UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 1611
6 - 22 November, 2016

CC Reference 17 - 04
1 Sept., 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 1611* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the RV Sally Ride. 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.

1611SR	**NO_2+NO_3 (µmol/L)**	**PO_4 (µmol/L)**	**SIL (µmol/L)**
Mean ± SD (n=31)	36.79 ± .23	2.57 ± .02	109.19 ± .54
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 6.58 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. (R. Goericke, SIO)

6) *Custom Laser Analytical Spectroscopic System*: Another 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)

7) *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. (R. Goericke, SIO)

8) *Laser Optical Plankton Counter (LOPC)*: The instrumentation was assessed for the response 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 this cruise the plankton collected in the port side of the routine bongo deployment was inspected 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. This work will allow estimates of the distribution and abundance of euphausiids, large copepods and pelagic tunicates (salps and doliolids) in the CalCOFI region. (D. Checkley, SIO)

9) *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)

10) *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)

11) *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)

12) *Thorium-234 Determination*: Th-234 is a decay product of U-238 with a half-life of 28 days; yet as opposed to Uranium, Thorium is particle reactive and readily binds to the surface of particles. Therefore a Th-234 concentration profile is an indirect measure of carbon export since rather than existing at equilibrium with U-238, Th-234 is removed via sinking particles. The procedure itself consists of A) the co-precipitation of Th-234 with

Manganese from 2L of seawater, B) Collection of the precipitate onto a filter (vac-filtration), and once dried C) measurement of the radioactive decay on a low-background beta counter. (T. Kelly, FSU)

