UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 1604
1 - 22 April, 2016

CC Reference 17 - 02
15 Jun., 2017

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

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INTRODUCTION

The data presented in this report were collected during cruise 1604* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the RV 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 cruise were collected and processed by personnel of the Integrative Oceanography Division and the Southwest Fisheries Science Center. CalCOFI data presented in this report and collected on previous cruises can be accessed at http://www.calcofi.org.

STANDARD PROCEDURES

CTD/Rosette Cast Data

A Sea-Bird Electronics, Inc., Conductivity-Temperature-Depth (CTD) instrument (Seabird 911+, Serial number 3161-936) with a rosette was deployed at each station on this cruise. The rosette was equipped with 24 ten-liter plastic (PVC) bottles equipped with epoxy-coated springs and Viton O-rings. Each CTD/rosette cast usually sampled 20 depths to a maximum sampling depth of 515 meters, bottom depth permitting. Occasional stations have multiple bottles tripped at the same depth to provide more water for ancillary programs. Additional bottle depths also appear in combined hydrographic and primary productivity casts. The sample spacing was designed to sample depth intervals as close as 10 meters around the sharp upper thermocline features such as the chlorophyll, oxygen, nitrite maxima and the shallow salinity minimum. Salinity, oxygen and nutrients were determined at sea for all depths sampled. Chlorophyll-*a* and phaeopigments were determined at sea on samples from the top 200 meters, bottom depth permitting.

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

Salinity samples were collected from all rosette bottles and analyzed at sea using a Guildline model 8410 Portasal salinometer. Salinity samples were drawn into 200 ml Kimax high-alumina borosilicate bottles that were rinsed three times with sample prior to filling. The results were compared with the CTD salinity to verify that the rosette bottle did not mis-trip or leak. The salinometer was standardized before and after each group of samples with standardized seawater. Periodic checks on the conductivity of the standardized seawater were made by comparison with IAPSO Standard Seawater batch P158. 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.

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

Nutrient samples were analyzed at sea using a QuAAtro continuous flow analyzer (SEAL Analytical). Dissolved silicate, nitrate, and nitrite were analyzed using a modification of the method described by Armstrong (1967) and Gordon et al. (1992). Phosphate was measured with a modification of the Murphy and Riley (1962) protocol and ammonium is analyzed using a modified fluorometric method described by Kerouel and Aminot (1997). Samples were collected in 45ml high-density polypropylene screw top tubes which were acid washed and rinsed with sample three times prior to filling. Standardizations and cadmium-reduction coil efficiency determinations were performed at the beginning of every run. Drift and baseline corrections were performed in each run using a high standard and blank respectively 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 every run and those data were monitored throughout the cruise and available to adjust values for nitrate, nitrite, phosphate, and silicate if appropriate. The mean values for NO_2 + NO_3, PO_4, and dissolved reactive silicate species (SIL) for the cruise were calculated and compared to certified manufacturer values (see table below). A separate reference sample was used to monitor ammonium stability throughout the cruise. Samples not analyzed immediately after collection were refrigerated and run the following day.

1604SH	**NO_2+NO_3 (µmol/L)**	**PO_4 (µmol/L)**	**SIL (µmol/L)**
Mean ± SD (n=31)	36.42 ± 0.57	2.59 ± 0.02	109.82 ± 0.90
Certified Value* (Lot CB)	36.78	2.58	111.82

*Converted from µmol/kg using assumed lab temperature of 20°C and salinity 34.374 provided by manufacturer

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 a cruise average of 9.25 µCi of ^{14}C as $NaHCO_3$ (200µl 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).

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 5 meters. The data were logged in one-second increments using a Sea-Bird Electronics, Inc., SBE 45 MicroTSG Thermosalinographs for internal and external measurements, and a WetLabs C-star transmissometer and Wetlabs FLNTU and Eco-triplet fluorometers. The data has been processed to show 10 minute averages.

2) *ADCP*: Continuously sample profiles of currents using the RDI/Teledyne Acoustic Doppler Current Profiler. This will be dependent on the ability to sync the ADCP's output with the EK60 and ME70. The EK60 and ME70 will hold priority over the ADCP. The ADCP raw data are collected and archived for potential data processing ashore. The National Centers for Environmental Information (NCEI) in collaboration with the E.Firing Acoustic Doppler Current Profiler (ADCP) Laboratory at the University of Hawaii have established the Joint Archive for Shipboard ADCP (JASADCP). The JASADCP is responsible for the acquisition, review, documentation, archival, and distribution of shipboard ADCP data sets, data may be accessed through their website (http://ilikai.soest.hawaii.edu/sadcp/index.html). Shipboard ADCP data is acquired by University of Hawaii Data Acquisition System (UDHAS) and uses Common Ocean Data Access System (CODAS) processing to incrementally build a dataset of averaged, edited ocean velocities for each ADCP and ping type specified. Processed data and plots are served on the shipboard network, and daily status summaries are emailed and available online (http://currents.soest.hawaii.edu/uhdas_fromships.html).

3) Underway Sea Surface pCO2 and pH measurements: Automated shipboard analysis of the partial pressure of CO2 and pH were made from the ship's underway flow-through system. pCO2 measurements were taken with the Shipboard Underway pCO2 Environmental Recorder (SUPER-CO2) sold by Sunburst Sensors designed with a showered equilibrator and a LI-COR 840A CO2/H2O non-dispersive infrared gas analyzer. pH measurements were taken with a Honeywell Durafet based on Ion Selective Field Effect Transistor (ISFET) technology. The Durafet pH sensor was calibrated before and after the cruise. pCO2 was calibrated with standard gases traceable to NIST every 4 hours, along with an atmospheric sample. Temperature and salinity were also sampled using a SeaBird Thermosalinograph (SBE45). Measurements were recorded every 4 seconds. (T. Martz, SIO)

4) *California Current Ecosystem Long Term Ecological Research Program*: The CCE-LTER program augments standard CalCOFI measurements to further characterize the lower trophic levels as well as the carbon system. Measurements of particulate organic carbon and nitrogen, dissolved organic carbon and nitrogen, taxon-specific phytoplankton pigments, flow-cytometric counts of bacteria and picoautotrophs and the determination of mesozooplankton size structure using a Laser Optical Plankton Counter are sampled for all CalCOFI stations. On CalCOFI lines 90 and 80 measurements also include microscopic counts of heterotrophic and autotrophic phytoplankton for biomass and abundance and mesozooplankton community structure sampled with the Planktonic Rate Processes in Oligotrophic Ocean Systems (PRPOOS) tow net. (M. Ohman, SIO)

5) *Advanced Laser Fluorometer Analyzer (ALFA)*: Continuous underway analysis of phytoplankton pigment groups and variable fluorescence (F_v/F_m). ALFA, developed by A. Chekalyuk at Lamont-Doherty Earth Observatory, uses laser stimulated emission at 405 and 532 nm together with spectral deconvolution analysis to distinguish fluorescence from three types of phycoerythrin, chlorophyll-*a*, and chromophoric dissolved organic matter (CDOM). The ALFA is useful for differentiating the contribution of cyanobacteria and cryptophytes from other phytoplankton taxa present in natural phytoplankton assemblages, as well as for assessing phytoplankton photophysiological status. Ralf Goericke used the Custom Laser Analytical Spectroscopic System developed by Alex Chekalyuk to characterize phytoplankton community structure and phytoplankton photosynthetic capacity. The instrument is using passive fluorometry to measure of chromophoric organic matter (COM), chlorophylls and phycobiliprotein pigments that are characteristic of some cyanobacteria and cryptophyte algae. It is using active fluorometry to measure variable fluorescence (Fv/Fm), a proxy for the photosynthetic capacity of the phytoplankton. The measurements have been carried out in the past on water from the ship's clean seawater system (ALF system).

On this cruise those routine measurements were expanded to include bottle samples from the CalCOFI CTD casts to provide depth-resolved data for those variables. (R. Goericke, SIO)

6) Southern California Coastal Ocean Observing System (SCCOOS) Nearshore Observations: The objective of these observations is to extend CalCOFI time series to the nearshore. Nearshore observations consist of 8 stations at the ends and interspersed with current CalCOFI lines on the 20 m isobath with a standard set of CalCOFI hydrographic observations as well as a CalBOBL net tow, particulate organic carbon and nitrogen, dissolved organic carbon and nitrogen and taxon-specific phytoplankton pigments data. Dave Checkley assessed the response of the Laser Optical Plankton Counter (LOPC) to known types of zooplankton. The LOPC has been deployed in one side of the bongo net during its routine deployment on quarterly CalCOFI cruises since 2005. The LOPC is, in essence, a low-resolution line-scan camera. It generates coarse images of objects larger than about one millimeter that pass through it into the bongo net. On 1611SR, Checkley inspected the plankton collected in the port side of the routine bongo deployment prior to its preservation in ethanol. Individual plankters of specific types were removed from samples. These were then passed through an LOPC in the laboratory equipped with a flow cell through which water moved at the same rate it moves through the LOPC in the bongo net in the sea. The response of the LOPC to each plankter was recorded. The types used included euphausiids, copepods, pteropods, pyrosome salps and radiolarians. The data will be analyzed ashore to develop rules with which to classify particles sensed and counted by the LOPC in the bongo net deployments in the sea over the past 11 years. From this, it is hoped that estimates of the distribution and abundance of euphausiids, large copepods and pelagic tunicates (salps and doliolids) in the CalCOFI region may be estimated. (R. Goericke, SIO; D. Checkley, SIO)

7) Inorganic Carbon System: The CalCOFI group collected samples for the characterization of the inorganic carbon system at selected locations along the cruise track with 14 profile and 8 additional surface water stations. Total inorganic carbon and alkalinity will be measured which will allow the calculation of pH and pCO_2. The objectives of these measurements are first the long-term characterization of the inorganic carbon system and its response to changing ocean climate and second measurements of pH in the coastal zone in order to monitor the impact of 'corrosive' waters on benthic ecosystems in the Southern California Bight. (R. Goericke, SIO)

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

9) Microbial Diversity and Gene Expression: Samples suitable for purification of DNA and RNA from bacterial and microbial eukaryotic biomass are collected for molecular diversity assays targeted to various genetic marker loci (16S and 18S rRNA). DNA samples are collected at every station, in parallel with particulate organic matter (POM) samples, on Whatman GF/F filters. RNA samples are collected in parallel with primary productivity samples on 0.2 µM sterivex filters with a maximum filtration time of 30 min. Additional samples from the mixed layer, chlorophyll max, and two depths below the euphotic zone are collected along lines 80 and 90. (A. Allen, SIO and JCVI)

10) Harmful Algal Bloom Sampling: CalCOFI will collect surface and mixed layer water samples at select stations for phycotoxin (domoic acid) analysis and *Pseudo-nitzschia* cell counts. We are examining the dynamics of coastal phytoplankton blooms that lead to detrimental effects on both human and ecosystem health in response to rapid and long-term climate variability in the California Current System. A major goal of this project is the collection of toxin data outside of the very nearshore pier sampling currently funded by the NOAA Integrated Ocean Observing System via the two regional associations in California. Given that the warm anomaly broke temperature records as far back as 1900 and is now interacting with one of the top three ENSO events on record, it is important to quickly capture the influence of these climatic phenomena on harmful algal blooms (C. Anderson and R. Kudela, UCSC).

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 1604

1. CalCOFI Cruise 1604 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.

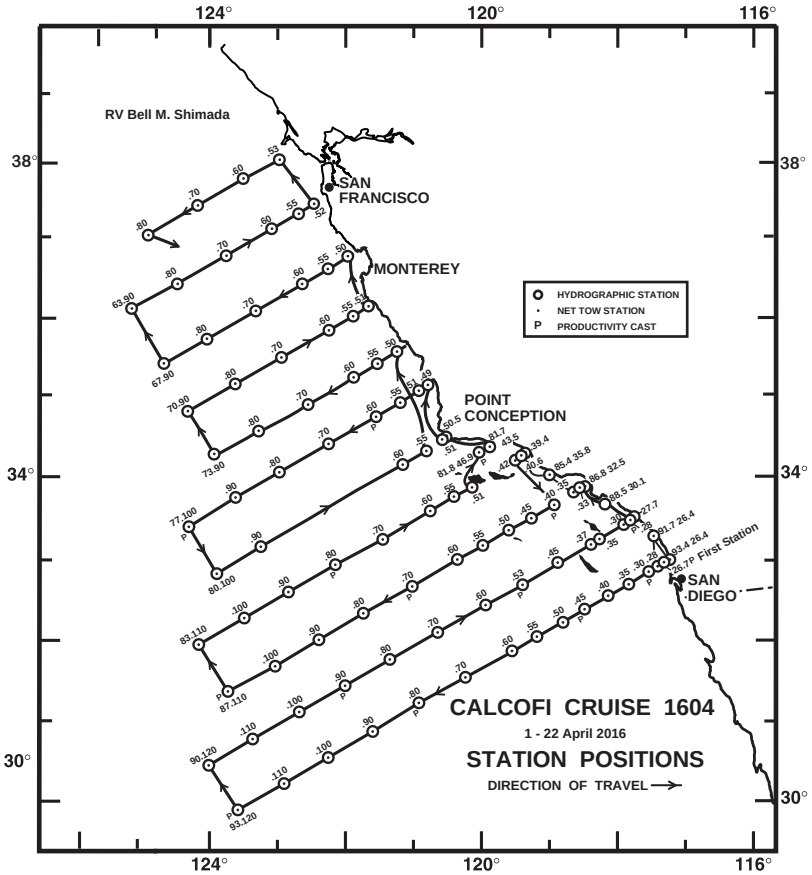

FIGURE 1

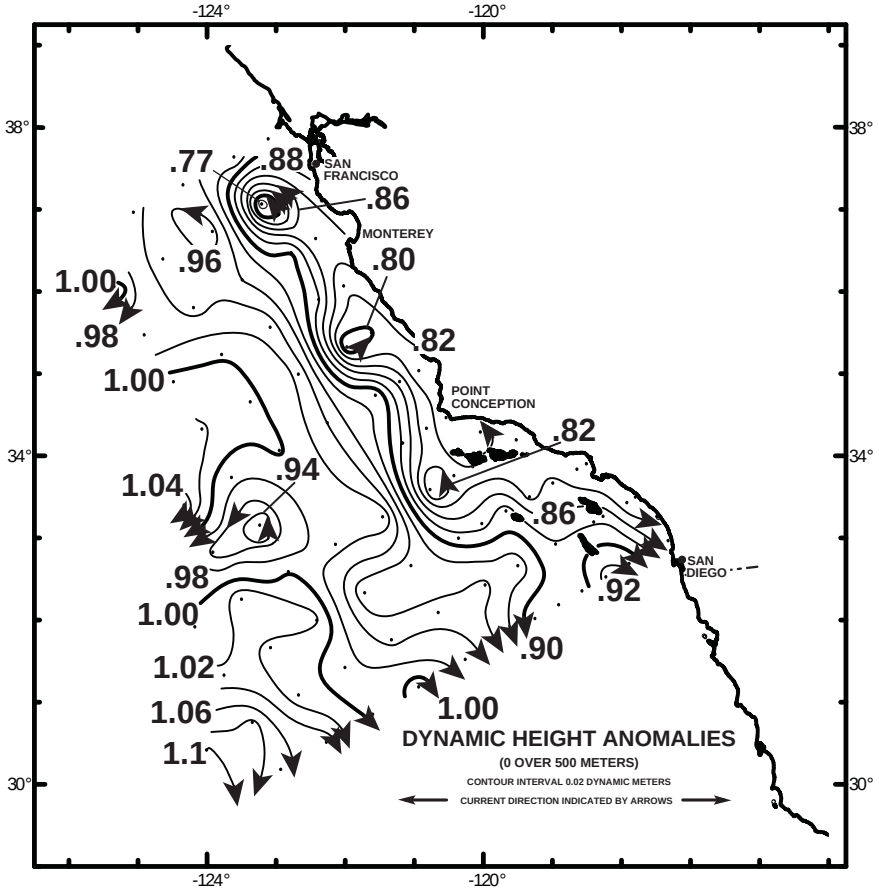

FIGURE 2

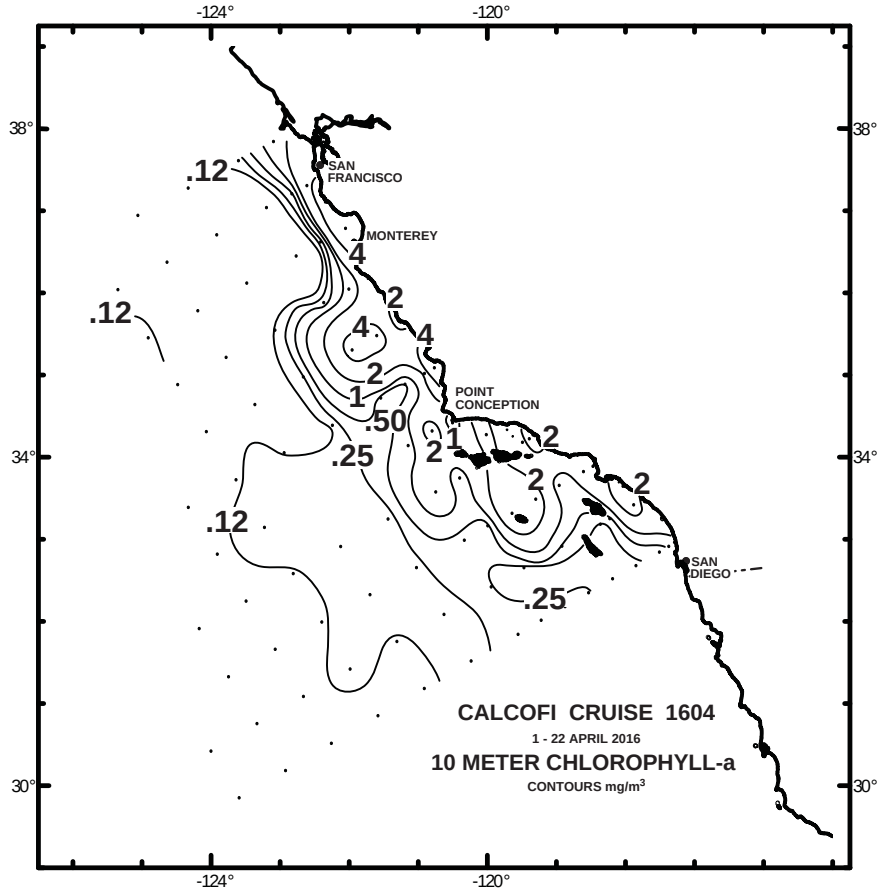

FIGURE 3A

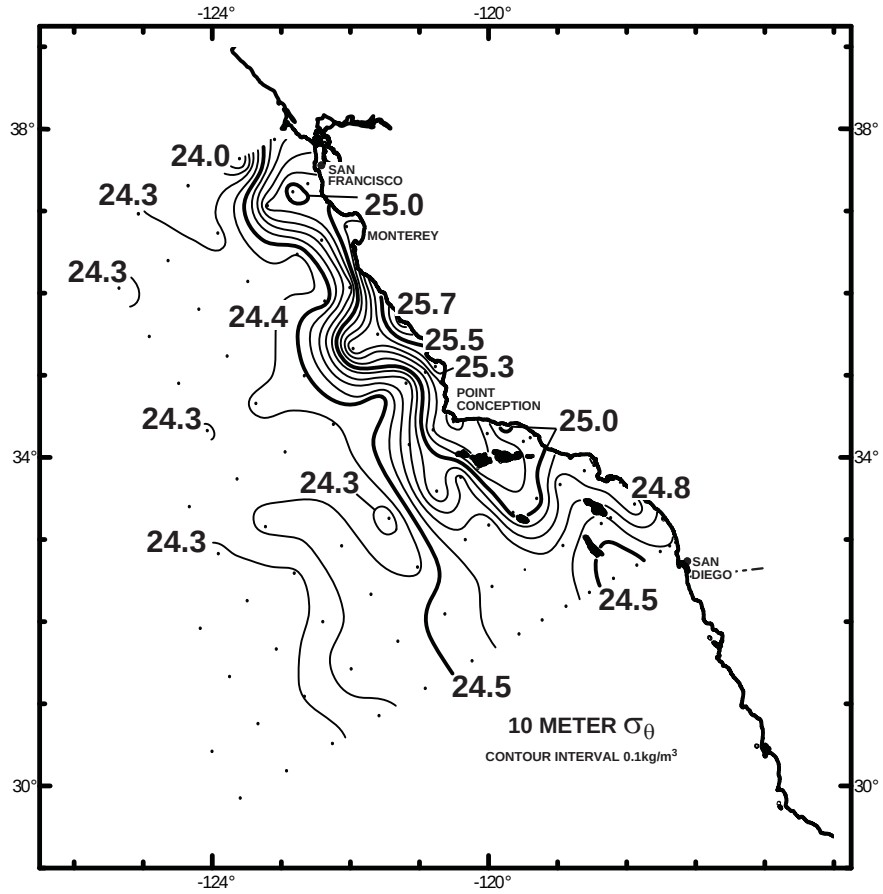

FIGURE 3B

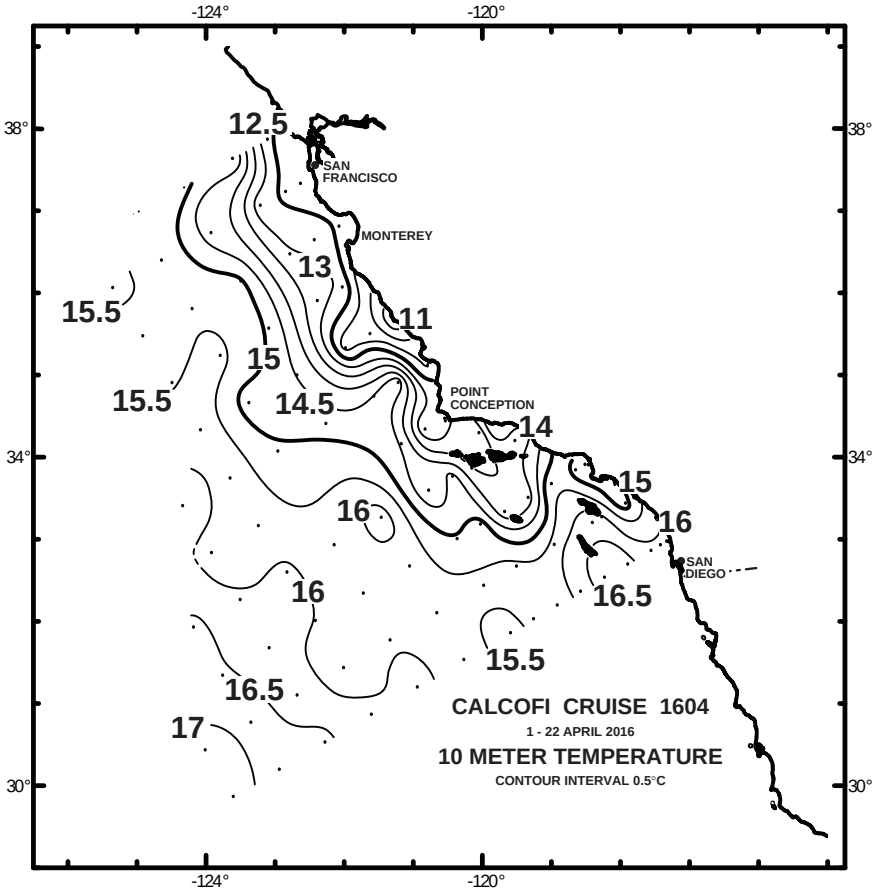

FIGURE 3C

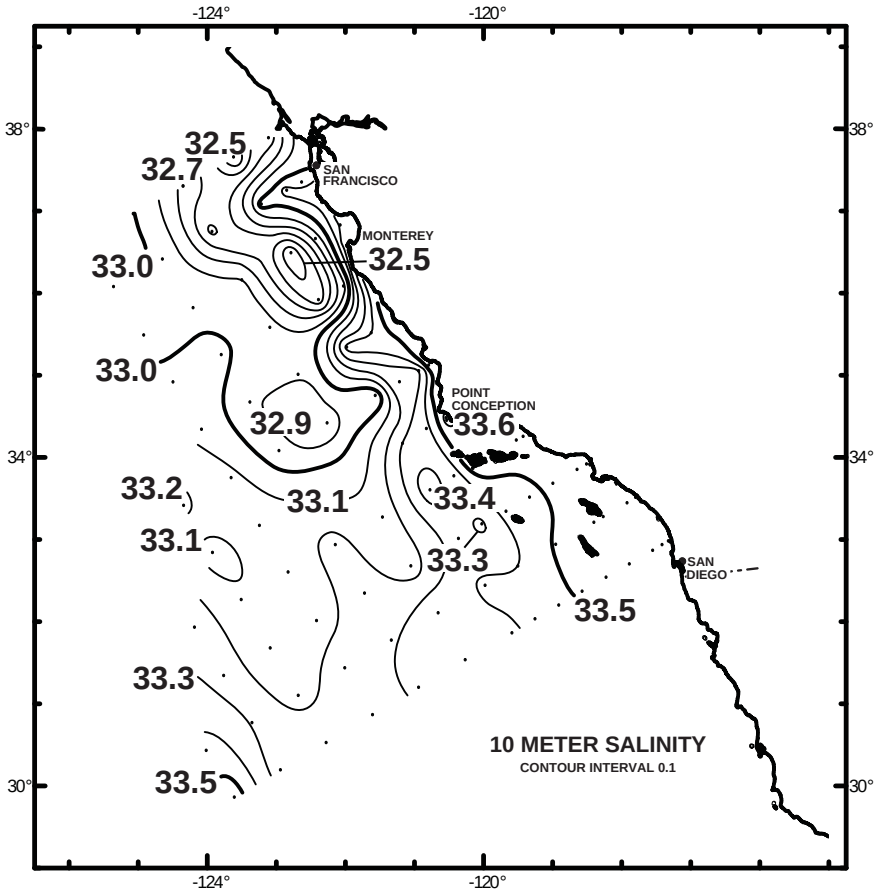

FIGURE 3D

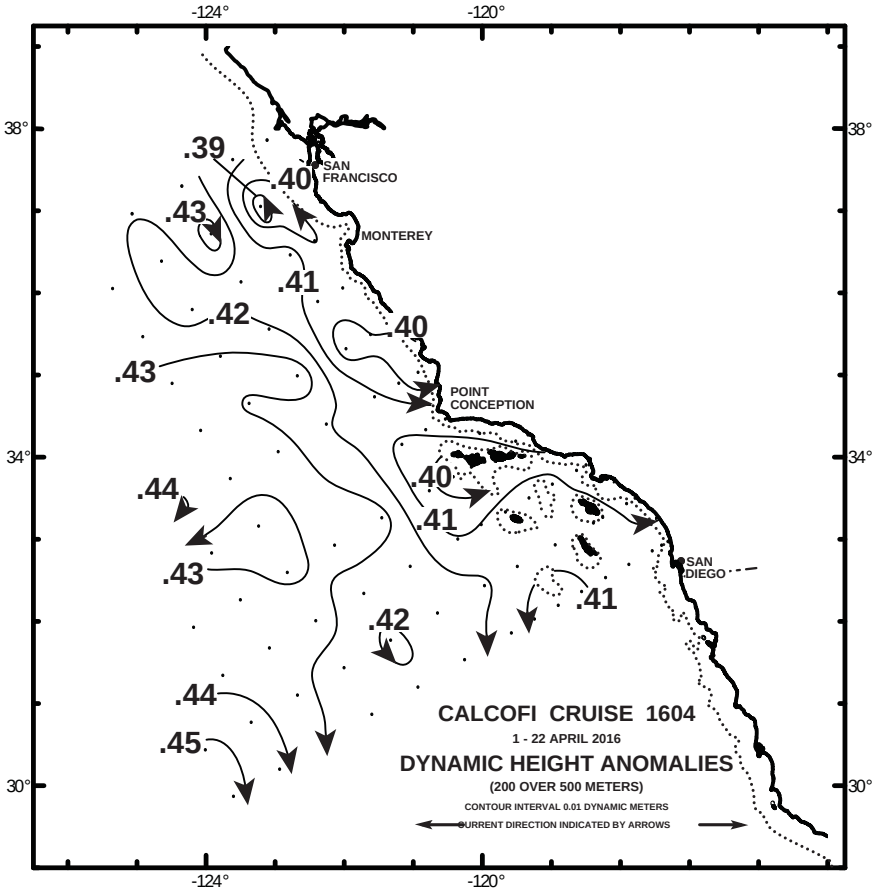

FIGURE 4A

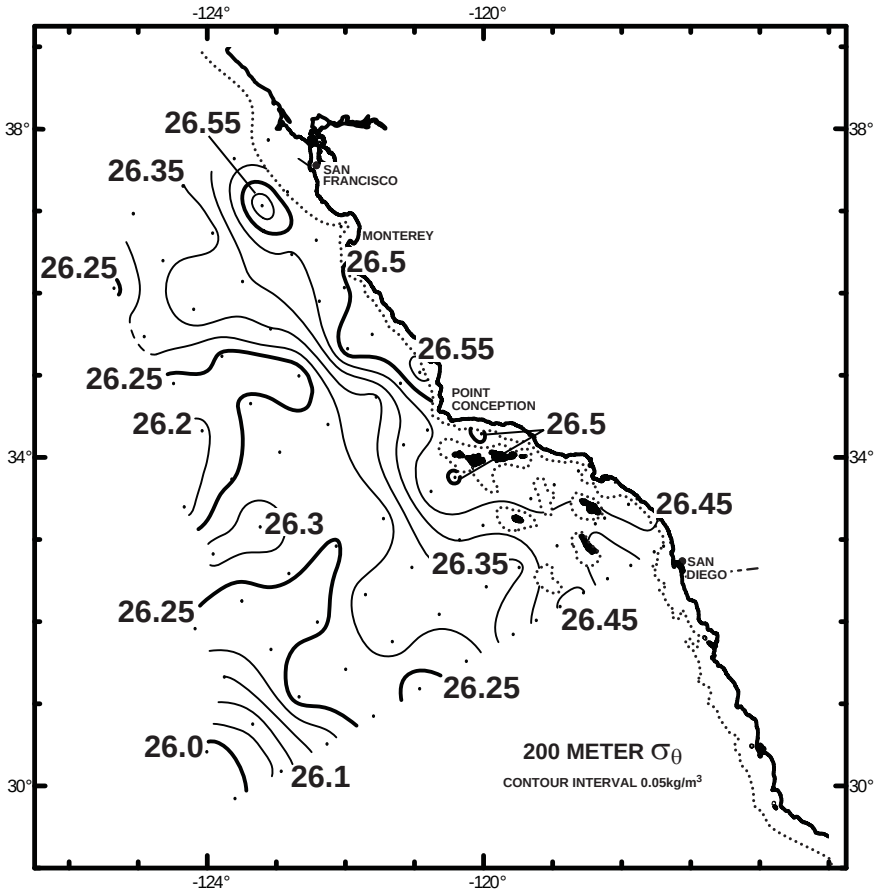

FIGURE 4B

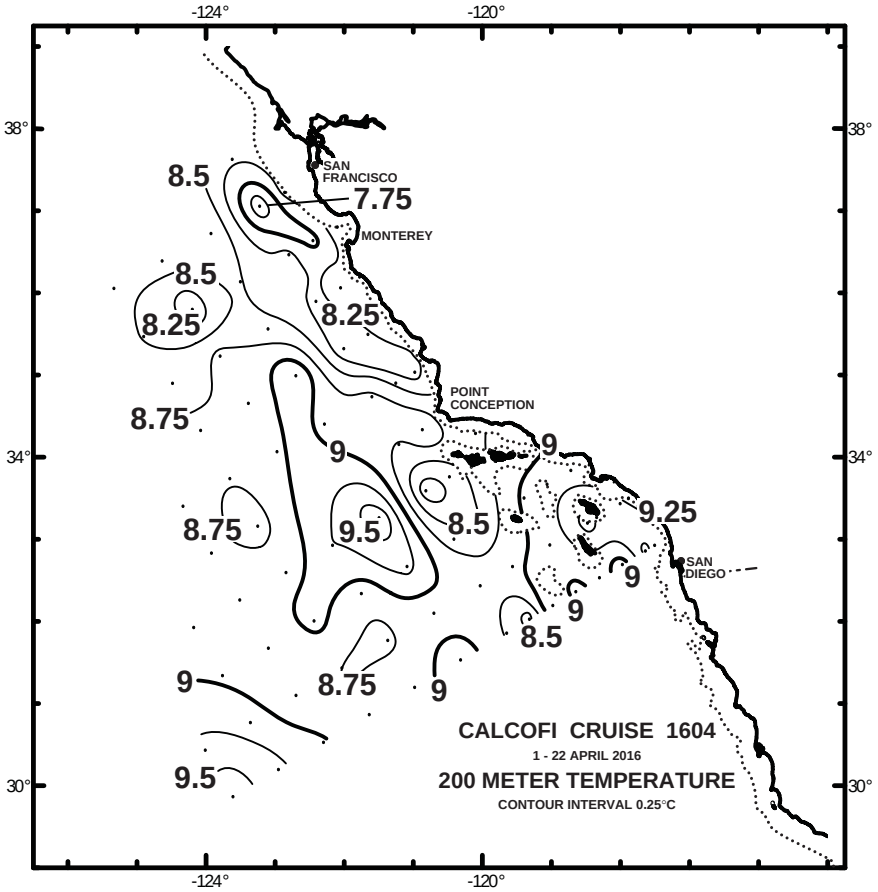

FIGURE 4C

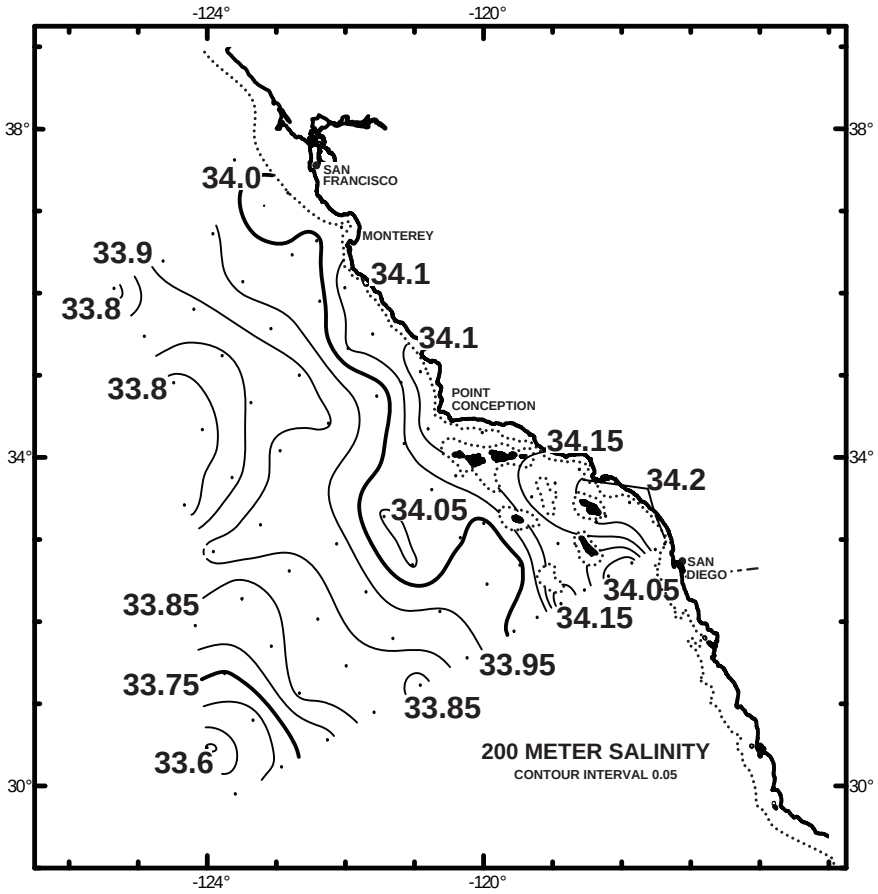

FIGURE 4D

CALCOFI CRUISE 1604

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POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

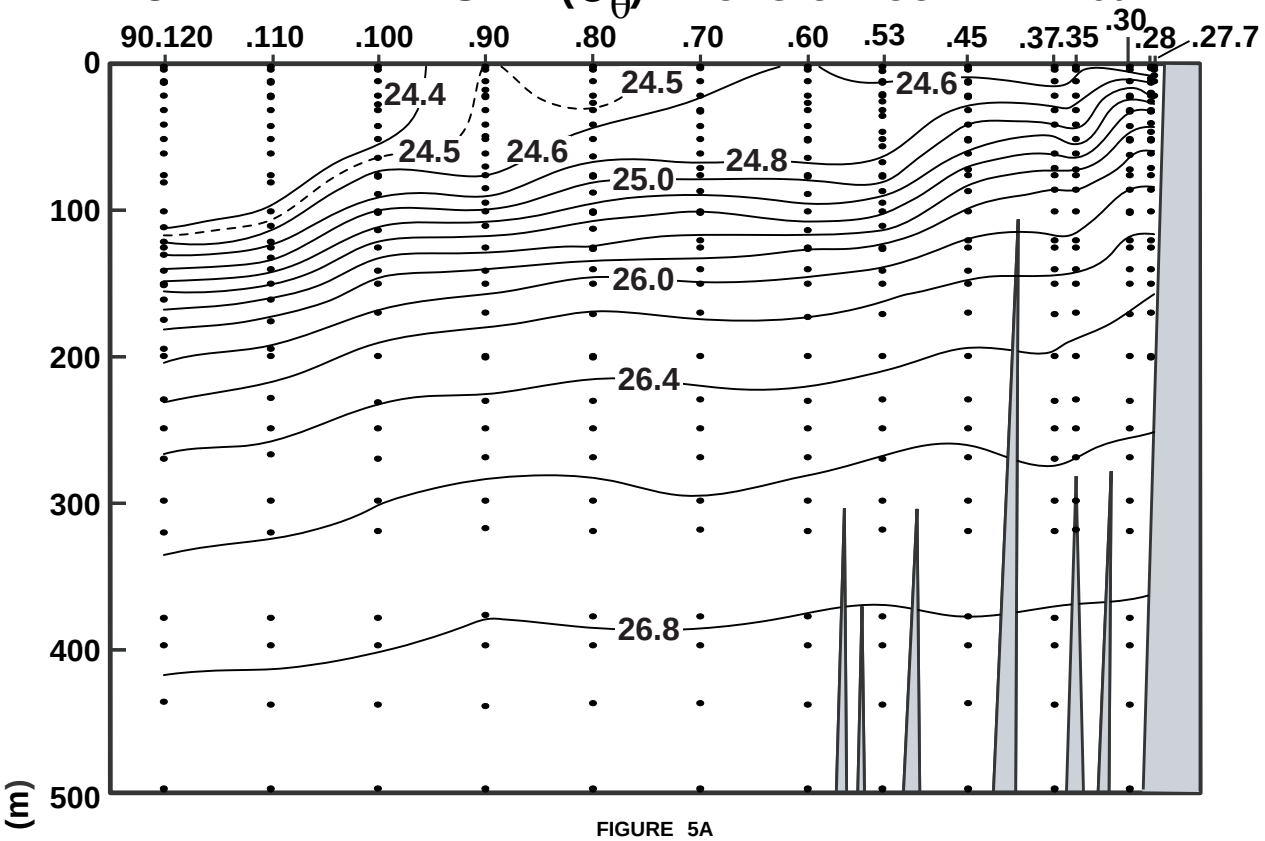

FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

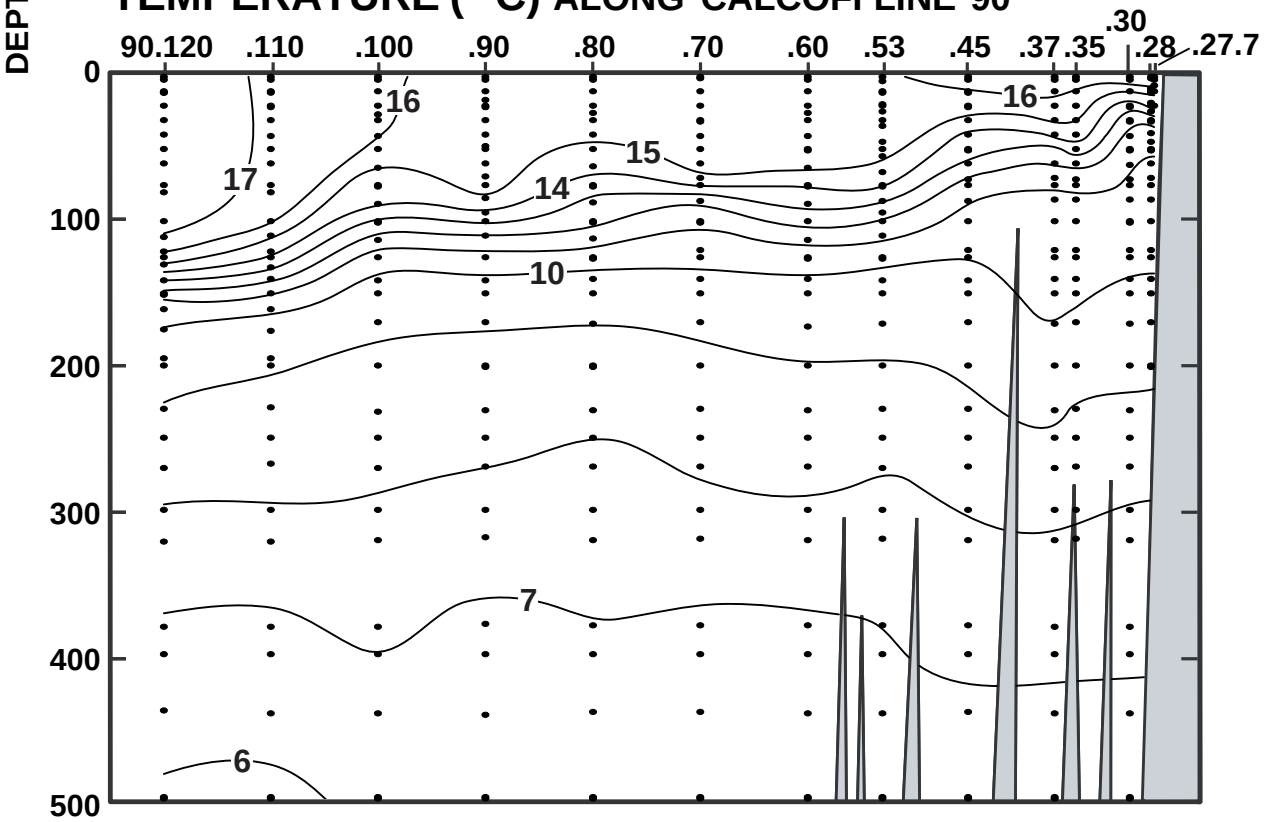

FIGURE 5B

CALCOFI CRUISE 1604

4 - 7 April 2016

SALINITY ALONG CALCOFI LINE 90

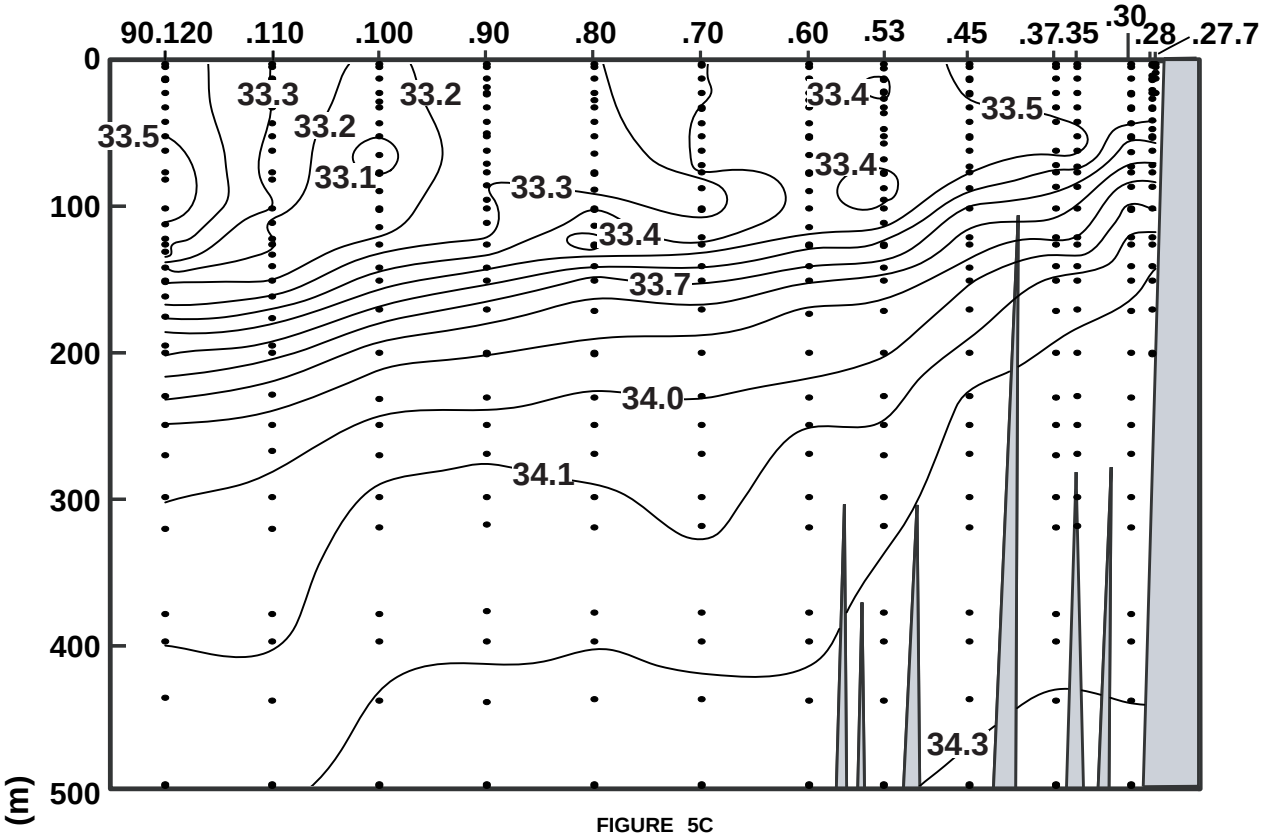

FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

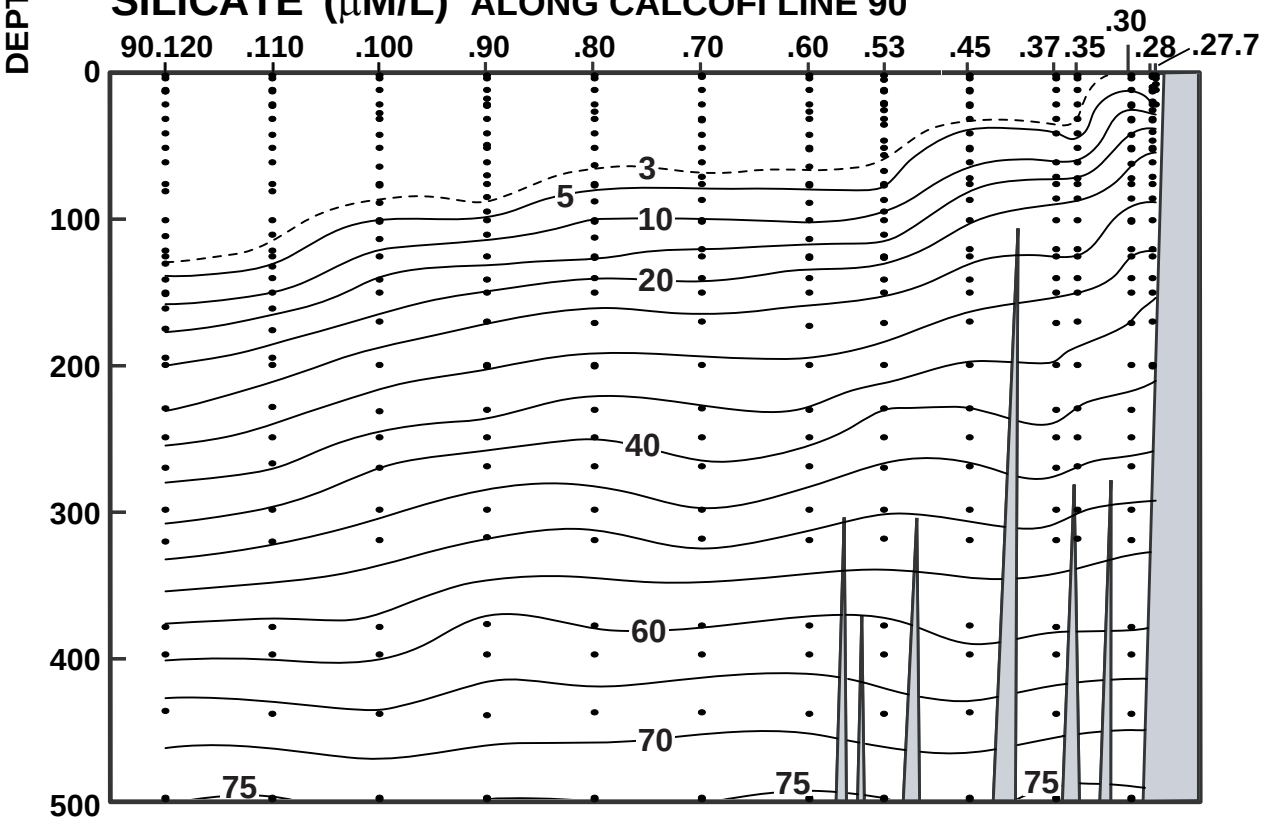

FIGURE 5D

CALCOFI CRUISE 1604

4 - 7 April 2016

NITRATE (μM/L) ALONG CALCOFI LINE 90

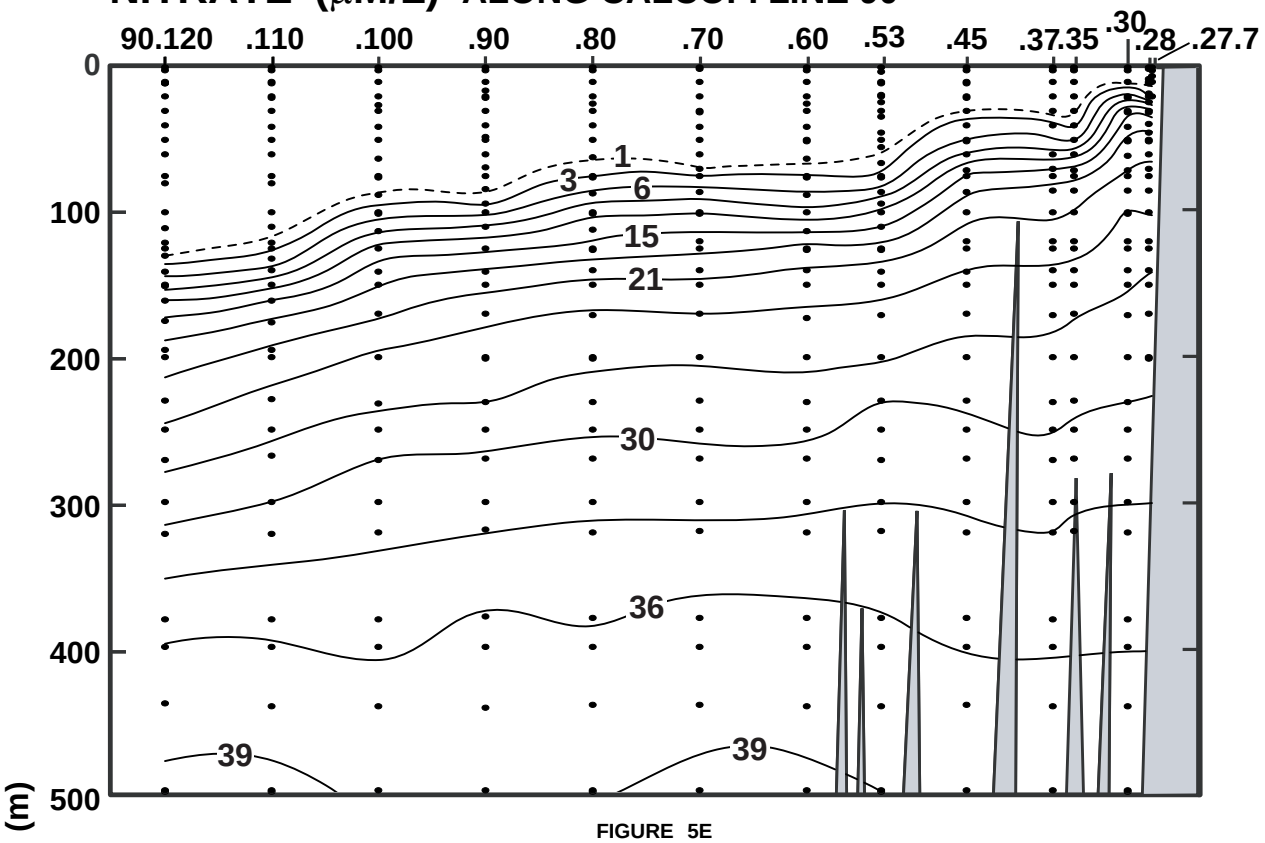

FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

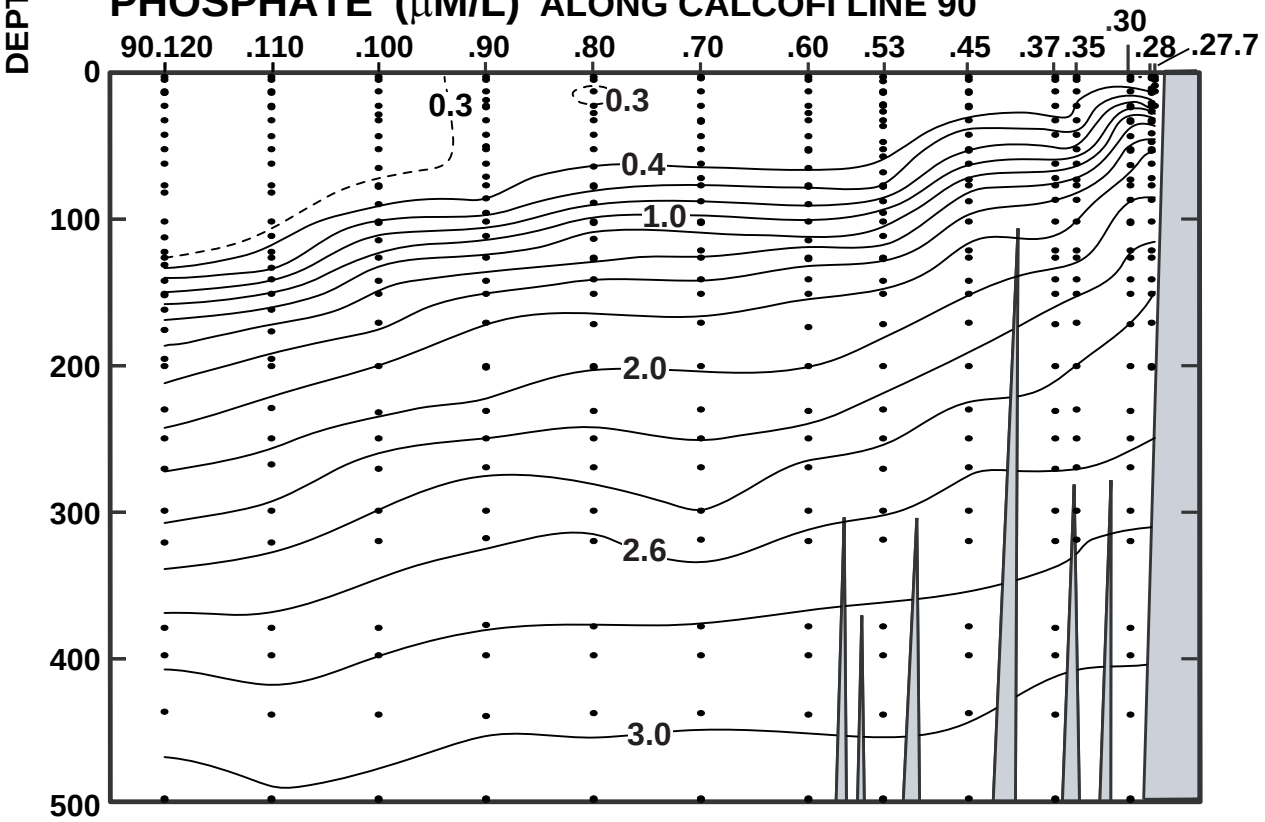

FIGURE 5F

CALCOFI CRUISE 1604

4 - 7 April 2016

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

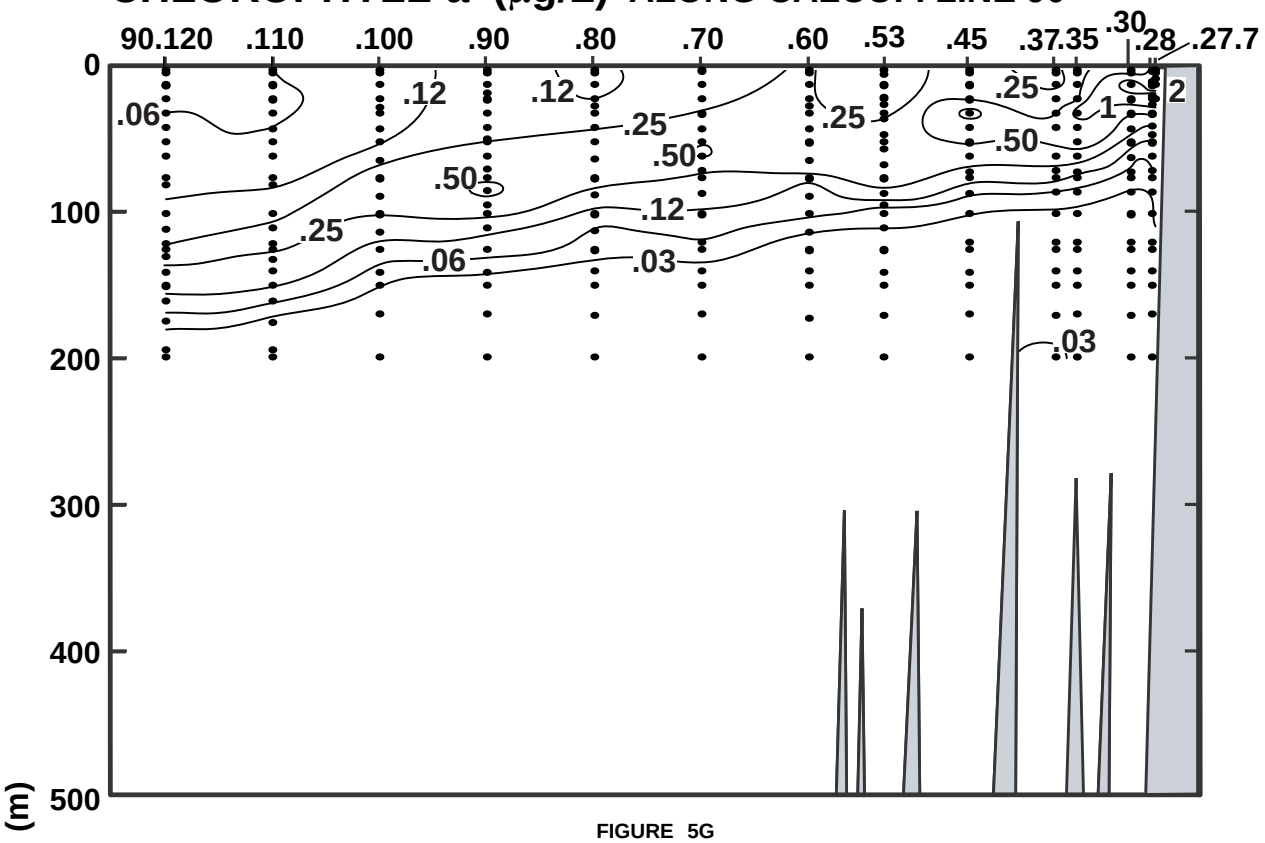

FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

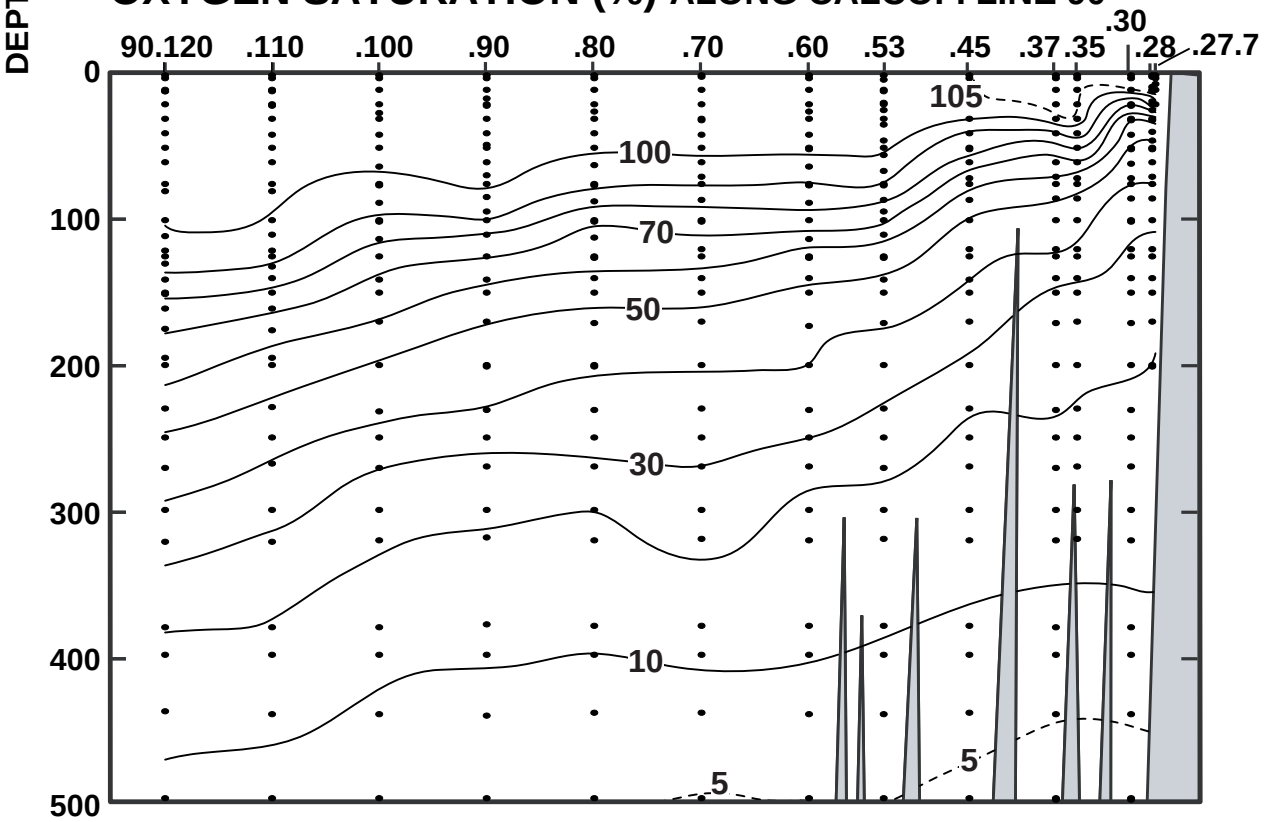

FIGURE 5H

CALCOFI CRUISE 1604

4 - 7 April 2016

OXYGEN (mL/L) ALONG CALCOFI LINE 90

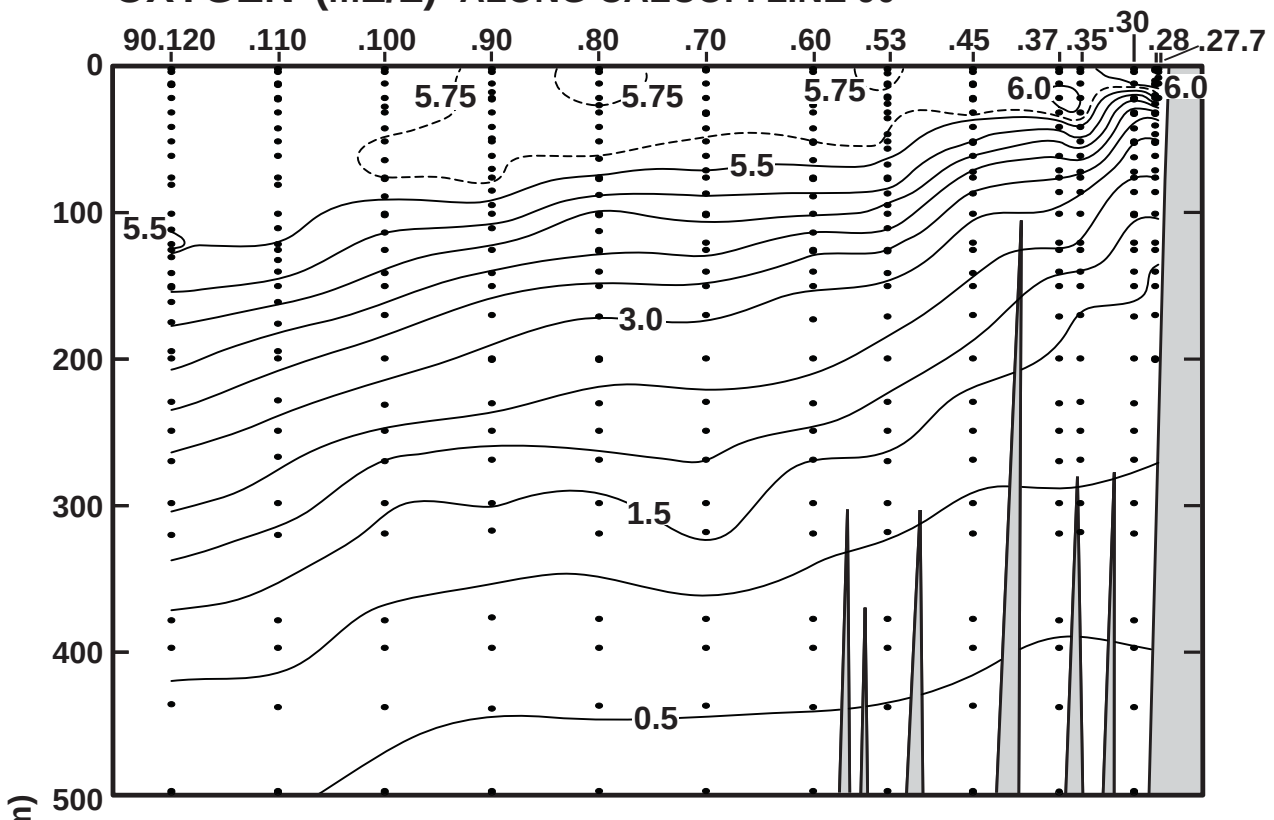

FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

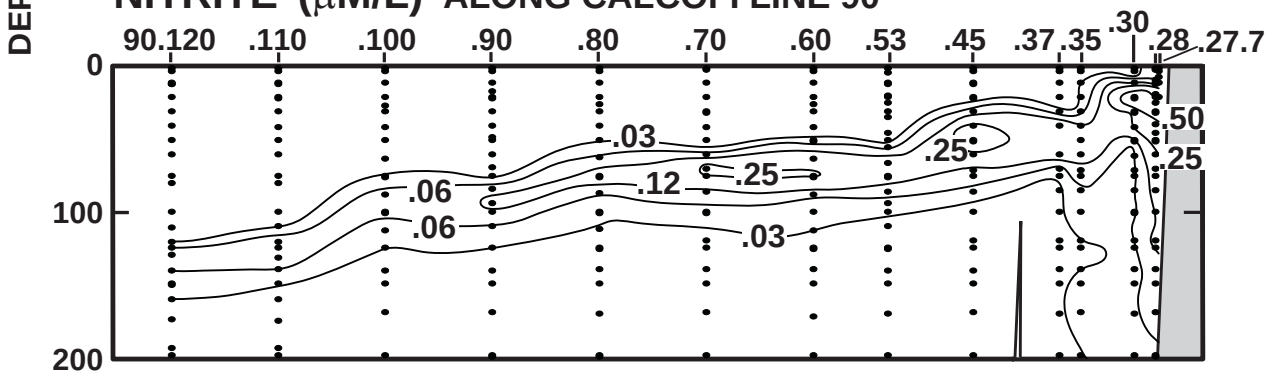

FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

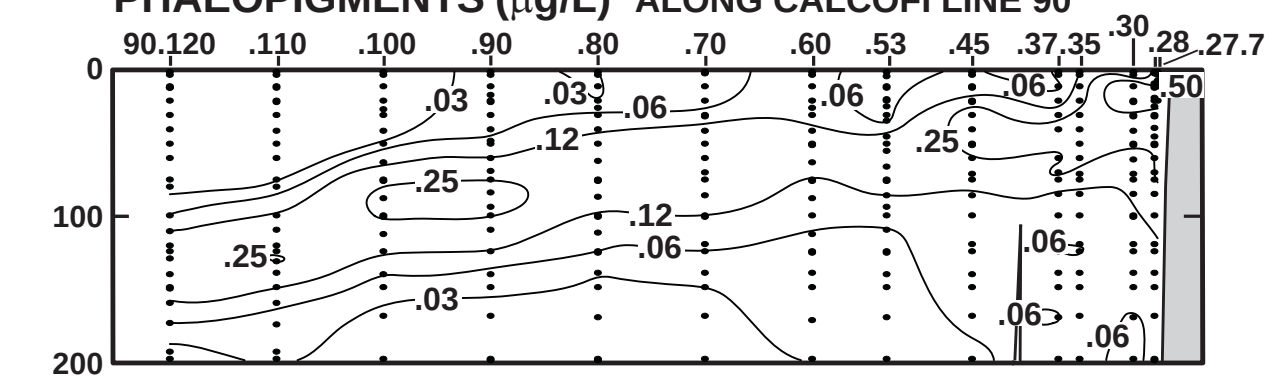

FIGURE 5K

PERSONNEL

CalCOFI Cruise 1604

SHIP'S CAPTAIN

Sarah Duncan, R/V *Bell M. Shimada*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Legs)
Hays, Amy (Chief Scientist)	Fishery Biologist, NMFS	1-3
Dovel, Shonna	Staff Research Associate, SIO	1-2
Faber, David	Staff Research Associate, SIO	1
Hall, Amy	Volunteer	1-3
Klemmedson, Angela	Scientific Aid, CDFW	1-3
Manion, Sue	Fishery Biologist, NMFS	1-3
McGrath, Jennifer	Volunteer	1-3
Roadman, Megan	Staff Research Associate, SIO	1-2
Rodgers-Wolgast, Jennifer	Staff Research Associate, SIO	1-2
Schuller, Daniel	Staff Research Associate, SIO	1-2
Simonis, Anne	Marine Mammal Observer, MPL	1-3
Webb, Sophie	Bird Observer, FAIER	1-3
Whitaker, Katherine	Marine Mammal Observer, MPL	1-3
Wilkinson, James	Information Systems Analyst, SIO	1-2
Wolgast, David	Staff Research Associate, SIO	1-2

