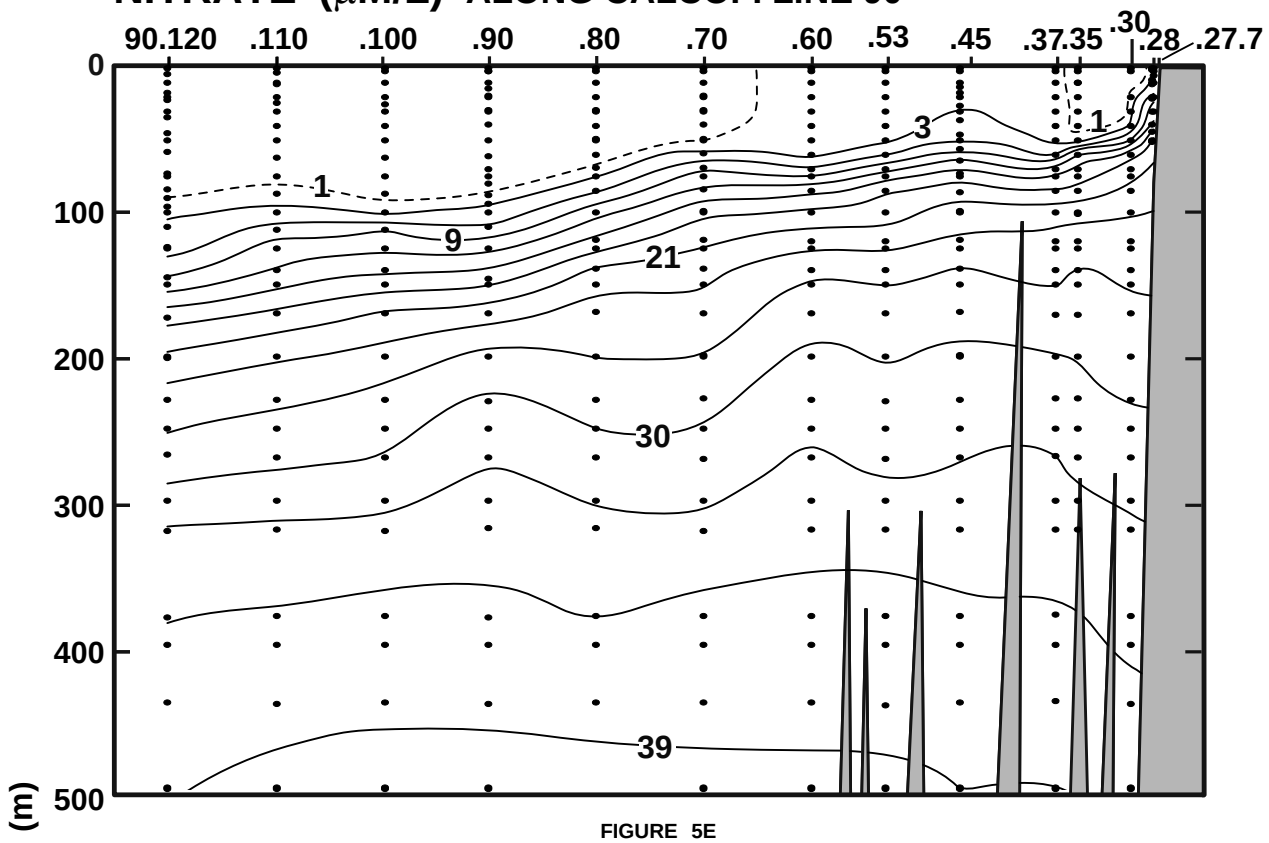

FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

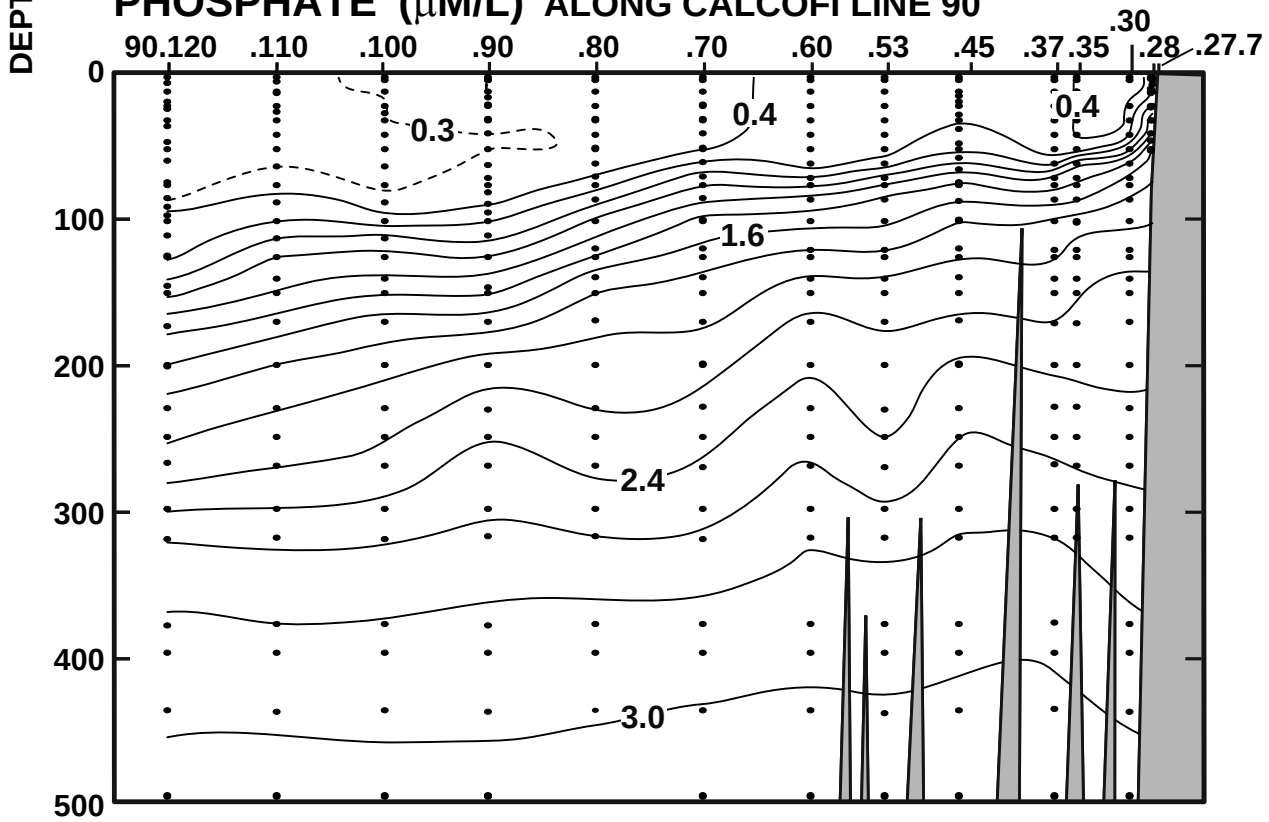

FIGURE 5F

CALCOFI CRUISE 1301

14 - 17 January 2013

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

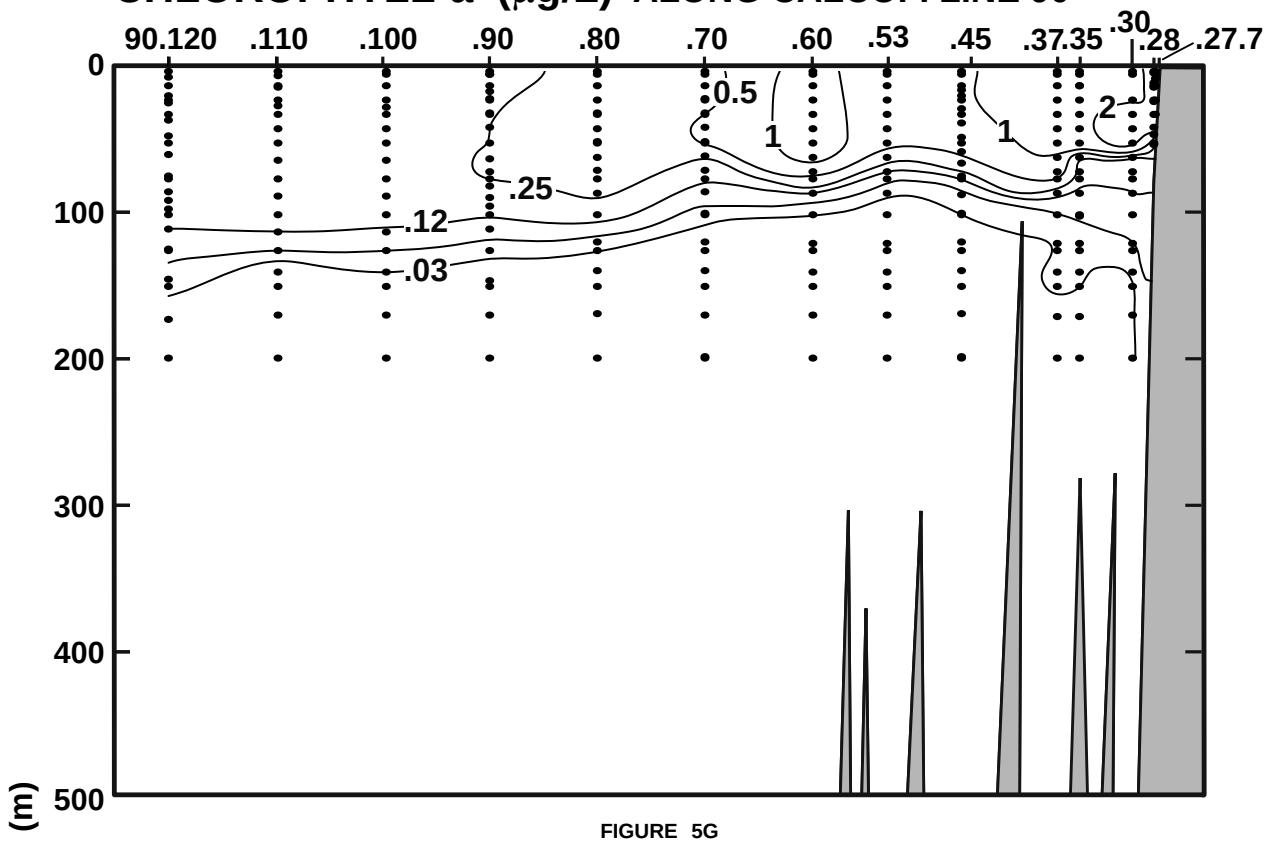

FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

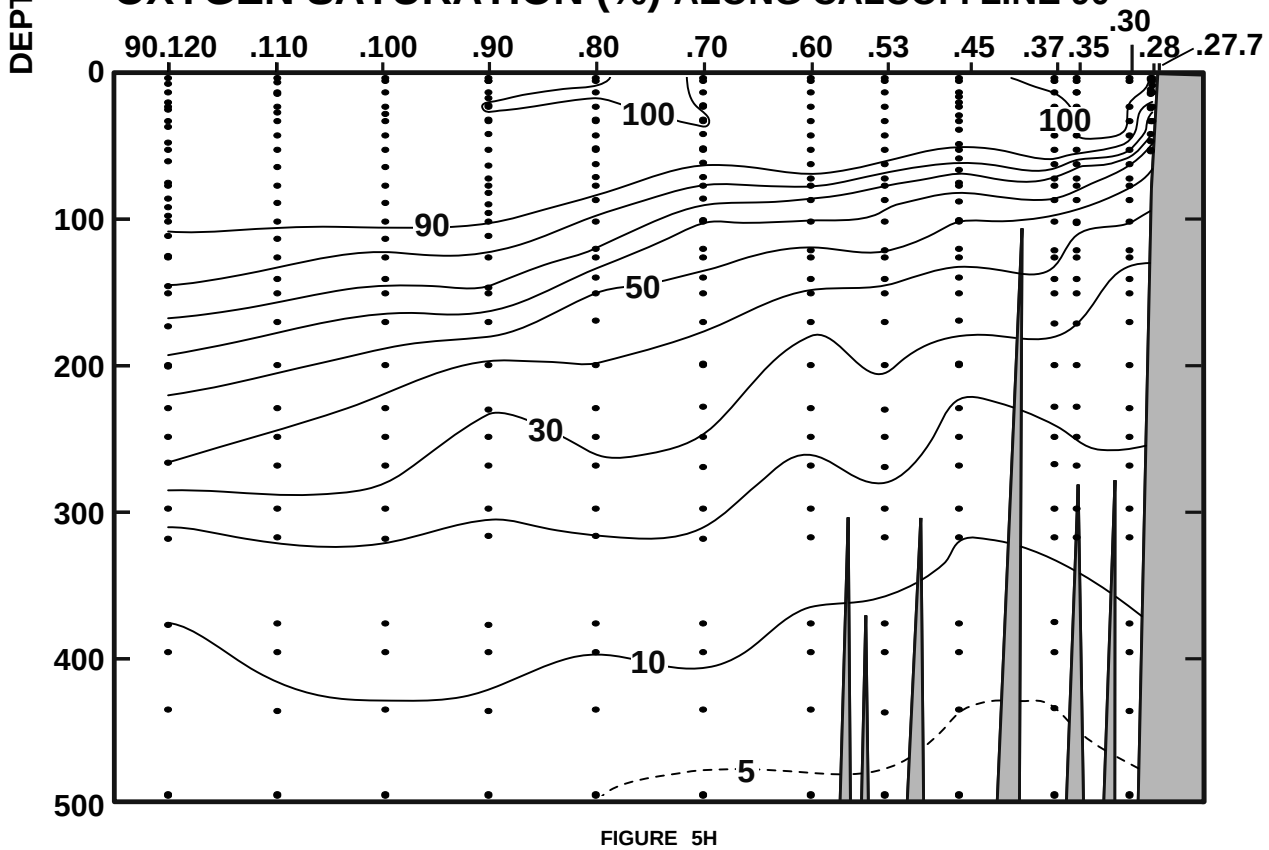

FIGURE 5H

CALCOFI CRUISE 1301

14 - 17 January 2013

OXYGEN (mL/L) ALONG CALCOFI LINE 90

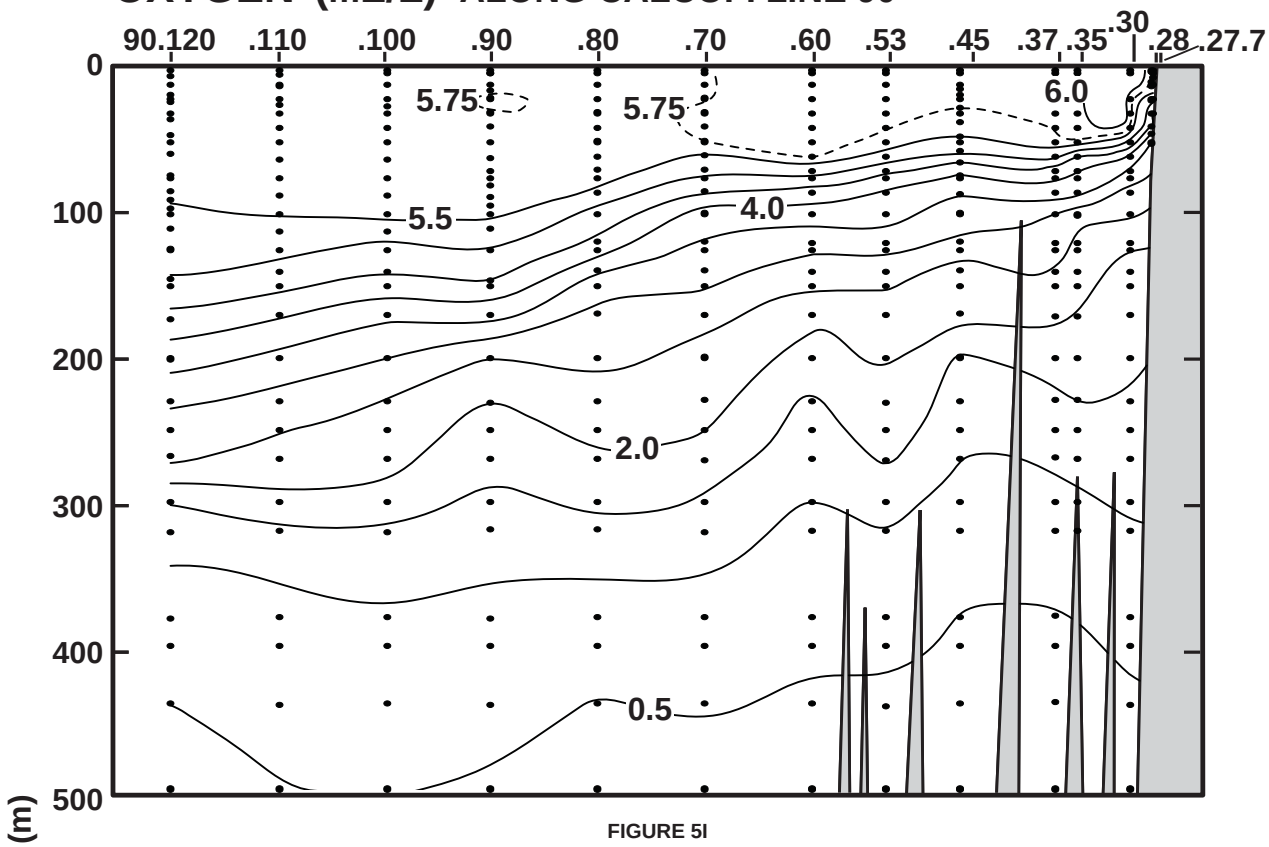

FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

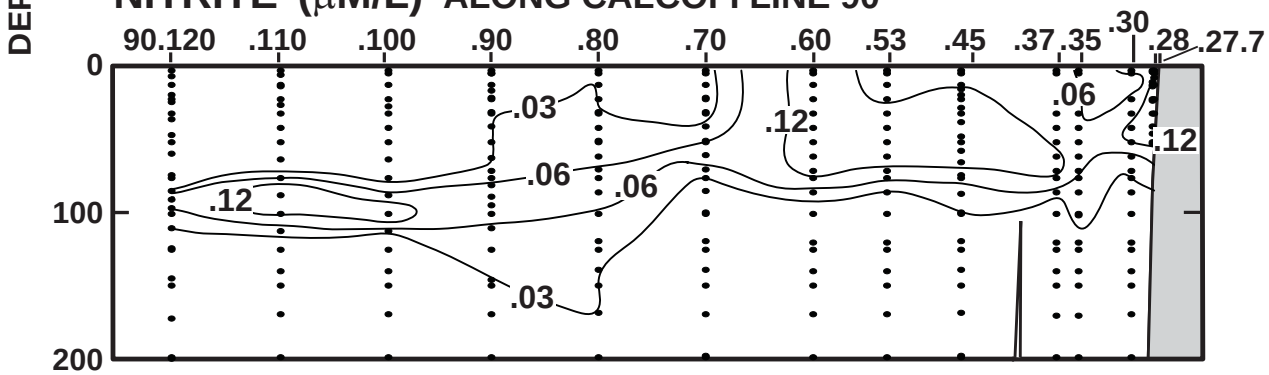

FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

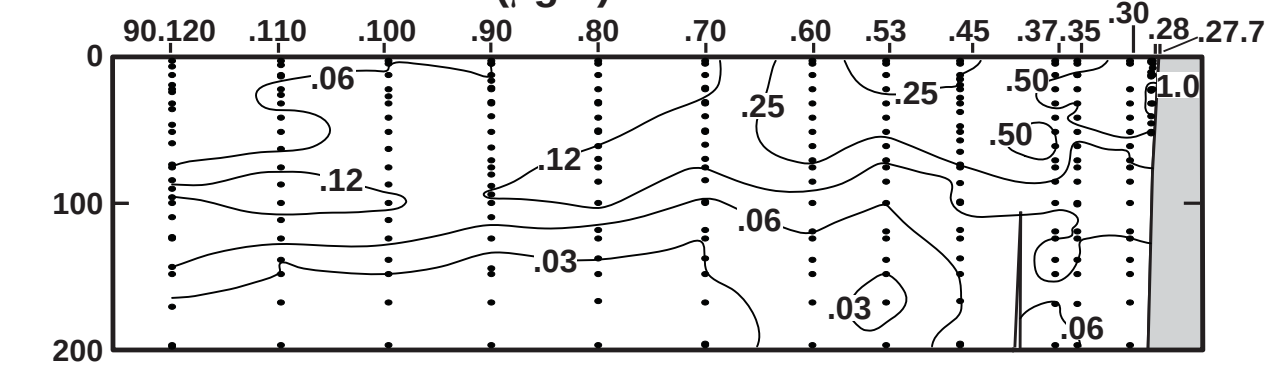

FIGURE 5K

PERSONNEL

CalCOFI Cruise 1301

SHIP'S CAPTAIN

Sirois, Scott, FSV Bell M. Shimada

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Leg)
Griffith, David (Chief Scientist)	Fishery Biologist, NMFS	1-2
Blum, Marguerite	Oceanographer, MBARI	2
Breese, Dawn	Bird Observer, FIAER	1
Dovel, Shonna	Staff Research Associate, SIO	1
Faber, David	Staff Research Associate, SIO	1-2
Hays, Amy	Fishery Biologist, NMFS	1-2
Herzog, Marquerite	Volunteer	1
Jiorle, Ralph	Staff Research Associate, SIO	1
Manion, Sue	Fishery Biologist, NMFS	1-2
Miller, Melissa	Staff Research Associate, SIO	1-2
Renfree, Josiah	Fishery Acoustician	1-2
Roadman, Megan	Staff Research Associate, SIO	1
Roche, Lauren	Marine Mammal Acoustician, MPL	1
Whitaker, Katherine	Marine Mammal Observer, MPL	1-2
Wilkinson, James	Staff Research Associate, SIO	1
Wolgast, David	Staff Research Associate, SIO	1

San Diego to Santa Cruz, California, 11 – 28 January 2013
Santa Cruz to San Diego, 28 January - 2 February 2013

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 67.1 47.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 47.7 N	121 50.8 W	28/01/2013	2017	UTC	290 m	220 04 kn	300 07 05	1	1024.8 mb	11.2 C	9.0 C	08 m	1/8	ST	084

DEPTH		TEMP		POTTEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN		OXYGEN		OXY	SIO3	PO4	NO3	NO2	NH4	CHL-A	PHAEO	PRES	SAMP
m		DEG C		DEG C		THETA			ml/L		µmol/Kg		PCT	µM	µM	µM	µM	µM	µg/L	µg/L	db	
0		12.08		12.08	33.439	25.363	260.3	0.000	6.14		267.2		100.6						1.51	0.41	0	
2		12.08		12.08	33.439	25.363	260.3	0.005	6.14		267.2		100.6						1.51	0.41	2	12
5		11.94		11.94	33.453	D 25.400	256.9	0.013	6.12		266.9		100.0						1.88	0.53	5	11
10		11.86		11.86	33.458	D 25.419	255.2	0.026	6.05		263.9		98.7						1.93	0.60	10	10
20		11.25		11.25	33.536	D 25.592	239.0	0.051	5.15		224.6		83.0						0.66	0.55	20	09
30		10.95		10.95	33.577	D 25.677	231.1	0.075	4.45		193.9		71.2						0.31	0.64	30	08
40		10.60		10.60	33.622	D 25.775	222.1	0.097	4.08		177.9		64.8						0.42	0.56	40	07
50	ISL	10.08	D	10.08	33.717	D 25.939	206.7	0.119	3.72	D	161.9	D	58.5						0.45	0.57	50	
60		9.73		9.73	33.785	D 26.051	196.3	0.140	3.10		135.3		48.4						0.49	0.58	61	06
75	ISL	9.46	D	9.45	33.840	D 26.139	188.2	0.169	2.60	D	113.1	D	40.3						0.41	0.50	76	
80		9.43		9.42	33.843	D 26.146	187.6	0.178	2.59		113.1		40.2						0.39	0.47	81	05
100	ISL	9.16	D	9.14	33.902	D 26.237	179.4	0.215	2.20	D	95.8	D	34.0						0.25	0.32	101	
101		9.15		9.14	33.902	D 26.238	179.3	0.217	2.20		96.1		34.0						0.24	0.32	102	04
125	ISL	8.99	D	8.98	33.924	D 26.281	175.7	0.260	2.12	D	92.4	D	32.6						0.28	0.40	126	
150	ISL	8.78	D	8.75	33.970	D 26.353	169.3	0.303	1.88	D	81.7	D	28.7						0.31	0.48	151	
151		8.74		8.73	33.972	D 26.359	168.9	0.305	1.87		81.7		28.6						0.32	0.48	152	03
200		8.23		8.20	34.044	D 26.496	156.6	0.385	1.51		65.9		22.8						0.34	0.49	202	02
250	ISL	7.90	D	7.87	34.085	D 26.578	149.7	0.463	1.31	D	56.9	D	19.6								252	
280		7.68		7.65	34.097	26.620	146.1	0.503	1.15		49.8		17.1								282	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 66.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 45.2 N	122 5.9 W	28/01/2013	2256	UTC	1213 m	310 25 kn	310 07 06	1	1023.9 mb	10.1 C	9.4 C	08 m	6/8	ST	085

DEPTH		TEMP		POTTEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN		OXYGEN		OXY	SIO3	PO4	NO3	NO2	NH4	CHL-A	PHAEO	PRES	SAMP
m		DEG C		DEG C		THETA			ml/L		µmol/Kg		PCT	µM	µM	µM	µM	µM	µg/L	µg/L	db	
0		11.34		11.34	33.378	25.451	251.9	0.000	6.31		274.8		101.8						4.44	0.77	0	
3		11.34		11.34	33.378	25.451	251.9	0.008	6.31		274.8		101.8						4.44	0.77	3	12
4		11.34		11.34	33.389	D 25.460	251.1	0.010	6.10	D	341.4	D	98.3						5.15	1.02	4	11
9		11.34		11.34	33.389	D 25.460	251.2	0.023	6.14		268.1		99.1						4.09	0.94	9	10
10	ISL	11.34	D	11.34	33.389	D 25.461	251.2	0.025	6.09	D	265.0	D	98.1						4.12	0.94	10	
20		11.34		11.34	33.388	D 25.460	251.5	0.050	6.08	D	292.3	D	98.1						4.41	0.98	20	09
28		11.23		11.24	33.412	D 25.497	248.2	0.071	6.09		266.0		98.1						4.27	0.82	28	08
30	ISL	11.08	D	11.07	33.451	D 25.559	242.4	0.076	5.37	D	233.6	D	86.1						3.79	0.78	30	
42		10.35		10.34	33.601	D 25.804	219.4	0.103	3.91		170.4		61.7						0.91	0.52	42	07
50	ISL	10.08	D	10.07	33.652	D 25.889	211.4	0.121	3.46	D	150.4	D	54.3						0.60	0.43	50	
60		9.80		9.80	33.718	D 25.986	202.4	0.142	3.17		138.1		49.5						0.22	0.31	61	06
75	ISL	9.64	D	9.61	33.763	D 26.052	196.5	0.172	2.96	D	129.0	D	46.1						0.12	0.27	76	
81		9.55		9.53	33.779	D 26.079	194.0	0.184	2.91		126.9		45.2						0.08	0.25	82	05
100		9.33		9.31	33.850	D 26.170	185.8	0.220	2.63		114.7		40.7						0.09	0.23	101	04
125	ISL	9.09	D	9.09	33.914	D 26.257	178.0	0.266	2.39	D	103.8	D	36.7						0.07	0.20	126	
150	ISL	8.93	D	8.91	33.952	D 26.314	173.1	0.310	2.19	D	95.4	D	33.6						0.05	0.17	151	
152		8.93		8.91	33.952	D 26.315	173.1	0.314	2.25		98.0		34.5						0.05	0.16	153	03
200		8.46		8.44	34.040	D 26.457	160.4	0.394	1.86		80.9		28.2						0.06	0.12	202	02
250	ISL	7.72	D	7.70	34.124	D 26.634	144.3	0.471	1.19	D	51.9	D	17.8								252	
300	ISL	7.50	D	7.47	34.144	D 26.682	140.5	0.543	1.02	D	44.5	D	15.2								302	
400	ISL	6.90	D	6.86	34.191	D 26.806	130.1	0.679	0.68	D	29.6	D	10.0								403	
500	ISL	6.21	D	6.16	34.237	D 26.935	118.8	0.805	0.41	D	17.8	D	5.9								504	
600	ISL	5.58	D	5.53	34.294	D 27.059	107.6	0.919	0.25	D	10.8	D	3.5								605	
700	ISL	4.93	D	4.87	34.342	D 27.175	97.1	1.023	0.23	D	10.0	D	3.2								706	
800	ISL	4.53	D	4.47	34.390	D 27.259	89.6	1.117	0.26	D	11.2	D	3.6								808	
900	ISL	4.16	D	4.09	34.422	D 27.324	83.7	1.205	0.34	D	14.9	D	4.7								909	
1000	ISL	3.90	D	3.82	34.447	D 27.372	79.6	1.288	0.42	D	18.1	D	5.7								1010	
1029		3.83		3.75	34.441	27.375	79.5	1.386	0.43		18.7		5.9								1039	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 66.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 37.2 N	122 25.8 W	29/01/2013	0322	UTC	2637 m	330 28 kn			1026.3 mb	11.8 C	9.5 C				086

DEPTH		TEMP		POTTEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN		OXYGEN		OXY	SIO3	PO4	NO3	NO2	NH4	CHL-A	PHAEO	PRES	SAMP
m		DEG C		DEG C		THETA			ml/L		µmol/Kg		PCT	µM	µM	µM	µM	µM	µg/L	µg/L	db	
0		11.70		11.70	33.422	25.421	254.8	0.000	6.00		261.3		97.5						2.85	0.83	0	
3		11.70		11.70	33.422	25.421	254.8	0.008	6.00		261.3		97.5						2.85	0.83	3	12
4		11.70		11.70	33.434	D 25.430	254.0	0.010	6.00		262.1		97.6						3.39	0.50	4	11
10		11.70		11.70	33.434	D 25.430	254.1	0.026	6.00		261.8		97.5						3.49	0.10	10	10
20		11.69		11.69	33.431	D 25.429	254.5	0.051	6.00		262.0		97.5						2.86	0.76	20	09
30		11.69		11.69	33.430	D 25.430	254.7	0.077	6.00		261.7		97.4						2.84	0.71	30	08
39		11.69		11.69	33.428	D 25.428	255.1	0.100	6.00		261.9		97.5						2.95	0.74	39	07
50	ISL	11.69	D	11.59	33.437	D 25.454	252.9	0.128	5.81	D	253.2	D	94.3						1.47	0.44	50	
60		10.43		10.41	33.547	D 25.749	225.0	0.152	4.00		174.5		63.3						0.12	0.17	61	06
75	ISL	10.03	D	9.93	33.610	D 25.881	212.8	0.185	3.72	D	161.9	D	58.3						0.06	0.12	76	
80		9.83		9.82	33.646	D 25.928	208.4	0.196	3.53		154.0		55.1						0.04	0.10	81	05
100	ISL	9.66	D	9.57	33.729	D 26.032	198.9	0.237	3.11	D	135.5	D	48.4						0.03	0.12	101	
101		9.60		9.55	33.743	D 26.047	197.5	0.239	3.17		138.3		49.3						0.03	0.12	102	04
125	ISL	9.06	D	9.02	33.851	D 26.218	181.7	0.285	2.69	D	117.2	D	41.4						0.02	0.11	126	
150		8.78		8.75	33.978	D 26.360	168.7	0.329	2.26		98.4		34.5						0.01	0.09	151	03
200		8.22		8.18	34.068	D 26.518	154.5	0.411	1.79		78.2		27.1						0.01	0.07	202	02
250	ISL	7.67	D	7.67	34.109	D 26.626	145.0	0.486	1.39	D	60.3	D	20.7								252	
300	ISL	7.45	D	7.40	34.158	D 26.703	138.5	0.557	1.01	D	43.8	D	14.9								302	
400	ISL	6.58	D	6.53	34.187	D 26.846	125.9	0.691	0.63	D	27.3	D	9.1								403	
500	ISL	6.05	D	6.00	34.268	D 26.979	114.4	0.812	0.32	D	13.7	D	4.5								504	
600	ISL	5.54	D	5.47	34.306	D 27.076	106.0	0.924	0.23	D	10.2	D	3.3								605	
700	ISL	4.88	D	4.82	34.351	D 27.187	95.8	1.026	0.21	D	9.0	D	2.9								706	
800	ISL	4.46	D	4.38	34.394	D 27.271	88.3	1.119	0.26	D	11.2	D	3.6								808	
900	ISL	4.18	D	4.11	34.426	D 27.326	83.7	1.206	0.32	D	13.9	D	4.4								909	
1000	ISL	3.92	D	3.84	34.453	D 27.375	79.4	1.288	0.40	D	17.4	D	5.5								1010	
1023		3.82		3.74	34.447	27.380	78.9	1.369	0.41		17.7		5.6								1033	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 66.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 27.3 N	122 46.5 W	30/01/2013	1749	UTC	2932 m	350	16 kn	330 08 12	1	1028.3 mb	11.9 C	10.5 C	14 m	2/8	CI	087

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		11.24		11.24		33.490		25.557	241.9	0.000	6.02		262.2		97.0							1.94	1.03	0	
3		11.24		11.24		33.490		25.557	241.9	0.007	6.02		262.2		97.0							1.94	1.03	3	12
5		11.24		11.24		33.501	D	25.565	241.1	0.012	6.09		266.0		98.1							2.29	0.77	5	11
10		11.23		11.23		33.501	D	25.568	241.0	0.024	6.00		262.1		96.6							2.20	0.82	10	10
20		11.18		11.18		33.518	D	25.590	239.1	0.048	6.01		262.5		96.7							2.85	1.06	20	09
29		11.17		11.17		33.520	D	25.594	239.0	0.070	6.02		262.8		96.8							3.27	1.24	29	08
30	ISL	11.17	D	11.17		33.521	D	25.594	239.0	0.073	5.98	D	260.3	D	96.2							3.17	1.21	30	
39		10.88		10.84		33.556	D	25.680	231.1	0.094	5.35		233.9		85.6							2.21	0.95	39	07
50	ISL	10.32	D	10.32		33.631	D	25.831	217.0	0.119	3.97	D	173.0	D	62.8							1.42	0.88	50	
61		10.18		10.17		33.656	D	25.875	213.0	0.143	3.82		167.0		60.2							0.62	0.81	62	06
75	ISL	9.88	D	9.87		33.717	D	25.974	203.9	0.172	3.33	D	145.1	D	52.2							0.55	0.58	76	
80		9.80		9.79		33.732	D	26.000	201.6	0.182	3.19		139.2		49.8							0.53	0.50	81	05
100		9.41		9.39		33.789	D	26.109	191.6	0.222	2.93		127.8		45.3							0.26	0.36	101	04
125	ISL	8.98	D	8.96		33.907	D	26.271	176.7	0.268	2.48	D	107.8	D	38.0							0.17	0.31	126	
150		8.73		8.71		33.977	D	26.365	168.2	0.312	2.23		97.4		34.1							0.08	0.26	151	03
200		8.21		8.19		34.044	D	26.499	156.4	0.394	1.86		81.1		28.0							0.05	0.22	202	02
250	ISL	7.64	D	7.62		34.097	D	26.623	145.2	0.470	1.41	D	61.4	D	21.1									252	
300	ISL	7.12	D	7.08		34.130	D	26.727	136.0	0.541	1.05	D	45.8	D	15.5									302	
400	ISL	6.59	D	6.55		34.209	D	26.862	124.5	0.672	0.54	D	23.4	D	7.8									403	
500	ISL	5.93	D	5.88		34.283	D	27.006	111.7	0.791	0.25	D	11.1	D	3.6									504	
600	ISL	5.42	D	5.37		34.315	D	27.096	104.0	0.900	0.20	D	8.9	D	2.9									605	
700	ISL	4.97	D	4.92		34.365	D	27.188	95.9	1.001	0.22	D	9.4	D	3.0									706	
800	ISL	4.49	D	4.42		34.406	D	27.276	87.9	1.094	0.26	D	11.4	D	3.6									808	
900	ISL	4.18	D	4.11		34.427	D	27.326	83.6	1.181	0.32	D	14.0	D	4.4									909	
1000	ISL	3.85	D	3.78		34.457	D	27.384	78.4	1.263	0.43	D	18.5	D	5.8									1010	
1024		3.81		3.74		34.463	D	27.393	77.7	1.282	0.46	D	172.9	D	6.3									1034	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 66.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 7.3 N	123 28.2 W	30/01/2013	2356	UTC	3566 m	350	18 kn	350 08 09	1	1026.7 mb	11.5 C	10.2 C	14 m	3/8	ST	088

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		11.73		11.73		33.228		25.263	269.8	0.000	6.28		273.6		102.1							0.93	0.35	0	
2		11.73		11.73		33.228		25.263	269.8	0.005	6.28		273.6		102.1							0.93	0.35	2	13
6		11.73		11.73		33.234	D	25.268	269.4	0.016	6.25		273.2		101.6							1.00	0.37	6	12
10		11.73		11.73		33.235	D	25.270	269.4	0.027	6.26		273.4		101.7							0.71	0.36	10	11
20		11.72		11.72		33.238	D	25.275	269.2	0.054	6.25		272.9		101.5							0.90	0.41	20	10
30		11.71		11.70		33.247	D	25.284	268.5	0.081	6.23		272.2		101.1							0.94	0.55	30	09
40		11.78		11.77		33.268	D	25.288	268.5	0.108	6.13		267.8		99.7							0.72	0.46	40	08
50	ISL	11.79	D	11.79		33.277	D	25.293	268.3	0.136	6.01	D	261.8	D	97.8							0.56	0.39	50	
60		11.73		11.72		33.320	D	25.339	264.1	0.162	5.76		251.7		93.6							0.39	0.32	61	07
75	ISL	10.12	D	10.08		33.329	D	25.635	236.1	0.200	4.60	D	200.5	D	72.2							0.17	0.26	76	
80		9.74		9.76		33.354	D	25.709	229.2	0.212	4.52		197.7		70.4							0.09	0.24	81	06
100	ISL	9.07	D	9.05		33.489	D	25.929	208.5	0.256	4.30	D	187.1	D	66.0							0.07	0.19	101	
100		9.07		9.05		33.489	D	25.932	0.6	0.256	4.33	D			64.5									101	05
125	ISL	9.04	D	9.02		33.706	D	26.104	192.5	0.280	3.91	D	170.3	D	60.1							0.04	0.13	126	
150	ISL	8.69	D	8.68		33.859	D	26.278	176.4	0.327	3.09	D	134.5	D	47.2							0.01	0.07	151	
151		8.66		8.65		33.865	D	26.287	175.6	0.329	3.10		135.2		47.2							0.01	0.07	152	04
200	ISL	8.07	D	8.04		33.952	D	26.448	161.1	0.412	3.49	D	151.7	D	52.5							0.01	0.05	202	
201		8.02		7.99		33.954	D	26.457	160.2	0.413	3.49		152.4		52.5							0.01	0.05	203	03
250	ISL	7.53	D	7.49		34.006	D	26.571	150.1	0.490	2.40	D	104.2	D	35.6									252	
300	ISL	7.34	D	7.31		34.091	D	26.664	142.1	0.564	1.36	D	58.9	D	20.1									302	
400	ISL	6.16	D	6.13		34.116	D	26.843	125.8	0.699	0.85	D	36.8	D	12.2									403	
500	ISL	5.36	D	5.32		34.134	D	26.957	115.6	0.821	0.64	D	27.8	D	9.0									504	
600	ISL	5.05	D	5.00		34.241	D	27.079	105.0	0.932	0.30	D	13.0	D	4.2									605	
700	ISL	4.73	D	4.67		34.318	D	27.178	96.4	1.034	0.20	D	8.6	D	2.8									706	
800	ISL	4.42	D	4.35		34.388	D	27.269	88.4	1.127	0.24	D	10.3	D	3.3									808	
900	ISL	4.14	D	4.06		34.423	D	27.328	83.3	1.214	0.30	D	13.0	D	4.1									909	
1000	ISL	3.80	D	3.72		34.456	D	27.389	77.8	1.296	0.42	D	18.3	D	5.8									1010	
1026		3.75		3.67		34.447		27.387	78.1	1.415	0.42		18.3		5.7									1036	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 66.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 47.4 N	124 12.4 W	31/01/2013	0615	UTC	3956 m	350 20 kn			1027.1 mb	11.1 C	10.5 C				089

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.00	13.00	32.952	24.807	313.2	0.000	6.04	263.3	100.7						0.43	0.16	0	
2	13.00	13.00	32.952	24.807	313.2	0.006	6.04	263.3	100.7						0.43	0.16	2	12
5	13.01	13.01	32.964 D	24.816	312.5	0.016	6.06	264.9	101.0						0.44	0.18	5	11
10	13.01	13.01	32.964 D	24.815	312.7	0.032	6.04	264.1	100.7						0.45	0.15	10	10
20	13.02	13.01	32.964 D	24.814	313.0	0.063	6.05	264.3	100.8						0.51	0.12	20	09
30	13.02	13.01	32.964 D	24.815	313.2	0.094	6.06	264.7	101.0						0.44	0.18	30	08
40	13.01	13.00	32.963 D	24.817	313.4	0.126	6.07	265.3	101.2						0.49	0.12	40	07
50 ISL	13.02 D	13.01	32.964 D	24.815	313.8	0.158	6.05	D263.6	D100.8						0.46	0.13	50	
60	13.02	13.01	32.963 D	24.815	314.1	0.189	6.04	263.9	100.7						0.43	0.15	60	06
75 ISL	12.59 D	12.53	33.053 D	24.978	298.9	0.236	6.06	D263.8	D100.0						0.18	0.11	76	
80	11.77	11.76	33.106 D	25.165	281.2	0.250	5.72	250.1	93.0						0.09	0.10	81	05
99	10.73	10.72	33.226 D	25.447	254.7	0.302	5.09	222.5	80.9						0.08	0.08	100	04
100 ISL	10.72 D	10.70	33.229 D	25.451	254.3	0.304	5.11	D222.5	D 81.2						0.07	0.08	101	
125 ISL	10.23 D	10.21	33.600 D	25.826	219.3	0.364	3.60	D156.6	D 56.7						0.04	0.06	126	
150	9.40	9.40	33.730 D	26.062	197.2	0.416	3.19	D145.5	D 50.4						0.00	0.05	151	03
200 ISL	9.04 D	9.01	33.981 D	26.322	173.5	0.510	2.09	D 90.9	D 32.1						0.01	0.05	202	
202	8.99	8.97	33.990 D	26.337	172.1	0.513	2.05	89.4	31.5						0.01	0.05	204	02
250 ISL	8.57 D	8.54	34.077 D	26.471	160.2	0.594	1.65	D 72.0	D 25.2								252	
300 ISL	8.16 D	8.14	34.149 D	26.590	149.7	0.672	1.25	D 54.3	D 18.8								302	
400 ISL	7.07 D	7.03	34.183 D	26.776	133.1	0.814	0.78	D 34.1	D 11.5								403	
500 ISL	5.93 D	5.89	34.181 D	26.925	119.4	0.942	0.58	D 25.3	D 8.3								504	
600 ISL	5.28 D	5.24	34.221 D	27.036	109.4	1.057	0.40	D 17.4	D 5.6								605	
700 ISL	4.89 D	4.84	34.313 D	27.156	98.8	1.163	0.26	D 11.1	D 3.6								706	
800 ISL	4.56 D	4.50	34.357 D	27.228	92.5	1.259	0.25	D 11.0	D 3.5								807	
900 ISL	4.31 D	4.24	34.399 D	27.291	87.2	1.350	0.30	D 13.1	D 4.2								909	
1000 ISL	4.00 D	3.93	34.429 D	27.347	82.3	1.436	0.36	D 15.6	D 4.9								1010	
1025	3.93	3.85	34.424	27.351	82.0	1.555	0.38	16.5	5.2								1035	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 66.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 27.7 N	124 53.7 W	31/01/2013	1326	UTC	4398 m	360 20 kn			1025.3 mb	12.0 C	10.2 C				090

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.31	12.30	32.965	24.952	299.4	0.000	6.12	D271.5	D100.5						0.59	0.24	0	
2	12.31	12.30	32.965	24.952	299.4	0.006	6.12	D271.5	D100.5						0.59	0.24	2	12
4	12.31	12.31	32.975 D	24.959	298.7	0.012	6.14	268.3	100.8						0.58	0.23	4	11
10	12.31	12.30	32.975 D	24.960	298.8	0.030	6.14	268.5	100.9						0.66	0.19	10	10
20	12.31	12.30	32.975 D	24.961	299.1	0.060	6.14	268.2	100.8						0.74	0.11	20	09
30 ISL	12.31 D	12.30	32.975 D	24.961	299.4	0.090	6.11	D266.1	D100.3						0.68	0.14	30	
31	12.31	12.30	32.975 D	24.961	299.4	0.093	6.16	269.3	101.2						0.67	0.15	31	08
41	12.29	12.29	32.987 D	24.973	298.5	0.124	6.15	268.7	100.9						0.58	0.24	41	07
50 ISL	11.91 D	11.89	33.099 D	25.135	283.3	0.150	5.74	D250.0	D 93.5						0.38	0.19	50	
60	11.66	11.67	33.240 D	25.285	269.3	0.178	5.58	243.7	90.5						0.15	0.13	60	06
75 ISL	11.16 D	11.14	33.271 D	25.405	258.1	0.218	5.39	D234.5	D 86.4						0.10	0.10	76	
80	10.80	10.78	33.279 D	25.475	251.5	0.230	4.96	216.6	79.0						0.09	0.09	81	05
100	10.29	10.29	33.372 D	25.634	236.9	0.280	4.60	201.0	72.5						0.06	0.07	101	04
125 ISL	9.54 D	9.53	33.616 D	25.952	207.1	0.336	3.82	D166.4	D 59.3						0.03	0.05	126	
150	8.92	8.91	33.757 D	26.162	187.5	0.385	3.66	159.8	56.1						0.00	0.03	151	03
200	8.23	8.22	33.938 D	26.411	164.7	0.474	3.21	140.3	48.5						0.00	0.02	202	02
250 ISL	7.23 D	7.21	33.946 D	26.564	150.6	0.553	2.77	D120.4	D 40.8								252	
300 ISL	7.19 D	7.16	34.093 D	26.686	139.9	0.627	1.31	D 57.0	D 19.4								302	
400 ISL	6.25 D	6.21	34.114 D	26.831	127.1	0.761	0.86	D 37.5	D 12.4								403	
500 ISL	5.54 D	5.50	34.147 D	26.946	116.8	0.885	0.61	D 26.4	D 8.6								504	
600 ISL	5.10 D	5.05	34.240 D	27.073	105.6	0.997	0.31	D 13.4	D 4.3								605	
700 ISL	4.79 D	4.73	34.323 D	27.175	96.8	1.099	0.21	D 9.3	D 3.0								706	
800 ISL	4.50 D	4.43	34.379 D	27.253	90.1	1.193	0.23	D 10.0	D 3.2								807	
900 ISL	4.12 D	4.05	34.425 D	27.331	83.0	1.281	0.31	D 13.6	D 4.3								909	
1000 ISL	3.79 D	3.72	34.459 D	27.392	77.5	1.362	0.43	D 18.7	D 5.9								1010	
1023	3.75	3.67	34.450	27.390	77.8	1.468	0.44	19.2	6.0								1033	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 70.0 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 2.4 N	122 1.5 W	28/01/2013	1007	UTC	1306 m	340 32 kn			1022.7 mb	11.8 C	9.0 C				083

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.03	12.03	33.463	25.390	257.7	0.000	5.66	246.6	92.7						0.52	0.24	0	
3	12.03	12.03	33.463	25.390	257.7	0.008	5.66	246.6	92.7						0.52	0.24	3	12
10	12.02	12.02	33.476 D	25.403	256.7	0.026	5.60	244.3	91.7						0.50	0.26	10	11
20	12.03	12.03	33.469 D	25.397	257.6	0.052	5.60	244.4	91.7						0.53	0.25	20	10
30	11.94	11.93	33.483 D	25.426	255.0	0.078	5.55	242.1	90.7						0.50	0.31	30	09
50	11.26	11.27	33.550 D	25.600	239.0	0.127	4.72	D213.8	D 76.1						0.20	0.23	50	08
75	10.27	10.26	33.710 D	25.903	210.7	0.184	3.05	D161.9	D 48.1						0.04	0.15	76	07
100 ISL	9.66 D	9.65	33.855 D	26.118	190.8	0.235	2.51	D109.1	D 39.1						0.01	0.11	101	
101	9.66	9.65	33.855 D	26.118	190.8	0.237	2.56	111.6	39.9						0.01	0.10	102	06
125 ISL	9.42 D	9.41	33.944 D	26.228	180.9	0.282	2.22	D 96.8	D 34.5						0.01	0.09	126	
150 ISL	9.32 D	9.31	33.963 D	26.260	178.4	0.327	2.14	D 93.1	D 33.1						0.01	0.08	151	
151	9.33	9.31	33.963 D	26.259	178.5	0.329	2.17	94.6	33.6						0.01	0.08	152	05
200 ISL	8.60 D	8.58	34.052 D	26.446	161.5	0.413	1.76	D 76.6	D 26.8						0.01	0.07	202	
201	8.57	8.56	34.054 D	26.450	161.2	0.414	1.79	77.8	27.2						0.01	0.07	203	04
250 ISL	8.11 D	8.09	34.099 D	26.557	151.8	0.492	1.48	D 64.5	D 22.4								252	
300 ISL	7.59 D	7.55	34.135 D	26.664	142.3	0.566	1.18	D 51.2	D 17.5								302	
301	7.57	7.55	34.137 D	26.666	142.1	0.567	1.19	51.8	17.7								303	03
400 ISL	6.66 D	6.63	34.179 D	26.828	127.8	0.702	0.67	D 29.1	D 9.8								403	
401	6.66	6.62	34.179 D	26.829	127.7	0.703	0.67	29.4	9.8								404	02
500 ISL	5.96 D	5.92	34.252 D	26.978	114.4	0.824	0.37	D 16.0	D 5.3								504	
515	5.92	5.87	34.247	26.980	114.4	0.834	0.34	14.9	4.9								519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 70.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 53.1 N	122 22.2 W	28/01/2013	0453	UTC	3053 m	320	25 kn			1022.7 mb	11.1 C	9.4 C				082

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		12.37		12.37		33.370	25.254	270.7	0.000	5.95		259.2		98.1							0.46	0.15	0	
4		12.37		12.37		33.370	25.254	270.7	0.011	5.95		259.2		98.1							0.46	0.15	4	12
10		12.37		12.37		33.369	D 25.253	271.0	0.027	5.93		259.0		97.8							0.46	0.15	10	11
19		12.38		12.37		33.370	D 25.254	271.2	0.052	5.92		258.4		97.5							0.46	0.13	19	10
20	ISL	12.36	D	12.36		33.373	D 25.258	270.8	0.054	5.83	D	254.0	D	96.1							0.46	0.15	20	
30		11.66		11.63		33.501	D 25.496	248.4	0.081	5.10		222.7		82.9							0.46	0.35	30	09
50		10.17		10.15		33.581	D 25.819	218.1	0.128	3.79		165.6		59.7							0.13	0.14	50	08
75		9.53		9.51		33.739	D 26.050	196.6	0.180	3.13		136.8		48.7							0.01	0.09	76	07
100	ISL	9.03	D	9.02		33.854	D 26.219	181.1	0.228	2.75	D	119.7	D	42.3							0.01	0.07	101	
101		9.03		9.02		33.853	D 26.219	181.1	0.229	2.73		119.3		42.0							0.01	0.06	102	06
125	ISL	8.81	D	8.80		33.938	D 26.321	171.9	0.272	2.42	D	105.1	D	37.0							0.00	0.05	126	
149		8.56		8.54		33.971	D 26.387	166.0	0.313	2.41		105.4		36.7							0.00	0.04	150	05
150	ISL	8.54	D	8.53		33.975	D 26.392	165.5	0.315	2.35	D	102.2	D	35.7							0.00	0.04	151	
200	ISL	7.94	D	7.92		34.032	D 26.528	153.4	0.395	1.99	D	86.7	D	29.9							0.00	0.04	202	
201		7.92		7.89		34.032	D 26.532	153.1	0.397	2.05		89.3		30.7							0.00	0.04	203	04
250	ISL	7.52	D	7.50		34.081	D 26.629	144.6	0.470	1.40	D	60.7	D	20.8									252	
300	ISL	7.47	D	7.44		34.187	D 26.721	136.8	0.541	0.76	D	33.0	D	11.3									302	
301		7.47		7.44		34.187	D 26.722	136.8	0.542	0.78		33.9		11.5									303	03
400	ISL	6.64	D	6.61		34.228	D 26.869	123.8	0.673	0.48	D	21.0	D	7.0									403	
401		6.64		6.60		34.228	D 26.870	123.8	0.674	0.47		20.6		6.9									404	02
500	ISL	6.01	D	5.96		34.253	D 26.972	115.0	0.793	0.36	D	15.6	D	5.1									504	
516		5.94		5.89		34.260	26.987	113.8	0.805	0.31		13.3		4.4									520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 70.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 33.0 N	123 4.6 W	27/01/2013	2228	UTC	3828 m	350	25 kn	340 08 06	1	1023.2 mb	12.0 C	9.3 C	12 m	6/8	SC	081

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		11.96		11.96		33.030	25.076	287.5	0.000	6.09		266.2		99.4							0.65	0.23	0	
3		11.96		11.96		33.030	25.076	287.6	0.009	6.09		266.2		99.4							0.65	0.23	3	12
10		11.96		11.96		33.042	D 25.076	287.8	0.029	6.10		266.5		99.5							0.69	0.23	10	11
20		11.95		11.95		33.060	D 25.093	286.5	0.058	6.08		265.6		99.1							0.69	0.22	20	10
30		11.03		10.96		33.123	D 25.322	264.9	0.086	5.39		235.4		86.2							0.12	0.10	30	09
50		10.16		10.15		33.283	D 25.588	240.0	0.137	4.89		213.7		76.9							0.13	0.09	50	08
75		10.11		10.10		33.671	D 25.899	211.1	0.194	3.50		152.9		55.1							0.15	0.36	76	07
100		9.59		9.58		33.770	D 26.063	196.0	0.245	2.99		130.6		46.6							0.06	0.27	101	06
125	ISL	9.21	D	9.20		33.860	D 26.197	183.8	0.293	2.64	D	114.8	D	40.7							0.04	0.20	126	
149		8.88		8.86		33.921	D 26.298	174.5	0.336	2.54		110.7		38.9							0.02	0.13	150	05
150	ISL	8.88	D	8.86		33.921	D 26.298	174.6	0.338	2.50	D	108.8	D	38.3							0.02	0.13	151	
199		8.28		8.26		34.035	D 26.480	158.2	0.420	1.99		87.1		30.2							0.01	0.08	201	04
200	ISL	8.28	D	8.26		34.035	D 26.480	158.2	0.422	1.95	D	84.8	D	29.5							0.01	0.08	202	
250	ISL	7.72	D	7.69		34.087	D 26.607	146.9	0.498	1.54	D	66.8	D	22.9									252	
300		7.32		7.30		34.156	D 26.717	137.1	0.570	0.92	D	40.0	D	13.7									302	03
400		6.71		6.67		34.237	D 26.867	124.1	0.702	0.48		20.9		7.0									403	02
500	ISL	5.83	D	5.79		34.293	D 27.026	109.7	0.820	0.27	D	11.7	D	3.8									504	
517		5.75		5.70		34.281	27.037	108.8	0.827	0.25		10.8		3.5									521	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 70.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 12.6 N	123 47.6 W	27/01/2013	1612	UTC	4077 m	340	17 kn	320 08 09	1	1023.4 mb	11.5 C	9.0 C	13 m	6/8	SC	080