13) 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 1611

1. CalCOFI Cruise 1611 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.

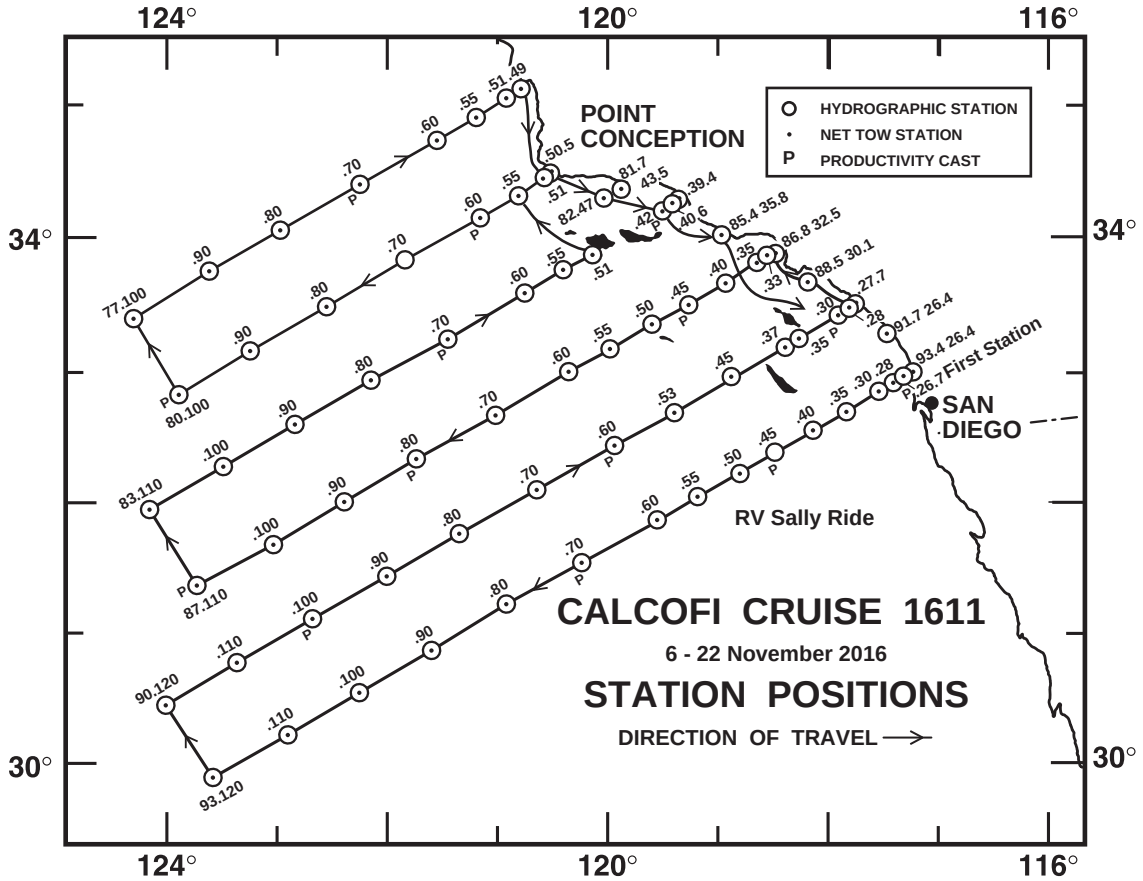

FIGURE 1

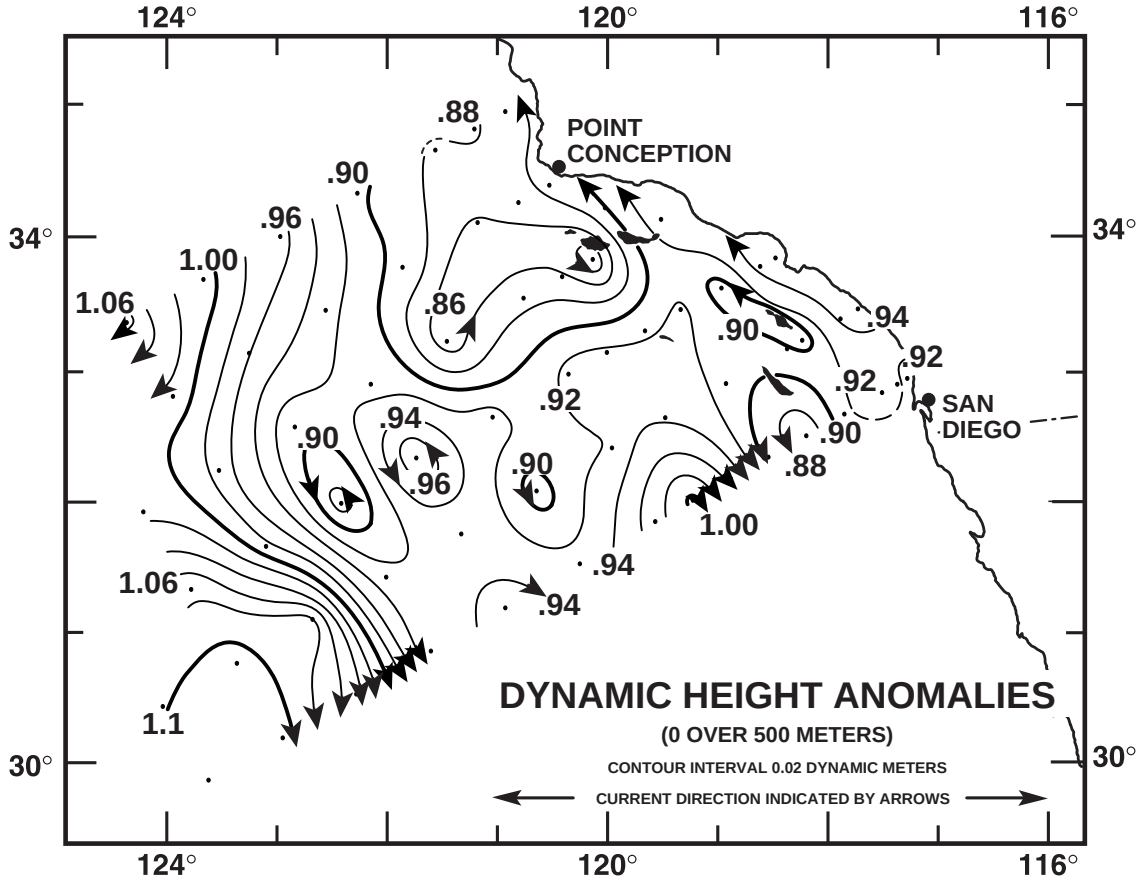

FIGURE 2

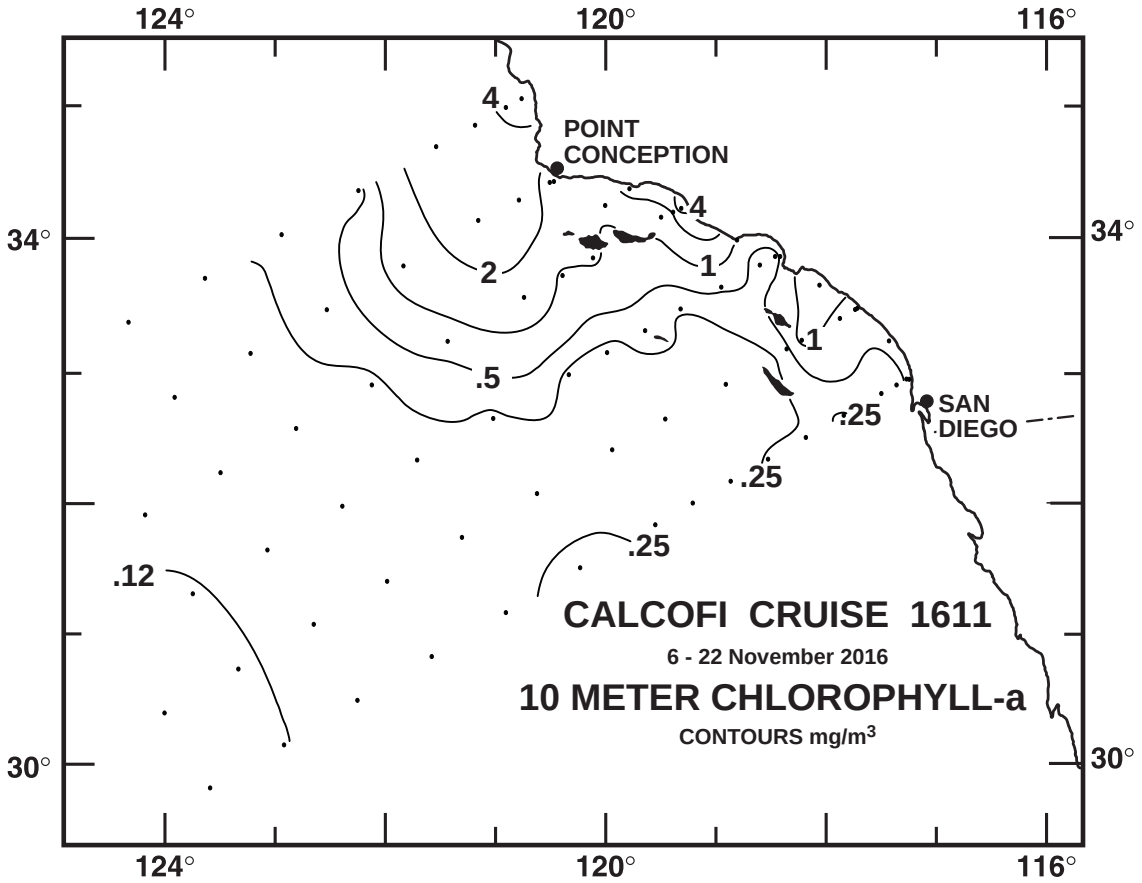

FIGURE 3A

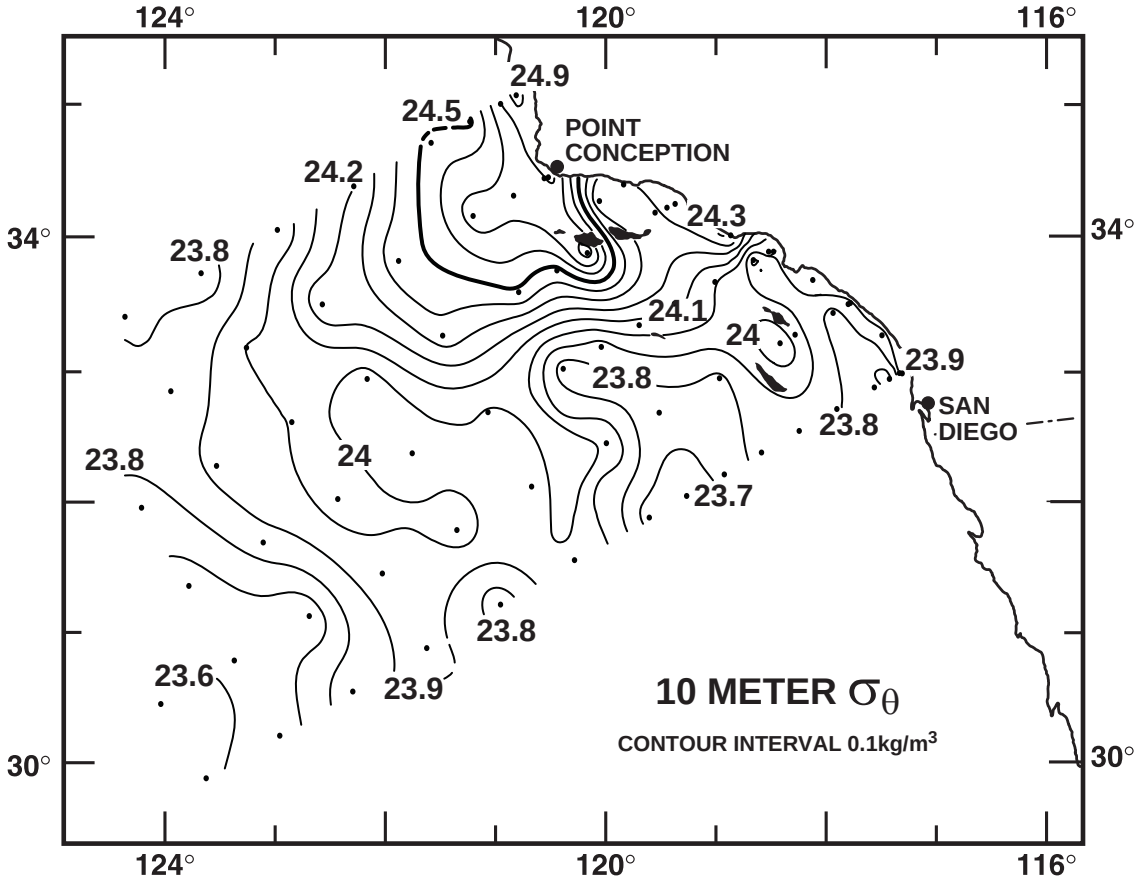

FIGURE 3B

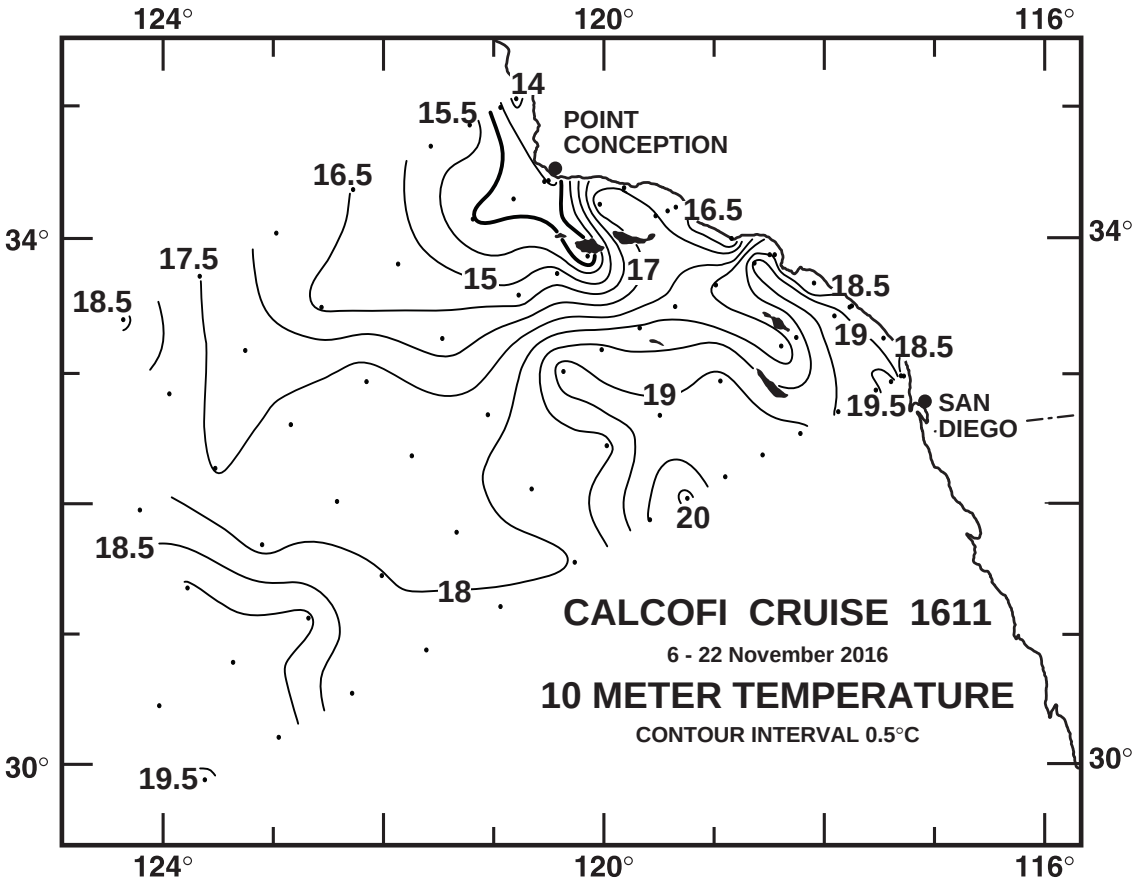

FIGURE 3C

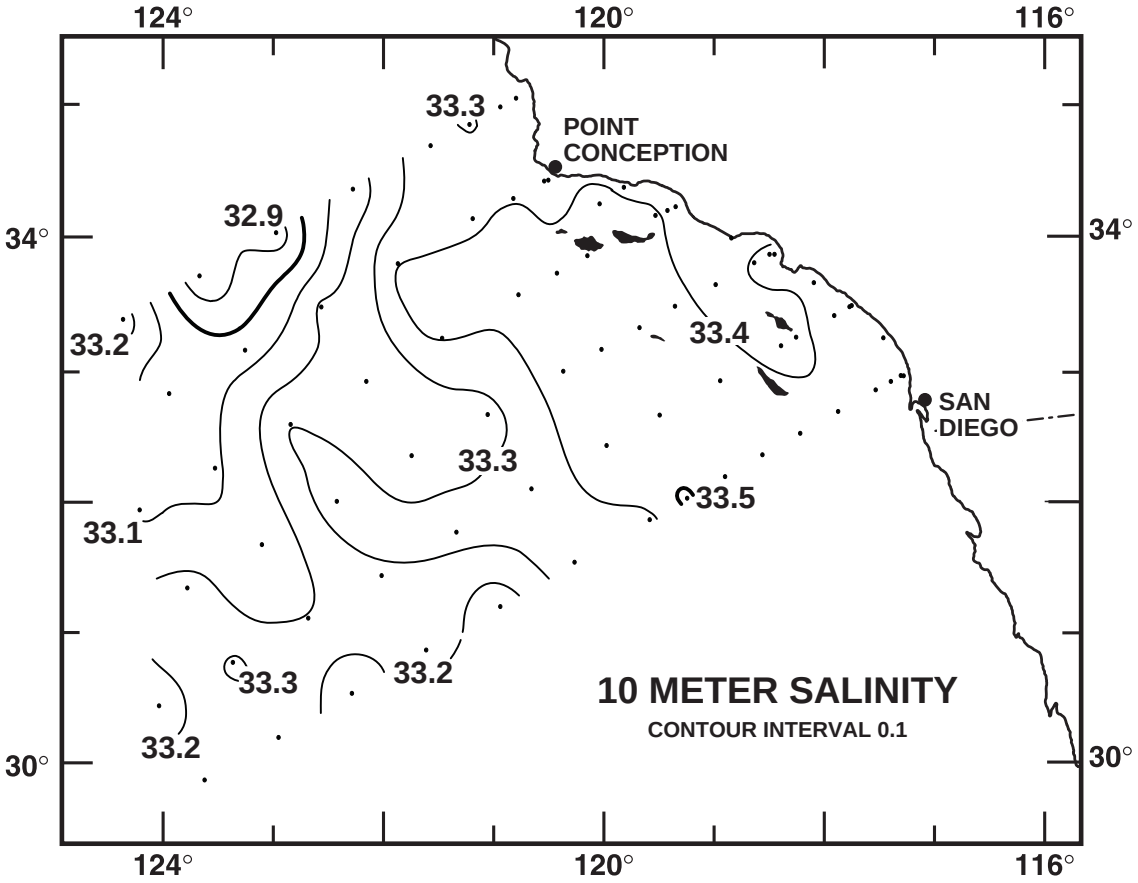

FIGURE 3D

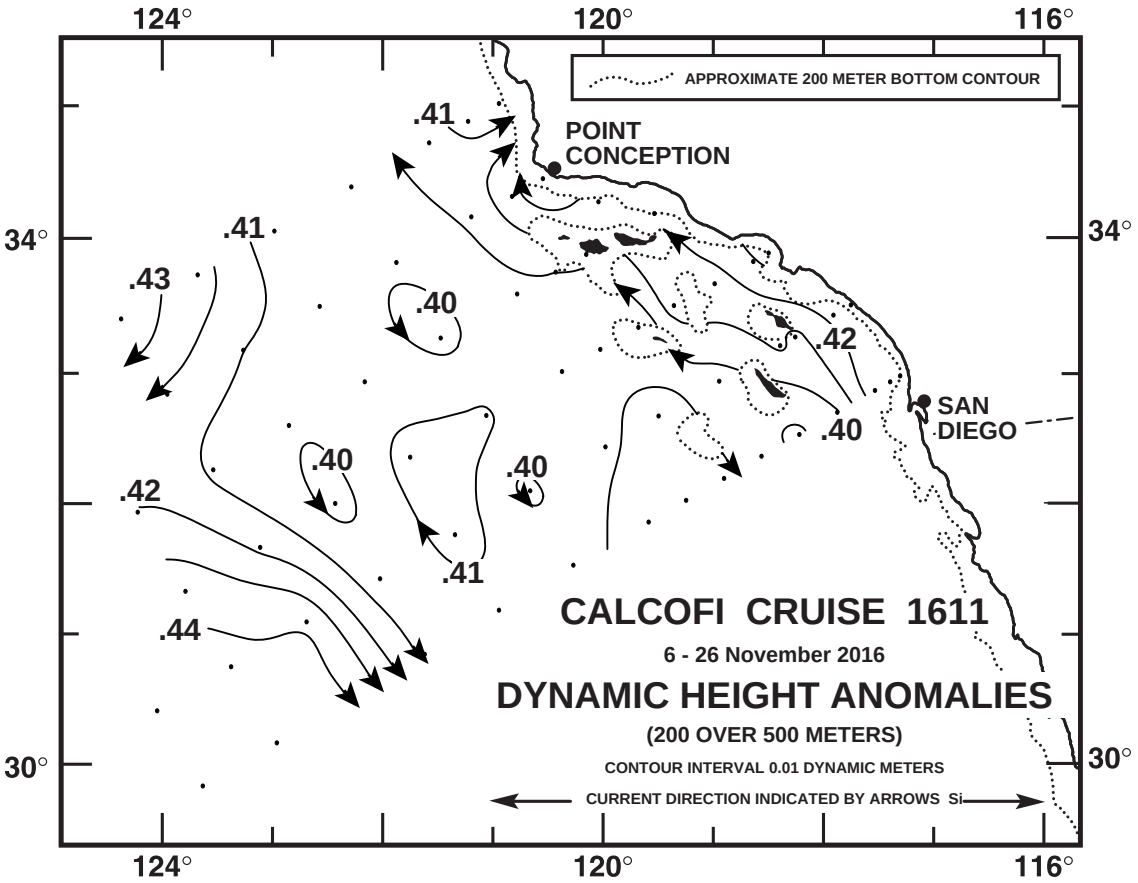

FIGURE 4A

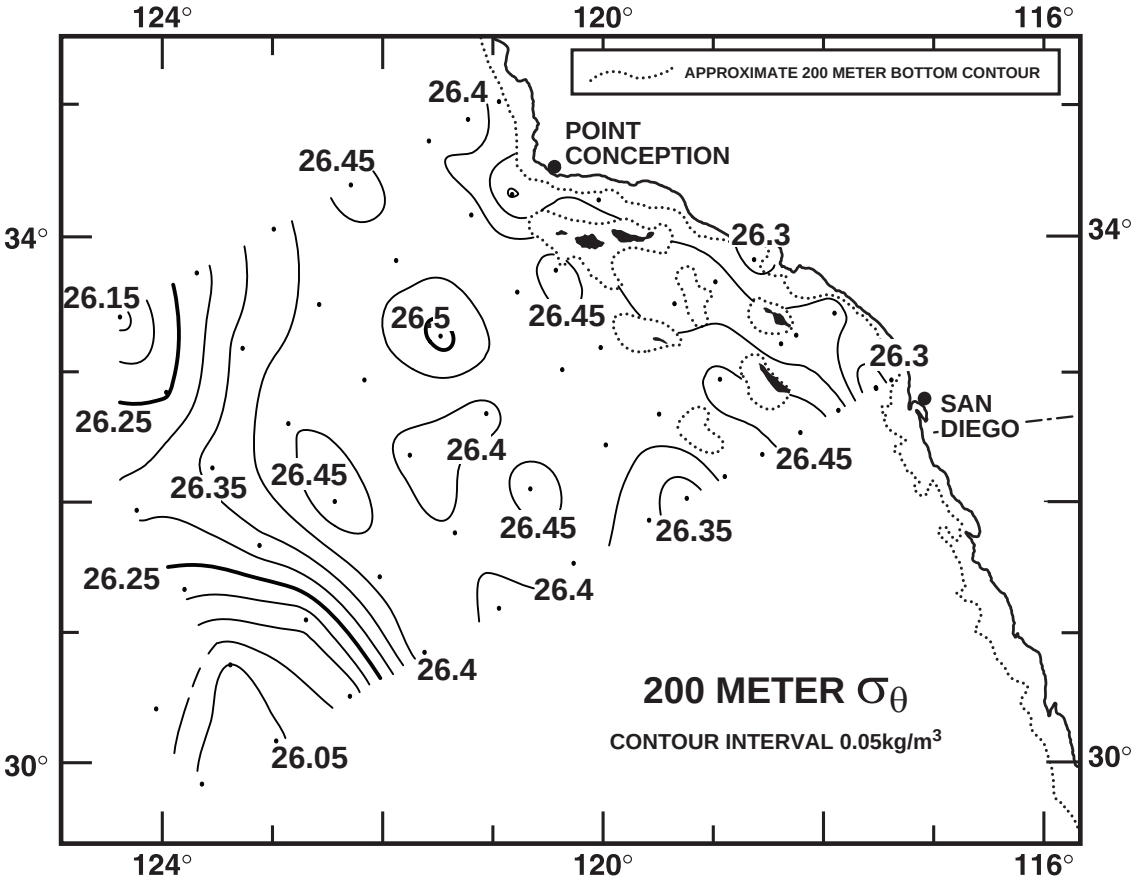

FIGURE 4B

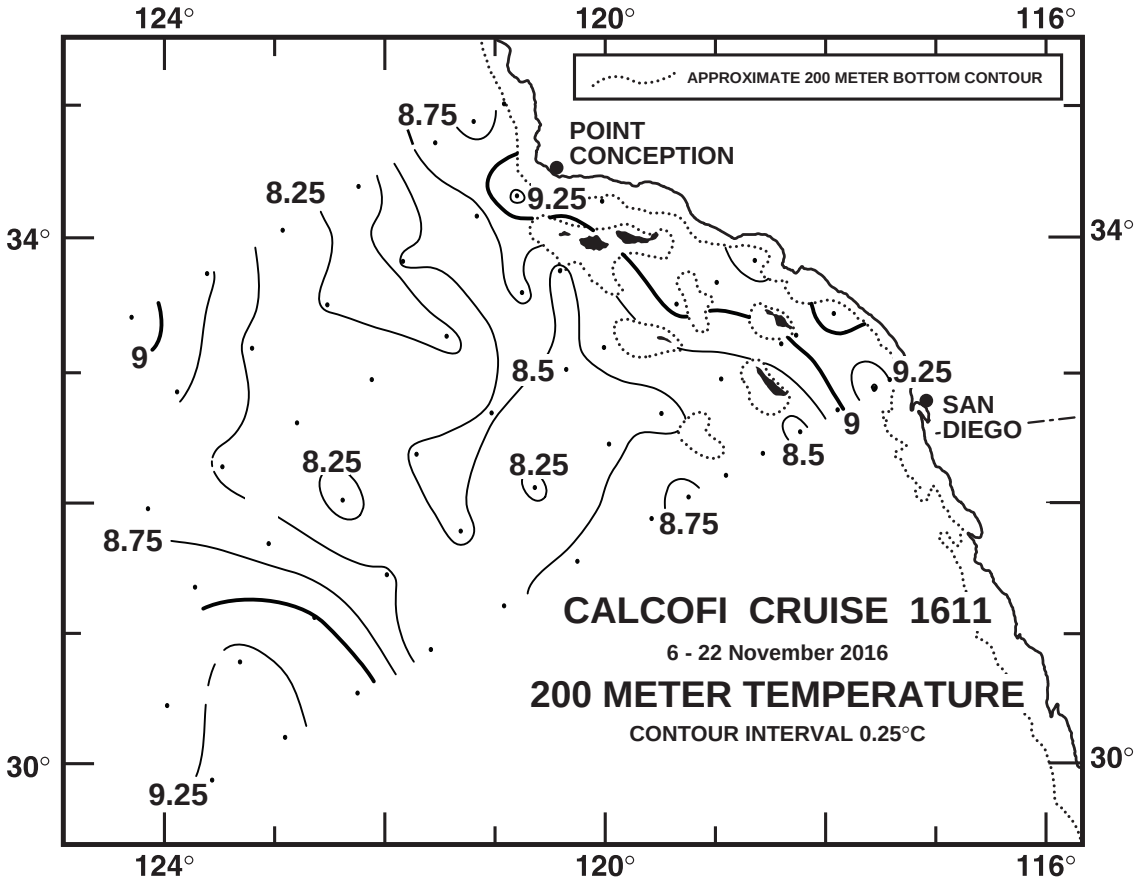

FIGURE 4C

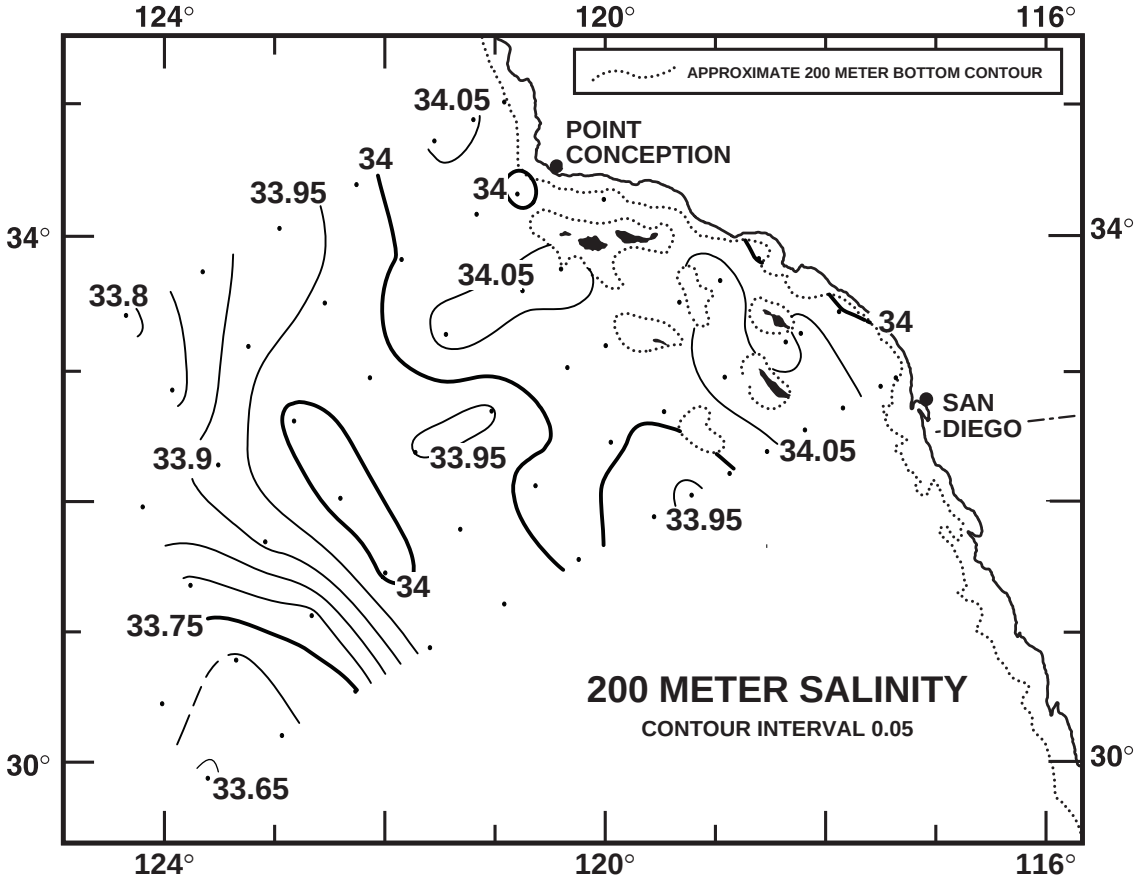

FIGURE 4D

CALCOFI CRUISE 1611

10 - 12 November 2016

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

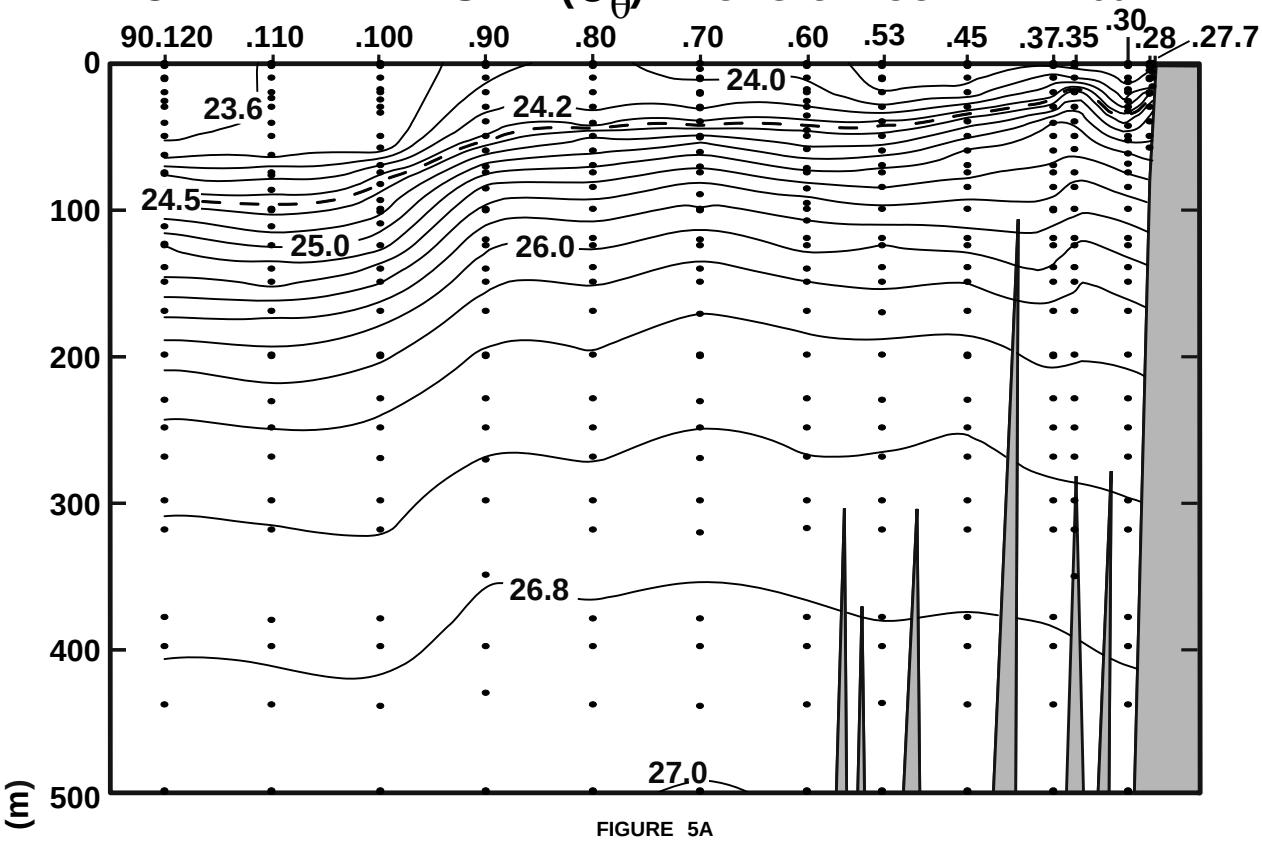

FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

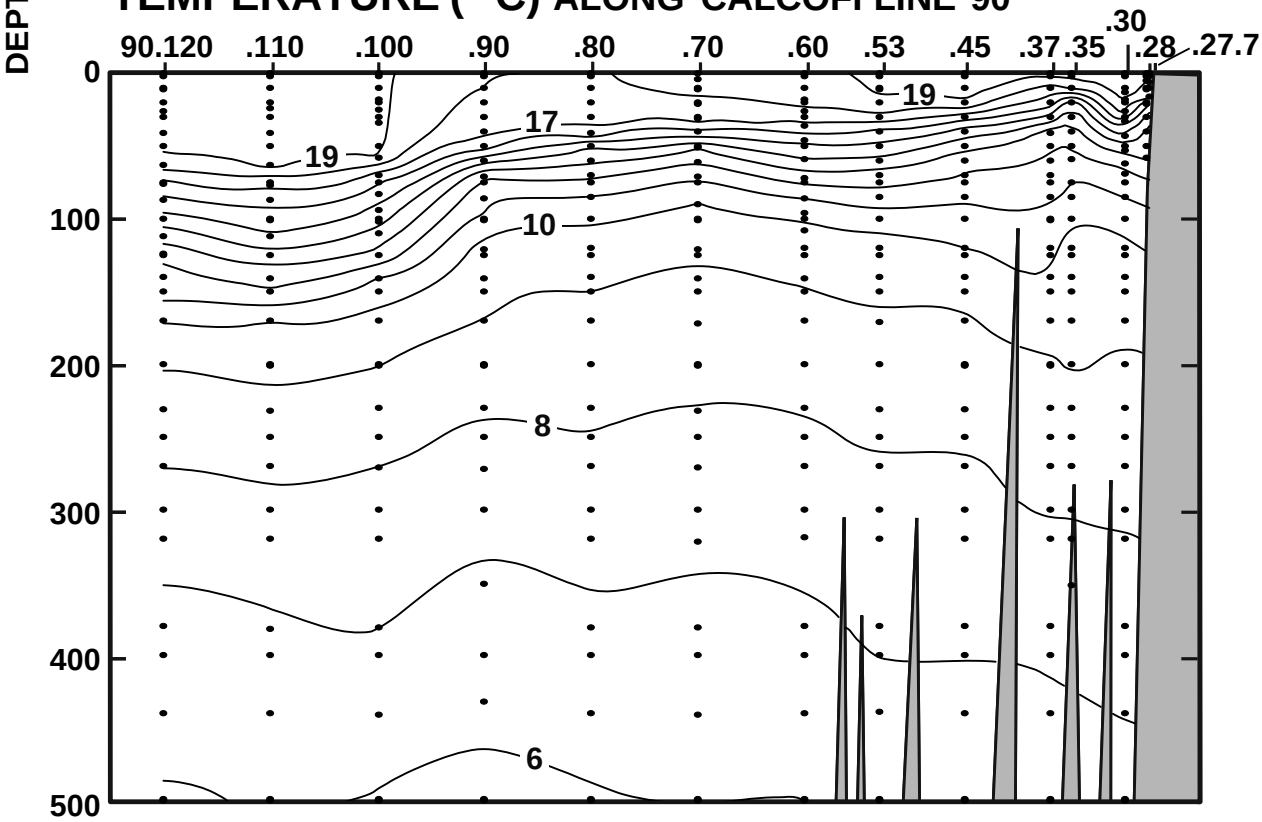

FIGURE 5B

CALCOFI CRUISE 1611

10 - 12 November 2016

SALINITY ALONG CALCOFI LINE 90

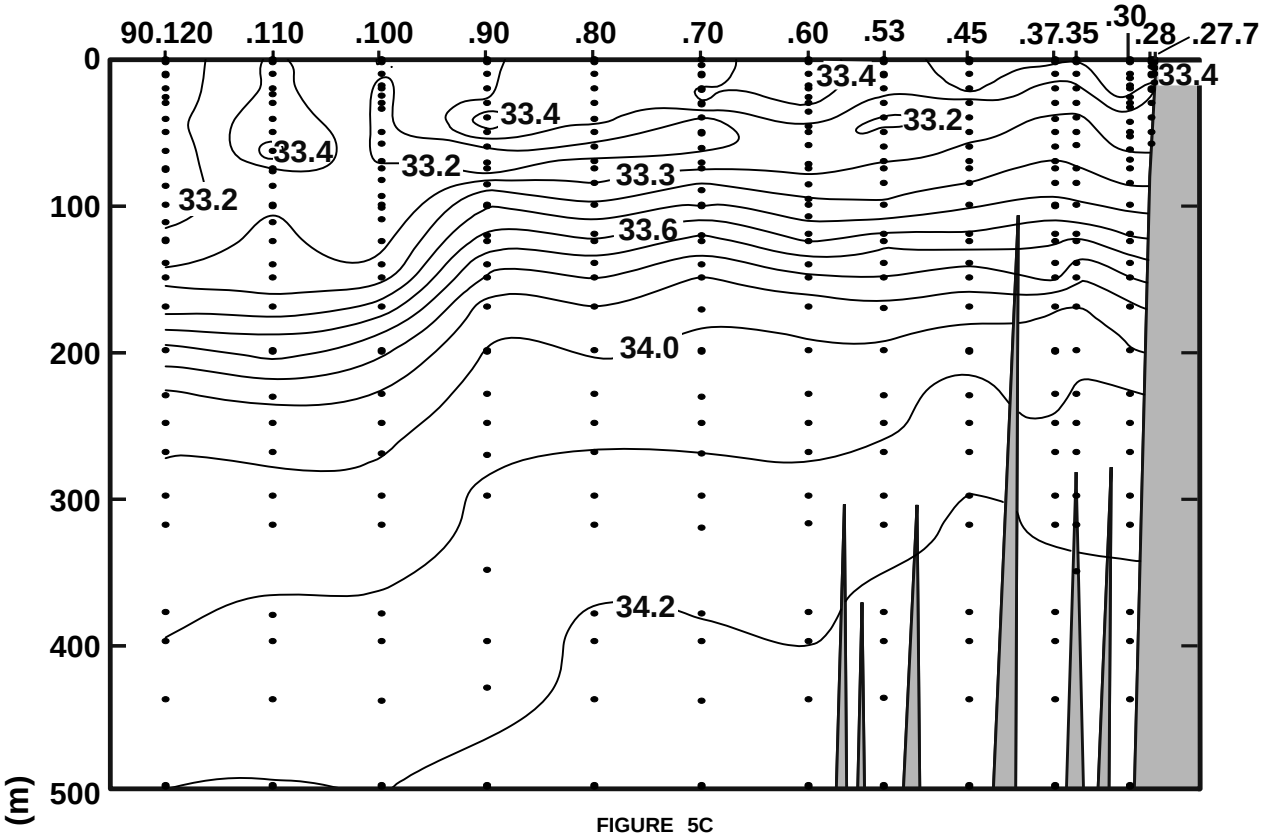

FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

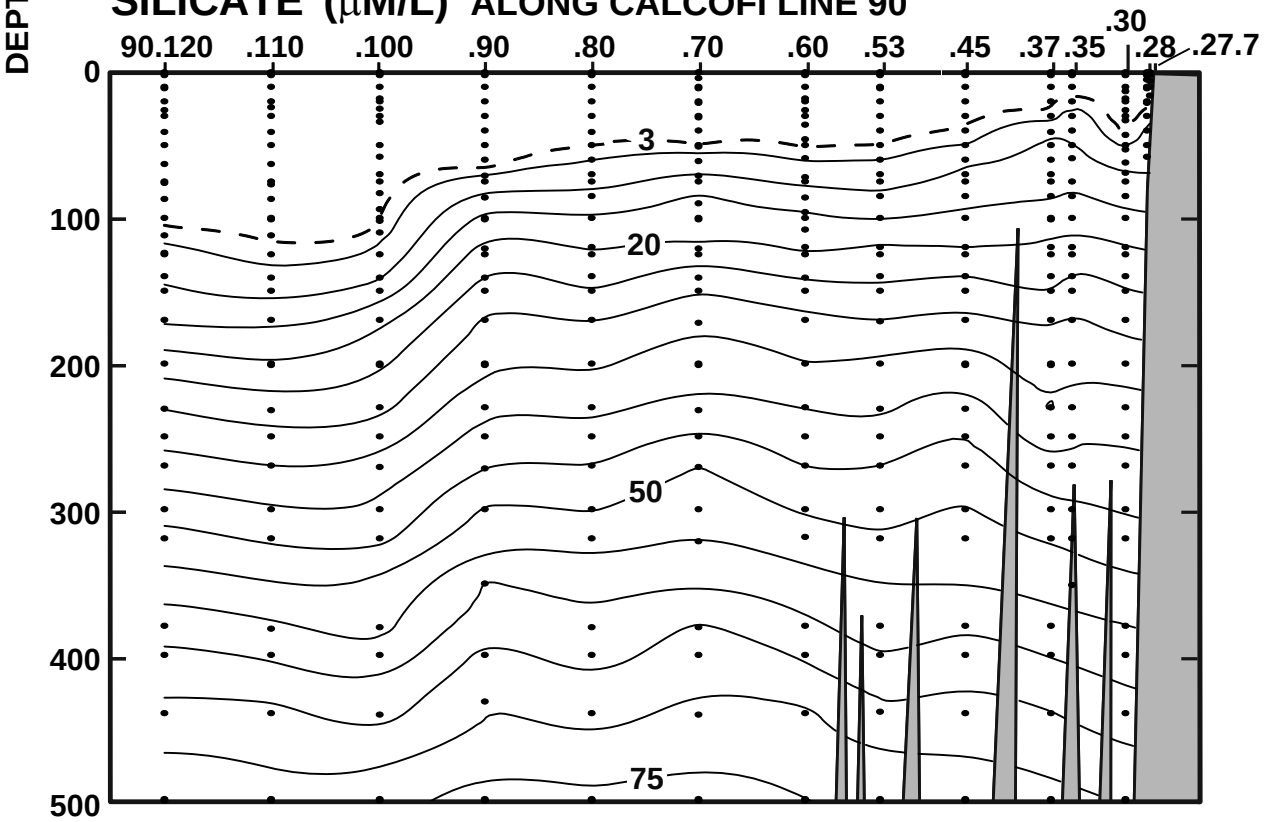

FIGURE 5D

CALCOFI CRUISE 1611

10 - 12 November 2016

NITRATE (μM/L) ALONG CALCOFI LINE 90

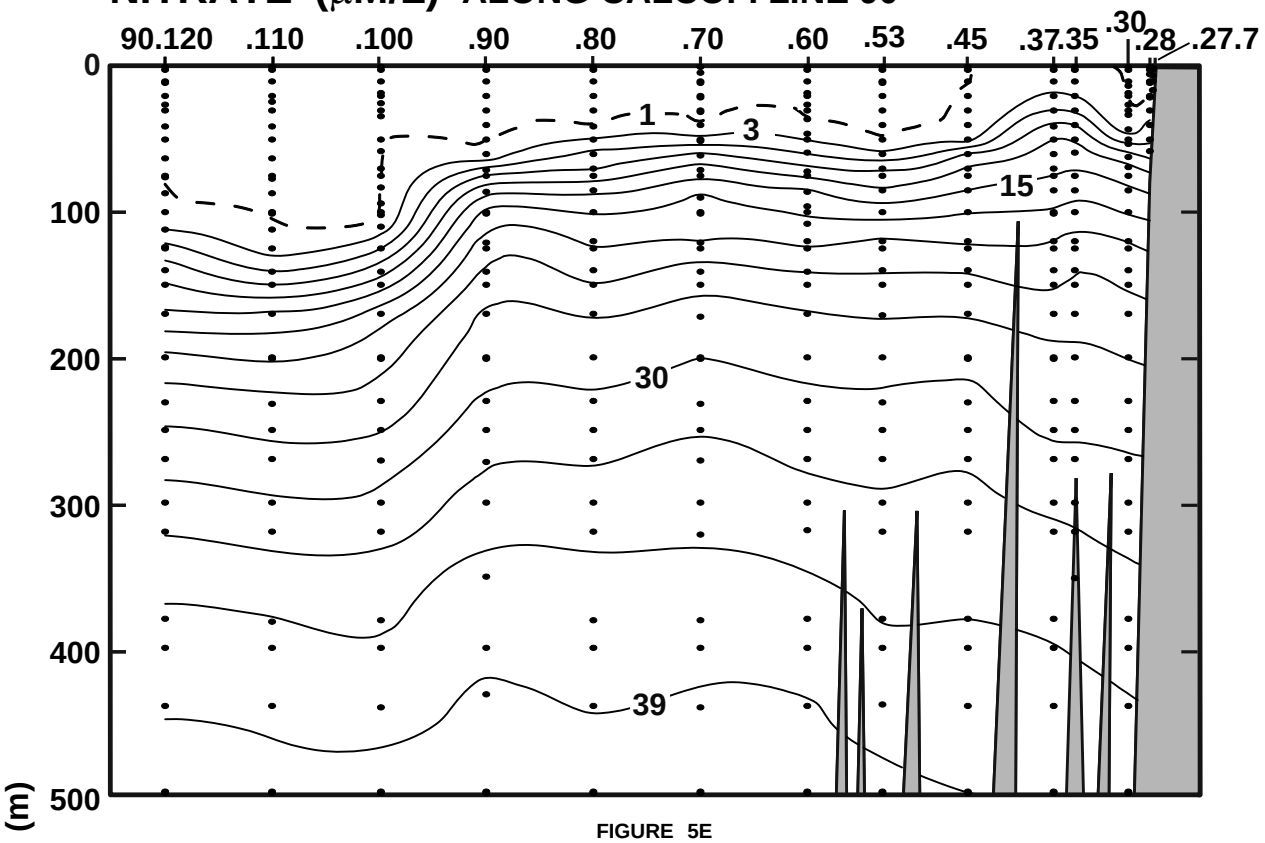

FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

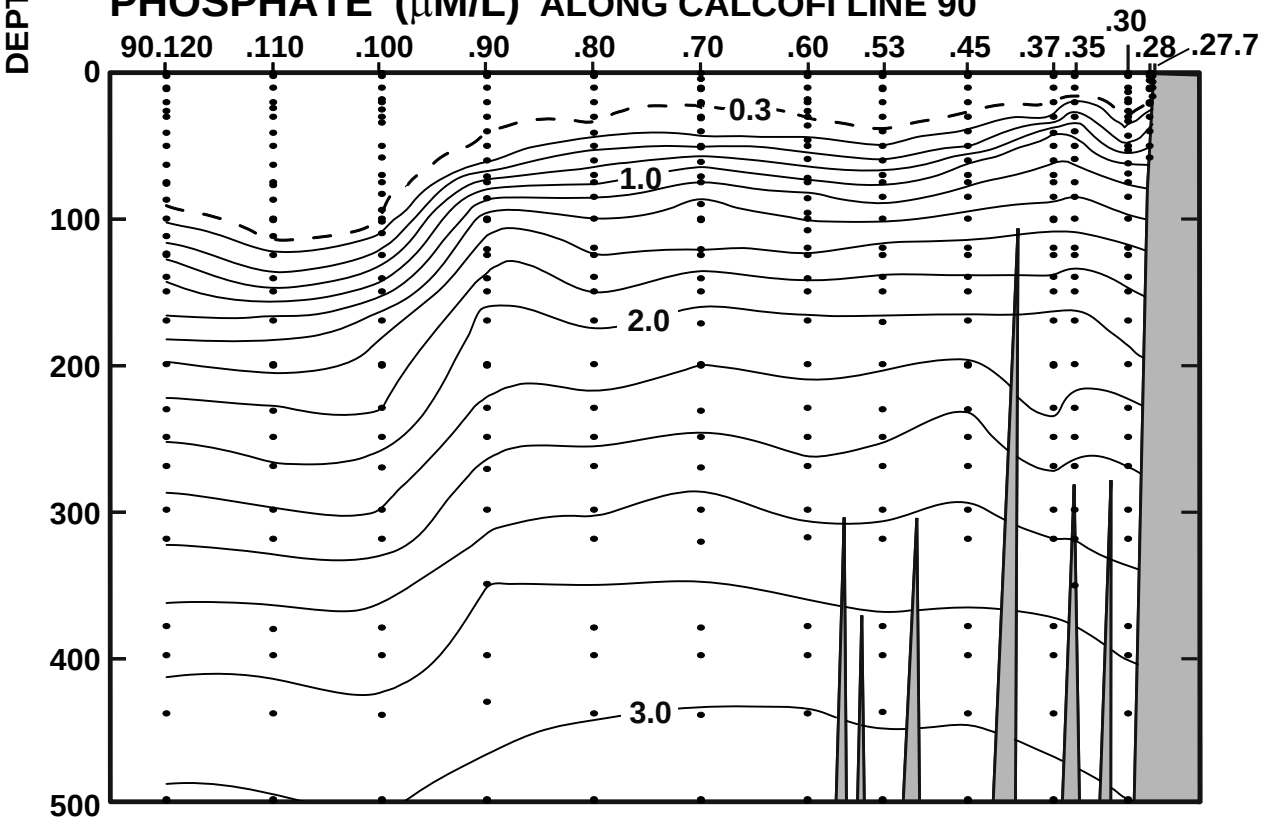

FIGURE 5F

CALCOFI CRUISE 1611

10 - 12 November 2016

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

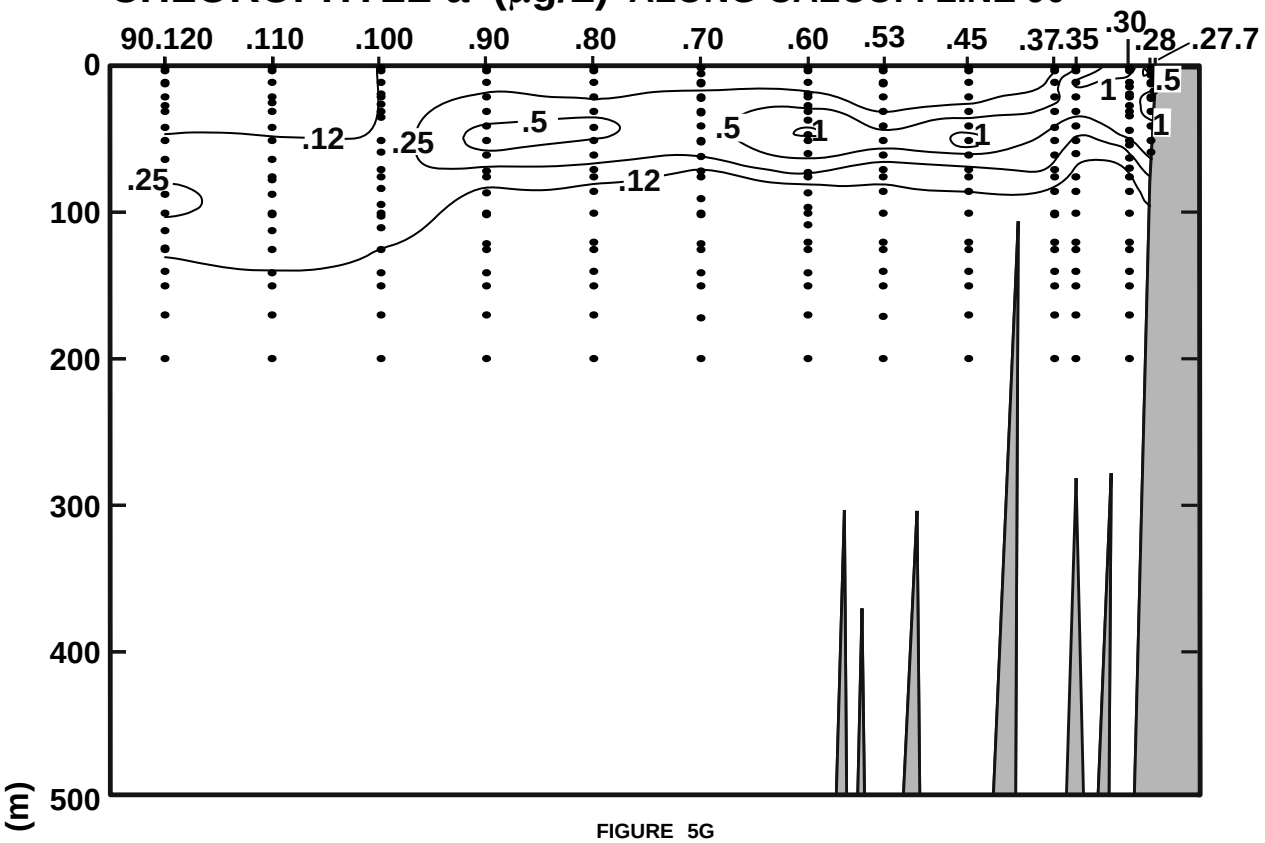

FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

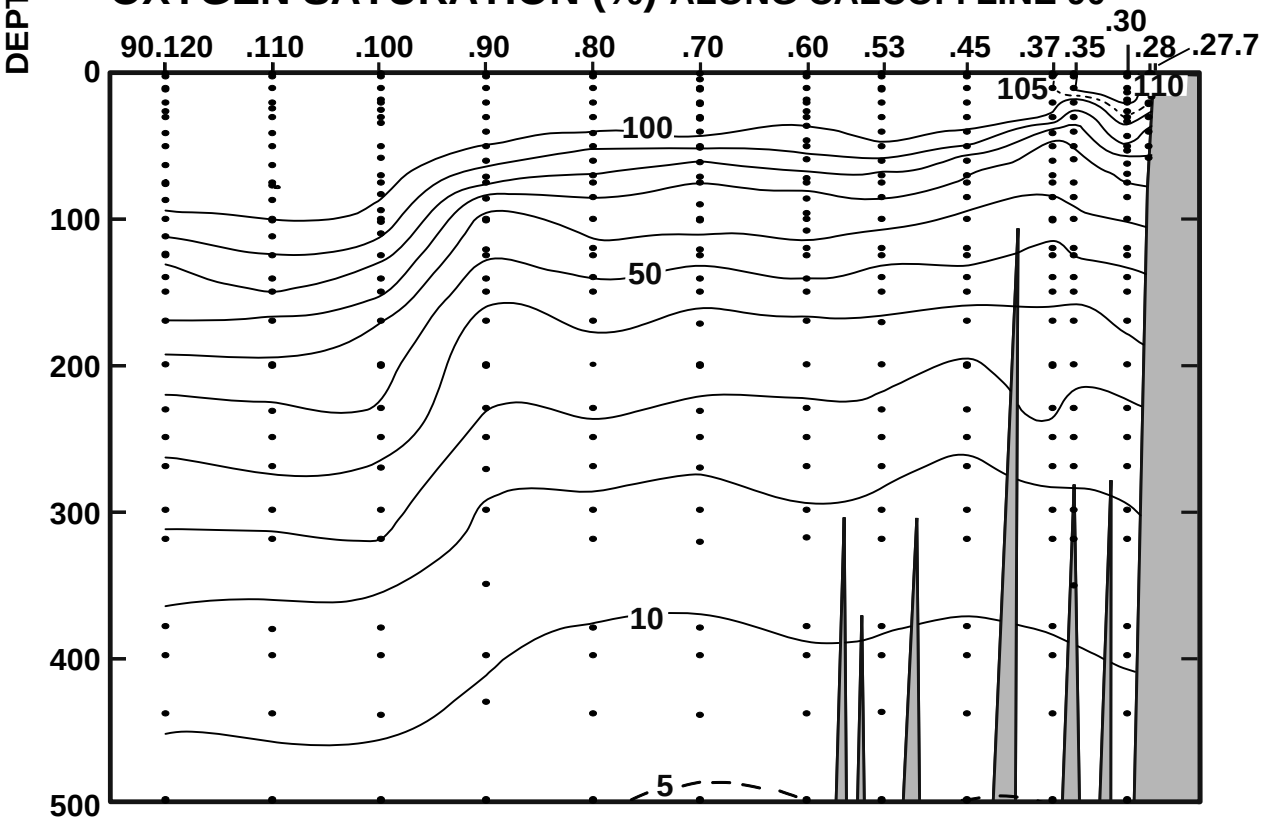

FIGURE 5H

CALCOFI CRUISE 1611

10 - 12 November 2016

OXYGEN (mL/L) ALONG CALCOFI LINE 90

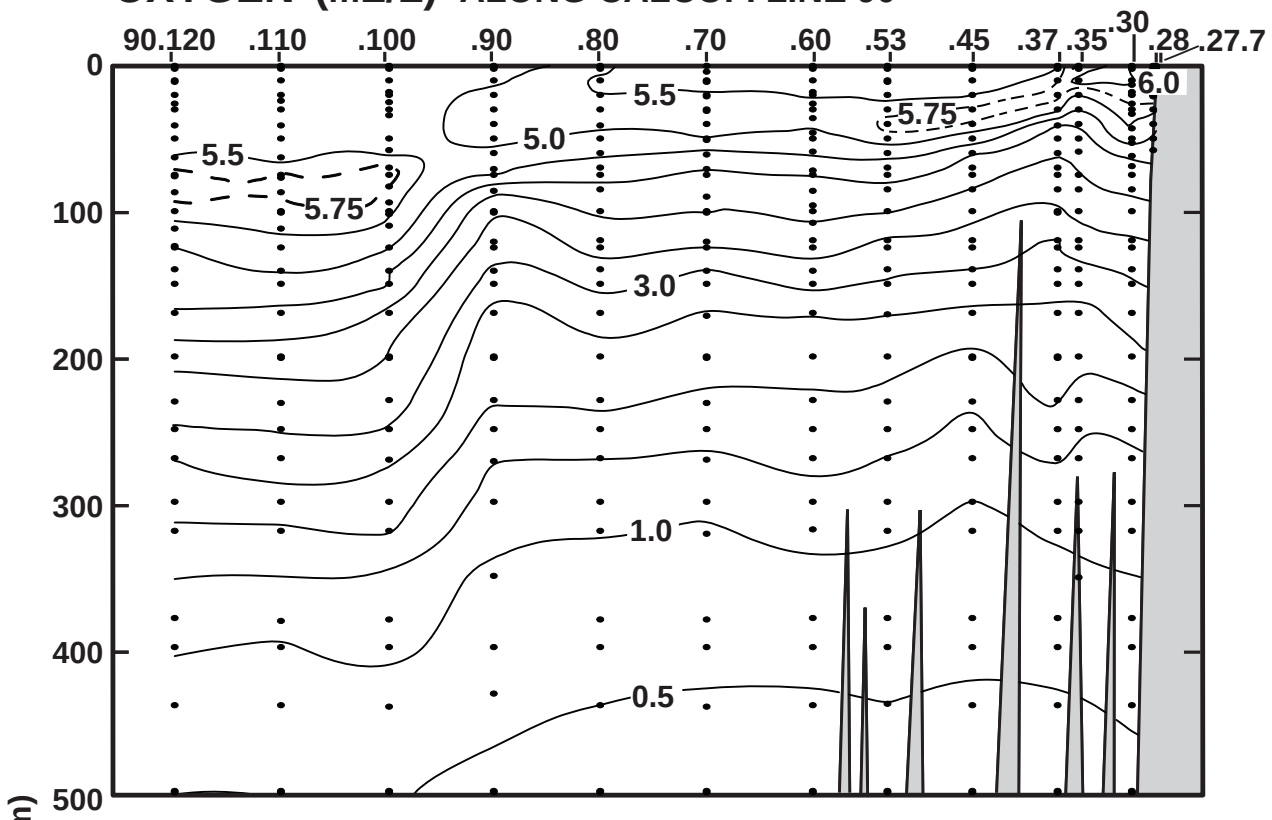

FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

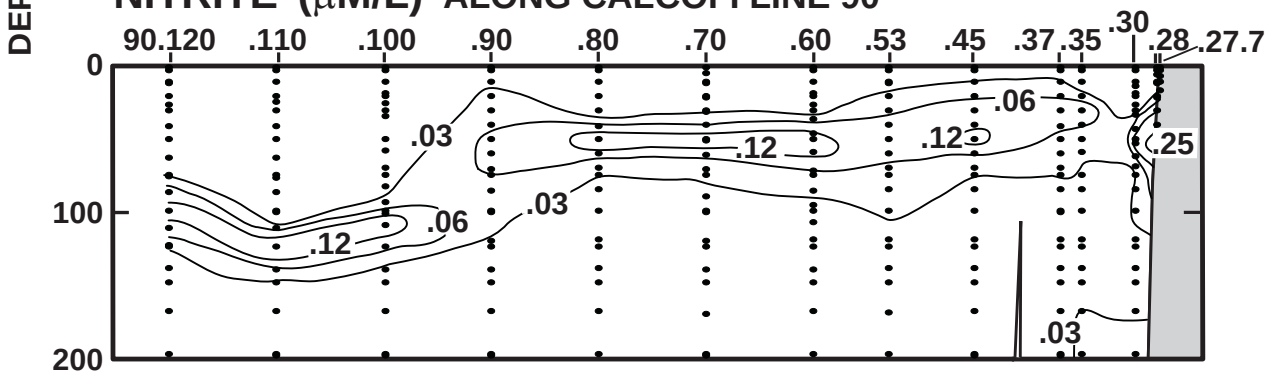

FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

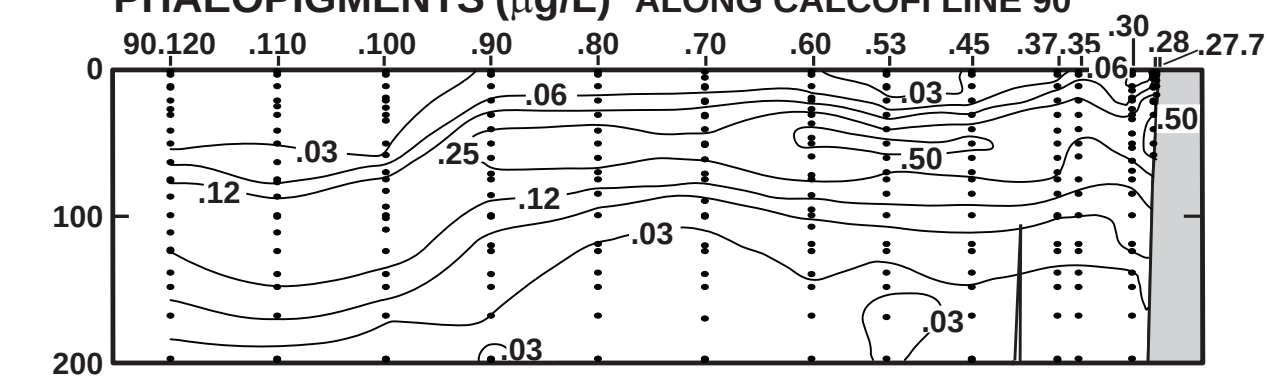

FIGURE 5K

PERSONNEL

CalCOFI Cruise 1611

SHIP'S CAPTAIN

Thomas DesJardins, R/V Sally Ride

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

Wilkinson, James (Chief Scientist)	Information Systems Analyst, SIO
Benner, Joel	Volunteer
Casares, Hanna	Volunteer
Checkley, David	Researcher, SIO
Dahl, Cassandra	Volunteer
Debich, Amanda	Marine Mammal Observer, MPL
Dovel, Shonna	Staff Research Associate, SIO
Gardner, Emily	Fishery Biologist, NMFS
Goericke, Ralf	Researcher, SIO
Kelly, Thomas	Grad Student, FSU
Manion, Sue	Fishery Biologist, NMFS
Miller, Melissa	Staff Research Associate, SIO
Overcash, Bryan	Fishery Biologist, NMFS
Reshef, Eadoh	Acoustic Technician, SIO
Roadman, Megan	Staff Research Associate, SIO
Rodgers-Wolgast, Jennifer	Staff Research Associate, SIO
Schuller, Daniel	Staff Research Associate, SIO
Vasquez del Mercado, Lanora	Fishery Biologist, NMFS
Whitaker, Katherine	Marine Mammal Observer, MPL
Wolgast, David	Staff Research Associate, SIO

RV SALLY RIDE CALCOFI CRUISE 1611 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	21/11/2016	0802 UTC	69 m	010 06 kn			1012.1 mb	14.8 C	14.0 C				075

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.95	13.95	33.279	24.869	307.3	0.000	5.61	245.2	95.6	4.8	0.53	3.9	0.19	0.28	4.98	0.93	0	
2	13.95	13.95	33.279	24.869	307.3	0.006	5.61	245.2	95.6	4.8	0.53	3.9	0.19	0.28	4.98	0.93	2	09
6	13.84	13.84	33.322	24.925	302.1	0.018	5.58	243.6	94.8	5.2	0.58	4.0	0.19	0.30	5.63	0.97	6	08
10	13.74	13.74	33.360	24.975	297.5	0.030	5.45	238.1	92.5	6.8	0.69	5.4	0.22	0.18	5.15	1.01	10	06
10	13.74	13.74	33.359	24.974	297.6	0.031											10	07
20	13.36	13.36	33.401	25.084	287.4	0.060	5.21	227.5	87.7	8.5	0.85	7.3	0.26	0.15	4.01	0.91	20	05
30	13.18	13.18	33.419	25.134	282.9	0.088	5.10	222.7	85.5	9.8	0.96	8.5	0.29	0.17	2.56	0.84	30	04
40	13.10	13.09	33.421	25.153	281.4	0.116	5.05	220.7	84.6	10.2	0.98	8.9	0.30	0.19	2.39	0.87	40	03
50	12.84	12.83	33.433	25.215	275.8	0.144	4.86	D211.7 D	80.9	11.5	1.03	9.5	0.30	0.10	1.85	0.95	50	02
62	12.70	12.69	33.440	25.248	272.9	0.177	4.67	203.9	77.5	12.8	1.22	10.7	0.31	0.19	1.38	1.66	63	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 1.3 N	120 55.1 W	21/11/2016	0525 UTC	238 m	010 08 kn			1012.0 mb	14.0 C	14.0 C				074

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.79	14.79	33.276	24.688	324.4	0.000	6.29	274.7	109.0	0.9	0.34	0.1	0.03	0.06	7.04	0.54	0	
2	14.79	14.79	33.276	24.688	324.5	0.007	6.29	274.7	109.0	0.9	0.34	0.1	0.03	0.06	7.04	0.54	2	16
10	14.58	14.58	33.352	24.793	314.8	0.032	5.68	248.2	98.1	1.8	0.43	1.8	0.13	0.31	4.91	0.50	10	14
10	14.58	14.58	33.351	24.792	314.9	0.033											10	15
20	14.08	14.08	33.377	24.918	303.2	0.063	5.47	238.8	93.4	3.9	0.56	3.8	0.19	0.27	3.91	0.56	20	13
30 ISL	13.44 D	13.44	33.418 D	25.081	288.0	0.090	5.21	D226.9 D	87.8	7.4	0.73	6.4	0.22	0.09	4.74	0.34	30	
31	13.40	13.39	33.414	25.087	287.4	0.096	5.27	229.9	88.7	7.7	0.75	6.7	0.22	0.07	4.82	0.32	31	12
41	13.08	13.08	33.419	25.155	281.3	0.124	4.94	215.9	82.8	9.7	0.86	8.6	0.25	0.06	2.71	0.49	41	11
50	12.94	12.94	33.421	25.184	278.7	0.149	4.79	209.3	80.0	10.4	0.99	9.7	0.25	0.14	1.97	0.45	50	10
60	11.65	11.64	33.442	25.448	253.7	0.176	3.79	165.3	61.5	14.2	1.37	15.9	0.07	0.00	0.37	0.24	60	09
70	11.28	11.27	33.476	25.542	245.1	0.201	3.63	158.6	58.5	15.5	1.46	17.2	0.05	0.00	0.17	0.21	71	08
75 ISL	11.08 D	11.07	33.498 D	25.595	240.1	0.211	3.59	D156.3 D	57.6	16.4	1.51	18.0	0.04	0.00	0.14	0.20	76	
85	10.74	10.73	33.543	25.691	231.2	0.236	3.34	145.8	53.2	18.2	1.60	19.5	0.04	0.00	0.09	0.18	86	07
100	10.28	10.27	33.642	25.848	216.5	0.270	3.08	134.5	48.6	21.3	1.75	21.8	0.03	0.00	0.06	0.14	101	06
120	9.87	9.86	33.732	25.988	203.6	0.312	2.81	122.6	43.9	23.9	1.86	23.7	0.03	0.00	0.05	0.15	121	05
125 ISL	9.67 D	9.65	33.773 D	26.054	197.4	0.321	2.76	D120.0 D	43.0	24.4	1.88	24.0	0.03	0.00	0.05	0.14	126	
140	9.46	9.44	33.795	26.159	187.8	0.351	2.70	117.8	41.9	25.7	1.94	24.9	0.03	0.00	0.04	0.10	141	04
150 ISL	9.43 D	9.42	33.871 D	26.170	186.9	0.369	2.49	D108.5 D	38.7	27.3	2.00	25.6	0.03	0.00	0.04	0.11	151	
170	9.23	9.21	33.937	26.255	179.2	0.407	2.27	98.9	35.0	30.6	2.12	27.1	0.05	0.00	0.03	0.14	171	03
200	8.79	8.77	34.010	26.383	167.6	0.459	2.05	89.5	31.4	34.8	2.23	28.7	0.05	0.00	0.02	0.12	202	02
230	8.43	8.41	34.076	26.491	157.8	0.508	1.71	74.6	26.0	41.3	2.41	30.6	0.08	0.08			232	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 11.8 W	21/11/2016	0202 UTC	558 m	330 14 kn			1010.7 mb	15.2 C	14.8 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	16.03	16.03	33.267	24.408	351.1	0.000	5.86	256.0	104.1	1.7	0.30	0.3	0.05	0.60	2.19	0.27	0	
2	16.03	16.03	33.267	24.409	351.2	0.007	5.86	256.0	104.1	1.7	0.30	0.3	0.05	0.60	2.19	0.27	2	21
10	15.84	15.84	33.284	24.466	346.0	0.035	5.81	253.8	102.8	1.2	0.28	0.0	0.04	0.00	2.04	0.25	10	19
10	15.84	15.84	33.279	24.461	346.4	0.034											10	20
20	15.22	15.22	33.334	24.642	329.6	0.069	5.78	252.3	101.0	1.8	0.33	0.5	0.13	0.07	1.59	0.37	20	18
30	13.62	13.61	33.187	24.868	308.3	0.101	5.42	236.9	91.7	3.0	0.54	4.1	0.24	0.00	0.87	0.46	30	17
40	13.01	13.00	33.208	25.005	295.4	0.131	5.21	227.4	86.9	4.5	0.67	6.2	0.15	0.00	0.69	0.27	40	16
50	12.28	12.28	33.205	25.145	282.4	0.160	5.00	218.5	82.2	6.3	0.82	8.7	0.12	0.00	0.46	0.26	50	15
60	11.52	11.51	33.218	25.298	268.0	0.187	4.68	204.3	75.6					0.00	0.17	0.19	60	14
70	11.25	11.25	33.267	25.384	260.0	0.214	4.47	195.3	71.9	10.6	1.14	13.8	0.05	0.00	0.10	0.17	71	13
75 ISL	11.13 D	11.12	33.304 D	25.435	255.3	0.225	4.32	D188.0 D	69.3	11.2	1.18	14.4	0.05	0.00	0.10	0.17	76	
86	11.07	11.06	33.329	25.466	252.6	0.255	4.19	183.0	67.2	12.4	1.26	15.6	0.04	0.00	0.09	0.16	87	12
100	10.62	10.61	33.453	25.642	236.2	0.289	3.75	163.6	59.5	16.2	1.48	18.9	0.03	0.00	0.06	0.11	101	11
120	10.12	10.11	33.580	25.828	218.9	0.334	3.30	144.3	51.9	19.7	1.65	21.3	0.03	0.00	0.03	0.10	121	10
125 ISL	10.02 D	10.00	33.634 D	25.888	213.3	0.344	3.23	D140.7 D	50.7	21.2	1.71	22.2	0.03	0.00	0.03	0.09	126	
140	9.57	9.55	33.776	26.074	195.9	0.376	2.77	120.7	43.0	25.5	1.89	24.9	0.00	0.00	0.02	0.06	141	09
150 ISL	9.25 D	9.23	33.892 D	26.217	182.4	0.394	2.65	D115.2 D	40.9	28.1	1.98	26.2	0.02	0.00	0.01	0.06	151	
171	8.80	8.78	33.997	26.370	168.2	0.432	2.12	92.4	32.4	33.6	2.17	28.8	0.00	0.00	0.01	0.04	172	08
200	8.57	8.54	34.060	26.457	160.5	0.480	1.83	79.9	27.9	37.6	2.28	30.3	0.00	0.00	0.01	0.03	202	07
231	8.08	8.05	34.104	26.566	150.6	0.528	1.57	68.7	23.7	41.8	2.41	31.7	0.00	0.00			233	06
250 ISL	7.97 D	7.94	34.118 D	26.594	148.2	0.556	1.56	D 68.0 D	23.5	44.9	2.51	32.7	0.02	0.00			252	
270	7.78	7.75	34.163	26.657	142.5	0.585	1.14	49.6	17.0	48.1	2.62	33.8	0.00	0.00			272	05
300 ISL	7.48 D	7.45	34.178 D	26.712	137.7	0.627	0.96	D 41.8 D	14.3	52.8	2.70	35.3	0.02	0.00			302	
320	7.23	7.20	34.166	26.739	135.3	0.655	0.90	39.5	13.4	56.0	2.75	36.2	0.00	0.00			323	04
380	6.93	6.90	34.193	26.802	130.1	0.734	0.73	31.9	10.7	61.0	2.86	37.3	0.00	0.00			383	03
400 ISL	6.70 D	6.67	34.207 D	26.845	126.2	0.761	0.65	D 28.4 D	9.5	63.8	2.91	37.8	0.02	0.00			403	
440	6.50	6.46	34.219	26.881	123.2	0.810	0.51	22.4	7.5	69.4	3.00	38.8	0.00	0.00			444	02
500 ISL	6.26 D	6.21	34.270 D	26.954	117.0	0.884	0.36	D 15.4 D	5.1	76.5	3.11	39.7	0.02	0.00			504	
515	6.16	6.11	34.277	26.974	115.3	0.900	0.32	14.0	4.6	78.2	3.14	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 SALLY RIDE CALCOFI CRUISE 1611 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 43.4 N	121 32.9 W	20/11/2016	2205 UTC	927 m	260 05 kn	290 04 10	1	1010.7 mb	18.1 C	16.3 C	08 m	7/8	SC	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	15.77	15.77	33.353	24.535	339.1	0.000	5.87	256.5	103.8	1.0	0.27	0.2	0.04	0.02	3.03	0.33	0	
3	15.77	15.76	33.353	24.535	339.2	0.010	5.87	256.5	103.8	1.0	0.27	0.2	0.04	0.00	3.03	0.33	3	20
10 ISL	15.75 D	15.74	33.355 D	24.541	338.8	0.029	5.83	D254.3	D103.1	0.3	0.30	0.0	0.03	0.00	3.15	0.34	10	
11	15.74	15.74	33.354	24.541	338.8	0.037	5.83	254.7	103.0	0.2	0.30	0.0	0.03	0.15	3.17	0.34	11	19
20	15.71	15.71	33.359	24.553	338.1	0.068	5.80	253.3	102.4	0.0	0.29	0.0	0.03	0.11	3.02	0.36	20	18
30	15.29	15.29	33.355	24.644	329.7	0.101	5.53	241.4	96.7	1.3	0.37	1.5	0.13	0.14	2.80	0.31	30	17
40	13.11	13.11	33.389	25.126	284.0	0.132	4.49	196.0	75.1	8.3	0.98	10.2	0.18	0.00	1.59	0.27	40	16
50	11.41	11.40	33.426	25.480	250.4	0.159	3.90	170.3	63.0	13.1	1.31	15.7	0.08	0.00	0.56	0.20	50	15
60	11.13	11.12	33.458	25.555	243.5	0.183	3.75	163.8	60.2	14.8	1.40	17.3	0.06	0.00	0.31	0.16	60	14
71	10.61	10.60	33.520	25.695	230.4	0.209	3.54	154.6	56.2	17.2	1.52	19.3	0.04	0.00	0.22	0.17	72	13
75 ISL	10.59 D	10.58	33.534 D	25.710	229.1	0.215	3.53	D153.6 D	56.0	17.7	1.54	19.6	0.05	0.00	0.19	0.17	76	
86	10.31	10.30	33.577	25.792	221.5	0.243	3.31	144.4	52.2	19.0	1.61	20.5	0.06	0.00	0.12	0.15	87	12
100	10.13	10.12	33.642	25.874	214.0	0.274	3.15	137.5	49.5	20.9	1.69	21.8	0.04	0.00	0.07	0.13	101	11
121	9.83	9.82	33.778	26.032	199.5	0.317	2.67	116.7	41.8	24.8	1.87	24.0	0.05	0.00	0.06	0.13	122	10
125 ISL	9.81 D	9.79	33.810 D	26.060	196.9	0.322	2.59	D112.8 D	40.5	25.3	1.88	24.3	0.04	0.00	0.05	0.12	126	
140	9.58	9.57	33.853	26.132	190.4	0.354	2.54	110.8	39.5	26.9	1.94	25.2	0.00	0.00	0.03	0.10	141	09
150 ISL	9.37 D	9.35	33.910 D	26.211	183.0	0.370	2.50	D108.7 D	38.7	28.2	1.99	25.8	0.02	0.00	0.03	0.08	151	
170	9.29	9.27	33.967	26.269	177.9	0.409	2.22	97.0	34.4	30.7	2.09	27.1	0.00	0.00	0.02	0.06	171	08
200 ISL	8.98 D	8.96	34.061 D	26.393	166.7	0.459	1.92	D 83.4 D	29.5	34.4	2.19	28.8	0.02	0.00	0.02	0.07	202	
201	8.98	8.96	34.059	26.392	166.9	0.463	1.93	84.2	29.7	34.6	2.19	28.8	0.00	0.00	0.02	0.07	203	07
232	8.55	8.52	34.113	26.503	156.8	0.513	1.55	67.8	23.7	39.4	2.36	30.9	0.00	0.00			234	06
250 ISL	8.48 D	8.45	34.152 D	26.544	153.2	0.539	1.39	D 60.4 D	21.1	41.6	2.43	31.6	0.02	0.00			252	
270	8.28	8.25	34.161	26.582	149.9	0.571	1.23	53.6	18.6	44.1	2.50	32.4	0.00	0.00			272	05
300 ISL	8.00 D	7.97	34.188 D	26.646	144.3	0.614	1.04	D 45.2 D	15.6	47.7	2.58	33.4	0.02	0.00			302	
321	7.82	7.79	34.215	26.693	140.2	0.645	0.94	41.0	14.1	50.3	2.64	34.1	0.00	0.00			324	04
380	7.21	7.18	34.230	26.793	131.3	0.725	0.66	28.7	9.7	58.4	2.81	36.3	0.00	0.00			383	03
400 ISL	7.05 D	7.02	34.239 D	26.823	128.7	0.752	0.62	D 26.8 D	9.1	60.8	2.85	36.9	0.01	0.00			403	
440	6.76	6.71	34.244	26.868	124.8	0.802	0.51	22.0	7.4	65.4	2.94	38.0	0.00	0.00			444	02
500 ISL	6.40 D	6.35	34.271 D	26.937	118.8	0.876	0.41	D 17.6 D	5.9	72.8	3.05	39.4	0.01	0.00			504	
515	6.21	6.17	34.284	26.972	115.6	0.893	0.33	14.6	4.8	74.7	3.08	39.8	0.00	0.00			519	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 23.4 N	122 15.0 W	20/11/2016	1700 UTC	4049 m	150 08 kn	240 09 10	2	1013.2 mb	17.9 C	16.0 C	24 m	8/8	SC	071

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.48	16.48	33.125	24.199	371.1	0.000	5.66	247.3	101.3	1.0	0.26	0.0	0.01	0.08	0.30	0.09	0	
2 A	16.48	16.47	33.125	24.199	371.2	0.007	5.66	247.3	101.3	1.0	0.26	0.0	0.00	0.08	0.30	0.09	2	24
9	16.48	16.48	33.128	24.201	371.2	0.033	5.69	248.6	101.9	0.9	0.26	0.0	0.00	0.17	0.31	0.08	9	22
9	16.48	16.48	33.125	24.198	371.5	0.033											9	23
10 ISL	16.48 D	16.48	33.126 D	24.198	371.5	0.034	5.69	248.1	101.8	0.9	0.26	0.0	0.01	0.00	0.31	0.08	10	
16 A	16.48	16.48	33.125	24.198	371.7	0.059	5.67	247.6	101.5	0.9	0.25	0.0	0.00	0.00	0.30	0.09	16	21
20 ISL	16.48 D	16.48	33.126 D	24.200	371.7	0.071	5.69	248.0	101.8	0.9	0.25	0.0	0.01	0.00	0.31	0.09	20	
22 A	16.48	16.48	33.126	24.200	371.8	0.082	5.70	248.8	102.0	0.9	0.25	0.0	0.00	0.00	0.32	0.09	22	20
30 ISL	16.42 D	16.42	33.147 D	24.230	369.2	0.108	5.69	248.2	101.8	0.9	0.25	0.0	0.01	0.00	0.35	0.10	30	
31	16.30	16.30	33.140	24.252	367.1	0.115	5.69	248.6	101.5	0.9	0.25	0.0	0.00	0.00	0.36	0.10	31	19
40 A	16.04	16.04	33.166	24.332	359.8	0.148	5.74	250.8	101.9	0.9	0.29	0.2	0.03	0.15	0.45	0.18	40	18
50 ISL	14.26 D	14.25	33.047 D	24.628	331.8	0.181	5.88	256.2	100.6	2.0	0.37	1.0	0.13	0.33	0.42	0.23	50	
51	14.19	14.18	33.062	24.654	329.3	0.186	5.89	257.4	100.7	2.1	0.38	1.1	0.14	0.35	0.42	0.24	51	16
52	13.58	13.57	33.067	24.784	316.9	0.189											52	17
65	11.61	11.61	33.079	25.173	280.0	0.228	5.13	224.1	83.1	5.3	0.81	8.1	0.03	0.00	0.22	0.21	66	15
74 A	11.08	11.07	33.246	25.399	258.7	0.252	4.56	D198.8 D	73.1	10.4	1.16	14.2	0.00	0.00	0.07	0.09	75	14
75 ISL	11.01 D	11.00	33.254 D	25.418	260.9	0.254	4.56	D198.7 D	73.0	10.8	1.18	14.5	0.02	0.00	0.06	0.09	76	
82 A	10.66	10.65	33.324	25.534	246.0	0.272	4.27	186.5	67.8	13.6	1.31	16.7	0.00	0.09	0.04	0.06	83	13
92	10.19	10.20	33.390 D	25.664	240.3	0.297	4.01	D174.7 D	63.1								93	12
100 ISL	9.78 D	9.77	33.485 D	25.810	220.0	0.315	3.77	D164.1 D	58.8	18.2	1.53	20.2	0.02	0.00	0.02	0.04	101	
101	9.88	9.87	33.478	25.787	222.2	0.317	3.84	167.8	60.1	18.6	1.55	20.5	0.00	0.00	0.02	0.04	102	11
120	9.22	9.20	33.590	25.984	203.8	0.357	3.60	157.1	55.4	22.5	1.68	22.8	0.00	0.00	0.01	0.05	121	10
125 ISL	9.08 D	9.06	33.658 D	26.060	196.7	0.369	3.41	D148.5 D	52.4	23.5	1.72	23.4	0.01	0.00	0.01	0.04	126	
140	8.92	8.90	33.751	26.158	187.6	0.396	3.16	138.1	48.5	26.5	1.84	25.2	0.00	0.00	0.00	0.03	141	09
150 ISL	8.83 D	8.81	33.793 D	26.206	183.3	0.416	3.02	D131.4 D	46.2	28.2	1.89	26.0	0.01	0.00	0.00	0.03	151	
171	8.55	8.53	33.899	26.332	171.7	0.452	2.78	121.3	42.3	31.8	1.98	27.6	0.00	0.00	0.00	0.03	172	08
200	7.98	7.96	33.984	26.485	157.5	0.500	2.41	105.3	36.2	37.1	2.13	29.7	0.00	0.00	0.00	0.03	202	07
230	7.62	7.60	34.016	26.563	150.5	0.546	2.14	93.6	32.0	43.6	2.28	31.8	0.00	0.00			232	06
250 ISL	7.20 D	7.19	34.006 D	26.614	149.3	0.580	2.20	D 95.5 D	32.4	46.7	2.33	32.6	0.01	0.00			252	
270	6.89	6.87	34.000	26.653	142.3	0.604	2.09	91.2	30.6	49.9	2.38	33.5	0.00	0.00			272	05
300 ISL	6.58 D	6.55	34.021 D	26.712	137.0	0.652	1.71	D 74.5 D	24.9	55.1	2.54	35.4	0.01	0.00			302	
322	6.43	6.40	34.051	26.755	133.1	0.676	1.38	60.1	19.9	59.0	2.65	36.9	0.00	0.00			325	04
380	6.17	6.13	34.129	26.852	124.7	0.751	0.77	33.7	11.1	68.0	2.90	39.3	0.00	0.00			383	03
400 ISL	5.94 D	5.91	34.136 D	26.886	121.5	0.784	0.68	29.8	9.8	70.2	2.95	39.7	0.01	0.00			403	
440	5.89	5.85	34.180	26.929	118.0	0.823	0.51	22.1	7.3	74.6	3.04	40.6	0.00	0.00			444	02
500 ISL	5.59 D	5.54	34.210 D	26.990	112.8	0.902	0.36	15.5	5.1	81.7	3.14	41.6	0.01	0.00			504	
516	5.51	5.46	34.238	27.022	109.8	0.909	0.32	13.8	4.5	83.6	3.17	41.9	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 76.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 3.3 N	122 56.5 W	20/11/2016	1010 UTC	4275 m	180 02 kn			1012.5 mb	17.5 C	16.0 C				070

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN ㎛mol/Kg	OXY PCT	SIO3* ㎛M	PO4* ㎛M	NO3* ㎛M	NO2* ㎛M	NH4* ㎛M	CHL-A ㎍g/L	PHAEO ㎍g/L	PRES db	SAMP
0	16.78	16.78	32.820	23.894	400.2	0.000	5.66	247.1	101.7	1.6	0.23	0.1	0.02	0.00	0.27	0.08	0	
3	16.78	16.78	32.820	23.894	400.3	0.012	5.66	247.1	101.7	1.6	0.23	0.1	0.00	0.00	0.27	0.08	3	20
10	16.80	16.79	32.828	23.897	400.2	0.040	5.63	245.9	101.2	0.9	0.23	0.0	0.00	0.00	0.23	0.08	10	19
20 ISL	16.80 D	16.79	32.835 D	23.903	400.0	0.074	5.64	D246.1	D101.4	0.8	0.22	0.0	0.01	0.00	0.26	0.08	20	
26	16.74	16.74	32.854	23.930	397.6	0.104	5.66	247.1	101.6	0.8	0.22	0.0	0.00	0.00	0.28	0.08	26	18
30 ISL	16.72 D	16.72	32.878 D	23.954	395.5	0.115	5.67	D247.2	D101.8	0.8	0.22	0.0	0.01	0.00	0.29	0.08	30	
41	16.70	16.69	32.897	23.976	393.8	0.163	5.68	248.2	102.0	0.7	0.23	0.0	0.00	0.00	0.30	0.10	41	17
50	16.61	16.60	32.921	24.015	390.4	0.199	5.72	249.7	102.5	0.7	0.23	0.0	0.00	0.00	0.34	0.11	50	16
63	14.90	14.89	33.046	24.492	345.2	0.246	5.99	261.7	103.9	0.8	0.32	0.6	0.05	0.20	0.43	0.23	64	15
74	13.43	13.42	33.089	24.831	313.1	0.283	5.78	252.6	97.3	2.0	0.42	1.8	0.33	0.26	0.34	0.29	75	14
75 ISL	13.16 D	13.15	33.073 D	24.874	309.0	0.282	5.76	D251.2	D 96.4	2.1	0.43	1.9	0.33	0.00	0.33	0.29	76	
87	12.05	12.04	33.043	25.064	291.0	0.322	5.61	245.1	91.7	3.1	0.49	3.4	0.39	0.00	0.24	0.26	88	13
100	11.20	11.18	33.162	25.314	267.4	0.358	5.08	221.9	81.6	6.2	0.81	9.1	0.04	0.00	0.11	0.12	101	12
111	10.64	10.63	33.290	25.512	248.8	0.386	4.71	205.5	74.7	10.2	1.11	13.9	0.03	0.00	0.05	0.08	112	11
125	10.02	10.00	33.428	25.727	228.5	0.420	4.19	183.0	65.7	15.6	1.39	18.3	0.00	0.00	0.03	0.06	126	10
140	9.45	9.44	33.549	25.915	210.9	0.453	3.69	161.1	57.2	20.2	1.61	21.7	0.00	0.00	0.01	0.05	141	09
150 ISL	9.27 D	9.26	33.648 D	26.021	201.0	0.470	3.40	D148.2	D 52.5	22.2	1.68	22.8	0.02	0.00	0.01	0.05	151	
170	8.90	8.88	33.788	26.219	182.5	0.512	3.14	137.3	48.2	26.4	1.81	25.2	0.00	0.00	0.00	0.04	171	08
200	8.36	8.34	33.904	26.366	169.0	0.565	2.79	121.8	42.3	31.5	1.97	27.6	0.00	0.00	0.00	0.03	202	07
229	7.89	7.87	33.992	26.505	156.1	0.612	2.37	103.3	35.5	38.7	2.16	30.3	0.00	0.00			231	06
250 ISL	7.59 D	7.57	34.010 D	26.563	150.9	0.641	2.21	D 96.0	D 32.9	42.3	2.25	31.6	0.01	0.00			252	
270	7.32	7.29	34.020	26.610	146.6	0.674	1.99	86.7	29.4	45.7	2.33	32.8	0.00	0.00			272	05
300 ISL	7.05 D	7.02	34.043 D	26.666	141.7	0.715	1.67	D 72.7	D 24.6	50.6	2.47	34.4	0.01	0.00			302	
320	6.84	6.81	34.058	26.706	138.1	0.745	1.45	63.5	21.3	53.9	2.56	35.6	0.00	0.00			323	04
380	6.25	6.22	34.107	26.824	127.4	0.825	0.90	39.3	13.0	64.2	2.82	38.4	0.00	0.00			383	03
400 ISL	6.19 D	6.15	34.118 D	26.841	126.0	0.849	0.84	D 36.3	D 12.0	67.4	2.87	39.1	0.01	0.00			403	
440	5.77	5.73	34.131	26.904	120.2	0.899	0.69	30.3	9.9	73.8	2.97	40.6	0.00	0.00			444	02
500 ISL	5.20 D	5.16	34.143 D	26.982	113.0	0.969	0.59	D 25.8	D 8.4	82.8	3.07	41.9	0.01	0.00			504	
518	5.13	5.09	34.158	27.003	111.2	0.989	0.51	22.4	7.2	85.6	3.10	42.4	0.00	0.00			522	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 43.3 N	123 38.0 W	20/11/2016	0429 UTC	4285 m	200 10 kn			1013.2 mb	17.8 C	16.4 C				069

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN ㎛mol/Kg	OXY PCT	SIO3* ㎛M	PO4* ㎛M	NO3* ㎛M	NO2* ㎛M	NH4* ㎛M	CHL-A ㎍g/L	PHAEO ㎍g/L	PRES db	SAMP
0	17.51	17.51	32.811	23.715	417.3	0.000	5.52	241.2	100.7	1.4	0.21	0.0	0.01	0.00	0.18	0.04	0	
3	17.51	17.51	32.811	23.715	417.4	0.013	5.52	241.2	100.7	1.4	0.21	0.0	0.00	0.00	0.18	0.04	3	20
10 ISL	17.51 D	17.51	32.803 D	23.709	418.2	0.036	5.52	D241.0	D100.7	1.3	0.23	0.0	0.01	0.00	0.17	0.05	10	
11	17.52	17.51	32.805	23.710	418.1	0.046	5.52	241.1	100.6	1.3	0.23	0.0	0.00	0.00	0.16	0.05	11	19
20 ISL	17.51 D	17.51	32.806 D	23.712	418.3	0.078	5.52	D240.8	D100.6	1.3	0.22	0.0	0.00	0.00	0.18	0.04	20	
26	17.46	17.46	32.818	23.733	416.5	0.109	5.53	241.4	100.6	1.3	0.22	0.0	0.00	0.00	0.18	0.03	26	18
30 ISL	17.46 D	17.45	32.823 D	23.739	416.0	0.120	5.54	D241.5	D100.8	1.3	0.22	0.0	0.00	0.00	0.20	0.04	30	
40	17.19	17.18	32.852	23.826	408.1	0.166	5.59	244.0	101.2	1.2	0.22	0.0	0.00	0.00	0.24	0.07	40	17
50	16.70	16.69	32.970	24.033	388.7	0.206	5.79	252.9	104.0	1.0	0.24	0.0	0.00	0.00	0.37	0.20	50	16
61	17.09	17.08	33.700	24.501	344.5	0.246	5.72	249.9	104.0	2.2	0.14	0.0	0.00	0.00	0.31	0.15	61	15
75 ISL	15.08 D	15.07	33.568 D	24.855	311.1	0.288	5.67	D247.0	D 98.9	2.7	0.18	0.1	0.04	0.00	0.30	0.23	76	
76	14.94	14.93	33.580	24.895	307.3	0.295	5.73	250.3	99.8	2.7	0.18	0.1	0.04	0.00	0.30	0.24	77	14
88	13.11	13.10	33.218	25.042	293.4	0.331	5.58	243.7	93.4	3.2	0.38	2.1	0.03	0.00	0.23	0.18	89	13
100	13.28	13.26	33.468	25.157	282.9	0.366	5.39	235.2	90.6	4.1	0.39	2.8	0.04	0.00	0.15	0.13	101	12
113	12.38	12.37	33.428	25.302	269.2	0.402	5.27	230.0	86.9	5.7	0.55	5.5	0.00	0.00	0.08	0.08	114	11
125	11.21	11.19	33.446	25.534	247.2	0.433	5.10	222.5	82.0	7.4	0.69	7.8	0.00	0.00	0.05	0.05	126	10
140	10.52	10.50	33.556	25.743	227.6	0.468	4.85	211.8	76.9	10.8	0.91	11.7	0.00	0.00	0.03	0.03	141	09
150 ISL	10.18 D	10.17	33.565 D	25.806	221.7	0.488	4.84	D210.5	D 76.1	12.9	1.03	13.6	0.01	0.00	0.02	0.03	151	
171	9.57	9.55	33.737	26.043	199.5	0.535	4.41	192.6	68.6	17.4	1.27	17.5	0.00	0.00	0.00	0.02	172	08
200 ISL	8.80 D	8.78	33.878 D	26.277	177.6	0.588	3.76	D163.8	D 57.6	24.6	1.60	22.5	0.01	0.00	0.00	0.02	202	
201	8.82	8.80	33.858	26.260	179.3	0.591	3.72	162.3	56.9	24.9	1.61	22.6	0.00	0.00	0.00	0.02	203	07
229	8.33	8.31	33.947	26.404	165.9	0.640	3.02	131.8	45.7	32.0	1.90	26.7	0.00	0.00			231	06
250 ISL	8.06 D	8.03	33.977 D	26.470	160.0	0.673	2.86	D124.4	D 43.0	35.1	1.98	28.0	0.01	0.00			252	
270	7.76	7.74	33.990	26.523	155.2	0.705	2.69	117.4	40.2	38.0	2.05	29.1	0.00	0.00			272	05
300 ISL	7.37 D	7.34	34.009 D	26.595	148.6	0.750	2.25	D 97.7	D 33.3	43.9	2.27	31.7	0.01	0.00			302	
321	7.20	7.17	34.057	26.657	143.1	0.781	1.75	76.5	25.9	48.0	2.42	33.4	0.00	0.00			324	04
380	6.47	6.43	34.066	26.764	133.3	0.863	1.26	55.0	18.3	58.9	2.68	36.9	0.00	0.00			383	03
400 ISL	6.33 D	6.29	34.083 D	26.796	130.4	0.890	1.10	D 47.6	D 15.8	62.3	2.75	37.8	0.01	0.00			403	
441	5.97	5.94	34.116	26.867	124.0	0.941	0.81	35.2	11.6	69.2	2.90	39.6	0.00	0.00			445	02
500 ISL	5.72 D	5.68	34.204 D	26.969	114.9	1.013	0.48	D 20.7	D 6.8	77.5	3.05	41.0	0.01	0.00			504	
516	5.58	5.54	34.198	26.981	113.8	1.031	0.43	18.9	6.2	79.8	3.09	41.3	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 23.3 N	124 19.4 W	19/11/2016	2136 UTC	4625 m	240 10 kn	250 03 07	5	1013.3 mb	17.0 C	16.4 C	28 m	8/8	SC	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	18.65	18.65	33.252	23.775	411.5	0.000	5.38	235.1	100.6	1.8	0.18	0.0	0.02	0.00	0.13	0.02	0	
2	18.65	18.65	33.252	23.776	411.5	0.008	5.38	235.1	100.6	1.8	0.18	0.0	0.00	0.00	0.13	0.02	2	20
10	18.63	18.63	33.253	23.780	411.4	0.041	5.40	235.7	100.8	1.5	0.18	0.0	0.00	0.00	0.13	0.03	10	19
20 ISL	18.62 D	18.62	33.252 D	23.783	411.5	0.079	5.37	D234.2	D100.2	1.4	0.18	0.0	0.01	0.00	0.13	0.03	20	
25	18.60	18.59	33.254	23.791	410.9	0.103	5.39	235.5	100.6	1.3	0.18	0.0	0.00	0.00	0.13	0.03	25	18
30 ISL	18.60 D	18.59	33.254 D	23.791	411.1	0.120	5.38	D234.6	D100.3	1.3	0.18	0.0	0.01	0.00	0.14	0.03	30	
40	18.60	18.59	33.259	23.795	411.1	0.164	5.42	236.9	101.2	1.2	0.17	0.0	0.00	0.00	0.16	0.02	40	17
50	18.35	18.34	33.275	23.871	404.3	0.205	5.50	240.1	102.1	1.2	0.18	0.0	0.00	0.00	0.15	0.04	50	16
61	17.77	17.76	33.528	24.207	372.6	0.248	5.71	249.5	105.1	1.5	0.15	0.0	0.00	0.00	0.29	0.11	61	15
75	16.39	16.38	33.507	24.517	343.4	0.298	5.80	253.4	103.9	1.8	0.16	0.0	0.00	0.00	0.26	0.31	76	14
87	15.05	15.04	33.502	24.813	315.5	0.338	5.77	251.9	100.6	2.2	0.18	0.0	0.04	0.00	0.31	0.22	88	13
100	14.81	14.80	33.507	24.868	310.7	0.378	5.65	246.6	98.0	2.5	0.25	0.1	0.12	0.00	0.23	0.19	101	12
112	13.70	13.68	33.470	25.074	291.2	0.414	5.49	239.9	93.1	3.0	0.31	1.1	0.15	0.00	0.17	0.16	113	11
125	12.85	12.83	33.458	25.236	275.9	0.451	5.38	235.1	89.7	4.2	0.42	3.5	0.04	0.00	0.11	0.11	126	10
141	12.22	12.20	33.473	25.369	263.6	0.494	5.25	229.3	86.4	5.2	0.51	5.0	0.03	0.00	0.09	0.08	142	09
150 ISL	11.41 D	11.40	33.485 D	25.529	248.4	0.517	5.11	D222.5 D	82.6	8.3	0.73	8.5	0.03	0.00	0.07	0.06	151	
171	9.75	9.73	33.557	25.874	215.5	0.566	4.41	192.6	68.8	15.7	1.25	16.6	0.00	0.00	0.01	0.02	172	08
200	9.21	9.18	33.780	26.138	191.0	0.625	3.97	173.3	61.2	21.4	1.48	20.5	0.00	0.00	0.00	0.01	202	07
230	8.55	8.52	33.915	26.347	171.5	0.679	3.09	134.8	47.0	29.7	1.84	25.8	0.00	0.00			232	06
250 ISL	8.28 D	8.25	33.973 D	26.434	163.6	0.713	2.83	D123.1 D	42.8	32.6	1.93	27.0	0.01	0.00			252	
270	8.11	8.09	33.990	26.472	160.2	0.746	2.64	115.4	39.8	35.5	2.02	28.3	0.00	0.00			272	05
300 ISL	7.73 D	7.70	34.025 D	26.556	152.6	0.793	2.21	D 96.2 D	33.0	41.5	2.21	30.8	0.01	0.00			302	
320	7.44	7.41	34.043	26.612	147.4	0.823	1.87	81.7	27.8	45.6	2.34	32.5	0.00	0.00			323	04
380	6.82	6.78	34.066	26.717	138.0	0.908	1.38	60.3	20.2	55.0	2.57	35.6	0.00	0.00			383	03
400 ISL	6.65 D	6.61	34.084 D	26.755	134.6	0.937	1.20	D 52.3 D	17.5	58.3	2.66	36.6	0.01	0.00			403	
440	6.34	6.30	34.129	26.831	127.8	0.988	0.80	34.9	11.6	64.9	2.83	38.6	0.00	0.00			444	02
500 ISL	6.16 D	6.11	34.207 D	26.918	120.3	1.065	0.51	D 22.0 D	7.3	72.2	2.99	40.0	0.01	0.00			504	
516	6.00	5.95	34.208	26.938	118.4	1.082	0.45	19.6	6.5	74.2	3.03	40.4	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 80.0 50.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 27.5 N	120 29.2 W	18/11/2016	0655 UTC	23 m	110 04 kn			1014.7 mb	15.9 C	11.5 C				060

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.94	14.94	33.374	24.732	320.3	0.000	5.39	235.3	93.6	4.7	0.58	3.1	0.14	0.10	1.44	0.31	0	
2	14.94	14.94	33.374	24.732	320.3	0.006	5.39	235.3	93.6	4.7	0.58	3.1	0.14	0.10	1.44	0.31	2	05
5	14.68	14.68	33.373	24.787	315.2	0.016	5.40	235.6	93.3	5.4	0.64	3.9	0.16	0.20	1.38	0.35	5	04
10	14.33	14.33	33.375	24.863	308.1	0.032	5.41	236.2	92.9	6.7	0.76	5.3	0.19	0.30	1.09	0.48	10	02
10	14.33	14.33	33.375	24.863	308.1	0.032											10	03
16	14.29	14.29	33.375	24.873	307.4	0.050	5.37	234.7	92.2	7.1	0.81	5.8	0.19	0.30	1.26	0.29	16	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 80.0 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 27.0 N	120 31.4 W	18/11/2016	0747 UTC	72 m	120 02 kn			1014.8 mb	15.7 C	13.2 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	15.12	15.12	33.369	24.689	324.4	0.000	5.41	236.1	94.3	4.2	0.54	2.6	0.16	0.03	1.79	0.07	0	
2	15.12	15.12	33.369	24.689	324.5	0.007	5.41	236.1	94.3	4.2	0.54	2.6	0.16	0.00	1.79	0.07	2	09
5	15.13	15.13	33.374	24.692	324.3	0.016	5.44	237.7	95.0	4.0	0.52	2.5	0.15	0.00	1.80A	0.10A	5	08
10	14.75	14.75	33.360	24.762	317.7	0.032	5.24	228.8	90.7	5.2	0.63	3.6	0.19	0.06	1.47	0.07	10	06
10	14.75	14.75	33.360	24.762	317.7	0.032											10	07
20	13.04	13.04	33.347	25.107	285.2	0.062	4.49	D195.7 D	75.1	8.0	0.87	7.5	0.16	0.06	0.76	0.19	20	05
30	12.82	12.82	33.340	25.144	281.9	0.091	4.37	190.9	72.7	9.8	1.04	10.2	0.11	0.00	0.45	0.23	30	04
40	12.12	12.12	33.353	25.289	268.4	0.118	4.10	179.1	67.2	11.6	1.20	12.7	0.05	0.00	0.27	0.19	40	03
50	12.03	12.02	33.356	25.310	266.6	0.145	4.10	179.1	67.1	11.5	1.20	13.2	0.05	0.00	0.25	0.17	50	02
61	11.85	11.84	33.387	25.367	261.5	0.174	3.98	174.0	64.9	12.8	1.29	14.3	0.07	0.00	0.20	0.18	62	01