Leg 1: San Diego to Dana Point, California, 1-7 April, 2016
Leg 2: Dana Point to Santa Barbara, California, 7-16 April, 2016
Leg 3: Santa Barbara to San Francisco, California, 16-23 April, 2016

RV BELL M SHIMADA CALCOFI CRUISE 1604 STATION 60.0 53.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 50.7 N	123 5.8 W	22/04/2016	0041	UTC	90 m	180 08 kn	170 02 07	1	1011.9 mb	15.7 C	14.5 C		7/8	SC	098

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	14.34	14.34	32.422	24.125	378.1	0.000	6.27	273.9	107.1						0.46	0.40	0	
2	14.34	14.34	32.422	24.126	378.1	0.008	6.27	273.9	107.1						0.46	0.40	2	06
10	12.55	12.55	32.625 D	24.642	329.1	0.036	6.56	286.4	108.0						1.46	0.55	10	05
20	10.70	10.70	33.183 D	25.415	255.8	0.066	4.54	198.2	72.1						0.32	0.17	20	04
30 ISL	10.50 D	10.49	33.469 D	25.673	231.5	0.090	6.60	D287.2	D104.5						0.45	0.39	30	
50	9.20	9.20	33.699 D	26.069	194.3	0.133	3.24	141.2	49.9						0.69	0.84	50	03
70	8.97	8.96	33.767 D	26.161	185.9	0.171	2.47	107.9	37.9						0.24	0.86	71	02
75 ISL	8.87 D	8.86	33.782 D	26.188	183.4	0.181	2.46	D107.0	D 37.7						0.34	1.19	76	
80	8.82	8.81	33.791	26.203	182.1	0.189	2.47	108.0	37.8						0.44	1.53	81	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 1604 STATION 60.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 36.7 N	123 36.1 W	22/04/2016	0436	UTC	3303 m	200 17 kn			1011.1 mb	14.9 C	14.4 C				099

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	32.363	23.958	394.1	0.000	6.02	262.9	104.0						0.15	0.04	0	
2	14.92	14.92	32.363	23.958	394.1	0.008	6.02	262.9	103.9						0.15	0.04	2	12
10	15.10	15.09	32.364 D	23.921	397.9	0.036	6.09	265.9	105.5						0.14	0.02	10	11
20 ISL	13.39 D	13.39	32.308 D	24.233	368.4	0.075	6.24	D272.1	D104.4						0.17	0.03	20	
26	13.26	13.26	32.301 D	24.253	366.7	0.097	6.24	272.6	104.1						0.19	0.04	26	10
30 ISL	13.25 D	13.25	32.307 D	24.260	366.1	0.112	6.22	D271.2	D103.8						0.24	0.08	30	
50 ISL	12.84 D	12.83	32.425 D	24.434	350.1	0.184	6.25	D272.6	D103.5						0.50	0.24	50	
62	12.75	12.74	32.641 D	24.618	332.9	0.225	5.98	261.0	98.9						0.65	0.34	63	09
75 ISL	12.10 D	12.09	32.898 D	24.943	302.2	0.267	5.48	D238.7	D 89.5						0.37	0.25	76	
87	10.98	10.97	33.186 D	25.371	261.6	0.301	4.84	211.3	77.4						0.11	0.16	88	08
100 ISL	10.38 D	10.37	33.290 D	25.557	244.2	0.334	4.43	D192.9	D 69.9						0.06	0.13	101	
102	10.22	10.21	33.300	25.591	240.9	0.339	4.35	189.8	68.4						0.06	0.12	103	07
125 ISL	8.97 D	8.96	33.499 D	25.952	206.9	0.391	4.02	D174.8	D 61.5						0.03	0.09	126	
126	8.93	8.92	33.509 D	25.966	205.6	0.393	4.01	175.2	61.4						0.03	0.09	127	06
141	8.83	8.82	33.657 D	26.098	193.4	0.423	3.48	151.9	53.2						0.04	0.10	142	05
150 ISL	8.73 D	8.71	33.737 D	26.177	186.0	0.440	3.39	D147.6	D 51.8						0.04	0.10	151	
200 ISL	8.30 D	8.28	33.962 D	26.420	163.8	0.528	2.85	D123.8	D 43.0						0.03	0.11	202	
202	8.29	8.27	33.964 D	26.424	163.5	0.532	2.66	116.0	40.2						0.03	0.11	204	04
250 ISL	7.68 D	7.65	34.023 D	26.562	151.1	0.608	2.15	D 93.6	D 32.1								252	
271	7.53	7.51	34.034 D	26.591	148.6	0.640	1.97	86.0	29.3								273	03
300 ISL	7.28 D	7.25	34.058 D	26.646	143.8	0.682	1.69	D 73.7	D 25.0								303	
381	6.51	6.48	34.118 D	26.799	130.0	0.794	0.97	42.3	14.1								384	02
400 ISL	6.34 D	6.31	34.123 D	26.825	127.7	0.819	0.92	D 39.8	D 13.2								403	
500 ISL	5.57 D	5.53	34.154 D	26.947	116.8	0.942	0.60	D 26.3	D 8.6								504	
515	5.56	5.51	34.166	26.959	115.9	0.957	0.51	22.1	7.2								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 1604 STATION 60.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 16.7 N	124 19.6 W	22/04/2016	1003	UTC	3714 m	230 18 kn			1009.5 mb	14.0 C	13.0 C				100

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	32.716	24.237	367.5	0.000	5.97	260.7	103.3						0.13	0.03	0	
2	14.89	14.89	32.716	24.237	367.5	0.007	5.97	260.7	103.3						0.13	0.03	2	12
10 ISL	14.88 D	14.87	32.717 D	24.240	367.4	0.034	5.95	D259.4	D102.9						0.13	0.04	10	
11	14.86	14.86	32.717 D	24.243	367.2	0.037	5.99	261.4	103.5						0.13	0.04	11	11
20 ISL	13.98 D	13.98	32.730 D	24.439	348.8	0.070	6.10	D265.8	D103.5						0.13	0.04	20	
25	13.91	13.90	32.732 D	24.456	347.4	0.087	6.07	265.1	102.9						0.14	0.03	25	10
30 ISL	13.84 D	13.84	32.732 D	24.469	346.2	0.105	6.06	D264.4	D102.7						0.17	0.06	30	
50 ISL	13.68 D	13.68	32.740 D	24.510	343.0	0.174	6.05	D263.9	D102.2						0.33	0.16	50	
62	13.21	13.20	32.713 D	24.584	336.2	0.215	6.08	265.5	101.6						0.43	0.22	63	09
75 ISL	13.09 D	13.08	32.718 D	24.613	333.8	0.259	5.98	D260.8	D 99.7						0.40	0.29	76	
87	13.52	13.51	32.948 D	24.706	325.4	0.299	5.76	251.5	97.0						0.38	0.34	88	08
99	12.81	12.79	33.095 D	24.962	301.3	0.337	5.35	233.6	88.9						0.24	0.22	100	07
100 ISL	12.60 D	12.58	33.099 D	25.005	297.2	0.340	5.37	D233.8	D 88.7						0.23	0.21	101	
125	10.78	10.77	33.270 D	25.473	252.9	0.409	4.23	184.8	67.4						0.04	0.06	126	06
140	10.14	10.12	33.406 D	25.690	232.5	0.446	3.91	170.8	61.5						0.02	0.04	141	05
150 ISL	9.57 D	9.55	33.534 D	25.885	214.0	0.468	3.85	D167.5	D 59.7						0.02	0.04	151	
200 ISL	8.74 D	8.71	33.808 D	26.233	181.7	0.568	3.00	D130.5	D 45.8						0.02	0.04	202	
201	8.73	8.71	33.809 D	26.235	181.6	0.570	3.00	130.9	45.8						0.02	0.04	203	04
250 ISL	8.42 D	8.39	33.992 D	26.428	164.2	0.655	2.33	D101.5	D 35.4								252	
270	8.22	8.19	34.017 D	26.478	159.7	0.688	2.20	95.9	33.2								272	03
300 ISL	7.82 D	7.79	34.043 D	26.557	152.5	0.735	1.97	D 85.8	D 29.5								303	
380	6.58	6.54	34.024 D	26.716	137.9	0.852	1.65	72.1	24.0								383	02
400 ISL	6.36 D	6.32	34.030 D	26.749	134.8	0.880	1.52	D 66.2	D 22.0								403	
500 ISL	5.94 D	5.90	34.162 D	26.909	120.8	1.009	0.59	D 25.6	D 8.4								504	
515	5.79	5.74	34.152	26.920	119.8	1.027	0.64	27.8	9.1								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 1604 STATION 60.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 56.7 N	125 3.1 W	22/04/2016	1532 UTC	4328 m	260 25 kn	270 04 06	1	1010.1 mb	14.7 C	11.4 C		7/8	SC	101

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	14.69	14.69	32.737	24.294	362.0	0.000	6.00	262.0	103.4						0.15	0.03	0	
3	14.69	14.69	32.737	24.294	362.1	0.011	6.00	262.0	103.4						0.15	0.03	3	12
9	14.68	14.68	32.730 D	24.292	362.5	0.028	5.99	261.6	103.2						0.14	0.03	9	11
10 ISL	14.69 D	14.69	32.731 D	24.290	362.7	0.031	6.00	D261.5	D103.4						0.14	0.03	10	
20 ISL	14.59 D	14.59	32.801 D	24.367	355.7	0.067	6.01	D262.1	D103.4						0.15	0.06	20	
25	14.50	14.50	32.856 D	24.428	350.0	0.085	6.05	264.1	103.9						0.16	0.07	25	10
30 ISL	14.34 D	14.33	32.823 D	24.438	349.2	0.103	6.06	D264.2	D103.7						0.25	0.11	30	
50 ISL	13.31 D	13.30	32.861 D	24.679	326.8	0.171	6.15	D268.1	D103.1						0.64	0.26	50	
59	12.86	12.85	32.816 D	24.732	321.9	0.200	6.06	264.4	100.5						0.81	0.33	59	09
75 ISL	12.15 D	12.14	33.014 D	25.023	294.6	0.250	5.29	D230.4	D 86.5						0.51	0.33	76	
88	11.86	11.85	33.230 D	25.246	273.8	0.287	4.74	206.8	77.2						0.27	0.33	89	08
100	11.16	11.14	33.210	25.359	263.2	0.322	4.70	205.0	75.4						0.16	0.13	101	07
125 ISL	10.08 D	10.06	33.451 D	25.734	227.9	0.381	3.77	D164.0	D 59.1						0.04	0.08	126	
126	10.02	10.00	33.478 D	25.766	224.9	0.384	3.74	163.1	58.6						0.04	0.08	127	06
143	9.44	9.42	33.597 D	25.956	207.1	0.421	3.43	149.8	53.2						0.01	0.06	144	05
150 ISL	9.32 D	9.31	33.653 D	26.018	201.3	0.435	3.33	D144.8	D 51.4						0.01	0.06	151	
196	8.58	8.56	33.876 D	26.310	174.3	0.522	3.25	141.9	49.5						0.01	0.06	198	04
200 ISL	8.50 D	8.48	33.883 D	26.328	172.6	0.529	3.37	D146.5	D 51.1								202	
250 ISL	8.05 D	8.02	34.009 D	26.496	157.5	0.612	2.37	D103.1	D 35.6								252	
271	7.81	7.79	34.033 D	26.550	152.7	0.645	2.02	88.2	30.3								273	03
300 ISL	7.44 D	7.41	34.048 D	26.616	146.7	0.689	1.82	D 79.1	D 27.0								303	
382	6.53	6.50	34.096 D	26.779	131.9	0.804	1.07	46.7	15.6								385	02
400 ISL	6.41 D	6.38	34.106 D	26.803	129.9	0.828	0.94	D 40.7	D 13.6								403	
500 ISL	5.73 D	5.69	34.159 D	26.933	118.3	0.953	0.58	D 25.1	D 8.2								504	
516	5.64	5.60	34.173	26.954	116.4	0.971	0.51	22.0	7.2								521	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 1604 STATION 63.3 52.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 18.5 N	122 36.9 W	21/04/2016	1925 UTC	92 m	180 11 kn	190 03 07	2	1013.2 mb	14.5 C	14.3 C		8/8	SC	097

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	13.58	13.58	33.035	24.756	318.0	0.000	7.32	319.8	123.6						1.71	0.57	0	
2	13.58	13.58	33.035	24.756	318.1	0.006	7.32	319.8	123.6						1.71	0.57	2	07
10	12.62	12.62	33.036 D	24.948	300.0	0.031	7.57	330.5	125.2						3.79	1.25	10	06
20	11.47	11.47	33.130 D	25.236	272.8	0.060	5.79	252.8	93.5						10.71	2.60	20	05
30 ISL	10.42 D	10.41	33.493 D	25.706	228.4	0.085	4.36	D189.6	D 68.9						7.32	2.04	30	
50	9.71	9.70	33.673 D	25.967	204.0	0.129	2.84	123.8	44.2						0.53	0.91	50	04
70	9.25	9.24	33.825 D	26.161	185.9	0.168	2.07	90.3	32.0						0.80	1.46	71	03
75 ISL	9.25 D	9.24	33.825 D	26.161	186.0	0.178	2.05	D 89.3	D 31.7						0.74	1.45	76	
81	9.25	9.24	33.824 D	26.161	186.2	0.189	2.07	90.3	31.9						0.67	1.44	82	02
84	9.25	9.24	33.826	26.163	186.1	0.196	2.06	90.0	31.9						0.70	1.45	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 1604 STATION 63.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 12.5 N	122 49.9 W	21/04/2016	1629 UTC	296 m	160 08 kn	230 01 08	5	1013.2 mb	13.9 C	13.8 C		8/8	SC	096

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	13.33	13.33	33.033	24.805	313.4	0.000	7.11	310.6	119.4						0.07	0.02	0	
2	13.33	13.33	33.033	24.805	313.4	0.006	7.11	310.6	119.4						0.07	0.02	2	10
10	12.32	12.32	33.140 D	25.085	286.9	0.031	7.22	315.3	118.7						0.23	0.08	10	09
20	11.56	11.56	33.170 D	25.251	271.4	0.059	6.39	279.1	103.5						4.19	0.93	20	08
30 ISL	11.13 D	11.13	33.218 D	25.366	260.7	0.085	6.09	D265.1	D 97.6						2.89	0.74	30	
50	9.91	9.91	33.417	25.733	226.2	0.133	3.90	170.3	61.0						0.29	0.35	50	07
70	9.00	8.99	33.628 D	26.047	196.7	0.177	3.54	154.7	54.4						0.18	0.25	71	06
75 ISL	8.93 D	8.92	33.670 D	26.090	192.7	0.187	3.37	D146.8	D 51.7						0.19	0.30	76	
100	9.00	8.99	33.863 D	26.231	179.9	0.234	2.51	109.6	38.6						0.28	0.55	101	05
120	8.89	8.88	33.911 D	26.288	175.0	0.269	2.19	95.6	33.6						0.24	0.53	121	04
125 ISL	8.86 D	8.85	33.918 D	26.297	174.2	0.278	2.18	D 94.7	D 33.3						0.24	0.55	126	
140	8.68	8.67	33.952 D	26.352	169.2	0.304	2.26	98.7	34.5						0.23	0.63	141	03
150 ISL	8.58 D	8.57	33.954 D	26.369	167.7	0.321	2.29	D 99.8	D 34.9						0.22	0.58	151	
200	8.33	8.30	34.011 D	26.455	160.6	0.404	2.04	89.0	30.9						0.19	0.32	202	02
250 ISL	8.12 D	8.09	34.059 D	26.524	154.9	0.483	1.72	D 74.7	D 25.9								252	
270	8.01	7.98	34.072	26.552	152.6	0.510	1.66	72.4	25.0								272	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 1604 STATION 63.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 2.4 N	123 11.9 W	21/04/2016	1248 UTC	2609 m	120 04 kn			1012.6 mb	14.7 C	14.4 C				095

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	13.54	13.54	33.013 D	24.746	319.0	0.000	6.90	301.4	116.4						0.07	0.02	0	
2	13.54	13.54	33.013 D	24.746	319.0	0.006	6.90	301.4	116.4						0.07	0.02	2	12
10	12.63	12.63	33.049 D	24.955	299.3	0.031	6.69	292.0	110.6						0.06	0.06	10	11
20	11.81	11.81	33.154 D	25.192	277.0	0.061	6.49	283.4	105.6						0.11	0.07	20	10
30 ISL	10.49 D	10.48	33.374 D	25.602	238.3	0.086	5.07	D220.6 D	80.2						0.11	0.13	30	
50	9.50	9.50	33.531 D	25.890	211.3	0.132	4.04	176.1	62.6						0.10	0.24	50	09
71	9.15	9.14	33.725 D	26.099	191.9	0.174	3.17	138.1	48.8						0.13	0.35	72	08
75 ISL	9.08 D	9.07	33.747 D	26.127	189.2	0.182	3.01	D131.1 D	46.3						0.13	0.37	76	
100 ISL	8.67 D	8.66	33.889 D	26.303	173.0	0.228	2.55	D111.0 D	38.9						0.12	0.48	101	
101	8.65	8.64	33.890	26.307	172.6	0.230	2.58	112.7	39.4						0.11	0.48	102	07
121	8.18	8.16	33.991 D	26.459	158.5	0.263	2.27	99.0	34.2						0.12	0.63	122	06
125 ISL	8.09 D	8.08	34.004 D	26.482	156.4	0.269	2.04	D 88.6 D	30.7						0.11	0.54	126	
140	7.88	7.86	34.008 D	26.517	153.3	0.292	2.19	95.7	32.9						0.05	0.20	141	05
150 ISL	8.05 D	8.03	34.065 D	26.538	151.6	0.308	1.80	D 78.3 D	27.1						0.05	0.18	151	
200	7.52	7.50	34.055 D	26.607	145.7	0.383	1.78	77.9	26.5						0.02	0.08	202	04
250 ISL	7.10 D	7.08	34.088 D	26.693	138.3	0.454	1.35	D 58.6 D	19.8								252	
270	6.95	6.92	34.088 D	26.714	136.5	0.482	1.31	57.2	19.2								272	03
300 ISL	6.80 D	6.77	34.121 D	26.761	132.5	0.523	0.98	D 42.5 D	14.3								303	
381	6.11	6.08	34.144 D	26.871	122.9	0.627	0.71	31.0	10.2								384	02
400 ISL	5.91 D	5.88	34.149 D	26.900	120.2	0.651	0.63	D 27.4 D	9.0								403	
500 ISL	5.40 D	5.36	34.202 D	27.006	111.1	0.767	0.38	D 16.7 D	5.4								504	
516	5.34	5.30	34.214	27.022	109.7	0.782	0.37	16.1	5.2								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 1604 STATION 63.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 42.5 N	123 54.9 W	21/04/2016	0728 UTC	3912 m	200 07 kn			1013.5 mb	15.3 C	14.9 C				094

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	15.55	15.55	32.577	23.986	391.4	0.000	5.97	260.9	104.6						0.10	0.04	0	
3	15.55	15.55	32.577	23.986	391.5	0.012	5.97	260.9	104.6						0.10	0.04	3	12
10	14.18	14.18	32.564 D	24.270	364.6	0.033	6.12	267.3	104.2						0.10	0.02	10	11
20 ISL	13.90 D	13.90	32.565 D	24.328	359.4	0.069	6.12	D266.9 D	103.7						0.11	0.02	20	
24	13.82	13.82	32.562 D	24.343	358.1	0.084	6.10	266.5	103.1						0.11	0.02	24	10
30 ISL	13.87 D	13.87	32.626 D	24.382	354.6	0.105	6.11	D266.5 D	103.5						0.19	0.08	30	
50 ISL	13.78 D	13.77	32.833 D	24.563	337.9	0.175	6.05	D263.5 D	102.3						0.45	0.27	50	
62	13.05	13.04	32.832 D	24.707	324.4	0.215	5.91	258.1	98.4						0.60	0.38	63	09
75 ISL	11.85 D	11.84	32.995 D	25.065	290.6	0.255	5.50	D239.5 D	89.4						0.38	0.27	76	
88	11.35	11.34	33.072 D	25.216	276.4	0.293	5.02	219.1	80.7						0.16	0.15	89	08
100	10.82	10.81	33.213	25.420	257.3	0.329	4.51	197.0	71.8						0.11	0.13	101	07
125	9.74	9.73	33.444 D	25.785	223.0	0.385	3.86	168.7	60.2						0.04	0.09	126	06
141	9.15	9.14	33.539 D	25.955	207.0	0.420	3.87	169.1	59.6						0.05	0.08	142	05
150 ISL	9.40 D	9.38	33.709 D	26.050	198.3	0.438	3.14	D136.7 D	48.6						0.05	0.09	151	
200 ISL	8.77 D	8.74	33.940 D	26.332	172.4	0.532	2.48	D108.0 D	37.9						0.04	0.14	202	
201	8.75	8.73	33.943 D	26.336	172.0	0.533	2.46	107.5	37.7						0.04	0.14	203	04
250 ISL	8.09 D	8.07	34.010 D	26.491	158.0	0.615	2.26	D 98.2 D	34.0								252	
270	8.08	8.06	34.041 D	26.517	155.9	0.646	1.98	86.4	29.8								272	03
300 ISL	7.60 D	7.57	34.041 D	26.589	149.4	0.693	1.88	D 82.0 D	28.1								302	
379	6.98	6.95	34.101 D	26.723	137.6	0.807	1.17	51.0	17.2								382	02
400 ISL	6.83 D	6.80	34.122 D	26.760	134.3	0.836	1.00	D 43.5 D	14.7								403	
500 ISL	6.26 D	6.21	34.204 D	26.903	121.9	0.965	0.51	D 22.3 D	7.4								504	
516	6.26	6.21	34.229	26.922	120.3	0.987	0.43	18.8	6.2								521	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 1604 STATION 63.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 22.5 N	124 37.9 W	21/04/2016	0207 UTC	4189 m	160 07 kn	220 04 07	1	1013.1 mb	16.2 C	15.5 C		6/8	SC	093

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	15.79	15.79	32.754	24.069	383.5	0.000	5.91	258.1	104.1						0.09	0.03	0	
2	15.79	15.79	32.754	24.069	383.5	0.008	5.91	258.1	104.1						0.09	0.03	2	12
10	15.29	15.29	32.987 D	24.360	356.1	0.034	5.90	257.8	103.1						0.10	0.02	10	11
20 ISL	14.78 D	14.77	32.973 D	24.460	346.9	0.069	5.96	D259.7 D	103.0						0.11	0.02	20	
25	14.71	14.70	32.967 D	24.470	346.0	0.087	5.95	259.9	102.7						0.11	0.03	25	10
30 ISL	14.68 D	14.67	32.967 D	24.477	345.5	0.104	5.97	D260.3 D	103.0						0.14	0.04	30	
50 ISL	14.51 D	14.50	32.972 D	24.518	342.3	0.173	5.97	D260.2 D	102.6						0.27	0.12	50	
62	14.19	14.18	32.982 D	24.594	335.4	0.214	5.96	260.4	101.8						0.34	0.16	63	09
75 ISL	13.06 D	13.05	33.129 D	24.935	303.1	0.256	5.75	D250.7 D	96.1						0.36	0.21	76	
87	12.12	12.11	33.237 D	25.202	278.0	0.291	4.78	208.6	78.2						0.37	0.25	88	08
100 ISL	11.05 D	11.03	33.293 D	25.443	255.2	0.326	4.35	D189.5 D	69.7						0.18	0.15	101	
102	10.94	10.93	33.297	25.465	253.1	0.333	4.27	186.6	68.3						0.15	0.14	103	07
125	9.86	9.85	33.484 D	25.796	221.9	0.386	3.64	158.7	56.8						0.02	0.07	126	06
140	9.49	9.47	33.607 D	25.955	207.1	0.419	3.37	147.3	52.3						0.01	0.05	141	05
150 ISL	9.28 D	9.27	33.692 D	26.054	197.8	0.439	3.25	D141.6 D	50.2						0.01	0.04	151	
200 ISL	8.67 D	8.65	33.928 D	26.337	171.9	0.533	2.63	D114.6 D	40.2						0.01	0.04	202	
203	8.60	8.57	33.949 D	26.366	169.2	0.538	2.56	111.8	39.0						0.01	0.03	205	04
250 ISL	8.01 D	7.98	34.054 D	26.537	153.6	0.614	1.94	D 84.3 D	29.1								252	
271	7.83	7.80	34.079 D	26.584	149.4	0.646	1.68	73.1	25.1								273	03
300 ISL	7.44 D	7.41	34.104 D	26.660	142.6	0.689	1.37	D 59.5 D	20.3								302	
380	6.52	6.48	34.130 D	26.807	129.2	0.799	0.87	37.7	12.6								383	02
400 ISL	6.35 D	6.32	34.134 D	26.833	127.0	0.825	0.81	D 35.4 D	11.8								403	
500 ISL	5.64 D	5.60	34.198 D	26.973	114.4	0.946	0.46	D 19.8 D	6.5								504	
515	5.50	5.45	34.212	27.003	111.7	0.961	0.42	18.2	5.9								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 1604 STATION 63.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 2.4 N	125 20.4 W	20/04/2016	2018 UTC	4581 m	170 11 kn	230 04 07	1	1013.6 mb	17.9 C	16.2 C		6/8	SC	092

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	15.97	15.97	32.964	24.191	371.9	0.000	5.81	253.4	102.9						0.08	0.02	0	
2	15.97	15.96	32.964	24.191	371.9	0.007	5.81	253.4	102.9						0.08	0.02	2	12
10	15.73	15.73	32.963 D	24.243	367.2	0.034	5.80	253.0	102.2						0.08	0.01	10	11
20 ISL	15.23 D	15.23	32.988 D	24.374	355.1	0.070	5.85	255.1	102.1						0.07	0.01	20	
25	15.12	15.11	32.985 D	24.396	353.1	0.088	5.88	256.1	102.3						0.06	0.01	25	10
30 ISL	15.04 D	15.03	32.982 D	24.412	351.8	0.105	5.89	256.6	102.3						0.07	0.02	30	
50 ISL	14.83 D	14.82	32.961 D	24.442	349.6	0.176	5.96	D259.6	D103.0						0.13	0.04	50	
63	14.43	14.42	32.927 D	24.501	344.3	0.222	5.95	259.4	102.1						0.17	0.06	64	09
75 ISL	14.08 D	14.06	32.905 D	24.558	339.2	0.263	6.07	D264.6	D103.4						0.11	0.05	76	
88	13.76	13.75	33.002 D	24.698	326.2	0.307	5.91	257.5	100.0						0.05	0.04	89	08
100 ISL	12.18 D	12.16	33.109 D	25.093	288.7	0.344	5.31	D231.4	D 87.1						0.18	0.20	101	
102	12.14	12.12	33.150	25.133	284.9	0.350	5.23	227.8	85.6						0.20	0.22	103	07
125 ISL	10.75 D	10.73	33.291 D	25.495	250.8	0.412	4.59	D200.0	D 73.1						0.13	0.13	126	
2	15.97	15.96	32.964	24.191	371.9	0.007	5.81	253.4	102.9						0.08	0.02	2	12
10	15.73	15.73	32.963 D	24.243	367.2	0.034	5.80	253.0	102.2						0.08	0.01	10	11
25	15.12	15.11	32.985 D	24.396	353.1	0.088	5.88	256.1	102.3						0.06	0.01	25	10
63	14.43	14.42	32.927 D	24.501	344.3	0.222	5.95	259.4	102.1						0.17	0.06	64	09
88	13.76	13.75	33.002 D	24.698	326.2	0.307	5.91	257.5	100.0						0.05	0.04	89	08
102	12.14	12.12	33.150	25.133	284.9	0.353	5.23	227.8	85.6						0.20	0.22	103	07
126	10.67	10.65	33.296 D	25.513	249.1	0.415	4.69	204.2	74.5						0.13	0.12	127	06
140	9.92	9.91	33.375 D	25.702	231.2	0.449	4.50	196.0	70.4						0.05	0.05	141	05
203	8.53	8.51	33.783 D	26.245	180.6	0.579	3.52	153.0	53.4						0.00	0.02	205	04
270	7.86	7.84	34.047 D	26.554	152.3	0.691	1.92	83.6	28.8								272	03
381	6.71	6.68	34.109 D	26.765	133.4	0.851	1.03	44.9	15.1								384	02
515	5.57	5.52	34.185	26.973	114.6	1.022	0.48	21.1	6.9								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 1604 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 47.2 N	122 3.5 W	19/04/2016	1432 UTC	213 m	080 12 kn	300 02 10	1	1015.0 mb	13.5 C	10.5 C		1/8	AC	086

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	12.48	12.48	33.217	25.113	284.0	0.000	7.54	328.6	124.5						7.87	2.23	0	
1	12.48	12.48	33.217	25.113	284.0	0.003	7.54	328.6	124.5						7.87	2.23	1	09
10	12.40	12.40	33.211 D	25.124	283.2	0.029	7.43	323.5	122.4						8.10	2.58	10	08
20	11.57	11.56	33.264 D	25.323	264.6	0.056	6.61	288.0	107.1						10.12	2.61	20	07
30 ISL	10.74 D	10.74	33.293 D	25.494	248.5	0.082	4.85	D211.2	D 77.2						6.94	1.87	30	
50	9.50	9.49	33.510 D	25.874	212.8	0.129	3.74	162.7	57.9						0.58	0.37	50	06
70	9.24	9.23	33.717 D	26.079	193.7	0.170	2.96	128.9	45.7						0.13	0.32	71	05
75 ISL	9.18 D	9.17	33.750 D	26.114	190.5	0.179	2.89	D125.6	D 44.5						0.14	0.32	76	
100 ISL	9.05 D	9.04	33.830 D	26.197	183.1	0.226	2.69	D116.9	D 41.3						0.15	0.35	101	
101	9.04	9.03	33.835	26.204	182.5	0.226	2.73	118.8	42.0						0.16	0.35	102	04
121	9.03	9.02	33.828 D	26.200	183.3	0.265	2.75	119.5	42.2						0.14	0.26	122	03
125 ISL	9.03 D	9.01	33.828 D	26.201	183.3	0.273	2.71	D117.8	D 41.6						0.14	0.27	126	
141	8.96	8.94	33.866 D	26.242	179.8	0.302	2.76	120.2	42.4						0.15	0.28	142	02
150 ISL	9.00 D	8.98	33.901 D	26.263	177.9	0.318	2.42	D105.5	D 37.2						0.14	0.27	151	
200 ISL	8.41 D	8.39	34.010 D	26.441	161.9	0.404	1.92	D 83.3	D 29.1						0.12	0.21	202	
201	8.39	8.37	34.017	26.449	161.1	0.402	1.98	86.3	30.1						0.12	0.21	203	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 1604 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 37.3 N	122 25.0 W	19/04/2016	1804 UTC	2631 m	300 07 kn	320 02 10	1	1015.8 mb	15.2 C	12.9 C		4/8	ST	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	14.14	14.14	32.826	24.479	344.4	0.000	6.44	281.3	109.8						0.09	0.03	0	
2	14.14	14.14	32.826	24.479	344.5	0.007	6.44	281.3	109.8						0.09	0.03	2	12
9	12.92	12.91	32.808 D	24.713	322.3	0.031	6.50	284.0	108.0						0.11	0.05	9	11
10 ISL	12.89 D	12.89	32.819 D	24.727	321.0	0.034	6.46	D281.5	D107.3						0.11	0.05	10	
20 ISL	12.43 D	12.43	32.799 D	24.801	314.3	0.066	6.58	D286.8	D108.2						0.17	0.06	20	
25	12.20	12.20	32.846 D	24.880	306.9	0.081	6.28	274.4	102.9						0.20	0.06	25	10
30 ISL	11.72 D	11.72	32.906 D	25.017	294.0	0.096	5.98	D260.4	D 96.9						0.20	0.08	30	
50 ISL	10.63 D	10.63	33.209 D	25.448	253.3	0.152	4.83	D210.1	D 76.5						0.21	0.15	50	
63	10.43	10.42	33.309 D	25.562	242.8	0.184	4.69	205.0	74.2						0.22	0.20	64	09
75 ISL	10.37 D	10.36	33.330 D	25.589	240.5	0.213	4.70	D204.6	D 74.2						0.25	0.23	76	
87	9.58	9.57	33.577 D	25.915	209.7	0.241	3.40	148.4	52.8						0.28	0.27	88	08
100	9.35	9.34	33.661	26.018	200.2	0.266	3.16	137.7	48.8						0.14	0.33	101	07
125 ISL	8.82 D	8.81	33.861 D	26.259	177.8	0.315	2.69	D117.2	D 41.2						0.09	0.30	126	
126	8.88	8.87	33.854 D	26.244	179.2	0.317	2.70	118.0	41.4						0.09	0.30	127	06
140	8.58	8.57	33.915 D	26.339	170.5	0.342	2.66	116.1	40.5						0.06	0.33	141	05
150 ISL	8.49 D	8.47	33.940 D	26.373	167.4	0.359	2.57	D111.7	D 39.0						0.06	0.30	151	
200 ISL	7.91 D	7.89	33.994 D	26.503	155.8	0.440	2.44	D106.1	D 36.6						0.06	0.15	202	
201	7.91	7.89	33.994 D	26.504	155.8	0.442	2.47	107.7	37.0						0.06	0.15	203	04
250 ISL	7.31 D	7.28	34.022 D	26.612	146.1	0.516	2.12	D 92.3	D 31.4								252	
271	7.15	7.13	34.037 D	26.647	143.1	0.547	1.90	82.7	28.0								273	03
300 ISL	6.93 D	6.90	34.066 D	26.700	138.3	0.588	1.48	D 64.5	D 21.8								302	
381	6.51	6.48	34.182 D	26.849	125.3	0.696	0.65	28.4	9.5								384	02
400 ISL	6.40 D	6.37	34.183 D	26.865	124.0	0.720	0.60	D 26.0	D 8.7								403	
500 ISL	5.72 D	5.68	34.225 D	26.985	113.4	0.839	0.42	D 18.1	D 5.9								504	
515	5.62	5.57	34.237	27.008	111.3	0.850	0.38	16.5	5.4								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 1604 — 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 27.0 N	122 46.2 W	19/04/2016	2149	UTC	2946 m	040 01 kn	310 01 08	4	1014.9 mb	16.1 C	14.8 C		7/8	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	14.13	14.13	32.380	24.137	376.9	0.000	6.23	272.3	105.9						0.12	0.03	0	
2	14.13	14.13	32.380	24.138	377.0	0.008	6.23	272.3	105.9						0.12	0.03	2	12
10	13.04	13.04	32.401 D	24.373	354.8	0.037	6.43	280.9	106.8						0.10	0.03	10	11
20	12.89	12.89	32.396 D	24.400	352.5	0.073	6.30	275.4	104.4						0.39	0.05	20	10
30 ISL	12.92 D	12.92	32.540 D	24.505	342.8	0.108	6.26	D273.0	D103.9						0.49	0.16	30	
50 ISL	12.00 D	11.99	32.725 D	24.826	312.6	0.174	5.80	D252.7	D 94.4						0.70	0.37	50	
51	11.99	11.98	32.768 D	24.862	309.3	0.177	5.78	252.7	94.2						0.71	0.38	51	09
70	11.19	11.18	33.093 D	25.260	271.8	0.232	4.93	215.3	79.1						0.30	0.44	71	08
75 ISL	10.83 D	10.83	33.209 D	25.414	257.2	0.246	4.71	D204.9	D 75.0						0.27	0.41	76	
100	9.51	9.50	33.488	25.857	215.5	0.303	3.89	169.8	60.3						0.08	0.27	101	07
121	9.25	9.24	33.681 D	26.050	197.6	0.349	3.33	145.6	51.5						0.05	0.13	122	06
125 ISL	9.19 D	9.17	33.701 D	26.076	195.2	0.357	3.26	D141.9	D 50.2						0.05	0.13	126	
141	8.94	8.92	33.811 D	26.202	183.5	0.388	2.96	129.1	45.4						0.05	0.13	142	05
150 ISL	8.77 D	8.76	33.879 D	26.281	176.2	0.404	2.73	D118.9	D 41.8						0.05	0.13	151	
200 ISL	8.32 D	8.29	33.991 D	26.441	161.9	0.489	2.34	D101.9	D 35.4						0.03	0.13	202	
201	8.31	8.29	33.992 D	26.442	161.8	0.491	2.38	103.8	36.0						0.03	0.13	203	04
250 ISL	7.85 D	7.83	34.051 D	26.557	151.6	0.568	1.92	D 83.5	D 28.8								252	
270	7.67	7.64	34.054 D	26.588	149.0	0.599	1.79	78.3	26.8								272	03
300 ISL	7.46 D	7.43	34.093 D	26.648	143.7	0.643	1.43	D 62.3	D 21.3								302	
381	6.66	6.63	34.131 D	26.789	131.1	0.755	0.89	38.7	12.9								384	02
400 ISL	6.51 D	6.47	34.133 D	26.812	129.1	0.780	0.81	D 35.1	D 11.7								403	
500 ISL	5.87 D	5.83	34.201 D	26.948	117.1	0.904	0.45	D 19.7	D 6.5								504	
515	5.77	5.72	34.220	26.976	114.5	0.915	0.44	19.0	6.2								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 1604 — 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 7.2 N	123 28.9 W	20/04/2016	0327	UTC	3594 m	190 06 kn			1013.0 mb	16.3 C	14.3 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	16.10	16.10	32.908	24.116	379.0	0.000	5.87	256.5	104.2						0.14	0.01	0	
2	16.10	16.10	32.908	24.116	379.0	0.008	5.87	256.5	104.2						0.14	0.01	2	12
10	15.13	15.13	32.909 D	24.334	358.5	0.034	5.92	258.5	103.0						0.14	0.00	10	11
20	14.89	14.89	32.914 D	24.389	353.6	0.069	5.97	260.9	103.4						0.16	0.04	20	10
30 ISL	14.79 D	14.78	32.917 D	24.415	351.5	0.105	5.97	D260.3	D103.2						0.21	0.06	30	
50	14.36	14.35	33.018 D	24.585	335.8	0.174	5.97	260.9	102.4						0.29	0.12	50	09
70	12.89	12.88	33.151 D	24.987	298.0	0.238	5.29	230.9	88.0						0.47	0.21	71	08
75 ISL	12.68 D	12.67	33.173 D	25.044	292.7	0.253	5.21	D226.8	D 86.3						0.41	0.19	76	
100	10.53	10.52	33.331	25.563	243.7	0.321	4.11	179.6	65.1						0.10	0.09	101	07
120	9.63	9.62	33.482 D	25.833	218.3	0.367	3.69	161.0	57.3						0.01	0.05	121	06
125 ISL	9.57 D	9.55	33.519 D	25.872	214.6	0.378	3.62	D157.5	D 56.2						0.01	0.05	126	
140	9.22	9.20	33.626 D	26.013	201.5	0.409	3.47	151.6	53.5						0.01	0.04	141	05
150 ISL	9.01 D	8.99	33.681 D	26.089	194.4	0.429	3.49	D151.9	D 53.6						0.01	0.04	151	
200 ISL	8.51 D	8.49	33.971 D	26.395	166.3	0.520	2.52	D109.8	D 38.4						0.00	0.03	202	
201	8.50	8.48	33.972 D	26.398	166.0	0.522	2.52	109.8	38.2						0.00	0.03	203	04
250 ISL	7.72 D	7.69	34.005 D	26.541	153.0	0.601	2.48	D107.9	D 37.1								252	
270	7.47	7.44	34.024 D	26.592	148.5	0.631	2.07	90.3	30.7								272	03
300 ISL	7.17 D	7.15	34.053 D	26.657	142.6	0.675	1.64	D 71.5	D 24.3								302	
380	6.39	6.35	34.084 D	26.788	130.9	0.786	1.09	47.7	15.8								383	02
400 ISL	6.21 D	6.17	34.088 D	26.814	128.5	0.812	1.00	D 43.5	D 14.4								403	
500 ISL	5.71 D	5.67	34.203 D	26.970	114.8	0.935	0.45	D 19.6	D 6.4								504	
515	5.57	5.53	34.217	26.998	112.2	0.947	0.42	18.3	6.0								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 1604 — 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 47.0 N	124 11.3 W	20/04/2016	0851	UTC	3984 m	200 08 kn			1013.1 mb	16.0 C	15.4 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	15.74	15.74	32.981	24.254	365.8	0.000	5.81	253.2	102.3						0.09	0.02	0	
2	15.74	15.74	32.981	24.254	365.9	0.007	5.81	253.2	102.3						0.09	0.02	2	12
10	15.38	15.38	32.968 D	24.324	359.5	0.033	5.86	255.4	102.5						0.09	0.02	10	11
20 ISL	14.93 D	14.93	32.946 D	24.406	352.0	0.069	5.92	D257.9	D102.5						0.09	0.02	20	
25	14.82	14.82	32.932 D	24.418	351.0	0.087	5.93	258.3	102.5						0.09	0.03	25	10
30 ISL	14.77 D	14.77	32.929 D	24.428	350.2	0.104	5.96	D259.8	D103.0						0.12	0.04	30	
50 ISL	14.16 D	14.16	32.950 D	24.573	337.0	0.174	6.07	D264.6	D103.6						0.22	0.07	50	
63	13.98	13.97	32.954 D	24.615	333.4	0.217	6.02	262.2	102.3						0.28	0.09	64	09
75 ISL	13.87 D	13.85	32.992 D	24.668	328.7	0.258	5.86	D255.4	D 99.4						0.33	0.18	76	
87	12.50	12.48	33.072 D	25.003	297.0	0.295	5.30	230.9	87.4						0.38	0.28	88	08
100 ISL	11.03 D	11.02	33.237 D	25.402	259.0	0.332	4.50	D196.0	D 72.0						0.11	0.11	101	
102	10.99	10.97	33.240	25.412	258.1	0.337	4.49	195.6	71.8						0.07	0.08	103	07
125	9.36	9.35	33.362 D	25.783	223.0	0.393	4.34	188.9	67.0						0.02	0.04	126	06
142	8.77	8.76	33.516 D	25.997	202.9	0.429	4.26	185.3	64.9						0.01	0.03	143	05
150 ISL	8.54 D	8.52	33.629 D	26.122	191.1	0.445	4.16	D180.8	D 63.1						0.01	0.03	151	
200	7.97	7.95	33.884 D	26.408	164.8	0.535	3.48	151.5	52.3						0.01	0.02	202	04
250 ISL	7.50 D	7.48	33.963 D	26.539	153.1	0.615	3.01	D131.0	D 44.7								252	
273	7.13	7.11	33.967 D	26.594	148.1	0.650	2.72	118.4	40.1								275	03
300 ISL	6.68 D	6.65	33.969 D	26.657	142.3	0.689	2.56	D111.1	D 37.2								302	
382	6.24	6.21	34.083 D	26.806	129.1	0.802	1.11	48.4	16.1								385	02
400 ISL	6.20 D	6.16	34.117 D	26.839	126.2	0.825	0.85	D 36.8	D 12.2								403	
500 ISL	5.59 D	5.55	34.153 D	26.944	117.1	0.948	0.60	D 26.1	D 8.5								504	
513	5.50	5.45	34.154	26.957	115.9	0.961	0.57	24.9	8.1								517	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 1604 — 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 27.2 N	124 54.2 W	20/04/2016	1421 UTC	4432 m	170 08 kn	240 02 08	1	1012.7 mb	15.6 C	15.3 C		7/8	SC	091

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	15.45	15.45	32.945 D	24.290	362.4	0.000	5.88	256.2	102.9						0.13	0.02	0	
3	15.45	15.45	32.945 D	24.290	362.5	0.005	5.88	256.2	102.9						0.13	0.02	3	12
10 ISL	15.14 D	15.14	32.946 D	24.359	356.2	0.031	5.93	258.5	103.2						0.12	0.05	10	
11	15.16	15.16	32.944 D	24.354	356.7	0.035	5.94	258.8	103.4						0.12	0.05	11	11
20 ISL	14.67 D	14.66	32.945 D	24.461	346.7	0.066	5.98	260.5	103.0						0.14	0.05	20	
26	14.56	14.56	32.953 D	24.490	344.1	0.087	6.00	261.6	103.3						0.15	0.04	26	10
30 ISL	14.54 D	14.53	32.959 D	24.500	343.3	0.101	6.00	261.7	103.2						0.17	0.06	30	
50 ISL	14.38 D	14.37	32.977 D	24.549	339.3	0.170	6.03	D262.9	D103.4						0.28	0.14	50	
61	13.89	13.88	32.959 D	24.637	331.2	0.207	6.02	262.3	102.1						0.35	0.18	62	09
75 ISL	13.62 D	13.61	32.974 D	24.705	325.2	0.253	5.94	D259.1	D100.3						0.31	0.19	76	
88	11.79	11.78	33.239 D	25.265	271.9	0.293	4.95	215.7	80.6						0.28	0.21	89	08
100	11.05	11.04	33.302	25.449	254.6	0.324	4.29	186.9	68.7						0.10	0.10	101	07
125 ISL	9.98 D	9.97	33.486 D	25.778	223.7	0.384	3.65	D159.0	D 57.2						0.02	0.05	126	
3	15.45	15.45	32.945 D	24.290	362.5	0.005	5.88	256.2	102.9						0.13	0.02	3	12
11	15.16	15.16	32.944 D	24.354	356.7	0.035	5.94	258.8	103.4						0.12	0.05	11	11
26	14.56	14.56	32.953 D	24.490	344.1	0.087	6.00	261.6	103.3						0.15	0.04	26	10
61	13.89	13.88	32.959 D	24.637	331.2	0.207	6.02	262.3	102.1						0.35	0.18	62	09
88	11.79	11.78	33.239 D	25.265	271.9	0.293	4.95	215.7	80.6						0.28	0.21	89	08
100	11.05	11.04	33.302	25.449	254.6	0.326	4.29	186.9	68.7						0.10	0.10	101	07
126	9.96	9.95	33.495 D	25.788	222.7	0.386	3.65	158.8	57.1						0.02	0.05	127	06
141	9.59	9.57	33.539 D	25.885	213.8	0.419	3.60	156.7	55.9						0.01	0.04	142	05
201	8.45	8.43	33.905 D	26.353	170.3	0.536	3.22	139.9	48.8						0.00	0.04	203	04
271	7.81	7.78	34.052 D	26.565	151.2	0.649	1.91	83.1	28.6								273	03
380	6.56	6.53	34.082 D	26.764	133.4	0.805	1.13	49.2	16.4								383	02
516	5.49	5.45	34.186	26.982	113.6	0.977	0.50	21.6	7.1								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 1604 — STATION 70.0 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 10.7 N	121 43.9 W	19/04/2016	0852 UTC	339 m	110 05 kn			1016.3 mb	13.1 C	12.0 C				085

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	12.19	12.19	33.459	25.356	260.9	0.000	5.80	252.8	95.4						2.31	0.48	0	
2	12.19	12.19	33.459	25.356	261.0	0.005	5.80	252.8	95.4						2.31	0.48	2	11
9	11.68	11.68	33.452 D	25.447	252.5	0.021	5.66	D246.6	D 92.0								9	10
10 ISL	11.62 D	11.62	33.456 D	25.461	251.1	0.023	5.64	D245.8	D 91.6								10	
19	11.14	11.13	33.492 D	25.579	240.2	0.045	5.54	241.2	89.0						3.94	1.46	19	09
20 ISL	11.11 D	11.10	33.496 D	25.587	239.4	0.048	5.54	D241.2	D 89.0						3.90	1.44	20	
30 ISL	10.83 D	10.82	33.528 D	25.662	232.6	0.072	5.21	D226.6	D 83.1						3.55	1.23	30	
50	10.52	10.52	33.603 D	25.775	222.3	0.118	4.59	D199.8	D 72.8						2.84	0.83	50	08
70	10.13	10.12	33.664 D	25.889	211.9	0.161	3.93	171.0	61.8						1.15	0.55	71	07
75 ISL	10.14 D	10.13	33.668 D	25.891	211.8	0.172	3.93	D170.9	D 61.8						1.02	0.54	76	
100	9.57	9.56	33.790 D	26.083	194.0	0.223	2.95	128.5	45.9						0.34	0.47	101	06
122	9.20	9.18	33.948 D	26.268	177.0	0.264	2.27	98.6	35.0						0.17	0.35	123	05
125 ISL	9.16 D	9.14	33.960 D	26.283	175.6	0.270	2.23	D 97.2	D 34.5						0.16	0.35	126	
140	9.07	9.05	33.979 D	26.313	173.1	0.296	2.10	91.5	32.4						0.13	0.31	141	04
150 ISL	8.97 D	8.96	33.994 D	26.340	170.6	0.313	2.05	D 89.0	D 31.4						0.12	0.29	151	
200 ISL	8.26 D	8.24	34.106 D	26.540	152.5	0.395	1.48	D 64.4	D 22.4						0.06	0.22	202	
201	8.26	8.23	34.106 D	26.540	152.5	0.396	1.48	64.6	22.5						0.06	0.21	203	03
250 ISL	8.02 D	8.00	34.133 D	26.597	147.9	0.470	1.31	D 57.0	D 19.7								252	
270	7.79	7.76	34.150 D	26.646	143.6	0.500	1.16	50.6	17.4								272	02
300 ISL	7.63 D	7.60	34.153 D	26.672	141.6	0.543	1.09	D 47.2	D 16.2								302	
328	7.43	7.40	34.170	26.714	138.0	0.579	0.97	42.3	14.4								331	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 1604 — 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 2.8 N	122 0.6 W	19/04/2016	0544 UTC	1305 m	320 09 kn			1017.3 mb	14.4 C	13.6 C				084