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		12.74		12.74		32.878	24.801	313.8	0.000	6.14		267.5		101.7							0.51	0.13	0	
3		12.74		12.74		32.878	24.801	313.8	0.009	6.14		267.5		101.7							0.51	0.13	3	12
10		12.74		12.74		32.888	D 24.809	313.3	0.032	6.14		268.1		101.7							0.49	0.17	10	11
20		12.73		12.73		32.890	D 24.812	313.2	0.063	6.13		267.7		101.5							0.65	0.06	20	10
30		12.74		12.73		32.890	D 24.813	313.4	0.095	6.13		267.6		101.5							0.54	0.18	30	09
50		12.16		12.16		33.151	D 25.126	284.2	0.155	6.21		271.0		101.7							0.72	0.32	50	08
75	ISL	11.33	D	11.29		33.232	D 25.349	263.5	0.224	5.60	D	243.9	D	90.1							0.22	0.18	76	
76		11.29		11.27		33.230	D 25.351	263.3	0.227	5.60		244.7		90.1							0.20	0.18	77	07
100		9.87		9.85		33.221	D 25.589	241.0	0.288	5.16		225.3		80.5							0.06	0.13	101	06
125	ISL	9.50	D	9.47		33.628	D 25.971	205.2	0.344	3.77	D	164.2	D	58.5							0.03	0.08	126	
150	ISL	8.99	D	8.97		33.765	D 26.158	187.9	0.393	3.77	D	164.2	D	57.9							0.00	0.03	151	
151		8.99		8.97		33.767	D 26.160	187.7	0.395	3.77		164.7		57.9							0.00	0.03	152	05
200	ISL	8.11	D	8.08		33.925	D 26.422	163.6	0.482	3.03	D	131.7	D	45.6							0.00	0.02	202	
202		8.04		8.02		33.929	D 26.434	162.5	0.485	3.01		131.4		45.3							0.00	0.02	204	04
250	ISL	7.46	D	7.43		33.987	D 26.565	150.7	0.561	2.51	D	109.2	D	37.3									252	
299		7.30		7.28		34.104	D 26.679	140.6	0.633	1.28		55.7		18.9									301	03
300	ISL	7.30	D	7.28		34.112	D 26.685	140.1	0.634	1.21	D	52.6	D	17.9									302	
399		6.69		6.65		34.223	D 26.859	124.9	0.767	0.51		22.4		7.5									402	02
400	ISL	6.69	D	6.65		34.224	D 26.860	124.7	0.768	0.50	D	21.9	D	7.4									403	
500	ISL	6.05	D	6.01		34.272	D 26.983	114.1	0.889	0.30	D	13.0	D	4.3									504	
516		5.99		5.94		34.266	26.985	114.0	0.900	0.29		12.5		4.1									520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 70.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 52.8 N	124 28.7 W	27/01/2013	1009	UTC	4330 m	320 25 kn			1022.8 mb	11.3 C	9.2 C				079

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		12.88		12.88		33.140	D	24.977	297.0	0.000	6.16	268.3		103.2							0.97	0.07	0	
2		12.88		12.88		33.140	D	24.975	297.2	0.006	6.16	268.3		103.2							0.97	0.07	2	12
10		12.89		12.89		33.142	D	24.977	297.3	0.030	6.19	270.2		102.9							0.85	0.28	10	11
20		12.89		12.88		33.144	D	24.980	297.3	0.060	6.17	269.6		102.7							0.89	0.19	20	10
30	ISL	12.88	D	12.88		33.155	D	24.989	296.7	0.090	6.14	274.4		102.2							0.96	0.11	30	
31		12.86		12.86		33.162	D	24.998	295.8	0.093	6.14	268.2		102.1							0.97	0.10	31	09
50		12.32		12.31		33.291	D	25.205	276.7	0.148	5.49	239.8		90.3							0.26	0.16	50	08
75		10.50		10.49		33.488	D	25.689	231.0	0.212	4.23	184.5		67.0							0.11	0.11	76	07
100		9.87		9.86		33.626	D	25.904	211.1	0.267	3.54	154.4		55.3							0.02	0.06	101	06
125	ISL	9.39	D	9.38		33.782	D	26.107	192.3	0.318	2.97	D129.2	D	46.0							0.01	0.05	126	
150		8.56		8.52		33.843	D	26.289	175.3	0.364	2.86	125.1		43.6							0.01	0.03	151	05
200		7.51		7.49		33.938	D	26.517	154.3	0.448	3.37	147.3		50.1							0.00	0.02	202	04
250	ISL	7.13	D	7.11		33.994	D	26.615	145.7	0.523	2.07	D 90.2	D	30.5									252	
300		6.41		6.39		34.016	D	26.729	135.2	0.594	1.69	73.6		24.4									302	03
400		5.92		5.89		34.120	D	26.875	122.5	0.724	0.81	35.2		11.6									403	02
500	ISL	5.19	D	5.14		34.166	D	27.002	111.1	0.842	0.58	D 25.4	D	8.2									504	
516		5.08		5.04		34.172	D	27.019	109.6	0.860	0.47	20.4		6.5									520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 73.3 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 37.8 N	121 16.3 W	26/01/2013	0421	UTC	60 m	100 05 kn			1017.2 mb	13.9 C	13.1 C				073

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		12.94		12.94		33.275		25.070	288.2	0.000	6.04	263.0		100.7							0.49	0.13	0	
2		12.94		12.94		33.275		25.070	288.2	0.006	6.04	263.0		100.7							0.49	0.13	2	06
10		12.71		12.71		33.351	D	25.174	278.5	0.029	5.99	261.3		99.5							0.51	0.17	10	05
20		12.60		12.61		33.372	D	25.209	275.5	0.056	5.93	258.7		98.2							0.51	0.21	20	04
30		12.54		12.53		33.383	D	25.233	273.4	0.084	5.89	256.9		97.4							0.54	0.20	30	03
40		11.92		11.91		33.475	D	25.423	255.7	0.111	5.67	247.4		92.7							0.49	0.27	40	02
49		11.44		11.43		33.522		25.549	243.9	0.133	5.02	218.4		81.1							0.31	0.38	49	01
50	ISL	11.36	D	11.31		33.519	D	25.569	242.0	0.136	5.20	D226.4	D	83.9							0.31	0.38	50	

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 73.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 28.7 N	121 36.6 W	26/01/2013	0727	UTC	1053 m	330 14 kn			1017.4 mb	13.2 C	13.0 C				074

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.04		13.04		33.257		25.036	291.4	0.000	6.15	267.7		102.7							0.93	0.20	0	
2		13.04		13.04		33.257		25.036	291.4	0.006	6.15	267.7		102.7							0.93	0.20	2	12
10	ISL	13.03	D	13.03		33.268	D	25.046	290.7	0.029	6.15	D268.0	D	102.7							0.91	0.19	10	
11		13.04		13.04		33.268	D	25.044	290.9	0.032	6.14	267.7		102.5							0.91	0.19	11	11
20		12.92		12.91		33.319	D	25.111	284.8	0.058	6.11	266.5		101.8							0.79	0.18	20	10
30		12.60		12.60		33.392	D	25.227	274.0	0.086	5.96	260.1		98.8							0.74	0.28	30	09
50		11.46		11.45		33.392	D	25.443	253.9	0.140	5.05	220.3		81.6							0.26	0.18	50	08
75	ISL	10.53	D	10.52		33.565	D	25.744	225.9	0.200	4.07	D177.3	D	64.6							0.12	0.15	76	
76		10.51		10.50		33.571	D	25.752	225.1	0.202	4.04	176.3		64.1							0.12	0.15	77	07
100		9.53		9.52		33.693	D	26.013	200.8	0.254	3.39	148.1		52.7							0.02	0.05	101	06
125	ISL	9.08	D	9.06		33.885	D	26.238	179.8	0.302	2.61	D113.4	D	40.1							0.01	0.06	126	
150		8.68		8.65		33.987	D	26.383	166.5	0.346	2.19	95.6		33.5							0.01	0.06	151	05
200	ISL	8.13	D	8.11		34.078	D	26.536	152.8	0.426	1.69	D 73.4	D	25.5							0.00	0.06	202	
202		8.13		8.10		34.077	D	26.537	152.7	0.429	1.70	74.0		25.6							0.00	0.06	204	04
250	ISL	7.57	D	7.55		34.128	D	26.659	141.8	0.500	1.25	D 54.2	D	18.6									252	
300		7.16		7.13		34.152	D	26.737	135.0	0.570	0.95	41.3		14.0									302	03
400		6.35		6.32		34.221	D	26.902	120.5	0.699	0.49	21.5		7.1									403	02
500	ISL	5.87	D	5.83		34.266	D	27.000	112.2	0.817	0.32	D 13.8	D	4.6									504	
516		5.82		5.78		34.262		27.003	112.1	0.828	0.30	13.2		4.3									520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 73.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 18.9 N	121 57.3 W	26/01/2013	1112	UTC	2366 m	330 19 kn			1016.6 mb	13.6 C	12.1 C				075

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.19		13.19		33.234		24.988	296.0	0.000	6.09	265.2		102.0							0.50	0.13	0	
2		13.19		13.19		33.234		24.988	296.0	0.006	6.09	265.2		102.0							0.50	0.13	2	12
10		13.19		13.19		33.249	D	25.000	295.1	0.030	6.09	265.7		102.0							0.50	0.12	10	11
20		13.07		13.07		33.297	D	25.062	289.5	0.059	6.05	263.8		101.1							0.57	0.18	20	10
30		12.85		12.85		33.345	D	25.143	282.1	0.088	5.90	257.4		98.2							0.57	0.24	30	09
50		12.77		12.76		33.423	D	25.221	275.2	0.144	5.94	259.0		98.7							0.43	0.21	50	08
75		10.33		10.33		33.472	D	25.704	229.6	0.208	4.21	183.6		66.4							0.10	0.10	76	07
100		9.53		9.54		33.720	D	26.031	199.0	0.262	3.29	143.7		51.2							0.01	0.06	101	06
125	ISL	9.04	D	9.03		33.845	D	26.212	182.3	0.310	2.81	D122.2	D	43.2							0.01	0.04	126	
150	ISL	8.63	D	8.61		33.931	D	26.344	170.2	0.354	2.64	D114.8	D	40.2							0.00	0.03	151	
151		8.64		8.62		33.934	D	26.346	170.0	0.356	2.68	116.8		40.8							0.00	0.03	152	05
200		8.04		8.02		34.025	D	26.509	155.3	0.436	2.16	94.1		32.5							0.00	0.04	202	04
250	ISL	7.52	D	7.49		34.072	D	26.622	145.2	0.512	1.67	D 72.4	D	24.8									252	
300		7.11		7.08		34.153	D	26.745	134.3	0.582	0.95	41.4		14.0									302	03
400		6.49		6.45		34.207	D	26.872	123.4	0.712	0.53	23.1		7.7									403	02
500	ISL	5.87	D	5.83		34.258	D	26.994	112.8	0.832	0.34	D 14.6	D	4.8									504	
515		5.67		5.63		34.237		27.002	112.0	0.841	0.32	14.0		4.6									519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 73.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 58.4 N	122 40.4 W	26/01/2013	1703 UTC	4071 m	350 21 kn	300 06 07	2	1018.2 mb	12.4 C	12.0 C	11 m	8/8	SC	076

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.07	13.07	33.281	25.047	290.4	0.000	6.13	267.0	102.5						0.71	0.23	0	
2	13.07	13.07	33.281	25.047	290.4	0.006	6.13	267.0	102.5						0.71	0.23	2	12
10	13.07	13.07	33.293 D	25.058	289.6	0.029	6.13	267.5	102.5						0.73	0.22	10	11
19	13.07	13.07	33.294 D	25.058	289.8	0.055	6.13	267.4	102.4						0.73	0.23	19	10
20 ISL	13.07 D	13.07	33.294 D	25.059	289.7	0.058	6.11	D266.1	D102.1						0.72	0.23	20	
30	12.87	12.86	33.398 D	25.182	278.4	0.087	6.10	266.2	101.6						0.58	0.24	30	09
50	12.72	12.71	33.408 D	25.219	275.4	0.143	5.86	255.6	97.3						0.26	0.16	50	08
75	10.11	10.07	33.505 D	25.775	222.8	0.206	4.08	177.9	64.0						0.09	0.08	76	07
100 ISL	9.50 D	9.49	33.671 D	26.001	201.9	0.259	3.53	D153.7	D 54.8						0.02	0.05	101	
104	9.45	9.44	33.709 D	26.040	198.2	0.267	3.35	146.4	52.0						0.01	0.04	105	06
125 ISL	9.00 D	8.97	33.834 D	26.212	182.2	0.307	3.04	D132.2	D 46.7						0.01	0.04	126	
150	8.74	8.72	33.957 D	26.349	169.8	0.352	2.54	110.7	38.8						0.00	0.03	151	05
200	8.04	8.01	34.037 D	26.520	154.3	0.434	1.94	84.5	29.1						0.00	0.02	202	04
250 ISL	7.49 D	7.46	34.095 D	26.645	143.1	0.509	1.40 D	61.1 D	20.9								252	
300 ISL	6.87 D	6.85	34.081 D	26.719	136.5	0.579	1.30 D	56.7 D	19.1								302	
301	6.88	6.85	34.087 D	26.724	136.1	0.580	1.30	56.7	19.0								303	03
400 ISL	5.97 D	5.94	34.131 D	26.878	122.3	0.710	0.74 D	32.1 D	10.6								403	
402	5.98	5.95	34.132 D	26.878	122.4	0.712	0.73	31.9	10.5								405	02
500 ISL	5.53 D	5.48	34.243 D	27.023	109.6	0.827	0.36 D	15.5 D	5.1								504	
518	5.55	5.50	34.256	27.032	109.1	0.840	0.27	11.7	3.8								522	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 73.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 38.5 N	123 21.9 W	26/01/2013	2248 UTC	4169 m	340 17 kn	310 07 09	1	1019.4 mb	12.1 C	11.5 C	13 m	1/8	SC	077

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.44	12.44	32.885	24.864	307.8	0.000	6.24	272.1	102.8						0.57	0.23	0	
3	12.44	12.44	32.885	24.864	307.8	0.009	6.24	272.1	102.8						0.57	0.23	3	12
8	12.44	12.44	32.897 D	24.874	307.0	0.025	6.23	272.1	102.5						0.56	0.19	8	11
10 ISL	12.44 D	12.43	32.897 D	24.875	307.0	0.031	6.25	D272.3	D102.8						0.56	0.20	10	
19	12.43	12.43	32.898 D	24.877	307.0	0.059	6.24	272.4	102.6						0.57	0.23	19	10
20 ISL	12.43 D	12.43	32.898 D	24.878	307.0	0.062	6.25	D272.1	D102.8						0.57	0.23	20	
29	12.09	12.06	32.961 D	24.995	296.1	0.089	6.12	267.1	100.0						0.58	0.22	29	09
30 ISL	11.93 D	11.92	33.049 D	25.090	287.0	0.092	6.05	D263.8	D 98.7						0.57	0.22	30	
50	12.63	12.61	33.436 D	25.259	271.6	0.148	5.84	254.9	96.8						0.29	0.19	50	08
75	9.95	9.92	33.468 D	25.772	223.1	0.211	4.15	181.3	65.0						0.07	0.11	76	07
100	9.69	9.67	33.708 D	26.000	202.0	0.264	3.16	138.0	49.3						0.01	0.08	101	06
125 ISL	8.94 D	8.91	33.810 D	26.203	183.1	0.313	3.07	D133.8	D 47.1						0.01	0.07	126	
150 ISL	8.64 D	8.64	33.909 D	26.323	172.2	0.357	2.86	D124.3	D 43.6						0.00	0.06	151	
151	8.70	8.69	33.935 D	26.335	171.0	0.359	2.96	129.1	45.1						0.00	0.06	152	05
199	8.45	8.42	34.077 D	26.489	157.4	0.439	1.64	71.6	24.9						0.00	0.05	201	04
200 ISL	8.44 D	8.41	34.079 D	26.492	157.1	0.440	1.65 D	71.6 D	25.0						0.00	0.05	202	
250 ISL	7.89 D	7.86	34.100 D	26.591	148.4	0.517	1.53 D	66.4 D	22.9								252	
299	7.32	7.32	34.125 D	26.689	139.7	0.589	1.19	52.1	17.7								301	03
300 ISL	7.39 D	7.40	34.141 D	26.691	139.6	0.590	1.15 D	50.2 D	17.1								302	
400 ISL	6.62 D	6.59	34.204 D	26.852	125.4	0.724	0.59 D	25.5 D	8.5								403	
401	6.62	6.58	34.204 D	26.854	125.3	0.725	0.56	24.5	8.2								404	02
500 ISL	6.02 D	5.98	34.255 D	26.972	115.0	0.845	0.37 D	15.9 D	5.2								504	
515	5.86	5.82	34.243	26.983	114.1	0.855	0.32	14.1	4.6								519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 73.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 18.9 N	124 3.3 W	27/01/2013	0425 UTC	3280 m	350 22 kn			1021.7 mb	12.1 C	11.1 C				078

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.29	14.29	33.162	24.707	322.8	0.000	5.90	257.2	101.1						0.24	0.08	0	
3	14.29	14.29	33.162	24.707	322.8	0.010	5.90	257.2	101.1						0.24	0.08	3	12
10 ISL	14.30 D	14.30	33.173 D	24.715	322.3	0.033	5.92	D258.1	D101.5						0.24	0.08	10	
14	14.29	14.29	33.172 D	24.716	322.2	0.046	5.91	258.1	101.3						0.24	0.09	14	11
20 ISL	14.29 D	14.29	33.173 D	24.716	322.4	0.065	5.90	D257.3	D101.2						0.24	0.08	20	
30	14.29	14.28	33.170 D	24.716	322.8	0.097	5.93	258.8	101.5						0.25	0.08	30	10
44	14.25	14.25	33.171 D	24.723	322.5	0.143	5.90	257.6	101.0						0.24	0.08	44	09
50 ISL	13.91 D	13.91	33.152 D	24.781	317.2	0.162	5.93	D258.5	D100.8						0.32	0.13	50	
60	13.40	13.40	33.130 D	24.867	309.2	0.194	5.98	261.3	100.6						0.45	0.21	60	08
75 ISL	12.19 D	12.21	33.159 D	25.123	285.1	0.239	5.77	D251.2	D 94.6						0.26	0.18	76	
76	12.10	12.09	33.157 D	25.144	283.2	0.242	5.85	255.7	95.8						0.25	0.18	77	07
100	11.23	11.22	33.290 D	25.408	258.6	0.307	5.41	236.1	86.9						0.09	0.09	101	06
125 ISL	10.27 D	10.25	33.439 D	25.694	231.8	0.369	5.03	D219.0	D 79.3						0.05	0.05	126	
150	9.34	9.33	33.650 D	26.012	201.9	0.423	3.93	171.7	60.8						0.00	0.02	151	05
199	8.53	8.50	33.911 D	26.346	170.9	0.516	3.63	158.3	55.1						0.00	0.02	201	04
200 ISL	8.44 D	8.40	33.917 D	26.367	169.0	0.517	3.55	D154.6	D 53.9						0.00	0.02	202	
250 ISL	7.66 D	7.64	33.975 D	26.525	154.5	0.599	2.78	D120.8	D 41.4								252	
300	7.08	7.05	34.008 D	26.634	144.7	0.674	2.08 D	90.3 D	32.1								302	03
400	6.11	6.08	34.047 D	26.794	130.3	0.813	1.30	56.8	18.7								403	02
500 ISL	5.47 D	5.42	34.130 D	26.941	117.2	0.938	0.73 D	31.5 D	10.3								504	
516	5.37	5.33	34.126	26.949	116.5	0.949	0.62	27.1	8.8								520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
35 5.2 N	120 46.6 W	25/01/2013	2306 UTC	64 m	300 06 kn	190 02 06	1	1017.3 mb	16.0 C	14.5 C	14 m	7/8	AS	072

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.72	13.72	33.226	24.875	306.8	0.000	6.06	264.1	102.7	3.5	0.41	0.8	0.05	0.03	0.79	0.20	0	
2	13.72	13.72	33.226	24.875	306.8	0.006	6.06	264.1	102.7	3.5	0.41	0.8	0.05	0.03	0.79	0.20	2	09
5	13.53	13.53	33.228	24.915	303.0	0.015	6.06	263.8	102.2	3.5	0.40	0.8	0.05	0.01	0.59	0.18	5	08
10	13.18	13.17	33.245	24.999	295.1	0.030											10	07
10	13.18	13.17	33.246	25.000	295.1	0.030	5.99	261.2	100.4	3.6	0.42	1.3	0.09	0.04	0.57	0.20	10	06
20	13.12	13.11	33.243	25.011	294.4	0.060	5.96	259.7	99.7	3.6	0.43	1.3	0.11	0.06	0.47	0.21	20	05
30	12.95	12.95	33.271	25.065	289.5	0.089	5.85	255.0	97.6	4.1	0.48	2.1	0.17	0.09	0.41	0.21	30	04
40	12.52	12.52	33.301	25.173	279.5	0.117	5.66	246.5	93.5	5.3	0.59	4.1	0.20	0.11	0.39	0.21	40	03
50	11.74	11.75	33.442 D	25.427	255.5	0.137	5.53	240.6	89.9	9.3	0.82	7.4	0.17	0.08	0.92	0.27	50	02
60	11.41	11.40	33.455	25.502	248.6	0.169	4.99	217.2	80.6	12.8	1.10	11.0	0.27	0.15	0.44	0.45	60	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
35 1.7 N	120 54.9 W	25/01/2013	1927 UTC	228 m	090 08 kn	290 03 06	1	1020.1 mb	15.2 C	14.2 C	16 m	7/8	SC	071

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.18	13.18	33.194	24.959	298.7	0.000	6.09	265.4	102.0	3.6	0.36	0.9	0.05	0.11	1.05	0.13	0	
2 A	13.18	13.18	33.194	24.959	298.7	0.006	6.09	265.4	102.0	3.6	0.36	0.9	0.05	0.11	1.05	0.13	2	17
10 ISL	12.71 D	12.71	33.273 D	25.113	284.4	0.030	6.07	D264.5	D100.7	5.4	0.48	2.7	0.08	0.09	0.92	0.26	10	
11	12.69	12.69	33.264	25.119	283.7	0.032											11	16
11 A	12.69	12.69	33.264	25.110	284.6	0.032	6.02	262.1	99.8	5.6	0.50	2.9	0.08	0.09	0.90	0.28	11	15
14 A	12.57	12.56	33.274	25.142	281.6	0.041	5.98	260.6	99.0	5.8	0.52	3.2	0.08	0.08	0.89	0.30	14	14
20 ISL	12.03 D	12.03	33.411 D	25.350	262.0	0.057	5.93	D258.1	D 97.0	8.5	0.73	6.3	0.15	0.11	0.80	0.45	20	
21	11.98	11.98	33.410	25.359	261.2	0.060	5.66	246.5	92.6	8.9	0.76	6.8	0.16	0.11	0.79	0.47	21	13
28 A	11.70	11.69	33.431	25.429	254.7	0.078	5.46	237.9	88.8	10.1	0.87	8.3	0.20	0.11	0.68	0.43	28	12
30 ISL	11.62 D	11.62	33.453 D	25.460	251.8	0.083	5.42	D235.9	D 87.9	10.5	0.91	8.9	0.21	0.10	0.66	0.42	30	
40	11.13	11.13	33.520 D	25.601	238.6	0.108	5.00	217.7	80.3	12.6	1.08	11.7	0.27	0.04	0.55	0.35	40	11
50 ISL	11.06 D	11.05	33.536 D	25.627	236.4	0.132	4.73	D206.1	D 76.0	15.0	1.21	13.4	0.29	0.03	0.45	0.29	50	
52 A	11.04	11.03	33.526	25.624	236.8	0.137	4.70	204.6	75.4	15.4	1.23	13.7	0.29	0.03	0.43	0.28	52	10
59 A	10.77	10.76	33.526	25.672	232.4	0.153	4.66	202.7	74.2	15.5	1.24	13.9	0.28	0.06	0.42	0.28	59	09
70	10.59	10.58	33.499	25.683	231.5	0.178	4.48	195.0	71.1	15.8	1.31	15.4	0.16	0.02	0.22	0.17	71	08
75 ISL	10.56 D	10.55	33.498 D	25.687	231.3	0.190	4.45	D193.9	D 70.6	16.8	1.38	16.7	0.12	0.01	0.15	0.13	76	
86	9.77	9.76	33.541	25.855	215.4	0.214	4.00	174.3	62.5	18.8	1.53	19.4	0.02	0.00	0.02	0.05	87	07
99	9.54	9.53	33.608	25.946	207.1	0.242	3.79	165.2	58.9	21.1	1.63	21.0	0.02	0.00	0.01	0.04	100	06
100 ISL	9.54 D	9.52	33.619 D	25.954	206.3	0.245	3.81	D166.0	D 59.2	21.2	1.64	21.1	0.02	0.00	0.01	0.04	101	
120	9.29	9.28	33.704	26.061	196.5	0.284	3.41	148.2	52.6	24.2	1.78	23.2	0.02	0.03	0.01	0.03	121	05
125 ISL	9.17 D	9.16	33.790 D	26.148	188.3	0.295	3.24	D141.2	D 50.0	25.5	1.84	24.0	0.02	0.02	0.01	0.03	126	
141	9.06	9.04	33.855	26.217	182.1	0.324	2.73	118.6	41.9	29.5	2.02	26.5	0.02	0.00	0.00	0.04	142	04
150 ISL	8.95 D	8.93	33.909 D	26.277	176.6	0.341	2.62	D114.1	D 40.2	31.9	2.10	27.3	0.02	0.01	0.00	0.05	151	
170	8.76	8.75	34.014	26.389	166.4	0.374	1.99	86.5	30.4	37.1	2.28	29.0	0.03	0.02	0.01	0.07	171	03
200	8.61	8.59	34.071	26.458	160.4	0.423	1.56	67.7	23.7	42.2	2.46	30.4	0.06	0.09	0.01	0.16	202	02
220	8.56	8.54	34.080	26.474	159.3	0.455	1.50	65.4	22.9	43.0	2.51	30.7	0.06	0.11			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 STA-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
34 53.4 N	121 12.2 W	25/01/2013	1547 UTC	557 m	010 11 kn	350 04 06	1	1019.6 mb	14.1 C	13.3 C	14 m	6/8	ST	070

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.27	13.27	33.186	24.935	301.1	0.000	6.01	262.1	100.9	3.3	0.35	0.6	0.06	0.10	0.52	0.18	0	
2	13.27	13.27	33.186	24.935	301.1	0.006	6.01	262.1	100.9	3.3	0.35	0.6	0.06	0.10	0.52	0.18	2	21
10	13.27	13.27	33.188	24.937	301.1	0.030	6.04	263.2	101.4	3.3	0.34	0.6	0.05	0.09	0.59	0.12	10	19
10	13.27	13.27	33.189	24.938	301.0	0.031											10	20
20	13.29	13.28	33.211	24.952	299.9	0.060	6.07	264.4	101.9	3.3	0.34	0.7	0.06	0.10	0.51	0.19	20	18
30	13.25	13.24	33.212	24.962	299.3	0.090	5.99	261.0	100.5	3.3	0.33	0.8	0.06	0.10	0.54	0.18	30	17
40	13.22	13.21	33.214	24.970	298.8	0.120	5.99	260.8	100.3	3.4	0.34	0.9	0.07	0.12	0.55	0.20	40	16
50	12.58	12.57	33.382	25.225	274.8	0.149	5.88	256.3	97.4	4.7	0.50	3.2	0.22	0.19	0.40	0.19	50	15
61	12.49	12.48	33.405	25.261	271.6	0.179	5.80	252.4	95.8	5.2	0.57	4.2	0.35	0.20	0.28	0.20	62	14
70	12.44	12.43	33.405	25.271	271.0	0.203	5.79	252.1	95.5	5.2	0.56	4.2	0.35	0.18	0.28	0.19	71	13
75 ISL	12.40 D	12.35	33.415 D	25.295	268.9	0.203	5.48	D238.9	D 90.4	6.2	0.64	5.5	0.33	0.15	0.26	0.18	76	
84	11.78	11.77	33.406	25.396	259.4	0.241	5.35	232.9	87.1	8.0	0.78	7.9	0.29	0.09	0.22	0.17	85	12
100 ISL	10.75 D	10.78	33.462 D	25.619	238.4	0.267	4.52	D196.7	D 72.0	12.7	1.13	13.5	0.14	0.03	0.11	0.10	101	
101	10.63	10.61	33.442	25.633	237.1	0.283	4.62	201.1	73.4	13.0	1.15	13.9	0.13	0.03	0.11	0.10	102	11
119	9.88	9.87	33.596	25.880	213.8	0.323	3.79	164.8	59.2	20.0	1.54	20.2	0.03	0.02	0.05	0.09	120	10
125 ISL	9.72 D	9.70	33.621 D	25.928	209.4	0.322	3.69	D160.5	D 57.5	21.7	1.60	21.3	0.03	0.02	0.04	0.08	126	
140	9.02	9.00	33.768	26.156	187.9	0.366	3.34	145.2	51.2	26.1	1.74	23.9	0.02	0.01	0.01	0.05	141	09
150 ISL	8.85 D	8.83	33.864 D	26.259	178.3	0.371	2.77	D120.3	D 42.3	28.5	1.83	25.2	0.01	0.02	0.00	0.04	151	
170	8.62	8.60	33.928	26.345	170.5	0.419	2.53	D109.9	D 38.5	33.2	2.01	27.7	0.00	0.03	0.00	0.03	171	08
200	8.29	8.27	34.000	26.452	160.8	0.469	2.22	96.7	33.6	37.8	2.15	29.5	0.00	0.01	0.00	0.03	202	07
230	7.95	7.93	34.044	26.537	153.2	0.516	1.84	80.1	27.6	42.7	2.31	31.4	0.00	0.02			232	06
250 ISL	7.69 D	7.67	34.075 D	26.600	147.4	0.533	1.58	D 68.6	D 23.5	46.2	2.40	32.5	0.00	0.01			252	
270	7.50	7.47	34.082	26.633	144.5	0.575	1.44	62.7	21.4	49.7	2.49	33.5	0.00	0.00			272	05
300 ISL	7.34 D	7.31	34.120 D	26.687	139.9	0.605	1.16	D 50.5	D 17.2	53.7	2.62	34.7	0.00	0.00			302	
320	7.28	7.25	34.150	26.719	137.2	0.646	0.90	39.1	13.3	56.3	2.71	35.5	0.00	0.00			323	04
380	6.77	6.73	34.172	26.809	129.4	0.726	0.69	29.8	10.0	64.0	2.85	37.2	0.00	0.00			383	03
400 ISL	6.70 D	6.66	34.191 D	26.833	127.4	0.739	0.62	D 27.0	D 9.1	66.6	2.89	37.5	0.00	0.00			403	
441	6.38	6.34	34.206	26.887	122.6	0.802	0.51	22.1	7.4	71.9	2.97	38.1	0.00	0.00			445	02
500 ISL	6.16 D	6.12	34.236 D	26.940	118.2	0.862	0.41	D 18.0	D 6.0	78.3	3.07	38.7	0.00	0.00			504	
516	6.03	5.98	34.241	26.961	116.3	0.892	0.35	15.4	5.1	80.0	3.10	38.9	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 76.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 43.2 N	121 32.9 W	25/01/2013	1149 UTC	957 m	050 11 kn			1020.1 mb	14.7 C	14.5 C				069

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.08		13.08		33.275		25.041	291.0	0.000	6.05		263.5		101.1		4.0	0.44	1.4	0.09	0.37	0.29	0.11	0	
2		13.08		13.08		33.275		25.041	291.0	0.006	6.05		263.5		101.1		4.0	0.44	1.4	0.09	0.37	0.29	0.11	2	20
10		13.11		13.11		33.298		25.054	289.9	0.029	6.00		261.2		100.3		4.0	0.42	1.4	0.10	0.33	0.31	0.13	10	19
20		13.18		13.18		33.352		25.082	287.6	0.058	5.99		261.0		100.4		3.9	0.42	1.3	0.10	0.30	0.39	0.19	20	18
30		13.20		13.19		33.359		25.085	287.6	0.087	5.99		261.0		100.5		4.0	0.43	1.4	0.11	0.29	0.49	0.20	30	17
40		13.15		13.15		33.416		25.139	282.8	0.115	5.84		254.6		98.0		4.3	0.44	2.1	0.21	0.20	0.43	0.23	40	16
50		13.03		13.02		33.443		25.184	278.7	0.143	5.63		245.2		94.1		5.0	0.52	3.4	0.31	0.19	0.28	0.20	50	15
60		12.68		12.67		33.444		25.255	272.3	0.171	5.27		229.4		87.4		6.9	0.67	6.0	0.30	0.02	0.16	0.13	60	14
70		11.97		11.96		33.445		25.392	259.4	0.197	4.89		213.1		80.0		9.8	0.91	9.6	0.19	0.00	0.18	0.17	71	13
75	ISL	11.97	D	11.96		33.529	D	25.458	253.3	0.212	5.37	D	234.0	D	87.9		10.5	0.98	10.9	0.14	0.00	0.16	0.16	76	
85		11.03		11.02		33.383		25.516	247.9	0.235	4.56		198.6		73.0		11.9	1.13	13.6	0.05	0.00	0.12	0.13	86	12
100	ISL	10.01	D	9.99		33.542	D	25.817	219.4	0.272	3.84	D	167.4	D	60.3		18.7	1.51	19.7	0.02	0.00	0.03	0.05	101	
101		9.99		9.98		33.542		25.820	219.2	0.273	3.88		168.9		60.8		19.2	1.54	20.1	0.02	0.00	0.02	0.04	102	11
120		9.56		9.55		33.649		25.975	204.8	0.313	3.51		152.7		54.5		23.1	1.70	22.7	0.02	0.00	0.01	0.04	121	10
125	ISL	9.49	D	9.48		33.685	D	26.014	201.2	0.325	3.42	D	148.9	D	53.1		23.6	1.70	22.9	0.02	0.00	0.01	0.04	126	
141		9.03		9.01		33.737		26.130	190.4	0.354	3.51		152.7		53.9		25.3	1.70	23.4	0.02	0.00	0.00	0.03	142	09
150	ISL	8.75	D	8.74		33.831	D	26.247	179.4	0.373	3.67	D	159.7	D	56.1		27.2	1.76	24.3	0.01	0.00	0.00	0.03	151	
170		8.59		8.57		33.914		26.338	171.1	0.406	2.83	D	123.1	D	43.1		31.5	1.90	26.4	0.00	0.00	0.00	0.02	171	08
200	ISL	8.18	D	8.16		34.011	D	26.476	158.5	0.458	2.23	D	97.1	D	33.7		38.4	2.15	29.6	0.00	0.00	0.00	0.02	202	
201		8.18		8.15		34.001		26.470	159.1	0.457	2.25		97.9		34.0		38.6	2.16	29.7	0.00	0.00	0.00	0.02	203	07
230		7.99		7.97		34.038		26.527	154.2	0.502	1.89		82.4		28.5		42.4	2.29	31.2	0.00	0.00			232	06
250	ISL	7.76	D	7.73		34.059	D	26.578	149.6	0.536	1.76	D	76.4	D	26.3		45.0	2.34	32.0	0.00	0.00			252	
270		7.60		7.57		34.043		26.589	148.8	0.563	1.70		74.0		25.3		47.5	2.39	32.7	0.00	0.00			272	05
300	ISL	7.44	D	7.41		34.098	D	26.655	143.0	0.609	1.40	D	60.7	D	20.7		51.2	2.50	33.9	0.00	0.00			302	
321		7.23		7.20		34.102		26.688	140.1	0.636	1.22		53.0		18.0		53.7	2.58	34.8	0.00	0.00			324	04
381		6.74		6.71		34.179		26.817	128.6	0.717	0.69		30.1		10.1		64.6	2.85	37.3	0.00	0.00			384	03
400	ISL	6.54	D	6.48		34.193	D	26.858	124.7	0.744	0.60	D	25.9	D	8.7		67.1	2.89	37.8	0.00	0.00			403	
441		6.29		6.25		34.216		26.906	120.7	0.791	0.47		20.4		6.8		72.6	2.99	38.9	0.00	0.00			445	02
500	ISL	5.93	D	5.88		34.243	D	26.975	114.6	0.865	0.39	D	16.9	D	5.6		78.5	3.06	39.9	0.00	0.00			504	
514		5.87		5.82		34.236		26.977	114.5	0.877	0.36		15.8		5.2		79.9	3.08	40.1	0.00	0.00			518	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 76.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 23.7 N	122 15.0 W	25/01/2013	0550 UTC	4025 m	090 12 kn			1020.5 mb	14.0 C	14.0 C				068

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.52		13.52		33.222		24.913	303.1	0.000	6.02		262.2		101.5		3.2	0.36	0.5	0.05	0.05	0.58	0.18	0	
3		13.52		13.52		33.222		24.913	303.1	0.009	6.02		262.2		101.5		3.2	0.36	0.5	0.05	0.05	0.58	0.18	3	20
10		13.52		13.51		33.230		24.920	302.7	0.030	6.02		262.4		101.6		3.2	0.37	0.5	0.05	0.11	0.56	0.18	10	19
19		13.53		13.52		33.232		24.920	303.0	0.058	6.02		262.4		101.6		3.2	0.37	0.5	0.05	0.06	0.57	0.18	19	18
20	ISL	13.53	D	13.53		33.242	D	24.927	302.3	0.061	5.98	D	260.4	D	100.8		3.2	0.37	0.5	0.05	0.07	0.57	0.18	20	
30	ISL	13.55	D	13.54		33.256	D	24.935	301.9	0.091	5.97	D	260.1	D	100.8		3.2	0.40	0.5	0.05	0.17	0.56	0.18	30	
31		13.55		13.54		33.244		24.925	302.8	0.094	6.01		261.7		101.4		3.2	0.40	0.5	0.05	0.18	0.55	0.18	31	17
40		13.58		13.58		33.280		24.947	301.0	0.121	5.95		259.1		100.5		3.1	0.40	0.7	0.07	0.17	0.46	0.17	40	16
50		13.36		13.35		33.274		24.988	297.4	0.151	5.89		256.8		99.1		3.3	0.42	1.0	0.10	0.23	0.32	0.16	50	15
60		12.34		12.33		33.257		25.175	279.8	0.180	5.32		231.9		87.6		6.3	0.78	6.4	0.15	0.06	0.17	0.13	60	14
70		10.86		10.86		33.332	D	25.504	248.6	0.207	4.79		208.6		76.4		10.1	1.13	12.0	0.04	0.08	0.12	0.10	71	13
75	ISL	10.72	D	10.71		33.359	D	25.551	244.3	0.220	4.58	D	199.5	D	72.9		11.8	1.23	13.7	0.04	0.05	0.10	0.08	76	
85		10.29		10.28		33.439		25.688	231.4	0.243	4.26		185.5		67.2		15.2	1.43	17.1	0.03	0.00	0.06	0.05	86	12
100		9.76		9.75		33.586		25.892	212.3	0.276	3.76		163.5		58.6		20.2	1.68	21.1	0.02	0.00	0.02	0.04	101	11
120		9.13		9.12		33.747		26.121	190.8	0.316	3.46		150.6		53.3		24.9	1.79	23.4	0.01	0.00	0.00	0.03	121	10
125	ISL	9.04	D	9.02		33.786	D	26.168	186.5	0.327	3.37	D	146.6	D	51.8		26.5	1.87	24.4	0.01	0.00	0.00	0.03	126	
140		9.01		8.99		33.882		26.247	179.3	0.353	2.63		114.4		40.4		31.1	2.09	27.3	0.01	0.00	0.00	0.03	141	09
150	ISL	8.95	D	8.93		33.930	D	26.294	175.0	0.372	2.48	D	108.0	D	38.1		31.7	2.08	27.2	0.01	0.00	0.00	0.03	151	
171		8.59		8.57		33.952		26.367	168.4	0.407	2.71		117.9		41.3		32.9	2.05	27.1	0.02	0.00	0.00	0.03	172	08
200	ISL	8.02	D	8.01		33.992	D	26.483	157.8	0.456	2.48	D	107.8	D	37.3		37.9	2.16	29.0	0.02	0.00	0.00	0.02	202	
201		8.05		8.02		33.982		26.474	158.6	0.456	2.51		109.3		37.8		38.1	2.16	29.1	0.02	0.00	0.00	0.02	203	07
233		7.57		7.54		34.001		26.559	150.9	0.505	2.21		95.9		32.8		43.5	2.31	31.0	0.00	0.00			235	06
250	ISL	7.38	D	7.35		34.023	D	26.604	146.9	0.533	2.06	D	89.4	D	30.5		46.4	2.38	31.9	0.00	0.00			252	
269		7.25		7.22		34.027		26.626	145.1	0.558	1.86		81.0		27.5		49.5	2.45	33.0	0.00	0.00			271	05
300	ISL	6.68	D	6.65		34.026	D	26.703	137.9	0.605	1.70	D	74.1	D	24.8		55.5	2.57	34.7	0.00	0.00			302	
320		6.46		6.43		34.034		26.738	134.7	0.629	1.51		65.8		21.9		59.4	2.64	35.8	0.00	0.00			323	04
381		6.20		6.16		34.121		26.842	125.7	0.709	0.75		32.8		10.9		69.5	2.93	38.8	0.00	0.00			384	03
400	ISL	6.01	D	5.98		34.127	D	26.870	123.1	0.736	0.76	D	33.0	D	10.9		72.2	2.96	39.2	0.00	0.00			403	
442		5.62		5.58		34.136		26.926	118.0	0.783	0.64		27.9		9.1		78.4	3.03	40.2	0.00	0.00			446	02
500	ISL	5.36	D	5.31		34.192	D	27.004	111.1	0.853	0.45	D	19.6	D	6.4		85.6	3.12	41.3	0.00	0.00			504	
514		5.22		5.18		34.181		27.010	110.6	0.865	0.43		18.7		6.1		87.3	3.14	41.6	0.00	0.00			518	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
34 3.3 N	122 57.0 W	24/01/2013	2348 UTC	4242 m	160 05 kn	330 06 06	2	1016.9 mb	15.0 C	14.9 C		8/8	SC	067

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.29		14.29	33.135	24.686	324.8	0.000	5.94		258.9		101.8	2.8	0.32	0.0	0.01	0.05	0.21	0.06	0	
2		14.29		14.29	33.135	24.686	324.8	0.007	5.94		258.9		101.8	2.8	0.32	0.0	0.01	0.05	0.21	0.06	2	20
10		14.13		14.13	33.136	24.722	321.6	0.032	5.96		259.6		101.7	2.8	0.30	0.0	0.01	0.01	0.24	0.07	10	19
20		13.92		13.92	33.137	24.766	317.7	0.064	5.98		260.5		101.6	2.9	0.32	0.0	0.01	0.00	0.44	0.18	20	18
30		13.76		13.76	33.140	24.802	314.6	0.096	6.01		262.0		101.9	2.9	0.32	0.0	0.02	0.02	0.54	0.18	30	17
40		13.74		13.74	33.145	24.810	314.1	0.127	6.00		261.6		101.7	2.9	0.31	0.0	0.01	0.00	0.46	0.20	40	16
50		13.25		13.24	33.189	24.944	301.6	0.158	5.76		250.8		96.5	3.7	0.47	1.9	0.22	0.01	0.31	0.18	50	15
61		11.97		11.96	33.113	25.134	283.7	0.190	5.73		249.7		93.5	5.3	0.57	3.5	0.04	0.00	0.15	0.12	61	14
70		11.46		11.45	33.072	25.195	278.0	0.216	5.71		248.8		92.2	5.8	0.61	4.1	0.03	0.01	0.13	0.13	71	13
75	ISL	11.38	D	11.37	33.142	25.265	271.5	0.231	5.54	D	241.2	D	89.2	6.5	0.68	5.3	0.03	0.02	0.13	0.12	76	
86		11.09		11.08	33.191	25.355	263.2	0.259	5.28		230.0		84.6	8.1	0.83	7.8	0.02	0.03	0.11	0.10	87	12
100	ISL	10.71	D	10.71	33.379	25.567	243.4	0.296	4.37	D	190.1	D	69.5	13.0	1.26	14.4	0.02	0.07	0.09	0.10	101	
101		10.60		10.59	33.370	25.581	242.0	0.297	4.41		192.2		70.0	13.4	1.29	14.9	0.02	0.07	0.09	0.10	102	11
120		9.82		9.80	33.523	25.834	218.2	0.340	3.96		172.4		61.8	18.7	1.57	19.5	0.02	0.03	0.02	0.04	121	10
125	ISL	9.68	D	9.67	33.601	25.917	210.4	0.353	3.69	D	160.7	D	57.5	19.9	1.62	20.3	0.02	0.02	0.01	0.04	126	
140		9.33		9.32	33.680	26.037	199.3	0.382	3.52		153.1		54.4	23.4	1.75	22.7	0.00	0.00	0.00	0.03	141	09
150	ISL	9.11	D	9.10	33.792	26.160	187.8	0.403	3.23	D	140.7	D	49.8	25.5	1.82	23.8	0.00	0.00	0.00	0.03	151	
170		8.84		8.82	33.871	26.266	178.1	0.438	2.93	D	127.6	D	44.9	29.8	1.95	25.9	0.00	0.00	0.00	0.03	171	08
200		8.24		8.22	33.931	26.406	165.2	0.489	3.07		133.7		46.4	32.7	1.94	26.4	0.00	0.00	0.00	0.02	202	07
231		7.79		7.77	33.963	26.497	156.9	0.539	2.79		121.4		41.7	38.6	2.08	28.5	0.00	0.00			233	06
250	ISL	7.58	D	7.58	33.989	26.544	152.7	0.571	2.56	D	111.2	D	38.1	41.8	2.19	29.9	0.00	0.00			252	
270		7.46		7.43	34.002	26.576	150.0	0.599	2.19		95.4		32.6	45.1	2.31	31.3	0.00	0.00			272	05
300	ISL	6.79	D	6.77	33.999	26.666	141.5	0.645	2.00	D	86.9	D	29.2	50.9	2.52	33.5	0.00	0.00			302	
321		7.11		7.08	34.093	26.697	139.1	0.672	1.26		54.9		18.6	55.0	2.66	35.0	0.00	0.00			324	04
384		6.20		6.16	34.083	26.812	128.5	0.756	1.03		44.7		14.8	66.5	2.82	37.9	0.00	0.00			387	03
400	ISL	6.04	D	6.00	34.096	26.843	125.7	0.780	0.93	D	40.5	D	13.4	68.7	2.86	38.4	0.00	0.00			403	
441		5.88		5.84	34.130	26.890	121.7	0.827	0.68		29.8		9.8	74.4	2.98	39.6	0.00	0.00			445	02
500	ISL	5.46	D	5.41	34.162	26.967	114.7	0.901	0.56	D	24.4	D	8.0	81.6	3.08	40.6	0.00	0.00			504	
515		5.47		5.43	34.181	26.981	113.7	0.914	0.45		19.5		6.4	83.4	3.10	40.9	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 76.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 43.2 N	123 38.5 W	24/01/2013	1745 UTC	4130 m	000 18 kn	340 06 06	2	1017.3 mb	14.0 C	13.0 C	20 m	8/8	ST	066

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.28		14.28	33.207	24.745	319.1	0.000	5.92		257.8		101.4	2.8	0.32	0.1	0.01	0.04	0.19	0.06	0	
2	A	14.28		14.28	33.207	24.745	319.1	0.006	5.92		257.8		101.4	2.8	0.32	0.1	0.01	0.04	0.19	0.06	2	22
10	ISL	14.28	D	14.28	33.215	24.751	318.8	0.032	5.91	D	257.7	D	101.3	2.8	0.31	0.0	0.01	0.06	0.19	0.07	10	
14	A	14.28		14.27	33.208	24.747	319.3	0.045	5.89		256.8		101.0	2.8	0.31	0.0	0.01	0.07	0.19	0.07	14	21
18	A	14.27		14.27	33.206	24.746	319.5	0.058	5.90		257.0		101.0	2.8	0.31	0.0	0.01	0.02	0.20	0.06	18	20
20	ISL	14.27	D	14.27	33.215	24.752	319.0	0.064	5.92	D	258.1	D	101.5	2.8	0.31	0.0	0.01	0.02	0.20	0.07	20	
27		14.25		14.25	33.205	24.750	319.5	0.086	5.89		256.8		100.9	2.8	0.31	0.0	0.01	0.01	0.20	0.07	27	19
30	ISL	14.25	D	14.25	33.213	24.757	318.9	0.096	5.93	D	258.6	D	101.6	2.8	0.31	0.0	0.01	0.01	0.21	0.07	30	
36	A	14.22		14.21	33.199	24.753	319.5	0.115	5.91		257.5		101.1	2.8	0.31	0.0	0.01	0.01	0.23	0.09	36	18
46		14.10		14.09	33.197	24.777	317.5	0.147	5.91		257.5		100.9	2.9	0.30	0.0	0.01	0.01	0.30	0.13	46	17
50	ISL	14.09	D	14.08	33.208	24.789	316.5	0.161	5.92	D	257.9	D	101.0	2.9	0.30	0.0	0.01	0.02	0.31	0.14	50	
56		14.04		14.03	33.201	24.794	316.2	0.178	5.92		257.9		100.9	2.8	0.31	0.0	0.01	0.03	0.32	0.15	56	16
65	A	13.87		13.86	33.203	24.831	312.9	0.207	5.90		257.1		100.2	3.0	0.33	0.1	0.02	0.06	0.30	0.14	66	15
74	A	13.42		13.41	33.198	24.918	304.9	0.235	5.77		251.3		97.1	3.7	0.42	1.4	0.08	0.08	0.24	0.15	75	14
75	ISL	13.19	D	13.11	33.213	24.990	297.9	0.239	5.72	D	249.1	D	95.6	4.0	0.45	1.9	0.08	0.07	0.23	0.15	76	
83		11.63		11.61	33.190	25.258	272.4	0.260	5.41		235.8		87.7	6.5	0.70	5.8	0.09	0.00	0.17	0.16	84	13
96		11.18		11.17	33.232	25.371	261.9	0.295	5.10		222.1		81.9	9.0	0.93	9.4	0.03	0.00	0.15	0.15	97	12
100	ISL	11.05	D	11.02	33.262	25.421	257.2	0.307	5.07	D	220.9	D	81.2	9.6	0.97	10.1	0.03	0.00	0.13	0.13	101	
110		10.67		10.66	33.321	25.532	246.9	0.331	4.83		210.3		76.7	11.1	1.08	12.0	0.02	0.00	0.08	0.08	111	11
125		10.15		10.12	33.468	25.738	227.6	0.368	4.39		190.9		68.9	14.6	1.32	15.9	0.01	0.00	0.05	0.06	126	10
146		9.57		9.56	33.624	25.954	207.3	0.413	3.71		161.7		57.7	21.0	1.65	21.1	0.00	0.03	0.01	0.02	147	09
150	ISL	9.47	D	9.44	33.663	26.004	202.7	0.423	3.68	D	160.1	D	57.0	22.2	1.70	21.9	0.00	0.03	0.01	0.02	151	
170		9.13		9.11	33.832	26.190	185.4	0.460	2.92	D	126.9	D	44.9	28.1	1.95	25.6	0.00	0.01	0.00	0.02	171	08
200		8.77		8.75	33.935	26.328	172.8	0.513	2.64		115.1		40.4	31.9	2.05	27.1	0.00	0.00	0.00	0.02	202	07
230		8.38		8.35	34.011	26.448	161.8	0.563	2.27		98.6		34.4	37.5	2.21	29.3	0.00	0.00			232	06
250	ISL	8.16	D	8.14	34.047	26.509	156.4	0.598	2.12	D	92.4	D	32.0	40.7	2.32	30.6	0.00	0.00			252	
270		8.08		8.05	34.081	26.548	153.0	0.626	1.66		72.2		25.0	43.8	2.43	31.8	0.00	0.00			272	05
300	ISL	7.75	D	7.71	34.112	26.623	146.3	0.674	1.46	D	63.4	D	21.8	47.9	2.54	33.2	0.00	0.00			302	
320		7.58		7.55	34.121	26.654	143.6	0.700	1.23		53.6		18.3	50.6	2.62	34.1	0.00	0.00			323	04
381		7.19		7.16	34.155	26.737	136.5	0.785	0.90		39.3		13.3	57.0	2.77	35.8	0.00	0.00			384	03
400	ISL	6.97	D	6.93	34.183	26.790	131.7	0.815	0.79	D	34.3	D	11.6	60.0	2.83	36.5	0.00	0.00			403	
442		6.59		6.55	34.189	26.846	126.7	0.865	0.60		25.9		8.7	66.8	2.96	38.2	0.00	0.00			446	02
500	ISL	6.19	D	6.14	34.233	26.934	118.8	0.941	0.45	D	19.7	D	6.6	73.5	3.06	39.5	0.00	0.00			504	
516		6.10		6.05	34.225	26.940	118.4	0.955	0.41		17.8		5.9	75.4	3.09	39.8	0.00	0.00			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 STA-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 22.9 N	124 19.3 W	24/01/2013	1119	UTC	4523 m	350	04 kn			1016.6 mb	14.8 C	13.5 C				065