A) SECOND FLUOROMETER READING NOT RECORDED CHLOROPHYLL AND PHAEOPIGMENT CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV SALLY RIDE CALCOFI CRUISE 1611 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 19.0 N	120 48.1 W	18/11/2016	1037	UTC	783 m	020 02 kn			1014.6 mb	16.0 C	15.0 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	15.03	15.03	33.401	24.733	320.2	0.000	5.51	240.6	96.0	3.3	0.50	2.3	0.13	0.05	3.13	0.51	0	
2	15.03	15.03	33.401	24.733	320.2	0.006	5.51	240.6	96.0	3.3	0.50	2.3	0.13	0.00	3.13	0.51	2	22
10	15.04	15.04	33.401	24.732	320.6	0.032	5.49	239.6	95.6	3.9	0.48	2.9	0.13	0.00	3.00	0.50	10	19
10	15.04	15.04	33.401	24.732	320.6	0.033											10	20
20 ISL	14.45 D	14.44	33.392 D	24.853	309.4	0.061	5.10 D	222.4 D	87.9	4.8	0.56	4.0	0.13	0.00	2.83	0.47	20	
21	13.83	13.82	33.397	24.986	296.8	0.067	5.25	229.3	89.2	4.9	0.57	4.1	0.13	0.00	2.81	0.47	21	18
30	12.22	12.21	33.425	25.327	264.5	0.092	3.94	172.1	64.8	12.4	1.27	13.9	0.06	0.00	0.28	0.24	30	17
40	11.75	11.74	33.466	25.447	253.3	0.118	3.71	162.0	60.4	14.7	1.40	16.0	0.03	0.00	0.12	0.20	40	16
50	10.80	10.80	33.523	25.663	233.0	0.142	3.51	153.1	55.9	17.0	1.53	18.4	0.03	0.00	0.07	0.14	50	15
60	10.46	10.45	33.601	25.784	221.6	0.165	3.16	137.8	50.0	19.7	1.68	20.7	0.00	0.00	0.04	0.10	60	14
70	10.29	10.29	33.644	25.846	216.0	0.187	3.04	132.7	48.0	20.9	1.74	21.6	0.00	0.00	0.03	0.11	71	13
75 ISL	10.28 D	10.27	33.655 D	25.859	214.9	0.196	3.02 D	131.5 D	47.7	21.4	1.77	22.0	0.02	0.00	0.03	0.11	76	
85	10.14	10.13	33.698	25.916	209.7	0.219	2.85	124.3	44.8	22.6	1.83	22.6	0.03	0.00	0.03	0.12	86	12
100	10.04	10.03	33.725	25.953	206.5	0.250	2.78	121.5	43.7	23.2	1.85	23.1	0.00	0.00	0.02	0.10	101	11
120	9.84	9.82	33.797	26.045	198.2	0.290	2.60	113.4	40.6	24.9	1.92	24.2	0.00	0.00	0.01	0.09	121	10
125 ISL	9.83 D	9.81	33.836 D	26.077	195.3	0.298	2.49 D	108.3 D	38.9	25.5	1.95	24.6	0.02	0.00	0.01	0.09	126	
139	9.70	9.68	33.874	26.128	190.7	0.327	2.36	103.2	36.9	27.4	2.03	25.5	0.03	0.00	0.01	0.08	140	09
150 ISL	9.65 D	9.63	33.897 D	26.156	188.4	0.347	2.30 D	99.9 D	35.8	28.0	2.05	25.8	0.03	0.00	0.01	0.07	151	
170	9.57	9.55	33.932	26.196	185.0	0.386	2.20	95.9	34.2	29.1	2.09	26.3	0.03	0.00	0.01	0.06	171	08
200	9.32	9.29	33.980	26.277	177.9	0.440	1.97	86.0	30.5	32.0	2.18	27.6	0.00	0.00	0.01	0.07	202	07
230	9.01	8.99	34.068	26.395	167.2	0.492	1.62	70.8	24.9	36.4	2.33	29.5	0.00	0.00			232	06
250 ISL	8.78 D	8.75	34.121 D	26.473	160.1	0.524	1.36 D	59.3 D	20.9	39.9	2.44	30.6	0.02	0.00			252	
270	8.54	8.51	34.141	26.527	155.3	0.556	1.21	52.7	18.4	43.3	2.54	31.7	0.00	0.00			272	05
300 ISL	8.07 D	8.04	34.158 D	26.611	147.6	0.602	1.24 D	53.9 D	18.7	46.8	2.61	33.0	0.02	0.00			302	
320	7.82	7.79	34.179	26.665	142.7	0.631	1.05	45.8	15.7	49.2	2.65	33.9	0.00	0.00			323	04
381	7.22	7.18	34.203	26.771	133.4	0.715	0.64	28.0	9.5	60.9	2.89	35.2	0.00	0.00			384	03
400 ISL	7.09 D	7.05	34.212 D	26.797	131.1	0.741	0.57 D	24.7 D	8.4	63.3	2.93	35.6	0.02	0.00			403	
440	6.78	6.74	34.230	26.854	126.1	0.792	0.46	19.9	6.7	68.5	3.02	36.5	0.00	0.00			444	02
500 ISL	6.43 D	6.39	34.256 D	26.921	120.4	0.868	0.44 D	19.1 D	6.4	70.5	3.06	38.7	0.02	0.00			504	
516	6.39	6.35	34.257	26.927	120.0	0.885	0.41	17.9	5.9	71.1	3.07	39.2	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 9.7 N	121 10.1 W	18/11/2016	1617	UTC	2310 m	350 01 kn	300 07 11	0	1016.2 mb	16.5 C	14.2 C	13 m	0/8		063

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.92	14.92	33.397	24.755	318.1	0.000	5.57	243.2	96.8	3.1	0.49	2.6	0.14	0.28	3.20	0.61	0	
3 A	14.92	14.92	33.397	24.756	318.1	0.010	5.57	243.2	96.8	3.1	0.49	2.6	0.14	0.28	3.20	0.61	3	24
9 A	14.91	14.91	33.398	24.757	318.2	0.029	5.57	243.2	96.8	3.1	0.50	2.6	0.12	0.24	3.12	0.59	9	23
10 ISL	14.91 D	14.91	33.396 D	24.756	318.3	0.027	5.54 D	241.6 D	96.3	3.1	0.50	2.6	0.12	0.24	3.18	0.59	10	
11	14.91	14.91	33.397	24.757	318.3	0.036											11	22
12 A	14.92	14.91	33.398	24.757	318.3	0.038	5.56	242.9	96.7	3.1	0.49	2.6	0.12	0.25	3.32	0.58	12	20
12	14.92	14.91	33.398	24.757	318.3	0.037											12	21
20 ISL	14.90 D	14.90	33.397 D	24.760	318.3	0.059	5.52 D	240.7 D	96.0	3.1	0.47	2.7	0.12	0.23	3.05	0.53	20	
22 A	14.85	14.85	33.399	24.772	317.2	0.070	5.53	241.5	96.0	3.2	0.47	2.7	0.12	0.23	2.98	0.52	22	19
30 ISL	13.04 D	13.04	33.389 D	25.139	282.4	0.090	4.52 D	196.7 D	75.5	6.6	0.82	7.4	0.15	0.11	2.40	0.39	30	
31	14.16	14.16	33.397	24.917	303.6	0.097	4.70	205.2	80.4	7.0	0.86	8.0	0.15	0.10	2.32	0.37	31	18
40 A	12.12	12.12	33.412	25.335	264.0	0.123	4.05	176.7	66.4	12.1	1.25	14.5	0.10	0.00	0.57	0.28	40	17
45 A	11.89	11.89	33.413	25.380	259.8	0.136	4.00	174.7	65.3	12.5	1.28	15.1	0.09	0.00	0.44	0.26	45	16
50 ISL	11.61 D	11.60	33.431 D	25.447	253.6	0.145	3.90 D	170.0 D	63.3	13.3	1.34	16.0	0.07	0.00	0.34	0.23	50	
52	11.50	11.49	33.430	25.467	251.8	0.154	3.92	171.0	63.4	13.7	1.36	16.3	0.06	0.00	0.30	0.22	52	15
60	10.73	10.73	33.448	25.618	237.5	0.173	3.73	162.8	59.3	15.8	1.49	18.6	0.06	0.00	0.13	0.12	60	14
70	10.40	10.39	33.526	25.736	226.5	0.196	3.52	153.5	55.6	18.1	1.59	20.5	0.03	0.00	0.16	0.14	71	13
75 ISL	10.00 D	10.00	33.572 D	25.839	216.7	0.204	3.40 D	147.9 D	53.3	19.1	1.63	21.2	0.03	0.00	0.14	0.13	76	
86	9.73	9.72	33.618	25.922	209.1	0.231	3.27	142.9	51.0	21.3	1.73	22.6	0.00	0.00	0.08	0.10	87	12
100	9.74	9.73	33.682	25.970	204.8	0.260	3.05	133.0	47.5	22.9	1.80	23.5	0.00	0.00	0.08	0.08	101	11
120	9.64	9.63	33.740	26.032	199.4	0.300	2.89	126.2	45.0	24.3	1.86	24.3	0.00	0.00	0.06	0.10	121	10
125 ISL	9.47 D	9.46	33.786 D	26.097	193.3	0.307	2.78 D	120.8 D	43.1	24.9	1.88	24.7	0.01	0.00	0.05	0.10	126	
141	9.34	9.33	33.822	26.146	188.9	0.341	2.65	115.6	41.0	26.8	1.96	25.8	0.00	0.00	0.02	0.08	142	09
150 ISL	9.26 D	9.24	33.854 D	26.184	185.5	0.355	2.59 D	112.6 D	40.0	28.1	2.01	26.4	0.01	0.00	0.02	0.07	151	
170	9.07	9.05	33.951	26.292	175.7	0.394	2.28	99.5	35.1	31.1	2.12	27.9	0.00	0.00	0.01	0.06	171	08
200	8.64	8.62	34.043	26.432	162.9	0.445	1.91	83.4	29.2	36.2	2.27	30.0	0.00	0.00	0.01	0.04	202	07
230	8.42	8.39	34.096	26.509	156.1	0.492	1.62	70.7	24.6	39.7	2.40	31.3	0.00	0.00			232	06
250 ISL	8.36 D	8.33	34.117 D	26.535	154.0	0.522	1.51 D	65.6 D	22.9	41.8	2.43	31.9	0.01	0.00			252	
270	7.80	7.77	34.105	26.609	147.1	0.554	1.55	67.7	23.2	43.9	2.46	32.6	0.00	0.00			272	05
300 ISL	7.58 D	7.55	34.120 D	26.653	143.3	0.596	1.34 D	58.4 D	20.0	48.4	2.59	34.0	0.01	0.00			302	
320	7.52	7.48	34.157	26.691	140.0	0.625	1.10	48.0	16.4	51.3	2.68	34.9	0.00	0.00			323	04
380	7.23	7.19	34.213	26.777	132.7	0.707	0.75	32.8	11.1	57.0	2.83	36.3	0.00	0.00			383	03
400 ISL	6.99 D	6.95	34.225 D	26.821	128.8	0.734	0.64 D	28.0 D	9.5	60.2	2.89	37.0	0.01	0.00			403	
440	6.71	6.67	34.250	26.879	123.7	0.784	0.47	20.6	6.9	66.5	3.01	38.3	0.00	0.00			444	02
500 ISL	6.23 D	6.19	34.285 D	26.970	115.5	0.857	0.35 D	15.4 D	5.1	73.8	3.12	39.9	0.01	0.00			504	
516	6.14	6.10	34.293	26.988	114.0	0.874	0.33	14.2	4.7	75.8	3.15	40.3	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 80.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 49.0 N	121 50.6 W	18/11/2016	2112	UTC	3645 m	260 07 kn	330 04 10	0	1015.2 mb	17.5 C	15.5 C	12 m	0/8		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	16.18	16.18	33.402	24.478	344.5	0.000	5.69	248.5	101.4	0.4	0.27	0.1	0.06	0.00	1.39	0.20	0	
2	16.18	16.18	33.402	24.478	344.5	0.007	5.69	248.5	101.4	0.4	0.27	0.1	0.06	0.00	1.39	0.20	2	22
10	16.18	16.17	33.401	24.480	344.7	0.035	5.67	247.4	101.0	0.5	0.28	0.2	0.06	0.00	1.43	0.20	10	20
10	16.18	16.17	33.401	24.480	344.6	0.034											10	21
20	16.14	16.13	33.406	24.493	343.8	0.069	5.61	245.1	99.9	0.6	0.27	0.4	0.07	0.06	1.50	0.20	20	18
20	16.14	16.13	33.401	24.489	344.2	0.069											20	19
30	16.11	16.10	33.399	24.496	343.9	0.103	5.61	245.0	99.8	0.5	0.26	0.3	0.07	0.00	1.36	0.26	30	17
40	16.01	16.01	33.363	24.489	344.8	0.138	5.49	239.6	97.5	1.2	0.41	1.4	0.14	0.06	1.14	0.26	40	16
50	13.75	13.74	33.251	24.891	306.7	0.170	5.15	225.1	87.4	3.7	0.66	5.3	0.26	0.07	0.86	0.35	50	15
60	12.33	12.33	33.235	25.159	281.3	0.200	4.66	203.5	76.7	7.3	0.99	10.9	0.09	0.00	0.38	0.33	60	14
70	11.79	11.78	33.298	25.312	267.0	0.227	4.40	192.1	71.6	9.4	1.12	13.2	0.05	0.00	0.20	0.25	71	13
75 ISL	11.40 D	11.39	33.350 D	25.423	256.5	0.238	4.13	D179.8 D	66.7	10.8	1.20	14.4	0.04	0.00	0.16	0.21	76	
84	11.07	11.06	33.389	25.512	248.2	0.263	4.00	174.8	64.2	13.3	1.34	16.5	0.03	0.00	0.10	0.13	85	12
100	10.45	10.43	33.425	25.651	235.3	0.302	3.94	171.9	62.3	15.3	1.43	18.2	0.03	0.00	0.06	0.09	101	11
120	9.66	9.64	33.588	25.911	210.9	0.346	3.43	149.7	53.4	20.5	1.68	22.1	0.03	0.00	0.01	0.04	121	10
125 ISL	9.52 D	9.51	33.640 D	25.975	204.9	0.355	3.43	D149.4 D	53.3	21.6	1.72	22.7	0.02	0.00	0.01	0.04	126	
140	9.34	9.33	33.754	26.093	194.0	0.387	3.01	131.4	46.6	24.6	1.85	24.3	0.00	0.00	0.01	0.04	141	09
150 ISL	9.16 D	9.14	33.810 D	26.167	187.1	0.404	2.82	D122.6 D	43.4	26.3	1.90	25.2	0.02	0.00	0.01	0.04	151	
170	8.84	8.82	33.911	26.297	175.1	0.442	2.62	114.3	40.1	29.9	2.00	27.0	0.00	0.00	0.01	0.03	171	08
200	8.52	8.50	34.003	26.419	164.1	0.493	2.21	96.6	33.7	34.8	2.17	29.3	0.00	0.00	0.00	0.02	202	07
230	8.02	7.99	34.082	26.558	151.3	0.540	1.73	75.3	26.0	41.3	2.38	31.5	0.00	0.00			232	06
250 ISL	7.78 D	7.76	34.080 D	26.591	148.3	0.570	1.62	D 70.7 D	24.3	44.6	2.45	32.7	0.02	0.00			252	
270	7.49	7.46	34.081	26.635	144.4	0.600	1.50	65.4	22.3	47.9	2.52	33.9	0.00	0.00			272	05
300 ISL	7.28 D	7.25	34.117 D	26.693	139.3	0.642	1.24	D 53.8 D	18.3	52.0	2.65	35.2	0.01	0.00			302	
320	7.19	7.16	34.156	26.736	135.5	0.670	0.95	41.4	14.0	54.7	2.74	36.0	0.00	0.00			323	04
379	6.80	6.76	34.208	26.832	127.1	0.747	0.63	27.5	9.2	62.4	2.91	37.6	0.00	0.00			382	03
400 ISL	6.52 D	6.48	34.201 D	26.864	124.2	0.775	0.61	D 26.4 D	8.8	66.0	2.95	38.5	0.01	0.00			403	
439	5.93	5.89	34.165	26.911	119.8	0.821	0.59	25.6	8.4	72.9	3.02	40.2	0.00	0.00			443	02
500 ISL	5.62 D	5.58	34.215 D	26.990	112.8	0.894	0.42	D 18.1 D	5.9	80.2	3.13	41.5	0.01	0.00			504	
516	5.52	5.47	34.220	27.007	111.3	0.910	0.36	15.7	5.1	82.1	3.16	41.9	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 80.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.0 N	122 32.0 W	19/11/2016	0304	UTC	4022 m	190 11 kn			1015.1 mb	16.2 C	13.9 C				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	16.41	16.41	33.226	24.291	362.3	0.000	5.69	248.6	101.8	0.8	0.25	0.0	0.02	0.01	0.35	0.08	0	
2	16.41	16.41	33.226	24.291	362.4	0.007	5.69	248.6	101.8	0.8	0.25	0.0	0.00	0.00	0.35	0.08	2	22
10	16.38	16.38	33.221	24.295	362.3	0.036	5.71	249.2	102.0	0.9	0.25	0.1	0.00	0.12	0.35	0.14	10	20
10	16.38	16.38	33.217	24.292	362.6	0.037											10	21
20	16.34	16.34	33.221	24.305	361.7	0.072	5.70	248.8	101.7	0.8	0.24	0.0	0.00	0.00	0.45	0.13	20	18
20	16.34	16.34	33.224	24.307	361.5	0.074											20	19
30	16.35	16.34	33.255	24.330	359.6	0.108	5.68	248.0	101.5	0.8	0.26	0.0	0.00	0.00	0.50	0.01	30	17
40	16.26	16.25	33.257	24.352	357.9	0.144	5.67	247.5	101.1	0.8	0.26	0.1	0.03	0.11	0.47	0.18	40	16
50	14.54	14.53	33.109	24.617	332.9	0.179	5.78	252.6	99.6	1.7	0.41	1.1	0.23	0.53	0.36	0.20	50	15
60	13.25	13.24	33.037	24.826	313.1	0.211	5.63	245.9	94.3	2.4	0.48	2.9	0.48	0.09	0.34	0.21	60	14
71	12.51	12.50	33.058	24.988	297.9	0.245	5.40	235.9	89.1	3.3	0.61	5.4	0.08	0.00	0.25	0.19	72	13
75 ISL	12.30 D	12.29	33.078 D	25.044	292.6	0.255	5.28	D229.8 D	86.7	4.3	0.69	6.7	0.07	0.00	0.21	0.17	76	
86	11.48	11.47	33.159	25.259	272.3	0.288	4.90	214.1	79.2	7.2	0.90	10.2	0.03	0.00	0.11	0.11	87	12
100 ISL	10.80 D	10.79	33.273 D	25.470	252.5	0.323	4.45	D193.6 D	70.8	11.7	1.16	14.5	0.03	0.00	0.06	0.08	101	
101	10.54	10.53	33.283	25.562	243.7	0.327	4.41	192.7	69.9	12.0	1.18	14.8	0.03	0.00	0.05	0.07	102	11
120	9.71	9.70	33.512	25.843	217.3	0.371	3.73	162.6	58.0	19.4	1.58	21.1	0.00	0.00	0.01	0.05	121	10
125 ISL	9.49 D	9.47	33.573 D	25.928	209.3	0.381	3.65	D158.9 D	56.6	20.4	1.61	21.7	0.02	0.00	0.01	0.05	126	
140	9.21	9.19	33.640	26.026	200.3	0.412	3.42	149.3	52.7	23.5	1.71	23.4	0.00	0.00	0.01	0.05	141	09
150 ISL	8.99 D	8.97	33.720 D	26.123	191.2	0.431	3.35	D145.7 D	51.4	25.5	1.77	24.3	0.02	0.00	0.01	0.04	151	
170	8.58	8.56	33.845	26.285	176.1	0.469	2.97	129.6	45.2	29.5	1.89	26.2	0.00	0.00	0.00	0.04	171	08
200	8.23	8.21	33.963	26.432	162.7	0.519	2.64	115.0	39.8	34.8	2.04	28.3	0.00	0.00	0.00	0.03	202	07
230	7.76	7.73	33.999	26.530	153.7	0.567	2.27	99.1	33.9	40.6	2.18	30.6	0.00	0.00			232	06
250 ISL	7.58 D	7.56	34.024 D	26.576	149.7	0.598	2.08	D 90.7 D	31.0	43.4	2.27	31.7	0.01	0.00			252	
271	7.35	7.33	34.033	26.615	146.2	0.628	1.86	81.0	27.5	46.3	2.36	32.9	0.00	0.00			273	05
300 ISL	6.92 D	6.89	34.016 D	26.663	141.8	0.672	1.85	D 80.6 D	27.2	50.4	2.41	33.8	0.01	0.00			302	
320	6.71	6.68	34.022	26.696	138.9	0.698	1.80	78.7	26.3	53.2	2.45	34.5	0.00	0.00			323	04
381	6.09	6.06	34.069	26.813	128.2	0.780	1.14	49.8	16.4	64.2	2.72	37.9	0.00	0.00			384	03
400 ISL	5.91 D	5.87	34.073 D	26.841	125.8	0.806	1.08	D 47.0 D	15.5	67.0	2.79	38.6	0.01	0.00			403	
440	5.83	5.79	34.150	26.912	119.6	0.852	0.63	27.4	9.0	72.9	2.94	40.0	0.00	0.00			444	02
500 ISL	5.59 D	5.55	34.216 D	26.995	112.3	0.926	0.40	D 17.4 D	5.7	80.5	3.06	41.3	0.01	0.00			504	
516	5.44	5.40	34.217	27.013	110.7	0.940	0.38	16.4	5.3	82.5	3.09	41.6	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 80.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 9.0 N	123 13.3 W	19/11/2016	0854	UTC	4265 m	190 14 kn			1015.1 mb	18.0 C	16.9 C				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	17.05	17.05	33.051	24.009	389.2	0.000	5.61	244.9	101.4	0.7	0.22	0.0	0.02	0.01	0.20	0.06	0	
3	17.05	17.05	33.051	24.009	389.3	0.012	5.61	244.9	101.4	0.7	0.22	0.0	0.00	0.00	0.20	0.06	3	20
10	17.04	17.04	33.051	24.011	389.4	0.039	5.60	D244.2	D101.3	0.7	0.22	0.0	0.00	0.00	0.20	0.06	10	19
20 ISL	17.04 D	17.04	33.051 D	24.011	389.7	0.072	5.60	D244.0	D101.2	0.7	0.22	0.0	0.02	0.00	0.20	0.06	20	
25	17.04	17.04	33.054	24.014	389.6	0.097	5.60	244.7	101.3	0.7	0.22	0.0	0.00	0.00	0.20	0.06	25	18
30 ISL	17.02 D	17.01	33.060 D	24.026	388.7	0.112	5.60	D244.2	D101.3	0.6	0.22	0.0	0.02	0.00	0.20	0.06	30	
40	16.97	16.96	33.072	24.046	387.1	0.156	5.62	245.5	101.5	0.4	0.23	0.0	0.00	0.00	0.21	0.07	40	17
50	16.67	16.66	33.089	24.130	379.5	0.194	5.75	251.0	103.2	0.5	0.23	0.0	0.00	0.00	0.30	0.12	50	16
63	14.30	14.29	33.116	24.674	327.8	0.240	5.88	256.6	100.6	1.2	0.33	0.5	0.10	0.35	0.50	0.36	64	15
75 ISL	13.04 D	13.03	33.090 D	24.909	305.6	0.274	5.70	D248.3	D 95.1	2.4	0.35	0.9	0.43	0.00	0.27	0.31	76	
76	12.83	12.82	33.082	24.946	302.1	0.281	5.71	249.3	94.8	2.5	0.35	1.0	0.46	0.00	0.25	0.31	77	14
87	12.49	12.48	33.203	25.105	287.3	0.313	5.39	235.5	89.0	3.7	0.49	3.8	0.05	0.00	0.16	0.19	88	13
100	11.18	11.17	33.176	25.328	266.1	0.349	4.97	217.1	79.8	7.0	0.86	9.7	0.04	0.00	0.07	0.11	101	12
112	10.38	10.37	33.297	25.563	243.9	0.380	4.52	197.5	71.4	12.0	1.19	14.9	0.03	0.00	0.03	0.05	113	11
125	9.70	9.69	33.426	25.778	223.7	0.410	4.16	181.6	64.7	16.1	1.36	18.0	0.00	0.00	0.02	0.05	126	10
140	9.33	9.32	33.596	25.971	205.5	0.443	3.90	170.3	60.2	19.8	1.50	20.3	0.00	0.00	0.01	0.02	141	09
150 ISL	9.16 D	9.15	33.670 D	26.056	197.6	0.459	3.71	D161.5	D 57.1	21.4	1.56	21.3	0.02	0.00	0.01	0.02	151	
171	8.90	8.88	33.789	26.192	185.1	0.503	3.46	151.1	53.0	24.9	1.69	23.5	0.00	0.00	0.00	0.02	172	08
200 ISL	8.43 D	8.41	33.929 D	26.375	168.2	0.551	2.96	128.7	44.9	30.5	1.89	26.4	0.02	0.00	0.00	0.02	202	
201	8.46	8.43	33.907	26.353	170.2	0.556	2.94	128.4	44.6	30.7	1.90	26.5	0.00	0.00	0.00	0.02	203	07
230	8.03	8.01	33.992	26.484	158.2	0.604	2.49	108.5	37.4	37.1	2.08	29.1	0.00	0.00			232	06
250 ISL	7.76 D	7.74	34.022 D	26.548	152.4	0.632	2.23	D 96.8	D 33.3	41.0	2.20	30.6	0.02	0.00			252	
270	7.41	7.39	34.036	26.609	146.8	0.665	1.97	86.1	29.3	45.0	2.32	32.0	0.00	0.00			272	05
300 ISL	6.97 D	6.94	34.038 D	26.673	141.0	0.706	1.72	D 74.8	D 25.3	50.9	2.45	34.0	0.02	0.00			302	
321	6.71	6.68	34.051	26.718	136.8	0.737	1.53	66.6	22.3	55.0	2.54	35.5	0.00	0.00			324	04
380	6.41	6.38	34.118	26.812	128.7	0.816	0.93	40.7	13.5	63.5	2.79	38.1	0.00	0.00			383	03
400 ISL	6.24 D	6.20	34.139 D	26.851	125.1	0.840	0.76	D 33.2	D 11.0	65.7	2.84	38.4	0.02	0.00			403	
440	6.26	6.22	34.192	26.892	122.0	0.890	0.54	23.7	7.8	70.1	2.94	39.1	0.00	0.00			444	02
500 ISL	6.05 D	6.00	34.272 D	26.983	114.0	0.961	0.35	D 15.0	D 5.0	76.0	3.05	40.0	0.02	0.00			504	
517	6.01	5.96	34.285	26.998	112.8	0.981	0.31	13.3	4.4	77.6	3.08	40.2	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 SALLY RIDE CALCOFI CRUISE 1611 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	19/11/2016	1627	UTC	4447 m	150 14 kn	200 06 10	1	1014.7 mb	19.0 C	18.0 C	27 m	3/8	ST	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	17.70	17.70	33.011	23.823	406.9	0.000	5.51	240.7	101.0	1.5	0.23	0.0	0.04	0.04	0.16	0.04	0	
3 A	17.70	17.70	33.011	23.823	407.0	0.012	5.51	240.7	101.0	1.5	0.23	0.0	0.04	0.00	0.16	0.04	3	24
10	17.70	17.70	33.009	23.822	407.4	0.041	5.51	240.8	101.0	1.2	0.22	0.0	0.00	0.00	0.16	0.04	10	22
11	17.70	17.70	33.010	23.823	407.4	0.043											10	23
18 A	17.71	17.70	33.010	23.822	407.7	0.073	5.50	240.3	100.8	1.2	0.22	0.0	0.00	0.00	0.16	0.03	18	21
20 ISL	17.71 D	17.70	33.009 D	23.822	407.8	0.076	5.48	D239.1	D100.4	1.2	0.22	0.0	0.00	0.00	0.16	0.03	20	
25 A	17.70	17.69	33.010	23.825	407.7	0.102	5.54	241.9	101.4	1.2	0.22	0.0	0.00	0.00	0.16	0.04	25	20
30 ISL	17.54 D	17.54	33.004 D	23.858	404.7	0.117	5.53	D241.2	D101.0	1.0	0.23	0.0	0.00	0.00	0.20	0.04	30	
35	17.39	17.38	33.009	23.899	401.0	0.142	5.56	242.7	101.1	0.9	0.23	0.0	0.00	0.00	0.23	0.05	35	19
45 A	17.17	17.16	33.023	23.962	395.3	0.182	5.60	244.7	101.6	0.8	0.22	0.0	0.00	0.00	0.24	0.07	45	18
50 ISL	17.06 D	17.05	33.042 D	24.003	391.6	0.197	5.63	D245.5	D101.9	1.1	0.22	0.0	0.00	0.00	0.27	0.09	50	
58	15.63	15.63	33.086	24.362	357.5	0.232	6.01	262.6	105.8	1.6	0.22	0.0	0.00	0.00	0.33	0.14	58	17
70	14.07	14.06	33.098	24.709	324.7	0.274				2.0	0.28	0.3	0.09	0.07			71	16
71	13.90	13.89	33.098	24.743	321.4	0.276	5.91	257.9	100.3	1.7	0.27	0.1	0.09	0.00	0.36	0.31	72	15
75 ISL	13.77 D	13.75	33.112 D	24.782	317.9	0.284	5.77	D251.6	D 97.8	1.9	0.30	0.4	0.15	0.00	0.35	0.29	76	
83 A	13.45	13.44	33.108	24.842	312.3	0.314	5.75	251.2	96.8	2.4	0.35	0.9	0.26	0.00	0.34	0.27	84	14
94 A	12.92	12.90	33.061	24.913	305.8	0.348	5.62	245.5	93.5	2.8	0.47	2.9	0.24	0.00	0.32	0.22	95	13
100 ISL	12.35 D	12.34	33.098 D	25.051	292.7	0.362	5.37	D233.8	D 88.2	3.6	0.58	4.8	0.11	0.00	0.24	0.18	101	
103	12.30	12.29	33.096	25.059	292.0	0.375	5.32	232.2	87.3	4.0	0.64	5.7	0.04	0.00	0.20	0.16	104	12
110	12.28	12.27	33.170	25.121	286.3	0.395	5.27	230.0	86.5	4.6	0.63	5.8	0.04	0.00	0.15	0.14	111	11
125	11.18	11.16	33.261	25.396	260.3	0.436	4.97	216.9	79.7	7.3	0.80	8.8	0.03	0.00	0.09	0.08	126	10
141	10.16	10.14	33.351	25.644	236.9	0.476	4.48	195.7	70.4	13.1	1.19	15.0	0.00	0.00	0.03	0.05	142	09
150 ISL	9.76 D	9.74	33.466 D	25.800	222.1	0.493	4.17	D181.3	D 64.9	15.5	1.32	16.9	0.02	0.00	0.03	0.04	151	
170	9.28	9.27	33.605	25.987	204.7	0.539	3.75	163.5	57.8	20.9	1.60	21.3	0.00	0.00	0.01	0.03	171	08
200	8.79	8.77	33.826	26.239	181.2	0.597	3.22	140.8	49.3	27.1	1.80	24.8	0.00	0.00	0.00	0.03	202	07
230	8.30	8.28	33.946	26.409	165.5	0.649	2.71	118.2	41.0	33.8	2.01	27.8	0.00	0.00			232	06
250 ISL	8.03 D	8.01	33.987 D	26.481	158.9	0.679	2.55	D110.7	D 38.3	38.1	2.11	29.4	0.02	0.00			252	
270	7.58	7.56	34.011	26.566	151.0	0.713	2.31	100.6	34.3	42.4	2.21	30.9	0.00	0.00			272	05
300 ISL	7.13 D	7.10	34.039 D	26.652	143.1	0.755	1.78	D 77.3	D 26.2	48.6	2.42	33.3	0.02	0.00			302	
320	7.18	7.15	34.073	26.672	141.6	0.785	1.46	63.6	21.5	52.7	2.56	34.9	0.00	0.00			323	04
381	6.81	6.77	34.172	26.802	130.0	0.868	0.78	34.1	11.4	60.1	2.82	37.2	0.00	0.00			384	03
400 ISL	6.70 D	6.67	34.177 D	26.821	128.5	0.891	0.71	D 30.8	D 10.3	62.3	2.86	37.6	0.02	0.00			403	
441	6.44	6.40	34.205	26.879	123.4	0.944	0.55	23.8	7.9	66.9	2.94	38.4	0.00	0.15			445	02
500 ISL	6.04 D	6.00	34.239 D	26.958	116.4	1.015	0.40	D 17.6	D 5.8	74.3	3.06	39.8	0.01	0.00			504	
517	5.97	5.93	34.257	26.981	114.4	1.034	0.34	15.0	4.9	76.4	3.09	40.2	0.00	0.00			521	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 SALLY RIDE CALCOFI CRUISE 1611 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 24.2 N	119 48.2 W	18/11/2016	0027 UTC	21 m	280 08 kn	300 01 09	1	1014.0 mb	17.5 C	14.1 C		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	17.04	17.04	33.396	24.275	363.8	0.000	5.81	254.0	105.4	2.3	0.27	0.2	0.03	0.06	1.23	0.24	0	
2	17.04	17.04	33.396	24.275	363.9	0.007	5.81	254.0	105.4	2.3	0.27	0.2	0.03	0.06	1.23	0.24	2	04
5	17.02	17.02	33.395	24.279	363.6	0.018	5.78	252.3	104.6	2.2	0.28	0.1	0.03	0.00	1.30	0.22	5	03
10	16.94	16.94	33.389	24.294	362.4	0.036	5.83	254.5	105.4	2.6	0.31	0.1	0.05	0.00	2.40	0.42	10	02
16	16.89	16.89	33.391	24.307	361.3	0.058	5.83	254.5	105.3	2.8	0.34	0.1	0.06	0.10	2.52	0.52	16	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 16.5 N	120 1.4 W	18/11/2016	0217 UTC	568 m	330 07 kn			1014.2 mb	17.0 C	14.3 C				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	17.52	17.52	33.425	24.184	372.5	0.000	5.64	246.1	103.1	1.8	0.27	0.1	0.02	0.01	1.24	0.05	0	
2	17.52	17.51	33.425	24.184	372.6	0.008	5.64	246.1	103.1	1.8	0.27	0.1	0.00	0.00	1.24	0.05	2	24
10	17.48	17.48	33.421	24.190	372.3	0.037	5.63	246.1	103.0	1.8	0.27	0.0	0.00	0.00	1.12	0.08	10	23
20	16.27	16.27	33.363	24.430	349.8	0.073	5.44	237.5	97.1	3.2	0.43	1.7	0.13	0.00	0.97	0.31	20	22
30	13.36	13.36	33.282	24.992	296.4	0.106	4.71	205.9	79.3	7.2	0.83	7.9	0.36	0.00	0.53	0.33	30	21
40	12.59	12.59	33.306	25.163	280.4	0.135	4.33	189.1	71.7	9.4	1.04	11.8	0.05	0.00	0.28	0.22	40	20
50	11.91	11.90	33.362	25.337	264.0	0.162	4.06	177.3	66.3	11.9	1.21	14.3	0.00	0.00	0.14	0.15	50	19
60	11.19	11.18	33.435	25.526	246.2	0.187	3.73	162.8	59.9	15.2	1.43	16.7	0.04	0.00	0.08	0.15	60	18
70	10.92	10.91	33.479	25.609	238.7	0.211	3.68	160.7	58.9	15.8	1.44	17.5	0.00	0.00	0.07	0.09	71	17
75 ISL	10.84 D	10.83	33.482 D	25.625	237.2	0.225	3.67	D159.9 D	58.6	16.2	1.47	17.9	0.01	0.00	0.06	0.09	76	
85	10.70	10.69	33.501	25.666	233.5	0.247	3.53	154.4	56.2	17.2	1.52	18.6	0.00	0.00	0.05	0.09	86	16
100	10.46	10.45	33.555	25.749	226.0	0.281	3.43	149.8	54.3	18.2	1.57	19.5	0.00	0.00	0.04	0.06	101	15
120	10.15	10.13	33.667	25.891	212.9	0.325	3.00	131.1	47.3	21.4	1.75	21.8	0.00	0.00	0.03	0.05	121	14
125 ISL	10.13 D	10.12	33.695 D	25.916	210.6	0.338	2.96	D128.8 D	46.6	22.2	1.79	22.3	0.00	0.00	0.02	0.05	126	
140	9.95	9.93	33.805	26.033	199.9	0.367	2.64	115.2	41.4	24.8	1.89	24.0	0.00	0.00	0.01	0.05	141	13
150 ISL	9.78 D	9.76	33.849 D	26.096	194.0	0.389	2.60	D113.3 D	40.7	25.9	1.94	24.5	0.00	0.00	0.01	0.05	151	
170	9.56	9.55	33.921	26.189	185.6	0.424	2.30	100.5	35.8	28.2	2.03	25.6	0.00	0.00	0.00	0.05	171	12
200	9.19	9.17	34.035	26.339	171.9	0.478	1.93	84.4	29.8	33.2	2.19	27.7	0.00	0.00	0.00	0.06	202	11
230	8.92	8.89	34.107	26.440	162.9	0.528	1.50	65.4	23.0	38.7	2.36	29.4	0.00	0.00			232	10
250 ISL	8.75 D	8.72	34.139 D	26.492	158.3	0.564	1.19	D 51.7 D	18.2	42.4	2.47	30.5	0.01	0.00			252	
270	8.42	8.39	34.159	26.558	152.3	0.591	1.00	43.6	15.2	46.0	2.57	31.7	0.00	0.00			272	09
300 ISL	8.08 D	8.05	34.178 D	26.625	146.3	0.640	0.85	D 36.9 D	12.8	51.5	2.68	32.6	0.01	0.00			302	
320	7.94	7.90	34.190	26.657	143.6	0.665	0.70	30.3	10.4	55.2	2.75	33.2	0.00	0.00			323	08
380	7.26	7.22	34.220	26.779	132.6	0.748	0.36	15.8	5.4	67.7	2.98	33.8	0.00	0.00			383	07
400 ISL	7.11 D	7.07	34.232 D	26.809	130.0	0.779	0.30	D 13.1 D	4.5	71.9	3.05	33.4	0.01	0.00			403	
440	6.76	6.72	34.244	26.867	124.9	0.825	0.13	5.5	1.8	80.2	3.18	32.6	0.00	0.00			444	06
480	6.61	6.57	34.248	26.891	123.1	0.875	0.01	0.5	0.2	91.7	3.40	29.1	0.00	0.00			484	05
500 ISL	6.58 D	6.53	34.251 D	26.898	122.7	0.906	0.01	0.3	0.1	94.7	3.49	27.3	0.01	0.00			504	
515	6.55	6.50	34.260	26.910	121.8	0.918	0.00	0.1	0.0	97.0	3.55	26.0	0.00	0.07			519	04
539	6.53	6.48	34.251	26.905	122.6	0.947	0.01	0.6	0.2	102.1	3.77	20.6	1.07	0.00			544	03
560	6.53	6.48	34.249	26.905	123.0	0.973	0.01	0.6	0.2	103.0	3.81	19.8	1.19	0.00			565	02
565	6.53	6.48	34.254	26.908	122.8	0.979	0.01	0.4	0.2	103.3	3.83	19.9	1.20	0.00			570	01

A) SANTA BARBARA BASIN STATION.
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV SALLY RIDE CALCOFI CRUISE 1611 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 15.2 N	119 20.2 W	17/11/2016	2010 UTC	21 m	280 08 kn	280 02 07	0	1014.0 mb	18.6 C	13.1 C		0/8		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	16.91	16.91	33.395	24.304	361.1	0.000	5.85	255.7	105.9	3.5	0.45	0.1	0.07	0.00	4.67	0.71	0	
2	16.91	16.91	33.395	24.304	361.1	0.007	5.85	255.7	105.9	3.5	0.45	0.1	0.07	0.00	4.67	0.71	2	05
5	16.77	16.77	33.385	24.329	358.9	0.018	5.83	254.6	105.1	3.4	0.45	0.0	0.08	0.00	4.71	0.69	5	04
10	16.68	16.68	33.384	24.352	356.9	0.036	5.84	254.9	105.0	3.4	0.46	0.0	0.08	0.00	4.80	0.66	10	02
10	16.68	16.68	33.380	24.348	357.2	0.036											10	03
17	16.20	16.20	33.360	24.444	348.4	0.061	5.65	246.7	100.7	3.5	0.46	0.3	0.13	0.18	2.26	0.59	17	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 13.5 N	119 24.7 W	17/11/2016	2111 UTC	33 m	280 11 kn	300 03 07	0	1013.0 mb	17.0 C	14.0 C	07 m	0/8		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	17.07	17.07	33.394	24.268	364.5	0.000	5.79	252.7	104.9	2.2	0.30	0.0	0.04	0.05	1.54	0.28	0	
2	17.07	17.07	33.394	24.268	364.6	0.007	5.79	252.7	104.9	2.2	0.30	0.0	0.04	0.00	1.54	0.28	2	06
5	16.95	16.95	33.391	24.294	362.2	0.018	5.77	252.1	104.4	2.3	0.29	0.0	0.04	0.00	1.62	0.27	5	05
10	16.73	16.73	33.385	24.340	358.0	0.036	5.64	246.5	101.7	2.7	0.35	0.3	0.08	0.09	1.87	0.36	10	03
10	16.73	16.73	33.382	24.338	358.2	0.036											10	04
20	16.29	16.29	33.361	24.423	350.4	0.072	5.46	238.5	97.5	3.4	0.44	0.9	0.16	0.19	1.47	0.40	20	02
30	15.10	15.09	33.312	24.653	328.8	0.106	5.25	229.4	91.6	4.8	0.59	2.2	0.37	0.47	0.98	0.48	30	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 11.2 N	119 31.1 W	17/11/2016	1832 UTC	101 m	260 03 kn	230 03 11	0	1015.0 mb	18.1 C	16.2 C	17 m	0/8		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	17.09	17.09	33.415	24.277	363.6	0.000	5.61	245.1	101.9	2.8	0.32	0.9	0.07	0.08	1.18	0.30	0	
2 A	17.09	17.09	33.415	24.277	363.7	0.007	5.61	245.1	101.9	2.8	0.32	0.9	0.07	0.08	1.18	0.30	2	14
10 ISL	17.05 D	17.04	33.409 D	24.284	363.3	0.033	5.58	D243.2	D101.1	2.5	0.32	0.8	0.06	0.00	1.26	0.25	10	
12 A	17.03	17.03	33.412	24.290	362.9	0.044	5.58	243.5	101.1	2.4	0.32	0.8	0.06	0.00	1.28	0.24	12	11
12	17.03	17.03	33.417	24.294	362.5	0.043											12	13
12	17.03	17.03	33.418	24.294	362.5	0.044											12	12
16 A	16.99	16.99	33.411	24.299	362.1	0.058	5.57	243.3	100.9	2.2	0.31	0.7	0.06	0.06	1.16	0.32	16	10
20 ISL	16.98 D	16.97	33.410 D	24.302	362.0	0.069	5.56	D242.6	D100.7	2.2	0.32	0.7	0.06	0.07	1.16	0.30	20	
23	16.97	16.97	33.410	24.304	361.9	0.084	5.57	243.2	100.8	2.2	0.32	0.7	0.06	0.08	1.17	0.29	23	09
30 A	16.96	16.95	33.410	24.308	361.8	0.109	5.55	242.2	100.4	2.2	0.32	0.7	0.07	0.09	1.10	0.29	30	08
39	16.81	16.80	33.405	24.340	359.1	0.141	5.50	240.0	99.2	2.4	0.34	1.0	0.08	0.14	0.88	0.25	39	07
47	15.35	15.34	33.378	24.650	329.7	0.169	5.30	231.3	92.8	3.9	0.49	2.8	0.16	0.12	0.56	0.23	47	06
50 ISL	14.36 D	14.36	33.333 D	24.827	312.9	0.176	5.06	D220.5	D 86.9	5.4	0.63	4.8	0.18	0.00	0.49	0.23	50	
55 A	13.62	13.62	33.341	24.986	297.7	0.194	4.72	206.0	79.8	7.9	0.85	8.2	0.20	0.00	0.38	0.22	55	05
63 A	12.29	12.28	33.315	25.229	274.7	0.216	4.47	195.3	73.5	9.3	1.03	10.6	0.06	0.00	0.26	0.22	64	04
74	11.25	11.24	33.408	25.496	249.5	0.245	3.93	171.5	63.2	13.7	1.34	15.7	0.03	0.00	0.09	0.13	75	03
75 ISL	11.14 D	11.13	33.431 D	25.533	246.0	0.246	3.93	D171.1	D 63.1	14.2	1.37	16.1	0.03	0.00	0.09	0.12	76	
84	10.39	10.38	33.555	25.761	224.4	0.269	3.48	152.1	55.1	18.5	1.59	19.7	0.00	0.00	0.03	0.06	85	02
95	10.11	10.10	33.673	25.901	211.4	0.293	3.08	134.5	48.5	21.7	1.75	22.0	0.00	0.00	0.01	0.05	96	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 SALLY RIDE CALCOFI CRUISE 1611 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	17/11/2016	0555 UTC	100 m	300 25 kn			1012.3 mb	15.3 C	13.1 C				053

