UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 1701
5 - 27 January, 2017

CC Reference 17 - 05
26 Sept., 2017

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI Cruise 1701
5 – 27 January, 2017

CC Reference 17 - 05
26 Sept 2017

CONTENTS

Introduction 2

Literature Cited 7

CalCOFI Cruise 1701

List of Figures 9

Personnel 20

Tabulated Rosette Cast Data 21

Tabulated Primary Productivity Data 54

Tabulated Macrozooplankton Data 57

INTRODUCTION

The data presented in this report were collected during cruise 1701* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the FSV Reuben Lasker. 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. Due to inclement weather, this cruise was broken up into 2 Legs. No water samples were taken during Leg II, only net tows and CTD profiles were performed yielding standard levels for several parameters. Many 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

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

solutions prepared ashore were run at the beginning of each run. Reagent and sea water blanks were determined to account for presence of oxidizing or reducing materials.

Nutrient samples were analyzed at sea 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.

1701RL	**NO_2+NO_3 (µmol/L)**	**PO_4 (µmol/L)**	**SIL (µmol/L)**
Mean ± SD (n=30)	36.87 ± .17	2.61 ± .01	108.70 ± .42
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) *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)

7) *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)

8) *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)

9) *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)

10) *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)

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.

REFERENCES

Anderson, G. C., compiler, 1971. "Oxygen Analysis," Marine Technician's Handbook, SIO Ref. No. 71-8, Sea Grant Pub. No. 9.

Bernhardt, H., and Wilhelms, A., (1967). "The continuous determination of low level iron, soluble phosphate and total phosphate with the AutoAnalyzer," Technicon Symposia, I,pp.385-389 .

Carpenter, J. H., 1965. The Chesapeake Bay Institute technique for the Winkler dissolved oxygen method. *Limnol. Oceanogr., 10*: 141-143.

Carter, D. J. T., 1980. Echo-sounding correction tables. Third Edition. Hydrographic Department, Ministry of Defence, Taunton, U.K., NP 139: 150 pp.

Culberson, C. H. 1991. Dissolved oxygen. WHP Operations and Methods -- July 1991.

Fitzwater, S. E., G. A. Knauer and J. H. Martin, 1982. Metal contamination and its effect on primary production measurements. *Limnol. Oceanogr., 27*: 544-551.

Gordon, L. I., J. C. Jennings, Jr., A. A. Ross, and J. M. Krest, 1993. A suggested protocol for continuous flow automated analysis of seawater nutrients (phosphate, nitrate, nitrite and silicic acid) in the WOCE Hydrographic Program and the Joint Global Ocean Fluxes Study. WOCE Operations Manual, Part 3.1.3 "WHP Operations and Methods," *WHP Office Report WHPO 91-1*.

Holm-Hansen, O., C. J. Lorenzen, R. W. Holmes and J. D. H. Strickland, 1965. Fluorometric determination of chlorophyll. *J. Cons. perm. int. Explor. Mer, 30*: 3-15.

Klein, H. T., 1973. A new technique for processing physical oceanographic data. SIO Ref. No. 73-14.

Kerouel, R., Aminot, A., 1997. Fluorometric determination of ammonia in sea and estuarine waters by direct segmented flow analysis. *Mar. Chem.* Vol. 57, no. 3-4, pp. 265-275.

Kramer, D., M. J. Kalin, E. G. Stevens, J. R. Thrailkill and J. R. Zweifel, 1972. Collecting and processing data on fish eggs and larvae in the California Current region. *NOAA Technical Report NMFS CIRC-370:* 38 pp.

Lean, D. R. S. and B. K. Burnison, 1979. An evaluation of errors in the ^{14}C method of primary production measurement. *Limnol. Oceanogr., 24*: 917-928.

Reid, J. L. and A. W. Mantyla, 1976. The effect of the geostrophic flow upon coastal sea elevations in the northern North Pacific Ocean. *J. Geophys. Res., 81:* 3100-3110.

Parsons, T. R., Y. Maita, C. M. Lalli, 1984. *A Manual of Chemical and Biological Methods for Seawater Analysis*. Pergamon Press Ltd., 3-28.

Saunders, P. M., 1981. Practical conversion of pressure to depth. *J. Phys. Oceanogr., 11*: 573-574.

Scripps Institution of Oceanography, University of California, 1991. Physical, Chemical and Biological Data, CalCOFI Cruises 9003 and 9004. SIO Ref. 91-4, 96 pp.

UNESCO, 1981, a. Background papers and supporting data on the Practical Salinity Scale, 1978. *UNESCO Tech. Pap. in Mar. Sci., No. 37*.

UNESCO, 1981, b. Background papers and supporting data on the International Equation of State 1980. *UNESCO Tech. Pap. in Mar. Sci., No. 38.*

Venrick, E. L. and T. L. Hayward, 1984. Determining chlorophyll on the 1984 CalCOFI surveys. *CalCOFI Rep., Vol. XXV*: 74-79.

Weiss, R. F., 1970. The solubility of nitrogen, oxygen and argon in water and seawater. *Deep-Sea Res., 17:* 721-735.

Yentsch, C. S. and D. W. Menzel, 1963. A method for the determination of phytoplankton, chlorophyll and phaeophytin by fluorescence. *Deep-Sea Res., 10:* 221-231.