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	13.51	13.51	32.859	24.634	329.6	0.000	6.37	277.9	107.1						0.62	0.02	0	
2	13.51	13.51	32.859	24.634	329.7	0.007	6.37	277.9	107.1						0.62	0.02	2	12
10	12.96	12.96	32.851 D	24.737	320.1	0.033	6.15	268.7	102.4						0.87	0.12	10	11
20	11.33	11.33	33.134 D	25.264	270.1	0.062	5.36	234.0	86.3						0.84	0.22	20	10
30 ISL	10.92 D	10.92	33.206 D	25.395	257.9	0.089	5.15	D224.1	D 82.1						0.76	0.31	30	
50	10.22	10.22	33.358 D	25.634	235.6	0.139	4.58	200.0	72.1						0.58	0.50	50	09
70	9.69	9.69	33.637 D	25.942	206.8	0.184	3.38	147.5	52.7						0.22	0.27	71	08
75 ISL	9.68 D	9.67	33.659 D	25.961	205.1	0.194	3.33	D145.0	D 51.9						0.21	0.28	76	
100	9.43	9.42	33.779	26.096	192.8	0.242	2.91	127.0	45.1						0.19	0.32	101	07
120	9.24	9.22	33.909 D	26.231	180.4	0.282	2.39	104.5	37.0						0.15	0.26	121	06
125 ISL	9.22 D	9.20	33.916 D	26.239	179.8	0.291	2.37	D103.2	D 36.6						0.14	0.25	126	
140	8.99	8.97	33.971 D	26.319	172.5	0.318	2.17	94.8	33.4						0.12	0.21	141	05
150 ISL	8.88 D	8.86	34.001 D	26.361	168.6	0.335	2.05	D 89.3	D 31.5						0.11	0.19	151	
200	8.45	8.43	34.074 D	26.485	157.7	0.417	1.76	76.8	26.7						0.05	0.13	202	04
250 ISL	8.11 D	8.09	34.130 D	26.582	149.5	0.494	1.45	D 62.9	D 21.8								252	
271	7.86	7.83	34.137 D	26.626	145.5	0.526	1.30	56.8	19.5								273	03
300 ISL	7.57 D	7.54	34.168 D	26.692	139.6	0.567	1.11	D 48.2	D 16.5								302	
380	6.76	6.72	34.185 D	26.820	128.3	0.675	0.70	30.7	10.3								383	02
400 ISL	6.64 D	6.60	34.194 D	26.843	126.3	0.701	0.63	D 27.2	D 9.1								403	
500 ISL	5.83 D	5.79	34.246 D	26.989	113.2	0.822	0.35	D 15.3	D 5.0								504	
515	5.71	5.66	34.255 D	27.011	111.1	0.839	0.33	14.2	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 1604 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 52.9 N	122 22.3 W	19/04/2016	0133	UTC	3095 m	020 07 kn	320 04 14	1	1017.3 mb	15.6 C	14.4 C		3/8	CS	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	15.00	15.00	32.526	24.066	383.7	0.000	6.19	270.1	107.1						0.15	0.06	0	
2	15.00	15.00	32.526	24.066	383.8	0.008	6.19	270.1	107.1						0.15	0.06	2	12
10	13.23	13.22	32.515 D	24.425	349.9	0.037	6.27	273.9	104.7						0.09	0.03	10	11
20	12.99	12.99	32.527 D	24.481	344.8	0.072	6.31	275.7	104.9						0.13	0.06	20	10
30 ISL	12.92 D	12.91	32.536 D	24.503	342.9	0.107	6.28	D273.6	D104.1						0.77	0.23	30	
50	12.05	12.04	32.836 D	24.903	305.3	0.172	5.68	248.0	92.7						2.07	0.56	50	09
70	10.72	10.71	33.237 D	25.456	253.1	0.228	4.97	216.8	79.0						0.57	0.38	71	08
75 ISL	10.47 D	10.46	33.320 D	25.564	242.9	0.241	4.86	D211.8 D	76.9						0.48	0.35	76	
100	9.48	9.47	33.562	25.919	209.6	0.294	3.57	155.7	55.3						0.06	0.21	101	07
121	9.10	9.09	33.759 D	26.135	189.5	0.340	3.04	132.5	46.7						0.08	0.32	122	06
125 ISL	9.05 D	9.04	33.779 D	26.158	187.4	0.348	2.98	D129.6 D	45.8						0.07	0.34	126	
140	8.99	8.98	33.828 D	26.207	183.0	0.376	2.83	123.3	43.4						0.05	0.40	141	05
150 ISL	8.87 D	8.85	33.877 D	26.264	177.8	0.394	2.71	D118.1 D	41.6						0.05	0.36	151	
200	8.18	8.16	33.983 D	26.455	160.5	0.479	2.49	108.5	37.5						0.02	0.13	202	04
250 ISL	7.52 D	7.49	34.034 D	26.593	148.0	0.557	1.97	D 85.7 D	29.3								252	
270	7.25	7.22	34.040 D	26.635	144.2	0.587	1.83	79.7	27.0								272	03
300 ISL	7.02 D	6.99	34.051 D	26.676	140.7	0.630	1.60	D 69.5 D	23.5								302	
380	6.22	6.19	34.106 D	26.826	127.1	0.738	0.91	39.7	13.1								383	02
400 ISL	6.15 D	6.12	34.121 D	26.848	125.3	0.763	0.80	D 35.0 D	11.6								403	
500 ISL	5.48 D	5.44	34.192 D	26.989	112.7	0.884	0.42	D 18.1 D	5.9								504	
516	5.40	5.36	34.195 D	27.000	111.8	0.902	0.43	18.7	6.1								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 1604 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 32.8 N	123 4.5 W	18/04/2016	1953	UTC	3848 m	130 01 kn	320 01 08	1	1018.7 mb	14.6 C	14.0 C		2/8	ST	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	15.56	15.56	32.936 D	24.259	365.4	0.000	5.85	255.4	102.7						0.08	0.02	0	
2	15.56	15.56	32.936 D	24.259	365.4	0.004	5.85	255.4	102.7						0.08	0.02	2	12
10	14.96	14.96	32.923 D	24.381	354.0	0.033	5.90	257.6	102.3						0.09	0.02	10	11
20 ISL	14.80 D	14.80	32.934 D	24.424	350.3	0.068	5.93	D258.5	D102.5						0.10	0.02	20	
25	14.78	14.77	32.931 D	24.428	350.0	0.086	5.90	257.5	101.9						0.10	0.02	25	10
30 ISL	14.76 D	14.75	32.930 D	24.431	349.9	0.103	5.93	D258.4	D102.4						0.12	0.03	30	
50 ISL	14.71 D	14.70	32.932 D	24.444	349.3	0.174	5.91	D257.7	D102.0						0.18	0.06	50	
62	14.07	14.06	32.895 D	24.552	339.4	0.216	6.00	262.1	102.2						0.23	0.08	63	09
75 ISL	13.87 D	13.86	32.932 D	24.621	333.2	0.260	5.93	D258.5	D100.6						0.33	0.27	76	
87	13.36	13.35	33.053 D	24.818	314.7	0.299	5.47	238.6	91.8						0.43	0.44	88	08
100 ISL	11.89 D	11.88	33.070 D	25.115	286.5	0.338	5.30	D231.0 D	86.3						0.21	0.19	101	
103	11.53	11.52	33.147	25.242	274.4	0.345	4.92	214.7	79.5						0.15	0.14	104	07
125 ISL	9.54 D	9.53	33.306 D	25.710	230.0	0.403	4.74	D206.2 D	73.4						0.04	0.05	126	
126	9.59	9.57	33.294 D	25.693	231.6	0.405	4.67	204.0	72.5						0.04	0.04	127	06
142	8.98	8.97	33.505 D	25.956	206.9	0.441	4.25	185.4	65.1						0.01	0.03	143	05
150 ISL	8.84 D	8.82	33.580 D	26.037	199.3	0.457	4.25	D185.0 D	64.9						0.01	0.02	151	
200 ISL	8.54 D	8.52	33.919 D	26.350	170.5	0.550	4.06	D176.8 D	61.8						0.00	0.02	202	
202	8.53	8.50	33.922 D	26.355	170.2	0.554	4.02	175.5	61.1						0.00	0.02	204	04
250 ISL	8.01 D	7.98	34.010 D	26.502	156.9	0.633	2.44	D106.2 D	36.7								252	
270	7.54	7.51	33.993 D	26.558	151.7	0.664	2.63	114.8	39.1								272	03
300 ISL	7.24 D	7.21	34.020 D	26.622	146.0	0.709	2.13	D 92.8 D	31.5								302	
380	6.33	6.30	34.070 D	26.785	131.1	0.821	1.20	52.2	17.3								383	02
400 ISL	6.27 D	6.23	34.100 D	26.817	128.4	0.847	1.02	D 44.4 D	14.7								403	
500 ISL	5.72 D	5.68	34.180 D	26.950	116.7	0.971	0.56	D 24.2 D	7.9								504	
515	5.57	5.53	34.182	26.970	114.9	0.983	0.50	21.6	7.1								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 1604 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 12.9 N	123 46.8 W	18/04/2016	1345	UTC	4103 m	030 04 kn	340 02 07	1	1016.8 mb	14.3 C	14.1 C		1/8	AS	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	15.78	15.78	33.031	24.283	363.0	0.000	5.79	252.7	102.1						0.07	0.01	0	
2	15.78	15.78	33.031	24.283	363.1	0.007	5.79	252.7	102.1						0.07	0.01	2	12
9	15.77	15.77	33.027 D	24.283	363.4	0.029	5.79	252.9	102.2						0.07	0.02	9	11
10 ISL	15.66 D	15.66	33.026 D	24.306	361.2	0.033	5.78	D252.1	D101.8						0.07	0.02	10	
20	15.35	15.35	33.024 D	24.374	355.1	0.069	5.82	254.0	101.7						0.08	0.02	20	10
30 ISL	15.32 D	15.31	33.023 D	24.382	354.7	0.105	5.81	D253.3	D101.6						0.09	0.02	30	
50	15.29	15.28	33.021 D	24.389	354.7	0.176	5.81	253.6	101.4						0.10	0.03	50	09
75	14.30	14.29	33.044 D	24.619	333.5	0.263	5.77	252.0	98.8						0.65	0.43	76	08
100	11.88	11.87	33.169	25.194	279.0	0.341	4.96	216.4	80.7						0.19	0.29	101	07
121	10.47	10.45	33.278 D	25.534	246.9	0.396	4.37	190.7	69.1						0.06	0.07	122	06
125 ISL	10.29 D	10.28	33.300 D	25.581	242.5	0.406	4.40	D191.4 D	69.2						0.05	0.06	126	
139	9.58	9.56	33.377 D	25.760	225.6	0.439	4.49	195.8	69.6						0.02	0.03	140	05
150 ISL	9.33 D	9.31	33.483 D	25.883	214.1	0.463	4.44	D193.1 D	68.5						0.02	0.02	151	
200	8.88	8.86	33.841 D	26.236	181.5	0.563	3.41	148.9	52.3						0.00	0.01	202	04
250 ISL	8.15 D	8.13	33.976 D	26.455	161.5	0.649	2.82	D122.7 D	42.5								252	
270	7.92	7.89	33.991 D	26.502	157.2	0.681	2.67	116.6	40.1								272	03
300 ISL	7.47 D	7.44	34.012 D	26.584	149.8	0.728	2.29	D 99.5 D	34.0								302	
380	6.59	6.55	34.055 D	26.739	135.7	0.843	1.46	63.9	21.3								383	02
400 ISL	6.38 D	6.35	34.070 D	26.778	132.2	0.870	1.23	D 53.5 D	17.8								403	
500 ISL	5.90 D	5.86	34.200 D	26.944	117.5	0.996	0.50	D 21.6 D	7.1								504	
516	5.76	5.72	34.201	26.962	115.9	1.014	0.45	19.6	6.4								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 1604 — 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 53.0 N	124 28.7 W	18/04/2016	0837 UTC	4353 m	180 02 kn			1016.8 mb	15.0 C	14.5 C				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	15.52	15.52	33.023	24.336	358.0	0.000	5.82	254.0	102.1						0.06	0.01	0	
2	15.52	15.52	33.023	24.336	358.1	0.007	5.82	254.0	102.1						0.06	0.01	2	12
10	15.45	15.44	33.011 D	24.343	357.7	0.033	5.83	254.8	102.2						0.06	0.02	10	11
20 ISL	15.17 D	15.17	33.012 D	24.405	352.1	0.068	5.86	D255.5	D102.1						0.08	0.04	20	
25	15.12	15.12	33.004 D	24.410	351.8	0.086	5.85	255.7	101.9						0.09	0.05	25	10
30 ISL	15.10 D	15.09	33.002 D	24.414	351.6	0.104	5.86	D255.4	D101.9						0.10	0.05	30	
49	14.60	14.59	32.973 D	24.499	344.0	0.171	5.91	258.2	101.8						0.11	0.04	49	09
50 ISL	14.52 D	14.51	32.964 D	24.509	343.2	0.174	5.91	D257.5	D101.6						0.12	0.04	50	
75 ISL	14.11 D	14.10	33.004 D	24.627	332.7	0.259	5.89	D256.6	D100.4						0.43	0.28	76	
81	13.85	13.84	33.024 D	24.695	326.3	0.279	5.80	253.2	98.4						0.51	0.33	82	08
100 ISL	12.67 D	12.66	33.191 D	25.062	291.7	0.338	5.34	D232.8	D 88.5						0.29	0.29	101	
101	12.71	12.69	33.213	25.072	290.8	0.341	5.21	227.6	86.4						0.27	0.29	102	07
125	10.93	10.91	33.323 D	25.489	251.4	0.406	5.01	218.7	80.0						0.09	0.07	126	06
140	10.05	10.03	33.366 D	25.674	234.0	0.443	4.63	202.3	72.6						0.05	0.04	141	05
150 ISL	9.72 D	9.71	33.439 D	25.785	223.5	0.466	4.38	D190.9	D 68.3						0.05	0.04	151	
200	8.60	8.58	33.770 D	26.224	182.5	0.569	3.44	150.1	52.3						0.01	0.02	202	04
250 ISL	8.24 D	8.22	33.976 D	26.441	162.8	0.656	2.67	D116.3	D 40.4								252	
270	7.92	7.89	33.990 D	26.500	157.4	0.688	2.47	108.0	37.1								272	03
300 ISL	7.38 D	7.35	33.972 D	26.565	151.4	0.735	2.80	D121.7	D 41.4								302	
380	6.12	6.09	33.978 D	26.739	135.3	0.850	2.03	88.5	29.2								383	02
400 ISL	5.96 D	5.92	33.990 D	26.769	132.6	0.877	1.82	D 79.3	D 26.1								403	
500 ISL	5.13 D	5.09	34.062 D	26.926	118.2	1.004	1.05	D 45.8	D 14.8								504	
515	5.18	5.13	34.100	26.951	116.1	1.018	0.90	39.4	12.7								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 1604 — 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 38.7 N	121 15.9 W	17/04/2016	0422 UTC	32 m	340 13 kn			1017.4 mb	13.3 C	10.4 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	10.60	10.60	33.656	25.800	218.7	0.000	4.58	199.7	72.8						1.20	0.46	0	
2	10.60	10.60	33.656	25.800	218.7	0.004	4.58	199.7	72.8						1.20	0.46	2	04
10	10.48	10.48	33.627	25.798	219.1	0.022	4.35	189.9	69.0						1.12	0.47	10	03
20	10.40	10.40	33.621 D	25.808	218.4	0.044	4.21	183.8	66.7						1.02	0.47	20	02
24	10.20	10.20	33.626	25.846	214.8	0.053	3.94	172.0	62.1						0.88	0.34	24	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 1604 — 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 28.8 N	121 36.5 W	17/04/2016	0716 UTC	982 m	330 07 kn			1017.9 mb	13.7 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	12.48	12.48	33.434	25.282	268.0	0.000	6.75	294.3	111.5						5.97A	0.99A	0	
3	12.48	12.48	33.434	25.282	268.1	0.008	6.75	294.3	111.5						5.97A	0.99A	3	12
10 ISL	11.88 D	11.88	33.401 D	25.370	259.9	0.027	5.97	D259.9	D 97.4						5.21	1.24	10	
11	11.87	11.87	33.402 D	25.374	259.5	0.030	6.16	268.9	100.5						5.10	1.27	11	11
20	11.83	11.83	33.406 D	25.384	258.7	0.053	5.97	260.3	97.3						7.18	0.70	20	10
30 ISL	11.75 D	11.75	33.424 D	25.413	256.3	0.079	5.88	D255.9	D 95.6						5.22	0.66	30	
50 ISL	10.35 D	10.35	33.519 D	25.738	225.7	0.128	4.07	D177.0	D 64.2						1.31	0.57	50	
51	10.28	10.27	33.528 D	25.758	223.9	0.130	4.10	178.9	64.7						1.11	0.56	51	09
70	9.71	9.70	33.672 D	25.966	204.5	0.171	3.23	140.8	50.3						0.96	0.39	71	08
75 ISL	9.52 D	9.51	33.751 D	26.059	195.7	0.181	3.09	D134.3	D 47.9						0.90	0.39	76	
100	8.91	8.90	33.817	26.210	181.9	0.226	2.93	127.9	44.9						0.58	0.40	101	07
120	8.62	8.60	33.856 D	26.286	175.0	0.264	3.10	135.1	47.2						0.40	0.31	121	06
125 ISL	8.57 D	8.56	33.878 D	26.311	172.8	0.273	3.02	D131.6	D 46.0						0.36	0.29	126	
139	8.53	8.51	33.916 D	26.348	169.5	0.297	2.91	126.8	44.2						0.25	0.24	140	05
150 ISL	8.45 D	8.44	33.945 D	26.382	166.5	0.316	2.79	D121.4	D 42.4						0.23	0.25	151	
200	8.24	8.22	34.085 D	26.525	153.9	0.397	1.80	78.7	27.3						0.16	0.25	202	04
250 ISL	7.51 D	7.49	34.060 D	26.614	146.0	0.472	1.71	D 74.5	D 25.5								252	
271	7.14	7.11	34.057 D	26.664	141.4	0.503	1.60	69.9	23.6								273	03
300 ISL	6.82 D	6.79	34.079 D	26.726	135.8	0.543	1.25	D 54.3	D 18.3								302	
382	6.59	6.55	34.159 D	26.821	128.0	0.652	0.78	34.1	11.4								385	02
400 ISL	6.39 D	6.36	34.151 D	26.841	126.2	0.675	0.73	D 31.7	D 10.6								403	
500 ISL	5.99 D	5.95	34.257 D	26.978	114.4	0.797	0.34	D 14.7	D 4.9								504	
516	5.88	5.84	34.260 D	26.994	113.0	0.815	0.32	14.1	4.6								520	01

A) SECOND FLUOROMETER READING RECALCULATED BECAUSE ACID RATIO > TAU OF PURE CHL-A
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 1604 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 18.3 N	121 57.8 W	17/04/2016	1050 UTC	2367 m	340 06 kn			1016.4 mb	12.9 C	12.1 C				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	12.39	12.39	33.458	25.319	264.4	0.000	6.63	289.2	109.3						4.34	1.27	0	
3	12.39	12.39	33.458	25.319	264.5	0.008	6.63	289.2	109.3						4.34	1.27	3	12
10	11.74	11.74	33.453 D	25.437	253.4	0.026	6.48	282.8	105.4						5.19	1.44	10	11
20	11.66	11.66	33.457 D	25.456	252.0	0.052	5.96	260.3	96.9						5.98	1.59	20	10
30 ISL	11.64 D	11.64	33.468 D	25.468	251.0	0.077	5.84	D254.4 D	94.9						4.35	1.34	30	
49	9.88	9.88	33.664 D	25.930	207.4	0.121	3.65	159.4	57.2						1.24	0.85	49	09
50 ISL	9.85 D	9.85	33.665 D	25.936	206.9	0.123	3.62	D157.4 D	56.6						1.20	0.83	50	
70	9.20	9.20	33.702 D	26.072	194.4	0.163	3.16	137.7	48.7						0.42	0.45	71	08
75 ISL	9.03 D	9.02	33.712 D	26.108	191.0	0.173	3.17	D137.9 D	48.7						0.39	0.43	76	
100 ISL	8.97 D	8.96	33.884 D	26.253	177.8	0.220	2.59	D112.7 D	39.8						0.23	0.33	101	
102	9.00	8.98	33.913	26.271	176.1	0.219	2.58	112.7	39.7						0.22	0.32	103	07
120	8.56	8.55	33.914 D	26.341	169.8	0.255	2.70	117.7	41.1						0.17	0.36	121	06
125 ISL	8.53 D	8.52	33.930 D	26.358	168.3	0.263	2.64	D115.0 D	40.2						0.17	0.34	126	
140	8.58	8.57	33.967 D	26.379	166.6	0.288	2.38	103.8	36.2						0.19	0.28	141	05
150 ISL	8.63 D	8.62	34.011 D	26.406	164.3	0.305	2.14	D 93.2 D	32.7						0.17	0.27	151	
200	8.01	7.99	34.057 D	26.538	152.6	0.385	1.93	84.0	29.0						0.09	0.22	202	04
250 ISL	7.84 D	7.82	34.134 D	26.625	145.2	0.460	1.29	D 56.3 D	19.4								252	
270	7.59	7.56	34.147 D	26.672	141.0	0.489	1.15	50.2	17.2								272	03
300 ISL	7.39 D	7.36	34.160 D	26.711	137.7	0.531	1.01	D 43.9 D	15.0								302	
382	6.48	6.44	34.196 D	26.864	123.8	0.639	0.58	25.3	8.4								385	02
400 ISL	6.27 D	6.24	34.192 D	26.889	121.6	0.661	0.52	D 22.8 D	7.6								403	
500 ISL	5.44 D	5.40	34.222 D	27.017	110.1	0.778	0.33	D 14.4 D	4.7								504	
516	5.56	5.52	34.273	27.043	108.0	0.786	0.29	12.5	4.1								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 1604 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 58.6 N	122 40.0 W	17/04/2016	1617 UTC	4091 m	310 06 kn	350 02 06	0	1016.5 mb	14.5 C	13.8 C		0/8		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	14.53	14.53	32.912	24.463	345.9	0.000	5.95	259.8	102.3						0.15	0.05	0	
2	14.53	14.53	32.912	24.463	346.0	0.007	5.95	259.8	102.3						0.15	0.05	2	12
9	14.47	14.47	32.906 D	24.473	345.2	0.028	5.95	259.8	102.1						0.17	0.06	9	11
10 ISL	14.47 D	14.46	32.907 D	24.474	345.2	0.032	5.97	D260.0 D	102.4						0.17	0.06	10	
20	14.30	14.30	32.928 D	24.525	340.7	0.066	5.94	259.5	101.7						0.16	0.09	20	10
30 ISL	14.26 D	14.25	32.926 D	24.533	340.2	0.100	5.98	D260.8 D	102.3						0.20	0.08	30	
50	13.64	13.63	33.023 D	24.737	321.4	0.167	5.60	244.3	94.5						0.27	0.08	50	09
70	12.91	12.90	33.105 D	24.948	301.8	0.230	5.70	248.7	94.8						0.09	0.07	71	08
75 ISL	12.78 D	12.77	33.071 D	24.947	302.0	0.245	5.71	D248.7 D	94.7						0.09	0.08	76	
100 ISL	11.90 D	11.88	33.282 D	25.279	270.9	0.317	4.62	D201.3 D	75.4						0.11	0.14	101	
101	11.97	11.96	33.331 D	25.303	268.7	0.320	4.63	201.9	75.6						0.11	0.14	102	07
119	11.10	11.09	33.545 D	25.630	237.9	0.366	3.62	158.1	58.2						0.07	0.14	120	06
125 ISL	10.74 D	10.73	33.572 D	25.715	229.9	0.380	3.57	D155.2 D	56.8						0.06	0.13	126	
140	9.99	9.98	33.608 D	25.872	215.1	0.414	3.28	143.3	51.5						0.03	0.09	141	05
150 ISL	9.71 D	9.69	33.630 D	25.937	209.2	0.435	3.34	D145.2 D	52.0						0.03	0.09	151	
200	9.31	9.28	33.883 D	26.202	185.0	0.534	2.55	111.1	39.4						0.02	0.06	202	04
250 ISL	8.34 D	8.31	33.953 D	26.409	165.9	0.623	2.84	D123.7 D	43.0								252	
271	8.42	8.39	34.063 D	26.484	159.4	0.657	1.90	83.0	28.9								273	03
300 ISL	7.85 D	7.82	34.057 D	26.565	151.9	0.703	1.91	D 83.1 D	28.6								302	
381	7.27	7.23	34.158 D	26.729	137.4	0.821	1.00	D 43.6 D	14.8								384	02
400 ISL	6.78 D	6.74	34.127 D	26.771	133.3	0.847	0.98	D 42.8 D	14.4								403	
500 ISL	5.80 D	5.75	34.151 D	26.918	119.8	0.974	0.64	D 28.0 D	9.2								504	
515	5.80	5.75	34.172	26.935	118.4	0.989	0.58	25.2	8.2								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 1604 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 38.4 N	123 21.9 W	17/04/2016	2159 UTC	4044 m	330 05 kn	340 03 07	1	1017.2 mb	16.8 C	15.3 C		3/8	CS	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	15.31	15.31	32.918	24.300	361.5	0.000	5.92	258.6	103.4						0.11	0.03	0	
2	15.31	15.31	32.918	24.300	361.5	0.007	5.92	258.6	103.4						0.11	0.03	2	12
10	14.72	14.72	32.911 D	24.423	350.1	0.033	5.90	257.7	101.8						0.09	0.02	10	11
20 ISL	14.62 D	14.62	32.908 D	24.443	348.5	0.067	5.91	D257.7 D	101.8						0.10	0.03	20	
25	14.59	14.59	32.906 D	24.448	348.2	0.085	5.91	258.0	101.7						0.10	0.03	25	10
30 ISL	14.56 D	14.55	32.904 D	24.454	347.7	0.103	5.94	D258.8 D	102.1						0.12	0.04	30	
50 ISL	14.38 D	14.37	32.899 D	24.489	345.1	0.173	5.97	D260.3 D	102.3						0.19	0.05	50	
62	14.36	14.35	32.903 D	24.497	344.7	0.214	5.95	259.8	101.9						0.23	0.06	63	09
75 ISL	14.22 D	14.21	32.908 D	24.530	341.9	0.259	5.93	D258.5 D	101.3						0.28	0.39	76	
87	13.89	13.88	32.959 D	24.638	331.9	0.300	5.79	252.9	98.3						0.31	0.70	88	08
100 ISL	13.08 D	13.07	33.127 D	24.932	304.2	0.341	5.46	D237.8 D	91.2						0.27	0.35	101	
102	12.92	12.90	33.134	24.970	300.6	0.348	5.29	231.0	88.0						0.26	0.29	103	07
125	10.69	10.68	33.257 D	25.478	252.3	0.412	4.82	210.5	76.6						0.11	0.11	126	06
140	9.99	9.97	33.364 D	25.682	233.1	0.449	4.64	202.7	72.7						0.05	0.05	141	05
150 ISL	9.66 D	9.64	33.449 D	25.804	221.7	0.471	4.54	D197.5 D	70.5						0.05	0.05	151	
200 ISL	8.77 D	8.74	33.853 D	26.263	178.9	0.572	3.30	D143.4 D	50.4						0.00	0.03	202	
202	8.75	8.73	33.861 D	26.272	178.1	0.576	3.17	138.3	48.4						0.00	0.03	204	04
250 ISL	8.12 D	8.09	33.989 D	26.471	160.0	0.658	2.60	D113.1 D	39.2								252	
270	7.78	7.75	34.013 D	26.539	153.6	0.689	2.32	101.0	34.6						0.00	0.02	272	03
300 ISL	7.39 D	7.36	34.024 D	26.604	147.8	0.735	2.03	D 88.4 D	30.1								302	
380	6.81	6.78	34.121 D	26.762	133.8	0.849	1.01	43.9	14.7						0.00	0.03	383	02
400 ISL	6.66 D	6.63	34.129 D	26.788	131.5	0.875	0.95	D 41.3 D	13.8								403	
500 ISL	5.91 D	5.87	34.204 D	26.945	117.4	1.001	0.48	D 20.7 D	6.8								504	
516	5.83	5.79	34.211	26.961	116.1	1.017	0.44	19.0	6.2						0.00	0.02	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 1604 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 18.6 N	124 3.9 W	18/04/2016	0327 UTC	3217 m	070 08 kn			1016.1 mb	15.9 C	14.6 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	16.30	16.30	33.060	24.189	372.0	0.000	5.76	251.7	102.8						0.05	0.01	0	
2	16.30	16.30	33.060	24.189	372.1	0.007	5.76	251.7	102.8						0.05	0.01	2	12
10	15.86	15.86	33.057 D	24.287	363.1	0.034	5.79	252.7	102.2						0.06	0.05	10	11
20 ISL	15.72 D	15.72	33.067 D	24.325	359.7	0.070	5.77	D251.4	D101.6						0.06	0.02	20	
26	15.69	15.69	33.098 D	24.357	356.9	0.092	5.77	251.8	101.6						0.06	0.01	26	10
30 ISL	15.67 D	15.66	33.093 D	24.359	356.9	0.106	5.77	D251.6	D101.6						0.06	0.02	30	
50 ISL	15.61 D	15.60	33.087 D	24.368	356.6	0.178	5.79	D252.2	D101.7						0.10	0.04	50	
62	15.60	15.59	33.195 D	24.453	349.0	0.221	5.76	251.3	101.3						0.12	0.05	63	09
75 ISL	14.87 D	14.86	33.141 D	24.572	338.0	0.266	5.80	D253.0	D100.6						0.30	0.17	76	
88	14.19	14.18	33.117 D	24.698	326.3	0.309	5.76	251.4	98.4						0.48	0.29	89	08
100 ISL	13.07 D	13.06	33.136 D	24.941	303.3	0.347	5.40	D235.2	D 90.1						0.34	0.29	101	
102	12.91	12.90	33.123	24.963	301.2	0.353	5.28	230.7	87.9						0.32	0.29	103	07
125 ISL	10.85 D	10.83	33.230 D	25.430	257.0	0.418	4.58	D199.6	D 73.0						0.10	0.10	126	
126	10.83	10.82	33.235 D	25.436	256.4	0.420	4.53	197.6	72.1						0.10	0.09	127	06
140	10.02	10.00	33.307 D	25.633	237.8	0.455	4.42	193.1	69.3						0.04	0.05	141	05
150 ISL	9.56 D	9.55	33.348 D	25.740	227.7	0.479	4.59	D200.0	D 71.2						0.03	0.04	151	
200 ISL	8.82 D	8.80	33.767 D	26.188	186.0	0.583	3.46	D150.6	D 52.9						0.01	0.02	202	
203	8.81	8.79	33.774 D	26.196	185.4	0.589	3.39	147.9	51.8						0.00	0.02	205	04
250 ISL	8.28 D	8.25	33.980 D	26.439	163.0	0.671	2.67	D116.2	D 40.4								252	
271	8.04	8.01	34.012 D	26.500	157.6	0.705	2.34	102.3	35.3						0.00	0.02	273	03
300 ISL	7.83 D	7.80	34.075 D	26.581	150.3	0.750	1.77	D 77.1	D 26.5								302	
381	6.76	6.72	34.092 D	26.746	135.3	0.867	1.16	50.4	16.9						0.00	0.02	384	02
400 ISL	6.78 D	6.75	34.141 D	26.782	132.3	0.893	0.88	D 38.4	D 12.9								403	
500 ISL	5.75 D	5.70	34.146 D	26.920	119.5	1.020	0.66	D 28.6	D 9.4								504	
515	5.67	5.62	34.159	26.940	117.7	1.035	0.59	25.7	8.4						0.00	0.01	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 1604 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 5.3 N	120 46.6 W	13/04/2016	0906 UTC	64 m	100 02 kn			1022.0 mb	12.0 C	11.1 C				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	11.98	11.98	33.578	25.489	248.2	0.000	6.21	270.8	101.6	3.5	0.73	5.7	0.15	0.36	8.26	1.87	0	
2	11.98	11.98	33.578	25.489	248.3	0.005	6.21	270.8	101.6	3.5	0.73	5.7	0.15	0.36	8.26	1.87	2	09
5	11.98	11.98	33.583	25.494	247.9	0.012	6.22	271.2	101.8	3.3	0.69	5.6	0.15	0.34	8.07	1.71	5	08
9	11.96	11.95	33.579	25.495	247.9	0.022	6.19	270.2	101.3	3.4	0.67	5.6	0.15	0.36	8.78	1.69	9	06
9	11.96	11.95	33.578	25.494	248.0	0.022											9	07
10 ISL	11.94 D	11.93	33.579 D	25.499	247.6	0.025	6.10	D265.8	D 99.8	3.8	0.71	6.1	0.15	0.46	8.50	1.67	10	
20	10.96	10.96	33.634 D	25.720	226.8	0.049	4.62	D201.1	D 74.0								20	05
29	10.80	10.80	33.656	25.766	222.7	0.069	4.22	184.1	67.4	12.7	1.49	14.7	0.23	2.31	2.60	1.79	29	04
30 ISL	10.79 D	10.79	33.660 D	25.771	222.2	0.072	4.13	D179.6	D 65.9	12.9	1.50	14.8	0.23	2.33	2.56	1.81	30	
39	10.63	10.62	33.678	25.814	218.3	0.091	3.93	171.6	62.6	14.5	1.62	16.0	0.24	2.48	2.25	2.03	39	03
50	10.49	10.48	33.702	25.858	214.4	0.115	3.62	158.0	57.5	18.4	1.75	17.8	0.25	2.15	2.24	2.62	50	02
60	10.46	10.46	33.712	25.870	213.5	0.136	3.52	153.4	55.8	20.2	1.82	18.7	0.27	1.86	2.30	3.29	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 1604 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 1.1 N	120 55.2 W	13/04/2016	1100 UTC	236 m	330 21 kn			1021.4 mb	12.4 C	11.4 C				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	12.44	12.44	33.251	25.147	280.8	0.000	5.73	250.0	94.5	8.1	0.81	6.8	0.35	0.44	1.85	0.56	0	
2	12.44	12.44	33.251	25.147	280.8	0.006	5.73	250.0	94.5	8.1	0.81	6.8	0.35	0.44	1.85	0.56	2	16
10	12.45	12.44	33.252	25.148	281.0	0.028	5.72	249.7	94.4	7.7	0.81	6.7	0.33	0.42	1.94	0.59	10	14
10	12.45	12.44	33.251	25.147	281.1	0.027											10	15
20	11.85	11.85	33.270	25.275	269.2	0.056	5.25	229.0	85.5	11.0	1.07	10.3	0.36	0.76	1.11	0.50	20	13
30 ISL	11.14 D	11.14	33.396 D	25.504	247.6	0.082	4.44	D193.4	D 71.3	14.1	1.34	13.4	0.33	1.12	1.17	0.84	30	
30	11.14	11.14	33.396 D	25.504	247.6	0.082	4.44	D193.4	D 71.3								30	12
39	10.70	10.70	33.681 D	25.803	219.4	0.103	4.31	D187.6	D 68.7								39	11
50	10.32	10.32	33.750	25.924	208.2	0.126	3.37	147.2	53.4	20.2	1.87	19.7	0.26	1.83	1.29	1.52	50	10
59	10.25	10.24	33.758	25.943	206.5	0.145	3.27	142.8	51.7	21.7	1.70	20.6	0.26	1.31	1.13	1.02	59	09
70	10.18	10.17	33.766	25.961	205.1	0.167	3.16	137.8	49.8	22.7	1.65	21.2	0.26	1.13	1.06	1.02	71	08
75 ISL	10.12 D	10.11	33.779 D	25.982	203.2	0.179	3.10	D135.0	D 48.8	23.0	1.67	21.2	0.26	1.12	0.99	0.94	76	
86	10.10	10.09	33.788	25.992	202.5	0.200	3.03	132.2	47.7	23.7	1.71	21.3	0.26	1.09	0.84	0.78	87	07
100 ISL	10.07 D	10.06	33.801 D	26.009	201.3	0.230	2.93	D127.5	D 46.1	24.3	1.75	22.1	0.27	1.00	0.84	0.93	101	
102	10.05	10.04	33.802	26.012	201.0	0.232	2.96	129.3	46.6	24.4	1.75	22.2	0.27	0.99	0.84	0.95	103	06
120	9.78	9.77	33.843	26.090	193.9	0.267	2.62	114.1	40.9	27.4	1.84	24.2	0.26	0.33	0.56	0.80	121	05
125 ISL	9.64 D	9.63	33.884 D	26.145	188.8	0.279	2.54	D110.7	D 39.7	28.2	1.87	24.7	0.25	0.26	0.50	0.73	126	
140	9.46	9.44	33.910	26.196	184.2	0.305	2.31	100.6	35.8	30.5	1.97	26.0	0.20	0.06	0.33	0.50	141	04
150 ISL	9.20 D	9.18	33.982 D	26.295	175.0	0.325	2.14	D 93.0	D 33.0	33.2	2.06	27.1	0.17	0.00	0.27	0.47	151	
170	8.79	8.77	34.046	26.411	164.3	0.357	1.77	77.2	27.1	38.4	2.23	29.3	0.10	0.00	0.13	0.40	171	03
200 ISL	8.15 D	8.13	34.138 D	26.581	148.6	0.407	1.28	D 55.9	D 19.4	46.6	2.48	31.9	0.11	0.00	0.10	0.36	202	
203	8.09	8.07	34.139	26.591	147.7	0.409	1.28	55.8	19.3	47.4	2.51	32.2	0.11	0.03	0.09	0.36	205	02
231	7.59	7.56	34.178	26.696	138.0	0.449	0.97	42.3	14.5	54.7	2.72	34.3	0.08	0.17			233	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 1604 — 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 53.2 N	121 12.0 W	13/04/2016	1420 UTC	561 m	330 22 kn	340 05 07	1	1021.5 mb	13.3 C	11.7 C	14 m	1/8	ST	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	14.80	14.80	33.313	24.716	321.8	0.000	5.96	260.1	103.3	1.6	0.37	0.0	0.01	0.01	0.35	0.16	0	
3	14.80	14.80	33.313	24.716	321.9	0.010	5.96	260.1	103.3	1.6	0.37	0.0	0.01	0.01	0.35	0.16	3	21
10	14.80	14.79	33.309	24.714	322.3	0.032	5.94	259.0	102.8	1.6	0.37	0.0	0.00	0.00	0.34	0.16	10	19
11	14.80	14.80	33.318	24.721	321.7	0.034											11	20
20 ISL	14.75 D	14.75	33.311 D	24.725	321.6	0.065	5.90	D257.3	D102.2	1.5	0.37	0.0	0.01	0.00	0.40	0.19	20	
21	14.67	14.67	33.331	24.759	318.4	0.068	5.94	259.2	102.7	1.5	0.37	0.0	0.01	0.01	0.40	0.20	21	18
30	14.04	14.04	33.344	24.901	305.1	0.096	5.80	252.9	98.9	2.4	0.48	0.6	0.08	0.51	0.92	0.41	30	17
41	13.11	13.11	33.361	25.104	286.1	0.128	5.17	225.6	86.5	6.0	0.79	5.3	0.28	0.79	0.32	0.27	41	16
50	12.34	12.33	33.358	25.253	272.1	0.153	4.78	208.7	78.8	8.7	0.99	9.0	0.28	0.42	0.21	0.22	50	15
60	11.44	11.44	33.371	25.430	255.4	0.180	4.30	187.8	69.5	11.8	1.21	13.0	0.26	0.06	0.11	0.19	60	14
69	10.57	10.56	33.464	25.659	233.8	0.202	3.74	163.3	59.4	16.5	1.48	17.9	0.07	0.00	0.07	0.16	70	13
75 ISL	10.26 D	10.25	33.493 D	25.735	226.7	0.217	3.64	D158.4	D 57.4	17.2	1.51	18.5	0.07	0.00	0.06	0.16	76	
85	10.13	10.12	33.504	25.766	223.9	0.238	3.63	158.4	57.1	18.4	1.57	19.5	0.07	0.00	0.06	0.18	86	12
100	9.74	9.73	33.606	25.911	210.5	0.271	3.39	147.7	52.8	21.2	1.68	21.6	0.04	0.00	0.04	0.15	101	11
120	9.38	9.36	33.733	26.070	195.7	0.311	3.05	132.9	47.2	24.6	1.82	23.7	0.04	0.00	0.03	0.10	121	10
125 ISL	9.31 D	9.30	33.773 D	26.112	191.8	0.323	2.97	D129.4	D 46.0	25.5	1.86	24.2	0.03	0.00	0.03	0.09	126	
140	9.12	9.10	33.862	26.214	182.5	0.349	2.72	118.7	41.9	28.2	1.96	25.7	0.03	0.00	0.02	0.08	141	09
150 ISL	8.97 D	8.96	33.919 D	26.281	176.2	0.369	2.63	D114.5	D 40.4	29.8	2.01	26.4	0.03	0.00	0.02	0.08	151	
170	8.75	8.73	33.981	26.366	168.6	0.402	2.35	102.4	35.9	32.9	2.10	27.8	0.01	0.00	0.02	0.08	171	08
200 ISL	8.44 D	8.42	34.047 D	26.466	159.6	0.454	2.05	D 89.3	D 31.2	36.8	2.22	29.3	0.02	0.00	0.01	0.06	202	
201	8.45	8.42	34.047	26.465	159.7	0.453	2.10	91.6	31.9	37.0	2.22	29.3	0.02	0.00	0.01	0.06	203	07
232	8.14	8.11	34.095	26.550	152.1	0.501	1.70	74.3	25.7	42.0	2.37	31.1	0.02	0.00			234	06
250 ISL	7.94 D	7.92	34.129 D	26.606	147.1	0.531	1.42	D 62.0	D 21.4	45.2	2.47	32.0	0.02	0.00			252	
272	7.76	7.73	34.154	26.653	142.9	0.560	1.22	53.0	18.2	49.1	2.59	33.2	0.02	0.00			274	05
300 ISL	7.45 D	7.42	34.179 D	26.717	137.1	0.603	0.99	D 42.9	D 14.7	53.4	2.68	34.2	0.02	0.00			302	
320	7.32	7.29	34.196	26.749	134.4	0.626	0.88	38.5	13.1	56.5	2.75	35.0	0.01	0.00			323	04
381	6.88	6.84	34.207	26.821	128.3	0.706	0.67	29.3	9.8	63.3	2.88	36.6	0.01	0.00			384	03
400 ISL	6.76 D	6.72	34.215 D	26.844	126.4	0.736	0.61	D 26.3	D 8.8	65.7	2.92	37.1	0.01	0.00			403	
440	6.41	6.37	34.234	26.906	120.8	0.780	0.49	21.3	7.1	70.7	3.01	38.1	0.02	0.00			444	02
500 ISL	5.85 D	5.81	34.268 D	27.004	111.8	0.856	0.33	D 14.4	D 4.8	80.3	3.13	39.7	0.02	0.00			504	
515	5.76	5.72	34.275	27.021	110.3	0.866	0.32	13.8	4.5	82.8	3.16	40.1	0.03	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 1604 — 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 33.0 W	13/04/2016	1839 UTC	946 m	330 23 kn	350 05 08	1	1023.1 mb	13.4 C	12.0 C	17 m	3/8	ST	065

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	14.54	14.54	32.901	24.453	346.9	0.000	6.09	266.0	104.8						0.34	0.08	0	
2 A	14.54	14.54	32.901	24.453	346.9	0.007	6.09	266.0	104.8						0.34	0.08	2	23
10 ISL	14.56 D	14.56	32.901 D	24.450	347.5	0.032	6.12	D266.8	D105.3						0.32	0.09	10	
12 A	14.52	14.52	32.900	24.456	346.9	0.042	6.13	267.4	105.3	2.0	0.29	0.0	0.02	0.04	0.31	0.09	12	21
12	14.52	14.52	32.900	24.456	346.9	0.041											12	22
16 A	14.50	14.50	32.900	24.462	346.5	0.056	6.10	266.3	104.8	1.8	0.32	0.0	0.01	0.12	0.32	0.14	16	20
20 ISL	14.47 D	14.47	32.900 D	24.468	346.1	0.066	6.11	D266.4	D104.9	1.8	0.30	0.0	0.01	0.06	0.32	0.14	20	
23	14.42	14.42	32.903	24.482	344.9	0.080	6.11	266.8	104.8	1.7	0.29	0.0	0.01	0.01	0.32	0.14	23	19
29 A	14.25	14.25	32.925	24.534	340.0	0.100	6.03	263.1	103.0	1.7	0.31	0.0	0.02	0.03	0.52	0.09	29	17
29	14.25	14.25	32.927	24.536	339.9	0.100											29	18
30 ISL	14.23 D	14.22	32.936 D	24.548	338.8	0.101	6.04	D263.3	D103.2	1.7	0.31	0.0	0.02	0.03	0.56	0.11	30	
38	13.77	13.76	32.986	24.682	326.2	0.130	5.89	257.0	99.7	1.8	0.34	0.0	0.07	0.01	0.88	0.30	38	16
48 A	13.44	13.43	33.065	24.810	314.3	0.162	5.99	261.4	100.8	2.1	0.45	0.3	0.08	1.03	0.33	0.15	48	15
50 ISL	13.60 D	13.59	33.128 D	24.827	312.8	0.166	5.93	D258.6	D100.2	2.8	0.50	1.4	0.08	0.00	0.31	0.16	50	
60 A	12.03	12.03	33.069	25.087	288.1	0.199	5.20	227.0	84.9	6.1	0.73	6.7	0.11	0.00	0.22	0.21	60	14
70	11.19	11.18	33.169	25.320	266.1	0.227	4.87	212.6	78.2	9.4	0.96	10.7	0.08	0.00	0.19	0.28	71	13
75 ISL	11.35 D	11.34	33.249 D	25.353	263.2	0.238	4.79	D208.7	D 77.2	10.8	1.07	12.3	0.07	0.00	0.16	0.23	76	
86	10.72	10.71	33.326	25.526	246.8	0.268	4.20	183.1	66.7	13.8	1.32	15.9	0.06	0.05	0.09	0.13	87	12
100	10.52	10.51	33.423	25.636	236.7	0.302	3.88	169.3	61.5	15.9	1.44	17.8	0.05	0.00	0.08	0.15	101	11
121	9.69	9.67	33.524	25.856	216.1	0.349	3.70	161.3	57.5	19.4	1.59	20.7	0.03	0.00	0.05	0.09	122	10
125 ISL	9.71 D	9.69	33.523 D	25.852	216.6	0.357	3.74	D162.7	D 58.2	20.1	1.63	21.1	0.03	0.00	0.05	0.09	126	
140	9.62	9.60	33.655	25.972	205.6	0.389	3.19	139.4	49.7	22.5	1.76	22.9	0.03	0.00	0.03	0.09	141	09
150 ISL	9.45 D	9.43	33.769 D	26.088	194.7	0.409	2.95	D128.2	D 45.7	24.0	1.80	23.7	0.02	0.00	0.02	0.09	151	
171	8.96	8.94	33.815	26.203	184.0	0.450	2.94	128.3	45.1	27.1	1.88	25.4	0.02	0.00	0.02	0.07	172	08
200 ISL	8.83 D	8.81	33.954 D	26.333	172.3	0.501	2.52	D109.5	D 38.5	31.6	2.03	27.5	0.02	0.00	0.01	0.11	202	
201	8.80	8.78	33.963	26.344	171.3	0.503	2.49	108.4	38.0	31.8	2.04	27.5	0.02	0.00	0.01	0.11	203	07
230	8.29	8.27	34.036	26.480	158.7	0.551	2.13	92.9	32.2	37.9	2.22	30.1	0.02	0.00			232	06
250 ISL	7.99 D	7.96	34.054 D	26.541	153.3	0.582	1.95	D 84.9	D 29.3	41.2	2.31	31.3	0.02	0.00			252	
271	7.79	7.76	34.074	26.586	149.2	0.614	1.70	74.1	25.4	44.6	2.41	32.7	0.02	0.00			273	05
300 ISL	7.59 D	7.56	34.103 D	26.638	144.7	0.657	1.52	D 66.3	D 22.7	49.4	2.54	34.2	0.02	0.00			302	
321	7.32	7.29	34.126	26.694	139.6	0.686	1.16	50.5	17.1	52.9	2.64	35.3	0.02	0.00			324	04
379	6.93	6.89	34.181	26.794	130.9	0.765	0.80	35.0	11.8	60.3	2.83	37.2	0.01	0.00			382	03
400 ISL	6.80 D	6.76	34.198 D	26.825	128.1	0.794	0.69	D 30.1	D 10.1	62.7	2.88	37.6	0.01	0.00			403	
440	6.62	6.58	34.223	26.869	124.5	0.843	0.54	23.4	7.8	67.2	2.97	38.5	0.02	0.00			444	02
500 ISL	5.74 D	5.70	34.202 D	26.965	115.3	0.918	0.45	D 19.4	D 6.4	77.8	3.09	41.0	0.01	0.00			504	
518	5.61	5.56	34.215	26.992	112.9	0.935	0.38	16.8	5.5	80.9	3.13	41.8	0.01	0.00			522	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 1604 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 23.2 N	122 14.8 W	14/04/2016	0039 UTC	4051 m	320 21 kn	320 06 07	1	1021.2 mb	14.4 C	12.3 C		4/8	SC	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	14.77	14.77	32.862	24.375	354.3	0.000	5.96	260.2	102.9	1.7	0.29	0.0	0.01	0.28	0.12	0.04	0	
2	14.77	14.77	32.862	24.375	354.4	0.007	5.96	260.2	102.9	1.7	0.29	0.0	0.01	0.28	0.12	0.04	2	20
10	14.77	14.76	32.863	24.377	354.5	0.036	5.99	261.4	103.4	2.3	0.28	0.0	0.02	0.08	0.12	0.05	10	19
20 ISL	14.73 D	14.72	32.861 D	24.384	354.1	0.071	5.94	D259.1	D102.5	2.0	0.27	0.0	0.02	0.04	0.12	0.04	20	
26	14.68	14.68	32.862	24.395	353.2	0.092	5.96	260.3	102.8	1.9	0.27	0.0	0.02	0.02	0.12	0.04	26	18
30 ISL	14.64 D	14.64	32.869 D	24.409	352.0	0.107	5.91	D257.7	D101.8	1.8	0.26	0.0	0.02	0.00	0.12	0.04	30	
40	14.30	14.29	32.877	24.488	344.8	0.141	5.94	259.3	101.6	1.5	0.25	0.0	0.02	0.00	0.14	0.05	40	17
50	14.28	14.27	32.910	24.519	342.1	0.175	5.97	260.7	102.1	1.5	0.28	0.0	0.02	0.00	0.20	0.06	50	16
62	14.16	14.15	32.939	24.565	338.1	0.216	5.96	260.4	101.8	1.5	0.30	0.0	0.02	0.07	0.33	0.15	63	15
75	13.65	13.64	32.915	24.653	330.1	0.260	5.87	256.1	99.0	1.8	0.32	0.0	0.10	0.00	0.56	0.28	76	14
87	11.75	11.74	33.079	25.149	282.9	0.296	5.21	227.3	84.5	6.3	0.72	6.7	0.08	0.03	0.25	0.24	88	13
100	10.35	10.34	33.196	25.489	250.6	0.331	4.78	208.6	75.3	11.7	1.12	13.3	0.04	0.04	0.10	0.09	101	12
112	9.80	9.78	33.260	25.632	237.2	0.360	4.66	203.3	72.5	14.2	1.26	15.5	0.04	0.04	0.06	0.06	113	11
125	9.47	9.46	33.367	25.769	224.4	0.390	4.65	202.8	71.9	15.9	1.30	16.6	0.03	0.00	0.03	0.04	126	10
140	9.21	9.20	33.447	25.874	214.7	0.423	4.55	198.7	70.1	17.4	1.35	17.7	0.03	0.00	0.02	0.03	141	09
150 ISL	8.87 D	8.85	33.512 D	25.979	204.8	0.447	4.34	D188.7	D 66.3	19.7	1.47	19.4	0.03	0.00	0.01	0.03	151	
170	8.97	8.95	33.714	26.122	191.7	0.484	3.56	155.3	54.6	24.4	1.71	23.0	0.03	0.00	0.00	0.03	171	08
200	8.83	8.81	33.893	26.285	176.9	0.539	2.81	122.5	43.0	29.4	1.94	26.2	0.03	0.00	0.01	0.04	202	07
230	8.22	8.19	33.974	26.443	162.3	0.590	2.62	114.2	39.5	34.8	2.05	28.2	0.03	0.00			232	06
250 ISL	8.02 D	7.99	34.036 D	26.522	155.0	0.625	2.14	D 93.0	D 32.2	39.5	2.23	30.1	0.03	0.00			252	
270	7.77	7.74	34.072	26.587	149.1	0.652	1.70	73.9	25.4	44.1	2.40	32.1	0.03	0.00			272	05
300 ISL	7.49 D	7.46	34.091 D	26.642	144.3	0.700	1.50	D 65.3	D 22.3	49.7	2.51	33.9	0.03	0.00			302	
320	6.97	6.94	34.073	26.701	138.6	0.725	1.39	60.6	20.4	53.4	2.59	35.0	0.03	0.00			323	04
380	6.34	6.31	34.071	26.783	131.3	0.806	1.18	51.4	17.0	61.3	2.74	37.2	0.03	0.00			383	03
400 ISL	6.15 D	6.11	34.093 D	26.827	127.3	0.836	0.98	D 42.4	D 14.0	64.7	2.80	38.0	0.03	0.00			403	
440	5.82	5.78	34.101	26.875	123.0	0.882	0.83	36.0	11.8	71.7	2.92	39.6	0.03	0.00			444	02
500 ISL	5.73 D	5.68	34.198 D	26.963	115.5	0.959	0.47	D 20.4	D 6.7	79.8	3.08	40.9	0.03	0.00			504	
516	5.48	5.43	34.195	26.991	112.7	0.973	0.43	18.6	6.1	82.0	3.12	41.3	0.03	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 1604 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 3.1 N	122 56.6 W	14/04/2016	0610 UTC	4266 m	320 15 kn			1022.0 mb	14.5 C	12.6 C				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	15.08	15.08	32.914	24.349	356.8	0.000	5.92	258.3	102.8	1.8	0.30	0.0	0.01	0.00	0.12	0.01	0	
2	15.08	15.07	32.914	24.349	356.9	0.007	5.92	258.3	102.8	1.8	0.30	0.0	0.01	0.00	0.12	0.01	2	20
10	15.07	15.07	32.914	24.351	357.0	0.036	5.87	256.3	102.0	1.8	0.28	0.0	0.01	0.01	0.11	0.04	10	19
20 ISL	14.96 D	14.95	32.915 D	24.377	354.8	0.072	5.84	D254.6	D101.3	1.8	0.28	0.0	0.01	0.00	0.13	0.03	20	
26	14.77	14.76	32.920	24.422	350.7	0.093	5.90	257.6	101.9	1.8	0.28	0.0	0.01	0.00	0.13	0.02	26	18
30 ISL	14.75 D	14.75	32.918 D	24.423	350.7	0.107	5.87	D256.0	D101.4	1.8	0.28	0.0	0.01	0.00	0.14	0.02	30	
41	14.72	14.71	32.919	24.432	350.2	0.145	5.93	258.8	102.3	1.8	0.28	0.0	0.01	0.00	0.14	0.03	41	17
50	14.26	14.26	32.908	24.519	342.1	0.176	5.96	260.4	101.9	1.7	0.29	0.0	0.01	0.05	0.20	0.08	50	16
64	14.25	14.24	32.981	24.581	336.7	0.224	6.02	262.9	102.9	1.7	0.30	0.0	0.01	0.00	0.31	0.10	65	15
74	13.97	13.96	32.960	24.622	333.1	0.257	5.90	257.6	100.3	1.9	0.32	0.1	0.03	0.02	0.59	0.31	75	14
75 ISL	14.00 D	13.99	32.992 D	24.640	331.3	0.262	5.87	D255.7	D 99.8	2.0	0.33	0.1	0.04	0.02	0.58	0.31	76	
88	13.88	13.87	33.073	24.729	323.3	0.303	5.67	247.6	96.3	2.7	0.40	0.9	0.17	0.02	0.49	0.30	89	13
100	13.18	13.16	33.132	24.917	305.6	0.341	5.41	236.1	90.5	4.2	0.57	3.6	0.13	0.00	0.24	0.27	101	12
111	12.32	12.30	33.171	25.115	287.0	0.374	5.12	223.7	84.3	6.1	0.95	6.5	0.07	0.00	0.15	0.20	112	11
125 ISL	10.75 D	10.74	33.239 D	25.454	254.7	0.414	4.62	D201.3	D 73.5	10.7	1.22	12.4	0.03	0.00	0.07	0.09	126	
126	10.58	10.57	33.232	25.478	252.4	0.414	4.65	203.1	73.7	11.0	1.24	12.8	0.03	0.00	0.07	0.08	127	10
142	9.85	9.83	33.378	25.717	229.9	0.453	4.23	184.5	66.0	15.9	1.37	17.4	0.02	0.00	0.02	0.04	143	09
150 ISL	9.62 D	9.60	33.449 D	25.810	221.1	0.473	4.13	D179.9	D 64.2	17.9	1.46	18.7	0.02	0.00	0.02	0.04	151	
170	9.23	9.21	33.670	26.047	198.9	0.513	3.50	152.7	53.9	22.8	1.68	22.0	0.02	0.00	0.01	0.05	171	08
200	8.98	8.96	33.918	26.282	177.3	0.569	2.58	112.4	39.6	30.0	1.97	26.1	0.01	0.00	0.00	0.03	202	07
230	8.68	8.66	34.028	26.414	165.2	0.620	2.07	90.1	31.5	35.2	2.19	28.5	0.01	0.00			232	06
250 ISL	8.35 D	8.32	34.039 D	26.475	159.7	0.657	1.99	D 86.7	D 30.2	37.7	2.22	29.3	0.01	0.00			252	
271	7.98	7.95	34.032	26.525	155.1	0.686	2.09	91.1	31.4	40.3	2.25	30.2	0.01	0.00			273	05
300 ISL	7.70 D	7.67	34.058 D	26.587	149.7	0.735	1.87	D 81.4	D 27.9	44.6	2.46	31.6	0.01	0.00			302	
322	7.33	7.30	34.048	26.632	145.5	0.763	1.79	78.1	26.5	47.9	2.62	32.6	0.01	0.00			325	04
380	6.56	6.53	34.048	26.737	135.9	0.845	1.39	60.8	20.3	57.8	2.82	35.7	0.01	0.00			383	03
400 ISL	6.47 D	6.44	34.079 D	26.774	132.7	0.877	1.14	D 49.7	D 16.6	60.9	2.86	36.6	0.01	0.00			403	
440	6.17	6.13	34.119	26.845	126.2	0.923	0.82	35.8	11.8	67.2	2.93	38.2	0.01	0.01			444	02
500 ISL	5.93 D	5.88	34.205 D	26.945	117.4	1.003	0.46	D 20.1	D 6.6	75.0	3.06	39.5	0.00	0.00			504	
515	5.85	5.81	34.214	26.961	116.1	1.014	0.42	18.3	6.0	76.9	3.09	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 1604 — 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 43.4 N	123 38.2 W	14/04/2016	1138	UTC	4167 m	300 15 kn			1021.0 mb	15.1 C	13.3 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	15.93	15.93	33.127	24.323	359.3	0.000	5.77	252.0	102.2	2.0	0.28	0.0	0.00	0.00	0.11	0.01	0	
2	15.93	15.93	33.127	24.323	359.3	0.007	5.77	252.0	102.2	2.0	0.28	0.0	0.00	0.00	0.11	0.01	2	20
10	15.94	15.94	33.126	24.322	359.7	0.036	5.74	250.8	101.7	1.9	0.27	0.0	0.00	0.00	0.10	0.02	10	19
20 ISL	15.94 D	15.93	33.120 D	24.318	360.4	0.072	5.76	D251.1	D102.0	1.9	0.28	0.0	0.00	0.00	0.11	0.02	20	
26	15.72	15.72	33.116	24.364	356.2	0.094	5.77	251.9	101.7	1.9	0.28	0.0	0.00	0.01	0.11	0.03	26	18
30 ISL	15.68 D	15.68	33.113 D	24.371	355.8	0.109	5.82	D253.7	D102.5	1.9	0.29	0.0	0.00	0.01	0.13	0.03	30	
41	14.91	14.90	33.118	24.544	339.5	0.146	5.89	257.2	102.1	2.1	0.31	0.0	0.00	0.01	0.18	0.04	41	17
50	14.82	14.81	33.194	24.623	332.3	0.176	5.91	258.0	102.3	2.2	0.32	0.0	0.00	0.03	0.29	0.09	50	16
61	14.51	14.50	33.201	24.695	325.8	0.212	5.92	258.6	101.9	2.5	0.35	0.0	0.00	0.02	0.49	0.19	61	15
75 ISL	13.68 D	13.67	33.250 D	24.906	306.0	0.259	5.44	D236.8	D 92.0	3.8	0.50	1.7	0.14	0.01	0.59	0.32	76	
76	13.76	13.74	33.230	24.875	309.0	0.260	5.49	D239.3	D 93.1	3.9	0.51	1.8	0.15	0.01	0.60	0.33	77	14
88	12.98	12.97	33.287	25.075	290.2	0.296	5.15	224.7	85.9	5.9	0.73	5.7	0.07	0.01	0.20	0.17	89	13
99	12.37	12.36	33.297	25.202	278.3	0.327	4.76	208.0	78.5	8.5	0.95	9.3	0.03	0.01	0.12	0.12	100	12
100 ISL	12.23 D	12.22	33.304 D	25.234	275.3	0.332	4.73	D206.0	D 77.7	8.8	0.97	9.6	0.03	0.01	0.11	0.12	101	
114	11.21	11.20	33.345	25.455	254.4	0.367	4.27	186.5	68.7	12.3	1.23	13.8	0.02	0.01	0.07	0.10	115	11
125	10.53	10.52	33.437	25.647	236.3	0.394	3.82	166.7	60.5	16.0	1.47	17.5	0.02	0.01	0.04	0.17	126	10
139	9.93	9.92	33.479	25.781	223.7	0.426	3.71	162.0	58.0	18.3	1.57	19.5	0.01	0.00	0.01	0.05	140	09
150 ISL	9.59 D	9.57	33.549 D	25.894	213.2	0.453	3.64	D158.3	D 56.5	19.8	1.60	20.2	0.01	0.00	0.01	0.04	151	
170	9.07	9.05	33.649	26.056	198.0	0.491	3.68	160.6	56.5	22.5	1.66	21.5	0.01	0.01	0.01	0.02	171	08
200 ISL	8.76 D	8.74	33.828 D	26.245	180.7	0.551	3.24	D140.9	D 49.4	27.5	1.85	24.3	0.01	0.00	0.00	0.02	202	
202	8.73	8.71	33.841	26.260	179.3	0.552	3.20	139.7	48.9	27.8	1.86	24.5	0.01	0.00	0.00	0.02	204	07
231	8.47	8.44	33.929	26.370	169.3	0.602	2.86	124.8	43.4	31.7	1.97	26.5	0.01	0.00			233	06
250 ISL	8.25 D	8.22	33.977 D	26.442	162.8	0.637	2.60	D113.0	D 39.2	34.5	2.04	27.5	0.01	0.00			252	
271	8.02	7.99	33.998	26.492	158.3	0.668	2.59	113.0	38.9	37.7	2.12	28.7	0.01	0.00			273	05
300 ISL	7.69 D	7.66	34.023 D	26.561	152.1	0.717	2.23	D 96.9	D 33.2	42.4	2.27	30.5	0.01	0.00			302	
321	7.41	7.38	34.033	26.609	147.7	0.744	1.96	85.7	29.1	45.9	2.37	31.8	0.01	0.00			324	04
381	7.18	7.14	34.153	26.737	136.5	0.830	0.99	43.3	14.6	55.9	2.73	35.0	0.01	0.00			384	03
400 ISL	6.91 D	6.87	34.156 D	26.777	132.8	0.860	0.89	D 38.8	D 13.1	59.1	2.78	35.9	0.01	0.00			403	
440	6.39	6.35	34.148	26.840	127.0	0.907	0.76	33.2	11.0	65.7	2.90	37.7	0.01	0.00			444	02
500 ISL	6.08 D	6.03	34.188 D	26.913	120.7	0.988	0.56	D 24.4	D 8.1	72.9	3.01	39.1	0.01	0.00			504	
515	5.94	5.89	34.190	26.932	118.9	1.000	0.51	22.4	7.4	74.6	3.04	39.5	0.01	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 1604 — 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 23.2 N	124 19.5 W	14/04/2016	1741	UTC	4546 m	360 18 kn	350 03 08	1	1022.5 mb	15.1 C	13.6 C	27 m	5/8	SC	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	16.36	16.36	33.232	24.306	360.8	0.000	5.66	247.0	101.2	1.6	0.22	0.0	0.01	0.06	0.06	0.02	0	
2 A	16.36	16.36	33.232	24.307	360.9	0.007	5.66	247.0	101.2	1.6	0.22	0.0	0.01	0.06	0.06	0.02	2	24
10	16.36	16.36	33.232	24.308	361.0	0.036	5.66	246.9	101.2	1.8	0.24	0.0	0.01	0.05	0.06	0.02	10	22
10	16.36	16.36	33.232	24.308	361.1	0.036											10	23
19 A	16.36	16.35	33.232	24.310	361.2	0.069	5.69	248.0	101.6	1.6	0.23	0.0	0.01	0.00	0.06	0.02	19	21
20 ISL	16.36 D	16.35	33.233 D	24.310	361.2	0.069	5.69	D248.2	D101.7	1.6	0.23	0.0	0.01	0.00	0.06	0.02	20	
24 A	16.35	16.35	33.235	24.312	361.1	0.087	5.68	247.4	101.4	1.5	0.23	0.0	0.01	0.03	0.07	0.02	24	20
30 ISL	16.36 D	16.35	33.232 D	24.310	361.5	0.105	5.68	D247.7	D101.5	1.5	0.22	0.0	0.01	0.00	0.07	0.02	30	
34	16.35	16.35	33.232	24.311	361.6	0.123	5.69	248.2	101.7	1.5	0.22	0.0	0.01	0.00	0.07	0.02	34	19
43 A	16.29	16.28	33.227	24.322	360.9	0.155	5.68	247.5	101.3	1.5	0.22	0.0	0.01	0.00	0.07	0.02	43	18
50 ISL	16.28 D	16.27	33.225 D	24.325	360.9	0.178	5.70	D248.3	D101.6	1.5	0.22	0.0	0.01	0.00	0.08	0.02	50	
56	16.26	16.25	33.226	24.328	360.7	0.202	5.68	247.5	101.2	1.5	0.22	0.0	0.01	0.00	0.09	0.02	56	17
66	16.22	16.21	33.231	24.342	359.7	0.238	5.70	248.4	101.5	1.5	0.21	0.0	0.01	0.00	0.10	0.02	67	16
75 ISL	16.14 D	16.13	33.229 D	24.360	358.4	0.269	5.71	D248.7	D101.5	1.5	0.23	0.0	0.01	0.00	0.13	0.03	76	
76 A	16.18	16.17	33.240	24.360	358.4	0.274	5.68	247.7	101.1	1.5	0.23	0.0	0.01	0.00	0.14	0.03	77	15
86	16.09	16.08	33.294	24.422	352.9	0.310	5.69	247.9	101.1	1.6	0.22	0.0	0.01	0.00	0.19	0.06	87	14
94 A	16.01	16.00	33.484	24.586	337.5	0.337	5.56	242.3	98.8	2.2	0.21	0.0	0.01	0.00	0.32	0.28	95	12
95	15.99	15.97	33.486	24.594	336.8	0.340											96	13
100 ISL	15.33 D	15.31	33.349 D	24.635	332.9	0.356	5.62	D245.0	D 98.4	2.5	0.26	0.4	0.04	0.00	0.33	0.29	101	
110	14.38	14.36	33.335	24.829	314.6	0.389	5.46	238.0	93.8	2.9	0.35	1.0	0.09	0.10	0.33	0.31	111	11
125 ISL	13.49 D	13.47	33.290 D	24.978	300.7	0.435	5.34	D232.9	D 90.1	4.0	0.46	2.8	0.08	0.00	0.23	0.32	126	
126	13.49	13.47	33.295	24.982	300.3	0.438	5.38	234.5	90.7	4.0	0.47	2.9	0.08	0.00	0.22	0.32	127	10
141	11.39	11.37	33.226	25.330	267.0	0.481	4.99	217.4	80.5	7.8	0.85	8.8	0.02	0.00	0.12	0.16	142	09
150 ISL	10.66 D	10.64	33.316 D	25.532	247.8	0.504	4.92	D214.1	D 78.1	10.1	0.98	11.0	0.02	0.00	0.09	0.12	151	
170	9.52	9.50	33.454	25.831	219.5	0.551	4.59	199.8	71.1	15.1	1.26	15.9	0.02	0.00	0.02	0.04	171	08
200 ISL	8.90 D	8.87	33.756 D	26.167	188.0	0.612	3.66	D159.4	D 56.1	24.0	1.66	22.2	0.01	0.00	0.00	0.02	202	
202	8.84	8.82	33.757	26.176	187.2	0.616	3.62	157.6	55.4	24.6	1.69	22.7	0.01	0.02	0.00	0.02	204	07
230	8.68	8.66	33.905	26.318	174.3	0.667	2.88	125.1	43.9	30.0	1.95	26.2	0.01	0.04			232	06
250 ISL	8.40 D	8.37	33.969 D	26.413	165.6	0.701	2.70	D117.4	D 40.9	33.5	2.04	27.6	0.01	0.00			252	
270	8.14	8.11	34.004	26.479	159.6	0.733	2.42	105.2	36.5	37.0	2.13	28.9	0.01	0.00			272	05
300 ISL	7.78 D	7.75	34.027 D	26.552	153.0	0.781	2.18	D 94.7	D 32.5	41.5	2.24	30.6	0.01	0.00			302	
320	7.48	7.45	34.023	26.591	149.4	0.811	2.07	90.0	30.7	44.6	2.32	31.7	0.01	0.00			323	04
382	6.84	6.80	34.073	26.721	137.7	0.900	1.35	58.8	19.8	55.5	2.63	35.4	0.01	0.00			385	03
400 ISL	6.63 D	6.60	34.085 D	26.758	134.4	0.926	1.21	D 52.5	D 17.6	58.5	2.71	36.3	0.01	0.00			403	
440	6.35	6.31	34.126	26.827	128.1	0.977	0.83	36.1	12.0	65.2	2.88	38.1	0.01	0.00			444	02
500 ISL	5.99 D	5.95	34.181 D	26.918	120.0	1.054	0.57	D 24.8	D 8.2	73.3	3.04	39.7	0.01	0.00			504	
515	5.89	5.85	34.203	26.948	117.4	1.069	0.49	21.1	7.0	75.3	3.08	40.0	0.01	0.03			519	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1604 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 25.1 N	120 30.9 W	13/04/2016	0257 UTC	26 m	320 16 kn			1021.5 mb	13.1 C	11.6 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	13.08	13.08	33.630	25.316	264.7	0.000	5.08	221.6	85.2	5.2	1.11	8.5	0.25	1.55	0.52	0.18	0	
2	13.08	13.08	33.630	25.316	264.8	0.005	5.08	221.6	85.2	5.2	1.11	8.5	0.25	1.55	0.52	0.18	2	05
5	13.09	13.09	33.630	25.314	265.0	0.013	5.10	222.4	85.5	5.1	1.10	8.4	0.25	1.47	0.47	0.21	5	04
10	12.96	12.96	33.634	25.344	262.4	0.026	4.98	217.2	83.3	5.4	1.14	9.0	0.26	1.64	0.46	0.18	10	02
10	12.96	12.96	33.633	25.343	262.5	0.026											10	03
20	12.78	12.78	33.634	25.379	259.3	0.053	4.84	211.0	80.6	5.6	1.17	9.4	0.26	1.76	0.58	0.26	20	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 1604 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 26.9 N	120 31.5 W	13/04/2016	0344 UTC	74 m	330 24 kn			1021.6 mb	13.0 C	11.6 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	12.92	12.92	33.641	25.356	260.9	0.000	4.88	213.0	81.6	5.9	1.11	8.9	0.24	1.70	0.47	0.20	0	
3	12.92	12.92	33.641	25.356	261.0	0.008	4.88	213.0	81.6	5.9	1.11	8.9	0.24	1.70	0.47	0.20	3	10
5	12.92	12.92	33.641	25.356	261.0	0.013	4.87	212.5	81.4	5.8	1.13	8.8	0.24	1.69	0.48	0.26	5	09
10	12.92	12.92	33.640	25.356	261.2	0.026	4.88	212.7	81.5	5.8	1.12	8.9	0.24	1.67	0.46	0.19	10	07
10	12.92	12.92	33.641	25.357	261.1	0.026											10	08
20	12.80	12.80	33.642	25.381	259.1	0.052	4.79	208.9	79.8	6.2	1.15	9.3	0.25	1.67	0.46	0.22	20	06
30	12.59	12.59	33.643	25.424	255.3	0.078	4.66	203.1	77.2	6.2	1.21	9.8	0.26	1.80	0.40	0.23	30	05
40	12.45	12.45	33.642	25.451	253.0	0.103	4.61	201.3	76.3	6.3	1.20	10.0	0.27	1.74	0.35	0.24	40	04
50	12.29	12.28	33.643	25.483	250.2	0.128	4.37	190.7	72.1	7.4	1.30	11.2	0.29	1.80	0.39	0.38	50	03
60	11.85	11.84	33.663	25.582	241.1	0.153	3.76	164.1	61.5	10.5	1.54	14.4	0.34	1.79	0.49	0.76	60	02
70	11.70	11.69	33.691	25.632	236.6	0.177	3.53	154.0	57.5	12.7	1.60	15.6	0.34	1.66	0.51	1.33	71	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 1604 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 19.1 N	120 48.6 W	16/04/2016	0732 UTC	767 m	340 18 kn			1016.9 mb	12.7 C	11.6 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	12.41	12.41	33.345	25.226	273.2	0.000	5.80	253.1	95.7						2.76	0.93	0	
2	12.41	12.41	33.345	25.226	273.3	0.006	5.80	253.1	95.7						2.76	0.93	2	22
10	12.41	12.41	33.345	25.226	273.5	0.027	5.79	252.7	95.5	7.4	0.88	7.0	0.30	0.42	2.78	0.89	10	19
15	12.41	12.41	33.348	25.230	273.3	0.040											14	23
11	12.42	12.41	33.345	25.226	273.6	0.029											11	21
10	12.41	12.41	33.344	25.226	273.6	0.027											10	20
20	12.37	12.36	33.356	25.245	272.1	0.055	5.73	250.2	94.5	7.3	0.86	6.8	0.29	0.64	2.52	0.72	20	18
30	12.17	12.16	33.363	D 25.289	268.1	0.082	5.53	241.3	90.8	8.4	0.96	8.1	0.27	0.97	1.68	0.60	30	17
41	11.49	11.48	33.400	25.444	253.6	0.110	4.73	206.5	76.6	11.7	1.21	12.1	0.27	1.78	0.45	0.34	41	16
50 ISL	11.14 D	11.13	33.648	D 25.700	229.5	0.133	3.69	D160.7	D 59.4	14.8	1.52	16.0	0.33	1.74	0.29	0.53	50	
51	11.14	11.14	33.640	D 25.694	230.1	0.135	3.84	167.3	61.7	15.1	1.55	16.4	0.34	1.74	0.27	0.55	51	15
60	10.72	10.71	33.735	25.843	216.1	0.155	3.19	139.3	50.9	19.5	1.74	18.9	0.33	0.91	0.21	0.54	60	14
70	10.47	10.46	33.821	25.954	205.8	0.176	2.79	121.6	44.2	23.2	1.93	22.6	0.26	0.35	0.23	0.62	71	13
75 ISL	10.39 D	10.38	33.870	D 26.007	200.9	0.187	2.29	D 99.5	D 36.2	23.8	1.94	22.8	0.27	0.30	0.22	0.63	76	
86	10.30	10.29	33.869	26.022	199.7	0.208	2.31	100.6	36.5	25.1	1.97	23.4	0.28	0.19	0.22	0.68	87	12
100 ISL	10.24 D	10.23	33.912	D 26.065	195.9	0.237	2.12	D 92.2	D 33.5	26.1	2.03	23.8	0.22	0.26	0.23	0.63	101	
101	10.24	10.23	33.913	26.067	195.8	0.238	2.16	94.3	34.2	26.2	2.03	23.9	0.21	0.26	0.23	0.62	102	11
120	9.79	9.77	33.972	26.190	184.4	0.274	2.07	90.5	32.5	29.2	2.13	25.8	0.03	0.43	0.13	0.30	121	10
125 ISL	9.71 D	9.69	33.978	D 26.208	182.9	0.284	2.07	D 90.1	D 32.3	29.8	2.13	25.9	0.03	0.33	0.12	0.27	126	
140	9.43	9.41	34.008	26.278	176.5	0.310	1.96	85.4	30.4	31.6	2.12	26.1	0.01	0.03	0.09	0.20	141	09
150 ISL	9.38 D	9.37	34.047	D 26.316	173.1	0.329	1.82	D 79.0	D 28.2	32.7	2.15	26.8	0.01	0.05	0.10	0.18	151	
171	9.15	9.13	34.040	26.349	170.3	0.364	1.93	84.2	29.8	34.9	2.21	28.2	0.01	0.09	0.12	0.13	172	08
200 ISL	9.05 D	9.03	34.130	D 26.436	162.7	0.414	1.32	D 57.3	D 20.3	39.3	2.40	29.3	0.02	0.26	0.07	0.14	202	
202	9.03	9.00	34.132	26.441	162.3	0.416	1.35	58.7	20.7	39.6	2.41	29.4	0.02	0.27	0.06	0.14	204	07
231	8.61	8.58	34.156	26.527	154.5	0.462	1.12	49.0	17.1	44.9	2.53	30.8	0.00	0.65			233	06
250 ISL	8.40 D	8.37	34.173	D 26.573	150.5	0.492	1.18	D 51.3	D 17.9	46.3	2.56	31.2	0.00	0.00			252	
270	8.26	8.23	34.178	26.599	148.4	0.521	1.08	46.9	16.3	47.8	2.59	31.8	0.00	0.00			272	05
300 ISL	8.02 D	7.99	34.198	D 26.650	143.9	0.567	1.02	D 44.5	D 15.4	50.0	2.64	32.8	0.00	0.00			302	
321	7.76	7.73	34.214	26.701	139.4	0.594	0.94	40.8	14.0	51.6	2.68	33.6	0.00	0.01			324	04
380	7.20	7.16	34.237	26.800	130.5	0.674	0.69	30.1	10.2	59.7	2.85	35.7	0.00	0.02			383	03
400 ISL	6.92 D	6.88	34.242	D 26.843	126.6	0.703	0.58	D 25.4	D 8.6	62.4	2.90	36.5	0.00	0.04			403	
441	6.52	6.48	34.239	26.895	122.0	0.750	0.51	22.1	7.4	67.9	3.00	38.1	0.00	0.08			445	02
500 ISL	5.99 D	5.95	34.282	D 26.997	112.6	0.824	0.32	D 13.8	D 4.6	74.5	3.11	39.4	0.00	0.04			504	
519	5.94	5.89	34.286	27.008	111.8	0.841	0.32	14.0	4.6	76.6	3.14	39.9	0.00	0.03			523	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 1604 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 8.4 N	121 9.3 W	16/04/2016	0316 UTC	2218 m	340 26 kn			1016.7 mb	13.9 C	11.1 C				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	14.50	14.50	33.325	24.788	314.9	0.000	5.88	256.7	101.3	2.1	0.41	0.5	0.07	0.17	0.68	0.22	0	
3	14.50	14.50	33.325	24.788	315.0	0.009	5.88	256.7	101.3	2.1	0.41	0.5	0.07	0.17	0.68	0.22	3	21
10	14.50	14.50	33.327	24.791	315.0	0.032	5.87	256.2	101.1	2.1	0.43	0.5	0.07	0.14	0.66	0.22	10	19
10	14.50	14.50	33.325	24.788	315.2	0.032											10	20
20	14.51	14.50	33.327	24.790	315.4	0.063	5.86	255.9	101.0	2.1	0.41	0.5	0.07	0.13	0.66	0.27	20	18
30	14.51	14.50	33.324	24.788	315.9	0.095	5.86	255.8	101.0	2.1	0.41	0.5	0.07	0.14	0.65	0.27	30	17
40	14.51	14.50	33.326	24.790	316.1	0.126	5.86	255.8	101.0	2.0	0.41	0.5	0.07	0.20	0.63	0.22	40	16
50	14.47	14.46	33.325	24.798	315.6	0.158	5.86	255.7	100.9	2.1	0.43	0.6	0.08	0.18	0.63	0.28	50	15
62	12.73	12.72	33.347	25.169	280.5	0.194	5.23	228.4	86.9	5.1	0.73	4.6	0.37	0.64	0.25	0.17	63	14
72	11.27	11.26	33.361	25.454	253.4	0.220	4.15	181.2	66.9	12.3	1.32	14.3	0.16	0.01	0.11	0.14	73	13
75 ISL	11.12 D	11.11	33.380 D	25.497	249.4	0.229	4.05	D176.3 D	65.0	13.2	1.37	15.0	0.14	0.01	0.10	0.14	76	
86	10.39	10.38	33.441	25.673	232.8	0.254	3.82	166.7	60.3	16.5	1.53	17.9	0.05	0.01	0.05	0.11	87	12
100 ISL	9.94 D	9.93	33.600 D	25.873	214.1	0.287	3.40	D148.2 D	53.3	20.3	1.71	20.7	0.09	0.00	0.10	0.18	101	
101	9.92	9.91	33.592	25.871	214.3	0.288	3.46	151.0	54.2	20.6	1.72	20.9	0.09	0.00	0.10	0.18	102	11
121	9.34	9.33	33.757 D	26.095	193.4	0.331	2.93	D127.7 D	45.4								122	10
125 ISL	9.30 D	9.29	33.778 D	26.118	191.3	0.338	2.95	D128.2 D	45.5	24.5	1.84	23.3	0.05	0.00	0.06	0.14	126	
140	9.25	9.24	33.821	26.159	187.7	0.367	2.78	121.3	43.0	26.9	1.91	24.8	0.03	0.00	0.03	0.11	141	09
150 ISL	9.18 D	9.17	33.825 D	26.174	186.5	0.386	2.80	D121.7 D	43.1	28.5	1.96	25.5	0.03	0.00	0.03	0.11	151	
169	9.01	8.99	33.959	26.308	174.1	0.420	2.34	102.1	36.0	31.6	2.06	26.8	0.02	0.00	0.03	0.11	170	08
200	8.73	8.71	34.048	26.421	163.9	0.472	1.94	84.8	29.7	36.6	2.22	28.7	0.02	0.00	0.02	0.10	202	07
231	8.18	8.16	34.097	26.545	152.6	0.521	1.67	72.8	25.2	42.0	2.37	30.8	0.02	0.04			233	06
250 ISL	7.93 D	7.91	34.113 D	26.594	148.1	0.551	1.49	D 65.0 D	22.4	44.7	2.45	31.6	0.02	0.05			252	
270	7.88	7.86	34.159	26.639	144.3	0.579	1.24	54.2	18.6	47.5	2.54	32.5	0.02	0.07			272	05
300 ISL	7.70 D	7.67	34.169 D	26.674	141.5	0.624	1.07	D 46.4 D	15.9	51.8	2.64	33.7	0.02	0.04			302	
322	7.38	7.35	34.175	26.725	136.8	0.652	0.96	41.7	14.2	55.0	2.72	34.6	0.02	0.01			325	04
379	6.85	6.81	34.204	26.823	128.1	0.728	0.67	29.0	9.8	63.1	2.88	36.7	0.01	0.00			382	03
400 ISL	6.52 D	6.48	34.207 D	26.869	123.8	0.758	0.59	D 25.4 D	8.5	65.9	2.93	37.3	0.01	0.00			403	
442	6.27	6.23	34.225	26.915	119.8	0.805	0.46	20.2	6.7	71.3	3.02	38.7	0.01	0.00			446	02
500 ISL	5.88 D	5.84	34.239 D	26.977	114.4	0.878	0.36	D 15.8 D	5.2	78.4	3.10	40.0	0.01	0.00			504	
515	5.74	5.69	34.247	27.002	112.1	0.890	0.34	15.0	4.9	80.2	3.12	40.3	0.01	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 1604 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 8.6 N	123 13.6 W	15/04/2016	0544 UTC	4266 m	340 27 kn			1021.6 mb	14.5 C	11.6 C				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	15.55	15.55	33.167	24.440	348.1	0.000	5.90	257.4	103.6	2.1	0.31	0.0	0.00	0.01	0.20	0.04	0	
2	15.55	15.55	33.167	24.440	348.2	0.007	5.90	257.4	103.6	2.1	0.31	0.0	0.00	0.01	0.20	0.04	2	20
10	15.55	15.55	33.165	24.438	348.6	0.035	5.86	255.9	103.0	2.0	0.31	0.0	0.00	0.08	0.20	0.03	10	19
20 ISL	15.55 D	15.55	33.165 D	24.438	348.9	0.070	5.88	D256.4 D	103.4	2.1	0.31	0.0	0.00	0.04	0.20	0.03	20	
21	15.55	15.54	33.164	24.439	348.9	0.073	5.87	256.4	103.2	2.1	0.31	0.0	0.00	0.04	0.20	0.03	21	18
30 ISL	15.49 D	15.49	33.171 D	24.457	347.5	0.105	5.89	D256.9 D	103.5	2.1	0.32	0.0	0.00	0.06	0.22	0.05	30	
31	15.47	15.47	33.178	24.467	346.6	0.108	5.91	257.8	103.6	2.1	0.32	0.0	0.00	0.06	0.23	0.05	31	17
41	14.88	14.87	33.259	24.660	328.5	0.142	5.95	259.8	103.3	2.3	0.34	0.0	0.00	0.09	0.42	0.13	41	16
50 ISL	14.53 D	14.52	33.274 D	24.747	320.5	0.172	5.86	D255.4 D	101.0	3.1	0.43	0.5	0.14	0.08	1.08	0.45	50	
52	14.19	14.19	33.254	24.801	315.3	0.178	5.72	249.6	97.8	3.3	0.45	0.6	0.17	0.08	1.22	0.52	52	15
60	13.51	13.50	33.247	24.937	302.6	0.202	5.53	241.2	93.2	3.8	0.51	1.8	0.28	0.01	0.85	0.46	60	14
70	12.86	12.85	33.319	25.123	285.1	0.232	4.93	215.3	82.1	7.2	0.84	7.5	0.05	0.02	0.31	0.29	71	13
75 ISL	12.15 D	12.14	33.309 D	25.252	272.9	0.247	4.97	D216.6 D	81.5	8.5	0.95	9.3	0.05	0.04	0.25	0.24	76	
86	11.45	11.44	33.347	25.413	257.8	0.275	4.34	189.4	70.1	11.6	1.19	13.4	0.03	0.07	0.13	0.12	87	12
100	10.34	10.33	33.385	25.638	236.4	0.309	3.99	174.3	63.0	15.4	1.43	17.7	0.02	0.05	0.03	0.06	101	11
122	9.48	9.46	33.529	25.895	212.4	0.359	3.67	160.0	56.8	20.0	1.63	21.2	0.01	0.00	0.01	0.04	123	10
125 ISL	9.42 D	9.40	33.551 D	25.921	209.9	0.367	3.63	D158.2 D	56.2	20.4	1.65	21.4	0.01	0.00	0.01	0.04	126	
141	9.20	9.19	33.636	26.023	200.6	0.398	3.41	148.6	52.5	22.6	1.73	22.8	0.01	0.06	0.00	0.04	142	09
150 ISL	9.11 D	9.09	33.707 D	26.094	194.0	0.418	3.29	D143.3 D	50.7	24.0	1.79	23.6	0.01	0.04	0.00	0.04	151	
170	8.92	8.91	33.807	26.202	184.2	0.454	2.97	129.7	45.6	27.1	1.91	25.5	0.01	0.01	0.00	0.04	171	08
200	8.63	8.61	33.938	26.351	170.5	0.507	2.63	114.8	40.1	31.5	2.04	27.3	0.01	0.00	0.00	0.03	202	07
230	8.26	8.23	33.999	26.457	160.9	0.557	2.40	104.7	36.3	35.8	2.12	28.9	0.01	0.00			232	06
250 ISL	7.92 D	7.89	34.012 D	26.517	155.4	0.592	2.35	D102.0 D	35.2	39.0	2.20	30.1	0.01	0.00			252	
272	7.70	7.68	34.032	26.565	151.2	0.622	2.04	88.9	30.4	42.5	2.29	31.3	0.01	0.00			274	05
300 ISL	7.46 D	7.43	34.069 D	26.629	145.5	0.668	1.66	D 72.1 D	24.6	47.2	2.44	33.0	0.01	0.00			302	
322	7.21	7.18	34.082	26.675	141.3	0.695	1.44	63.0	21.3	50.8	2.56	34.2	0.01	0.01			325	04
383	6.56	6.52	34.118	26.793	130.7	0.778	0.96	41.9	14.0	61.0	2.82	37.2	0.01	0.00			386	03
400 ISL	6.40 D	6.37	34.118 D	26.814	128.8	0.805	0.90	D 39.3 D	13.1	63.3	2.86	37.8	0.00	0.00			403	
442	6.16	6.12	34.157	26.877	123.3	0.853	0.66	28.8	9.5	69.0	2.95	39.1	0.00	0.00			446	02
500 ISL	5.80 D	5.75	34.204 D	26.960	115.9	0.929	0.46	D 20.2 D	6.6	76.5	3.08	40.4	0.01	0.00			504	
516	5.69	5.64	34.204	26.973	114.7	0.941	0.42	18.5	6.0	78.6	3.11	40.7	0.01	0.02			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 1604 — 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 49.0 N	123 54.4 W	14/04/2016	2329 UTC	4391 m	360 21 kn	360 05 09	1	1021.6 mb	16.8 C	12.0 C	21 m	2/8	SC	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	15.81	15.81	33.043	24.286	362.8	0.000	5.78	252.2	102.0	1.7	0.33	0.0	0.01	1.57	0.07	0.01	0	
2	15.81	15.81	33.043	24.286	362.8	0.007	5.78	252.2	102.0	1.7	0.33	0.0	0.01	1.57	0.07	0.01	2	22
10	15.81	15.81	33.042	24.286	363.1	0.036	5.81	253.8	102.7	1.8	0.28	0.0	0.01	0.00	0.07	0.02	10	20
11	15.81	15.81	33.042	24.286	363.1	0.038											10	21
20 ISL	15.59 D	15.59	33.054 D	24.345	357.9	0.069	5.81	D253.4	D102.2	1.7	0.27	0.0	0.01	0.00	0.08	0.02	20	
26	15.38	15.38	33.026	24.370	355.7	0.094	5.83	254.4	102.0	1.7	0.26	0.0	0.01	0.00	0.08	0.02	26	19
30 ISL	15.22 D	15.22	33.021 D	24.401	352.8	0.105	5.86	D255.5	D102.2	1.7	0.26	0.0	0.01	0.00	0.09	0.02	30	
40	14.90	14.89	33.015	24.468	346.8	0.143	5.84	254.8	101.2	1.6	0.27	0.0	0.01	0.19	0.12	0.04	40	18
50	14.69	14.69	32.980	24.484	345.5	0.178	5.85	255.5	101.0	1.6	0.28	0.0	0.01	0.14	0.16	0.06	50	17
62	14.20	14.19	33.226	24.778	317.8	0.218	5.63	245.5	96.2	2.8	0.37	0.7	0.04	0.01	0.53	0.29	62	15
63	13.88	13.87	33.221	24.842	311.7	0.220											64	16
75	12.81	12.80	33.207	25.047	292.5	0.257	5.29	231.1	88.0	4.9	0.61	4.6	0.06	0.00	0.37	0.31	76	14
87	12.34	12.32	33.364	25.260	272.5	0.291	4.69	204.6	77.2	8.7	1.01	9.5	0.03	0.07	0.13	0.12	88	13
100	11.46	11.44	33.349	25.413	258.1	0.325	4.34	189.4	70.1	11.5	1.21	13.3	0.03	0.00	0.08	0.09	101	12
112	10.64	10.62	33.396	25.596	240.8	0.355	3.96	172.9	62.9	14.4	1.38	16.4	0.03	0.00	0.06	0.08	113	11
125	9.99	9.97	33.481	25.773	224.2	0.385	3.74	163.4	58.6	17.6	1.55	19.1	0.02	0.00	0.02	0.05	126	10
141	9.27	9.25	33.643	26.018	201.0	0.419	3.39	148.1	52.4	22.3	1.73	22.3	0.02	0.00	0.01	0.04	142	09
150 ISL	9.19 D	9.18	33.691 D	26.068	196.5	0.436	3.36	D146.2	D 51.8	24.0	1.80	23.2	0.02	0.00	0.01	0.04	151	
170	8.97	8.95	33.841	26.221	182.4	0.475	2.83	123.5	43.4	27.7	1.94	25.4	0.02	0.02	0.01	0.05	171	08
200	8.75	8.72	33.931	26.328	172.8	0.528	2.51	109.6	38.4	31.1	2.04	26.9	0.02	0.01	0.00	0.04	202	07
230	8.41	8.38	34.010	26.443	162.4	0.579	2.28	99.6	34.6	35.5	2.15	28.6	0.01	0.01			232	06
250 ISL	8.03 D	8.00	34.021 D	26.509	156.3	0.611	2.27	D 98.7	D 34.1	38.8	2.22	29.6	0.01	0.02			252	
271	7.67	7.64	34.033	26.571	150.6	0.643	2.05	89.6	30.6	42.2	2.30	30.7	0.02	0.04			273	05
300 ISL	7.41 D	7.38	34.055 D	26.626	145.7	0.686	1.75	D 76.1	D 26.0	47.2	2.44	32.5	0.01	0.00			302	
320	7.21	7.18	34.076	26.671	141.7	0.714	1.58	68.9	23.3	50.7	2.54	33.6	0.01	0.00			323	04
380	6.79	6.76	34.133	26.774	132.7	0.797	1.00	43.7	14.7	58.4	2.77	36.1	0.01	0.00			383	03
400 ISL	6.59 D	6.56	34.141 D	26.807	129.6	0.826	0.86	D 37.4	D 12.5	62.1	2.84	36.9	0.01	0.00			403	
440	6.20	6.16	34.178	26.888	122.2	0.873	0.62	27.0	8.9	69.3	2.98	38.4	0.01	0.00			444	02
500 ISL	5.90 D	5.86	34.215 D	26.956	116.4	0.949	0.46	D 20.0	D 6.6	76.4	3.08	39.6	0.01	0.00			504	
515	5.81	5.76	34.228	26.978	114.4	0.962	0.38	16.7	5.5	78.2	3.11	39.9	0.01	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 1604 — 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 24.1 N	119 48.1 W	12/04/2016	2219 UTC	29 m	200 03 kn	250 01 06	1	1020.4 mb	18.0 C	15.4 C		1/8	CU	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	15.13	15.13	33.572	24.844	309.7	0.000	6.58	286.9	114.9	1.2	0.44	0.8	0.05	0.58	0.87	0.17	0	
2	15.13	15.13	33.572	24.844	309.7	0.006	6.58	286.9	114.9	1.2	0.44	0.8	0.05	0.58	0.87	0.17	2	05
6	14.97	14.97	33.578	24.883	306.1	0.019	6.63	289.3	115.5	1.1	0.41	0.7	0.06	0.50	0.85A	0.20A	6	04
10 ISL	14.82 D	14.82	33.572 D	24.911	303.5	0.031	6.63	D288.9	D115.1	1.1	0.43	0.8	0.06	0.61	0.85	0.23	10	
11	14.83	14.83	33.574	24.910	303.7	0.034	6.64	289.8	115.4	1.1	0.44	0.8	0.06	0.64	0.85	0.23	11	03
16	14.69	14.69	33.578	24.943	300.7	0.049	6.66	290.4	115.3	1.1	0.45	0.8	0.07	0.70	0.82	0.25	16	02
20	14.58	14.57	33.574	24.966	298.6	0.061	6.64	289.4	114.6	1.2	0.45	0.9	0.07	0.68	0.83	0.24	20	01