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.44	14.44	33.420	24.874	306.8	0.000	5.08	221.6	87.4	6.8	0.75	6.3	0.17	0.24	1.13	0.38	0	
2	14.44	14.44	33.420	24.874	306.8	0.006	5.08	221.6	87.4	6.8	0.75	6.3	0.17	0.24	1.13	0.38	2	11
10	14.45	14.45	33.419	24.872	307.3	0.031	5.06	221.1	87.2	6.8	0.75	6.3	0.16	0.22	1.10	0.39	10	09
10	14.45	14.45	33.425	24.877	306.8	0.032											10	10
20 ISL	13.74 D	13.74	33.403 D	25.009	294.5	0.061	4.87	D212.3	D 82.7	7.9	0.85	7.8	0.14	0.16	0.98	0.34	20	
21	13.60	13.59	33.405	25.040	291.6	0.064	4.85	211.8	82.1	8.0	0.86	8.0	0.14	0.15	0.97	0.34	21	08
30 ISL	11.95 D	11.95	33.386 D	25.347	262.6	0.089	4.15	D180.8	D 67.8	11.6	1.16	12.9	0.06	0.00	0.34	0.40	30	
31	11.95	11.95	33.389	25.349	262.4	0.091	4.14	180.7	67.6	12.0	1.19	13.5	0.06	0.00	0.27	0.41	31	07
40	11.42	11.41	33.433	25.483	249.9	0.114	3.87	169.0	62.5	14.2	1.35	15.9	0.04	0.00	0.17	0.21	40	06
50	10.99	10.98	33.475	25.592	239.7	0.139	3.70	161.5	59.2	15.8	1.44	17.2	0.04	0.00	0.14	0.20	50	05
60	10.50	10.49	33.591	25.770	223.0	0.162	3.32	144.9	52.6	19.6	1.62	19.9	0.06	0.00	0.09	0.12	60	04
70	10.12	10.11	33.696	25.917	209.2	0.184	2.97	129.7	46.7	22.7	1.80	22.2	0.04	0.00	0.04	0.08	71	03
75 ISL	10.00 D	9.99	33.734 D	25.967	204.6	0.195	2.90	D126.1	D 45.5	23.8	1.84	22.9	0.04	0.00	0.03	0.08	76	
85	9.78	9.77	33.801	26.057	196.3	0.214	2.66	116.1	41.6	26.2	1.92	24.1	0.04	0.00	0.03	0.08	86	02
92	9.68	9.67	33.832	26.097	192.6	0.228	2.57	112.1	40.0	27.2	1.96	24.7	0.05	0.00	0.03	0.11	93	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 44.6 N	120 24.5 W	17/11/2016	0258 UTC	2527 m	320 31 kn			1013.0 mb	15.2 C	13.2 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	16.24	16.24	33.405	24.468	345.4	0.000	5.51	240.7	98.4	1.7	0.38	1.4	0.14	0.08	0.87	0.20	0	
4	16.24	16.24	33.405	24.469	345.5	0.014	5.51	240.7	98.4	1.7	0.38	1.4	0.14	0.08	0.87	0.20	4	21
10	16.24	16.24	33.405	24.468	345.8	0.035	5.55	D242.0	D 99.1	1.6	0.38	1.4	0.14	0.10	0.88	0.24	10	19
11	16.25	16.25	33.405	24.467	345.9	0.037											11	20
20	16.19	16.18	33.407	24.482	344.8	0.069	5.50	240.0	98.0	1.5	0.39	1.4	0.14	0.07	0.90	0.23	20	18
30	15.59	15.58	33.400	24.613	332.7	0.103	5.46	238.5	96.2	1.6	0.41	1.6	0.15	0.07	0.88	0.22	30	17
41	13.88	13.87	33.350	24.941	301.6	0.138	4.87	212.7	82.8	5.3	0.78	6.9	0.26	0.00	0.68	0.34	41	16
50 ISL	12.40 D	12.39	33.365 D	25.246	272.7	0.158	4.28	D186.6	D 70.6	9.3	1.06	11.9	0.07	0.00	0.33	0.25	50	
51	12.29	12.28	33.359	25.263	271.2	0.167	4.30	187.8	70.8	9.7	1.09	12.5	0.05	0.00	0.30	0.24	51	15
60	11.84	11.83	33.363	25.351	263.0	0.191	4.18	182.5	68.1	11.2	1.19	14.2	0.05	0.00	0.18	0.18	60	14
70	11.12	11.12	33.336	25.461	252.7	0.216	4.23	184.5	67.8	11.3	1.20	14.5	0.05	0.00	0.14	0.19	71	13
75 ISL	10.54 D	10.54	33.431 D	25.637	236.0	0.223	3.89	D169.3	D 61.7	13.5	1.31	16.4	0.04	0.00	0.10	0.15	76	
85	10.13	10.12	33.515	25.775	223.1	0.252	3.62	158.1	56.9	18.0	1.54	20.0	0.03	0.00	0.03	0.08	86	12
100	9.77	9.76	33.625	25.921	209.5	0.284	3.29	143.4	51.3	21.2	1.69	22.5	0.03	0.00	0.01	0.06	101	11
120	9.35	9.34	33.780 D	26.111	191.8	0.319	2.91	127.0	45.1	24.9	1.85	24.7	0.00	0.00	0.01	0.06	121	10
125 ISL	9.31 D	9.30	33.798 D	26.132	190.0	0.329	2.81	D122.3	D 43.4	26.0	1.89	25.2	0.02	0.00	0.01	0.06	126	
141	8.92	8.90	33.892	26.269	177.2	0.361	2.50	109.3	38.4	29.3	2.00	26.8	0.00	0.00	0.00	0.05	142	09
150 ISL	8.81 D	8.80	33.951 D	26.331	171.4	0.374	2.39	D103.8	D 36.5	30.9	2.05	27.5	0.02	0.00	0.00	0.05	151	
171	8.59	8.57	34.008	26.412	164.2	0.413	2.19	95.6	33.4	34.5	2.16	29.0	0.00	0.00	0.00	0.04	172	08
200 ISL	8.40 D	8.38	34.080 D	26.498	156.5	0.456	1.79	D 77.8	D 27.1	38.4	2.29	30.4	0.02	0.00	0.00	0.04	202	
201	8.40	8.38	34.074	26.493	157.0	0.461	1.81	79.1	27.5	38.5	2.29	30.5	0.03	0.00	0.00	0.04	203	07
230	8.21	8.19	34.117	26.556	151.5	0.506	1.55	67.6	23.4	41.9	2.42	31.8	0.00	0.00			232	06
250 ISL	8.06 D	8.04	34.138 D	26.595	148.1	0.533	1.38	D 60.2	D 20.9	44.6	2.50	32.6	0.02	0.00			252	
270	7.89	7.86	34.159	26.638	144.4	0.565	1.20	52.3	18.0	47.2	2.58	33.5	0.00	0.00			272	05
300 ISL	7.77 D	7.74	34.209 D	26.695	139.5	0.606	0.93	D 40.2	D 13.9	50.7	2.68	34.3	0.02	0.00			302	
322	7.58	7.55	34.221	26.733	136.2	0.638	0.82	35.8	12.2	53.3	2.75	34.9	0.00	0.00			325	04
381	7.25	7.22	34.232	26.789	131.7	0.717	0.68	29.4	10.0	58.1	2.83	36.2	0.00	0.00			384	03
400 ISL	7.14 D	7.10	34.238 D	26.810	129.9	0.741	0.65	D 28.1	D 9.5	60.5	2.87	36.7	0.02	0.00			403	
441	6.75	6.71	34.263	26.883	123.3	0.794	0.49	21.2	7.1	65.7	2.95	37.9	0.00	0.00			445	02
500 ISL	6.55 D	6.50	34.278 D	26.924	120.3	0.866	0.43	D 18.7	D 6.2	70.8	3.03	38.9	0.02	0.00			504	
518	6.38	6.34	34.287	26.952	117.7	0.887	0.37	15.9	5.3	72.4	3.06	39.2	0.00	0.00			522	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 83.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 34.6 N	120 45.3 W	16/11/2016	2303	UTC	1384 m	340 35 kn	350 10 08	0	1013.3 mb	15.4 C	13.9 C		0/8		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	16.11	16.11	33.414	24.504	342.0	0.000	5.72	249.6	101.7	1.1	0.35	0.8	0.07	0.10	1.59	0.32	0	
3	16.11	16.11	33.414	24.504	342.1	0.010	5.72	249.6	101.7	1.1	0.35	0.8	0.07	0.10	1.59	0.32	3	21
10 ISL	16.11 D	16.11	33.412 D	24.503	342.5	0.035	5.65	D246.4	D100.6	0.8	0.32	0.7	0.06	0.09	1.54	0.29	10	
11	16.10	16.09	33.414	24.508	342.0	0.038											11	20
12	16.10	16.10	33.412	24.505	342.3	0.041	5.65	246.7	100.5	0.7	0.31	0.7	0.06	0.09	1.53	0.27	12	19
20 ISL	16.11 D	16.10	33.412 D	24.504	342.7	0.069	5.64	D246.0	D100.4	0.6	0.31	0.6	0.06	0.06	1.64	0.29	20	
21	16.12	16.11	33.415	24.505	342.6	0.072	5.64	246.4	100.4	0.6	0.31	0.6	0.06	0.06	1.66	0.30	21	18
30 ISL	16.10 D	16.09	33.411 D	24.507	342.8	0.104	5.62	D245.1	D100.1	0.6	0.35	0.7	0.07	0.38	1.62	0.35	30	
31	16.08	16.07	33.412	24.513	342.3	0.106	5.63	245.9	100.2	0.6	0.35	0.7	0.07	0.41	1.61	0.35	31	17
41	13.57	13.57	33.397	25.040	292.2	0.138	5.10	222.6	86.2	3.5	0.60	4.6	0.22	0.14	1.76	0.41	41	16
50 ISL	12.89 D	12.88	33.383 D	25.165	280.5	0.165	4.32	D188.1	D 72.0	8.5	1.03	10.7	0.19	0.00	1.11	0.43	50	
51	12.78	12.77	33.386	25.189	278.2	0.166	4.33	188.9	71.9	9.1	1.08	11.4	0.19	0.00	1.03	0.43	51	15
61	11.73	11.73	33.391	25.392	259.1	0.193	4.15	181.4	67.5	11.1	1.20	13.9	0.09	0.06	0.31	0.40	61	14
71	10.90	10.89	33.440	25.582	241.2	0.218	3.82	166.9	61.1	14.9	1.40	17.6	0.04	0.08	0.10	0.16	72	13
75 ISL	10.58 D	10.57	33.502 D	25.686	231.4	0.230	3.75	D163.4	D 59.6	16.1	1.46	18.5	0.04	0.00	0.08	0.15	76	
86	10.12	10.11	33.570	25.819	219.0	0.253	3.40	148.3	53.4	19.5	1.64	21.2	0.03	0.00	0.04	0.11	87	12
100 ISL	9.73 D	9.72	33.655 D	25.951	206.6	0.285	3.19	D138.7	D 49.7	22.2	1.75	23.0	0.02	0.00	0.02	0.08	101	
101	9.71	9.70	33.659	25.957	206.1	0.285	3.13	136.6	48.8	22.3	1.76	23.2	0.00	0.00	0.02	0.08	102	11
121	9.39	9.37	33.791	26.114	191.5	0.324	2.78	121.2	43.0	26.1	1.91	25.1	0.00	0.00	0.01	0.05	122	10
125 ISL	9.36 D	9.35	33.803 D	26.128	190.3	0.334	2.73	D119.0	D 42.3	26.5	1.92	25.3	0.02	0.00	0.01	0.05	126	
141	9.24	9.22	33.852	26.187	185.1	0.362	2.56	111.9	39.6	28.1	1.97	26.2	0.00	0.00	0.01	0.05	142	09
150 ISL	9.16 D	9.14	33.899 D	26.236	180.6	0.381	2.44	D106.2	D 37.6	28.9	2.00	26.6	0.02	0.00	0.01	0.05	151	
171	9.01	9.00	33.933	26.287	176.2	0.416	2.37	103.6	36.5	30.9	2.07	27.5	0.00	0.00	0.00	0.05	172	08
200 ISL	8.83 D	8.80	34.056 D	26.414	164.7	0.469	1.88	D 82.0	D 28.9	35.3	2.25	29.2	0.02	0.00	0.01	0.05	202	
202	8.82	8.80	34.063	26.420	164.1	0.469	1.85	80.9	28.4	35.6	2.26	29.3	0.00	0.00	0.01	0.05	204	07
231	8.54	8.52	34.126	26.513	155.8	0.515	1.53	66.9	23.3	39.6	2.40	30.7	0.00	0.00			233	06
250 ISL	8.47 D	8.44	34.148 D	26.542	153.4	0.548	1.41	D 61.3	D 21.4	42.0	2.47	31.6	0.02	0.00			252	
271	8.17	8.15	34.165	26.600	148.2	0.576	1.23	53.7	18.6	44.7	2.54	32.6	0.00	0.33			273	05
300 ISL	8.02 D	7.99	34.198 D	26.650	143.9	0.623	1.04	D 45.2	D 15.6	48.4	2.63	33.6	0.01	0.00			302	
321	7.76	7.72	34.204	26.694	140.0	0.649	0.91	39.6	13.6	51.0	2.69	34.4	0.00	0.00			324	04
382	6.98	6.94	34.241	26.834	127.2	0.730	0.59	25.6	8.6	62.6	2.91	37.3	0.00	0.00			385	03
400 ISL	6.78 D	6.74	34.254 D	26.872	123.7	0.758	0.52	D 22.5	D 7.6	65.3	2.95	37.8	0.01	0.00			403	
442	6.38	6.34	34.281	26.946	117.0	0.803	0.38	16.5	5.5	71.7	3.05	39.0	0.00	0.00			446	02
500 ISL	6.02 D	5.97	34.313 D	27.019	110.6	0.876	0.31	D 13.4	D 4.4	79.0	3.15	40.3	0.01	0.00			504	
520	5.86	5.82	34.322	27.046	108.2	0.891	0.27	11.7	3.8	81.6	3.18	40.8	0.00	0.00			524	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 14.6 N	121 26.6 W	16/11/2016	1632	UTC	3816 m	330 27 kn		1	1016.2 mb	17.1 C	16.0 C	18 m	7/8	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	16.71	16.71	33.411	24.364	355.3	0.000	5.61	244.9	101.0	0.8	0.24	0.2	0.04	0.22	0.63	0.14	0	
3 A	16.71	16.70	33.411	24.365	355.3	0.011	5.61	244.9	101.0	0.8	0.24	0.2	0.04	0.22	0.63	0.14	3	24
10 ISL	16.70 D	16.70	33.410 D	24.366	355.5	0.036	5.59	D243.7	D100.7	0.7	0.25	0.2	0.03	0.00	0.63	0.14	10	
12	16.71	16.71	33.413	24.366	355.6	0.043											12	23
13 A	16.71	16.71	33.411	24.364	355.8	0.046	5.61	245.0	101.0	0.7	0.26	0.2	0.03	0.00	0.63	0.13	13	22
17 A	16.70	16.70	33.414	24.370	355.4	0.061	5.61	245.0	101.0	0.7	0.24	0.1	0.03	0.00	0.62	0.14	17	21
20 ISL	16.69 D	16.69	33.411 D	24.369	355.6	0.072	5.56	D242.3	D100.1	0.8	0.26	0.3	0.05	0.00	0.64	0.15	20	
24	15.50	15.49	33.407	24.638	330.1	0.085	5.57	243.4	98.0	1.0	0.28	0.5	0.07	0.06	0.66	0.17	24	20
30 A	14.24	14.23	33.378	24.887	306.5	0.104	4.76	207.9	81.6	5.9	0.77	7.0	0.38	0.00	0.67	0.29	30	19
38	12.10	12.09	33.322	25.270	270.1	0.127	4.36	190.6	71.5	10.0	1.10	12.7	0.06	0.00	0.25	0.25	38	17
38	12.10	12.09	33.324	25.272	269.9	0.127											38	18
46	11.49	11.49	33.380	25.428	255.3	0.148	4.05	177.1	65.6	12.5	1.27	15.4	0.04	0.00	0.14	0.18	46	16
50 ISL	11.33 D	11.33	33.438 D	25.502	248.3	0.159	3.83	D166.7	D 61.7	13.4	1.32	16.1	0.04	0.00	0.13	0.16	50	
56 A	10.94	10.93	33.499 D	25.621	237.1	0.174	3.56	D154.9	D 56.9	14.7	1.40	17.2	0.04	0.00	0.10	0.13	56	15
63 A	10.66	10.65	33.532	25.695	230.2	0.189	3.47	151.3	55.1	17.5	1.56	19.7	0.00	0.00	0.05	0.10	64	14
75	10.24	10.23	33.573	25.801	220.4	0.216	3.33	145.4	52.5	19.2	1.63	20.9	0.00	0.00	0.03	0.08	76	13
86	9.91	9.90	33.630	25.901	211.1	0.240	3.18	139.0	49.8	21.3	1.73	22.5	0.00	0.00	0.02	0.06	87	12
100 ISL	9.60 D	9.59	33.702 D	26.009	201.1	0.270	3.01	D130.9	D 46.8	23.8	1.82	24.1	0.02	0.00	0.01	0.06	101	
101	9.48	9.47	33.713	26.038	198.4	0.271	2.98	130.3	46.3	24.0	1.83	24.3	0.00	0.00	0.01	0.06	102	11
121	9.17	9.15	33.829	26.179	185.3	0.309	2.77	120.7	42.6	27.4	1.94	26.0	0.00	0.00	0.00	0.04	122	10
125 ISL	9.15 D	9.14	33.840 D	26.190	184.3	0.318	2.74	D119.4	D 42.3	27.9	1.95	26.2	0.02	0.00	0.00	0.04	126	
141	8.98	8.97	33.891	26.258	178.3	0.346	2.62	114.3	40.2	29.5	2.00	27.0	0.00	0.00	0.00	0.04	142	09
150 ISL	8.93 D	8.91	33.919 D	26.289	175.5	0.364	2.52	D109.4	D 38.6	31.0	2.04	27.6	0.02	0.00	0.00	0.04	151	
169	8.54	8.53	33.995	26.408	164.4	0.394	2.33	101.6	35.4	34.1	2.13	29.0	0.00	0.00	0.00	0.04	170	08
200 ISL	8.16 D	8.14	34.078 D	26.532	153.2	0.446	1.76	D 76.5	D 26.6	39.1	2.26	30.6	0.03	0.00	0.00	0.03	202	
201	8.16	8.14	34.089 D	26.541	152.4	0.447	1.68	D 72.9	D 25.3	39.2	2.26	30.7	0.03	0.00	0.00	0.03	203	07
230	7.93	7.91	34.108	26.590	148.2	0.489	1.52	66.4	22.8	44.5	2.47	32.7	0.00	0.00			232	06
250 ISL	7.84 D	7.81	34.132 D	26.623	145.4	0.521	1.33	D 57.9	D 19.9	46.5	2.53	33.2	0.01	0.00			252	
271	7.80	7.77	34.156	26.649	143.3	0.548	1.21	52.8	18.1	48.6	2.60	33.9	0.00	0.00			273	05
300 ISL	7.55 D	7.52	34.217 D	26.734	135.7	0.592	0.87	D 37.8	D 13.0	52.6	2.71	34.9	0.01	0.00			302	
320	7.40	7.37	34.221	26.758	133.7	0.616	0.78	33.9	11.5	55.4	2.78	35.6	0.00	0.00			323	04
381	6.93	6.89	34.247	26.845	126.1	0.695	0.55	24.0	8.1	63.3	2.92	37.5	0.00	0.00			384	03
400 ISL	6.81 D	6.78	34.252 D	26.865	124.4	0.723	0.53	D 23.0	D 7.7	65.1	2.96	37.9	0.01	0.00			403	
440	6.52	6.48	34.259	26.910	120.5	0.768	0.44	19.3	6.4	68.9	3.03	38.8	0.00	0.00			444	02
500 ISL	6.16 D	6.12	34.303 D	26.993	113.3	0.843	0.33	D 14.4	D 4.8	76.6	3.13	39.9	0.01	0.00			504	
516	6.05	6.01	34.310	27.012	111.6	0.856	0.29	12.8	4.2	78.6	3.16	40.2	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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	16/11/2016	0952 UTC	4209 m	340 22 kn			1017.3 mb	17.2 C	16.1 C				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	17.88	17.88	33.228	23.945	395.3	0.000	5.49	239.6	101.0	1.4	0.20	0.1	0.01	0.03	0.19	0.02	0	
2	17.88	17.88	33.228	23.945	395.3	0.008	5.49	239.6	101.0	1.4	0.20	0.1	0.00	0.00	0.19	0.02	2	21
10 ISL	17.89 D	17.88	33.222 D	23.941	396.1	0.040	5.49	D239.5	D101.1	0.9	0.25	0.0	0.02	0.00	0.19	0.03	10	
10	17.89	17.88	33.222	23.941	396.1	0.040											10	20
11	17.89	17.88	33.223	23.941	396.1	0.044	5.49	239.8	101.1	0.9	0.26	0.0	0.00	0.00	0.19	0.03	11	19
20	17.89	17.88	33.227	23.945	396.1	0.079	5.51	240.5	101.4	0.8	0.25	0.0	0.00	0.00	0.18	0.03	20	18
30	17.67	17.66	33.240	24.009	390.3	0.119	5.52	240.8	101.1	0.8	0.27	0.0	0.00	0.00	0.22	0.03	30	17
40	16.76	16.75	33.334	24.297	363.2	0.156	5.75	250.9	103.5	0.9	0.30	0.0	0.00	0.00	0.44	0.12	40	16
50	15.36	15.36	33.276	24.567	337.7	0.191	5.70	249.0	99.9	1.6	0.36	0.4	0.14	0.00	0.81	0.40	50	15
60	14.16	14.15	33.254	24.810	314.7	0.224	5.10	222.6	87.1	3.8	0.67	5.7	0.09	0.00	0.58	0.38	60	14
70	12.53	12.52	33.228	25.116	285.7	0.254	4.72	206.1	78.0	6.7	0.94	10.0	0.04	0.00	0.29	0.22	71	13
75 ISL	12.26 D	12.25	33.225 D	25.166	281.0	0.270	4.70	D204.7	D 77.2	8.4	1.05	11.8	0.04	0.00	0.23	0.19	76	
86	11.29	11.28	33.355	25.447	254.5	0.297	4.12	179.8	66.3	12.3	1.29	15.8	0.03	0.00	0.10	0.11	87	12
100	9.92	9.91	33.526	25.818	219.3	0.330	3.57	156.0	55.9	18.6	1.59	20.8	0.00	0.00	0.02	0.04	101	11
120	9.21	9.20	33.671	26.048	197.7	0.372	3.43	149.7	52.9	22.9	1.70	22.9	0.00	0.00	0.00	0.03	121	10
125 ISL	9.19 D	9.17	33.716 D	26.088	194.1	0.384	3.42	D148.8	D 52.7	23.8	1.73	23.4	0.02	0.00	0.00	0.03	126	
140	8.95	8.93	33.813	26.202	183.5	0.410	3.09	134.8	47.4	26.6	1.82	25.0	0.00	0.00	0.00	0.02	141	09
150 ISL	8.91 D	8.89	33.884 D	26.264	177.8	0.431	2.82	D122.7	D 43.2	28.2	1.87	25.7	0.02	0.00	0.00	0.02	151	
170	8.57	8.56	33.943	26.363	168.7	0.463	2.71	118.3	41.2	31.5	1.98	27.3	0.00	0.00	0.00	0.02	171	08
200	8.36	8.34	33.992	26.435	162.5	0.513	2.42	105.7	36.7	34.6	2.09	28.7	0.00	0.00	0.00	0.02	202	07
230	7.95	7.93	34.056	26.547	152.3	0.560	1.83	79.7	27.4	41.0	2.33	31.6	0.00	0.00			232	06
250 ISL	7.56 D	7.53	34.047 D	26.597	147.7	0.593	1.76	D 76.7	D 26.3	44.4	2.39	32.7	0.02	0.00			252	
270	7.28	7.25	34.053	26.641	143.7	0.619	1.67	73.0	24.7	47.8	2.45	33.7	0.00	0.00			272	05
300 ISL	7.58 D	7.55	34.182 D	26.702	138.7	0.665	0.99	D 42.9	D 14.7	52.6	2.60	35.1	0.02	0.00			302	
320	7.02	6.99	34.117	26.729	136.1	0.691	1.10	47.8	16.1	55.8	2.70	36.1	0.00	0.00			323	04
380	6.33	6.29	34.145	26.845	125.5	0.769	0.74	32.3	10.7	66.2	2.88	38.7	0.00	0.00			383	03
400 ISL	6.12 D	6.08	34.160 D	26.883	122.0	0.796	0.66	D 28.8	D 9.5	68.8	2.93	39.2	0.02	0.00			403	
440	5.98	5.94	34.225	26.953	115.8	0.842	0.42	18.5	6.1	74.0	3.03	40.2	0.00	0.00			444	02
500 ISL	5.68 D	5.64	34.265 D	27.022	109.9	0.913	0.31	D 13.7	D 4.5	81.1	3.13	41.3	0.02	0.00			504	
516	5.55	5.51	34.263	27.036	108.6	0.927	0.29	12.6	4.1	83.1	3.16	41.6	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 48.6 W	16/11/2016	0351 UTC	4292 m	350 16 kn			1018.2 mb	17.0 C	16.4 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	17.88	17.88	33.301	24.003	389.8	0.000	5.49	239.6	101.0	1.1	0.26	0.0	0.01	0.02	0.24	0.05	0	
2	17.88	17.87	33.301	24.003	389.9	0.008	5.49	239.6	101.0	1.1	0.26	0.0	0.00	0.00	0.24	0.05	2	21
10	17.88	17.88	33.303	24.004	390.1	0.039	5.49	239.8	101.1	1.1	0.27	0.0	0.00	0.00	0.23	0.05	10	19
10	17.88	17.88	33.301	24.003	390.1	0.040											10	20
20	17.88	17.88	33.302	24.004	390.4	0.078	5.49	239.8	101.1	1.1	0.25	0.0	0.00	0.00	0.24	0.05	20	18
30	17.87	17.86	33.338	24.035	387.8	0.117	5.50	240.3	101.3	1.0	0.26	0.0	0.00	0.00	0.32	0.09	30	17
40	17.20	17.19	33.417	24.256	367.1	0.155	5.52	241.0	100.4	1.3	0.31	0.1	0.00	0.00	0.75	0.20	40	16
50	15.52	15.52	33.407	24.634	331.4	0.190	5.21	227.6	91.7	3.2	0.53	3.4	0.17	0.00	0.89	0.43	50	15
60	13.27	13.26	33.309	25.034	293.3	0.221	4.65	203.2	78.1	6.9	0.98	10.3	0.06	0.00	0.48	0.37	60	14
70	11.96	11.95	33.355	25.324	265.9	0.249	4.23	184.6	69.1	10.6	1.17	14.5	0.04	0.00	0.28	0.29	71	13
75 ISL	11.48 D	11.47	33.394 D	25.441	254.8	0.260	4.02	D175.1	D 65.0	12.4	1.26	16.0	0.03	0.00	0.22	0.23	76	
85	10.70	10.69	33.473	25.643	235.7	0.286	3.68	160.8	58.6	16.2	1.44	19.1	0.00	0.00	0.10	0.11	86	12
100 ISL	9.98 D	9.97	33.599 D	25.865	214.8	0.319	3.32	D144.5	D 52.0	19.9	1.64	21.7	0.02	0.00	0.04	0.06	101	
101	9.86	9.84	33.595	25.883	213.1	0.322	3.33	145.2	52.0	20.1	1.65	21.9	0.00	0.00	0.03	0.05	102	11
120	9.35	9.34	33.763	26.098	193.0	0.361	2.90	126.4	44.8	25.2	1.85	25.0	0.00	0.00	0.00	0.03	121	10
125 ISL	9.34 D	9.32	33.772 D	26.108	192.2	0.369	2.89	D126.0	D 44.8	25.8	1.89	25.3	0.01	0.00	0.00	0.03	126	
140	9.17	9.16	33.853	26.198	184.0	0.399	2.64	115.4	40.8	27.7	2.00	26.2	0.00	0.00	0.00	0.04	141	09
150 ISL	9.06 D	9.05	33.894 D	26.248	179.4	0.416	2.62	D113.8	D 40.3	29.1	2.01	26.8	0.01	0.00	0.00	0.03	151	
170	8.77	8.75	33.954	26.342	170.8	0.452	2.41	105.3	36.9	31.8	2.04	28.0	0.00	0.00	0.00	0.03	171	08
200 ISL	8.41 D	8.39	34.019 D	26.448	161.2	0.501	2.13	D 92.8	D 32.4	36.2	2.17	29.8	0.01	0.00	0.00	0.03	202	
201	8.40	8.38	34.019	26.450	161.0	0.503	2.11	92.0	32.0	36.4	2.17	29.9	0.00	0.00	0.00	0.03	203	07
230	7.93	7.90	34.044	26.541	152.8	0.549	1.92	83.8	28.8	41.0	2.28	31.5	0.00	0.00			232	06
250 ISL	7.79 D	7.77	34.065 D	26.578	149.6	0.579	1.73	D 75.2	D 25.9	44.6	2.40	32.8	0.01	0.00			252	
270	7.60	7.57	34.107	26.639	144.1	0.608	1.33	58.1	19.9	48.1	2.51	34.0	0.00	0.00			272	05
300 ISL	7.35 D	7.32	34.140 D	26.700	138.7	0.651	1.08	D 46.9	D 16.0	52.7	2.62	35.2	0.01	0.00			302	
320	7.11	7.08	34.135	26.731	135.9	0.679	0.99	43.4	14.6	55.8	2.70	36.0	0.00	0.00			323	04
380	6.30	6.26	34.130	26.837	126.2	0.757	0.79	34.5	11.4	65.6	2.84	38.9	0.00	0.00			383	03
400 ISL	6.21 D	6.17	34.138 D	26.854	124.8	0.784	0.74	D 32.3	D 10.7	68.3	2.90	39.4	0.01	0.00			403	
441	5.84	5.80	34.162	26.921	118.7	0.832	0.55	24.2	7.9	73.8	3.03	40.4	0.00	0.00			445	02
500 ISL	5.57 D	5.53	34.233 D	27.010	110.8	0.902	0.36	D 15.8	D 5.2	81.3	3.08	41.5	0.01	0.00			504	
517	5.49	5.45	34.245	27.029	109.2	0.919	0.32	13.9	4.5	83.4	3.10	41.9	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 SALLY RIDE CALCOFI CRUISE 1611 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 14.6 N	123 29.6 W	15/11/2016	2206 UTC	4191 m	330 14 kn	340 04 08	2	1018.9 mb	17.9 C	15.5 C	18 m	8/8	ST	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	17.47	17.47	33.080	23.931	396.6	0.000	5.59	244.0	101.9	0.5	0.22	0.0	0.01	0.02	0.20	0.05	0	
2	17.47	17.47	33.080	23.932	396.7	0.008	5.59	244.0	101.9	0.5	0.22	0.0	0.00	0.00	0.20	0.05	2	21
10	17.46	17.46	33.088	23.940	396.1	0.040	5.58	D243.2	D101.7	0.7	0.23	0.0	0.00	0.00	0.22	0.04	10	19
11	17.43	17.43	33.081	23.943	395.9	0.042											11	20
20	17.37	17.36	33.125	23.991	391.6	0.079	5.61	245.0	102.1	0.4	0.22	0.0	0.00	0.00	0.24	0.08	20	18
30	17.25	17.25	33.148	24.037	387.6	0.118	5.68	248.2	103.3	0.3	0.23	0.0	0.00	0.06	0.34	0.10	30	17
40	16.51	16.50	33.213	24.262	366.5	0.156	5.85	255.4	104.7	0.6	0.25	0.0	0.00	0.06	0.40	0.21	40	16
50	16.38	16.37	33.304	24.362	357.3	0.192	5.72	249.9	102.3	0.7	0.28	0.0	0.04	0.08	0.61	0.37	50	15
60	15.59	15.58	33.284	24.524	342.2	0.227	5.57	243.3	98.1	1.1	0.34	0.2	0.14	0.62	0.46	0.23	60	14
71	14.37	14.36	33.145	24.682	327.3	0.264	5.66	247.2	97.1	1.9	0.37	1.0	0.34	0.32	0.28	0.25	72	13
75 ISL	13.51 D	13.50	33.126 D	24.845	311.8	0.275	5.65	D246.3 D	95.3	2.2	0.43	2.1	0.25	0.00	0.26	0.23	76	
85	12.61	12.60	33.100	25.002	297.0	0.307	5.41	236.5	89.5	3.2	0.57	4.9	0.05	0.00	0.21	0.18	86	12
100	11.91	11.89	33.204	25.217	276.8	0.350	4.93	215.1	80.3	6.8	0.80	8.5	0.03	0.00	0.11	0.12	101	11
120	10.27	10.25	33.332	25.610	239.6	0.402	4.27	186.4	67.2	13.9	1.27	16.1	0.03	0.00	0.04	0.06	121	10
125 ISL	10.08 D	10.06	33.394 D	25.690	232.1	0.412	4.18	D182.0 D	65.6	15.4	1.34	17.3	0.02	0.00	0.03	0.05	126	
140	9.43	9.41	33.521	25.897	212.6	0.447	3.83	167.4	59.3	19.9	1.56	21.0	0.00	0.00	0.01	0.03	141	09
150 ISL	9.22 D	9.20	33.637 D	26.022	200.9	0.466	3.63	D158.1 D	56.0	21.8	1.62	22.1	0.02	0.00	0.01	0.03	151	
170	8.94	8.92	33.765	26.166	187.5	0.507	3.35	146.2	51.3	25.4	1.75	24.4	0.00	0.06	0.00	0.03	171	08
200	8.44	8.42	33.931	26.375	168.2	0.560	2.86	124.7	43.3	31.6	1.93	27.1	0.00	0.00	0.00	0.03	202	07
230	7.94	7.92	33.981	26.490	157.7	0.609	2.61	114.0	39.2	36.8	2.09	29.2	0.00	0.00			232	06
250 ISL	7.72 D	7.70	34.009 D	26.543	152.9	0.639	2.35	D102.4 D	35.2	41.1	2.21	30.9	0.02	0.00			252	
270	7.45	7.42	34.032	26.601	147.6	0.670	1.97	86.2	29.3	45.4	2.33	32.6	0.00	0.00			272	05
300 ISL	7.26 D	7.23	34.078 D	26.665	141.9	0.713	1.52	D 66.2 D	22.5	50.0	2.52	34.4	0.02	0.00			302	
320	7.24	7.21	34.139	26.716	137.4	0.741	1.07	46.9	15.9	53.1	2.65	35.5	0.00	0.00			323	04
380	6.60	6.56	34.169	26.828	127.4	0.821	0.78	34.2	11.4	62.9	2.85	38.2	0.00	0.00			383	03
400 ISL	6.50 D	6.46	34.181 D	26.850	125.5	0.847	0.66	D 28.8 D	9.6	65.2	2.89	38.8	0.01	0.00			403	
440	6.26	6.22	34.210	26.906	120.6	0.895	0.48	21.1	7.0	69.9	2.97	39.9	0.00	0.00			444	02
500 ISL	5.91 D	5.87	34.268 D	26.996	112.6	0.968	0.35	D 15.0 D	4.9	76.6	3.09	40.8	0.01	0.00			504	
517	5.89	5.84	34.288	27.015	111.0	0.984	0.30	12.9	4.2	78.6	3.12	41.0	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 SALLY RIDE CALCOFI CRUISE 1611 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 55.4 N	124 10.4 W	15/11/2016	1717 UTC	4221 m	340 13 kn	350 05 10	2	1021.4 mb	18.0 C	16.0 C	27 m	8/8	ST	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	18.19	18.19	33.080	23.757	413.3	0.000	5.48	238.9	101.3	1.4	0.22	0.0	0.01	0.00	0.14	0.03	0	
2 A	18.19	18.19	33.080	23.757	413.3	0.008	5.48	238.9	101.3	1.4	0.22	0.0	0.00	0.00	0.14	0.03	2	24
10 ISL	18.19 D	18.19	33.079 D	23.756	413.7	0.038	5.46	D238.1	D101.0	1.3	0.22	0.0	0.00	0.00	0.14	0.03	10	
10	18.19	18.19	33.081	23.757	413.6	0.042											10	23
11	18.20	18.19	33.080	23.757	413.7	0.046	5.46	238.2	101.0	1.3	0.22	0.0	0.00	0.00	0.14	0.03	11	22
17 A	18.19	18.19	33.080	23.758	413.8	0.070	5.48	238.8	101.3	1.3	0.22	0.0	0.00	0.00	0.14	0.03	17	21
20 ISL	18.20 D	18.19	33.080 D	23.757	414.0	0.079	5.45	D237.8	D100.9	1.3	0.22	0.0	0.00	0.00	0.15	0.03	20	
25 A	18.20	18.19	33.084	23.761	413.8	0.103	5.47	238.6	101.2	1.3	0.22	0.0	0.00	0.00	0.15	0.03	25	20
30 ISL	18.20 D	18.19	33.080 D	23.758	414.3	0.121	5.45	D237.8	D100.9	1.2	0.22	0.0	0.00	0.00	0.15	0.03	30	
34	18.19	18.18	33.080	23.759	414.3	0.141	5.46	238.0	100.9	1.2	0.22	0.0	0.00	0.00	0.15	0.03	34	19
44 A	18.00	18.00	33.096	23.818	409.1	0.182	5.52	240.7	101.7	1.0	0.23	0.0	0.00	0.00	0.23	0.06	44	18
50 ISL	17.82 D	17.82	33.117 D	23.878	403.6	0.204	5.53	D241.0	D101.5	1.2	0.23	0.0	0.00	0.00	0.25	0.10	50	
57	16.88	16.87	33.135	24.116	381.1	0.234	5.82	253.6	104.9	1.3	0.22	0.0	0.00	0.00	0.28	0.14	57	17
70	15.17	15.16	33.189	24.545	340.4	0.281	5.91	257.4	103.0	1.8	0.23	0.0	0.00	0.00	0.36	0.31	71	15
70	15.17	15.16	33.189	24.545	340.4	0.281											71	16
75 ISL	14.82 D	14.81	33.203 D	24.632	332.3	0.295	5.92	D258.2	D102.6	2.1	0.29	0.5	0.08	0.00	0.34	0.31	76	
83 A	13.66	13.65	33.146	24.830	313.5	0.324	5.67	247.0	95.9	2.7	0.38	1.4	0.19	0.00	0.29	0.31	84	14
93 A	13.35	13.33	33.153	24.899	307.1	0.355	5.59	243.6	93.9	3.0	0.43	2.3	0.14	0.00	0.24	0.26	94	13
100 ISL	12.75 D	12.73	33.156 D	25.020	295.8	0.374	5.53	D240.9 D	91.7	4.1	0.52	4.1	0.06	0.00	0.18	0.21	101	
102	12.63	12.62	33.185	25.065	291.4	0.381	5.33	232.4	88.3	4.4	0.55	4.6	0.03	0.00	0.16	0.20	103	12
110	11.86	11.85	33.220	25.238	275.1	0.404	4.91	213.7	79.9	7.5	0.84	9.2	0.00	0.00	0.11	0.14	111	11
125	10.63	10.61	33.295	25.520	248.4	0.443	4.48	195.1	71.1	12.0	1.17	14.4	0.00	0.00	0.05	0.07	126	10
140	9.76	9.75	33.482	25.812	220.7	0.479	3.94	171.4	61.4	18.3	1.50	19.7	0.00	0.00	0.01	0.03	141	09
150 ISL	9.50 D	9.48	33.547 D	25.907	211.9	0.499	3.87	D168.6 D	60.0	19.9	1.54	20.6	0.01	0.00	0.01	0.02	151	
171	9.07	9.06	33.745	26.130	191.1	0.542	3.68	160.2	56.6	23.3	1.62	22.5	0.00	0.00	0.00	0.02	172	08
200	8.68	8.65	33.898	26.313	174.2	0.595	3.48	151.2	53.0	27.5	1.73	24.3	0.00	0.00	0.00	0.02	202	07
230	8.17	8.14	33.969	26.447	161.8	0.646	3.13	136.2	47.2	33.2	1.88	26.7	0.00	0.00			232	06
250 ISL	7.95 D	7.93	33.987 D	26.492	157.8	0.678	2.84	D123.3 D	42.6	37.4	2.05	28.9	0.01	0.00			252	
271	7.73	7.70	34.029	26.559	151.8	0.710	2.21	96.2	33.0	41.9	2.23	31.2	0.00	0.00			273	05
300 ISL	7.52 D	7.49	34.065 D	26.618	146.6	0.755	1.72	D 75.0 D	25.6	47.5	2.41	33.4	0.01	0.00			302	
320	7.16	7.13	34.075	26.676	141.2	0.782	1.49	64.6	21.9	51.4	2.54	34.9	0.00	0.00			323	04
380	6.66	6.63	34.117	26.778	132.1	0.864	0.99	42.9	14.4	59.8	2.75	37.6	0.00	0.00			383	03
400 ISL	6.56 D	6.52	34.147 D	26.816	128.7	0.893	0.85	D 36.9 D	12.3	63.0	2.81	38.3	0.01	0.00			403	
440	6.21	6.17	34.185	26.892	121.9	0.941	0.58	25.4	8.4	69.4	2.94	39.7	0.00	0.00			444	02
500 ISL	5.95 D	5.90	34.228 D	26.960	116.0	1.015	0.42	D 18.4 D	6.1	76.9	3.07	41.0	0.01	0.00			504	
517	5.81	5.76	34.251	26.996	112.7	1.031	0.36	15.6	5.1	79.1	3.11	41.4	0.00	0.00			521	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 SALLY RIDE CALCOFI CRUISE 1611 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 0.8 N	118 50.0 W	17/11/2016	1335 UTC	24 m	350 07 kn			1011.7 mb	17.0 C	14.0 C				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	15.86	15.86	33.307	24.479	344.4	0.000	5.54	241.8	98.0	4.3	0.45	1.2	0.19	0.78	0.96	0.41	0	
2	15.86	15.86	33.307	24.479	344.5	0.007	5.54	241.8	98.0	4.3	0.45	1.2	0.19	0.78	0.96	0.41	2	05
5	15.90	15.90	33.311	24.473	345.1	0.017	5.53	241.5	98.0	4.2	0.47	1.0	0.22	0.84	0.89	0.43	5	04
10	15.81	15.81	33.304	24.487	344.0	0.034	5.52	240.9	97.5	4.2	0.46	1.1	0.23	0.93	0.90	0.44	10	02
10	15.81	15.81	33.305	24.488	343.9	0.035											10	03
15	15.63	15.62	33.297	24.524	340.6	0.052	5.44	237.3	95.8	4.5	0.49	1.4	0.30	1.32	0.89	0.43	15	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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	13/11/2016	0603	UTC	56 m	140 06 kn			1015.7 mb	19.2 C	18.2 C				034

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	19.07	19.07	33.447	23.818	407.4	0.000	5.52	241.1	104.1	1.7	0.22	0.0	0.01	0.00	0.32	0.07	0	
2	19.07	19.07	33.447	23.818	407.4	0.008	5.52	241.1	104.1	1.7	0.22	0.0	0.00	0.00	0.32	0.07	2	08
5	18.98	18.98	33.444	23.838	405.7	0.020	5.54	242.0	104.3	1.7	0.24	0.0	0.00	0.00	0.30	0.07	5	07
10 ISL	18.47 D	18.47	33.407 D	23.939	396.3	0.041	5.69	D248.2	D106.1	1.7	0.23	0.1	0.01	0.00	0.34	0.08	10	
10	18.47	18.47	33.430	23.956	394.7	0.042											10	06
11	18.75	18.74	33.431	23.889	401.1	0.044	5.61	244.9	105.0	1.7	0.23	0.1	0.00	0.00	0.35	0.09	11	05
20	15.59	15.59	33.273	24.513	341.8	0.078	5.89	257.4	103.7	2.9	0.33	0.0	0.00	0.00	0.60	0.22	20	04
30	13.89	13.89	33.256	24.864	308.6	0.110	4.87	212.6	82.8	7.0	0.79	5.6	1.06	2.04	0.76	0.41	30	03
40	13.23	13.23	33.225	24.974	298.4	0.141	4.44	D193.2	D 74.4	9.9	1.14	11.2	1.43	6.12	0.48	0.29	40	02
50	12.88	12.87	33.254	25.068	289.7	0.170	4.21	184.0	70.2	10.1	1.12	12.3	1.13	3.24	0.31	0.25	50	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 37.7 W	13/11/2016	0813	UTC	643 m	220 04 kn			1016.1 mb	19.5 C	18.5 C				035

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	19.39	19.39	33.458	23.746	414.3	0.000	5.43	237.2	103.0	1.8	0.24	0.0	0.02	0.00	0.20	0.04	0	
2	19.39	19.39	33.458	23.746	414.4	0.008	5.43	237.2	103.0	1.8	0.24	0.0	0.00	0.00	0.20	0.04	2	21
10	19.25	19.25	33.425	23.756	413.7	0.041	5.50	240.4	104.1	1.8	0.22	0.0	0.00	0.00	0.31	0.06	10	19
10	19.25	19.25	33.429	23.759	413.5	0.042											10	20
20	18.13	18.13	33.357	23.985	392.3	0.082	5.72	249.8	105.9	2.0	0.24	0.0	0.00	0.00	0.39	0.09	20	18
30	14.94	14.94	33.246	24.635	330.5	0.118	5.70	249.1	99.1	3.6	0.39	0.1	0.05	0.00	0.82	0.38	30	17
40	14.06	14.06	33.259	24.832	312.0	0.150	5.27	229.9	89.8	4.9	0.58	2.2	0.30	0.00	0.79	0.36	40	16
50	12.85	12.85	33.288	25.099	286.8	0.180	4.71	205.8	78.4	7.7	0.88	8.1	0.13	0.00	0.38	0.29	50	15
60	12.23	12.22	33.323	25.247	273.0	0.208	4.40	191.9	72.2	9.8	1.05	11.2	0.06	0.00	0.23	0.24	60	14
70	11.64	11.63	33.376	25.399	258.6	0.234	4.06	177.2	65.9	12.2	1.23	14.2	0.04	0.00	0.16	0.20	71	13
75 ISL	11.44 D	11.43	33.382 D	25.440	254.9	0.249	4.13	D179.9	D 66.8	12.8	1.26	14.8	0.04	0.00	0.13	0.18	76	
85	11.12	11.10	33.413	25.524	247.1	0.272	3.94	172.0	63.2	14.0	1.33	15.9	0.03	0.00	0.09	0.15	86	12
100	10.75	10.74	33.487	25.645	235.9	0.309	3.64	158.9	58.0	16.4	1.47	17.8	0.04	0.17	0.05	0.08	101	11
120	10.12	10.10	33.581	25.829	218.8	0.354	3.47	151.6	54.6	19.0	1.59	20.0	0.03	0.00	0.03	0.05	121	10
125 ISL	10.07 D	10.05	33.616 D	25.865	215.5	0.368	3.44	D149.9	D 54.1	19.8	1.63	20.6	0.02	0.00	0.02	0.05	126	
140	9.92	9.90	33.713	25.967	206.1	0.397	3.07	134.0	48.1	22.2	1.75	22.2	0.00	0.00	0.01	0.04	141	09
150 ISL	9.83 D	9.81	33.767 D	26.024	200.9	0.420	2.99	D130.3	D 46.8	23.5	1.80	23.0	0.02	0.00	0.01	0.04	151	
169	9.54	9.53	33.844	26.132	191.0	0.454	2.74	119.6	42.6	26.0	1.90	24.6	0.00	0.00	0.00	0.03	170	08
199	9.42	9.39	33.985	26.264	179.2	0.510	2.29	99.8	35.5	29.7	2.08	26.0	0.00	0.00	0.01	0.03	201	07
200 ISL	9.39 D	9.37	33.995 D	26.276	178.0	0.515	2.31	D100.7	D 35.9	29.8	2.08	26.1	0.02	0.00			202	
230	9.28	9.26	34.094	26.372	169.5	0.564	1.92	83.9	29.8	33.2	2.20	27.6	0.00	0.00			232	06
250 ISL	9.11 D	9.08	34.137 D	26.433	164.1	0.601	1.73	D 75.1	D 26.6	35.9	2.29	28.7	0.02	0.00			252	
271	8.84	8.81	34.167	26.500	158.1	0.631	1.50	65.5	23.0	38.8	2.38	29.8	0.00	0.00			273	05
300 ISL	8.70 D	8.67	34.207 D	26.555	153.4	0.681	1.30	D 56.6	D 19.9	42.1	2.47	30.9	0.02	0.00			302	
321	8.41	8.38	34.212	26.603	149.1	0.708	1.17	51.2	17.8	44.5	2.54	31.7	0.00	0.00			324	04
380	7.67	7.63	34.239	26.737	137.0	0.793	0.81	35.4	12.1	52.7	2.73	34.3	0.00	0.00			383	03
400 ISL	7.52 D	7.48	34.245 D	26.762	134.8	0.826	0.73	D 31.9	D 10.9	55.3	2.78	35.0	0.02	0.00			403	
440	7.09	7.05	34.257	26.833	128.5	0.873	0.60	26.0	8.8	60.3	2.88	36.4	0.00	0.00			444	02
500 ISL	6.51 D	6.46	34.288 D	26.936	119.0	0.954	0.40	D 17.2	D 5.8	70.1	3.03	38.1	0.02	0.00			504	
517	6.38	6.33	34.295	26.959	117.0	0.967	0.35	15.5	5.1	72.9	3.07	38.6	0.00	0.00			521	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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	13/11/2016	1217	UTC	719 m	350 06 kn			1015.8 mb	19.1 C	18.1 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	18.43	18.43	33.381	23.927	397.0	0.000	5.63	245.9	104.8	1.4	0.21	0.0	0.02	0.14	0.45	0.10	0	
2	18.43	18.43	33.381	23.927	397.0	0.008	5.63	245.9	104.8	1.4	0.21	0.0	0.00	0.14	0.45	0.10	2	21
10	18.10	18.10	33.366	23.999	390.5	0.039	5.72	249.9	105.8	1.6	0.21	0.0	0.00	0.00	0.54	0.12	10	19
10	18.10	18.10	33.367	24.000	390.4	0.041											10	20
20	16.21	16.21	33.305	24.399	352.7	0.077	5.80	253.2	103.3	2.8	0.31	0.1	0.00	0.00	0.55	0.22	20	18
30	13.63	13.62	33.284	24.940	301.4	0.109	4.90	214.0	82.9	6.1	0.70	5.1	0.26	0.00	0.92	0.35	30	17
40	12.77	12.76	33.312	25.134	283.2	0.139	4.37	191.0	72.7	8.8	0.99	10.6	0.07	0.00	0.52	0.28	40	16
50	12.09	12.08	33.353	25.297	267.9	0.166	4.14	180.9	67.9	11.0	1.16	13.5	0.03	0.00	0.18	0.20	50	15
60	11.34	11.34	33.419	25.486	250.1	0.192	3.87	169.0	62.4	13.8	1.35	16.0	0.03	0.00	0.09	0.15	60	14
71	10.89	10.88	33.450	25.591	240.3	0.219	3.74	163.4	59.8	15.1	1.41	17.2	0.03	0.00	0.06	0.11	72	13
75 ISL	10.78 D	10.77	33.501 D	25.652	234.6	0.230	3.67	D159.6	D 58.4	15.9	1.46	17.8	0.03	0.00	0.05	0.09	76	
85	10.42	10.41	33.551	25.752	225.3	0.252	3.44	150.0	54.4	18.1	1.57	19.5	0.00	0.00	0.03	0.06	86	12
100	10.15	10.14	33.615	25.849	216.4	0.285	3.26	142.4	51.3	20.0	1.67	20.8	0.00	0.00	0.02	0.05	101	11
120	9.72	9.70	33.786 D	26.057	197.1	0.328	3.14	136.9	48.9	22.8	1.76	22.8	0.00	0.00	0.01	0.04	121	10
125 ISL	9.75 D	9.73	33.811 D	26.071	195.8	0.338	2.93	D127.5	D 45.7	23.8	1.81	23.3	0.02	0.00	0.01	0.04	126	
140	9.56	9.54	33.898	26.171	186.7	0.365	2.55	111.4	39.7	26.8	1.95	24.7	0.00	0.00	0.01	0.04	141	09
150 ISL	9.49 D	9.48	33.962 D	26.232	181.1	0.385	2.43	D105.8	D 37.8	28.3	1.98	25.5	0.02	0.00	0.01	0.04	151	
170	8.98	8.96	33.989	26.336	171.5	0.419	2.36	103.1	36.3	31.2	2.05	27.0	0.00	0.00	0.01	0.04	171	08
200	9.11	9.09	34.083	26.390	167.1	0.470	1.97	85.8	30.3	33.6	2.19	27.9	0.00	0.00	0.00	0.03	202	07
230	9.06	9.03	34.156	26.457	161.4	0.519	1.67	72.7	25.7	36.1	2.31	28.8	0.00	0.00			232	06
250 ISL	8.97 D	8.94	34.160 D	26.474	160.2	0.554	1.61	D 69.9	D 24.7	38.5	2.38	29.6	0.02	0.00			252	
270	8.70	8.67	34.195	26.545	153.7	0.582	1.34	58.6	20.5	40.9	2.45	30.5	0.00	0.00			272	05
300 ISL	8.38 D	8.34	34.201 D	26.600	148.9	0.631	1.23	D 53.7	D 18.7	44.5	2.54	31.7	0.02	0.00			302	
320	8.17	8.14	34.230	26.654	144.1	0.657	1.05	45.8	15.9	46.9	2.60	32.6	0.00	0.00			323	04
379	7.43	7.40	34.246	26.775	133.1	0.739	0.68	29.8	10.1	56.8	2.81	35.4	0.00	0.00			382	03
400 ISL	7.22 D	7.18	34.258 D	26.814	129.6	0.772	0.62	D 27.1	D 9.2	59.8	2.87	36.1	0.02	0.00			403	
440	6.72	6.68	34.271	26.894	122.3	0.817	0.46	20.2	6.8	65.4	2.97	37.4	0.00	0.00			444	02
500 ISL	6.46 D	6.41	34.299 D	26.952	117.5	0.895	0.35	D 15.2	D 5.1	73.0	3.06	38.2	0.02	0.00			504	
517	6.34	6.29	34.311	26.977	115.2	0.908	0.30	13.1	4.4	75.2	3.09	38.5	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 SALLY RIDE CALCOFI CRUISE 1611 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 29.3 N	119 20.6 W	13/11/2016	1802 UTC	1627 m	360 06 kn	210 03 10	0	1018.0 mb	21.8 C	19.9 C	34 m	0/8		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	18.00	18.00	33.432	24.073	383.1	0.000	5.54	242.0	102.4	1.4	0.26	0.1	0.02	0.02	0.36	0.05	0	
2 A	18.00	18.00	33.432	24.073	383.1	0.008	5.54	242.0	102.4	1.4	0.26	0.1	0.00	0.00	0.36	0.05	2	24
10 ISL	17.67 D	17.67	33.422 D	24.145	376.6	0.035	5.57	242.8	102.2	1.4	0.26	0.0	0.01	0.00	0.25	0.06	10	
12	17.65	17.65	33.421	24.149	376.3	0.046	5.58	243.4	102.3	1.4	0.26	0.0	0.00	0.00	0.22	0.06	12	21
12	17.65	17.65	33.422	24.150	376.2	0.047											12	23
12	17.65	17.65	33.424	24.152	376.0	0.046											12	22
20 ISL	17.51 D	17.51	33.418 D	24.181	373.5	0.072	5.58	243.2	102.0	1.6	0.28	0.1	0.02	0.00	0.30	0.12	20	
22 A	17.45	17.45	33.414	24.193	372.4	0.083	5.58	243.5	101.9	1.6	0.28	0.1	0.00	0.24	0.32	0.14	22	20
30 A	17.24	17.23	33.397	24.232	369.1	0.113	5.52	241.1	100.5	2.2	0.35	0.8	0.08	0.12	0.55	0.21	30	19
40	15.49	15.48	33.368	24.611	333.2	0.148	5.25	229.4	92.3	3.5	0.51	3.1	0.24	0.10	0.70	0.27	40	17
40	15.49	15.48	33.373	24.615	332.8	0.147											40	18
49	14.08	14.07	33.292	24.855	310.1	0.177	5.06	221.0	86.4	4.9	0.70	5.9	0.25	0.00	0.54	0.31	49	16
50 ISL	13.82 D	13.81	33.283 D	24.901	305.8	0.178	5.10	D222.1 D	86.6	5.2	0.73	6.3	0.23	0.00	0.52	0.32	50	
57 A	12.98	12.98	33.281	25.068	290.0	0.201	4.75	207.4	79.3	7.3	0.90	9.2	0.12	0.00	0.38	0.36	57	15
73	11.39	11.38	33.382	25.449	253.9	0.244	4.12	179.9	66.5	13.2	1.29	15.7	0.04	0.00	0.14	0.19	74	14
75 ISL	11.35 D	11.34	33.386 D	25.460	252.9	0.247	4.10	D178.3 D	66.0	13.7	1.32	16.1	0.03	0.00	0.13	0.18	76	
88	10.55	10.54	33.497	25.688	231.5	0.281	3.69	160.9	58.5	17.2	1.50	18.8	0.03	0.00	0.07	0.12	89	13
100 ISL	10.31 D	10.30	33.595 D	25.807	220.5	0.306	3.38	D147.2 D	53.4	19.9	1.63	20.7	0.03	0.00	0.04	0.10	101	
106 A	10.00	9.98	33.628	25.886	213.1	0.321	3.23	141.0	50.7	21.3	1.70	21.7	0.00	0.00	0.03	0.08	107	12
116 A	9.69	9.68	33.677	25.975	204.7	0.342	3.26	142.5	50.9	22.0	1.71	22.4	0.00	0.00	0.01	0.04	117	11
125 ISL	9.48 D	9.47	33.732 D	26.053	197.5	0.358	3.21	D139.8 D	49.8	23.3	1.75	23.0	0.02	0.00	0.01	0.04	126	
128	9.42	9.40	33.735	26.066	196.3	0.366	3.20	139.7	49.6	23.7	1.76	23.2	0.00	0.00	0.01	0.04	129	10
141	9.38	9.36	33.808	26.130	190.5	0.391	2.85	124.6	44.2	25.7	1.87	24.6	0.00	0.00	0.00	0.05	142	09
150 ISL	9.35 D	9.33	33.837 D	26.157	188.1	0.407	2.80	D121.7 D	43.3	26.5	1.90	25.0	0.02	0.00	0.00	0.04	151	
171	9.30	9.28	33.901	26.216	183.0	0.447	2.59	112.9	40.0	28.4	1.98	26.0	0.00	0.00	0.01	0.04	172	08
200	9.10	9.08	34.038	26.356	170.3	0.498	2.05	89.6	31.6	32.9	2.17	27.9	0.00	0.00	0.01	0.04	202	07
231	8.78	8.75	34.116	26.469	160.1	0.549	1.68	73.4	25.8	37.7	2.32	29.8	0.00	0.00			233	06
250 ISL	8.59 D	8.56	34.157 D	26.532	154.5	0.579	1.50	D 65.0 D	22.8	40.0	2.40	30.6	0.02	0.00			252	
270	8.48	8.45	34.180	26.567	151.5	0.610	1.32	57.4	20.0	42.4	2.48	31.4	0.00	0.00			272	05
300 ISL	8.24 D	8.21	34.208 D	26.625	146.5	0.655	1.10	D 48.0 D	16.7	45.1	2.56	32.3	0.02	0.00			302	
320	8.13	8.10	34.213	26.646	144.8	0.684	1.02	44.6	15.4	47.0	2.62	32.9	0.00	0.00			323	04
381	7.58	7.55	34.237	26.747	136.0	0.770	0.76	33.1	11.3	53.8	2.77	34.8	0.00	0.00			384	03
400 ISL	7.38 D	7.34	34.246 D	26.783	132.8	0.796	0.69	D 29.8 D	10.2	56.4	2.81	35.4	0.02	0.00			403	
441	7.03	6.98	34.257	26.842	127.5	0.848	0.56	24.3	8.2	62.2	2.91	36.9	0.00	0.00			445	02
500 ISL	6.61 D	6.57	34.286 D	26.922	120.6	0.924	0.40	D 17.3 D	5.8	69.6	3.03	38.1	0.01	0.00			504	
517	6.51	6.46	34.295	26.943	118.7	0.942	0.36	15.7	5.2	71.7	3.06	38.4	0.00	0.00			521	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 SALLY RIDE CALCOFI CRUISE 1611 STATION 86.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 19.4 N	119 39.8 W	13/11/2016	2048 UTC	77 m	300 10 kn	300 03 09	0	1017.2 mb	18.5 C	17.3 C	18 m	0/8		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	18.30	18.30	33.443	24.007	389.4	0.000	5.52	241.1	102.6	1.3	0.26	0.0	0.02	0.03	0.33	0.08	0	
2	18.30	18.30	33.443	24.007	389.5	0.008	5.52	241.1	102.6	1.3	0.26	0.0	0.00	0.00	0.33	0.08	2	10
5	18.28	18.28	33.448	24.016	388.7	0.020	5.54	241.8	102.8	1.4	0.27	0.0	0.00	0.00	0.33	0.09	5	09
10 ISL	18.10 D	18.10	33.443 D	24.057	385.0	0.035	5.55	D242.0 D	102.7	1.4	0.27	0.0	0.02	0.00	0.36	0.08	10	
11	18.10	18.09	33.445	24.060	384.7	0.043	5.53	241.5	102.4	1.4	0.27	0.0	0.00	0.00	0.36	0.08	11	07
11	18.10	18.09	33.444	24.060	384.8	0.042											11	08
20 ISL	18.06 D	18.06	33.441 D	24.067	384.5	0.074	5.56	D242.5 D	102.8	1.4	0.26	0.0	0.02	0.00	0.43	0.13	20	
21	17.82	17.81	33.444	24.128	378.7	0.081	5.54	241.7	101.9	1.4	0.26	0.0	0.00	0.00	0.44	0.13	21	06
30	16.59	16.58	33.365	24.360	356.8	0.114	5.53	241.3	99.3	2.1	0.36	0.8	0.08	0.08	0.77	0.36	30	05
40	15.47	15.47	33.393	24.634	331.0	0.149	5.07	221.5	89.1	5.1	0.63	4.5	0.21	0.18	0.52	0.34	40	04
50	14.98	14.97	33.348	24.707	324.4	0.181	5.06	220.9	88.0	4.9	0.66	5.1	0.21	0.12	0.53	0.37	50	03
60	12.24	12.23	33.344	25.262	271.5	0.211	4.39	191.8	72.2	10.2	1.10	12.8	0.09	0.00	0.22	0.31	60	02
71	11.36	11.35	33.434	25.496	249.5	0.240	3.97	173.2	64.0	10.2	1.11	12.8	0.09	0.00	0.10	0.19	72	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 9.4 N	120 0.4 W	14/11/2016	0013 UTC	1192 m	330 16 kn	300 04 08	0	1016.8 mb	18.3 C	17.1 C		0/8		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	18.68	18.68	33.351	23.844	404.9	0.000	5.44	237.3	101.6	1.3	0.26	0.3	0.02	0.13	0.18	0.03	0	
2	18.68	18.67	33.351	23.844	405.0	0.008	5.44	237.3	101.6	1.3	0.26	0.3	0.00	0.13	0.18	0.03	2	21
10	18.68	18.68	33.353	23.844	405.3	0.041	5.42	236.6	101.3	1.2	0.26	0.1	0.00	0.06	0.18	0.03	10	19
11	18.66	18.66	33.355	23.852	404.6	0.044											11	20
20	18.17	18.16	33.366	23.983	392.4	0.080	5.53	241.4	102.4	1.3	0.25	0.0	0.00	0.00	0.28	0.08	20	18
30	17.03	17.03	33.385	24.271	365.4	0.118	5.69	248.4	103.1	1.3	0.28	0.0	0.00	0.00	0.51	0.21	30	17
41	15.47	15.47	33.285	24.550	339.0	0.157	5.49	239.8	96.4	2.6	0.43	1.7	0.16	0.00	0.90	0.63	41	16
50	14.29	14.28	33.194	24.736	321.5	0.187	5.34	233.4	91.6	3.5	0.54	3.7	0.23	0.00	0.66	0.39	50	15
60	13.00	12.99	33.127	24.946	301.7	0.218	5.21	227.6	86.9	4.7	0.67	6.2	0.09	0.00	0.41	0.30	60	14
71	12.14	12.13	33.223	25.188	278.9	0.250	4.81	210.2	78.9	7.8	0.90	9.8	0.05	0.20	0.25	0.23	72	13
75 ISL	12.00 D	11.99	33.240 D	25.226	275.3	0.263	4.81	D209.5 D	78.6	8.2	0.93	10.3	0.04	0.00	0.23	0.23	76	
85	11.68	11.67	33.261	25.302	268.3	0.288	4.65	203.1	75.5	9.3	1.01	11.4	0.04	0.00	0.17	0.24	86	12
100 ISL	10.80 D	10.79	33.437 D	25.598	240.4	0.328	3.87	D168.5 D	61.7	14.8	1.39	17.4	0.03	0.00	0.08	0.13	101	
101	10.84	10.83	33.436	25.591	241.1	0.329	3.87	168.8	61.7	15.2	1.42	17.8	0.03	0.00	0.08	0.13	102	11
121	9.86	9.85	33.600	25.887	213.2	0.374	3.35	146.0	52.3	20.5	1.68	21.9	0.00	0.00	0.03	0.06	122	10
125 ISL	9.92 D	9.91	33.622 D	25.894	212.7	0.385	3.35	D146.0 D	52.5	21.2	1.70	22.3	0.02	0.00	0.02	0.06	126	
140	9.45	9.44	33.712	26.042	198.8	0.414	3.13	136.7	48.6	23.8	1.79	23.6	0.00	0.00	0.01	0.07	141	09
150 ISL	9.34 D	9.32	33.757 D	26.097	193.8	0.436	3.12	D135.9 D	48.3	25.5	1.85	24.5	0.02	0.00	0.01	0.06	151	
170	8.99	8.97	33.883	26.251	179.5	0.470	2.68	116.8	41.1	28.9	1.96	26.3	0.00	0.00	0.00	0.04	171	08
200 ISL	8.56 D	8.54	34.014 D	26.421	163.9	0.525	2.18	D 94.9 D	33.2	34.4	2.14	28.8	0.02	0.00	0.00	0.03	202	
201	8.60	8.58	34.006	26.409	165.1	0.524	2.21	96.6	33.7	34.6	2.15	28.9	0.00	0.00	0.00	0.03	203	07
231	8.29	8.26	34.102 D	26.533	153.8	0.575	1.66	D 72.4 D	25.2	39.7	2.29	30.8	0.00	0.00			233	06
250 ISL	8.19 D	8.16	34.123 D	26.565	151.1	0.604	1.50	D 65.2 D	22.6	42.9	2.39	31.9	0.02	0.00			252	
270	7.75	7.72	34.114	26.622	145.8	0.631	1.43	62.5	21.4	46.2	2.49	33.0	0.00	0.00			272	05
300 ISL	7.56 D	7.53	34.178 D	26.702	138.7	0.678	1.02	D 44.5 D	15.2	51.4	2.65	34.4	0.02	0.00			302	
321	7.40	7.37	34.219	26.757	133.8	0.702	0.76	33.1	11.3	55.0	2.77	35.4	0.00	0.00			324	04
382	6.98	6.94	34.255	26.845	126.2	0.781	0.54	23.5	7.9	62.0	2.93	37.0	0.00	0.00			385	03
400 ISL	6.87 D	6.83	34.262 D	26.865	124.5	0.809	0.51	D 22.3 D	7.5	63.5	2.95	37.3	0.02	0.00			403	
440	6.72	6.68	34.271	26.894	122.2	0.853	0.44	19.1	6.4	66.6	2.99	38.0	0.00	0.00			444	02
500 ISL	6.36 D	6.32	34.294 D	26.960	116.6	0.931	0.38	D 16.7 D	5.6	72.5	3.07	39.0	0.02	0.00			504	
517	6.30	6.26	34.301	26.974	115.5	0.944	0.35	15.2	5.0	74.2	3.09	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 SALLY RIDE CALCOFI CRUISE 1611 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 59.3 N	120 21.1 W	14/11/2016	0423	UTC	715 m	340 11 kn			1017.8 mb	17.5 C	16.9 C				040