	DEPTH		TEMP		POTTEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXYGEN	OXY	SIO3	PO4	NO3	NO2	NH4	CHL-A	PHAEO	PRES	SAMP
	m		DEG C		DEG C		THETA			ml/L	µmol/Kg	PCT	µM	µM	µM	µM	µM	µg/L	µg/L	db	
	0		14.32		14.31	33.170	24.708	322.6	0.000	5.93	258.5	101.7	2.9	0.19	0.0	0.01	0.01	0.20	0.06	0	
	2		14.32		14.31	33.170	24.708	322.6	0.007	5.93	258.5	101.7	2.9	0.19	0.0	0.01	0.01	0.20	0.06	2	20
	10		14.32		14.31	33.170	24.708	322.9	0.032	5.89	256.9	101.1	2.9	0.25	0.0	0.01	0.01	0.19	0.05	10	19
	20	ISL	14.27	D	14.26	33.171 D	24.720	322.1	0.065	5.90	257.0	101.0	2.8	0.24	0.0	0.01	0.01	0.22	0.12	20	
	25		14.26		14.26	33.165	24.717	322.5	0.081	5.90	257.1	101.0	2.8	0.23	0.0	0.01	0.01	0.24	0.15	25	18
	30	ISL	14.33	D	14.33	33.216 D	24.742	320.3	0.097	5.90	257.2	101.2	2.8	0.24	0.0	0.01	0.01	0.26	0.13	30	
	40		14.23		14.22	33.209	24.759	319.0	0.129	5.91	257.5	101.1	2.8	0.26	0.0	0.01	0.02	0.31	0.09	40	17
	50		14.08		14.07	33.201	24.785	316.8	0.161	5.85	255.0	99.8	3.0	0.27	0.2	0.05	0.11	0.31	0.18	50	16
	62		11.91		12.02	33.139 D	25.142	282.9	0.198	5.61	244.3	91.4	5.3	0.54	3.8	0.10	0.00	0.24	0.17	63	15
	75	ISL	11.02	D	11.00	33.204 D	25.378	260.7	0.233	5.35	233.1	85.6	7.6	0.73	7.3	0.04	0.03	0.16	0.12	76	
	76		11.02		11.00	33.197 D	25.373	261.2	0.236	5.33	232.2	85.3	7.8	0.74	7.6	0.03	0.03	0.16	0.11	77	14
	87		10.51		10.50	33.394 D	25.615	238.4	0.264	4.81	209.4	76.2	11.4	1.01	12.3	0.02	0.00	0.09	0.06	88	13
	100		10.06		10.05	33.586 D	25.843	217.0	0.293	3.96	172.4	62.2	17.7	1.45	18.3	0.02	0.00	0.05	0.05	101	12
	112		9.90		9.89	33.696	25.955	206.5	0.317	3.17	138.1	49.7	23.3	1.67	22.5	0.01	0.00	0.04	0.05	113	11
	125	ISL	9.69	D	9.67	33.830 D	26.096	193.5	0.345	2.68	D116.6	D 41.8	26.3	1.87	24.5	0.02	0.00	0.02	0.03	126	
	126		9.69		9.68	33.830 D	26.095	193.6	0.347	2.69	117.0	41.9	26.6	1.89	24.7	0.02	0.00	0.02	0.03	127	10
	140		9.52		9.52	33.911 D	26.185	185.3	0.374	2.36	102.7	36.7	29.5	1.98	26.2	0.00	0.00	0.00	0.03	141	09
	150	ISL	9.50	D	9.48	33.925 D	26.203	183.9	0.392	2.27	D 99.0	D 35.3	30.7	2.06	26.7	0.00	0.00	0.00	0.02	151	
	170		9.37		9.35	34.023 D	26.300	175.1	0.429	1.87	D 81.2	D 29.0	33.2	2.21	27.8	0.00	0.00	0.00	0.02	171	08
	200		9.20		9.18	34.111	26.397	166.5	0.477	1.49	64.8	23.0	37.1	2.31	29.3	0.00	0.00	0.00	0.02	202	07
	230		9.12		9.09	34.151	26.443	162.8	0.526	1.35	58.5	20.8	38.7	2.33	29.9	0.00	0.00			232	06
	250	ISL	8.99	D	8.96	34.193 D	26.497	158.1	0.562	1.20	D 52.0	D 18.4	40.4	2.40	30.4	0.00	0.00			252	
	270		8.89		8.86	34.201	26.519	156.3	0.590	1.07	46.6	16.4	42.1	2.47	30.9	0.00	0.00			272	05
	300	ISL	8.78	D	8.75	34.228 D	26.559	153.1	0.641	1.01	D 43.9	D 15.5	43.7	2.52	31.3	0.00	0.00			302	
	321		8.69		8.66	34.233	26.577	151.8	0.668	0.89	38.9	13.7	44.8	2.55	31.6	0.00	0.00			324	04
	380		8.36		8.32	34.250	26.643	146.5	0.756	0.88	38.2	13.3	48.6	2.45	32.7	0.00	0.00			383	03
	400	ISL	8.24	D	8.20	34.265 D	26.673	143.9	0.790	0.74	D 32.3	D 11.2	50.2	2.52	33.1	0.00	0.00			403	
	439		7.96		7.91	34.262	26.714	140.6	0.841	0.62	27.0	9.3	53.4	2.65	34.0	0.00	0.00			443	02
	500	ISL	7.19	D	7.14	34.262 D	26.825	130.4	0.930	0.55	D 23.8	D 8.1	61.8	2.84	36.2	0.00	0.00			504	
	515		7.07		7.02	34.252	26.835	129.6	0.943	0.50	21.8	7.4	63.9	2.89	36.7	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
34 27.9 N	120 30.4 W	22/01/2013	2106	UTC	37 m	180	11 kn	290 02 08	1	1018.1 mb	15.2 C	12.9 C		5/8	AS	057

	DEPTH		TEMP		POTTEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXYGEN	OXY	SIO3	PO4	NO3	NO2	NH4	CHL-A	PHAEO	PRES	SAMP
	m		DEG C		DEG C		THETA			ml/L	µmol/Kg	PCT	µM	µM	µM	µM	µM	µg/L	µg/L	db	
	0		12.36		12.36	33.553	25.398	257.0	0.000	6.08	264.7	100.3	8.0	0.72	4.7	0.16	0.07	2.51	0.79	0	
	2		12.36		12.36	33.553	25.398	257.0	0.005	6.08	264.7	100.3	8.0	0.72	4.7	0.16	0.07	2.51	0.79	2	07
	5		12.28		12.27	33.553	25.414	255.5	0.013	6.04	262.9	99.4	8.0	0.72	4.7	0.15	0.05	3.06	1.08	5	06
	10	ISL	12.25	D	12.25	33.560 D	25.424	254.8	0.026	5.96	D259.5	D 98.1	8.1	0.74	5.0	0.16	0.08	2.46	0.88	10	
	11		12.25		12.24	33.553	25.420	255.1	0.027											10	05
	11		12.21		12.21	33.553	25.427	254.5	0.028	5.98	260.6	98.4	8.1	0.74	5.0	0.16	0.08	2.34	0.85	11	04
	15		12.11		12.11	33.561	25.453	252.1	0.038	5.64	245.5	92.5	9.2	0.85	6.7	0.20	0.09	1.87	0.88	15	03
	20	ISL	12.15	D	12.14	33.567 D	25.450	252.5	0.050	5.69	D247.6	D 93.4	9.1	0.83	6.6	0.19	0.08	2.35	1.32	20	
	21		12.14		12.14	33.561	25.446	252.9	0.053	5.64	245.5	92.6	9.1	0.83	6.6	0.19	0.08	2.45	1.41	21	02
	30		12.01		12.01	33.571	25.479	250.1	0.076	5.34	232.6	87.5	9.6	0.93	8.0	0.24	0.20	1.45	0.75	30	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
34 27.1 N	120 31.1 W	22/01/2013	2156	UTC	63 m	190	04 kn	290 01 08	1	1017.9 mb	15.5 C	12.0 C	07 m	7/8	AS	058

	DEPTH		TEMP		POTTEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXYGEN	OXY	SIO3	PO4	NO3	NO2	NH4	CHL-A	PHAEO	PRES	SAMP
	m		DEG C		DEG C		THETA			ml/L	µmol/Kg	PCT	µM	µM	µM	µM	µM	µg/L	µg/L	db	
	0		12.50		12.50	33.547	25.366	260.0	0.000	6.43	280.1	106.4	6.8	0.62	3.2	0.10	0.00	5.31	1.07	0	
	2		12.50		12.50	33.547	25.366	260.0	0.005	6.43	280.1	106.4	6.8	0.62	3.2	0.10	0.00	5.31	1.07	2	09
	5		12.47		12.47	33.547	25.372	259.5	0.013	6.38	277.8	105.5	6.9	0.76	3.3	0.11	0.17	4.98	1.06	5	08
	10		12.45		12.45	33.547	25.375	259.4	0.026	6.39	278.5	105.7	6.8	0.68	3.3	0.10	0.00	4.77	1.05	10	06
	10		12.45		12.45	33.547	25.375	259.4	0.027											10	07
	20		12.43		12.42	33.547	25.381	259.1	0.052	6.38	277.7	105.4	6.9	0.68	3.4	0.10	0.00	4.45	1.21	20	05
	30		11.97		11.97	33.544	25.466	251.3	0.077	5.37	233.7	87.8	8.7	0.92	7.7	0.31	0.05	1.23	0.77	30	04
	40		11.80		11.80	33.573	25.521	246.3	0.102	5.03	219.0	82.0	10.9	1.05	9.7	0.30	0.28	0.75	0.57	40	03
	50		11.27		11.27	33.628	25.661	233.2	0.126	3.98	173.2	64.1	17.0	1.42	15.1	0.32	0.24	0.26	0.36	50	02
	60		10.76		10.75	33.690	25.801	220.1	0.149	3.22	140.0	51.3	21.9	1.68	19.1	0.27	0.08	0.14	0.30	60	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
34 19.2 N	120 48.4 W	23/01/2013	0059	UTC	778 m	160 06 kn	330 02 06	1	1017.4 mb	15.2 C	12.4 C		8/8	AS	059

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.93	12.93	33.286	25.079	287.3	0.000	6.10	265.6	101.7	4.1	0.46	1.7	0.06	0.19	0.35	0.11	0	
2	12.93	12.93	33.286	25.079	287.3	0.006	6.10	265.6	101.7	4.1	0.46	1.7	0.06	0.19	0.35	0.11	2	22
10	12.84	12.84	33.269	25.084	287.0	0.029											10	21
10	12.84	12.84	33.271	25.086	286.9	0.029	6.10	265.9	101.6	4.0	0.44	1.5	0.06	0.15	0.42	0.10	10	20
15	12.61	12.61	33.276	25.135	282.3	0.043	6.03	262.9	99.9	4.4	0.49	2.2	0.08	0.15	0.43	0.11	15	19
20	12.13	12.13	33.347	25.282	268.5	0.057	5.69	248.0	93.4	7.1	0.73	5.7	0.16	0.23	0.48	0.24	20	18
30	11.69	11.69	33.379	25.389	258.5	0.083	5.41	235.5	87.9	8.8	0.89	8.2	0.28	0.15	0.59	0.31	30	17
41	10.36	10.36	33.419	25.658	233.2	0.110	4.46	194.3	70.5	14.1	1.32	15.3	0.05	0.00	0.13	0.12	41	16
50 ISL	10.29 D	10.29	33.474 D	25.713	228.2	0.120	4.22	D183.7 D	66.6	15.4	1.40	16.7	0.03	0.00	0.09	0.10	50	
51	10.29	10.28	33.468	25.709	228.6	0.133	4.23	184.3	66.7	15.5	1.41	16.8	0.03	0.00	0.08	0.10	51	15
60	10.07	10.07	33.533	25.797	220.4	0.153	4.00	174.2	62.8	17.7	1.52	18.6	0.03	0.00	0.06	0.07	60	14
70	9.79	9.79	33.606	25.901	210.7	0.175	3.68	160.2	57.5	20.4	1.66	20.8	0.02	0.02	0.03	0.06	71	13
75 ISL	9.66 D	9.64	33.665 D	25.970	204.2	0.175	3.45	D150.2 D	53.7	21.6	1.72	21.7	0.02	0.01	0.02	0.06	76	
84	9.59	9.58	33.699	26.009	200.8	0.204	3.26	142.1	50.8	23.9	1.83	23.3	0.02	0.00	0.01	0.06	85	12
100	9.41	9.40	33.750	26.078	194.6	0.235	3.07	133.8	47.6	25.6	1.90	24.4	0.01	0.01	0.01	0.05	101	11
120	9.18	9.17	33.824	26.173	185.9	0.273	2.82	122.7	43.5	28.2	1.99	25.8	0.00	0.02	0.01	0.05	121	10
125 ISL	9.14 D	9.13	33.840 D	26.191	184.3	0.272	2.77	D120.7 D	42.8	28.5	2.00	25.9	0.00	0.02	0.01	0.05	126	
140	9.09	9.07	33.852	26.210	182.8	0.310	2.71	118.1	41.8	29.2	2.02	26.3	0.00	0.00	0.01	0.04	141	09
150 ISL	8.90 D	8.88	33.901 D	26.279	176.4	0.318	2.66	D115.5 D	40.7	30.1	2.03	26.5	0.00	0.00	0.01	0.04	151	
171	8.72	8.70	33.924	26.325	172.4	0.365	2.54	D110.6 D	38.8	32.0	2.06	27.0	0.00	0.01	0.00	0.04	172	08
200	8.57	8.55	33.989	26.400	165.9	0.414	2.27	98.9	34.6	35.5	2.18	28.4	0.00	0.00	0.00	0.04	202	07
230	8.47	8.45	34.106	26.508	156.2	0.462	1.52	66.3	23.2	41.7	2.43	30.8	0.00	0.00			232	06
250 ISL	8.23 D	8.21	34.137 D	26.570	150.7	0.483	1.34	D 58.3 D	20.3	44.4	2.50	31.7	0.00	0.00			252	
270	8.01	7.99	34.144	26.608	147.3	0.522	1.23	53.5	18.5	47.1	2.57	32.5	0.00	0.00			272	05
300 ISL	7.74 D	7.71	34.195 D	26.690	140.0	0.556	0.92	D 39.9 D	13.7	51.5	2.68	33.7	0.00	0.00			302	
321	7.55	7.52	34.192	26.714	138.0	0.595	0.84	36.5	12.5	54.6	2.75	34.6	0.00	0.00			324	04
381	6.99	6.95	34.214	26.812	129.3	0.675	0.62	26.8	9.1	62.8	2.90	36.5	0.00	0.00			384	03
400 ISL	6.73 D	6.69	34.232 D	26.861	124.8	0.690	0.54	D 23.3 D	7.8	65.4	2.94	37.0	0.00	0.00			403	
442	6.38	6.34	34.243	26.916	119.8	0.750	0.43	18.7	6.2	71.1	3.02	38.1	0.00	0.00			446	02
500 ISL	6.02 D	5.98	34.277 D	26.990	113.4	0.810	0.33	D 14.2 D	4.7	77.3	3.10	39.3	0.00	0.00			504	
517	5.97	5.93	34.273	26.993	113.3	0.837	0.30	12.9	4.3	79.2	3.12	39.6	0.00	0.00			521	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 80.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 8.9 N	121 9.0 W	23/01/2013	0509	UTC	2183 m	100 05 kn			1017.7 mb	14.1 C	13.3 C				060

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.05	14.04	33.366	24.916	302.8	0.000	5.95	259.3	101.6	3.2	0.38	0.4	0.03	0.32	0.16	0.04	0	
2	14.05	14.04	33.366	24.916	302.8	0.006	5.95	259.3	101.6	3.2	0.38	0.4	0.03	0.32	0.16	0.04	2	21
10	13.49	13.49	33.265	24.952	299.7	0.030	6.03	262.7	101.7	3.2	0.38	0.5	0.04	0.15	0.29	0.08	10	19
10	13.49	13.49	33.269	24.955	299.4	0.031											10	20
20	13.22	13.22	33.222	24.974	297.8	0.060	6.01	261.8	100.7	3.4	0.42	0.9	0.06	0.36	0.44	0.14	20	18
30	12.93	12.92	33.238	25.045	291.4	0.090	5.79	252.4	96.5	4.2	0.51	2.4	0.14	0.06	0.52	0.21	30	17
40	12.87	12.87	33.306	25.109	285.6	0.118	5.89	256.4	98.0	4.0	0.49	2.1	0.17	0.18	0.53	0.28	40	16
50	12.76	12.75	33.338	25.157	281.3	0.147	5.66	246.4	94.0	4.9	0.60	3.6	0.20	0.18	0.32	0.20	50	15
60	12.01	12.01	33.337	25.299	268.0	0.174	5.37	233.7	87.8	6.8	0.78	6.5	0.24	0.10	0.19	0.16	60	14
70	11.30	11.29	33.379	25.463	252.5	0.200	4.69	204.0	75.5	10.5	1.10	11.8	0.09	0.04	0.13	0.13	71	13
75 ISL	11.06 D	11.05	33.438 D	25.553	244.1	0.199	4.43	D193.0 D	71.1	12.6	1.23	13.8	0.07	0.04	0.10	0.11	76	
85	10.59	10.58	33.528	25.706	229.8	0.236	3.88	168.9	61.6	16.7	1.49	17.7	0.02	0.04	0.05	0.08	86	12
100	10.09	10.08	33.659	25.893	212.2	0.269	3.28	142.8	51.6	21.5	1.71	21.0	0.02	0.00	0.02	0.08	101	11
120	9.72	9.70	33.751	26.029	199.7	0.311	2.98	129.5	46.4	24.9	1.86	23.3	0.02	0.00	0.02	0.07	121	10
125 ISL	9.68 D	9.67	33.796 D	26.070	195.9	0.306	2.87	D124.8 D	44.7	25.6	1.88	23.7	0.02	0.00	0.01	0.06	126	
140	9.44	9.42	33.822	26.131	190.4	0.350	2.75	119.7	42.7	27.5	1.95	24.8	0.02	0.00	0.01	0.06	141	09
150 ISL	9.37 D	9.35	33.872 D	26.181	185.9	0.354	2.60	D113.2 D	40.3	28.9	2.01	25.5	0.01	0.00	0.01	0.06	151	
170	9.21	9.19	33.948	26.267	178.2	0.405	2.27	D 98.8 D	35.1	31.8	2.12	26.9	0.00	0.00	0.01	0.06	171	08
200	8.77	8.75	34.019	26.394	166.6	0.456	2.01	87.3	30.7	36.3	2.24	28.8	0.00	0.00	0.00	0.04	202	07
231	8.43	8.40	34.112	26.519	155.2	0.506	1.49	64.9	22.6	42.2	2.44	31.0	0.00	0.00			233	06
250 ISL	8.13 D	8.11	34.147 D	26.591	148.6	0.522	1.30	D 56.4 D	19.6	44.9	2.52	31.8	0.00	0.00			252	
270	8.07	8.04	34.161	26.613	146.9	0.565	1.14	49.5	17.2	47.8	2.60	32.7	0.00	0.00			272	05
300 ISL	7.65 D	7.62	34.186 D	26.695	139.5	0.595	0.92	D 40.0 D	13.7	52.7	2.70	34.0	0.00	0.00			302	
321	7.50	7.47	34.203	26.729	136.4	0.637	0.77	33.4	11.4	56.1	2.77	34.9	0.00	0.00			324	04
382	6.79	6.75	34.199	26.826	127.8	0.717	0.62	27.1	9.1	64.4	2.90	37.1	0.00	0.00			385	03
400 ISL	6.76 D	6.72	34.212 D	26.841	126.6	0.728	0.59	D 25.8 D	8.7	66.5	2.93	37.5	0.00	0.00			403	
441	6.35	6.31	34.215	26.899	121.4	0.791	0.49	21.3	7.1	71.1	2.99	38.5	0.00	0.00			445	02
500 ISL	5.87 D	5.83	34.255 D	26.991	113.0	0.849	0.35	D 15.4 D	5.1	78.5	3.08	39.7	0.00	0.00			504	
516	5.86	5.81	34.260	26.997	112.7	0.878	0.32	13.8	4.6	80.5	3.11	40.0	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 49.1 N	121 50.6 W	23/01/2013	1118	UTC	3634 m	140 08 kn			1016.6 mb	15.1 C	13.5 C				061

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.19		14.19		33.332		24.859	308.3	0.000	6.00		261.3		102.7		2.9	0.34	0.1	0.01	0.04	0.41	0.09	0	
2		14.19		14.19		33.332		24.859	308.3	0.006	6.00		261.3		102.7		2.9	0.34	0.1	0.01	0.04	0.41	0.09	2	20
10	ISL	14.13	D	14.13		33.363	D	24.896	305.0	0.031	6.01		262.1		102.8		2.9	0.33	0.0	0.01	0.00	0.48	0.11	10	
11		14.14		14.14		33.360		24.893	305.4	0.034	6.02		262.2		102.9		2.9	0.33	0.0	0.01	0.00	0.48	0.11	11	19
20		14.22		14.21		33.398		24.906	304.4	0.061	6.07		264.3		103.9		2.9	0.32	0.0	0.02	0.00	0.53	0.13	20	18
30		14.26		14.25		33.423		24.918	303.6	0.092	5.93		258.3		101.6		2.9	0.33	0.1	0.02	0.03	0.57	0.17	30	17
41		14.19		14.18		33.425		24.934	302.4	0.125	5.97		260.2		102.3		2.9	0.34	0.3	0.04	0.02	0.53	0.21	41	16
50		14.17		14.16		33.427		24.940	302.1	0.152	5.84		254.4		99.9		3.0	0.36	0.5	0.05	0.14	0.42	0.18	50	15
60		13.55		13.54		33.413		25.058	291.1	0.182	5.62		244.7		94.9		3.9	0.48	2.1	0.11	0.12	0.27	0.12	60	14
70		11.16		11.15		33.349		25.466	252.3	0.209	4.81		209.4		77.2		10.0	1.06	11.4	0.05	0.00	0.13	0.12	71	13
75	ISL	10.96	D	10.95		33.403	D	25.544	245.0	0.223	4.47	D	194.5	D	71.5		11.8	1.16	13.0	0.05	0.00	0.11	0.11	76	
85		10.83		10.82		33.501		25.643	235.8	0.245	4.16		181.1		66.4		15.2	1.37	16.1	0.04	0.00	0.08	0.10	86	12
100		10.14		10.13		33.622		25.857	215.7	0.279	3.51		152.6		55.2		20.3	1.64	20.4	0.03	0.00	0.03	0.07	101	11
120		9.55		9.54		33.746		26.053	197.4	0.321	3.18		138.2		49.4		25.0	1.83	23.5	0.02	0.00	0.01	0.05	121	10
125	ISL	9.58	D	9.56		33.850	D	26.130	190.2	0.331	2.81	D	122.5	D	43.8		26.4	1.88	24.3	0.02	0.00	0.01	0.05	126	
140		9.08		9.06		33.921		26.267	177.4	0.358	2.61		113.8		40.2		30.5	2.02	26.5	0.02	0.00	0.00	0.03	141	09
150	ISL	8.99	D	8.98		33.943	D	26.297	174.7	0.377	2.50	D	108.8	D	38.4		32.3	2.06	27.2	0.01	0.00	0.00	0.03	151	
170		8.45		8.43		33.994		26.421	163.2	0.409	2.35	D	102.2	D	35.7		35.9	2.14	28.5	0.00	0.00	0.00	0.02	171	08
200		8.01		7.99		34.016		26.506	155.6	0.457	2.14		93.1		32.2		40.7	2.26	30.5	0.00	0.00	0.00	0.02	202	07
231		7.71		7.69		34.051		26.578	149.2	0.504	1.79		77.7		26.7		45.8	2.40	32.3	0.00	0.00			233	06
250	ISL	7.58	D	7.55		34.089	D	26.628	144.8	0.534	1.55	D	67.4	D	23.1		48.4	2.49	33.1	0.00	0.00			252	
271		7.46		7.44		34.104		26.656	142.4	0.562	1.32		57.5		19.6		51.2	2.58	34.0	0.00	0.00			273	05
300	ISL	7.34	D	7.32		34.140	D	26.702	138.5	0.606	1.09	D	47.4	D	16.1		54.9	2.67	35.1	0.00	0.00			302	
320		7.06		7.03		34.134		26.736	135.4	0.631	1.00		43.6		14.8		57.5	2.74	35.9	0.00	0.00			323	04
380		6.59		6.55		34.171		26.831	127.1	0.709	0.69		30.1		10.1		65.9	2.89	37.7	0.00	0.00			383	03
400	ISL	6.52	D	6.48		34.203	D	26.866	124.0	0.737	0.58	D	25.3	D	8.4		68.4	2.93	38.1	0.00	0.00			403	
440		6.26		6.22		34.231		26.921	119.2	0.783	0.45		19.6		6.5		73.2	3.02	38.9	0.00	0.00			444	02
500	ISL	5.94	D	5.90		34.272	D	26.996	112.7	0.856	0.32	D	13.9	D	4.6		79.7	3.12	40.0	0.00	0.00			504	
514		5.84		5.80		34.269		27.006	111.8	0.868	0.33		14.4		4.7		81.2	3.14	40.2	0.00	0.00			518	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 29.5 N	122 32.4 W	23/01/2013	1729	UTC	3988 m	210 11 kn	230 02 06	5	1017.2 mb	15.5 C	13.3 C	16 m	8/8	SC	062

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.28		14.28		33.348	D	24.853	308.8	0.000	5.95		259.9		102.1		2.8	0.34	0.0	0.01	0.04	0.43	0.06	0	
2	A	14.28		14.28		33.348	D	24.853	308.8	0.006	5.95		259.9		102.1		2.8	0.34	0.0	0.01	0.04	0.43	0.06	2	21
10	ISL	14.28	D	14.28		33.348	D	24.854	309.0	0.031	5.98	D	260.7	D	102.6		2.8	0.31	0.0	0.01	0.00	0.42	0.10	10	
11	A	14.28		14.28		33.338		24.847	309.7	0.031	5.96		259.6		102.1		2.8	0.31	0.0	0.01	0.00	0.41	0.11	11	20
13	A	14.28		14.28		33.340		24.848	309.6	0.037	5.96		259.7		102.2		2.8	0.32	0.0	0.01	0.00	0.39	0.09	13	19
20	ISL	14.26	D	14.26		33.356	D	24.864	308.3	0.062	5.97	D	260.1	D	102.3		2.8	0.32	0.0	0.01	0.02	0.41	0.10	20	
21		14.25		14.25		33.346		24.858	309.0	0.062	5.95		259.3		102.0		2.8	0.32	0.0	0.01	0.02	0.41	0.10	21	18
28	A	14.23		14.23		33.350		24.867	308.3	0.083	5.96		259.7		102.1		2.8	0.32	0.0	0.01	0.00	0.53	0.24	28	17
30	ISL	14.22	D	14.21		33.361	D	24.878	307.3	0.093	5.96	D	259.7	D	102.1		2.8	0.32	0.0	0.01	0.00	0.52	0.22	30	
41		14.19		14.19		33.373		24.892	306.3	0.123	5.90		257.1		101.0		2.8	0.33	0.1	0.02	0.03	0.43	0.11	41	16
50	ISL	14.29	D	14.28		33.446	D	24.930	303.1	0.155	5.82	D	253.4	D	99.8		2.8	0.35	0.3	0.04	0.09	0.42	0.16	50	
52	A	14.29		14.28		33.444		24.929	303.2	0.157	5.84		254.3		100.2		2.8	0.35	0.4	0.04	0.10	0.42	0.18	52	15
59	A	13.17		13.16		33.308		25.053	291.5	0.178	5.62		245.0		94.2		4.2	0.50	2.6	0.12	0.07	0.24	0.14	59	14
70		11.23		11.22		33.278		25.397	258.8	0.208	4.98		217.0		80.1		8.8	0.96	9.9	0.05	0.00	0.13	0.12	71	13
75	ISL	11.00	D	10.99		33.355	D	25.498	249.3	0.225	4.78	D	208.0	D	76.4		10.5	1.08	11.9	0.04	0.00	0.12	0.11	76	
85		10.71		10.70		33.443		25.619	238.0	0.245	4.30		187.1		68.4		13.8	1.33	15.8	0.03	0.00	0.09	0.09	86	12
100		9.89		9.88		33.532		25.829	218.3	0.279	4.11		179.1		64.3		17.2	1.48	18.5	0.02	0.00	0.03	0.03	101	11
120		9.28		9.26		33.635		26.009	201.4	0.321	3.86		168.0		59.6		21.1	1.62	21.1	0.02	0.00	0.01	0.02	121	10
125	ISL	9.26	D	9.25		33.664	D	26.035	199.1	0.336	3.93	D	171.1	D	60.7		21.8	1.64	21.4	0.02	0.00	0.01	0.02	126	
139		9.11		9.10		33.710		26.095	193.7	0.359	3.71		161.6		57.1		23.7	1.68	22.4	0.02	0.00	0.01	0.02	140	09
150	ISL	9.11	D	9.10		33.782	D	26.152	188.5	0.385	3.35	D	145.9	D	51.6		26.0	1.78	23.8	0.02	0.00	0.01	0.02	151	
170		8.83		8.81		33.887		26.279	176.8	0.416	2.85	D	124.1	D	43.7		30.1	1.96	26.3	0.02	0.00	0.00	0.02	171	08
200		8.45		8.43		33.995		26.424	163.6	0.467	2.25		98.0		34.2		36.5	2.18	29.3	0.02	0.00	0.00	0.02	202	07
230		8.18		8.16		34.051		26.508	156.1	0.515	1.85		80.3		27.9		41.3	2.34	31.1	0.00	0.00			232	06
250	ISL	7.93	D	7.90		34.069	D	26.561	151.3	0.552	1.74	D	75.8	D	26.2		43.8	2.40	32.0	0.00	0.00			252	
271		7.69		7.66		34.065		26.593	148.5	0.577	1.61		70.2		24.1		46.6	2.46	33.0	0.00	0.00			273	05
300	ISL	7.44	D	7.42		34.094	D	26.652	143.3	0.626	1.40	D	60.9	D	20.8		51.2	2.58	34.4	0.00	0.00			302	
321		7.23		7.20		34.110		26.695	139.4	0.649	1.16		50.6		17.2		54.5	2.66	35.4	0.00	0.00			324	04
380		6.60		6.57		34.160		26.821	128.1	0.728	0.72		31.5		10.5		65.1	2.87	38.0	0.00	0.00			383	03
400	ISL	6.46	D	6.42		34.194	D	26.867	123.9	0.760	0.61	D	26.7	D	8.9		67.9	2.92	38.4	0.00	0.00			403	
440		6.28		6.24		34.239		26.926	118.8	0.802	0.40		17.2		5.7		73.6	3.03	39.3	0.00	0.00			444	02
500	ISL	5.89	D	5.84		34.276	D	27.005	111.7	0.879	0.32	D	13.7	D	4.5		80.3	3.10	40.5	0.00	0.00			504	
516		5.78		5.73		34.268		27.013	111.1	0.889	0.29		12.7		4.2		82.1	3.12	40.8	0.00	0.00			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 STA-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 9.2 N	123 13.4 W	23/01/2013	2325 UTC	4237 m	100 15 kn	220 03 06	1	1014.5 mb	15.0 C	13.4 C		7/8	SC	063

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.73	14.73	33.228 D	24.664	326.7	0.000	5.85	255.3	101.1	2.8	0.28	0.0	0.01	0.00	0.14	0.04	0	
1	14.73	14.73	33.228 D	24.665	326.8	0.003	5.85	255.3	101.1	2.8	0.28	0.0	0.01	0.00	0.14	0.04	1	20
10 ISL	14.73 D	14.73	33.227 D	24.665	327.0	0.033	5.86	255.9	101.3	2.8	0.28	0.0	0.01	0.00	0.14	0.04	10	
11	14.73	14.72	33.219	24.660	327.5	0.034	5.86	255.3	101.3	2.8	0.28	0.0	0.01	0.00	0.14	0.04	11	19
20 ISL	14.71 D	14.71	33.227 D	24.670	326.9	0.066	5.84	254.7	101.0	2.8	0.28	0.0	0.01	0.00	0.15	0.05	20	
26	14.70	14.69	33.233	24.677	326.3	0.083	5.83	254.3	100.8	2.8	0.28	0.0	0.01	0.00	0.16	0.05	26	18
30 ISL	14.69 D	14.68	33.226 D	24.675	326.7	0.099	5.84	254.4	100.8	2.8	0.28	0.0	0.01	0.00	0.17	0.06	30	
40	14.60	14.60	33.211	24.681	326.4	0.129	5.84	254.5	100.7	2.8	0.29	0.0	0.01	0.00	0.21	0.07	40	17
50	14.48	14.47	33.201	24.701	324.8	0.162	5.87	256.0	101.0	2.8	0.30	0.0	0.01	0.00	0.23	0.07	50	16
62	14.38	14.37	33.200	24.723	323.2	0.201	5.86	255.4	100.6	2.8	0.29	0.0	0.01	0.00	0.27	0.10	63	15
74	14.07	14.06	33.190	24.779	318.1	0.239	5.87	256.0	100.2	2.8	0.31	0.0	0.02	0.02	0.28	0.13	75	14
75 ISL	13.93 D	13.93	33.215 D	24.825	313.7	0.245	5.76	D251.1 D	98.1	2.9	0.32	0.1	0.03	0.02	0.27	0.13	76	
87	12.71	12.69	33.224	25.080	289.7	0.279	5.75	250.6	95.4	4.0	0.43	1.6	0.14	0.00	0.15	0.15	88	13
100 ISL	11.65 D	11.66	33.200 D	25.258	272.9	0.319	5.42	D236.2 D	88.0	6.0	0.65	5.0	0.04	0.00	0.12	0.11	101	
101	11.32	11.30	33.178	25.305	268.3	0.318	5.49	239.3	88.4	6.2	0.67	5.3	0.03	0.00	0.12	0.11	102	12
112	10.72	10.70	33.322	25.524	247.7	0.346	5.27	229.3	83.7	7.8	0.79	7.9	0.02	0.00	0.06	0.06	113	11
125 ISL	9.77 D	9.76	33.493 D	25.818	219.9	0.380	4.48	D194.8 D	69.8	13.8	1.19	14.4	0.01	0.00	0.03	0.03	126	
126	9.79	9.77	33.460	25.790	222.5	0.379	4.65	202.5	72.5	14.3	1.22	14.9	0.01	0.00	0.02	0.03	127	10
140	9.42	9.41	33.586	25.949	207.7	0.409	4.37	190.4	67.7	17.7	1.37	17.6	0.00	0.00	0.01	0.02	141	09
150 ISL	9.22 D	9.20	33.699 D	26.071	196.3	0.433	4.11	D178.8 D	63.4	19.9	1.46	19.1	0.00	0.00	0.01	0.02	151	
170	8.91	8.89	33.765	26.171	187.1	0.467	3.68	D160.0 D	56.4	24.3	1.65	22.1	0.00	0.00	0.00	0.02	171	08
200 ISL	8.69 D	8.67	33.884 D	26.299	175.5	0.526	3.60	D156.8 D	55.0	27.0	1.68	23.0	0.00	0.00	0.00	0.02	202	
201	8.69	8.67	33.885	26.301	175.3	0.524	3.74	162.9	57.1	27.1	1.68	23.0	0.00	0.00	0.00	0.02	203	07
230	7.97	7.94	33.937	26.451	161.4	0.572	3.28	142.7	49.2	34.5	1.91	26.4	0.00	0.00			232	06
250 ISL	7.73 D	7.71	33.963 D	26.506	156.4	0.609	2.95	D128.1 D	44.0	39.1	2.06	28.4	0.00	0.00			252	
271	7.37	7.34	33.976	26.568	150.6	0.636	2.50	108.9	37.1	43.8	2.21	30.5	0.00	0.00			273	05
300 ISL	6.89 D	6.86	33.994 D	26.649	143.1	0.684	2.18	D 94.8 D	31.9	50.4	2.38	32.8	0.00	0.00			302	
321	6.60	6.57	33.998	26.692	139.2	0.709	1.89	82.2	27.5	55.1	2.50	34.4	0.00	0.00			324	04
380	6.30	6.26	34.070	26.789	130.7	0.788	1.11	48.2	16.0	64.7	2.78	37.5	0.00	0.00			383	03
400 ISL	6.06 D	6.02	34.093 D	26.838	126.2	0.820	0.95	D 41.2 D	13.6	67.4	2.84	38.1	0.00	0.00			403	
440	6.01	5.97	34.153	26.893	121.6	0.864	0.63	27.4	9.0	73.0	2.97	39.3	0.00	0.00			444	02
500 ISL	5.55 D	5.51	34.173 D	26.965	115.1	0.941	0.55	D 23.8 D	7.8	80.7	3.06	40.5	0.00	0.00			504	
516	5.49	5.45	34.177	26.976	114.2	0.953	0.49	21.2	6.9	82.7	3.08	40.8	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 49.4 N	123 54.3 W	24/01/2013	0527 UTC	4417 m	110 09 kn			1015.6 mb	14.9 C	14.4 C				064

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.45	14.45	33.239	24.733	320.3	0.000	5.88	256.0	101.1	2.7	0.30	0.0	0.01	0.02	0.17	0.05	0	
2	14.45	14.45	33.239	24.733	320.3	0.006	5.88	256.0	101.1	2.7	0.30	0.0	0.01	0.02	0.17	0.05	2	20
10	14.46	14.46	33.212	24.711	322.6	0.032	5.87	256.0	101.0	2.7	0.30	0.0	0.01	0.01	0.16	0.05	10	19
20	14.46	14.46	33.202	24.704	323.6	0.064	5.87	256.0	101.0	2.7	0.30	0.0	0.01	0.00	0.16	0.05	20	18
30	14.33	14.33	33.207	24.735	320.9	0.097	5.89	256.7	101.0	2.7	0.30	0.0	0.01	0.00	0.19	0.06	30	17
40	14.24	14.23	33.205	24.754	319.5	0.129	5.89	256.8	100.9	2.7	0.31	0.0	0.01	0.01	0.26	0.13	40	16
50 ISL	14.20 D	14.19	33.212 D	24.769	318.4	0.162	5.90	256.7	100.9	2.7	0.30	0.0	0.02	0.00	0.30	0.14	50	
51	14.20	14.19	33.203	24.762	319.1	0.164	5.90	257.1	100.9	2.7	0.30	0.0	0.02	0.00	0.31	0.14	51	15
60	14.08	14.07	33.203	24.788	316.9	0.192	5.86	255.5	100.0	2.7	0.32	0.0	0.02	0.04	0.29	0.13	60	14
70	13.44	13.43	33.162	24.887	307.6	0.224	5.94	258.9	100.0	3.1	0.34	0.3	0.07	0.04	0.34	0.15	71	13
75 ISL	12.80 D	12.79	33.193 D	25.038	293.3	0.240	5.84	D254.2 D	96.9	3.9	0.44	1.7	0.06	0.03	0.27	0.14	76	
85	11.73	11.72	33.145	25.203	277.7	0.267	5.57	242.4	90.4	5.7	0.63	4.5	0.04	0.00	0.13	0.10	86	12
100	10.94	10.93	33.255	25.432	256.2	0.307	5.12	222.8	81.7	8.9	0.91	9.3	0.03	0.00	0.08	0.07	101	11
120	10.13	10.12	33.420	25.701	230.9	0.356	4.74	206.2	74.4	12.9	1.16	13.7	0.02	0.00	0.03	0.03	121	10
125 ISL	9.84 D	9.81	33.497 D	25.813	220.3	0.369	4.69	D204.4 D	73.3	15.1	1.28	15.5	0.02	0.00	0.03	0.03	126	
141	9.39	9.38	33.654	26.007	202.2	0.401	3.74	162.9	57.9	21.8	1.65	21.3	0.00	0.00	0.01	0.02	142	09
150 ISL	9.39 D	9.38	33.695 D	26.039	199.3	0.421	3.54	D154.1 D	54.8	23.9	1.74	22.6	0.00	0.00	0.01	0.02	151	
170	9.06	9.04	33.861	26.224	182.2	0.457	2.89	D125.8 D	44.5	28.5	1.95	25.6	0.00	0.00	0.00	0.02	171	08
200 ISL	8.46 D	8.44	33.986 D	26.415	164.4	0.512	2.41	D105.0 D	36.6	35.0	2.14	28.5	0.00	0.00	0.00	0.02	202	
201	8.45	8.43	33.978	26.410	164.8	0.511	2.40	104.5	36.5	35.2	2.15	28.6	0.00	0.00	0.00	0.02	203	07
233	8.15	8.13	34.039	26.503	156.6	0.562	2.01	87.5	30.3	40.3	2.29	30.4	0.00	0.00			235	06
250 ISL	7.92 D	7.89	34.090 D	26.579	149.6	0.591	1.68	D 73.2 D	25.2	43.5	2.39	31.5	0.00	0.00			252	
271	7.77	7.74	34.102	26.611	146.9	0.619	1.44	62.7	21.6	47.4	2.52	32.8	0.00	0.00			273	05
300 ISL	7.43 D	7.40	34.124 D	26.677	141.0	0.665	1.24	D 53.8 D	18.4	51.6	2.62	34.1	0.00	0.00			302	
322	7.27	7.23	34.137	26.711	138.0	0.692	1.04	45.0	15.3	54.7	2.70	35.1	0.00	0.00			325	04
380	6.74	6.70	34.156	26.799	130.3	0.769	0.76	33.1	11.1	63.0	2.86	37.2	0.00	0.00			383	03
400 ISL	6.59 D	6.54	34.179 D	26.839	126.6	0.799	0.68	D 29.5 D	9.9	65.8	2.90	37.7	0.00	0.00			403	
442	6.20	6.16	34.182	26.891	122.0	0.847	0.56	24.2	8.0	71.6	2.99	38.9	0.00	0.00			446	02
500 ISL	5.89 D	5.85	34.239 D	26.976	114.5	0.921	0.40	D 17.6 D	5.8	78.8	3.09	40.1	0.00	0.00			504	
515	5.76	5.71	34.232	26.988	113.4	0.933	0.35	15.4	5.1	80.6	3.12	40.4	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 81.7 43.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 23.3 N	119 48.4 W	22/01/2013	1348 UTC	54 m	090 01 kn			1018.0 mb	13.6 C	10.7 C				055

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.43	12.43	33.550	25.381	258.6	0.000	6.14	267.5	101.5	7.3	0.67	4.2	0.11	0.03	3.34	0.92	0	
2	12.43	12.43	33.550	25.381	258.6	0.005	6.14	267.5	101.5	7.3	0.67	4.2	0.11	0.03	3.34	0.92	2	06
5	12.43	12.43	33.553	25.384	258.4	0.013	6.12	266.4	101.1	7.2	0.68	4.3	0.11	0.05	3.19	0.91	5	05
10	12.38	12.38	33.551	25.392	257.8	0.026	6.01	261.7	99.2	7.4	0.72	4.9	0.13	0.06	2.55	0.93	10	04
20	12.18	12.17	33.556	25.435	253.9	0.052	5.55	241.7	91.2	8.4	0.86	6.9	0.22	0.25	1.65	0.79	20	03
30	12.03	12.02	33.564	25.471	250.8	0.077	5.33	232.0	87.3	9.5	0.95	8.3	0.27	0.35	1.01	0.67	30	02
40	11.83	11.82	33.560	25.506	247.8	0.102	4.87	211.9	79.4	11.0	1.06	9.9	0.37	0.33	0.64	0.43	40	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
34 16.8 N	120 1.9 W	22/01/2013	1716 UTC	573 m	100 09 kn	340 01 06	1	1018.7 mb	15.2 C	12.3 C	09 m	2/8	CS	056

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		12.29		12.28		33.550		25.410	255.8	0.000	6.40		278.5		105.4		8.4	0.72	4.3	0.09	0.22	3.27	0.81	0	
1	A	12.29		12.28		33.550		25.410	255.8	0.003	6.40		278.5		105.4		8.4	0.72	4.3	0.09	0.22	3.27	0.81	1	24
6	A	12.24		12.24		33.550		25.418	255.2	0.015	6.35		276.5		104.5		8.3	0.70	4.4	0.09	0.04	3.13	0.78	6	23
8	A	12.21		12.20		33.549		25.424	254.6	0.021	6.32		275.3		103.9		8.3	0.72	4.7	0.09	0.07	2.77	0.77	8	22
10	ISL	12.13	D	12.13		33.557	D	25.445	252.8	0.026	6.14	D	267.4	D	100.8		8.4	0.76	5.3	0.11	0.06	2.42	0.81	10	
16	A	12.02		12.01		33.546		25.459	251.6	0.041	5.77		251.4		94.6		8.8	0.86	7.1	0.15	0.01	1.37	0.92	16	21
20	ISL	11.83	D	11.82		33.554	D	25.502	247.6	0.051	5.66	D	246.3	D	92.2		9.3	0.95	8.6	0.22	0.06	1.04	0.70	20	
22		11.74		11.74		33.543		25.508	247.0	0.056	5.27		229.5		85.8		9.6	1.00	9.4	0.26	0.09	0.87	0.59	22	20
29	A	11.57		11.57		33.540		25.537	244.4	0.073	5.10		222.0		82.7		10.0	1.06	10.2	0.26	0.27	0.63	0.42	29	19
30	ISL	11.54	D	11.52		33.553	D	25.555	242.7	0.076	5.06	D	220.3	D	82.0		10.4	1.08	10.6	0.27	0.26	0.59	0.43	30	
33	A	11.48		11.48		33.554		25.564	242.0	0.083	4.88		212.7		79.1		11.6	1.15	11.6	0.29	0.23	0.47	0.45	33	18
42		10.98		10.97		33.622		25.709	228.4	0.104	3.77		163.9		60.3		17.8	1.50	17.2	0.17	0.00	0.17	0.18	42	17
50	ISL	10.84	D	10.85		33.654	D	25.756	224.1	0.123	3.63	D	158.2	D	58.1		18.8	1.54	17.7	0.21	0.00	0.14	0.19	50	
51		10.83		10.82		33.649		25.757	224.1	0.124	3.67		159.9		58.7		19.0	1.55	17.8	0.21	0.00	0.14	0.19	51	16
60		10.64		10.63		33.681		25.815	218.8	0.144	3.49		152.0		55.6		20.6	1.62	19.0	0.21	0.00	0.11	0.20	60	15
75		10.22		10.21		33.712		25.913	209.8	0.176	3.07		133.6		48.4		23.2	1.78	21.8	0.04	0.00	0.06	0.15	76	14
100		9.86		9.84		33.862		26.092	193.3	0.226	2.49		108.4		39.0		27.7	2.00	24.7	0.03	0.00	0.03	0.12	101	13
121		9.52		9.50		33.938		26.208	182.8	0.266	2.26		98.1		35.1		30.5	2.11	26.1	0.06	0.00	0.03	0.11	122	12
125	ISL	9.49	D	9.48		33.966	D	26.234	180.3	0.275	2.20	D	95.7	D	34.2		31.1	2.13	26.4	0.06	0.00	0.02	0.11	126	
140		9.31		9.30		33.995		26.287	175.6	0.300	2.05		89.3		31.8		33.3	2.19	27.3	0.05	0.00	0.02	0.11	141	11
150	ISL	9.18	D	9.16		34.036	D	26.340	170.7	0.319	1.97	D	85.7	D	30.4		34.2	2.22	27.7	0.04	0.00	0.02	0.10	151	
170		9.03		9.01		34.054		26.379	167.4	0.351	1.88		81.7		28.9		36.0	2.27	28.4	0.01	0.00	0.01	0.08	171	10
200	ISL	8.87	D	8.85		34.100	D	26.441	162.2	0.403	1.59	D	69.0	D	24.3		39.3	2.37	29.5	0.00	0.00	0.02	0.10	202	
201		8.84		8.82		34.090		26.438	162.4	0.402	1.61		69.9		24.6		39.4	2.37	29.5	0.00	0.00	0.02	0.10	203	09
230		8.73		8.70		34.128		26.486	158.5	0.449	1.24	D	53.9	D	18.9		42.9	2.48	30.6	0.00	0.00			232	08
250	ISL	8.65	D	8.63		34.185	D	26.543	153.5	0.483	0.91	D	39.4	D	13.8		47.9	2.63	31.4	0.00	0.00			252	
270		8.50		8.47		34.194		26.575	150.8	0.510	0.57		24.8		8.7		52.9	2.77	32.2	0.00	0.00			272	07
300	ISL	8.16	D	8.13		34.218	D	26.646	144.4	0.558	0.41	D	17.6	D	6.1		58.2	2.88	32.8	0.00	0.00			302	
320		7.92		7.89		34.214		26.679	141.6	0.583	0.33		14.3		4.9		61.8	2.95	33.2	0.00	0.00			323	06
380		7.38		7.35		34.228		26.768	133.8	0.666	0.20		8.7		3.0		71.6	3.11	32.8	0.00	0.00			383	05
400	ISL	7.08	D	7.04		34.222	D	26.806	130.3	0.696	0.32	D	14.1	D	4.8		76.0	3.19	31.7	0.00	0.00			403	
480		6.64		6.60		34.241		26.882	124.0	0.794	0.08		3.4		1.1		93.7	3.52	27.1	0.00	0.00			484	04
500	ISL	6.60	D	6.55		34.250	D	26.895	123.0	0.823	0.03	D	1.3	D	0.4		101.2	3.73	21.9	0.38	0.00			504	
514		6.58		6.53		34.242		26.891	123.6	0.836	0.00		0.0		0.0		106.3	3.87	18.3	0.64	0.00			518	03
568		6.53		6.48		34.240		26.897	123.8	0.903	0.02		0.7		0.3		108.3	3.91	17.6	0.00	0.00			573	02

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
B) SANTA BARBARA BASIN STATION.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
34 16.1 N	119 25.1 W	22/01/2013	1101 UTC	35 m	340 04 kn			1018.3 mb						054

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		12.52		12.52		33.552		25.366	260.0	0.000	5.97		260.2		98.9		8.5	0.74	5.1	0.18	0.00	1.40	0.74	0	
2		12.52		12.52		33.552		25.366	260.0	0.005	5.97		260.2		98.9		8.5	0.74	5.1	0.18	0.00	1.40	0.74	2	06
6		12.50		12.50		33.547		25.365	260.2	0.016	5.94		258.9		98.4		8.6	0.73	5.2	0.18	0.00	1.39	0.75	6	05
10		12.31		12.30		33.546		25.403	256.7	0.026	5.69		248.0		93.8		9.3	0.80	6.3	0.22	0.00	1.31	0.91	10	03
10		12.31		12.30		33.551		25.407	256.4	0.026														10	04
20		11.90		11.90		33.556		25.488	248.9	0.051	4.85		211.1		79.2		11.2	1.06	9.7	0.48	0.11	1.45	0.80	20	02
30		11.73		11.73		33.572		25.532	244.9	0.076	4.52		197.0		73.7		14.2	1.35	11.0	0.53	0.78	0.69	0.67	30	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 13.7 N	119 25.5 W	22/01/2013	0937 UTC	33 m	330 01 kn			1018.4 mb	14.8 C	10.4 C				053

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		12.69		12.68		33.542		25.326	263.8	0.000	6.31		275.0		104.9		6.2	0.58	2.8	0.09	0.04	2.28	0.96	0	
2		12.69		12.68		33.542		25.326	263.8	0.005	6.31		275.0		104.9		6.2	0.58	2.8	0.09	0.04	2.28	0.96	2	06
5		12.55		12.55		33.534		25.346	262.0	0.013	6.16		268.1		102.0		6.1	0.62	3.3	0.10	0.00	2.12	1.10	5	05
10		12.40		12.40		33.533		25.374	259.4	0.026														10	04
10		12.40		12.40		33.533		25.374	259.5	0.026	5.63		245.3		93.0		7.0	0.77	5.6	0.22	0.03	1.67	0.96	10	03
20		12.13		12.12		33.543		25.436	253.9	0.052	5.42		236.1		89.0		9.4	0.88	7.3	0.27	0.08	1.39	0.91	20	02
30		11.98		11.97		33.548		25.468	251.1	0.077	5.09		221.5		83.2		10.3	0.97	8.7	0.37	0.08	1.00	0.85	30	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 83.3 42.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 10.8 N	119 30.3 W	22/01/2013	0729 UTC	109 m	020 01 kn			1018.8 mb	14.0 C	12.3 C				052

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.78	12.78	33.541	25.307	265.6	0.000	6.16	268.5	102.6	6.4	0.61	3.4	0.14	0.03	1.99	0.64	0	
2	12.78	12.78	33.541	25.307	265.6	0.005	6.16	268.5	102.6	6.4	0.61	3.4	0.14	0.03	1.99	0.64	2	11
10	12.51	12.50	33.532	25.354	261.4	0.026	5.68	247.6	94.1	6.6	0.72	5.0	0.29	0.06	1.05	0.65	10	09
10	12.51	12.50	33.533	25.354	261.3	0.027											10	10
20	12.25	12.25	33.537	25.407	256.6	0.052	5.22	227.5	86.0	8.2	0.89	7.0	0.49	0.43	0.79	0.43	20	08
30	12.18	12.17	33.543	25.427	255.0	0.078	5.19	226.1	85.3	8.4	0.92	7.3	0.43	0.65	0.51	0.30	30	07
40	12.05	12.04	33.552	25.458	252.4	0.103	5.10	222.0	83.6	9.0	0.98	8.2	0.34	0.70	0.35	0.26	40	06
50	11.95	11.94	33.559	25.483	250.2	0.128	4.88	212.5	79.8	10.3	1.05	9.6	0.33	0.54	0.26	0.22	50	05
60	11.48	11.48	33.585	25.590	240.3	0.153	3.93	171.2	63.7	15.7	1.38	14.8	0.30	0.01	0.20	0.18	60	04
70	10.51	10.50	33.734	25.880	212.9	0.176	3.11	135.4	49.4	22.2	1.77	20.9	0.14	0.00	0.10	0.15	71	03
75 ISL	10.31 D	10.31	33.746 D	25.923	208.8	0.174	2.99	D130.3 D	47.3	23.3	1.83	21.7	0.13	0.10	0.09	0.15	76	
85	10.01	10.00	33.807	26.022	199.6	0.207	2.71	117.9	42.5	25.7	1.94	23.3	0.12	0.31	0.08	0.16	86	02
100	9.86	9.85	33.847	26.079	194.5	0.236	2.51	109.4	39.4	28.0	2.01	24.1	0.12	0.21	0.07	0.21	101	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 83.3 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 52.5 N	120 7.5 W	22/01/2013	0145 UTC	96 m	200 09 kn			1017.1 mb	15.1 C	12.4 C				051

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.77	12.77	33.520	25.292	267.1	0.000	5.99	261.1	99.7	3.6	0.58	3.1	0.13	0.55	0.69	0.18	0	
3	12.77	12.77	33.520	25.292	267.1	0.008	5.99	261.1	99.7	3.6	0.58	3.1	0.13	0.55	0.69	0.18	3	10
10	12.53	12.52	33.526	25.345	262.2	0.027											10	09
10	12.53	12.52	33.524	25.344	262.4	0.027	5.81	253.0	96.2	4.9	0.67	4.5	0.15	0.54	0.87	0.23	10	08
20	12.14	12.14	33.520	25.415	255.9	0.052	5.54	241.3	91.0	7.3	0.83	7.1	0.18	0.34	0.96	0.45	20	07
30	12.07	12.06	33.539	25.444	253.4	0.078	5.40	235.3	88.6	8.0	0.87	7.6	0.19	0.41	0.85	0.40	30	06
40	11.80	11.80	33.579	25.525	245.9	0.103	4.97	216.3	81.0	10.7	1.03	9.6	0.22	0.64	0.47	0.33	40	05
50	11.63	11.62	33.618	25.589	240.1	0.127	4.63	201.4	75.2	13.2	1.17	11.3	0.22	0.72	0.32	0.37	50	04
60	11.28	11.27	33.652	25.679	231.7	0.151	4.25	184.8	68.5	16.0	1.32	13.7	0.21	0.60	0.29	0.37	60	03
71	10.62	10.61	33.732	25.860	214.8	0.175	3.46	150.8	55.1	21.4	1.62	18.5	0.18	0.33	0.18	0.34	72	02
75 ISL	10.33 D	10.32	33.782 D	25.949	206.4	0.172	3.19	D139.0 D	50.5	23.6	1.72	20.2	0.16	0.27	0.16	0.34	76	
84	9.85	9.84	33.858	26.089	193.2	0.202	2.60	113.2	40.7	28.4	1.96	23.9	0.12	0.14	0.13	0.35	85	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 44.9 N	120 24.4 W	21/01/2013	2159 UTC	987 m	060 08 kn	020 02 06	1	1018.1 mb	16.1 C	13.1 C	15 m	1/8	ST	050