A) SECOND FLUOROMETER READING RECALCULATED BECAUSE ACID RATIO > TAU OF PURE CHL-A
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 1604 — 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 16.4 N	120 1.7 W	12/04/2016	1845 UTC	576 m	300 13 kn	310 02 06	1	1022.1 mb	14.7 C	12.7 C	10 m	1/8	ST	058

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	13.43	13.43	33.477	25.127	282.6	0.000	6.94	303.2	117.1	0.7	0.32	0.6	0.07	0.24	2.80	0.92	0	
2 A	13.43	13.43	33.477	25.128	282.7	0.006	6.94	303.2	117.1	0.7	0.32	0.6	0.07	0.24	2.80	0.92	2	24
8 A	13.32	13.32	33.476	25.150	280.7	0.023	6.95	303.4	116.9	0.3	0.31	0.4	0.07	0.14	2.43	1.16	8	23
9 A	13.27	13.27	33.479	25.162	279.6	0.025	6.92	302.4	116.4	0.3	0.33	0.6	0.07	0.22	2.46	1.31	9	22
10 ISL	13.21 D	13.21	33.486 D	25.178	278.1	0.029	6.85	D298.3	D115.0	1.2	0.43	1.8	0.09	0.41	2.60	1.35	10	
16 A	12.14	12.14	33.601	25.477	249.8	0.044	5.49	239.6	90.1	6.9	1.05	9.0	0.21	1.55	3.43	1.64	16	21
20 ISL	11.60 D	11.60	33.541 D	25.532	244.7	0.054	5.35	D233.0	D 86.9	8.3	1.15	9.9	0.23	1.84	2.93	1.75	20	
28 A	11.79	11.78	33.661	25.591	239.3	0.073	4.84	211.2	78.9	11.1	1.34	11.8	0.26	2.41	1.93	1.97	28	20
30 ISL	11.71 D	11.71	33.681 D	25.621	236.6	0.079	4.75	D206.6	D 77.3	12.0	1.38	12.5	0.27	2.37	1.86	1.96	30	
35 A	11.52	11.51	33.691	25.665	232.4	0.089	4.43	193.6	71.9	14.2	1.49	14.1	0.30	2.28	1.67	1.95	35	19
42	11.38	11.38	33.698	25.695	229.8	0.106	4.25	185.7	68.8	15.4	1.53	15.1	0.31	2.09	1.31	2.31	42	18
50	11.13	11.13	33.709	25.749	224.8	0.124	3.93	171.6	63.2	17.8	1.60	17.0	0.32	1.50	1.12	2.15	50	17
60	10.88	10.88	33.725	25.806	219.6	0.146	3.66	159.6	58.5	19.6	1.66	18.6	0.36	1.11	0.86	2.03	60	16
70	10.33	10.32	33.799	25.962	205.0	0.167	2.57	112.1	40.6	24.5	1.90	23.1	0.45	0.00	0.41	1.35	71	15
75 ISL	10.25 D	10.24	33.841 D	26.008	200.8	0.179	2.47	D107.6	D 39.0	25.4	1.94	23.6	0.40	0.00	0.39	1.31	76	
85	10.09	10.08	33.897	26.080	194.1	0.197	2.24	98.0	35.3	27.2	2.03	24.5	0.31	0.01	0.34	1.22	86	14
100	9.91	9.90	33.944	26.147	188.1	0.226	2.07	90.2	32.4	29.1	2.10	25.5	0.20	0.03	0.23	0.58	101	13
120	9.81	9.80	33.996	26.205	183.0	0.263	1.92	83.9	30.1	30.5	2.16	26.2	0.10	0.04	0.18	0.53	121	12
125 ISL	9.80 D	9.78	34.006 D	26.215	182.2	0.274	1.89	D 82.3	D 29.6	30.9	2.17	26.4	0.08	0.00	0.19	0.52	126	
140	9.68	9.67	34.051	26.270	177.4	0.299	1.76	77.0	27.6	32.3	2.21	27.0	0.05	0.00	0.20	0.50	141	11
150 ISL	9.65 D	9.63	34.065 D	26.287	175.9	0.319	1.71	D 74.5	D 26.7	33.8	2.25	27.6	0.04	0.00	0.18	0.51	151	
170	9.15	9.13	34.102	26.397	165.7	0.351	1.50	65.7	23.2	36.8	2.32	28.7	0.04	0.00	0.15	0.54	171	10
200	8.71	8.69	34.150	26.505	156.1	0.399	1.31	57.0	20.0	43.9	2.51	30.6	0.02	0.00	0.12	0.36	202	09
231	8.44	8.42	34.174	26.566	150.7	0.447	0.97	42.2	14.7	47.5	2.59	31.5	0.02	0.00			233	08
250 ISL	8.21 D	8.18	34.181 D	26.608	147.0	0.479	0.88	D 38.2	D 13.3	50.1	2.64	32.0	0.02	0.00			252	
271	8.03	8.01	34.187	26.639	144.4	0.506	0.83	36.0	12.4	52.9	2.69	32.6	0.02	0.00			273	07
300 ISL	7.81 D	7.78	34.205 D	26.686	140.3	0.551	0.59	D 25.7	D 8.9	57.5	2.78	33.0	0.02	0.00			302	
320	7.62	7.59	34.210	26.718	137.6	0.575	0.56	24.3	8.3	60.7	2.84	33.2	0.02	0.00			323	06
380	7.16	7.12	34.229	26.800	130.6	0.655	0.42	18.2	6.1	68.6	2.97	33.4	0.02	0.00			383	05
400 ISL	7.03 D	6.99	34.230 D	26.819	129.0	0.687	0.39	D 17.1	D 5.8	72.9	3.04	32.5	0.02	0.00			403	
441	6.80	6.75	34.241	26.860	125.6	0.733	0.23	9.9	3.3	81.9	3.19	30.7	0.02	0.00			445	04
500 ISL	6.67 D	6.62	34.248 D	26.884	124.2	0.814	0.08	D 3.4	D 1.2	96.2	3.53	22.3	0.02	0.00			504	
515	6.65	6.60	34.247	26.886	124.2	0.826	0.06	2.5	0.8	99.8	3.62	20.2	0.02	0.00			519	03
562	6.50	6.45	34.245	26.905	122.9	0.884	0.33	14.2	4.7	78.8	3.12	34.1	0.17	0.29			567	02
567	6.50	6.45	34.246	26.906	123.0	0.890	0.32	14.1	4.7	79.3	3.14	33.9	0.18	0.24			572	01

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 1604 — 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 15.8 N	119 19.9 W	08/04/2016	0857 UTC	20 m	260 05 kn			1012.5 mb	14.9 C	14.3 C				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	15.11	15.11	33.591	24.862	307.9	0.000	7.62	332.7	133.1	0.0	0.13	0.0	0.01	0.03	1.58	0.41	0	
2	15.11	15.11	33.591	24.862	307.9	0.006	7.62	332.7	133.1	0.0	0.13	0.0	0.01	0.03	1.58	0.41	2	05
6	14.85	14.85	33.590	24.918	302.8	0.018	7.73	337.5	134.3	0.1	0.11	0.0	0.03	0.01	1.65	0.42	6	04
10 ISL	13.91 D	13.90	33.593 D	25.121	283.6	0.030	7.72	D336.5	D131.6	0.2	0.29	0.0	0.05	0.11	2.32	0.87	10	
11	13.80	13.79	33.597	25.146	281.2	0.033	7.02	306.5	119.4	0.2	0.34	0.0	0.05	0.14	2.48	0.99	11	02
11	13.80	13.79	33.594	25.144	281.4	0.032											11	03
15	13.60	13.60	33.607	25.194	276.7	0.044	6.09	265.7	103.1	0.4	0.50	1.0	0.11	0.33	4.40	1.69	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 1604 — 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 13.4 N	119 24.5 W	08/04/2016	0957 UTC	35 m	260 06 kn			1012.5 mb	14.7 C	14.1 C				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	15.37	15.37	33.577	24.794	314.4	0.000	6.68	291.6	117.3	0.2	0.31	0.0	0.02	0.13	0.61	0.19	0	
2	15.37	15.37	33.577	24.794	314.4	0.006	6.68	291.6	117.3	0.2	0.31	0.0	0.02	0.13	0.61	0.19	2	06
6	14.07	14.06	33.573	25.072	288.1	0.018	6.70	292.7	114.6	0.3	0.32	0.0	0.03	0.15	0.80	0.25	6	05
10 ISL	13.82 D	13.81	33.575 D	25.125	283.2	0.030	6.87	D299.4	D116.9	0.4	0.36	0.1	0.05	0.37	3.48	0.72	10	
11	13.71	13.71	33.578	25.149	280.9	0.033	6.81	297.2	115.6	0.4	0.37	0.1	0.05	0.43	4.14	0.83	11	03
11	13.71	13.71	33.577	25.148	281.0	0.032											11	04
20 ISL	13.26 D	13.26	33.577 D	25.240	272.5	0.058	5.75	D250.7 D	96.8	3.0	0.70	3.9	0.15	1.10	4.15	0.62	20	
21	13.29	13.29	33.577	25.235	273.1	0.060	5.66	247.3	95.3	3.2	0.74	4.3	0.16	1.17	4.15	0.60	21	02
25	13.21	13.20	33.583	25.256	271.2	0.071	5.76	251.6	96.8	3.1	0.73	4.1	0.14	1.16	4.41	0.60	25	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 1604 — 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 30.4 W	08/04/2016	1151 UTC	116 m	270 11 kn			1012.6 mb	14.2 C	13.7 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	14.18	14.18	33.549	25.030	291.9	0.000	5.84	255.1	100.1	3.9	0.62	3.0	0.11	0.83	0.78	0.31	0	
2	14.18	14.18	33.549	25.030	292.0	0.006	5.84	255.1	100.1	3.9	0.62	3.0	0.11	0.83	0.78	0.31	2	11
10	13.77	13.77	33.565	25.127	283.0	0.029	5.61	245.1	95.4	4.6	0.72	4.1	0.13	0.94	0.73	0.47	10	09
10	13.77	13.77	33.565	25.128	282.9	0.028											10	10
20	13.67	13.67	33.574	25.155	280.7	0.057	5.51	240.6	93.5	5.2	0.77	4.8	0.15	0.98	0.74	0.68	20	08
30 ISL	12.97 D	12.97	33.601 D	25.317	265.5	0.085	5.64	D245.7 D	94.3	5.2	0.88	5.4	0.16	1.91	1.37	1.28	30	
31	12.92	12.92	33.603	25.328	264.5	0.087	5.39	235.1	89.9	5.2	0.89	5.5	0.16	2.00	1.43	1.34	31	07
40	12.23	12.23	33.630	25.483	249.9	0.110	4.45	194.2	73.2	11.1	1.23	10.9	0.24	1.62	1.17	1.78	40	06
50	11.88	11.87	33.666	25.579	241.1	0.135	4.01	175.0	65.5	14.5	1.37	13.5	0.27	1.19	0.74	1.75	50	05
60	11.25	11.24	33.738	25.751	224.9	0.158	3.29	143.5	53.0	18.9	1.62	17.4	0.27	0.69	0.62	1.61	60	04
75	10.29	10.28	33.870	26.024	199.2	0.190	2.47	107.7	39.0	25.3	1.90	22.7	0.08	0.00	0.34	0.96	76	03
100	9.82	9.81	33.989	26.197	183.4	0.238	2.16	94.1	33.8	29.4	2.06	24.6	0.05	0.01	0.34	0.77	101	02
111	9.85	9.84	34.028	26.222	181.3	0.258	2.06	89.7	32.2	29.9	2.11	24.9	0.04	0.00	0.30	0.54	112	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 1604 — 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 52.6 N	120 8.0 W	12/04/2016	1224 UTC	97 m	320 23 kn			1019.6 mb	13.1 C	12.0 C				057

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	13.40	13.40	33.582	25.214	274.4	0.000	5.34	233.1	90.0	7.7	0.87	7.0	0.16	0.18	1.72	0.52	0	
3	13.40	13.40	33.582	25.214	274.5	0.008	5.34	233.1	90.0	7.7	0.87	7.0	0.16	0.18	1.72	0.52	3	11
9	13.40	13.40	33.577	25.211	274.9	0.025	5.32	232.3	89.7	7.7	0.87	7.0	0.16	0.17	1.76	0.59	9	09
9	13.40	13.40	33.587	25.220	274.2	0.026											9	10
10 ISL	13.40 D	13.40	33.577 D	25.211	275.0	0.028	5.33	D232.0 D	89.8	7.7	0.87	7.1	0.16	0.17	1.75	0.59	10	
20	13.26	13.26	33.591	25.251	271.5	0.055	5.25	229.2	88.3	8.0	0.89	7.4	0.16	0.22	1.62	0.53	20	08
30	13.20	13.20	33.585	25.259	271.0	0.082	5.17	225.7	86.8	8.5	0.93	7.9	0.16	0.30	1.56	0.54	30	07
40	12.93	12.92	33.615	25.337	263.9	0.109	5.04	219.9	84.1	9.4	0.99	8.7	0.17	0.40	1.39	0.54	40	06
50	12.27	12.27	33.636	25.481	250.4	0.134	4.33	188.9	71.3	13.2	1.23	12.3	0.19	0.56	0.89	0.48	50	05
60	12.23	12.22	33.643	25.496	249.3	0.159	4.23	184.8	69.7	13.7	1.26	12.9	0.20	0.54	0.80	0.55	60	04
70	11.99	11.98	33.665	25.558	243.7	0.184	4.02	175.7	65.9	15.3	1.35	14.1	0.19	0.56	0.75	0.54	71	03
75 ISL	11.25 D	11.24	33.733 D	25.747	225.7	0.197	3.61	D157.2 D	58.3	18.8	1.52	16.9	0.19	0.45	0.51	0.43	76	
79	10.78	10.77	33.759	25.852	215.8	0.205	3.16	138.1	50.5	21.6	1.66	19.2	0.19	0.37	0.32	0.34	80	02
90	10.18	10.16	33.869	26.043	197.8	0.227	2.52	109.8	39.7	27.1	1.94	23.3	0.14	0.14	0.13	0.29	91	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 1604 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 44.7 N	120 24.7 W	12/04/2016	0835 UTC	975 m	320 19 kn			1020.3 mb	13.8 C	12.4 C				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	14.70	14.70	33.326	24.747	318.9	0.000	6.38	278.6	110.3	0.5	0.33	0.1	0.03	0.19	0.53	0.10	0	
3	14.70	14.70	33.326	24.747	319.0	0.010	6.38	278.6	110.3	0.5	0.33	0.1	0.03	0.19	0.53	0.10	3	21
9	14.70	14.70	33.328	24.748	319.0	0.029	6.36	277.6	110.0	0.1	0.33	0.0	0.02	0.16	0.58	0.10	9	19
10 ISL	14.70 D	14.70	33.326 D	24.748	319.1	0.032	6.34	D276.1	D109.6	0.2	0.34	0.1	0.02	0.19	0.60	0.12	10	
10	14.70	14.70	33.326	24.748	319.1	0.030											10	20
20 ISL	13.82 D	13.82	33.422 D	25.006	294.8	0.063	6.39	D278.4	D108.6	0.7	0.46	1.2	0.07	0.51	0.78	0.31	20	
21	13.69	13.69	33.424	25.035	292.1	0.066	6.39	279.0	108.3	0.7	0.47	1.4	0.08	0.54	0.79	0.32	21	18
30	12.90	12.89	33.414	25.187	277.8	0.091	6.12	267.4	102.1	1.7	0.63	3.3	0.12	0.91	0.82	0.47	30	17
40	12.23	12.22	33.429	25.328	264.7	0.118	5.45	237.9	89.6	5.1	0.91	7.4	0.17	1.12	1.27	1.04	40	16
50	11.43	11.42	33.468	25.507	247.8	0.144	4.45	194.3	71.9	12.6	1.29	13.8	0.18	0.80	1.11	0.61	50	15
60	11.46	11.45	33.594	25.601	239.2	0.168	4.27	186.3	69.1	14.2	1.40	14.7	0.23	1.20	1.50	0.75	60	14
70	11.16	11.15	33.613	25.671	232.8	0.192	3.87	168.8	62.2	16.3	1.51	16.6	0.23	0.87	1.54	0.79	71	13
75 ISL	10.93 D	10.92	33.634 D	25.728	227.5	0.205	3.81	D165.9	D 61.0	17.5	1.56	18.0	0.19	0.62	1.25	0.67	76	
85	10.21	10.20	33.617	25.841	216.8	0.226	3.29	143.4	51.8	19.8	1.66	20.6	0.11	0.11	0.66	0.44	86	12
100	9.77	9.76	33.646	25.937	208.0	0.257	3.18	138.9	49.6	21.2	1.73	21.7	0.07	0.02	0.49	0.35	101	11
120	9.08	9.07	33.792	26.164	186.7	0.297	2.87	125.3	44.2	26.6	1.89	25.2	0.04	0.00	0.20	0.20	121	10
125 ISL	9.06 D	9.04	33.813 D	26.185	184.9	0.308	2.88	D125.5	D 44.3	27.5	1.92	25.5	0.03	0.00	0.20	0.21	126	
141	8.79	8.77	33.911	26.304	173.8	0.335	2.59	113.0	39.6	30.4	2.02	26.8	0.03	0.00	0.22	0.22	142	09
150 ISL	8.70 D	8.68	33.957 D	26.355	169.2	0.352	2.55	D111.0	D 38.9	31.7	2.06	27.3	0.03	0.00	0.20	0.24	151	
170	8.50	8.49	34.003	26.421	163.3	0.384	2.28	99.4	34.6	34.8	2.15	28.4	0.02	0.00	0.15	0.29	171	08
200 ISL	8.29 D	8.27	34.072 D	26.508	155.5	0.434	1.87	D 81.1	D 28.2	39.2	2.29	30.0	0.02	0.00	0.09	0.14	202	
201	8.29	8.27	34.070	26.506	155.8	0.433	1.89	82.7	28.7	39.3	2.29	30.1	0.02	0.00	0.09	0.14	203	07
230	7.89	7.87	34.103	26.593	147.9	0.477	1.57	68.3	23.5	44.2	2.44	31.9	0.02	0.00			232	06
250 ISL	7.75 D	7.72	34.142 D	26.645	143.3	0.509	1.31	D 56.9	D 19.6	47.6	2.54	32.9	0.01	0.00			252	
270	7.48	7.45	34.152	26.692	139.0	0.535	1.16	50.4	17.2	51.0	2.63	33.9	0.01	0.00			272	05
300 ISL	7.33 D	7.30	34.191 D	26.744	134.5	0.579	0.90	D 39.2	D 13.4	54.4	2.72	34.8	0.01	0.00			302	
321	7.25	7.22	34.202	26.765	132.9	0.604	0.80	34.9	11.8	56.8	2.79	35.4	0.01	0.00			324	04
381	6.77	6.73	34.226	26.851	125.4	0.682	0.59	25.7	8.6	63.9	2.94	37.2	0.01	0.00			384	03
400 ISL	6.65 D	6.62	34.234 D	26.872	123.6	0.709	0.52	D 22.7	D 7.6	66.3	2.96	37.8	0.01	0.00			403	
441	6.15	6.12	34.223	26.929	118.3	0.755	0.47	20.4	6.8	71.5	3.01	38.9	0.02	0.01			445	02
500 ISL	5.86 D	5.82	34.271 D	27.005	111.7	0.828	0.33	D 14.2	D 4.7	78.9	3.13	40.1	0.01	0.00			504	
515	5.75	5.70	34.289	27.033	109.1	0.839	0.29	12.7	4.2	80.7	3.16	40.4	0.01	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 1604 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 34.5 N	120 45.4 W	12/04/2016	0437 UTC	1381 m	330 20 kn			1021.0 mb	14.3 C	12.9 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	14.13	14.13	33.443	24.957	298.9	0.000	6.89	300.7	117.9	0.6	0.33	0.3	0.04	0.20	1.46	0.21	0	
3	14.13	14.13	33.443	24.957	299.0	0.009	6.89	300.7	117.9	0.6	0.33	0.3	0.04	0.20	1.46	0.21	3	21
10	13.96	13.96	33.482	25.024	292.8	0.030	6.95	303.5	118.6	0.9	0.41	1.0	0.05	0.52	1.80	0.38	10	19
11	13.96	13.96	33.489	25.029	292.3	0.031											10	20
20	11.52	11.51	33.546	25.551	242.8	0.057	4.70	205.3	76.2	10.7	1.31	12.9	0.23	0.76	3.65	1.13	20	18
30	11.29	11.29	33.531	25.581	240.3	0.081	4.34	189.4	70.0	12.5	1.34	14.4	0.22	0.61	3.24	1.12	30	17
40	11.07	11.06	33.586	25.664	232.6	0.104	4.24	185.0	68.1	15.3	1.42	15.7	0.21	0.73	1.59	0.92	40	16
50	10.53	10.53	33.610	25.778	222.0	0.127	3.62	157.9	57.4	18.6	1.62	19.0	0.20	0.49	1.65	0.79	50	15
60	10.34	10.34	33.642	25.836	216.8	0.149	3.25	141.9	51.4	20.3	1.74	20.7	0.13	0.11	1.24	0.75	60	14
70	9.85	9.84	33.667	25.940	207.0	0.170	3.14	136.9	49.1	21.9	1.76	22.1	0.08	0.08	1.29	0.87	71	13
75 ISL	9.69 D	9.68	33.695 D	25.988	202.6	0.182	3.13	D136.4	D 48.9	22.9	1.80	22.7	0.07	0.00	1.03	0.75	76	
86	9.83	9.82	33.825	26.067	195.3	0.202	2.68	116.8	41.9	25.0	1.89	23.9	0.05	0.00	0.47	0.50	87	12
100	9.51	9.49	33.874	26.159	186.9	0.229	2.59	113.2	40.3	27.0	1.97	25.1	0.05	0.03	0.34	0.44	101	11
120	9.22	9.20	33.874	26.206	182.8	0.266	2.67	116.3	41.1	28.0	1.97	25.6	0.04	0.00	0.32	0.40	121	10
125 ISL	9.02 D	9.01	33.893 D	26.252	178.4	0.277	2.62	D114.2	D 40.3	28.7	1.99	26.0	0.04	0.00	0.31	0.38	126	
141	8.79	8.78	33.931	26.318	172.4	0.303	2.52	109.9	38.5	31.0	2.05	27.3	0.04	0.00	0.30	0.34	142	09
150 ISL	8.68 D	8.67	33.964 D	26.362	168.5	0.321	2.43	D105.6	D 37.0	32.5	2.08	27.8	0.04	0.00	0.26	0.31	151	
171	8.37	8.36	34.011	26.447	160.8	0.353	2.31	100.6	35.0	36.0	2.15	28.9	0.03	0.00	0.16	0.23	172	08
200 ISL	8.09 D	8.07	34.027 D	26.502	156.0	0.402	2.21	D 95.9	D 33.2	38.5	2.21	29.8	0.03	0.00	0.13	0.28	202	
201	8.09	8.07	34.025	26.501	156.1	0.401	2.21	96.5	33.3	38.6	2.21	29.8	0.03	0.00	0.12	0.28	203	07
231	7.93	7.90	34.086 D	26.573	149.8	0.450	1.70	D 74.0	D 25.5								233	06
250 ISL	7.90 D	7.87	34.121 D	26.606	147.0	0.478	1.53	D 66.5	D 22.9	45.3	2.43	32.0	0.03	0.00			252	
270	7.77	7.75	34.165 D	26.660	142.2	0.507	1.16	D 50.6	D 17.4								272	05
300 ISL	7.46 D	7.43	34.180 D	26.717	137.2	0.550	0.98	D 42.5	D 14.5	52.0	2.66	34.2	0.02	0.00			302	
321	7.32	7.29	34.190	26.745	134.8	0.575	0.95	41.3	14.0	54.9	2.75	35.2	0.02	0.00			324	04
381	6.97	6.94	34.233	26.828	127.8	0.654	0.62	27.1	9.1	61.6	2.89	36.6	0.02	0.00			384	03
400 ISL	6.71 D	6.67	34.230 D	26.862	124.6	0.682	0.54	D 23.6	D 7.9	63.8	2.92	37.2	0.02	0.00			403	
441	6.48	6.44	34.244	26.904	121.1	0.728	0.47	20.4	6.8	68.4	3.00	38.4	0.02	0.00			445	02
500 ISL	6.02 D	5.98	34.283 D	26.994	112.9	0.803	0.30	D 13.1	D 4.3	75.2	3.10	39.6	0.01	0.00			504	
517	5.99	5.95	34.288	27.003	112.4	0.816	0.31	13.3	4.4	77.2	3.13	40.0	0.01	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 1604 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 26.7 W	11/04/2016	2225 UTC	3831 m	320 10 kn	340 03 08	1	1020.3 mb	16.2 C	13.6 C	28 m	4/8	SC	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	16.44	16.44	33.136	24.215	369.5	0.000	5.69	248.3	101.7	2.2	0.39	0.1	0.02	0.11	0.09	0.01	0	
2	16.44	16.44	33.136	24.215	369.6	0.007	5.69	248.3	101.7	2.2	0.39	0.1	0.02	0.11	0.09	0.01	2	21
10	16.34	16.34	33.128	24.233	368.2	0.037	5.69	248.5	101.6	1.9	0.28	0.0	0.01	0.00	0.09	0.01	10	19
10	16.34	16.34	33.149	24.249	366.6	0.038											10	20
20 ISL	15.96 D	15.96	33.151 D	24.338	358.6	0.074	5.74	D250.3	D101.7	1.9	0.29	0.0	0.01	0.00	0.11	0.02	20	
25	15.68	15.68	33.149	24.398	352.9	0.091	5.79	252.8	102.0	1.9	0.30	0.0	0.01	0.00	0.12	0.02	25	18
30 ISL	15.63 D	15.63	33.149 D	24.410	352.0	0.109	5.80	D252.9	D102.1	1.8	0.29	0.0	0.01	0.00	0.12	0.02	30	
40	15.56	15.56	33.149	24.425	350.9	0.144	5.79	253.0	101.9	1.8	0.28	0.0	0.01	0.00	0.12	0.02	40	17
50	15.48	15.47	33.156	24.451	348.8	0.179	5.82	254.3	102.2	1.8	0.31	0.0	0.01	0.00	0.14	0.03	50	16
62	15.31	15.30	33.175	24.504	344.1	0.220	5.86	255.6	102.4	1.8	0.32	0.0	0.01	0.00	0.25	0.03	63	15
75	14.94	14.93	33.305	24.683	327.4	0.264	5.83	254.5	101.3	2.0	0.33	0.0	0.01	0.00	0.44	0.22	76	14
87	14.03	14.01	33.213	24.807	315.9	0.303	5.68	247.8	96.7	2.8	0.44	0.9	0.19	0.00	0.54	0.27	88	13
100	13.33	13.32	33.290	25.008	297.0	0.342	5.39	235.5	90.7	4.3	0.62	3.8	0.10	0.00	0.31	0.26	101	12
113	11.35	11.34	33.240	25.348	264.6	0.379	4.93	215.4	79.5	8.2	0.89	9.1	0.07	0.00	0.19	0.16	114	11
125	10.57	10.56	33.267	25.507	249.6	0.410	4.62	201.8	73.2	11.8	1.17	13.4	0.06	0.00	0.10	0.10	126	10
140	9.62	9.61	33.436	25.799	221.9	0.445	4.22	184.4	65.6	17.1	1.45	18.0	0.03	0.00	0.03	0.05	141	09
150 ISL	9.41 D	9.40	33.529 D	25.906	211.9	0.470	4.01	D174.5	D 62.0	20.0	1.60	20.1	0.02	0.00	0.02	0.05	151	
170	9.69	9.67	33.814	26.085	195.5	0.507	2.84	123.7	44.2	26.0	1.90	24.2	0.02	0.00	0.00	0.04	171	08
200	9.74	9.72	34.062	26.270	178.7	0.563	1.90	82.7	29.7	31.0	2.18	26.2	0.02	0.00	0.00	0.04	202	07
230	8.87	8.85	34.054	26.406	166.1	0.615	1.98	86.4	30.4	35.4	2.23	28.2	0.02	0.00			232	06
250 ISL	8.57 D	8.54	34.066 D	26.463	161.0	0.651	2.01	D 87.5	D 30.6	38.0	2.32	29.1	0.02	0.00			252	
270	8.60	8.57	34.139	26.516	156.4	0.679	1.54	67.1	23.5	40.5	2.41	29.9	0.02	0.00			272	05
300 ISL	8.22 D	8.19	34.154 D	26.586	150.2	0.730	1.38	D 60.1	D 20.9	44.2	2.51	31.2	0.01	0.00			302	
321	8.07	8.03	34.177	26.628	146.5	0.756	1.23	53.8	18.6	46.8	2.58	32.0	0.01	0.00			324	04
380	7.18	7.14	34.192	26.768	133.6	0.839	0.83	36.0	12.2	57.6	2.81	35.5	0.01	0.00			383	03
400 ISL	7.01 D	6.97	34.209 D	26.805	130.3	0.871	0.71	D 30.8	D 10.4	60.2	2.86	36.0	0.01	0.00			403	
440	6.75	6.71	34.227	26.855	125.9	0.916	0.58	25.1	8.4	65.2	2.96	37.2	0.00	0.00			444	02
500 ISL	6.38 D	6.33	34.270 D	26.939	118.6	0.997	0.38	D 16.4	D 5.5	72.3	3.08	38.6	0.01	0.00			504	
516	6.24	6.19	34.278	26.964	116.4	1.009	0.35	15.4	5.1	74.2	3.11	38.9	0.01	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1604 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 54.6 N	122 7.7 W	11/04/2016	1718 UTC	4095 m	020 10 kn	350 02 07	1	1020.0 mb	16.0 C	14.4 C	21 m	7/8	SC	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	16.07	16.07	33.206	24.353	356.4	0.000	5.76	251.7	102.4	1.9	0.31	0.0	0.00	0.00	0.21	0.04	0	
2 A	16.07	16.07	33.206	24.353	356.4	0.007	5.76	251.7	102.4	1.9	0.31	0.0	0.00	0.00	0.21	0.04	2	24
10 ISL	15.64 D	15.64	33.245 D	24.480	344.6	0.036	5.90	D257.1	D103.9	1.9	0.32	0.0	0.01	0.00	0.23	0.05	10	
11	15.45	15.45	33.236	24.516	341.3	0.039	5.88	257.0	103.2	1.9	0.32	0.0	0.01	0.00	0.23	0.05	11	22
11	15.45	15.45	33.241	24.519	340.9	0.037											11	23
14 A	15.31	15.30	33.222	24.537	339.3	0.049	5.88	256.7	102.8	2.1	0.32	0.0	0.01	0.00	0.22	0.05	14	21
19 A	15.29	15.28	33.222	24.541	339.1	0.066	5.87	256.4	102.7	2.1	0.32	0.0	0.00	0.00	0.25	0.05	19	20
20 ISL	15.29 D	15.29	33.222 D	24.541	339.2	0.070	5.88	D256.3	D102.8	2.1	0.32	0.0	0.00	0.00	0.25	0.05	20	
30 ISL	15.22 D	15.21	33.232 D	24.565	337.2	0.104	5.88	D256.4	D102.7	2.0	0.32	0.0	0.00	0.00	0.28	0.07	30	
36 A	15.18	15.18	33.237	24.576	336.3	0.123	5.89	257.1	102.7	2.0	0.32	0.0	0.00	0.00	0.29	0.09	36	19
47	15.05	15.05	33.241	24.608	333.7	0.160	5.86	256.2	102.1	2.1	0.33	0.0	0.00	0.00	0.42	0.13	47	18
50 ISL	14.99 D	14.98	33.245 D	24.625	332.2	0.171	5.87	D255.8	D102.0	2.1	0.34	0.0	0.00	0.00	0.49	0.16	50	
59 A	14.85	14.84	33.254	24.663	328.8	0.200	5.86	255.8	101.5	2.3	0.35	0.0	0.01	0.00	0.69	0.27	59	17
66	14.71	14.70	33.288	24.720	323.6	0.223	5.84	254.9	100.9	2.4	0.38	0.0	0.05	0.01	1.21	0.48	67	15
67	14.71	14.70	33.287	24.720	323.6	0.224											67	16
73 A	14.84	14.82	33.376	24.761	319.9	0.245	5.96	260.2	103.3	1.4	0.38	0.0	0.02	0.09	0.76	0.30	74	14
75 ISL	14.78 D	14.77	33.390 D	24.783	317.9	0.253	5.95	D259.4	D103.1	1.5	0.39	0.1	0.03	0.15	0.72	0.30	76	
85	14.31	14.30	33.380	24.876	309.3	0.283	5.84	254.9	100.1	2.0	0.45	0.4	0.07	0.47	0.54	0.26	86	13
95	13.66	13.64	33.370	25.004	297.3	0.313	5.70	248.9	96.5	3.6	0.59	2.1	0.14	1.01	0.24	0.22	96	12
100 ISL	13.61 D	13.60	33.398 D	25.036	294.5	0.330	5.62	D245.0	D 95.1	5.1	0.69	4.0	0.17	0.77	0.21	0.21	101	
110	12.75	12.73	33.359	25.178	281.0	0.357	4.98	217.7	82.8	8.1	0.90	7.8	0.24	0.30	0.14	0.18	111	11
125	11.30	11.28	33.410	25.490	251.4	0.397	4.16	181.8	67.1	13.3	1.28	14.3	0.13	0.00	0.08	0.12	126	10
140	10.34	10.32	33.570	25.784	223.6	0.432	3.44	150.2	54.3	18.7	1.61	19.3	0.03	0.00	0.03	0.08	141	09
150 ISL	10.11 D	10.09	33.703 D	25.927	210.2	0.457	3.29	D143.3	D 51.8	20.5	1.69	20.4	0.02	0.00	0.03	0.08	151	
170	9.97	9.95	33.779	26.010	202.7	0.496	2.81	122.7	44.1	24.0	1.86	22.7	0.02	0.03	0.02	0.08	171	08
200	9.25	9.23	33.926	26.245	180.9	0.554	2.48	108.4	38.4	29.3	2.02	25.5	0.02	0.00	0.01	0.06	202	07
230	8.57	8.54	34.018	26.424	164.2	0.605	2.22	97.0	33.9	35.2	2.17	28.0	0.02	0.00			232	06
250 ISL	8.41 D	8.39	34.057 D	26.480	159.3	0.641	2.03	D 88.3	D 30.8	38.3	2.28	29.1	0.02	0.00			252	
270	8.24	8.21	34.089	26.531	154.7	0.669	1.75	76.4	26.5	41.4	2.38	30.3	0.01	0.00			272	05
300 ISL	7.95 D	7.92	34.107 D	26.589	149.7	0.719	1.59	D 69.2	D 23.9	44.6	2.48	31.4	0.01	0.00			302	
320	7.86	7.83	34.130	26.621	147.0	0.744	1.40	61.0	21.0	46.7	2.54	32.1	0.01	0.00			323	04
380	7.32	7.29	34.178	26.737	136.7	0.830	0.94	41.2	14.0	55.4	2.77	34.7	0.00	0.00			383	03
400 ISL	7.21 D	7.17	34.191 D	26.764	134.3	0.862	0.83	D 36.3	D 12.3	58.2	2.82	35.4	0.01	0.00			403	
441	6.73	6.68	34.197	26.835	127.9	0.911	0.67	29.0	9.7	64.0	2.93	37.0	0.01	0.00			445	02
500 ISL	6.48 D	6.44	34.230 D	26.894	123.0	0.991	0.50	D 21.5	D 7.2	70.6	3.05	38.3	0.01	0.00			504	
516	6.24	6.20	34.228	26.924	120.1	1.004	0.46	19.9	6.6	72.4	3.08	38.7	0.01	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 CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1604 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 48.7 W	11/04/2016	0952 UTC	4303 m	340 06 kn			1017.4 mb	15.7 C	14.2 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	16.50	16.50	33.137	24.202	370.8	0.000	5.69	248.5	101.9	2.2	0.29	0.1	0.02	0.01	0.07	0.01	0	
2	16.50	16.50	33.137	24.202	370.9	0.007	5.69	248.5	101.9	2.2	0.29	0.1	0.02	0.01	0.07	0.01	2	21
9	16.35	16.35	33.130	24.231	368.4	0.033	5.69	248.5	101.6	1.8	0.30	0.0	0.02	0.02	0.07	0.01	9	19
9	16.35	16.35	33.132	24.232	368.2	0.035											9	20
10 ISL	16.16 D	16.16	33.128 D	24.273	364.4	0.037	5.70	D248.5	D101.4	1.8	0.30	0.0	0.01	0.00	0.07	0.01	10	
20 ISL	15.93 D	15.92	33.136 D	24.333	359.0	0.074	5.72	D249.4	D101.3	1.8	0.29	0.0	0.01	0.00	0.07	0.01	20	
25	15.80	15.79	33.149	24.372	355.4	0.091	5.73	250.5	101.3	1.7	0.28	0.0	0.01	0.00	0.06	0.01	25	18
30 ISL	15.77 D	15.77	33.135 D	24.367	356.1	0.110	5.75	D250.5	D101.4	1.7	0.28	0.0	0.01	0.00	0.07	0.01	30	
39	15.74	15.73	33.138	24.378	355.4	0.141	5.75	251.0	101.4	1.7	0.27	0.0	0.01	0.00	0.08	0.02	39	17
50	15.69	15.68	33.135	24.387	354.9	0.180	5.75	251.1	101.3	1.6	0.29	0.0	0.02	0.00	0.10	0.02	50	16
61	15.51	15.50	33.130	24.424	351.7	0.219	5.81	253.6	101.9	1.7	0.27	0.0	0.01	0.00	0.15	0.04	61	15
75	14.71	14.70	33.125	24.595	335.8	0.267	5.86	256.0	101.2	1.9	0.31	0.0	0.00	0.00	0.24	0.15	76	14
87	14.22	14.21	33.171	24.734	322.9	0.306	5.77	252.0	98.7	2.2	0.36	0.0	0.05	0.01	0.46	0.42	88	13
100 ISL	13.44 D	13.43	33.190 D	24.909	306.4	0.350	5.38	D234.4	D 90.6	3.7	0.54	3.0	0.07	0.00	0.28	0.30	101	
101	13.23	13.21	33.192	24.954	302.2	0.350	5.40	235.8	90.5	3.8	0.55	3.2	0.08	0.00	0.26	0.30	102	12
112	11.85	11.83	33.211	25.234	275.5	0.382	4.87	212.9	79.4	8.0	0.92	9.3	0.04	0.00	0.12	0.13	113	11
125 ISL	10.39 D	10.38	33.291 D	25.556	244.9	0.419	4.44	D193.4	D 70.1	12.7	1.26	14.6	0.03	0.00	0.06	0.07	126	
126	10.36	10.35	33.299 D	25.568	243.8	0.421	4.43	193.2	69.8	13.0	1.29	15.1	0.03	0.00	0.05	0.06	127	10
140	9.83	9.82	33.413	25.747	227.0	0.449	4.11	179.6	64.2	16.5	1.45	18.0	0.02	0.00	0.02	0.04	141	09
150 ISL	9.53 D	9.52	33.541 D	25.896	212.9	0.477	3.66	D159.3	D 56.8	19.1	1.57	19.8	0.02	0.00	0.02	0.04	151	
171	9.20	9.18	33.725	26.094	194.5	0.514	3.18	138.8	49.0	24.5	1.81	23.5	0.02	0.00	0.00	0.02	172	08
200 ISL	8.93 D	8.90	33.870 D	26.252	180.0	0.574	2.85	D124.1	D 43.7	28.2	1.93	25.3	0.01	0.00	0.00	0.02	202	
202	8.85	8.82	33.875	26.268	178.5	0.572	2.87	125.3	43.9	28.5	1.94	25.4	0.01	0.00	0.00	0.02	204	07
230	8.49	8.47	33.972	26.400	166.4	0.620	2.64	115.0	40.0	32.8	2.03	27.1	0.00	0.00			232	06
250 ISL	8.28 D	8.25	34.019 D	26.470	160.2	0.659	2.33	D101.3	D 35.2	36.1	2.14	28.4	0.00	0.00			252	
270	8.01	7.99	34.034	26.521	155.5	0.685	2.19	95.5	32.9	39.3	2.24	29.7	0.00	0.00			272	05
300 ISL	7.65 D	7.62	34.083 D	26.613	147.2	0.737	1.65	D 71.7	D 24.6	45.2	2.43	31.8	0.00	0.00			302	
321	7.52	7.49	34.123	26.664	142.7	0.760	1.33	58.2	19.8	49.2	2.57	33.3	0.00	0.00			324	04
380	7.06	7.02	34.183	26.777	132.6	0.842	0.85	37.3	12.6	57.3	2.80	35.6	0.01	0.00			383	03
400 ISL	6.88 D	6.84	34.189 D	26.807	130.0	0.876	0.72	D 31.4	D 10.6	60.3	2.85	36.2	0.01	0.00			403	
440	6.57	6.53	34.213	26.867	124.6	0.919	0.57	25.0	8.3	66.3	2.96	37.6	0.01	0.00			444	02
500 ISL	6.25 D	6.20	34.248 D	26.939	118.4	1.001	0.39	D 16.9	D 5.6	73.3	3.07	39.0	0.00	0.00			504	
517	6.03	5.99	34.246	26.965	116.0	1.012	0.39	17.0	5.6	75.3	3.10	39.3	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 1604 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 14.7 N	123 29.5 W	11/04/2016	0429 UTC	4201 m	330 09 kn			1016.9 mb	15.9 C	14.3 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	16.58	16.58	33.117	24.169	373.9	0.000	5.71	249.6	102.5	3.1	0.29	0.0	0.01	0.21	0.08	0.02	0	
2	16.58	16.58	33.117	24.169	374.0	0.008	5.71	249.6	102.5	3.1	0.29	0.0	0.01	0.21	0.08	0.02	2	21
10	16.06	16.06	33.119	24.288	362.9	0.037	5.70	249.1	101.2	1.9	0.28	0.0	0.01	0.02	0.08	0.01	10	19
10	16.06	16.06	33.119	24.289	362.9	0.036											10	20
20 ISL	15.79 D	15.78	33.133 D	24.362	356.2	0.073	5.76	D250.9	D101.6	1.9	0.28	0.0	0.01	0.00	0.08	0.02	20	
26	15.74	15.73	33.140	24.379	354.8	0.094	5.75	251.3	101.5	2.0	0.28	0.0	0.01	0.00	0.09	0.02	26	18
30 ISL	15.73 D	15.72	33.131 D	24.375	355.4	0.109	5.77	D251.3	D101.7	1.9	0.28	0.0	0.01	0.00	0.10	0.02	30	
40	15.70	15.69	33.133	24.384	354.9	0.144	5.77	252.0	101.7	1.9	0.29	0.0	0.01	0.00	0.13	0.02	40	17
50	15.54	15.53	33.140	24.424	351.3	0.179	5.79	252.9	101.7	2.0	0.28	0.0	0.01	0.00	0.17	0.03	50	16
61	15.30	15.29	33.156	24.491	345.3	0.218	5.81	253.7	101.5	2.1	0.29	0.0	0.01	0.00	0.23	0.08	61	15
75	15.07	15.05	33.169	24.552	339.9	0.266	5.81	253.9	101.2	2.1	0.31	0.0	0.01	0.00	0.37	0.17	76	14
87	15.03	15.01	33.222	24.603	335.5	0.306	5.79	252.8	100.7	1.9	0.37	0.0	0.02	0.06	0.53	0.16	88	13
100 ISL	14.40 D	14.39	33.204 D	24.722	324.4	0.352	5.65	D246.2	D 97.0	2.5	0.41	0.7	0.12	0.09	0.37	0.17	101	
101	14.35	14.34	33.207	24.735	323.2	0.352	5.66	247.2	97.1	2.6	0.41	0.7	0.12	0.09	0.36	0.17	102	12
112	13.78	13.76	33.192	24.844	313.1	0.387	5.49	239.6	93.0	3.5	0.50	2.2	0.17	0.01	0.24	0.17	113	11
125 ISL	12.13 D	12.12	33.194 D	25.168	282.2	0.429	5.12	D223.1	D 83.9	7.5	0.84	8.2	0.06	0.00	0.15	0.12	126	
126	11.78	11.76	33.200	25.240	275.3	0.429	4.98	217.7	81.0	7.8	0.87	8.6	0.05	0.00	0.14	0.12	127	10
140	10.29	10.27	33.309	25.589	242.1	0.465	4.41	192.4	69.4	14.0	1.30	15.6	0.02	0.00	0.06	0.05	141	09
150 ISL	9.97 D	9.95	33.387 D	25.704	231.2	0.492	4.17	D181.4	D 65.2	16.2	1.41	17.4	0.02	0.00	0.05	0.04	151	
171	9.42	9.40	33.567	25.935	209.7	0.535	3.61	157.6	55.9	20.9	1.65	21.2	0.02	0.00	0.01	0.04	172	08
200	8.91	8.88	33.797	26.198	185.1	0.592	3.14	137.1	48.1	26.6	1.84	24.3	0.02	0.00	0.00	0.03	202	07
230	8.56	8.54	33.910	26.341	172.1	0.646	2.98	129.9	45.3	30.7	1.93	25.9	0.02	0.00			232	06
250 ISL	8.40 D	8.37	33.982 D	26.422	164.7	0.684	2.58	D112.3	D 39.2	34.1	2.06	27.4	0.02	0.00			252	
270	8.21	8.18	34.021	26.483	159.2	0.712	2.30	100.6	34.8	37.4	2.19	28.9	0.02	0.01			272	05
300 ISL	7.90 D	7.87	34.080 D	26.575	151.0	0.763	1.79	D 77.7	D 26.8	42.9	2.36	30.8	0.02	0.00			302	
321	7.67	7.64	34.096	26.622	146.7	0.790	1.56	68.0	23.3	46.6	2.48	32.2	0.02	0.00			324	04
381	7.11	7.08	34.153	26.746	135.6	0.875	0.99	43.1	14.5	55.4	2.73	35.1	0.02	0.00			384	03
400 ISL	7.02 D	6.99	34.170 D	26.773	133.3	0.906	0.86	D 37.4	D 12.7	58.0	2.80	35.7	0.02	0.00			403	
440	6.74	6.70	34.202	26.837	127.7	0.952	0.63	27.7	9.3	63.5	2.94	37.0	0.02	0.00			444	02
500 ISL	6.24 D	6.19	34.220 D	26.918	120.4	1.034	0.47	D 20.6	D 6.8	70.7	3.04	38.6	0.01	0.00			504	
518	6.13	6.09	34.223	26.933	119.1	1.049	0.46	20.1	6.6	72.8	3.07	39.1	0.01	0.00			522	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 1604 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 54.6 N	124 10.1 W	10/04/2016	2243 UTC	4250 m	300 07 kn	300 02 08	1	1015.6 mb	17.2 C	15.1 C	38 m	6/8	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	16.85	16.85	33.299	24.246	366.6	0.000	5.61	245.0	101.2	2.2	0.24	0.1	0.01	0.08	0.07	0.01	0	
2	16.85	16.85	33.299	24.246	366.7	0.007	5.61	245.0	101.2	2.2	0.24	0.1	0.01	0.08	0.07	0.01	2	21
10	16.68	16.68	33.294	24.282	363.6	0.037	5.62	245.5	101.1	1.9	0.22	0.0	0.00	0.00	0.08	0.01	10	19
10	16.68	16.68	33.290	24.279	363.8	0.037											10	20
20 ISL	16.80 D	16.80	33.350 D	24.297	362.5	0.073	5.59	D243.6	D100.8	1.8	0.23	0.0	0.00	0.00	0.09	0.02	20	
25	16.21	16.20	33.241	24.351	357.5	0.091	5.68	248.2	101.2	1.7	0.24	0.0	0.00	0.00	0.09	0.03	25	18
30 ISL	15.97 D	15.97	33.210 D	24.381	354.8	0.109	5.70	D248.6	D101.1	1.7	0.25	0.0	0.00	0.00	0.11	0.04	30	
40	15.27	15.26	33.081	24.437	349.7	0.144	5.79	253.0	101.2	1.6	0.27	0.0	0.00	0.00	0.15	0.06	40	17
50	15.13	15.12	33.082	24.469	347.0	0.179	5.82	254.1	101.3	1.7	0.27	0.0	0.00	0.00	0.22	0.10	50	16
62	14.97	14.96	33.074	24.498	344.6	0.221	5.83	254.5	101.1	1.7	0.29	0.0	0.00	0.00	0.27	0.15	62	15
75	14.28	14.27	33.041	24.620	333.3	0.265	5.82	254.1	99.6	1.7	0.32	0.0	0.02	0.00	0.41	0.35	76	14
88	13.65	13.64	33.198	24.872	309.6	0.307	5.49	240.0	92.9	3.5	0.53	2.6	0.12	0.00	0.11	0.11	89	13
100	12.96	12.94	33.226	25.033	294.6	0.343	5.24	228.9	87.4	5.1	0.70	5.3	0.04	0.00	0.09	0.15	101	12
112	12.51	12.49	33.324	25.197	279.2	0.377	4.89	213.4	80.8	7.5	0.90	8.4	0.02	0.00	0.07	0.08	113	11
125	10.82	10.80	33.336	25.518	248.6	0.412	4.33	189.0	69.0	12.1	1.23	14.0	0.01	0.00	0.04	0.07	126	10
140	9.99	9.98	33.362	25.680	233.3	0.448	4.40	192.3	68.9	14.3	1.31	16.0	0.01	0.00	0.03	0.05	141	09
150 ISL	9.62 D	9.60	33.456 D	25.816	220.5	0.474	4.40	D191.7	D 68.4	16.0	1.37	17.1	0.01	0.00	0.02	0.04	151	
171	9.19	9.18	33.581	25.982	205.1	0.515	4.13	180.3	63.6	19.6	1.49	19.6	0.00	0.00	0.00	0.02	172	08
200	8.82	8.80	33.837	26.243	180.9	0.571	3.94	171.9	60.2	24.3	1.58	21.7	0.00	0.00	0.00	0.02	202	07
231	8.38	8.36	33.931	26.384	167.9	0.626	3.69	161.0	55.9	28.8	1.71	23.6	0.01	0.00			233	06
250 ISL	8.17 D	8.14	33.956 D	26.437	163.2	0.661	3.55	D154.3	D 53.5	32.0	1.80	24.9	0.01	0.00			252	
271	7.82	7.79	33.973	26.503	157.1	0.691	3.31	144.4	49.5	35.6	1.90	26.4	0.01	0.00			273	05
300 ISL	7.47 D	7.44	33.995 D	26.570	151.1	0.740	2.75	D119.4	D 40.8	42.7	2.20	30.2	0.01	0.00			302	
320	7.23	7.20	34.027	26.630	145.6	0.765	1.93	84.4	28.5	47.6	2.41	32.8	0.00	0.00			323	04
381	6.46	6.43	34.072	26.769	132.8	0.850	1.19	52.1	17.3	60.6	2.76	37.0	0.00	0.00			384	03
400 ISL	6.29 D	6.25	34.091 D	26.808	129.3	0.881	1.00	D 43.5	D 14.4	63.4	2.82	37.7	0.00	0.00			403	
441	6.05	6.01	34.127	26.866	124.1	0.927	0.76	33.1	10.9	69.6	2.95	39.3	0.01	0.00			445	02
500 ISL	5.72 D	5.68	34.182 D	26.951	116.6	1.005	0.52	D 22.4	D 7.3	77.2	3.08	40.4	0.01	0.00			504	
515	5.64	5.60	34.191	26.968	115.1	1.015	0.48	20.9	6.8	79.1	3.11	40.7	0.01	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 1604 STATION 85.4 35.8