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	19.39	19.39	33.438	23.729	415.9	0.000	5.34	232.9	101.2	1.6	0.24	0.0	0.01	0.00	0.16	0.03	0	
2	19.39	19.39	33.438	23.729	416.0	0.008	5.34	232.9	101.2	1.6	0.24	0.0	0.00	0.00	0.16	0.03	2	21
10	19.39	19.39	33.438	23.730	416.3	0.042	5.33	232.9	101.2	1.6	0.26	0.1	0.00	0.14	0.17	0.02	10	19
10	19.39	19.39	33.439	23.731	416.2	0.043											10	20
20	18.93	18.92	33.383	23.807	409.3	0.083	5.49	239.7	103.2	1.5	0.27	0.1	0.00	0.10	0.18	0.04	20	18
30	16.66	16.66	33.271	24.270	365.4	0.122	5.77	252.1	103.8	1.4	0.28	0.0	0.00	0.00	0.38	0.13	30	17
40	15.60	15.59	33.182	24.443	349.2	0.157	5.79	252.9	101.9	1.7	0.32	0.2	0.00	0.00	0.72	0.40	40	16
50	14.41	14.40	33.058	24.606	333.9	0.191	5.81	253.6	99.6	2.0	0.37	1.1	0.13	0.09	0.51	0.41	50	15
61	13.67	13.66	33.091	24.784	317.2	0.227	5.55	242.5	93.9	2.9	0.48	2.6	0.26	0.00	0.58	0.25	61	14
70	12.50	12.49	33.217	25.114	285.9	0.254	5.01	218.8	82.7	6.2	0.74	7.4	0.04	0.00	0.25	0.30	71	13
75 ISL	12.28 D	12.27	33.231 D	25.167	280.9	0.270	4.94	D215.0 D	81.1	6.7	0.78	8.1	0.03	0.00	0.24	0.27	76	
86	11.77	11.76	33.239	25.270	271.4	0.299	4.83	211.0	78.6	7.8	0.88	9.7	0.03	0.00	0.20	0.21	87	12
100 ISL	11.22 D	11.20	33.293 D	25.413	258.1	0.338	4.48	D195.0 D	72.0	10.7	1.09	13.0	0.03	0.00	0.13	0.14	101	
101	10.87	10.85	33.349 D	25.518	248.0	0.341	4.33	D188.6 D	69.1	10.9	1.10	13.3	0.03	0.00	0.13	0.13	102	11
120	10.16	10.15	33.525	25.778	223.6	0.383	3.56	155.5	56.0	18.2	1.55	20.3	0.00	0.00	0.05	0.07	121	10
125 ISL	9.98 D	9.97	33.591 D	25.860	215.9	0.397	3.40	D148.0 D	53.3	19.8	1.62	21.2	0.01	0.00	0.04	0.06	126	
140	9.24	9.22	33.742	26.100	193.2	0.425	3.09	134.9	47.7	24.6	1.81	24.2	0.00	0.00	0.00	0.04	141	09
150 ISL	8.98 D	8.96	33.816 D	26.200	183.9	0.447	3.11	D135.3 D	47.7	26.5	1.86	25.1	0.01	0.00	0.00	0.03	151	
170	8.75	8.73	33.923	26.320	172.9	0.480	2.68	116.9	40.9	30.4	1.97	26.9	0.00	0.00	0.00	0.03	171	08
200	8.45	8.43	34.023	26.446	161.5	0.530	2.09	91.0	31.7	36.2	2.18	29.5	0.00	0.00	0.00	0.02	202	07
230	8.17	8.15	34.087	26.538	153.2	0.577	1.66	72.3	25.0	41.0	2.36	31.4	0.00	0.00			232	06
250 ISL	7.94 D	7.91	34.123 D	26.602	147.4	0.611	1.42	D 61.9 D	21.4	45.0	2.46	32.7	0.01	0.00			252	
270	7.59	7.56	34.131	26.660	142.1	0.637	1.26	55.0	18.8	49.1	2.55	33.9	0.00	0.00			272	05
300 ISL	7.24 D	7.21	34.162 D	26.733	135.5	0.682	1.03	D 44.9 D	15.3	53.3	2.66	35.1	0.01	0.00			302	
321	7.07	7.04	34.171	26.765	132.8	0.706	0.91	39.6	13.4	56.3	2.74	35.9	0.00	0.00			324	04
380	6.75	6.71	34.224	26.851	125.3	0.783	0.59	25.9	8.7	63.4	2.91	37.5	0.00	0.00			383	03
400 ISL	6.69 D	6.65	34.241 D	26.873	123.5	0.812	0.54	D 23.7 D	7.9	65.6	2.94	37.9	0.01	0.00			403	
440	6.42	6.38	34.276	26.937	117.9	0.856	0.40	17.3	5.8	70.0	3.01	38.7	0.00	0.00			444	02
500 ISL	6.21 D	6.16	34.301 D	26.986	114.0	0.931	0.33	D 14.4 D	4.8	74.3	3.08	39.4	0.01	0.00			504	
518	6.15	6.10	34.305	26.996	113.2	0.946	0.31	13.4	4.4	75.6	3.10	39.6	0.00	0.00			522	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 39.3 N	121 2.0 W	14/11/2016	1030	UTC	3817 m	330 15 kn			1018.8 mb	18.0 C	17.0 C				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	17.79	17.79	33.255	23.989	391.1	0.000	5.51	240.5	101.2	0.6	0.24	0.0	0.02	0.00	0.19	0.05	0	
4	17.79	17.79	33.255	23.989	391.3	0.016	5.51	240.5	101.2	0.6	0.24	0.0	0.00	0.00	0.19	0.05	4	24
10	17.79	17.79	33.252	23.987	391.7	0.039	5.51	240.4	101.2	0.8	0.26	0.0	0.00	0.00	0.20	0.05	10	20
10	17.79	17.79	33.251	23.987	391.7	0.040											10	23
10	17.79	17.79	33.252	23.987	391.7	0.041											10	22
10	17.79	17.79	33.255	23.989	391.5	0.040											10	21
20	17.79	17.79	33.252	23.987	392.1	0.078	5.51	240.7	101.3	0.7	0.25	0.0	0.00	0.00	0.20	0.05	20	19
30 ISL	17.78 D	17.78	33.252 D	23.990	392.2	0.118	5.52	D240.6 D	101.4	0.6	0.27	0.0	0.02	0.00	0.20	0.06	30	
31	17.78	17.77	33.255	23.993	391.9	0.121	5.52	241.0	101.4	0.6	0.27	0.0	0.00	0.00	0.20	0.06	31	18
40	17.22	17.21	33.302	24.165	375.8	0.156	5.69	248.4	103.4	0.6	0.27	0.0	0.00	0.00	0.34	0.17	40	17
46	16.70	16.69	33.315	24.296	363.5	0.178	5.71	249.2	102.7	0.7	0.29	0.0	0.00	0.00	0.40	0.26	46	16
50 ISL	15.68 D	15.67	33.297 D	24.515	342.7	0.194	5.52	D240.8 D	97.4	0.8	0.31	0.0	0.05	0.00	0.60	0.40	50	
51	15.75	15.74	33.356	24.544	340.0	0.196	5.40	D235.2 D	95.3	0.9	0.32	0.0	0.06	0.00	0.65	0.44	51	15
61	12.53	12.52	33.084	25.004	296.1	0.227	5.26	229.8	86.9	3.5	0.65	5.8	0.06	0.00	0.26	0.29	61	14
71	12.07	12.06	33.161	25.152	282.2	0.256	4.85	211.6	79.3	6.7	0.89	9.7	0.03	0.00	0.11	0.16	72	13
75 ISL	11.66 D	11.65	33.223 D	25.276	270.5	0.270	4.77	D207.9 D	77.4	7.9	0.96	10.7	0.03	0.00	0.10	0.14	76	
86	11.07	11.06	33.264 D	25.415	257.5	0.299	4.51	D196.6 D	72.3								87	12
100 ISL	10.21 D	10.19	33.398 D	25.671	233.4	0.333	4.09	D178.0 D	64.3	15.1	1.36	17.3	0.02	0.00	0.03	0.06	101	
101	10.22	10.21	33.393	25.665	233.9	0.333	4.10	179.0	64.5	15.4	1.38	17.5	0.00	0.00	0.03	0.05	102	11
120	9.68	9.66	33.558	25.885	213.3	0.376	3.60	157.1	56.0	19.9	1.60	21.2	0.00	0.00	0.01	0.04	121	10
125 ISL	9.59 D	9.57	33.590 D	25.924	209.7	0.389	3.56	D155.0 D	55.3	20.3	1.60	21.3	0.02	0.00	0.01	0.03	126	
141	9.18	9.17	33.667	26.051	197.9	0.419	3.65	159.2	56.2	21.6	1.61	21.8	0.00	0.00	0.01	0.02	142	09
150 ISL	9.15 D	9.13	33.770 D	26.137	190.0	0.439	3.45	D150.2 D	53.2	23.4	1.69	22.9	0.02	0.00	0.01	0.02	151	
170	8.93	8.91	33.862	26.244	180.1	0.474	2.95	128.7	45.2	27.6	1.87	25.4	0.00	0.00	0.00	0.02	171	08
200	8.50	8.48	33.945	26.377	168.0	0.526	2.81	122.6	42.7	31.4	1.95	26.8	0.00	0.00	0.00	0.02	202	07
230	8.09	8.07	33.998	26.481	158.6	0.575	2.49	108.5	37.5	36.4	2.09	29.0	0.00	0.00			232	06
250 ISL	7.83 D	7.80	34.032 D	26.546	152.6	0.610	2.13	D 92.5 D	31.8	40.4	2.23	30.7	0.02	0.00			252	
271	7.59	7.56	34.051	26.597	148.1	0.638	1.81	78.8	26.9	44.7	2.37	32.4	0.00	0.00			273	05
300 ISL	7.19 D	7.17	34.074 D	26.671	141.3	0.684	1.49	D 64.7 D	21.9	50.6	2.52	34.4	0.01	0.00			302	
320	6.94	6.91	34.088	26.717	137.1	0.708	1.26	55.1	18.5	54.6	2.63	35.7	0.00	0.00			323	04
380	6.37	6.33	34.142	26.837	126.3	0.787	0.78	33.8	11.2	64.5	2.87	38.4	0.00	0.00			383	03
400 ISL	6.25 D	6.21	34.143 D	26.853	125.0	0.817	0.75	D 32.4 D	10.8	66.7	2.91	38.8	0.01	0.00			403	
440	6.00	5.96	34.162	26.900	120.9	0.861	0.64	27.7	9.1	71.0	2.98	39.7	0.00	0.00			444	02
500 ISL	5.72 D	5.68	34.233 D	26.992	112.8	0.938	0.38	D 16.5 D	5.4	77.8	3.10	40.7	0.01	0.00			504	
517	5.69	5.65	34.248	27.008	111.5	0.950	0.34	14.6	4.8	79.7	3.13	41.0	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 SALLY RIDE CALCOFI CRUISE 1611 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 20.4 N	121 43.2 W	14/11/2016	1758 UTC	3966 m	350 14 kn	350 07 14	1	1020.5 mb	18.0 C	17.5 C	22 m	7/8	ST	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	17.90	17.90	33.204	23.923	397.4	0.000	5.50	240.0	101.2	1.2	0.25	0.1	0.03	0.00	0.21	0.03	0	
3 A	17.90	17.90	33.204	23.923	397.5	0.012	5.50	240.0	101.2	1.2	0.25	0.1	0.03	0.00	0.21	0.03	3	24
10 ISL	17.90 D	17.90	33.203 D	23.923	397.8	0.040	5.50	D239.9	D101.3	1.1	0.26	0.1	0.03	0.00	0.19	0.04	10	
11	17.90	17.90	33.207	23.924	397.7	0.044	5.52	240.9	101.6	1.1	0.26	0.1	0.03	0.00	0.19	0.04	11	22
11	17.90	17.90	33.205	23.923	397.8	0.043											11	23
15 A	17.91	17.90	33.204	23.922	398.1	0.060	5.50	240.0	101.2	1.0	0.25	0.0	0.00	0.00	0.19	0.04	15	21
20 A	17.90	17.89	33.203	23.924	398.0	0.080	5.51	240.7	101.5	1.0	0.25	0.0	0.00	0.00	0.19	0.05	20	20
30 ISL	17.90 D	17.89	33.204 D	23.925	398.4	0.120	5.49	D239.5	D101.1	1.0	0.25	0.0	0.01	0.00	0.20	0.05	30	
37 A	17.89	17.88	33.205	23.929	398.2	0.147	5.50	240.0	101.2	1.0	0.25	0.0	0.00	0.00	0.20	0.05	37	19
48	17.37	17.36	33.216	24.063	385.9	0.190	5.58	243.7	101.7	1.0	0.26	0.0	0.00	0.00	0.31	0.13	48	18
50 ISL	17.29 D	17.28	33.226 D	24.090	383.4	0.200	5.62	D245.3	D102.3	1.1	0.27	0.0	0.02	0.00	0.35	0.17	50	
58	15.82	15.81	33.181	24.395	354.4	0.229											58	17
59	15.65	15.64	33.182	24.433	350.8	0.231	5.77	251.9	101.6	1.4	0.31	0.2	0.07	0.00	0.52	0.35	59	16
69 A	15.02	15.01	33.152	24.548	340.1	0.266	5.68	248.0	98.7	1.7	0.38	1.0	0.22	0.06	0.48	0.37	70	15
75 ISL	14.50 D	14.49	33.125 D	24.639	331.6	0.288	5.58	D243.2	D 96.0	2.1	0.43	1.8	0.32	0.00	0.35	0.38	76	
76 A	14.37	14.36	33.123	24.666	329.0	0.289	5.56	242.6	95.3	2.2	0.44	2.0	0.34	0.00	0.32	0.38	77	14
86	13.26	13.25	33.084	24.862	310.5	0.321	5.49	239.8	92.0	2.9	0.51	3.2	0.32	0.00	0.26	0.33	87	13
96	12.44	12.42	33.108	25.042	293.4	0.351	5.10	222.7	84.0	5.6	0.75	7.4	0.04	0.00	0.19	0.20	97	12
100 ISL	12.15 D	12.14	33.216 D	25.181	280.3	0.365	5.08	D221.4	D 83.3	7.1	0.86	9.1	0.03	0.00	0.17	0.18	101	
110	11.45	11.44	33.279	25.359	263.5	0.390	4.41	192.7	71.3	10.8	1.12	13.4	0.03	0.00	0.10	0.11	111	11
125	10.21	10.20	33.398	25.670	234.0	0.428	4.08	178.1	64.2	15.5	1.38	17.7	0.00	0.00	0.03	0.05	126	10
140	9.63	9.62	33.537	25.876	214.6	0.461	3.83	167.3	59.6	19.2	1.54	20.4	0.00	0.00	0.01	0.03	141	09
150 ISL	9.51 D	9.49	33.660 D	25.993	203.7	0.485	3.46	D150.6	D 53.7	21.5	1.63	21.8	0.02	0.00	0.01	0.03	151	
170	8.97	8.95	33.803	26.193	185.0	0.521	3.18	139.0	48.9	26.2	1.80	24.6	0.00	0.00	0.00	0.02	171	08
200	8.52	8.49	33.950	26.378	167.9	0.574	2.80	122.1	42.5	31.7	1.97	27.1	0.00	0.00	0.00	0.02	202	07
230	8.14	8.12	34.005	26.478	158.8	0.623	2.39	104.3	36.1	36.9	2.12	29.4	0.00	0.00			232	06
250 ISL	7.86 D	7.84	34.051 D	26.556	151.7	0.658	2.01	D 87.5	D 30.2	40.9	2.26	31.0	0.01	0.00			252	
270	7.62	7.59	34.057	26.597	148.0	0.684	1.79	78.0	26.6	44.8	2.39	32.5	0.00	0.00			272	05
300 ISL	7.25 D	7.22	34.093 D	26.677	140.8	0.732	1.39	D 60.4	D 20.5	49.6	2.52	34.2	0.01	0.00			302	
320	7.00	6.97	34.100	26.719	137.0	0.756	1.27	55.3	18.6	52.8	2.61	35.4	0.00	0.00			323	04
380	6.68	6.65	34.145	26.798	130.2	0.836	0.85	37.2	12.4	60.7	2.81	37.6	0.00	0.00			383	03
400 ISL	6.50 D	6.46	34.159 D	26.834	127.1	0.867	0.75	D 32.6	D 10.9	63.5	2.86	38.1	0.02	0.00			403	
441	6.25	6.21	34.187	26.889	122.2	0.913	0.56	24.4	8.1	69.1	2.96	39.4	0.00	0.00			445	02
500 ISL	5.97 D	5.92	34.244 D	26.971	115.1	0.989	0.41	D 17.7	D 5.8	75.7	3.06	40.6	0.01	0.00			504	
517	5.86	5.82	34.246	26.985	113.8	1.002	0.37	16.2	5.3	77.6	3.09	40.9	0.00	0.00			521	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 SALLY RIDE CALCOFI CRUISE 1611 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 23.6 W	14/11/2016	2252 UTC	4094 m	360 13 kn	300 05 10	1	1019.4 mb	17.9 C	16.0 C	16 m	7/8	SC	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	17.87	17.87	33.366	24.054	384.9	0.000	5.52	240.9	101.6	1.0	0.28	0.0	0.02	0.00	0.25	0.06	0	
2	17.87	17.87	33.366	24.054	385.0	0.008	5.52	240.9	101.6	1.0	0.28	0.0	0.00	0.00	0.25	0.06	2	21
10	17.84	17.84	33.362	24.059	384.8	0.039	5.47	238.8	100.6	0.9	0.28	0.0	0.00	0.00	0.24	0.06	10	19
11	17.85	17.85	33.363	24.056	385.1	0.042											11	20
20	17.80	17.80	33.363	24.070	384.2	0.077	5.54	241.7	101.8	0.9	0.29	0.0	0.00	0.00	0.31	0.06	20	18
30	16.73	16.73	33.362	24.324	360.3	0.114	5.76	251.3	103.7	1.1	0.31	0.0	0.03	0.00	0.54	0.22	30	17
40	15.46	15.45	33.301	24.565	337.5	0.149	5.51	240.4	96.7	1.9	0.43	1.5	0.32	0.00	0.76	0.47	40	16
50 ISL	14.03 D	14.02	33.461 D	24.995	296.8	0.182	4.25	D185.1	D 72.5	6.8	0.92	9.6	0.07	0.00	0.35	0.36	50	
51	13.96	13.96	33.452	25.002	296.2	0.184	4.35	189.8	74.1	7.3	0.97	10.4	0.05	0.00	0.31	0.35	51	15
60	12.59	12.58	33.481	25.301	267.9	0.209	3.83	167.0	63.4	11.8	1.30	15.7	0.04	0.00	0.17	0.24	60	14
70	11.41	11.41	33.525	25.556	243.7	0.235	3.44	150.0	55.6	15.6	1.52	19.1	0.03	0.00	0.12	0.12	71	13
75 ISL	10.94 D	10.93	33.588 D	25.691	231.0	0.249	3.22	D140.3	D 51.6	17.3	1.60	20.3	0.03	0.00	0.09	0.10	76	
85	9.93	9.92	33.627	25.895	211.6	0.269	3.05	133.0	47.7	20.8	1.76	22.7	0.00	0.00	0.03	0.06	86	12
100	9.41	9.40	33.662	26.008	201.1	0.300	3.33	145.4	51.6	22.7	1.74	23.1	0.00	0.00	0.01	0.03	101	11
120	9.28	9.26	33.807	26.145	188.6	0.339	2.76	120.3	42.6	26.5	1.91	25.4	0.00	0.00	0.00	0.04	121	10
125 ISL	9.25 D	9.24	33.846 D	26.179	185.5	0.351	2.66	D115.9	D 41.1	27.3	1.94	25.9	0.02	0.00	0.00	0.04	126	
140	8.98	8.97	33.918	26.279	176.3	0.376	2.44	106.4	37.5	30.0	2.04	27.3	0.00	0.00	0.01	0.04	141	09
150 ISL	8.89 D	8.88	33.955 D	26.323	172.3	0.395	2.35	D102.1	D 36.0	31.4	2.05	27.7	0.02	0.00	0.01	0.04	151	
170	8.48	8.46	33.983	26.409	164.4	0.427	2.45	106.9	37.2	34.3	2.08	28.5	0.00	0.00	0.00	0.03	171	08
200	8.11	8.09	34.021	26.495	156.6	0.475	2.22	96.7	33.4	38.2	2.19	30.0	0.00	0.00	0.00	0.02	202	07
231	7.82	7.79	34.072	26.579	149.2	0.522	1.69	73.7	25.3	43.5	2.40	32.4	0.00	0.00			233	06
250 ISL	7.69 D	7.67	34.093 D	26.614	146.1	0.554	1.51	D 65.7	D 22.6	46.1	2.48	33.3	0.02	0.00			252	
270	7.54	7.52	34.111	26.650	143.0	0.579	1.30	56.9	19.4	48.9	2.56	34.3	0.00	0.00			272	05
300 ISL	7.28 D	7.25	34.153 D	26.721	136.6	0.625	1.03	D 44.9	D 15.3	54.2	2.68	35.7	0.02	0.00			302	
321	6.93	6.90	34.145	26.762	132.9	0.650	0.89	38.9	13.1	57.9	2.76	36.8	0.00	0.00			324	04
380	6.31	6.28	34.155	26.854	124.6	0.726	0.70	30.4	10.1	66.6	2.90	39.0	0.00	0.00			383	03
400 ISL	6.12 D	6.08	34.166 D	26.888	121.6	0.755	0.62	D 27.1	D 9.0	69.3	2.94	39.5	0.02	0.00			403	
441	5.83	5.79	34.193	26.945	116.4	0.800	0.48	20.8	6.8	74.8	3.03	40.4	0.00	0.00			445	02
500 ISL	5.58 D	5.53	34.242 D	27.016	110.3	0.872	0.35	D 15.4	D 5.0	81.8	3.12	41.5	0.02	0.00			504	
517	5.48	5.43	34.254	27.038	108.3	0.885	0.31	13.4	4.3	83.8	3.15	41.8	0.00	0.00			521	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 39.4 N	123 4.2 W	15/11/2016	0429 UTC	4155 m	020 12 kn			1020.8 mb	16.1 C	15.0 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	17.79	17.79	33.097	23.868	402.6	0.000	5.54	241.8	101.6	1.0	0.25	0.0	0.01	0.01	0.17	0.05	0	
2	17.79	17.78	33.097	23.868	402.7	0.008	5.54	241.8	101.6	1.0	0.25	0.0	0.00	0.00	0.17	0.05	2	21
10	17.79	17.79	33.095	23.867	403.1	0.040	5.54	241.7	101.6	1.0	0.35	0.0	0.00	0.11	0.17	0.05	10	19
11	17.79	17.79	33.095	23.866	403.2	0.043											11	20
20 ISL	17.77 D	17.76	33.096 D	23.874	402.9	0.081	5.54	D241.8	D101.7	1.0	0.33	0.0	0.01	0.09	0.22	0.07	20	
26	17.54	17.53	33.108	23.938	396.9	0.105	5.63	245.8	102.8	1.0	0.31	0.0	0.00	0.08	0.26	0.09	26	18
30 ISL	17.43 D	17.42	33.115 D	23.971	394.0	0.121	5.64	D246.0	D102.8	0.9	0.30	0.0	0.01	0.00	0.28	0.11	30	
40	17.18	17.17	33.170	24.072	384.7	0.159	5.67	247.4	102.8	0.8	0.28	0.0	0.00	0.00	0.34	0.18	40	17
50	16.97	16.96	33.207	24.149	377.6	0.197	5.63	246.0	101.9	0.9	0.27	0.0	0.00	0.00	0.42	0.25	50	16
62	15.87	15.86	33.209	24.405	353.5	0.241	5.74	250.6	101.5	1.4	0.29	0.1	0.03	0.11	0.39	0.24	62	15
75	13.83	13.82	33.138	24.788	317.2	0.285	5.68	248.1	96.4	2.7	0.36	1.0	0.15	0.09	0.29	0.26	76	14
87	12.85	12.84	33.103	24.958	301.3	0.322	5.33	232.9	88.6	4.1	0.58	4.6	0.05	0.00	0.21	0.20	88	13
100	12.01	11.99	33.163	25.166	281.6	0.360	4.97	216.9	81.1	6.8	0.84	9.0	0.03	0.00	0.13	0.13	101	12
112	11.09	11.07	33.264	25.414	258.2	0.392	4.59	200.6	73.6	10.6	1.07	12.7	0.00	0.09	0.08	0.09	113	11
125	10.13	10.12	33.382	25.672	233.8	0.424	4.33	188.8	67.9	14.0	1.25	16.1	0.00	0.00	0.04	0.06	126	10
140	9.39	9.37	33.572	25.943	208.2	0.457	3.87	168.9	59.9	19.8	1.53	20.6	0.00	0.00	0.01	0.03	141	09
150 ISL	9.26 D	9.24	33.646 D	26.022	200.9	0.481	3.81	D165.7	D 58.7	21.4	1.57	21.4	0.01	0.00	0.01	0.03	151	
170	8.95	8.93	33.815	26.204	184.0	0.516	3.64	158.7	55.8	24.8	1.64	23.0	0.00	0.00	0.00	0.03	171	08
200	8.62	8.60	33.913	26.333	172.3	0.570	3.50	152.8	53.4	28.0	1.70	24.2	0.00	0.00	0.00	0.03	202	07
230	8.28	8.26	34.013	26.464	160.3	0.620	2.42	105.4	36.5	36.1	2.09	29.1	0.00	0.00			232	06
250 ISL	8.01 D	7.98	34.029 D	26.518	155.4	0.656	2.23	D 97.1	D 33.6	39.9	2.19	30.6	0.01	0.00			252	
270	7.62	7.60	34.035	26.579	149.8	0.682	2.02	88.0	30.0	43.7	2.28	32.1	0.00	0.00			272	05
300 ISL	7.35 D	7.32	34.060 D	26.639	144.5	0.731	1.70	D 73.8	D 25.1	49.2	2.45	34.1	0.01	0.00			302	
320	7.11	7.08	34.091	26.697	139.2	0.754	1.34	58.6	19.8	52.9	2.57	35.5	0.00	0.00			323	04
380	6.62	6.59	34.141	26.803	129.8	0.835	0.84	36.8	12.3	61.8	2.78	38.0	0.00	0.00			383	03
400 ISL	6.50 D	6.46	34.152 D	26.828	127.6	0.867	0.79	D 34.1	D 11.4	64.5	2.83	38.6	0.01	0.00			403	
441	6.14	6.10	34.183	26.900	121.1	0.911	0.61	26.6	8.8	70.2	2.94	39.7	0.00	0.00			445	02
500 ISL	5.85 D	5.81	34.229 D	26.973	114.7	0.988	0.42	D 18.1	D 6.0	77.7	3.05	40.9	0.01	0.00			504	
517	5.74	5.70	34.247	27.001	112.2	1.000	0.35	15.1	5.0	79.9	3.08	41.3	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 SALLY RIDE CALCOFI CRUISE 1611 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 44.6 W	15/11/2016	1015 UTC	4041 m	360 14 kn			1020.3 mb	17.5 C	16.1 C				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	19.10	19.10	33.222	23.638	424.6	0.000	5.35	233.4	100.7	1.9	0.23	0.1	0.02	0.03	0.10	0.02	0	
2	19.10	19.10	33.222	23.638	424.7	0.009	5.35	233.4	100.7	1.9	0.23	0.1	0.00	0.00	0.10	0.02	2	21
10	19.10	19.10	33.222	23.640	424.8	0.043	5.35	233.6	100.8	1.3	0.21	0.0	0.00	0.00	0.10	0.03	10	19
10	19.10	19.10	33.221	23.639	424.9	0.044											10	20
20 ISL	19.10 D	19.10	33.219 D	23.637	425.4	0.085	5.35	D233.2	D100.7	1.3	0.21	0.0	0.01	0.00	0.10	0.03	20	
25	19.10	19.10	33.221	23.639	425.5	0.106	5.35	233.7	100.8	1.2	0.21	0.0	0.00	0.00	0.10	0.02	25	18
30 ISL	19.11 D	19.10	33.220 D	23.637	425.9	0.128	5.35	D233.4	D100.8	1.2	0.21	0.0	0.01	0.00	0.11	0.02	30	
40	19.06	19.06	33.218	23.649	425.2	0.170	5.36	233.9	100.8	1.2	0.21	0.0	0.00	0.00	0.11	0.02	40	17
50	17.95	17.94	33.157	23.878	403.6	0.212	5.53	241.4	101.8	1.2	0.26	0.0	0.00	0.44	0.18	0.05	50	16
62	17.15	17.14	33.272	24.158	377.2	0.258	5.83	254.4	105.8	1.6	0.21	0.0	0.00	0.11	0.22	0.07	62	15
75	16.74	16.73	33.396	24.350	359.4	0.306	5.74	250.8	103.5	1.7	0.19	0.0	0.00	0.00	0.22	0.11	76	14
87	16.37	16.35	33.482	24.504	345.2	0.349	5.69	248.5	101.8	1.9	0.19	0.0	0.00	0.07	0.21	0.13	88	13
100	15.46	15.45	33.468	24.697	327.0	0.392	5.59	243.9	98.2	2.2	0.22	0.0	0.04	0.11	0.20	0.12	101	12
112	14.58	14.57	33.417	24.849	312.8	0.431	5.49	239.9	94.8	3.0	0.32	0.6	0.14	0.00	0.16	0.19	113	11
125	13.50	13.49	33.408 D	25.067	292.3	0.473	5.20	227.1	87.8	4.6	0.52	3.9	0.06	0.00	0.13	0.11	126	10
139	11.77	11.75	33.343	25.352	265.0	0.509	4.85	211.8	78.9	7.8	0.81	8.9	0.03	0.00	0.10	0.10	140	09
150 ISL	10.65 D	10.63	33.365 D	25.571	244.1	0.541	4.62	D201.2	D 73.4	11.0	1.02	12.1	0.02	0.00	0.07	0.07	151	
169	9.82	9.80	33.501	25.818	220.8	0.581	4.17	182.0	65.1	16.3	1.38	17.8	0.00	0.00	0.02	0.03	170	08
200	8.89	8.87	33.785	26.192	185.7	0.644	3.36	146.6	51.4	25.1	1.72	23.9	0.00	0.00	0.00	0.02	202	07
230	8.54	8.52	33.915	26.347	171.5	0.697	2.94	128.3	44.7	30.0	1.89	26.5	0.00	0.00			232	06
250 ISL	8.33 D	8.30	33.972 D	26.426	164.3	0.735	2.67	D116.2	D 40.4	33.7	2.00	28.0	0.01	0.00			252	
270	8.00	7.97	33.998	26.496	157.9	0.763	2.46	107.5	37.0	37.3	2.10	29.6	0.00	0.00			272	05
300 ISL	7.65 D	7.62	34.034 D	26.576	150.7	0.814	2.06	D 89.8	D 30.8	43.1	2.28	31.8	0.01	0.00			302	
319	7.43	7.40	34.051	26.620	146.6	0.838	1.79	77.9	26.5	46.7	2.40	33.3	0.00	0.00			322	04
379	6.79	6.76	34.100	26.748	135.1	0.923	1.19	52.1	17.4	57.3	2.65	36.5	0.00	0.00			382	03
400 ISL	6.64 D	6.60	34.128 D	26.791	131.2	0.956	0.96	D 41.5	D 13.9	60.4	2.72	37.3	0.01	0.00			403	
440	6.32	6.28	34.147	26.848	126.1	1.002	0.80	35.0	11.6	66.2	2.85	38.9	0.00	0.00			444	02
500 ISL	5.80 D	5.76	34.200 D	26.956	116.3	1.082	0.54	D 23.6	D 7.8	75.1	2.99	40.5	0.01	0.00			504	
516	5.73	5.68	34.208	26.972	114.9	1.094	0.51	22.1	7.2	77.5	3.03	41.0	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 86.8 32.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 53.3 N	118 26.7 W	13/11/2016	0511 UTC	26 m	170 06 kn			1015.8 mb	19.0 C	18.1 C				033

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	19.09	19.09	33.436	23.805	408.7	0.000	5.54	241.8	104.4	1.8	0.22	0.1	0.02	0.05	0.57	0.12	0	
2	19.09	19.09	33.436	23.805	408.7	0.008	5.54	241.8	104.4	1.8	0.22	0.1	0.00	0.00	0.57	0.12	2	05
6	18.78	18.78	33.427	23.875	402.2	0.024	5.56	242.9	104.3	1.8	0.22	0.0	0.00	0.00	0.51	0.10	6	04
10	18.73	18.73	33.420	23.882	401.7	0.041	5.59	244.0	104.6	1.9	0.26	0.1	0.00	0.00	0.60	0.14	10	03
16	16.32	16.31	33.290 D	24.362	356.1	0.064	5.64	246.2	100.7	2.8	0.35	0.2	0.04	0.00	1.48	0.49	16	02
20	16.25	16.25	33.308	24.393	353.3	0.077	5.59	244.2	99.7	3.3	0.41	0.2	0.05	0.09	1.66	0.72	20	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 88.5 30.1

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 40.2 N	118 5.4 W	13/11/2016	0142 UTC	21 m	280 10 kn			1014.5 mb	20.3 C	17.5 C				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	18.09	18.09	33.370	24.004	389.7	0.000	5.99	261.8	110.9	1.8	0.19	0.0	0.03	0.00	1.03	0.24	0	
2	18.09	18.09	33.370	24.004	389.7	0.008	5.99	261.8	110.9	1.8	0.19	0.0	0.03	0.00	1.03	0.24	2	04
6	18.06	18.06	33.359	24.002	390.1	0.023	6.07	265.1	112.2	2.2	0.23	0.0	0.03	0.00	1.55	0.37	6	03
10	18.06	18.06	33.363	24.007	389.8	0.039	6.09	265.8	112.5	2.3	0.25	0.0	0.03	0.00	1.79	0.44	10	02
15	18.01	18.01	33.350	24.008	389.9	0.059	6.14	D267.9	D113.4	3.0	0.30	0.0	0.05	0.00	2.24	0.49	15	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 90.0 27.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.6 N	117 44.9 W	12/11/2016	2316 UTC	25 m	300 06 kn	270 01 09	1	1014.6 mb	20.5 C	17.5 C		4/8	ST	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	18.98	18.98	33.404	23.807	408.5	0.000	5.75	251.1	108.2	1.2	0.17	0.0	0.03	0.01	0.67	0.13	0	
2	18.98	18.98	33.404	23.807	408.5	0.008	5.75	251.1	108.2	1.2	0.17	0.0	0.03	0.00	0.67	0.13	2	04
6	18.84	18.84	33.401	23.841	405.5	0.025	5.81	253.7	109.0	1.3	0.17	0.0	0.03	0.00	0.84	0.17	6	03
10	18.54	18.54	33.407	23.922	397.9	0.041	5.81	253.6	108.4	1.3	0.17	0.0	0.03	0.08	0.84	0.18	10	02
16	18.63	18.62	33.406	23.900	400.2	0.065	5.82	254.3	108.8	1.4	0.18	0.0	0.03	0.00	1.04	0.23	16	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 46.1 W	12/11/2016	2119 UTC	64 m	270 06 kn	350 01 08	1	1015.3 mb	21.7 C	18.0 C	18 m	4/8	ST	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	19.17	19.17	33.381	23.743	414.5	0.000	5.55	242.3	104.7	1.4	0.20	0.0	0.02	0.03	0.29	0.05	0	
2	19.17	19.17	33.381	23.743	414.6	0.008	5.55	242.3	104.7	1.4	0.20	0.0	0.00	0.00	0.29	0.05	2	08
5	19.10	19.10	33.386	23.764	412.7	0.021	5.57	243.0	104.9	1.4	0.20	0.0	0.00	0.00	0.32	0.06	5	07
10 ISL	18.53 D	18.52	33.391 D	23.913	398.8	0.037	5.72	249.4	106.7	1.2	0.18	0.0	0.02	0.00	0.56	0.12	10	
11	18.69	18.69	33.394	23.874	402.5	0.045	5.75	251.1	107.6	1.1	0.17	0.0	0.00	0.00	0.61	0.13	11	06
20 ISL	16.82 D	16.81	33.292 D	24.249	367.0	0.076	5.92	258.0	106.7	2.4	0.30	0.1	0.04	0.00	1.37	0.46	20	
21	15.85	15.84	33.304	24.480	345.0	0.083	5.94	259.2	105.0	2.5	0.31	0.1	0.04	0.64	1.45	0.50	21	05
30	14.45	14.45	33.243	24.738	320.7	0.113	5.58	243.8	96.0	4.3	0.53	0.9	0.12	0.81	1.33	0.54	30	04
40	13.65	13.65	33.266	24.922	303.4	0.144	5.07	221.3	85.8	5.8	0.68	4.5	0.26	0.00	0.80	0.53	40	03
50	13.41	13.40	33.274	24.979	298.3	0.175	4.88	213.0	82.1	7.0	0.81	5.7	0.32	0.09	0.75	0.52	50	02
58	13.23	13.23	33.281	25.019	294.7	0.198	4.74	207.0	79.5	7.9	0.92	6.8	0.34	0.60	0.68	0.58	58	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 25.0 N	117 54.4 W	12/11/2016	1802 UTC	609 m	270 08 kn	270 03 10	1	1017.7 mb	21.0 C	19.0 C	20 m	5/8	ST	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	19.59	19.59	33.492	23.719	416.9	0.000	6.02	262.8	114.6	1.7	0.21	0.0	0.02	0.00	1.27	0.06	0	
2 A	19.59	19.59	33.492	23.719	416.9	0.008	6.02	262.8	114.6	1.7	0.21	0.0	0.00	0.00	1.27	0.06	2	24
10 ISL	19.42 D	19.41	33.482 D	23.758	413.6	0.042	6.03	263.2	114.5	1.6	0.21	0.0	0.01	0.00	0.83	0.06	10	
13 A	19.36	19.36	33.475	23.767	412.9	0.054	6.04	263.7	114.5	1.6	0.21	0.0	0.00	0.00	0.67	0.06	13	21
14	19.23	19.22	33.475	23.801	409.6	0.056											14	23
14	19.23	19.22	33.478	23.803	409.4	0.056											14	22
18 A	19.03	19.02	33.462	23.841	405.9	0.074	5.82	254.0	109.6	1.6	0.22	0.0	0.00	0.00	0.60	0.09	18	20
20 ISL	18.84 D	18.84	33.459 D	23.886	401.7	0.083	5.82	253.6	109.2	1.7	0.23	0.0	0.00	0.00	0.60	0.11	20	
26	18.32	18.32	33.417	23.984	392.6	0.106	5.80	253.5	107.9	1.9	0.24	0.0	0.00	0.00	0.60	0.15	26	19
30 ISL	17.37 D	17.37	33.388 D	24.193	372.7	0.122	5.77	251.4	105.1	1.9	0.28	0.0	0.00	0.00	0.63	0.25	30	
33 A	16.59	16.58	33.302	24.311	361.6	0.133	5.74	250.5	103.0	1.9	0.31	0.0	0.00	0.00	0.65	0.32	33	17
33	16.59	16.58	33.314	24.320	360.7	0.134											33	18
43	14.91	14.90	33.213	24.617	332.6	0.167	5.52	241.0	95.8	2.9	0.42	0.6	0.06	0.00	0.74	0.48	43	16
50 ISL	13.64 D	13.64	33.208 D	24.879	307.8	0.191	5.35	D233.0	D 90.4	4.7	0.64	4.5	0.15	0.00	0.44	0.41	50	
53	13.25	13.25	33.223	24.969	299.3	0.199	5.03	219.7	84.4	5.5	0.73	6.2	0.19	0.00	0.31	0.38	53	15
62 A	12.24	12.23	33.290	25.219	275.7	0.225	4.56	198.9	74.8	8.8	1.00	10.8	0.03	0.00	0.17	0.23	63	14
69 A	11.84	11.84	33.314	25.313	266.8	0.244	4.38	191.0	71.3	10.2	1.11	12.6	0.00	0.00	0.12	0.15	70	13
75 ISL	11.61 D	11.60	33.349 D	25.383	260.3	0.261	4.35	D189.6	D 70.6	11.4	1.18	13.7	0.02	0.00	0.10	0.14	76	
85	11.04	11.03	33.389	25.518	247.7	0.285	4.07	177.9	65.3	13.4	1.29	15.5	0.00	0.00	0.07	0.12	86	12
100	10.38	10.36	33.471	25.699	230.7	0.321	3.84	167.9	60.7	16.1	1.42	17.7	0.00	0.00	0.06	0.07	101	11
120	9.86	9.85	33.591	25.880	213.9	0.365	3.44	150.4	53.8	20.2	1.62	21.0	0.00	0.00	0.00	0.07	121	10
125 ISL	9.78 D	9.76	33.620 D	25.917	210.5	0.378	3.39	D147.8	D 53.0	21.1	1.66	21.4	0.01	0.00	0.00	0.06	126	
140	9.51	9.49	33.738	26.053	197.8	0.407	3.07	134.2	47.7	23.7	1.76	22.9	0.00	0.00	0.01	0.03	141	09
150 ISL	9.40 D	9.39	33.797 D	26.117	191.9	0.429	2.97	D129.3	D 46.0	25.2	1.81	23.6	0.01	0.00	0.01	0.03	151	
170	9.20	9.18	33.913	26.242	180.5	0.463	2.74	119.5	42.3	28.3	1.91	25.1	0.00	0.00	0.00	0.02	171	08
200	8.85	8.83	34.002	26.368	169.1	0.516	2.43	105.9	37.2	32.5	2.03	26.9	0.00	0.00	0.00	0.02	202	07
230	8.76	8.73	34.103	26.462	160.7	0.565	1.89	82.5	28.9	37.0	2.23	28.6	0.00	0.00			232	06
250 ISL	8.80 D	8.77	34.167 D	26.506	157.1	0.601	1.62	D 70.3	D 24.8	39.2	2.32	29.4	0.01	0.00			252	
270	8.55	8.52	34.178	26.554	152.8	0.628	1.43	62.3	21.8	41.4	2.40	30.2	0.00	0.00			272	05
300 ISL	8.26 D	8.23	34.182 D	26.603	148.6	0.678	1.30	D 56.6	D 19.7	44.6	2.47	31.4	0.01	0.00			302	
320	7.93	7.89	34.180	26.651	144.2	0.703	1.28	55.9	19.2	46.7	2.51	32.2	0.00	0.00			323	04
380	7.59	7.56	34.235	26.744	136.3	0.787	0.76	33.3	11.4	55.1	2.75	34.4	0.00	0.00			383	03
400 ISL	7.43 D	7.39	34.240 D	26.772	133.8	0.820	0.72	D 31.3	D 10.7	57.4	2.79	35.0	0.01	0.00			403	
440	7.04	7.00	34.263	26.844	127.4	0.866	0.55	23.9	8.1	62.1	2.88	36.2	0.00	0.00			444	02
500 ISL	6.60 D	6.55	34.279 D	26.918	120.8	0.948	0.43	D 18.6	D 6.2	69.5	3.00	37.9	0.01	0.00			504	
517	6.42	6.37	34.283	26.945	118.4	0.961	0.38	16.7	5.6	71.7	3.04	38.4	0.00	0.00			521	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 SALLY RIDE CALCOFI CRUISE 1611 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 15.0 W	12/11/2016	1350 UTC	357 m	020 02 kn			1016.4 mb	19.8 C	19.0 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	19.20	19.20	33.395	23.745	414.3	0.000	5.78	252.3	109.1	0.8	0.10	0.0	0.02	0.00	0.48	0.08	0	
2	19.20	19.20	33.395	23.746	414.4	0.008	5.78	252.3	109.1	0.8	0.10	0.0	0.00	0.00	0.48	0.08	2	19
10	18.29	18.28	33.362	23.950	395.2	0.041	6.25	273.1	116.1	1.2	0.16	0.0	0.00	0.00	1.16	0.18	10	17
10	18.29	18.28	33.362	23.950	395.2	0.041											10	18
20	14.43	14.42	33.265	24.759	318.3	0.076	5.41	236.3	93.0	4.2	0.43	0.0	0.03	0.00	0.72	0.28	20	16
30	13.15	13.14	33.283	25.036	292.2	0.107	4.78	208.5	80.0	6.7	0.79	5.7	0.11	0.00	0.59	0.32	30	15
40	12.60	12.60	33.314	25.168	279.9	0.136	4.57	199.4	75.6	8.2	0.94	9.2	0.06	0.00	0.29	0.32	40	14
50	12.00	12.00	33.343	25.305	267.2	0.163	4.27	186.3	69.8	10.4	1.10	11.9	0.04	0.00	0.21	0.19	50	13
59	11.80	11.80	33.364	25.359	262.2	0.187	4.12	179.8	67.0	11.5	1.18	13.3	0.04	0.00	0.14	0.18	59	12
75	10.96	10.95	33.407	25.547	244.7	0.227	3.98	173.8	63.6	13.8	1.31	15.7	0.03	0.00	0.08	0.15	76	11
85	10.51	10.50	33.447	25.657	234.4	0.251	3.89	170.0	61.7	15.5	1.41	17.4	0.03	0.00	0.06	0.10	86	10
100	10.09	10.08	33.513	25.780	223.0	0.286	3.73	162.6	58.5	17.7	1.52	19.1	0.03	0.00	0.04	0.06	101	09
120	9.59	9.57	33.660	25.979	204.4	0.328	3.31	144.6	51.5	22.0	1.70	22.1	0.03	0.00	0.02	0.04	121	08
125 ISL	9.60 D	9.59	33.726 D	26.028	199.8	0.340	3.25	D141.6 D	50.6	22.8	1.74	22.6	0.03	0.00	0.02	0.04	126	
140	9.38	9.36	33.824	26.142	189.4	0.368	2.89	126.1	44.7	25.4	1.85	23.9	0.03	0.00	0.02	0.03	141	07
150 ISL	9.38 D	9.37	33.900 D	26.201	184.0	0.388	2.68	D116.6 D	41.5	27.1	1.92	24.7	0.03	0.00	0.01	0.03	151	
170	9.30	9.28	34.008	26.299	175.1	0.423	2.30	100.5	35.6	30.5	2.06	26.2	0.03	0.00	0.01	0.03	171	06
200	9.09	9.07	34.084	26.393	166.8	0.474	1.97	85.9	30.3	34.2	2.20	27.7	0.04	0.00	0.02	0.03	202	05
230	8.88	8.86	34.157	26.485	158.6	0.523	1.58	69.1	24.3	37.8	2.33	29.1	0.04	0.00			232	04
250 ISL	8.67 D	8.64	34.172 D	26.530	154.7	0.557	1.48	D 64.4 D	22.6	39.7	2.38	29.8	0.03	0.00			252	
270	8.52	8.49	34.170	26.552	152.9	0.585	1.39	60.6	21.1	41.5	2.43	30.5	0.03	0.11			272	03
300 ISL	8.05 D	8.01	34.178 D	26.631	145.8	0.633	1.23	D 53.6 D	18.6	46.0	2.53	32.1	0.03	0.00			302	
320	7.87	7.84	34.188	26.665	142.8	0.658	1.07	46.8	16.1	49.0	2.60	33.1	0.03	0.00			323	02
352	7.67	7.64	34.210	26.712	138.8	0.704	0.91	39.7	13.6	52.6	2.71	34.2	0.00	0.00			355	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 11.1 N	118 23.2 W	12/11/2016	1049 UTC	1167 m	130 04 kn			1016.0 mb	19.8 C	19.0 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	19.30	19.30	33.426	23.744	414.5	0.000	5.47	238.9	103.6	1.6	0.20	0.0	0.02	0.00	0.23	0.04	0	
2	19.30	19.30	33.426	23.744	414.6	0.008	5.47	238.9	103.6	1.6	0.20	0.0	0.00	0.00	0.23	0.04	2	22
9	17.93	17.50	33.351	24.131	377.9	0.038											9	21
10	17.51	17.50	33.347	24.128	378.2	0.040	5.68	248.2	103.9	2.0	0.24	0.0	0.00	0.00	0.31	0.07	10	20
20	16.63	16.62	33.260	24.269	365.1	0.077	5.83	254.8	104.8	2.6	0.30	0.0	0.00	0.00	0.40	0.18	20	19
30	14.88	14.87	33.221	24.630	331.0	0.112	5.79	252.8	100.4	3.3	0.37	0.0	0.00	0.00	0.59	0.38	30	17
30	14.88	14.87	33.226	24.634	330.7	0.113											30	18
41	12.45	12.44	33.328	25.209	276.0	0.145	4.48	195.6	73.9	9.2	0.98	9.8	0.07	0.00	0.52	0.45	41	16
50	12.12	12.12	33.358	25.294	268.2	0.170	4.19	183.0	68.7	10.8	1.11	12.1	0.05	0.00	0.39	0.44	50	15
60	11.91	11.90	33.381	25.352	262.9	0.197	4.02	175.5	65.6	11.9	1.19	13.4	0.04	0.00	0.28	0.41	60	14
70	11.70	11.70	33.401	25.406	258.0	0.223	3.92	171.2	63.7	12.7	1.25	14.5	0.03	0.00	0.22	0.28	71	13
75 ISL	11.53 D	11.52	33.415 D	25.449	254.0	0.233	3.87	D168.4 D	62.6	13.3	1.29	15.0	0.03	0.00	0.18	0.23	76	
85	11.32	11.31	33.447	25.513	248.2	0.260	3.70	161.6	59.7	14.6	1.36	16.2	0.03	0.00	0.10	0.14	86	12
100 ISL	10.89 D	10.88	33.536 D	25.660	234.5	0.295	3.39	D147.4 D	54.1	17.2	1.51	18.3	0.02	0.00	0.04	0.07	101	
101	10.84	10.82	33.540	25.672	233.4	0.299	3.36	146.7	53.6	17.4	1.52	18.5	0.00	0.00	0.04	0.06	102	11
120	10.40	10.39	33.671	25.851	216.8	0.342	2.98	130.0	47.1	20.9	1.71	21.1	0.00	0.00	0.01	0.04	121	10
125 ISL	10.39 D	10.37	33.684 D	25.864	215.7	0.351	2.98	D129.7 D	47.1	21.4	1.73	21.4	0.02	0.00	0.01	0.04	126	
140	9.92	9.91	33.758	26.000	203.0	0.384	2.78	121.3	43.5	23.0	1.80	22.4	0.00	0.00	0.01	0.03	141	09
150 ISL	9.75 D	9.73	33.769 D	26.038	199.5	0.403	2.94	D128.1 D	45.9	25.1	1.88	23.5	0.02	0.00	0.01	0.03	151	
170	9.58	9.56	33.986	26.237	181.1	0.441	2.30	100.2	35.7	29.3	2.04	25.7	0.00	0.00	0.00	0.02	171	08
200 ISL	8.88 D	8.86	34.007 D	26.366	169.2	0.494	2.33	D101.3 D	35.7	32.2	2.08	27.2	0.02	0.00	0.00	0.02	202	
201	8.90	8.88	34.009	26.365	169.4	0.496	2.29	99.8	35.1	32.3	2.08	27.2	0.00	0.00	0.00	0.02	203	07
230	8.67	8.64	34.023	26.414	165.3	0.544	2.22	97.1	33.9	34.4	2.11	28.2	0.00	0.00			232	06
250 ISL	8.65 D	8.62	34.098 D	26.476	159.8	0.577	1.89	D 82.3 D	28.9	37.7	2.24	29.4	0.02	0.00			252	
270	8.37	8.34	34.136	26.548	153.2	0.608	1.58	68.9	24.0	41.0	2.37	30.6	0.00	0.00			272	05
300 ISL	8.09 D	8.06	34.194 D	26.637	145.2	0.654	1.16	D 50.5 D	17.5	46.1	2.51	32.3	0.02	0.00			302	
320	7.80	7.76	34.187	26.675	141.8	0.682	1.07	46.6	16.0	49.5	2.60	33.5	0.00	0.00			323	04
380	7.30	7.26	34.241	26.790	131.6	0.764	0.69	30.2	10.3	57.0	2.82	35.5	0.00	0.00			383	03
400 ISL	7.08 D	7.05	34.243 D	26.822	128.8	0.792	0.64	D 27.7 D	9.4	59.7	2.86	36.1	0.01	0.00			403	
440	6.81	6.77	34.273	26.883	123.4	0.840	0.45	19.6	6.6	65.2	2.95	37.3	0.00	0.00			444	02
500 ISL	6.43 D	6.38	34.296 D	26.953	117.3	0.916	0.35	D 15.4 D	5.1	71.7	3.06	38.8	0.02	0.00			504	
517	6.29	6.25	34.302	26.975	115.3	0.932	0.32	13.8	4.6	73.5	3.09	39.2	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 SALLY RIDE CALCOFI CRUISE 1611 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 55.0 N	118 56.1 W	12/11/2016	0532	UTC	171 m	260 02 kn			1016.9 mb	19.5 C	19.0 C				026