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.24	14.23	33.342	24.858	308.4	0.000	6.06	264.1	103.9	3.0	0.33	0.1	0.02	0.15	0.60	0.16	0	
2	14.24	14.23	33.342	24.858	308.4	0.006	6.06	264.1	103.9	3.0	0.33	0.1	0.02	0.15	0.60	0.16	2	21
10	13.68	13.68	33.341	24.972	297.7	0.030											10	20
10	13.68	13.68	33.340	24.971	297.8	0.030	6.16	268.2	104.3	3.5	0.35	0.4	0.03	0.06	0.79	0.22	10	19
20	12.77	12.77	33.351	25.163	279.9	0.059	6.05	263.4	100.5	5.0	0.51	2.6	0.10	0.00	1.15	0.31	20	18
30	12.35	12.34	33.377	25.265	270.4	0.087	5.75	250.4	94.7	6.0	0.66	4.8	0.19	0.01	0.95	0.51	30	17
40	12.27	12.26	33.395	25.294	267.9	0.114	5.70	248.2	93.8	6.3	0.70	5.3	0.21	0.21	0.86	0.56	40	16
50	12.11	12.10	33.424	25.347	263.1	0.140	5.56	242.3	91.2	6.7	0.76	6.3	0.35	0.02	0.55	0.43	50	15
60	11.62	11.61	33.450	25.460	252.6	0.166	4.90	213.2	79.5	9.8	1.02	10.4	0.25	0.04	0.23	0.23	60	14
70	11.07	11.06	33.513	25.608	238.7	0.191	4.06	176.6	65.1	14.9	1.37	15.9	0.05	0.10	0.09	0.13	71	13
75 ISL	10.88 D	10.87	33.545 D	25.667	233.2	0.192	3.84	D167.1 D	61.3	16.1	1.43	16.9	0.04	0.08	0.07	0.11	76	
85	10.53	10.52	33.579	25.755	225.0	0.225	3.64	158.6	57.8	18.3	1.56	18.9	0.02	0.03	0.04	0.09	86	12
100	10.05	10.03	33.676	25.915	210.1	0.258	3.23	140.7	50.8	22.2	1.75	21.8	0.02	0.01	0.02	0.08	101	11
120	9.39	9.38	33.788	26.111	191.9	0.298	3.01	130.8	46.6	26.1	1.87	24.2	0.01	0.00	0.00	0.03	121	10
125 ISL	9.27 D	9.25	33.816 D	26.153	187.9	0.297	2.96	D128.8 D	45.7	27.1	1.91	24.8	0.01	0.02	0.00	0.04	126	
140	9.08	9.06	33.886	26.239	180.1	0.335	2.61	113.7	40.2	30.3	2.03	26.5	0.01	0.07	0.00	0.05	141	09
150 ISL	9.15 D	9.13	34.011 D	26.325	172.1	0.342	2.13	D 92.7 D	32.9	32.4	2.09	27.3	0.01	0.05	0.00	0.06	151	
171	8.65	8.64	34.018	26.409	164.5	0.388	2.05	D 89.0 D	31.2	36.6	2.23	29.0	0.01	0.00	0.01	0.07	172	08
200	8.27	8.24	34.077	26.516	154.8	0.435	1.69	73.4	25.5	42.1	2.38	31.0	0.01	0.00	0.01	0.06	202	07
230	8.06	8.04	34.106	26.571	150.1	0.480	1.50	65.0	22.5	45.0	2.47	31.9	0.02	0.10			232	06
250 ISL	7.90 D	7.88	34.124 D	26.607	146.9	0.500	1.38	D 60.0 D	20.7	47.1	2.53	32.6	0.03	0.05			252	
270	7.84	7.81	34.143	26.633	144.8	0.539	1.19	51.9	17.9	49.3	2.59	33.3	0.04	0.00			272	05
300 ISL	7.60 D	7.57	34.178 D	26.695	139.3	0.573	0.99	D 42.9 D	14.7	52.9	2.69	34.3	0.02	0.00			302	
320	7.47	7.43	34.186	26.722	137.1	0.609	0.87	38.0	13.0	55.3	2.75	34.9	0.00	0.00			323	04
380	7.03	7.00	34.212	26.804	130.1	0.690	0.65	28.3	9.6	61.7	2.87	36.5	0.00	0.00			383	03
400 ISL	6.92 D	6.88	34.236 D	26.838	127.1	0.707	0.57	D 24.8 D	8.4	64.0	2.91	37.0	0.00	0.00			403	
440	6.63	6.59	34.248	26.888	122.7	0.765	0.45	19.6	6.6	68.7	2.99	37.9	0.00	0.00			444	02
500 ISL	6.18 D	6.13	34.289 D	26.980	114.5	0.829	0.33	D 14.4 D	4.8	76.9	3.09	39.3	0.00	0.02			504	
514	6.13	6.09	34.290	26.987	114.0	0.852	0.30	12.9	4.3	78.8	3.11	39.6	0.00	0.02			518	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 83.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 34.6 N	120 45.3 W	21/01/2013	1743 UTC	1357 m	360 07 kn	310 01 11	1	1019.2 mb	14.2 C	12.8 C	12 m	1/8	CS	049

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.07		13.07	33.364	25.113	284.1	0.000	6.25		272.4		104.6		5.1	0.49	1.9	0.06	0.28	2.07	0.41	0	
2	A	13.07		13.07	33.364	25.113	284.1	0.006	6.25		272.4		104.6		5.1	0.49	1.9	0.06	0.28	2.07	0.41	2	23
8	A	12.97		12.97	33.373	25.140	281.7	0.023	6.27		273.2		104.7		5.4	0.51	2.2	0.06	0.13	2.17	0.46	8	22
10	ISL	12.74	D	12.74	33.386	D 25.195	276.5	0.029	6.17	D	268.9	D	102.6		5.6	0.52	2.5	0.07	0.06	1.81	0.48	10	
11	A	12.73		12.73	33.379	25.191	276.9	0.031	6.16		268.3		102.3		5.6	0.53	2.7	0.07	0.02	1.64	0.49	11	20
12		12.72		12.71	33.379	25.194	276.6	0.033														12	21
20	ISL	12.39	D	12.39	33.420	D 25.290	267.7	0.043	5.88	D	256.2	D	97.0		6.3	0.67	4.9	0.20	0.02	1.01	0.49	20	
21	A	12.37		12.37	33.423	25.296	267.2	0.058	5.78		251.9		95.4		6.3	0.69	5.1	0.21	0.02	0.95	0.49	21	19
30		12.09		12.09	33.421	25.347	262.6	0.082	5.48		238.5		89.8		7.5	0.82	7.1	0.27	0.05	0.63	0.43	30	18
39	A	12.07		12.06	33.464	25.386	259.1	0.106	5.45		237.3		89.3		7.3	0.84	7.2	0.35	0.19	0.31	0.28	39	17
44	A	11.80		11.79	33.455	25.430	255.1	0.119	5.08		221.1		82.7		8.9	0.97	9.4	0.27	0.15	0.19	0.19	44	16
50	ISL	11.68	D	11.68	33.481	D 25.472	251.2	0.122	5.02	D	218.6	D	81.6		9.2	1.00	9.6	0.29	0.26	0.21	0.21	50	
52		11.64		11.64	33.496	25.490	249.5	0.139	5.19		225.9		84.3		9.2	1.01	9.7	0.29	0.30	0.22	0.22	52	15
60		10.99		10.98	33.468	25.588	240.4	0.158	4.50		196.1		72.1		12.6	1.25	14.2	0.13	0.03	0.13	0.14	60	14
70		10.63		10.62	33.496	25.673	232.5	0.182	4.07		177.2		64.7		15.3	1.42	17.0	0.04	0.00	0.07	0.09	71	13
75	ISL	10.45	D	10.44	33.521	D 25.724	227.7	0.182	4.01	D	174.5	D	63.4		17.4	1.52	18.3	0.03	0.00	0.05	0.09	76	
85		10.27		10.26	33.668	25.869	214.2	0.216	3.21		139.8		50.7		21.6	1.71	21.0	0.02	0.00	0.02	0.08	86	12
100		9.94		9.93	33.733	25.977	204.2	0.247	3.02		131.5		47.4		24.1	1.83	22.9	0.02	0.00	0.01	0.08	101	11
120		9.35		9.33	33.807	26.133	189.7	0.286	2.85		124.0		44.1		27.4	1.94	25.2	0.02	0.00	0.01	0.07	121	10
125	ISL	9.27	D	9.25	33.842	D 26.173	186.0	0.285	2.76	D	120.3	D	42.7		28.3	1.97	25.6	0.02	0.00	0.01	0.07	126	
140		9.02		9.00	33.892	26.253	178.7	0.323	2.57		111.6		39.4		30.9	2.05	26.9	0.02	0.00	0.01	0.07	141	09
150	ISL	8.93	D	8.92	33.922	D 26.290	175.4	0.330	2.51	D	109.3	D	38.6		32.3	2.09	27.5	0.01	0.00	0.01	0.06	151	
169		8.64		8.63	33.978	26.380	167.2	0.373	2.36		102.6		36.0		35.0	2.17	28.6	0.00	0.00	0.01	0.05	170	08
200		8.48		8.46	34.045	26.458	160.3	0.424	1.87		81.4		28.4		38.8	2.31	30.1	0.00	0.00	0.00	0.06	202	07
230		8.25		8.22	34.106	26.543	152.8	0.471	1.52		66.3		23.1		43.3	2.45	31.6	0.00	0.00			232	06
250	ISL	7.97	D	7.94	34.141	D 26.612	146.5	0.491	1.26	D	54.7	D	18.9		47.3	2.56	32.8	0.00	0.00			252	
270		7.82		7.80	34.174	26.660	142.3	0.530	1.00		43.6		15.0		51.2	2.67	34.0	0.00	0.00			272	05
300	ISL	7.61	D	7.58	34.201	D 26.712	137.8	0.562	0.84	D	36.4	D	12.5		54.2	2.74	34.8	0.00	0.00			302	
320		7.42		7.39	34.196	26.735	135.8	0.599	0.79		34.2		11.7		56.3	2.78	35.4	0.00	0.00			323	04
380		6.67		6.64	34.185	26.831	127.2	0.678	0.68		29.4		9.9		64.7	2.90	37.6	0.00	0.00			383	03
400	ISL	6.50	D	6.46	34.189	D 26.857	124.9	0.695	0.63	D	27.4	D	9.1		67.7	2.95	38.2	0.00	0.00			403	
441		6.13		6.09	34.214	26.925	118.6	0.753	0.46		19.9		6.6		73.9	3.04	39.4	0.00	0.00			445	02
500	ISL	5.86	D	5.82	34.275	D 27.007	111.5	0.813	0.32	D	14.1	D	4.6		80.0	3.13	40.3	0.00	0.00			504	
515		5.82		5.77	34.276	27.015	111.0	0.838	0.29		12.5		4.1		81.6	3.15	40.5	0.00	0.00			519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 14.7 N	121 26.6 W	21/01/2013	1133 UTC	3745 m	320 03 kn			1017.7 mb	14.8 C	12.1 C				048

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.48		14.48	33.368	24.826	311.4	0.000	5.91		257.5		101.8		2.6	0.31	0.0	0.01	0.02	0.34	0.07	0	
2		14.48		14.48	33.368	24.826	311.4	0.006	5.91		257.5		101.8		2.6	0.31	0.0	0.01	0.02	0.34	0.07	2	22
10		14.56		14.56	33.419	24.850	309.4	0.031														10	21
10		14.56		14.56	33.421	24.851	309.3	0.031	5.94		259.0		102.6		2.6	0.30	0.0	0.01	0.00	0.44	0.10	10	20
20		14.47		14.46	33.452	24.895	305.4	0.062	5.96		259.6		102.6		2.5	0.30	0.0	0.01	0.00	0.50	0.12	20	19
30		14.41		14.41	33.458	24.912	304.1	0.092	5.93		258.4		102.1		2.6	0.31	0.0	0.01	0.00	0.61	0.17	30	18
39		14.39		14.38	33.464	24.922	303.4	0.120	5.82		253.7		100.1		2.7	0.34	0.3	0.04	0.11	0.55	0.20	39	17
50		14.29		14.28	33.458	24.939	302.2	0.153	5.80		252.9		99.6		2.8	0.35	0.5	0.05	0.08	0.46	0.19	50	16
60		12.66		12.66	33.262	25.116	285.4	0.182	5.59		243.6		92.7		4.8	0.56	3.5	0.11	0.00	0.22	0.14	60	15
70		11.75		11.74	33.169	25.218	275.9	0.210	5.43		236.6		88.3		6.3	0.70	5.8	0.05	0.00	0.17	0.14	71	14
75	ISL	11.33	D	11.32	33.206	D 25.324	265.9	0.213	5.33	D	232.3	D	85.9		7.1	0.78	7.1	0.04	0.00	0.15	0.12	76	
85		10.93		10.92	33.248	25.428	256.2	0.250	5.11		222.6		81.6		8.8	0.93	9.6	0.03	0.00	0.11	0.09	86	13
100		10.50		10.49	33.496	25.696	231.0	0.286	3.95	D	172.1	D	62.6		15.5	1.39	16.8	0.02	0.00	0.06	0.06	101	12
120		10.00		9.98	33.659	25.910	211.0	0.331	3.38		147.1		53.0		21.3	1.70	21.4	0.01	0.00	0.02	0.03	121	11
125	ISL	9.92	D	9.90	33.727	D 25.977	204.8	0.330	3.35	D	145.7	D	52.4		22.2	1.74	22.0	0.01	0.00	0.02	0.03	126	
140		9.76		9.74	33.782	26.048	198.4	0.371	2.92		127.1		45.6		24.9	1.87	23.7	0.01	0.00	0.01	0.03	141	10
150	ISL	9.50	D	9.49	33.839	D 26.134	190.3	0.380	2.79	D	121.2	D	43.3		26.7	1.93	24.5	0.01	0.00	0.01	0.02	151	
170		9.25		9.23	33.939	26.254	179.4	0.428	2.50		108.8		38.6		30.1	2.04	26.1	0.00	0.00	0.00	0.02	171	09
200		8.81		8.79	34.045	26.408	165.3	0.479	2.12	D	92.1	D	32.4		35.7	2.20	28.4	0.00	0.00	0.00	0.02	202	08
230		8.21		8.18	34.088	26.534	153.7	0.527	1.85		80.3		27.9		41.5	2.34	30.5	0.00	0.00			232	07
250	ISL	8.01	D	7.99	34.090	D 26.565	151.0	0.548	1.75	D	76.0	D	26.3		44.0	2.40	31.6	0.00	0.00			252	
270		7.74		7.71	34.072	26.592	148.7	0.588	1.64		71.2		24.5		46.5	2.46	32.6	0.00	0.00			272	06
300	ISL	7.38	D	7.35	34.111	D 26.674	141.2	0.622	1.28	D	55.5	D	18.9		51.1	2.59	34.0	0.00	0.00			302	
320		7.30		7.27	34.130	26.700	139.0	0.659	1.11		48.4		16.5		54.1	2.67	34.9	0.00	0.00			323	05
380		6.86		6.82	34.173	26.797	130.6	0.740	0.84		36.4		12.3		61.4	2.82	36.7	0.00	0.00			383	04
400	ISL	6.67	D	6.63	34.172	D 26.821	128.4	0.757	0.75	D	32.4	D	10.9		64.4	2.87	37.4	0.00	0.00			403	
440		6.29		6.25	34.187	26.884	122.7	0.816	0.58		25.2		8.4		70.6	2.97	38.8	0.00	0.00			444	03
500	ISL	5.93	D	5.88	34.230	D 26.964	115.7	0.880	0.43	D	18.8	D	6.2		76.8	3.07	39.9	0.00	0.00			504	
514		5.91		5.86	34.231	26.968	115.5	0.904	0.41		17.9		5.9		78.3	3.09	40.1	0.00	0.00			518	01
514		5.91		5.86	34.230	26.968	115.5	0.904							78.4	3.09	40.0	0.00	0.00			518	02

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 54.7 N	122 8.0 W	21/01/2013	0542	UTC	4120 m	200 09 kn			1020.1 mb	14.9 C	13.2 C				047

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.37		14.37		33.284		24.785	315.3	0.000	5.89		256.7		101.2		2.8	0.31	0.0	0.01	0.04	0.22	0.06	0	
2		14.37		14.37		33.284		24.785	315.3	0.006	5.89		256.7		101.2		2.8	0.31	0.0	0.01	0.04	0.22	0.06	2	21
10		14.38		14.37		33.271		24.774	316.6	0.032	5.90		257.0		101.3		2.8	0.31	0.0	0.01	0.04	0.21	0.05	10	19
10		14.38		14.37		33.271		24.774	316.6	0.032														10	20
20		14.33		14.33		33.271		24.784	316.0	0.063	5.90		257.1		101.2		2.8	0.30	0.0	0.01	0.02	0.28	0.07	20	18
30		14.25		14.24		33.281		24.810	313.8	0.095	5.91		257.5		101.2		2.9	0.32	0.0	0.01	0.01	0.42	0.15	30	17
41		14.23		14.23		33.305		24.832	312.1	0.129	5.90		256.9		101.0		2.8	0.32	0.0	0.02	0.02	0.43	0.17	41	16
50		14.11		14.10		33.280		24.839	311.7	0.157	5.89		256.5		100.5		2.8	0.33	0.1	0.03	0.08	0.47	0.10	50	15
61		14.15		14.14		33.302		24.850	311.0	0.191	5.84		254.4		99.8		2.9	0.34	0.3	0.04	0.13	0.29	0.16	61	14
71		13.86		13.85		33.306		24.912	305.4	0.222	5.79		252.3		98.4		3.0	0.36	0.5	0.06	0.13	0.32	0.08	72	13
75	ISL	13.57	D	13.56		33.283	D	24.953	301.5	0.220	5.72	D	249.1	D	96.6		4.2	0.49	2.6	0.05	0.10	0.27	0.09	76	
86		11.52		11.51		33.216		25.297	268.8	0.266	5.17		225.2		83.6		7.6	0.85	8.2	0.04	0.00	0.12	0.13	87	12
100		10.84		10.83		33.409		25.569	243.2	0.302	4.42		192.4		70.5		12.9	1.27	14.8	0.02	0.00	0.08	0.08	101	11
120		9.74		9.73		33.609		25.914	210.6	0.347	3.66		159.2		57.0		20.4	1.66	21.0	0.01	0.00	0.02	0.03	121	10
125	ISL	9.72	D	9.70		33.662	D	25.960	206.4	0.343	3.54	D	154.1	D	55.2		21.5	1.71	21.7	0.01	0.00	0.02	0.03	126	
141		9.37		9.36		33.745		26.081	195.2	0.389	3.19		138.8		49.4		25.0	1.85	24.1	0.00	0.00	0.00	0.02	142	09
150	ISL	9.21	D	9.19		33.828	D	26.173	186.6	0.393	2.93	D	127.4	D	45.2		26.8	1.90	24.8	0.00	0.00	0.00	0.02	151	
170		8.82		8.80		33.902		26.293	175.5	0.443	2.81		122.4		43.0		30.7	2.00	26.5	0.00	0.00	0.00	0.02	171	08
200	ISL	8.46	D	8.44		34.009	D	26.432	162.8	0.481	2.34	D	101.8	D	35.5		35.7	2.15	28.5	0.00	0.00	0.00	0.02	202	
201		8.49		8.47		33.992		26.415	164.4	0.495	2.45		106.4		37.2		35.9	2.15	28.6	0.00	0.00	0.00	0.02	203	07
231		7.98		7.95		34.036		26.527	154.1	0.543	1.93		84.0		29.0		42.3	2.35	31.4	0.00	0.00			233	06
250	ISL	7.77	D	7.75		34.054	D	26.572	150.2	0.559	1.80	D	78.4	D	26.9		45.3	2.43	32.5	0.00	0.00			252	
271		7.49		7.46		34.058		26.617	146.1	0.603	1.55		67.3		23.0		48.6	2.52	33.7	0.00	0.00			273	05
300	ISL	7.28	D	7.25		34.081	D	26.664	142.1	0.632	1.39	D	60.4	D	20.5		52.3	2.61	34.7	0.00	0.00			302	
321		7.15		7.12		34.101		26.698	139.1	0.674	1.19		51.7		17.5		55.0	2.68	35.5	0.00	0.00			324	04
380		6.48		6.45		34.127		26.810	129.0	0.753	0.85		37.1		12.4		65.2	2.87	38.0	0.00	0.00			383	03
400	ISL	6.39	D	6.35		34.155	D	26.844	125.9	0.767	0.75	D	32.6	D	10.9		67.4	2.91	38.4	0.00	0.00			403	
441		6.16		6.13		34.178	D	26.893	121.8	0.818	0.60		25.9		8.6		71.9	3.00	39.2	0.00	0.00			445	02
500	ISL	5.84	D	5.79		34.229	D	26.975	114.5	0.889	0.42	D	18.1	D	5.9		78.9	3.10	40.2	0.00	0.00			504	
515		5.77		5.73		34.233		26.986	113.6	0.914	0.37		16.1		5.3		80.7	3.12	40.5	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 34.8 N	122 49.0 W	21/01/2013	0003	UTC	4198 m	310 09 kn	300 02 05	0	1020.2 mb	14.0 C	12.5 C		0/8		046

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.59		14.59		33.268		24.727	320.9	0.000	5.94		258.8		102.5		2.8	0.32	0.0	0.01	0.06	0.25	0.07	0	
2		14.59		14.59		33.268		24.727	320.9	0.006	5.94		258.8		102.5		2.8	0.32	0.0	0.01	0.06	0.25	0.07	2	22
10		14.33		14.33		33.257		24.773	316.7	0.032	5.95		259.4		102.1		2.8	0.33	0.0	0.00	0.25	0.26	0.07	10	20
10		14.33		14.33		33.257		24.773	316.7	0.033														10	21
20		14.15		14.15		33.256		24.810	313.5	0.063	5.96		259.6		101.8		2.8	0.32	0.0	0.01	0.05	0.24	0.08	20	19
30		14.17		14.17		33.300		24.840	310.9	0.095	5.88		256.2		100.6		2.8	0.34	0.2	0.03	0.12	0.41	0.18	30	18
40		13.87		13.87		33.229		24.848	310.5	0.126	5.93		258.6		100.8		2.8	0.33	0.1	0.02	0.04	0.48	0.19	40	17
50		13.84		13.83		33.228		24.855	310.1	0.157	5.93		258.2		100.6		2.8	0.34	0.2	0.03	0.09	0.42	0.17	50	16
60		13.66		13.65		33.193		24.865	309.5	0.188	5.93		258.3		100.3		2.9	0.34	0.2	0.03	0.11	0.28	0.14	60	15
70		12.84		12.83		33.191		25.029	294.1	0.218	5.69		247.7		94.5		4.2	0.51	2.5	0.09	0.06	0.19	0.13	71	14
75	ISL	11.60	D	11.58		33.208	D	25.278	270.3	0.218	5.37	D	233.9	D	87.0		6.2	0.69	5.4	0.07	0.04	0.16	0.11	76	
86		10.72		10.71		33.305		25.508	248.6	0.261	4.87		211.9		77.4		10.6	1.08	11.8	0.02	0.01	0.09	0.08	87	13
100	ISL	10.02	D	10.02		33.455	D	25.744	226.4	0.280	4.38	D	190.6	D	68.7		14.7	1.31	15.7	0.01	0.00	0.04	0.04	101	
101		10.02		10.00		33.427		25.726	228.1	0.296	4.43		192.7		69.4		15.0	1.33	16.0	0.01	0.00	0.04	0.04	102	12
121		9.53		9.52		33.631		25.965	205.7	0.339	3.65		159.0		56.7		21.3	1.67	21.3	0.01	0.04	0.01	0.02	122	11
125	ISL	9.37	D	9.37		33.701	D	26.045	198.2	0.333	3.51	D	152.9	D	54.4		22.7	1.73	22.1	0.01	0.03	0.01	0.02	126	
141		9.11		9.09		33.833		26.193	184.5	0.378	2.91		126.5		44.7		28.3	1.95	25.5	0.01	0.00	0.00	0.02	142	10
150	ISL	8.99	D	8.97		33.899	D	26.264	177.9	0.380	2.65	D	115.3	D	40.7		29.8	2.00	26.2	0.01	0.00	0.00	0.02	151	
171		8.69		8.67		33.943		26.346	170.5	0.431	2.51		109.4		38.4		33.2	2.10	27.7	0.00	0.00	0.00	0.02	172	09
200	ISL	8.30	D	8.28		34.016	D	26.463	159.8	0.465	2.09	D	91.0	D	31.7		38.3	2.25	30.0	0.00	0.00	0.00	0.01	202	
201		8.29		8.27		34.009		26.458	160.3	0.481	2.09	D	96.3	D	31.6		38.4	2.26	30.1	0.00	0.00	0.00	0.01	203	08
230		7.88		7.86		34.022		26.530	153.8	0.526	2.05		89.2		30.8		41.7	2.31	30.9	0.00	0.00			232	07
250	ISL	7.41	D	7.39		33.998	D	26.578	149.4	0.543	2.35	D	102.2	D	34.8		44.6	2.32	31.4	0.00	0.00			252	
271		7.10		7.08		33.989		26.616	146.0	0.587	2.25		97.7		33.1		47.7	2.33	31.9	0.00	0.00			273	06
300	ISL	6.89	D	6.86		34.007	D	26.659	142.2	0.617	2.04	D	88.6	D	29.8		52.8	2.46	33.6	0.00	0.00			302	
320		6.60		6.57		34.013		26.703	138.2	0.657	1.73		75.3		25.2		56.4	2.55	34.8	0.00	0.00			323	05
380		6.42		6.39		34.155		26.840	126.0	0.736	0.70		30.4		10.1		67.3	2.91	38.1	0.00	0.00			383	04
400	ISL	6.32	D	6.29		34.161	D	26.858	124.5	0.750	0.67	D	29.3	D	9.7		69.5	2.94	38.5	0.00	0.00			403	
439		6.05		6.01		34.184		26.912	119.8	0.809	0.55		23.8		7.9		73.9	3.01	39.4	0.00	0.00			443	03
500	ISL	5.57	D	5.53		34.211	D	26.993	112.5	0.869	0.44	D	19.2	D	6.3		82.5	3.09	40.7	0.00	0.00			504	
516		5.45		5.41		34.206		27.004	111.5	0.898	0.41		17.7		5.8		84.7	3.11	41.0	0.00	0.00			520	01
516		5.45		5.41		34.206		27.003	111.5	0.898							84.7	3.11	41.0	0.00	0.00			520	02

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 14.9 N	123 29.9 W	20/01/2013	1812 UTC	4079 m	060 11 kn	030 01 06	0	1021.1 mb	15.2 C	13.4 C	20 m	0/8		045

DEPTH m		TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.32	14.31	33.273	24.788	315.2	0.000	5.88	257.0	101.0	2.8	0.35	0.2	0.03	0.05	0.32	0.10	0	
2		14.36	14.36	33.283 D	24.786	315.2	0.006	5.87	D247.9	D100.7								2	24
8	A	14.32	14.31	33.273	24.788	315.2	0.025	5.88	257.0	100.9	2.8	0.35	0.2	0.03	0.05	0.32	0.10	8	22
8		14.32	14.32	33.272	24.793	314.8	0.026											8	23
10	ISL	14.31 D	14.30	33.279 D	24.795	314.6	0.032	5.87	D255.9	D100.7	2.8	0.34	0.2	0.03	0.04	0.32	0.11	10	
14	A	14.31	14.30	33.272	24.790	315.2	0.044	5.88	256.7	100.8	2.8	0.33	0.2	0.02	0.02	0.32	0.11	14	21
18	A	14.30	14.30	33.272	24.791	315.2	0.057	5.86	256.1	100.6	2.8	0.34	0.2	0.02	0.03	0.35	0.12	18	20
20	ISL	14.30 D	14.29	33.279 D	24.797	314.7	0.063	5.86	D255.2	D100.4	2.8	0.34	0.2	0.02	0.03	0.34	0.12	20	
27		14.29	14.29	33.273	24.794	315.3	0.085	5.88	257.0	100.9	2.8	0.34	0.2	0.02	0.03	0.34	0.12	27	19
30	ISL	14.29 D	14.28	33.278 D	24.800	314.8	0.095	5.87	D255.6	D100.6	2.8	0.34	0.2	0.02	0.04	0.35	0.13	30	
36	A	14.27	14.27	33.272	24.799	315.1	0.114	5.86	256.0	100.4	2.8	0.34	0.2	0.03	0.05	0.36	0.14	36	18
47		14.25	14.25	33.270	24.801	315.2	0.148	5.82	254.4	99.8	2.8	0.34	0.3	0.03	0.07	0.32	0.16	47	17
50	ISL	14.26 D	14.25	33.278 D	24.807	314.7	0.159	5.80	D252.9	D 99.4	2.8	0.34	0.3	0.03	0.08	0.31	0.15	50	
56		14.17	14.16	33.271	24.820	313.6	0.177	5.81	254.0	99.4	2.8	0.35	0.4	0.03	0.11	0.29	0.13	56	16
65	A	11.55	11.54	33.215	25.290	268.9	0.203	5.19	226.8	84.0	7.4	0.88	8.4	0.04	0.01	0.17	0.22	66	15
74	A	11.21	11.20	33.344	25.452	253.6	0.226	4.65	203.2	74.8	9.8	1.15	12.6	0.03	0.00	0.13	0.13	75	14
75	ISL	11.23 D	11.22	33.355 D	25.458	253.2	0.230	4.63	D201.6	D 74.5	10.1	1.17	12.9	0.03	0.00	0.13	0.12	76	
87		10.59	10.58	33.467	25.658	234.3	0.258	4.23	184.8	67.2	13.5	1.40	16.6	0.02	0.00	0.08	0.07	88	13
100		9.90	9.89	33.501	25.802	220.8	0.288	4.24	185.2	66.3	16.2	1.43	17.7	0.02	0.00	0.04	0.04	101	12
120		9.57	9.56	33.640	25.966	205.7	0.330	3.58	156.2	55.6	21.2	1.72	21.9	0.02	0.00	0.01	0.02	121	11
125	ISL	9.45 D	9.44	33.702 D	26.034	199.3	0.342	3.49	D151.7	D 54.0	22.0	1.74	22.3	0.02	0.00	0.01	0.02	126	
141		9.08	9.06	33.743	26.127	190.7	0.372	3.44	150.2	52.9	24.7	1.79	23.5	0.01	0.00	0.00	0.02	142	10
150	ISL	9.00 D	8.98	33.821 D	26.201	183.9	0.390	3.29	D143.1	D 50.5	26.4	1.84	24.3	0.01	0.00	0.00	0.02	151	
170		8.75	8.73	33.896	26.300	174.8	0.424	2.97	129.7	45.4	30.2	1.96	26.2	0.01	0.00	0.00	0.02	171	09
200		8.35	8.33	33.991	26.436	162.4	0.475	2.24	97.8	33.9	37.0	2.22	29.8	0.00	0.00	0.00	0.02	202	08
230		7.92	7.90	34.032	26.532	153.7	0.522	1.93	84.5	29.0	42.2	2.36	31.6	0.00	0.00			232	07
250	ISL	7.70 D	7.67	34.059 D	26.586	148.8	0.555	1.67	D 72.7	D 25.0	44.7	2.43	32.5	0.00	0.00			252	
269		7.58	7.56	34.063	26.607	147.1	0.581	1.61	70.2	23.9	47.1	2.49	33.4	0.00	0.00			271	06
300	ISL	7.27 D	7.25	34.092 D	26.674	141.1	0.628	1.34	D 58.2	D 19.8	52.6	2.62	34.9	0.00	0.00			302	
320		7.06	7.03	34.099	26.710	137.9	0.653	1.17	51.2	17.2	56.1	2.70	35.9	0.00	0.00			323	05
380		6.60	6.56	34.128	26.796	130.4	0.734	0.88	38.3	12.8	63.6	2.85	37.7	0.00	0.00			383	04
400	ISL	6.44 D	6.41	34.136 D	26.822	128.1	0.763	0.83	D 36.2	D 12.1	66.3	2.89	38.3	0.00	0.00			403	
441		6.04	6.00	34.155	26.890	121.9	0.811	0.67	29.2	9.6	71.7	2.98	39.4	0.00	0.00			445	03
500	ISL	5.64 D	5.60	34.200 D	26.976	114.2	0.885	0.46	D 19.9	D 6.5	80.3	3.09	40.9	0.00	0.00			504	
515		5.62	5.57	34.197	26.992	112.8	0.902				82.8	3.12	41.3	0.00	0.00			519	02
516		5.59	5.54	34.197	26.980	113.9	0.899	0.44	19.1	6.2	82.7	3.12	41.3	0.00	0.00			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 UNCORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
31 54.5 N	124 9.5 W	20/01/2013	1212 UTC	4166 m	050 05 kn			1021.1 mb	12.6 C	12.2 C				044

DEPTH m		TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		15.62	15.62	33.294	24.522	340.4	0.000	5.72	249.4	100.8	2.8	0.30	0.0	0.01	0.03	0.11	0.03	0	
2		15.62	15.62	33.294	24.522	340.4	0.007	5.72	249.4	100.8	2.8	0.30	0.0	0.01	0.03	0.11	0.03	2	22
10		15.63	15.63	33.292	24.519	340.9	0.034	5.73	249.8	101.0	2.8	0.28	0.0	0.01	0.00	0.11	0.03	10	20
10		15.63	15.63	33.293	24.520	340.9	0.035											10	21
20	ISL	15.63 D	15.63	33.302 D	24.527	340.5	0.048	5.75	250.6	101.3	2.8	0.29	0.0	0.01	0.00	0.12	0.05	20	
25		15.58	15.58	33.306	24.541	339.3	0.085	5.76	251.0	101.3	2.8	0.29	0.0	0.01	0.00	0.12	0.05	25	19
30	ISL	15.50 D	15.49	33.295 D	24.552	338.5	0.082	5.72	D249.3	D100.5	2.8	0.29	0.0	0.01	0.02	0.15	0.06	30	
40		15.15	15.15	33.267	24.606	333.6	0.136	5.77	251.3	100.6	2.8	0.29	0.0	0.02	0.05	0.20	0.08	40	18
50		14.86	14.85	33.233	24.644	330.3	0.169	5.80	252.8	100.6	2.8	0.30	0.0	0.01	0.00	0.22	0.08	50	17
62		14.42	14.42	33.214	24.723	323.1	0.208	5.86	255.6	100.8	2.8	0.30	0.0	0.01	0.00	0.26	0.09	62	16
75		14.02	14.01	33.215	24.810	315.2	0.250	5.85	255.1	99.7	2.9	0.33	0.2	0.06	0.06	0.24	0.13	76	15
87		12.45	12.44	33.141	25.065	291.0	0.286	5.76	250.8	94.9	4.5	0.50	2.4	0.07	0.01	0.15	0.12	88	14
100		12.05	12.03	33.167	25.162	282.1	0.323	5.68	247.4	92.9	5.2	0.56	3.5	0.05	0.01	0.14	0.10	101	13
113		11.33	11.32	33.206	25.325	266.7	0.359	5.41	235.4	87.0	7.1	0.75	6.7	0.02	0.01	0.07	0.07	114	12
125		10.85	10.84	33.346	25.520	248.4	0.390	5.14	223.9	82.0	9.0	0.88	9.3	0.02	0.00	0.04	0.04	126	11
140		10.35	10.34	33.400	25.649	236.4	0.426	4.83	210.2	76.2	12.4	1.10	12.8	0.02	0.00	0.03	0.03	141	10
150	ISL	10.08 D	10.06	33.488 D	25.765	225.5	0.432	4.67	D203.4	D 73.3	15.1	1.25	15.2	0.01	0.00	0.02	0.02	151	
171		9.43	9.41	33.640	25.991	204.4	0.494	3.92	170.8	60.8	20.5	1.56	20.2	0.00	0.00	0.01	0.02	172	09
200		8.76	8.74	33.837	26.252	180.0	0.550	3.69	160.5	56.4	26.9	1.73	23.3	0.00	0.00	0.00	0.01	202	08
230		8.22	8.20	33.928	26.407	165.7	0.602	3.50	152.1	52.8	31.4	1.81	24.9	0.00	0.00			232	07
250	ISL	8.11 D	8.08	33.956 D	26.446	162.3	0.618	3.25	D141.5	D 49.0	35.5	2.03	27.4	0.00	0.00			252	
271		8.25	8.22	34.060	26.507	157.0	0.668	2.06	89.8	31.2	39.8	2.27	30.0	0.00	0.00			273	06
300	ISL	7.40 D	7.37	33.992 D	26.578	150.2	0.697	2.41	D104.7	D 35.7	44.9	2.32	31.3	0.00	0.00			302	
321		7.13	7.10	34.006	26.626	145.9	0.744	2.12	92.1	31.2	48.7	2.36	32.3	0.00	0.00			324	05
381		6.30	6.27	34.026	26.753	134.1	0.828	1.49	64.9	21.6	61.0	2.65	36.2	0.00	0.00			384	04
400	ISL	6.19 D	6.15	34.054 D	26.791	130.8	0.838	1.28	D 55.7	D 18.4	64.2	2.73	37.0	0.00	0.00			403	
441		6.02	5.98	34.116	26.861	124.6	0.905	0.83	35.9	11.8	71.1	2.91	38.8	0.00	0.00			445	03
500	ISL	5.47 D	5.42	34.152 D	26.958	115.6	0.962	0.63	D 27.2	D 8.9	80.6	3.04	40.5	0.00	0.00			504	
516		5.42	5.38	34.163	26.972	114.4	0.995	0.53	23.2	7.6	83.2	3.07	40.9	0.00	0.00			520	01
517		5.42	5.38	34.171	26.979	113.8	0.980				83.2	3.06	41.0	0.00	0.00			520	02

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 53.5 N	118 29.8 W	18/01/2013	0014	UTC	50 m	310 02 kn		0	1018.9 mb	14.7 C	13.1 C		0/8		032

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.79	12.79	33.524	25.293	267.0	0.000	6.45	281.1	107.4	3.7	0.54	3.5	0.21	0.16	3.82	0.61	0	
2	12.79	12.79	33.524	25.293	267.0	0.005	6.45	281.1	107.4	3.7	0.54	3.5	0.21	0.16	3.82	0.61	2	08
5	12.46	12.46	33.520	25.352	261.4	0.013	6.26	272.6	103.5	4.1	0.62	4.3	0.20	0.25	4.29	0.83	5	07
10	12.03	12.03	33.519	25.434	253.8	0.026											10	06
10	12.03	12.03	33.519	25.434	253.8	0.026	6.17	268.6	101.0	4.2	0.63	4.5	0.20	0.26	4.40	0.88	10	05
20	11.91	11.90	33.521	25.460	251.6	0.051	5.70	248.2	93.1	4.7	0.71	5.9	0.21	0.42	4.85	0.84	20	04
30	11.80	11.80	33.526	25.484	249.5	0.077	5.35	232.8	87.1	5.8	0.83	7.4	0.24	0.69	4.84	0.94	30	03
40	11.50	11.49	33.555	25.563	242.3	0.101	4.24	184.6	68.7	12.9	1.27	13.5	0.42	2.03	3.28	0.91	40	02
46	11.13	11.13	33.590 D	25.656	233.5	0.110	3.65 D	184.6 D	58.6								46	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 49.3 N	118 37.6 W	18/01/2013	0223	UTC	620 m	290 07 kn			1019.5 mb	16.2 C	13.0 C				033

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.36	13.36	33.509	25.167	278.9	0.000	6.20	270.2	104.5	1.5	0.45	1.3	0.08	0.27	2.43	0.37	0	
2	13.36	13.36	33.509	25.167	278.9	0.006	6.20	270.2	104.5	1.5	0.45	1.3	0.08	0.27	2.43	0.37	2	21
10	13.01	13.01	33.506	25.235	272.7	0.027											10	20
10	13.01	13.01	33.506	25.235	272.7	0.028	6.16	268.3	103.0	1.6	0.46	1.5	0.08	0.25	2.78	0.58	10	19
20	12.84	12.83	33.519	25.280	268.8	0.055	5.86	255.3	97.7	2.1	0.52	2.4	0.08	0.29	3.52	0.86	20	18
30	12.49	12.49	33.495	25.329	264.3	0.082	5.40	235.0	89.2	4.8	0.70	5.1	0.10	0.41	1.70	0.68	30	17
40	11.90	11.89	33.500	25.446	253.4	0.107	4.75	207.1	77.6	9.3	1.02	10.0	0.15	0.40	1.70	1.12	40	16
50	11.07	11.06	33.540	25.628	236.3	0.132	3.79	165.1	60.8	15.7	1.45	16.7	0.24	0.27	0.98	0.66	50	15
60	10.81	10.80	33.568	25.698	229.9	0.155	3.60	156.6	57.4	17.5	1.54	18.2	0.05	0.00	0.39	0.44	60	14
70	10.40	10.39	33.617	25.808	219.6	0.178	3.41	148.6	54.0	19.6	1.65	20.1	0.04	0.00	0.30	0.40	71	13
75 ISL	10.25 D	10.24	33.659 D	25.866	214.2	0.179	3.41 D	148.6 D	53.9	20.5	1.69	20.7	0.04	0.00	0.26	0.38	76	
85	10.04	10.03	33.689	25.926	208.7	0.210	3.18	138.5	50.0	22.3	1.77	22.0	0.03	0.00	0.18	0.35	86	12
100	9.73	9.71	33.843	26.099	192.6	0.240	2.60	113.0	40.5	27.0	1.97	24.7	0.03	0.00	0.12	0.23	101	11
120	9.70	9.68	33.902	26.150	188.2	0.278	2.41	104.8	37.6	28.6	2.03	25.3	0.00	0.00	0.07	0.14	121	10
125 ISL	9.75 D	9.73	33.971 D	26.197	184.0	0.278	2.22 D	96.6 D	34.7	29.5	2.06	25.7	0.00	0.00	0.06	0.13	126	
140	9.46	9.44	34.007	26.272	177.1	0.314	2.08	90.3	32.2	32.1	2.16	26.9	0.00	0.00	0.04	0.11	141	09
150 ISL	9.36 D	9.35	34.029 D	26.305	174.2	0.323	2.06 D	89.7 D	32.0	32.9	2.18	27.3	0.00	0.00	0.04	0.11	151	
170	9.14	9.12	34.053	26.361	169.2	0.366	1.95 D	89.2 D	30.1	34.6	2.22	28.0	0.00	0.00	0.03	0.09	171	08
200	8.61	8.59	34.153	26.523	154.2	0.415	1.56	67.7	23.7	40.7	2.41	30.2	0.00	0.00	0.02	0.08	202	07
230	8.45	8.42	34.148	26.545	152.7	0.461	1.40	60.9	21.3	43.1	2.48	31.1	0.00	0.00			232	06
250 ISL	8.35 D	8.33	34.168 D	26.575	150.2	0.483	1.29 D	56.0 D	19.5	45.3	2.54	31.8	0.00	0.00			252	
270	8.15	8.12	34.181	26.618	146.5	0.521	1.11	48.1	16.7	47.5	2.60	32.5	0.00	0.00			272	05
300 ISL	8.03 D	8.00	34.202 D	26.652	143.8	0.557	0.99 D	43.2 D	15.0	51.0	2.68	33.5	0.00	0.00			302	
320	7.76	7.72	34.224	26.710	138.4	0.592	0.79	34.2	11.8	53.3	2.74	34.1	0.00	0.00			323	04
380	7.42	7.39	34.276	26.800	130.8	0.673	0.58	25.4	8.7	58.5	2.86	35.3	0.00	0.00			383	03
400 ISL	7.29 D	7.25	34.268 D	26.812	129.9	0.694	0.53 D	22.9 D	7.8	59.9	2.88	35.6	0.00	0.00			403	
439	7.16	7.12	34.271	26.834	128.4	0.750	0.47	20.3	6.9	62.5	2.93	36.2	0.00	0.00			443	02
500 ISL	6.58 D	6.53	34.310 D	26.945	118.3	0.820	0.30 D	13.1 D	4.4								504	
515	6.52	6.47	34.314 D	26.956	117.4	0.838	0.29 D	12.6 D	4.2								519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 39.3 N	118 58.3 W	18/01/2013	0638	UTC	716 m	070 11 kn			1020.0 mb	15.9 C	12.5 C				034

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.76	13.76	33.511	25.087	286.5	0.000	6.00	261.5	102.0	1.7	0.42	0.6	0.07	0.34	0.72	0.22	0	
2	13.76	13.76	33.511	25.087	286.6	0.006	6.00	261.5	102.0	1.7	0.42	0.6	0.07	0.34	0.72	0.22	2	24
10 ISL	13.56 D	13.55	33.514 D	25.132	282.5	0.029	6.02	262.1	101.8	1.6	0.41	0.7	0.07	0.27	0.99	0.41	10	
11	13.56	13.56	33.508	25.126	283.1	0.031	6.02	262.2	101.8	1.6	0.41	0.7	0.07	0.26	1.02	0.43	11	23
20 ISL	13.31 D	13.31	33.519 D	25.186	277.7	0.057	5.89	256.8	99.2	2.4	0.48	1.7	0.12	0.17	0.94	0.34	20	
21	13.30	13.29	33.506	25.178	278.5	0.059	5.88	256.2	98.9	2.5	0.49	1.8	0.12	0.16	0.93	0.32	21	22
30 ISL	13.18 D	13.18	33.511 D	25.206	276.1	0.085	5.86 D	255.2 D	98.3	3.1	0.52	2.3	0.17	0.16	0.97	0.41	30	
31	13.15	13.15	33.502	25.205	276.2	0.087	5.79	252.3	97.1	3.1	0.52	2.4	0.17	0.16	0.98	0.42	31	21
41	12.59	12.58	33.507 D	25.320	265.5	0.115	5.20	226.4	86.1	6.6	0.78	6.4	0.22	0.18	0.51	0.33	41	20
50 ISL	11.83 D	11.82	33.535 D	25.487	249.8	0.138	4.59 D	199.9 D	74.9	11.1	1.10	11.3	0.20	0.17	0.41	0.29	50	
51	11.80	11.80	33.527	25.485	250.0	0.140	4.47	194.5	72.8	11.6	1.13	11.8	0.20	0.17	0.40	0.29	51	19
59	11.73	11.72	33.568	25.531	245.9	0.160	4.36	189.9	71.0	12.2	1.17	12.3	0.20	0.11	0.42	0.29	59	18
75 ISL	10.84 D	10.84	33.616 D	25.729	227.4	0.199	3.67 D	159.9 D	58.7	17.5	1.50	17.3	0.16	0.05	0.26	0.24	76	
80	10.74	10.73	33.646	25.772	223.4	0.209	3.45	150.3	55.0	19.1	1.60	18.8	0.15	0.03	0.22	0.23	81	17
100	10.07	10.05	33.765	25.981	203.9	0.252	2.86	124.3	44.9	24.5	1.85	22.7	0.08	0.03	0.07	0.19	101	16
120	9.56	9.55	33.881	26.155	187.7	0.291	2.44	106.4	38.0	28.9	2.04	25.3	0.00	0.00	0.03	0.12	121	15
125 ISL	9.42 D	9.41	33.948 D	26.232	180.5	0.302	2.31 D	100.4 D	35.8	30.2	2.09	25.9	0.00	0.00	0.03	0.11	126	
141	9.17	9.15	34.004	26.317	172.7	0.329	1.96	85.4	30.3	34.4	2.23	27.8	0.00	0.01	0.02	0.09	142	14
150 ISL	9.07 D	9.06	34.036 D	26.357	169.1	0.346	1.88 D	81.8 D	28.9	35.8	2.27	28.4	0.00	0.01	0.02	0.10	151	
170	8.80	8.78	34.088	26.442	161.3	0.377	1.64	71.2	25.1	38.8	2.37	29.6	0.01	0.00	0.02	0.12	171	13
200	8.56	8.54	34.136	26.517	154.8	0.425	1.41	61.5	21.5	41.7	2.47	30.7	0.00	0.00	0.01	0.07	202	11
230	8.32	8.30	34.177	26.586	148.7	0.470	1.13	49.2	17.1	45.9	2.59	31.9	0.00	0.01			232	10
250 ISL	8.18 D	8.15	34.205 D	26.630	144.9	0.479	0.98 D	42.6 D	14.8	47.8	2.65	32.5	0.00	0.03			252	
270	8.07	8.04	34.229	26.666	141.9	0.528	0.89	38.6	13.4	49.6	2.70	33.1	0.00	0.04			272	09
300 ISL	7.80 D	7.77	34.240 D	26.715	137.6	0.550	0.72 D	31.3 D	10.8	54.1	2.80	34.2	0.00	0.02			302	
320	7.54	7.51	34.252	26.762	133.4	0.597	0.65	28.4	9.7	57.1	2.86	34.9	0.00	0.00			323	08
380	7.16	7.13	34.275	26.835	127.2	0.675	0.45	19.5	6.6	63.0	2.96	36.1	0.00	0.00			383	07
400 ISL	7.11 D	7.07	34.287 D	26.852	125.9	0.682	0.41 D	18.0 D	6.1	64.7	2.99	36.4	0.00	0.00			403	
440	6.86	6.82	34.294	26.894	122.5	0.750	0.33	14.3	4.8	68.0	3.04	37.0	0.00	0.00			444	06
481	6.40	6.36	34.315	26.971	115.3	0.799	0.24	10.3	3.4	75.4	3.14	38.1	0.00	0.07			485	05
500 ISL	6.31 D	6.26	34.329 D	26.995	113.2	0.802	0.20 D	8.6 D	2.9	78.0	3.16	38.2	0.00	0.09			504	
516	6.19	6.15	34.328	27.009	112.0	0.839	0.19	8.1	2.7	80.2	3.18	38.3	0.00	0.10			520	04
600 ISL	5.69 D	5.64	34.364 D	27.101	103.9	0.912	0.13 D	5.7 D	1.9	90.4	3.26	38.7	0.00	0.01			605	
610	5.67	5.61	34.359	27.100	104.1	0.940	0.13	5.6	1.8	91.6	3.27	38.8	0.00	0.00			615	03
700 ISL	5.44 D	5.38	34.380 D	27.146	100.7	1.015	0.09 D	4.0 D	1.3	99.1	3.34	37.3	0.00	0.00			706	
709	5.41	5.35	34.375	27.146	100.8	1.041	0.08	3.5	1.1	99.8	3.35	37.2	0.00	0.00			715	02
715	5.41	5.34	34.375	27.147	100.7	1.047	0.09	3.7	1.2	100.2	3.35	37.2	0.00	0.00			721	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 86.7 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.4 N	119 18.9 W	18/01/2013	1114 UTC	1614 m	090 09 kn			1019.8 mb	15.1 C	12.0 C				035

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.76	12.76	33.534 D	25.307	265.6	0.000	5.98	260.3	99.5	1.3	0.54	2.7	0.11	0.22	3.30	0.50	0	
2	12.76	12.76	33.534 D	25.305	265.8	0.005	5.98	260.3	99.5	1.3	0.54	2.7	0.11	0.22	3.30	0.50	2	21
10	12.77	12.77	33.540	25.308	265.7	0.027	5.90	257.0	98.2	1.8	0.56	3.1	0.11	0.22	2.81	0.62	10	19
10	12.77	12.77	33.556	25.321	264.5	0.027											10	20
20	12.66	12.65	33.527	25.322	264.8	0.053	5.75	250.4	95.4	2.3	0.62	3.8	0.12	0.32	2.41	0.93	20	18
30	12.59	12.59	33.523	25.331	264.1	0.079	5.82	253.7	96.6	1.8	0.61	3.5	0.12	0.39	2.68	0.79	30	17
40	12.39	12.38	33.525	25.373	260.5	0.106	5.44	237.1	89.9	4.2	0.75	5.6	0.13	0.48	2.60	0.92	40	16
50	12.08	12.07	33.543	25.446	253.7	0.131	5.05	220.0	82.9	7.5	0.94	8.3	0.14	0.44	2.02	0.82	50	15
60	11.05	11.05	33.602	25.680	231.6	0.156	3.71	161.5	59.5	16.7	1.48	16.9	0.12	0.12	0.81	0.62	60	14
70	10.80	10.79	33.619	25.740	226.2	0.179	3.45	150.0	55.0	18.7	1.60	18.8	0.09	0.02	0.51	0.41	71	13
75 ISL	10.71 D	10.71	33.631 D	25.763	224.1	0.178	3.43	D149.4 D	54.7	20.0	1.66	19.8	0.08	0.01	0.42	0.38	76	
85	10.28	10.27	33.712	25.903	211.0	0.212	3.00	130.7	47.4	22.6	1.79	21.7	0.05	0.00	0.24	0.31	86	12
100	9.85	9.84	33.818	26.059	196.4	0.242	2.63	114.6	41.2	26.4	1.95	24.1	0.05	0.01	0.14	0.31	101	11
120	9.73	9.71	33.858	26.111	191.9	0.281	2.51	109.3	39.2	27.9	2.01	24.9	0.04	0.00	0.09	0.23	121	10
125 ISL	9.69 D	9.68	33.877 D	26.131	190.1	0.279	2.51	D109.2 D	39.1	28.4	2.03	25.1	0.04	0.00	0.08	0.22	126	
140	9.57	9.56	33.904	26.173	186.5	0.319	2.36	102.6	36.7	29.7	2.07	25.8	0.03	0.00	0.06	0.19	141	09
150 ISL	9.44 D	9.42	33.948 D	26.230	181.3	0.326	2.26	D 98.4 D	35.1	31.2	2.12	26.5	0.03	0.00	0.05	0.17	151	
170	9.09	9.08	34.020	26.342	170.9	0.372	2.02	87.8	31.1	34.3	2.23	28.0	0.03	0.00	0.04	0.14	171	08
200	8.80	8.78	34.103	26.455	160.8	0.422	1.62	70.5	24.8	39.0	2.38	29.8	0.02	0.00	0.02	0.12	202	07
230	8.50	8.47	34.159	26.546	152.7	0.469	1.27	55.3	19.3	43.6	2.52	31.4	0.00	0.00			232	06
250 ISL	8.25 D	8.23	34.174 D	26.595	148.3	0.488	1.24	D 53.9 D	18.8	45.3	2.56	32.0	0.00	0.00			252	
270	8.14	8.11	34.174	26.613	146.9	0.529	1.14	49.4	17.1	46.9	2.60	32.5	0.00	0.00			272	05
300 ISL	8.05 D	8.02	34.235 D	26.674	141.7	0.562	0.83	D 36.0 D	12.5	50.7	2.71	33.5	0.00	0.00			302	
320	7.85	7.82	34.240	26.708	138.7	0.600	0.69	30.1	10.4	53.2	2.79	34.1	0.00	0.00			323	04
380	7.26	7.22	34.282	26.828	128.0	0.680	0.43	18.6	6.3	62.6	2.97	35.9	0.00	0.00			383	03
400 ISL	7.20 D	7.16	34.294 D	26.846	126.7	0.696	0.40	D 17.4 D	5.9	65.3	3.01	36.4	0.00	0.00			403	
440	6.77	6.73	34.311	26.919	120.0	0.755	0.29	12.4	4.2	70.6	3.08	37.4	0.00	0.00			444	02
500 ISL	6.23 D	6.20	34.336 D	27.008	112.0	0.816	0.21	D 9.2 D	3.1	80.4	3.18	38.3	0.00	0.00			504	
514	6.10	6.05	34.332	27.024	110.5	0.840	0.17	7.6	2.5	82.7	3.20	38.5	0.00	0.00			518	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 86.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 19.5 N	119 39.9 W	18/01/2013	1533 UTC	79 m	070 08 kn	030 01 05	1	1019.9 mb	14.9 C	13.2 C	18 m	1/8	CI	036