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 0.1 N	118 50.0 W	08/04/2016	0506 UTC	51 m	290 12 kn			1013.2 mb	14.9 C	14.3 C				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	15.41	15.41	33.541	24.759	317.7	0.000	6.40	279.3	112.4	1.3	0.38	0.0	0.03	0.23	1.14	0.41	0	
2	15.41	15.40	33.541	24.759	317.8	0.006	6.40	279.3	112.4	1.3	0.38	0.0	0.03	0.23	1.14	0.41	2	06
6	15.42	15.42	33.541	24.757	318.1	0.019	6.36	277.8	111.8	1.3	0.39	0.0	0.01	0.15	1.12	0.38	6	05
10	15.31	15.31	33.539	24.780	316.1	0.032	6.35	277.4	111.4	1.3	0.39	0.0	0.01	0.25	1.07	0.41	10	04
20	14.20	14.20	33.547	25.025	293.1	0.062	6.03	263.4	103.4	1.8	0.51	1.5	0.09	0.66	1.17	0.40	20	03
30	13.54	13.53	33.557	25.169	279.6	0.091	5.36	234.1	90.7	4.3	0.78	4.8	0.18	1.06	1.07	0.57	30	02
40	12.70	12.69	33.592	25.364	261.3	0.118	4.21	183.8	70.0	10.7	1.23	10.5	0.34	1.46	0.53	0.61	40	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 1604 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 53.3 N	118 29.4 W	07/04/2016	2316 UTC	56 m	190 04 kn		5	1013.2 mb	16.2 C	15.4 C	08 m	8/8	ST	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	15.86	15.86	33.562	24.676	325.7	0.000	6.52	284.6	115.6	2.1	0.38	0.0	0.01	0.00	1.43	0.33	0	
2	15.86	15.85	33.562	24.676	325.7	0.007	6.52	284.6	115.6	2.1	0.38	0.0	0.01	0.00	1.43	0.33	2	08
6	15.60	15.60	33.568	24.737	320.0	0.019	6.50	283.5	114.6	2.1	0.38	0.0	0.01	0.02	1.42	0.43	6	07
10 ISL	15.45 D	15.45	33.563 D	24.766	317.4	0.033	6.48	D282.6	D114.0	2.2	0.40	0.1	0.02	0.03	1.49	0.50	10	
11	15.28	15.28	33.562	24.805	313.7	0.035	6.47	282.2	113.3	2.2	0.41	0.1	0.03	0.03	1.51	0.52	11	05
11	15.28	15.28	33.563	24.805	313.7	0.034											11	06
20	14.07	14.07	33.560	25.061	289.6	0.062	6.19	270.1	105.8	3.0	0.53	1.4	0.10	0.27	3.59	0.91	20	04
30	13.73	13.72	33.565	25.137	282.7	0.091	5.66	247.0	96.1	4.4	0.71	4.0	0.18	0.69	1.86	0.56	30	03
40	12.84	12.83	33.559	25.311	266.4	0.119	4.59	200.5	76.6	10.0	1.10	9.6	0.29	0.73	1.14	0.75	40	02
45	12.55	12.54	33.558	25.367	261.1	0.132	4.16	181.7	68.9	12.1	1.24	12.2	0.27	0.49	1.03	0.95	45	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 1604 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 49.4 N	118 37.6 W	08/04/2016	0136 UTC	651 m	260 13 kn	260 01 07	7	1012.8 mb	15.0 C	14.4 C		8/8	CU	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	15.15	15.15	33.569	24.837	310.3	0.000	6.34	276.5	110.7	4.4	0.49	0.5	0.06	0.35	0.68	0.27	0	
2	15.15	15.15	33.569	24.837	310.4	0.006	6.34	276.5	110.7	4.4	0.49	0.5	0.06	0.35	0.68	0.27	2	21
10	14.75	14.74	33.575	24.929	301.8	0.031	6.18	269.7	107.1	5.2	0.56	1.8	0.10	0.12	1.48	0.56	10	19
10	14.75	14.74	33.570	24.926	302.2	0.032											10	20
20	13.18	13.17	33.585	25.264	270.3	0.059	4.93	215.2	82.8	9.4	0.99	8.3	0.31	0.61	0.99	0.51	20	18
30 ISL	12.56 D	12.56	33.596 D	25.394	258.2	0.086	4.37	D190.3 D	72.4	12.2	1.21	11.6	0.39	0.46	0.86	0.51	30	
31	12.50	12.49	33.599	25.408	256.8	0.088	4.23	184.8	70.1	12.5	1.23	11.9	0.39	0.45	0.85	0.51	31	17
40	11.85	11.84	33.620	25.549	243.7	0.111	3.67	160.2	59.9	15.5	1.44	15.5	0.37	0.05	0.40	0.42	40	16
50	11.09	11.08	33.678	25.733	226.4	0.134	3.14	137.0	50.4	18.9	1.65	18.9	0.15	0.12	0.23	0.33	50	15
60	10.70	10.70	33.751	25.858	214.7	0.157	2.86	124.8	45.6	21.2	1.76	20.8	0.06	0.00	0.18	0.33	60	14
70	10.52	10.51	33.821	25.945	206.6	0.178	2.66	116.1	42.3	22.8	1.86	21.8	0.06	0.04	0.19A	0.47A	71	13
75 ISL	10.41 D	10.40	33.862 D	25.996	201.9	0.189	2.53	D110.3 D	40.2	23.4	1.89	22.2	0.05	0.00	0.15	0.40	76	
86	10.36	10.35	33.887	26.025	199.4	0.210	2.44	106.4	38.6	24.8	1.94	23.0	0.03	0.00	0.07	0.24	87	12
100	10.17	10.16	33.967	26.120	190.7	0.237	2.24	97.8	35.3	27.0	2.03	24.2	0.02	0.00	0.05	0.17	101	11
120	9.95	9.93	34.018	26.200	183.6	0.275	2.10	91.7	33.0	28.8	2.11	25.2	0.01	0.00	0.06	0.15	121	10
125 ISL	9.90 D	9.89	34.028 D	26.215	182.3	0.286	2.10 D	91.4 D	33.0	29.5	2.14	25.5	0.01	0.00	0.06	0.15	126	
140	9.75	9.74	34.081	26.281	176.3	0.311	1.86	81.2	29.1	31.6	2.22	26.3	0.01	0.01	0.04	0.12	141	09
150 ISL	9.61 D	9.60	34.109 D	26.326	172.2	0.330	1.78 D	77.6 D	27.8	32.6	2.25	26.7	0.01	0.00	0.04	0.12	151	
171	9.46	9.44	34.152	26.386	166.9	0.364	1.62	70.5	25.1	34.7	2.32	27.7	0.01	0.00	0.05	0.11	172	08
200	9.13	9.11	34.194	26.474	159.2	0.411	1.44	62.7	22.2	37.9	2.41	28.9	0.00	0.00	0.03	0.11	202	07
230	8.73	8.71	34.209	26.549	152.6	0.458	1.28	56.0	19.6	41.1	2.49	30.1	0.00	0.00			232	06
250 ISL	8.52 D	8.50	34.224 D	26.594	148.6	0.492	1.11 D	48.4 D	16.9	43.6	2.56	30.9	0.00	0.00			252	
270	8.36	8.34	34.238	26.630	145.5	0.517	1.00	43.7	15.2	46.1	2.62	31.6	0.00	0.00			272	05
300 ISL	8.14 D	8.11	34.252 D	26.675	141.7	0.565	0.86 D	37.3 D	12.9	49.7	2.70	32.7	0.00	0.00			302	
320	7.91	7.87	34.263	26.719	137.7	0.588	0.77	33.5	11.5	52.1	2.76	33.3	0.00	0.00			323	04
380	7.32	7.29	34.288	26.823	128.5	0.668	0.50	21.8	7.4	60.0	2.94	35.3	0.00	0.08			383	03
400 ISL	7.02 D	6.98	34.296 D	26.872	124.0	0.699	0.41 D	17.9 D	6.1	63.6	2.99	35.9	0.00	0.00			403	
440	6.65	6.61	34.313	26.936	118.2	0.742	0.31	13.3	4.5	70.7	3.08	37.2	0.01	0.00			444	02
500 ISL	6.21 D	6.17	34.335 D	27.011	111.6	0.818	0.22 D	9.4 D	3.1	78.3	3.17	38.1	0.02	0.00			504	
515	6.09	6.05	34.339	27.030	109.9	0.828	0.21	9.2	3.1	80.2	3.19	38.3	0.02	0.00			519	01

A) SECOND FLUOROMETER READING RECALCULATED BECAUSE ACID RATIO > TAU OF PURE CHL-A
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 1604 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 58.6 W	08/04/2016	1856 UTC	729 m	240 06 kn	320 01 08	2	1014.7 mb	15.5 C	15.1 C	17 m	8/8	SC	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	15.97	15.97	33.536	24.629	330.1	0.000	6.12	267.3	108.8	0.2	0.27	0.0	0.01	0.03	0.48	0.12	0	
2 A	15.97	15.97	33.536	24.629	330.1	0.007	6.12	267.3	108.8	0.2	0.27	0.0	0.01	0.03	0.48	0.12	2	24
10 ISL	15.47 D	15.47	33.527 D	24.735	320.4	0.033	6.09	265.4	107.1	0.7	0.33	0.0	0.01	0.07	0.65	0.20	10	
12 A	15.25	15.25	33.526	24.783	315.9	0.039	6.08	265.5	106.5	0.8	0.35	0.0	0.02	0.08	0.69	0.23	12	22
12	15.25	15.25	33.536	24.791	315.1	0.038											12	23
15 A	15.07	15.07	33.524	24.821	312.4	0.048	6.00	262.1	104.7	0.8	0.36	0.0	0.02	0.08	0.74	0.25	15	21
20 ISL	14.81 D	14.81	33.520 D	24.874	307.5	0.064	5.82	253.8	101.1	1.7	0.46	1.0	0.08	0.22	0.89	0.30	20	
22	14.39	14.38	33.512	24.959	299.4	0.070	5.75	251.2	99.0	2.1	0.50	1.3	0.11	0.27	0.95	0.33	22	20
28 A	13.22	13.22	33.499	25.189	277.7	0.087	4.59	200.6	77.2	8.8	1.01	9.0	0.24	0.26	0.54	0.23	28	19
30 ISL	12.91 D	12.90	33.508 D	25.257	271.2	0.094	4.54	D197.7 D	75.7	9.4	1.05	9.6	0.23	0.22	0.52	0.25	30	
38	12.29	12.28	33.507	25.377	260.0	0.114	3.97	173.2	65.3	11.7	1.22	12.4	0.18	0.08	0.42	0.31	38	18
48 A	12.04	12.03	33.519	25.435	254.7	0.140	3.83	167.1	62.7	12.8	1.29	13.7	0.14	0.00	0.34	0.28	48	17
50 ISL	11.99 D	11.99	33.516 D	25.441	254.2	0.146	3.80	D165.3 D	62.1	13.1	1.31	13.9	0.13	0.00	0.33	0.29	50	
60 A	11.66	11.65	33.561	25.539	245.1	0.170	3.58	156.4	58.2	14.5	1.39	15.2	0.11	0.00	0.29	0.30	60	16
70	11.07	11.06	33.665	25.727	227.5	0.193	3.20	139.6	51.4	18.0	1.57	18.1	0.04	0.00	0.16	0.24	71	15
75 ISL	10.97 D	10.96	33.679 D	25.756	224.8	0.207	3.15	D137.1 D	50.5	18.8	1.61	18.7	0.04	0.00	0.18	0.24	76	
85	10.71	10.70	33.737	25.847	216.3	0.227	2.94	128.2	46.8	20.3	1.69	19.9	0.03	0.00	0.22	0.23	86	14
100	10.44	10.43	33.864	25.994	202.7	0.258	2.56	111.6	40.6	23.6	1.85	21.8	0.02	0.00	0.19	0.29	101	13
120	10.04	10.03	33.983	26.155	187.8	0.297	2.18	94.9	34.2	27.4	2.02	23.9	0.02	0.00	0.10	0.14	121	12
125 ISL	10.00 D	9.99	33.996 D	26.173	186.3	0.309	2.17 D	94.3 D	34.1	28.1	2.05	24.2	0.02	0.00	0.09	0.14	126	
140	9.87	9.86	34.075	26.257	178.6	0.334	1.90	82.9	29.8	30.2	2.14	25.2	0.01	0.00	0.07	0.14	141	11
150 ISL	9.85 D	9.83	34.079 D	26.265	178.1	0.355	1.87 D	81.3 D	29.3	31.1	2.16	25.6	0.01	0.00	0.07	0.14	151	
170	9.50	9.49	34.105	26.342	171.1	0.387	1.81	79.0	28.2	32.8	2.19	26.4	0.01	0.00	0.07	0.13	171	10
200	9.10	9.08	34.186	26.471	159.4	0.436	1.45	63.3	22.4	37.7	2.36	28.0	0.01	0.00	0.05	0.13	202	09
230	8.68	8.66	34.220	26.565	151.0	0.483	1.21	53.0	18.5	41.8	2.46	29.5	0.01	0.00			232	08
250 ISL	8.45 D	8.42	34.222 D	26.604	147.6	0.517	1.08 D	47.1 D	16.5	44.9	2.54	30.3	0.01	0.00			252	
270	8.24	8.21	34.248	26.656	142.9	0.542	0.94	41.0	14.2	47.9	2.62	31.2	0.01	0.00			272	07
300 ISL	8.05 D	8.02	34.258 D	26.693	139.9	0.589	0.81 D	35.0 D	12.1	51.2	2.70	32.1	0.01	0.00			302	
320	7.85	7.82	34.287	26.745	135.2	0.611	0.69	30.3	10.4	53.5	2.75	32.8	0.01	0.00			323	06
380	7.33	7.29	34.297	26.829	128.0	0.690	0.49	21.5	7.3	60.4	2.88	34.4	0.00	0.00			383	05
400 ISL	7.21 D	7.17	34.299 D	26.848	126.4	0.723	0.44 D	19.2 D	6.5	63.5	2.93	35.0	0.00	0.00			403	
440	6.74	6.70	34.317	26.927	119.2	0.765	0.32	14.1	4.7	69.6	3.03	36.1	0.00	0.00			444	04
500 ISL	6.32 D	6.27	34.331 D	26.995	113.2	0.843	0.23 D	10.1 D	3.3	76.4	3.09	36.9	0.00	0.00			504	
515	6.23	6.19	34.349	27.020	111.0	0.851	0.24	10.3	3.4	78.1	3.11	37.0	0.00	0.00			519	03
600	5.65	5.60	34.373	27.113	102.7	0.942	0.15	6.7	2.2	90.0	3.22	37.5	0.02	0.00			605	02
700 ISL	5.15 D	5.09	34.403 D	27.198	95.3	1.052	0.18 D	7.7 D	2.5	98.4	3.28	38.8	0.03	0.00			706	
721	5.14	5.08	34.405	27.202	95.2	1.061	0.20	8.7	2.8	100.2	3.29	39.0	0.03	0.00			727	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 1604 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 29.2 N	119 18.9 W	08/04/2016	2315 UTC	1642 m	110 04 kn		2	1013.5 mb	18.0 C	15.9 C	12 m	6/8	SC	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	14.33	14.33	33.450	24.921	302.3	0.000	7.84	341.8	134.8	0.3	0.30	0.1	0.04	0.16	3.08	1.15	0	
2	14.33	14.33	33.450	24.921	302.4	0.006	7.84	341.8	134.8	0.3	0.30	0.1	0.04	0.16	3.08	1.15	2	21
10	13.69	13.69	33.465	25.067	288.7	0.030	6.54	285.4	110.8	0.9	0.47	1.3	0.09	0.73	2.64	1.37	10	19
10	13.69	13.69	33.462	25.065	288.9	0.031											10	20
20	13.45	13.44	33.474	25.123	283.7	0.058	6.26	273.2	105.6	2.3	0.60	2.7	0.13	1.08	1.64	1.67	20	18
30	13.13	13.12	33.481	25.193	277.3	0.086	5.94	259.3	99.6	4.6	0.76	4.7	0.19	1.11	1.87	1.50	30	17
40	12.61	12.60	33.494	25.306	266.8	0.114	5.57	243.3	92.4	7.8	0.91	6.9	0.22	1.25	0.97	0.89	40	16
50	11.58	11.57	33.484	25.493	249.2	0.139	4.60	200.7	74.6	13.6	1.27	12.9	0.28	0.67	0.96	0.88	50	15
60	11.26	11.25	33.500	25.565	242.6	0.164	4.25	185.4	68.4	15.1	1.35	14.5	0.32	0.37	0.68	0.94	60	14
70	11.00	10.99	33.600	25.689	231.0	0.188	3.71	162.0	59.5	17.6	1.51	16.7	0.25	0.14	0.48	0.77	71	13
75 ISL	10.81 D	10.81	33.633 D	25.747	225.6	0.201	3.35	D145.9	D 53.5	18.7	1.57	17.7	0.20	0.11	0.40	0.65	76	
85	10.45	10.44	33.695	25.859	215.1	0.221	3.10	135.2	49.1	21.1	1.70	19.7	0.10	0.04	0.23	0.42	86	12
98	10.01	10.00	33.789	26.008	201.2	0.248	2.77	120.9	43.5	24.3	1.83	21.7	0.05	0.00	0.12	0.43	99	11
100 ISL	10.04 D	10.03	33.789 D	26.003	201.8	0.254	2.75	D119.7	D 43.2	24.9	1.86	21.9	0.04	0.00	0.12	0.41	101	
120	9.81	9.80	34.051	26.248	179.0	0.290	2.02	88.2	31.7	30.1	2.12	24.4	0.03	0.04	0.06	0.23	121	10
125 ISL	9.81 D	9.80	34.093 D	26.280	176.1	0.301	2.09	D 90.8	D 32.7	30.8	2.16	24.7	0.02	0.00	0.05	0.20	126	
140	9.73	9.72	34.157	26.344	170.3	0.325	1.66	72.4	26.0	33.0	2.27	25.6	0.02	0.00	0.03	0.13	141	09
150 ISL	9.52 D	9.50	34.150 D	26.375	167.6	0.345	1.64	D 71.5	D 25.6	34.0	2.29	26.0	0.02	0.00	0.03	0.15	151	
170	9.34	9.32	34.177	26.426	163.1	0.375	1.54	67.0	23.8	36.0	2.33	26.9	0.02	0.00	0.03	0.19	171	08
200	9.07	9.05	34.174	26.467	159.8	0.423	1.50	65.4	23.1	37.9	2.36	27.6	0.02	0.00	0.04	0.21	202	07
230	8.70	8.68	34.197	26.544	153.0	0.470	1.33	58.1	20.3	41.7	2.46	28.9	0.02	0.00			232	06
250 ISL	8.58 D	8.56	34.202 D	26.567	151.1	0.505	1.29	D 55.9	D 19.6	43.6	2.52	29.5	0.01	0.00			252	
270	8.36	8.33	34.222 D	26.617	146.7	0.535	1.10	48.0	16.7	45.5	2.57	30.2	0.01	0.00			272	05
300 ISL	8.15 D	8.12	34.238 D	26.663	142.8	0.579	0.93	D 40.6	D 14.1	49.1	2.66	31.2	0.02	0.00			302	
320	7.92	7.89	34.254 D	26.710	138.6	0.607	0.81	35.2	12.1	51.6	2.72	31.9	0.02	0.00			323	04
381	7.51	7.47	34.287 D	26.797	131.2	0.690	0.53	23.1	7.9	58.6	2.87	33.6	0.02	0.00			384	03
400 ISL	7.22 D	7.18	34.296 D	26.845	126.7	0.715	0.44	D 19.2	D 6.5	62.3	2.93	34.3	0.02	0.00			403	
440	6.71	6.67	34.313 D	26.928	119.1	0.765	0.32	13.8	4.6	70.2	3.05	35.8	0.02	0.00			444	02
500 ISL	6.21 D	6.16	34.336 D	27.013	111.4	0.834	0.22	D 9.6	D 3.2	78.8	3.15	36.6	0.03	0.00			504	
515	6.14	6.09	34.341 D	27.026	110.3	0.851	0.21	9.1	3.0	80.9	3.18	36.8	0.04	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 1604 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 18.9 N	119 39.4 W	09/04/2016	0306 UTC	77 m	130 06 kn			1013.4 mb	15.3 C	14.4 C				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	14.57	14.57	33.401	24.834	310.6	0.000	7.07	308.7	122.0	0.5	0.28	0.1	0.04	0.05	2.22	0.85	0	
2	14.57	14.56	33.401	24.834	310.7	0.006	7.07	308.7	122.0	0.5	0.28	0.1	0.04	0.05	2.22	0.85	2	09
5	14.00	14.00	33.401	24.953	299.4	0.015	7.09	309.5	120.9	0.0	0.28	0.0	0.04	0.02	2.27	0.73	5	08
10 ISL	13.63 D	13.63	33.431 D	25.052	290.2	0.030	6.72	D293.0	D113.9	0.1	0.37	0.5	0.08	0.40	3.76	0.77	10	
11	13.63	13.63	33.432	25.053	290.1	0.032											10	07
11	13.63	13.63	33.432	25.053	290.0	0.033	6.74	294.2	114.1	0.2	0.39	0.6	0.09	0.47	4.06	0.78	11	06
20 ISL	13.44 D	13.43	33.484 D	25.133	282.7	0.059	6.50	D283.2	D109.7	0.4	0.50	1.3	0.10	1.04	3.19	2.04	20	
21	13.44	13.44	33.483	25.131	282.9	0.062	6.51	284.1	109.8	0.4	0.51	1.4	0.11	1.10	3.10	2.18	21	05
30	13.25	13.24	33.491	25.177	278.8	0.087	6.39	279.1	107.4	0.9	0.59	2.1	0.12	1.54	1.94	2.16	30	04
40	13.05	13.04	33.492	25.219	275.2	0.115	6.13	267.6	102.6	1.9	0.66	3.5	0.16	1.28	2.75	1.62	40	03
50	12.78	12.77	33.531	25.302	267.5	0.142	5.83	254.4	97.0	4.9	0.83	5.6	0.19	1.29	2.87	1.82	50	02
61	11.91	11.91	33.556 D	25.487	250.1	0.171	4.69	204.7	76.7	12.4	1.23	12.0	0.27	0.96	1.69	0.98	61	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 1604 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 9.8 N	120 0.4 W	09/04/2016	0624 UTC	1197 m	130 10 kn			1013.6 mb	15.6 C	15.1 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	15.84	15.84	33.250	24.440	348.1	0.000	5.91	257.5	104.5	1.3	0.32	0.0	0.01	0.00	0.24	0.06	0	
2	15.84	15.84	33.250	24.440	348.2	0.007	5.91	257.5	104.5	1.3	0.32	0.0	0.01	0.00	0.24	0.06	2	21
10	15.18	15.18	33.281	24.610	332.3	0.034	6.01	261.8	104.9	0.9	0.33	0.0	0.02	0.08	0.28	0.13	10	19
10	15.18	15.18	33.282	24.610	332.2	0.035											10	20
20	14.45	14.44	33.325	24.802	314.3	0.067	6.05	263.8	104.2	1.0	0.37	0.0	0.03	0.17	0.41	0.14	20	18
30	14.25	14.25	33.361	24.871	308.0	0.098	6.30	274.7	108.0	0.7	0.36	0.1	0.04	0.20	0.80	0.47	30	17
40	13.62	13.61	33.403	25.035	292.6	0.128	6.19	269.6	104.7	1.1	0.48	1.2	0.09	0.73	2.05	1.34	40	16
50	12.91	12.91	33.329	25.119	284.9	0.157	5.46	237.9	91.0	5.0	0.70	4.9	0.15	0.52	1.84	1.08	50	15
60	11.63	11.62	33.372	25.398	258.5	0.184	5.14	223.7	83.3	7.9	0.93	8.0	0.14	1.12	1.35	0.93	60	14
70	10.94	10.93	33.325	25.485	250.4	0.209	4.37	190.4	69.9	12.6	1.22	14.1	0.08	0.02	0.23	0.27	71	13
75 ISL	10.46 D	10.45	33.388 D	25.619	237.7	0.224	4.30	D187.3	D 68.1	14.7	1.34	15.9	0.08	0.02	0.22	0.26	76	
85	10.14	10.13	33.522	25.778	222.8	0.244	3.62	157.7	56.9	18.7	1.57	19.5	0.09	0.01	0.20	0.24	86	12
100	10.08	10.06	33.730	25.952	206.7	0.277	2.96	128.7	46.5	22.7	1.78	22.2	0.05	0.00	0.14	0.20	101	11
121	9.80	9.78	33.851	26.094	193.6	0.319	2.60	113.3	40.7	26.0	1.93	24.1	0.05	0.00	0.09	0.18	122	10
125 ISL	9.79 D	9.78	33.854 D	26.097	193.4	0.329	2.60	D113.1	D 40.6	26.3	1.93	24.2	0.05	0.00	0.09	0.17	126	
141	9.64	9.63	33.878	26.141	189.5	0.357	2.62	113.9	40.8	27.2	1.95	24.7	0.05	0.00	0.08	0.15	142	09
150 ISL	9.38 D	9.36	33.943 D	26.236	180.7	0.377	2.37	D103.3	D 36.8	28.4	1.99	25.3	0.04	0.00	0.07	0.15	151	
170	9.13	9.11	33.967	26.294	175.5	0.410	2.34	101.8	36.1	31.1	2.08	26.7	0.04	0.00	0.06	0.13	171	08
200	8.48	8.46	33.989	26.414	164.5	0.461	2.38	103.4	36.1	34.8	2.12	28.3	0.03	0.00	0.03	0.12	202	07
230	8.23	8.21	34.028	26.483	158.4	0.509	2.17	94.4	32.8	38.3	2.22	29.6	0.02	0.00			232	06
250 ISL	8.14 D	8.11	34.112 D	26.564	151.2	0.544	1.66	D 72.3	D 25.1	42.2	2.36	31.0	0.02	0.00			252	
272	7.80	7.77	34.121	26.621	146.0	0.573	1.46	63.3	21.8	46.6	2.51	32.5	0.02	0.00			274	05
300 ISL	7.51 D	7.48	34.126 D	26.667	141.9	0.618	1.29	D 56.2	D 19.2	50.5	2.62	33.6	0.02	0.00			302	
322	7.43	7.39	34.180	26.722	137.1	0.644	1.03	44.9	15.3	53.6	2.70	34.5	0.02	0.00			325	04
381	7.03	6.99	34.257	26.839	126.8	0.722	0.60	26.0	8.8	62.3	2.90	36.3	0.02	0.00			384	03
400 ISL	6.89 D	6.85	34.259 D	26.861	124.9	0.752	0.54	D 23.5	D 7.9	64.3	2.93	36.8	0.02	0.00			403	
442	6.61	6.57	34.268	26.906	121.0	0.797	0.48	21.0	7.0	68.7	3.00	37.7	0.02	0.00			446	02
500 ISL	6.03 D	5.99	34.299 D	27.005	111.9	0.872	0.31	D 13.3	D 4.4	76.3	3.09	39.4	0.01	0.00			504	
516	6.00	5.95	34.303	27.014	111.3	0.883	0.31	13.3	4.4	78.4	3.12	39.8	0.01	0.00			520	01

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

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — 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 59.2 N	120 20.7 W	09/04/2016	1033 UTC	727 m	160 09 kn			1012.5 mb	15.4 C	15.1 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	15.01	15.01	33.309	24.667	326.4	0.000	6.07	264.9	105.6	1.8	0.35	0.1	0.03	0.13	0.45	0.11	0	
1	15.01	15.01	33.309	24.667	326.5	0.003	6.07	264.9	105.6	1.8	0.35	0.1	0.03	0.13	0.45	0.11	1	21
10	15.01	15.01	33.312	24.670	326.5	0.033	6.09	266.0	106.0	0.7	0.35	0.0	0.02	0.10	0.45	0.13	10	19
10	15.01	15.01	33.305	24.665	327.0	0.033											10	20
20	14.28	14.28	33.351	24.857	309.1	0.065	6.35	277.3	108.9	0.4	0.34	0.0	0.04	0.08	0.74	0.20	20	18
30	13.85	13.84	33.338	24.936	301.8	0.095	6.30	275.1	107.1	0.3	0.37	0.4	0.08	0.18	2.04	0.55	30	17
41	13.57	13.57	33.344	24.998	296.2	0.128	6.15	268.4	103.9	0.6	0.41	1.1	0.10	0.23	2.96	0.77	41	16
50	13.06	13.06	33.351	25.107	286.1	0.154	5.69	248.5	95.2	3.4	0.62	4.0	0.14	0.32	2.92	1.22	50	15
61	12.33	12.32	33.402 D	25.289	269.0	0.186	5.13	D223.6 D	84.6								61	14
70	12.24	12.23	33.471	25.360	262.5	0.209	5.25	229.3	86.4	8.4	1.00	8.5	0.20	1.49	2.54	0.94	71	13
75 ISL	11.68 D	11.67	33.436 D	25.438	255.2	0.223	5.13	D223.6 D	83.4	9.5	1.07	9.8	0.19	1.29	2.22	0.91	76	
86	11.29	11.28	33.436	25.510	248.5	0.249	4.72	206.1	76.1	12.1	1.21	12.7	0.17	0.84	1.54	0.84	87	12
100	10.01	10.00	33.368	25.680	232.4	0.283	4.21	183.7	65.9	15.4	1.38	16.9	0.06	0.13	0.32	0.43	101	11
120	9.66	9.64	33.573	25.900	211.9	0.327	3.53	154.2	55.0	20.4	1.64	21.0	0.05	0.01	0.13	0.15	121	10
125 ISL	9.57 D	9.56	33.608 D	25.941	208.1	0.340	3.51	D152.9 D	54.6	21.2	1.68	21.6	0.05	0.01	0.13	0.16	126	
142	9.23	9.22	33.707	26.074	195.8	0.372	3.15	137.6	48.6	24.1	1.80	23.5	0.05	0.02	0.15	0.20	143	09
150 ISL	9.16 D	9.14	33.775 D	26.140	189.7	0.389	2.99	D130.2 D	46.1	25.7	1.85	24.3	0.04	0.00	0.13	0.19	151	
168	8.95	8.93	33.890	26.264	178.3	0.421	2.67	116.6	41.0	29.3	1.97	26.1	0.03	0.00	0.10	0.15	169	08
200 ISL	8.63 D	8.60	34.006 D	26.405	165.4	0.478	2.30	D 99.9 D	35.0	34.3	2.12	28.0	0.03	0.00	0.05	0.10	202	
201	8.58	8.56	34.007	26.413	164.7	0.477	2.30	100.3	35.0	34.5	2.12	28.1	0.03	0.00	0.04	0.10	203	07
231	8.41	8.39	34.115	26.524	154.7	0.525	1.66	72.3	25.1	40.6	2.37	30.3	0.02	0.00			233	06
250 ISL	8.22 D	8.19	34.103 D	26.545	153.0	0.557	1.71	D 74.5 D	25.9	42.6	2.43	31.0	0.02	0.00			252	
270	8.05	8.02	34.145	26.603	147.8	0.584	1.41	61.5	21.2	44.8	2.49	31.8	0.02	0.00			272	05
300 ISL	7.87 D	7.84	34.173 D	26.653	143.5	0.632	1.19	D 51.6 D	17.8	48.1	2.58	32.8	0.02	0.00			302	
321	7.72	7.69	34.199	26.696	139.8	0.658	1.08	47.0	16.1	50.4	2.64	33.5	0.02	0.00			324	04
382	7.09	7.05	34.210	26.795	131.0	0.740	0.74	32.4	10.9	59.3	2.83	36.0	0.01	0.00			385	03
400 ISL	6.83 D	6.79	34.248 D	26.860	125.0	0.769	0.59	D 25.6 D	8.6	62.9	2.90	36.7	0.01	0.00			403	
440	6.39	6.35	34.259	26.928	118.7	0.813	0.44	19.1	6.4	70.9	3.04	38.4	0.01	0.00			444	02
500 ISL	6.08 D	6.03	34.283 D	26.988	113.6	0.888	0.33	D 14.5 D	4.8	76.7	3.13	39.5	0.01	0.00			504	
516	5.97	5.92	34.292	27.009	111.8	0.900	0.31	13.4	4.4	78.3	3.16	39.8	0.01	0.00			520	01