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	19.72	19.72	33.454	23.657	422.8	0.000	5.37	234.6	102.5	1.6	0.23	0.0	0.02	0.00	0.22	0.04	0	
2	19.72	19.72	33.454	23.657	422.9	0.009	5.37	234.6	102.5	1.6	0.23	0.0	0.00	0.00	0.22	0.04	2	21
10	19.23	19.23	33.442	23.775	411.9	0.042	5.45	238.2	103.1	1.7	0.24	0.0	0.03	0.00	0.18	0.04	10	19
10	19.23	19.23	33.443	23.776	411.9	0.042											10	20
20	18.97	18.96	33.443	23.843	405.8	0.083	5.47	238.8	102.9	1.6	0.25	0.0	0.00	0.00	0.17	0.04	20	18
30	16.45	16.45	33.247	24.299	362.6	0.121	5.85	255.3	104.6	2.5	0.33	0.0	0.00	0.00	0.34	0.12	30	17
40	14.47	14.46	33.208	24.707	324.0	0.156	5.78	252.2	99.3	3.4	0.41	0.0	0.00	0.00	0.69	0.32	40	16
50	13.46	13.46	33.256	24.953	300.8	0.187	5.34	233.4	90.1	4.8	0.56	1.4	0.14	0.00	1.38	0.62	50	15
60	12.28	12.27	33.317	25.233	274.3	0.216	4.49	196.3	73.9	9.1	0.99	10.0	0.05	0.00	0.39	0.36	60	14
70	11.96	11.95	33.351	25.320	266.2	0.243	4.27	186.6	69.8	10.8	1.11	12.3	0.04	0.00	0.24	0.27	71	13
75 ISL	11.92 D	11.91	33.359 D	25.334	265.0	0.257	4.25	D184.9 D	69.3	11.6	1.17	13.2	0.03	0.00	0.20	0.24	76	
85	11.19	11.18	33.400	25.499	249.4	0.282	3.98	173.6	63.9	13.2	1.28	15.0	0.03	0.00	0.12	0.17	86	12
100	10.57	10.56	33.486	25.677	232.8	0.318	3.66	159.7	58.0	16.4	1.46	17.9	0.00	0.00	0.06	0.08	101	11
120	10.02	10.00	33.608	25.867	215.1	0.363	3.32	145.1	52.2	19.9	1.64	20.6	0.00	0.00	0.02	0.05	121	10
125 ISL	9.74 D	9.73	33.647 D	25.944	207.9	0.375	3.44	D149.8 D	53.7	21.2	1.68	21.4	0.02	0.00	0.02	0.05	126	
140	9.34	9.32	33.783	26.117	191.7	0.403	2.99	130.3	46.2	25.1	1.81	23.8	0.00	0.00	0.01	0.03	141	09
150 ISL	9.22 D	9.20	33.859 D	26.195	184.5	0.424	2.76	D119.9 D	42.5	27.1	1.88	24.8	0.02	0.00	0.01	0.03	151	
170	8.90	8.88	33.946	26.316	173.4	0.458	2.42	105.5	37.1	31.0	2.03	26.8	0.00	0.00	0.00	0.03	171	08
200 ISL	8.57 D	8.55	34.078 D	26.471	159.2	0.510	1.89	D 82.0 D	28.7	37.3	2.22	29.4	0.01	0.00	0.00	0.02	202	
201	8.55	8.53	34.072	26.468	159.5	0.509	1.90	82.8	28.9	37.5	2.23	29.5	0.00	0.00	0.00	0.02	203	07
231	8.32	8.29	34.149	26.566	150.7	0.556	1.49	65.2	22.6	42.2	2.40	30.8	0.00	0.00			233	06
250 ISL	8.21 D	8.18	34.161 D	26.591	148.6	0.587	1.41	D 61.3 D	21.3	44.9	2.47	31.9	0.02	0.00			252	
270	7.84	7.82	34.159	26.645	143.7	0.614	1.23	53.6	18.4	47.7	2.54	32.9	0.00	0.00			272	05
300 ISL	7.77 D	7.74	34.202 D	26.690	140.0	0.659	0.99	D 43.0 D	14.8	50.3	2.62	33.6	0.01	0.00			302	
320	7.63	7.59	34.210	26.718	137.6	0.684	0.91	39.6	13.5	52.0	2.67	34.1	0.00	0.00			323	04
380	7.15	7.12	34.238	26.807	129.9	0.765	0.64	27.7	9.4	59.3	2.84	36.0	0.00	0.00			383	03
400 ISL	7.03 D	7.00	34.251 D	26.835	127.5	0.794	0.59	D 25.5 D	8.6	62.0	2.89	36.6	0.01	0.00			403	
440	6.69	6.65	34.274	26.900	121.7	0.840	0.42	18.4	6.2	67.5	2.99	37.8	0.00	0.00			444	02
500 ISL	6.32 D	6.28	34.295 D	26.966	116.0	0.916	0.34	D 14.9 D	5.0	73.3	3.07	39.0	0.01	0.00			504	
517	6.23	6.18	34.304	26.985	114.3	0.931	0.31	13.3	4.4	74.9	3.09	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 SALLY RIDE CALCOFI CRUISE 1611 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 28.9 W	11/11/2016	2354	UTC	133 m	190 02 kn	310 01 10	1	1015.5 mb	21.3 C	19.2 C	32 m	3/8	ST	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	19.18	19.18	33.343	23.711	417.6	0.000	5.36	234.0	101.2	1.4	0.23	0.0	0.02	0.01	0.13	0.03	0	
2	19.18	19.18	33.343	23.711	417.7	0.008	5.36	234.0	101.2	1.4	0.23	0.0	0.00	0.00	0.13	0.03	2	22
10 ISL	19.11 D	19.11	33.340 D	23.728	416.4	0.042	5.35	233.5	100.9	1.4	0.23	0.0	0.02	0.00	0.14	0.02	10	
11	19.09	19.09	33.343	23.736	415.7	0.046	5.35	233.7	100.8	1.3	0.23	0.0	0.00	0.11	0.14	0.02	11	20
11	19.09	19.09	33.341	23.734	415.9	0.046											11	21
20	18.79	18.78	33.326	23.799	410.0	0.083	5.42	236.5	101.5	1.3	0.26	0.0	0.00	0.00	0.15	0.04	20	19
30	17.73	17.73	33.271	24.017	389.6	0.123	5.60	244.6	102.8	1.5	0.26	0.0	0.00	0.00	0.23	0.08	30	18
40	15.60	15.59	33.188	24.447	348.8	0.160	5.85	255.6	103.0	2.2	0.31	0.0	0.00	0.00	0.40	0.23	40	17
50	14.83	14.82	33.207	24.631	331.5	0.194	5.70	248.9	98.7	3.0	0.39	0.3	0.08	0.06	0.71	0.59	50	15
50	14.83	14.82	33.208	24.632	331.4	0.195											50	16
60	13.72	13.71	33.252	24.898	306.3	0.226	5.21	227.3	88.2	4.8	0.61	3.6	0.08	0.21	0.30	0.44	60	14
70	12.48	12.47	33.296	25.179	279.7	0.255	4.69	204.9	77.5	7.9	0.90	8.9	0.04	0.00	0.16	0.25	71	13
75 ISL	12.22 D	12.21	33.324 D	25.250	273.1	0.271	4.71	D205.3 D	77.4	8.8	0.97	10.1	0.04	0.00	0.14	0.22	76	
85	11.64	11.63	33.361	25.388	260.1	0.296	4.34	189.4	70.4	10.7	1.12	12.3	0.04	0.06	0.10	0.16	86	12
100	10.47	10.46	33.412	25.637	236.6	0.333	4.04	176.5	64.0	14.8	1.37	16.7	0.03	0.00	0.06	0.08	101	11
120	9.62	9.61	33.600	25.926	209.4	0.378	3.44	150.0	53.4	20.5	1.66	21.5	0.03	0.17	0.02	0.04	121	10
125 ISL	9.52 D	9.51	33.685 D	26.009	201.6	0.390	3.36	D146.2 D	52.2	21.4	1.70	22.1	0.03	0.00	0.01	0.04	126	
140	9.31	9.30	33.733	26.081	195.1	0.418	3.06	133.6	47.3	24.1	1.81	23.8	0.00	0.00	0.00	0.03	141	09
150 ISL	9.18 D	9.16	33.805 D	26.160	187.8	0.439	2.97	D129.1 D	45.7	26.1	1.88	24.8	0.02	0.00	0.00	0.03	151	
171	8.86	8.84	33.923	26.303	174.6	0.475	2.51	109.6	38.5	30.2	2.03	26.8	0.00	0.20	0.00	0.04	172	08
200	8.42	8.40	34.011	26.440	162.0	0.524	2.21	96.5	33.6	35.9	2.18	29.0	0.00	0.11	0.01	0.03	202	07
231	8.20	8.18	34.056	26.509	156.0	0.574	1.91	83.4	28.9	39.3	2.29	30.3	0.00	0.00			233	06
250 ISL	8.17 D	8.14	34.071 D	26.527	154.7	0.606	1.85	D 80.5 D	27.9	42.1	2.38	31.3	0.02	0.00			252	
270	7.86	7.83	34.120	26.612	146.8	0.633	1.47	64.0	22.0	45.0	2.47	32.3	0.00	0.47			272	05
300 ISL	7.71 D	7.68	34.159 D	26.665	142.3	0.680	1.24	D 53.7 D	18.5	48.3	2.57	33.2	0.02	0.00			302	
320	7.58	7.55	34.168	26.692	140.1	0.705	1.09	47.6	16.2	50.6	2.64	33.9	0.00	0.00			323	04
380	7.20	7.16	34.231	26.796	131.0	0.786	0.69	30.2	10.2	57.6	2.82	35.9	0.00	0.11			383	03
400 ISL	7.03 D	6.99	34.231 D	26.820	128.9	0.817	0.65	D 28.4 D	9.6	60.3	2.87	36.5	0.02	0.13			403	
439	6.67	6.63	34.248	26.881	123.4	0.861	0.50	21.7	7.3	65.5	2.97	37.7	0.00	0.16			443	02
500 ISL	6.25 D	6.21	34.276 D	26.960	116.5	0.940	0.37	D 16.2 D	5.4	72.9	3.07	39.4	0.02	0.12			504	
516	6.12	6.08	34.268	26.971	115.5	0.953	0.34	14.8	4.9	74.9	3.09	39.8	0.00	0.11			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 57.6 W	11/11/2016	1844 UTC	869 m	040 08 kn	280 04 10	1	1018.5 mb	20.0 C	19.0 C	28 m	1/8	CI	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	18.49	18.49	33.432	23.953	394.5	0.000	5.44	237.5	101.4	1.4	0.27	0.1	0.03	0.01	0.18	0.04	0	
2 A	18.49	18.49	33.432	23.953	394.6	0.008	5.44	237.5	101.4	1.4	0.27	0.1	0.03	0.00	0.18	0.04	2	23
10	18.33	18.33	33.470	24.022	388.3	0.039	5.45	238.0	101.3	1.3	0.28	0.1	0.00	0.09	0.21	0.05	10	21
11	18.32	18.31	33.466	24.022	388.3	0.042											11	22
18 A	18.26	18.26	33.461	24.032	387.7	0.070	5.45	237.9	101.1	1.3	0.28	0.0	0.00	0.00	0.26	0.07	18	20
20 ISL	18.26 D	18.25	33.461 D	24.034	387.6	0.075	5.48	D239.0	D101.7	1.3	0.28	0.0	0.01	0.00	0.29	0.09	20	
26 A	17.80	17.79	33.433	24.124	379.2	0.101	5.53	241.3	101.7	1.2	0.28	0.0	0.00	0.00	0.38	0.17	26	19
30 ISL	17.35 D	17.34	33.404 D	24.210	371.1	0.113	5.64	D245.7	D102.8	1.4	0.30	0.0	0.02	0.00	0.60	0.31	30	
36	16.83	16.82	33.385	24.319	360.9	0.138	5.55	242.1	100.1	1.6	0.32	0.1	0.03	0.00	0.93	0.51	36	18
46 A	15.27	15.26	33.281	24.592	335.1	0.173	5.46	238.4	95.5	2.1	0.43	1.7	0.13	0.18	1.05	0.54	46	16
46	15.27	15.26	33.285	24.596	334.8	0.174											46	17
50 ISL	14.75 D	14.74	33.253 D	24.684	326.5	0.184	5.44	D236.9	D 94.0	2.8	0.51	2.9	0.14	0.00	0.91	0.52	50	
59	14.02	14.01	33.237	24.824	313.4	0.215	5.10	222.5	86.9	4.5	0.69	5.6	0.16	0.00	0.60	0.47	59	15
72	12.39	12.38	33.262	25.170	280.6	0.253	4.62	201.8	76.1	7.8	0.97	10.4	0.05	0.00	0.20	0.31	73	14
75 ISL	12.15 D	12.14	33.271 D	25.222	275.7	0.260	4.55	D198.0	D 74.5	8.9	1.04	11.6	0.05	0.00	0.18	0.27	76	
86 A	11.01	11.00	33.354	25.496	249.8	0.290	4.12	179.7	65.9	12.9	1.29	15.7	0.00	0.00	0.07	0.12	87	13
96 A	10.20	10.19	33.406	25.678	232.6	0.315	4.15	181.3	65.3	15.1	1.36	17.0	0.03	0.07	0.04	0.08	97	12
100 ISL	10.14 D	10.13	33.421 D	25.699	230.6	0.322	4.16	D181.1	D 65.4	15.7	1.39	17.6	0.02	0.07	0.04	0.07	101	
108	9.77	9.76	33.477	25.806	220.6	0.342	3.98	173.7	62.0	17.0	1.45	18.7	0.00	0.08	0.03	0.05	109	11
120	9.59	9.58	33.563	25.903	211.6	0.368	3.77	164.4	58.5	19.3	1.56	20.3	0.00	0.00	0.02	0.03	121	10
125 ISL	9.52 D	9.51	33.593 D	25.937	208.5	0.377	3.77	D163.9	D 58.4	20.6	1.61	21.2	0.02	0.00	0.01	0.03	126	
141	9.08	9.06	33.751	26.133	190.1	0.410	3.23	140.9	49.6	24.7	1.79	24.0	0.00	0.00	0.01	0.03	142	09
150 ISL	8.97 D	8.96	33.814 D	26.199	184.0	0.426	3.16	D137.6	D 48.5	26.7	1.86	25.0	0.01	0.00	0.00	0.03	151	
170	8.75	8.73	33.952	26.343	170.7	0.462	2.53	110.5	38.7	31.3	2.03	27.2	0.00	0.00	0.00	0.02	171	08
200	8.44	8.42	34.010	26.437	162.3	0.512	2.24	97.6	33.9	35.1	2.15	28.9	0.00	0.00	0.00	0.02	202	07
230	8.06	8.03	34.057	26.532	153.7	0.560	1.93	84.1	29.0	39.9	2.28	30.6	0.00	0.00			232	06
250 ISL	7.85 D	7.83	34.064 D	26.568	150.6	0.591	1.86	D 80.7	D 27.8	42.4	2.35	31.5	0.02	0.00			252	
270	7.72	7.69	34.081	26.601	147.8	0.620	1.70	74.2	25.4	44.9	2.42	32.4	0.00	0.00			272	05
300 ISL	7.53 D	7.50	34.129 D	26.667	142.0	0.665	1.29	D 56.3	D 19.3	49.4	2.56	34.0	0.02	0.00			302	
319	7.32	7.29	34.143	26.708	138.3	0.690	1.17	51.1	17.3	52.3	2.65	35.0	0.00	0.00			322	04
380	6.74	6.71	34.181	26.818	128.4	0.771	0.73	32.0	10.7	61.1	2.85	37.3	0.00	0.00			383	03
400 ISL	6.62 D	6.58	34.195 D	26.846	126.0	0.799	0.65	D 28.3	D 9.5	64.3	2.90	38.0	0.01	0.00			403	
440	6.24	6.20	34.235	26.928	118.5	0.846	0.44	19.2	6.4	70.8	3.01	39.2	0.00	0.00			444	02
500 ISL	5.99 D	5.95	34.265 D	26.984	113.9	0.919	0.35	D 15.2	D 5.0	75.2	3.09	40.1	0.02	0.00			504	
516	5.98	5.93	34.267	26.988	113.7	0.934	0.34	14.9	4.9	76.3	3.11	40.3	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 5.1 N	120 38.3 W	11/11/2016	1206 UTC	3805 m	010 04 kn			1016.9 mb	18.5 C	17.5 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	18.38	18.38	33.365	23.929	396.9	0.000	5.45	237.8	101.3	1.2	0.28	0.0	0.02	0.00	0.19	0.04	0	
4	18.38	18.38	33.365	23.929	397.0	0.016	5.45	237.8	101.3	1.2	0.28	0.0	0.00	0.00	0.19	0.04	4	22
10 ISL	18.36 D	18.35	33.368 D	23.937	396.4	0.040	5.42	236.4	100.8	1.2	0.28	0.0	0.02	0.00	0.19	0.04	10	
11	18.26	18.26	33.368	23.961	394.2	0.044	5.42	236.5	100.5	1.1	0.28	0.0	0.00	0.00	0.19	0.04	11	20
11	18.26	18.26	33.371	23.963	394.0	0.044											11	21
20 ISL	17.71 D	17.70	33.401 D	24.121	379.3	0.079	5.51	240.2	101.1	1.3	0.31	0.0	0.02	0.00	0.29	0.09	20	
21	17.72	17.71	33.409	24.125	378.9	0.082	5.52	240.9	101.3	1.3	0.31	0.0	0.00	0.00	0.30	0.10	21	19
30 ISL	17.61 D	17.61	33.403 D	24.146	377.2	0.117	5.53	D241.3	D101.4	1.1	0.30	0.0	0.02	0.00	0.42	0.17	30	
31	17.42	17.42	33.401	24.190	373.1	0.120	5.52	241.0	100.8	1.1	0.30	0.0	0.00	0.00	0.44	0.18	31	18
40	15.82	15.81	33.180	24.392	354.0	0.153	5.78	252.6	102.2	1.3	0.33	0.0	0.04	0.00	0.37	0.20	40	16
40	15.82	15.81	33.173	24.387	354.6	0.154											40	17
50 ISL	13.57 D	13.56	33.086 D	24.800	315.3	0.188	5.52	D240.5	D 93.1	3.1	0.58	4.0	0.22	0.00	0.42	0.36	50	
51	13.03	13.02	33.093	24.914	304.5	0.189	5.42	236.7	90.4	3.2	0.60	4.4	0.23	0.00	0.42	0.37	51	15
61	12.14	12.13	33.191	25.161	281.1	0.219	4.81	210.2	78.9	7.2	0.93	10.2	0.04	0.00	0.21	0.25	61	14
71	11.23	11.22	33.248	25.374	261.0	0.246	4.53	197.6	72.7	10.3	1.13	13.3	0.04	0.00	0.11	0.16	72	13
75 ISL	10.94 D	10.93	33.295 D	25.463	252.6	0.258	4.39	D191.1	D 70.1	11.7	1.20	14.4	0.03	0.00	0.09	0.14	76	
90	9.96	9.95	33.452	25.754	225.1	0.292	4.00	174.8	62.7	16.9	1.46	18.6	0.03	0.00	0.02	0.04	91	12
100 ISL	9.82 D	9.80	33.485 D	25.804	220.6	0.316	4.01	D174.5	D 62.5	17.1	1.46	18.8	0.03	0.00	0.02	0.04	101	
101	9.70	9.69	33.519 D	25.850	216.3	0.318	4.02	175.4	62.5	17.2	1.46	18.8	0.03	0.00	0.02	0.04	102	11
121	9.18	9.17	33.702 D	26.077	195.0	0.360	3.71	161.8	57.1	20.9	1.59	21.2	0.03	0.00	0.01	0.03	122	10
125 ISL	9.14 D	9.12	33.722 D	26.100	192.9	0.368	3.47	D151.1	D 53.4	22.3	1.65	22.0	0.02	0.00	0.01	0.03	126	
141	8.85	8.83	33.850	26.247	179.2	0.396	2.97	129.8	45.5	27.8	1.87	25.5	0.00	0.00	0.00	0.02	142	09
150 ISL	8.76 D	8.74	33.904 D	26.303	174.1	0.413	2.80	D121.8	D 42.8	29.5	1.93	26.3	0.02	0.00	0.00	0.02	151	
172	8.49	8.48	33.976	26.401	165.2	0.449	2.44	106.5	37.1	33.8	2.08	28.4	0.00	0.00	0.00	0.02	173	08
200 ISL	8.17 D	8.15	34.025 D	26.489	157.3	0.497	2.17	D 94.4	D 32.7	37.9	2.20	30.0	0.02	0.00	0.00	0.03	202	
201	8.16	8.14	34.026	26.491	157.1	0.496	2.15	93.7	32.4	38.1	2.20	30.0	0.00	0.00	0.00	0.03	203	07
232	7.97	7.95	34.053	26.542	152.8	0.544	1.91	83.1	28.6	41.5	2.31	31.3	0.00	0.00			234	06
250 ISL	7.69 D	7.66	34.072 D	26.598	147.6	0.574	1.74	D 75.7	D 26.0	45.5	2.42	32.7	0.02	0.00			252	
271	7.39	7.36	34.099	26.663	141.7	0.601	1.39	60.8	20.7	50.1	2.55	34.3	0.00	0.00			273	05
300 ISL	7.35 D	7.32	34.161 D	26.717	137.1	0.645	1.05	D 45.7	D 15.6	53.0	2.65	35.0	0.02	0.00			302	
322	7.18	7.15	34.166	26.745	134.7	0.672	0.96	41.7	14.1	55.1	2.72	35.7	0.00	0.00			325	04
381	6.54	6.50	34.196	26.857	124.6	0.749	0.63	27.6	9.2	65.5	2.90	38.3	0.00	0.00			384	03
400 ISL	6.44 D	6.40	34.217 D	26.887	121.9	0.776	0.55	D 23.9	D 8.0	67.4	2.93	38.6	0.02	0.00			403	
441	6.31	6.27	34.253	26.933	118.1	0.821	0.48	21.0	7.0	71.4	3.01	39.3	0.00	0.00			445	02
500 ISL	6.02 D	5.98	34.296 D	27.005	111.9	0.895	0.31	D 13.4	D 4.4	77.2	3.10	40.3	0.02	0.00			504	
517	5.92	5.87	34.293	27.016	111.0	0.908	0.29	12.9	4.2	78.8	3.12	40.7	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 SALLY RIDE CALCOFI CRUISE 1611 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 45.1 N	121 18.9 W	11/11/2016	0547 UTC	3717 m	350 10 kn			1016.2 mb	17.1 C	16.1 C				022

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	17.84	17.84	33.376	24.069	383.5	0.000	5.51	240.8	101.5	0.9	0.29	0.0	0.00	0.00	0.19	0.05	0	
2	17.84	17.84	33.376	24.069	383.5	0.008	5.51	240.8	101.5	0.9	0.29	0.0	0.00	0.00	0.19	0.05	2	20
10	17.84	17.84	33.375	24.069	383.9	0.038	5.49	239.9	101.1	0.9	0.29	0.0	0.00	0.00	0.18	0.05	10	19
20	17.82	17.81	33.375	24.075	383.7	0.077	5.49	239.6	101.0	0.8	0.28	0.0	0.00	0.00	0.22	0.06	20	18
30	17.26	17.26	33.342	24.184	373.6	0.115	5.57	243.2	101.3	0.9	0.29	0.0	0.00	0.00	0.38	0.14	30	17
41	16.93	16.92	33.348	24.268	366.0	0.155	5.58	243.8	100.9	1.2	0.33	0.1	0.03	0.00	0.69	0.31	41	16
50	13.98	13.97	33.232	24.829	312.6	0.186	5.34	233.3	91.0	3.0	0.54	3.3	0.22	0.09	0.47	0.38	50	15
60	13.31	13.30	33.196	24.939	302.4	0.217	5.03	219.5	84.4	5.1	0.76	7.1	0.07	0.00	0.28	0.29	60	14
70	12.08	12.07	33.205	25.185	279.1	0.246	4.90	214.1	80.2	6.4	0.85	8.5	0.04	0.00	0.22	0.23	71	13
75 ISL	11.90 D	11.89	33.273 D	25.271	271.1	0.261	4.61	D200.7 D	75.2	8.2	0.97	10.5	0.03	0.00	0.17	0.18	76	
85	10.95	10.94	33.294	25.460	253.1	0.286	4.40	192.2	70.3	11.6	1.20	14.4	0.00	0.00	0.07	0.08	86	12
100	10.18	10.17	33.417	25.689	231.6	0.322	4.08	178.0	64.1	15.5	1.40	17.7	0.00	0.00	0.04	0.05	101	11
120	9.60	9.59	33.570	25.906	211.3	0.367	3.78	165.1	58.8	19.7	1.57	20.6	0.00	0.00	0.01	0.03	121	10
125 ISL	9.42 D	9.41	33.612 D	25.969	205.4	0.379	3.76	D163.7 D	58.2	20.5	1.60	21.1	0.01	0.00	0.01	0.03	126	
140	9.14	9.12	33.697	26.113	192.0	0.407	3.44	150.3	53.0	23.1	1.70	22.8	0.00	0.00	0.01	0.02	141	09
150 ISL	9.01 D	9.00	33.794 D	26.177	186.1	0.429	3.14	D136.8 D	48.3	25.4	1.79	24.1	0.01	0.00	0.00	0.03	151	
170	8.70	8.69	33.899	26.308	174.0	0.462	2.79	121.8	42.6	29.8	1.96	26.7	0.00	0.00	0.00	0.03	171	08
200	8.52	8.50	33.983	26.403	165.6	0.513	2.39	104.2	36.3	34.2	2.11	28.6	0.00	0.00	0.00	0.02	202	07
230	8.12	8.10	34.033	26.504	156.4	0.561	2.08	90.7	31.3	38.8	2.24	30.3	0.00	0.00			232	06
250 ISL	7.98 D	7.96	34.060 D	26.546	152.8	0.596	1.89	D 82.1 D	28.3	41.9	2.36	31.5	0.01	0.00			252	
270	7.95	7.93	34.104	26.586	149.4	0.622	1.50	65.3	22.5	45.1	2.47	32.7	0.00	0.00			272	05
300 ISL	7.33 D	7.30	34.112 D	26.682	140.4	0.670	1.29	D 56.0 D	19.1	49.7	2.58	34.2	0.01	0.00			302	
320	7.47	7.44	34.151	26.693	139.8	0.693	1.05	45.8	15.6	52.9	2.66	35.1	0.00	0.00			323	04
381	6.95	6.91	34.206	26.810	129.4	0.775	0.67	29.4	9.9	60.8	2.87	37.2	0.00	0.00			384	03
400 ISL	6.82 D	6.78	34.220 D	26.839	126.9	0.805	0.61	D 26.7 D	9.0	63.1	2.91	37.7	0.01	0.00			403	
440	6.49	6.45	34.223	26.886	122.8	0.850	0.50	21.9	7.3	68.0	2.99	38.8	0.00	0.00			444	02
500 ISL	5.94 D	5.90	34.261 D	26.987	113.5	0.927	0.37	D 16.1 D	5.3	75.8	3.12	40.3	0.02	0.00			504	
516	5.91	5.86	34.264	26.994	113.1	0.939	0.34	14.8	4.8	77.9	3.16	40.7	0.00	0.08			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 25.1 N	121 59.4 W	10/11/2016	2244 UTC	3917 m	350 10 kn	360 02 09	1	1014.2 mb	19.0 C	17.0 C	18 m	7/8	CU	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	18.04	18.04	33.282	23.949	394.9	0.000	5.47	238.9	101.0	1.0	0.26	0.0	0.02	0.09	0.19	0.04	0	
2	18.04	18.04	33.282	23.949	395.0	0.008	5.47	238.9	101.0	1.0	0.26	0.0	0.00	0.09	0.19	0.04	2	24
10	18.01	18.00	33.288	23.962	394.1	0.040	5.48	239.2	101.1	1.0	0.26	0.0	0.00	0.00	0.20	0.04	10	22
10	18.01	18.00	33.296	23.968	393.5	0.041											10	23
20	17.63	17.63	33.292	24.056	385.5	0.079	5.53	241.4	101.3	1.0	0.27	0.0	0.00	0.00	0.27	0.06	20	21
30	17.31	17.31	33.295	24.135	378.3	0.117	5.64	246.1	102.7	1.0	0.26	0.0	0.00	0.00	0.35	0.14	30	20
40	17.15	17.14	33.474	24.313	361.7	0.154	5.59	244.0	101.5	1.1	0.30	0.0	0.00	0.00	0.52	0.24	40	19
50	16.54	16.53	33.385	24.386	355.0	0.190	5.61	244.9	100.7	1.1	0.33	0.2	0.07	0.10	0.68	0.35	50	17
50	16.54	16.53	33.401	24.399	353.9	0.190											50	18
60	14.40	14.39	33.202	24.719	323.5	0.223	5.41	236.4	93.0	1.1	0.33	0.2	0.07	0.20	0.42	0.27	60	16
71	12.17	12.16	33.090	25.077	289.4	0.257	5.13	224.2	84.1	5.1	0.74	7.4	0.07	0.00	0.19	0.24	72	15
75 ISL	11.92 D	11.91	33.130 D	25.156	282.0	0.270	5.08	D221.4 D	82.9	6.7	0.86	9.2	0.06	0.00	0.17	0.21	76	
86	11.22	11.21	33.364 D	25.468	252.5	0.300	4.09	D178.1 D	65.8	11.2	1.19	14.3	0.04	0.00	0.10	0.13	87	14
100 ISL	10.88 D	10.87	33.497 D	25.631	237.2	0.335	3.57	D155.6 D	57.1	16.0	1.50	18.8	0.04	0.00	0.05	0.09	101	
101	10.57	10.56	33.496	25.685	232.1	0.335	3.52	153.8	55.9	16.3	1.52	19.1	0.04	0.00	0.04	0.09	102	13
121	9.65	9.64	33.619	25.937	208.4	0.379	3.27	142.9	50.9	21.2	1.72	22.5	0.03	0.00	0.01	0.04	122	12
125 ISL	9.60 D	9.59	33.640 D	25.962	206.1	0.390	3.24	D141.2 D	50.4	22.0	1.74	22.9	0.03	0.00	0.01	0.04	126	
141	9.31	9.29	33.775	26.114	192.0	0.419	2.89	126.0	44.6	25.1	1.84	24.6	0.00	0.00	0.00	0.04	142	11
150 ISL	9.23 D	9.21	33.810 D	26.156	188.2	0.439	2.85	D123.9 D	43.9	26.8	1.91	25.5	0.02	0.00	0.00	0.04	151	
170	8.98	8.97	33.946	26.301	174.8	0.472	2.28	99.3	35.0	30.5	2.06	27.6	0.00	0.18	0.00	0.03	171	10
200 ISL	8.53 D	8.51	34.010 D	26.424	163.6	0.527	2.20	D 95.6 D	33.4	34.0	2.13	28.8	0.02	0.14	0.00	0.03	202	
201	8.47	8.44	34.008	26.431	162.9	0.524	2.16	94.4	32.9	34.1	2.13	28.8	0.00	0.14	0.00	0.03	203	09
230	8.12	8.09	34.041	26.511	155.7	0.571	2.00	87.1	30.1	38.8	2.25	30.6	0.00	0.00			232	08
250 ISL	7.81 D	7.79	34.051 D	26.564	151.0	0.606	1.93	D 83.8 D	28.8	41.7	2.34	31.6	0.02	0.00			252	
272	7.73	7.70	34.087	26.605	147.4	0.634	1.52	66.5	22.8	45.0	2.44	32.8	0.00	0.00			274	07
300 ISL	7.41 D	7.38	34.120 D	26.676	141.0	0.679	1.25	D 54.5 D	18.6	50.4	2.57	34.5	0.02	0.00			302	
351	6.67	6.64	34.144	26.797	129.8	0.744	0.82	35.7	11.9	60.3	2.80	37.6	0.00	0.28			354	06
400 ISL	6.18 D	6.15	34.143 D	26.861	124.1	0.812	0.73	D 31.8 D	10.6	66.0	2.88	38.7	0.02	0.00			403	
432	6.03	5.99	34.161	26.896	121.2	0.845	0.60	26.3	8.7	69.8	2.94	39.5	0.00	0.00			436	05
500 ISL	5.67 D	5.63	34.235 D	27.000	112.0	0.931	0.37	D 16.1 D	5.3	77.4	3.08	40.6	0.02	0.00			504	
519	5.67	5.63	34.257	27.017	110.6	0.945	0.31	13.7	4.5	79.5	3.12	40.9	0.00	0.00			523	04
600 ISL	5.28 D	5.23	34.315 D	27.112	102.3	1.039	0.24	D 10.3 D	3.3								605	
700 ISL	4.83 D	4.78	34.374 D	27.211	93.5	1.138	0.24	D 10.4 D	3.4								706	
800 ISL	4.45 D	4.39	34.423 D	27.292	86.3	1.229	0.32	D 13.9 D	4.4								807	
900 ISL	4.15 D	4.08	34.452 D	27.350	81.3	1.314	0.42	D 18.2 D	5.7								908	
1000 ISL	3.87 D	3.80	34.481 D	27.402	76.8	1.394	0.53	D 22.8 D	7.2								1009	
1100 ISL	3.60 D	3.51	34.500 D	27.446	72.9	1.470	0.65	D 28.3 D	8.8								1111	
1200 ISL	3.36 D	3.27	34.518 D	27.484	69.5	1.542	0.76	D 33.1 D	10.3								1212	
1300 ISL	3.12 D	3.03	34.537 D	27.521	66.1	1.610	0.88	D 38.4 D	11.8								1313	
1400 ISL	2.93 D	2.83	34.552 D	27.552	63.3	1.676	1.00	D 43.6 D	13.4								1415	
1500 ISL	2.76 D	2.65	34.566 D	27.579	60.9	1.739	1.14	D 49.6 D	15.1								1516	
1600 ISL	2.58 D	2.47	34.580 D	27.606	58.3	1.799	1.28	D 55.7 D	16.9								1617	
1800 ISL	2.27 D	2.14	34.605 D	27.654	53.7	1.913	1.59	D 68.9 D	20.8								1820	
2000 ISL	2.06 D	1.92	34.625 D	27.688	50.7	2.019	1.85	D 80.4 D	24.1								2024	
2200 ISL	1.93 D	1.77	34.637 D	27.710	49.0	2.121	2.07	D 89.8 D	26.8								2227	
2400 ISL	1.82 D	1.64	34.648 D	27.729	47.5	2.219	2.26	D 98.0 D	29.2								2431	
2600 ISL	1.74 D	1.55	34.655 D	27.743	46.7	2.315	2.40	D104.3 D	31.0								2635	
2800 ISL	1.68 D	1.47	34.660 D	27.753	46.2	2.410	2.51	D109.0 D	32.3								2839	
3000 ISL	1.63 D	1.41	34.664 D	27.762	45.9	2.504	2.61	D113.5 D	33.6								3043	
3200 ISL	1.60 D	1.35	34.667 D	27.770	45.8	2.597	2.71	D117.7 D	34.8								3247	
3400 ISL	1.57 D	1.31	34.670 D	27.777	45.8	2.691	2.78	D120.9 D	35.7								3452	
3500	1.56	1.29	34.674	27.782	45.6	3.274	2.86	124.7	36.7	163.6	2.65	38.3	0.00	0.00			3554	01
3501	1.56	1.29	34.673	27.781	45.7	3.274											3555	03
3500	1.56	1.28	34.673	27.782	45.7	3.274											3554	02

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 5.5 N	122 39.1 W	10/11/2016	1704 UTC	4082 m	010 14 kn	300 08 12	1	1018.3 mb	18.2 C	16.8 C	27 m	6/8	ST	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	19.13	19.13	33.196	23.610	427.2	0.000	5.37	234.7	101.3	1.7	0.23	0.1	0.02	0.12	0.12	0.02	0	
2 A	19.13	19.13	33.196	23.611	427.3	0.009	5.37	234.7	101.3	1.7	0.23	0.1	0.00	0.12	0.12	0.02	2	24
10	19.13	19.13	33.201	23.615	427.2	0.043	5.36	D233.9	D101.0	1.7	0.22	0.1	0.00	0.00	0.12	0.02	10	22
11	19.14	19.14	33.194	23.608	427.9	0.046											11	23
18 A	19.13	19.13	33.195	23.611	427.9	0.077	5.33	232.9	100.5	1.8	0.22	0.1	0.00	0.00	0.12	0.02	18	21
20 ISL	19.13 D	19.13	33.194 D	23.610	428.1	0.082	5.36	D234.0	D101.1	1.7	0.22	0.1	0.02	0.00	0.12	0.02	20	
25 A	19.14	19.13	33.196	23.612	428.1	0.107	5.38	234.7	101.3	1.6	0.23	0.1	0.00	0.00	0.13	0.02	25	20
30 ISL	19.13 D	19.13	33.193 D	23.611	428.4	0.125	5.36	D233.7	D101.0	1.6	0.22	0.0	0.02	0.00	0.12	0.02	30	
34 A	19.13	19.13	33.194	23.612	428.5	0.145	5.33	232.6	100.4	1.6	0.22	0.0	0.00	0.00	0.12	0.02	34	19
44	19.13	19.12	33.193 D	23.612	428.8	0.185	5.36	D233.8	D101.0								44	18
50 ISL	19.13 D	19.13	33.193 D	23.612	429.1	0.212	5.36	D233.9	D101.0	1.6	0.22	0.1	0.02	0.00	0.14	0.03	50	
58	18.96	18.95	33.193	23.656	425.2	0.248	5.34	233.0	100.2	1.6	0.22	0.1	0.00	0.00	0.14	0.03	58	17
70	16.58	16.57	33.165	24.210	372.6	0.296	5.84	254.9	104.7	1.9	0.22	0.0	0.00	0.00	0.23	0.09	71	16
75 ISL	16.00 D	15.99	33.243 D	24.402	354.4	0.312	5.84	D254.7	D103.7	2.0	0.23	0.0	0.02	0.00	0.23	0.13	76	
83 A	15.63	15.62	33.260	24.499	345.3	0.342	5.76	251.4	101.4	2.2	0.24	0.0	0.00	0.00	0.23	0.20	84	15
94 A	14.61	14.60	33.217	24.688	327.5	0.379	5.65	246.7	97.4	2.6	0.28	0.1	0.03	0.00	0.23	0.20	95	13
94	14.61	14.60	33.219	24.689	327.4	0.378											95	14
100 ISL	14.39 D	14.37	33.218 D	24.736	323.1	0.397	5.59	D243.5	D 95.9	2.9	0.31	0.2	0.07	0.00	0.22	0.21	101	
102	14.30	14.29	33.215	24.752	321.6	0.405	5.55	242.3	95.1	3.0	0.32	0.2	0.09	0.00	0.21	0.21	103	12
110	13.54	13.53	33.219	24.912	306.5	0.430	5.42	236.8	91.5	3.7	0.40	1.1	0.19	0.00	0.19	0.18	111	11
125	12.72	12.70	33.277	25.121	286.8	0.475	5.04	220.1	83.6	6.1	0.67	5.9	0.04	0.00	0.12	0.17	126	10
141	10.94	10.93	33.307	25.474	253.3	0.518	4.50	D195.9	D 71.9	9.6	0.96	11.0	0.03	0.00	0.09	0.10	142	09
150 ISL	10.59 D	10.57	33.365 D	25.581	243.1	0.540	4.54	D197.6	D 72.0	12.4	1.13	13.6	0.02	0.00	0.07	0.08	151	
170	9.58	9.56	33.537	25.886	214.3	0.586	3.90	170.3	60.6	18.6	1.51	19.6	0.00	0.00	0.02	0.03	171	08
200 ISL	9.02 D	9.00	33.782 D	26.168	188.0	0.646	3.48	D151.3	D 53.4	24.1	1.67	22.9	0.02	0.00	0.00	0.02	202	
201	9.03	9.01	33.778	26.164	188.5	0.648	3.49	152.4	53.6	24.3	1.68	23.0	0.00	0.00	0.00	0.02	203	07
230	8.49	8.47	33.908	26.350	171.2	0.701	3.27	142.8	49.7	28.7	1.79	24.9	0.00	0.00			232	06
250 ISL	8.29 D	8.26	33.966 D	26.427	164.2	0.734	2.98	D129.6	D 45.0	32.7	1.93	26.8	0.02	0.00			252	
271	7.99	7.96	33.996	26.494	158.0	0.768	2.59	112.8	38.8	37.0	2.07	28.8	0.00	0.00			273	05
300 ISL	7.67 D	7.64	34.019 D	26.560	152.1	0.814	2.21	D 96.3	D 33.0	41.0	2.20	30.5	0.02	0.00			302	
320	7.56	7.53	34.031	26.585	150.0	0.844	2.05	89.2	30.4	43.7	2.29	31.7	0.00	0.00			323	04
381	7.01	6.97	34.109	26.726	137.4	0.931	1.20	52.3	17.6	53.8	2.64	35.5	0.00	0.00			384	03
400 ISL	6.88 D	6.85	34.119 D	26.751	135.2	0.958	1.13	D 49.2	D 16.6	56.9	2.70	36.3	0.02	0.00			403	
441	6.46	6.42	34.146	26.830	128.0	1.011	0.81	35.3	11.7	63.5	2.83	37.9	0.00	0.00			445	02
500 ISL	5.97 D	5.93	34.198 D	26.934	118.6	1.086	0.53	D 23.1	D 7.6	72.4	2.98	39.7	0.02	0.00			504	
516	5.84	5.80	34.200	26.952	116.9	1.103	0.52	22.5	7.4	74.9	3.02	40.2	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 45.0 N	123 19.9 W	10/11/2016	0859 UTC	4039 m	340 18 kn			1015.7 mb	18.8 C	17.8 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	19.48	19.48	33.313	23.612	427.1	0.000	5.30	231.2	100.5	1.7	0.22	0.0	0.02	0.00	0.10	0.02	0	
2	19.48	19.48	33.313	23.612	427.2	0.009	5.30	231.2	100.5	1.7	0.22	0.0	0.00	0.00	0.10	0.02	2	20
10	19.48	19.48	33.312	23.612	427.5	0.043	5.29	230.9	100.4	1.7	0.21	0.0	0.00	0.00	0.10	0.02	10	19
20 ISL	19.48 D	19.47	33.308 D	23.610	428.1	0.086	5.29	230.8	100.4	1.6	0.21	0.0	0.02	0.00	0.10	0.02	20	
24	19.48	19.48	33.312	23.612	428.1	0.103	5.29	231.0	100.4	1.6	0.21	0.0	0.00	0.00	0.10	0.02	24	18
30 ISL	19.51 D	19.50	33.325 D	23.616	428.0	0.129	5.29	230.8	100.5	1.6	0.21	0.0	0.02	0.00	0.10	0.02	30	
41	19.56	19.55	33.353	23.626	427.5	0.175	5.29	230.9	100.5	1.7	0.21	0.0	0.00	0.00	0.11	0.03	41	17
50	19.59	19.58	33.378	23.638	426.7	0.214	5.30	231.5	100.9	1.7	0.21	0.0	0.00	0.00	0.13	0.03	50	16
63	19.37	19.36	33.429	23.733	418.1	0.269	5.35	233.5	101.4	1.7	0.21	0.0	0.03	0.00	0.16	0.05	63	15
75 ISL	17.15 D	17.13	33.271 D	24.160	377.6	0.319	5.81	D253.2	D105.4	1.9	0.21	0.0	0.02	0.00	0.19	0.05	76	
77	17.21	17.19	33.274	24.148	378.8	0.324	5.81	253.5	105.5	1.9	0.21	0.0	0.00	0.00	0.19	0.05	78	14
87	16.33	16.32	33.279	24.355	359.3	0.361	5.76	251.6	102.9	2.0	0.21	0.0	0.00	0.00	0.23	0.11	88	13
100 ISL	15.54 D	15.53	33.296 D	24.547	341.3	0.409	5.70	D248.4	D100.2	2.3	0.24	0.0	0.02	0.00	0.22	0.19	101	
101	15.50	15.48	33.297	24.558	340.3	0.410	5.67	247.5	99.6	2.3	0.24	0.0	0.00	0.00	0.21	0.19	102	12
112	14.85	14.83	33.310	24.711	326.0	0.446	5.58	243.7	96.8	2.7	0.27	0.0	0.03	0.00	0.22	0.23	113	11
125	13.60	13.58	33.318	24.977	300.8	0.487	5.30	231.2	89.5	4.0	0.43	1.6	0.22	0.00	0.17	0.19	126	10
141	12.19	12.18	33.377	25.299	270.2	0.533	5.00	218.4	82.1	6.3	0.66	6.1	0.03	0.00	0.11	0.14	142	09
150 ISL	11.98 D	11.96	33.355 D	25.323	268.1	0.561	4.94	D215.3	D 80.8	8.7	0.85	9.0	0.03	0.00	0.09	0.12	151	
170	10.01	9.99	33.442 D	25.742	228.2	0.611	4.35	189.9	68.2	13.9	1.26	15.5	0.00	0.00	0.05	0.07	171	08
200 ISL	9.32 D	9.30	33.686 D	26.045	199.8	0.676	3.79	D165.1	D 58.6	20.5	1.54	20.5	0.02	0.00	0.01	0.02	202	
201	9.28	9.25	33.657	26.030	201.2	0.673	3.81	166.1	58.7	20.7	1.55	20.7	0.00	0.00	0.01	0.02	203	07
232	8.74	8.72	33.874	26.286	177.5	0.731	3.15	137.3	48.0	28.0	1.83	25.0	0.00	0.00			234	06
250 ISL	8.42 D	8.40	33.953 D	26.397	167.1	0.768	3.04	D132.2	D 46.1	31.3	1.92	26.4	0.02	0.00			252	
270	8.14	8.12	33.986	26.465	160.9	0.796	2.74	119.4	41.2	35.0	2.01	27.9	0.00	0.00			272	05
300 ISL	7.85 D	7.82	34.022 D	26.537	154.5	0.849	2.32	D100.9	D 34.7	40.5	2.21	30.4	0.02	0.00			302	
320	7.50	7.47	34.051	26.611	147.6	0.873	1.91	83.2	28.3	44.2	2.34	32.0	0.00	0.00			323	04
382	6.89	6.86	34.118	26.748	135.2	0.961	1.11	48.2	16.2	56.1	2.69	36.2	0.00	0.00			385	03
400 ISL	6.79 D	6.75	34.136 D	26.777	132.7	0.992	0.97	D 42.0	D 14.1	59.3	2.75	36.9	0.02	0.00			403	
440	6.33	6.29	34.152	26.850	125.9	1.037	0.80	34.8	11.5	66.3	2.88	38.5	0.00	0.00			444	02
500 ISL	6.03 D	5.99	34.205 D	26.932	118.8	1.118	0.52	D 22.6	D 7.5	71.9	3.01	39.6	0.02	0.00			504	
516	6.07	6.02	34.236	26.952	117.2	1.129	0.44	19.2	6.3	73.4	3.04	40.0	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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	10/11/2016	0246	UTC	4338 m	360 16 kn			1015.9 mb	18.1 C	16.8 C				018

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	19.20	19.20	33.134	23.547	433.3	0.000	5.38	234.9	101.5	1.6	0.25	0.1	0.02	1.05	0.10	0.02	0	
2	19.20	19.20	33.134	23.547	433.3	0.009	5.38	234.9	101.5	1.6	0.25	0.1	0.00	1.05	0.10	0.02	2	22
10 ISL	19.20 D	19.20	33.128 D	23.542	434.1	0.044	5.34	233.1	100.8	1.7	0.26	0.1	0.02	0.21	0.10	0.02	10	
10	19.20	19.20	33.129	23.543	434.1	0.045											10	21
11	19.20	19.20	33.130	23.544	434.0	0.048	5.34	233.1	100.7	1.7	0.26	0.1	0.00	0.11	0.11	0.02	11	20
20 ISL	19.21 D	19.20	33.128 D	23.542	434.6	0.087	5.34	233.0	100.7	1.7	0.25	0.1	0.02	0.00	0.10	0.02	20	
26	19.21	19.20	33.130	23.544	434.6	0.113	5.34	233.2	100.7	1.6	0.24	0.1	0.00	0.00	0.10	0.02	26	19
30 ISL	19.21 D	19.20	33.130 D	23.544	434.8	0.131	5.34	233.0	100.7	1.6	0.24	0.1	0.02	0.00	0.10	0.02	30	
41	19.21	19.21	33.162	23.568	433.0	0.178	5.34	233.2	100.8	1.6	0.23	0.0	0.00	0.00	0.11	0.02	41	18
50	19.22	19.21	33.156	23.562	433.9	0.217	5.35	233.5	100.9	1.6	0.24	0.0	0.00	0.00	0.13	0.02	50	17
63	18.46	18.44	33.120	23.727	418.5	0.272	5.52	240.9	102.6	1.5	0.24	0.0	0.00	0.00	0.19	0.05	63	16
75 ISL	16.80 D	16.79	33.147 D	24.146	378.9	0.323	5.77	251.6	103.9	1.7	0.24	0.0	0.01	0.00	0.24	0.10	76	
76	16.41	16.40	33.149	24.237	370.2	0.324	5.79	252.9	103.5	1.7	0.24	0.0	0.00	0.00	0.24	0.11	77	15
87	15.89	15.88	33.146	24.353	359.4	0.364	5.83	254.6	103.1	1.8	0.27	0.0	0.00	0.00	0.27	0.18	88	13
87	15.89	15.88	33.152	24.358	358.9	0.365											88	14
100	14.57	14.55	33.134	24.633	332.9	0.409	5.66	247.0	97.4	2.4	0.37	0.6	0.16	0.00	0.27	0.25	101	12
112	13.36	13.34	33.187	24.925	305.3	0.447	5.37	234.3	90.2	3.9	0.51	2.9	0.09	0.00	0.20	0.21	113	11
124	12.52	12.51	33.224	25.118	287.1	0.483	5.01	218.6	82.7	6.3	0.75	6.9	0.03	0.00	0.14	0.12	125	10
125 ISL	12.21 D	12.19	33.255 D	25.200	279.2	0.490	5.00	D217.8 D	82.1	6.5	0.76	7.2	0.03	0.00	0.14	0.12	126	
140	11.67	11.65	33.265	25.310	269.0	0.527	4.74	206.9	76.9	9.0	0.97	10.6	0.03	0.00	0.09	0.09	141	09
150 ISL	11.44 D	11.43	33.380 D	25.442	256.7	0.557	4.74	D206.6 D	76.7	10.8	1.06	12.2	0.02	0.00	0.07	0.08	151	
170	10.05	10.03	33.454	25.744	228.0	0.602	4.46	194.9	70.0	14.2	1.23	15.5	0.00	0.00	0.03	0.04	171	08
200	9.07	9.05	33.735	26.124	192.2	0.665	3.72	162.2	57.1	22.7	1.62	21.7	0.00	0.00	0.00	0.02	202	07
231	8.58	8.56	33.921	26.347	171.5	0.722	3.06	133.7	46.6	29.9	1.86	25.7	0.00	0.00			233	06
250 ISL	8.31 D	8.28	33.962 D	26.421	164.8	0.757	3.00	D130.4 D	45.3	33.3	1.98	27.2	0.02	0.00			252	
270	8.02	8.00	33.998	26.492	158.3	0.786	2.50	109.3	37.7	36.9	2.10	28.9	0.00	0.00			272	05
300 ISL	7.58 D	7.55	34.011 D	26.566	151.5	0.837	2.32	D101.0 D	34.6	42.8	2.27	31.3	0.02	0.00			302	
320	7.29	7.26	34.039	26.630	145.6	0.862	1.87	81.8	27.7	46.7	2.38	32.9	0.00	0.00			323	04
380	6.70	6.66	34.084	26.747	135.0	0.946	1.22	53.4	17.9	58.0	2.68	36.7	0.00	0.00			383	03
400 ISL	6.52 D	6.48	34.102 D	26.786	131.6	0.978	1.05	D 45.8 D	15.3	60.8	2.75	37.4	0.02	0.00			403	
440	6.30	6.26	34.149	26.852	125.8	1.024	0.74	32.3	10.7	66.5	2.88	38.8	0.00	0.00			444	02
500 ISL	5.91 D	5.87	34.197 D	26.940	117.8	1.104	0.51	D 22.1 D	7.3	74.5	3.03	40.3	0.02	0.00			504	
516	5.86	5.82	34.220	26.965	115.7	1.116	0.42	18.2	6.0	76.7	3.07	40.7	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 14.8 N	117 27.8 W	07/11/2016	0115	UTC	17 m	260 08 kn			1015.7 mb	18.5 C	17.5 C				003