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.65	12.65	33.506	25.304	265.9	0.000	5.81	252.9	96.4	4.5	0.67	4.0	0.15	0.67	0.88	0.18	0	
1	12.65	12.65	33.506	25.304	265.9	0.003	5.81	252.9	96.4	4.5	0.67	4.0	0.15	0.67	0.88	0.18	1	10
5	12.65	12.65	33.504	25.303	266.1	0.013	5.83	D253.8 D	96.7	4.5	0.66	3.9	0.15	0.66	0.98	0.14	5	09
10	12.66	12.65	33.504	25.303	266.2	0.027	5.82	D335.3 D	96.6	4.5	0.66	3.9	0.15	0.65	0.83	0.17	10	07
10	12.66	12.65	33.504	25.303	266.2	0.027											10	08
20	12.56	12.56	33.501	25.319	265.0	0.053	5.72	D294.4 D	94.7	5.2	0.71	4.8	0.15	0.60	0.67	0.19	20	06
30	12.40	12.40	33.494	25.345	262.8	0.080	5.41	235.6	89.3	6.1	0.76	5.8	0.17	0.52	0.51	0.21	30	05
40	12.35	12.34	33.488	25.351	262.5	0.106	5.35	233.1	88.2	6.5	0.80	6.4	0.16	0.49	0.41	0.23	40	04
50	11.15	11.15	33.516	25.595	239.4	0.131	4.28	186.3	68.8	13.9	1.26	14.0	0.13	0.16	0.17	0.23	50	03
60	10.71	10.70	33.566	25.714	228.4	0.154	3.83	166.6	60.9	17.3	1.46	17.2	0.11	0.06	0.12	0.20	60	02
71	10.44	10.43	33.601	25.788	221.6	0.179	3.59	156.3	56.9	19.3	1.58	19.0	0.09	0.00	0.10	0.25	72	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 9.3 N	120 0.2 W	18/01/2013	1913 UTC	1189 m	080 05 kn	040 01 04	1	1021.2 mb	15.0 C	13.0 C	18 m	1/8	ST	037

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.11	13.11	33.381	25.118	283.6	0.000	5.98	260.4	100.1	4.0	0.52	2.3	0.15	0.15	0.87	0.24	0	
2 A	13.11	13.11	33.381	25.118	283.6	0.006	5.98	260.4	100.1	4.0	0.52	2.3	0.15	0.15	0.87	0.24	2	23
10 ISL	12.96 D	12.96	33.397 D	25.161	279.8	0.029	5.87	260.0	98.0	4.2	0.54	2.9	0.17	0.11	0.79	0.33	10	
12 A	12.90	12.89	33.397	25.173	278.7	0.034	5.85	254.6	97.4	4.3	0.55	3.0	0.18	0.10	0.77	0.36	12	21
12	12.90	12.89	33.396	25.173	278.7	0.034											12	22
16 A	12.85	12.85	33.395	25.180	278.1	0.045	5.80	252.5	96.5	4.4	0.57	3.2	0.18	0.15	0.78	0.35	16	20
20 ISL	12.85 D	12.85	33.401 D	25.186	277.7	0.051	5.78	D251.9 D	96.3	4.4	0.57	3.2	0.18	0.11	0.67	0.43	20	
25	12.85	12.85	33.395	25.181	278.3	0.070	5.78	251.9	96.3	4.4	0.57	3.3	0.19	0.07	0.54	0.52	25	19
30 ISL	12.85 D	12.84	33.402 D	25.187	277.8	0.079	5.78	D251.7 D	96.2	4.4	0.58	3.3	0.19	0.11	0.67	0.42	30	
32 A	12.84	12.84	33.395	25.183	278.3	0.089	5.78	251.9	96.3	4.5	0.59	3.3	0.19	0.12	0.72	0.38	32	18
41	12.39	12.38	33.389	25.267	270.5	0.114	5.46	237.6	90.0	5.9	0.72	5.6	0.18	0.12	0.35	0.27	41	17
50	12.20	12.19	33.411	25.320	265.7	0.138	5.29	230.2	86.8	7.1	0.82	7.1	0.19	0.15	0.29	0.22	50	16
58 A	11.97	11.96	33.414	25.367	261.5	0.159	5.16	224.6	84.3	7.9	0.89	8.3	0.18	0.19	0.24	0.21	58	15
66 A	11.64	11.64	33.411	25.425	256.1	0.180	4.88	212.4	79.2	9.5	1.01	10.2	0.16	0.08	0.16	0.15	67	14
75 ISL	11.11 D	11.10	33.462 D	25.562	243.2	0.198	4.41	D192.0 D	70.8	13.6	1.31	14.9	0.05	0.03	0.09	0.12	76	
76	10.97	10.96	33.472	25.594	240.2	0.205	4.18	182.2	67.0	14.0	1.34	15.4	0.04	0.02	0.08	0.11	77	13
85	10.60	10.59	33.561	25.729	227.6	0.226	3.79	164.9	60.2	17.7	1.54	18.6	0.04	0.08	0.07	0.12	86	12
100	10.08	10.07	33.656	25.894	212.2	0.259	3.38	147.3	53.2	21.4	1.70	21.1	0.03	0.00	0.03	0.11	101	11
120	9.61	9.60	33.769	26.060	196.7	0.300	2.99	130.0	46.5	25.5	1.88	23.8	0.02	0.00	0.01	0.09	121	10
125 ISL	9.53 D	9.51	33.802 D	26.100	193.0	0.306	2.90	D126.1 D	45.0	26.3	1.91	24.2	0.02	0.00	0.01	0.09	126	
140	9.26	9.25	33.848	26.180	185.7	0.338	2.73	118.8	42.2	28.8	1.99	25.5	0.02	0.00	0.01	0.09	141	09
150 ISL	9.20 D	9.18	33.889 D	26.223	181.9	0.353	2.54	D110.5 D	39.2	30.5	2.05	26.3	0.02	0.00	0.01	0.08	151	
170	8.91	8.89	33.957	26.322	172.8	0.392	2.33	101.4	35.8	33.9	2.18	27.9	0.02	0.00	0.01	0.07	171	08
200	8.60	8.58	34.028	26.426	163.4	0.442	1.96	85.2	29.9	38.0	2.30	29.4	0.00	0.00	0.01	0.08	202	07
230	8.33	8.31	34.085	26.513	155.7	0.490	1.64	71.5	24.9	42.4	2.42	31.1	0.00	0.00			232	06
250 ISL	8.13 D	8.11	34.121 D	26.572	150.4	0.518	1.43	D 62.0 D	21.5	45.6	2.51	32.1	0.00	0.00			252	
270	7.92	7.90	34.145	26.622	145.9	0.550	1.23	53.4	18.4	48.9	2.60	33.0	0.00	0.00			272	05
300 ISL	7.71 D	7.68	34.178 D	26.681	140.8	0.591	1.03	D 44.7 D	15.4	52.0	2.69	34.0	0.00	0.00			302	
320	7.61	7.57	34.197	26.710	138.3	0.621	0.88	38.3	13.1	54.1	2.75	34.7	0.00	0.00			323	04
381	7.20	7.16	34.236	26.800	130.6	0.703	0.61	26.5	9.0	60.3	2.89	36.1	0.00	0.00			384	03
400 ISL	7.11 D	7.07	34.248 D	26.822	128.8	0.726	0.57	D 24.9 D	8.4	62.1	2.92	36.5	0.00	0.00			403	
441	6.82	6.78	34.243	26.859	125.7	0.780	0.53	23.1	7.8	65.9	2.97	37.4	0.00	0.00			445	02
500 ISL	6.48 D	6.44	34.276 D	26.930	119.5	0.852	0.39	D 16.8 D	5.6	71.4	3.06	38.5	0.00	0.00			504	
514	6.42	6.37	34.274	26.938	119.0	0.869	0.38	16.3	5.4	72.7	3.08	38.7	0.00	0.00			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 O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 59.7 N	120 21.2 W	19/01/2013	0046	UTC	700 m	040 04 kn	340 01 06	1	1018.8 mb	15.5 C	14.0 C		1/8	ST	038

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.97	13.97	33.369		24.933	301.2	0.000	6.04	263.2		103.0	3.5	0.39	0.9	0.05	0.05	0.63	0.18	0	
2	13.97	13.97	33.369		24.933	301.2	0.006	6.04	263.2		103.0	3.5	0.39	0.9	0.05	0.05	0.63	0.18	2	21
10	13.66	13.66	33.385		25.011	294.1	0.028												10	20
10	13.66	13.66	33.385		25.011	294.1	0.030	6.06	264.0		102.6	3.5	0.39	0.8	0.05	0.04	0.70	0.17	10	19
20	13.40	13.39	33.367		25.051	290.6	0.059	6.02	262.4		101.4	3.6	0.41	1.1	0.05	0.10	0.92	0.33	20	18
30	13.10	13.09	33.337		25.088	287.2	0.088	5.96	259.8		99.8	4.0	0.46	1.8	0.08	0.01	1.04	0.41	30	17
40	12.99	12.98	33.333		25.107	285.8	0.117	5.93	258.2		99.0	4.1	0.48	2.1	0.10	0.13	1.01	0.43	40	16
50	12.89	12.88	33.357		25.146	282.4	0.145	5.86	255.3		97.6	4.4	0.52	2.7	0.15	0.01	0.79	0.49	50	15
60	12.54	12.53	33.368		25.223	275.3	0.173	5.60	243.7		92.6	5.5	0.67	4.8	0.26	0.15	0.40	0.27	60	14
70	12.24	12.23	33.384		25.293	268.9	0.200	5.50	239.7		90.4	6.6	0.77	6.2	0.27	0.15	0.26	0.21	71	12
71	12.25	12.24	33.399		25.304	267.9	0.203	5.54	241.4		91.1	6.0	0.71	5.4	0.26	0.12	0.32	0.24	72	13
75 ISL	12.19 D	12.18	33.421	D	25.331	265.4	0.203	5.45	D237.4	D	89.5	7.2	0.81	7.1	0.22	0.09	0.25	0.20	76	
84	11.39	11.38	33.380		25.448	254.3	0.237	4.81	209.4		77.6	9.9	1.03	10.9	0.13	0.01	0.10	0.12	85	11
100	10.40	10.39	33.575	D	25.774	223.6	0.265	3.88	169.0		61.4	17.0	1.47	17.9	0.01	0.00	0.04	0.06	101	10
125 ISL	9.84 D	9.82	33.700	D	25.970	205.5	0.319	3.36	D146.2	D	52.5	22.5	1.71	21.8	0.00	0.00	0.02	0.04	126	
140	9.33	9.32	33.770		26.107	192.6	0.359	3.11	135.2		48.1	25.8	1.86	24.1	0.00	0.00	0.01	0.03	141	09
150 ISL	9.20 D	9.18	33.824	D	26.172	186.7	0.368	2.99	D130.3	D	46.2	27.2	1.90	24.8	0.00	0.01	0.01	0.03	151	
171	8.91	8.89	33.889		26.269	177.8	0.416	2.75	D129.2	D	42.1	30.0	1.98	26.2	0.00	0.03	0.00	0.03	172	08
200 ISL	8.42 D	8.41	33.993	D	26.426	163.4	0.456	2.42	D105.3	D	36.7	35.1	2.13	28.2	0.00	0.00	0.00	0.03	202	
201	8.44	8.42	33.979		26.412	164.7	0.467	2.46	107.0		37.3	35.3	2.13	28.3	0.00	0.00	0.00	0.03	203	07
230	8.16	8.14	34.043		26.506	156.3	0.514	2.00	87.1		30.2	40.6	2.30	30.4	0.00	0.00			232	06
250 ISL	7.98 D	7.95	34.088	D	26.569	150.6	0.535	1.70	D 73.8	D	25.5	44.2	2.41	31.6	0.00	0.00			252	
270	7.79	7.77	34.116		26.618	146.2	0.574	1.43	62.3		21.4	47.8	2.52	32.7	0.00	0.00			272	05
300 ISL	7.57 D	7.53	34.157	D	26.684	140.3	0.608	1.21	D 52.7	D	18.0	52.6	2.65	34.1	0.00	0.00			302	
320	7.34	7.31	34.177		26.732	136.0	0.645	0.94	41.0		14.0	55.9	2.74	35.0	0.00	0.00			323	04
380	6.87	6.83	34.220		26.832	127.2	0.724	0.62	27.0		9.1	64.0	2.91	36.9	0.00	0.00			383	03
400 ISL	6.74 D	6.70	34.246	D	26.870	123.9	0.741	0.54	D 23.5	D	7.9	65.3	2.93	37.2	0.00	0.00			403	
441	6.66	6.62	34.244		26.880	123.6	0.799	0.49	21.4		7.2	68.0	2.97	37.7	0.00	0.00			445	02
500 ISL	6.21 D	6.16	34.275	D	26.966	115.9	0.863	0.37	D 16.1	D	5.3	77.4	3.09	39.5	0.00	0.00			504	
516	5.91	5.87	34.278		27.005	112.1	0.888	0.30	13.1		4.3	80.0	3.12	40.0	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 39.4 N	121 2.0 W	19/01/2013	0656	UTC	3734 m	360 05 kn			1020.1 mb	14.9 C	14.0 C				039

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.33	14.33	33.314		24.817	312.2	0.000	5.88	256.1		100.9	2.7	0.36	0.1	0.02	0.43	0.25	0.08	0	
1	14.33	14.33	33.314		24.817	312.2	0.003	5.88	256.1		100.9	2.7	0.36	0.1	0.02	0.43	0.25	0.08	1	21
10	14.27	14.26	33.312		24.828	311.4	0.031	5.92	258.0		101.5	2.7	0.33	0.0	0.01	0.02	0.35	0.11	10	19
10	14.27	14.26	33.312		24.829	311.4	0.032												10	20
20 ISL	14.02 D	14.01	33.319	D	24.951	300.1	0.062	5.89	256.7		100.5	2.8	0.34	0.1	0.02	0.07	0.42	0.14	20	
21	14.02	14.01	33.320		24.887	306.2	0.065	5.89	256.5		100.4	2.8	0.34	0.1	0.02	0.07	0.42	0.15	21	18
30	14.02	14.01	33.314		24.884	306.8	0.092	5.84	254.5		99.6	3.0	0.37	0.5	0.06	0.03	0.43	0.16	30	17
40	14.14	14.13	33.438		24.954	300.4	0.123	5.80	252.7		99.2	2.9	0.40	0.7	0.09	0.12	0.52	0.19	40	16
50	14.17	14.16	33.474		24.977	298.5	0.153	5.81	253.1		99.4	2.9	0.39	0.7	0.09	0.07	0.57	0.20	50	15
60	13.96	13.95	33.460		25.009	295.8	0.182	5.75	250.6		98.0	3.3	0.42	1.2	0.13	0.19	0.37	0.16	60	14
70	13.22	13.21	33.407		25.120	285.5	0.212	5.48	238.9		92.0	4.9	0.59	3.8	0.15	0.12	0.22	0.12	71	13
75 ISL	12.45 D	12.42	33.361	D	25.239	274.1	0.211	5.41	D235.8	D	89.3	6.5	0.74	6.2	0.11	0.08	0.17	0.11	76	
85	11.34	11.33	33.334		25.422	256.9	0.252	4.81	209.3		77.5	9.8	1.04	11.0	0.04	0.01	0.09	0.10	86	12
100	10.53	10.52	33.493		25.689	231.7	0.289	4.11	178.8		65.1	15.4	1.40	16.5	0.02	0.00	0.04	0.05	101	11
120	10.12	10.11	33.575		25.823	219.3	0.334	3.75	163.0		58.9	18.7	1.57	19.2	0.02	0.00	0.02	0.04	121	10
125 ISL	9.94 D	9.93	33.665	D	25.924	209.8	0.330	3.64	D158.5	D	57.1	20.4	1.65	20.4	0.02	0.01	0.02	0.04	126	
140	9.59	9.57	33.785		26.078	195.5	0.375	2.98	129.8		46.4	25.5	1.89	23.8	0.02	0.02	0.01	0.03	141	09
150 ISL	9.56 D	9.55	33.830	D	26.117	192.0	0.380	2.87	D124.8	D	44.6	27.3	1.95	24.7	0.01	0.02	0.01	0.03	151	
170	9.08	9.06	33.940		26.282	176.6	0.431	2.61	113.8		40.2	31.0	2.08	26.5	0.00	0.03	0.00	0.02	171	08
200 ISL	8.78 D	8.76	34.043	D	26.411	165.0	0.469	2.16	D 93.9	D	33.0	35.3	2.20	28.2	0.00	0.00	0.00	0.03	202	
201	8.77	8.75	34.035		26.406	165.5	0.484	2.18	95.0		33.4	35.5	2.20	28.3	0.00	0.00	0.00	0.03	203	07
230	8.37	8.34	34.072		26.497	157.2	0.531	1.97	85.8		29.9	39.6	2.31	29.8	0.00	0.00			232	06
250 ISL	8.20 D	8.17	34.120	D	26.561	151.5	0.549	1.65	D 71.6	D	24.9	42.4	2.39	30.7	0.00	0.00			252	
271	8.03	8.00	34.122		26.588	149.2	0.593	1.53	66.4		23.0	45.2	2.48	31.7	0.00	0.00			273	05
300 ISL	7.73 D	7.71	34.147	D	26.652	143.5	0.623	1.27	D 55.1	D	18.9	49.9	2.62	33.2	0.00	0.00			302	
320	7.51	7.48	34.164		26.698	139.4	0.664	1.05	45.6		15.6	53.2	2.71	34.3	0.00	0.00			323	04
380	6.98	6.95	34.202		26.803	130.1	0.745	0.74	32.2		10.9	61.4	2.88	36.2	0.00	0.00			383	03
400 ISL	6.79 D	6.75	34.226	D	26.848	126.0	0.758	0.62	D 27.1	D	9.1	64.0	2.93	36.8	0.00	0.00			403	
441	6.56	6.52	34.253		26.901	121.4	0.821	0.44	19.3		6.5	69.3	3.03	37.9	0.00	0.00			445	02
500 ISL	6.19 D	6.15	34.299	D	26.986	114.0	0.879	0.31	D 13.6	D	4.5	75.9	3.12	39.2	0.00	0.00			504	
516	6.10	6.05	34.306	D	27.003	112.5	0.898	0.29	12.6		4.2	77.8	3.15	39.5	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 19.5 N	121 42.7 W	19/01/2013	1257 UTC	3965 m	040 01 kn			1019.8 mb	14.8 C	13.1 C				040

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.11	15.11	33.281	24.624	330.7	0.000	5.78	251.8	100.7	2.7	0.30	0.0	0.01	0.01	0.13	0.04	0	
2	15.11	15.11	33.281	24.624	330.7	0.007	5.78	251.8	100.7	2.7	0.30	0.0	0.01	0.01	0.13	0.04	2	21
10	15.11	15.11	33.280	24.624	331.0	0.033											10	20
10	15.11	15.11	33.280	24.624	330.9	0.033	5.77	251.4	100.6	2.7	0.30	0.0	0.01	0.00	0.12	0.03	10	19
20 ISL	15.05 D	15.05	33.290 D	24.645	329.3	0.053	5.78	251.7	100.6	2.7	0.30	0.0	0.01	0.00	0.13	0.04	20	
25	14.96	14.96	33.279	24.655	328.4	0.083	5.78	251.9	100.5	2.7	0.30	0.0	0.01	0.00	0.13	0.04	25	18
30 ISL	14.95 D	14.95	33.286 D	24.664	327.8	0.086	5.78	251.9	100.5	2.7	0.30	0.0	0.01	0.00	0.14	0.05	30	
40	14.92	14.91	33.277	24.665	328.0	0.132	5.78	252.0	100.4	2.7	0.30	0.0	0.01	0.01	0.15	0.05	40	17
50	14.82	14.81	33.273	24.683	326.6	0.164	5.80	252.9	100.6	2.8	0.30	0.0	0.01	0.01	0.17	0.05	50	16
62	14.72	14.71	33.263	24.699	325.5	0.204	5.82	253.7	100.7	2.8	0.31	0.0	0.01	0.00	0.23	0.09	62	15
75	13.62	13.61	33.232	24.904	306.2	0.245	5.76	250.8	97.3	3.6	0.40	1.0	0.17	0.03	0.28	0.17	76	14
87	12.50	12.49	33.259	25.146	283.3	0.280	5.61	244.2	92.6	4.8	0.53	3.2	0.07	0.00	0.20	0.14	88	13
100	11.47	11.46	33.203	25.296	269.2	0.316	5.37	233.7	86.7	7.2	0.78	6.9	0.03	0.00	0.13	0.20	101	12
112	10.85	10.83	33.329	25.507	249.3	0.347	5.03	219.1	80.2	9.5	0.98	10.5	0.03	0.00	0.07	0.06	113	11
125 ISL	10.07 D	10.10	33.449 D	25.727	228.6	0.367	4.52	D196.6 D	70.9	13.6	1.23	14.7	0.02	0.00	0.04	0.04	126	
126	10.08	10.06	33.430	25.719	229.4	0.380	4.56	198.4	71.5	13.9	1.25	15.0	0.02	0.00	0.03	0.04	127	10
140	9.54	9.52	33.601	25.942	208.3	0.411	3.97	172.8	61.6	20.1	1.56	20.0	0.02	0.00	0.01	0.02	141	09
150 ISL	9.23 D	9.21	33.728 D	26.091	194.3	0.420	3.85	D167.4 D	59.3	22.5	1.63	21.3	0.01	0.00	0.01	0.02	151	
170	8.76	8.74	33.837	26.252	179.4	0.468	3.59	156.0	54.8	27.2	1.76	23.8	0.00	0.00	0.00	0.01	171	08
200	8.48	8.46	33.942	26.377	168.0	0.521	2.76	120.2	42.0	33.4	2.04	27.4	0.00	0.00	0.00	0.01	202	07
230	8.21	8.18	34.010	26.473	159.3	0.570	2.15	93.5	32.5	39.3	2.26	30.2	0.00	0.00			232	06
250 ISL	8.04 D	8.01	34.032 D	26.516	155.6	0.591	2.06 D	89.5 D	31.0	43.0	2.37	31.5	0.00	0.00			252	
270	7.77	7.74	34.071	26.587	149.2	0.632	1.63	71.1	24.4	46.6	2.48	32.7	0.00	0.00			272	05
300 ISL	7.60 D	7.57	34.140 D	26.665	142.2	0.666	1.31 D	56.9 D	19.5	50.8	2.60	33.8	0.00	0.00			302	
320	7.38	7.35	34.142	26.699	139.2	0.703	1.17	50.8	17.3	53.6	2.68	34.5	0.00	0.00			323	04
380	6.88	6.85	34.157	26.780	132.1	0.785	0.82	35.5	11.9	61.6	2.84	36.9	0.00	0.00			383	03
400 ISL	6.79 D	6.76	34.186 D	26.816	129.0	0.802	0.72 D	31.2 D	10.5	64.4	2.89	37.5	0.00	0.00			403	
440	6.35	6.31	34.189	26.877	123.4	0.861	0.59	25.6	8.5	69.9	2.98	38.6	0.00	0.00			444	02
500 ISL	6.10 D	6.06	34.256 D	26.964	115.9	0.925	0.39 D	17.1 D	5.6	77.5	3.10	39.9	0.00	0.00			504	
515	5.92	5.87	34.240	26.974	114.9	0.951	0.38	16.7	5.5	79.4	3.13	40.2	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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 59.3 N	122 23.0 W	19/01/2013	1850 UTC	4022 m		350 01 05	1	1022.4 mb	17.0 C	15.0 C	40 m	1/8	CS	041

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.80	15.80	33.380	24.547	338.0	0.000	5.71	248.7	100.9	2.7	0.31	0.0	0.01	0.06	0.12	0.03	0	
2 A	15.80	15.80	33.380	24.547	338.0	0.007	5.71	248.7	100.9	2.7	0.31	0.0	0.01	0.06	0.12	0.03	2	21
10 ISL	15.69 D	15.69	33.382 D	24.574	335.7	0.034	5.70 D	248.6 D	100.7	2.7	0.30	0.0	0.02	0.06	0.14	0.02	10	
15	15.67	15.67	33.372	24.571	336.1	0.051	5.71	248.9	100.7	2.7	0.29	0.0	0.02	0.06	0.15	0.02	15	19
15	15.67	15.67	33.372	24.571	336.1	0.051											15	20
20 ISL	15.66 D	15.66	33.377 D	24.578	335.7	0.059	5.70 D	248.5 D	100.6	2.7	0.29	0.0	0.02	0.04	0.15	0.02	20	
28 A	15.63	15.63	33.369	24.578	335.9	0.094	5.71	249.0	100.7	2.8	0.28	0.0	0.01	0.01	0.16	0.03	28	18
30 ISL	15.63 D	15.63	33.373 D	24.582	335.6	0.093	5.70 D	248.5 D	100.5	2.8	0.28	0.0	0.01	0.01	0.16	0.04	30	
35 A	15.53	15.52	33.346	24.584	335.6	0.118	5.73	249.7	100.8	2.8	0.28	0.0	0.01	0.01	0.17	0.05	35	17
47	15.36	15.35	33.319	24.601	334.3	0.158	5.74	250.0	100.5	2.8	0.30	0.0	0.02	0.02	0.21	0.08	47	16
50 ISL	15.28 D	15.26	33.326 D	24.628	331.9	0.161	5.73 D	249.9 D	100.3	2.8	0.30	0.0	0.02	0.02	0.23	0.09	50	
59	14.56	14.55	33.218	24.698	325.4	0.198	5.86	255.4	101.0	2.8	0.31	0.0	0.01	0.01	0.30	0.12	59	15
72 A	14.33	14.32	33.246	24.768	319.1	0.239	5.86	255.5	100.6	2.8	0.34	0.0	0.03	0.05	0.35	0.17	73	14
75 ISL	14.22 D	14.21	33.267 D	24.807	315.6	0.242	5.85 D	255.1 D	100.2	3.1	0.38	0.6	0.04	0.04	0.32	0.16	76	
90	12.31	12.30	33.127	25.081	289.6	0.294	5.68	247.6	93.4	4.8	0.57	3.3	0.07	0.01	0.17	0.15	91	13
100 ISL	11.88 D	11.87	33.238 D	25.249	273.8	0.316	5.49 D	238.9 D	89.4	5.9	0.66	5.1	0.05	0.08	0.14	0.11	101	
109	11.53	11.51	33.293	25.357	263.7	0.347	5.35	232.9	86.5	6.9	0.75	6.8	0.03	0.14	0.11	0.08	110	12
125 ISL	11.05 D	11.03	33.273 D	25.429	257.1	0.383	5.15 D	224.2 D	82.4	9.3	0.96	10.1	0.03	0.02	0.09	0.08	126	
127 A	10.94	10.93	33.282	25.454	254.8	0.394	5.01	218.2	80.0	9.5	0.99	10.5	0.03	0.00	0.09	0.08	128	11
137	10.44	10.43	33.359	25.602	240.9	0.418	4.86	211.7	76.9	11.5	1.09	12.5	0.02	0.05	0.04	0.05	138	10
146 A	10.03	10.01	33.435	25.732	228.6	0.439	4.69	204.1	73.5	13.7	1.20	14.5	0.03	0.00	0.02	0.03	147	09
150 ISL	9.88 D	9.84	33.543 D	25.844	218.0	0.443	4.47	D194.4 D	69.8	15.4	1.29	15.8	0.03	0.01	0.02	0.03	151	
170	9.15	9.14	33.719	26.097	194.2	0.490	3.65	158.8	56.2	23.7	1.71	22.5	0.02	0.04	0.00	0.02	171	08
200	8.81	8.79	33.866	26.267	178.5	0.545	3.12	135.6	47.7	28.8	1.89	25.4	0.00	0.00	0.00	0.02	202	07
230	8.36	8.34	33.975	26.422	164.3	0.597	2.58	112.3	39.1	35.5	2.10	28.3	0.00	0.00			232	06
250 ISL	8.16 D	8.14	34.014 D	26.484	158.7	0.625	2.38	D103.5 D	35.9	38.4	2.18	29.4	0.00	0.01			252	
271	7.89	7.87	34.018	26.527	154.9	0.662	2.23	97.1	33.5	41.4	2.26	30.5	0.00	0.00			273	05
300 ISL	7.46 D	7.43	34.061 D	26.624	146.0	0.701	1.73 D	75.3 D	25.7	46.3	2.41	32.4	0.00	0.00			302	
321	7.31	7.28	34.067	26.650	143.7	0.736	1.60	69.6	23.7	49.9	2.51	33.7	0.00	0.00			324	04
381	6.75	6.71	34.107	26.759	134.0	0.819	1.06	46.1	15.5	60.3	2.76	36.9	0.00	0.00			384	03
400 ISL	6.62 D	6.58	34.136 D	26.799	130.4	0.841	0.89 D	38.6 D	12.9	62.8	2.82	37.4	0.00	0.00			403	
442	6.44	6.40	34.181	26.860	125.2	0.898	0.63	27.4	9.1	68.3	2.96	38.6	0.00	0.00			446	02
500 ISL	5.89 D	5.83	34.199 D	26.946	117.3	0.966	0.52 D	22.6 D	7.4	76.5	3.06	40.1	0.00	0.00			504	
515	5.82	5.77	34.199	26.954	116.7	0.986	0.47	20.3	6.7	78.6	3.09	40.5	0.00	0.00			519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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 39.7 N	123 3.9 W	20/01/2013	0039	UTC	3921 m	070 02 kn	330 01 07	0	1019.7 mb	15.9 C	13.4 C		0/8		042

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		15.99		15.99		33.318	24.457	346.6	0.000	5.74	250.1	101.8	2.8	0.29	0.0	0.01	0.07	0.10	0.02	0	
2		15.99		15.99		33.318	24.457	346.6	0.007	5.74	250.1	101.8	2.8	0.29	0.0	0.01	0.07	0.10	0.02	2	21
10	ISL	15.56	D	15.56		33.327	D 24.561	336.9	0.035	5.74	D250.3	D101.1	2.8	0.29	0.0	0.01	0.04	0.10	0.02	10	
11		15.55		15.55		33.319	24.557	337.4	0.038	5.74	250.0	100.9	2.8	0.29	0.0	0.01	0.04	0.10	0.02	11	19
11		15.55		15.55		33.320	24.558	337.2	0.038											11	20
20	ISL	15.50	D	15.49		33.322	D 24.572	336.2	0.053	5.74	D250.2	D100.9	2.7	0.29	0.0	0.01	0.05	0.11	0.03	20	
26		15.48		15.47		33.314	24.571	336.5	0.088	5.75	250.8	101.1	2.7	0.29	0.0	0.01	0.05	0.11	0.03	26	18
30	ISL	15.47	D	15.46		33.318	D 24.576	336.2	0.087	5.74	D250.3	D100.9	2.7	0.29	0.0	0.01	0.07	0.11	0.03	30	
41		15.45		15.45		33.309	24.573	336.8	0.139	5.74	250.3	100.8	2.7	0.28	0.0	0.01	0.12	0.12	0.03	41	17
50	ISL	15.45	D	15.44		33.316	D 24.581	336.4	0.155	5.74	D250.0	D100.7	2.7	0.29	0.0	0.01	0.01	0.13	0.03	50	
51		15.44		15.43		33.309	24.577	336.8	0.172	5.75	250.4	100.8	2.7	0.29	0.0	0.01	0.00	0.13	0.03	51	16
62		15.38		15.37		33.300	24.583	336.5	0.209	5.76	251.2	101.0	2.7	0.29	0.0	0.01	0.00	0.18	0.06	62	15
75	ISL	15.23	D	15.22		33.277	D 24.600	335.4	0.239	5.74	D250.2	D100.3	2.6	0.30	0.0	0.01	0.03	0.23	0.08	76	
76		15.22		15.21		33.269	24.596	335.8	0.256	5.76	250.9	100.6	2.6	0.30	0.0	0.01	0.03	0.23	0.08	77	14
88		15.16		15.14		33.274	24.614	334.5	0.297	5.75	250.7	100.3	2.7	0.30	0.0	0.01	0.06	0.25	0.09	89	13
100		14.77		14.75		33.259	24.687	327.8	0.336	5.78	251.7	100.0	2.8	0.32	0.1	0.04	0.05	0.21	0.09	101	12
112		12.35		12.33		33.196	25.129	285.7	0.373	5.72	249.0	94.0	4.4	0.50	2.5	0.09	0.01	0.14	0.10	113	11
125		11.75		11.73		33.232	25.270	272.4	0.409	5.49	239.1	89.2	5.9	0.66	5.3	0.03	0.00	0.09	0.08	126	10
140		10.98		10.97		33.342	25.494	251.3	0.449	5.16	224.6	82.5	8.5	0.88	9.0	0.02	0.00	0.06	0.06	141	09
150	ISL	10.53	D	10.51		33.362	D 25.591	242.2	0.461	5.05	D219.8	D 79.9	11.2	1.04	11.7	0.02	0.01	0.05	0.04	151	
170		9.62		9.60		33.526	25.871	215.8	0.519	4.46	194.1	69.3	16.6	1.37	17.1	0.01	0.03	0.01	0.02	171	08
200	ISL	8.85	D	8.84		33.845	D 26.243	180.8	0.567	3.15	D137.2	D 48.3	27.6	1.87	24.7	0.00	0.00	0.00	0.02	202	
201		8.91		8.88		33.830	26.224	182.7	0.581	3.18	138.4	48.7	28.0	1.89	25.0	0.00	0.00	0.00	0.02	203	07
230		8.25		8.22		33.946	26.417	164.7	0.631	2.99	130.2	45.2	33.2	1.99	26.7	0.00	0.00			232	06
250	ISL	7.95	D	7.92		33.996	D 26.501	156.9	0.652	2.82	D122.7	D 42.3	38.3	2.20	29.2	0.00	0.00			252	
270		7.91		7.88		34.046	26.546	153.1	0.694	1.86	80.7	27.8	43.5	2.40	31.6	0.00	0.00			272	05
300	ISL	7.54	D	7.51		34.073	D 26.622	146.2	0.728	1.60	D 69.5	D 23.8	48.7	2.48	33.0	0.00	0.00			302	
320		7.10		7.07		34.038	26.656	143.0	0.768	1.70	74.0	25.0	52.1	2.54	34.0	0.00	0.00			323	04
380		6.48		6.45		34.079	26.772	132.5	0.851	1.13	49.2	16.4	62.3	2.78	37.1	0.00	0.00			383	03
400	ISL	6.26	D	6.22		34.113	D 26.828	127.3	0.866	0.92	D 40.1	D 13.3	65.8	2.85	37.8	0.00	0.00			403	
442		6.01		5.98		34.151	26.890	121.9	0.929	0.65	28.1	9.3	73.2	3.01	39.4	0.00	0.00			446	02
500	ISL	5.74	D	5.71		34.220	D 26.978	114.1	0.987	0.44	D 19.0	D 6.2	79.7	3.10	40.3	0.00	0.00			504	
516		5.69		5.64		34.218	26.985	113.6	1.016	0.40	17.5	5.7	81.5	3.13	40.6	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
31 19.6 N	123 44.4 W	20/01/2013	0630	UTC	3965 m	090 05 kn			1021.5 mb	15.1 C	13.2 C				043

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		16.05		16.05		33.406	24.511	341.4	0.000	5.68	247.4	100.9	2.8	0.30	0.0	0.01	0.08	0.13	0.04	0	
2		16.05		16.05		33.406	24.511	341.4	0.007	5.68	247.4	100.9	2.8	0.30	0.0	0.01	0.08	0.13	0.04	2	22
10		16.04		16.04		33.395	24.505	342.3	0.034	5.72	249.2	101.6	2.8	0.29	0.0	0.01	0.03	0.13	0.04	10	20
10		16.04		16.04		33.399	24.508	342.0	0.035											10	21
20	ISL	16.04	D	16.04		33.403	D 24.513	341.9	0.052	5.66	D246.6	D100.6	2.8	0.30	0.0	0.01	0.04	0.13	0.04	20	
25		16.03		16.03		33.396	24.509	342.4	0.085	5.68	247.5	100.9	2.7	0.30	0.0	0.01	0.05	0.13	0.04	25	19
30	ISL	16.03	D	16.03		33.403	D 24.515	342.0	0.086	5.66	D246.7	D100.6	2.7	0.30	0.0	0.01	0.05	0.14	0.04	30	
40		16.03		16.03		33.396	24.510	342.8	0.137	5.67	247.1	100.7	2.8	0.30	0.0	0.01	0.06	0.15	0.05	40	18
50		16.03		16.02		33.396	24.512	343.0	0.171	5.67	247.2	100.8	2.7	0.29	0.0	0.01	0.05	0.16	0.06	50	17
62		16.02		16.01		33.396	24.514	343.3	0.212	5.67	247.1	100.7	2.7	0.29	0.0	0.01	0.02	0.18	0.06	62	16
75		15.58		15.57		33.365	24.591	336.3	0.256	5.69	248.1	100.2	2.8	0.30	0.1	0.03	0.05	0.23	0.08	76	15
87		14.61		14.60		33.260	24.720	324.2	0.296	5.81	253.2	100.2	2.9	0.30	0.0	0.01	0.05	0.27	0.10	88	14
100	ISL	13.25	D	13.23		33.267	D 25.008	297.0	0.322	5.63	D245.1	D 94.4	4.4	0.52	2.7	0.22	0.02	0.20	0.14	101	
101		13.36		13.35		33.251	24.972	300.5	0.339	5.64	245.5	94.8	4.5	0.54	2.9	0.24	0.02	0.19	0.14	102	13
112		12.62		12.61		33.307	25.162	282.5	0.372	5.63	245.4	93.3	4.7	0.52	2.9	0.05	0.02	0.15	0.12	113	12
125		11.88		11.86		33.372	25.354	264.5	0.407	5.22	227.4	85.1	7.2	0.80	7.5	0.03	0.00	0.09	0.08	126	11
140		10.91		10.90		33.381	25.537	247.2	0.446	4.89	212.9	78.1	10.5	1.07	11.6	0.02	0.02	0.05	0.05	141	10
150	ISL	10.43	D	10.42		33.457	D 25.679	233.8	0.455	4.55	D198.1	D 72.0	13.5	1.23	14.3	0.02	0.01	0.03	0.04	151	
171		9.57		9.55		33.597	25.933	209.9	0.516	3.95	171.8	61.3	19.9	1.57	20.0	0.01	0.00	0.01	0.02	172	09
200		8.98		8.96		33.799	26.188	186.1	0.574	3.44	D155.4	D 52.9	25.9	1.79	23.6	0.00	0.00	0.00	0.02	202	08
231		8.52		8.50		33.922	26.356	170.6	0.629	3.31	144.2	50.4	30.1	1.86	25.1	0.00	0.00			233	07
250	ISL	8.16	D	8.14		33.966	D 26.445	162.4	0.647	3.09	D134.4	D 46.6	33.8	1.93	26.3	0.00	0.00			252	
270		7.70		7.68		33.963	26.510	156.3	0.692	3.08	133.9	45.9	37.6	2.01	27.5	0.00	0.00			272	06
300	ISL	7.49	D	7.46		34.031	D 26.596	148.6	0.725	2.31	D100.3	D 34.2	44.2	2.28	30.7	0.00	0.00			302	
320		7.26		7.22		34.040	26.636	145.0	0.767	1.84	79.9	27.1	48.6	2.46	32.9	0.00	0.00			323	05
380		6.45		6.42		34.037	26.743	135.2	0.852	1.50	65.0	21.7	59.5	2.67	36.0	0.00	0.00			383	04
400	ISL	6.36	D	6.33		34.075	D 26.785	131.5	0.866	1.19	D 51.8	D 17.2	62.7	2.76	36.9	0.00	0.00			403	
442		6.15		6.12		34.123	26.851	125.7	0.932	0.79	34.3	11.4	69.4	2.95	38.7	0.00	0.00			446	03
500	ISL	5.74	D	5.70		34.202	D 26.965	115.4	0.991	0.47	D 20.6	D 6.8	78.3	3.08	40.1	0.00	0.00			504	
515		5.67		5.62		34.201	26.973	114.7	1.000				81.1	3.13	40.5	0.00	0.00			519	02
515		5.67		5.62		34.204	26.976	114.4	1.019	0.45	19.4	6.4	80.7	3.11	40.4	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 53.3 N	118 26.8 W	17/01/2013	2316	UTC	23 m	310 08 kn		0	1018.4 mb	15.3 C	12.1 C		0/8		031

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		12.71		12.70		33.507	25.295	266.8	0.000	6.30	274.4	104.7	4.1	0.60	4.1	0.28	0.60	3.86	0.48	0	
2		12.71		12.70		33.507	25.295	266.8	0.005	6.30	274.4	104.7	4.1	0.60	4.1	0.28	0.60	3.86	0.48	2	05
5		12.05		12.05		33.511	25.423	254.6	0.013	6.14	267.4	100.6	4.2	0.62	4.5	0.26	0.43	3.67	0.57	5	04
10		11.83		11.83		33.523	25.475	249.9	0.026	5.42	235.9	88.4	6.2	0.79	7.2	0.30	0.94	5.24	0.85	10	03
15		11.40		11.40		33.572	25.593	238.8	0.038	4.26	185.6	68.9	13.6	1.28	13.5	0.34	2.25	3.24	0.89	15	02
20		11.09		11.10		33.626	D 25.689	229.7	0.050	3.64	D196.4	D 58.6								20	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 40.1 N	118 5.0 W	17/01/2013	1934 UTC	15 m	250 05 kn	260 01 06	0	1020.5 mb	15.0 C	11.5 C		0/8		030

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	12.05	12.04	33.535	25.443	252.6	0.000	5.93	258.3	97.2	5.5	0.70	6.3	0.21	0.27	5.40	0.44	0	
2	12.05	12.04	33.535	25.443	252.6	0.005	5.93	258.3	97.2	5.5	0.70	6.3	0.21	0.27	5.40	0.44	2	04
5	11.93	11.93	33.534	25.465	250.7	0.013	5.95	259.3	97.3	5.5	0.71	6.2	0.21	0.29	6.19	0.65	5	03
9	11.88	11.88	33.535	25.475	249.9	0.023	5.78	251.9	94.4	5.8	0.75	6.6	0.21	0.29	8.07	0.86	9	02
10 ISL	11.86 D	11.86	33.540 D	25.482	249.2	0.025	5.78 D	251.6 D	94.3	5.8	0.76	6.8	0.21	0.34	8.30	0.90	10	
15	11.80	11.80	33.538	25.493	248.3	0.038	5.47	238.1	89.1	5.6	0.83	7.6	0.20	0.59	9.43	1.08	15	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 90.0 27.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.5 N	117 45.7 W	17/01/2013	1233 UTC	40 m	280 07 kn			1020.2 mb	12.4 C	10.7 C				028

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.17	13.17	33.498	25.196	276.2	0.000	5.92	257.7	99.3	2.0	0.44	1.5	0.09	0.20	2.44	0.69	0	
2	13.17	13.17	33.498	25.196	276.2	0.006	5.92	257.7	99.3	2.0	0.44	1.5	0.09	0.20	2.44	0.69	2	05
5	13.10	13.09	33.496	25.210	275.0	0.014	5.87	255.7	98.3	2.5	0.47	2.0	0.09	0.18	2.49	0.85	5	04
10	12.72	12.72	33.488	25.278	268.6	0.027	5.53	241.0	91.9	4.4	0.65	4.7	0.17	0.28	3.12	1.00	10	03
20	12.27	12.27	33.501	25.375	259.7	0.054	5.57	242.7	91.7	4.5	0.69	5.6	0.21	0.60	4.58	1.18	20	02
30	11.69	11.68	33.510	25.493	248.7	0.079	4.48	195.2	72.9	10.9	1.18	12.2	0.21	0.72	2.86	1.17	30	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 29.0 N	117 46.2 W	17/01/2013	1657 UTC	68 m	040 02 kn	190 01 06	0	1021.7 mb	13.3 C	11.9 C	12 m	0/8		029

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.30	13.30	33.492	25.165	279.1	0.000	6.07	264.5	102.1	1.4	0.37	0.6	0.07	0.23	2.46	0.70	0	
1 A	13.30	13.30	33.492	25.165	279.1	0.003	6.07	264.5	102.1	1.4	0.37	0.6	0.07	0.23	2.46	0.70	1	09
8 A	13.25	13.25	33.492	25.175	278.4	0.022	6.05	263.6	101.7	1.4	0.38	0.7	0.07	0.13	2.37	0.70	8	08
10 ISL	13.27 D	13.26	33.498 D	25.178	278.2	0.018	6.03 D	262.6 D	101.4	2.4	0.48	2.0	0.08	0.26	2.26	0.77	10	
11 A	13.12	13.12	33.477	25.190	277.0	0.031	5.72	249.1	95.8	2.9	0.53	2.7	0.09	0.33	2.20	0.81	11	07
20 ISL	12.32 D	12.31	33.457 D	25.333	263.6	0.045	5.03 D	219.2 D	82.9	7.3	0.89	8.2	0.14	0.29	2.20	1.00	20	
21 A	12.24	12.24	33.451	25.343	262.8	0.058	4.84	210.8	79.6	7.8	0.93	8.8	0.15	0.29	2.20	1.02	21	06
30	11.98	11.98	33.443	25.385	259.0	0.081	4.45	193.8	72.8	10.3	1.12	11.7	0.13	0.08	2.06	0.93	30	05
39 A	11.66	11.66	33.496	25.486	249.5	0.104	4.48	195.2	72.8	10.6	1.15	12.1	0.21	0.55	3.12	1.04	39	04
44 A	11.22	11.22	33.549	25.608	238.1	0.116	3.79	164.9	61.0	15.3	1.44	16.2	0.21	0.22	1.07	0.56	44	03
50 ISL	10.98 D	10.96	33.607 D	25.699	229.6	0.121	3.53 D	153.7 D	56.6	18.0	1.59	18.5	0.14	0.03	0.61	0.47	50	
51	10.93	10.93	33.616	25.713	228.3	0.133	3.30	143.8	52.9	18.5	1.62	18.9	0.13	0.00	0.53	0.45	51	02
60	10.87	10.86	33.642 D	25.745	225.5	0.144	3.24 D	164.1 D	51.8								60	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 O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 25.1 N	117 54.5 W	17/01/2013	0933 UTC	597 m	280 02 kn			1020.5 mb	13.9 C	11.8 C				027

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.44	13.44	33.507	25.149	280.6	0.000	6.00	261.5	101.3	1.6	0.40	0.8	0.07	0.17	1.86	0.62	0	
2	13.44	13.44	33.507	25.149	280.6	0.006	6.00	261.5	101.3	1.6	0.40	0.8	0.07	0.17	1.86	0.62	2	21
10	13.44	13.44	33.507	25.150	280.8	0.028	5.99	261.1	101.1								10	20
10	13.44	13.44	33.511	25.153	280.5	0.028	5.99	261.1	101.1	1.6	0.41	0.8	0.07	0.11	1.96	0.58	10	19
20	13.38	13.38	33.507	25.161	280.0	0.056	6.03	262.5	101.6	1.5	0.39	0.8	0.07	0.12	1.99	0.57	20	18
30	13.26	13.25	33.503	25.185	278.1	0.084	6.03	262.8	101.4	1.6	0.44	1.2	0.08	0.18	2.75	0.74	30	17
40	12.71	12.71	33.503	25.293	268.1	0.111	5.87	255.6	97.5	2.7	0.51	3.0	0.14	0.37	3.46	0.87	40	16
50	12.03	12.02	33.463	25.393	258.7	0.138	5.06	220.2	82.8	7.5	0.88	8.4	0.13	0.26	2.48	0.72	50	15
60	10.76	10.75	33.542	25.686	231.1	0.162	3.84	167.3	61.3	16.2	1.45	17.2	0.04	0.02	0.19	0.26	60	14
70	10.50	10.49	33.624	25.796	220.8	0.185	3.45	150.3	54.8	19.2	1.62	19.5	0.03	0.00	0.19	0.26	71	13
75 ISL	10.45 D	10.45	33.653 D	25.826	218.1	0.186	3.23	140.4	51.1	20.5	1.69	20.3	0.03	0.00	0.16	0.23	76	
85	10.44	10.43	33.780	25.929	208.6	0.217	2.77	120.7	44.0	23.0	1.84	21.8	0.02	0.00	0.12	0.17	86	12
100	10.13	10.12	33.840	26.029	199.3	0.248	2.59 D	112.8 D	40.8	25.8	1.95	23.7	0.02	0.00	0.09	0.16	101	11
120	10.15	10.13	33.998	26.150	188.4	0.286	2.12	92.4	33.5	29.0	2.10	25.2	0.01	0.00	0.05	0.13	121	10
125 ISL	10.15 D	10.14	34.058 D	26.196	184.1	0.286	2.01 D	87.4 D	31.7	29.7	2.13	25.5	0.01	0.00	0.04	0.12	126	
140	9.95	9.93	34.111	26.273	177.2	0.323	1.76	76.6	27.7	31.9	2.23	26.4	0.02	0.00	0.03	0.07	141	09
150 ISL	9.81 D	9.79	34.134 D	26.314	173.5	0.331	1.71 D	74.4 D	26.8	33.0	2.26	26.8	0.01	0.00	0.02	0.07	151	
170	9.63	9.61	34.171	26.374	168.2	0.375	1.58	68.6	24.6	35.1	2.32	27.7	0.00	0.00	0.02	0.06	171	08
200	9.25	9.23	34.189	26.451	161.4	0.424	1.54	66.9	23.8	37.3	2.36	28.6	0.00	0.00	0.02	0.07	202	07
230	8.74	8.71	34.178	26.524	154.9	0.471	1.45	62.9	22.1	40.8	2.43	29.9	0.00	0.00			232	06
250 ISL	8.50 D	8.48	34.181 D	26.562	151.5	0.494	1.38 D	60.1 D	21.0	43.3	2.50	30.8	0.00	0.00			252	
270	8.34	8.31	34.204	26.607	147.6	0.532	1.18	51.3	17.9	45.8	2.57	31.7	0.00	0.00			272	05
300 ISL	8.09 D	8.06	34.210 D	26.649	144.1	0.568	1.07 D	46.6 D	16.1	48.8	2.64	32.7	0.00	0.00			302	
320	7.94	7.90	34.212	26.674	142.0	0.604	0.95	41.2	14.2	50.7	2.68	33.3	0.00	0.00			323	04
380	7.55	7.51	34.242	26.756	135.1	0.687	0.64	27.8	9.5	56.8	2.82	35.0	0.00	0.00			383	03
400 ISL	7.41 D	7.37	34.254 D	26.785	132.6	0.707	0.60 D	25.9 D	8.9	59.2	2.87	35.5	0.00	0.00			403	
441	7.07	7.02	34.275	26.851	126.8	0.767	0.44	19.2	6.5	64.0	2.97	36.5	0.00	0.00			445	02
500 ISL	6.51 D	6.47	34.311 D	26.954	117.4	0.834	0.30 D	12.9 D	4.3	71.8	3.08	38.2	0.00	0.10			504	
515	6.41	6.37	34.310	26.967	116.3	0.857	0.30	13.1	4.4	73.8	3.11	38.6	0.00	0.13			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 15.0 N	118 14.8 W	17/01/2013	0533	UTC	327 m	190	05 kn			1021.0 mb	14.1 C	13.1 C				026