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

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — 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 39.2 N	121 2.1 W	09/04/2016	1705 UTC	3832 m	150 07 kn	150 01 09	5	1012.0 mb	15.7 C	15.5 C	21 m	8/8	SC	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	15.78	15.78	33.137	24.366	355.1	0.000	5.78	252.5	102.0	2.1	0.30	0.0	0.01	0.01	0.18	0.03	0	
2 A	15.78	15.78	33.137	24.366	355.2	0.007	5.78	252.5	102.0	2.1	0.30	0.0	0.01	0.01	0.18	0.03	2	23
8	15.75	15.75	33.138	24.373	354.8	0.030											8	22
9	15.75	15.75	33.140	24.374	354.7	0.032	5.78	252.5	102.0	2.0	0.30	0.0	0.00	0.24	0.18	0.05	9	21
10 ISL	15.75 D	15.75	33.139 D	24.373	354.8	0.036	5.75	D250.9 D	101.5	2.0	0.30	0.0	0.00	0.00	0.18	0.05	10	
15 A	15.70	15.70	33.145	24.390	353.4	0.053	5.79	252.8	102.0	2.0	0.29	0.0	0.00	0.00	0.21	0.06	15	20
19 A	15.23	15.23	33.161	24.507	342.4	0.067	5.86	256.1	102.4	1.9	0.31	0.0	0.00	0.01	0.21	0.04	19	19
20 ISL	15.09 D	15.09	33.168 D	24.541	339.1	0.071	5.86	D255.4 D	102.1	1.9	0.31	0.0	0.00	0.00	0.22	0.04	20	
27	14.98	14.98	33.190	24.583	335.4	0.094	5.91	257.9	102.6	1.9	0.32	0.0	0.00	0.00	0.31	0.07	27	18
30 ISL	14.92 D	14.91	33.200 D	24.605	333.4	0.105	5.89	D256.7 D	102.2	1.9	0.33	0.0	0.00	0.00	0.37	0.14	30	
36 A	14.76	14.75	33.216	24.652	329.1	0.124	5.89	257.2	101.9	2.1	0.34	0.0	0.00	0.00	0.48	0.27	36	17
47	14.05	14.04	33.238	24.819	313.5	0.160											47	16
48	13.97	13.96	33.246	24.841	311.4	0.162	5.75	251.2	97.9	3.3	0.45	0.9	0.13	0.06	1.02	0.55	48	15
50 ISL	13.79 D	13.78	33.264 D	24.894	306.5	0.170	5.50	D239.6 D	93.3	3.8	0.50	1.7	0.12	0.00	0.90	0.50	50	
60 A	12.85	12.84	33.281	25.096	287.4	0.198	5.11	223.2	85.0	6.1	0.74	6.2	0.06	0.00	0.29	0.25	60	14
73 A	12.09	12.08	33.351	25.296	268.6	0.234	4.61	201.2	75.5	9.7	1.03	10.9	0.03	0.00	0.11	0.11	74	13
75 ISL	11.84 D	11.83	33.360 D	25.350	263.5	0.241	4.55	D198.2 D	74.2	10.1	1.06	11.4	0.03	0.00	0.10	0.11	76	
86	11.41	11.40	33.405	25.464	252.9	0.268	4.18	182.3	67.4	12.5	1.25	14.2	0.02	0.04	0.05	0.08	87	12
100	10.73	10.71	33.443	25.616	238.7	0.303	3.90	170.4	62.1	15.1	1.39	16.7	0.01	0.01	0.04	0.07	101	11
120	10.31	10.29	33.596	25.809	220.8	0.348	3.39	147.9	53.5	18.9	1.62	19.8	0.01	0.01	0.01	0.05	121	10
125 ISL	10.42 D	10.41	33.608 D	25.799	221.9	0.362	3.33	D144.9 D	52.7	19.6	1.66	20.3	0.01	0.00	0.01	0.05	126	
141	10.17	10.15	33.725	25.934	209.4	0.394	2.98	129.9	46.9	21.9	1.77	21.9	0.01	0.00	0.01	0.06	142	09
150 ISL	10.39 D	10.37	33.884 D	26.021	201.4	0.415	2.53	D110.0 D	40.1	23.7	1.85	22.9	0.01	0.00	0.01	0.05	151	
171	9.81	9.79	33.963	26.181	186.5	0.454	2.24	97.9	35.1	28.0	2.04	25.2	0.01	0.04	0.01	0.04	172	08
200 ISL	9.34 D	9.32	34.058 D	26.334	172.5	0.509	1.99	D 86.6 D	30.8	31.3	2.14	26.7	0.01	0.00	0.00	0.04	202	
201	9.34	9.32	34.033	26.313	174.5	0.508	2.06	90.0	32.0	31.4	2.14	26.7	0.01	0.00	0.00	0.04	203	07
230	9.08	9.05	34.108	26.415	165.3	0.557	1.75	76.2	26.9	35.7	2.28	28.4	0.01	0.00			232	06
250 ISL	8.63 D	8.61	34.143 D	26.513	156.3	0.592	1.54	D 66.8 D	23.4	39.3	2.37	29.7	0.01	0.00			252	
271	8.29	8.26	34.150	26.572	150.9	0.622	1.42	61.8	21.4	43.1	2.46	31.1	0.01	0.00			273	05
300 ISL	8.06 D	8.03	34.180 D	26.630	145.9	0.668	1.20	D 52.2 D	18.1	46.5	2.55	32.3	0.02	0.00			302	
320	7.76	7.73	34.174	26.670	142.3	0.694	1.14	49.9	17.1	48.9	2.61	33.1	0.02	0.00			323	04
381	7.30	7.26	34.204	26.761	134.4	0.779	0.80	34.8	11.8	57.1	2.79	35.5	0.01	0.00			384	03
400 ISL	7.10 D	7.06	34.219 D	26.800	130.8	0.808	0.72	D 31.3 D	10.6	59.4	2.83	36.0	0.01	0.00			403	
440	6.80	6.76	34.241	26.859	125.6	0.855	0.57	24.7	8.3	64.3	2.92	37.1	0.02	0.00			444	02
500 ISL	6.21 D	6.16	34.251 D	26.946	117.7	0.933	0.39	D 16.9 D	5.6	71.8	3.03	38.7	0.01	0.00			504	
516	6.22	6.18	34.271	26.960	116.7	0.947	0.37	16.2	5.4	73.8	3.06	39.1	0.01	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 CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1604 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 19.4 N	121 42.3 W	09/04/2016	2322 UTC	4065 m	100 12 kn	130 04 08	2	1009.5 mb	16.0 C	14.5 C	18 m	7/8	SC	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	15.63	15.63	33.205	24.452	347.0	0.000	5.79	253.0	102.0	1.8	0.32	0.0	0.03	0.03	0.23	0.03	0	
2	15.63	15.63	33.205	24.452	347.1	0.007	5.79	253.0	102.0	1.8	0.32	0.0	0.03	0.03	0.23	0.03	2	21
10	15.63	15.62	33.220	24.464	346.2	0.035	5.80	253.2	102.1	1.7	0.33	0.0	0.03	0.02	0.24	0.06	10	19
10	15.63	15.62	33.210	24.456	346.9	0.035											10	20
20	14.87	14.87	33.356	24.735	320.7	0.068	6.19	270.4	107.5	1.4	0.39	0.0	0.03	0.00	1.30	0.29	20	18
30	14.40	14.39	33.363	24.841	310.8	0.100	6.08	265.3	104.5	1.6	0.45	0.5	0.07	0.10	2.18	0.32	30	17
41	13.87	13.86	33.358	24.949	301.0	0.133	5.77	251.8	98.1	2.7	0.56	1.8	0.13	0.85	0.71	0.23	41	16
50	13.43	13.43	33.411	25.079	288.8	0.160	5.58	243.6	94.1	5.4	0.75	4.1	0.24	1.39	0.24	0.26	50	15
60	13.29	13.28	33.436	25.128	284.4	0.188	5.44	237.6	91.5	6.5	0.81	5.1	0.29	1.28	0.26	0.28	60	14
70	13.01	13.00	33.469	25.209	277.0	0.216	5.20	227.0	86.9	8.3	0.92	7.1	0.35	1.08	0.22	0.25	71	13
75 ISL	12.94 D	12.92	33.475 D	25.229	275.2	0.232	5.26	D229.0 D	87.7	9.1	0.99	8.5	0.34	0.85	0.20	0.26	76	
85	11.95	11.94	33.406	25.365	262.4	0.257	4.56	199.2	74.6	10.8	1.12	11.2	0.33	0.38	0.16	0.27	86	12
100	11.06	11.05	33.435	25.552	244.8	0.295	3.91	170.6	62.6	14.5	1.38	16.1	0.10	0.00	0.09	0.19	101	11
120	10.00	9.98	33.526	25.807	220.9	0.342	3.57	155.6	55.9	18.3	1.58	19.5	0.07	0.00	0.05	0.18	121	10
125 ISL	9.97 D	9.96	33.522 D	25.808	220.9	0.355	3.58	D156.0 D	56.1	18.8	1.60	19.9	0.07	0.00	0.05	0.18	126	
141	9.62	9.61	33.560	25.896	212.7	0.388	3.53	154.2	54.9	20.3	1.65	21.0	0.06	0.00	0.05	0.17	142	09
150 ISL	9.54 D	9.53	33.634 D	25.967	206.2	0.409	3.39	D147.6 D	52.6	22.1	1.72	22.1	0.05	0.00	0.04	0.17	151	
170	9.16	9.14	33.786	26.148	189.3	0.446	2.93	127.9	45.2	26.1	1.87	24.6	0.04	0.00	0.03	0.17	171	08
200	8.79	8.76	33.934	26.324	173.2	0.500	2.56	111.7	39.2	30.9	2.03	26.8	0.04	0.00	0.03	0.12	202	07
230	8.37	8.35	34.017	26.454	161.3	0.551	2.29	99.8	34.7	36.2	2.15	28.7	0.03	0.00			232	06
250 ISL	8.13 D	8.10	34.045 D	26.513	156.0	0.586	2.06	D 89.5 D	31.0	40.2	2.27	30.2	0.02	0.00			252	
269	7.81	7.78	34.079	26.587	149.1	0.611	1.74	76.0	26.1	43.9	2.38	31.7	0.02	0.00			271	05
300 ISL	7.63 D	7.60	34.112 D	26.639	144.7	0.661	1.42	D 61.7 D	21.1	48.0	2.51	33.1	0.02	0.00			302	
320	7.45	7.42	34.129	26.679	141.1	0.686	1.23	53.5	18.2	50.7	2.60	34.0	0.02	0.00			323	04
380	6.95	6.91	34.175	26.785	131.7	0.767	0.80	35.1	11.8	59.3	2.80	36.4	0.02	0.00			383	03
400 ISL	6.76 D	6.72	34.190 D	26.823	128.3	0.798	0.70	D 30.4 D	10.2	61.4	2.85	36.8	0.02	0.00			403	
441	6.56	6.52	34.201	26.860	125.3	0.845	0.60	26.3	8.8	65.7	2.95	37.8	0.01	0.00			445	02
500 ISL	6.14 D	6.09	34.249 D	26.953	116.9	0.923	0.37	D 16.3 D	5.4	73.8	3.05	39.4	0.01	0.00			504	
517	6.01	5.96	34.255	26.975	115.0	0.937	0.35	15.3	5.0	76.1	3.08	39.8	0.01	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 1604 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 59.4 N	122 24.0 W	10/04/2016	0513 UTC	4105 m	070 12 kn			1010.6 mb	15.2 C	14.2 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	16.07	16.07	33.094	24.267	364.6	0.000	5.69	248.6	101.1	1.9	0.29	0.0	0.01	0.01	0.09	0.02	0	
2	16.07	16.07	33.094	24.267	364.6	0.007	5.69	248.6	101.1	1.9	0.29	0.0	0.01	0.01	0.09	0.02	2	21
10 ISL	16.01 D	16.01	33.136 D	24.314	360.5	0.037	5.69	D247.9 D	100.8	1.9	0.29	0.0	0.01	0.00	0.09	0.01	10	
10	16.01	16.01	33.136	24.314	360.5	0.038											10	20
11	15.88	15.87	33.138	24.345	357.5	0.040	5.71	249.5	101.1	1.9	0.29	0.0	0.01	0.00	0.09	0.01	11	19
20 ISL	15.74 D	15.73	33.112 D	24.357	356.7	0.073	5.72	D249.5 D	100.9	1.9	0.29	0.0	0.01	0.00	0.09	0.02	20	
26	15.73	15.72	33.120	24.365	356.1	0.093	5.76	251.6	101.6	1.9	0.29	0.0	0.01	0.01	0.10	0.02	26	18
30 ISL	15.72 D	15.72	33.117 D	24.365	356.2	0.109	5.73	D249.6 D	101.0	1.9	0.29	0.0	0.01	0.02	0.10	0.02	30	
40	15.68	15.67	33.116	24.374	355.8	0.143	5.77	251.9	101.6	1.9	0.29	0.0	0.00	0.04	0.12	0.02	40	17
50	15.70	15.69	33.127	24.379	355.6	0.179	5.78	252.4	101.9	1.9	0.28	0.0	0.01	0.00	0.12	0.03	50	16
63	15.60	15.59	33.120	24.397	354.3	0.225	5.79	252.7	101.8	1.9	0.30	0.0	0.01	0.00	0.18	0.05	64	15
75	15.04	15.03	33.100	24.505	344.4	0.267	5.85	255.4	101.7	2.0	0.30	0.0	0.01	0.00	0.27	0.13	76	14
88	14.37	14.36	33.156	24.691	327.0	0.310	5.78	252.6	99.2	2.4	0.36	0.2	0.06	0.00	0.44	0.23	89	13
100	13.51	13.50	33.197	24.900	307.3	0.349	5.47	238.7	92.2	4.0	0.51	2.6	0.15	0.00	0.31	0.28	101	12
112	12.80	12.78	33.210	25.053	293.0	0.385	5.23	228.4	86.9	5.6	0.67	5.4	0.07	0.00	0.24	0.18	113	11
125	11.17	11.15	33.230	25.373	262.4	0.421	4.65	203.0	74.6	10.4	1.10	12.2	0.03	0.00	0.09	0.11	126	10
140	10.06	10.05	33.351	25.659	235.3	0.458	4.12	180.1	64.7	15.3	1.41	17.2	0.02	0.00	0.03	0.06	141	09
150 ISL	9.81 D	9.79	33.446 D	25.777	224.3	0.484	3.86	D167.8 D	60.1	17.6	1.51	18.9	0.02	0.00	0.02	0.05	151	
171	9.35	9.33	33.652	26.013	202.2	0.526	3.43	149.7	53.0	22.5	1.72	22.4	0.02	0.00	0.00	0.04	172	08
200 ISL	9.09 D	9.07	33.878 D	26.233	181.9	0.585	2.71	D118.0 D	41.7	28.0	1.95	25.4	0.01	0.00	0.00	0.03	202	
201	9.08	9.05	33.874	26.232	182.1	0.583	2.78	121.3	42.8	28.2	1.96	25.5	0.01	0.01	0.00	0.03	203	07
231	8.81	8.79	34.001	26.374	169.2	0.636	2.31	100.7	35.3	33.0	2.12	27.8	0.01	0.00			233	06
250 ISL	8.49 D	8.46	34.030 D	26.446	162.5	0.672	2.26	D 98.4 D	34.4	35.6	2.16	28.7	0.01	0.00			252	
270	8.16	8.13	34.028	26.495	158.0	0.700	2.24	97.6	33.7	38.2	2.21	29.7	0.01	0.00			272	05
300 ISL	7.96 D	7.93	34.071 D	26.559	152.5	0.751	1.86	D 80.7 D	27.9	42.6	2.39	31.3	0.01	0.00			302	
321	8.02	7.99	34.142	26.607	148.4	0.778	1.37	60.0	20.7	45.7	2.52	32.4	0.01	0.00			324	04
382	7.19	7.15	34.164	26.744	135.9	0.864	0.96	42.0	14.2	55.7	2.75	35.6	0.01	0.00			385	03
400 ISL	7.13 D	7.09	34.173 D	26.760	134.6	0.895	0.86	D 37.6 D	12.7	57.8	2.79	36.2	0.01	0.00			403	
441	6.75	6.70	34.185	26.822	129.0	0.943	0.71	31.0	10.4	62.7	2.88	37.4	0.02	0.00			445	02
500 ISL	6.20 D	6.15	34.197 D	26.905	121.6	1.024	0.53	D 23.2 D	7.7	70.1	3.01	39.1	0.01	0.00			504	
516	6.13	6.09	34.217	26.929	119.5	1.036	0.49	21.2	7.0	72.2	3.05	39.6	0.01	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1604 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 39.5 N	123 4.3 W	10/04/2016	1031 UTC	4018 m	340 06 kn			1012.2 mb	15.3 C	14.1 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	16.42	16.42	33.082	24.178	373.1	0.000	5.69	248.6	101.7	2.2	0.29	0.1	0.02	0.13	0.09	0.03	0	
1	16.42	16.42	33.082	24.178	373.1	0.004	5.69	248.6	101.7	2.2	0.29	0.1	0.02	0.13	0.09	0.03	1	21
9	16.41	16.41	33.089	24.187	372.5	0.034	5.68	248.0	101.5	2.0	0.28	0.0	0.02	0.03	0.09	0.01	9	19
10 ISL	16.36 D	16.36	33.105 D	24.209	370.5	0.038	5.65	D246.3	D100.9	1.9	0.28	0.0	0.02	0.00	0.09	0.01	10	
10	16.36	16.36	33.109	24.213	370.1	0.037											10	20
20 ISL	15.90 D	15.90	33.166 D	24.362	356.2	0.074	5.71	D249.1	D101.1	1.8	0.28	0.0	0.01	0.00	0.10	0.02	20	
25	15.87	15.87	33.174	24.375	355.1	0.091	5.74	250.6	101.5	1.8	0.28	0.0	0.01	0.00	0.10	0.02	25	18
30 ISL	15.83 D	15.83	33.163 D	24.376	355.3	0.110	5.70	D248.4	D100.7	1.8	0.28	0.0	0.01	0.00	0.10	0.03	30	
40	15.76	15.75	33.163	24.393	354.0	0.144	5.74	250.9	101.4	1.7	0.28	0.0	0.01	0.01	0.11	0.04	40	17
50	15.71	15.70	33.163	24.405	353.2	0.180	5.74	250.8	101.2	1.7	0.27	0.0	0.01	0.00	0.11	0.03	50	16
63	15.61	15.60	33.168	24.432	351.0	0.226	5.75	251.3	101.2	1.7	0.27	0.0	0.01	0.00	0.15	0.04	64	15
75 ISL	15.46 D	15.44	33.151 D	24.453	349.4	0.270	5.73	D249.8	D100.5	1.7	0.27	0.0	0.01	0.00	0.25	0.10	76	
76	15.33	15.31	33.154	24.484	346.5	0.271	5.75	251.1	100.6	1.7	0.27	0.0	0.01	0.01	0.26	0.11	77	14
87	14.41	14.39	33.138	24.670	329.0	0.308	5.83	254.7	100.1	2.0	0.32	0.0	0.02	0.00	0.33	0.19	88	13
100 ISL	13.55 D	13.53	33.205 D	24.899	307.4	0.352	5.42	D236.1	D 91.4	3.4	0.51	2.7	0.11	0.00	0.29	0.21	101	
101	13.54	13.53	33.212	24.905	306.8	0.353	5.43	237.0	91.6	3.5	0.52	2.9	0.12	0.00	0.29	0.21	102	12
112	12.19	12.18	33.221	25.177	281.0	0.385	4.94	215.7	81.0						0.16	0.16	113	11
125 ISL	10.71 D	10.69	33.263 D	25.480	252.1	0.423	4.52	D197.0	D 71.9	11.5	1.14	13.6	0.02	0.00	0.09	0.11	126	
126	10.72	10.70	33.267	25.482	252.0	0.422	4.51	197.1	71.7	11.9	1.17	14.0	0.02	0.00	0.08	0.10	127	10
140	9.89	9.87	33.362	25.698	231.6	0.456	4.33	188.9	67.6	15.0	1.37	16.8	0.02	0.00	0.05	0.05	141	09
150 ISL	9.62 D	9.60	33.469 D	25.826	219.6	0.482	4.09	D177.9	D 63.5	17.5	1.48	18.7	0.02	0.00	0.03	0.04	151	
170	9.29	9.27	33.652	26.022	201.3	0.521	3.44	150.4	53.2	22.6	1.71	22.5	0.02	0.00	0.00	0.03	171	08
200 ISL	8.89 D	8.87	33.835 D	26.231	182.0	0.583	2.95	D128.3	D 45.2	27.1	1.86	25.0	0.02	0.00	0.00	0.02	202	
201	8.90	8.88	33.835	26.229	182.2	0.580	3.05	133.3	46.8	27.2	1.86	25.1	0.02	0.00	0.00	0.02	203	07
231	8.49	8.46	33.970	26.399	166.5	0.633	2.71	118.2	41.1	32.7	2.01	27.3	0.02	0.00			233	06
250 ISL	8.34 D	8.31	34.028 D	26.468	160.4	0.668	2.43	D105.9	D 36.9	36.2	2.13	28.7	0.01	0.00			252	
270	8.09	8.06	34.059	26.530	154.8	0.696	2.07	90.5	31.2	39.8	2.26	30.1	0.01	0.00			272	05
300 ISL	7.78 D	7.75	34.064 D	26.580	150.4	0.746	1.92	D 83.4	D 28.7	44.5	2.40	31.8	0.01	0.00			302	
321	7.49	7.46	34.089	26.642	144.7	0.772	1.61	70.4	24.0	47.8	2.49	33.1	0.01	0.00			324	04
381	7.13	7.10	34.150	26.741	136.1	0.856	1.03	45.1	15.2	55.6	2.73	35.6	0.01	0.00			384	03
400 ISL	6.94 D	6.90	34.152 D	26.769	133.6	0.888	0.92	D 40.2	D 13.6	57.9	2.78	36.2	0.01	0.00			403	
440	6.58	6.54	34.168	26.831	128.1	0.934	0.77	33.7	11.3	62.8	2.89	37.6	0.01	0.00			444	02
500 ISL	6.31 D	6.26	34.232 D	26.919	120.4	1.016	0.48	D 21.1	D 7.0	70.1	3.02	39.0	0.01	0.00			504	
515	6.20	6.15	34.235	26.935	119.0	1.027	0.47	20.3	6.7	71.9	3.05	39.4	0.01	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 1604 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 19.4 N	123 44.7 W	10/04/2016	1639 UTC	3886 m	340 08 kn	350 02 08	1	1015.2 mb	16.0 C	14.5 C	33 m	2/8	ST	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	16.61	16.61	33.274	24.283	363.1	0.000	5.63	245.8	101.1	1.9	0.28	0.0	0.01	0.02	0.07	0.01	0	
2 A	16.61	16.60	33.274	24.283	363.1	0.007	5.63	245.8	101.1	1.9	0.28	0.0	0.01	0.02	0.07	0.01	2	24
10 ISL	16.53 D	16.52	33.254 D	24.287	363.1	0.037	5.63	D245.4	D100.9	1.9	0.25	0.0	0.00	0.00	0.08	0.01	10	
12	16.52	16.52	33.258	24.290	362.8	0.044	5.63	245.9	100.9	1.9	0.24	0.0	0.00	0.00	0.08	0.01	12	22
13	16.52	16.52	33.255	24.288	363.0	0.045											12	23
20 ISL	16.51 D	16.50	33.252 D	24.290	363.1	0.073	5.63	D245.6	D100.9	1.9	0.24	0.0	0.00	0.00	0.08	0.01	20	
22 A	16.48	16.48	33.254	24.297	362.5	0.080	5.65	247.0	101.3	1.9	0.24	0.0	0.00	0.00	0.08	0.01	22	21
30 A	15.64	15.64	33.147	24.406	352.4	0.109	5.74	250.5	101.0	1.9	0.27	0.0	0.00	0.00	0.11	0.01	30	20
37	15.45	15.44	33.093	24.408	352.5	0.133	5.83	254.9	102.3	1.9	0.29	0.0	0.00	0.00	0.15	0.01	37	19
45	15.39	15.38	33.086	24.416	351.9	0.161	5.82	254.3	101.9	1.9	0.29	0.0	0.00	0.00	0.15	0.04	45	18
50 ISL	15.37 D	15.36	33.084 D	24.418	351.9	0.181	5.82	D253.7	D101.9	1.9	0.29	0.0	0.00	0.00	0.20	0.04	50	
54 A	15.35	15.34	33.085	24.424	351.5	0.193	5.82	254.3	101.8	1.9	0.29	0.0	0.00	0.01	0.24	0.05	54	17
67	15.20	15.19	33.083 D	24.456	348.8	0.241	5.82	254.2	101.5	1.9	0.29	0.0	0.00	0.01	0.29	0.07	68	16
75 ISL	14.90 D	14.89	33.063 D	24.505	344.3	0.269	5.83	D254.0	D101.0	2.0	0.30	0.0	0.00	0.00	0.32	0.14	76	
80	14.88	14.86	33.095	24.536	341.6	0.283	5.84	255.3	101.3	2.0	0.30	0.0	0.00	0.00	0.34	0.17	81	15
93 A	14.66	14.65	33.095	24.583	337.5	0.327	5.81	253.6	100.2	2.1	0.34	0.0	0.04	0.11	0.44	0.24	94	13
94	14.66	14.65	33.095	24.583	337.5	0.329											95	14
100 ISL	14.99 D	14.98	33.381 D	24.732	323.6	0.354	5.49	D239.3	D 95.5	2.9	0.37	0.9	0.07	0.00	0.36	0.23	101	
104	14.47	14.46	33.344	24.815	315.7	0.364	5.43	237.2	93.5	3.4	0.38	1.4	0.08	0.00	0.31	0.22	105	12
115 A	12.89	12.88	33.219	25.041	294.2	0.397	5.27	230.1	87.7	5.1	0.67	5.1	0.03	0.01	0.15	0.16	116	11
125 ISL	11.67 D	11.66	33.263 D	25.307	268.9	0.429	5.03	D219.1	D 81.6	7.4	0.80	7.9	0.03	0.00	0.11	0.12	126	
128	11.48	11.47	33.268	25.346	265.2	0.434	5.04	220.3	81.5	8.1	0.84	8.8	0.03	0.00	0.10	0.11	129	10
140	10.51	10.49	33.297	25.542	246.6	0.464	4.92	214.7	77.8	10.8	1.03	11.9	0.01	0.00	0.08	0.09	141	09
150 ISL	10.10 D	10.08	33.362 D	25.662	235.3	0.492	4.80	D208.8	D 75.3	13.5	1.20	14.5	0.01	0.00	0.06	0.07	151	
170	9.51	9.49	33.521	25.884	214.5	0.533	3.96	172.9	61.4	19.0	1.53	19.5	0.01	0.00	0.02	0.03	171	08
200	8.97	8.95	33.745	26.147	190.0	0.594	3.36	146.7	51.5	24.8	1.77	23.3	0.00	0.00	0.00	0.03	202	07
230	8.48	8.46	33.949	26.383	168.0	0.648	2.78	121.5	42.3	31.7	1.97	26.9	0.00	0.01			232	06
250 ISL	8.23 D	8.20	33.989 D	26.454	161.6	0.686	2.57	D112.0	D 38.9	36.0	2.11	28.6	0.00	0.00			252	
270	7.95	7.93	34.036	26.532	154.4	0.712	2.12	92.6	31.8	40.2	2.25	30.3	0.00	0.00			272	05
300 ISL	7.72 D	7.69	34.105 D	26.621	146.5	0.763	1.53	D 66.6	D 22.9	46.5	2.44	32.6	0.00	0.00			302	
321	7.33	7.29	34.101	26.674	141.5	0.788	1.35	58.9	20.0	50.9	2.58	34.2	0.00	0.00			324	04
381	7.10	7.06	34.206	26.791	131.4	0.870	0.76	33.0	11.1	58.7	2.82	36.2	0.00	0.00			384	03
400 ISL	6.87 D	6.83	34.198 D	26.815	129.2	0.901	0.68	D 29.5	D 9.9	61.5	2.87	36.9	0.00	0.00			403	
440	6.50	6.46	34.228	26.889	122.5	0.945	0.55	23.9	8.0	67.4	2.97	38.4	0.01	0.00			444	02
500 ISL	5.98 D	5.93	34.222 D	26.952	116.8	1.025	0.45	D 19.5	D 6.4	74.8	3.07	39.9	0.01	0.00			504	
515	5.90	5.86	34.235	26.972	115.1	1.034	0.42	18.3	6.0	76.7	3.09	40.2	0.01	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 1604 — 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 53.2 N	118 26.7 W	07/04/2016	2226 UTC	28 m	330 06 kn	280 01 06	5	1013.6 mb	15.5 C	15.0 C		8/8	ST	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	15.34	15.34	33.540	24.773	316.4	0.000	6.45	281.6	113.2	1.7	0.41	0.0	0.02	0.27	1.06	0.20	0	
1	15.34	15.34	33.540	24.773	316.4	0.003	6.45	281.6	113.2	1.7	0.41	0.0	0.02	0.27	1.06	0.20	1	05
6	15.23	15.23	33.554	24.808	313.2	0.019	6.47	282.6	113.3	1.7	0.41	0.0	0.02	0.26	0.87	0.19	6	04
10 ISL	14.97 D	14.97	33.563 D	24.873	307.2	0.032	6.48	D282.5	D112.9	2.1	0.47	0.3	0.05	0.40	0.75	0.24	10	
11	14.67	14.67	33.554	24.930	301.8	0.034	6.42	280.0	111.0	2.2	0.48	0.3	0.05	0.44	0.72	0.26	11	03
16	14.20	14.20	33.552	25.028	292.6	0.049	6.20	270.6	106.3	2.6	0.55	1.3	0.11	0.50	1.14	0.40	16	02
20	14.12	14.12	33.557	25.049	290.8	0.061	5.90	257.6	101.0	3.7	0.63	2.5	0.13	0.77	1.47	0.38	20	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 1604 — 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 38.7 N	118 3.4 W	07/04/2016	1849 UTC	23 m	110 04 kn	260 01 07	5	1016.8 mb	16.0 C	15.3 C		8/8	ST	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	15.83	15.83	33.527	24.653	327.8	0.000	6.40	279.5	113.4	3.7	0.32	0.0	0.03	0.04	1.31	0.37	0	
2	15.83	15.83	33.527	24.653	327.9	0.007	6.40	279.5	113.4	3.7	0.32	0.0	0.03	0.04	1.31	0.37	2	04
5	15.61	15.61	33.528	24.705	323.1	0.016	6.50	283.8	114.7	3.8	0.32	0.0	0.03	0.02	1.45	0.71	5	03
10	14.93	14.93	33.526	24.852	309.2	0.032	6.30	275.1	109.7	4.3	0.37	0.0	0.03	0.02	3.38	1.15	10	02
15	14.03	14.02	33.528	25.046	290.9	0.047	4.73	206.3	80.7	8.7	0.86	5.1	0.39	0.26	9.00	1.78	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 1604 — 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 28.2 N	117 44.6 W	07/04/2016	1402 UTC	24 m	240 02 kn	250 01 08	2	1015.4 mb	15.6 C	14.9 C		8/8	SC	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	16.46	16.46	33.546	24.526	339.9	0.000	6.21	271.1	111.4	3.7	0.36	0.2	0.04	0.00	1.40	0.38	0	
2	16.46	16.46	33.546	24.526	340.0	0.007	6.21	271.1	111.4	3.7	0.36	0.2	0.04	0.00	1.40	0.38	2	04
6	16.33	16.32	33.544	24.555	337.3	0.020	6.26	273.2	112.0	3.2	0.35	0.0	0.04	0.00	1.42	0.41	6	03
10	15.40	15.40	33.536	24.756	318.3	0.033	6.22	271.3	109.2	3.5	0.40	0.3	0.07	0.00	1.78	0.60	10	02
20	15.00	15.00	33.533 D	24.842	310.5	0.065	6.16	268.6	107.3	3.6	0.43	0.6	0.10	0.00	1.88	0.58	20	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 1604 — 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 29.1 N	117 46.8 W	07/04/2016	1615 UTC	161 m	140 02 kn	300 01 07	2	1016.5 mb	16.8 C	15.8 C	11 m	8/8	SC	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	16.45	16.45	33.542	24.524	340.1	0.000	6.26	273.5	112.3	3.1	0.31	0.0	0.06	0.00	0.92	0.21	0	
1 A	16.45	16.45	33.542	24.524	340.1	0.003	6.26	273.5	112.3	3.1	0.31	0.0	0.06	0.00	0.92	0.21	1	18
8 A	16.23	16.22	33.542	24.577	335.4	0.027	6.28	274.2	112.2	3.3	0.32	0.0	0.06	0.00	1.05	0.27	8	17
10 ISL	15.73 D	15.73	33.544 D	24.690	324.6	0.034	6.27	273.3	110.9	3.5	0.35	0.0	0.07	0.00	1.54	0.44	10	
11 A	15.27	15.27	33.537	24.786	315.5	0.037	6.27	273.6	109.8	3.5	0.37	0.0	0.08	0.00	1.78	0.52	11	15
11	15.27	15.27	33.539	24.788	315.3	0.036											11	16
18 A	13.98	13.98	33.513	25.044	291.1	0.058	5.38	235.1	91.9	4.8	0.74	3.8	0.62	1.45	2.04	0.58	18	14
20 ISL	13.73 D	13.72	33.525 D	25.106	285.3	0.064	5.29	D230.3 D	89.7	5.8	0.82	5.1	0.68	1.25	1.76	0.57	20	
24	13.25	13.25	33.525	25.202	276.2	0.075	4.62	201.9	77.7	8.0	0.98	7.7	0.82	0.85	1.21	0.55	24	13
30 ISL	12.69 D	12.69	33.546 D	25.329	264.3	0.092	4.24	D184.5 D	70.4	12.5	1.30	13.1	0.71	0.27	0.56	0.39	30	
31 A	12.22	12.21	33.548	25.423	255.4	0.094	3.66	159.8	60.2	13.3	1.35	14.0	0.69	0.17	0.45	0.36	31	12
39 A	11.61	11.61	33.596	25.573	241.3	0.114	3.27	142.9	53.2	15.6	1.53	16.8	0.45	0.06	0.24	0.36	39	11
45	11.40	11.39	33.633	25.642	234.9	0.128	3.10	135.2	50.1	17.3	1.62	18.0	0.34	0.12	0.15	0.36	45	10
50 ISL	11.09 D	11.08	33.676 D	25.732	226.5	0.141	2.96	D128.8 D	47.5	19.3	1.79	19.8	0.33	0.67	0.11	0.29	50	
51	11.11	11.10	33.670	25.723	227.3	0.142	2.96	129.2	47.6	19.8	1.82	20.1	0.33	0.78	0.10	0.28	51	09
60	10.89	10.88	33.735	25.814	218.9	0.162	2.78	121.3	44.5	20.5	1.81	20.4	0.24	0.23	0.07	0.25	60	08
70	10.78	10.77	33.809	25.891	211.9	0.184	2.60	113.5	41.5	21.9	1.87	21.4	0.17	0.08	0.06	0.26	71	07
75 ISL	10.76 D	10.75	33.834 D	25.914	209.8	0.195	2.55	D110.9 D	40.7	22.8	1.92	21.9	0.17	0.09	0.05	0.25	76	
85	10.59	10.57	33.927	26.017	200.2	0.214	2.23	97.5	35.6	24.6	2.01	22.9	0.16	0.11	0.03	0.23	86	06
100	10.48	10.47	33.988	26.083	194.3	0.244	2.11	92.0	33.5	26.0	2.06	23.7	0.13	0.01	0.03	0.17	101	05
120	10.29	10.27	34.117	26.219	181.9	0.282	1.64	71.6	26.0	29.7	2.24	25.6	0.15	0.00	0.02	0.11	121	04
125 ISL	10.28 D	10.27	34.131 D	26.231	180.9	0.292	1.70 D	74.1 D	27.0	30.6	2.27	25.9	0.13	0.00	0.02	0.10	126	
140	9.92	9.90	34.195	26.344	170.4	0.317	1.42	62.1	22.3	33.1	2.37	26.9	0.09	0.00	0.01	0.08	141	03
150 ISL	9.84 D	9.82	34.217 D	26.374	167.8	0.336	1.41 D	61.3 D	22.1	34.5	2.40	27.4	0.09	0.00	0.01	0.09	151	
170	9.41	9.40	34.229	26.454	160.5	0.367	1.30	56.6	20.1	37.2	2.47	28.3	0.09	0.00	0.01	0.09	171	02
200 ISL	9.19 D	9.17	34.230 D	26.492	157.5	0.417	1.28 D	55.8 D	19.8	39.3	2.51	29.1	0.05	0.00	0.01	0.08	202	
201	9.19	9.17	34.231	26.493	157.4	0.416	1.26	55.1	19.5	39.3	2.51	29.1	0.05	0.00	0.01	0.08	203	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 1604 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 54.2 W	07/04/2016	1045 UTC	618 m	340 08 kn			1016.2 mb	15.4 C	14.8 C				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	16.54	16.54	33.551	24.510	341.4	0.000	6.27	273.9	112.7	3.4	0.31	0.0	0.02	0.01	0.66	0.13	0	
2	16.54	16.54	33.551	24.510	341.5	0.007	6.27	273.9	112.7	3.4	0.31	0.0	0.02	0.01	0.66	0.13	2	20
10	14.69	14.69	33.530	24.908	303.9	0.033	6.07	265.2	105.2	5.0	0.47	0.1	0.06	0.03	2.87	1.05	10	19
20 ISL	13.62 D	13.62	33.526 D	25.128	283.2	0.062	4.61	D200.6 D	78.0	8.5	0.92	7.4	0.77	0.07	1.38	0.76	20	
21	13.18	13.18	33.531	25.221	274.4	0.065	4.55	198.6	76.4	8.9	0.97	8.2	0.84	0.07	1.23	0.73	21	18
30 ISL	12.13 D	12.12	33.564 D	25.452	252.7	0.089	3.63	D158.0 D	59.6	13.7	1.36	14.6	0.29	0.02	0.54	0.40	30	
31	12.08	12.08	33.568	25.464	251.5	0.091	3.55	155.0	58.2	14.3	1.40	15.3	0.23	0.01	0.47	0.36	31	17
41	11.72	11.71	33.592	25.551	243.4	0.116	3.35	146.3	54.6	15.6	1.50	16.8	0.26	0.01	0.32	0.42	41	16
50 ISL	11.30 D	11.29	33.697 D	25.710	228.6	0.138	2.85	D124.3 D	46.1	18.4	1.68	19.4	0.08	0.01	0.16	0.30	50	
51	11.25	11.24	33.699	25.721	227.6	0.139	2.89	126.1	46.6	18.8	1.70	19.6	0.06	0.01	0.14	0.29	51	15
61	11.07	11.06	33.773	25.811	219.2	0.162	2.69	117.6	43.3	20.3	1.79	20.5	0.04	0.02	0.07	0.16	61	14
71	11.01	11.00	33.813	25.853	215.5	0.183	2.57	112.4	41.3	21.0	1.83	21.0	0.04	0.01	0.05	0.16	72	13
75 ISL	10.91 D	10.90	33.857 D	25.905	210.6	0.193	2.48	D108.1 D	39.8	22.1	1.88	21.6	0.04	0.02	0.05	0.15	76	
85	10.64	10.63	33.948	26.024	199.6	0.212	2.20	96.1	35.1	24.8	2.01	23.2	0.04	0.04	0.03	0.13	86	12
100 ISL	10.42 D	10.41	34.032 D	26.128	190.0	0.243	1.99	D 86.6 D	31.6	26.8	2.10	24.2	0.04	0.00	0.02	0.09	101	
101	10.39	10.38	34.029	26.132	189.7	0.243	1.99	87.0	31.6	27.0	2.11	24.3	0.04	0.00	0.02	0.09	102	11
120	10.16	10.15	34.113	26.237	180.1	0.279	1.80	78.5	28.4	29.8	2.21	25.5	0.05	0.00	0.02	0.07	121	10
125 ISL	10.14 D	10.12	34.122 D	26.249	179.1	0.289	1.74	D 75.9 D	27.5	30.2	2.22	25.7	0.05	0.00	0.02	0.08	126	
140	9.96	9.94	34.145	26.297	174.9	0.314	1.67	D 72.6 D	26.2	31.3	2.26	26.3	0.04	0.00	0.02	0.08	141	09
150 ISL	9.87 D	9.85	34.155 D	26.320	172.9	0.334	1.67	D 72.6 D	26.2	32.5	2.30	26.7	0.04	0.00	0.02	0.07	151	
171	9.68	9.66	34.217	26.401	165.6	0.367	1.41	61.6	22.1	34.9	2.39	27.6	0.04	0.00	0.01	0.05	172	08
200	9.29	9.27	34.224	26.471	159.5	0.414	1.39	60.5	21.5	37.3	2.44	28.4	0.04	0.00	0.01	0.04	202	07
231	8.84	8.82	34.228	26.547	152.8	0.462	1.22	53.1	18.7	41.3	2.53	30.0	0.04	0.00			233	06
250 ISL	8.68 D	8.65	34.239 D	26.582	149.8	0.495	1.13	D 49.3 D	17.3	43.5	2.58	30.7	0.04	0.00			252	
270	8.31	8.28	34.240	26.639	144.6	0.521	1.04	45.3	15.7	45.8	2.64	31.5	0.04	0.00			272	05
300 ISL	7.93 D	7.89	34.247 D	26.703	138.9	0.568	0.84	D 36.7 D	12.7	50.8	2.75	32.9	0.04	0.00			302	
321	7.67	7.64	34.270	26.758	133.9	0.592	0.75	32.6	11.2	54.2	2.83	34.0	0.05	0.00			324	04
381	7.31	7.28	34.275	26.815	129.3	0.671	0.54	D 23.5 D	8.0	59.7	2.94	35.3	0.04	0.00			384	03
400 ISL	7.17 D	7.13	34.278 D	26.837	127.4	0.701	0.49	D 21.3 D	7.2	62.5	2.98	35.9	0.04	0.00			403	
441	6.72	6.68	34.299	26.915	120.3	0.746	0.36	15.5	5.2	68.6	3.08	37.3	0.02	0.00			445	02
500 ISL	6.43 D	6.39	34.316 D	26.969	115.9	0.823	0.29	D 12.5 D	4.2	76.1	3.19	38.2	0.03	0.00			504	
515	6.22	6.17	34.331	27.008	112.1	0.832	0.23	10.1	3.3	78.1	3.22	38.4	0.03	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 1604 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 14.9 W	07/04/2016	0639 UTC	322 m	310 03 kn			1018.7 mb	15.6 C	14.6 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	16.13	16.13	33.531	24.591	333.8	0.000	5.90	257.5	105.1	2.0	0.33	0.0	0.01	0.00	0.34	0.12	0	
2	16.13	16.12	33.531	24.591	333.8	0.007	5.90	257.5	105.1	2.0	0.33	0.0	0.01	0.00	0.34	0.12	2	18
10	16.04	16.03	33.531	24.611	332.1	0.033	5.93	258.9	105.5	2.0	0.34	0.0	0.02	0.00	0.34	0.14	10	16
10	16.04	16.03	33.531	24.611	332.1	0.034											10	17
20	15.47	15.46	33.531	24.739	320.3	0.066	6.07	265.1	106.8	2.6	0.40	0.0	0.01	0.00	0.44	0.16	20	15
30	15.20	15.20	33.536	24.802	314.6	0.098	6.08	265.3	106.3	2.2	0.41	0.0	0.03	0.00	1.13	0.36	30	14
40	14.69	14.69	33.522	24.902	305.4	0.129	5.64	246.2	97.6	3.3	0.58	1.7	0.11	0.14	0.94	0.39	40	13
50	13.59	13.58	33.457	25.083	288.4	0.158	4.97	217.2	84.2	6.2	0.76	5.3	0.29	0.16	0.70	0.35	50	12
60	12.58	12.57	33.456	25.283	269.5	0.186	4.30	187.9	71.3	10.1	1.09	10.6	0.19	0.00	0.35	0.30	60	11
71	11.41	11.40	33.563	25.587	240.8	0.214	3.58	156.2	57.8	15.2	1.43	16.0	0.10	0.00	0.12	0.20	72	10
75 ISL	11.18 D	11.17	33.636 D	25.685	231.5	0.225	3.35	D146.0 D	54.0	16.4	1.50	17.0	0.09	0.00	0.10	0.17	76	
85	10.97	10.96	33.714	25.783	222.5	0.247	3.01	131.2	48.2	19.3	1.68	19.5	0.06	0.00	0.05	0.10	86	09
100	10.80	10.79	33.794	25.877	214.0	0.279	2.74	119.5	43.8	21.4	1.78	20.9	0.07	0.00	0.03	0.09	101	08
120	10.49	10.47	33.899	26.014	201.4	0.321	2.48	108.4	39.4	23.9	1.91	22.5	0.03	0.00	0.01	0.06	121	07
125 ISL	10.50 D	10.48	33.909 D	26.020	200.9	0.333	2.46	D107.0 D	39.1	25.0	1.96	23.0	0.03	0.00	0.01	0.06	126	
140	10.19	10.17	34.049	26.184	185.7	0.360	2.00	87.1	31.5	28.0	2.11	24.7	0.03	0.00	0.01	0.06	141	06
150 ISL	10.08 D	10.07	34.159 D	26.287	176.1	0.380	1.64	D 71.5 D	25.9	29.9	2.19	25.5	0.05	0.00	0.01	0.08	151	
170	9.84	9.82	34.179	26.344	171.1	0.413	1.47	64.3	23.1	33.6	2.34	27.0	0.07	0.00	0.01	0.11	171	05
200	9.44	9.42	34.223	26.446	162.0	0.463	1.32	57.5	20.5	36.8	2.41	28.2	0.03	0.00	0.01	0.08	202	04
230	8.88	8.86	34.214	26.530	154.4	0.511	1.26	55.1	19.4	40.5	2.49	29.7	0.02	0.00			232	03
250 ISL	8.70 D	8.67	34.217 D	26.561	151.8	0.544	1.21	D 52.5 D	18.5	42.9	2.54	30.5	0.02	0.00			252	
270	8.47	8.44	34.225	26.604	148.0	0.571	1.15	50.1	17.5	45.2	2.59	31.3	0.02	0.00			272	02
300 ISL	8.09 D	8.06	34.244 D	26.675	141.6	0.618	0.89	D 38.7 D	13.4	49.8	2.71	32.7	0.02	0.00			302	
320	7.83	7.80	34.253	26.721	137.4	0.643	0.76	33.3	11.4	52.8	2.79	33.7	0.01	0.00			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 1604 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 10.9 N	118 23.0 W	07/04/2016	0335 UTC	1164 m	270 03 kn			1019.0 mb	15.4 C	14.2 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	16.45	16.45	33.535	24.519	340.6	0.000	5.93	258.8	106.3	0.9	0.40	0.0	0.02	1.33	0.23	0.07	0	
2	16.45	16.45	33.535	24.519	340.7	0.007	5.93	258.8	106.3	0.9	0.40	0.0	0.02	1.33	0.23	0.07	2	22
10	16.38	16.37	33.533	24.535	339.4	0.034	5.99	261.4	107.2	0.8	0.36	0.0	0.03	0.25	0.23	0.05	10	20
10	16.38	16.37	33.536	24.538	339.1	0.035											10	21
20	15.52	15.52	33.524	24.722	322.0	0.067	6.03	263.3	106.2	0.8	0.36	0.0	0.03	0.23	0.33	0.10	20	19
30	14.97	14.96	33.508	24.832	311.8	0.099	5.90	257.6	102.7	1.6	0.42	0.3	0.03	0.22	0.44	0.14	30	18
40	14.12	14.12	33.493	25.000	296.1	0.129	5.10	222.4	87.2	5.8	0.73	5.0	0.20	0.36	0.65	0.40	40	16
40	14.12	14.12	33.491	24.998	296.2	0.130											40	17
50	12.64	12.64	33.460	25.273	270.3	0.158	4.42	192.8	73.3						0.53	0.29	50	15
60	12.00	11.99	33.488	25.418	256.6	0.184	3.99	174.3	65.3	10.7	1.08	10.6	0.17	0.00	0.34	0.23	60	14
70	11.58	11.57	33.560	25.553	244.1	0.209	3.67	160.2	59.6	14.9	1.33	15.1	0.03	0.00	0.21	0.29	71	13
75 ISL	11.18 D	11.17	33.630 D	25.681	232.0	0.222	3.51	D153.0 D	56.6	16.5	1.42	16.4	0.03	0.00	0.16	0.23	76	
85	10.71	10.69	33.685	25.808	220.1	0.244	3.16	137.7	50.3	19.7	1.61	19.2	0.02	0.00	0.04	0.10	86	12
100	10.56	10.55	33.750	25.884	213.2	0.276	2.96	129.1	47.0	21.3	1.71	20.4	0.02	0.00	0.03	0.10	101	11
120	10.30	10.29	33.876	26.028	200.0	0.317	2.65	115.5	41.9	24.0	1.86	22.2	0.02	0.00	0.01	0.06	121	10
125 ISL	10.38 D	10.37	33.973 D	26.091	194.2	0.329	2.38	D103.4 D	37.7	25.1	1.92	22.8	0.02	0.00	0.01	0.06	126	
140	10.28	10.26	34.063	26.179	186.1	0.356	2.02	88.3	32.0	28.3	2.08	24.4	0.02	0.00	0.01	0.07	141	09
150 ISL	10.26 D	10.24	34.117 D	26.224	182.1	0.377	1.82	D 79.2 D	28.8	29.5	2.14	25.0	0.01	0.00	0.01	0.06	151	
171	10.03	10.01	34.180	26.314	174.0	0.412	1.59	69.2	25.0	32.1	2.26	26.2	0.01	0.00	0.01	0.05	172	08
200	9.64	9.61	34.208	26.403	166.1	0.461	1.45	63.3	22.7	35.1	2.35	27.5	0.02	0.00	0.05	0.09	202	07
231	9.23	9.20	34.227	26.485	158.8	0.512	1.33	57.8	20.5	38.5	2.43	28.8	0.02	0.00			233	06
250 ISL	8.89 D	8.86	34.223 D	26.536	154.3	0.545	1.26	D 54.6 D	19.3	40.9	2.51	29.7	0.01	0.00			252	
271	8.61	8.58	34.225	26.582	150.2	0.573	1.16	50.5	17.7	43.4	2.60	30.6	0.01	0.00			273	05
300 ISL	8.19 D	8.16	34.242 D	26.659	143.2	0.620	0.95	D 41.3 D	14.4	47.9	2.68	32.0	0.01	0.00			302	
321	7.96	7.92	34.250	26.701	139.5	0.646	0.83	36.1	12.4	51.2	2.73	33.0	0.01	0.00			324	04
381	7.36	7.32	34.279	26.812	129.6	0.726	0.53	23.1	7.8	59.7	2.91	35.3	0.01	0.00			384	03
400 ISL	7.20 D	7.16	34.287 D	26.840	127.2	0.756	0.47	D 20.6 D	7.0	62.3	2.97	35.9	0.01	0.00			403	
441	6.78	6.74	34.305	26.912	120.6	0.802	0.35	15.2	5.1	67.9	3.09	37.1	0.01	0.00			445	02
500 ISL	6.27 D	6.23	34.327 D	26.998	112.9	0.877	0.24	D 10.6 D	3.5	76.6	3.20	38.1	0.01	0.00			504	
519	6.15	6.11	34.337	27.021	110.9	0.892	0.23	9.9	3.3	79.4	3.23	38.5	0.01	0.00			523	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 1604 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 54.9 N	118 56.2 W	06/04/2016	2159 UTC	1688 m	240 15 kn	240 03 08	2	1017.6 mb	15.3 C	14.2 C	13 m	8/8	ST	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	16.54	16.54	33.533	24.496	342.8	0.000	5.83	254.6	104.8	2.0	0.36	0.0	0.02	0.02	0.35	0.07	0	
2	16.54	16.54	33.533	24.496	342.8	0.007	5.83	254.6	104.8	2.0	0.36	0.0	0.02	0.02	0.35	0.07	2	21
10 ISL	15.79 D	15.79	33.516 D	24.655	328.0	0.034	5.92	D257.9 D	104.7	2.1	0.38	0.0	0.02	0.07	0.32	0.08	10	
11	15.71	15.71	33.525	24.680	325.6	0.037	5.91	258.0	104.4	2.1	0.38	0.0	0.02	0.08	0.31	0.09	11	19
11	15.71	15.71	33.517	24.674	326.2	0.036											11	20
20 ISL	15.37 D	15.37	33.505 D	24.740	320.3	0.067	5.99	D260.9 D	105.1	2.3	0.36	0.0	0.02	0.00	0.41	0.14	20	
21	15.35	15.35	33.508	24.747	319.6	0.069	5.99	261.4	105.0	2.3	0.36	0.0	0.02	0.00	0.42	0.14	21	18
30	14.90	14.90	33.498	24.838	311.2	0.098	5.88	256.5	102.1	2.4	0.41	0.3	0.05	0.13	1.31	0.37	30	17
40	13.70	13.69	33.441	25.047	291.5	0.128	5.12	223.6	86.9	6.1	0.74	5.1	0.30	0.37	0.55	0.29	40	16
50 ISL	13.57 D	13.56	33.436 D	25.070	289.6	0.158	5.06	D220.4 D	85.5	6.7	0.79	5.9	0.32	0.26	0.52	0.28	50	
51	13.44	13.43	33.438	25.099	286.9	0.160	5.01	218.8	84.5	6.8	0.79	6.0	0.32	0.25	0.52	0.28	51	15
60	12.93	12.92	33.454	25.213	276.2	0.185	4.51	196.7	75.2	9.3	0.97	9.4	0.24	0.00	0.37	0.24	60	14
71	11.74	11.73	33.457	25.444	254.5	0.214	3.88	169.2	63.1	12.9	1.28	14.3	0.09	0.00	0.18	0.19	72	13
75 ISL	11.57 D	11.56	33.487 D	25.499	249.3	0.226	3.86	D168.1 D	62.6	13.8	1.34	15.2	0.08	0.00	0.15	0.16	76	
86	11.05	11.04	33.580	25.666	233.7	0.251	3.45	150.6	55.4	16.6	1.50	17.6	0.04	0.00	0.06	0.10	87	12
100	10.65	10.64	33.718	25.843	217.1	0.282	3.06	133.7	48.8	20.0	1.68	20.2	0.03	0.01	0.03	0.08	101	11
120	10.19	10.17	33.861	26.036	199.2	0.324	2.64	115.0	41.6	23.8	1.86	22.6	0.03	0.00	0.02	0.06	121	10
125 ISL	9.95 D	9.94	33.842 D	26.061	196.8	0.336	2.69	D117.3 D	42.3	24.5	1.88	22.9	0.03	0.00	0.02	0.07	126	
141	9.84	9.83	33.937	26.154	188.4	0.364	2.57	112.0	40.2	26.6	1.94	24.1	0.03	0.01	0.01	0.09	142	09
150 ISL	9.66 D	9.64	33.997 D	26.232	181.2	0.384	2.43	D105.7 D	37.9	28.0	1.99	24.8	0.03	0.02	0.01	0.09	151	
170	9.36	9.35	34.039	26.314	173.7	0.417	2.22	97.1	34.5	31.2	2.10	26.3	0.02	0.04	0.01	0.08	171	08
200	9.09	9.06	34.133	26.433	163.0	0.467	1.83	80.0	28.2	35.4	2.25	27.9	0.02	0.00	0.01	0.05	202	07
230	8.84	8.82	34.213	26.534	154.0	0.515	1.32	57.7	20.3	40.2	2.44	29.7	0.02	0.00			232	06
250 ISL	8.60 D	8.57	34.217 D	26.576	150.3	0.549	1.22	D 52.9 D	18.5	42.8	2.52	30.6	0.02	0.00			252	
270	8.36	8.34	34.228	26.621	146.3	0.575	1.07	46.6	16.2	45.5	2.59	31.6	0.02	0.00			272	05
300 ISL	8.06 D	8.03	34.242 D	26.679	141.3	0.622	0.93	D 40.5 D	14.0	49.1	2.66	32.7	0.02	0.00			302	
321	7.83	7.80	34.239	26.711	138.5	0.647	0.85	37.1	12.7	51.7	2.71	33.4	0.02	0.00			324	04
380	7.37	7.34	34.265	26.798	130.9	0.727	0.62	27.1	9.2	58.1	2.85	35.2	0.02	0.00			383	03
400 ISL	7.21 D	7.17	34.270 D	26.825	128.6	0.758	0.57	D 25.0 D	8.5	60.7	2.89	35.8	0.02	0.00			403	
440	6.83	6.79	34.285	26.890	122.7	0.803	0.44	19.1	6.4	65.8	2.98	37.0	0.02	0.00			444	02
500 ISL	6.42 D	6.38	34.320 D	26.973	115.4	0.881	0.29	D 12.5 D	4.2	73.0	3.08	38.2	0.02	0.00			504	
516	6.33	6.28	34.325	26.990	114.0	0.893	0.27	11.8	3.9	74.9	3.11	38.5	0.02	0.00			520	01

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

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — 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 39.1 N	119 29.1 W	06/04/2016	1625 UTC	1325 m	160 08 kn	300 03 09	2	1018.3 mb	14.9 C	14.5 C	27 m	8/8	SC	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	15.87	15.87	33.415	24.559	336.7	0.000	5.72	249.6	101.3	2.4	0.33	0.0	0.02	0.03	0.15	0.04	0	
3 A	15.87	15.87	33.415	24.559	336.8	0.010	5.72	249.6	101.3	2.4	0.33	0.0	0.02	0.03	0.15	0.04	3	24
10 ISL	15.63 D	15.62	33.395 D	24.599	333.3	0.034	5.75	D250.7	D101.4	2.3	0.34	0.0	0.02	0.00	0.14	0.04	10	
11	15.62	15.62	33.396	24.602	333.1	0.037	5.74	250.7	101.2	2.3	0.34	0.0	0.02	0.00	0.13	0.04	11	22
11	15.62	15.62	33.399	24.604	332.9	0.036											11	23
19 A	15.51	15.50	33.396	24.627	330.9	0.063	5.76	251.5	101.3	2.3	0.33	0.0	0.02	0.00	0.14	0.04	19	21
20 ISL	15.50 D	15.50	33.391 D	24.624	331.3	0.067	5.76	D250.9	D101.2	2.3	0.33	0.0	0.02	0.00	0.14	0.04	20	
24 A	15.48	15.48	33.398	24.633	330.5	0.080	5.75	251.2	101.1	2.3	0.34	0.0	0.02	0.02	0.17	0.05	24	20
30 ISL	15.44 D	15.44	33.421 D	24.660	328.1	0.100	5.75	D250.6	D101.0	2.3	0.33	0.0	0.02	0.00	0.21	0.05	30	
34	15.42	15.41	33.420	24.666	327.8	0.113	5.77	252.0	101.4	2.3	0.33	0.0	0.02	0.00	0.24	0.05	34	19
45 A	15.36	15.35	33.435	24.691	325.7	0.149	5.75	251.1	100.9	2.3	0.35	0.0	0.02	0.00	0.34	0.15	45	18
50 ISL	15.34 D	15.33	33.428 D	24.690	326.0	0.166	5.74	D250.1	D100.6	2.4	0.35	0.0	0.02	0.00	0.40	0.15	50	
55	15.32	15.31	33.429	24.696	325.6	0.181	5.73	250.2	100.4	2.4	0.35	0.0	0.03	0.02	0.46	0.15	55	16
55	15.32	15.31	33.429	24.696	325.6	0.182											55	17
66	14.44	14.43	33.408	24.869	309.4	0.216	5.37	234.4	92.4	4.3	0.55	2.8	0.19	0.02	0.42	0.20	67	15
75 ISL	14.37 D	14.36	33.399 D	24.878	308.8	0.246	5.33	D232.3	D 91.6	4.4	0.58	3.1	0.17	0.00	0.36	0.19	76	
76 A	14.17	14.16	33.402	24.923	304.5	0.247	5.31	231.9	90.9	4.5	0.58	3.2	0.17	0.00	0.35	0.19	77	14
86	12.99	12.97	33.339	25.114	286.5	0.277	4.86	212.2	81.2	7.3	0.84	7.6	0.06	0.07	0.20	0.12	87	13
94 A	12.23	12.22	33.395	25.304	268.5	0.299	4.42	192.8	72.6	10.3	1.07	11.2	0.04	0.00	0.06	0.07	95	12
100 ISL	11.95 D	11.93	33.407 D	25.368	262.5	0.317	4.41	D192.2	D 72.1	11.4	1.15	12.4	0.03	0.00	0.05	0.07	101	
110	11.32	11.31	33.451	25.517	248.5	0.340	4.05	176.9	65.4	13.3	1.27	14.5	0.03	0.01	0.03	0.06	111	11
125 ISL	10.10 D	10.09	33.649 D	25.885	213.6	0.378	3.38	D147.1	D 53.1	18.6	1.56	19.2	0.02	0.00	0.02	0.05	126	
126	10.07	10.05	33.582	25.839	218.0	0.377	3.58	156.1	56.2	18.9	1.58	19.5	0.02	0.00	0.02	0.05	127	10
141	9.93	9.91	33.753	25.996	203.4	0.409	3.08	134.6	48.3	22.6	1.75	21.9	0.02	0.00	0.01	0.04	142	09
150 ISL	9.49 D	9.47	33.849 D	26.144	189.4	0.429	2.96	D128.8	D 46.0	24.3	1.81	22.8	0.02	0.00	0.01	0.04	151	
171	9.31	9.30	33.913	26.223	182.3	0.466	2.64	115.4	40.9	28.3	1.95	25.0	0.02	0.00	0.01	0.03	172	08
200	8.97	8.95	33.988	26.337	172.0	0.518	2.41	105.1	37.0	31.6	2.06	26.6	0.02	0.05	0.00	0.05	202	07
230	8.23	8.21	34.070	26.516	155.3	0.567	1.91	83.2	28.8	40.0	2.28	30.0	0.02	0.00			232	06
250 ISL	8.12 D	8.09	34.101 D	26.559	151.6	0.600	1.71	D 74.4	D 25.8	42.7	2.37	30.9	0.02	0.00			252	
271	8.00	7.98	34.136	26.603	147.8	0.629	1.45	63.1	21.8	45.5	2.47	31.8	0.02	0.00			273	05
300 ISL	7.77 D	7.74	34.160 D	26.657	143.1	0.675	1.26	D 54.9	D 18.9	49.6	2.58	33.0	0.02	0.00			302	
320	7.55	7.52	34.177	26.702	139.0	0.699	1.06	46.3	15.8	52.4	2.65	33.9	0.02	0.00			323	04
380	6.98	6.94	34.218	26.816	128.8	0.780	0.70	30.5	10.3	61.0	2.85	36.2	0.02	0.00			383	03
400 ISL	6.94 D	6.90	34.224 D	26.826	128.2	0.810	0.65	D 28.1	D 9.5	62.9	2.89	36.6	0.02	0.00			403	
441	6.68	6.63	34.258	26.890	122.6	0.857	0.50	21.7	7.3	66.7	2.96	37.4	0.02	0.00			445	02
500 ISL	6.17 D	6.13	34.282 D	26.974	115.0	0.933	0.35	D 15.2	D 5.1	75.1	3.08	39.0	0.02	0.00			504	
515	6.08	6.04	34.300	27.001	112.7	0.943	0.32	14.1	4.6	77.2	3.11	39.4	0.02	0.01			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 1604 — 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 25.1 N	119 57.5 W	06/04/2016	1106 UTC	866 m	150 07 kn			1017.5 mb	14.4 C	14.1 C				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	15.69	15.69	33.426	24.608	332.1	0.000	5.77	D251.7	D101.9	2.5	0.32	0.0	0.02	0.03	0.26	0.08	0	
2	15.69	15.68	33.426	24.609	332.1	0.007	5.77	D251.7	D101.9	2.5	0.32	0.0	0.02	0.03	0.26	0.08	2	20
10	15.68	15.68	33.428	24.612	332.1	0.033	5.76	251.6	101.7	2.5	0.32	0.0	0.02	0.00	0.26	0.07	10	19
20 ISL	15.56 D	15.55	33.427 D	24.639	329.8	0.067	5.78	D252.0	D101.8	2.5	0.32	0.0	0.02	0.00	0.26	0.08	20	
25	15.55	15.55	33.428	24.642	329.7	0.083	5.76	251.6	101.5	2.5	0.32	0.0	0.02	0.08	0.26	0.09	25	18
30 ISL	15.54 D	15.54	33.428 D	24.644	329.7	0.100	5.77	D251.5	D101.6	2.5	0.32	0.0	0.02	0.00	0.30	0.10	30	
41	15.45	15.44	33.427	24.665	328.1	0.136	5.77	251.7	101.3	2.4	0.33	0.0	0.02	0.00	0.39	0.13	41	17
50 ISL	15.40 D	15.39	33.424 D	24.673	327.6	0.166	5.75	D250.7	D101.0	2.4	0.32	0.0	0.02	0.00	0.46	0.21	50	
51	15.38	15.37	33.428	24.681	326.9	0.168	5.75	250.9	100.8	2.4	0.32	0.0	0.02	0.00	0.47	0.21	51	16
63	15.14	15.13	33.421	24.729	322.7	0.207	5.64	246.3	98.5	2.6	0.37	0.1	0.20	0.03	0.45	0.24	64	15
75 ISL	14.06 D	14.04	33.434 D	24.971	299.9	0.246	5.19	D226.3	D 88.7	4.6	0.58	3.3	0.27	0.00	0.16	0.10	76	
76	13.93	13.92	33.438	25.001	297.1	0.248	5.18	D225.7	D 88.2	4.7	0.60	3.6	0.28	0.00	0.13	0.08	77	14
88	13.21	13.20	33.420	25.133	284.8	0.283	4.96	216.3	83.1	6.7	0.78	6.5	0.05	0.00	0.07	0.07	89	13
100	12.63	12.62	33.413	25.241	274.7	0.316	4.57	199.6	75.8	9.4	0.98	9.9	0.04	0.00	0.07	0.09	101	12
113	11.32	11.30	33.468	25.531	247.2	0.350	3.98	173.8	64.2	14.0	1.31	15.1	0.03	0.00	0.03	0.05	114	11
125 ISL	10.28 D	10.26	33.570 D	25.794	222.3	0.378	3.52	D153.1	D 55.5	18.1	1.54	19.0	0.03	0.00	0.01	0.04	126	
126	10.24	10.22	33.579	25.807	221.0	0.380	3.54	154.3	55.7	18.5	1.56	19.3	0.03	0.00	0.01	0.04	127	10
140	9.97	9.95	33.695	25.945	208.2	0.410	3.32	144.8	52.0	21.6	1.70	21.4	0.03	0.01	0.01	0.03	141	09
150 ISL	9.77 D	9.75	33.811 D	26.068	196.7	0.434	3.00	D130.8	D 46.9	23.4	1.78	22.4	0.03	0.00	0.01	0.04	151	
173	9.51	9.49	33.929	26.204	184.2	0.475	2.58	112.4	40.0	27.8	1.95	24.8	0.02	0.00	0.00	0.04	174	08
200	8.95	8.93	33.954	26.314	174.2	0.523	2.62	114.4	40.2	30.5	1.99	26.2	0.02	0.00	0.01	0.03	202	07
231	8.62	8.60	34.032	26.428	163.9	0.576	2.26	98.6	34.5	35.2	2.13	28.1	0.02	0.00			233	06
250 ISL	8.60 D	8.57	34.094 D	26.480	159.4	0.610	1.99	D 86.5	D 30.3	38.8	2.28	29.4	0.02	0.00			252	
270	8.47	8.44	34.168	26.558	152.3	0.638	1.44	62.7	21.9	42.6	2.44	30.8	0.02	0.00			272	05
300 ISL	7.85 D	7.82	34.176 D	26.658	143.0	0.686	1.18	D 51.1	D 17.6	47.6	2.56	32.5	0.02	0.00			302	
321	7.68	7.65	34.184	26.689	140.4	0.712	1.08	47.1	16.1	51.1	2.64	33.6	0.02	0.00			324	04
380	6.88	6.85	34.189	26.805	129.8	0.791	0.76	33.3	11.2	60.9	2.84	36.6	0.02	0.00			383	03
400 ISL	6.66 D	6.63	34.183 D	26.831	127.5	0.823	0.72	D 31.3	D 10.5	63.4	2.89	37.2	0.02	0.00			403	
441	6.42	6.38	34.219	26.892	122.1	0.868	0.51	22.4	7.4	68.6	2.98	38.4	0.02	0.00			445	02
500 ISL	6.02 D	5.97	34.262 D	26.978	114.4	0.945	0.35	D 15.0	D 5.0	75.8	3.08	39.5	0.02	0.00			504	
515	5.96	5.92	34.269	26.991	113.4	0.955	0.33	14.6	4.8	77.7	3.11	39.8	0.02	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 1604 — 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 5.0 N	120 38.3 W	06/04/2016	0513 UTC	3841 m	060 05 kn			1018.4 mb	15.5 C	14.5 C				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	15.74	15.74	33.397	24.573	335.4	0.000	5.76	251.6	101.9	2.4	0.33	0.0	0.02	0.04	0.18	0.05	0	
1	15.74	15.74	33.397	24.573	335.5	0.003	5.76	251.6	101.9	2.4	0.33	0.0	0.02	0.04	0.18	0.05	1	22
10	15.74	15.74	33.397	24.574	335.7	0.034	5.77	251.6	101.9	2.3	0.32	0.0	0.01	0.00	0.19	0.04	10	20
10	15.74	15.74	33.398	24.575	335.6	0.035											10	21
20	15.61	15.60	33.391	24.600	333.5	0.067	5.77	251.7	101.6	2.3	0.32	0.0	0.00	0.00	0.19	0.05	20	19
30 ISL	15.58 D	15.57	33.401 D	24.616	332.4	0.101	5.78	D251.7	D101.7	2.3	0.34	0.0	0.00	0.00	0.25	0.07	30	
31	15.58	15.57	33.405	24.619	332.2	0.104	5.78	252.2	101.8	2.3	0.34	0.0	0.00	0.05	0.26	0.08	31	18
41	15.50	15.49	33.416	24.645	330.0	0.137	5.76	251.4	101.3	2.4	0.32	0.0	0.00	0.00	0.38	0.14	41	17
50	15.47	15.46	33.421	24.657	329.2	0.167	5.74	250.3	100.8	2.4	0.33	0.0	0.00	0.00	0.49	0.23	50	16
60	15.34	15.33	33.410	24.677	327.6	0.199	5.69	248.1	99.6	2.4	0.36	0.0	0.03	0.10	0.53	0.23	60	14
60	15.34	15.33	33.411	24.678	327.5	0.199											60	15
70	14.80	14.79	33.440	24.819	314.3	0.231	5.54	242.0	96.1	2.8	0.47	1.0	0.32	0.21	0.25	0.16	71	13
75 ISL	14.15 D	14.14	33.408 D	24.931	303.7	0.248	5.28	D230.2	D 90.4	4.1	0.58	3.0	0.25	0.00	0.24	0.19	76	
86	12.14	12.13	33.217	25.182	279.8	0.279	5.06	220.7	82.9	6.8	0.81	7.4	0.09	0.00	0.20	0.23	87	12
100 ISL	11.11 D	11.10	33.277 D	25.419	257.4	0.319	4.63	D201.6	D 74.2	10.5	1.08	12.0	0.04	0.00	0.10	0.11	101	
101	11.14	11.13	33.276	25.414	258.0	0.319	4.62	201.6	74.1	10.7	1.10	12.3	0.04	0.00	0.09	0.11	102	11
120	10.19	10.18	33.373	25.654	235.4	0.366	4.26	186.0	67.0	14.7	1.34	16.4	0.02	0.00	0.06	0.07	121	10
125 ISL	10.11 D	10.09	33.406 D	25.695	231.6	0.380	4.19	D182.4	D 65.8	15.9	1.40	17.3	0.02	0.00	0.05	0.06	126	
140	9.93	9.91	33.602	25.878	214.5	0.411	3.60	157.0	56.3	19.5	1.59	20.1	0.01	0.00	0.02	0.04	141	09
150 ISL	9.53 D	9.51	33.674 D	26.001	203.0	0.435	3.51	D152.9	D 54.5	21.6	1.67	21.4	0.01	0.00	0.01	0.03	151	
170	9.16	9.14	33.818	26.173	187.0	0.471	3.07	134.1	47.3	25.9	1.82	24.0	0.01	0.00	0.01	0.02	171	08
200	8.83	8.81	33.937	26.319	173.6	0.525	2.66	116.2	40.8	30.9	1.99	26.6	0.01	0.00	0.01	0.03	202	07
230	8.38	8.36	33.993	26.434	163.2	0.576	2.45	106.9	37.1	35.3	2.10	28.6	0.01	0.00			232	06
250 ISL	8.24 D	8.21	34.037 D	26.490	158.2	0.612	2.14	D 93.2	D 32.4	37.8	2.19	29.5	0.01	0.00			252	
270	8.11	8.08	34.052	26.522	155.4	0.639	2.02	88.2	30.5	40.2	2.27	30.4	0.01	0.00			272	05
300 ISL	7.72 D	7.69	34.085 D	26.606	147.9	0.689	1.71	D 74.4	D 25.5	45.1	2.40	32.2	0.01	0.00			302	
320	7.47	7.44	34.077	26.634	145.4	0.715	1.62	70.5	24.0	48.4	2.49	33.3	0.01	0.01			323	04
380	6.83	6.79	34.154	26.785	131.6	0.798	0.88	38.4	12.9	60.1	2.80	36.9	0.01	0.00			383	03
400 ISL	6.72 D	6.69	34.176 D	26.817	128.8	0.828	0.75	D 32.7	D 11.0	62.8	2.86	37.4	0.01	0.00			403	
440	6.46	6.42	34.223	26.889	122.4	0.874	0.52	22.8	7.6	68.3	2.98	38.5	0.01	0.00			444	02
500 ISL	6.16 D	6.11	34.281 D	26.976	114.9	0.951	0.34	D 14.9	D 4.9	74.7	3.08	39.6	0.01	0.00			504	
518	6.06	6.02	34.286	26.992	113.4	0.966	0.31	13.7	4.5	76.7	3.11	40.0	0.01	0.03			522	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 1604 — 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 45.2 N	121 19.0 W	05/04/2016	2310 UTC	3713 m	340 15 kn	350 06 08	1	1017.4 mb	15.9 C	14.3 C	27 m	7/8	ST	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	15.98	15.98	33.292	24.439	348.2	0.000	5.74	250.7	101.9	2.1	0.31	0.0	0.01	0.09	0.11	0.03	0	
2	15.98	15.98	33.292	24.439	348.3	0.007	5.74	250.7	101.9	2.1	0.31	0.0	0.01	0.09	0.11	0.03	2	20
10	15.96	15.96	33.292	24.444	348.1	0.035	5.73	250.1	101.6	2.1	0.29	0.0	0.01	0.00	0.10	0.03	10	19
20 ISL	15.89 D	15.89	33.289 D	24.458	347.1	0.070	5.73	D249.9	D101.5	2.1	0.30	0.0	0.01	0.00	0.12	0.03	20	
25	15.82	15.81	33.287	24.473	345.8	0.087	5.75	250.9	101.6	2.1	0.31	0.0	0.01	0.04	0.13	0.04	25	18
30 ISL	15.77 D	15.77	33.284 D	24.482	345.1	0.105	5.74	D250.1	D101.4	2.1	0.31	0.0	0.01	0.03	0.16	0.06	30	
40	15.04	15.03	33.228	24.601	334.1	0.138	5.89	257.2	102.5	2.2	0.32	0.0	0.01	0.01	0.23	0.10	40	17
50	14.82	14.81	33.256	24.670	327.8	0.171	5.85	255.3	101.3	2.4	0.32	0.0	0.02	0.00	0.32	0.16	50	16
62	14.33	14.32	33.220	24.748	320.8	0.210	5.74	250.8	98.5	2.8	0.39	0.5	0.06	0.02	0.43	0.22	62	15
75 ISL	13.52 D	13.51	33.229 D	24.922	304.5	0.253	5.48	D239.0	D 92.5	4.0	0.54	2.8	0.16	0.01	0.35	0.18	76	
76	13.37	13.36	33.228	24.951	301.7	0.254	5.45	238.0	91.7	4.1	0.55	3.0	0.17	0.01	0.34	0.17	77	14
87	12.68	12.66	33.239	25.098	288.0	0.286	5.04	220.0	83.5	6.6	0.79	7.1	0.06	0.02	0.18	0.18	88	13
100 ISL	12.33 D	12.32	33.409 D	25.296	269.4	0.325	4.35	D189.4	D 71.6	10.2	1.08	11.1	0.03	0.00	0.09	0.10	101	
101	12.15	12.14	33.410	25.331	266.1	0.325	4.31	188.3	70.8	10.5	1.10	11.4	0.03	0.00	0.09	0.09	102	12
112	11.54	11.53	33.436	25.465	253.5	0.354	4.02	175.2	65.0	13.0	1.28	14.2	0.03	0.01	0.05	0.07	113	11
125 ISL	10.49 D	10.48	33.379 D	25.608	240.0	0.389	4.19	D182.5	D 66.4	14.1	1.33	15.6	0.02	0.00	0.05	0.06	126	
126	10.49	10.47	33.371	25.603	240.5	0.388	4.20	183.3	66.5	14.2	1.33	15.7	0.02	0.00	0.05	0.06	127	10
140	9.54	9.52	33.603	25.944	208.2	0.420	3.61	157.6	56.0	20.5	1.62	20.5	0.02	0.00	0.01	0.03	141	09
150 ISL	9.41 D	9.39	33.737 D	26.070	196.4	0.443	3.49	D151.8	D 54.0	22.7	1.70	21.7	0.02	0.00	0.01	0.03	151	
171	9.00	8.98	33.848	26.222	182.3	0.480	2.99	130.4	45.9	27.2	1.86	24.4	0.02	0.00	0.00	0.02	172	08
200 ISL	8.68 D	8.66	33.926 D	26.333	172.2	0.535	2.73	D118.8	D 41.6	31.1	1.98	26.3	0.02	0.00	0.00	0.03	202	
201	8.65	8.63	33.924	26.337	171.9	0.534	2.71	118.2	41.3	31.2	1.98	26.3	0.02	0.00	0.00	0.03	203	07
231	8.27	8.25	34.013	26.465	160.2	0.583	2.32	101.2	35.1	37.0	2.16	28.6	0.02	0.00			233	06
250 ISL	7.99 D	7.96	34.038 D	26.528	154.5	0.617	2.14	D 93.2	D 32.2	39.9	2.24	29.7	0.02	0.00			252	
270	7.78	7.75	34.047	26.566	151.1	0.644	1.94	84.8	29.1	43.1	2.33	30.9	0.02	0.00			272	05
300 ISL	7.73 D	7.70	34.131 D	26.640	144.6	0.692	1.34	D 58.2	D 20.0	47.9	2.51	32.4	0.02	0.00			302	
321	7.57	7.54	34.153	26.681	141.1	0.719	1.14	49.9	17.0	51.2	2.63	33.4	0.01	0.00			324	04
380	6.99	6.95	34.180	26.785	131.8	0.799	0.79	34.6	11.7	59.4	2.81	35.8	0.02	0.00			383	03
400 ISL	6.84 D	6.80	34.200 D	26.821	128.6	0.830	0.68	D 29.5	D 9.9	61.9	2.86	36.3	0.01	0.00			403	
440	6.54	6.50	34.214	26.873	124.1	0.876	0.54	23.7	7.9	67.0	2.96	37.4	0.01	0.00			444	02
500 ISL	6.09 D	6.04	34.250 D	26.960	116.3	0.953	0.37	D 16.1	D 5.3	74.8	3.07	38.8	0.01	0.00			504	
516	6.02	5.97	34.264	26.981	114.4	0.966	0.34	14.7	4.8	76.9	3.10	39.2	0.01	0.00			520	01

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

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — 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 25.0 N	121 59.5 W	05/04/2016	1746 UTC	3903 m	340 21 kn	350 04 06	1	1021.2 mb	15.8 C	13.7 C	24 m	2/8	AS	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	15.64	15.64	33.282	24.508	341.6	0.000	5.76	251.6	101.6	2.2	0.32	0.0	0.01	0.05	0.16	0.04	0	
2 A	15.64	15.64	33.282	24.508	341.7	0.007	5.76	251.6	101.6	2.2	0.32	0.0	0.01	0.05	0.16	0.04	2	24
10 ISL	15.64 D	15.64	33.282 D	24.509	341.9	0.035	5.77	D251.3	D101.6	2.2	0.32	0.0	0.01	0.08	0.16	0.04	10	
10	15.64	15.64	33.283	24.509	341.8	0.036											10	23
11	15.64	15.64	33.282	24.509	341.9	0.038	5.77	251.9	101.7						0.16	0.04	11	22
16 A	15.64	15.63	33.283	24.511	341.9	0.055	5.78	252.2	101.8	2.2	0.32	0.0	0.01	0.11	0.16	0.04	16	21
20 ISL	15.63 D	15.62	33.282 D	24.512	341.9	0.069	5.76	D251.0	D101.4	2.2	0.31	0.0	0.01	0.05	0.16	0.04	20	
21 A	15.63	15.63	33.282	24.511	342.1	0.072	5.77	251.8	101.6	2.2	0.31	0.0	0.01	0.04	0.16	0.04	21	20
30	15.57	15.57	33.275	24.520	341.5	0.103	5.75	251.0	101.2	2.4	0.32	0.1	0.02	0.14	0.17	0.04	30	19
40 A	15.55	15.54	33.272	24.523	341.6	0.137	5.76	251.5	101.3	2.2	0.32	0.0	0.01	0.06	0.18	0.06	40	18
48	15.54	15.53	33.269	24.524	341.8	0.164	5.77	251.7	101.4	2.1	0.32	0.0	0.01	0.03	0.20	0.06	48	17
50 ISL	15.54 D	15.53	33.269 D	24.524	341.8	0.172	5.77	D251.3	D101.4	2.1	0.32	0.0	0.01	0.03	0.22	0.07	50	
60	15.45	15.44	33.301	24.569	337.8	0.205	5.75	251.1	101.0	2.2	0.32	0.0	0.01	0.02	0.34	0.12	60	16
69 A	15.36	15.35	33.280	24.572	337.9	0.235	5.77	252.0	101.1	2.1	0.33	0.0	0.01	0.03	0.40	0.16	70	15
75	15.29	15.27	33.274	24.585	336.8	0.256	5.80	253.1	101.4	2.2	0.33	0.0	0.02	0.03	0.45	0.23	76	14
84 A	14.93	14.91	33.304	24.687	327.4	0.285	5.68	247.7	98.6	2.6	0.37	0.3	0.08	0.04	0.60	0.40	85	13
94	14.07	14.06	33.297	24.863	310.8	0.317	5.42	236.6	92.5	3.8	0.54	2.6	0.15	0.01	0.36	0.27	95	12
100 ISL	13.21 D	13.19	33.266 D	25.015	296.3	0.338	5.39	D234.9	D 90.4	5.6	0.69	5.2	0.11	0.01	0.28	0.25	101	
110	11.81	11.79	33.250	25.273	271.8	0.364	4.83	210.8	78.6	8.6	0.95	9.5	0.05	0.01	0.14	0.20	111	11
125	10.71	10.69	33.328	25.531	247.3	0.403	4.39	191.6	69.8	12.8	1.24	14.3	0.03	0.00	0.08	0.10	126	10
141	9.88	9.86	33.486	25.796	222.3	0.440	3.97	173.1	62.0	17.9	1.50	18.6	0.02	0.00	0.03	0.04	142	09
150 ISL	9.60 D	9.58	33.573 D	25.911	211.6	0.463	3.70	D161.2	D 57.5	20.0	1.60	20.0	0.02	0.00	0.02	0.04	151	
170	9.12	9.10	33.743	26.121	191.9	0.500	3.23	140.9	49.7	24.9	1.82	23.2	0.02	0.06	0.00	0.02	171	08
200 ISL	8.74 D	8.72	33.892 D	26.298	175.6	0.559	2.91	D126.6	D 44.5	29.6	1.92	25.3	0.02	0.00	0.00	0.02	202	
201	8.74	8.71	33.897	26.303	175.2	0.557	2.90	126.6	44.3	29.7	1.92	25.4	0.02	0.00	0.00	0.02	203	07
231	8.43	8.40	33.967	26.406	165.8	0.608	2.63	114.8	39.9	33.4	2.03	26.9	0.02	0.00			233	06
250 ISL	8.30 D	8.27	34.026 D	26.473	159.9	0.644	2.27	D 98.9	D 34.4	37.8	2.20	28.6	0.02	0.00			252	
270	8.05	8.02	34.099	26.567	151.2	0.670	1.70	74.2	25.6	42.5	2.38	30.4	0.02	0.00			272	05
300 ISL	7.67 D	7.64	34.106 D	26.629	145.6	0.720	1.55	D 67.5	D 23.1	46.9	2.50	31.9	0.02	0.00			302	
319	7.59	7.56	34.143	26.670	142.1	0.742	1.26	55.0	18.8	49.8	2.57	32.8	0.02	0.00			322	04
379	6.64	6.60	34.136	26.797	130.3	0.824	0.90	39.1	13.0	61.6	2.79	36.3	0.02	0.00			382	03
400 ISL	6.63 D	6.60	34.167 D	26.822	128.3	0.857	0.75	D 32.8	D 11.0	63.6	2.85	36.7	0.02	0.00			403	
442	6.54	6.50	34.231	26.887	122.8	0.903	0.51	22.3	7.5	67.7	2.98	37.4	0.02	0.06			446	02
500 ISL	6.08 D	6.03	34.260 D	26.969	115.4	0.980	0.39	D 17.1	D 5.7	75.0	3.07	38.8	0.02	0.00			504	
516	5.97	5.92	34.263	26.985	113.9	0.991	0.38	16.6	5.5	77.0	3.09	39.2	0.02	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 CRUISE-CORRECTED O2;