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	19.18	19.18	33.414	23.766	412.4	0.000	5.65	246.7	106.7	1.3	0.19	0.0	0.02	0.15	0.45	0.09	0	
2	19.18	19.18	33.414	23.766	412.4	0.008	5.65	246.7	106.7	1.3	0.19	0.0	0.00	0.15	0.45	0.09	2	04
5	19.13	19.13	33.410	23.774	411.8	0.021	5.68	248.1	107.2						0.48	0.09	5	03
10	18.73	18.73	33.402	23.871	402.7	0.041	5.72	249.8	107.1	1.5	0.22	0.0	0.00	0.07	0.64	0.15	10	02
16	17.96	17.96	33.393	24.053	385.6	0.065	5.71	249.2	105.3	1.7	0.27	0.1	0.03	0.12	0.82	0.25	16	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 57.4 N	117 18.3 W	06/11/2016	1954	UTC	65 m	030 02 kn	300 02 07	0	1016.7 mb	19.0 C	18.0 C	19 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	19.08	19.08	33.417	23.793	409.8	0.000	5.68	247.9	107.0	2.0	0.19	0.2	0.03	0.04	0.35	0.06	0	
2 A	19.08	19.08	33.417	23.793	409.9	0.008	5.68	247.9	107.0	2.0	0.19	0.2	0.03	0.00	0.35	0.06	2	14
2	19.08	19.08	33.414	23.791	410.1	0.007											2	15
5	18.98	18.98	33.414	23.815	407.9	0.021	5.66	247.2	106.5	1.7	0.19	0.1	0.03	0.00	0.39	0.06	5	13
10 ISL	18.86 D	18.85	33.409 D	23.844	405.3	0.037	5.73	D249.9 D	107.6	1.6	0.19	0.1	0.03	0.00	0.43	0.08	10	
12	18.85	18.85	33.408	23.844	405.4	0.051											12	12
13 A	18.57	18.57	33.408	23.916	398.6	0.053	5.73	250.0	106.9	1.5	0.19	0.1	0.03	0.06	0.45	0.09	13	11
17 A	16.91	16.91	33.358	24.278	364.2	0.068	6.02	263.0	108.9	2.3	0.25	0.0	0.03	0.00	1.59	0.48	17	10
20 ISL	15.31 D	15.31	33.320 D	24.611	332.5	0.075	6.18	D269.5 D	108.3	2.8	0.34	0.6	0.06	0.00	1.52	0.45	20	
24	14.71	14.71	33.257	24.693	324.8	0.092											24	09
25	14.71	14.71	33.262	24.697	324.4	0.093											24	08
25	14.71	14.71	33.263	24.697	324.4	0.093											24	07
25	14.59	14.58	33.258	24.721	322.2	0.095	5.57	243.2	96.1	3.7	0.48	1.5	0.12	0.20	1.40	0.39	25	06
30 ISL	13.63 D	13.63	33.260 D	24.921	303.2	0.107	5.36	D233.7 D	90.7	5.3	0.66	4.2	0.18	0.13	0.93	0.37	30	
31 A	13.43	13.42	33.257	24.960	299.5	0.114	5.16	225.1	86.8	5.6	0.70	4.7	0.20	0.12	0.83	0.37	31	05
40	12.71	12.70	33.302	25.138	282.8	0.140	4.58	200.0	76.0	8.6	0.93	9.0	0.10	0.00	0.53	0.37	40	03
40	12.71	12.70	33.297	25.133	283.2	0.140											40	04
50	12.26	12.25	33.343	25.257	271.8	0.168	4.15	181.3	68.3	11.2	1.13	11.7	0.25	0.00	0.29	0.33	50	02
56 A	12.28	12.27	33.354	25.261	271.5	0.184	4.13	180.4	68.0	11.4	1.16	12.1	0.26	0.27	0.22	0.32	56	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 SALLY RIDE CALCOFI CRUISE 1611 STATION 93.3 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 54.7 N	117 23.7 W	07/11/2016	0353	UTC	599 m	350 06 kn			1016.8 mb	18.5 C	17.0 C				004

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	19.78	19.78	33.448	23.638	424.5	0.000	5.44	237.4	103.9	1.1	0.20	0.0	0.02	0.07	0.22	0.03	0	
2	19.78	19.77	33.448	23.639	424.6	0.009	5.44	237.4	103.9	1.1	0.20	0.0	0.00	0.07	0.22	0.03	2	20
10	19.74	19.73	33.439	23.642	424.6	0.043	5.46	238.6	104.3	1.3	0.20	0.1	0.00	0.00	0.23	0.05	10	19
20	16.79	16.79	33.291	24.254	366.5	0.082	5.85	255.2	105.4	2.4	0.31	0.1	0.00	0.15	0.45	0.20	20	18
30	13.99	13.98	33.208	24.808	314.0	0.116	5.29	231.0	90.1	4.4	0.65	4.3	0.25	0.16	0.48	0.35	30	17
40	12.90	12.89	33.264	25.071	289.2	0.146	4.88	213.1	81.3	6.7	0.83	7.4	0.13	0.16	0.32	0.28	40	16
50 ISL	12.21 D	12.20	33.304 D	25.235	273.8	0.172	4.61	D201.0 D	75.8	8.8	0.97	10.3	0.07	0.00	0.18	0.21	50	
51	12.03	12.02	33.305	25.271	270.4	0.177	4.58	199.8	74.9	9.0	0.98	10.6	0.06	0.00	0.17	0.20	51	15
60	11.26	11.25	33.377	25.468	251.8	0.201	4.21	184.0	67.8	12.3	1.22	14.2	0.04	0.06	0.11	0.16	60	14
71	11.03	11.02	33.435	25.555	243.8	0.228	3.98	173.8	63.8	13.9	1.32	15.7	0.03	0.10	0.08	0.14	72	13
75 ISL	11.00 D	10.99	33.496 D	25.609	238.8	0.235	3.75	D163.2 D	60.0	14.9	1.37	16.4	0.03	0.00	0.07	0.13	76	
86	10.82	10.80	33.566	25.696	230.7	0.264	3.38	147.6	54.0	17.8	1.52	18.3	0.03	0.00	0.04	0.10	87	12
100 ISL	10.44 D	10.43	33.606 D	25.792	221.9	0.293	3.34	D145.2 D	52.8	19.1	1.59	19.7	0.02	0.00	0.03	0.07	101	
101	10.28	10.27	33.605	25.820	219.2	0.298	3.30	144.0	52.1	19.2	1.59	19.8	0.00	0.00	0.03	0.07	102	11
120	10.15	10.14	33.714	25.927	209.5	0.338	2.99	130.5	47.1	21.9	1.73	21.8	0.00	0.00	0.02	0.05	121	10
125 ISL	10.13 D	10.11	33.725 D	25.941	208.3	0.346	3.00	D130.6 D	47.2	22.4	1.76	22.1	0.02	0.00	0.02	0.05	126	
140	9.94	9.93	33.800	26.031	200.1	0.379	2.76	120.3	43.2	24.2	1.83	23.1	0.03	0.12	0.01	0.05	141	09
150 ISL	9.85 D	9.83	33.856 D	26.090	194.7	0.397	2.64	D114.9 D	41.3	25.4	1.87	23.8	0.02	0.00	0.01	0.05	151	
170	9.55	9.54	33.938	26.204	184.2	0.437	2.44	106.7	38.0	27.9	1.96	25.2	0.00	0.00	0.01	0.04	171	08
200	9.24	9.22	34.034	26.331	172.7	0.491	2.17	94.6	33.5	31.4	2.08	26.9	0.00	0.00	0.00	0.04	202	07
230	8.99	8.97	34.073	26.401	166.6	0.541	2.02	88.2	31.1	34.0	2.15	27.9	0.00	0.00			232	06
250 ISL	8.75 D	8.72	34.092 D	26.456	161.7	0.573	2.05	D 89.0 D	31.3	36.1	2.23	28.8	0.02	0.00			252	
270	8.75	8.72	34.140	26.493	158.6	0.606	1.65	72.1	25.3	38.2	2.31	29.7	0.00	0.00			272	05
300 ISL	8.41 D	8.38	34.164 D	26.566	152.2	0.653	1.45	D 63.2 D	22.1	41.4	2.42	30.7	0.02	0.00			302	
321	8.34	8.30	34.192	26.599	149.4	0.684	1.27	55.5	19.3	43.6	2.50	31.4	0.00	0.00			324	04
381	7.50	7.46	34.198	26.728	137.7	0.770	0.96	41.9	14.3	52.6	2.66	34.5	0.00	0.00			384	03
400 ISL	7.34 D	7.30	34.212 D	26.762	134.6	0.798	0.84	D 36.5 D	12.4	55.4	2.73	35.3	0.02	0.00			403	
441	6.98	6.94	34.246	26.839	127.8	0.850	0.58	D 25.0 D	8.5	61.4	2.88	37.0	0.00	0.00			445	02
500 ISL	6.45 D	6.41	34.286 D	26.942	118.4	0.925	0.39	D 17.1 D	5.7	71.7	3.03	38.7	0.02	0.00			504	
516	6.22	6.17	34.301	26.984	114.4	0.941	0.31	13.5	4.5	74.4	3.07	39.2	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 50.8 N	117 31.9 W	07/11/2016	0655	UTC	855 m	240 04 kn			1016.3 mb	18.1 C	16.9 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	19.50	19.50	33.470	23.725	416.2	0.000	5.54	241.8	105.3	1.6	0.20	0.0	0.02	0.07	0.31	0.06	0	
2	19.50	19.50	33.470	23.726	416.3	0.008	5.54	241.8	105.3	1.6	0.20	0.0	0.00	0.07	0.31	0.06	2	22
10 ISL	19.44 D	19.44	33.460 D	23.735	415.8	0.038	5.59	D244.0 D	106.2	1.6	0.19	0.0	0.02	0.00	0.37	0.06	10	
11	19.32	19.32	33.455	23.761	413.3	0.046	5.68	248.1	107.6	1.6	0.19	0.0	0.00	0.00	0.38	0.06	11	21
20 ISL	17.94 D	17.94	33.412 D	24.073	383.9	0.078	6.36	D277.1 D	117.2	2.2	0.23	0.0	0.02	0.00	1.88	0.19	20	
21	17.48	17.47	33.376	24.157	375.9	0.086	6.00	262.1	109.7	2.3	0.23	0.0	0.00	0.00	2.05	0.21	21	20
30 ISL	14.41 D	14.41	33.276 D	24.772	317.5	0.113	5.43	D236.6 D	93.3	4.8	0.50	0.4	0.08	0.00	1.50	0.37	30	
31	14.23	14.23	33.273	24.807	314.2	0.120	5.27	230.3	90.3	5.1	0.53	0.4	0.09	0.07	1.44	0.39	31	19
41	13.10	13.09	33.293	25.053	290.9	0.150	4.71	205.4	78.7	7.4	0.82	6.2	0.12	0.00	0.58	0.40	41	18
50 ISL	12.20 D	12.19	33.360 D	25.280	269.5	0.173	4.35	D189.5 D	71.5	11.0	1.09	11.5	0.06	0.00	0.19	0.23	50	
51	12.11	12.11	33.366	25.302	267.5	0.178	4.20	183.3	68.8	11.4	1.12	12.1	0.06	0.00	0.15	0.21	51	16
51	12.11	12.11	33.377	25.311	266.6	0.178											51	17
60	11.98	11.97	33.377	25.337	264.4	0.202	4.16	181.7	68.0	11.7	1.14	12.5	0.05	0.10	0.08	0.16	60	15
70	11.46	11.45	33.427	25.471	251.8	0.228	3.90	170.2	63.0	13.7	1.28	14.8	0.05	0.00	0.08	0.15	71	14
75 ISL	11.32 D	11.31	33.445 D	25.512	248.0	0.238	3.88	D169.1 D	62.6	14.4	1.32	15.4	0.04	0.00	0.07	0.14	76	
86	10.97	10.96	33.492	25.610	238.9	0.267	3.65	159.4	58.5	15.8	1.41	16.7	0.00	0.27	0.05	0.12	87	13
100 ISL	10.73 D	10.71	33.605 D	25.743	226.7	0.298	3.25	D141.6 D	51.8	18.7	1.57	19.1	0.02	0.08	0.03	0.08	101	
101	10.73	10.71	33.606	25.743	226.6	0.301											101	12
101	10.69	10.67	33.609	25.753	225.7	0.302	3.22	140.7	51.3	18.9	1.58	19.2	0.00	0.07	0.03	0.08	102	11
121	10.52	10.51	33.655	25.817	220.1	0.347	3.10	135.4	49.2	20.0	1.64	20.1	0.00	0.08	0.02	0.06	122	10
125 ISL	10.48 D	10.47	33.659 D	25.828	219.1	0.354	3.10	D135.0 D	49.2	20.3	1.65	20.4	0.02	0.08	0.02	0.06	126	
141	10.21	10.20	33.698	25.905	212.1	0.390	3.03	132.4	47.8	21.5	1.70	21.4	0.00	0.10	0.02	0.06	142	09
150 ISL	10.33 D	10.32	33.828 D	25.986	204.7	0.407	2.71	D117.8 D	42.8	22.9	1.76	22.2	0.02	0.00	0.02	0.05	151	
170	9.73	9.71	33.869	26.120	192.2	0.449	2.60	113.4	40.6	26.0	1.90	24.1	0.03	0.00	0.01	0.03	171	08
200	9.55	9.53	33.999	26.253	180.3	0.505	2.23	97.3	34.7	29.4	2.03	25.8	0.00	0.08	0.00	0.04	202	07
230	9.23	9.20	34.065	26.358	170.9	0.558	2.03	88.8	31.4	32.6	2.12	27.1	0.00	0.38			232	06
250 ISL	8.96 D	8.93	34.105 D	26.433	164.1	0.591	1.90	D 82.5 D	29.1	35.0	2.19	28.1	0.02	0.28			252	
270	8.72	8.69	34.121	26.484	159.5	0.624	1.87	81.7	28.6	37.4	2.25	29.1	0.00	0.18			272	05
300 ISL	8.62 D	8.59	34.201 D	26.562	152.7	0.670	1.32	D 57.4 D	20.1	41.0	2.37	30.3	0.02	0.00			302	
321	8.23	8.20	34.188	26.611	148.2	0.703	1.29	56.3	19.5	43.5	2.46	31.3	0.00	0.00			324	04
380	7.41	7.37	34.219	26.758	134.8	0.786	0.87	37.8	12.9	53.2	2.69	34.6	0.00	0.00			383	03
400 ISL	7.34 D	7.30	34.230 D	26.776	133.3	0.814	0.80	D 34.7 D	11.8	55.7	2.75	35.2	0.02	0.00			403	
441	7.03	6.98	34.258	26.842	127.5	0.867	0.55	24.2	8.2	60.9	2.86	36.4	0.00	0.00			445	02
500 ISL	6.48 D	6.43	34.280 D	26.934	119.2	0.942	0.41	D 17.6 D	5.9	69.3	2.99	38.1	0.02	0.00			504	
516	6.39	6.34	34.291	26.955	117.4	0.958	0.35	15.3	5.1	71.5	3.03	38.5	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 40.8 N	117 52.3 W	07/11/2016	1133	UTC	626 m	350 04 kn			1015.5 mb	18.0 C	17.0 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	19.07	19.07	33.428	23.804	408.7	0.000	5.44	237.5	102.5	1.1	0.23	0.0	0.02	0.00	0.22	0.03	0	
3	19.07	19.07	33.428	23.804	408.8	0.012	5.44	237.5	102.5	1.1	0.23	0.0	0.00	0.00	0.22	0.03	3	20
10	19.04	19.04	33.421	23.806	408.9	0.041	5.42	236.8	102.2	1.6	0.23	0.0	0.00	0.10	0.22	0.03	10	19
20	18.41	18.41	33.372	23.927	397.8	0.081	5.57	243.1	103.6	1.2	0.25	0.0	0.00	0.00	0.27	0.05	20	18
30	16.70	16.69	33.326	24.304	362.2	0.119	5.74	250.7	103.3	1.4	0.29	0.0	0.00	0.00	0.55	0.24	30	17
40	15.13	15.12	33.188	24.550	338.9	0.154	5.64	246.4	98.3	2.1	0.39	1.0	0.14	0.06	0.72	0.43	40	16
50	13.59	13.58	33.142	24.839	311.6	0.187	5.36	234.2	90.5	3.8	0.58	4.2	0.24	0.09	0.43	0.37	50	15
61	12.73	12.72	33.203	25.058	291.0	0.220	4.97	217.1	82.5	6.3	0.80	7.8	0.11	0.00	0.24	0.29	61	14
71	11.92	11.91	33.316	25.301	268.1	0.248	4.41	192.7	72.0	9.7	1.07	12.4	0.06	0.00	0.19	0.18	72	13
75 ISL	11.72 D	11.71	33.341 D	25.357	262.8	0.254	4.29	D187.0 D	69.8	10.6	1.13	13.3	0.06	0.00	0.17	0.17	76	
86	10.99	10.98	33.451 D	25.576	242.1	0.282	3.79	D165.1 D	60.7	13.1	1.29	15.9	0.05	0.00	0.11	0.13	87	12
100 ISL	10.44 D	10.43	33.538 D	25.740	226.9	0.315	3.47	D151.0 D	54.9	17.3	1.51	19.6	0.03	0.00	0.07	0.07	101	
101	10.35	10.34	33.531	25.750	225.9	0.322	3.49	152.4	55.2	17.7	1.53	19.8	0.03	0.00	0.06	0.07	102	11
120	9.73	9.71	33.676	25.969	205.4	0.363	3.11	135.8	48.5	22.3	1.72	22.8	0.00	0.00	0.01	0.05	121	10
125 ISL	9.71 D	9.69	33.701 D	25.992	203.4	0.369	3.06	D133.2 D	47.7	22.9	1.74	23.1	0.02	0.00	0.01	0.05	126	
141	9.27	9.25	33.830 D	26.164	187.2	0.400	2.98	129.9	46.0	24.7	1.80	24.1	0.03	0.00	0.01	0.04	142	09
150 ISL	9.25 D	9.23	33.840 D	26.176	186.3	0.417	2.84	D123.4 D	43.8	25.9	1.83	24.6	0.03	0.00	0.01	0.04	151	
171	9.00	8.98	33.919	26.279	176.9	0.459	2.66	D115.7 D	40.8	28.6	1.90	25.6	0.03	0.00	0.00	0.03	172	08
200 ISL	8.93 D	8.90	34.105 D	26.436	162.6	0.505	1.89	D 82.3 D	29.0	35.0	2.19	28.2	0.02	0.00	0.01	0.03	202	
201	8.93	8.91	34.102	26.433	163.0	0.510	1.91	83.4	29.4	35.3	2.20	28.3	0.00	0.00	0.01	0.03	203	07
230	8.76	8.73	34.166	26.511	156.1	0.556	1.53	66.8	23.5	38.9	2.34	29.7	0.00	0.00			232	06
250 ISL	8.58 D	8.56	34.181 D	26.551	152.7	0.585	1.47	D 63.8 D	22.4	41.1	2.39	30.5	0.02	0.00			252	
271	8.21	8.18	34.190	26.615	146.8	0.619	1.32	57.4	19.9	43.3	2.44	31.4	0.00	0.00			273	05
300 ISL	7.97 D	7.94	34.215 D	26.671	141.9	0.658	1.04	D 45.2 D	15.6	48.5	2.58	33.0	0.02	0.00			302	
320	7.65	7.62	34.225	26.726	136.8	0.689	0.87	38.0	13.0	52.1	2.67	34.2	0.00	0.00			323	04
381	7.02	6.99	34.236	26.824	128.2	0.769	0.65	28.2	9.5	60.1	2.82	36.6	0.00	0.00			384	03
400 ISL	6.96 D	6.92	34.248 D	26.842	126.7	0.792	0.58	D 25.2 D	8.5	62.5	2.86	37.1	0.02	0.00			403	
442	6.55	6.51	34.263	26.910	120.6	0.846	0.45	19.7	6.6	67.7	2.95	38.3	0.00	0.00			446	02
500 ISL	6.29 D	6.24	34.285 D	26.962	116.3	0.914	0.37	D 16.2 D	5.4	71.6	3.01	39.0	0.02	0.00			504	
516	6.28	6.23	34.287	26.966	116.2	0.933	0.35	15.4	5.1	72.6	3.03	39.3	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 93.3 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 30.7 N	118 12.8 W	07/11/2016	1551	UTC	1661 m	240 02 kn	270 07 10	1	1019.2 mb	19.5 C	18.0 C	25 m	4/8	SC	007

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	19.16	19.16	33.488	23.827	406.6	0.000	5.43	237.0	102.5	2.5	0.27	0.4	0.03	0.19	0.30	0.03	0	
3	19.16	19.16	33.488	23.827	406.7	0.012	5.43	237.0	102.5	2.5	0.27	0.4	0.03	0.19	0.30	0.03	3	21
10 ISL	19.12 D	19.11	33.497 D	23.846	405.2	0.035	5.47	D238.4	D103.1	2.4	0.24	0.1	0.02	0.00	0.26	0.03	10	
11	19.12	19.12	33.499	23.847	405.1	0.045	5.45	237.9	102.8	2.4	0.23	0.0	0.00	0.00	0.25	0.03	11	19
11	19.12	19.12	33.498	23.846	405.2	0.046											11	20
20 ISL	18.43 D	18.43	33.453 D	23.984	392.3	0.075	5.76	D251.2	D107.3	1.9	0.25	0.0	0.02	0.00	0.46	0.03	20	
21	18.49	18.49	33.452	23.969	393.9	0.085	5.85	255.5	109.1	1.9	0.25	0.0	0.00	0.00	0.48	0.03	21	18
30 ISL	16.00 D	16.00	33.339 D	24.473	346.0	0.113	5.96	D260.0	D105.9	3.6	0.35	0.0	0.02	0.00	1.58	0.10	30	
31	15.85	15.85	33.338	24.505	343.0	0.121	5.94	259.6	105.2	3.8	0.36	0.0	0.00	0.14	1.70	0.11	31	17
41	13.39	13.38	33.349	25.039	292.3	0.153	5.22	228.0	87.9	6.3	0.64	1.9	0.17	0.00	1.17	0.31	41	16
50 ISL	12.57 D	12.56	33.397 D	25.239	273.4	0.174	4.55	D198.0 D	75.2	9.6	1.00	10.2	0.30	0.00	0.44	0.26	50	
51	12.27	12.26	33.397	25.297	268.0	0.181	4.55	198.8	74.9	10.0	1.04	11.1	0.31	0.23	0.36	0.26	51	15
61	10.49	10.49	33.487	25.690	230.7	0.206	3.73	163.0	59.1	15.6	1.42	17.8	0.14	0.00	0.20	0.21	61	14
70	10.30	10.30	33.467	25.707	229.2	0.227	3.96	173.0	62.5	16.7	1.47	18.8	0.04	0.06	0.04	0.09	71	13
75 ISL	10.11 D	10.10	33.507 D	25.772	223.1	0.234	3.95	D172.1 D	62.1	17.5	1.50	19.3	0.04	0.00	0.03	0.08	76	
86	9.91	9.90	33.547	25.836	217.2	0.262	3.63	158.5	56.8	19.2	1.57	20.4	0.03	0.00	0.02	0.08	87	12
100	9.55	9.54	33.684	26.003	201.7	0.292	3.16	137.8	49.0	22.5	1.72	22.8	0.03	0.00	0.02	0.05	101	11
121	9.19	9.18	33.800	26.152	187.9	0.333	2.97	129.5	45.8	25.8	1.82	24.4	0.00	0.00	0.01	0.04	122	10
125 ISL	9.17 D	9.16	33.859 D	26.202	183.3	0.335	2.83	D123.1 D	43.6	26.9	1.86	25.0	0.02	0.00	0.01	0.04	126	
141	8.97	8.96	33.952	26.307	173.6	0.369	2.41	105.0	37.0	31.4	2.03	27.1	0.00	0.00	0.01	0.05	142	09
150 ISL	8.87 D	8.85	33.979 D	26.345	170.2	0.380	2.42	D105.2 D	37.1	32.2	2.04	27.4	0.02	0.00	0.01	0.05	151	
172	8.68	8.66	34.022	26.409	164.5	0.421	2.37	103.6	36.2	34.2	2.08	28.0	0.00	0.00	0.01	0.04	173	08
200 ISL	8.39 D	8.36	34.085 D	26.504	156.0	0.462	1.92	D 83.6 D	29.2	38.5	2.22	29.7	0.02	0.00	0.00	0.03	202	
201	8.34	8.32	34.081	26.508	155.6	0.468	1.90	82.8	28.8	38.6	2.23	29.8	0.00	0.00	0.00	0.02	203	07
231	8.00	7.98	34.118	26.588	148.4	0.513	1.57	68.4	23.6	43.8	2.39	32.0	0.00	0.00			233	06
250 ISL	7.87 D	7.85	34.141 D	26.626	145.1	0.538	1.41	D 61.3 D	21.1	46.3	2.47	32.7	0.02	0.00			252	
271	7.68	7.65	34.165	26.673	141.0	0.571	1.25	54.5	18.7	49.2	2.55	33.4	0.00	0.00			273	05
300 ISL	7.57 D	7.54	34.221 D	26.733	135.8	0.608	0.87	D 37.8 D	12.9	53.4	2.67	34.5	0.02	0.00			302	
321	7.35	7.32	34.231	26.774	132.1	0.640	0.74	32.2	10.9	56.4	2.75	35.2	0.00	0.00			324	04
382	6.95	6.92	34.252	26.846	126.0	0.719	0.56	24.3	8.2	62.6	2.86	37.1	0.00	0.00			385	03
400 ISL	6.78 D	6.74	34.257 D	26.874	123.6	0.739	0.52	D 22.4 D	7.6	64.2	2.89	37.4	0.02	0.00			403	
442	6.55	6.51	34.270	26.916	120.1	0.792	0.43	18.9	6.3	67.9	2.96	38.1	0.00	0.00			446	02
500 ISL	6.33 D	6.28	34.291 D	26.963	116.3	0.860	0.36	D 15.7 D	5.2	72.9	3.03	39.3	0.02	0.00			504	
517	6.21	6.17	34.295	26.981	114.7	0.881	0.33	14.3	4.7	74.3	3.05	39.7	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 SALLY RIDE CALCOFI CRUISE 1611 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 33.3 W	07/11/2016	2046 UTC	1351 m	300 06 kn	290 03 09	1	1016.7 mb	18.2 C	16.4 C	26 m	7/8	CU	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	19.40	19.40	33.509	23.782	410.9	0.000	5.39	235.2	102.2	2.2	0.25	0.2	0.02	0.20	0.25	0.02	0	
2 A	19.40	19.40	33.509	23.782	410.9	0.008	5.39	235.2	102.2	2.2	0.25	0.2	0.00	0.20	0.25	0.02	2	24
9	19.22	19.22	33.500	23.822	407.4	0.037	5.39	235.5	102.0	2.0	0.25	0.0	0.04	0.00	0.26	0.02	9	21
10 ISL	19.21 D	19.21	33.501 D	23.825	407.2	0.037	5.40	235.5	102.1	2.0	0.25	0.0	0.04	0.00	0.26	0.02	10	
10	19.21	19.21	33.500	23.825	407.2	0.039											10	23
10	19.21	19.21	33.501	23.825	407.2	0.040											10	22
17 A	19.17	19.16	33.513	23.845	405.5	0.069	5.42	236.8	102.4	2.1	0.25	0.0	0.05	0.10	0.28	0.03	17	20
20 ISL	19.13 D	19.12	33.507 D	23.851	405.0	0.078	5.43	236.8	102.5	2.0	0.26	0.0	0.03	0.14	0.28	0.05	20	
24 A	18.87	18.87	33.506	23.915	399.1	0.098	5.44	237.4	102.1	2.0	0.27	0.0	0.00	0.19	0.29	0.06	24	19
30 ISL	16.92 D	16.92	33.389 D	24.300	362.5	0.117	5.84	D254.7	D105.6	2.4	0.33	0.1	0.02	0.10	0.30	0.06	30	
33	16.05	16.04	33.313	24.444	348.9	0.131	5.80	253.3	103.1	2.7	0.36	0.1	0.00	0.06	0.30	0.07	33	17
33	16.05	16.04	33.317	24.447	348.6	0.133											33	18
43 A	13.92	13.91	33.281	24.880	307.6	0.164	5.17	225.9	88.0	5.5	0.65	4.1	0.27	0.17	0.81	0.18	43	16
50 ISL	12.09 D	12.08	33.239 D	25.208	276.3	0.182	4.70	D204.9	D 77.0	7.9	0.87	8.4	0.14	0.00	0.86	0.40	50	
55	11.84	11.83	33.277	25.284	269.3	0.198	4.60	200.6	74.9	9.5	1.02	11.5	0.05	0.00	0.89	0.56	55	15
67	11.29	11.28	33.356	25.447	254.0	0.230	4.23	184.6	68.1	12.1	1.21	14.5	0.04	0.00	0.29	0.22	68	14
75 ISL	10.77 D	10.76	33.441 D	25.606	239.0	0.247	3.98	D173.3	D 63.4	15.1	1.38	16.6	0.03	0.00	0.22	0.20	76	
80 A	10.79	10.78	33.513	25.659	234.1	0.261	3.52	153.5	56.1	16.9	1.49	18.0	0.00	0.16	0.17	0.18	81	13
89 A	10.31	10.30	33.508	25.738	226.8	0.282	3.65	159.1	57.5	17.2	1.51	19.0	0.03	0.00	0.06	0.07	90	12
100 ISL	10.14 D	10.12	33.617 D	25.854	216.0	0.304	3.33	D145.0	D 52.4	19.9	1.63	20.6	0.02	0.00	0.03	0.05	101	
104	10.10	10.09	33.654	25.889	212.7	0.315	3.18	138.6	49.9	20.8	1.68	21.2	0.00	0.00	0.02	0.04	105	11
121	9.54	9.53	33.770	26.072	195.6	0.349	3.01	131.3	46.8	23.6	1.77	23.0	0.00	0.00	0.01	0.03	122	10
125 ISL	9.48 D	9.46	33.770 D	26.084	194.6	0.355	3.06	D133.1	D 47.4	24.3	1.80	23.4	0.02	0.00	0.01	0.03	126	
140	9.32	9.30	33.870	26.188	185.0	0.386	2.74	119.8	42.5	26.9	1.89	25.0	0.00	0.00	0.00	0.03	141	09
150 ISL	9.14 D	9.12	33.901 D	26.241	180.1	0.402	2.67	D116.1	D 41.1	28.1	1.93	25.6	0.02	0.00	0.00	0.03	151	
170	8.95	8.93	33.958	26.317	173.3	0.439	2.47	107.9	38.0	30.6	2.00	26.8	0.00	0.08	0.00	0.02	171	08
200	8.71	8.68	34.037	26.417	164.3	0.490	2.01	87.9	30.8	35.1	2.16	28.8	0.00	0.00	0.00	0.03	202	07
230	8.57	8.55	34.142	26.521	155.1	0.538	1.63	70.9	24.8	39.1	2.31	29.9	0.00	0.00			232	06
250 ISL	8.33 D	8.31	34.191 D	26.597	148.2	0.567	1.28	D 55.7	D 19.4	42.6	2.42	31.2	0.02	0.00			252	
270	8.05	8.03	34.199	26.646	143.8	0.598	1.12	48.8	16.8	46.2	2.53	32.5	0.00	0.00			272	05
300 ISL	7.73 D	7.70	34.220 D	26.711	138.0	0.639	0.93	D 40.2	D 13.8	50.0	2.62	33.5	0.02	0.00			302	
320	7.62	7.59	34.235 D	26.738	135.7	0.666	0.80	34.8	11.9	52.4	2.68	34.2	0.00	0.00			323	04
380	7.07	7.04	34.226	26.809	129.6	0.744	0.70	30.5	10.3	58.4	2.79	36.2	0.00	0.00			383	03
400 ISL	6.97 D	6.94	34.244 D	26.838	127.2	0.773	0.61	D 26.4	D 8.9	61.4	2.85	36.9	0.02	0.00			403	
440	6.59	6.55	34.280	26.918	119.9	0.819	0.40	17.6	5.9	67.4	2.97	38.1	0.00	0.00			444	02
500 ISL	6.23 D	6.18	34.297 D	26.980	114.6	0.893	0.34	D 14.9	D 5.0	73.6	3.05	39.4	0.02	0.00			504	
517	6.09	6.04	34.308	27.006	112.1	0.909	0.30	13.2	4.4	75.3	3.07	39.8	0.00	0.00			521	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 SALLY RIDE CALCOFI CRUISE 1611 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	08/11/2016	0055 UTC	1457 m	300 04 kn	310 03 09	1	1016.0 mb	19.0 C	17.5 C		5/8	ST	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	19.16	19.16	33.355	23.726	416.2	0.000	5.37	234.6	101.4	1.9	0.26	0.2	0.02	0.07	0.15	0.03	0	
2	19.16	19.16	33.355	23.726	416.3	0.008	5.37	234.6	101.4	1.9	0.26	0.2	0.00	0.07	0.15	0.03	2	20
10	19.02	19.02	33.356	23.761	413.2	0.042	5.37	234.6	101.1	1.5	0.24	0.0	0.00	0.00	0.17	0.02	10	19
20 ISL	18.84 D	18.84	33.342 D	23.797	410.2	0.079	5.44	D237.2	D102.0	1.4	0.25	0.0	0.02	0.00	0.21	0.04	20	
25	18.68	18.67	33.333	23.832	407.1	0.103	5.43	236.9	101.4	1.3	0.26	0.0	0.00	0.07	0.23	0.05	25	18
30 ISL	18.59 D	18.59	33.357 D	23.872	403.5	0.120	5.46	D238.1	D101.9	1.3	0.26	0.0	0.02	0.00	0.24	0.05	30	
40	18.44	18.43	33.379	23.927	398.6	0.164	5.46	238.2	101.6	1.2	0.26	0.0	0.00	0.00	0.27	0.06	40	17
50	15.73	15.72	33.211	24.437	350.2	0.201	5.87	256.5	103.6	2.2	0.31	0.0	0.00	0.00	0.44	0.24	50	16
62	14.02	14.01	33.251	24.836	312.3	0.241	5.38	234.9	91.7	4.1	0.51	2.0	0.15	0.00	0.40	0.40	62	15
75 ISL	12.72 D	12.71	33.302 D	25.137	283.9	0.277	4.87	D212.3	D 80.9	6.7	0.79	7.1	0.05	0.00	0.22	0.23	76	
76	12.59	12.58	33.292	25.155	282.2	0.282	4.81	210.1	79.6	6.9	0.81	7.5	0.05	0.00	0.21	0.22	77	14
87	11.92	11.91	33.344	25.322	266.5	0.312	4.45	194.1	72.6	9.9	1.05	11.6	0.04	0.07	0.13	0.16	88	13
100	10.61	10.59	33.450	25.642	236.1	0.345	3.99	174.1	63.3	14.4	1.32	16.3	0.03	0.00	0.07	0.08	101	12
111	10.42	10.41	33.483	25.701	230.8	0.371	3.88	169.6	61.4	15.8	1.38	17.5	0.00	0.00	0.05	0.07	112	11
125	9.76	9.74	33.610	25.912	210.9	0.402	3.48	152.0	54.3	20.0	1.61	21.2	0.00	0.00	0.01	0.04	126	10
140	9.54	9.52	33.682	26.005	202.3	0.433	3.18	138.9	49.4	22.6	1.73	23.2	0.00	0.00	0.01	0.03	141	09
150 ISL	9.36 D	9.35	33.766 D	26.099	193.6	0.451	2.99	D130.1	D 46.3	24.3	1.78	24.0	0.02	0.00	0.01	0.03	151	
170	8.93	8.91	33.857	26.239	180.6	0.490	2.82	123.1	43.3	27.8	1.89	25.8	0.00	0.00	0.00	0.03	171	08
200	8.51	8.49	33.993	26.412	164.7	0.542	2.36	103.0	35.9	34.0	2.07	28.1	0.00	0.00	0.00	0.02	202	07
230	8.28	8.26	34.051	26.494	157.5	0.590	1.99	87.0	30.2	38.4	2.22	30.3	0.00	0.00			232	06
250 ISL	8.11 D	8.09	34.077 D	26.540	153.4	0.621	1.88	D 81.8	D 28.3	41.4	2.29	31.4	0.02	0.00			252	
270	7.70	7.67	34.079	26.603	147.6	0.652	1.70	74.1	25.3	44.5	2.36	32.4	0.00	0.00			272	05
300 ISL	7.86 D	7.83	34.160 D	26.644	144.3	0.695	1.33	D 57.8	D 19.9	47.8	2.53	33.5	0.02	0.00			302	
320	7.67	7.64	34.191	26.696	139.7	0.724	1.02	44.4	15.2	50.0	2.64	34.2	0.00	0.00			323	04
381	7.06	7.03	34.222	26.808	129.8	0.806	0.71	30.9	10.4	58.6	2.79	36.4	0.00	0.00			384	03
400 ISL	7.00 D	6.97	34.223 D	26.817	129.2	0.831	0.68	D 29.6	D 10.0	60.8	2.83	37.0	0.02	0.00			403	
440	6.67	6.63	34.239	26.875	124.0	0.882	0.53	23.2	7.8	65.3	2.91	38.1	0.00	0.00			444	02
500 ISL	6.30 D	6.26	34.290 D	26.965	116.0	0.955	0.38	D 16.3	D 5.4	72.9	3.05	39.5	0.01	0.00			504	
515	6.20	6.15	34.302	26.988	114.0	0.971	0.30	13.3	4.4	74.8	3.08	39.8	0.00	0.00			519	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 0.8 N	119 14.0 W	08/11/2016	0455 UTC	1578 m	340 10 kn			1016.8 mb	18.8 C	17.7 C				010

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	20.18	20.18	33.534	23.597	428.5	0.000	5.23	228.4	100.7	2.0	0.26	0.1	0.02	0.79	0.14	0.03	0	
2	20.18	20.18	33.534	23.597	428.6	0.009	5.23	228.4	100.7	2.0	0.26	0.1	0.00	0.79	0.14	0.03	2	21
10	20.18	20.18	33.533	23.598	428.8	0.043	5.22	228.1	100.6	2.0	0.24	0.0	0.00	0.15	0.14	0.03	10	19
10	20.18	20.18	33.548	23.609	427.7	0.043											10	20
20 ISL	20.15 D	20.15	33.527 D	23.602	428.8	0.082	5.26	D229.5	D101.2	1.9	0.23	0.0	0.02	0.00	0.17	0.04	20	
25	20.09	20.08	33.526	23.618	427.6	0.107	5.24	228.7	100.7	1.9	0.23	0.0	0.00	0.00	0.18	0.04	25	18
30 ISL	20.06 D	20.06	33.505 D	23.609	428.6	0.125	5.28	D230.4	D101.4	1.9	0.23	0.0	0.02	0.00	0.20	0.05	30	
40	19.57	19.56	33.428	23.681	422.2	0.171	5.41	236.1	102.9	1.8	0.22	0.0	0.00	0.00	0.23	0.07	40	17
50 ISL	17.96 D	17.95	33.375 D	24.043	387.9	0.209	5.71	D249.2	D105.4	1.9	0.24	0.0	0.02	0.00	0.25	0.07	50	
51	17.86	17.85	33.376	24.068	385.5	0.216	5.66	247.2	104.2	1.9	0.24	0.0	0.00	0.00	0.25	0.07	51	16
62	16.74	16.73	33.359	24.321	361.8	0.257	5.76	251.5	103.8	2.1	0.25	0.0	0.00	0.12	0.27	0.10	62	15
75	15.49	15.48	33.357	24.603	335.1	0.302	5.59	243.9	98.2	2.9	0.34	0.1	0.06	0.08	0.42	0.23	76	14
86	14.07	14.05	33.372	24.922	305.0	0.337	5.13	223.9	87.5	4.9	0.58	3.0	0.18	0.23	0.27	0.18	87	13
100	11.81	11.79	33.396	25.385	260.9	0.377	4.40	192.0	71.6	10.4	1.05	11.6	0.04	0.00	0.13	0.15	101	12
112	11.06	11.05	33.389	25.516	248.6	0.407	4.26	186.0	68.3	12.5	1.24	14.3	0.03	0.27	0.09	0.18	113	11
125	10.46	10.45	33.458	25.674	233.7	0.439	3.89	169.8	61.6	15.7	1.42	17.6	0.00	0.11	0.06	0.08	126	10
140	9.85	9.84	33.533	25.836	218.5	0.473	3.75	163.9	58.6	18.4	1.54	19.7	0.00	0.00	0.03	0.05	141	09
150 ISL	9.64 D	9.62	33.631 D	25.949	208.0	0.492	3.61	D157.0	D 56.1	20.3	1.61	20.7	0.02	0.00			151	
170	9.22	9.20	33.804 D	26.153	188.9	0.532	2.98	D129.6	D 46.0								171	08
200 ISL	8.89 D	8.86	33.931 D	26.306	174.9	0.587	2.53	D110.2	D 38.8	29.5	1.97	25.9	0.02	0.00			202	
201	8.79	8.77	33.954 D	26.339	171.8	0.588	2.55	D110.9	D 39.0								203	07
230	8.49	8.46	34.006	26.428	163.8	0.639	2.20	96.1	33.5	35.1	2.18	29.0	0.00	0.00			232	06
250 ISL	8.29 D	8.27	34.061 D	26.500	157.2	0.670	1.97	D 85.9	D 29.9	39.1	2.30	30.4	0.02	0.00			252	
270	7.95	7.93	34.083	26.569	151.0	0.702	1.70	74.1	25.5	43.1	2.41	31.9	0.00	0.00			272	05
300 ISL	7.77 D	7.74	34.118 D	26.625	146.1	0.746	1.48	D 64.2	D 22.1	47.3	2.53	33.3	0.02	0.00			302	
318	7.54	7.51	34.126	26.663	142.6	0.773	1.25	54.5	18.6	49.9	2.60	34.1	0.00	0.00			321	04
380	6.81	6.78	34.139	26.775	132.5	0.858	0.98	42.8	14.4	58.6	2.77	36.6	0.00	0.00			383	03
400 ISL	6.65 D	6.61	34.152 D	26.808	129.6	0.884	0.88	D 38.2	D 12.8	61.6	2.83	37.4	0.02	0.00			403	
441	6.26	6.22	34.180	26.881	122.9	0.936	0.65	28.3	9.4	67.8	2.96	38.9	0.00	0.00			445	02
500 ISL	5.99 D	5.95	34.231 D	26.957	116.4	1.007	0.46	D 20.1	D 6.6	74.2	3.07	40.0	0.02	0.00			504	
516	5.93	5.89	34.249	26.979	114.5	1.025	0.41	17.7	5.8	76.0	3.10	40.3	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 50.9 N	119 34.3 W	08/11/2016	0858 UTC	1885 m	040 08 kn			1018.6 mb	18.0 C	17.5 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	19.56	19.56	33.380	23.642	424.2	0.000	5.32	232.3	101.2	1.6	0.25	0.0	0.02	0.03	0.19	0.04	0	
2	19.56	19.56	33.380	23.642	424.3	0.009	5.32	232.3	101.2	1.6	0.25	0.0	0.00	0.00	0.19	0.04	2	20
10	19.56	19.56	33.380	23.642	424.6	0.043	5.32	232.2	101.1	2.0	0.25	0.2	0.00	0.00	0.17	0.04	10	19
20 ISL	19.57 D	19.56	33.379 D	23.641	425.1	0.081	5.34	D233.1	D101.6	1.7	0.24	0.1	0.02	0.00	0.18	0.04	20	
26	19.56	19.56	33.379	23.643	425.2	0.111	5.34	233.0	101.5	1.6	0.24	0.0	0.00	0.00	0.18	0.04	26	18
30 ISL	19.55 D	19.54	33.378 D	23.646	425.0	0.124	5.35	D233.5	D101.7	1.6	0.25	0.0	0.02	0.00	0.23	0.06	30	
40	17.56	17.55	33.264	24.054	386.4	0.168	5.79	252.7	105.9	1.9	0.28	0.0	0.00	0.00	0.35	0.11	40	17
50 ISL	15.57 D	15.56	33.191 D	24.457	348.2	0.202	5.83	D254.0	D102.4	2.1	0.31	0.0	0.02	0.00	0.32	0.21	50	
51	15.43	15.42	33.191	24.489	345.2	0.209	5.81	253.9	101.9	2.2	0.31	0.0	0.00	0.00	0.32	0.22	51	16
62	14.58	14.57	33.261	24.727	322.8	0.245	5.51	240.7	95.0	3.6	0.44	0.9	0.14	0.00	0.43	0.34	62	15
75 ISL	14.00 D	13.99	33.349 D	24.916	305.2	0.283	5.10	D222.0	D 86.9	5.0	0.58	3.1	0.15	0.00	0.26	0.25	76	
76	13.81	13.80	33.347	24.955	301.4	0.289	5.11	223.2	86.8	5.1	0.59	3.3	0.15	0.00	0.25	0.25	77	14
88	12.18	12.17	33.333	25.265	272.0	0.324	4.66	203.5	76.5	8.1	0.90	9.1	0.05	0.00	0.15	0.22	89	13
99	11.59	11.58	33.387	25.417	257.7	0.353	4.36	190.2	70.6	11.1	1.11	12.5	0.04	0.00	0.11	0.15	100	12
100 ISL	11.44 D	11.43	33.388 D	25.446	255.0	0.353	4.33	D188.5	D 70.0	11.4	1.13	12.8	0.04	0.00	0.10	0.14	101	
112	10.46	10.45	33.471	25.684	232.4	0.384	3.99	174.2	63.2	15.1	1.37	16.6	0.03	0.00	0.06	0.07	113	11
125	9.80	9.78	33.539	25.850	216.8	0.414	3.59	156.6	56.0	18.2	1.58	19.9	0.00	0.00	0.03	0.05	126	10
140	9.58	9.56	33.638	25.963	206.3	0.445	3.50	152.8	54.4	21.0	1.66	21.4	0.00	0.00	0.01	0.03	141	09
150 ISL	9.36 D	9.35	33.735 D	26.075	195.9	0.464	3.33	D145.0	D 51.6	23.2	1.75	22.8	0.02	0.00	0.01	0.03	151	
170	9.12	9.10	33.856	26.209	183.6	0.504	2.76	120.6	42.5	27.6	1.93	25.6	0.00	0.00	0.00	0.02	171	08
199	8.70	8.68	33.965	26.361	169.6	0.555	2.43	105.9	37.0	32.4	2.08	27.9	0.00	0.00	0.00	0.02	201	07
200 ISL	8.69 D	8.67	33.971 D	26.368	168.9	0.555	2.41	D104.7	D 36.7	32.5	2.08	27.9	0.02	0.00			202	
231	8.30	8.28	34.028	26.473	159.5	0.607	2.16	94.3	32.7	37.0	2.21	29.7	0.00	0.00			233	06
250 ISL	8.19 D	8.16	34.073 D	26.526	154.8	0.637	1.97	D 85.9	D 29.8	40.1	2.33	30.8	0.02	0.00			252	
270	7.99	7.96	34.102	26.579	150.1	0.668	1.59	69.4	23.9	43.4	2.45	32.0	0.00	0.00			272	05
300 ISL	7.70 D	7.67	34.125 D	26.639	144.7	0.712	1.34	D 58.3	D 20.0	48.1	2.55	33.5	0.02	0.00			302	
320	7.39	7.36	34.125	26.684	140.7	0.741	1.22	53.3	18.1	51.2	2.62	34.5	0.00	0.00			323	04
380	6.83	6.80	34.149	26.780	132.1	0.823	0.92	40.2	13.5	58.4	2.78	36.6	0.00	0.00			383	03
400 ISL	6.63 D	6.59	34.149 D	26.809	129.5	0.849	0.89	D 38.7	D 13.0	61.5	2.83	37.3	0.02	0.00			403	
439	6.26	6.22	34.170	26.875	123.5	0.898	0.70	30.6	10.1	67.5	2.94	38.8	0.00	0.00			443	02
500 ISL	5.89 D	5.85	34.229 D	26.968	115.2	0.973	0.46	D 19.8	D 6.5	75.6	3.07	40.3	0.02	0.00			504	
516	5.79	5.75	34.240	26.989	113.3	0.989	0.40	17.6	5.8	77.7	3.11	40.7	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 31.2 N	120 14.9 W	08/11/2016	1629	UTC	3964 m	340 12 kn	280 07 12	1	1018.0 mb	18.5 C	17.0 C	19 m	6/8	ST	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	17.96	17.96	33.380	24.043	386.0	0.000	5.49	239.8	101.3	1.3	0.30	0.0	0.02	0.17	0.27	0.06	0	
2 A	17.96	17.96	33.380	24.043	386.0	0.008	5.49	239.8	101.3	1.3	0.30	0.0	0.00	0.17	0.27	0.06	2	24
10 ISL	17.96 D	17.96	33.379 D	24.043	386.3	0.035	5.54	D241.4	D102.1	1.3	0.27	0.0	0.02	0.00	0.27	0.06	10	
12 A	17.96	17.96	33.379	24.043	386.4	0.046	5.50	240.2	101.5	1.3	0.26	0.0	0.00	0.00	0.27	0.06	12	22
12	17.96	17.96	33.380	24.044	386.3	0.047											12	23
17 A	17.96	17.96	33.380	24.044	386.5	0.066	5.50	240.2	101.5	1.2	0.26	0.0	0.00	0.00	0.28	0.06	17	21
20 ISL	17.96 D	17.95	33.380 D	24.045	386.5	0.074	5.53	D241.4	D102.1	1.2	0.26	0.0	0.02	0.00	0.29	0.06	20	
24	17.96	17.96	33.389	24.051	386.1	0.093	5.52	241.0	101.8	1.2	0.27	0.0	0.00	0.00	0.30	0.07	24	20
30 ISL	17.92 D	17.91	33.417 D	24.083	383.3	0.113	5.52	D240.6	D101.7	1.3	0.29	0.0	0.02	0.00	0.35	0.10	30	
31 A	17.72	17.72	33.415	24.129	378.9	0.120	5.51	240.5	101.2	1.3	0.29	0.0	0.00	0.00	0.36	0.10	31	19
40	16.49	16.49	33.304	24.335	359.5	0.153	5.65	246.5	101.2	1.4	0.32	0.0	0.03	0.00	0.73	0.35	40	17
40	16.49	16.49	33.304	24.335	359.5	0.154											40	18
49	15.01	15.00	33.235	24.613	333.2	0.184	5.42	236.6	94.2	2.7	0.49	2.2	0.24	0.11	0.55	0.34	49	16
50 ISL	14.77 D	14.76	33.220 D	24.654	329.3	0.185	5.46	D237.8	D 94.4	2.9	0.50	2.5	0.23	0.00	0.54	0.33	50	
58 A	13.86	13.86	33.198	24.827	313.0	0.213	5.24	229.0	89.1	4.0	0.62	4.6	0.21	0.00	0.39	0.32	58	15
65 A	13.16	13.15	33.218	24.984	298.2	0.234	4.96	216.4	83.0	5.8	0.77	7.4	0.05	0.00	0.28	0.23	66	14
75	12.09	12.08	33.254	25.221	275.8	0.263	4.61	201.2	75.4	8.8	1.00	11.2	0.04	0.00	0.14	0.18	76	13
85	11.58	11.57	33.292	25.344	264.3	0.290	4.44	193.6	71.9	10.6	1.14	13.1	0.03	0.07	0.09	0.14	86	12
100	10.54	10.53	33.434	25.642	236.2	0.328	3.89	169.6	61.6	15.8	1.44	17.9	0.03	0.00	0.04	0.08	101	11
120	9.80	9.79	33.574	25.876	214.2	0.373	3.46	151.0	54.0	20.2	1.65	21.3	0.00	0.00	0.02	0.04	121	10
125 ISL	9.78 D	9.76	33.607 D	25.907	211.4	0.382	3.41	D148.2	D 53.1	21.1	1.69	21.9	0.02	0.00	0.02	0.04	126	
140	9.37	9.35	33.718	26.061	197.0	0.414	3.10	135.3	48.0	23.9	1.82	23.7	0.00	0.00	0.01	0.04	141	09
150 ISL	9.28 D	9.26	33.800 D	26.140	189.7	0.432	2.91	D126.4	D 44.9	26.0	1.87	24.7	0.02	0.00	0.01	0.03	151	
170	8.76	8.74	33.913	26.310	173.8	0.470	2.75	119.9	42.0	30.2	1.97	26.6	0.00	0.09	0.00	0.03	171	08
200	8.57	8.55	34.015	26.420	164.0	0.520	2.11	92.2	32.2	35.5	2.20	29.2	0.00	0.00	0.00	0.02	202	07
230	7.96	7.93	34.014	26.513	155.5	0.568	2.28	99.4	34.2	38.7	2.19	29.9	0.00	0.00			232	06
250 ISL	7.86 D	7.84	34.038 D	26.546	152.6	0.599	2.05	D 89.4	D 30.8	42.2	2.31	31.2	0.02	0.00			252	
270	7.56	7.53	34.071	26.616	146.2	0.629	1.70	74.3	25.3	45.7	2.43	32.5	0.00	0.00			272	05
300 ISL	7.51 D	7.48	34.130 D	26.670	141.7	0.673	1.27	D 55.0	D 18.8	50.2	2.59	33.9	0.02	0.00			302	
320	7.39	7.36	34.158	26.710	138.2	0.700	1.01	44.1	15.0	53.3	2.69	34.9	0.00	0.00			323	04
380	6.82	6.79	34.187	26.813	129.0	0.780	0.71	30.9	10.4	61.5	2.86	37.1	0.00	0.00			383	03
400 ISL	6.61 D	6.57	34.206 D	26.857	125.0	0.807	0.64	D 27.8	D 9.3	64.6	2.91	37.8	0.02	0.00			403	
440	6.25	6.21	34.223	26.917	119.6	0.855	0.48	21.0	7.0	71.0	3.02	39.3	0.00	0.00			444	02
500 ISL	5.84 D	5.79	34.272 D	27.009	111.3	0.927	0.33	D 14.2	D 4.7	78.4	3.14	40.5	0.02	0.00			504	
516	5.76	5.72	34.281	27.025	109.9	0.942	0.31	13.6	4.5	80.4	3.17	40.8	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 55.2 W	08/11/2016	2135	UTC	3851 m	240 16 kn	340 05 10	2	1016.9 mb	18.0 C	17.0 C	19 m	8/8	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	18.46	18.46	33.116	23.719	416.9	0.000	5.44	237.5	101.2	1.2	0.24	0.0	0.02	0.04	0.16	0.00	0	
2	18.46	18.46	33.116	23.719	416.9	0.008	5.44	237.5	101.2	1.2	0.24	0.0	0.00	0.00	0.16	0.00	2	20
10	18.46	18.45	33.112	23.716	417.5	0.042	5.44	237.5	101.1	1.0	0.24	0.0	0.00	0.14	0.16	0.00	10	19
20 ISL	18.42 D	18.42	33.109 D	23.723	417.3	0.080	5.45	D237.8	D101.3	1.0	0.28	0.0	0.02	0.51	0.18	0.00	20	
21	18.34	18.34	33.117	23.749	414.8	0.088	5.45	238.2	101.2	1.0	0.28	0.0	0.00	0.55	0.18A	0.00A	21	18
30	17.38	17.38	33.180	24.031	388.2	0.124	5.70	248.8	103.8	0.7	0.25	0.0	0.00	0.00	0.25	0.06	30	17
41	15.81	15.80	33.132	24.357	357.4	0.165	5.91	258.2	104.4	1.1	0.26	0.0	0.00	0.00	0.36	0.10	41	16
50	14.80	14.79	33.051	24.516	342.5	0.196	5.82	254.4	100.8	1.6	0.31	0.1	0.06	0.07	0.37	0.19	50	15
61	13.76	13.75	33.060	24.741	321.3	0.233	5.57	243.3	94.4	2.6	0.45	2.0	0.27	0.00	0.32	0.28	61	14
71	12.98	12.97	33.144	24.964	300.3	0.264	5.28	230.7	88.1	4.1	0.58	4.5	0.05	0.00	0.28	0.19	72	13
75 ISL	12.71 D	12.70	33.125 D	25.002	296.7	0.273	5.27	D229.4	D 87.3	4.9	0.65	5.5	0.05	0.00	0.24	0.18	76	
85	12.10	12.09	33.188	25.167	281.2	0.305	4.95	216.0	81.0	6.9	0.81	8.2	0.03	0.00	0.15	0.15	86	12
100	11.05	11.04	33.321	25.463	253.2	0.345	4.56	199.1	73.0	10.9	1.09	12.7	0.03	0.00	0.09	0.09	101	11
120	9.87	9.86	33.449	25.767	224.6	0.392	4.15	181.0	64.8	16.2	1.40	17.7	0.00	0.00	0.03	0.05	121	10
125 ISL	9.87 D	9.86	33.471 D	25.784	223.1	0.402	4.13	D179.8	D 64.5	17.3	1.46	18.6	0.02	0.00	0.03	0.04	126	
140	9.27	9.26	33.670 D	26.038	199.1	0.434	3.61	157.4	55.7	20.8	1.63	21.3	0.00	0.00	0.01	0.03	141	09
150 ISL	9.21 D	9.20	33.703 D	26.075	195.9	0.454	3.46	D150.6	D 53.4	22.7	1.70	22.3	0.02	0.00	0.01	0.02	151	
170	8.89	8.88	33.808	26.207	183.6	0.493	3.11	135.7	47.6	26.5	1.83	24.4	0.00	0.00	0.00	0.02	171	08
200	8.45	8.42	33.955	26.393	166.5	0.546	2.76	120.6	41.9	32.1	1.99	27.1	0.00	0.00	0.00	0.02	202	07
230	7.96	7.94	34.000	26.501	156.6	0.594	2.50	108.9	37.5	37.5	2.13	29.2	0.00	0.00			232	06
250 ISL	7.77 D	7.75	34.015 D	26.541	153.1	0.624	2.32	D100.9	D 34.7	40.9	2.23	30.5	0.02	0.00			252	
270	7.52	7.49	34.030	26.590	148.7	0.656	2.03	88.4	30.1	44.3	2.33	31.8	0.00	0.00			272	05
300 ISL	7.22 D	7.19	34.067 D	26.662	142.2	0.699	1.62	D 70.6	D 24.0	49.6	2.50	33.8	0.02	0.00			302	
320	6.96	6.93	34.086	26.712	137.6	0.727	1.36	59.3	20.0	53.1	2.61	35.1	0.00	0.00			323	04
380	6.45	6.41	34.131	26.818	128.1	0.807	0.84	36.5	12.1	63.9	2.86	38.1	0.00	0.00			383	03
400 ISL	6.35 D	6.31	34.145 D	26.842	126.1	0.833	0.77	D 33.6	D 11.2	66.2	2.91	38.5	0.01	0.00			403	
440	6.19	6.15	34.201	26.907	120.5	0.882	0.51	22.4	7.4	70.8	3.01	39.3	0.00	0.00			444	02
500 ISL	5.88 D	5.84	34.249 D	26.985	113.7	0.953	0.37	D 16.1	D 5.3	77.1	3.11	40.2	0.01	0.00			504	
516	5.83	5.78	34.263	27.003	112.1	0.970	0.32	14.2	4.6	78.8	3.14	40.4	0.00	0.00			520	01