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.97		13.97		33.510	25.043	290.8	0.000	6.00		261.4		102.4		1.3	0.39	0.4	0.05	0.18	1.53	0.35	0	
2		13.97		13.97		33.510	25.043	290.8	0.006	6.00		261.4		102.4		1.3	0.39	0.4	0.05	0.18	1.53	0.35	2	18
10		13.96		13.96		33.508	25.044	290.9	0.029														10	17
10		13.96		13.96		33.511	25.046	290.7	0.029	6.01		261.8		102.5		1.2	0.37	0.4	0.05	0.08	1.49	0.43	10	16
20		13.83		13.83		33.500	25.064	289.3	0.058	5.92		258.0		100.7		1.3	0.39	0.5	0.06	0.09	1.62	0.91	20	15
30		13.82		13.81		33.498	25.067	289.4	0.087	5.86		255.1		99.6		1.4	0.40	0.6	0.06	0.15	1.62	0.47	30	14
40		13.81		13.81		33.508	25.076	288.8	0.116	5.88		256.2		100.0		1.4	0.39	0.7	0.06	0.12	1.68	0.52	40	13
50		13.63		13.63		33.489	25.099	286.9	0.145	5.76		250.9		97.6		2.2	0.45	1.5	0.07	0.15	1.50	0.45	50	12
60		11.51		11.50		33.434	25.468	251.9	0.172	4.31		187.5		69.7		12.1	1.22	13.6	0.08	0.05	0.14	0.19	60	11
70		11.14		11.13		33.482	25.573	242.1	0.196	4.02		175.2		64.6		14.3	1.37	15.8	0.06	0.11	0.18	0.21	71	10
75	ISL	11.00	D	10.99		33.504	D 25.615	238.2	0.198	3.90		169.7		62.4		15.4	1.43	16.8	0.05	0.09	0.15	0.20	76	
85		10.61		10.60		33.572	25.736	226.9	0.232	3.65		158.8		58.0		17.7	1.56	18.7	0.04	0.06	0.09	0.17	86	09
100	ISL	10.24	D	10.22		33.791	D 25.972	204.7	0.254	2.71		118.1		42.8		24.6	1.91	23.0	0.04	0.00	0.10	0.14	101	
101		10.19		10.18		33.815	25.999	202.3	0.266	2.65		115.4		41.8		25.0	1.93	23.3	0.04	0.00	0.10	0.13	102	08
120		9.72		9.71		33.921	26.161	187.2	0.303	2.36		102.7		36.8		28.8	2.08	25.4	0.03	0.04	0.05	0.13	121	07
125	ISL	9.61	D	9.60		33.973	D 26.220	181.7	0.302	2.33	D	101.2	D	36.3		29.6	2.10	25.9	0.03	0.04	0.04	0.12	126	
140		9.25		9.24		34.004	26.303	174.0	0.339	2.20		95.5		33.9		32.3	2.16	27.2	0.02	0.04	0.03	0.11	141	06
150	ISL	9.23	D	9.22		34.026	D 26.324	172.3	0.346	2.18	D	95.0	D	33.8		33.1	2.19	27.5	0.02	0.08	0.03	0.10	151	
171		9.22		9.20		34.086	26.374	168.0	0.392	1.95		84.8		30.1		34.7	2.25	28.0	0.02	0.15	0.02	0.09	172	05
200		8.77		8.75		34.120	26.472	159.2	0.439	1.66		72.4		25.5		39.3	2.37	29.9	0.02	0.00	0.02	0.06	202	04
229		8.60		8.57		34.141	26.517	155.5	0.485	1.52		66.2		23.2		41.3	2.43	30.5	0.02	0.02			231	03
250	ISL	8.46	D	8.43		34.169	D 26.560	151.7	0.509	1.39	D	60.3	D	21.1		43.7	2.51	31.3	0.03	0.02			252	
270		8.27		8.24		34.177	26.596	148.6	0.547	1.20		52.3		18.2		45.9	2.58	32.1	0.03	0.02			272	02
300	ISL	7.92	D	7.89		34.215	D 26.678	141.2	0.583	0.93	D	40.4	D	14.0		50.2	2.70	33.4	0.03	0.16			302	
320		7.79		7.76		34.230	26.710	138.5	0.619	0.81		35.3		12.2		53.1	2.78	34.3	0.03	0.26			323	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
33 10.7 N	118 23.3 W	17/01/2013	0227	UTC	1154 m	300	14 kn			1022.2 mb	13.9 C	12.8 C				025

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.73		13.72		33.503	25.088	286.5	0.000	5.96		259.7		101.2		2.7	0.45	1.4	0.09	0.14	1.55	0.43	0	
2		13.73		13.72		33.503	25.088	286.5	0.006	5.96		259.7		101.2		2.7	0.45	1.4	0.09	0.14	1.55	0.43	2	20
10		13.72		13.72		33.503	25.090	286.6	0.029	5.90		256.9		100.1		2.7	0.45	1.4	0.09	0.12	1.46	0.42	10	19
20		13.65		13.64		33.498	25.101	285.8	0.057	5.79		252.1		98.1		2.9	0.46	1.7	0.09	0.14	1.60	0.65	20	18
30		13.63		13.62		33.497	25.105	285.8	0.086	5.77		251.3		97.7		3.0	0.47	1.8	0.10	0.14	1.58	0.52	30	17
40		13.62		13.61		33.495	25.106	286.0	0.114	5.74		250.1		97.2		3.1	0.47	1.9	0.10	0.17	1.51	0.49	40	16
50		13.58		13.57		33.481	25.104	286.4	0.143	5.67		246.8		95.8		3.2	0.50	2.2	0.11	0.37	1.28	0.50	50	15
60		13.09		13.08		33.493	25.211	276.5	0.171	5.24		228.4		87.8		5.5	0.71	5.3	0.14	0.39	0.97	0.54	60	14
70		11.40		11.39		33.492	25.534	245.9	0.197	4.18		181.9		67.5		12.5	1.25	13.6	0.15	0.03	0.71	0.50	71	13
75	ISL	10.95	D	10.94		33.519	D 25.635	236.3	0.211	4.11	D	179.1	D	65.8		14.1	1.34	15.2	0.11	0.02	0.52	0.41	76	
85		10.49		10.48		33.552	25.741	226.4	0.232	3.77		164.3		59.8		17.4	1.52	18.4	0.03	0.00	0.14	0.23	86	12
100		10.07		10.06		33.744	25.964	205.5	0.265	2.98		129.8		46.9		23.5	1.83	22.6	0.02	0.00	0.05	0.13	101	11
120		9.56		9.54		33.825	26.114	191.7	0.305	2.79		121.5		43.4		26.8	1.94	24.7	0.02	0.00	0.03	0.09	121	10
125	ISL	9.47	D	9.46		33.841	D 26.140	189.3	0.316	2.77	D	120.4	D	43.0		27.6	1.97	25.1	0.02	0.00	0.03	0.12	126	
140		9.32		9.31		33.938	26.240	180.0	0.342	2.46		107.1		38.1		30.2	2.06	26.3	0.02	0.00	0.06	0.20	141	09
150	ISL	9.18	D	9.16		33.972	D 26.291	175.4	0.362	2.39	D	104.1	D	36.9		31.6	2.11	26.9	0.02	0.00	0.04	0.15	151	
171		8.95		8.93		34.034	26.375	167.8	0.396	2.13		92.8		32.8		34.5	2.20	28.2	0.02	0.00	0.01	0.05	172	08
200		8.66		8.64		34.093	26.468	159.5	0.443	1.75		76.1		26.7		38.9	2.36	30.1	0.00	0.00	0.01	0.05	202	07
229		8.42		8.39		34.147	26.549	152.3	0.488	1.40		60.7		21.2		43.0	2.49	31.5	0.00	0.00			231	06
250	ISL	8.30	D	8.27		34.179	D 26.593	148.5	0.523	1.20	D	52.1	D	18.1		45.8	2.56	32.3	0.00	0.00			252	
269		8.05		8.02		34.184	26.635	144.8	0.548	1.10		47.8		16.5		48.4	2.63	33.1	0.00	0.00			271	05
300	ISL	7.85	D	7.82		34.218	D 26.691	139.9	0.595	0.85	D	37.2	D	12.8		51.9	2.73	34.1	0.00	0.00			302	
320		7.73		7.70		34.235	26.722	137.3	0.620	0.71		30.9		10.6		54.2	2.80	34.7	0.00	0.00			323	04
379		7.22		7.18		34.278	26.831	127.7	0.698	0.46		20.1		6.8		62.1	2.95	36.5	0.00	0.00			382	03
400	ISL	7.01	D	6.97		34.293	D 26.872	124.0	0.729	0.38	D	16.7	D	5.7		64.6	2.99	37.0	0.00	0.00			403	
439		6.76		6.72		34.297	26.910	120.8	0.772	0.33		14.5		4.9		69.1	3.05	37.8	0.00	0.00			443	02
500	ISL	6.35	D	6.31		34.323	D 26.985	114.3	0.849	0.26	D	11.3	D	3.8		75.8	3.14	39.1	0.00	0.00			504	
514		6.23		6.18		34.323	27.000	112.9	0.859	0.23		10.1		3.3		77.4	3.16	39.4	0.00	0.00			518	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 90.0 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 53.3 N	119 0.4 W	16/01/2013	1938 UTC	1599 m	320 03 kn	270 01 07	0	1026.3 mb	14.8 C	13.0 C	20 m	0/8		024

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.71		13.71	33.491	25.082	287.0	0.000	5.86		255.4		99.5	2.7	0.48	1.7	0.11	0.25	0.89	0.20	0	
2	A	13.71		13.71	33.491	25.082	287.0	0.006	5.86		255.4		99.5	2.7	0.48	1.7	0.11	0.25	0.89	0.20	2	23
10		13.57		13.57	33.490	25.110	284.6	0.029	5.85		254.9		99.0	2.7	0.47	1.8	0.11	0.19	0.88	0.25	10	21
10		13.57		13.57	33.490	25.110	284.6	0.030													10	22
13	A	13.51		13.50	33.487	25.121	283.7	0.037	5.83		253.9		98.4	3.1	0.48	2.0	0.13	0.16	0.95	0.27	13	20
17	A	13.41		13.41	33.486	25.139	282.1	0.049	5.81		253.2		98.0	3.5	0.50	2.2	0.14	0.13	0.94	0.23	17	19
20	ISL	13.40	D	13.40	33.490	D 25.145	281.6	0.053	5.80		252.5		97.7	3.6	0.51	2.4	0.14	0.19	0.91	0.27	20	
26		13.23		13.22	33.492	25.182	278.2	0.074	5.76		250.9		96.7	3.8	0.54	2.7	0.15	0.32	0.87	0.36	26	18
30	ISL	13.19	D	13.19	33.500	D 25.195	277.1	0.081	5.70		248.2		95.6	4.0	0.58	3.1	0.16	0.46	0.76	0.35	30	
36	A	12.81		12.81	33.494	25.266	270.6	0.101	5.61		244.2		93.4	4.4	0.64	3.8	0.17	0.67	0.59	0.35	36	17
46		12.67		12.66	33.507	25.304	267.2	0.128	5.51		240.1		91.5	5.0	0.69	4.6	0.16	0.68	0.58	0.35	46	16
50	ISL	12.43	D	12.42	33.510	D 25.354	262.6	0.136	5.36		233.6		88.6	6.0	0.76	5.8	0.16	0.64	0.57	0.38	50	
56		12.24		12.23	33.509	25.389	259.3	0.155	5.14		223.9		84.6	7.5	0.87	7.5	0.17	0.58	0.55	0.43	56	15
64	A	11.50		11.49	33.513	25.532	245.9	0.175	4.47		194.6		72.4	12.0	1.16	12.5	0.15	0.24	0.44	0.53	65	14
73	A	10.76		10.75	33.525	25.674	232.5	0.196	3.96		172.4		63.1	15.8	1.40	16.6	0.08	0.07	0.14	0.22	74	13
75	ISL	10.70	D	10.69	33.529	D 25.688	231.2	0.198	3.99	D	173.8	D	63.5	16.3	1.43	17.1	0.07	0.06	0.12	0.20	76	
86		10.40		10.39	33.605	25.798	220.9	0.226	3.53		153.5		55.8	19.0	1.59	19.6	0.04	0.02	0.05	0.11	87	12
99		9.91		9.90	33.701	25.957	206.1	0.254	3.20		139.3		50.1	22.8	1.79	22.3	0.03	0.02	0.04	0.17	100	11
100	ISL	9.92	D	9.91	33.708	D 25.961	205.8	0.253	3.19	D	138.8	D	50.0	23.0	1.80	22.4	0.03	0.02	0.03	0.16	101	
119		9.52		9.50	33.794	26.096	193.3	0.294	2.92		126.9		45.3	26.5	1.91	24.4	0.02	0.07	0.02	0.10	120	10
125	ISL	9.47	D	9.45	33.840	D 26.139	189.3	0.303	2.89	D	125.8	D	44.9	28.2	1.99	25.2	0.02	0.10	0.02	0.09	126	
139		9.18		9.16	33.965	26.284	175.8	0.331	2.21		96.3		34.2	32.2	2.16	27.2	0.01	0.17	0.01	0.07	140	09
150	ISL	9.13	D	9.12	33.988	D 26.310	173.5	0.348	2.20	D	95.7	D	33.9	33.3	2.18	27.6	0.01	0.14	0.01	0.06	151	
169		8.82		8.80	34.025	26.389	166.4	0.382	2.18		94.9		33.4	35.1	2.21	28.4	0.00	0.08	0.01	0.06	170	08
199		8.70		8.67	34.136	26.496	156.8	0.431	1.45		63.0		22.1	40.9	2.45	30.8	0.00	0.00	0.02	0.08	201	07
200	ISL	8.69	D	8.67	34.141	D 26.501	156.4	0.431	1.44	D	62.5	D	21.9	41.0	2.45	30.8	0.00	0.00	0.02	0.08	202	
230		8.44		8.42	34.165	26.559	151.4	0.478	1.22		52.9		18.5	44.5	2.55	31.9	0.00	0.00			232	06
250	ISL	8.37	D	8.35	34.188	D 26.589	149.0	0.507	1.15	D	50.0	D	17.4	46.0	2.60	32.4	0.00	0.00			252	
270		8.24		8.21	34.199	26.618	146.5	0.538	1.00		43.4		15.1	47.5	2.65	32.9	0.00	0.00			272	05
300	ISL	7.97	D	7.94	34.247	D 26.696	139.6	0.580	0.77	D	33.3	D	11.5	51.4	2.75	33.9	0.00	0.01			302	
320		7.85		7.81	34.251	26.718	137.8	0.609	0.67		29.0		10.0	54.1	2.81	34.5	0.00	0.02			323	04
380		7.32		7.28	34.269	26.809	129.9	0.689	0.49		21.5		7.3	60.8	2.93	36.1	0.00	0.00			383	03
400	ISL	7.19	D	7.15	34.283	D 26.838	127.3	0.715	0.45	D	19.4	D	6.6	63.2	2.97	36.6	0.00	0.02			403	
440		6.82		6.78	34.294	26.898	122.0	0.765	0.34		14.9		5.0	68.0	3.04	37.6	0.00	0.07			444	02
500	ISL	6.38	D	6.33	34.322	D 26.980	114.7	0.837	0.27	D	11.6	D	3.9	76.3	3.14	39.0	0.00	0.14			504	
515		6.22		6.17	34.324	27.003	112.6	0.853	0.22		9.7		3.2	78.4	3.17	39.3	0.00	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 BELL M SHIMADA CALCOFI CRUISE 1301 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
32 39.3 N	119 28.9 W	16/01/2013	1436 UTC	1294 m	350 09 kn			1027.4 mb	13.5 C	11.0 C	16 m			023

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.92		13.92	33.490	25.039	291.2	0.000	5.77		251.4		98.3	3.1	0.42	1.1	0.10	0.19	0.55	0.15	0	
2		13.92		13.92	33.490	25.039	291.2	0.006	5.77		251.4		98.3	3.1	0.42	1.1	0.10	0.19	0.55	0.15	2	20
10		13.92		13.92	33.490	25.039	291.4	0.029	5.78		251.7		98.4	3.2	0.43	1.1	0.10	0.20	0.51	0.17	10	19
20		13.87		13.87	33.493	25.051	290.6	0.058	5.78		251.7		98.3	3.2	0.42	1.2	0.11	0.14	0.62	0.22	20	18
30		13.52		13.52	33.494	25.124	283.9	0.087	5.79		252.1		97.8	3.3	0.46	1.7	0.14	0.17	0.78	0.30	30	17
40		13.49		13.49	33.495	25.131	283.5	0.115	5.73		249.8		96.8	3.6	0.51	2.2	0.18	0.30	0.71	0.30	40	16
50		13.41		13.40	33.493	25.148	282.2	0.144	5.72		249.3		96.5	3.8	0.51	2.4	0.18	0.25	0.58	0.26	50	15
60		12.97		12.96	33.474	25.221	275.5	0.172	5.35		232.9		89.3	6.0	0.69	5.4	0.18	0.24	0.34	0.22	60	14
70		11.79		11.78	33.420	25.406	258.1	0.198	4.58		199.4		74.6	10.6	1.08	11.6	0.09	0.02	0.10	0.12	71	13
75	ISL	11.52	D	11.51	33.479	D 25.501	249.1	0.212	4.35	D	189.4	D	70.4	12.7	1.21	13.7	0.07	0.01	0.08	0.11	76	
85		10.55		10.54	33.532	25.715	228.9	0.235	3.88		169.1		61.6	16.8	1.46	17.8	0.02	0.00	0.04	0.08	86	12
100		10.14		10.13	33.569	25.816	219.6	0.268	3.75		163.4		59.0	18.6	1.55	19.2	0.02	0.07	0.02	0.06	101	11
120		9.68		9.67	33.708	26.001	202.3	0.311	3.23		140.4		50.3	23.6	1.78	22.8	0.01	0.00	0.01	0.05	121	10
125	ISL	9.57	D	9.56	33.756	D 26.056	197.2	0.323	3.13	D	136.0	D	48.6	25.2	1.84	23.7	0.01	0.00	0.01	0.04	126	
140		9.18		9.17	33.891	26.226	181.3	0.349	2.65		115.2		40.9	29.8	2.01	26.2	0.00	0.00	0.01	0.03	141	09
150	ISL	9.11	D	9.09	33.935	D 26.273	177.1	0.369	2.55	D	111.1	D	39.3	31.5	2.06	26.9	0.00	0.00	0.01	0.03	151	
170		8.70		8.68	34.007	26.394	165.9	0.401	2.28		99.3		34.9	35.1	2.16	28.4	0.00	0.01	0.00	0.02	171	08
200		8.41		8.38	34.042	26.467	159.4	0.450	2.09		91.0		31.7	38.3	2.25	29.7	0.00	0.00	0.00	0.03	202	07
231		8.26		8.23	34.060	26.504	156.5	0.499	1.95		84.8		29.5	40.5	2.31	30.5	0.00	0.00			233	06
250	ISL	8.02	D	7.99	34.088	D 26.563	151.2	0.532	1.77	D	77.2	D	26.7	43.1	2.39	31.3	0.00	0.00			252	
271		7.88		7.85	34.111	26.601	147.9	0.560	1.56		68.0		23.4	46.0	2.47	32.2	0.00	0.00			273	05
300	ISL	7.63	D	7.60	34.166	D 26.681	140.7	0.605	1.16	D	50.6	D	17.4	50.9	2.61	33.7	0.00	0.00			302	
320		7.47		7.44	34.182	26.718	137.5	0.629	1.00		43.4		14.8	54.3	2.71	34.8	0.00	0.00			323	04
380		6.84		6.80	34.217	26.834	127.1	0.709	0.65		28.4		9.6	64.1	2.91	37.3	0.00	0.00			383	03
400	ISL	6.77	D	6.73	34.240	D 26.862	124.7	0.738	0.59	D	25.5	D	8.6	66.0	2.94	37.7	0.00	0.00			403	
442		6.49		6.44	34.252	26.910	120.6	0.785	0.46		20.2		6.7	70.1	3.01	38.5	0.00	0.00			446	02
500	ISL	6.19	D	6.15	34.297	D 26.983	114.2	0.859	0.33	D	14.5	D	4.8	76.0	3.11	39.5	0.00	0.02			504	
514		6.15		6.10	34.298	26.991	113.7	0.869	0.30		12.9		4.3	77.4	3.13	39.8	0.00	0.03			518	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 25.2 N	119 57.1 W	16/01/2013	0940 UTC	940 m	340 10 kn			1028.7 mb	13.2 C	10.0 C				022

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.32		13.32		33.490		25.160	279.6	0.000	5.85		255.0		98.5	3.3	0.48	2.0	0.15	0.08	1.23	0.32	0	
2		13.32		13.32		33.490		25.160	279.6	0.006	5.85		255.0		98.5	3.3	0.48	2.0	0.15	0.08	1.23	0.32	2	20
10		13.32		13.32		33.490		25.160	279.9	0.028	5.85		255.0		98.5	3.3	0.49	2.0	0.14	0.10	1.17	0.32	10	19
20		13.33		13.33		33.496		25.164	279.8	0.056	5.85		254.9		98.5	3.3	0.49	2.0	0.14	0.09	1.24	0.33	20	18
30		13.33		13.32		33.490		25.160	280.5	0.084	5.86		255.1		98.6	3.3	0.48	2.0	0.14	0.09	1.27	0.31	30	17
40		13.33		13.33		33.493		25.162	280.6	0.112	5.86		255.2		98.6	3.3	0.48	2.0	0.14	0.11	1.25	0.34	40	16
50		13.33		13.33		33.491		25.161	281.0	0.140	5.87		255.6		98.8	3.2	0.48	2.0	0.14	0.14	1.29	0.32	50	15
60		13.33		13.32		33.490		25.161	281.3	0.168	5.84		254.4		98.3	3.2	0.47	2.0	0.14	0.09	1.25	0.31	60	14
70		12.51		12.50		33.457		25.298	268.4	0.196	5.22		227.2		86.3	6.9	0.82	6.6	0.15	0.07	0.59	0.27	71	13
75	ISL	12.73	D	12.73	D	33.473	D	25.266	271.6	0.211	4.89		246.9		81.2	9.0	0.97	9.2	0.11	0.05	0.43	0.23	76	
85		11.24		11.23		33.474		25.549	244.7	0.235	4.23		184.0		68.0	13.4	1.27	14.4	0.04	0.01	0.10	0.15	86	12
100		10.33		10.32		33.553		25.770	223.9	0.270	3.78		164.7		59.7	17.9	1.53	18.6	0.02	0.00	0.03	0.09	101	11
120		9.65		9.64		33.727		26.021	200.5	0.313	3.13		136.2		48.7	24.0	1.80	22.9	0.02	0.00	0.01	0.06	121	10
125	ISL	9.60	D	9.59	D	33.757	D	26.053	197.5	0.324	3.09	D	134.4	D	48.1	25.5	1.86	23.8	0.02	0.00	0.01	0.06	126	
140		9.05		9.03		33.873		26.233	180.6	0.351	2.68		116.7		41.2	30.1	2.02	26.3	0.00	0.00	0.00	0.06	141	09
150	ISL	8.92	D	8.90	D	33.922	D	26.292	175.2	0.371	2.60	D	113.0	D	39.8	32.4	2.10	27.2	0.00	0.00	0.00	0.05	151	
170		8.67		8.65		34.018		26.407	164.6	0.403	2.07		89.9		31.5	36.8	2.25	29.0	0.00	0.00	0.00	0.04	171	08
200		8.35		8.33		34.071		26.498	156.5	0.451	1.77		77.1		26.8	40.9	2.37	30.7	0.00	0.00	0.00	0.04	202	07
230		8.01		7.99		34.128		26.595	147.8	0.497	1.42		61.9		21.4	46.2	2.52	32.3	0.00	0.00			232	06
250	ISL	7.93	D	7.90	D	34.146	D	26.622	145.6	0.529	1.42	D	61.6	D	21.3	48.1	2.57	32.8	0.00	0.00			252	
270		7.76		7.74		34.156		26.653	142.8	0.555	1.22		52.9		18.2	50.1	2.62	33.3	0.00	0.00			272	05
300	ISL	7.51	D	7.48	D	34.182	D	26.712	137.7	0.600	0.99	D	43.0	D	14.7	54.3	2.73	34.5	0.00	0.00			302	
320		7.33		7.30		34.197		26.749	134.5	0.624	0.82		35.8		12.2	57.1	2.80	35.3	0.00	0.00			323	04
380		6.96		6.93		34.223		26.822	128.3	0.703	0.60		26.1		8.8	63.3	2.92	36.9	0.00	0.00			383	03
400	ISL	6.89	D	6.85	D	34.235	D	26.842	126.7	0.733	0.55	D	23.9	D	8.1	65.7	2.96	37.4	0.00	0.00			403	
440		6.53		6.49		34.260		26.911	120.5	0.778	0.42		18.3		6.1	70.7	3.04	38.3	0.00	0.00			444	02
500	ISL	6.20	D	6.15	D	34.300	D	26.986	113.9	0.853	0.32	D	13.7	D	4.6	76.4	3.12	39.3	0.00	0.00			504	
514		6.13		6.08		34.297		26.993	113.4	0.864	0.30		12.9		4.3	77.8	3.14	39.5	0.00	0.00			518	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 5.2 N	120 38.4 W	16/01/2013	0319 UTC	3758 m	040 09 kn			1029.8 mb	12.4 C	9.6 C				021

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.97		14.97		33.476		24.806	313.4	0.000	5.74		250.0		99.9	2.6	0.33	0.1	0.02	0.00	0.33	0.09	0	
2		14.97		14.97		33.476		24.806	313.4	0.006	5.74		250.0		99.9	2.6	0.33	0.1	0.02	0.00	0.33	0.09	2	20
10		14.99		14.98		33.476		24.802	314.0	0.031	5.73		249.5		99.7	2.5	0.33	0.1	0.02	0.06	0.31	0.09	10	19
19		14.97		14.96		33.476		24.806	313.8	0.060	5.73		249.6		99.7	2.5	0.32	0.1	0.01	0.00	0.33	0.09	19	18
20	ISL	14.94	D	14.95	D	33.481	D	24.814	313.2	0.063	5.73		249.9		99.8	2.5	0.32	0.1	0.01	0.00	0.34	0.10	20	
29		14.63		14.63		33.478		24.880	307.2	0.091	5.78		252.0		100.0	2.5	0.34	0.1	0.02	0.04	0.49	0.13	29	17
30	ISL	14.61	D	14.61	D	33.483	D	24.888	306.4	0.094	5.78		251.9		99.9	2.5	0.34	0.1	0.02	0.04	0.50	0.13	30	
39		14.53		14.53		33.478		24.902	305.4	0.121	5.76		251.0		99.4	2.6	0.34	0.3	0.03	0.04	0.58	0.18	39	16
49		14.46		14.45		33.478		24.919	304.1	0.152	5.76		250.8		99.1	2.6	0.35	0.4	0.05	0.05	0.55	0.16	49	15
50	ISL	14.43	D	14.43	D	33.483	D	24.928	303.2	0.156	5.75	D	250.6	D	99.0	2.8	0.37	0.7	0.06	0.05	0.52	0.17	50	
59		12.98		12.97		33.284		25.071	289.8	0.182	5.50		239.5		91.7	4.8	0.58	3.4	0.11	0.04	0.27	0.19	59	14
69		11.55		11.54		33.284		25.344	263.9	0.209	5.05		219.9		81.7	8.0	0.90	8.7	0.03	0.00	0.15	0.14	70	13
75	ISL	11.34	D	11.33	D	33.295	D	25.391	259.6	0.226	5.00	D	217.6	D	80.5	9.2	0.99	10.1	0.03	0.00	0.13	0.12	76	
84		11.17		11.16		33.370		25.481	251.2	0.248	4.61		200.6		74.0	10.9	1.13	12.3	0.02	0.00	0.10	0.10	85	12
99		10.73		10.72		33.574		25.717	229.0	0.284	3.77		164.2		60.1	16.2	1.46	17.2	0.02	0.00	0.04	0.05	100	11
100	ISL	10.69	D	10.67	D	33.586	D	25.735	227.4	0.288	3.78	D	164.5	D	60.2	16.4	1.47	17.3	0.02	0.00	0.04	0.05	101	
119		10.11		10.10		33.670		25.900	212.0	0.328	3.46		150.7		54.5	20.1	1.63	20.1	0.01	0.00	0.02	0.03	120	10
125	ISL	9.98	D	9.96	D	33.686	D	25.935	208.8	0.343	3.47	D	151.1	D	54.4	21.6	1.69	21.1	0.01	0.00	0.01	0.03	126	
139		9.50		9.48		33.803		26.106	192.8	0.369	3.09		134.3		47.9	25.1	1.84	23.3	0.00	0.00	0.00	0.03	140	09
150	ISL	9.39	D	9.37	D	33.849	D	26.161	187.8	0.392	3.05	D	132.6	D	47.2	26.5	1.88	23.8	0.00	0.00	0.00	0.03	151	
170		9.29		9.27		33.955		26.260	178.8	0.426	2.72		118.3		42.1	28.9	1.96	24.8	0.00	0.00	0.00	0.02	171	08
199		8.92		8.90		34.044		26.388	167.1	0.476	2.33		101.3		35.8	33.7	2.13	27.0	0.00	0.00	0.00	0.02	201	07
200	ISL	8.94	D	8.91	D	34.050	D	26.392	166.8	0.481	2.32	D	101.1	D	35.7	33.9	2.13	27.1	0.00	0.00	0.00	0.02	202	
229		8.36		8.33		34.055		26.486	158.2	0.525	2.14		93.1		32.4	38.4	2.24	29.0	0.00	0.00			231	06
250	ISL	8.11	D	8.08	D	34.070	D	26.536	153.7	0.561	2.02	D	87.8	D	30.4	41.4	2.33	30.1	0.00	0.00			252	
271		7.93		7.90		34.093		26.580	149.9	0.590	1.74		75.7		26.1	44.4	2.41	31.2	0.00	0.00			273	05
300	ISL	7.69	D	7.66	D	34.130	D	26.645	144.2	0.636	1.45	D	63.1	D	21.7	48.9	2.53	32.7	0.00	0.00			302	
321		7.51		7.47		34.126		26.669	142.2	0.663	1.29		56.3		19.2	52.1	2.62	33.7	0.00	0.00			324	04
380		6.66		6.62		34.147		26.803	129.7	0.743	0.88		38.2		12.8	63.5	2.85	36.9	0.00	0.00			383	03
400	ISL	6.35	D	6.31	D	34.171	D	26.862	124.2	0.772	0.77	D	33.6	D	11.2	66.4	2.90	37.4	0.00	0.00			403	
440		6.20		6.16		34.220		26.921	119.2	0.817	0.56		24.5		8.1	72.1	3.01	38.5	0.00	0.00			444	02
500	ISL	6.16	D	6.11	D	34.315	D	27.004	112.2	0.891	0.29	D	12.6	D	4.2	78.0	3.11	39.5	0.00	0.00			504	
515		5.89		5.85		34.280		27.009	111.6	0.903	0.33		14.3		4.7	79.5	3.13	39.8	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 90.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 45.0 N	121 19.2 W	15/01/2013	2102 UTC	3627 m	030 07 kn	020 03 07	0	1029.6 mb	13.1 C	9.9 C	23 m	0/8		020

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		15.05		15.05		33.451	24.768	316.9	0.000	5.73	249.8		99.9		2.6	0.31	0.0	0.03	0.01	0.31	0.09	0	
2		15.05		15.05		33.451	24.768	316.9	0.006	5.73	249.8		99.9		2.6	0.31	0.0	0.03	0.01	0.31	0.09	2	20
10		14.99		14.99		33.452	24.782	315.8	0.032	5.75	250.5		100.1		2.6	0.31	0.0	0.03	0.01	0.31	0.09	10	19
20		14.96		14.96		33.450	24.788	315.7	0.063	5.73	249.8		99.8		2.6	0.31	0.0	0.03	0.03	0.32	0.10	20	18
29		14.95		14.95		33.450	24.790	315.7	0.092	5.72	249.4		99.5		2.6	0.31	0.0	0.03	0.01	0.35	0.10	29	17
30	ISL	14.95	D	14.95	D	33.454	D 24.793	315.5	0.095	5.72	249.4		99.5		2.6	0.31	0.0	0.03	0.01	0.35	0.10	30	
40		14.95		14.95		33.452	24.793	315.9	0.126	5.72	249.2		99.5		2.6	0.33	0.0	0.04	0.02	0.35	0.12	40	16
49		14.95		14.94		33.453	24.794	316.0	0.155	5.71	249.0		99.4		2.6	0.32	0.0	0.03	0.07	0.38	0.11	49	15
50	ISL	14.95	D	14.94	D	33.458	D 24.797	315.7	0.159	5.71	249.0		99.4		2.6	0.32	0.0	0.03	0.07	0.38	0.11	50	
60		14.93		14.92		33.454	24.801	315.7	0.190	5.72	249.1		99.4		2.6	0.32	0.1	0.03	0.08	0.34	0.12	60	14
69		14.19		14.18		33.363	24.887	307.8	0.218	5.64	245.7		96.5		3.4	0.40	1.1	0.07	0.04	0.27	0.14	70	13
75	ISL	13.39	D	13.37	D	33.281	D 24.989	298.1	0.237	5.75	D250.3	D	96.7		4.4	0.52	2.8	0.08	0.04	0.28	0.14	76	
85		12.23		12.22		33.279	25.215	276.7	0.265	5.32	231.7		87.3		6.1	0.71	5.6	0.09	0.05	0.29	0.15	86	12
100		11.30		11.28		33.316	25.416	257.8	0.305	4.79	208.5		77.1		9.5	1.06	11.1	0.05	0.03	0.15	0.14	101	11
119		10.24		10.23		33.442	25.700	231.0	0.351	4.43	193.0		69.8		14.8	1.30	15.5	0.04	0.03	0.04	0.04	120	10
125	ISL	10.06	D	10.05	D	33.483	D 25.763	225.1	0.367	4.33	D188.3	D	67.9		16.8	1.42	17.3	0.04	0.06	0.03	0.04	126	
139		9.64		9.63		33.647	25.961	206.6	0.395	3.52	153.1		54.7		21.5	1.70	21.4	0.03	0.14	0.01	0.03	140	09
150	ISL	9.32	D	9.30	D	33.769	D 26.109	192.6	0.420	3.22	D140.2	D	49.8		24.2	1.80	22.9	0.03	0.10	0.01	0.03	151	
169		8.99		8.97		33.855	26.229	181.6	0.453	2.86	124.5		43.9		28.8	1.96	25.5	0.03	0.02	0.00	0.02	170	08
200		8.63		8.61		33.975	26.381	167.7	0.507	2.62	113.9		39.9		33.0	2.06	26.9	0.03	0.00	0.00	0.02	202	07
230		8.25		8.23		34.017	26.472	159.5	0.556	2.35	102.2		35.5		37.6	2.19	28.8	0.00	0.00			232	06
250	ISL	7.90	D	7.87	D	34.041	D 26.544	152.9	0.591	2.10	D 91.1	D	31.4		40.5	2.27	30.0	0.00	0.00			252	
270		7.77		7.74		34.046	26.567	151.0	0.617	1.96	85.4		29.4		43.4	2.35	31.1	0.00	0.00			272	05
300	ISL	7.41	D	7.38	D	34.077	D 26.644	144.1	0.666	1.62	D 70.6	D	24.1		48.7	2.50	32.8	0.00	0.00			302	
319		7.34		7.31		34.111	26.679	141.0	0.689	1.34	58.4		19.9		52.1	2.60	33.8	0.00	0.00			322	04
380		7.05		7.01		34.207	26.798	130.7	0.772	0.74	32.3		10.9		60.6	2.87	35.9	0.00	0.00			383	03
400	ISL	6.94	D	6.90	D	34.224	D 26.827	128.2	0.803	0.68	D 29.7	D	10.0		63.0	2.91	36.4	0.00	0.00			403	
440		6.60		6.56		34.258	26.899	121.7	0.848	0.48	20.7		6.9		67.7	3.00	37.3	0.00	0.00			444	02
500	ISL	6.24	D	6.19	D	34.286	D 26.970	115.5	0.925	0.36	D 15.6	D	5.2									504	
515		6.14		6.09		34.295	D 26.990	113.7	0.936	0.33	D 14.2	D	6.7									519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
31 24.8 N	121 59.8 W	15/01/2013	1600 UTC	3784 m	040 09 kn	350 05 07	0	1030.8 mb	13.7 C	9.0 C	22 m	0/8		019

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.92		14.92		33.315	24.692	324.1	0.000	5.73	249.7		99.5		2.8	0.30	0.0	0.02	0.03	0.18	0.06	0	
2		14.92		14.92		33.316	24.693	324.1	0.005													2	23
2	A	14.92		14.92		33.315	24.692	324.2	0.007	5.73	249.7		99.5		2.8	0.30	0.0	0.02	0.03	0.18	0.06	2	22
10	ISL	14.93	D	14.92	D	33.315	D 24.691	324.5	0.033	5.73	249.6		99.5		2.7	0.30	0.0	0.02	0.02	0.18	0.06	10	
14	A	14.90		14.90		33.318	24.698	323.9	0.045	5.72	249.5		99.4		2.7	0.30	0.0	0.02	0.02	0.18	0.06	14	21
19	A	14.85		14.85		33.334	24.722	321.9	0.062	5.79	252.3		100.4		2.8	0.31	0.0	0.02	0.08	0.23	0.08	19	20
20	ISL	14.84	D	14.84	D	33.337	D 24.726	321.5	0.065	5.78	252.1		100.3		2.8	0.31	0.0	0.02	0.08	0.23	0.08	20	
29		14.81		14.81		33.343	24.737	320.7	0.094	5.74	250.0		99.4		2.7	0.31	0.0	0.03	0.03	0.24	0.08	29	19
30	ISL	14.81	D	14.81	D	33.343	D 24.738	320.7	0.098	5.74	250.0		99.4		2.7	0.31	0.0	0.03	0.03	0.24	0.08	30	
39	A	14.81		14.80		33.344	24.740	320.8	0.126	5.73	249.9		99.4		2.7	0.30	0.0	0.03	0.04	0.25	0.09	39	18
50		14.81		14.80		33.345	24.742	321.0	0.161	5.74	250.1		99.5		2.7	0.30	0.0	0.03	0.03	0.25	0.09	50	17
61		14.81		14.80		33.349	24.745	321.0	0.196	5.74	250.1		99.5		2.7	0.31	0.0	0.03	0.04	0.26	0.09	61	16
70	A	14.81		14.80		33.345	24.743	321.6	0.225	5.73	249.9		99.4		2.7	0.31	0.0	0.03	0.02	0.26	0.09	71	15
75	ISL	14.77	D	14.76	D	33.343	D 24.749	321.1	0.243	5.73	249.7		99.2		2.8	0.33	0.2	0.05	0.03	0.25	0.10	76	
80	A	14.54		14.53		33.323	24.784	317.9	0.257	5.73	249.5		98.7		2.9	0.34	0.3	0.06	0.03	0.23	0.10	81	14
88		13.66		13.64		33.316	24.963	301.0	0.282	5.68	247.5		96.1		3.2	0.38	0.8	0.10	0.06	0.18	0.11	89	13
94		12.59		12.58		33.198	25.083	289.6	0.300	5.63	245.2		93.1		4.5	0.51	2.7	0.12	0.01	0.16	0.13	95	12
100	ISL	12.05	D	12.04	D	33.221	D 25.204	278.1	0.319	5.58	D242.9	D	91.2		5.3	0.59	4.1	0.09	0.01	0.13	0.11	101	
110		11.38		11.37		33.276	25.369	262.5	0.344	5.33	232.1		86.0		6.7	0.72	6.4	0.05	0.01	0.08	0.07	111	11
125		10.37		10.35		33.363	25.617	239.1	0.381	4.96	215.9		78.2		10.6	1.01	11.3	0.04	0.03	0.04	0.04	126	10
146		9.32		9.30		33.506	25.903	212.1	0.429	4.51	196.4		69.7		16.5	1.32	16.7	0.03	0.04	0.01	0.02	147	09
150	ISL	9.24	D	9.22	D	33.604	D 25.993	203.6	0.440	4.38	D190.6	D	67.5		17.9	1.38	17.7	0.03	0.03	0.01	0.02	151	
170		8.96		8.94		33.767	26.166	187.6	0.477	3.72	161.9		57.0		24.5	1.68	22.5	0.02	0.00	0.00	0.02	171	08
200		8.67		8.65		33.964	26.365	169.3	0.530	2.49	108.4		38.0		33.4	2.10	27.9	0.00	0.00	0.00	0.02	202	07
231		8.30		8.28		34.036	26.479	158.9	0.581	2.00	87.2		30.3		39.1	2.30	30.5	0.00	0.00			233	06
250	ISL	8.18	D	8.15	D	34.069	D 26.524	154.9	0.614	1.75	D 76.0	D	26.4		42.5	2.39	31.6	0.00	0.00			252	
270		7.78		7.75		34.079	26.591	148.7	0.642	1.60	69.5		23.9		46.2	2.48	32.8	0.00	0.00			272	05
300	ISL	7.44	D	7.41	D	34.094	D 26.652	143.3	0.689	1.39	D 60.3	D	20.6		50.2	2.58	34.1	0.00	0.00			302	
319		7.29		7.26		34.103	26.680	140.9	0.712	1.27	55.3		18.8		52.7	2.64	35.0	0.00	0.00			322	04
381		6.68		6.65		34.146	26.798	130.2	0.796	0.84	36.5		12.3		62.5	2.86	37.6	0.00	0.00			384	03
400	ISL	6.58	D	6.55	D	34.156	D 26.820	128.4	0.826	0.76	D 33.0	D	11.1		64.3	2.89	38.0	0.00	0.00			403	
441		6.38		6.34		34.168	26.857	125.4	0.873	0.66	28.6		9.5		68.4	2.96	39.0	0.00	0.00			445	02
500	ISL	6.01	D	5.97	D	34.213	D 26.941	118.0	0.951	0.47	D 20.3	D	6.7		75.7	3.08	40.1	0.00	0.00			504	
515		5.92		5.87		34.230	26.966	115.7	0.962	0.41	18.0		5.9		77.5	3.11	40.4	0.00	0.00			519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
31 5.7 N	122 39.0 W	15/01/2013	0828 UTC	3949 m	080 09 kn			1028.9 mb	12.9 C	9.8 C				018

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		15.36		15.36		33.280		24.568	336.0	0.000	5.68		247.7		99.6		2.9	0.31	0.0	0.02	0.08	0.21	0.06	0	
2		15.36		15.36		33.280		24.568	336.0	0.007	5.68		247.7		99.6		2.9	0.31	0.0	0.02	0.08	0.21	0.06	2	20
10		15.36		15.36		33.278		24.567	336.4	0.034	5.68		247.6		99.5		2.8	0.30	0.0	0.01	0.06	0.20	0.06	10	19
20	ISL	15.37	D	15.37		33.281	D	24.567	336.7	0.068	5.68		250.4		99.5		2.8	0.30	0.0	0.02	0.04	0.21	0.07	20	
25		15.37		15.37		33.275		24.563	337.2	0.084	5.68		247.5		99.5		2.9	0.30	0.0	0.02	0.03	0.21	0.07	25	18
30	ISL	15.37	D	15.36		33.280	D	24.569	336.8	0.102	5.68		249.2		99.6		2.8	0.30	0.0	0.02	0.05	0.21	0.07	30	
40		15.34		15.33		33.274		24.571	337.0	0.135	5.70		248.2		99.7		2.8	0.30	0.0	0.02	0.09	0.21	0.07	40	17
50		15.34		15.33		33.278		24.575	336.9	0.168	5.68		247.8		99.5		2.8	0.31	0.1	0.01	0.33	0.21	0.07	50	16
62		15.32		15.31		33.286		24.587	336.2	0.209	5.69		247.8		99.5		2.7	0.29	0.0	0.01	0.04	0.21	0.06	62	15
75		15.29		15.28		33.291		24.597	335.7	0.253	5.69		248.1		99.6		2.8	0.29	0.0	0.01	0.04	0.23	0.07	76	14
87		14.29		14.27		33.276		24.801	316.5	0.292	5.72		249.4		98.1		2.9	0.32	0.2	0.06	0.05	0.21	0.10	88	13
100		12.76		12.75		33.228		25.073	290.7	0.331	5.70		248.5		94.7		3.9	0.46	1.7	0.21	0.02	0.20	0.14	101	12
112		11.68		11.67		33.312		25.343	265.2	0.365	5.09		221.8		82.7		8.2	0.92	9.2	0.02	0.06	0.09	0.09	113	11
125		11.18		11.16		33.367		25.479	252.4	0.398	4.91		213.9		78.9		10.0	1.06	11.4	0.02	0.12	0.06	0.07	126	10
140		10.59		10.57		33.424		25.627	238.5	0.435	4.55		198.3		72.3		12.7	1.23	14.3	0.00	0.05	0.03	0.04	141	09
150	ISL	10.25	D	10.23		33.506	D	25.750	227.0	0.461	4.26	D	185.6	D	67.2		15.6	1.38	16.7	0.00	0.04	0.02	0.03	151	
170		9.62		9.60		33.653		25.971	206.3	0.502	3.60		156.7		56.0		21.5	1.69	21.4	0.00	0.02	0.01	0.02	171	08
200		9.02		9.00		33.825		26.202	184.8	0.560	3.03		131.8		46.5		27.7	1.90	25.0	0.00	0.01	0.00	0.02	202	07
230		8.60		8.58		33.953		26.368	169.5	0.613	2.47		107.6		37.7		33.7	2.11	27.9	0.00	0.00			232	06
250	ISL	8.25	D	8.23		34.007	D	26.463	160.7	0.650	2.33	D	101.2	D	35.2		37.4	2.18	29.0	0.00	0.00			252	
270		7.96		7.94		34.023		26.521	155.5	0.678	2.19		95.3		32.9		41.0	2.25	30.1	0.00	0.00			272	05
300	ISL	7.70	D	7.68		34.073	D	26.598	148.6	0.727	1.80	D	78.2	D	26.9		47.0	2.44	32.3	0.00	0.00			302	
321		7.41		7.38		34.099		26.661	142.9	0.754	1.38		60.1		20.5		51.1	2.58	33.9	0.00	0.00			324	04
380		6.56		6.53		34.119		26.793	130.6	0.835	0.97		42.0		14.1		63.2	2.81	37.1	0.00	0.00			383	03
400	ISL	6.56	D	6.53		34.149	D	26.817	128.6	0.866	0.86	D	37.5	D	12.5		65.4	2.86	37.5	0.00	0.00			403	
440		6.26		6.22		34.168		26.873	123.7	0.911	0.67		29.0		9.6		69.7	2.95	38.4	0.00	0.00			444	02
500	ISL	5.84	D	5.79		34.203	D	26.955	116.4	0.989	0.52	D	22.5	D	7.4		77.9	3.07	39.9	0.00	0.00			504	
515		5.74		5.70		34.210		26.972	114.9	1.001	0.45		19.4		6.4		80.0	3.10	40.3	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
30 45.5 N	123 19.7 W	15/01/2013	0213 UTC	3949 m	020 16 kn			1027.2 mb	13.8 C	10.1 C				017

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		15.82		15.82		33.300		24.482	344.2	0.000	5.63		245.4		99.6		2.7	0.29	0.0	0.01	0.01	0.14	0.05	0	
3		15.82		15.82		33.300		24.482	344.2	0.010	5.63		245.4		99.6		2.7	0.29	0.0	0.01	0.01	0.14	0.05	3	20
10	ISL	15.83	D	15.83		33.303	D	24.482	344.4	0.035	5.64		245.8		99.8		2.7	0.29	0.0	0.01	0.00	0.14	0.05	10	
11		15.83		15.83		33.299		24.480	344.7	0.038	5.64		245.9		99.8		2.7	0.29	0.0	0.01	0.00	0.14	0.05	11	19
20	ISL	15.83	D	15.83		33.302	D	24.482	344.8	0.069	5.64		245.9		99.8		2.7	0.29	0.0	0.00	0.00	0.13	0.07	20	
24		15.84		15.83		33.302		24.481	345.0	0.083	5.64		245.9		99.8		2.7	0.29	0.0	0.00	0.00	0.13	0.08	24	18
30	ISL	15.83	D	15.83		33.302	D	24.482	345.1	0.104	5.64		245.8		99.7		2.7	0.29	0.0	0.00	0.02	0.13	0.07	30	
40		15.84		15.83		33.300		24.481	345.6	0.138	5.63		245.6		99.7		2.7	0.29	0.0	0.01	0.04	0.14	0.05	40	17
50		15.83		15.82		33.299		24.482	345.9	0.172	5.64		245.8		99.7		2.7	0.30	0.0	0.01	0.01	0.15	0.04	50	16
62		15.70		15.69		33.295		24.509	343.7	0.214	5.66		246.6		99.8		2.8	0.30	0.0	0.01	0.12	0.17	0.05	62	15
75		15.05		15.04		33.281		24.641	331.5	0.258	5.67		247.1		98.7		2.8	0.31	0.1	0.03	0.08	0.23	0.09	76	14
87		13.23		13.22		33.231		24.983	299.0	0.296	5.70		248.4		95.6		4.0	0.49	1.9	0.27	0.08	0.21	0.20	88	13
100		12.58		12.56		33.246		25.123	285.9	0.334	5.55		241.8		91.8		5.0	0.58	3.7	0.11	0.02	0.17	0.14	101	12
112		11.95		11.94		33.274		25.263	272.8	0.367	5.27		229.7		86.1		6.9	0.80	7.3	0.03	0.04	0.12	0.11	113	11
125		11.37		11.36		33.332		25.416	258.4	0.402	5.06		220.3		81.6		9.4	1.00	10.7	0.02	0.04	0.06	0.07	126	10
140		10.78		10.77		33.372		25.552	245.7	0.439	4.91		213.8		78.2		10.7	1.09	12.1	0.02	0.00	0.00	0.03	141	09
150	ISL	10.58	D	10.57		33.432	D	25.634	238.2	0.466	4.62	D	201.1	D	73.3		13.2	1.22	14.3	0.01	0.00	0.00	0.03	151	
170		9.77		9.75		33.573		25.882	214.8	0.509	4.06		176.7		63.3		18.2	1.47	18.6	0.00	0.00	0.01	0.02	171	08
200		9.17		9.15		33.787		26.149	190.0	0.570	3.35		145.8		51.6		25.6	1.81	23.6	0.00	0.00	0.00	0.02	202	07
230		8.64		8.61		33.935		26.349	171.4	0.624	2.82		122.6		43.0		31.7	1.99	26.5	0.00	0.00			232	06
250	ISL	8.28	D	8.26		34.000	D	26.455	161.6	0.661	2.50	D	108.6	D	37.7		35.4	2.09	27.9	0.00	0.00			252	
270		8.00		7.97		34.011		26.505	157.0	0.689	2.39		103.9		35.9		39.1	2.19	29.3	0.00	0.00			272	05
300	ISL	7.68	D	7.65		34.057	D	26.589	149.5	0.739	1.84	D	79.9	D	27.4		45.0	2.41	31.8	0.00	0.00			302	
320		7.61		7.58		34.102		26.635	145.4	0.764	1.40		60.8		20.8		49.0	2.55	33.5	0.00	0.00			323	04
380		7.03		7.00		34.155		26.759	134.3	0.848	0.87		37.8		12.8		58.8	2.80	36.2	0.00	0.00			383	03
400	ISL	6.80	D	6.76		34.167	D	26.800	130.5	0.880	0.78	D	33.8	D	11.4		62.0	2.86	36.9	0.00	0.00			403	
441		6.41		6.37		34.184		26.866	124.6	0.927	0.64	D	-25.6	D	9.2		68.5	2.97	38.4	0.00	0.00			445	02
500	ISL	5.96	D	5.92		34.217	D	26.950	117.0	1.004	0.49	D	21.3	D	7.0		76.3	3.06	39.6	0.00	0.00			504	
516		5.88		5.84		34.227		26.968	115.5	1.017	0.44		19.0		6.2		78.4	3.09	39.9	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
30 24.7 N	124 0.5 W	14/01/2013	1922 UTC	4139 m	020 23 kn	340 05 07	1	1026.8 mb	14.5 C	11.5 C	26 m	7/8	NS	016

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		16.33		16.33	33.461	24.490	343.5	0.000	5.57	242.7	99.6	2.7	0.28	0.0	0.02	0.05	0.20	0.04	0	
4	A	16.33		16.33	33.461	24.490	343.5	0.014	5.57	242.7	99.6	2.7	0.28	0.0	0.02	0.05	0.20	0.04	4	21
10	ISL	16.33	D	16.33	33.460	D 24.490	343.7	0.035	5.57	242.9	99.6	2.7	0.28	0.0	0.02	0.05	0.21	0.03	10	
17	A	16.34		16.34	33.461	24.489	344.1	0.058	5.58	243.0	99.7	2.7	0.27	0.0	0.02	0.05	0.21	0.03	17	20
20	ISL	16.34	D	16.34	33.462	D 24.490	344.1	0.069	5.57	242.9	99.7	2.7	0.29	0.0	0.02	0.04	0.22	0.04	20	
22	A	16.34		16.34	33.463	24.491	344.1	0.076	5.57	242.9	99.6	2.7	0.31	0.0	0.02	0.04	0.22	0.05	22	19
30	ISL	16.33	D	16.33	33.461	D 24.491	344.3	0.104	5.57	242.9	99.6	2.7	0.29	0.0	0.01	0.05	0.21	0.04	30	
34		16.34		16.33	33.459	24.489	344.6	0.117	5.57	242.9	99.7	2.7	0.28	0.0	0.01	0.05	0.20	0.04	34	18
45	A	16.33		16.32	33.458	24.491	344.9	0.155	5.57	242.8	99.6	2.7	0.27	0.0	0.02	0.04	0.19	0.05	45	17
50	ISL	16.33	D	16.32	33.460	D 24.493	344.8	0.174	5.57	242.9	99.6	2.7	0.27	0.0	0.02	0.04	0.20	0.05	50	
58		16.31		16.30	33.454	24.494	345.0	0.200	5.58	243.1	99.7	2.7	0.27	0.0	0.01	0.03	0.21	0.05	58	16
73		16.29		16.28	33.452	D 24.497	345.3	0.253	5.59	243.8	99.9	2.7	0.28	0.0	0.01	0.03	0.20	0.06	74	15
75	ISL	16.29	D	16.28	33.452	D 24.498	345.3	0.260	5.59	243.8	99.9	2.7	0.28	0.0	0.01	0.03	0.20	0.06	76	
84	A	16.11		16.10	33.451	24.538	341.7	0.289	5.59	243.5	99.4	2.8	0.28	0.0	0.01	0.04	0.21	0.06	85	14
90		14.43		14.41	33.589	25.014	296.4	0.308	5.57	242.6	95.9	3.3	0.34	1.0	0.16	0.04	0.23	0.18	91	13
96	A	13.79		13.77	33.557	25.122	286.1	0.326	5.42	236.0	92.1	4.2	0.45	2.7	0.04	0.02	0.16	0.11	97	12
100	ISL	13.39	D	13.37	33.571	D 25.214	277.4	0.339	5.39	234.9	90.9	4.3	0.46	2.8	0.04	0.02	0.15	0.10	101	
110		13.25		13.23	33.555	25.230	276.2	0.365	5.33	232.3	89.6	4.5	0.48	3.2	0.03	0.01	0.12	0.08	111	11
124		12.78		12.77	33.538	25.310	268.9	0.403	5.25	228.5	87.3	5.2	0.56	4.5	0.02	0.02	0.07	0.07	125	10
125	ISL	12.75	D	12.72	33.548	D 25.327	267.3	0.408	5.28	D229.8	D 87.7	5.4	0.57	4.7	0.02	0.02	0.07	0.07	126	
145		11.22		11.20	33.466	25.548	246.4	0.457	4.95	215.4	79.6	8.7	0.86	9.1	0.02	0.02	0.05	0.06	146	09
150	ISL	10.79	D	10.77	33.457	D 25.618	239.8	0.472	4.93	D214.7	D 78.6	10.2	0.95	10.5	0.02	0.02	0.04	0.06	151	
173		9.91		9.89	33.606	25.886	214.5	0.522	4.30	187.2	67.3	16.9	1.34	17.0	0.00	0.02	0.01	0.02	174	08
200	ISL	9.13	D	9.11	33.852	D 26.206	184.5	0.579	3.75	D163.0	D 57.7	24.1	1.60	21.5	0.00	0.00	0.00	0.02	202	
201		9.13		9.10	33.852	26.206	184.5	0.577	3.72	161.9	57.3	24.4	1.61	21.7	0.00	0.00	0.00	0.02	203	07
230		8.81		8.78	33.916	26.308	175.4	0.629	3.07	133.6	47.0	30.0	1.89	25.4	0.00	0.00			232	06
250	ISL	8.46	D	8.43	33.980	D 26.412	165.7	0.668	2.81	D122.4	D 42.7	33.3	1.98	26.8	0.00	0.00			252	
268		8.24		8.21	33.996	26.458	161.6	0.693	2.67	116.0	40.3	36.3	2.06	28.0	0.00	0.00			270	05
300	ISL	8.08	D	8.04	34.125	D 26.586	150.1	0.748	1.53	D 66.3	D 23.0	43.9	2.38	31.2	0.00	0.00			302	
321		7.86		7.83	34.158	26.642	144.9	0.774	1.21	52.5	18.1	48.9	2.59	33.3	0.00	0.00			324	04
381		7.28		7.24	34.230	26.784	132.2	0.857	0.66	28.7	9.8	59.0	2.84	35.9	0.00	0.00			384	03
400	ISL	7.06	D	7.02	34.240	D 26.823	128.7	0.887	0.61	D 26.5	D 9.0	61.2	2.88	36.4	0.00	0.00			403	
440		6.81		6.77	34.253	26.868	124.8	0.933	0.50	21.5	7.3	65.9	2.97	37.5	0.00	0.00			444	02
500	ISL	6.40	D	6.35	34.291	D 26.953	117.3	1.012	0.34	D 15.0	D 5.0	72.9	3.07	38.8	0.00	0.00			504	
514		6.32		6.27	34.296	26.968	116.0	1.021	0.31	13.5	4.5	74.5	3.09	39.1	0.00	0.00			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 O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 56.8 N	117 18.4 W	11/01/2013	1958 UTC	69 m	340 06 kn	320 03 05	0	1021.6 mb	10.6 C	8.1 C	06 m	0/8		001