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — 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 5.0 N	122 39.9 W	05/04/2016	0945 UTC	4005 m	350 20 kn			1021.8 mb	14.7 C	12.6 C				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	16.15	16.15	33.172	24.310	360.5	0.000	5.72	249.9	101.7	1.9	0.27	0.0	0.02	0.08	0.08	0.01	0	
2	16.15	16.14	33.172	24.310	360.5	0.007	5.72	249.9	101.7	1.9	0.27	0.0	0.02	0.08	0.08	0.01	2	20
10	16.15	16.15	33.171	24.309	360.9	0.036	5.69	248.8	101.3	1.9	0.25	0.0	0.01	0.00	0.07	0.02	10	19
20 ISL	16.15 D	16.15	33.171 D	24.309	361.3	0.073	5.69	D248.3	D101.3	1.9	0.26	0.0	0.01	0.00	0.08	0.02	20	
26	16.15	16.15	33.172	24.310	361.4	0.094	5.69	248.4	101.1	1.9	0.26	0.0	0.01	0.00	0.08	0.02	26	18
30 ISL	16.15 D	16.15	33.170 D	24.309	361.7	0.109	5.70	D248.4	D101.3	1.9	0.26	0.0	0.01	0.00	0.08	0.02	30	
41	15.98	15.97	33.153	24.336	359.5	0.148	5.71	249.6	101.3	1.9	0.27	0.0	0.01	0.00	0.09	0.02	41	17
50	15.52	15.52	33.097	24.395	354.1	0.180	5.77	251.9	101.2	1.9	0.28	0.0	0.02	0.02	0.11	0.03	50	16
63	14.93	14.92	33.068	24.504	344.1	0.226	5.79	252.8	100.4	2.1	0.28	0.0	0.01	0.00	0.18	0.09	63	15
75 ISL	14.39 D	14.38	33.087 D	24.633	332.1	0.268	5.76	D251.1	D 98.9	2.4	0.32	0.1	0.03	0.00	0.37	0.23	76	
76	14.37	14.36	33.087	24.636	331.8	0.270	5.73	250.1	98.2	2.5	0.32	0.1	0.03	0.08	0.38	0.24	77	14
88	14.20	14.19	33.190	24.753	321.0	0.309	5.59	244.1	95.5	3.1	0.37	1.0	0.08	0.06	0.32	0.28	89	13
100 ISL	12.90 D	12.89	33.184 D	25.011	296.6	0.348	5.22	D227.2	D 86.8	5.1	0.62	4.5	0.07	0.18	0.25	0.26	101	
101	12.67	12.65	33.168	25.045	293.4	0.349	5.27	230.1	87.2	5.2	0.64	4.8	0.07	0.19	0.24	0.26	102	12
113	11.63	11.62	33.167	25.240	274.9	0.383	5.00	218.6	81.1	7.8	0.87	8.7	0.04	0.11	0.15	0.19	114	11
125	10.52	10.50	33.254	25.507	249.6	0.414	4.72	206.3	74.7	11.5	1.12	13.1	0.03	0.02	0.09	0.13	126	10
141	9.68	9.66	33.378	25.745	227.1	0.453	4.39	191.7	68.2	15.6	1.35	16.8	0.02	0.00	0.04	0.06	142	09
150 ISL	9.47 D	9.46	33.460 D	25.843	217.9	0.475	4.26	D185.5	D 66.0	17.2	1.41	17.9	0.02	0.00	0.03	0.05	151	
170	9.24	9.23	33.627	26.010	202.4	0.515	3.88	169.6	59.9	20.8	1.55	20.4	0.02	0.02	0.01	0.02	171	08
200	8.75	8.73	33.865	26.275	177.8	0.572	3.18	138.6	48.5	27.9	1.82	24.6	0.02	0.00	0.00	0.02	202	07
232	8.45	8.42	33.962	26.399	166.6	0.627	2.78	121.3	42.2	32.2	1.97	26.5	0.02	0.00			234	06
250 ISL	8.29 D	8.27	34.021 D	26.470	160.2	0.660	2.47	D107.4	D 37.4	35.9	2.12	28.2	0.02	0.00			252	
271	8.05	8.02	34.053	26.531	154.6	0.689	1.97	85.9	29.6	40.3	2.29	30.1	0.02	0.19			273	05
300 ISL	7.97 D	7.93	34.117 D	26.595	149.1	0.738	1.53	D 66.6	D 23.0	44.2	2.41	31.4	0.02	0.00			302	
321	7.75	7.72	34.120	26.628	146.2	0.765	1.42	61.8	21.2	47.0	2.50	32.3	0.02	0.00			324	04
381	7.23	7.20	34.180	26.751	135.3	0.849	0.88	38.5	13.0	55.7	2.74	34.8	0.02	0.00			384	03
400 ISL	7.01 D	6.97	34.191 D	26.791	131.6	0.880	0.76	D 33.1	D 11.2	58.8	2.80	35.5	0.02	0.00			403	
441	6.60	6.56	34.208	26.860	125.3	0.927	0.59	25.9	8.6	65.3	2.92	37.2	0.02	0.01			445	02
500 ISL	6.17 D	6.13	34.245 D	26.946	117.7	1.005	0.40	D 17.4	D 5.8	72.7	3.04	38.6	0.01	0.00			504	
517	6.09	6.05	34.253	26.963	116.3	1.019	0.37	16.1	5.3	74.8	3.07	39.0	0.01	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 1604 — 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 45.1 N	123 20.1 W	05/04/2016	0401	UTC	4050 m	360 19 kn			1023.1 mb	15.3 C	13.8 C				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	16.86	16.86	33.297	24.241	367.0	0.000	5.59	244.3	100.9	2.0	0.24	0.0	0.02	0.00	0.06	0.01	0	
2	16.86	16.86	33.297	24.241	367.1	0.007	5.59	244.3	100.9	2.0	0.24	0.0	0.02	0.00	0.06	0.01	2	21
10 ISL	16.87 D	16.86	33.296 D	24.240	367.5	0.037	5.62	D244.9	D101.4	1.9	0.24	0.0	0.02	0.00	0.06	0.01	10	
11	16.87	16.86	33.297	24.241	367.5	0.040	5.61	244.9	101.2	1.9	0.24	0.0	0.02	0.00	0.06	0.01	11	20
20 ISL	16.87 D	16.87	33.296 D	24.240	367.9	0.074	5.62	D244.9	D101.4	1.9	0.25	0.0	0.01	0.00	0.06	0.01	20	
21	16.87	16.87	33.298	24.241	367.8	0.077	5.60	244.6	101.1	1.9	0.25	0.0	0.01	0.00	0.06	0.01	21	19
30 ISL	16.87 D	16.87	33.296 D	24.240	368.3	0.111	5.63	D245.3	D101.6	1.9	0.25	0.0	0.01	0.00	0.06	0.01	30	
41	16.86	16.86	33.297	24.244	368.3	0.151	5.60	244.5	101.0	1.9	0.25	0.0	0.02	0.02	0.06	0.01	41	18
50 ISL	16.83 D	16.82	33.288 D	24.246	368.4	0.186	5.62	D244.9	D101.3	1.9	0.25	0.0	0.02	0.08	0.07	0.02	50	
60	16.66	16.65	33.266	24.268	366.6	0.221	5.62	245.4	101.0	1.9	0.25	0.0	0.02	0.15	0.07	0.02	60	17
75 ISL	16.50 D	16.49	33.237 D	24.284	365.7	0.278	5.65	D246.4	D101.2	2.0	0.25	0.0	0.02	0.05	0.10	0.03	76	
80	16.55	16.53	33.251	24.285	365.8	0.294	5.64	246.4	101.1	2.0	0.25	0.0	0.02	0.02	0.11	0.03	81	16
100	16.19	16.17	33.321	24.422	353.3	0.366	5.60	244.7	99.8	2.1	0.26	0.0	0.02	0.03	0.19	0.12	101	15
110	15.13	15.11	33.172	24.543	342.0	0.401	5.65	246.9	98.5	2.5	0.32	0.0	0.02	0.02	0.27	0.23	111	14
121	14.27	14.25	33.201	24.749	322.5	0.437	5.47	238.9	93.7	3.4	0.43	1.5	0.09	0.00	0.28	0.20	122	13
125 ISL	13.94 D	13.92	33.205 D	24.822	315.6	0.453	5.44	D237.0	D 92.5	3.9	0.48	2.4	0.09	0.00	0.26	0.22	126	
132	13.20	13.18	33.192	24.961	302.4	0.472	5.32	232.2	89.0	4.9	0.57	3.9	0.08	0.00	0.22	0.27	133	12
140	12.21	12.19	33.160	25.128	286.5	0.495	5.13	224.0	84.1	6.8	0.77	7.0	0.06	0.00	0.19	0.18	141	11
150	10.98	10.96	33.188	25.376	262.8	0.523	4.88	213.2	78.0	9.8	1.02	11.0	0.03	0.03	0.12	0.12	151	10
161	10.01	9.99	33.307	25.636	238.0	0.550	4.55	198.7	71.2	13.9	1.27	15.3	0.02	0.00	0.06	0.06	162	09
176	9.53	9.51	33.470	25.843	218.5	0.584	4.11	179.5	63.7	18.1	1.47	18.7	0.02	0.00	0.02	0.05	177	08
195	9.20	9.18	33.618	26.011	202.8	0.624	3.72	162.4	57.3	21.7	1.63	21.4	0.02	0.00	0.01	0.04	196	07
200 ISL	9.12 D	9.10	33.667 D	26.062	198.1	0.639	3.67	D159.9	D 56.5	22.7	1.66	21.9	0.02	0.00			202	
229	8.78	8.76	33.851	26.261	179.8	0.689	3.12	136.2	47.7	28.1	1.85	24.9	0.02	0.00			231	06
250 ISL	8.52 D	8.49	33.935 D	26.367	170.0	0.731	2.87	D124.7	D 43.6	31.4	1.96	26.4	0.02	0.00			252	
268	8.34	8.32	33.970	26.422	165.1	0.757	2.60	113.6	39.4	34.2	2.05	27.7	0.02	0.00			270	05
300 ISL	7.94 D	7.91	34.018 D	26.520	156.2	0.813	2.34	D101.6	D 35.1	40.3	2.23	30.0	0.01	0.00			302	
322	7.68	7.64	34.053	26.587	150.0	0.842	1.85	80.8	27.6	44.4	2.36	31.6	0.01	0.00			325	04
381	6.76	6.73	34.070	26.728	136.9	0.926	1.34	58.7	19.6	56.2	2.63	35.4	0.02	0.00			384	03
400 ISL	6.59 D	6.55	34.089 D	26.766	133.5	0.959	1.18	D 51.2	D 17.1	59.4	2.70	36.2	0.02	0.00			403	
441	6.22	6.18	34.123	26.842	126.6	1.005	0.86	37.5	12.4	66.4	2.86	38.1	0.02	0.00			445	02
500 ISL	5.78 D	5.74	34.175 D	26.939	117.8	1.085	0.57	D 24.7	D 8.1	75.3	3.01	39.6	0.02	0.00			504	
521	5.69	5.65	34.207	26.975	114.6	1.102	0.47	20.5	6.7	78.4	3.07	40.2	0.02	0.00			525	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 1604 — 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 25.0 N	123 59.9 W	04/04/2016	2202	UTC	4165 m	020 18 kn	020 04 06	2	1023.3 mb	16.9 C	14.7 C	27 m	8/8	SC	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	17.42	17.42	33.465	24.238	367.4	0.000	5.59	243.9	102.0	2.0	0.25	0.0	0.02	0.15	0.06	0.02	0	
2	17.42	17.42	33.465	24.238	367.4	0.007	5.59	243.9	102.0	2.0	0.25	0.0	0.02	0.15	0.06	0.02	2	23
10 ISL	17.42 D	17.42	33.463 D	24.237	367.8	0.037	5.56	D242.5	D101.6	1.9	0.27	0.0	0.02	0.25	0.06	0.01	10	
11	17.42	17.42	33.464	24.238	367.7	0.039											10	22
11	17.42	17.42	33.465	24.238	367.8	0.040	5.54	241.9	101.2	1.9	0.27	0.0	0.02	0.26	0.06	0.01	11	21
20	17.41	17.41	33.464	24.240	367.9	0.073	5.57	243.3	101.8	1.9	0.24	0.0	0.02	0.00	0.06	0.02	20	20
30 ISL	17.39 D	17.38	33.465 D	24.248	367.5	0.111	5.57	D243.0	D101.7	1.9	0.24	0.0	0.02	0.00	0.06	0.02	30	
40	17.39	17.38	33.474	24.256	367.2	0.147	5.55	242.5	101.4	1.9	0.24	0.0	0.02	0.00	0.07	0.01	40	19
50 ISL	17.42 D	17.41	33.493 D	24.264	366.8	0.185	5.58	D243.3	D101.9	1.9	0.25	0.0	0.01	0.00	0.07	0.02	50	
60	17.54	17.53	33.578	24.301	363.7	0.220	5.54	242.0	101.5	1.9	0.26	0.0	0.01	0.00	0.07	0.02	60	18
75 ISL	17.55 D	17.53	33.589 D	24.309	363.4	0.277	5.55	D241.8	D101.6	1.9	0.25	0.0	0.02	0.00	0.09	0.02	76	
80	17.47	17.45	33.580	24.320	362.5	0.293	5.55	242.5	101.6	1.9	0.24	0.0	0.02	0.00	0.09	0.02	81	17
100	17.23	17.21	33.601	24.395	356.2	0.365	5.50	240.1	100.1	2.0	0.23	0.0	0.02	0.00	0.15	0.06	101	16
111	16.93	16.91	33.485	24.378	358.1	0.404	5.51	240.8	99.7	2.0	0.24	0.0	0.02	0.00	0.18	0.12	112	15
121	16.03	16.01	33.498	24.596	337.5	0.439	5.45	237.9	96.8	2.4	0.27	0.0	0.03	0.00	0.25	0.17	122	14
125 ISL	15.59 D	15.57	33.366 D	24.592	338.0	0.457	5.59	D243.7	D 98.4	2.6	0.30	0.3	0.06	0.00	0.26	0.20	126	
130	14.97	14.95	33.499	24.830	315.3	0.468	5.37	234.5	93.5	2.9	0.33	0.6	0.09	0.00	0.28	0.24	131	12
130	14.97	14.95	33.491	24.824	315.9	0.468											131	13
141	12.96	12.94	33.201	25.015	297.4	0.502	5.23	228.4	87.2	5.7	0.67	5.2	0.06	0.00	0.23	0.22	142	11
150 ISL	11.81 D	11.79	33.184 D	25.222	277.6	0.534	5.15	D224.1	D 83.7	7.2	0.81	7.5	0.04	0.00	0.16	0.24	151	
151	11.22	11.21	33.191	25.334	266.9	0.530	5.08	222.0	81.7	7.4	0.82	7.8	0.04	0.00	0.15	0.24	152	10
161	10.59	10.57	33.241	25.484	252.6	0.556	4.82	210.3	76.3	11.1	1.11	12.4	0.03	0.00	0.09	0.10	162	09
175	9.94	9.92	33.388	25.711	231.2	0.590	4.56	199.1	71.3	14.4	1.28	15.5	0.02	0.07	0.04	0.06	176	08
195	9.37	9.35	33.596	25.968	207.1	0.634	4.13	180.3	63.8	19.2	1.49	19.1	0.02	0.00	0.01	0.02	196	07
200 ISL	9.35 D	9.33	33.586 D	25.963	207.6	0.651	4.15	D180.7	D 64.2	19.9	1.52	19.5	0.02	0.00			202	
230	8.94	8.92	33.784	26.184	187.1	0.703	3.62	158.2	55.6	24.6	1.71	22.5	0.02	0.00			232	06
250 ISL	8.56 D	8.54	33.907 D	26.339	172.7	0.747	3.21	D139.6	D 48.8	28.8	1.85	24.4	0.02	0.00			252	
271	8.31	8.28	33.949	26.411	166.1	0.775	2.92	127.5	44.2	33.2	1.99	26.3	0.02	0.00			273	05
300 ISL	7.95 D	7.92	33.997 D	26.503	157.7	0.830	2.58	D112.4	D 38.8	38.3	2.15	28.7	0.02	0.00			302	
322	7.68	7.64	34.015	26.557	152.9	0.857	2.28	99.6	34.0	42.2	2.28	30.5	0.02	0.00			325	04
381	6.88	6.85	34.088	26.726	137.3	0.942	1.40	61.1	20.5	55.5	2.67	35.2	0.02	0.01			384	03
400 ISL	6.72 D	6.69	34.098 D	26.756	134.6	0.977	1.22	D 53.0	D 17.8	59.2	2.76	36.1	0.02	0.00			403	
439	6.32	6.28	34.139	26.842	126.7	1.019	0.83	36.4	12.1	66.7	2.94	38.0	0.02	0.00			443	02
500 ISL	5.91 D	5.87	34.189 D	26.934	118.5	1.104	0.55	D 23.9	D 7.9	74.5	3.08	39.5	0.02	0.00			504	
515	5.87	5.82	34.199	26.947	117.4	1.112	0.51	22.3	7.3	76.4	3.12	39.9	0.02	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 1604 STATION 91.7 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 14.5 N	117 27.9 W	02/04/2016	0016 UTC	20 m	290 07 kn	230 01 06	1	1018.3 mb	16.0 C	13.5 C		1/8	CU	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	16.05	16.05	33.531	24.607	332.2	0.000	6.07	265.1	108.0	2.6	0.39	0.0	0.03	0.98	1.29	0.37	0	
2	16.05	16.05	33.531	24.607	332.2	0.007	6.07	265.1	108.0	2.6	0.39	0.0	0.03	0.98	1.29	0.37	2	05
5	15.98	15.98	33.533	24.625	330.6	0.017	6.17	269.4	109.6	2.7	0.46	0.1	0.03	1.79	1.37	0.41	5	04
10	15.85	15.85	33.535	24.656	327.8	0.033	6.22	271.8	110.3	3.0	0.36	0.0	0.03	0.42	1.49	0.44	10	02
10	15.85	15.85	33.533	24.655	328.0	0.034											10	03
14	15.77	15.76	33.533	24.674	326.3	0.046	6.25	272.8	110.5	2.9	0.42	0.0	0.03	2.46	1.57	0.47	14	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 1604 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 57.3 N	117 18.3 W	01/04/2016	1957 UTC	63 m	230 10 kn	240 01 06	0	1019.9 mb	17.0 C	13.6 C	10 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	16.29	16.29	33.551	24.569	335.8	0.000	5.95	259.7	106.3	2.7	0.35	0.0	0.02	0.79	0.63	0.14	0	
2 A	16.29	16.29	33.551	24.569	335.9	0.007	5.95	259.7	106.3	2.7	0.35	0.0	0.02	0.79	0.63	0.14	2	12
8 A	16.12	16.12	33.545	24.602	332.9	0.027	5.99	261.5	106.7	2.6	0.37	0.0	0.03	0.58	0.79	0.17	8	11
10 A	16.07	16.07	33.548	24.616	331.7	0.033	6.04	263.5	107.4	2.7	0.33	0.0	0.02	0.33	0.86	0.22	10	09
10	16.07	16.07	33.545	24.613	331.9	0.032											10	10
16 A	15.73	15.73	33.538	24.685	325.3	0.053	6.05	264.1	106.9	3.0	0.36	0.0	0.03	0.38	1.25	0.52	16	08
20	14.79	14.79	33.508	24.869	307.9	0.066	5.66	247.1	98.2						3.25	0.93	20	06
20	14.79	14.79	33.509	24.869	307.9	0.066											20	07
28 A	12.41	12.41	33.495	25.344	262.8	0.089	3.82	166.9	63.1	5.2	0.54	1.5	0.18	0.33	0.68	0.52	28	05
30 ISL	12.23 D	12.23	33.484 D	25.370	260.4	0.095	3.91	D170.3 D	64.3	8.2	0.83	5.9	0.23	0.40	0.57	0.45	30	
35 A	11.71	11.71	33.579	25.542	244.2	0.107	3.30	143.9	53.7	15.7	1.54	16.8	0.35	0.59	0.31	0.27	35	03
44	11.34	11.33	33.634	25.653	233.8	0.128	3.05	133.3	49.3	17.5	1.65	18.1	0.33	0.57	0.20	0.29	44	02
50 ISL	11.08 D	11.07	33.699 D	25.751	224.6	0.143	2.98	D129.8 D	47.9	19.2	1.74	19.3	0.17	0.90	0.10	0.21	50	
51	11.06	11.06	33.707	25.760	223.8	0.144	2.91	127.2	46.8	19.5	1.75	19.5	0.14	0.96	0.08	0.20	51	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 1604 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 23.8 W	02/04/2016	0256 UTC	620 m	340 03 kn			1019.0 mb	15.3 C	13.3 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	16.45	16.45	33.529	24.513	341.1	0.000	6.06	264.6	108.7	2.1	0.29	0.0	0.03	0.09	0.49	0.12	0	
2	16.45	16.45	33.529	24.514	341.2	0.007	6.06	264.6	108.7	2.1	0.29	0.0	0.03	0.09	0.49	0.12	2	20
10	16.13	16.13	33.522	24.583	334.9	0.034	6.10	266.3	108.7	2.4	0.31	0.0	0.03	0.52	0.54	0.16	10	19
20	15.37	15.36	33.516	24.750	319.3	0.067	6.13	267.5	107.5	2.7	0.33	0.0	0.03	0.12	1.21	0.44	20	18
30	13.30	13.30	33.491	25.166	279.9	0.097	4.37	190.7	73.5	8.7	1.08	9.2	0.56	3.48	1.73	1.05	30	17
40	12.06	12.05	33.420	25.354	262.2	0.124	4.02	175.6	65.9	11.8	1.26	13.4	0.09	2.05	0.44	0.54	40	16
50	11.24	11.23	33.409	25.497	248.8	0.149	4.02	175.3	64.6	13.6	1.38	15.5	0.08	2.41	0.27	0.35	50	15
60	11.10	11.09	33.531	25.617	237.6	0.174	3.62	157.9	58.1	16.0	1.49	17.3	0.04	1.29	0.10	0.19	60	14
70	10.80	10.79	33.618	25.738	226.3	0.197	3.38	147.6	54.0	18.0	1.65	19.0	0.04	2.31	0.04	0.11	71	13
75 ISL	10.67 D	10.66	33.658 D	25.792	221.3	0.210	3.28	D142.9 D	52.3	19.0	1.68	19.8	0.04	1.66	0.03	0.10	76	
85	10.55	10.54	33.757	25.890	212.2	0.230	2.97	129.7	47.2	21.0	1.75	21.2	0.03	0.35	0.02	0.09	86	12
100	9.84	9.83	33.722	25.985	203.5	0.261	3.24	141.3	50.6	22.4	1.76	22.2	0.03	0.49	0.01	0.06	101	11
121	9.67	9.65	33.853	26.117	191.4	0.302	2.86	125.0	44.6	25.6	1.87	24.0	0.03	0.11	0.01	0.05	122	10
125 ISL	9.63 D	9.61	33.879 D	26.144	188.9	0.312	2.82	D122.7 D	43.9	26.3	1.91	24.4	0.03	0.21	0.01	0.05	126	
141	9.61	9.59	33.999	26.241	180.0	0.339	2.48	108.1	38.6	29.2	2.07	25.9	0.02	0.62	0.01	0.05	142	09
150 ISL	10.04 D	10.02	34.156 D	26.292	175.6	0.358	1.74	D 75.8 D	27.4	30.3	2.12	26.4	0.02	0.51	0.01	0.05	151	
171	9.47	9.45	34.111	26.353	170.1	0.393	1.94	84.8	30.2	32.9	2.22	27.5	0.02	0.26	0.01	0.07	172	08
200	9.41	9.39	34.205	26.437	162.8	0.441	1.50	65.5	23.3	36.3	2.39	28.8	0.02	0.41	0.00	0.04	202	07
230	8.98	8.95	34.221	26.520	155.4	0.489	1.35	59.1	20.8	39.8	2.48	30.1	0.02	0.24			232	06
250 ISL	8.70 D	8.67	34.221 D	26.565	151.4	0.523	1.27	D 55.4 D	19.5	42.2	2.55	30.9	0.02	0.24			252	
271	8.61	8.59	34.258	26.607	147.9	0.551	1.03	45.0	15.8	44.8	2.63	31.7	0.02	0.24			273	05
300 ISL	8.28 D	8.25	34.266 D	26.664	142.8	0.597	0.88	D 38.1 D	13.3	48.1	2.69	32.9	0.02	0.29			302	
320	7.98	7.95	34.248	26.695	140.0	0.622	0.89	39.0	13.5	50.3	2.73	33.7	0.02	0.33			323	04
380	7.30	7.26	34.264	26.808	130.0	0.703	0.58	25.5	8.7	60.0	2.94	36.5	0.02	0.72			383	03
400 ISL	7.18 D	7.14	34.267 D	26.828	128.3	0.733	0.55	D 23.8 D	8.1	63.0	3.00	37.2	0.02	0.75			403	
441	6.71	6.67	34.294	26.914	120.4	0.779	0.38	16.5	5.5	69.2	3.11	38.5	0.02	0.81			445	02
500 ISL	6.17 D	6.12	34.324 D	27.009	111.8	0.854	0.29	12.5	4.2	76.7	3.20	39.7	0.02	0.90			504	
517	6.15	6.10	34.330	27.017	111.3	0.867	0.26	11.4	3.8	78.9	3.23	40.0	0.02	0.93			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 1604 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 50.5 N	117 31.9 W	02/04/2016	0536 UTC	866 m	330 01 kn			1020.5 mb	15.2 C	13.7 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	16.31	16.31	33.516	24.536	339.0	0.000	5.81	253.6	103.9	2.1	0.39	0.0	0.02	1.61	0.24	0.05	0	
3	16.31	16.31	33.516	24.536	339.1	0.010	5.81	253.6	103.9	2.1	0.39	0.0	0.02	1.61	0.24	0.05	3	20
10	16.10	16.10	33.516	24.584	334.7	0.034	5.82	254.2	103.7	2.2	0.33	0.1	0.02	0.39	0.24	0.05	10	19
20	15.86	15.86	33.507	24.633	330.4	0.067	5.84	254.8	103.4	2.1	0.33	0.0	0.02	0.38	0.36	0.12	20	18
30	14.24	14.24	33.388	24.894	305.9	0.099	5.50	240.2	94.3	4.2	0.54	2.0	0.13	0.58	1.03	0.53	30	17
40	14.05	14.05	33.476	25.001	295.9	0.129	4.90	214.1	83.8	6.6	0.85	5.8	0.30	1.69	0.66	0.34	40	16
50	13.30	13.29	33.493	25.169	280.2	0.158	4.28	187.0	72.0	9.2	1.04	10.1	0.11	0.66	0.46	0.25	50	15
61	12.64	12.63	33.508	25.311	266.9	0.188	3.98	173.9	66.1	11.3	1.20	12.5	0.06	0.24	0.28	0.20	61	14
70	11.98	11.97	33.543	25.465	252.5	0.211	3.61	157.6	59.1	13.8	1.38	15.3	0.04	0.21	0.20	0.20	71	13
75 ISL	11.73 D	11.72	33.569 D	25.532	246.2	0.225	3.54	D154.3 D	57.7	14.7	1.42	16.2	0.04	0.17	0.15	0.17	76	
86	10.94	10.93	33.576	25.681	232.1	0.250	3.49	152.3	55.8	16.7	1.52	18.2	0.04	0.08	0.05	0.12	87	12
100	10.65	10.64	33.757	25.874	214.1	0.281	2.94	128.5	46.9	20.7	1.73	21.0	0.03	0.00	0.02	0.10	101	11
120	9.97	9.95	33.824	26.045	198.3	0.323	2.89	126.1	45.3	23.6	1.82	22.9	0.02	0.00	0.01	0.06	121	10
125 ISL	9.74 D	9.73	33.816 D	26.075	195.4	0.334	2.85	D123.9 D	44.5	24.9	1.90	23.6	0.02	0.00	0.01	0.05	126	
141	10.21	10.19	34.089	26.211	183.1	0.362	1.92	84.0	30.4	29.1	2.15	25.7	0.02	0.03	0.01	0.04	142	09
150 ISL	10.14 D	10.12	34.121 D	26.248	179.8	0.381	1.86	D 80.7 D	29.3	30.3	2.20	26.2	0.02	0.12	0.01	0.04	151	
170	9.87	9.85	34.180	26.340	171.4	0.414	1.60	70.0	25.2	32.8	2.30	27.3	0.02	0.31	0.00	0.04	171	08
200	9.58	9.56	34.234	26.432	163.4	0.464	1.35	58.8	21.0	36.3	2.41	28.7	0.02	0.03	0.01	0.04	202	07
230	9.29	9.27	34.243	26.487	158.7	0.512	1.24	D 53.9 D	19.2	38.6	2.47	29.6	0.02	0.06			232	06
250 ISL	9.00 D	8.98	34.242 D	26.533	154.7	0.548	1.21	D 52.5 D	18.6	41.3	2.53	30.6	0.01	0.00			252	
270	8.62	8.59	34.249	26.599	148.5	0.574	1.09	47.4	16.6	44.0	2.58	31.6	0.01	0.00			272	05
300 ISL	7.75 D	7.72	34.199 D	26.691	139.9	0.622	0.97	D 42.0 D	14.4	49.3	2.69	33.4	0.01	0.00			302	
321	7.73	7.70	34.249	26.733	136.3	0.645	0.81	35.5	12.2	53.0	2.77	34.6	0.01	0.00			324	04
381	7.11	7.07	34.247	26.821	128.5	0.724	0.62	27.1	9.2	60.6	2.91	36.9	0.01	0.17			384	03
400 ISL	6.92 D	6.88	34.249 D	26.849	126.0	0.756	0.57	D 24.6 D	8.3	63.4	2.95	37.5	0.01	0.00			403	
441	6.53	6.49	34.271	26.918	119.8	0.799	0.43	18.7	6.2	69.4	3.04	38.9	0.01	0.00			445	02
500 ISL	6.26 D	6.21	34.323 D	26.996	113.1	0.876	0.26	D 11.5 D	3.8	76.7	3.16	39.9	0.01	0.00			504	
516	6.12	6.08	34.333	27.021	110.8	0.886	0.24	10.6	3.5	78.6	3.19	40.1	0.01	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1604 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 40.6 N	117 52.2 W	02/04/2016	0923 UTC	620 m	300 01 kn			1020.5 mb	15.3 C	14.2 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	16.72	16.72	33.518	24.444	347.7	0.000	5.67	247.6	102.2	2.3	0.30	0.0	0.00	0.00	0.15	0.04	0	
2	16.72	16.72	33.518	24.444	347.8	0.007	5.67	247.6	102.2	2.3	0.30	0.0	0.00	0.00	0.15	0.04	2	20
10	16.71	16.71	33.516	24.445	348.0	0.035	5.64	246.4	101.7	2.2	0.30	0.0	0.00	0.10	0.14	0.04	10	19
20	16.60	16.59	33.511	24.469	346.1	0.070	5.65	246.8	101.6	2.2	0.30	0.0	0.00	0.03	0.17	0.04	20	18
30	16.41	16.40	33.496	24.501	343.4	0.104	5.67	247.6	101.6	2.3	0.31	0.0	0.00	0.00	0.22	0.07	30	17
40	14.95	14.95	33.408	24.758	319.1	0.137	5.73	250.0	99.6	3.2	0.39	0.0	0.00	0.07	0.67	0.37	40	16
50	14.37	14.37	33.393	24.871	308.7	0.169	5.50	240.2	94.5	3.9	0.52	1.9	0.12	0.08	0.94	0.53	50	15
61	13.95	13.94	33.400	24.966	299.9	0.202	5.31	231.9	90.5	5.0	0.64	3.7	0.13	0.02	1.01	0.58	61	14
70	13.21	13.20	33.414	25.128	284.7	0.228	4.88	213.0	81.8	7.6	0.86	7.5	0.04	0.02	0.38	0.33	71	13
75 ISL	12.84 D	12.83	33.401 D	25.190	278.9	0.244	4.77	D207.7 D	79.4	9.0	0.98	9.5	0.04	0.02	0.31	0.28	76	
86	11.01	11.00	33.382	25.518	247.7	0.271	4.27	186.5	68.4	12.1	1.23	13.7	0.03	0.01	0.15	0.16	87	12
100	10.66	10.65	33.498	25.670	233.5	0.305	3.96	172.9	63.0	15.2	1.41	16.6	0.02	0.11	0.07	0.09	101	11
120	10.34	10.32	33.698	25.883	213.7	0.350	3.34	145.6	52.7	19.8	1.67	20.2	0.01	0.05	0.01	0.05	121	10
125 ISL	10.24 D	10.22	33.777 D	25.962	206.3	0.363	3.10	D135.0 D	48.9	21.0	1.72	20.9	0.01	0.00	0.01	0.04	126	
140	9.90	9.89	33.864	26.087	194.7	0.391	2.87	125.2	45.0	24.5	1.87	23.2	0.01	0.00	0.00	0.03	141	09
150 ISL	9.80 D	9.79	33.909 D	26.139	190.0	0.412	2.81	D122.5 D	44.0	26.1	1.93	24.0	0.01	0.00	0.00	0.03	151	
170	9.44	9.42	33.979	26.254	179.4	0.447	2.50	109.0	38.8	29.1	2.05	25.6	0.00	0.01	0.00	0.03	171	08
200	8.85	8.83	34.014	26.376	168.3	0.499	2.42	105.6	37.1	33.2	2.13	27.5	0.01	0.08	0.00	0.02	202	07
232	8.74	8.72	34.112	26.471	159.9	0.552	1.89	82.5	28.9	37.6	2.32	29.3	0.00	0.00			234	06
250 ISL	8.38 D	8.35	34.158 D	26.564	151.3	0.583	1.59	D 69.2 D	24.1	41.6	2.44	30.8	0.00	0.00			252	
270	8.04	8.01	34.165	26.621	146.1	0.610	1.36	59.2	20.4	46.1	2.57	32.4	0.00	0.01			272	05
300 ISL	7.85 D	7.82	34.195 D	26.673	141.6	0.657	1.13	D 49.1 D	16.9	49.4	2.66	33.5	0.01	0.07			302	
321	7.68	7.65	34.195	26.698	139.6	0.683	1.05	45.8	15.7	51.6	2.73	34.3	0.01	0.12			324	04
380	7.38	7.34	34.262	26.795	131.2	0.763	0.63	27.7	9.4	58.5	2.95	35.9	0.02	0.62			383	03
400 ISL	7.19 D	7.15	34.262 D	26.822	128.9	0.793	0.58	D 25.2 D	8.6	60.8	2.98	36.5	0.02	0.43			403	
441	6.85	6.81	34.275	26.879	123.8	0.840	0.50	21.6	7.3	65.5	3.04	37.7	0.00	0.03			445	02
500 ISL	6.50 D	6.45	34.291 D	26.940	118.7	0.918	0.37	D 16.1 D	5.4	72.4	3.15	38.9	0.01	0.22			504	
514	6.40	6.35	34.314	26.971	115.8	0.928	0.32	14.1	4.7	74.0	3.17	39.2	0.01	0.27			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 1604 — 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 31.0 N	118 12.4 W	02/04/2016	1328	UTC	1663 m	270 05 kn			1020.7 mb	14.8 C	13.5 C				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	16.86	16.86	33.524	24.416	350.4	0.000	5.61	245.2	101.5	1.9	0.29	0.0	0.01	0.02	0.16	0.03	0	
2	16.86	16.86	33.524	24.417	350.4	0.007	5.61	245.2	101.5	1.9	0.29	0.0	0.01	0.02	0.16	0.03	2	21
10 ISL	16.86 D	16.86	33.516 D	24.409	351.4	0.035	5.64	D245.8	D101.9	2.0	0.29	0.0	0.01	0.02	0.16	0.03	10	
11	16.86	16.86	33.517	24.411	351.3	0.039	5.62	245.3	101.6	2.0	0.29	0.0	0.01	0.02	0.16	0.03	11	19
11	16.86	16.86	33.517	24.411	351.3	0.039											11	20
20 ISL	16.86 D	16.86	33.516 D	24.410	351.7	0.071	5.64	D245.9	D102.0	2.0	0.29	0.0	0.01	0.00	0.16	0.04	20	
21	16.86	16.85	33.533	24.424	350.4	0.074	5.61	245.0	101.4	2.0	0.29	0.0	0.01	0.00	0.16	0.04	21	18
30	16.83	16.83	33.515	24.417	351.4	0.105	5.63	245.8	101.7	1.9	0.31	0.0	0.01	0.02	0.17	0.05	30	17
40	16.78	16.78	33.514	24.429	350.7	0.140	5.61	245.0	101.3	1.8	0.29	0.0	0.01	0.00	0.19	0.05	40	16
50	15.43	15.43	33.439	24.678	327.1	0.174	5.78	252.5	101.5	2.3	0.36	0.0	0.01	0.00	0.48	0.20	50	15
61	13.92	13.91	33.355	24.937	302.6	0.209	5.19	226.6	88.3	4.7	0.63	3.8	0.16	0.04	0.64	0.41	61	14
70	12.97	12.96	33.316	25.098	287.5	0.236	4.88	213.3	81.5	6.8	0.84	7.2	0.12	0.04	0.41	0.26	71	13
75 ISL	12.49 D	12.48	33.308 D	25.186	279.2	0.252	4.80	D208.9	D 79.2	8.2	0.94	9.0	0.10	0.00	0.34	0.23	76	
86	11.23	11.22	33.310	25.423	256.7	0.279	4.47	195.1	71.8	11.2	1.17	12.9	0.05	0.00	0.18	0.17	87	12
100	10.49	10.47	33.410	25.632	237.1	0.314	4.13	180.5	65.4	14.6	1.38	16.5	0.03	0.01	0.09	0.10	101	11
120	10.01	9.99	33.658	25.908	211.2	0.359	3.42	149.2	53.6	19.5	1.65	20.1	0.02	0.00	0.02	0.05	121	10
125 ISL	10.17 D	10.15	33.723 D	25.932	209.2	0.371	3.27	D142.4	D 51.5	20.8	1.70	20.9	0.02	0.00	0.02	0.04	126	
140	9.59	9.58	33.810	26.096	193.8	0.400	3.05	133.1	47.4	24.5	1.84	23.3	0.02	0.02	0.01	0.03	141	09
150 ISL	9.57 D	9.56	33.829 D	26.115	192.2	0.421	3.00	D130.7	D 46.7	25.9	1.89	24.1	0.02	0.00	0.01	0.03	151	
171	9.22	9.20	33.932	26.254	179.4	0.458	2.65	115.8	41.0	28.9	2.00	25.7	0.01	0.00	0.00	0.03	172	08
200 ISL	9.10 D	9.08	34.027 D	26.347	171.1	0.512	2.30	D 99.9	D 35.4	32.0	2.13	27.0	0.01	0.00	0.00	0.03	202	
201	9.08	9.06	34.019	26.344	171.5	0.510	2.31	100.9	35.6	32.1	2.13	27.1	0.01	0.00	0.00	0.03	203	07
231	8.46	8.44	34.045	26.462	160.6	0.560	2.23	97.4	33.9	36.1	2.20	28.7	0.01	0.00			233	06
250 ISL	8.19 D	8.16	34.074 D	26.527	154.7	0.593	2.01	D 87.3	D 30.3	40.1	2.32	30.3	0.01	0.00			252	
270	7.86	7.83	34.091	26.589	149.0	0.621	1.74	75.8	26.0	44.2	2.45	32.1	0.01	0.01			272	05
300 ISL	7.70 D	7.67	34.166 D	26.672	141.6	0.668	1.26	D 54.6	D 18.8	48.5	2.60	33.3	0.01	0.00			302	
321	7.60	7.57	34.174	26.693	140.0	0.694	1.12	49.0	16.7	51.5	2.71	34.2	0.01	0.00			324	04
380	7.09	7.06	34.207	26.791	131.3	0.774	0.79	34.4	11.6	59.0	2.87	36.3	0.01	0.00			383	03
400 ISL	6.98 D	6.94	34.219 D	26.817	129.1	0.804	0.70	D 30.5	D 10.3	61.5	2.92	36.9	0.01	0.00			403	
440	6.69	6.65	34.251	26.882	123.4	0.851	0.53	23.1	7.7	66.4	3.03	38.1	0.01	0.00			444	02
500 ISL	6.31 D	6.27	34.285 D	26.959	116.6	0.928	0.36	D 15.7	D 5.2	72.4	3.13	39.3	0.01	0.00			504	
514	6.29	6.24	34.287	26.964	116.3	0.939	0.36	15.8	5.3	73.8	3.15	39.6	0.01	0.00			518	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 1604 — 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 20.8 N	118 33.2 W	02/04/2016	1729	UTC	1352 m	310 09 kn	310 03 05	1	1022.2 mb	14.7 C	13.2 C	17 m	6/8	AC	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	16.30	16.30	33.546	24.562	336.5	0.000	5.73	D249.8	D102.5	1.8	0.30	0.0	0.03	0.00	0.25	0.05	0	
2 A	16.30	16.30	33.546	24.562	336.5	0.007	5.73	D249.8	D102.5	1.8	0.30	0.0	0.03	0.00	0.25	0.05	2	24
10 ISL	16.21 D	16.21	33.526 D	24.567	336.4	0.034	5.74	D250.1	D102.4	1.7	0.32	0.0	0.01	0.00	0.26	0.05	10	
11 A	16.23	16.23	33.527	24.564	336.7	0.037	5.75	250.9	102.7	1.7	0.32	0.0	0.01	0.10	0.27	0.06	11	21
12	16.24	16.23	33.528	24.564	336.8	0.039											12	23
12	16.24	16.23	33.528	24.564	336.8	0.039											12	22
16 A	16.20	16.20	33.527	24.572	336.1	0.054	5.75	251.0	102.6	1.6	0.30	0.0	0.01	0.00	0.28	0.07	16	20
20 ISL	16.19 D	16.19	33.525 D	24.572	336.2	0.068	5.74	D250.1	D102.4	1.7	0.31	0.0	0.01	0.00	0.29	0.07	20	
22	16.17	16.17	33.526	24.577	335.8	0.074	5.77	251.6	102.8	1.7	0.31	0.0	0.01	0.00	0.30	0.07	22	19
29 A	16.14	16.14	33.530	24.588	335.0	0.098	5.79	252.6	103.2	1.5	0.31	0.0	0.01	0.01	0.37	0.10	29	18
30 ISL	16.14 D	16.13	33.523 D	24.584	335.5	0.102	5.74	D250.1	D102.2	1.5	0.31	0.0	0.01	0.01	0.41	0.12	30	
38	15.64	15.63	33.510	24.686	326.0	0.127	5.81	253.6	102.6	1.2	0.35	0.0	0.01	0.03	0.78	0.27	38	17
48 A	14.40	14.39	33.476	24.930	303.0	0.159	5.28	230.4	90.8	4.5	0.60	2.7	0.27	0.03	3.18	1.10	48	15
48	14.40	14.39	33.475	24.929	303.1	0.159											48	16
50 ISL	13.98 D	13.97	33.465 D	25.009	295.5	0.166	5.29	D230.4	D 90.2	5.2	0.66	3.7	0.24	0.03	2.73	0.99	50	
60 A	12.67	12.66	33.424	25.240	273.6	0.193	4.63	202.0	76.8	8.5	0.94	8.8	0.06	0.03	0.47	0.46	60	14
70	11.63	11.62	33.399	25.418	256.9	0.220	4.25	185.3	68.9	11.9	1.21	13.3	0.03	0.00	0.14	0.23	71	13
75 ISL	11.29 D	11.28	33.405 D	25.485	250.6	0.234	4.23	D184.1	D 68.1	12.6	1.25	14.1	0.03	0.00	0.12	0.20	76	
86	10.79	10.78	33.424	25.590	240.8	0.259	4.06	177.2	64.7	14.1	1.35	15.7	0.02	0.00	0.08	0.14	87	12
100	10.31	10.30	33.527	25.753	225.5	0.292	3.76	164.1	59.4	17.3	1.52	18.5	0.02	0.01	0.04	0.08	101	11
120	9.86	9.85	33.702	25.967	205.7	0.335	3.25	141.6	50.8	21.8	1.73	21.7	0.02	0.00	0.01	0.05	121	10
125 ISL	9.76 D	9.74	33.769 D	26.036	199.2	0.348	3.06	D133.2	D 47.8	23.1	1.78	22.5	0.01	0.00	0.01	0.05	126	
140	9.41	9.39	33.867	26.171	186.6	0.374	2.83	123.4	43.9	26.9	1.92	24.7	0.01	0.02	0.00	0.04	141	09
150 ISL	9.30 D	9.28	33.947 D	26.252	179.2	0.395	2.59	D112.6	D 40.0	28.7	1.99	25.5	0.01	0.00	0.00	0.04	151	
171	9.15	9.13	34.039	26.348	170.4	0.430	2.25	98.0	34.7	32.3	2.14	27.2	0.01	0.00	0.00	0.03	172	08
200 ISL	8.92 D	8.90	34.129 D	26.457	160.7	0.481	1.78	D 77.4	D 27.3	36.3	2.30	28.8	0.01	0.00	0.00	0.03	202	
201	8.92	8.90	34.120	26.449	161.4	0.479	1.84	80.2	28.2	36.5	2.31	28.8	0.01	0.02	0.00	0.03	203	07
231	8.68	8.66	34.185	26.538	153.5	0.527	1.45	63.3	22.2	41.0	2.47	30.6	0.02	0.11			233	06
250 ISL	8.52 D	8.50	34.198 D	26.574	150.5	0.559	1.45	D 62.9	D 22.0	42.9	2.53	31.2	0.01	0.10			252	
270	8.44	8.42	34.232	26.613	147.2	0.585	1.14	49.7	17.4	44.9	2.60	31.8	0.01	0.08			272	05
300 ISL	8.19 D	8.15	34.250 D	26.666	142.5	0.633	0.92	D 40.2	D 14.0	48.9	2.71	33.1	0.01	0.06			302	
320	7.91	7.87	34.251	26.710	138.6	0.657	0.84	36.6	12.6	51.7	2.78	34.0	0.01	0.05			323	04
380	7.20	7.16	34.254	26.814	129.3	0.737	0.64	27.7	9.4	60.0	2.93	36.5	0.01	0.11			383	03
400 ISL	7.04 D	7.00	34.264 D	26.845	126.6	0.768	0.54	D 23.3	D 7.9	63.0	2.98	37.1	0.01	0.11			403	
441	6.61	6.57	34.282	26.917	120.0	0.813	0.43	18.5	6.2	69.1	3.07	38.6	0.02	0.11			445	02
500 ISL	6.24 D	6.19	34.319 D	26.996	113.1	0.888	0.29	D 12.6	D 4.2	76.0	3.16	39.6	0.01	0.10			504	
516	6.18	6.13	34.326	27.009	112.0	0.900	0.28	12.1	4.0	77.9	3.19	39.9	0.01	0.10			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1604 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 10.7 N	118 53.5 W	02/04/2016	2123 UTC	1461 m	310 11 kn	310 03 09	1	1020.8 mb	14.7 C	13.1 C	14 m	2/8	CU	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	15.86	15.86	33.482	24.614	331.6	0.000	5.81	253.6	103.0	1.4	0.33	0.0	0.02	0.03	0.42	0.07	0	
2	15.86	15.86	33.482	24.614	331.6	0.007	5.81	253.6	103.0	1.4	0.33	0.0	0.02	0.03	0.42	0.07	2	20
10	15.69	15.69	33.472	24.644	329.0	0.033	5.80	253.2	102.5	1.5	0.34	0.0	0.02	0.05	0.41	0.07	10	19
20	15.56	15.55	33.473	24.675	326.4	0.066	5.80	253.1	102.1	1.4	0.33	0.0	0.02	0.03	0.41	0.12	20	18
30	15.54	15.54	33.471	24.678	326.5	0.098	5.79	252.8	102.0	1.4	0.33	0.0	0.02	0.03	0.42	0.14	30	17
41	15.14	15.13	33.466	24.763	318.8	0.134	5.75	250.7	100.3	1.9	0.39	0.1	0.08	0.03	1.27	0.48	41	16
50	13.69	13.68	33.455	25.062	290.4	0.161	5.11	222.8	86.6	6.5	0.74	5.3	0.25	0.17	0.72	0.29	50	15
60	13.35	13.34	33.456	25.132	284.1	0.190	4.85	211.8	81.7	7.9	0.86	7.5	0.09	0.04	0.36	0.23	60	14
70	12.70	12.69	33.473	25.273	270.8	0.218	4.49	196.0	74.6	9.9	1.01	10.1	0.06	0.08	0.21	0.13	71	13
75 ISL	11.82 D	11.81	33.412 D	25.394	259.3	0.233	4.31	D187.6 D	70.2	10.8	1.09	11.4	0.05	0.13	0.18	0.12	76	
86	11.42	11.41	33.406	25.462	253.0	0.259	4.17	182.1	67.4	12.8	1.27	14.3	0.04	0.24	0.10	0.11	87	12
100	10.47	10.46	33.620	25.799	221.3	0.292	3.44	150.0	54.5	18.8	1.60	19.6	0.03	0.07	0.03	0.07	101	11
121	10.07	10.06	33.817	26.021	200.6	0.336	2.89	126.1	45.4	23.4	1.82	22.6	0.02	0.13	0.01	0.04	122	10
125 ISL	9.98 D	9.97	33.864 D	26.073	195.8	0.347	2.73	D118.7 D	42.8	24.1	1.85	22.9	0.02	0.13	0.01	0.04	126	
140	9.40	9.39	33.889	26.189	184.9	0.373	2.88	125.5	44.6	27.1	1.92	24.7	0.02	0.06	0.00	0.04	141	09
150 ISL	9.26 D	9.24	33.966 D	26.273	177.2	0.394	2.53	D110.3 D	39.2	28.4	2.03	24.9	0.02	0.10	0.01	0.04	151	
170	9.27	9.25	34.085 D	26.366	168.8	0.429	2.04	D 88.9 D	31.6								171	08
200 ISL	9.28 D	9.25	34.205 D	26.459	160.7	0.479	1.44	D 62.6 D	22.3	37.0	2.40	28.9	0.02	0.06	0.00	0.04	202	
201	9.27	9.25	34.212	26.465	160.1	0.477	1.46	63.7	22.6	37.2	2.41	29.0	0.02	0.06	0.00	0.04	203	07
230	8.86	8.83	34.215	26.534	154.0	0.523	1.35	58.9	20.7	40.3	2.47	30.2	0.02	0.01			232	06
250 ISL	8.68 D	8.66	34.232 D	26.575	150.4	0.557	1.33	D 58.0 D	20.4	42.8	2.54	31.0	0.02	0.05			252	
271	8.48	8.45	34.245	26.618	146.7	0.584	1.05	45.6	15.9	45.4	2.62	31.9	0.01	0.09			273	05
300 ISL	7.95 D	7.92	34.241 D	26.694	139.7	0.630	0.90	D 39.0 D	13.5	50.4	2.73	33.5	0.01	0.07			302	
320	7.70	7.66	34.247	26.737	135.9	0.653	0.81	35.3	12.1	53.8	2.80	34.6	0.02	0.05			323	04
381	6.98	6.94	34.270	26.857	125.1	0.733	0.53	23.0	7.8	63.8	2.97	37.2	0.01	0.01			384	03
400 ISL	6.87 D	6.83	34.278 D	26.879	123.2	0.762	0.47	D 20.5 D	6.9	66.0	3.01	37.6	0.01	0.01			403	
441	6.56	6.52	34.295	26.934	118.3	0.806	0.39	17.1	5.7	70.8	3.09	38.7	0.01	0.02			445	02
500 ISL	6.31 D	6.27	34.311 D	26.980	114.7	0.882	0.31	D 13.6 D	4.5	74.7	3.12	39.4	0.01	0.01			504	
515	6.27	6.22	34.314	26.988	114.1	0.892	0.32	14.0	4.6	75.7	3.13	39.6	0.01	0.01			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 1604 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 0.7 N	119 14.2 W	03/04/2016	0125 UTC	1599 m	330 14 kn	320 03 06	1	1018.7 mb	14.0 C	12.8 C		4/8	SC	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	15.81	15.81	33.504	24.640	329.0	0.000	5.87	255.9	103.9	1.1	0.37	0.0	0.01	1.16	0.38	0.10	0	
2	15.81	15.81	33.504	24.640	329.1	0.007	5.87	255.9	103.9	1.1	0.37	0.0	0.01	1.16	0.38	0.10	2	21
10	15.77	15.77	33.503	24.649	328.5	0.033	5.86	255.5	103.6	1.0	0.31	0.0	0.01	0.05	0.40	0.07	10	19
10	15.77	15.77	33.503	24.649	328.5	0.033											10	20
20 ISL	15.58 D	15.57	33.498 D	24.690	325.0	0.066	5.83	D253.9 D	102.7	1.0	0.30	0.0	0.01	0.00	0.42	0.13	20	
21	15.57	15.57	33.504	24.695	324.6	0.069	5.85	255.3	103.1	1.0	0.30	0.0	0.01	0.00	0.42	0.14	21	18
30 ISL	15.56 D	15.55	33.498 D	24.695	324.9	0.099	5.79	D252.3 D	102.0	1.0	0.32	0.0	0.01	0.00	0.51	0.15	30	
31	15.56	15.56	33.500	24.695	324.9	0.101	5.83	254.2	102.6	1.0	0.32	0.0	0.01	0.05	0.52	0.15	31	17
40	15.46	15.45	33.498	24.717	323.0	0.130	5.78	252.0	101.5	1.1	0.32	0.0	0.02	0.03	0.78	0.26	40	16
50	13.51	13.51	33.475	25.112	285.6	0.161	4.78	208.5	80.7	7.6	0.86	7.0	0.23	0.05	0.92	0.48	50	15
61	12.44	12.43	33.492	25.338	264.3	0.191	4.21	183.9	69.6	11.4	1.14	11.9	0.06	0.04	0.21	0.17	61	14
70	11.98	11.98	33.487	25.421	256.7	0.214	4.13	180.3	67.6	12.5	1.22	13.3	0.06	0.01	0.12	0.13	71	13
75 ISL	11.78 D	11.77	33.493 D	25.464	252.7	0.229	4.05	D176.6 D	66.0	13.6	1.30	14.5	0.05	0.02	0.10	0.12	76	
85	11.19	11.17	33.563	25.627	237.3	0.251	3.65	159.3	58.8	15.8	1.45	16.8	0.03	0.05	0.06	0.10	86	12
100	10.54	10.53	33.641	25.802	221.0	0.286	3.28	143.1	52.1	19.4	1.65	19.9	0.03	0.02	0.03	0.09	101	11
120	9.76	9.74	33.661	25.951	207.1	0.329	3.41	148.6	53.2	21.3	1.69	21.5	0.03	0.00	0.01	0.05	121	10
125 ISL	9.79 D	9.78	33.724 D	25.995	203.0	0.342	3.19	D138.8 D	49.8	22.6	1.73	22.2	0.02	0.00	0.01	0.05	126	
140	9.12	9.11	33.810	26.172	186.4	0.368	3.19	139.1	49.1	26.3	1.85	24.4	0.02	0.02	0.01	0.05	141	09
150 ISL	9.13 D	9.11	33.896 D	26.239	180.3	0.389	2.87	D124.8 D	44.2	27.5	1.89	25.0	0.02	0.00	0.01	0.05	151	
170	8.77	8.75	33.914	26.310	173.8	0.423	2.81	122.6	43.0	30.0	1.98	26.3	0.02	0.00	0.01	0.05	171	08
200	8.41	8.39	33.965	26.406	165.2	0.474	2.63	114.7	39.9	34.0	2.07	28.1	0.02	0.00	0.00	0.04	202	07
231	8.16	8.13	34.058	26.518	155.1	0.523	2.10	91.5	31.6								233	06
250 ISL	8.19 D	8.17	34.117 D	26.560	151.6	0.556	1.70	D 73.7 D	25.6	42.3	2.38	31.2	0.01	0.00			252	
270	7.91	7.89	34.113	26.598	148.2	0.583	1.57	68.5	23.6	45.6	2.50	32.5	0.01	0.00			272	05
300 ISL	7.88 D	7.85	34.208 D	26.679	141.1	0.630	1.05	D 45.6 D	15.7	50.2	2.66	33.7	0.01	0.00			302	
321	7.63	7.60	34.227	26.730	136.4	0.656	0.88	38.4	13.1	53.3	2.77	34.7	0.01	0.00			324	04
380	6.94	6.91	34.255	26.850	125.7	0.733	0.59	25.8	8.7	63.4	2.97	37.4	0.01	0.00			383	03
400 ISL	6.82 D	6.78	34.253 D	26.866	124.4	0.763	0.53	D 22.9 D	7.7	66.2	3.01	37.9	0.01	0.00			403	
441	6.45	6.41	34.276	26.933	118.3	0.808	0.41	17.7	5.9	71.8	3.10	39.0	0.01	0.00			445	02
500 ISL	6.16 D	6.12	34.297 D	26.988	113.7	0.882	0.31	D 13.7 D	4.5	76.1	3.16	39.9	0.01	0.00			504	
517	6.12	6.08	34.301	26.997	113.1	0.896	0.30	13.1	4.3	77.3	3.18	40.2	0.01	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 1604 — 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 50.4 N	119 34.2 W	03/04/2016	0532 UTC	1793 m	330 17 kn			1020.1 mb	13.6 C	12.5 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	15.17	15.17	33.351	24.665	326.7	0.000	5.85	255.4	102.2	2.2	0.34	0.0	0.02	0.02	0.34	0.13	0	
3	15.17	15.17	33.351	24.665	326.8	0.010	5.85	255.4	102.2	2.2	0.34	0.0	0.02	0.02	0.34	0.13	3	20
10 ISL	15.17 D	15.17	33.350 D	24.664	327.1	0.033	5.84	D254.5	D102.0	2.1	0.34	0.0	0.01	0.02	0.33	0.12	10	
11	15.17	15.17	33.352	24.666	326.9	0.036	5.81	253.8	101.5	2.1	0.34	0.0	0.01	0.02	0.32	0.11	11	19
20 ISL	15.16 D	15.16	33.348 D	24.666	327.3	0.066	5.83	D254.2	D101.8	2.1	0.35	0.0	0.01	0.07	0.33	0.12	20	
25	15.15	15.14	33.349	24.670	327.1	0.082	5.82	253.8	101.5	2.1	0.35	0.0	0.01	0.09	0.34	0.13	25	18
30 ISL	15.15 D	15.14	33.348 D	24.669	327.3	0.099	5.84	D254.4	D101.9	2.1	0.35	0.0	0.01	0.07	0.34	0.13	30	
40	15.11	15.10	33.348	24.678	326.7	0.131	5.82	254.0	101.5	2.0	0.34	0.0	0.00	0.02	0.34	0.14	40	17
50 ISL	15.04 D	15.03	33.359 D	24.703	324.7	0.165	5.85	D254.9	D101.8	1.8	0.36	0.0	0.00	0.07	0.38	0.16	50	
51	15.05	15.04	33.358	24.701	325.0	0.167	5.83	254.3	101.5	1.8	0.36	0.0	0.00	0.08	0.38	0.16	51	16
62	14.97	14.96	33.373	24.729	322.7	0.202	5.78	252.3	100.5	1.9	0.38	0.2	0.02	0.12	0.52	0.22	62	15
75 ISL	13.03 D	13.02	33.374 D	25.132	284.4	0.243	4.73	D206.0	D 79.0	7.3	0.84	7.6	0.05	0.02	0.28	0.18	76	
76	13.03	13.02	33.369	25.129	284.7	0.245	4.76	207.7	79.5	7.7	0.87	8.1	0.06	0.01	0.26	0.18	77	14
88	11.65	11.64	33.409	25.422	256.9	0.277	4.28	186.7	69.5	12.2	1.18	13.0	0.04	0.01	0.12	0.14	89	13
100	11.32	11.31	33.552	25.595	240.8	0.307	3.67	160.3	59.3	15.8	1.42	16.8	0.02	0.03	0.08	0.12	101	12
112	10.76	10.75	33.596	25.730	228.2	0.335	3.43	149.6	54.7	18.2	1.57	19.3	0.02	0.09	0.04	0.12	113	11
125	10.38	10.37	33.714	25.888	213.4	0.364	3.03	132.3	48.0	21.3	1.72	21.5	0.02	0.02	0.03	0.13	126	10
141	10.25	10.24	33.882	26.042	199.2	0.397	2.68	116.9	42.3	25.0	1.92	23.9	0.02	0.06	0.02	0.09	142	09
150 ISL	9.94 D	9.92	33.927 D	26.130	190.9	0.417	2.47	D107.3	D 38.7	26.5	1.98	24.6	0.02	0.06	0.02	0.08	151	
170	9.88	9.86	34.043	26.233	181.6	0.452	2.04	89.0	32.0	29.7	2.12	26.3	0.02	0.06	0.01	0.07	171	08
200	8.72	8.70	34.018	26.400	165.9	0.504	2.20	95.9	33.6	34.8	2.16	29.0	0.02	0.01	0.01	0.07	202	07
230	8.70	8.67	34.164	26.519	155.3	0.552	1.55	67.5	23.6	39.8	2.39	30.5	0.01	0.00			232	06
250 ISL	8.22 D	8.20	34.112 D	26.551	152.4	0.586	1.73	D 75.4	D 26.2	42.0	2.42	31.5	0.01	0.00			252	
272	8.04	8.01	34.127	26.590	149.1	0.615	1.53	66.7	23.0	44.5	2.46	32.6	0.01	0.01			274	05
300 ISL	7.71 D	7.68	34.139 D	26.649	143.8	0.661	1.38	D 59.9	D 20.6	48.0	2.55	33.9	0.01	0.03			302	
320	7.54	7.51	34.151	26.683	140.8	0.685	1.25	54.3	18.5	50.5	2.62	34.8	0.01	0.04			323	04
382	6.83	6.79	34.204	26.826	127.8	0.768	0.71	30.9	10.4	62.1	2.90	37.9	0.01	0.08			385	03
400 ISL	6.82 D	6.78	34.210 D	26.832	127.6	0.797	0.71	D 30.8	D 10.4	64.4	2.94	38.5	0.01	0.00			403	
440	6.41	6.37	34.236	26.908	120.6	0.841	0.51	22.1	7.3	69.6	3.02	39.7	0.01	0.00			444	02
500 ISL	6.09 D	6.04	34.277 D	26.981	114.3	0.919	0.37	D 16.2	D 5.4	76.0	3.12	40.8	0.01	0.00			504	
518	5.99	5.95	34.292	27.006	112.1	0.931	0.30	13.1	4.3	77.9	3.15	41.2	0.01	0.06			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 1604 — 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 14.8 W	03/04/2016	1102 UTC	3967 m	320 09 kn			1019.6 mb	13.5 C	11.7 C				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	15.82	15.82	33.385	24.547	337.9	0.000	5.73	249.9	101.3	2.3	0.31	0.0	0.02	0.02	0.12	0.03	0	
2	15.82	15.82	33.385	24.548	337.9	0.007	5.73	249.9	101.3	2.3	0.31	0.0	0.02	0.02	0.12	0.03	2	20
10 ISL	15.81 D	15.81	33.384 D	24.548	338.1	0.034	5.69	D248.1	D100.7	2.3	0.32	0.0	0.02	0.03	0.11	0.03	10	
11	15.82	15.81	33.385	24.549	338.1	0.037	5.70	248.9	100.9	2.3	0.32	0.0	0.02	0.03	0.11	0.03	11	19
20 ISL	15.82 D	15.82	33.386 D	24.549	338.4	0.068	5.69	D248.0	D100.7	2.2	0.32	0.0	0.01	0.00	0.12	0.03	20	
25	15.81	15.81	33.395	24.559	337.6	0.085	5.71	249.0	100.9	2.2	0.32	0.0	0.01	0.00	0.12	0.03	25	18
30 ISL	15.80 D	15.79	33.405 D	24.570	336.7	0.102	5.70	D248.4	D100.8	2.2	0.32	0.0	0.01	0.00	0.13	0.03	30	
40	15.78	15.77	33.415	24.582	336.0	0.135	5.71	249.1	100.9	2.2	0.32	0.0	0.01	0.00	0.15	0.04	40	17
50 ISL	15.77 D	15.77	33.414 D	24.583	336.2	0.170	5.70	D248.2	D100.7	2.2	0.32	0.0	0.01	0.00	0.16	0.05	50	
51	15.77	15.77	33.415	24.584	336.1	0.172	5.70	248.9	100.9	2.2	0.32	0.0	0.01	0.00	0.16	0.05	51	16
63	15.77	15.76	33.414	24.584	336.5	0.213	5.73	250.1	101.3	2.1	0.31	0.0	0.01	0.00	0.18	0.06	63	15
75 ISL	15.73 D	15.72	33.418 D	24.598	335.6	0.255	5.66	D246.7	D100.0	2.2	0.33	0.0	0.03	0.00	0.31	0.10	76	
76	15.69	15.67	33.421	24.610	334.6	0.256	5.67	247.6	100.1	2.2	0.33	0.0	0.03	0.02	0.32	0.10	77	14
86	15.14	15.12	33.397	24.713	325.0	0.289	5.56	242.6	97.0	2.6	0.39	0.5	0.17	0.05	0.43	0.16	87	13
100 ISL	12.25 D	12.23	33.250 D	25.189	279.5	0.334	4.96	D215.9	D 81.4	7.4	0.87	8.6	0.07	0.00	0.18	0.14	101	
101	12.18	12.17	33.249	25.200	278.5	0.334	4.84	211.3	79.4	7.7	0.90	9.1	0.06	0.00	0.16	0.14	102	12
112	11.24	11.23	33.280	25.399	259.7	0.364	4.58	199.9	73.6	10.7	1.12	12.8	0.04	0.00	0.11	0.11	113	11
125 ISL	10.28 D	10.27	33.372 D	25.638	237.0	0.399	4.30	D187.4	D 67.8	14.1	1.32	16.2	0.03	0.00	0.07	0.08	126	
126	10.24	10.22	33.376	25.649	236.0	0.399	4.26	186.0	67.1	14.3	1.33	16.5	0.03	0.00	0.06	0.07	127	10
140	10.09	10.08	33.464	25.742	227.5	0.431	4.04	176.2	63.4	16.2	1.42	18.0	0.02	0.00	0.03	0.05	141	09
150 ISL	9.91 D	9.89	33.583 D	25.867	215.8	0.457	3.64	D158.6	D 57.0	18.7	1.54	19.8	0.02	0.00	0.02	0.04	151	
170	9.61	9.59	33.768	26.061	197.7	0.495	3.12	135.9	48.5	23.7	1.78	23.4	0.02	0.00	0.00	0.03	171	08
200 ISL	9.19 D	9.17	33.927 D	26.255	179.9	0.555	2.68	D116.8	D 41.4	28.6	1.95	26.1	0.02	0.00	0.00	0.03	202	
201	9.19	9.17	33.927	26.256	179.9	0.553	2.68	117.1	41.4	28.7	1.96	26.1	0.02	0.00	0.00	0.03	203	07
231	8.57	8.54	34.007	26.416	165.0	0.605	2.37	103.3	36.1	34.5	2.11	28.8	0.02	0.01			233	06
250 ISL	8.33 D	8.31	34.031 D	26.471	160.1	0.640	2.26	D 98.5	D 34.3	37.3	2.20	30.0	0.02	0.00			252	
271	8.14	8.11	34.063	26.526	155.2	0.669	1.96	85.6	29.6	40.4	2.29	31.2	0.02	0.00			273	05
300 ISL	7.74 D	7.71	34.104 D	26.618	146.8	0.718	1.59	D 69.0	D 23.7	46.3	2.48	33.3	0.02	0.00			302	
321	7.52	7.48	34.144	26.682	141.0	0.743	1.21	52.8	18.0	50.6	2.61	34.8	0.02	0.00			324	04
381	6.90	6.87	34.188	26.802	130.1	0.824	0.78	34.0	11.4	60.3	2.84	37.7	0.02	0.00			384	03
400 ISL	6.79 D	6.76	34.206 D	26.832	127.5	0.855	0.66	D 28.8	D 9.7	62.9	2.89	38.2	0.02	0.00			403	
442	6.46	6.42	34.239	26.902	121.2	0.901	0.49	21.2	7.1	68.5	3.01	39.4	0.02	0.00			446	02
500 ISL	6.10 D	6.06	34.269 D	26.974	115.0	0.977	0.36	D 15.7	D 5.2	75.3	3.10	40.7	0.02	0.00			504	
517	6.00	5.95	34.278	26.994	113.2	0.989	0.33	14.3	4.7	77.3	3.12	41.1	0.02	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 1604 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 10.8 N	120 55.3 W	03/04/2016	1713 UTC	3859 m	330 12 kn	330 02 10	2	1021.0 mb	14.3 C	11.8 C	29 m	7/8	ST	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	16.22	16.22	33.334	24.417	350.2	0.000	5.66	247.1	100.9	2.0	0.29	0.0	0.03	0.00	0.08	0.02	0	
2 A	16.22	16.22	33.334	24.418	350.3	0.007	5.66	247.1	100.9	2.0	0.29	0.0	0.03	0.00	0.08	0.02	2	24
10	16.21	16.21	33.335	24.421	350.3	0.035	5.68	247.8	101.2	1.9	0.30	0.0	0.02	0.00	0.08	0.02	10	22
10	16.21	16.21	33.335	24.421	350.2	0.036											10	23
20 A	16.20	16.19	33.333	24.423	350.4	0.070	5.70	248.7	101.5	1.9	0.28	0.0	0.01	0.00	0.08	0.02	20	21
26 A	16.20	16.19	33.334	24.425	350.5	0.091	5.68	247.9	101.2	1.9	0.29	0.0	0.01	0.00	0.08	0.02	26	20
30 ISL	16.20 D	16.19	33.332 D	24.423	350.8	0.106	5.65	D246.1	D100.6	1.9	0.29	0.0	0.01	0.00	0.08	0.02	30	
38	16.18	16.18	33.332	24.427	350.7	0.133	5.66	247.3	100.9	1.9	0.29	0.0	0.01	0.00	0.09	0.02	38	19
49 A	16.16	16.15	33.337	24.437	350.1	0.172	5.67	247.5	101.0	1.9	0.29	0.0	0.01	0.00	0.10	0.02	49	18
50 ISL	16.16 D	16.15	33.329 D	24.431	350.8	0.177	5.65	D246.5	D100.7	1.9	0.29	0.0	0.01	0.00	0.10	0.02	50	
60	16.15	16.14	33.331	24.435	350.7	0.210	5.67	247.3	100.9	1.8	0.32	0.0	0.01	0.00	0.11	0.03	60	17
70	16.14	16.13	33.333	24.440	350.6	0.245	5.67	247.4	100.9	1.8	0.32	0.0	0.01	0.05	0.12	0.03	71	16
75 ISL	16.14 D	16.12	33.334 D	24.442	350.6	0.265	5.66	D246.9	D100.8	1.8	0.31	0.0	0.01	0.00	0.13	0.04	76	
82 A	16.09	16.08	33.333	24.451	350.0	0.287	5.67	247.7	100.9	1.8	0.29	0.0	0.01	0.00	0.15	0.04	83	15
93	15.21	15.20	33.358	24.667	329.6	0.325	5.67	247.7	99.1	2.3	0.35	0.0	0.04	0.01	0.42	0.25	94	13
93	15.21	15.20	33.361	24.670	329.4	0.324											94	14
100 ISL	14.70 D	14.68	33.318 D	24.747	322.1	0.350	5.56	D242.4	D 96.2	2.8	0.40	0.8	0.13	0.01	0.36	0.23	101	
102 A	14.40	14.38	33.322	24.814	315.7	0.354	5.59	243.9	96.0	2.9	0.42	1.0	0.16	0.01	0.35	0.22	103	12
114	12.96	12.94	33.245	25.048	293.5	0.390	5.31	231.7	88.5	4.6	0.61	4.1	0.17	0.01	0.26	0.23	115	11
125	11.86	11.84	33.220	25.240	275.3	0.422	4.92	214.9	80.2	8.2	0.93	9.4	0.04	0.00	0.18	0.17	126	10
141	10.65	10.63	33.293	25.514	249.3	0.464	4.58	200.1	72.8	12.3	1.20	14.2	0.02	0.00	0.11	0.12	142	09
150 ISL	10.06 D	10.04	33.389 D	25.691	232.6	0.489	4.26	D185.6	D 66.8	14.8	1.33	16.4	0.02	0.00	0.08	0.09	151	
170	9.49	9.47	33.556	25.916	211.4	0.530	3.72	162.5	57.7	20.4	1.62	21.2	0.01	0.00	0.02	0.03	171	08
200 ISL	8.98 D	8.96	33.821 D	26.205	184.5	0.594	3.15	D137.2	D 48.4	26.6	1.84	24.9	0.01	0.00	0.00	0.02	202	
201	8.95	8.92	33.819	26.209	184.1	0.591	3.16	138.0	48.5	26.9	1.85	25.1	0.01	0.03	0.00	0.02	203	07
230	8.74	8.72	34.018	26.398	166.8	0.642	2.58	112.5	39.4	33.1	2.06	27.5	0.01	0.00			232	06
250 ISL	8.45 D	8.43	34.036 D	26.457	161.5	0.680	2.41	D104.8	D 36.6	37.1	2.18	29.2	0.01	0.00			252	
271	8.00	7.97	34.064	26.547	153.1	0.708	2.02	88.0	30.3	41.4	2.31	31.1	0.02	0.00			273	05
300 ISL	7.58 D	7.55	34.079 D	26.620	146.4	0.757	1.67	D 72.7	D 24.9	46.7	2.47	33.2	0.01	0.00			302	
321	7.32	7.29	34.109	26.681	140.8	0.781	1.42	62.1	21.1	50.5	2.58	34.8	0.01	0.00			324	04
381	6.73	6.69	34.163	26.806	129.6	0.862	0.82	35.9	12.0	61.2	2.86	37.8	0.01	0.02			384	03
400 ISL	6.55 D	6.51	34.168 D	26.834	127.1	0.894	0.72	D 31.5	D 10.5	64.4	2.92	38.6	0.01	0.02			403	
441	6.24	6.20	34.214	26.910	120.2	0.937	0.49	21.5	7.1	71.3	3.05	40.2	0.01	0.01			445	02
500 ISL	5.85 D	5.81	34.249 D	26.989	113.2	1.015	0.34	D 14.7	D 4.8	78.3	3.15	41.3	0.01	0.00			504	
516	5.80	5.75	34.259	27.004	112.0	1.024	0.31	13.7	4.5	80.2	3.18	41.7	0.02	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 CRUISE-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1604 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 50.9 N	121 35.4 W	03/04/2016	2311 UTC	4123 m	320 11 kn	360 02 07	1	1019.4 mb	15.1 C	12.2 C	30 m	6/8	SC	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	16.27	16.27	33.217	24.315	360.0	0.000	5.69	248.3	101.5	1.8	0.29	0.0	0.02	0.04	0.08	0.01	0	
2	16.27	16.27	33.217	24.315	360.1	0.007	5.69	248.3	101.5	1.8	0.29	0.0	0.02	0.04	0.08	0.01	2	20
10	16.16	16.15	33.210	24.338	358.2	0.036	5.70	248.7	101.4	1.8	0.29	0.0	0.02	0.11	0.07	0.01	10	19
20 ISL	16.05 D	16.05	33.200 D	24.354	357.0	0.072	5.69	D248.1	D101.1	1.8	0.30	0.0	0.02	0.09	0.08	0.02	20	
26	16.00	16.00	33.197	24.364	356.3	0.093	5.73	250.0	101.6	1.8	0.30	0.0	0.02	0.08	0.08	0.02	26	18
30 ISL	16.00 D	15.99	33.194 D	24.362	356.6	0.108	5.70	D248.3	D101.0	1.8	0.30	0.0	0.02	0.08	0.08	0.02	30	
40	15.97	15.96	33.193	24.368	356.3	0.143	5.76	251.5	102.1	1.8	0.31	0.0	0.02	0.07	0.09	0.02	40	17
50 ISL	15.91 D	15.90	33.189 D	24.379	355.7	0.180	5.72	D249.2	D101.2	1.8	0.29	0.0	0.02	0.00	0.11	0.03	50	
51	15.91	15.90	33.190	24.381	355.5	0.182	5.73	250.2	101.5	1.8	0.29	0.0	0.02	0.00	0.11	0.03	51	16
63	15.40	15.39	33.179	24.486	345.8	0.224	5.79	252.9	101.5	1.8	0.31	0.0	0.02	0.04	0.18A	0.06A	63	15
75 ISL	14.40 D	14.39	33.144 D	24.674	328.2	0.267	5.90	D257.0	D101.2	1.9	0.34	0.0	0.02	0.03	0.24	0.11	76	
76	14.34	14.33	33.139	24.684	327.3	0.268	5.89	257.0	100.9	1.9	0.34	0.0	0.02	0.03	0.25	0.11	77	14
88	13.96	13.95	33.196	24.807	315.9	0.307	5.65	246.5	96.1	2.8	0.44	1.2	0.11	0.01	0.45	0.22	89	13
100	12.25	12.24	33.201	25.151	283.2	0.343	5.26	229.8	86.4	5.1	0.67	5.1	0.07	0.00	0.30	0.17	101	12
112	11.15	11.13	33.176	25.334	265.8	0.375	4.95	216.3	79.4	8.3	0.94	9.7	0.05	0.03	0.17	0.17	113	11
125 ISL	10.73 D	10.72	33.245 D	25.462	253.9	0.412	4.55	D198.2	D 72.4	10.7	1.11	12.6	0.04	0.00	0.13	0.15	126	
126	10.67	10.66	33.229	25.460	254.1	0.412	4.71	205.7	74.8	10.9	1.12	12.8	0.04	0.00	0.13	0.15	127	10
140	9.92	9.90	33.371	25.699	231.5	0.446	4.28	186.7	66.8	15.5	1.40	17.4	0.03	0.01	0.05	0.07	141	09
150 ISL	9.61 D	9.59	33.470 D	25.827	219.4	0.472	4.16	D180.9	D 64.6	17.7	1.49	18.9	0.02	0.01	0.03	0.06	151	
170	9.28	9.26	33.640	26.015	202.0	0.511	3.63	158.4	56.0	22.1	1.67	22.0	0.02	0.01	0.01	0.04	171	08
200	8.78	8.76	33.862	26.268	178.4	0.568	2.95	128.6	45.0	28.9	1.92	26.0	0.02	0.00	0.00	0.03	202	07
231	8.48	8.46	33.986	26.412	165.3	0.621	2.54	110.6	38.5	34.3	2.09	28.1	0.02	0.01			233	06
250 ISL	8.25 D	8.22	34.020 D	26.476	159.6	0.656	2.33	D101.5	D 35.3	37.7	2.20	29.7	0.02	0.00			252	
270	7.97	7.94	34.044	26.536	154.1	0.683	2.00	87.0	30.0	41.3	2.32	31.2	0.02	0.00			272	05
300 ISL	7.68 D	7.65	34.083 D	26.610	147.5	0.733	1.77	D 77.1	D 26.5	45.9	2.43	32.7	0.02	0.00			302	
320	7.45	7.41	34.075	26.637	145.1	0.758	1.64	71.4	24.3	48.9	2.51	33.6	0.02	0.03			323	04
380	7.00	6.97	34.176	26.779	132.3	0.841	0.89	38.8	13.1	59.0	2.81	36.5	0.02	0.00			383	03
400 ISL	6.98 D	6.94	34.198 D	26.801	130.7	0.873	0.77	D 33.5	D 11.3	61.3	2.87	37.1	0.02	0.00			403	
441	6.64	6.60	34.226	26.869	124.5	0.920	0.58	25.4	8.5	65.9	2.98	38.2	0.02	0.04			445	02
500 ISL	6.25 D	6.21	34.269 D	26.954	117.0	0.998	0.40	D 17.2	D 5.7	73.3	3.11	39.5	0.02	0.02			504	
516	6.16	6.11	34.283	26.978	114.9	1.010	0.34	14.7	4.9	75.3	3.14	39.9	0.02	0.02			520	01