A) SECOND FLUOROMETER READING NOT RECORDED CHLOROPHYLL AND PHAEOPIGMENT CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS
D) CTD DATA USED ON STANDARD LEVELS AND MISSING FIELDS; PRIMARY T; PRIMARY CORRECTED SALINITY; PRIMARY CRUISE-CORRECTED O2;

RV SALLY RIDE CALCOFI CRUISE 1611 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 50.7 N	121 35.3 W	09/11/2016	0314	UTC	4115 m	340 16 kn			1017.5 mb	17.1 C	16.4 C				014

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN ‡mol/Kg	OXY PCT	SIO3* ‡M	PO4* ‡M	NO3* ‡M	NO2* ‡M	NH4* ‡M	CHL-A ‡g/L	PHAEO ‡g/L	PRES db	SAMP
0	17.92	17.92	33.214	23.924	397.3	0.000	5.53	241.3	101.8	1.1	0.26	0.2	0.03	0.06	0.22	0.05	0	
2	17.92	17.92	33.214	23.924	397.4	0.008	5.53	241.3	101.8	1.1	0.26	0.2	0.03	0.06	0.22	0.05	2	20
10	17.91	17.91	33.220	23.932	396.9	0.040	5.50	240.1	101.2	0.9	0.26	0.1	0.00	0.00	0.22	0.04	10	19
20 ISL	17.78 D	17.77	33.267 D	24.002	390.6	0.080	5.56	D242.4	D102.1	0.9	0.29	0.1	0.01	0.00	0.30	0.08	20	
21	17.72	17.72	33.290	24.033	387.7	0.083	5.56	242.7	102.0	0.9	0.29	0.1	0.00	0.09	0.30	0.08	21	18
30 ISL	17.31 D	17.30	33.448 D	24.254	366.9	0.118	5.66	D246.7	D103.1	0.9	0.30	0.0	0.01	0.00	0.45	0.17	30	
31	17.09	17.08	33.452	24.308	361.8	0.121	5.62	245.2	101.9	0.9	0.30	0.0	0.00	0.00	0.46	0.18	31	17
41	15.09	15.09	33.236	24.596	334.6	0.155	5.63	246.0	98.2	1.3	0.38	0.8	0.13	0.44	0.39	0.23	41	16
50 ISL	13.60 D	13.59	33.081 D	24.791	316.2	0.186	5.58	D243.3	D 94.2	2.7	0.45	2.1	0.21	0.00	0.32	0.23	50	
51	13.57	13.56	33.080	24.796	315.7	0.188	5.57	243.1	93.9	2.9	0.46	2.3	0.22	0.00	0.31	0.23	51	15
60	13.13	13.12	33.121	24.915	304.6	0.216	5.42	236.5	90.6	3.7	0.50	3.5	0.14	0.00	0.27	0.22	60	14
71	12.48	12.47	33.135	25.054	291.6	0.248	5.13	224.2	84.7	5.5	0.69	6.7	0.05	0.00	0.22	0.22	72	13
75 ISL	12.20 D	12.19	33.145 D	25.116	285.8	0.262	5.11	D222.5	D 83.8	6.3	0.78	8.1	0.05	0.00	0.20	0.19	76	
85	11.53	11.52	33.179	25.267	271.6	0.288	4.72	206.3	76.4	8.3	0.99	11.6	0.03	0.00	0.12	0.13	86	12
100	10.18	10.17	33.381	25.662	234.1	0.326	4.13	180.5	65.0	15.1	1.35	17.6	0.00	0.00	0.04	0.07	101	11
120	9.67	9.65	33.504	25.844	217.2	0.371	3.87	169.1	60.3	18.5	1.50	20.2	0.00	0.00	0.01	0.04	121	10
125 ISL	9.50 D	9.48	33.557 D	25.913	210.7	0.385	3.83	D166.7	D 59.4	19.6	1.55	20.9	0.01	0.00	0.01	0.04	126	
141	9.34	9.33	33.690	26.081	195.1	0.414	3.29	143.6	50.9	23.1	1.72	23.3	0.00	0.00	0.00	0.04	142	09
150 ISL	9.29 D	9.28	33.824 D	26.156	188.2	0.435	2.71	D117.9	D 41.9	25.0	1.78	24.3	0.01	0.00	0.00	0.04	151	
170	8.80	8.78	33.886	26.284	176.4	0.469	2.89	126.0	44.1	29.2	1.90	26.3	0.00	0.00	0.00	0.03	171	08
200	8.24	8.22	33.980	26.443	161.6	0.519	2.75	119.8	41.5	34.4	1.99	28.0	0.00	0.00	0.00	0.02	202	07
230	8.09	8.07	34.036	26.511	155.8	0.567	2.16	94.2	32.5	39.8	2.20	30.5	0.00	0.00			232	06
250 ISL	7.65 D	7.62	34.027 D	26.569	150.4	0.601	2.19	D 95.4	D 32.7	43.6	2.34	32.1	0.01	0.00			252	
271	7.59	7.57	34.109	26.641	143.9	0.628	1.44	62.7	21.4	47.6	2.49	33.7	0.00	0.00			273	05
300 ISL	7.33 D	7.30	34.121 D	26.689	139.8	0.674	1.27	D 55.0	D 18.7	52.5	2.61	35.1	0.01	0.00			302	
320	7.13	7.10	34.148	26.738	135.3	0.696	1.01	44.2	14.9	55.8	2.69	36.1	0.00	0.00			323	04
380	6.70	6.66	34.193	26.834	126.9	0.775	0.66	29.0	9.7	62.9	2.86	37.9	0.00	0.00			383	03
400 ISL	6.51 D	6.48	34.182 D	26.850	125.6	0.807	0.66	D 28.7	D 9.6	65.9	2.90	38.7	0.01	0.00			403	
441	6.06	6.02	34.194	26.918	119.3	0.850	0.54	23.3	7.7	72.0	2.99	40.2	0.00	0.00			445	02
500 ISL	5.79 D	5.74	34.240 D	26.990	113.1	0.927	0.38	D 16.7	D 5.5	78.0	3.09	41.1	0.01	0.00			504	
516	5.73	5.68	34.251	27.006	111.7	0.937	0.34	14.7	4.8	79.6	3.12	41.4	0.00	0.00			520	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 30.8 N	122 15.5 W	09/11/2016	0851	UTC	4187 m	360 14 kn			1019.6 mb	18.0 C	16.2 C				015

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN ‡mol/Kg	OXY PCT	SIO3* ‡M	PO4* ‡M	NO3* ‡M	NO2* ‡M	NH4* ‡M	CHL-A ‡g/L	PHAEO ‡g/L	PRES db	SAMP
0	17.92	17.92	33.140	23.869	402.6	0.000	5.49	239.6	101.0	0.8	0.23	0.0	0.02	0.01	0.17	0.04	0	
2	17.92	17.92	33.140	23.869	402.6	0.008	5.49	239.6	101.0	0.8	0.23	0.0	0.00	0.00	0.17	0.04	2	20
10	17.84	17.83	33.159	23.904	399.5	0.040	5.49	239.9	101.0	0.8	0.23	0.0	0.00	0.00	0.17	0.04	10	19
20 ISL	17.76 D	17.76	33.146 D	23.912	399.2	0.081	5.54	D241.6	D101.7	0.7	0.23	0.0	0.02	0.00	0.19	0.05	20	
25	17.64	17.64	33.154	23.949	395.9	0.100	5.54	241.8	101.4	0.7	0.23	0.0	0.00	0.00	0.20	0.05	25	18
30 ISL	17.61 D	17.61	33.156 D	23.957	395.3	0.121	5.56	D242.5	D101.7	0.7	0.23	0.0	0.02	0.00	0.21	0.05	30	
41	17.58	17.57	33.150	23.963	395.2	0.163	5.55	242.1	101.4	0.7	0.24	0.0	0.00	0.00	0.23	0.07	41	17
50 ISL	17.30 D	17.29	33.166 D	24.041	388.0	0.200	5.61	D244.6	D102.0	0.7	0.25	0.0	0.02	0.00	0.31	0.12	50	
51	17.19	17.18	33.180	24.079	384.4	0.202	5.58	243.8	101.4	0.7	0.25	0.0	0.00	0.00	0.32	0.12	51	16
62	16.80	16.79	33.256	24.228	370.6	0.244	5.67	247.5	102.2	0.8	0.26	0.0	0.00	0.06	0.30	0.14	62	15
75 ISL	15.95 D	15.93	33.228 D	24.404	354.2	0.293	5.71	D249.0	D101.2	1.3	0.30	0.0	0.04	0.18	0.30	0.19	76	
76	15.47	15.46	33.203	24.490	346.0	0.295	5.72	249.7	100.4	1.3	0.30	0.0	0.04	0.19	0.30	0.19	77	14
88	14.55	14.53	33.197 D	24.686	327.5	0.338	5.63	246.0	97.0	2.5	0.33	0.3	0.10	0.00	0.28	0.22	89	13
100 ISL	13.48 D	13.46	33.205 D	24.914	306.0	0.376	5.31	D231.5	D 89.5	4.8	0.57	4.2	0.07	0.00	0.21	0.18	101	
101	13.28	13.26	33.211 D	24.958	301.8	0.379	5.21	D227.1	D 87.5								102	12
113	12.11	12.09	33.240	25.208	278.1	0.411	4.89	213.4	80.0	7.4	0.82	8.5	0.03	0.00	0.13	0.14	114	11
125 ISL	10.74 D	10.73	33.310 D	25.511	249.2	0.446	4.33	D188.6	D 68.9	13.2	1.24	15.2	0.02	0.00	0.05	0.06	126	
126	10.71	10.69	33.321	25.526	247.9	0.445	4.30	187.6	68.3	13.7	1.27	15.7	0.00	0.00	0.04	0.05	127	10
142	10.65	10.64	33.519	25.690	232.7	0.484	4.31	188.1	68.5	14.5	1.45	18.8	0.00	0.00	0.01	0.03	143	09
150 ISL	10.57 D	10.55	33.569 D	25.744	227.7	0.505	4.20	D183.0	D 66.7	16.4	1.52	19.7	0.02	0.00	0.01	0.03	151	
171	9.94	9.92	33.598	25.874	215.7	0.549	3.48	151.7	54.4	21.3	1.69	22.2	0.00	0.00	0.01	0.03	172	08
200 ISL	9.23 D	9.21	33.746 D	26.107	193.9	0.612	3.16	D137.6	D 48.8	25.1	1.79	24.1	0.02	0.00	0.00	0.02	202	
201	9.23	9.20	33.743	26.105	194.1	0.610	3.16	138.0	48.8	25.2	1.79	24.2	0.00	0.00	0.00	0.02	203	07
232	8.79	8.76	33.905	26.303	175.9	0.668	2.78	121.3	42.5	29.5	1.93	26.2	0.00	0.00			234	06
250 ISL	8.68 D	8.66	33.967 D	26.368	170.0	0.703	2.53	D110.0	D 38.6	32.9	2.03	27.8	0.02	0.00			252	
272	8.25	8.22	34.014	26.471	160.5	0.735	2.24	97.6	33.8	37.0	2.15	29.8	0.00	0.00			274	05
300 ISL	7.84 D	7.81	34.068 D	26.575	150.8	0.784	1.78	D 77.3	D 26.6	43.3	2.34	32.1	0.02	0.00			302	
320	7.58	7.55	34.090	26.630	145.8	0.809	1.46	63.8	21.8	47.8	2.48	33.8	0.00	0.00			323	04
381	7.01	6.98	34.153	26.760	134.2	0.894	0.94	41.0	13.8	56.9	2.74	36.3	0.00	0.00			384	03
400 ISL	6.80 D	6.76	34.161 D	26.796	130.9	0.925	0.83	D 36.1	D 12.2	59.8	2.79	37.1	0.02	0.00			403	
440	6.44	6.40	34.161	26.843	126.7	0.971	0.70	30.6	10.2	65.8	2.89	38.6	0.00	0.00			444	02
500 ISL	6.20 D	6.16	34.226 D	26.927	119.5	1.052	0.48	D 20.7	D 6.9	72.3	3.02	40.0	0.02	0.00			504	
514	6.12	6.07	34.232	26.942	118.2	1.062	0.42	18.3	6.0	73.8	3.05	40.3	0.00	0.00			518	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 10.4 N	122 55.2 W	09/11/2016	1448 UTC	3719 m	350 16 kn	300 10 15	1	1018.6 mb	19.0 C	17.0 C		6/8	SC	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	19.39	19.39	33.301	23.625	425.8	0.000	5.32	232.2	100.7	1.6	0.21	0.0	0.01	0.00	0.11	0.02	0	
3	19.39	19.39	33.301	23.625	425.9	0.013	5.32	232.2	100.7	1.6	0.21	0.0	0.00	0.00	0.11	0.02	3	20
10 ISL	19.39 D	19.39	33.300 D	23.625	426.2	0.043	5.33	D232.7	D101.1	1.6	0.20	0.0	0.01	0.00	0.10	0.02	10	
11	19.39	19.39	33.303	23.627	426.1	0.047	5.30	231.3	100.4	1.6	0.20	0.1	0.00	0.00	0.10	0.02	11	19
20 ISL	19.39 D	19.39	33.300 D	23.625	426.6	0.086	5.32	D232.1	D100.8	1.6	0.21	0.0	0.01	0.00	0.11	0.02	20	
26	19.39	19.39	33.302	23.627	426.7	0.111	5.31	231.9	100.7	1.6	0.21	0.0	0.00	0.00	0.11	0.02	26	18
30 ISL	19.39 D	19.39	33.300 D	23.626	427.0	0.129	5.33	D232.4	D100.9	1.6	0.21	0.0	0.00	0.00	0.11	0.02	30	
41	19.40	19.39	33.302	23.626	427.4	0.175	5.30	231.3	100.4	1.6	0.21	0.0	0.00	0.00	0.11	0.03	41	17
50 ISL	19.42 D	19.41	33.317 D	23.635	427.0	0.215	5.33	D232.5	D101.0	1.6	0.20	0.0	0.01	0.00	0.13	0.02	50	
51	19.42	19.41	33.329	23.642	426.3	0.218	5.31	231.7	100.6	1.6	0.20	0.0	0.00	0.00	0.13	0.02	51	16
63	19.10	19.09	33.402	23.783	413.3	0.268	5.37	234.6	101.3	1.7	0.19	0.0	0.00	0.00	0.18	0.04	63	15
75 ISL	17.27 D	17.26	33.409 D	24.236	370.4	0.317	5.76	D251.3	D104.9	1.9	0.17	0.0	0.01	0.00	0.20	0.06	76	
76	17.25	17.24	33.442	24.266	367.5	0.319	5.71	249.5	104.0	2.0	0.17	0.0	0.00	0.00	0.20	0.07	77	14
87	16.98	16.96	33.437	24.329	361.9	0.359	5.66	247.2	102.5	2.0	0.18	0.0	0.00	0.00	0.21	0.13	88	13
100	16.02	16.00	33.418	24.535	342.6	0.405	5.60	244.4	99.4	2.3	0.20	0.0	0.00	0.00	0.21	0.20	101	12
112	15.41	15.39	33.430	24.681	329.0	0.445	5.49	239.8	96.4	2.6	0.25	0.1	0.06	0.00	0.21	0.14	113	11
125	14.12	14.10	33.366	24.908	307.5	0.486	5.28	230.7	90.3	3.8	0.40	1.6	0.19	0.00	0.18	0.13	126	10
142	12.22	12.20	33.323	25.252	274.8	0.536	5.00	218.2	82.1	6.3	0.68	6.1	0.04	0.00	0.11	0.17	143	09
150 ISL	12.00 D	11.98	33.338 D	25.306	269.7	0.562	4.93	D214.6	D 80.5	8.5	0.84	8.7	0.03	0.00	0.10	0.14	151	
172	10.20	10.18	33.447	25.713	231.1	0.612	4.31	188.4	67.9	14.5	1.29	15.9	0.00	0.00	0.06	0.06	173	08
200 ISL	9.27 D	9.24	33.669 D	26.041	200.2	0.678	3.56	D155.0	D 55.0	22.3	1.64	21.9	0.01	0.00	0.01	0.02	202	
202	9.18	9.16	33.696	26.075	197.0	0.677	3.57	155.7	55.0	22.8	1.67	22.3	0.00	0.00	0.01	0.02	204	07
232	8.59	8.57	33.877	26.310	175.0	0.733	3.09	134.9	47.0	28.8	1.86	25.6	0.00	0.00			234	06
250 ISL	8.41 D	8.39	33.951 D	26.396	167.2	0.769	2.78	D120.8	D 42.1	32.9	1.98	27.5	0.01	0.00			252	
271	8.07	8.04	34.004	26.490	158.5	0.798	2.40	104.9	36.2	37.7	2.13	29.7	0.00	0.00			273	05
300 ISL	7.78 D	7.75	34.036 D	26.558	152.5	0.849	2.04	D 88.9	D 30.6	43.4	2.34	32.0	0.01	0.00			302	
320	7.54	7.50	34.088	26.635	145.4	0.872	1.56	68.1	23.2	47.4	2.49	33.6	0.00	0.00			322	04
380	6.94	6.90	34.126	26.748	135.2	0.957	1.06	46.3	15.6	56.6	2.73	36.6	0.00	0.00			383	03
400 ISL	6.84 D	6.80	34.153 D	26.784	132.1	0.990	0.91	D 39.5	D 13.3	59.9	2.78	37.4	0.01	0.00			403	
440	6.33	6.29	34.151	26.850	126.0	1.035	0.77	33.6	11.2	66.6	2.89	39.0	0.00	0.00			444	02
500 ISL	6.03 D	5.98	34.206 D	26.933	118.7	1.116	0.50	D 21.8	D 7.2	73.7	3.05	40.4	0.01	0.00			504	
517	5.91	5.87	34.218	26.957	116.6	1.129	0.45	19.5	6.4	75.7	3.09	40.8	0.00	0.00			521	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 93.3 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
29 50.8 N	123 35.2 W	09/11/2016	2053 UTC	4143 m	360 16 kn	360 02 10	1	1016.3 mb	19.5 C	17.1 C	25 m	7/8	AC	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	19.56	19.56	33.288	23.572	430.9	0.000	5.29	231.0	100.5	2.3	0.21	0.3	0.02	0.05	0.09	0.02	0	
2	19.56	19.56	33.288	23.572	430.9	0.009	5.29	231.0	100.5	2.3	0.21	0.3	0.00	0.00	0.09	0.02	2	20
10 ISL	19.56 D	19.56	33.288 D	23.573	431.2	0.044	5.29	230.9	100.6	1.6	0.21	0.0	0.01	0.00	0.08	0.03	10	
11	19.56	19.56	33.288	23.572	431.3	0.047	5.29	231.1	100.6	1.5	0.21	0.0	0.00	0.08	0.08	0.03	11	19
20 ISL	19.57 D	19.57	33.291 D	23.573	431.6	0.087	5.32	D232.1	D101.1	1.5	0.21	0.0	0.01	0.00	0.09	0.02	20	
26	19.57	19.57	33.292	23.575	431.7	0.112	5.32	232.2	101.1	1.4	0.21	0.0	0.00	0.00	0.09	0.02	26	18
30 ISL	19.57 D	19.56	33.290 D	23.574	431.9	0.130	5.33	D232.3	D101.2	1.4	0.20	0.0	0.01	0.00	0.10	0.02	30	
40	19.57	19.56	33.304	23.584	431.4	0.173	5.30	231.5	100.8	1.4	0.19	0.0	0.00	0.00	0.11	0.02	40	17
50 ISL	19.12 D	19.11	33.463 D	23.822	409.1	0.216	5.50	D239.8	D103.7	1.5	0.18	0.0	0.01	0.00	0.15	0.04	50	
51	19.02	19.01	33.456	23.841	407.3	0.219	5.45	237.8	102.6	1.6	0.18	0.0	0.00	0.00	0.15	0.04	51	16
62	17.81	17.80	33.390	24.092	383.6	0.262	5.74	250.7	105.6	1.7	0.17	0.0	0.00	0.00	0.19	0.05	62	15
75 ISL	16.88 D	16.86	33.358 D	24.290	365.2	0.313	5.77	D251.4	D104.1	1.8	0.18	0.0	0.01	0.00	0.22	0.07	76	
76	16.91	16.90	33.350	24.276	366.6	0.315	5.76	251.5	104.1	1.8	0.18	0.0	0.00	0.00	0.22	0.07	77	14
87	16.37	16.36	33.422	24.456	349.7	0.354	5.66	246.9	101.2	2.0	0.19	0.0	0.00	0.00	0.21	0.17	88	13
100	15.75	15.73	33.580	24.720	324.9	0.398	5.53	241.5	97.9	2.3	0.19	0.0	0.04	0.00	0.23	0.21	101	12
112	14.75	14.73	33.489	24.870	310.9	0.436	5.40	235.9	93.6	2.8	0.29	0.6	0.17	0.00	0.20	0.15	113	11
125	13.85	13.83	33.538	25.097	289.4	0.475	5.19	226.8	88.4	4.1	0.42	2.9	0.07	0.00	0.12	0.18	126	10
141	12.10	12.08	33.459	25.382	262.3	0.519	5.00	218.1	81.9	6.0	0.62	6.1	0.03	0.00	0.11	0.12	142	09
150 ISL	11.89 D	11.87	33.413 D	25.386	262.2	0.547	4.97	D216.3	D 81.0	8.4	0.81	8.9	0.03	0.00	0.09	0.10	151	
170	10.07	10.05	33.397	25.695	232.6	0.592	4.42	192.8	69.3	13.6	1.24	15.4	0.00	0.00	0.05	0.06	171	08
200	9.29	9.27	33.631	26.007	203.4	0.657	3.73	162.9	57.6	20.7	1.59	21.1	0.00	0.00	0.01	0.02	202	07
229	8.89	8.86	33.851	26.244	181.4	0.713	3.22	140.6	49.4	26.6	1.78	24.5	0.00	0.00			231	06
250 ISL	8.60 D	8.57	33.935 D	26.355	171.2	0.755	2.83	D123.2	D 43.1	30.6	1.91	26.4	0.01	0.00			252	
270	8.33	8.30	33.982	26.434	163.9	0.784	2.57	112.1	38.9	34.3	2.04	28.3	0.00	0.00			272	05
300 ISL	7.83 D	7.80	34.023 D	26.541	154.1	0.837	2.22	D 96.5	D 33.2	39.6	2.20	30.4	0.02	0.00			302	
321	7.54	7.51	34.042	26.598	148.9	0.864	1.98	86.6	29.5	43.4	2.31	31.9	0.00	0.00			323	04
381	6.94	6.91	34.110	26.736	136.4	0.949	1.11	48.4	16.3	55.8	2.67	36.1	0.00	0.00			384	03
400 ISL	6.69 D	6.66	34.110 D	26.769	133.3	0.981	1.10	D 47.7	D 16.0	59.0	2.74	36.9	0.01	0.00			403	
440	6.31	6.27	34.156	26.856	125.3	1.026	0.72	31.3	10.4	65.8	2.88	38.7	0.00	0.00			444	02
500 ISL	5.99 D	5.95	34.216 D	26.945	117.5	1.107	0.46	D 19.8	D 6.6	74.5	3.04	40.4	0.01	0.00			504	
521	5.82	5.77	34.238	26.985	113.9	1.123	0.37	16.0	5.2	77.6	3.09	41.0	0.00	0.00			525	01

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

RV SALLY RIDE CALCOFI CRUISE 1611 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 57.2 N	117 16.8 W	06/11/2016	2239 UTC	21 m	250 02 kn	290 03 08	1	1015.4 mb	20.0 C	17.5 C		2/8	CS	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	18.74	18.74	33.408	23.871	402.4	0.000	5.81	253.5	108.7	1.8	0.22	0.1	0.03	0.02	0.91	0.18	0	
2	18.74	18.74	33.408	23.871	402.5	0.008	5.81	253.5	108.7	1.8	0.22	0.1	0.03	0.00	0.91	0.18	2	04
5	18.69	18.69	33.415	23.889	400.8	0.020	5.80	253.1	108.5	1.8	0.20	0.1	0.03	0.00	0.92	0.18	5	03
10	18.16	18.16	33.406	24.014	389.1	0.040	5.82	253.9	107.7	2.0	0.25	0.1	0.03	0.12	1.08	0.31	10	02
15	17.53	17.53	33.388	24.153	376.0	0.059	5.77	252.1	105.7	2.6	0.31	0.1	0.05	0.07	2.12	0.61	15	01

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

RV SALLY RIDE — CALCOFI CRUISE 1611 — STATION 76.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 23.4 N	122 15.0 W	20/11/2016	1700 UTC	24 m	1150 - 1800 PST	1155 PST	1725 PST	221.2 mg C/m2	071

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	16.48	33.125	24.199	5.66	101.3	1.0	0.26	0.0	0.00	0.08	0.30	0.09	88. A	4.7	4.6	4.7	0.22
9	16.48	33.128	24.201	5.69	101.9	0.9	0.26	0.0	0.00	0.17	0.31	0.08					
16	16.48	33.125	24.198	5.67	101.5	0.9	0.25	0.0	0.00	0.00	0.30	0.09	36.	5.0	5.2	5.1	0.29
22	16.48	33.126	24.200	5.70	102.0	0.9	0.25	0.0	0.00	0.00	0.32	0.09	24.	1.1	2.1	1.6	4.1
31	16.30	33.140	24.252	5.69	101.5	0.9	0.25	0.0	0.00	0.00	0.36	0.10					
40	16.04	33.166	24.332	5.74	101.9	0.9	0.29	0.2	0.03	0.15	0.45	0.18	7.7	3.8	3.9	3.9	0.38
51	14.19	33.062	24.654	5.89	100.7	2.1	0.38	1.1	0.14	0.35	0.42	0.24					
65	11.61	33.079	25.173	5.13	83.1	5.3	0.81	8.1	0.03	0.00	0.22	0.21					
74	11.08	33.246	25.399	4.56D	73.1	10.4	1.16	14.2	0.00	0.00	0.07	0.09	0.88	0.40	0.38	0.39	0.30
82	10.66	33.324	25.534	4.27	67.8	13.6	1.31	16.7	0.00	0.09	0.04	0.06	0.53	0.15	0.15B	0.15	0.15

B) PRODUCTIVITY REPLICATES POOR UNCERTAIN VALUE ELIMINATED

RV SALLY RIDE — CALCOFI CRUISE 1611 — STATION 80.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 9.7 N	121 10.1 W	18/11/2016	1617 UTC	13 m	1150 - 1730 PST	1150 PST	1729 PST	1118.5 mg C/m2	063

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	14.92	33.397	24.756	5.57	96.8	3.1	0.49	2.6	0.14	0.28	3.20	0.61	70. A	34.7	30.8	32.8	0.34
9	14.91	33.398	24.757	5.57	96.8	3.1	0.50	2.6	0.12	0.24	3.12	0.59	35.	46.9	47.4	47.1	0.33
12	14.92	33.398	24.757	5.56	96.7	3.1	0.49	2.6	0.12	0.25	3.32	0.58	24.	45.4	43.2	44.3	0.36
22	14.85	33.399	24.772	5.53	96.0	3.2	0.47	2.7	0.12	0.23	2.98	0.52	7.4	29.8	29.4	29.6	0.32
31	14.16	33.397	24.917	4.70	80.4	7.0	0.86	8.0	0.15	0.10	2.32	0.37					
40	12.12	33.412	25.335	4.05	66.4	12.1	1.25	14.5	0.10	0.00	0.57	0.28	0.89	0.63	0.59	0.61	0.11
45	11.89	33.413	25.380	4.00	65.3	12.5	1.28	15.1	0.09	0.00	0.44	0.26	0.49	0.14	0.16	0.15	0.09

RV SALLY RIDE — CALCOFI CRUISE 1611 — STATION 80.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 49.0 N	123 54.4 W	19/11/2016	1627 UTC	27 m	1201 - 1740 PST	1201 PST	1736 PST	183.4 mg C/m2	067

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	17.70	33.011	23.823	5.51	101.0	1.5	0.23	0.0	0.04	0.00	0.16	0.04	84. A	2.6	2.8	2.7	0.10
10	17.70	33.009	23.822	5.51	101.0	1.2	0.22	0.0	0.00	0.00	0.16	0.04					
18	17.71	33.010	23.822	5.50	100.8	1.2	0.22	0.0	0.00	0.00	0.16	0.03	36.	2.8	2.8	2.8	0.09
25	17.70	33.010	23.825	5.54	101.4	1.2	0.22	0.0	0.00	0.00	0.16	0.04	24.	2.6	2.7	2.7	0.08
35	17.39	33.009	23.899	5.56	101.1	0.9	0.23	0.0	0.00	0.00	0.23	0.05					
45	17.17	33.023	23.962	5.60	101.6	0.8	0.22	0.0	0.00	0.00	0.24	0.07	7.7	2.4	2.4	2.4B	0.10
58	15.63	33.086	24.362	6.01	105.8	1.6	0.22	0.0	0.00	0.00	0.33	0.14					
71	13.90	33.098	24.743	5.91	100.3	1.7	0.27	0.1	0.09	0.00	0.36	0.31					
83	13.45	33.108	24.842	5.75	96.8	2.4	0.35	0.9	0.26	0.00	0.34	0.27	0.89	0.77	0.69	0.73	0.06
94	12.92	33.061	24.913	5.62	93.5	2.8	0.47	2.9	0.24	0.00	0.32	0.22	0.48	0.29	0.30	0.30	0.06

B) PRODUCTIVITY REPLICATES POOR UNCERTAIN VALUE ELIMINATED

RV SALLY RIDE — CALCOFI CRUISE 1611 — STATION 83.3 42.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 11.2 N	119 31.1 W	17/11/2016	1832 UTC	17 m	1143 - 1721 PST	1143 PST	1721 PST	804.3 mg C/m2	055

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	17.09	33.415	24.277	5.61	101.9	2.8	0.32	0.9	0.07	0.08	1.18	0.30	83. A	20.3	21.3	20.8	0.30
12	17.03	33.412	24.290	5.58	101.1	2.4	0.32	0.8	0.06	0.00	1.28	0.24	34.	24.0	25.0	24.5	0.27
16	16.99	33.411	24.299	5.57	100.9	2.2	0.31	0.7	0.06	0.06	1.16	0.32	24.	22.3	23.7	23.0	0.25
23	16.97	33.410	24.304	5.57	100.8	2.2	0.32	0.7	0.06	0.08	1.17	0.29					
30	16.96	33.410	24.308	5.55	100.4	2.2	0.32	0.7	0.07	0.09	1.10	0.29	6.7	13.7	13.9	13.8	0.22
39	16.81	33.405	24.340	5.50	99.2	2.4	0.34	1.0	0.08	0.14	0.88	0.25					
47	15.35	33.378	24.650	5.30	92.8	3.9	0.49	2.8	0.16	0.12	0.56	0.23					
55	13.62	33.341	24.986	4.72	79.8	7.9	0.85	8.2	0.20	0.00	0.38	0.22	0.70	0.67	0.66	0.66	0.12
63	12.29	33.315	25.229	4.47	73.5	9.3	1.03	10.6	0.06	0.00	0.26	0.22	0.34	0.16	0.18	0.17	0.07

RV SALLY RIDE — CALCOFI CRUISE 1611 — STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 14.6 N	121 26.6 W	16/11/2016	1632 UTC	18 m	1155 - 1900 PST	1151 PST	1726 PST	360.8 mg C/m2	050

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	16.71	33.411	24.365	5.61	101.0	0.8	0.24	0.2	0.04	0.22	0.63	0.14	77. A	8.0	8.3	8.1	0.15
13	16.71	33.411	24.364	5.61	101.0	0.7	0.26	0.2	0.03	0.00	0.63	0.13	33.	12.0	12.0	12.0	0.15
17	16.70	33.414	24.370	5.61	101.0	0.7	0.24	0.1	0.03	0.00	0.62	0.14	23.	11.2	11.6	11.4	0.15
24	15.50	33.407	24.638	5.57	98.0	1.0	0.28	0.5	0.07	0.06	0.66	0.17					
30	14.24	33.378	24.887	4.76	81.6	5.9	0.77	7.0	0.38	0.00	0.67	0.29	7.7	5.6	5.7	5.7	0.15
38	12.10	33.322	25.270	4.36	71.5	10.0	1.10	12.7	0.06	0.00	0.25	0.25					
46	11.49	33.380	25.428	4.05	65.6	12.5	1.27	15.4	0.04	0.00	0.14	0.18					
56	10.94	33.499D	25.621	3.56D	56.9	14.7	1.40	17.2	0.04	0.00	0.10	0.13	0.84	0.25	0.26	0.26	0.07
63	10.66	33.532	25.695	3.47	55.1	17.5	1.56	19.7	0.00	0.00	0.05	0.10	0.46	0.08	0.08	0.08	0.06

A) INCUBATION LIGHT INTENSITIES WERE 61.6, 37.4, 26.1, 8.0, 0.9, 0.52 PERCENT RESPECTIVELY.

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 83.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 55.4 N	124 10.4 W	15/11/2016	1717 UTC	27 m	1200 - 1740 PST	1201 PST	1736 PST	132.0 mg C/m2	046

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	18.19	33.080	23.757	5.48	101.3	1.4	0.22	0.0	0.00	0.00	0.14	0.03	89. A	2.3	2.0	2.1	0.11
11	18.20	33.080	23.757	5.46	101.0	1.3	0.22	0.0	0.00	0.00	0.14	0.03					
17	18.19	33.080	23.758	5.48	101.3	1.3	0.22	0.0	0.00	0.00	0.14	0.03	38.	2.2	2.2	2.2	0.11
25	18.20	33.084	23.761	5.47	101.2	1.3	0.22	0.0	0.00	0.00	0.15	0.03	24.	2.0	2.0	2.0	0.09
34	18.19	33.080	23.759	5.46	100.9	1.2	0.22	0.0	0.00	0.00	0.15	0.03					
44	18.00	33.096	23.818	5.52	101.7	1.0	0.23	0.0	0.00	0.00	0.23	0.06	8.2	1.6	1.5	1.6	0.11
57	16.88	33.135	24.116	5.82	104.9	1.3	0.22	0.0	0.00	0.00	0.28	0.14					
70	15.17	33.189	24.545	5.91	103.0	1.8	0.23	0.0	0.00	0.00	0.36	0.31					
83	13.66	33.146	24.830	5.67	95.9	2.7	0.38	1.4	0.19	0.00	0.29	0.31	0.89	0.58	0.54	0.56	0.07
93	13.35	33.153	24.899	5.59	93.9	3.0	0.43	2.3	0.14	0.00	0.24	0.26	0.51	0.14	0.14	0.14	0.05

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 86.7 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 29.3 N	119 20.6 W	13/11/2016	1802 UTC	34 m	1138 - 1740 PST	1142 PST	1725 PST	463.9 mg C/m2	037

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	18.00	33.432	24.073	5.54	102.4	1.4	0.26	0.1	0.00	0.00	0.36	0.05	91. A	9.8	10.2	10.0	0.16
12	17.65	33.421	24.149	5.58	102.3	1.4	0.26	0.0	0.00	0.00	0.22	0.06					
22	17.45	33.414	24.193	5.58	101.9	1.6	0.28	0.1	0.00	0.24	0.32	0.14	37.	5.3	4.9	5.1	0.10
30	17.24	33.397	24.232	5.52	100.5	2.2	0.35	0.8	0.08	0.12	0.55	0.21	26.	8.4	8.2	8.3	0.11
40	15.49	33.368	24.611	5.25	92.3	3.5	0.51	3.1	0.24	0.10	0.70	0.27					
49	14.08	33.292	24.855	5.06	86.4	4.9	0.70	5.9	0.25	0.00	0.54	0.31					
57	12.98	33.281	25.068	4.75	79.3	7.3	0.90	9.2	0.12	0.00	0.38	0.36	7.6	3.4	3.2	3.3	0.08
73	11.39	33.382	25.449	4.12	66.5	13.2	1.29	15.7	0.04	0.00	0.14	0.19					
88	10.55	33.497	25.688	3.69	58.5	17.2	1.50	18.8	0.03	0.00	0.07	0.12					
106	10.00	33.628	25.886	3.23	50.7	21.3	1.70	21.7	0.00	0.00	0.03	0.08	0.83	0.10	0.09	0.10	0.04
116	9.69	33.677	25.975	3.26	50.9	22.0	1.71	22.4	0.00	0.00	0.01	0.04	0.53	0.02	0.01	0.02	0.04

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 20.4 N	121 43.2 W	14/11/2016	1758 UTC	22 m	1135 - 1745 PST	1151 PST	1736 PST	180.7 mg C/m2	042

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	17.90	33.204	23.923	5.50	101.2	1.2	0.25	0.1	0.03	0.00	0.21	0.03	81. A	3.1	3.0	3.1	0.15
11	17.90	33.207	23.924	5.52	101.6	1.1	0.26	0.1	0.03	0.00	0.19	0.04					
15	17.91	33.204	23.922	5.50	101.2	1.0	0.25	0.0	0.00	0.00	0.19	0.04	35.	3.4	3.3	3.4	0.16
20	17.90	33.203	23.924	5.51	101.5	1.0	0.25	0.0	0.00	0.00	0.19	0.05	25.	3.5	3.6	3.5	0.15
37	17.89	33.205	23.929	5.50	101.2	1.0	0.25	0.0	0.00	0.00	0.20	0.05	7.6	2.3	2.2	2.3	0.14
48	17.37	33.216	24.063	5.58	101.7	1.0	0.26	0.0	0.00	0.00	0.31	0.13					
59	15.65	33.182	24.433	5.77	101.6	1.4	0.31	0.2	0.07	0.00	0.52	0.35					
69	15.02	33.152	24.548	5.68	98.7	1.7	0.38	1.0	0.22	0.06	0.48	0.37	0.81	1.5	1.5	1.5	0.09
76	14.37	33.123	24.666	5.56	95.3	2.2	0.44	2.0	0.34	0.00	0.32	0.38	0.50	0.38	0.37	0.38	0.05

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 25.0 N	117 54.4 W	12/11/2016	1802 UTC	20 m	1140 - 1745 PST	1136 PST	1716 PST	490.4 mg C/m2	029

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	19.59	33.492	23.719	6.02	114.6	1.7	0.21	0.0	0.00	0.00	1.27	0.06	86. A	13.7	12.2	12.9	0.27
13	19.36	33.475	23.767	6.04	114.5	1.6	0.21	0.0	0.00	0.00	0.67	0.06	37.	9.6	12.6	11.1	0.24
18	19.03	33.462	23.841	5.82	109.6	1.6	0.22	0.0	0.00	0.00	0.60	0.09	25.	11.7	11.1	11.4	0.19
26	18.32	33.417	23.984	5.80	107.9	1.9	0.24	0.0	0.00	0.00	0.60	0.15					
33	16.59	33.302	24.311	5.74	103.0	1.9	0.31	0.0	0.00	0.00	0.65	0.32	7.9	8.3	8.0	8.1	0.15
43	14.91	33.213	24.617	5.52	95.8	2.9	0.42	0.6	0.06	0.00	0.74	0.48					
53	13.25	33.223	24.969	5.03	84.4	5.5	0.73	6.2	0.19	0.00	0.31	0.38					
62	12.24	33.290	25.219	4.56	74.8	8.8	1.00	10.8	0.03	0.00	0.17	0.23	0.86	0.64	0.61	0.63	0.04
69	11.84	33.314	25.313	4.38	71.3	10.2	1.11	12.6	0.00	0.00	0.12	0.15	0.50	0.19	0.18	0.19	0.03

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 90.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 25.1 N	119 57.6 W	11/11/2016	1844 UTC	28 m	1155 - 1750 PST	1144 PST	1725 PST	411.6 mg C/m2	024

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	18.49	33.432	23.953	5.44	101.4	1.4	0.27	0.1	0.03	0.00	0.18	0.04	90. A	3.6	3.6	3.6	0.16
10	18.33	33.470	24.022	5.45	101.3	1.3	0.28	0.1	0.00	0.09	0.21	0.05					
18	18.26	33.461	24.032	5.45	101.1	1.3	0.28	0.0	0.00	0.00	0.26	0.07	37.	3.9	4.1	4.0	0.21
26	17.80	33.433	24.124	5.53	101.7	1.2	0.28	0.0	0.00	0.00	0.38	0.17	24.	6.2	6.7	6.5	0.21
36	16.83	33.385	24.319	5.55	100.1	1.6	0.32	0.1	0.03	0.00	0.93	0.51					
46	15.27	33.281	24.592	5.46	95.5	2.1	0.43	1.7	0.13	0.18	1.05	0.54	8.0	7.9	7.5	7.7	0.13
59	14.02	33.237	24.824	5.10	86.9	4.5	0.69	5.6	0.16	0.00	0.60	0.47					
72	12.39	33.262	25.170	4.62	76.1	7.8	0.97	10.4	0.05	0.00	0.20	0.31					
86	11.01	33.354	25.496	4.12	65.9	12.9	1.29	15.7	0.00	0.00	0.07	0.12	0.90	0.21	0.21	0.21	0.03
96	10.20	33.406	25.678	4.15	65.3	15.1	1.36	17.0	0.03	0.07	0.04	0.08	0.52	0.10	0.09	0.09	0.02

A) INCUBATION LIGHT INTENSITIES WERE 61.6, 37.4, 26.1, 8.0, 0.9, 0.52 PERCENT RESPECTIVELY.

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 5.5 N	122 39.1 W	10/11/2016	1704 UTC	27 m	1155 - 1740 PST	1155 PST	1737 PST	107.7 mg C/m2	020

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	19.13	33.196	23.611	5.37	101.3	1.7	0.23	0.1	0.00	0.12	0.12	0.02	89. A	1.8	1.7	1.8	0.11
10	19.13	33.201	23.615	5.36D	101.0	1.7	0.22	0.1	0.00	0.00	0.12	0.02					
18	19.13	33.195	23.611	5.33	100.5	1.8	0.22	0.1	0.00	0.00	0.12	0.02	36.	1.9	2.0	1.9	0.11
25	19.14	33.196	23.612	5.38	101.3	1.6	0.23	0.1	0.00	0.00	0.13	0.02	24.	2.0	2.1	2.1	0.10
34	19.13	33.194	23.612	5.33	100.4	1.6	0.22	0.0	0.00	0.00	0.12	0.02	14.	1.2	1.1	1.1	0.10
58	18.96	33.193	23.656	5.34	100.2	1.6	0.22	0.1	0.00	0.00	0.14	0.03					
70	16.58	33.165	24.210	5.84	104.7	1.9	0.22	0.0	0.00	0.00	0.23	0.09					
83	15.63	33.260	24.499	5.76	101.4	2.2	0.24	0.0	0.00	0.00	0.23	0.20	0.89	0.58	0.55	0.56	0.05
94	14.61	33.217	24.688	5.65	97.4	2.6	0.28	0.1	0.03	0.00	0.23	0.20	0.48	0.22	0.21	0.21	0.04

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 93.3 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 57.4 N	117 18.3 W	06/11/2016	1954 UTC	19 m	1245 - 1745 PST	1133 PST	1719 PST	487.2 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	19.08	33.417	23.793	5.68	107.0	2.0	0.19	0.2	0.03	0.00	0.35	0.06	85. A	6.7	5.3	6.0	0.19
5	18.98	33.414	23.815	5.66	106.5	1.7	0.19	0.1	0.03	0.00	0.39	0.06					
13	18.57	33.408	23.916	5.73	106.9	1.5	0.19	0.1	0.03	0.06	0.45	0.09	35.	8.9	7.7	8.3	0.28
17	16.91	33.358	24.278	6.02	108.9	2.3	0.25	0.0	0.03	0.00	1.59	0.48	25.	27.6	27.0	27.3	0.34
25	14.59	33.258	24.721	5.57	96.1	3.7	0.48	1.5	0.12	0.20	1.40	0.39					
31	13.43	33.257	24.960	5.16	86.8	5.6	0.70	4.7	0.20	0.12	0.83	0.37	8.2	7.0	6.7	6.9	0.08
40	12.71	33.302	25.138	4.58	76.0	8.6	0.93	9.0	0.10	0.00	0.53	0.37					
50	12.26	33.343	25.257	4.15	68.3	11.2	1.13	11.7	0.25	0.00	0.29	0.33					
56	12.28	33.354	25.261	4.13	68.0	11.4	1.16	12.1	0.26	0.27	0.22	0.32	1.1	0.56	0.49	0.53	0.09

RV SALLY RIDE CALCOFI CRUISE 1611 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 33.3 W	07/11/2016	2046 UTC	26 m	1355 - 1810 PST	1138 PST	1726 PST	214.5 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	19.40	33.509	23.782	5.39	102.2	2.2	0.25	0.2	0.00	0.20	0.25	0.02	89. A	2.6	2.3	2.5	0.12
9	19.22	33.500	23.822	5.39	102.0	2.0	0.25	0.0	0.04	0.00	0.26	0.02					
17	19.17	33.513	23.845	5.42	102.4	2.1	0.25	0.0	0.05	0.10	0.28	0.03	37.	2.4	2.4	2.4	0.16
24	18.87	33.506	23.915	5.44	102.1	2.0	0.27	0.0	0.00	0.19	0.29	0.06	24.	2.6	2.5	2.6	0.15
33	16.05	33.313	24.444	5.80	103.1	2.7	0.36	0.1	0.00	0.06	0.30	0.07					
43	13.92	33.281	24.880	5.17	88.0	5.5	0.65	4.1	0.27	0.17	0.81	0.18	7.9	4.7	4.5	4.6	0.10
55	11.84	33.277	25.284	4.60	74.9	9.5	1.02	11.5	0.05	0.00	0.89	0.56					
67	11.29	33.356	25.447	4.23	68.1	12.1	1.21	14.5	0.04	0.00	0.29	0.22					
80	10.79	33.513	25.659	3.52	56.1	16.9	1.49	18.0	0.00	0.16	0.17	0.18	0.89	0.09	0.08	0.08	0.03
89	10.31	33.508	25.738	3.65	57.5	17.2	1.51	19.0	0.03	0.00	0.06	0.07	0.52	0.04	0.05	0.05	0.02

RV SALLY RIDE CALCOFI CRUISE 1611 STATION 93.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 31.2 N	120 14.9 W	08/11/2016	1629 UTC	19 m	1145 - 1800 PST	1145 PST	1738 PST	197.6 mg C/m2	012

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	17.96	33.380	24.043	5.49	101.3	1.3	0.30	0.0	0.00	0.17	0.27	0.06	85. A	5.5	5.4	5.4	0.11
12	17.96	33.379	24.043	5.50	101.5	1.3	0.26	0.0	0.00	0.00	0.27	0.06	38.	5.4	5.4	5.4	0.13
17	17.96	33.380	24.044	5.50	101.5	1.2	0.26	0.0	0.00	0.00	0.28	0.06	25.	4.8	5.1	4.9	0.15
24	17.96	33.389	24.051	5.52	101.8	1.2	0.27	0.0	0.00	0.00	0.30	0.07					
31	17.72	33.415	24.129	5.51	101.2	1.3	0.29	0.0	0.00	0.00	0.36	0.10	8.2	2.7	3.0	2.9	0.14
40	16.49	33.304	24.335	5.65	101.2	1.4	0.32	0.0	0.03	0.00	0.73	0.35					
49	15.01	33.235	24.613	5.42	94.2	2.7	0.49	2.2	0.24	0.11	0.55	0.34					
58	13.86	33.198	24.827	5.24	89.1	4.0	0.62	4.6	0.21	0.00	0.39	0.32	0.92	0.81	0.71	0.76	0.07
65	13.16	33.218	24.984	4.96	83.0	5.8	0.77	7.4	0.05	0.00	0.28	0.23	0.52	0.21	0.22	0.21	0.05

A) INCUBATION LIGHT INTENSITIES WERE 61.6, 37.4, 26.1, 8.0, 0.9, 0.52 PERCENT RESPECTIVELY.