FIGURES

Cruise 1701

1. CalCOFI Cruise 1701 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.

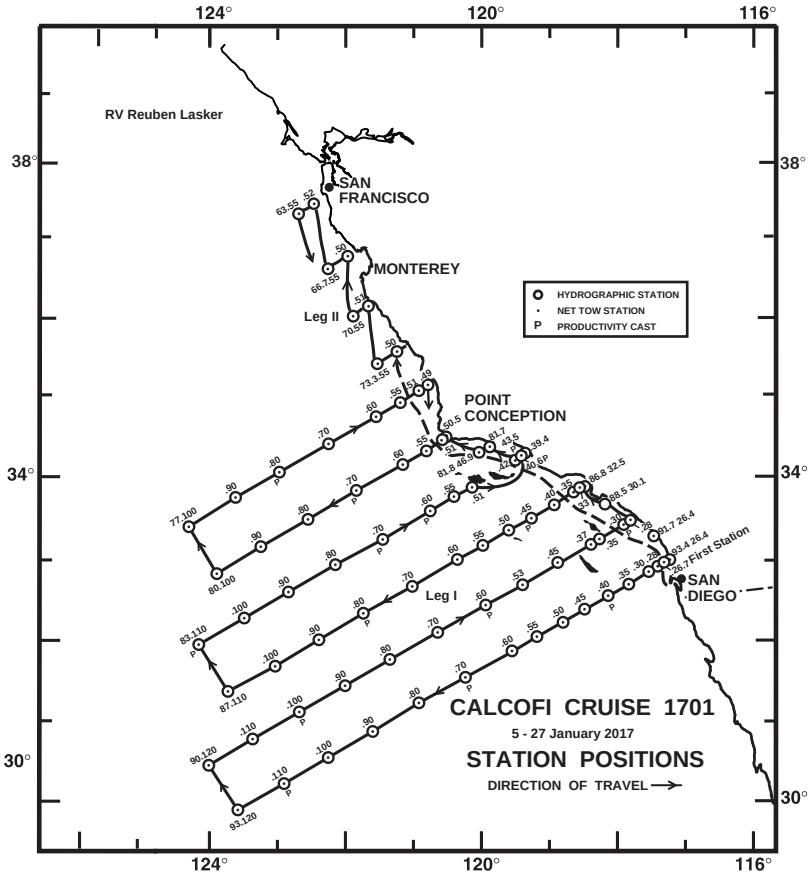

FIGURE 1

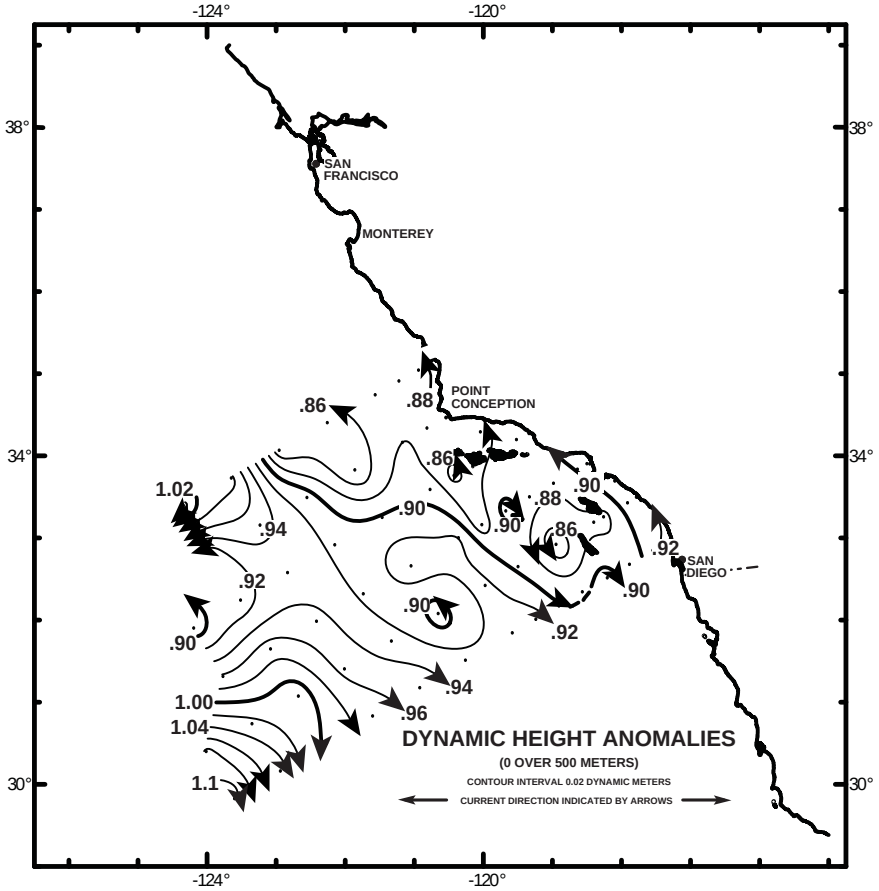

FIGURE 2

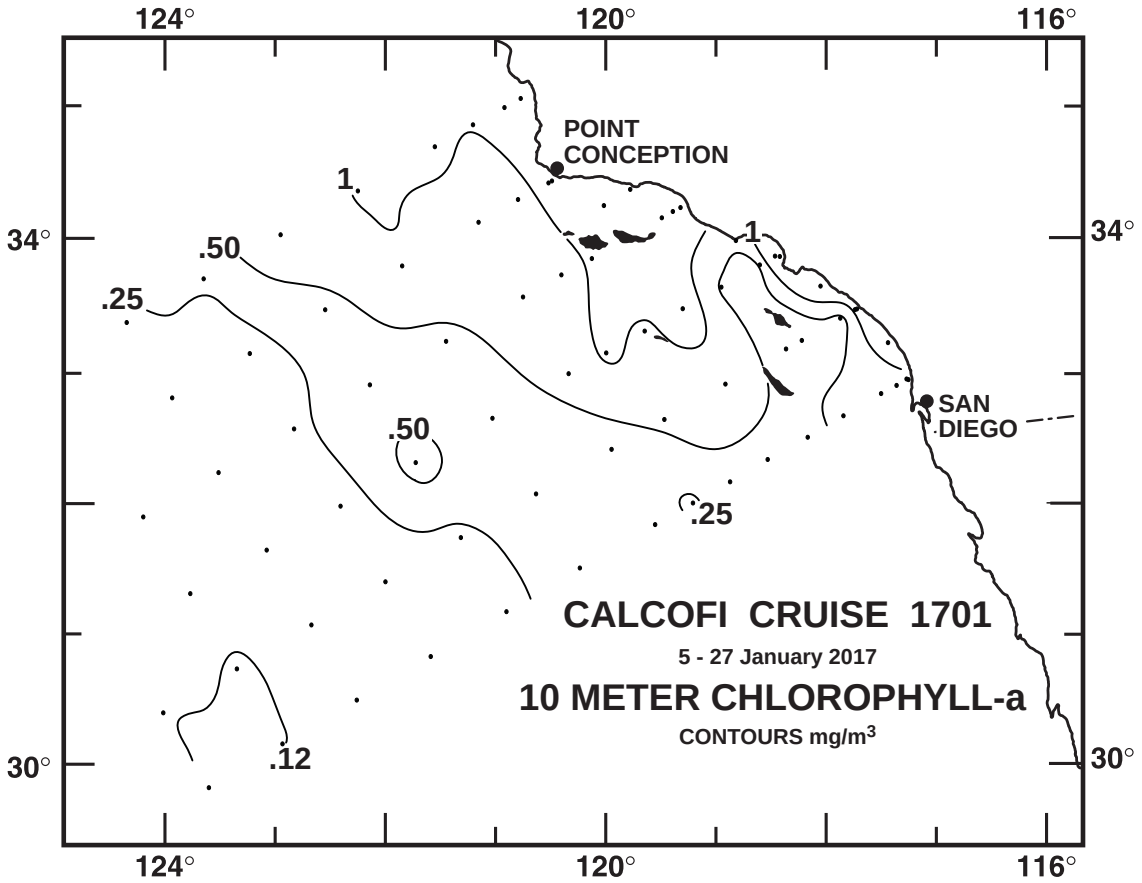

FIGURE 3A

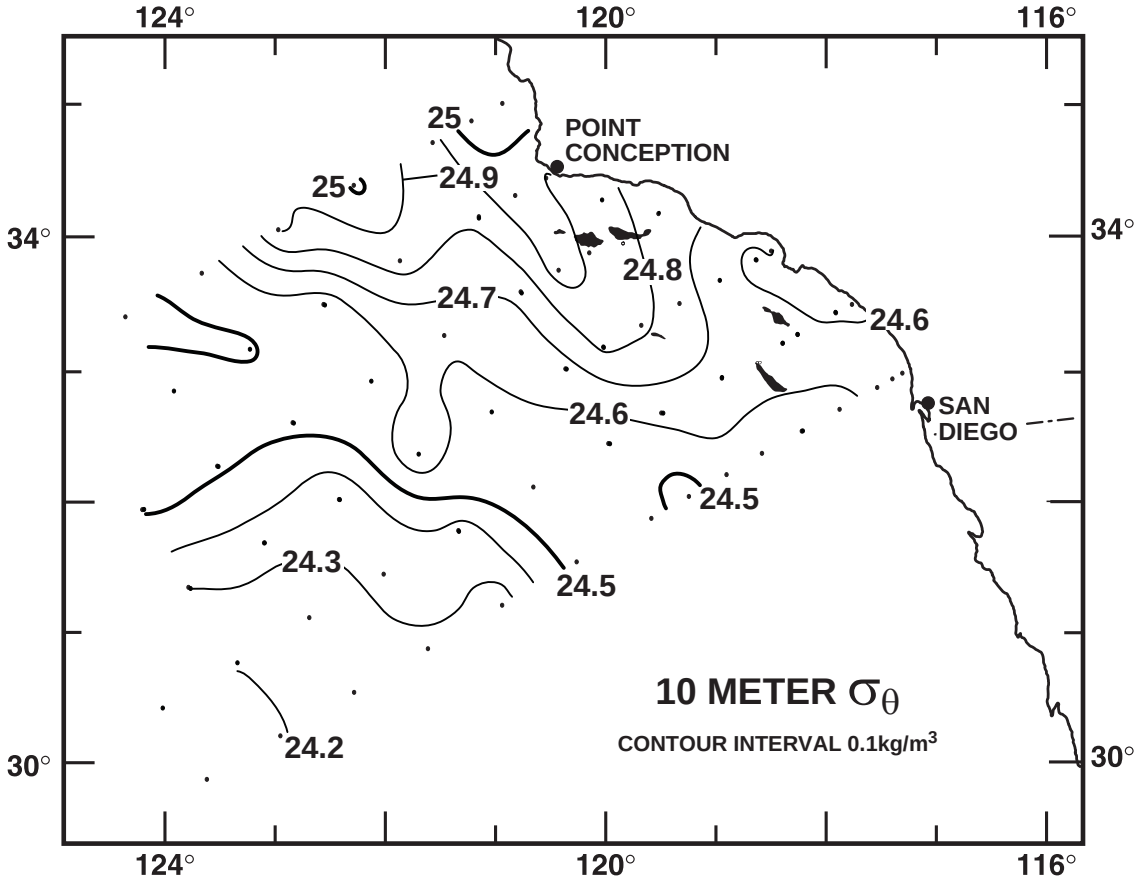

FIGURE 3B

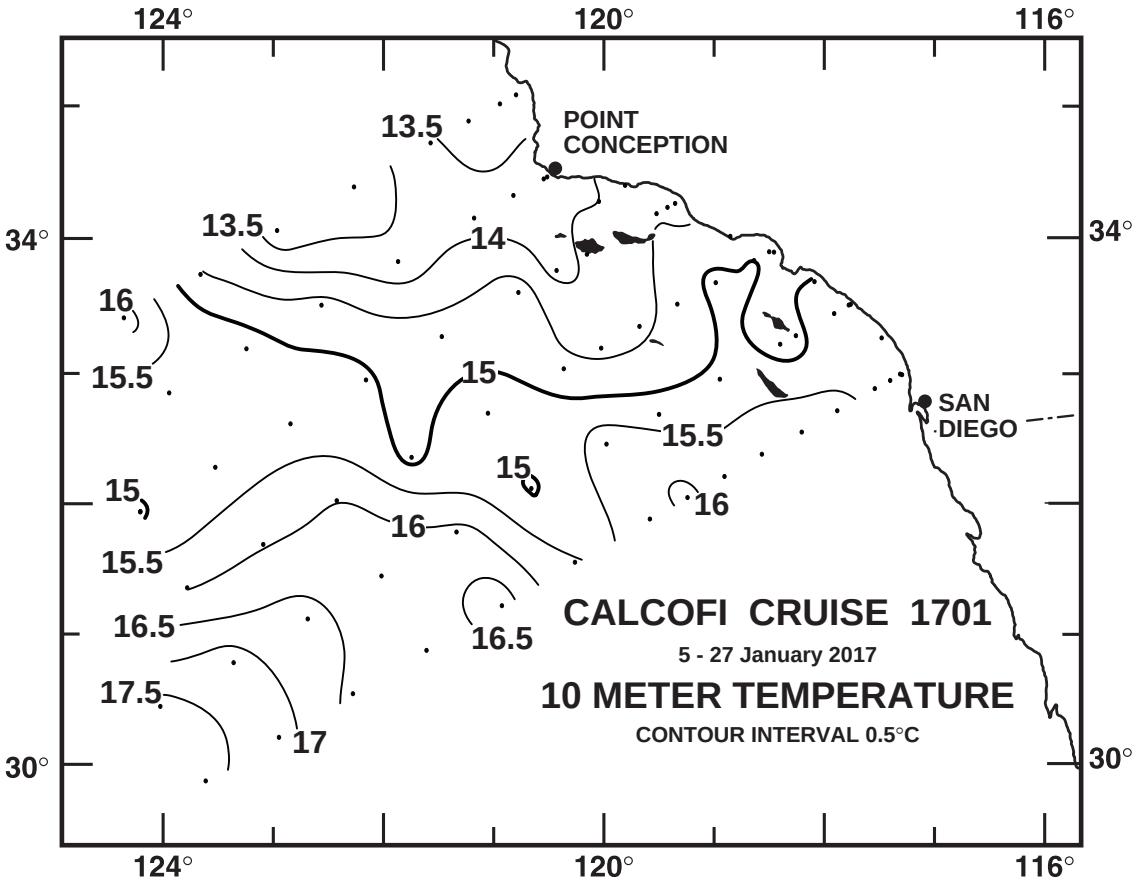

FIGURE 3C

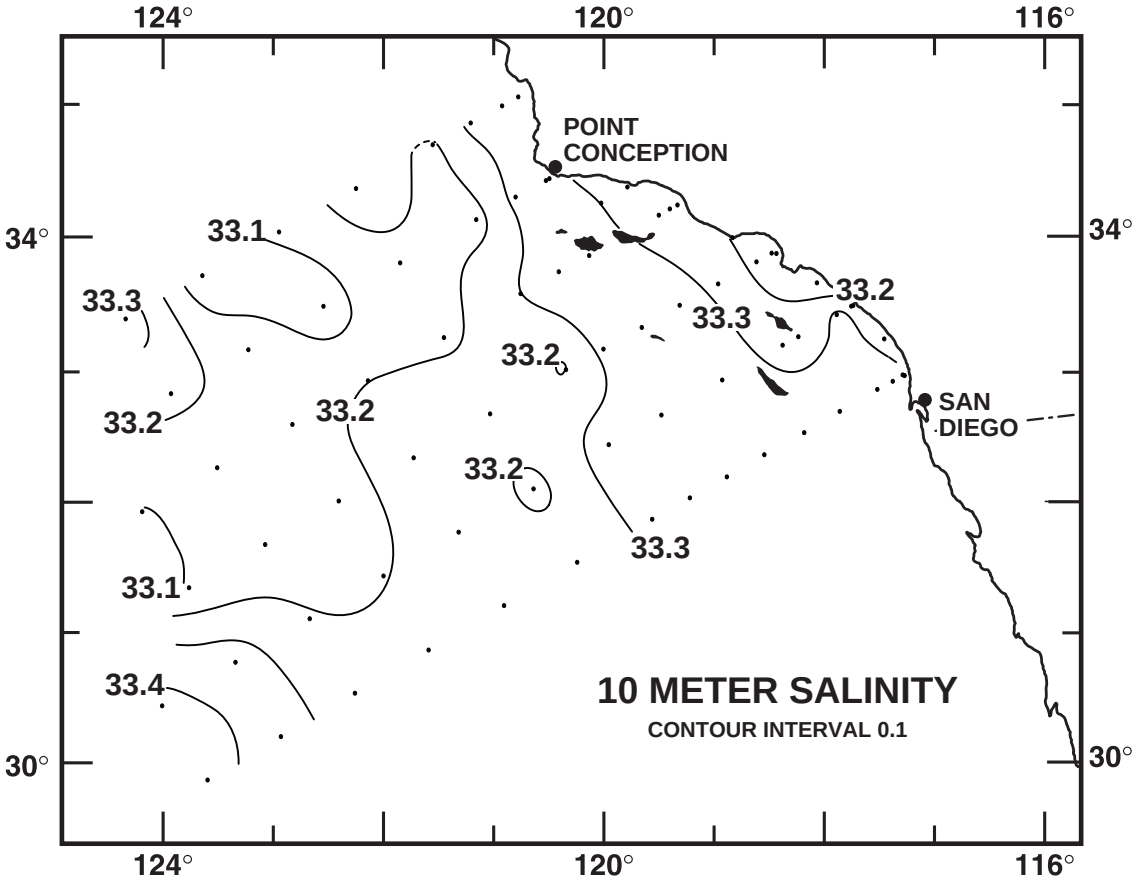

FIGURE 3D

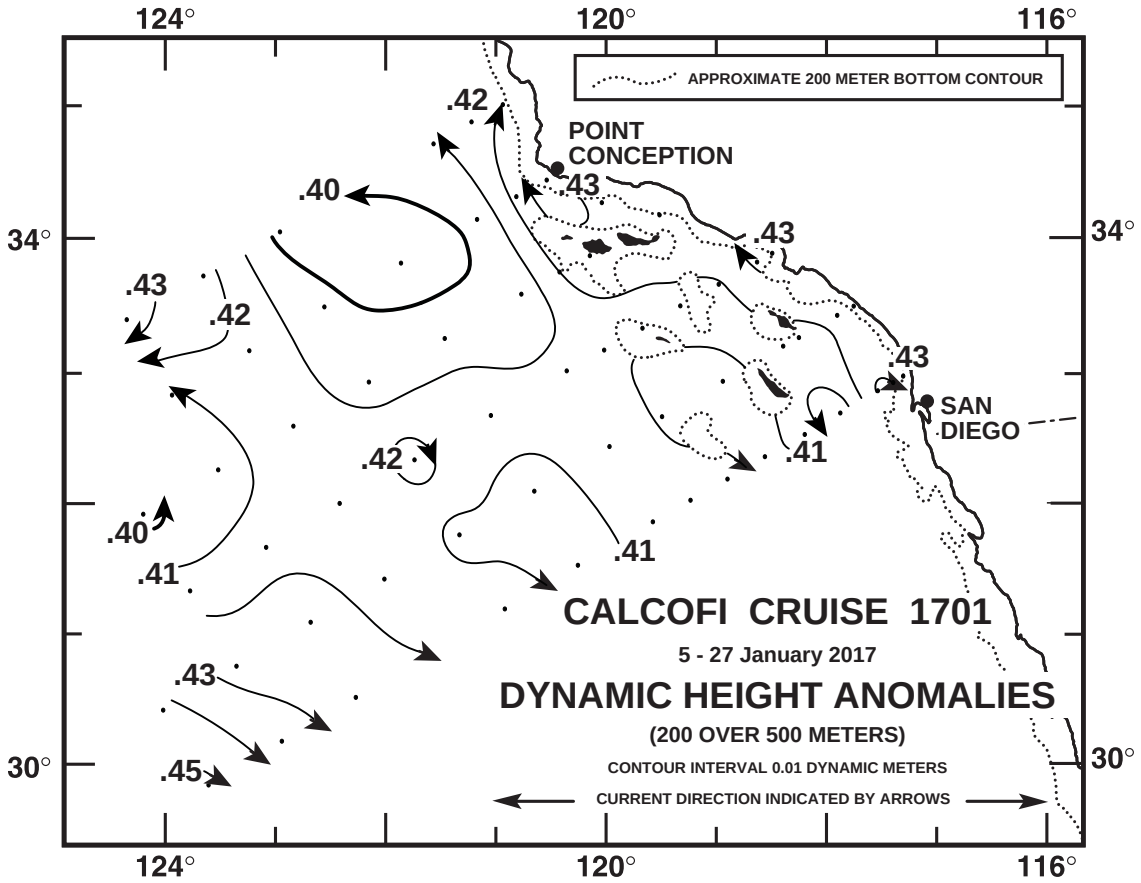

FIGURE 4A

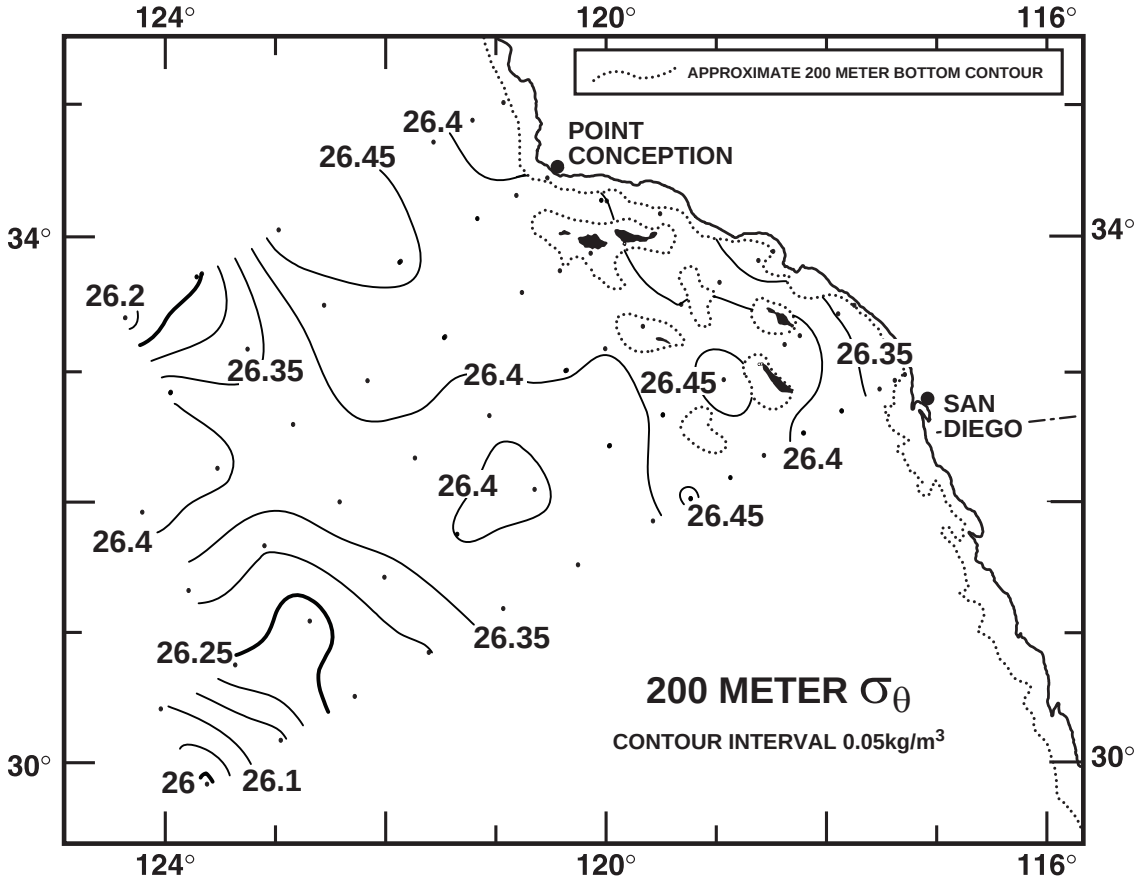

FIGURE 4B

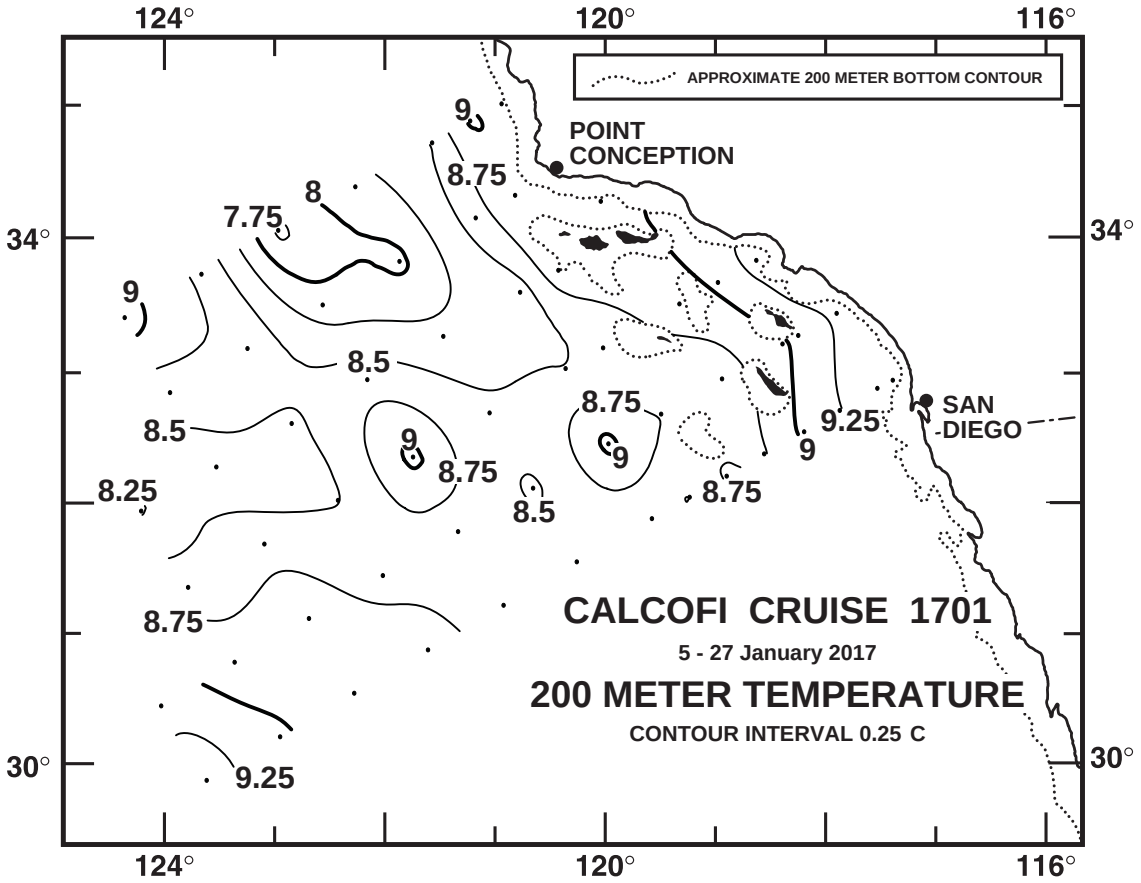

FIGURE 4C

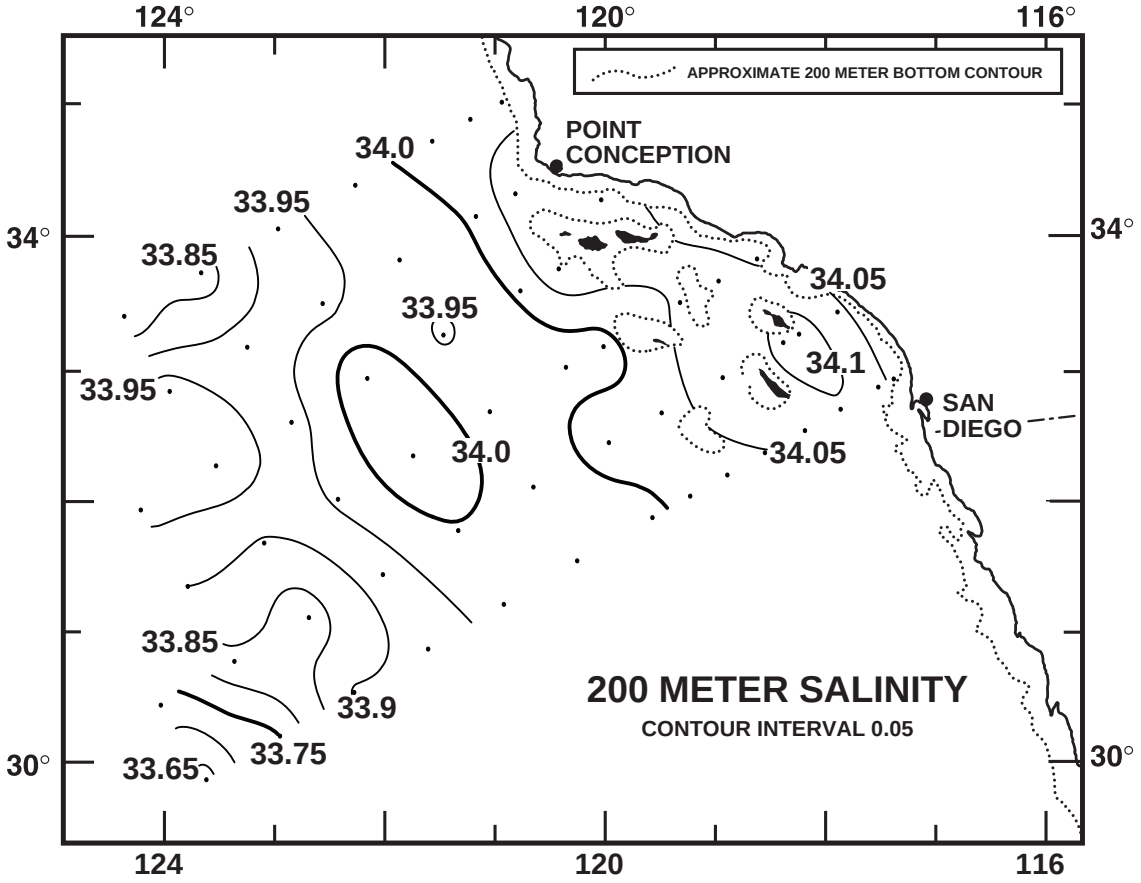

FIGURE 4D

CALCOFI CRUISE 1701

8 - 11 January 2017

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

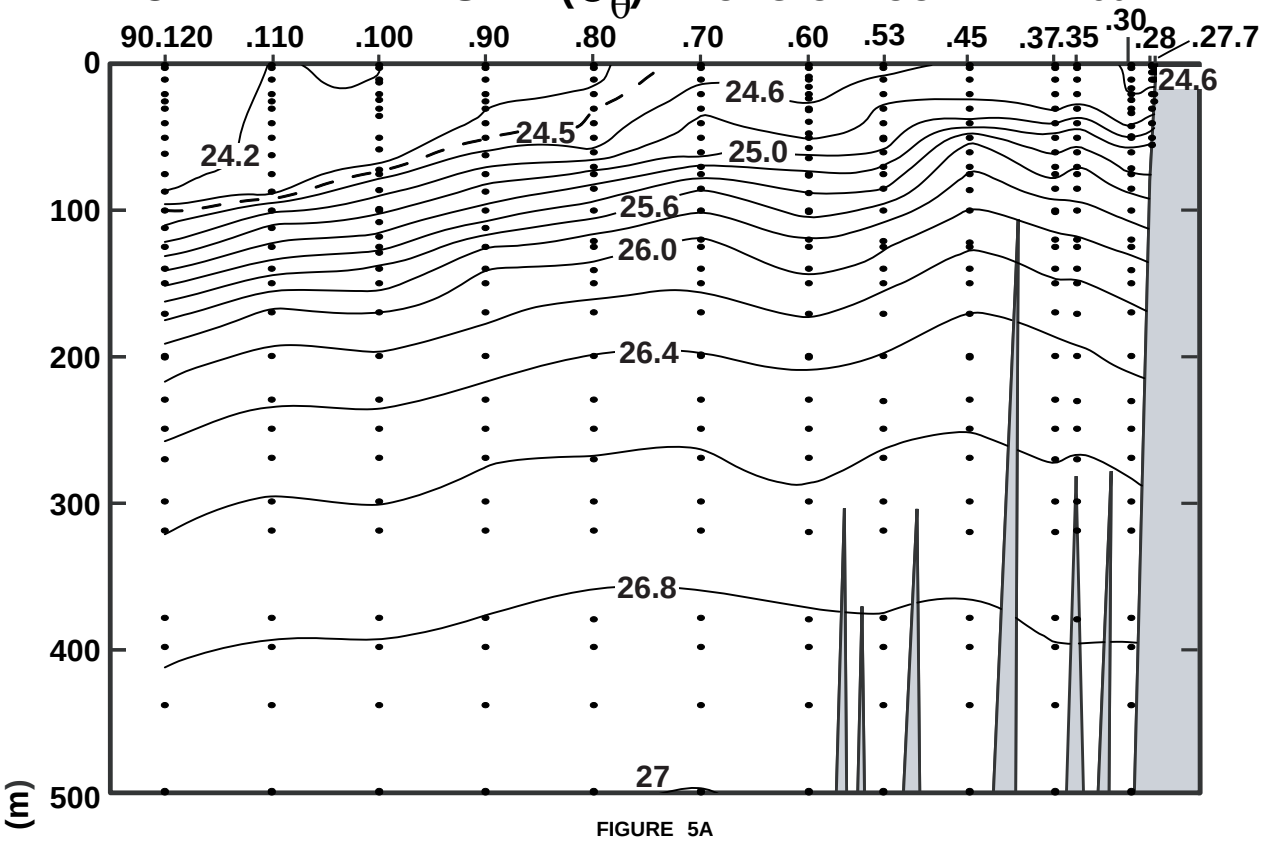

FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

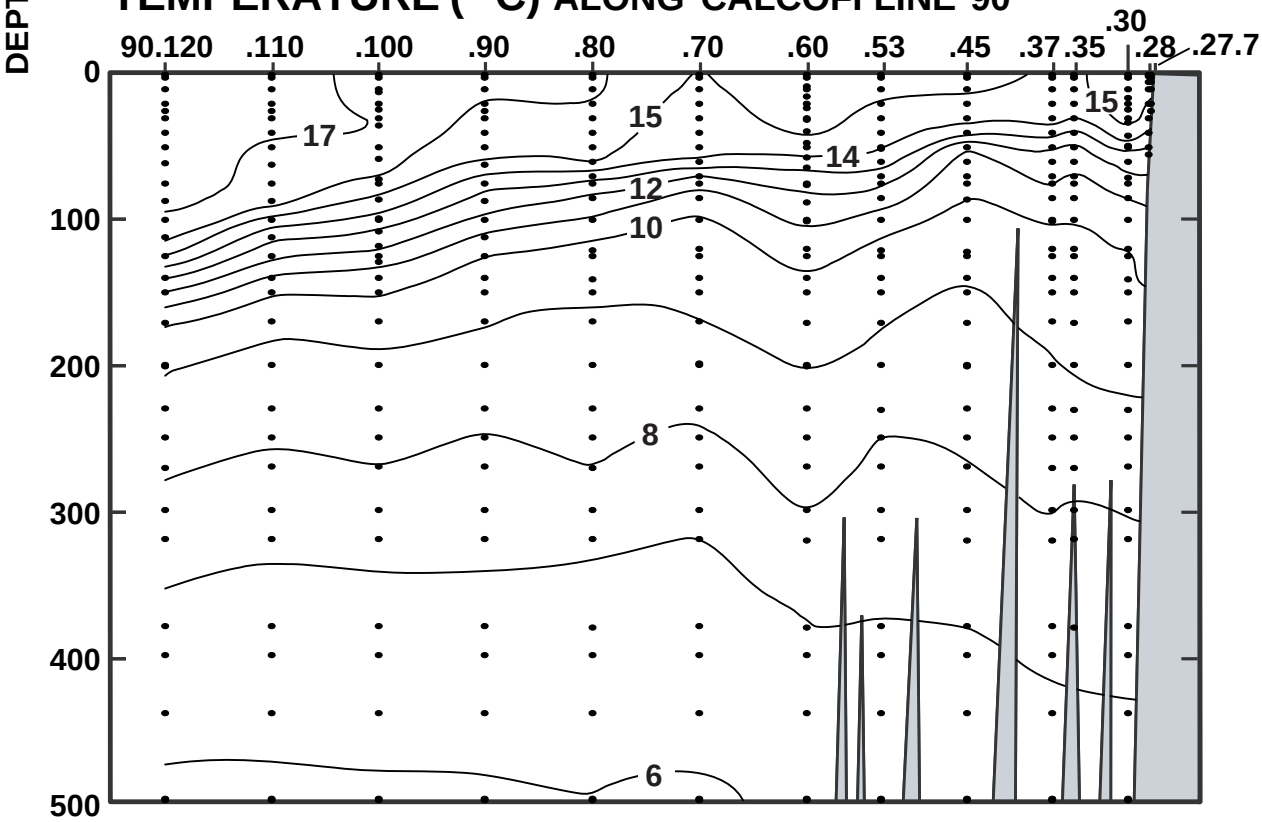

FIGURE 5B

CALCOFI CRUISE 1701

8 - 11 January 2017

SALINITY ALONG CALCOFI LINE 90

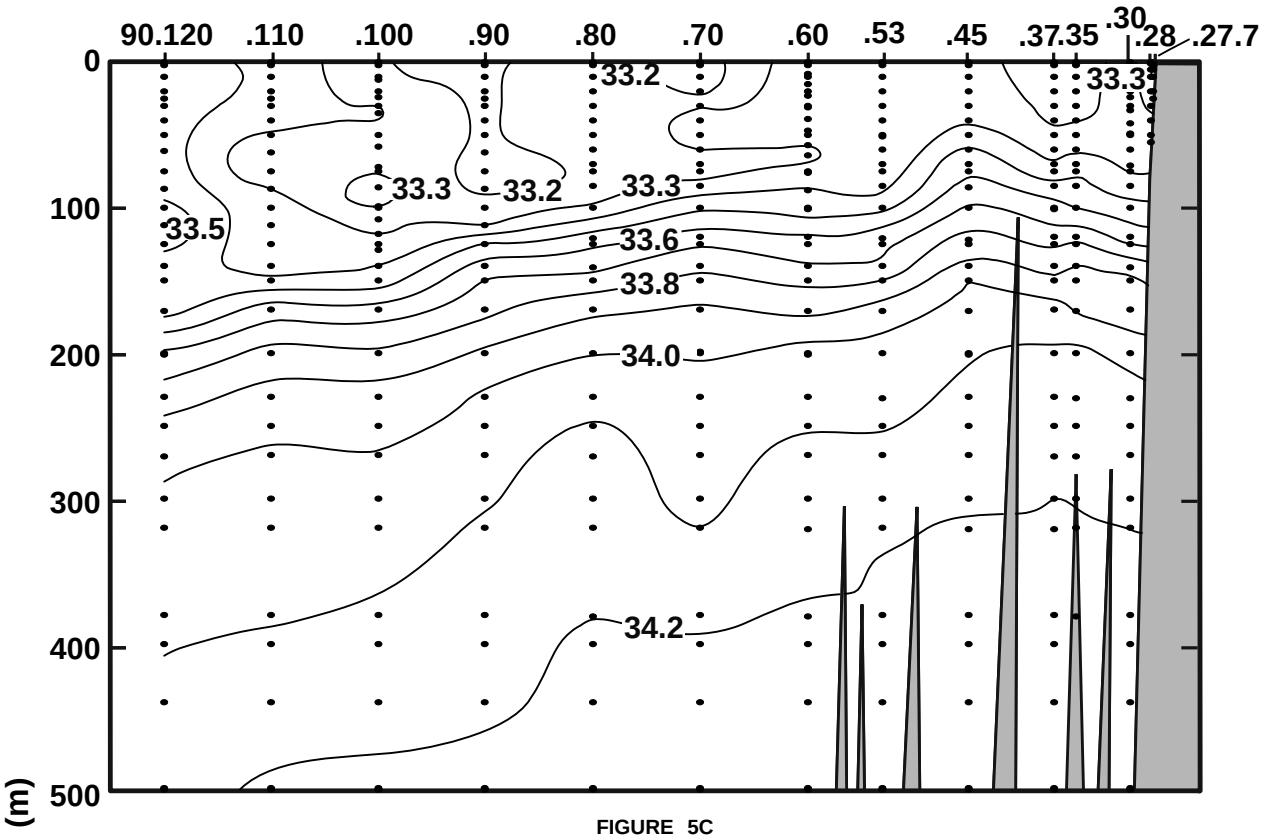

FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

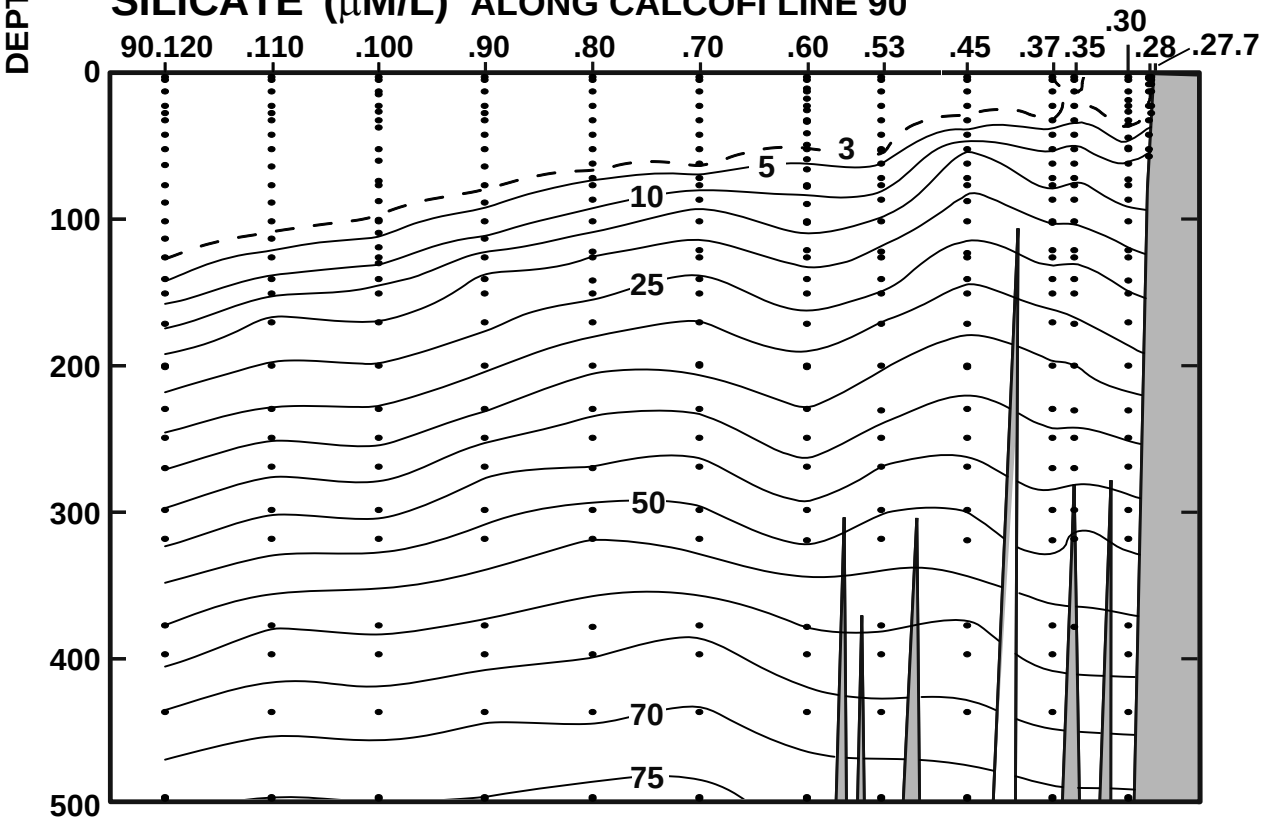

FIGURE 5D

CALCOFI CRUISE 1701

8 - 11 January 2017