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		13.56		13.56	33.498	25.117	283.6	0.000	5.70	248.3	96.4	3.4	0.56	2.5	0.18	0.51	2.84	0.25	0	
2	A	13.56		13.56	33.498	25.117	283.7	0.006	5.70	248.3	96.4	3.4	0.56	2.5	0.18	0.51	2.84	0.25	2	10
4	A	13.56		13.56	33.516	25.131	282.4	0.011	5.68	D247.3	D 96.0	3.4	0.54	2.4	0.18	0.51	3.03	0.35	4	09
5	A	13.54		13.54	33.497	25.121	283.4	0.014	5.71	248.8	96.6	3.4	0.55	2.5	0.18	0.56	2.36	0.38	5	08
10	ISL	13.44	D	13.44	33.492	D 25.137	282.0	0.029	5.66	246.7	95.5	3.5	0.55	2.7	0.17	0.49	2.19	0.43	10	
11	A	13.44		13.44	33.496	25.140	281.8	0.031	5.65	246.2	95.4	3.5	0.55	2.7	0.17	0.48	2.15	0.44	11	07
19	A	12.24		12.23	33.482	25.368	260.3	0.053	4.79	208.6	78.8	7.8	0.88	7.9	0.22	0.25	0.71	0.27	19	06
20	ISL	12.18	D	12.17	33.486	D 25.381	259.1	0.056	4.29	D186.6	D 70.4	9.5	1.01	9.9	0.19	0.18	0.58	0.27	20	
22	A	12.05		12.05	33.499	25.415	255.9	0.061	3.93	171.2	64.4	13.1	1.27	13.8	0.12	0.03	0.33	0.26	22	05
30		11.80		11.80	33.529	25.485	249.4	0.081	3.70	161.2	60.4	14.7	1.38	15.4	0.12	0.05	0.20	0.23	30	04
40		11.48		11.47	33.553	25.565	242.1	0.105	3.57	155.3	57.7	16.0	1.47	16.6	0.12	0.07	0.15	0.20	40	03
49		10.95		10.94	33.690	25.768	223.0	0.126	2.92	127.3	46.8	20.9	1.75	20.4	0.43	0.52	0.03	0.11	49	02
50	ISL	10.93	D	10.92	33.749	D 25.817	218.4	0.129	2.92	D127.2	D 46.8	21.2	1.77	20.6	0.40	0.47	0.03	0.10	50	
60		10.75		10.74	33.861	25.936	207.3	0.150	2.42	105.2	38.6	24.7	1.94	22.6	0.05	0.01	0.02	0.08	60	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 BELL M SHIMADA CALCOFI CRUISE 1301 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
32 54.7 N	117 23.7 W	11/01/2013	2323 UTC	634 m	300 08 kn	300 03 06	1	1019.7 mb	11.0 C	7.6 C	13 m	2/8	CU	002

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.35	14.34	33.511	24.965	298.2	0.000	5.81	252.9	99.8	2.6	0.39	0.9	0.04	0.19	1.00	0.21	0	
2	14.35	14.34	33.511	24.965	298.2	0.006	5.81	252.9	99.8	2.6	0.39	0.9	0.04	0.19	1.00	0.21	2	20
9	14.34	14.33	33.511	24.967	298.2	0.027	5.80	252.9	99.8	2.6	0.38	0.8	0.04	0.13	0.93	0.22	9	19
10 ISL	14.34 D	14.34	33.507 D	24.964	298.6	0.030	5.80	252.8	99.7	2.6	0.38	0.8	0.04	0.18	0.96	0.23	10	
19	14.25	14.25	33.506	24.982	297.1	0.057	5.79	252.1	99.3	2.8	0.40	1.0	0.04	0.59	1.19	0.31	19	18
20 ISL	14.26 D	14.25	33.503 D	24.979	297.4	0.060	5.77	251.5	99.1	2.8	0.40	1.1	0.04	0.57	1.19	0.31	20	
30	14.18	14.18	33.503	24.995	296.2	0.089	5.66	246.5	96.9	3.2	0.45	1.6	0.08	0.40	1.18	0.38	30	17
40	12.54	12.53	33.454	25.289	268.5	0.118	4.22	184.0	69.9	11.0	1.13	11.8	0.08	0.48	0.33	0.28	40	16
50	11.53	11.52	33.532	25.540	244.7	0.143	3.80	165.6	61.6	14.2	1.39	15.3	0.02	0.14	0.13	0.12	50	15
59	11.34	11.33	33.641	25.659	233.6	0.165	3.22	140.1	52.0	17.9	1.59	18.1	0.04	0.05	0.07	0.11	59	14
69	10.98	10.97	33.760	25.818	218.8	0.187	2.85	124.0	45.7	21.2	1.75	20.2	0.01	0.13	0.02	0.07	70	13
75 ISL	10.85 D	10.84	33.790 D	25.863	214.6	0.202	2.87 D	124.9 D	45.9	22.4	1.82	21.0	0.02	0.23	0.02	0.07	76	
84	10.75	10.74	33.858	25.934	208.1	0.219	2.45	106.7	39.1	24.3	1.93	22.1	0.03	0.37	0.02	0.06	85	12
100	10.39	10.38	33.911	26.039	198.4	0.252	2.37	103.1	37.5	25.9	2.00	23.4	0.01	0.12	0.01	0.05	101	11
119	9.94	9.92	33.969	26.162	187.1	0.289	2.18	94.7	34.1	28.6	2.11	25.2	0.02	0.06	0.00	0.06	120	10
125 ISL	9.79 D	9.78	33.964 D	26.183	185.2	0.302	2.23 D	97.1 D	34.9	29.6	2.14	25.7	0.02	0.08	0.00	0.06	126	
140	9.46	9.44	34.024	26.286	175.8	0.327	2.03	88.5	31.6	32.2	2.20	27.1	0.03	0.12	0.00	0.06	141	09
150 ISL	9.44 D	9.43	34.054 D	26.311	173.6	0.347	2.01 D	87.3 D	31.2	33.2	2.23	27.5	0.02	0.19	0.00	0.06	151	
169	9.37	9.35	34.120	26.376	167.8	0.377	1.78 D	77.5 D	27.6	35.1	2.29	28.2	0.01	0.33	0.00	0.05	170	08
200	9.09	9.07	34.161	26.454	161.0	0.428	1.60	69.4	24.6	37.8	2.37	29.0	0.00	0.03	0.00	0.05	202	07
229	8.88	8.85	34.173	26.498	157.4	0.474	1.50	65.4	23.1	40.1	2.43	29.9	0.00	0.09			231	06
250 ISL	8.68 D	8.66	34.186 D	26.539	153.8	0.510	1.42 D	61.7 D	21.7	41.5	2.48	30.3	0.00	0.06			252	
270	8.67	8.65	34.219	26.567	151.6	0.537	1.32	57.3	20.1	42.9	2.52	30.7	0.00	0.03			272	05
300 ISL	8.29 D	8.25	34.210 D	26.620	147.0	0.586	1.18 D	51.2 D	17.8	46.9	2.60	32.0	0.00	0.04			302	
320	8.02	7.99	34.217	26.666	142.9	0.611	1.01	43.9	15.2	49.5	2.66	32.9	0.00	0.04			323	04
380	7.43	7.39	34.248	26.777	133.0	0.694	0.69	29.8	10.2	57.5	2.85	35.3	0.00	0.00			383	03
400 ISL	7.30 D	7.25	34.253 D	26.801	130.9	0.726	0.64 D	27.8 D	9.5	59.9	2.89	35.9	0.00	0.00			403	
441	6.94	6.90	34.272	26.865	125.3	0.773	0.49	21.3	7.2	64.8	2.98	37.1	0.00	0.00			445	02
500 ISL	6.52 D	6.47	34.299 D	26.944	118.3	0.852	0.35 D	15.1 D	5.0	72.7	3.10	38.4	0.00	0.00			504	
517	6.35	6.31	34.313	26.977	115.3	0.864	0.29	12.5	4.2	75.0	3.13	38.8	0.00	0.00			521	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 50.6 N	117 31.8 W	12/01/2013	0210 UTC	851 m	300 08 kn			1019.3 mb	11.1 C	8.1 C				003

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.36	14.36	33.515	24.966	298.1	0.000	5.87	255.9	101.0	2.5	0.36	0.6	0.03	0.07	1.31	0.31	0	
2	14.36	14.36	33.515	24.966	298.1	0.006	5.87	255.9	101.0	2.5	0.36	0.6	0.03	0.07	1.31	0.31	2	20
10	14.36	14.35	33.513	24.965	298.4	0.030	5.82	253.8	100.1	2.6	0.36	0.6	0.03	0.33	1.34	0.36	10	19
19	14.31	14.30	33.530	24.989	296.4	0.057	5.81	253.3	99.9	2.4	0.37	0.6	0.03	0.17	1.52	0.77	19	18
20 ISL	14.28 D	14.28	33.508 D	24.978	297.5	0.060	5.82	253.4	99.8	2.4	0.37	0.6	0.03	0.17	1.56	0.74	20	
29	14.07	14.07	33.514	25.026	293.2	0.086	5.83	254.0	99.7	2.2	0.37	0.6	0.06	0.14	1.85	0.46	29	17
30 ISL	14.08 D	14.07	33.512 D	25.023	293.5	0.090	5.82	253.8	99.6	2.3	0.37	0.7	0.06	0.14	1.83	0.46	30	
40	13.75	13.75	33.508	25.089	287.6	0.118	5.76	251.0	97.8	2.8	0.41	1.2	0.09	0.11	1.68	0.47	40	16
50	11.85	11.85	33.398	25.376	260.4	0.146	4.53	197.5	73.9	10.1	1.07	11.0	0.04	0.12	0.17	0.21	50	15
60	11.53	11.52	33.408	25.444	254.2	0.171	4.47	194.6	72.3	11.1	1.13	12.3	0.04	0.06	0.14	0.14	60	14
70	11.30	11.29	33.524	25.576	241.8	0.196	3.89	169.2	62.7	14.4	1.38	15.3	0.02	0.25	0.08	0.11	71	13
75 ISL	11.28 D	11.27	33.600 D	25.639	236.0	0.210	3.62 D	157.4 D	58.3	15.6	1.45	16.3	0.02	0.23	0.07	0.10	76	
84	10.85	10.84	33.623	25.734	227.1	0.229	3.45	150.3	55.2	18.0	1.58	18.1	0.01	0.20	0.05	0.09	85	12
100	10.56	10.55	33.777	25.905	211.2	0.264	2.81	122.4	44.7	22.4	1.82	21.1	0.01	0.05	0.02	0.06	101	11
120	10.22	10.20	33.897	26.060	196.9	0.305	2.48	107.7	39.1	25.9	1.96	23.2	0.01	0.05	0.01	0.05	121	10
125 ISL	10.16 D	10.15	33.923 D	26.089	194.3	0.317	2.46 D	107.1 D	38.8	26.5	1.98	23.5	0.01	0.05	0.01	0.05	126	
140	9.97	9.95	33.968	26.158	188.1	0.343	2.36	102.6	37.0	28.0	2.05	24.4	0.00	0.06	0.01	0.04	141	09
150 ISL	9.97 D	9.95	34.024 D	26.202	184.2	0.364	2.18 D	94.9 D	34.3	29.2	2.08	25.0	0.00	0.06	0.01	0.04	151	
170	9.51	9.49	34.051	26.300	175.1	0.398	2.06 D	89.7 D	32.1	31.6	2.14	26.3	0.00	0.07	0.00	0.03	171	08
200	9.27	9.24	34.151	26.418	164.5	0.449	1.80	78.4	27.9	35.5	2.28	27.6	0.00	0.00	0.00	0.04	202	07
230	8.80	8.77	34.167	26.506	156.6	0.497	1.69	73.4	25.8	38.9	2.37	28.8	0.00	0.30			232	06
250 ISL	8.57 D	8.54	34.191 D	26.561	151.7	0.531	1.46 D	63.4 D	22.2	42.2	2.48	29.9	0.00	0.18			252	
270	8.37	8.35	34.220	26.614	147.0	0.558	1.19	51.9	18.1	45.5	2.58	30.9	0.00	0.05			272	05
300 ISL	8.08 D	8.05	34.220 D	26.658	143.2	0.605	1.13 D	48.9 D	17.0	49.8	2.68	32.3	0.00	0.06			302	
320	7.76	7.73	34.225	26.710	138.5	0.629	0.90	39.1	13.4	52.6	2.75	33.3	0.00	0.07			323	04
380	7.38	7.34	34.255	26.790	131.7	0.710	0.62	26.8	9.1	58.8	2.89	35.2	0.00	0.04			383	03
400 ISL	7.18 D	7.14	34.266 D	26.827	128.4	0.742	0.54 D	23.4 D	8.0	61.3	2.93	35.7	0.00	0.04			403	
440	6.91	6.87	34.289	26.882	123.6	0.787	0.40	17.4	5.9	66.3	3.00	36.6	0.00	0.05			444	02
500 ISL	6.50 D	6.45	34.298 D	26.946	118.1	0.866	0.36 D	15.4 D	5.2	72.4	3.09	38.0	0.00	0.16			504	
515	6.38	6.34	34.303	26.965	116.4	0.877	0.32	13.9	4.6	74.0	3.11	38.4	0.00	0.19			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 40.5 N	117 52.5 W	12/01/2013	0614	UTC	615 m	320 20 kn			1019.5 mb	12.1 C	9.0 C				004

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.79		14.79		33.512		24.871	307.1	0.000	5.70		248.2		98.8		2.7	0.35	0.4	0.05	0.05	0.46	0.13	0	
3		14.79		14.79		33.512		24.871	307.1	0.009	5.70		248.2		98.8		2.7	0.35	0.4	0.05	0.05	0.46	0.13	3	20
9		14.79		14.79		33.529		24.885	306.1	0.028	5.70		248.3		98.9		2.7	0.35	0.5	0.04	0.07	0.45	0.14	9	19
10	ISL	14.80	D	14.80		33.507	D	24.865	307.9	0.031	5.70		248.3		98.8		2.7	0.35	0.5	0.04	0.07	0.45	0.14	10	
19		14.80		14.80		33.535		24.888	306.1	0.058	5.69		248.0		98.8		2.8	0.36	0.5	0.05	0.10	0.46	0.13	19	18
20	ISL	14.79	D	14.79		33.507	D	24.868	308.0	0.062	5.69		248.0		98.7		2.8	0.36	0.5	0.05	0.09	0.46	0.13	20	
30		14.81		14.80		33.527		24.881	307.1	0.092	5.68		247.5		98.6		2.7	0.36	0.5	0.05	0.03	0.45	0.14	30	17
41		14.81		14.80		33.530		24.884	307.2	0.126	5.69		248.1		98.8		2.7	0.36	0.5	0.05	0.09	0.46	0.14	41	16
50	ISL	14.72	D	14.70		33.502	D	24.885	307.4	0.155	5.70	D	248.5	D	98.7		2.8	0.38	0.7	0.05	0.04	0.44	0.15	50	
52		14.61		14.60		33.521		24.920	304.1	0.160	5.70		248.6		98.6		2.8	0.38	0.7	0.05	0.03	0.43	0.15	52	15
62		13.19		13.18		33.403		25.123	284.9	0.189	5.21		227.1		87.4		5.9	0.66	5.3	0.09	0.03	0.22	0.13	62	14
70		12.18		12.17		33.381		25.301	268.1	0.211	4.79		208.5		78.6		8.9	0.93	9.5	0.05	0.11	0.13	0.13	71	13
75	ISL	11.87	D	11.83		33.379	D	25.364	262.2	0.227	4.76	D	207.3	D	77.6		10.1	1.02	10.9	0.04	0.10	0.11	0.12	76	
87		11.31		11.30		33.483		25.543	245.4	0.255	4.19		182.3		67.5		13.1	1.22	14.2	0.03	0.06	0.07	0.09	88	12
100		10.63		10.62		33.547		25.714	229.3	0.286	3.83		166.6		60.8		16.3	1.39	17.2	0.02	0.06	0.03	0.06	101	11
123		10.01		9.99		33.796		26.016	201.1	0.336	2.91		126.8		45.7		24.1	1.79	22.6	0.02	0.02	0.01	0.04	124	10
125	ISL	9.97	D	9.95		33.811	D	26.035	199.3	0.342	2.83	D	123.3	D	44.4		24.5	1.80	22.8	0.02	0.02	0.01	0.04	126	
145		9.72		9.70		33.904		26.150	188.8	0.378	2.57		111.6		40.1		27.7	1.91	24.5	0.02	0.03	0.00	0.03	146	09
150	ISL	9.71	D	9.70		33.906	D	26.151	188.9	0.391	2.56	D	111.5	D	40.0		28.4	1.94	24.8	0.02	0.04	0.00	0.03	151	
171		9.62		9.60		34.070		26.296	175.6	0.426	2.16	D	94.0	D	33.7		31.4	2.07	26.3	0.00	0.06	0.00	0.03	172	08
200	ISL	9.36	D	9.34		34.135	D	26.390	167.2	0.480	1.85	D	80.3	D	28.6		34.6	2.18	27.5	0.00	0.02	0.00	0.03	202	
204		9.31		9.28		34.160		26.419	164.6	0.482	1.78		77.6		27.6		35.0	2.19	27.7	0.00	0.01	0.00	0.03	206	07
237		8.63		8.61		34.204		26.560	151.5	0.535	1.49		64.7		22.7		41.3	2.33	30.0	0.00	0.04			239	06
250	ISL	8.39	D	8.36		34.186	D	26.585	149.4	0.560	1.37	D	59.7	D	20.8		43.4	2.39	30.8	0.00	0.03			252	
284		8.00		7.97		34.196		26.651	143.5	0.604	1.11		48.1		16.6		49.1	2.54	32.8	0.00	0.00			286	05
300	ISL	7.81	D	7.78		34.211	D	26.691	139.9	0.633	0.96	D	41.8	D	14.4		51.4	2.60	33.5	0.00	0.00			302	
320		7.64		7.61		34.227		26.729	136.6	0.654	0.81		35.3		12.1		54.3	2.67	34.4	0.00	0.00			323	04
373		7.15		7.12		34.265		26.829	127.7	0.724	0.53		22.9		7.8		62.0	2.82	36.3	0.00	0.00			376	03
400	ISL	6.91	D	6.87		34.264	D	26.863	124.7	0.766	0.51	D	22.1	D	7.5		65.0	2.88	36.9	0.00	0.00			403	
439		6.69		6.65		34.294		26.917	120.1	0.806	0.37		16.1		5.4		69.3	2.96	37.8	0.00	0.00			443	02
500	ISL	6.37	D	6.32		34.307	D	26.969	115.8	0.887	0.32	D	14.0	D	4.7		74.4	3.04	38.9	0.00	0.00			504	
501		6.35		6.30		34.310		26.975	115.2	0.879	0.31		13.7		4.6		74.5	3.04	38.9	0.00	0.00			505	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 30.9 N	118 12.7 W	12/01/2013	1012	UTC	1665 m	310 17 kn			1019.4 mb	12.1 C	9.0 C				005

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.60		14.60		33.503		24.905	303.9	0.000	5.64		245.8		97.5		3.1	0.40	1.1	0.06	0.05	0.47	0.14	0	
2		14.60		14.60		33.503		24.905	303.9	0.006	5.64		245.8		97.5		3.1	0.40	1.1	0.06	0.05	0.47	0.14	2	21
10		14.61		14.60		33.504		24.905	304.1	0.018														10	20
10		14.61		14.60		33.509		24.909	303.8	0.030	5.67		247.0		98.0		3.1	0.41	1.0	0.06	0.01	0.48	0.13	10	19
20		14.60		14.59		33.511		24.913	303.7	0.061	5.63		245.2		97.2		3.1	0.40	1.1	0.06	0.01	0.50	0.14	20	18
30		14.60		14.59		33.514		24.916	303.7	0.091	5.62		244.9		97.1		3.1	0.39	1.1	0.06	0.00	0.50	0.14	30	17
40		14.59		14.58		33.508		24.914	304.3	0.122	5.62		245.1		97.1		3.1	0.40	1.1	0.06	0.01	0.51	0.14	40	16
50		14.46		14.45		33.496		24.932	302.9	0.152	5.57		242.8		96.0		3.4	0.42	1.5	0.06	0.01	0.48	0.14	50	15
60		12.19		12.18		33.400		25.314	266.6	0.181	4.65		202.6		76.4		9.2	0.99	10.2	0.05	0.00	0.18	0.17	60	14
70		11.65		11.64		33.486		25.483	250.8	0.206	4.13		179.7		67.0		12.5	1.23	13.4	0.04	0.02	0.11	0.10	71	13
75	ISL	11.44	D	11.44		33.502	D	25.532	246.1	0.209	4.11	D	178.9	D	66.5		13.0	1.25	13.9	0.04	0.01	0.10	0.10	76	
86		10.86		10.85		33.490		25.628	237.2	0.245	4.13		179.9		66.0		14.2	1.30	15.1	0.03	0.00	0.07	0.08	87	12
100		10.56		10.54		33.660		25.815	219.8	0.277	3.34		145.3		53.0		19.4	1.62	19.3	0.02	0.00	0.03	0.05	101	11
120		10.26		10.24		33.788		25.967	205.7	0.320	2.91		126.5		45.9		23.1	1.78	21.8	0.02	0.00	0.01	0.04	121	10
125	ISL	10.14	D	10.13		33.821	D	26.011	201.6	0.321	2.83	D	123.0	D	44.5		24.2	1.83	22.5	0.02	0.01	0.01	0.04	126	
140		9.84		9.83		33.933		26.150	188.7	0.359	2.53		110.2		39.6		27.5	1.97	24.4	0.00	0.04	0.00	0.03	141	09
150	ISL	9.64	D	9.63		33.972	D	26.215	182.7	0.369	2.37	D	103.2	D	37.0		28.9	2.01	25.0	0.00	0.03	0.00	0.03	151	
170		9.41		9.39		34.035		26.303	174.8	0.414	2.23	D	97.2	D	34.7		31.5	2.09	26.3	0.00	0.00	0.00	0.03	171	08
200		8.89		8.87		34.126		26.458	160.6	0.464	1.89		82.2		29.0		36.8	2.24	28.6	0.00	0.00	0.00	0.02	202	07
229		8.49		8.47		34.202		26.580	149.4	0.509	1.47		64.0		22.4		41.6	2.42	30.1	0.00	0.00			231	06
250	ISL	8.07	D	8.05		34.139	D	26.594	148.2	0.534	1.46	D	63.4	D	22.0		44.4	2.48	31.2	0.00	0.03			252	
271		8.01		7.98		34.179		26.637	144.6	0.571	1.31		56.9		19.7		47.2	2.53	32.3	0.00	0.06			273	05
300	ISL	7.82	D	7.79		34.190	D	26.673	141.6	0.607	1.10	D	47.9	D	16.5		50.2	2.61	33.2	0.00	0.02			302	
320		7.67		7.64		34.220		26.719	137.6	0.641	0.98		42.6		14.6		52.3	2.67	33.8	0.00	0.00			323	04
380		7.34		7.30		34.268		26.805	130.2	0.721	0.70		30.3		10.3		57.8	2.82	35.1	0.00	0.00			383	03
400	ISL	7.16	D	7.12		34.262	D	26.826	128.4	0.743	0.58	D	25.3	D	8.6		60.7	2.87	35.8	0.00	0.00			403	
440		6.73		6.69		34.295		26.912	120.6	0.797	0.45		19.4		6.5		66.6	2.97	37.3	0.00	0.00			444	02
500	ISL	6.41	D	6.37		34.305	D	26.962	116.5	0.866	0.36	D	15.4	D	5.2		73.0	3.06	38.6	0.00	0.00			504	
516		6.33		6.28		34.328		26.992	113.9	0.886	0.30		13.1		4.3		74.7	3.08	39.0	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 21.0 N	118 33.3 W	12/01/2013	1412	UTC	1320 m	350 15 kn			1019.6 mb	11.8 C	9.2 C				006

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.09		14.09		33.510		25.017	293.2	0.000	5.76		250.9		98.5		1.9	0.37	0.9	0.07	0.13	1.21	0.29	0	
2		14.09		14.09		33.510		25.017	293.2	0.006	5.76		250.9		98.5		1.9	0.37	0.9	0.07	0.13	1.21	0.29	2	21
10		14.09		14.09		33.510		25.017	293.4	0.029	5.76		251.1		98.6		1.9	0.36	0.9	0.07	0.07	1.22	0.30	10	19
10		14.09		14.09		33.510		25.018	293.4	0.030														10	20
20		14.10		14.09		33.517		25.023	293.2	0.059	5.75		250.6		98.4		1.9	0.34	0.9	0.07	0.04	1.27	0.33	20	18
30		14.10		14.09		33.512		25.019	293.9	0.088	5.76		251.1		98.5		1.8	0.33	0.9	0.07	0.06	1.23	0.30	30	17
40		13.66		13.66		33.506		25.105	286.0	0.117	5.74		250.2		97.3		2.0	0.39	1.1	0.07	0.05	1.22	0.52	40	16
50		11.92		11.91		33.384		25.353	262.6	0.145	4.74		206.6		77.4		9.2	0.97	9.5	0.08	0.05	0.18	0.16	50	15
60		10.95		10.95		33.448		25.579	241.3	0.170	4.31		187.7		69.0		12.7	1.20	13.0	0.05	0.00	0.08	0.10	60	14
70		10.52		10.51		33.538		25.724	227.6	0.193	3.94		171.7		62.5		16.1	1.39	16.1	0.04	0.00	0.05	0.07	71	13
75	ISL	10.33	D	10.32		33.581	D	25.792	221.3	0.192	3.87	D	168.5	D	61.1		17.2	1.45	17.1	0.04	0.00	0.04	0.07	76	
86		10.11		10.10		33.639		25.875	213.7	0.228	3.54		153.9		55.6		19.7	1.58	19.2	0.04	0.00	0.02	0.06	87	12
100		9.81		9.80		33.705		25.977	204.2	0.257	3.29		143.3		51.4		22.6	1.76	21.6	0.01	0.00	0.01	0.05	101	11
119		9.64		9.63		33.762		26.050	197.7	0.296	3.09		134.4		48.1		24.6	1.83	22.9	0.02	0.02	0.01	0.04	120	10
125	ISL	9.60	D	9.59		33.775	D	26.067	196.2	0.296	3.11	D	135.4	D	48.4		25.7	1.88	23.6	0.01	0.01	0.01	0.04	126	
140		9.29		9.27		33.879		26.200	183.8	0.336	2.71		117.9		41.9		28.6	1.99	25.2	0.00	0.00	0.01	0.04	141	09
150	ISL	9.27	D	9.26		33.874	D	26.199	184.2	0.344	2.73	D	118.8	D	42.2		29.7	2.01	25.7	0.00	0.00	0.01	0.04	151	
169		8.99		8.97		33.959		26.310	173.9	0.388	2.50	D	108.7	D	38.4		31.7	2.06	26.6	0.00	0.00	0.00	0.04	170	08
200		8.54		8.52		34.079		26.476	158.6	0.440	1.95		84.8		29.7		38.1	2.29	28.9	0.00	0.00	0.00	0.04	202	07
230		8.04		8.02		34.111		26.577	149.5	0.486	1.65		71.8		24.8		43.8	2.41	31.1	0.00	0.00			232	06
250	ISL	7.96	D	7.94		34.151	D	26.621	145.7	0.506	1.44	D	62.6	D	21.6		47.3	2.52	32.1	0.00	0.00			252	
270		7.63		7.60		34.163		26.679	140.3	0.544	1.31		56.8		19.5		50.8	2.63	33.1	0.00	0.00			272	05
300	ISL	7.50	D	7.47		34.171	D	26.704	138.5	0.577	1.06	D	45.9	D	15.7		53.8	2.72	34.1	0.00	0.00			302	
320		7.36		7.33		34.194		26.743	135.0	0.613	0.92		39.8		13.6		55.8	2.78	34.8	0.00	0.00			323	04
381		7.07		7.03		34.231		26.814	129.1	0.694	0.67		29.3		9.9		61.2	2.91	35.9	0.00	0.00			384	03
400	ISL	6.89	D	6.85		34.238	D	26.844	126.5	0.711	0.57	D	24.8	D	8.4		63.5	2.95	36.5	0.00	0.00			403	
441		6.68		6.64		34.272		26.900	121.7	0.769	0.44		19.3		6.5		68.4	3.03	37.7	0.00	0.00			445	02
500	ISL	6.17	D	6.12		34.305	D	26.994	113.2	0.833	0.33	D	14.1	D	4.7		76.5	3.15	39.1	0.00	0.00			504	
515		6.10		6.05		34.323		27.017	111.1	0.855	0.28		12.3		4.1		78.6	3.18	39.4	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 11.5 N	118 52.9 W	12/01/2013	1813	UTC	1345 m	010 08 kn	310 07 07	1	1021.7 mb	12.8 C	8.9 C	15 m	3/8	SC	007

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.41		14.41		33.512		24.952	299.4	0.000	5.77		251.5		99.4		1.9	0.36	0.5	0.05	0.07	0.82	0.28	0	
2	A	14.41		14.41		33.512		24.952	299.4	0.006	5.77		251.5		99.4		1.9	0.36	0.5	0.05	0.07	0.82	0.28	2	22
10	A	14.41		14.40		33.515		24.956	299.3	0.030	5.80		252.7		99.8		1.9	0.34	0.5	0.05	0.04	0.83	0.30	10	21
13	A	14.39		14.39		33.512		24.956	299.4	0.039	5.77		251.4		99.3		1.9	0.33	0.5	0.05	0.03	0.84	0.28	13	20
19		14.39		14.39		33.512		24.957	299.5	0.057	5.77		251.5		99.3		1.9	0.34	0.5	0.05	0.02	0.85	0.29	19	19
20	ISL	14.39	D	14.39		33.502	D	24.950	300.2	0.060	5.77		251.5		99.3		1.9	0.34	0.5	0.05	0.02	0.85	0.29	20	
26	A	14.39		14.38		33.511		24.958	299.6	0.078	5.76		251.1		99.2		1.9	0.35	0.5	0.05	0.02	0.89	0.28	26	18
30	ISL	14.39	D	14.38		33.502	D	24.951	300.4	0.091	5.76		251.0		99.1		1.9	0.35	0.5	0.05	0.02	0.88	0.28	30	
38		14.39		14.38		33.511		24.959	299.9	0.114	5.75		250.7		99.0		1.9	0.36	0.5	0.05	0.03	0.87	0.28	38	17
48	A	14.39		14.38		33.512		24.960	300.1	0.144	5.77		251.6		99.3		1.9	0.36	0.5	0.05	0.03	0.85	0.28	48	16
50	ISL	14.38	D	14.38		33.502	D	24.953	300.9	0.151	5.77		251.5		99.3		1.9	0.36	0.5	0.05	0.04	0.85	0.28	50	
56	A	14.36		14.35		33.511		24.966	299.8	0.168	5.77		251.5		99.2		1.9	0.35	0.5	0.05	0.06	0.84	0.27	56	15
62		13.91		13.90		33.492		25.045	292.5	0.186	5.61		244.3		95.5		3.0	0.46	1.9	0.11	0.10	0.78	0.34	62	14
70		13.47		13.46		33.465		25.114	286.0	0.209	5.39		234.6		90.9		4.7	0.59	3.7	0.19	0.10	0.53	0.27	71	13
75	ISL	13.25	D	13.23		33.442	D	25.143	283.4	0.225	5.28	D	230.0	D	88.7		6.0	0.69	5.3	0.21	0.08	0.41	0.23	76	
86		12.38		12.37		33.437		25.308	267.9	0.253	4.83		210.2		79.6		9.0	0.92	8.8	0.25	0.05	0.15	0.14	87	12
99		11.08		11.07		33.448		25.557	244.3	0.287	4.32		188.1		69.3		12.6	1.22	13.5	0.06	0.00	0.11	0.18	100	11
100	ISL	11.07	D	11.09		33.455	D	25.559	244.2	0.292	4.31	D	187.8	D	69.2		12.9	1.24	13.7	0.06	0.00	0.11	0.18	101	
120		10.26		10.24		33.592		25.814	220.2	0.335	3.70		161.1		58.4		18.3	1.54	18.3	0.03	0.00	0.05	0.10	121	10
125	ISL	9.95	D	9.93		33.690	D	25.943	208.0	0.349	3.45	D	150.2	D	54.1		20.4	1.63	19.6	0.03	0.00	0.04	0.09	126	
140		9.44		9.42		33.843		26.147	188.9	0.376	2.86		124.6		44.4		26.5	1.89	23.5	0.01	0.00	0.01	0.03	141	09
150	ISL	9.27	D	9.25		33.908	D	26.226	181.6	0.398	2.71	D	118.0	D	41.9		28.4	1.96	24.4	0.01	0.00	0.01	0.03	151	
169		9.11		9.10		34.003		26.325	172.5	0.428	2.32		101.1		35.8		31.9	2.08	26.0	0.00	0.00	0.00	0.03	170	08
199		8.67		8.65		34.096		26.469	159.4	0.478	1.94		84.4		29.6		37.4	2.27	28.3	0.00	0.00	0.01	0.04	201	07
200	ISL	8.61	D	8.58		34.103	D	26.485	157.8	0.483	1.93	D	83.8	D	29.4		37.6	2.28	28.3	0.00	0.00	0.01	0.04	202	
231		8.39		8.36		34.161		26.564	150.9	0.527	1.54		67.1		23.4		42.6	2.47	29.8	0.00	0.00			233	06
250	ISL	8.27	D	8.24		34.176	D	26.595	148.3	0.560	1.37	D	59.4	D	20.7		44.8	2.52	30.6	0.00	0.00			252	
270		8.00		7.98		34.175		26.634	144.9	0.585	1.29		55.9		19.3		47.1	2.57	31.5	0.00	0.00			272	05
300	ISL	7.69	D	7.66		34.218	D	26.714	137.6	0.632	0.97	D	42.3	D	14.5		51.4	2.70	32.6	0.00	0.00			302	
327		7.66		7.62		34.240		26.737	136.0	0.664	0.83		35.9		12.3		55.3	2.82	33.6	0.00	0.00			330	04
380		7.11		7.08		34.267		26.836	127.1	0.734	0.55		24.0		8.1		62.1	2.97	35.4	0.00	0.00			383	03
400	ISL	6.99	D	6.95		34.273	D	26.858	125.2	0.765	0.50	D	21.6	D	7.3		64.3	3.00	36.0	0.00	0.00			403	
440		6.68		6.63		34.288		26.913	120.5	0.808	0.42		18.1		6.1		68.8	3.05	37.3	0.00	0.00			444	02
500	ISL	6.35	D	6.30		34.305	D	26.970	115.6	0.893	0.32	D	14.0	D	4.7		75.1	3.14	38.6	0.00	0.00			504	
515		6.23		6.19		34.319		26.997	113.2	0.896	0.28		12.0		4.0		76.7	3.16	38.9	0.00	0.00			519	01

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
32 0.9 N	119 13.8 W	12/01/2013	2208 UTC	1575 m	320 08 kn	310 06 07	1	1020.7 mb	12.8 C	9.1 C	20 m	2/8	SC	008

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		15.33		15.33	33.533		24.769	316.8	0.000	5.65	246.1		99.0		2.6	0.32	0.3	0.03	0.08	0.38	0.12	0	
2		15.33		15.33	33.533		24.769	316.8	0.006	5.65	246.1		99.0		2.6	0.32	0.3	0.03	0.08	0.38	0.12	2	21
9		15.33		15.33	33.534		24.771	316.9	0.018													9	20
9		15.33		15.33	33.535		24.771	316.8	0.029	5.65	246.0		99.0		2.6	0.32	0.3	0.02	0.07	0.42	0.14	9	19
10	ISL	15.33	D	15.33	33.529	D	24.768	317.2	0.021	5.65	246.0		99.0		2.6	0.32	0.3	0.02	0.07	0.42	0.14	10	
20		15.30		15.30	33.531		24.777	316.7	0.063	5.64	245.9		98.9		2.6	0.33	0.3	0.02	0.12	0.39	0.13	20	18
30		15.29		15.28	33.531		24.779	316.8	0.095	5.63	245.4		98.7		2.6	0.33	0.3	0.03	0.10	0.43	0.14	30	17
40		15.28		15.28	33.530		24.781	317.0	0.127	5.63	245.3		98.6		2.6	0.33	0.3	0.03	0.06	0.45	0.13	40	16
48		15.28		15.27	33.530		24.781	317.2	0.152	5.62	245.0		98.5		2.6	0.33	0.3	0.02	0.05	0.44	0.13	48	15
50	ISL	15.26	D	15.26	33.524	D	24.780	317.4	0.149	5.61	244.4		98.2		2.7	0.34	0.5	0.02	0.05	0.42	0.13	50	
59		14.50		14.50	33.489		24.918	304.5	0.187	5.55	241.8		95.7		3.2	0.39	1.2	0.04	0.05	0.34	0.15	59	14
70		12.17		12.16	33.420		25.335	264.9	0.218	4.51	196.4		74.0		9.9	1.02	10.5	0.03	0.00	0.13	0.14	71	13
75	ISL	11.96	D	11.96	33.440	D	25.388	259.9	0.222	4.40	D191.6	D	71.9		10.3	1.05	10.9	0.03	0.00	0.13	0.13	76	
85		11.87		11.85	33.455		25.419	257.2	0.257	4.31	187.7		70.3		11.1	1.11	11.8	0.03	0.00	0.11	0.12	86	12
99		10.76		10.75	33.471		25.632	237.1	0.291	4.25	185.1		67.7		14.0	1.27	14.9	0.02	0.01	0.05	0.06	100	11
100	ISL	10.77	D	10.71	33.542	D	25.694	231.3	0.285	4.21	175.9		67.2		14.3	1.29	15.2	0.02	0.01	0.05	0.06	101	
119		10.05		10.03	33.653		25.898	212.2	0.336	3.51	153.0		55.2		20.1	1.60	19.9	0.02	0.03	0.01	0.03	120	10
125	ISL	9.75	D	9.73	33.719	D	25.999	202.7	0.340	3.22	D140.0	D	50.2		21.2	1.64	20.7	0.02	0.02	0.01	0.03	126	
140		9.43		9.42	33.750		26.075	195.7	0.378	3.27	142.5		50.7		24.0	1.74	22.6	0.02	0.01	0.00	0.02	141	09
150	ISL	9.18	D	9.15	33.813	D	26.167	187.1	0.389	3.17	D137.9	D	48.9		26.0	1.81	23.6	0.01	0.01	0.00	0.02	151	
170		8.91		8.89	33.908		26.283	176.4	0.434	2.68	D116.5	D	41.1		30.0	1.95	25.7	0.00	0.00	0.00	0.03	171	08
200		8.63		8.61	33.987		26.390	166.8	0.485	2.38	103.6		36.3		33.7	2.06	27.2	0.00	0.02	0.00	0.02	202	07
229		8.35		8.32	34.049		26.482	158.6	0.532	2.01	87.3		30.4		38.5	2.19	29.1	0.00	0.00			231	06
250	ISL	8.20	D	8.17	34.092	D	26.539	153.6	0.559	1.69	D 73.5	D	25.5		41.3	2.28	30.0	0.00	0.00			252	
269		8.05		8.02	34.123		26.586	149.4	0.594	1.56	68.0		23.5		43.8	2.36	30.8	0.00	0.00			271	05
300	ISL	7.63	D	7.60	34.138	D	26.659	142.8	0.633	1.15	D 50.0	D	17.2		49.0	2.48	32.7	0.00	0.00			302	
320		7.35		7.32	34.132		26.696	139.5	0.667	1.13	49.2		16.8		52.4	2.56	33.9	0.00	0.00			323	04
381		6.85		6.81	34.175		26.800	130.3	0.750	0.84	36.7		12.4		60.1	2.71	35.5	0.00	0.03			384	03
400	ISL	6.79	D	6.76	34.207	D	26.832	127.5	0.770	0.73	D 31.8	D	10.7		62.3	2.75	35.8	0.00	0.02			403	
441		6.58		6.54	34.251		26.897	121.9	0.825	0.53	23.1		7.7		67.0	2.84	36.3	0.00	0.00			445	02
500	ISL	6.02	D	5.97	34.236	D	26.958	116.3	0.892	0.51	D 22.1	D	7.3		73.3	2.88	37.7	0.00	0.00			504	
515		5.96		5.92	34.255		26.980	114.4	0.913	0.42	18.4		6.1		74.9	2.89	38.1	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
31 50.8 N	119 34.0 W	13/01/2013	0218 UTC	1860 m	340 15 kn			1021.1 mb	12.2 C	8.0 C				009

DEPTH m		TEMP DEG C		POTTEMP DEG C	SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.96		14.96	33.394		24.743	319.4	0.000	5.71	249.0		99.4		2.7	0.33	0.1	0.03	0.08	0.28	0.09	0	
2		14.96		14.96	33.394		24.743	319.4	0.006	5.71	249.0		99.4		2.7	0.33	0.1	0.03	0.08	0.28	0.09	2	20
10		14.97		14.97	33.394		24.742	319.7	0.032	5.73	249.6		99.7		2.7	0.33	0.1	0.02	0.05	0.26	0.10	10	19
19		14.97		14.97	33.393		24.743	319.9	0.061	5.72	249.1		99.4		2.6	0.33	0.1	0.02	0.04	0.28	0.09	19	18
20	ISL	14.97	D	14.97	33.392	D	24.742	320.0	0.064	5.72	249.1		99.4		2.6	0.33	0.1	0.02	0.04	0.28	0.09	20	
29		14.97		14.97	33.395		24.744	320.1	0.093	5.72	249.1		99.4		2.7	0.32	0.1	0.02	0.05	0.28	0.09	29	17
30	ISL	14.97	D	14.96	33.395	D	24.745	320.1	0.097	5.71	249.0		99.4		2.6	0.32	0.1	0.02	0.05	0.29	0.09	30	
40		15.00		14.99	33.440		24.774	317.7	0.128	5.71	248.8		99.4		2.5	0.34	0.1	0.02	0.07	0.36	0.14	40	16
50		14.94		14.93	33.441		24.787	316.7	0.160	5.75	250.5		100.0		2.5	0.34	0.1	0.03	0.13	0.36	0.14	50	15
60		15.00		14.99	33.476		24.802	315.6	0.191	5.71	248.6		99.3		2.5	0.34	0.1	0.03	0.07	0.42	0.15	60	14
70		12.34		12.33	33.171		25.109	286.3	0.221	5.62	244.9		92.5		4.9	0.57	3.3	0.09	0.01	0.25	0.18	71	13
75	ISL	12.12	D	12.11	33.164	D	25.145	283.0	0.237	5.60	D244.1	D	91.7		5.5	0.62	4.1	0.07	0.01	0.22	0.16	76	
85		11.63		11.62	33.159		25.233	274.8	0.263	5.42	236.3		87.9		6.5	0.73	5.8	0.04	0.02	0.18	0.12	86	12
100		11.16		11.15	33.366		25.479	251.8	0.303	4.87	212.3		78.3		9.9	1.03	10.5	0.04	0.00	0.08	0.07	101	11
120		10.32		10.31	33.470		25.708	230.3	0.351	4.35	189.3		68.6		14.9	1.33	15.6	0.02	0.02	0.03	0.04	121	09
125	ISL	10.11	D	10.09	33.540	D	25.799	221.7	0.364	4.05	D176.5	D	63.7		16.2	1.41	16.8	0.02	0.02	0.02	0.03	126	
140		9.88		9.86	33.641		25.917	210.9	0.395	3.65	158.7		57.0		20.4	1.66	20.2	0.02	0.02	0.01	0.03	141	10
150	ISL	9.76	D	9.74	33.844	D	26.096	194.0	0.417	2.99	D130.1	D	46.7		23.3	1.75	21.9	0.02	0.01	0.01	0.03	151	
170		8.99		8.97	33.883		26.251	179.5	0.452	2.90	D126.2	D	44.6		29.0	1.94	25.3	0.02	0.00	0.00	0.02	171	08
200		8.62		8.60	33.984		26.388	167.0	0.504	2.39	104.0		36.4		34.6	2.15	28.1	0.00	0.00	0.00	0.02	202	07
230		8.34		8.32	34.056		26.489	157.9	0.553	2.20	95.6		33.3		38.7	2.24	29.1	0.00	0.00			232	06
250	ISL	8.04	D	8.01	34.062	D	26.539	153.4	0.588	1.98	D 86.3	D	29.9		42.0	2.35	30.4	0.00	0.00			252	
270		7.85		7.82	34.092		26.591	148.8	0.614	1.72	75.0		25.8		45.2	2.45	31.7	0.00	0.00			272	05
300	ISL	7.31	D	7.28	34.090	D	26.667	141.8	0.662	1.47	D 64.0	D	21.8		50.6	2.57	33.5	0.00	0.00			302	
319		7.16		7.13	34.105		26.700	138.9	0.685	1.32	57.5		19.5		54.0	2.65	34.7	0.00	0.00			322	04
380		6.72		6.68	34.169		26.812	129.0	0.766	0.86	37.5		12.6		62.9	2.89	36.8	0.00	0.00			383	03
400	ISL	6.41	D	6.38	34.151	D	26.839	126.5	0.798	0.79	D 34.5	D	11.5		65.5	2.93	37.2	0.00	0.00			403	
439		6.37		6.33	34.229		26.906	120.7	0.840	0.53	23.2		7.7		70.3	3.01	38.1	0.00	0.00			443	02
500	ISL	5.87	D	5.83	34.249	D	26.987	113.5	0.918	0.41	D 18.0	D	5.9		78.9	3.10	39.8	0.00	0.00			504	
516		5.72		5.68	34.254		27.009	111.4	0.930	0.37	16.1		5.3		81.2	3.12	40.3	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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 30.9 N	120 14.9 W	13/01/2013	0806 UTC	3951 m	320 14 kn			1020.6 mb	12.1 C	10.0 C				010

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		15.15		15.15		33.454		24.748	318.8	0.000	5.70		248.2		99.5		2.5	0.31	0.1	0.02	0.04	0.33	0.10	0	
2		15.15		15.15		33.454		24.748	318.8	0.006	5.70		248.2		99.5		2.5	0.31	0.1	0.02	0.04	0.33	0.10	2	20
10		15.16		15.15		33.460		24.753	318.7	0.032	5.71		248.8		99.7		2.5	0.31	0.1	0.02	0.00	0.31	0.10	10	19
20		15.17		15.17		33.467		24.755	318.7	0.064	5.69		248.1		99.5		2.5	0.31	0.1	0.01	0.00	0.33	0.11	20	18
30		15.17		15.17		33.452		24.744	320.2	0.096	5.70		248.5		99.6		2.5	0.30	0.1	0.02	0.00	0.32	0.10	30	17
40		15.17		15.16		33.451		24.745	320.4	0.128	5.70		248.4		99.6		2.5	0.31	0.1	0.02	0.00	0.32	0.10	40	16
50	ISL	15.17	D	15.16	D	33.446	D	24.742	321.0	0.162	5.70		248.5		99.6		2.5	0.30	0.1	0.02	0.00	0.32	0.11	50	
51		15.17		15.16		33.454		24.748	320.5	0.163	5.70		248.5		99.6		2.5	0.30	0.1	0.02	0.00	0.32	0.11	51	15
60		15.17		15.16		33.451		24.746	321.0	0.192	5.68		247.5		99.2		2.5	0.30	0.1	0.02	0.00	0.32	0.10	60	14
70		12.41		12.40		33.189		25.109	286.3	0.222	5.59		243.6		92.1		4.8	0.56	3.3	0.14	0.00	0.35	0.26	71	13
75	ISL	12.27	D	12.23		33.256	D	25.193	278.5	0.238	5.47	D	238.4	D	89.9		6.6	0.73	6.0	0.11	0.00	0.28	0.23	76	
85		11.45		11.44		33.417		25.466	252.7	0.263	4.55		198.0		73.5		10.2	1.07	11.3	0.04	0.01	0.15	0.17	86	12
100		10.67		10.66		33.432		25.617	238.6	0.300	4.34		189.0		69.0		13.7	1.27	15.0	0.03	0.00	0.10	0.09	101	11
120		9.76		9.74		33.649		25.943	207.9	0.344	3.50		152.5		54.7		20.8	1.65	21.4	0.02	0.00	0.01	0.03	121	10
125	ISL	9.70	D	9.69		33.672	D	25.969	205.5	0.358	3.41	D	148.4	D	53.2		21.9	1.69	22.0	0.02	0.00	0.01	0.03	126	
140		9.35		9.34		33.785		26.116	191.8	0.385	3.15		137.1		48.8		24.9	1.81	23.9	0.02	0.00	0.00	0.02	141	09
150	ISL	9.12	D	9.10		33.823	D	26.183	185.6	0.407	3.04	D	132.5	D	46.9		26.7	1.86	24.8	0.01	0.00	0.00	0.02	151	
170		8.80		8.78		33.909		26.302	174.6	0.439	2.75	D	119.5	D	42.0		30.4	1.97	26.6	0.00	0.00	0.00	0.02	171	08
200		8.29		8.27		33.993		26.446	161.4	0.490	2.43		105.5		36.7		35.7	2.10	28.6	0.00	0.00	0.00	0.02	202	07
230		7.95		7.93		34.041		26.535	153.4	0.537	2.04		88.6		30.6		40.8	2.26	30.9	0.00	0.00			232	06
250	ISL	7.86	D	7.83	D	34.087	D	26.585	149.0	0.572	1.67	D	72.5	D	25.0		44.5	2.37	32.1	0.00	0.00			252	
270		7.57		7.54		34.095		26.634	144.6	0.597	1.50		65.2		22.3		48.1	2.48	33.3	0.00	0.00			272	05
300	ISL	7.16	D	7.14	D	34.092	D	26.689	139.6	0.645	1.40	D	60.8	D	20.6		51.8	2.56	34.5	0.00	0.00			302	
321		7.08		7.05		34.111		26.716	137.3	0.668	1.19		51.8		17.5		54.5	2.62	35.4	0.00	0.00			324	04
380		6.57		6.53		34.144		26.812	128.8	0.747	0.87		37.8		12.6		63.1	2.79	37.6	0.00	0.00			383	03
400	ISL	6.40	D	6.36	D	34.145	D	26.835	126.8	0.780	0.80	D	35.0	D	11.7		65.7	2.84	38.1	0.00	0.00			403	
440		6.12		6.09		34.185		26.903	120.7	0.822	0.60		26.3		8.7		70.9	2.93	39.2	0.00	0.00			444	02
500	ISL	5.84	D	5.80	D	34.224	D	26.970	115.0	0.901	0.45	D	19.7	D	6.5		78.2	3.03	40.3	0.00	0.00			504	
515		5.72		5.67		34.245		27.003	112.0	0.910	0.38		16.6		5.5		80.0	3.06	40.6	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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 10.2 N	120 55.1 W	13/01/2013	1425 UTC	3775 m	330 15 kn			1021.4 mb	12.3 C	10.1 C				011