A) SECOND FLUOROMETER READING RECALCULATED BECAUSE ACID RATIO > TAU OF PURE CHL-A
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 1604 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 30.7 N	122 15.7 W	04/04/2016	0451 UTC	4191 m	360 11 kn			1021.8 mb	14.7 C	11.4 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	16.74	16.74	33.271	24.250	366.2	0.000	5.61	244.8	100.9	2.7	0.26	0.0	0.02	0.01	0.05	0.01	0	
2	16.74	16.74	33.271	24.250	366.3	0.007	5.61	244.8	100.9	2.7	0.26	0.0	0.02	0.01	0.05	0.01	2	21
10 ISL	16.72 D	16.72	33.265 D	24.250	366.5	0.037	5.60	D244.2	D100.8	2.0	0.26	0.0	0.02	0.00	0.05	0.01	10	
11	16.72	16.72	33.266	24.250	366.6	0.040	5.61	245.0	101.0	1.9	0.26	0.0	0.02	0.00	0.05	0.01	11	20
20	16.73	16.72	33.276	24.257	366.2	0.073	5.61	245.1	101.1	1.8	0.27	0.0	0.02	0.17	0.05	0.01	20	19
30 ISL	16.69 D	16.68	33.261 D	24.256	366.8	0.111	5.61	D244.4	D100.8	1.8	0.27	0.0	0.02	0.09	0.06	0.01	30	
40	16.71	16.71	33.266	24.254	367.3	0.147	5.62	245.4	101.1	1.8	0.27	0.0	0.02	0.01	0.07	0.01	40	18
50 ISL	16.97 D	16.96	33.371 D	24.277	365.5	0.185	5.57	D242.9	D100.8	1.8	0.27	0.0	0.01	0.00	0.10	0.02	50	
61	16.88	16.87	33.402	24.322	361.6	0.224	5.58	243.8	100.9	1.8	0.26	0.0	0.01	0.00	0.13	0.03	61	17
75 ISL	16.60 D	16.59	33.377 D	24.368	357.7	0.276	5.62	D245.2	D101.0	1.9	0.27	0.0	0.01	0.00	0.15	0.06	76	
80	16.63	16.62	33.378	24.362	358.4	0.292	5.60	244.4	100.6	2.0	0.27	0.0	0.01	0.00	0.15	0.06	81	16
100	15.27	15.25	33.237	24.562	339.9	0.362	5.65	246.7	98.8	2.3	0.33	0.0	0.03	0.01	0.27	0.23	101	15
110	14.20	14.19	33.170	24.739	323.1	0.395	5.52	241.2	94.5	3.2	0.45	1.3	0.09	0.02	0.31	0.26	111	14
120	13.41	13.40	33.199	24.923	305.8	0.426	5.34	233.2	89.9	4.5	0.58	3.4	0.07	0.23	0.29	0.21	121	13
125 ISL	12.78 D	12.77	33.196 D	25.045	294.1	0.444	5.38	D234.3	D 89.3	5.2	0.64	4.4	0.06	0.00	0.25	0.23	126	
131	12.53	12.52	33.191	25.090	289.9	0.459	5.20	227.2	85.9	6.0	0.72	5.6	0.05	0.00	0.19	0.24	132	12
140	11.61	11.59	33.192	25.265	273.2	0.484	5.08	221.9	82.3	7.3	0.86	7.7	0.04	0.00	0.17	0.23	141	11
150	10.93	10.91	33.258	25.439	256.8	0.510	4.91	214.6	78.4	9.4	1.03	10.3	0.03	0.02	0.12	0.15	151	10
160	10.37	10.35	33.348	25.606	241.0	0.535	4.61	201.3	72.8	12.8	1.27	14.0	0.02	0.00	0.06	0.07	161	09
175	9.74	9.72	33.500	25.831	219.8	0.570	4.22	184.2	65.7	16.7	1.47	17.3	0.02	0.00	0.02	0.03	176	08
195	9.10	9.08	33.746	26.127	191.9	0.611	3.61	157.5	55.5	23.5	1.78	21.9	0.01	0.05	0.00	0.02	196	07
200 ISL	9.05 D	9.03	33.774 D	26.157	189.1	0.624	3.56	D155.1	D 54.8	24.6	1.82	22.5	0.01	0.00			202	
230	8.49	8.46	33.929	26.367	169.5	0.674	3.03	132.2	46.0	31.1	2.03	25.9	0.01	0.00			232	06
250 ISL	8.33 D	8.31	33.959 D	26.414	165.4	0.712	2.90	D126.0	D 43.8	33.7	2.12	27.1	0.01	0.00			252	
270	8.01	7.98	33.987	26.485	158.9	0.740	2.61	114.0	39.2	36.3	2.21	28.3	0.01	0.00			272	05
300 ISL	7.60 D	7.57	34.042 D	26.589	149.4	0.791	2.02	D 87.8	D 30.1	43.5	2.44	31.0	0.01	0.00			302	
320	7.25	7.22	34.038	26.635	145.1	0.816	1.83	80.0	27.1	48.3	2.60	32.8	0.01	0.06			323	04
380	6.72	6.68	34.125	26.777	132.3	0.900	0.94	41.2	13.8	59.6	2.97	36.7	0.01	0.00			383	03
400 ISL	6.54 D	6.51	34.140 D	26.812	129.1	0.931	0.81	D 35.1	D 11.8	63.1	3.03	37.4	0.01	0.00			403	
442	6.14	6.10	34.170	26.889	122.1	0.978	0.62	26.9	8.9	70.4	3.17	38.9	0.01	0.00			446	02
500 ISL	5.77 D	5.73	34.218 D	26.973	114.6	1.054	0.42	D 18.4	D 6.1	77.9	3.28	40.1	0.01	0.00			504	
521	5.60	5.55	34.223	27.000	112.2	1.071	0.39	17.2	5.6	80.6	3.32	40.6	0.01	0.00			525	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 1604 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 10.8 N	122 55.4 W	04/04/2016	1016 UTC	3772 m	360 10 kn			1021.4 mb	14.7 C	11.3 C				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	16.64	16.64	33.239	24.249	366.3	0.000	5.67	247.5	101.8	2.1	0.24	0.0	0.01	0.00	0.06	0.01	0	
2	16.64	16.64	33.239	24.249	366.4	0.007	5.62	D245.0	D100.9	2.1	0.24	0.0	0.01	0.00	0.06	0.01	2	20
10 ISL	16.63 D	16.63	33.236 D	24.248	366.8	0.033	5.62	D244.8	D100.9	2.0	0.25	0.0	0.01	0.00	0.05	0.01	10	
11	16.64	16.64	33.237	24.248	366.8	0.040	5.63	245.8	101.1	2.0	0.25	0.0	0.01	0.00	0.05	0.01	11	19
20 ISL	16.64 D	16.63	33.236 D	24.248	367.1	0.070	5.62	D244.9	D100.9	2.0	0.24	0.0	0.01	0.00	0.05	0.01	20	
26	16.61	16.60	33.239	24.257	366.5	0.095	5.63	246.0	101.1	1.9	0.24	0.0	0.01	0.00	0.06	0.01	26	18
30 ISL	16.57 D	16.57	33.229 D	24.259	366.5	0.107	5.63	D245.4	D101.0	1.9	0.24	0.0	0.01	0.00	0.06	0.01	30	
40	16.52	16.51	33.222	24.266	366.1	0.147	5.65	246.6	101.2	1.9	0.25	0.0	0.01	0.00	0.07	0.01	40	17
50 ISL	16.48 D	16.47	33.217 D	24.273	365.8	0.181	5.64	D245.8	D101.0	2.0	0.25	0.0	0.01	0.00	0.08	0.02	50	
51	16.47	16.46	33.218	24.275	365.7	0.187	5.65	246.7	101.1	2.0	0.25	0.0	0.02	0.00	0.08	0.02	51	16
62	16.45	16.44	33.216	24.278	365.8	0.227	5.67	247.7	101.5	2.0	0.25	0.0	0.02	0.01	0.09	0.02	62	15
75 ISL	16.20 D	16.19	33.175 D	24.306	363.6	0.273	5.68	D247.6	D101.1	1.9	0.26	0.0	0.01	0.00	0.13	0.04	76	
76	16.14	16.13	33.175	24.318	362.4	0.278	5.68	248.2	101.0	1.9	0.26	0.0	0.01	0.00	0.13	0.04	77	14
88	15.45	15.43	33.096	24.413	353.6	0.321	5.74	250.7	100.6	1.9	0.27	0.0	0.01	0.00	0.15	0.07	89	13
100 ISL	14.82 D	14.80	33.142 D	24.586	337.4	0.362	5.73	D249.6	D 99.1	2.3	0.30	0.0	0.02	0.00	0.27	0.23	101	
102	14.91	14.90	33.213 D	24.621	334.3	0.368	5.70	248.8	98.9	2.3	0.31	0.0	0.02	0.00	0.29	0.26	103	12
114	13.93	13.92	33.181	24.803	317.1	0.408	5.52	240.9	93.8	3.2	0.46	1.5	0.14	0.00	0.29	0.32	115	11
125 ISL	12.88 D	12.87	33.170 D	25.005	297.9	0.442	5.31	D231.5	D 88.4	5.3	0.69	4.9	0.06	0.00	0.19	0.24	126	
126	12.75	12.73	33.172	25.034	295.2	0.445	5.26	229.5	87.2	5.5	0.71	5.2	0.06	0.00	0.18	0.23	127	10
141	11.93	11.92	33.248	25.248	275.0	0.488	5.04	220.2	82.3	7.5	0.86	7.9	0.04	0.00	0.13	0.18	142	09
150 ISL	11.11 D	11.10	33.325 D	25.458	255.1	0.512	4.81	D209.4	D 77.1	9.5	1.01	10.1	0.04	0.00	0.10	0.14	151	
171	10.05	10.03	33.387	25.691	233.1	0.563	4.49	196.0	70.4	14.1	1.36	15.4	0.02	0.00	0.03	0.05	172	08
200 ISL	9.36 D	9.33	33.708 D	26.057	198.7	0.627	3.79	D165.1	D 58.7	21.1	1.67	20.5	0.02	0.00	0.00	0.02	202	
201	9.30	9.28	33.712	26.069	197.6	0.628	3.78	164.9	58.4	21.3	1.68	20.7	0.02	0.00	0.00	0.02	203	07
232	8.71	8.68	33.917	26.324	173.8	0.686	3.22	140.7	49.2	28.7	1.93	24.6	0.02	0.00			234	06
250 ISL	8.54 D	8.52	33.947 D	26.373	169.4	0.718	3.13	D136.1	D 47.6	31.2	2.01	25.7	0.02	0.00			252	
270	8.27	8.25	33.981	26.441	163.3	0.750	2.90	126.7	43.9	34.0	2.10	26.8	0.02	0.00			272	05
300 ISL	7.78 D	7.75	34.010 D	26.538	154.3	0.799	2.47	D107.3	D 36.9	40.0	2.29	29.3	0.02	0.00			302	
321	7.51	7.48	34.023	26.587	149.8	0.830	2.20	96.2	32.7	44.2	2.43	31.1	0.02	0.00			324	04
381	6.92	6.88	34.092	26.725	137.4	0.916	1.34	58.5	19.7	55.1	2.81	35.0	0.01	0.00			384	03
400 ISL	6.71 D	6.68	34.110 D	26.767	133.6	0.944	1.12	D 48.7	D 16.4	58.6	2.90	35.9	0.01	0.00			403	
441	6.37	6.33	34.151	26.845	126.5	0.995	0.83	36.4	12.1	66.1	3.10	37.8	0.02	0.04			445	02
500 ISL	5.98 D	5.94	34.201 D	26.935	118.5	1.071	0.57	D 24.7	D 8.2	72.8	3.21	39.1	0.01	0.00			504	
516	5.94	5.89	34.207	26.946	117.6	1.086	0.59	25.7	8.5	74.7	3.24	39.4	0.01	0.00			520	01

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

RV BELL M SHIMADA CALCOFI CRUISE 1604 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 50.9 N	123 35.5 W	04/04/2016	1616 UTC	4082 m	020 20 kn	010 03 07	1	1023.5 mb	15.9 C	12.8 C	27 m	5/8	SC	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	17.52	17.52	33.572	24.296	361.8	0.000	5.55	242.4	101.7	2.0	0.25	0.0	0.02	0.00	0.07	0.01	0	
3 A	17.52	17.52	33.572	24.296	361.9	0.011	5.55	242.4	101.7	2.0	0.25	0.0	0.02	0.00	0.07	0.01	3	24
10 ISL	17.52 D	17.52	33.570 D	24.295	362.3	0.031	5.55	D241.8	D101.6	2.0	0.26	0.0	0.01	0.00	0.07	0.01	10	
18 A	17.52	17.52	33.571	24.296	362.5	0.065	5.54	241.7	101.4	2.0	0.27	0.0	0.01	0.00	0.06	0.02	18	22
18	17.52	17.52	33.571	24.296	362.5	0.064											18	23
20 ISL	17.52 D	17.52	33.570 D	24.295	362.6	0.067	5.55	D241.9	D101.6	1.9	0.28	0.0	0.01	0.00	0.06	0.01	20	
23 A	17.52	17.52	33.571	24.296	362.7	0.083	5.54	241.9	101.5	1.9	0.29	0.0	0.01	0.00	0.06	0.01	23	21
30 ISL	17.52 D	17.52	33.570 D	24.296	363.0	0.104	5.55	D241.8	D101.6	1.9	0.28	0.0	0.01	0.00	0.07	0.02	30	
34	17.52	17.52	33.571	24.297	363.0	0.123	5.55	242.5	101.7	1.9	0.27	0.0	0.01	0.00	0.07	0.02	34	20
43 A	17.52	17.52	33.571	24.298	363.3	0.156	5.51	240.6	100.9	1.9	0.26	0.0	0.01	0.00	0.07	0.02	43	19
50 ISL	17.51 D	17.50	33.568 D	24.298	363.5	0.177	5.55	D242.1	D101.7	1.9	0.26	0.0	0.01	0.00	0.07	0.02	50	
58	17.52	17.51	33.572	24.301	363.5	0.210	5.53	241.2	101.2	1.9	0.25	0.0	0.01	0.00	0.08	0.02	58	18
73 A	17.51	17.50	33.572	24.303	364.0	0.265	5.52	240.9	101.0	1.9	0.27	0.0	0.01	0.00	0.10	0.03	74	17
75 ISL	17.52 D	17.50	33.571 D	24.302	364.1	0.269	5.55	D242.1	D101.7	1.9	0.27	0.0	0.01	0.00	0.10	0.03	76	
83	17.52	17.51	33.576	24.306	364.1	0.301	5.53	241.4	101.2	1.9	0.27	0.0	0.01	0.01	0.10	0.03	84	16
92 A	17.58	17.57	33.603	24.312	363.9	0.334	5.54	241.9	101.6	2.0	0.27	0.0	0.02	0.00	0.15	0.04	93	15
99	17.53	17.51	33.646	24.359	359.6	0.360	5.53	241.2	101.2	2.0	0.26	0.0	0.01	0.00	0.16	0.06	100	14
100 ISL	17.51 D	17.50	33.638 D	24.356	359.9	0.360	5.53	D241.0	D101.2	2.0	0.26	0.0	0.01	0.00	0.16	0.06	101	
106	17.41	17.39	33.632	24.378	358.1	0.385	5.50	240.1	100.5	2.0	0.25	0.0	0.02	0.00	0.16	0.08	107	13
116	16.85	16.83	33.627	24.507	346.1	0.420	5.43	237.0	98.1	2.3	0.28	0.0	0.02	0.00	0.22	0.20	117	12
125 ISL	15.97 D	15.95	33.526 D	24.631	334.3	0.448	5.43	D236.8	D 96.5	2.8	0.33	0.4	0.06	0.00	0.25	0.25	126	
125	15.97	15.95	33.542	24.643	333.1	0.451											126	11
126	15.96	15.94	33.536	24.642	333.3	0.454	5.40	235.9	95.9	2.9	0.34	0.4	0.07	0.02	0.26	0.26	127	10
141	13.10	13.08	33.332	25.088	290.5	0.501	5.18	226.0	86.6	5.4	0.61	4.3	0.08	0.02	0.23	0.24	142	09
150 ISL	12.67 D	12.65	33.418 D	25.241	276.2	0.524	4.98	D216.7	D 82.5	7.1	0.76	6.7	0.06	0.00	0.18	0.20	151	
166	11.33	11.31	33.447	25.515	250.1	0.569	4.61	201.3	74.3	10.2	1.02	11.0	0.03	0.00	0.09	0.12	167	08
196	9.79	9.76	33.667	25.955	208.5	0.637	3.97	173.4	62.0	18.6	1.48	18.4	0.02	0.00	0.01	0.02	197	07
200 ISL	9.78 D	9.75	33.678 D	25.965	207.6	0.644	3.93	D171.1	D 61.4	19.2	1.50	18.8	0.02	0.00			202	
231	9.08	9.06	33.836	26.202	185.6	0.707	3.76	164.3	57.9	23.8	1.63	21.5	0.02	0.00			233	06
250 ISL	8.73 D	8.71	33.929 D	26.330	173.6	0.740	3.58	D155.7	D 54.6	27.5	1.76	23.3	0.02	0.00			252	
271	8.47	8.44	33.962	26.396	167.6	0.777	3.15	137.6	47.9	31.6	1.91	25.3	0.02	0.00			273	05
300 ISL	8.00 D	7.97	34.011 D	26.506	157.5	0.824	2.66	D115.9	D 40.0	37.7	2.12	28.1	0.02	0.00			302	
321	7.67	7.64	34.019	26.561	152.4	0.857	2.32	101.4	34.6	42.2	2.27	30.1	0.02	0.00			323	04
381	6.90	6.87	34.082	26.719	138.0	0.944	1.42	62.1	20.9	55.5	2.69	34.8	0.02	0.11			384	03
400 ISL	6.75 D	6.72	34.096 D	26.750	135.1	0.970	1.29	D 55.9	D 18.8	58.6	2.76	35.7	0.02	0.00			403	
440	6.39	6.35	34.132	26.827	128.2	1.023	0.93	40.7	13.5	65.2	2.91	37.5	0.02	0.00			444	02
500 ISL	6.05 D	6.01	34.185 D	26.914	120.6	1.099	0.64	D 27.9	D 9.2	72.9	3.05	38.9	0.02	0.00			504	
515	5.94	5.90	34.199	26.939	118.3	1.115	0.56	24.5	8.1	74.8	3.08	39.3	0.02	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 STA-CORRECTED O2;

RV BELL M SHIMADA CALCOFI CRUISE 1604 STATION 93.4 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 57.1 N	117 17.3 W	01/04/2016	2144 UTC	26 m	250 07 kn	270 01 06	1	1019.3 mb	17.5 C	13.9 C		1/8	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	16.79	16.79	33.549	24.451	347.0	0.000	6.01	262.5	108.6	2.5	0.35	0.1	0.03	2.10	0.62	0.14	0	
1	16.79	16.79	33.549	24.451	347.0	0.004	6.01	262.5	108.5	2.5	0.35	0.1	0.03	2.10	0.62	0.14	1	05
6	16.62	16.62	33.546	24.490	343.6	0.021	6.00	262.1	108.0	2.5	0.44	0.1	0.03	3.37	0.71	0.17	6	04
10 ISL	16.44 D	16.44	33.541 D	24.526	340.3	0.035	6.07	D264.5	D108.8	2.4	0.38	0.0	0.03	1.83	0.87	0.28	10	
11	16.43	16.42	33.549	24.536	339.3	0.038	6.03	263.3	108.1	2.4	0.37	0.0	0.03	1.44	0.91	0.31	11	03
16	15.59	15.59	33.534	24.713	322.6	0.054	5.77	251.9	101.7	3.3	0.42	0.8	0.15	0.37	1.65	0.66	16	02
20	14.72	14.71	33.508	24.885	306.4	0.067	4.82	210.3	83.4	6.9	0.87	6.0	0.72	2.81	1.51	0.83	20	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 1604 — STATION 76.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 43.2 N	121 33.0 W	13/04/2016	1839 UTC	17 m	1210 - 1905 PST	1207 PST	1906 PST	425.1 mg C/m2	065

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	14.54	32.901	24.453	6.09	104.8						0.34	0.08	83. A	9.4	9.3	9.4	0.37
12	14.52	32.900	24.456	6.13	105.3	2.0	0.29	0.0	0.02	0.04	0.31	0.09	34.	9.3	11.7	10.5	0.41
16	14.50	32.900	24.462	6.10	104.8	1.8	0.32	0.0	0.01	0.12	0.32	0.14	24.	10.2	10.7	10.5	0.42
23	14.42	32.903	24.482	6.11	104.8	1.7	0.29	0.0	0.01	0.01	0.32	0.14					
29	14.25	32.925	24.534	6.03	103.0	1.7	0.31	0.0	0.02	0.03	0.52	0.09	7.3	10.9	9.7	10.3	0.43
38	13.77	32.986	24.682	5.89	99.7	1.8	0.34	0.0	0.07	0.01	0.88	0.30					
48	13.44	33.065	24.810	5.99	100.8	2.1	0.45	0.3	0.08	1.03	0.33	0.15	1.3	1.9	1.7	1.8	0.35
60	12.03	33.069	25.087	5.20	84.9	6.1	0.73	6.7	0.11	0.00	0.22	0.21	0.44	0.70	0.69	0.70	0.12

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 76.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 23.2 N	124 19.5 W	14/04/2016	1741 UTC	27 m	1217 - 1915 PST	1217 PST	1911 PST	78.4 mg C/m2	069

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	16.36	33.232	24.307	5.66	101.2	1.6	0.22	0.0	0.01	0.06	0.06	0.02	89. A	1.2	1.1	1.1	0.38
10	16.36	33.232	24.308	5.66	101.2	1.8	0.24	0.0	0.01	0.05	0.06	0.02					
19	16.36	33.232	24.310	5.69	101.6	1.6	0.23	0.0	0.01	0.00	0.06	0.02	34.	1.1	1.2	1.2	0.36
24	16.35	33.235	24.312	5.68	101.4	1.5	0.23	0.0	0.01	0.03	0.07	0.02	26.	1.3	1.4	1.4	0.30
34	16.35	33.232	24.311	5.69	101.7	1.5	0.22	0.0	0.01	0.00	0.07	0.02					
43	16.29	33.227	24.322	5.68	101.3	1.5	0.22	0.0	0.01	0.00	0.07	0.02	8.7	1.1	0.95	1.0	0.35
56	16.26	33.226	24.328	5.68	101.2	1.5	0.22	0.0	0.01	0.00	0.09	0.02					
66	16.22	33.231	24.342	5.70	101.5	1.5	0.21	0.0	0.01	0.00	0.10	0.02					
76	16.18	33.240	24.360	5.68	101.1	1.5	0.23	0.0	0.01	0.00	0.14	0.03	1.3	0.33	0.24	0.29	0.35
86	16.09	33.294	24.422	5.69	101.1	1.6	0.22	0.0	0.01	0.00	0.19	0.06					
94	16.01	33.484	24.586	5.56	98.8	2.2	0.21	0.0	0.01	0.00	0.32	0.28	0.48	0.39	0.42	0.40	0.18

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 81.8 46.9

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 16.4 N	120 1.7 W	12/04/2016	1845 UTC	10 m	1205 - 1858 PST	1201 PST	1858 PST	1184.2 mg C/m2	058

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	13.43	33.477	25.128	6.94	117.1	0.7	0.32	0.6	0.07	0.24	2.80	0.92	74. A	48.4	47.1	47.8	1.2
8	13.32	33.476	25.150	6.95	116.9	0.3	0.31	0.4	0.07	0.14	2.43	1.16	29.	90.0	84.9	87.4	1.2
9	13.27	33.479	25.162	6.92	116.4	0.3	0.33	0.6	0.07	0.22	2.46	1.31	25.	79.1	80.7	79.9	1.1
16	12.14	33.601	25.477	5.49	90.1	6.9	1.05	9.0	0.21	1.55	3.43	1.64	8.6	26.6	24.5	25.5	0.58
28	11.79	33.661	25.591	4.84	78.9	11.1	1.34	11.8	0.26	2.41	1.93	1.97	1.4	7.5	7.0	7.3	0.44
35	11.52	33.691	25.665	4.43	71.9	14.2	1.49	14.1	0.30	2.28	1.67	1.95	0.46	2.3	2.3	2.3	0.39

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 83.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 54.6 N	122 7.7 W	11/04/2016	1718 UTC	21 m	1205 - 1900 PST	1209 PST	1857 PST	382.0 mg C/m2	053

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	16.07	33.206	24.353	5.76	102.4	1.9	0.31	0.0	0.00	0.00	0.21	0.04	86. A	5.5	5.8	5.6	0.29
11	15.45	33.236	24.516	5.88	103.2	1.9	0.32	0.0	0.01	0.00	0.23	0.05					
14	15.31	33.222	24.537	5.88	102.8	2.1	0.32	0.0	0.01	0.00	0.22	0.05	36.	5.3	5.2	5.3	0.40
19	15.29	33.222	24.541	5.87	102.7	2.1	0.32	0.0	0.00	0.00	0.25	0.05	25.	7.0	7.1	7.0	0.26
36	15.18	33.237	24.576	5.89	102.7	2.0	0.32	0.0	0.00	0.00	0.29	0.09	7.2	6.4	6.2	6.3	0.35
47	15.05	33.241	24.608	5.86	102.1	2.1	0.33	0.0	0.00	0.00	0.42	0.13					
59	14.85	33.254	24.663	5.86	101.5	2.3	0.35	0.0	0.01	0.00	0.69	0.27	1.3	4.1	4.0	4.0	0.37
66	14.71	33.288	24.720	5.84	100.9	2.4	0.38	0.0	0.05	0.01	1.21	0.48					
73	14.84	33.376	24.761	5.96	103.3	1.4	0.38	0.0	0.02	0.09	0.76	0.30	0.48	1.8	2.2	2.0	0.02

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 86.7 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 39.3 N	118 58.6 W	08/04/2016	1856 UTC	17 m	1200 - 1910 PST	1158 PST	1850 PST	458.0 mg C/m2	040

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	15.97	33.536	24.629	6.12	108.8	0.2	0.27	0.0	0.01	0.03	0.48	0.12	83. A	16.0	16.7	16.4	0.42
12	15.25	33.526	24.783	6.08	106.5	0.8	0.35	0.0	0.02	0.08	0.69	0.23	34.	17.6	14.1	15.9	0.37
15	15.07	33.524	24.821	6.00	104.7	0.8	0.36	0.0	0.02	0.08	0.74	0.25	26.	17.9	18.2	18.1	0.37
22	14.39	33.512	24.959	5.75	99.0	2.1	0.50	1.3	0.11	0.27	0.95	0.33					
28	13.22	33.499	25.189	4.59	77.2	8.8	1.01	9.0	0.24	0.26	0.54	0.23	8.0	4.9	4.9	4.9	0.27
38	12.29	33.507	25.377	3.97	65.3	11.7	1.22	12.4	0.18	0.08	0.42	0.31					
48	12.04	33.519	25.435	3.83	62.7	12.8	1.29	13.7	0.14	0.00	0.34	0.28	1.3	0.87	0.80	0.84	0.26
60	11.66	33.561	25.539	3.58	58.2	14.5	1.39	15.2	0.11	0.00	0.29	0.30	0.44	0.33	0.38	0.35	0.21

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 39.2 N	121 2.1 W	09/04/2016	1705 UTC	21 m	1205 - 1900 PST	1205 PST	1900 PST	281.8 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
2	15.78	33.137	24.366	5.78	102.0	2.1	0.30	0.0	0.01	0.01	0.18	0.03	86. A	6.2	5.9	6.1	0.32
9	15.75	33.140	24.374	5.78	102.0	2.0	0.30	0.0	0.00	0.24	0.18	0.05					
15	15.70	33.145	24.390	5.79	102.0	2.0	0.29	0.0	0.00	0.00	0.21	0.06	33.	5.2	4.9	5.1	0.25
19	15.23	33.161	24.507	5.86	102.4	1.9	0.31	0.0	0.00	0.01	0.21	0.04	25.	4.4	4.8	4.6	0.32
27	14.98	33.190	24.583	5.91	102.6	1.9	0.32	0.0	0.00	0.00	0.31	0.07					
36	14.76	33.216	24.652	5.89	101.9	2.1	0.34	0.0	0.00	0.00	0.48	0.27	7.2	6.3	5.9	6.1	0.33
48	13.97	33.246	24.841	5.75	97.9	3.3	0.45	0.9	0.13	0.06	1.02	0.55					
60	12.85	33.281	25.096	5.11	85.0	6.1	0.74	6.2	0.06	0.00	0.29	0.25	1.2	0.67	0.66	0.67	0.32
73	12.09	33.351	25.296	4.61	75.5	9.7	1.03	10.9	0.03	0.00	0.11	0.11	0.48	0.36	0.28	0.32	0.00

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 86.7 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 19.4 N	123 44.7 W	10/04/2016	1639 UTC	33 m	1210 - 1908 PST	1216 PST	1908 PST	297.6 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	16.61	33.274	24.283	5.63	101.1	1.9	0.28	0.0	0.01	0.02	0.07	0.01	91. A	1.7	1.6	1.7	0.23
12	16.52	33.258	24.290	5.63	100.9	1.9	0.24	0.0	0.00	0.00	0.08	0.01					
22	16.48	33.254	24.297	5.65	101.3	1.9	0.24	0.0	0.00	0.00	0.08	0.01	36.	1.9	2.0	2.0	0.19
30	15.64	33.147	24.406	5.74	101.0	1.9	0.27	0.0	0.00	0.00	0.11	0.01	25.	2.7	2.8	2.7	0.21
37	15.45	33.093	24.408	5.83	102.3	1.9	0.29	0.0	0.00	0.00	0.15	0.01					
45	15.39	33.086	24.416	5.82	101.9	1.9	0.29	0.0	0.00	0.00	0.15	0.04					
54	15.35	33.085	24.424	5.82	101.8	1.9	0.29	0.0	0.00	0.01	0.24	0.05	8.1	3.9	4.1	4.0	0.23
80	14.88	33.095	24.536	5.84	101.3	2.0	0.30	0.0	0.00	0.00	0.34	0.17					
93	14.66	33.095	24.583	5.81	100.2	2.1	0.34	0.0	0.04	0.11	0.44	0.24	1.3	2.5	2.2	2.4	0.20
104	14.47	33.344	24.815	5.43	93.5	3.4	0.38	1.4	0.08	0.00	0.31	0.22					
115	12.89	33.219	25.041	5.27	87.7	5.1	0.67	5.1	0.03	0.01	0.15	0.16	0.48	0.77	0.59	0.68	0.01

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 90.0 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 29.1 N	117 46.8 W	07/04/2016	1615 UTC	11 m	1200 - 1845 PST	1200 PST	1843 PST	907.2 mg C/m2	031

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	16.45	33.542	24.524	6.26	112.3	3.1	0.31	0.0	0.06	0.00	0.92	0.21	87. A	37.5	33.8	35.7	0.60
8	16.23	33.542	24.577	6.28	112.2	3.3	0.32	0.0	0.06	0.00	1.05	0.27	33.	31.9	42.5	37.2	0.50
11	15.27	33.537	24.786	6.27	109.8	3.5	0.37	0.0	0.08	0.00	1.78	0.52	22.	60.4	65.0	62.7	0.60
18	13.98	33.513	25.044	5.38	91.9	4.8	0.74	3.8	0.62	1.45	2.04	0.58	8.1	24.5	22.2	23.3	0.51
24	13.25	33.525	25.202	4.62	77.7	8.0	0.98	7.7	0.82	0.85	1.21	0.55					
31	12.22	33.548	25.423	3.66	60.2	13.3	1.35	14.0	0.69	0.17	0.45	0.36	1.3	0.67	1.5	1.1	0.44
39	11.61	33.596	25.573	3.27	53.2	15.6	1.53	16.8	0.45	0.06	0.24	0.36	0.43	0.46	0.46	0.46	0.11

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 90.0 53.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 39.1 N	119 29.1 W	06/04/2016	1625 UTC	27 m	1200 - 1845 PST	1200 PST	1843 PST	300.9 mg C/m2	025

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	15.87	33.415	24.559	5.72	101.3	2.4	0.33	0.0	0.02	0.03	0.15	0.04	84. A	4.9	4.8	4.9	0.30
11	15.62	33.396	24.602	5.74	101.2	2.3	0.34	0.0	0.02	0.00	0.13	0.04					
19	15.51	33.396	24.627	5.76	101.3	2.3	0.33	0.0	0.02	0.00	0.14	0.04	34.	3.5	3.5	3.5	0.25
24	15.48	33.398	24.633	5.75	101.1	2.3	0.34	0.0	0.02	0.02	0.17	0.05	26.	4.1	4.3	4.2	0.23
34	15.42	33.420	24.666	5.77	101.4	2.3	0.33	0.0	0.02	0.00	0.24	0.05					
45	15.36	33.435	24.691	5.75	100.9	2.3	0.35	0.0	0.02	0.00	0.34	0.15	7.7	5.0	4.8	4.9	0.27
55	15.32	33.429	24.696	5.73	100.4	2.4	0.35	0.0	0.03	0.02	0.46	0.15					
66	14.44	33.408	24.869	5.37	92.4	4.3	0.55	2.8	0.19	0.02	0.42	0.20					
76	14.17	33.402	24.923	5.31	90.9	4.5	0.58	3.2	0.17	0.00	0.35	0.19	1.3	1.0	1.1	1.1	0.25
86	12.99	33.339	25.114	4.86	81.2	7.3	0.84	7.6	0.06	0.07	0.20	0.12					
94	12.23	33.395	25.304	4.42	72.6	10.3	1.07	11.2	0.04	0.00	0.06	0.07	0.48	0.24	0.20	0.22	0.01

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 90.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 25.0 N	121 59.5 W	05/04/2016	1746 UTC	24 m	1210 - 0855 PST	1210 PST	1853 PST	224.3 mg C/m2	021

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	15.64	33.282	24.508	5.76	101.6	2.2	0.32	0.0	0.01	0.05	0.16	0.04	88. A	2.8	2.8	2.8	0.25
11	15.64	33.282	24.509	5.77	101.7						0.16	0.04					
16	15.64	33.283	24.511	5.78	101.8	2.2	0.32	0.0	0.01	0.11	0.16	0.04	36.	2.4	2.4	2.4	1.1
21	15.63	33.282	24.511	5.77	101.6	2.2	0.31	0.0	0.01	0.04	0.16	0.04	26.	3.7	3.8	3.8	0.29
30	15.57	33.275	24.520	5.75	101.2	2.4	0.32	0.1	0.02	0.14	0.17	0.04					
40	15.55	33.272	24.523	5.76	101.3	2.2	0.32	0.0	0.01	0.06	0.18	0.06	7.7	3.5	3.3	3.4	0.24
48	15.54	33.269	24.524	5.77	101.4	2.1	0.32	0.0	0.01	0.03	0.20	0.06					
60	15.45	33.301	24.569	5.75	101.0	2.2	0.32	0.0	0.01	0.02	0.34	0.12					
69	15.36	33.280	24.572	5.77	101.1	2.1	0.33	0.0	0.01	0.03	0.40	0.16	1.2	1.8	1.7	1.8	0.36
75	15.29	33.274	24.585	5.80	101.4	2.2	0.33	0.0	0.02	0.03	0.45	0.23					
84	14.93	33.304	24.687	5.68	98.6	2.6	0.37	0.3	0.08	0.04	0.60	0.40	0.46	1.3	1.4	1.4	0.04

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 93.3 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 57.3 N	117 18.3 W	01/04/2016	1957 UTC	10 m	1240 - 1850 PST	1153 PST	1835 PST	376.4 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	16.29	33.551	24.569	5.95	106.3	2.7	0.35	0.0	0.02	0.79	0.63	0.14	74. A	14.8	13.3	14.1	0.74
8	16.12	33.545	24.602	5.99	106.7	2.6	0.37	0.0	0.03	0.58	0.79	0.17	29.	16.4	16.3	16.4	0.72
10	16.07	33.548	24.616	6.04	107.4	2.7	0.33	0.0	0.02	0.33	0.86	0.22	22.	16.1	18.7	17.4	0.78
16	15.73	33.538	24.685	6.05	106.9	3.0	0.36	0.0	0.03	0.38	1.25	0.52	8.6	16.3	15.8	16.1	2.5
20	14.79	33.508	24.869	5.66	98.2						3.25	0.93					
28	12.41	33.495	25.344	3.82	63.1	5.2	0.54	1.5	0.18	0.33	0.68	0.52	1.4	2.4	2.8	2.6	0.38
35	11.71	33.579	25.542	3.30	53.7	15.7	1.54	16.8	0.35	0.59	0.31	0.27	0.46	0.43	0.57	0.50	0.26

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 93.3 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 20.8 N	118 33.2 W	02/04/2016	1729 UTC	17 m	1150 - 1900 PST	1158 PST	1842 PST	371.0 mg C/m2	008

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	16.30	33.546	24.562	5.73D	102.5	1.8	0.30	0.0	0.03	0.00	0.25	0.05	83. A	4.9	4.7	4.8	0.22
11	16.23	33.527	24.564	5.75	102.7	1.7	0.32	0.0	0.01	0.10	0.27	0.06	37.	4.7	4.7	4.7	0.25
16	16.20	33.527	24.572	5.75	102.6	1.6	0.30	0.0	0.01	0.00	0.28	0.07	24.	5.7	5.9	5.8	0.23
22	16.17	33.526	24.577	5.77	102.8	1.7	0.31	0.0	0.01	0.00	0.30	0.07					
29	16.14	33.530	24.588	5.79	103.2	1.5	0.31	0.0	0.01	0.01	0.37	0.10	7.3	5.4	5.1	5.3	0.23
38	15.64	33.510	24.686	5.81	102.6	1.2	0.35	0.0	0.01	0.03	0.78	0.27					
48	14.40	33.476	24.930	5.28	90.8	4.5	0.60	2.7	0.27	0.03	3.18	1.10	1.3	12.0	9.4	10.7	0.28
60	12.67	33.424	25.240	4.63	76.8	8.5	0.94	8.8	0.06	0.03	0.47	0.46	0.44	0.82	0.90	0.86	0.11

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 93.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 10.8 N	120 55.3 W	03/04/2016	1713 UTC	29 m	1200 - 1900 PST	1207 PST	1852 PST	114.6 mg C/m2	013

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	16.22	33.334	24.418	5.66	100.9	2.0	0.29	0.0	0.03	0.00	0.08	0.02	90. A	1.4	1.4	1.4	0.28
10	16.21	33.335	24.421	5.68	101.2	1.9	0.30	0.0	0.02	0.00	0.08	0.02					
20	16.20	33.333	24.423	5.70	101.5	1.9	0.28	0.0	0.01	0.00	0.08	0.02	35.	1.6	1.8	1.7	0.22
26	16.20	33.334	24.425	5.68	101.2	1.9	0.29	0.0	0.01	0.00	0.08	0.02	25.	1.8	1.8	1.8	0.41
38	16.18	33.332	24.427	5.66	100.9	1.9	0.29	0.0	0.01	0.00	0.09	0.02					
49	16.16	33.337	24.437	5.67	101.0	1.9	0.29	0.0	0.01	0.00	0.10	0.02	7.5	1.3	1.3	1.3	0.27
60	16.15	33.331	24.435	5.67	100.9	1.8	0.32	0.0	0.01	0.00	0.11	0.03					
70	16.14	33.333	24.440	5.67	100.9	1.8	0.32	0.0	0.01	0.05	0.12	0.03					
82	16.09	33.333	24.451	5.67	100.9	1.8	0.29	0.0	0.01	0.00	0.15	0.04	1.3	0.38	0.19	0.29	0.40
93	15.21	33.358	24.667	5.67	99.1	2.3	0.35	0.0	0.04	0.01	0.42	0.25					
102	14.40	33.322	24.814	5.59	96.0	2.9	0.42	1.0	0.16	0.01	0.35	0.22	0.45	0.98	0.88	0.93	0.05

RV BELL M SHIMADA — CALCOFI CRUISE 1604 — STATION 93.3 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
29 50.9 N	123 35.5 W	04/04/2016	1616 UTC	27 m	1210 - 1901 PST	1217 PST	1901 PST	58.0 mg C/m2	017

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	17.52	33.572	24.296	5.55	101.7	2.0	0.25	0.0	0.02	0.00	0.07	0.01	84. A	1.00	1.1	1.1	0.15
18	17.52	33.571	24.296	5.54	101.4	2.0	0.27	0.0	0.01	0.00	0.06	0.02	36.	0.98	0.95	0.97	0.24
23	17.52	33.571	24.296	5.54	101.5	1.9	0.29	0.0	0.01	0.00	0.06	0.01	27.	1.1	1.2	1.1	0.16
34	17.52	33.571	24.297	5.55	101.7	1.9	0.27	0.0	0.01	0.00	0.07	0.02					
43	17.52	33.571	24.298	5.51	100.9	1.9	0.26	0.0	0.01	0.00	0.07	0.02	8.7	0.67	0.65	0.66	0.24
58	17.52	33.572	24.301	5.53	101.2	1.9	0.25	0.0	0.01	0.00	0.08	0.02					
73	17.51	33.572	24.303	5.52	101.0	1.9	0.27	0.0	0.01	0.00	0.10	0.03	1.6	0.18	0.23	0.21	0.19
83	17.52	33.576	24.306	5.53	101.2	1.9	0.27	0.0	0.01	0.01	0.10	0.03					
92	17.58	33.603	24.312	5.54	101.6	2.0	0.27	0.0	0.02	0.00	0.15	0.04	0.53	0.16	0.14	0.15	0.11

A) INCUBATION LIGHT INTENSITIES WERE 59.3, 36.6, 25.4, 8.0, 1.3, 0.47 PERCENT RESPECTIVELY.

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505mm

Line	Sta.	Latitude N	Longitude W	Date Mo/Day	Time (PST) Start	Time (PST) End	Water Volume Strained (m^3)	Max. Tow Depth (m)	Volume per 1000 m^3 Strained Total (cm^3)	Volume per 1000 m^3 Strained Small (cm^3)
60.0	53.0	37 50.9	123 05.9	04/21	1721	1728	120	66	627	627
60.0	60.0	37 36.8	123 36.5	04/21	2132	2152	433	220	268	83
60.0	70.0	37 16.9	124 19.8	04/22	0301	0322	438	210	589	87
60.0	80.0	36 56.8	125 03.0	04/22	0832	0853	443	208	135	135
60.0	90.0	36 36.9	125 46.1	04/22	1337	1358	470	203	51	51
63.3	52.0	37 18.5	122 37.0	04/21	1204	1211	140	69	300	300
63.3	55.0	37 12.5	122 50.0	04/21	0920	0941	418	202	249	249
63.3	60.0	37 02.4	123 11.9	04/21	0547	0608	411	210	239	200
63.3	70.0	36 42.5	123 54.8	04/21	0023	0044	430	212	137	86
63.3	80.0	36 22.5	124 37.8	04/20	1906	1926	433	216	86	86
63.3	90.0	36 02.4	125 20.5	04/20	1317	1337	433	215	32	32
66.7	50.0	36 47.2	122 03.5	04/19	0718	0731	258	123	194	194
66.7	55.0	36 37.3	122 24.9	04/19	1100	1122	417	206	173	173
66.7	60.0	36 27.2	122 46.0	04/19	1441	1501	395	200	256	172
66.7	70.0	36 07.2	123 29.1	04/19	2021	2042	434	213	152	140
66.7	80.0	35 47.1	124 11.6	04/20	0152	0213	430	215	147	112
66.7	90.0	35 27.2	124 54.1	04/20	0716	0736	437	208	75	75
70.0	51.0	36 10.7	121 43.8	04/19	0147	0207	407	208	325	325
70.0	55.0	36 02.9	122 00.6	04/18	2239	2259	403	209	176	114
70.0	60.0	35 53.0	122 22.1	04/18	1824	1845	404	207	131	59
70.0	70.0	35 32.8	123 04.5	04/18	1246	1306	407	211	44	44
70.0	80.0	35 12.9	123 46.8	04/18	0643	0704	405	210	15	15
70.0	90.0	34 53.0	124 28.7	04/18	0130	0151	417	211	41	31
73.3	50.0	35 38.7	121 15.8	04/16	2102	2104	62	24	209	209
73.3	55.0	35 28.8	121 36.5	04/17	0015	0036	394	206	178	178
73.3	60.0	35 18.5	121 57.7	04/17	0349	0410	386	210	380	349
73.3	70.0	34 58.6	122 40.0	04/17	0914	0935	415	203	344	265
73.3	80.0	34 38.5	123 21.7	04/17	1450	1511	409	213	391	247
73.3	90.0	34 18.6	124 03.7	04/17	2024	2045	447	208	34	34
76.7	49.0	35 05.3	120 46.6	04/13	0148	0154	132	54	752	752
76.7	51.0	35 01.2	120 55.0	04/13	0401	0421	449	210	53	53
76.7	55.0	34 53.3	121 11.8	04/13	0743	0803	476	215	23	23
76.7	60.0	34 43.3	121 32.9	04/13	1150	1210	432	211	280	280
76.7	70.0	34 23.3	122 14.8	04/13	1740	1801	445	209	56	56
76.7	80.0	34 03.3	122 56.4	04/13	2303	2324	448	210	139	89
76.7	90.0	33 43.4	123 38.1	04/14	0448	0509	452	215	51	51
76.7	100.0	33 23.3	124 19.3	04/14	1056	1117	424	211	7	7
80.0	50.5	34 28.1	120 29.5	04/12	1906	1908	51	12	79	79
80.0	51.0	34 27.0	120 31.4	04/12	2034	2039	117	50	1447	1122
80.0	55.0	34 19.1	120 48.5	04/16	0105	0126	470	213	79	51
80.0	90.0	33 08.8	123 13.4	04/14	2236	2257	445	213	52	52
80.0	100.0	32 49.0	123 54.3	04/14	1649	1710	455	209	20	20
81.7	43.5	34 24.1	119 48.0	04/12	1431	1433	61	19	115	115
81.8	46.9	34 16.4	120 01.5	04/12	1207	1228	416	210	274	257
83.3	39.4	34 15.6	119 19.8	04/08	0112	0113	41	13	73	73
83.3	40.6	34 13.5	119 24.6	04/08	0244	0246	51	19	508	508
83.3	42.0	34 10.8	119 30.4	04/08	0500	0510	196	107	307	307
83.3	51.0	33 52.6	120 08.0	04/12	0620	0627	176	76	597	597
83.3	55.0	33 44.7	120 24.7	04/12	0202	0223	450	210	458	300
83.3	60.0	33 34.8	120 45.2	04/11	2153	2214	460	199	337	148
83.3	70.0	33 14.7	121 26.6	04/11	1557	1618	464	212	19	19
83.3	80.0	32 54.5	122 07.6	04/11	0807	0828	422	212	71	36
83.3	90.0	32 34.7	122 48.7	04/11	0312	0333	441	215	39	30
83.3	100.0	32 14.8	123 29.4	04/10	2135	2156	439	211	87	34
83.3	110.0	31 54.6	124 10.2	04/10	1551	1612	423	212	47	28
85.4	35.8	34 00.3	118 50.1	04/07	2118	2122	109	43	320	320
86.7	33.0	33 53.3	118 29.4	04/07	1606	1611	119	43	344	344
86.7	35.0	33 49.4	118 37.6	04/07	1854	1915	421	214	136	136
86.7	40.0	33 39.3	118 58.5	04/08	1222	1242	445	208	128	128
86.7	45.0	33 29.3	119 19.0	04/08	1632	1652	400	210	300	300
86.7	50.0	33 18.9	119 39.4	04/08	1957	2002	99	48	1645	1137
86.7	55.0	33 09.4	120 00.3	04/08	2349	0010	435	207	214	193
86.7	60.0	32 59.4	120 20.8	04/09	0358	0419	439	203	376	353
86.7	70.0	32 39.3	121 02.0	04/09	1033	1054	448	211	212	212
86.7	80.0	32 19.3	121 42.6	04/09	1627	1647	526	213	116	108
86.7	90.0	31 59.4	122 23.7	04/09	2220	2241	440	211	93	55
86.7	100.0	31 39.4	123 04.1	04/10	0341	0402	415	216	77	77
86.7	110.0	31 19.3	123 44.6	04/10	0946	1008	457	204	83	42
86.8	32.5	33 53.2	118 26.6	04/07	1437	1439	53	18	567	567
88.5	30.1	33 38.8	118 03.3	04/07	1059	1100	44	12	46	46
90.0	27.7	33 28.2	117 44.5	04/07	0615	0616	37	13	108	108
90.0	28.0	33 29.0	117 46.2	04/07	0736	0746	237	101	127	127
90.0	30.0	33 25.1	117 54.2	04/07	0415	0436	420	207	205	133
90.0	35.0	33 15.1	118 14.9	04/06	2355	0016	444	213	250	214
90.0	37.0	33 11.0	118 23.2	04/06	2056	2117	433	212	203	203
90.0	45.0	32 55.1	118 56.1	04/06	1521	1541	441	210	100	77
90.0	53.0	32 39.1	119 28.9	04/06	0951	1012	456	208	61	57
90.0	60.0	32 25.1	119 57.5	04/06	0432	0453	456	210	61	61
90.0	70.0	32 05.1	120 38.3	04/05	2238	2259	462	202	249	71
90.0	80.0	31 45.1	121 18.9	04/05	1637	1658	439	209	23	23
90.0	90.0	31 25.0	121 59.4	04/05	0839	0900	479	208	21	21
90.0	100.0	31 05.0	122 39.8	04/05	0320	0341	444	206	34	34
90.0	110.0	30 45.1	123 19.9	04/04	2109	2129	450	212	27	9
90.0	120.0	30 25.0	123 59.9	04/04	1520	1542	451	207	7	7
91.7	26.4	33 14.6	117 27.9	04/01	1626	1627	39	15	25	25
93.3	26.7	32 57.3	117 18.3	04/01	1250	1303	306	141	239	239
93.3	28.0	32 54.7	117 23.7	04/01	2010	2031	450	213	129	56
93.3	30.0	32 50.6	117 31.9	04/01	2241	2302	423	209	414	52
93.3	35.0	32 40.7	117 52.3	04/02	0243	0305	442	204	95	86
93.3	40.0	32 30.9	118 12.8	04/02	0632	0652	418	209	60	60
93.3	45.0	32 20.8	118 33.2	04/02	1037	1057	412	213	10	10
93.3	50.0	32 10.8	118 53.4	04/02	1439	1459	435	209	14	14
93.3	55.0	32 00.8	119 14.1	04/02	1827	1848	443	206	25	25
93.3	60.0	31 50.6	119 34.2	04/02	2235	2256	401	208	67	67
93.3	70.0	31 30.9	120 14.7	04/03	0414	0435	415	210	132	132
93.3	80.0	31 10.8	120 55.2	04/03	1021	1041	436	211	25	25
93.3	90.0	30 50.8	121 35.3	04/03	1617	1637	431	215	19	19
93.3	100.0	30 30.8	122 15.5	04/03	2155	2216	432	219	33	33
93.3	110.0	30 10.8	122 55.3	04/04	0325	0346	432	210	14	14
93.3	120.0	29 50.8	123 35.2	04/04	0922	0943	462	214	4	4
93.4	26.4	32 57.1	117 17.3	04/01	1401	1403	56	20	36	36