NITRATE (μM/L) ALONG CALCOFI LINE 90

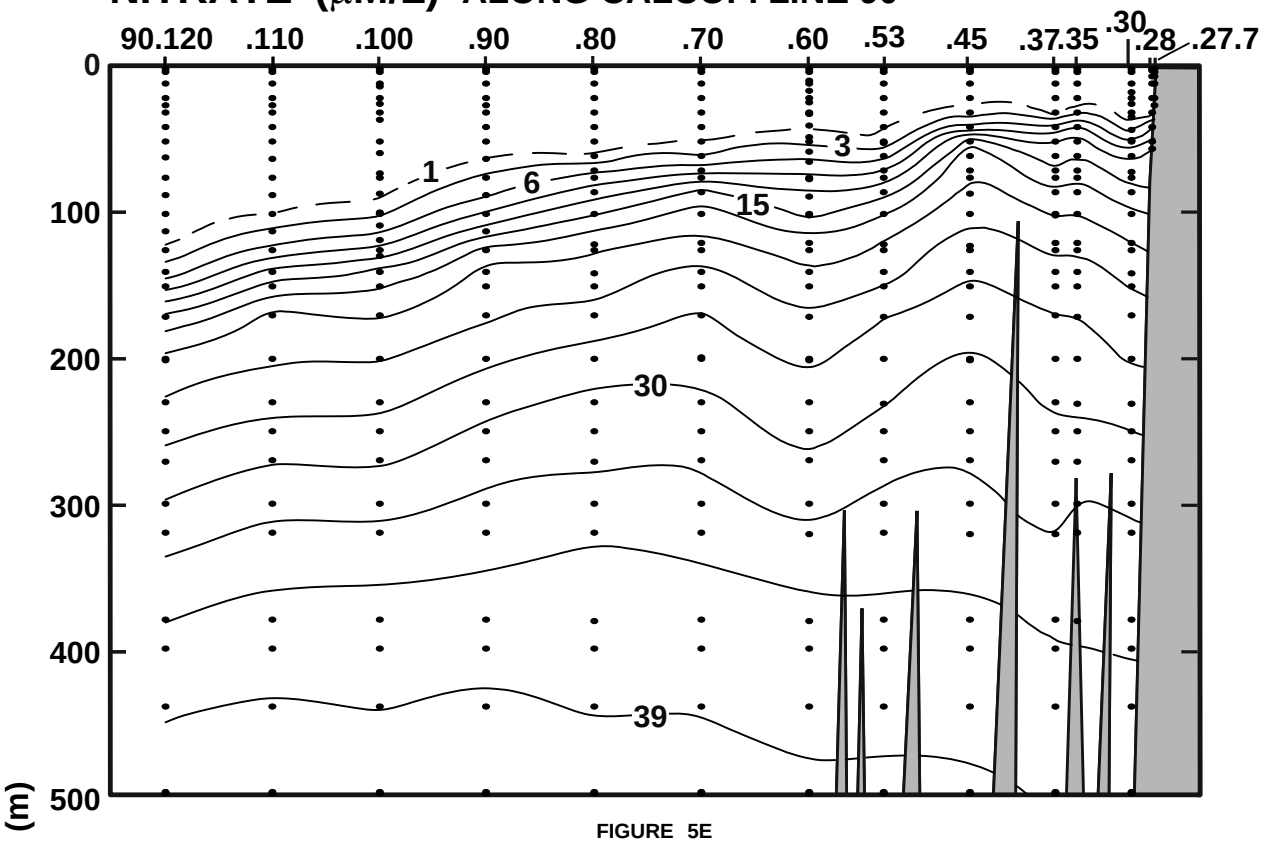

FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

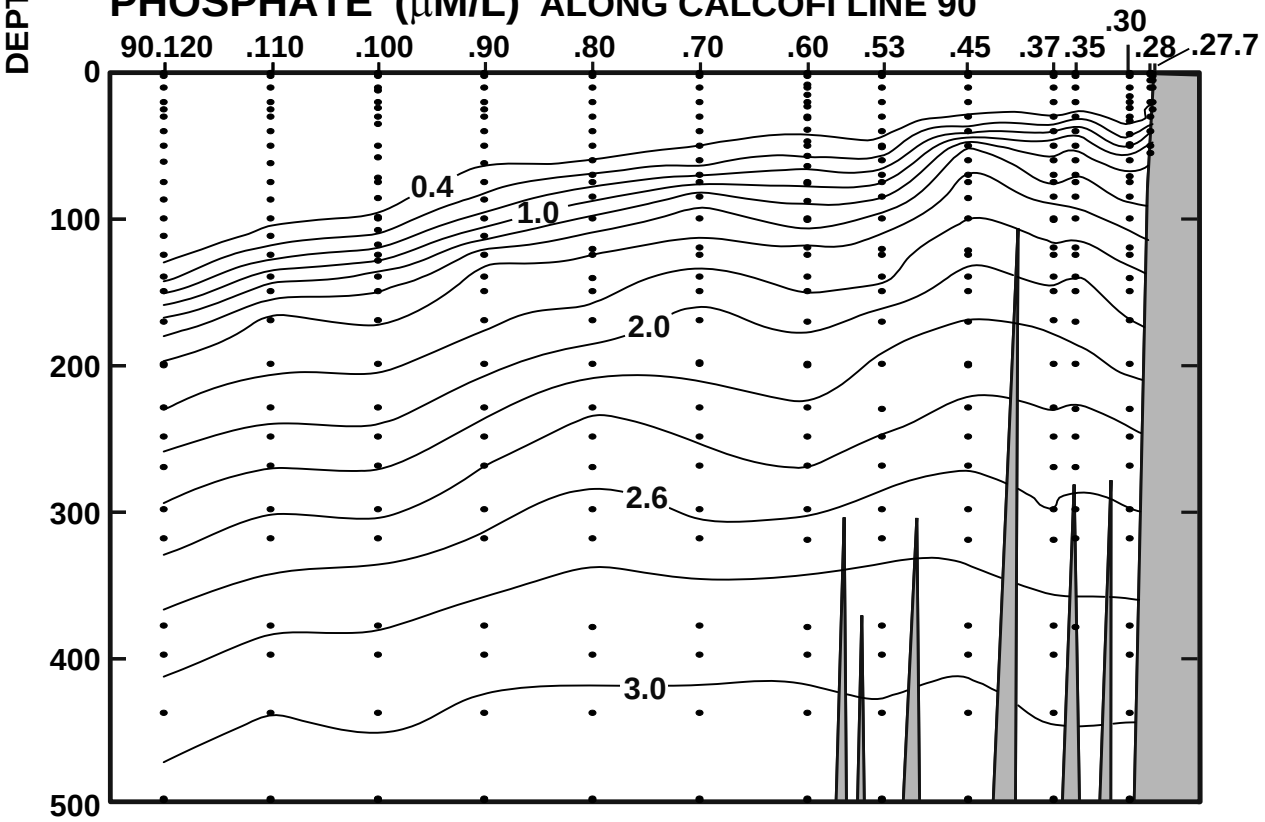

FIGURE 5F

CALCOFI CRUISE 1701

8 - 11 January 2017

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

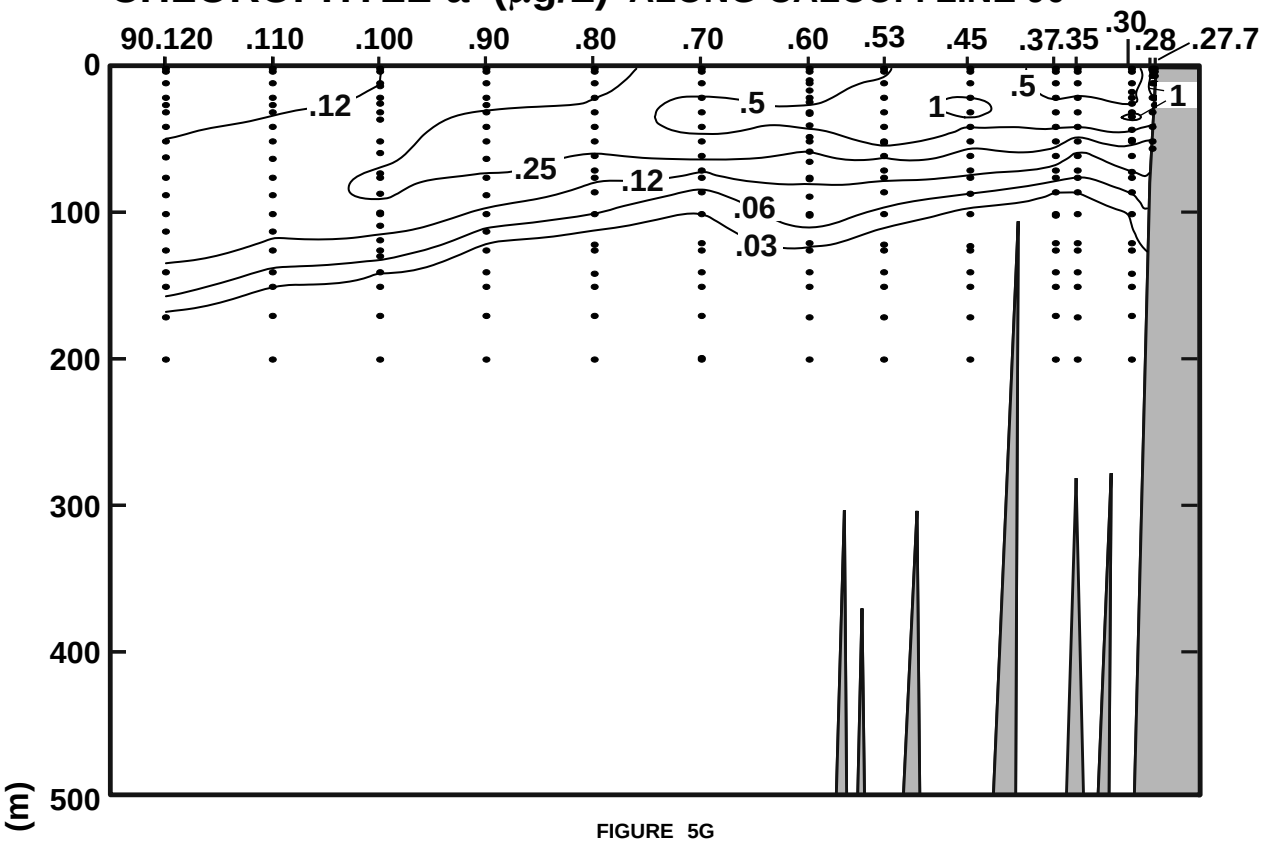

FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

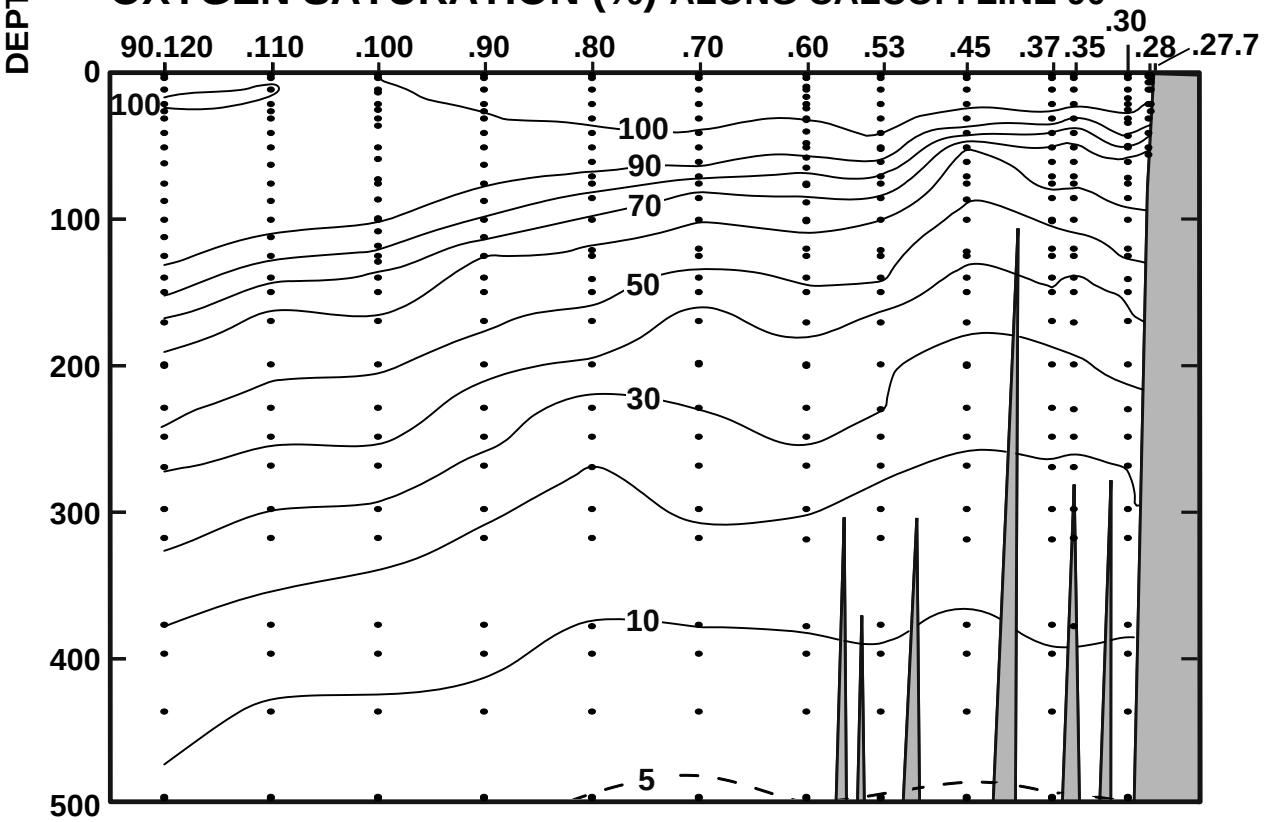

FIGURE 5H

CALCOFI CRUISE 1701

8 - 11 January 2017

OXYGEN (mL/L) ALONG CALCOFI LINE 90

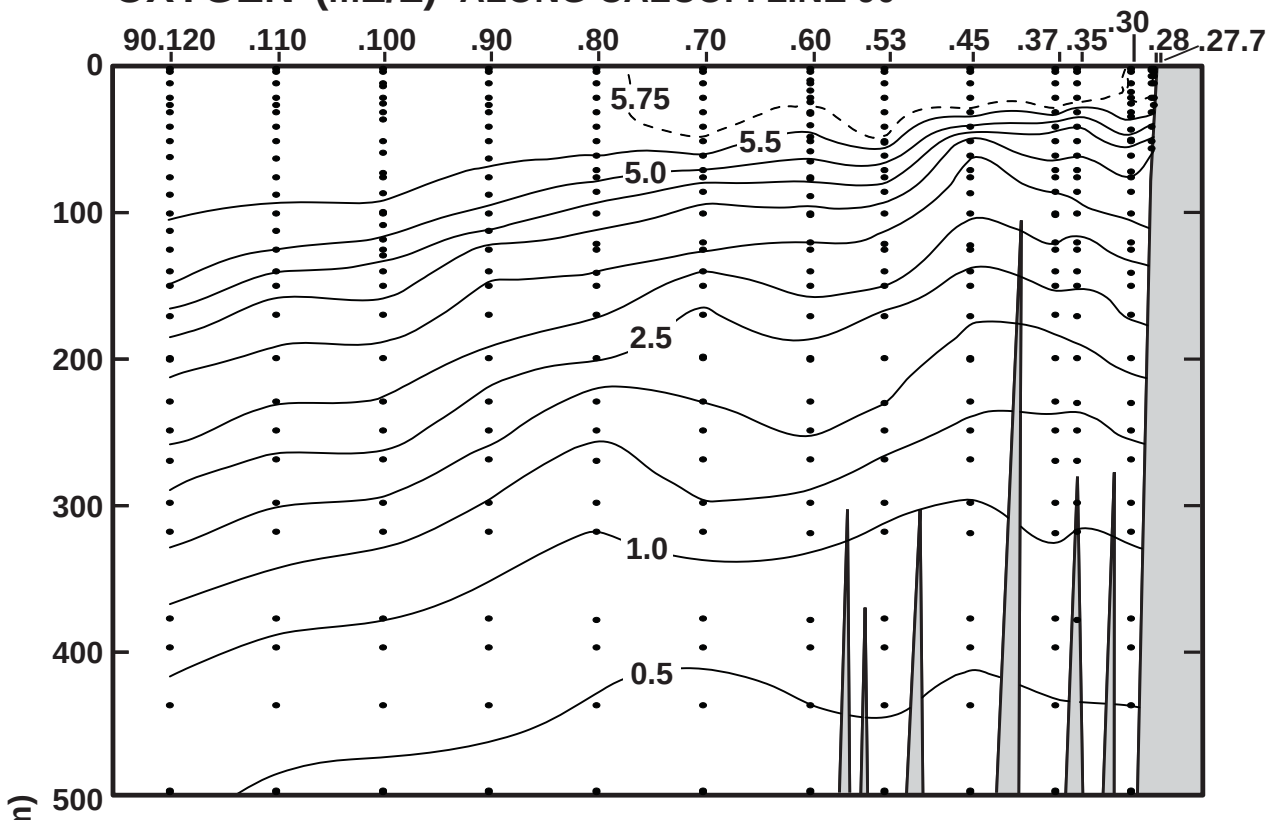

FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

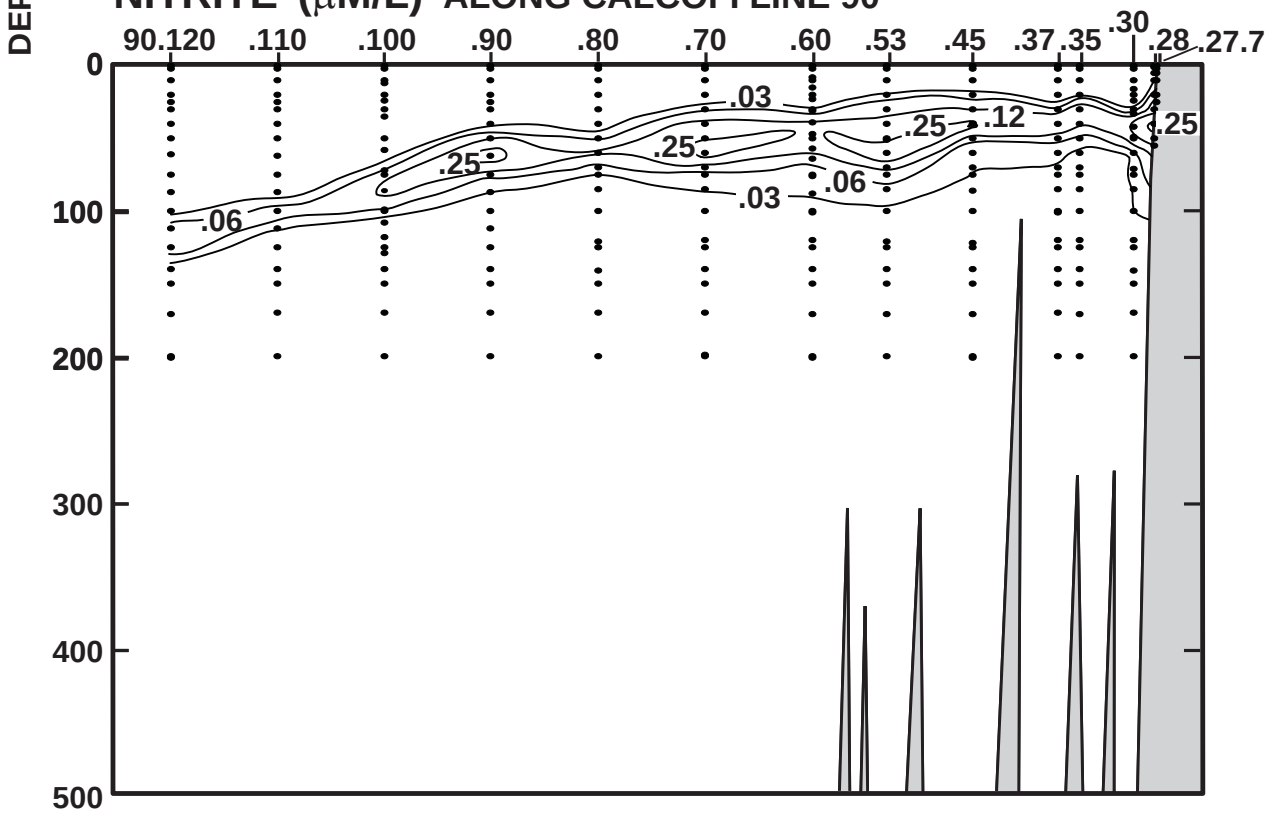

FIGURE 5J

PERSONNEL

CalCOFI Cruise 1701

SHIP'S CAPTAIN

Kurt Dreflak, NOAA Ship *Reuben Lasker*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Legs)
Hays, Amy (Chief Scientist)	Fishery Biologist, NMFS	1-2
Dovel, Shonna	Staff Research Associate, SIO	1
Hiatt, Emily	Volunteer	1
Manion, Sue	Fishery Biologist, NMFS	1-2
Overcash, Bryan	Fishery Biologist, NMFS	1
Roadman, Megan	Staff Research Associate, SIO	1
Rodgers-Wolgast, Jennifer	Staff Research Associate, SIO	1