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY		SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		14.89		14.89		33.380		24.747	318.9	0.000	5.72		249.2		99.3		2.6	0.33	0.2	0.02	0.00	0.31	0.12	0	
3		14.89		14.89		33.380		24.747	318.9	0.010	5.72		249.2		99.3		2.6	0.33	0.2	0.02	0.00	0.31	0.12	3	20
10		14.91		14.91		33.381		24.746	319.3	0.032	5.73		249.9		99.6		2.6	0.33	0.2	0.02	0.00	0.30	0.11	10	19
20	ISL	14.91	D	14.91		33.378	D	24.743	319.9	0.064	5.75	D	250.6	D	99.9		2.6	0.33	0.2	0.02	0.01	0.31	0.11	20	
26		14.92		14.92		33.381		24.743	320.1	0.083	5.75		250.5		99.9		2.6	0.33	0.2	0.02	0.01	0.31	0.11	26	18
30	ISL	14.92	D	14.92		33.380	D	24.742	320.3	0.097	5.74		249.9		99.7		2.6	0.33	0.2	0.02	0.01	0.31	0.11	30	
40		14.93		14.92		33.384		24.745	320.4	0.128	5.71		248.6		99.2		2.6	0.32	0.2	0.01	0.00	0.31	0.10	40	17
50		14.84		14.84		33.386		24.766	318.7	0.160	5.72		249.1		99.2		2.6	0.33	0.2	0.02	0.00	0.31	0.11	50	16
62		11.80		11.79		33.245		25.266	271.1	0.195	5.12		222.8		83.2		7.4	0.86	7.8	0.04	0.00	0.22	0.19	62	15
75		11.07		11.06		33.375		25.502	248.9	0.229	4.65		202.4		74.5		10.8	1.13	12.4	0.02	0.00	0.12	0.11	76	14
87		10.42		10.41		33.426		25.656	234.5	0.258	4.58		199.6		72.5		13.2	1.22	14.3	0.03	0.00	0.05	0.04	88	13
100		9.89		9.88		33.524		25.822	218.9	0.288	4.14		180.2		64.7		17.1	1.44	17.8	0.02	0.00	0.02	0.03	101	12
112		9.64		9.63		33.610		25.932	208.7	0.313	3.77		164.0		58.6		20.5	1.61	20.4	0.02	0.00	0.01	0.02	113	11
125		9.39		9.37		33.700		26.043	198.4	0.340	3.44		149.8		53.3		23.5	1.74	22.5	0.02	0.00	0.00	0.02	126	10
140		9.15		9.13		33.821		26.177	186.0	0.369	3.18		138.4		49.0		26.4	1.83	24.0	0.00	0.00	0.00	0.02	141	09
150	ISL	9.03	D	9.01		33.861	D	26.228	181.3	0.390	3.23	D	140.4	D	49.6		27.5	1.85	24.4	0.00	0.00	0.00	0.02	151	
170		8.77		8.75		33.915		26.310	173.8	0.423	3.03	D	140.4	D	46.3		29.6	1.90	25.2	0.00	0.00	0.00	0.02	171	08
200		8.39		8.37		33.998		26.436	162.4	0.473	2.46		107.0		37.3		35.8	2.13	28.3	0.00	0.00	0.00	0.02	202	07
230		8.15		8.12		34.057		26.519	155.0	0.521	1.87		81.3		28.2		41.3	2.35	30.8	0.00	0.00			232	06
250	ISL	7.96	D	7.94		34.095	D	26.577	149.9	0.555	1.63	D	70.7	D	24.4		44.4	2.45	31.9	0.00	0.00			252	
269		7.85		7.82		34.120		26.613	146.7	0.579	1.36		59.3		20.4		47.4	2.55	33.0	0.00	0.00			271	05
300	ISL	7.33	D	7.30	D	34.103	D	26.675	141.0	0.628	1.37	D	59.4	D	20.2		52.2	2.64	34.4	0.00	0.00			302	
320		7.19		7.16		34.131		26.717	137.3	0.652	1.09		47.4		16.1		55.3	2.70	35.3	0.00	0.00			323	04
380		6.55		6.51		34.169		26.834	126.7	0.731	0.77		33.6		11.2		65.1	2.88	37.5	0.00	0.00			383	03
400	ISL	6.37	D	6.33	D	34.178	D	26.867	123.8	0.762	0.69	D	30.1	D	10.0		68.1	2.92	38.1	0.00	0.00			403	
443		6.02		5.98		34.214		26.939	117.3	0.808	0.56		24.3		8.0		74.5	3.02	39.4	0.00	0.00			447	02
500	ISL	5.90	D	5.86	D	34.287	D	27.013	111.0	0.880	0.34	D	14.7	D	4.8		79.6	3.14	40.1	0.00	0.00			504	
516		5.87		5.82		34.313		27.037	108.9	0.890	0.26		11.4		3.8		81.0	3.17	40.3	0.00	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
30 51.8 N	121 33.4 W	13/01/2013	1957 UTC	4013 m	340 16 kn	330 05 07	1	1022.1 mb	13.9 C	12.0 C	23 m	1/8	SC	012

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		15.07		15.07		33.392	24.719	321.7	0.000	5.79	252.3		100.9		2.5	0.32	0.0	0.02	0.00	0.29	0.09	0	
3	A	15.07		15.07		33.392	24.719	321.7	0.010	5.72	252.3		100.9		2.5	0.32	0.0	0.02	0.00	0.29	0.09	3	20
8		15.06		15.06		33.394	24.723	321.5	0.026	5.73	249.6		99.8		2.5	0.32	0.0	0.02	0.00	0.27	0.09	8	19
10	ISL	15.06	D	15.06		33.390	D 24.719	321.9	0.033	5.73	249.6		99.8		2.5	0.32	0.0	0.02	0.00	0.28	0.09	10	
16	A	15.05		15.05		33.391	24.723	321.7	0.051	5.73	249.5		99.8		2.5	0.31	0.0	0.02	0.00	0.29	0.10	16	18
20	A	15.05		15.05		33.391	24.723	321.8	0.064	5.73	249.6		99.8		2.5	0.32	0.0	0.02	0.00	0.29	0.09	20	17
29		15.04		15.03		33.391	24.727	321.8	0.093	5.72	249.5		99.7		2.5	0.32	0.0	0.01	0.01	0.29	0.09	29	16
30	ISL	15.04	D	15.03		33.390	D 24.726	321.9	0.097	5.72	249.4		99.7		2.5	0.32	0.0	0.01	0.01	0.30	0.09	30	
41	A	15.04		15.03		33.393	24.729	322.0	0.132	5.72	249.1		99.6		2.5	0.31	0.0	0.02	0.02	0.31	0.10	41	15
50	ISL	15.03	D	15.02		33.389	D 24.727	322.4	0.162	5.71	248.9		99.5		2.5	0.32	0.1	0.02	0.01	0.31	0.10	50	
57		15.02		15.02		33.390	24.730	322.3	0.184	5.71	248.8		99.4		2.5	0.32	0.1	0.02	0.00	0.31	0.10	57	14
74	A	14.71		14.70		33.386	24.796	316.6	0.238	5.72	249.1		98.9		2.6	0.32	0.1	0.02	0.00	0.29	0.11	75	13
75	ISL	14.15	D	13.73		33.323	D 24.950	301.8	0.242	5.65	D246.3	D	95.8		3.0	0.36	0.7	0.03	0.00	0.29	0.13	76	
84	A	12.30		12.29		33.233	25.164	281.5	0.268	5.29	230.6		87.1		6.2	0.75	6.2	0.12	0.00	0.29	0.28	85	12
100	ISL	11.30	D	11.30		33.359	D 25.447	254.8	0.312	4.64	D202.1	D	74.8		10.0	1.04	11.0	0.04	0.00	0.14	0.14	101	
101		11.33		11.32		33.359	25.443	255.2	0.313	4.69	204.2		75.6		10.2	1.06	11.3	0.03	0.00	0.13	0.13	102	11
121		9.99		9.97		33.425	25.730	228.2	0.361	4.55	198.0		71.2		14.1	1.24	14.9	0.02	0.00	0.04	0.04	122	10
125	ISL	10.09	D	10.08		33.555	D 25.813	220.4	0.372	4.28	D186.2	D	67.2		16.0	1.36	16.6	0.02	0.00	0.03	0.04	126	
140		9.74		9.72		33.721	26.003	202.6	0.402	3.18	138.4		49.6		23.0	1.79	22.8	0.00	0.00	0.01	0.03	141	09
150	ISL	9.27	D	9.26		33.744	D 26.096	193.9	0.424	3.41	D148.5	D	52.7		24.7	1.82	23.6	0.00	0.00	0.01	0.02	151	
170		8.88		8.86		33.844	26.238	180.8	0.459	3.21	139.6		49.1		28.2	1.89	25.2	0.00	0.00	0.00	0.02	171	08
199		8.48		8.46		33.979	26.406	165.3	0.509	2.43	105.6		36.9		34.9	2.14	28.6	0.00	0.00	0.00	0.03	201	07
200	ISL	8.49	D	8.46		33.978	D 26.405	165.4	0.514	2.43	D105.5	D	36.9		35.1	2.15	28.7	0.00	0.00	0.00	0.03	202	
228		8.15		8.13		34.043	26.507	156.1	0.556	1.98	86.1		29.8		40.0	2.31	30.6	0.00	0.00			230	06
250	ISL	7.81	D	7.78		34.060	D 26.572	150.2	0.593	1.81	D 78.8	D	27.1		43.5	2.39	31.8	0.00	0.00			252	
270		7.65		7.62		34.075	26.607	147.1	0.619	1.61	D113.2	D	24.0		46.7	2.47	32.8	0.00	0.00			272	05
300	ISL	7.42	D	7.40		34.111	D 26.667	141.8	0.667	1.26	D 54.9	D	18.7		50.8	2.58	34.1	0.00	0.00			302	
320		7.22		7.19		34.120	26.704	138.6	0.691	1.18	51.2		17.4		53.6	2.66	35.0	0.00	0.00			323	04
381		6.63		6.60		34.148	26.807	129.4	0.772	0.82	35.8		12.0		63.7	2.87	37.7	0.00	0.00			384	03
400	ISL	6.53	D	6.48		34.169	D 26.839	126.6	0.802	0.72	D 31.4	D	10.5		65.9	2.91	38.1	0.00	0.00			403	
440		6.32		6.28		34.209	26.897	121.6	0.846	0.55	23.7		7.9		70.6	3.00	39.0	0.00	0.00			444	02
500	ISL	5.94	D	5.90		34.256	D 26.983	113.9	0.923	0.36	D 15.7	D	5.2		78.8	3.10	40.3	0.00	0.00			504	
521		5.72		5.68		34.257	27.011	111.3	0.941	0.33	14.2		4.7		81.6	3.14	40.8	0.00	0.00			525	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 BELL M SHIMADA CALCOFI CRUISE 1301 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
30 31.3 N	122 14.7 W	14/01/2013	0208 UTC	4094 m	350 18 kn			1021.6 mb	13.4 C	10.1 C				013

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		15.95		15.94		33.298	24.452	347.0	0.000	5.63	245.2		99.7		2.8	0.31	0.0	0.01	0.06	0.18	0.06	0	
2		15.95		15.94		33.298	24.452	347.0	0.007	5.63	245.2		99.7		2.8	0.31	0.0	0.01	0.06	0.18	0.06	2	20
10		15.96		15.96		33.301	24.451	347.4	0.035	5.63	245.2		99.8		2.9	0.31	0.0	0.01	0.04	0.16	0.06	10	19
20	ISL	15.97	D	15.96		33.302	D 24.452	347.7	0.070	5.63	245.4		99.8		2.8	0.31	0.0	0.01	0.03	0.17	0.05	20	
25		15.96		15.95		33.299	24.451	347.9	0.087	5.63	245.4		99.8		2.8	0.31	0.0	0.01	0.03	0.17	0.05	25	18
30	ISL	15.96	D	15.96		33.302	D 24.454	347.9	0.105	5.63	245.3		99.8		2.8	0.31	0.0	0.01	0.03	0.17	0.05	30	
40		15.93		15.92		33.293	24.455	348.1	0.139	5.62	245.2		99.7		2.8	0.30	0.0	0.01	0.02	0.17	0.05	40	17
50		15.92		15.91		33.292	24.457	348.2	0.174	5.63	245.4		99.7		2.8	0.30	0.0	0.01	0.01	0.18	0.06	50	16
62		15.88		15.87		33.284	24.460	348.4	0.216	5.62	245.1		99.6		2.8	0.30	0.0	0.01	0.00	0.19	0.07	62	15
75		15.84		15.83		33.280	24.467	348.2	0.261	5.62	245.2		99.5		2.8	0.30	0.0	0.01	0.00	0.21	0.07	76	14
86		14.19		14.17		33.223	24.782	318.3	0.298	5.72	249.2		97.8		3.5	0.42	1.0	0.19	0.01	0.21	0.13	87	13
100		13.01		13.00		33.237	25.031	294.8	0.341	5.51	240.0		91.9		5.2	0.62	4.3	0.08	0.00	0.16	0.13	101	12
112		12.33		12.32		33.258	25.179	280.8	0.375	5.35	233.2		88.1		6.1	0.72	6.0	0.03	0.01	0.13	0.11	113	11
125		11.13		11.12		33.326	25.455	254.7	0.410	5.04	219.3		80.8		8.9	0.95	9.7	0.02	0.01	0.07	0.06	126	10
140		10.37		10.36		33.467	25.698	231.8	0.446	4.27	186.0		67.5		15.2	1.35	16.1	0.02	0.00	0.02	0.03	141	09
150	ISL	10.14	D	10.13		33.538	D 25.792	223.0	0.472	3.78	D164.7	D	59.5		18.7	1.55	18.8	0.01	0.00	0.01	0.03	151	
170		9.86		9.84		33.771	26.024	201.4	0.512	2.70	117.4		42.2		25.8	1.95	24.1	0.00	0.00	0.00	0.02	171	08
200		9.15		9.13		33.834	26.189	186.2	0.570	2.83	123.0		43.6		27.8	1.96	25.2	0.00	0.00	0.00	0.02	202	07
230		8.62		8.60		33.958	26.370	169.4	0.623	2.64	115.1		40.3		33.1	2.05	27.1	0.00	0.00			232	06
250	ISL	8.38	D	8.35		34.009	D 26.447	162.4	0.660	2.54	D110.6	D	38.6		36.4	2.14	28.4	0.00	0.00			252	
270		8.05		8.02		34.029	26.512	156.4	0.688	2.25	98.1		33.9		39.7	2.22	29.6	0.00	0.00			272	05
300	ISL	7.66	D	7.64		34.068	D 26.600	148.4	0.738	1.79	D 78.0	D	26.7		45.4	2.40	31.7	0.00	0.00			302	
319		7.43		7.40		34.081	26.644	144.4	0.762	1.58	68.6		23.4		49.1	2.51	33.1	0.00	0.00			321	04
379		6.77		6.73		34.131	26.775	132.5	0.845	0.97	42.0		14.1		60.5	2.79	36.5	0.00	0.00			382	03
400	ISL	6.66	D	6.62		34.144	D 26.801	130.3	0.878	0.86	D 37.5	D	12.6		63.2	2.84	37.1	0.00	0.00			403	
440		6.33		6.29		34.168	26.863	124.7	0.923	0.67	29.2		9.7		68.4	2.93	38.1	0.00	0.00			444	02
500	ISL	5.79	D	5.75		34.197	D 26.956	116.3	1.002	0.52	D 22.7	D	7.4		76.4	3.03	39.5	0.00	0.00			504	
515		5.76		5.72		34.210	26.969	115.2	1.013	0.47	20.3		6.7		78.4	3.06	39.9	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
30 10.9 N	122 55.6 W	14/01/2013	0757 UTC	3790 m	010 14 kn			1023.2 mb	12.6 C	9.4 C				014

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		16.13		16.13		33.356	24.454	346.8	0.000	5.60		244.2		99.7		2.7	0.31	0.0	0.02	0.06	0.20	0.06	0	
2		16.13		16.13		33.356	24.454	346.8	0.007	5.60		244.2		99.7		2.7	0.31	0.0	0.02	0.06	0.20	0.06	2	20
10		16.13		16.13		33.365	24.463	346.3	0.035	5.60		244.2		99.7		2.8	0.30	0.0	0.02	0.04	0.18	0.05	10	19
20	ISL	16.14	D	16.13	D	33.353	D 24.452	347.7	0.070	5.60		244.3		99.8		2.8	0.31	0.0	0.02	0.10	0.19	0.06	20	
25		16.14		16.14		33.357	24.456	347.5	0.087	5.60		244.3		99.8		2.8	0.32	0.0	0.02	0.13	0.19	0.06	25	18
30	ISL	16.14	D	16.14	D	33.353	D 24.452	348.0	0.105	5.60		244.2		99.7		2.8	0.31	0.0	0.02	0.11	0.19	0.06	30	
40		16.14		16.13		33.355	24.455	348.1	0.139	5.60		244.1		99.7		2.7	0.30	0.0	0.02	0.07	0.19	0.06	40	17
50		16.13		16.12		33.355	24.457	348.3	0.174	5.61		244.3		99.8		2.7	0.31	0.0	0.02	0.07	0.19	0.06	50	16
62		16.10		16.09		33.352	24.464	348.0	0.216	5.62		244.9		99.9		2.8	0.31	0.0	0.02	0.03	0.20	0.06	62	15
75		15.72		15.71		33.328	24.531	342.1	0.260	5.61		244.6		99.0		3.0	0.33	0.2	0.07	0.03	0.21	0.09	76	14
87		13.09		13.08		33.239	25.017	295.7	0.299	5.58		243.1		93.3		4.6	0.55	3.0	0.15	0.00	0.25	0.18	88	13
100		12.07		12.08		33.285	D 25.245	274.2	0.338	5.27		229.5		86.2		6.7	0.78	7.0	0.03	0.04	0.15	0.13	101	12
112		11.50		11.49		33.396	25.441	255.8	0.368	5.07		220.6		82.0		8.1	0.86	8.8	0.02	0.07	0.07	0.06	113	11
125		11.16		11.15		33.420	25.522	248.4	0.401	5.01		218.3		80.5		8.7	0.88	9.4	0.02	0.10	0.06	0.05	126	10
140		10.25		10.24		33.497	25.741	227.6	0.436	4.44		193.4		70.0		14.0	1.24	15.0	0.00	0.16	0.02	0.03	141	09
150	ISL	10.05	D	10.03	D	33.584	D 25.844	218.0	0.462	3.86	D	168.0	D	60.6		16.9	1.40	17.4	0.00	0.13	0.02	0.03	151	
170		9.50		9.48		33.700	26.026	201.0	0.501	3.38	D	153.6	D	52.4		22.8	1.72	22.3	0.00	0.08	0.00	0.02	171	08
198		8.99		8.97		33.872	26.243	180.9	0.554	2.95		128.2		45.2		28.7	1.91	25.3	0.00	0.08	0.00	0.02	200	07
200	ISL	8.94	D	8.93	D	33.878	D 26.255	179.8	0.561	2.97	D	129.3	D	45.6		28.9	1.92	25.4	0.00	0.08	0.00	0.02	202	
229		8.56		8.54		33.960	26.379	168.4	0.608	2.75		119.5		41.8		32.8	2.00	27.0	0.00	0.00			231	06
250	ISL	8.19	D	8.16	D	34.005	D 26.473	159.8	0.647	2.45	D	106.5	D	36.9		37.4	2.13	28.8	0.00	0.05			252	
271		7.85		7.82		34.031	26.543	153.3	0.676	2.18		94.9		32.7		41.9	2.26	30.5	0.00	0.00			273	05
300	ISL	7.51	D	7.47	D	34.061	D 26.617	146.6	0.724	1.84	D	79.9	D	27.3		47.3	2.40	32.4	0.00	0.01			302	
320		7.27		7.24		34.072	26.658	142.9	0.748	1.61		69.8		23.7		51.0	2.50	33.7	0.00	0.00			322	04
381		6.78		6.74		34.125	26.770	133.1	0.832	1.04		45.3		15.2		60.3	2.74	36.4	0.00	0.00			384	03
400	ISL	6.60	D	6.56	D	34.140	D 26.806	129.8	0.863	0.91	D	39.4	D	13.2		62.9	2.80	36.9	0.00	0.00			403	
441		6.35		6.31		34.185	26.874	123.7	0.909	0.66		28.5		9.5		68.5	2.92	38.1	0.00	0.00			445	02
500	ISL	5.87	D	5.83	D	34.225	D 26.967	115.3	0.987	0.46	D	19.8	D	6.5		76.5	3.03	39.5	0.00	0.00			504	
515		5.83		5.79		34.249	26.991	113.2	0.997	0.41		17.7		5.8		78.6	3.06	39.9	0.00	0.00			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1301 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
29 50.8 N	123 35.4 W	14/01/2013	1336 UTC	4003 m	030 17 kn			1024.4 mb	14.0 C	10.0 C				015

DEPTH m		TEMP DEG C		POTTEMP DEG C		SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L		OXYGEN µmol/Kg		OXY PCT		SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0		16.35		16.35		33.453	24.479	344.4	0.000	5.57		242.9		99.7		2.5	0.31	0.0	0.02	0.01	0.19	0.06	0	
2		16.35		16.35		33.453	24.479	344.4	0.007	5.57		242.9		99.7		2.5	0.31	0.0	0.02	0.01	0.19	0.06	2	20
10		16.37		16.37		33.453	24.476	345.1	0.035	5.57		242.9		99.7		2.5	0.31	0.0	0.02	0.01	0.19	0.06	10	19
20	ISL	16.37	D	16.36	D	33.451	D 24.475	345.5	0.069	5.61		244.4		100.3		2.5	0.30	0.0	0.01	0.00	0.19	0.06	20	
25		16.37		16.36		33.458	24.481	345.1	0.086	5.62		245.1		100.6		2.5	0.30	0.0	0.01	0.00	0.19	0.06	25	18
30	ISL	16.37	D	16.37	D	33.451	D 24.475	345.8	0.104	5.61		244.3		100.3		2.5	0.30	0.0	0.01	0.01	0.20	0.07	30	
40		16.35		16.34		33.452	24.481	345.6	0.138	5.57		242.8		99.6		2.5	0.30	0.0	0.00	0.02	0.20	0.07	40	17
50		16.36		16.35		33.449	24.478	346.3	0.173	5.57		242.9		99.7		2.5	0.30	0.0	0.01	0.01	0.19	0.07	50	16
63		16.36		16.35		33.450	24.479	346.7	0.218	5.57		242.7		99.6		2.5	0.30	0.0	0.01	0.00	0.20	0.06	63	15
75		13.61		13.60		33.293	24.953	301.6	0.257	5.58		243.2		94.4		4.0	0.51	2.0	0.22	0.00	0.23	0.19	76	14
87		12.64		12.63		33.328	25.173	280.8	0.292	5.24		228.5		86.9		6.1	0.74	6.0	0.03	0.00	0.16	0.15	88	13
100		12.00		11.98		33.342	25.308	268.2	0.327	5.06		220.2		82.7		7.5	0.85	8.0	0.02	0.00	0.11	0.10	101	12
112		11.29		11.28		33.367	25.457	254.2	0.359	4.84		210.6		77.9		9.8	1.02	10.9	0.02	0.01	0.07	0.06	113	11
125		10.78		10.76		33.467	25.627	238.3	0.391	4.34		188.8		69.1		13.3	1.26	14.7	0.02	0.02	0.04	0.05	126	10
141		10.19		10.17		33.561	25.803	221.8	0.427	3.98		173.4		62.7		16.8	1.43	17.6	0.02	0.03	0.02	0.03	142	09
150	ISL	9.83	D	9.81	D	33.642	D 25.927	210.1	0.450	3.70	D	161.2	D	57.8		19.3	1.55	19.4	0.01	0.02	0.01	0.03	151	
170		9.44		9.42		33.775	26.095	194.5	0.487	3.18		138.5		49.4		25.0	1.83	23.5	0.00	0.00	0.00	0.02	171	08
200		8.86		8.84		33.928	26.308	174.8	0.543	2.81		122.2		43.0		30.6	1.98	26.2	0.00	0.00	0.00	0.02	202	07
230		8.30		8.27		33.999	26.451	161.6	0.593	2.51		109.3		38.0		36.5	2.12	28.4	0.00	0.00			232	06
250	ISL	8.01	D	7.99	D	34.029	D 26.517	155.5	0.630	2.27	D	98.6	D	34.1		40.1	2.23	29.9	0.00	0.00			252	
271		7.77		7.75		34.045	26.565	151.2	0.657	1.99		86.6		29.8		43.9	2.35	31.4	0.00	0.00			273	05
300	ISL	7.50	D	7.47	D	34.066	D 26.622	146.1	0.706	1.70	D	74.1	D	25.3		48.4	2.47	32.9	0.00	0.00			302	
320		7.31		7.28		34.083	26.663	142.5	0.729	1.51		65.5		22.3		51.4	2.56	34.0	0.00	0.00			322	04
381		6.46		6.42		34.094	26.788	131.0	0.812	1.13		49.1		16.4		62.8	2.78	37.1	0.00	0.00			384	03
400	ISL	6.30	D	6.27	D	34.107	D 26.817	128.4	0.844	1.02	D	44.5	D	14.8		66.4	2.84	37.8	0.00	0.00			403	
441		5.81		5.77		34.141	26.907	120.0	0.888	0.83		36.0		11.8		74.2	2.97	39.4	0.00	0.00			445	02
500	ISL	5.50	D	5.46	D	34.191	D 26.985	113.1	0.965	0.54	D	23.4	D	7.6		82.5	3.05	40.6	0.00	0.00			504	
516		5.45		5.41		34.210	27.007	111.2	0.975	0.48		20.8		6.8		84.7	3.07	40.9	0.00	0.00			520	01

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

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 93.3 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 56.8 N	117 18.4 W	11/01/2013	1958 UTC	06 m	1227 - 1730 PST	1157 PST	1730 PST	260.6 mg C/m2	001

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.56	33.498	25.117	5.70	96.4	3.4	0.56	2.5	0.18	0.51	2.84	0.25	60. A	20.1	20.9	20.5	0.20
4	13.56	33.516	25.131	5.84D	98.8	3.4	0.54	2.4	0.18	0.51	3.03	0.35	36.	17.4	18.9	18.1	0.24
5	13.54	33.497	25.121	5.71	96.6	3.4	0.55	2.5	0.18	0.56	2.36	0.38	28.	17.3	16.4	16.9	0.23
11	13.44	33.496	25.140	5.65	95.4	3.5	0.55	2.7	0.17	0.48	2.15	0.44	6.0	15.9	15.2	15.6	0.23
19	12.24	33.482	25.368	4.79	78.8	7.8	0.88	7.9	0.22	0.25	0.71	0.27	0.77	0.30	0.99	0.64	0.10
22	12.05	33.499	25.416	3.93	64.4	13.1	1.27	13.8	0.12	0.03	0.33	0.26	0.36	0.23	0.26	0.24	0.09

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 93.3 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 11.5 N	118 52.9 W	12/01/2013	1813 UTC	15 m	1204 - 1740 PST	1204 PST	1741 PST	359.6 mg C/m2	007

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.41	33.512	24.952	5.77	99.4	1.9	0.36	0.5	0.05	0.07	0.82	0.28	81. A	8.3	8.9	8.6	0.08
10	14.41	33.515	24.956	5.80	99.8	1.9	0.34	0.5	0.05	0.04	0.83	0.30	36.	12.4	13.0	12.7	0.08
13	14.39	33.512	24.956	5.77	99.3	1.9	0.33	0.5	0.05	0.03	0.84	0.28	26.	8.5	11.1	9.8	0.11
19	14.39	33.512	24.957	5.77	99.3	1.9	0.34	0.5	0.05	0.02	0.85	0.29					
26	14.39	33.511	24.958	5.76	99.2	1.9	0.35	0.5	0.05	0.02	0.89	0.28	7.0	6.9	9.7	8.3	0.12
38	14.39	33.511	24.959	5.75	99.0	1.9	0.36	0.5	0.05	0.03	0.87	0.28					
48	14.39	33.512	24.960	5.77	99.3	1.9	0.36	0.5	0.05	0.03	0.85	0.28	0.74	1.3	0.41	0.86	0.10
56	14.36	33.511	24.966	5.77	99.2	1.9	0.35	0.5	0.05	0.06	0.84	0.27	0.32	0.43	0.62	0.53	0.10

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 93.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
30 51.8 N	121 33.4 W	13/01/2013	1957 UTC	23 m	1255 - 1755 PST	1215 PST	1754 PST	195.4 mg C/m2	012

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
3	15.07	33.392	24.719	5.79	100.9	2.5	0.32	0.0	0.02	0.00	0.29	0.09	82. A	3.5	3.2	3.3	0.06
8	15.06	33.394	24.723	5.73	99.8	2.5	0.32	0.0	0.02	0.00	0.27	0.09					
16	15.05	33.391	24.723	5.73	99.8	2.5	0.31	0.0	0.02	0.00	0.29	0.10	34.	3.7	3.4	3.5	0.05
20	15.05	33.391	24.723	5.73	99.8	2.5	0.32	0.0	0.02	0.00	0.29	0.09	26.	2.7	3.4	3.0	0.08
29	15.04	33.391	24.727	5.72	99.7	2.5	0.32	0.0	0.01	0.01	0.29	0.09					
41	15.04	33.393	24.729	5.72	99.6	2.5	0.31	0.0	0.02	0.02	0.31	0.10	6.5	2.9	3.0	3.0	0.07
57	15.02	33.390	24.730	5.71	99.4	2.5	0.32	0.1	0.02	0.00	0.31	0.10					
74	14.71	33.386	24.796	5.72	98.9	2.6	0.32	0.1	0.02	0.00	0.29	0.11	0.72	0.56	0.68	0.62	0.06
84	12.30	33.233	25.164	5.29	87.1	6.2	0.75	6.2	0.12	0.00	0.29	0.28	0.37	0.46	0.42	0.44	0.02

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 90.0 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
30 24.7 N	124 0.5 W	14/01/2013	1922 UTC	26 m	1240 - 1755 PST	1225 PST	1753 PST	106.2 mg C/m2	016

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
4	16.33	33.461	24.490	5.57	99.6	2.7	0.28	0.0	0.02	0.05	0.20	0.04	79. A	2.1	2.1	2.1	0.13
17	16.34	33.461	24.489	5.58	99.7	2.7	0.27	0.0	0.02	0.05	0.21	0.03	37.	2.0	2.2	2.1	0.06
22	16.34	33.463	24.491	5.57	99.6	2.7	0.31	0.0	0.02	0.04	0.22	0.05	27.	1.9	1.9	1.9	0.05
34	16.34	33.459	24.489	5.57	99.7	2.7	0.28	0.0	0.01	0.05	0.20	0.04					
45	16.33	33.458	24.491	5.57	99.6	2.7	0.27	0.0	0.02	0.04	0.19	0.05	7.0	1.2	1.1	1.2	0.08
58	16.31	33.454	24.494	5.58	99.7	2.7	0.27	0.0	0.01	0.03	0.21	0.05					
73	16.29	33.452D	24.475	5.59	99.9	2.7	0.28	0.0	0.01	0.03	0.20	0.06					
84	16.11	33.451	24.538	5.59	99.4	2.8	0.28	0.0	0.01	0.04	0.21	0.06	0.70	0.12	0.01	0.06	0.07
90	14.43	33.589	25.014	5.57	95.9	3.3	0.34	1.0	0.16	0.04	0.23	0.18					
96	13.79	33.557	25.122	5.42	92.1	4.2	0.45	2.7	0.04	0.02	0.16	0.11	0.35	0.13	0.08	0.10	0.04

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 90.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 24.8 N	121 59.8 W	15/01/2013	1600 UTC	22 m	1217 - 1750 PST	1215 PST	1748 PST	166.2 mg C/m2	019

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.92	33.315	24.692	5.73	99.5	2.8	0.30	0.0	0.02	0.03	0.18	0.06	86. A	1.8	1.9	1.8	0.11
14	14.90	33.318	24.699	5.72	99.4	2.7	0.30	0.0	0.02	0.02	0.18	0.06	37.	2.8	3.0	2.9	0.08
19	14.85	33.334	24.722	5.79	100.4	2.8	0.31	0.0	0.02	0.08	0.23	0.08	27.	3.5	3.2	3.4	0.12
29	14.81	33.343	24.737	5.74	99.4	2.7	0.31	0.0	0.03	0.03	0.24	0.08					
39	14.81	33.344	24.740	5.73	99.4	2.7	0.30	0.0	0.03	0.04	0.25	0.09	6.7	2.9	3.1	3.0	0.11
50	14.81	33.345	24.742	5.74	99.5	2.7	0.30	0.0	0.03	0.03	0.25	0.09					
61	14.81	33.349	24.746	5.74	99.5	2.7	0.31	0.0	0.03	0.04	0.26	0.09					
70	14.81	33.345	24.743	5.73	99.4	2.7	0.31	0.0	0.03	0.02	0.26	0.09	0.74	0.19	0.53	0.36	0.10
81	14.54	33.323	24.784	5.73	98.7	2.9	0.34	0.3	0.06	0.03	0.23	0.10	0.36	0.15	0.17	0.16	0.08

A) INCUBATION LIGHT INTENSITIES WERE 51.9, 34.8, 25.9, 6.5, 0.7 AND 0.35 PERCENT RESPECTIVELY.

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 90.0 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 53.3 N	119 0.4 W	16/01/2013	1938 UTC	14 m	1740 - 11.280 PST	1737 PST	1233 PST	479.2 mg C/m2	024

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.71	33.491	25.082	5.86	99.5	2.7	0.48	1.7	0.11	0.25	0.89	0.20	80. A	14.4	11.1	12.7	0.13
10	13.57	33.490	25.110	5.85	99.0	2.7	0.47	1.8	0.11	0.19	0.88	0.25					
13	13.51	33.487	25.121	5.83	98.4	3.1	0.48	2.0	0.13	0.16	0.95	0.27	23.	14.1	13.3	13.7	0.15
17	13.41	33.486	25.139	5.81	98.0	3.5	0.50	2.2	0.14	0.13	0.94	0.23	15.	12.8	12.5	12.6	0.14
26	13.23	33.492	25.182	5.76	96.7	3.8	0.54	2.7	0.15	0.32	0.87	0.36					
36	12.81	33.494	25.266	5.61	93.4	4.4	0.64	3.8	0.17	0.67	0.59	0.35	1.7	5.5	5.7	5.6	0.10
46	12.67	33.507	25.304	5.51	91.5	5.0	0.69	4.6	0.16	0.68	0.58	0.35					
56	12.24	33.509	25.389	5.14	84.6	7.5	0.87	7.5	0.17	0.58	0.55	0.43					
64	11.50	33.513	25.532	4.47	72.4	12.0	1.16	12.5	0.15	0.24	0.44	0.53	0.07	0.11	0.34	0.23	0.11
73	10.76	33.525	25.674	3.96	63.1	15.8	1.40	16.6	0.08	0.07	0.14	0.22	0.03	0.06	0.07	0.06	0.07

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 90.0 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 29.0 N	117 46.2 W	17/01/2013	1657 UTC	12 m	1159 - 1735 PST	1201 PST	1739 PST	592.5 mg C/m2	029

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	13.30	33.492	25.165	6.07	102.1	1.4	0.37	0.6	0.07	0.23	2.46	0.70	88. A	25.6	25.1	25.4	0.18
8	13.25	33.492	25.175	6.05	101.7	1.4	0.38	0.7	0.07	0.13	2.37	0.70	36.	28.6	29.3	28.9	0.29
11	13.12	33.477	25.190	5.72	95.8	2.9	0.53	2.7	0.09	0.33	2.20	0.81	24.	21.6	19.5	20.5	0.14
21	12.24	33.451	25.343	4.84	79.6	7.8	0.93	8.8	0.15	0.29	2.20	1.02	6.8	13.1	12.8	12.9	0.12
30	11.98	33.443	25.385	4.45	72.8	10.3	1.12	11.7	0.13	0.08	2.06	0.93					
39	11.66	33.496	25.486	4.48	72.8	10.6	1.15	12.1	0.21	0.55	3.12	1.04	0.68	2.3	0.91	1.6	0.15
44	11.22	33.549	25.608	3.79	61.0	15.3	1.44	16.2	0.21	0.22	1.07	0.56	0.36	0.34	0.36	0.35	0.09

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 86.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 9.3 N	120 0.2 W	18/01/2013	1913 UTC	18 m	1210 - 1745 PST	1211 PST	1747 PST	595.1 mg C/m2	037

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.11	33.381	25.118	5.98	100.1	4.0	0.52	2.3	0.15	0.15	0.87	0.24	84. A	19.1	18.4	18.7	0.15
12	12.90	33.397	25.173	5.85	97.4	4.3	0.55	3.0	0.18	0.10	0.77	0.36	36.	16.2	15.7	16.0	0.17
16	12.85	33.395	25.180	5.80	96.5	4.4	0.57	3.2	0.18	0.15	0.78	0.35	26.	12.8	13.0	12.9	0.15
25	12.85	33.395	25.181	5.78	96.3	4.4	0.57	3.3	0.19	0.07	0.54	0.52					
32	12.84	33.395	25.183	5.78	96.3	4.5	0.59	3.3	0.19	0.12	0.72	0.38	6.5	10.1	10.5	10.3	0.11
41	12.39	33.389	25.267	5.46	90.0	5.9	0.72	5.6	0.18	0.12	0.35	0.27					
50	12.20	33.411	25.320	5.29	86.8	7.1	0.82	7.1	0.19	0.15	0.29	0.22					
58	11.97	33.414	25.367	5.16	84.3	7.9	0.89	8.3	0.18	0.19	0.24	0.21	0.71	0.17	0.61	0.39	0.09
66	11.64	33.411	25.425	4.88	79.2	9.5	1.01	10.2	0.16	0.08	0.16	0.15	0.36	0.14	0.16	0.15	0.07

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 86.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 59.3 N	122 23.0 W	19/01/2013	1850 UTC	40 m	1220 - 1800 PST	1221 PST	1801 PST	297.1 mg C/m2	041

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.80	33.380	24.547	5.71	100.9	2.7	0.31	0.0	0.01	0.06	0.12	0.03	93. A	1.6	1.6	1.6	0.11
15	15.67	33.372	24.571	5.71	100.7	2.7	0.29	0.0	0.02	0.06	0.15	0.02					
28	15.63	33.369	24.578	5.71	100.7	2.8	0.28	0.0	0.01	0.01	0.16	0.03	34.	2.3	2.3	2.3	0.13
35	15.53	33.346	24.584	5.73	100.8	2.8	0.28	0.0	0.01	0.01	0.17	0.05	26.	2.1	2.2	2.1	0.10
47	15.36	33.319	24.601	5.74	100.5	2.8	0.30	0.0	0.02	0.02	0.21	0.08					
59	14.56	33.218	24.698	5.86	101.0	2.8	0.31	0.0	0.01	0.01	0.30	0.12					
72	14.33	33.246	24.768	5.86	100.6	2.8	0.34	0.0	0.03	0.05	0.35	0.17	6.3	4.1	3.8	4.0	0.12
90	12.31	33.127	25.081	5.68	93.4	4.8	0.57	3.3	0.07	0.01	0.17	0.15					
109	11.53	33.293	25.357	5.35	86.5	6.9	0.75	6.8	0.03	0.14	0.11	0.08					
127	10.94	33.282	25.454	5.01	80.0	9.5	0.99	10.5	0.03	0.00	0.09	0.08	0.76	0.22	0.10	0.16	0.09
137	10.44	33.359	25.602	4.86	76.9	11.5	1.09	12.5	0.02	0.05	0.04	0.05					
146	10.03	33.435	25.732	4.69	73.5	13.7	1.20	14.5	0.03	0.00	0.02	0.03	0.37	0.02	0.05	0.03	0.07

RV BELL M SHIMADA — CALCOFI CRUISE 1301 — STATION 83.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 14.9 N	123 29.9 W	20/01/2013	1812 UTC	20 m	1224 - 1800 PST	1225 PST	1800 PST	230.2 mg C/m2	045

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
8	14.32	33.273	24.788	5.88	101.2	2.8	0.35	0.2	0.03	0.05	0.32	0.10	54. A	6.8	6.6	6.7	0.17
14	14.31	33.272	24.790	5.88	101.1	2.8	0.33	0.2	0.02	0.02	0.32	0.11	34.	6.8	6.4	6.6	0.14
18	14.30	33.272	24.791	5.86	100.9	2.8	0.34	0.2	0.02	0.03	0.35	0.12	25.	4.9	4.6	4.8	0.11
27	14.29	33.273	24.794	5.88	101.2	2.8	0.34	0.2	0.02	0.03	0.34	0.12					
36	14.27	33.272	24.799	5.86	100.8	2.8	0.34	0.2	0.03	0.05	0.36	0.14	6.3	2.8	2.9	2.8	0.12
47	14.25	33.270	24.801	5.82	100.1	2.8	0.34	0.3	0.03	0.07	0.32	0.16					
56	14.17	33.271	24.820	5.81	99.7	2.8	0.35	0.4	0.03	0.11	0.29	0.13					
65	11.55	33.215	25.290	5.19	84.3	7.4	0.88	8.4	0.04	0.01	0.17	0.22	0.68	0.10	0.35	0.22	0.08
74	11.21	33.344	25.452	4.65	75.0	9.8	1.15	12.6	0.03	0.00	0.13	0.13	0.34	0.08	0.11	0.09	0.08

A) INCUBATION LIGHT INTENSITIES WERE 51.9, 34.8, 25.9, 6.5, 0.7 AND 0.35 PERCENT RESPECTIVELY.

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 83.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 34.6 N	120 45.3 W	21/01/2013	1743 UTC	12 m	1210 - 1750 PST	1214 PST	1748 PST	879.9 mg C/m2	049

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.07	33.364	25.113	6.25	104.6	5.1	0.49	1.9	0.06	0.28	2.07	0.41	77. A	47.1	46.0	46.6	0.15
8	12.97	33.373	25.140	6.27	104.7	5.4	0.51	2.2	0.06	0.13	2.17	0.46	36.	52.4	51.7	52.0	0.15
11	12.73	33.379	25.191	6.16	102.3	5.6	0.53	2.7	0.07	0.02	1.64	0.49	24.	37.8	34.3	36.0	0.15
21	12.37	33.423	25.296	5.78	95.4	6.3	0.69	5.1	0.21	0.02	0.95	0.49	6.8	12.1	12.8	12.5	0.09
30	12.09	33.421	25.347	5.48	89.8	7.5	0.82	7.1	0.27	0.05	0.63	0.43					
39	12.07	33.464	25.386	5.45	89.3	7.3	0.84	7.2	0.35	0.19	0.31	0.28	0.68	0.18	0.52	0.35	0.05
44	11.80	33.455	25.430	5.08	82.7	8.9	0.97	9.4	0.27	0.15	0.19	0.19	0.36	0.14	0.15	0.14	0.05

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 81.8 46.9

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 16.8 N	120 1.9 W	22/01/2013	1716 UTC	09 m	1210 - 1755 PST	1212 PST	1750 PST	1013.2 mg C/m2	056

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	12.29	33.550	25.410	6.40	105.4	8.4	0.72	4.3	0.09	0.22	3.27	0.81	84. A	71.3	73.0	72.2	0.23
6	12.24	33.550	25.418	6.35	104.5	8.3	0.70	4.4	0.09	0.04	3.13	0.78	36.	61.6	64.6	63.1	0.27
8	12.21	33.549	25.424	6.32	103.9	8.3	0.72	4.7	0.09	0.07	2.77	0.77	26.	68.0	57.9	62.9	0.27
16	12.02	33.546	25.459	5.77	94.6	8.8	0.86	7.1	0.15	0.01	1.37	0.92	6.5	20.4	21.0	20.7	0.18
22	11.74	33.543	25.508	5.27	85.8	9.6	1.00	9.4	0.26	0.09	0.87	0.59					
29	11.57	33.540	25.537	5.10	82.7	10.0	1.06	10.2	0.26	0.27	0.63	0.42	0.71	0.36	1.5	0.92	0.14
33	11.48	33.554	25.564	4.88	79.1	11.6	1.15	11.6	0.29	0.23	0.47	0.45	0.36	0.15	0.30	0.23	0.29

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 80.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 29.5 N	122 32.4 W	23/01/2013	1729 UTC	16 m	1220 - 1805 PST	1222 PST	1804 PST	206.5 mg C/m2	062

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.28	33.348D	24.853	5.95		2.8	0.34	0.0	0.01	0.04	0.43	0.06	83. A	8.5	8.5	8.5	0.17
11	14.28	33.338	24.847	5.96	102.1	2.8	0.31	0.0	0.01	0.00	0.41	0.11	35.	6.8	6.5	6.7	0.13
13	14.28	33.340	24.848	5.96	102.2	2.8	0.32	0.0	0.01	0.00	0.39	0.09	29.	6.1	5.9	6.0	0.15
21	14.25	33.346	24.858	5.95	102.0	2.8	0.32	0.0	0.01	0.02	0.41	0.10					
28	14.23	33.350	24.867	5.96	102.1	2.8	0.32	0.0	0.01	0.00	0.53	0.24	6.8	2.9	3.2	3.1	0.16
41	14.19	33.373	24.892	5.90	101.0	2.8	0.33	0.1	0.02	0.03	0.43	0.11					
52	14.29	33.444	24.929	5.84	100.2	2.8	0.35	0.4	0.04	0.10	0.42	0.18	0.68	0.09	0.41	0.25	0.09
59	13.17	33.308	25.053	5.62	94.2	4.2	0.50	2.6	0.12	0.07	0.24	0.14	0.35	0.13	0.09	0.11	0.11

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 76.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 43.2 N	123 38.5 W	24/01/2013	1745 UTC	20 m	1225 - 1800 PST	1227 PST	1759 PST	173.0 mg C/m2	066

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.28	33.207	24.745	5.92	101.4	2.8	0.32	0.1	0.01	0.04	0.19	0.06	86. A	4.2	4.1	4.2	0.12
14	14.28	33.208	24.747	5.89	101.0	2.8	0.31	0.0	0.01	0.07	0.19	0.07	34.	4.3	4.0	4.1	0.08
18	14.27	33.206	24.746	5.90	101.0	2.8	0.31	0.0	0.01	0.02	0.20	0.06	25.	3.7	3.6	3.7	0.06
27	14.25	33.205	24.750	5.89	100.9	2.8	0.31	0.0	0.01	0.01	0.20	0.07					
36	14.22	33.199	24.753	5.91	101.1	2.8	0.31	0.0	0.01	0.01	0.23	0.09	6.3	2.6	2.5	2.6	0.08
46	14.10	33.197	24.777	5.91	100.9	2.9	0.30	0.0	0.01	0.01	0.30	0.13					
56	14.04	33.201	24.794	5.92	100.9	2.8	0.31	0.0	0.01	0.03	0.32	0.15					
65	13.87	33.203	24.831	5.90	100.2	3.0	0.33	0.1	0.02	0.06	0.30	0.14	0.68	0.09	0.46	0.27	0.06
74	13.42	33.198	24.918	5.77	97.1	3.7	0.42	1.4	0.08	0.08	0.24	0.15	0.34	0.18	0.16	0.17	0.05

RV BELL M SHIMADA CALCOFI CRUISE 1301 STATION 76.7 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
35 1.7 N	120 54.9 W	25/01/2013	1927 UTC	16 m	1225 - 1800 PST	1216 PST	1753 PST	588.4 mg C/m2	071

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3 µM	PO4 µM	NO3 µM	NO2 µM	NH4 µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.18	33.194	24.959	6.09	102.0	3.6	0.36	0.9	0.05	0.11	1.05	0.13	83. A	21.5	21.5	21.5	0.19
11	12.69	33.264	25.110	6.02	99.8	5.6	0.50	2.9	0.08	0.09	0.90	0.28	35.	18.6	18.9	18.8	0.14
14	12.57	33.274	25.142	5.98	99.0	5.8	0.52	3.2	0.08	0.08	0.89	0.30	26.	17.1	16.7	16.9	0.12
21	11.98	33.410	25.359	5.66	92.6	8.9	0.76	6.8	0.16	0.11	0.79	0.47					
28	11.70	33.431	25.429	5.46	88.8	10.1	0.87	8.3	0.20	0.11	0.68	0.43	6.8	9.4	9.8	9.6	0.08
40	11.13	33.520D	25.564	5.00	80.3	12.6	1.08	11.7	0.27	0.04	0.55	0.35					
52	11.04	33.526	25.624	4.70	75.4	15.4	1.23	13.7	0.29	0.03	0.43	0.28	0.68	0.28	0.88	0.58	0.10
59	10.77	33.526	25.672	4.66	74.2	15.5	1.24	13.9	0.28	0.06	0.42	0.28	0.35	0.39	0.38	0.38	0.09

A) INCUBATION LIGHT INTENSITIES WERE 51.9, 34.8, 25.9, 6.5, 0.7 AND 0.35 PERCENT RESPECTIVELY.

CalCOFI Cruise 1301SH

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505mm

Line	Sta.	Latitude N	Longitude W	Date Mo/Day	Time (PST) Start	Time (PST) End	Water Volume Strained (m^3)	Max. Tow Depth (m)	Volume per 1000 m^3 Strained Total (cm^3)	Volume per 1000 m^3 Strained Small (cm^3)
66.7	50.0	36 45.2	122 05.4	01/28	1610	1630	479	209	92	92
66.7	55.0	36 37.2	122 25.0	01/28	2019	2038	647	135	233	226
66.7	60.0	36 27.3	122 46.2	01/30	1058	1118	437	193	242	231
66.7	70.0	36 07.3	123 28.1	01/30	1711	1731	420	212	67	67
66.7	80.0	35 47.5	124 11.7	01/30	2326	2346	505	205	50	50
66.7	90.0	35 27.3	124 54.2	01/31	0632	0652	436	214	172	172
70.0	60.0	35 53.2	122 21.8	01/27	2141	2201	601	185	191	191
70.0	70.0	35 33.0	123 04.3	01/27	1532	1553	506	213	107	107
70.0	80.0	35 12.8	123 46.7	01/27	0916	0936	575	196	70	70
70.0	90.0	34 52.8	124 28.6	01/27	0309	0330	459	207	78	78
73.3	50.0	35 37.7	121 16.2	01/25	2105	2111	123	68	665	665
73.3	55.0	35 28.8	121 36.4	01/26	0030	0049	428	215	346	346
73.3	60.0	35 19.0	121 57.1	01/26	0418	0438	408	226	250	250
73.3	70.0	34 58.7	122 39.8	01/26	1011	1031	546	206	103	103
73.3	80.0	34 38.8	123 21.3	01/26	1550	1610	514	202	181	181
73.3	90.0	34 19.0	124 03.1	01/26	2120	2140	504	191	149	89
76.7	49.0	35 05.2	120 46.8	01/25	1552	1557	100	49	240	240
76.7	51.0	35 01.4	120 55.0	01/25	1338	1358	465	217	99	99
76.7	55.0	34 53.3	121 11.9	01/25	0858	0918	473	206	197	197
76.7	60.0	34 43.2	121 32.8	01/25	0455	0515	421	214	176	176
76.7	70.0	34 23.3	122 14.9	01/24	2305	2325	465	217	185	185
76.7	80.0	34 03.2	122 56.8	01/24	1652	1712	453	199	62	62
76.7	90.0	33 43.2	123 37.9	01/24	1053	1113	539	206	169	98
76.7	100.0	33 22.9	124 19.1	01/24	0427	0446	422	217	76	76
80.0	50.5	34 27.9	120 30.5	01/22	1321	1324	60	30	365	365
80.0	51.0	34 27.1	120 31.2	01/22	1451	1456	105	57	276	67
80.0	55.0	34 19.1	120 48.1	01/22	1826	1846	398	214	158	158
80.0	60.0	34 09.0	121 09.0	01/22	2238	2258	435	212	372	372
80.0	70.0	33 49.0	121 50.5	01/23	0442	0501	404	215	257	257
80.0	80.0	33 29.4	122 32.6	01/23	1051	1111	452	206	279	279
80.0	90.0	33 09.2	123 13.2	01/23	1645	1705	428	208	56	56
80.0	100.0	32 49.3	123 54.1	01/23	2246	2306	443	217	72	72
81.7	43.5	34 23.3	119 48.5	01/22	0604	0608	90	34	199	199
81.8	46.9	34 16.4	120 01.4	01/22	0812	0831	421	210	119	119
83.3	39.4	34 16.1	119 25.0	01/22	0314	0316	59	18	237	237
83.3	40.6	34 13.6	119 25.6	01/22	0227	0229	44	24	272	272
83.3	42.0	34 10.7	119 30.5	01/22	0038	0046	162	88	136	136
83.3	51.0	33 52.6	120 08.0	01/21	1842	1849	161	66	335	335
83.3	55.0	33 44.9	120 24.4	01/21	1527	1546	400	221	200	200
83.3	60.0	33 34.6	120 45.1	01/21	1110	1130	431	213	167	167
83.3	70.0	33 14.6	121 26.7	01/21	0459	0519	402	212	164	125
83.3	80.0	32 54.7	122 08.0	01/20	2248	2308	421	214	50	50
83.3	90.0	32 34.7	122 48.8	01/20	1703	1723	415	216	181	154
83.3	100.0	32 14.5	123 29.6	01/20	1119	1138	429	214	163	163
83.3	110.0	31 54.5	124 09.9	01/20	0517	0537	401	212	45	45
86.7	33.0	33 53.4	118 29.9	01/17	1709	1713	91	40	725	725
86.7	35.0	33 49.4	118 37.5	01/17	1952	2011	460	194	165	165
86.7	40.0	33 39.3	118 58.2	01/18	0021	0041	394	213	101	101
86.7	45.0	33 29.4	119 18.9	01/18	0445	0504	396	206	190	190
86.7	50.0	33 19.4	119 39.8	01/18	0836	0842	144	46	306	306
86.7	55.0	33 09.3	120 00.4	01/18	1400	1420	436	209	135	135
86.7	60.0	32 59.5	120 21.0	01/18	1818	1838	415	209	277	277
86.7	70.0	32 39.5	121 02.0	01/19	0023	0043	400	213	115	115
86.7	80.0	32 19.4	121 42.7	01/19	0558	0618	420	217	136	136
86.7	90.0	31 59.1	122 23.5	01/19	1151	1211	407	208	49	49
86.7	100.0	31 39.5	123 04.0	01/19	1748	1808	404	209	30	30
86.7	110.0	31 19.5	123 44.4	01/19	2340	2359	387	213	49	49
86.8	32.5	33 53.2	118 26.7	01/17	1530	1532	52	19	344	344
88.5	30.1	33 40.0	118 05.0	01/17	1151	1152	40	13	428	428
90.0	27.7	33 29.5	117 45.6	01/17	0447	0450	70	26	344	344
90.0	28.0	33 28.9	117 45.8	01/17	0815	0821	129	53	156	156
90.0	30.0	33 25.0	117 54.2	01/17	0258	0318	393	214	112	112
90.0	35.0	33 15.1	118 14.9	01/16	2253	2313	404	206	243	243
90.0	37.0	33 10.7	118 23.3	01/16	1952	2011	388	207	170	170
90.0	45.0	32 53.3	119 00.6	01/16	1317	1337	411	215	97	97
90.0	53.0	32 39.2	119 28.7	01/16	0757	0817	484	187	124	124
90.0	60.0	32 25.0	119 57.3	01/16	0259	0319	415	215	321	321
90.0	70.0	32 05.1	120 38.2	01/15	2047	2106	478	202	863	73
90.0	80.0	31 44.9	121 19.1	01/15	1434	1454	432	202	150	150
90.0	90.0	31 24.9	121 59.3	01/15	0652	0712	431	209	93	93
90.0	100.0	31 05.2	122 39.7	01/15	0145	0205	414	212	84	84
90.0	110.0	30 45.5	123 19.2	01/14	1939	2000	514	206	43	43
90.0	120.0	30 24.7	123 59.8	01/14	1250	1310	454	219	15	15
93.3	26.7	32 57.2	117 18.6	01/11	1411	1430	357	204	73	73
93.3	28.0	32 54.8	117 23.6	01/11	1635	1655	494	212	41	41
93.3	30.0	32 50.7	117 31.8	01/11	1927	1946	443	218	63	63
93.3	35.0	32 41.1	117 52.3	01/11	2331	2351	552	199	94	94
93.3	40.0	32 31.0	118 12.7	01/12	0327	0346	470	215	117	117
93.3	45.0	32 21.0	118 33.1	01/12	0725	0745	463	204	121	121
93.3	50.0	32 11.6	118 52.7	01/12	1124	1144	465	197	198	198
93.3	55.0	32 00.9	119 13.7	01/12	1529	1549	437	210	37	37
93.3	60.0	31 50.9	119 33.9	01/12	1930	1950	474	206	55	55
93.3	70.0	31 30.9	120 14.6	01/13	0118	0138	434	224	51	51
93.3	80.0	31 10.6	120 54.5	01/13	0731	0751	502	213	28	28
93.3	90.0	30 52.1	121 33.0	01/13	1300	1320	450	206	40	40
93.3	100.0	30 31.3	122 14.7	01/13	1914	1934	456	218	26	26
93.3	110.0	30 11.0	122 55.1	01/14	0059	0118	461	216	43	43
93.3	120.0	29 50.8	123 35.0	01/14	0634	0654	426	220	23	23