Rosenthall, Hailey	Volunteer	1
Schuller, Daniel	Staff Research Associate, SIO	1
Trickey, Jennifer	Marine Mammal Observer, MPL	1
Vasquez del Mercado, Lanora	Fishery Biologist, NMFS	1-2
Webb, Sophie	Bird Observer, FAIER	1
Whitaker, Katherine	Marine Mammal Observer, MPL	1
Wilkinson, James	Information Systems Analyst, SIO	1
Wolgast, David	Staff Research Associate, SIO	1

Leg 1: San Diego to San Diego, California, 5-20 January, 2017
Leg 2: San Diego to San Diego, California, 25-27 January, 2017

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 63.3 52.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 18.7 N	122 37.2 W	27/01/2017	1949 UTC	83 m	020 12 kn	360 02 11	1	1032.1 mb	13.5 C	11.0 C		1/8	CI	082

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	ISL 12.27 D	12.27	33.179 D	25.125	282.9	0.000	5.92	D258.0 D	97.3								0	
10	ISL 12.26 D	12.26	33.179 D	25.128	282.9	0.014	5.92	D257.8 D	97.2								10	
20	ISL 12.23 D	12.23	33.179 D	25.133	282.7	0.043	5.88	D256.3 D	96.6								20	
30	ISL 12.26 D	12.26	33.195 D	25.140	282.3	0.071	5.80	D252.7 D	95.3								30	
50	ISL 12.22 D	12.21	33.302 D	25.232	274.0	0.127	5.34	D232.5 D	87.7								50	
75	ISL 11.77 D	11.76	33.405 D	25.397	259.0	0.194	4.70	D204.8 D	76.6								76	

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 63.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 12.5 N	122 50.3 W	28/01/2017	0041 UTC	299 m	350 13 kn	010 03 10	0	1032.7 mb	13.3 C	10.1 C		0/8		083

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	ISL 12.63 D	12.63	33.163 D	25.042	290.8	0.000	5.99	D261.1 D	99.2								0	
10	ISL 12.62 D	12.62	33.242 D	25.106	284.9	0.014	5.88	D256.3 D	97.4								10	
20	ISL 12.61 D	12.61	33.280 D	25.139	282.2	0.043	5.76	D250.8 D	95.3								20	
30	ISL 12.56 D	12.55	33.286 D	25.155	280.9	0.071	5.77	D251.5 D	95.5								30	
50	ISL 12.11 D	12.11	33.349 D	25.289	268.7	0.127	5.05	D219.9 D	82.8								50	
75	ISL 11.72 D	11.71	33.421 D	25.419	256.9	0.193	4.62	D201.1 D	75.1								76	
100	ISL 10.61 D	10.61	33.572 D	25.736	227.3	0.254	3.51	D153.0 D	55.9								101	
125	ISL 9.73 D	9.72	33.729 D	26.010	201.7	0.308	2.91	D126.7 D	45.4								126	
150	ISL 9.41 D	9.39	33.832 D	26.144	189.4	0.357	2.65	D115.3 D	41.0								151	
200	ISL 8.50 D	8.48	33.974 D	26.400	165.9	0.448	2.37	D103.3 D	36.1								202	
250	ISL 8.13 D	8.10	34.089 D	26.547	152.8	0.528	1.66	D 72.2 D	25.0								252	

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 66.7 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 47.2 N	122 3.5 W	27/01/2017	1509 UTC	220 m	080 08 kn			1031.0 mb	12.0 C	10.9 C				081

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	ISL 12.30 D	12.30	32.614 D	24.681	325.1	0.000	6.03	D262.8 D	98.8								0	
10	ISL 12.71 D	12.70	33.112 D	24.989	296.1	0.015	5.91	D257.6 D	98.0								10	
20	ISL 12.76 D	12.76	33.189 D	25.039	291.6	0.045	5.80	D252.5 D	96.2								20	
30	ISL 12.77 D	12.77	33.232 D	25.070	289.0	0.074	5.70	D248.5 D	94.7								30	
50	ISL 12.65 D	12.64	33.238 D	25.099	286.8	0.132	5.70	D248.5 D	94.5								50	
75	ISL 12.58 D	12.57	33.255 D	25.128	284.7	0.204	5.62	D244.9 D	93.0								76	
100	ISL 12.26 D	12.25	33.357 D	25.269	271.9	0.275	5.23	D227.7 D	86.0								101	
125	ISL 9.72 D	9.70	33.769 D	26.044	198.4	0.333	2.80	D121.8 D	43.7								126	
150	ISL 9.16 D	9.15	33.893 D	26.231	181.1	0.381	2.40	D104.6 D	37.1								151	
200	ISL 8.45 D	8.43	34.020 D	26.443	161.7	0.466	1.78	D 77.3 D	27.0								202	

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 70.0 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 10.3 N	121 43.5 W	27/01/2017	0458 UTC	294 m	330 05 kn			1028.1 mb	13.5 C	11.1 C				078

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	ISL 12.93 D	12.92	33.119 D	24.951	299.4	0.000	5.95	D259.2 D	99.1								0	
10	ISL 12.78 D	12.78	33.103 D	24.967	298.2	0.015	5.96	D259.7 D	98.9								10	
20	ISL 12.85 D	12.84	33.185 D	25.019	293.5	0.045	5.83	D254.2 D	97.0								20	
30	ISL 12.35 D	12.35	33.377 D	25.264	270.5	0.073	4.90	D213.3 D	80.7								30	
50	ISL 11.61 D	11.58	33.483 D	25.490	249.5	0.126	4.16	D181.0 D	67.4								50	
75	ISL 10.54 D	10.53	33.618 D	25.784	222.0	0.184	3.34	D145.5 D	53.0								76	
100	ISL 10.02 D	10.01	33.719 D	25.953	206.5	0.238	2.94	D127.9 D	46.1								101	
125	ISL 9.69 D	9.67	33.797 D	26.069	196.0	0.289	2.69	D117.2 D	42.0								126	
150	ISL 9.26 D	9.24	33.917 D	26.235	180.7	0.336	2.35	D102.3 D	36.3								151	
200	ISL 8.51 D	8.49	34.039 D	26.448	161.3	0.423	1.82	D 79.2 D	27.7								202	
250	ISL 8.14 D	8.12	34.110 D	26.561	151.5	0.502	1.45	D 63.1 D	21.9								252	

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 70.0 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 3.0 N	122 0.5 W	27/01/2017	0726 UTC	1291 m	010 07 kn			1029.5 mb	13.1 C	11.1 C				079

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	ISL 12.50 D	12.49	33.284 D	25.163	279.3	0.000	5.91	D257.3 D	97.6								0	
10	ISL 12.51 D	12.51	33.285 D	25.162	279.7	0.014	5.90	D257.0 D	97.5								10	
20	ISL 12.51 D	12.50	33.283 D	25.162	280.0	0.042	5.89	D256.6 D	97.3								20	
30	ISL 12.50 D	12.49	33.284 D	25.164	280.0	0.070	5.86	D255.2 D	96.8								30	
50	ISL 11.52 D	11.51	33.450 D	25.478	250.6	0.126	5.06	D220.2 D	81.9								50	
75	ISL 10.16 D	10.15	33.605 D	25.839	216.8	0.183	3.24	D141.1 D	51.0								76	
100	ISL 9.68 D	9.67	33.743 D	26.028	199.3	0.236	2.88	D125.5 D	45.0								101	
125	ISL 9.38 D	9.38	33.910 D	26.207	182.9	0.284	2.36	D102.8 D	36.6								126	
150	ISL 9.10 D	9.08	33.976 D	26.306	173.9	0.329	2.27	D 98.7 D	35.0								151	
200	ISL 8.61 D	8.59	34.058 D	26.448	161.3	0.414	1.84	D 79.8 D	28.0								202	
250	ISL 8.29 D	8.26	34.136 D	26.560	151.6	0.492	1.41	D 61.1 D	21.3								252	
300	ISL 7.90 D	7.87	34.163 D	26.641	144.7	0.567	1.13	D 49.0 D	16.9								302	
400	ISL 6.74 D	6.70	34.156 D	26.799	130.5	0.706	0.83	D 36.1 D	12.1								403	
500	ISL 6.31 D	6.27	34.253 D	26.934	118.9	0.832	0.40	D 17.3 D	5.8								504	

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 73.3 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 38.2 N	121 15.4 W	26/01/2017	2123 UTC	33 m	290 07 kn	300 03 12	0	1027.5 mb	13.5 C	11.0 C		0/8		076

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	ISL 12.80 D	12.80	33.121 D	24.979	296.9	0.006	5.89	D256.7 D	97.9								0	
10	ISL 12.67 D	12.66	33.139 D	25.018	293.3	0.030	5.88	D256.2 D	97.4								10	
20	ISL 12.64 D	12.64	33.313 D	25.158	280.3	0.059	5.41	D235.7 D	89.7								20	
30	ISL 12.53 D	12.52	33.348 D	25.208	275.9	0.087	5.14	D223.7 D	84.9								30	

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 73.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 28.4 N	121 36.5 W	26/01/2017	2355 UTC	987 m	310 10 kn	240 04 13	0	1027.0 mb	13.0 C	11.0 C		0/8		077

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	ISL 12.89 D	12.89	33.304 D	25.101	285.2	0.000	5.82	D253.5 D	97.0								0	
10	ISL 12.89 D	12.88	33.303 D	25.102	285.3	0.014	5.80	D252.6 D	96.6								10	
20	ISL 12.76 D	12.76	33.298 D	25.124	283.5	0.043	5.77	D251.6 D	95.9								20	
30	ISL 12.75 D	12.75	33.301 D	25.128	283.5	0.072	5.76	D250.7 D	95.6								30	
50	ISL 12.64 D	12.64	33.354 D	25.190	278.1	0.129	5.51	D240.0 D	91.3								50	
75	ISL 11.26 D	11.25	33.527 D	25.585	241.1	0.194	3.82	D166.1 D	61.5								76	
100	ISL 10.48 D	10.46	33.628 D	25.805	220.7	0.252	3.34	D145.3 D	52.9								101	
125	ISL 9.98 D	9.94	33.728 D	25.972	205.3	0.306	2.88	D125.4 D	45.2								126	
150	ISL 9.53 D	9.51	33.874 D	26.158	188.1	0.355	2.49	D108.5 D	38.7								151	
200	ISL 8.90 D	8.88	34.032 D	26.383	167.6	0.445	1.93	D 83.9 D	29.6								202	
250	ISL 8.42 D	8.39	34.110 D	26.520	155.5	0.526	1.56	D 67.8 D	23.7								252	
300	ISL 8.16 D	8.09	34.172 D	26.614	147.4	0.602	1.20	D 52.1 D	18.1								302	
400	ISL 6.72 D	6.68	34.155 D	26.802	130.3	0.743	0.84	D 36.5 D	12.3								403	
500	ISL 5.82 D	5.77	34.155 D	26.919	119.8	0.869	0.63	D 27.2 D	8.9								504	

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 46.5 W	20/01/2017	0138 UTC	63 m	260 09 kn			1011.7 mb	14.0 C	13.1 C				075

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.01	13.01	33.323	25.092	286.0	0.000	5.62	245.3	93.8	7.4	0.73	5.8	0.25	0.08	1.45	0.49	0	
1	13.01	13.01	33.323	25.092	286.0	0.003	5.62	245.3	93.8	7.4	0.73	5.8	0.25	0.08	1.45	0.49	1	08
6	13.01	13.01	33.320	25.091	286.3	0.017	5.63	246.1	94.1	7.4	0.73	5.7	0.24	0.14	1.51	0.37	6	07
9	13.00	13.00	33.332	25.102	285.3	0.027											9	06
10	13.00	13.00	33.327	25.098	285.8	0.029	5.62	245.5	93.9	7.5	0.73	5.9	0.25	0.15	1.28	0.43	10	05
20	12.91	12.91	33.337	25.124	283.6	0.057	5.50	240.4	91.8	7.7	0.74	6.2	0.25	0.20	1.22	0.41	20	04
30	ISL 12.88 D	12.88	33.347 D	25.138	282.6	0.085	5.44	237.0	90.6	7.8	0.77	6.4	0.26	0.22	1.15	0.42	30	
31	12.90	12.89	33.345	25.133	283.0	0.088	5.43	237.3	90.5	7.8	0.77	6.4	0.26	0.22	1.15	0.43	31	03
40	12.59	12.59	33.387	25.226	274.4	0.113	4.95	216.1	82.0	9.7	0.94	8.6	0.29	0.26	0.67	0.32	40	02
50	12.50	12.49	33.391	25.247	272.7	0.141	4.78	208.8	79.0	11.2	1.06	9.6	0.33	0.34	0.60	0.50	50	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 1.2 N	120 55.3 W	19/01/2017	2259 UTC	241 m	250 07 kn	220 08 10	1	1011.1 mb	14.0 C	13.0 C	17 m	3/8	SC	074

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.15	13.15	33.301	25.049	290.2	0.000	5.82	254.2	97.5	7.0	0.66	5.1	0.28	0.13	1.44	0.49	0	
4	13.15	13.15	33.301	25.049	290.3	0.012	5.82	254.2	97.5	7.0	0.66	5.1	0.28	0.13	1.44	0.49	4	17
10	13.16	13.16	33.302	25.048	290.5	0.029	5.81	253.9	97.4	6.7	0.65	5.0	0.27	0.14	1.23	0.46	10	15
10	13.16	13.16	33.301	25.047	290.6	0.030											10	16
20	13.08	13.08	33.300	25.063	289.4	0.058	5.76	251.8	96.4	6.7	0.66	5.0	0.27	0.15	1.17	0.48	20	14
30	ISL 13.08 D	13.07	33.313 D	25.073	288.7	0.082	5.64	D245.5 D	94.3	6.8	0.67	5.2	0.28	0.19	0.94	0.49	30	
32	13.06	13.06	33.310	25.074	288.7	0.093	5.67	247.5	94.7	6.8	0.67	5.2	0.29	0.20	0.89	0.49	32	13
41	12.82	12.81	33.367 D	25.167	280.1	0.113	5.18	D225.8 D	86.3								41	12
50	12.31	12.30	33.402	25.293	268.3	0.143	4.61	201.4	75.9	10.9	1.03	10.6	0.36	0.00	0.28	0.19	50	11
60	11.88	11.87	33.441	25.404	257.9	0.170	4.21	183.9	68.7	12.9	1.21	13.1	0.24	0.00	0.18	0.21	60	10
70	11.66	11.65	33.474	25.471	251.8	0.195	4.02	175.6	65.3	14.4	1.30	14.6	0.23	0.00	0.13	0.16	71	09
75	ISL 11.60 D	11.59	33.509 D	25.510	248.3	0.203	4.08	D177.6 D	66.2	15.5	1.36	15.3	0.24	0.00	0.12	0.16	76	
85	11.15	11.13	33.554	25.628	237.3	0.232	3.68	160.9	59.2	17.7	1.48	16.9	0.27	0.00	0.08	0.16	86	08
100	ISL 10.61 D	10.59	33.648 D	25.797	221.5	0.262	3.05	D132.8 D	48.5	21.9	1.73	20.6	0.10	0.00	0.05	0.15	101	
101	10.47	10.46	33.667	25.836	217.8	0.268	3.10	135.2	49.1	22.2	1.75	20.9	0.09	0.00	0.04	0.15	102	07
121	9.89	9.87	33.765	26.012	201.4	0.310	2.72	118.7	42.6	25.5	1.92	23.4	0.04	0.00	0.03	0.12	122	06
125	ISL 9.91 D	9.89	33.783 D	26.023	200.5	0.314	2.71	D118.1 D	42.5	26.2	1.95	23.8	0.04	0.00	0.02	0.12	126	
139	9.62	9.60	33.858	26.129	190.6	0.346	2.42	105.5	37.6	28.5	2.05	25.3	0.03	0.00	0.01	0.11	140	05
150	ISL 9.47 D	9.45	33.904 D	26.190	185.0	0.363	2.20	D 95.7 D	34.1	30.2	2.11	26.1	0.05	0.00	0.01	0.11	151	
170	9.19	9.17	33.973	26.290	175.9	0.402	2.01	87.9	31.1	33.4	2.22	27.5	0.09	0.00	0.01	0.11	171	04
200	ISL 8.86 D	8.84	34.042 D	26.397	166.3	0.451	1.68	D 73.2 D	25.8	38.1	2.38	29.1	0.14	0.00	0.01	0.15	202	
202	8.85	8.83	34.040	26.398	166.3	0.457	1.68	73.4	25.8	38.4	2.39	29.2	0.14	0.00	0.01	0.16	204	03
231	8.53	8.50	34.103	26.497	157.3	0.504	1.44	62.8	21.9	42.0	2.50	30.7	0.12	0.07			233	02
243	8.39	8.36	34.124	26.536	153.8	0.523	1.36	59.5	20.7	43.8	2.59	31.4	0.10	0.00			245	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 53.3 N	121 12.3 W	19/01/2017	1914 UTC	564 m	280 07 kn	280 12 11	2	1013.4 mb	15.2 C	14.0 C	14 m	8/8	ST	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	13.06	13.06	33.321	25.082	287.0	0.000	5.60	244.8	93.7	7.7	0.76	6.3	0.28	0.14	1.04	0.33	0	
2 A	13.06	13.05	33.321	25.082	287.0	0.006	5.60	244.8	93.7	7.7	0.76	6.3	0.28	0.14	1.04	0.33	2	24
10 ISL	13.01 D	13.01	33.322 D	25.092	286.3	0.026	5.57	D242.8 D	93.1	7.6	0.74	6.3	0.27	0.13	1.02	0.43	10	
11 A	13.01	13.01	33.321	25.092	286.4	0.032	5.57	243.2	93.0	7.6	0.74	6.3	0.27	0.13	1.01	0.44	11	21
11	13.01	13.01	33.321	25.091	286.4	0.031											11	23
11	13.01	13.01	33.320	25.090	286.5	0.031											11	22
17 A	13.00	13.00	33.322	25.094	286.3	0.049	5.60	244.5	93.5	7.7	0.75	6.3	0.27	0.11	1.12	0.27	17	20
20 ISL	13.00 D	13.00	33.322 D	25.095	286.3	0.055	5.57	D242.7 D	93.0	7.7	0.75	6.3	0.27	0.12	1.06	0.31	20	
25	12.98	12.98	33.319	25.096	286.4	0.071											25	19
26 A	12.98	12.98	33.322	25.099	286.2	0.074	5.56	242.7	92.8	7.6	0.74	6.3	0.27	0.13	0.93	0.37	26	18
30 ISL	12.98 D	12.97	33.326 D	25.103	285.9	0.084	5.50	D239.7 D	91.8	7.7	0.75	6.4	0.28	0.13	0.84	0.37	30	
36	12.94	12.93	33.336	25.119	284.5	0.103	5.43	237.3	90.6	7.9	0.77	6.7	0.30	0.13	0.70	0.37	36	17
44 A	12.47	12.47	33.370	25.236	273.6	0.125	4.84	211.3	79.9	9.4	0.94	9.3	0.29	0.00	0.43	0.32	44	16
50 ISL	12.27 D	12.26	33.416 D	25.311	266.6	0.140	4.57	D199.0 D	75.2	10.7	1.06	11.3	0.23	0.00	0.30	0.24	50	
53 A	12.22	12.21	33.416	25.321	265.7	0.149	4.44	194.0	73.0	11.3	1.12	12.3	0.20	0.00	0.24	0.21	53	15
61	11.77	11.76	33.428	25.415	256.9	0.170	4.13	180.5	67.3	12.5	1.22	13.9	0.09	0.00	0.19	0.18	62	14
70	11.26	11.25	33.450	25.525	246.6	0.193	3.91	170.8	63.0	14.1	1.35	16.1	0.05	0.00	0.15	0.15	71	13
75 ISL	10.88 D	10.87	33.510 D	25.640	235.8	0.204	3.84	D167.0 D	61.3	14.9	1.40	16.8	0.04	0.00	0.13	0.14	76	
85	10.82	10.81	33.510	25.651	235.0	0.229	3.65	159.6	58.3	16.5	1.49	18.2	0.03	0.00	0.09	0.12	86	12
100 ISL	10.48 D	10.47	33.564 D	25.753	225.6	0.262	3.49	D152.0 D	55.3	17.5	1.55	19.0	0.03	0.00	0.08	0.12	101	
101	10.48	10.47	33.537	25.732	227.6	0.266	3.57	155.9	56.5	17.5	1.55	19.0	0.03	0.00	0.08	0.12	102	11
120	9.78	9.77	33.741	26.011	201.4	0.307	2.96	129.1	46.2	23.6	1.83	23.2	0.00	0.00	0.02	0.08	121	10
125 ISL	9.74 D	9.73	33.769 D	26.039	198.8	0.315	2.92	D127.2 D	45.6	24.2	1.86	23.6	0.02	0.00	0.02	0.08	126	
141	9.56	9.54	33.833	26.120	191.5	0.348	2.70	117.9	42.0	26.2	1.94	24.9	0.00	0.00	0.01	0.07	142	09
150 ISL	9.49 D	9.48	33.863 D	26.154	188.4	0.364	2.65	D115.1 D	41.1	27.1	1.98	25.2	0.02	0.00	0.01	0.06	151	
171	9.36	9.34	33.930	26.229	181.8	0.404	2.43	106.2	37.7	29.0	2.07	26.1	0.00	0.00	0.01	0.05	172	08
200 ISL	9.04 D	9.01	34.028 D	26.359	170.0	0.455	2.16	D 94.0 D	33.2	32.7	2.18	27.8	0.02	0.00	0.00	0.06	202	
202	9.04	9.02	34.030	26.360	170.0	0.458	2.11	92.2	32.5	33.0	2.19	28.0	0.00	0.00	0.00	0.06	204	07
231	8.32	8.30	34.086	26.515	155.5	0.506	1.71	74.4	25.8	40.3	2.40	31.0	0.00	0.00			233	06
250 ISL	8.23 D	8.20	34.121 D	26.557	151.9	0.535	1.53	D 66.4 D	23.1	42.3	2.47	31.6	0.02	0.00			252	
269	8.10	8.07	34.142	26.594	148.7	0.563	1.37	59.9	20.7	44.3	2.54	32.2	0.00	0.00			271	05
300 ISL	7.87 D	7.84	34.155 D	26.639	144.9	0.610	1.23	D 53.5 D	18.4	49.1	2.66	33.5	0.01	0.00			302	
320	7.62	7.58	34.192	26.704	138.9	0.637	0.94	40.8	13.9	52.2	2.73	34.3	0.00	0.00			323	04
381	7.20	7.17	34.212	26.780	132.5	0.720	0.75	32.5	11.0	58.3	2.88	36.0	0.00	0.00			384	03
400 ISL	6.94 D	6.90	34.229 D	26.830	127.8	0.747	0.62	D 27.0 D	9.1	60.9	2.91	36.7	0.01	0.00			403	
441	6.64	6.60	34.234	26.875	124.0	0.796	0.52	22.6	7.6	66.6	2.99	38.2	0.00	0.00			445	02
500 ISL	6.17 D	6.12	34.250 D	26.950	117.3	0.870	0.41	D 17.6 D	5.8	73.6	3.11	39.2	0.02	0.00			504	
517	6.16	6.12	34.261	26.960	116.6	0.887	0.35	15.4	5.1	75.6	3.15	39.5	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 REUBEN LASKER CALCOFI CRUISE 1701 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 43.3 N	121 32.9 W	19/01/2017	1456 UTC	956 m	260 11 kn	210 10 06	1	1011.0 mb	14.5 C	13.5 C		3/8	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	13.61	13.61	33.185	24.866	307.5	0.000	6.01	262.4	101.5	1.7	0.32	0.1	0.06	0.12	1.11	0.31	0	
3	13.61	13.61	33.185	24.866	307.6	0.009	6.01	262.4	101.5	1.7	0.32	0.1	0.06	0.12	1.11	0.31	3	20
10 ISL	13.61 D	13.61	33.184 D	24.864	308.0	0.027	6.01	D261.7 D	101.5	1.3	0.30	0.0	0.05	0.09	1.09	0.30	10	
11	13.62	13.61	33.183	24.863	308.1	0.034	6.00	262.0	101.4	1.3	0.30	0.0	0.05	0.09	1.08	0.30	11	19
20	13.62	13.61	33.184	24.865	308.3	0.062	6.01	262.6	101.6	1.3	0.30	0.0	0.05	0.10	1.10	0.29	20	18
30 ISL	13.62 D	13.61	33.188 D	24.868	308.2	0.088	5.98	D260.7 D	101.1	1.2	0.31	0.0	0.05	0.11	1.04	0.31	30	
31	13.62	13.61	33.188	24.868	308.3	0.095	5.99	261.6	101.2	1.2	0.31	0.0	0.05	0.11	1.04	0.31	31	17
40	12.82	12.82	33.210	25.044	291.7	0.122	5.73	250.3	95.3	2.5	0.44	2.2	0.12	0.06	0.42	0.21	40	16
50	12.00	12.00	33.252	25.233	273.9	0.151	5.17	225.8	84.5	5.9	0.76	7.5	0.05	0.00	0.11	0.13	50	15
60	11.45	11.44	33.302	25.375	260.6	0.177	4.70	205.4	76.0	8.8	1.01	11.4	0.04	0.00	0.08	0.11	60	14
71	10.71	10.71	33.406	25.589	240.5	0.205	4.09	178.5	65.0	13.2	1.31	15.9	0.03	0.00	0.05	0.10	72	13
75 ISL	10.49 D	10.48	33.491 D	25.693	230.7	0.211	3.80	D165.5 D	60.2	14.9	1.39	17.3	0.02	0.00	0.04	0.09	76	
85	9.95	9.94	33.541	25.826	218.2	0.237	3.58	156.3	56.1	19.1	1.59	20.9	0.00	0.00	0.03	0.07	86	12
100 ISL	9.80 D	9.78	33.582 D	25.883	213.1	0.266	3.38	D147.1 D	52.7	20.3	1.67	21.8	0.02	0.00	0.02	0.07	101	
101	9.78	9.76	33.577	25.883	213.2	0.272	3.42	149.5	53.4	20.4	1.68	21.9	0.00	0.00	0.02	0.07	102	11
120	9.32	9.31	33.724	26.071	195.6	0.310	3.09	134.9	47.8	24.5	1.91	24.5	0.00	0.00	0.02	0.05	121	10
125 ISL	9.17 D	9.16	33.763 D	26.127	190.4	0.317	3.09	D134.4 D	47.6	25.2	1.93	24.8	0.02	0.00	0.02	0.05	126	
140	9.08	9.07	33.821	26.187	185.0	0.348	2.83	123.5	43.5	27.3	1.98	25.8	0.00	0.00	0.02	0.05	141	09
150 ISL	9.08 D	9.06	33.867 D	26.224	181.7	0.363	2.68	D116.5 D	41.2	28.2	1.98	26.1	0.02	0.00	0.02	0.05	151	
170	8.69	8.67	33.909	26.319	173.0	0.402	2.82	123.3	43.1	30.0	1.99	26.7	0.00	0.00	0.01	0.04	171	08
200	8.50	8.48	34.022	26.437	162.3	0.453	2.11	91.9	32.0	35.7	2.26	29.6	0.00	0.00	0.01	0.04	202	07
231	8.12	8.10	34.054	26.520	154.9	0.502	1.91	83.5	28.8	40.1	2.36	31.1	0.00	0.00			233	06
250 ISL	8.06 D	8.03	34.069 D	26.542	153.2	0.529	1.81	D 78.7 D	27.3	41.7	2.41	31.6	0.02	0.00			252	
269	7.95	7.92	34.086	26.572	150.7	0.560	1.64	71.8	24.7	43.2	2.45	32.2	0.00	0.00			271	05
300 ISL	7.58 D	7.55	34.131 D	26.661	142.6	0.604	1.27	D 55.3 D	19.0	48.5	2.61	33.8	0.01	0.00			302	
321	7.39	7.36	34.150	26.705	138.7	0.635	1.08	47.1	16.0	52.1	2.72	34.9	0.00	0.00			324	04
382	7.06	7.02	34.198	26.789	131.5	0.718	0.77	33.7	11.4	58.7	2.88	36.5	0.00	0.00			385	03
400 ISL	6.81 D	6.77	34.230 D	26.848	126.0	0.740	0.64	D 28.0 D	9.4	61.0	2.92	37.0	0.01	0.00			403	
441	6.67	6.63	34.247	26.882	123.4	0.792	0.50	22.0	7.3	66.3	3.01	38.1	0.00	0.00			445	02
500 ISL	6.20 D	6.15	34.280 D	26.971	115.4	0.862	0.35	D 15.3 D	5.1	73.5	3.14	39.7	0.01	0.00			504	
516	6.09	6.04	34.273	26.978	114.8	0.881	0.34	14.8	4.9	75.4	3.17	40.2	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 REUBEN LASKER CALCOFI CRUISE 1701 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 23.1 N	122 14.4 W	19/01/2017	0847 UTC	4000 m	240 16 kn			1012.0 mb	15.1 C	15.0 C				071

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.14	13.14	33.267	25.024	292.5	0.000	6.02	263.0	100.8	2.5	0.40	1.5	0.20	0.07	1.06	0.36	0	
2	13.14	13.14	33.267	25.024	292.5	0.006	6.02	263.0	100.8	2.5	0.40	1.5	0.20	0.07	1.06	0.36	2	20
10	13.13	13.13	33.265	25.024	292.8	0.029	6.04	263.6	101.0	2.5	0.40	1.5	0.20	0.08	1.02	0.36	10	19
20	13.14	13.13	33.267	25.025	293.0	0.059	6.05	264.1	101.3	2.5	0.39	1.5	0.20	0.07	1.07	0.36	20	18
30 ISL	13.14 D	13.14	33.266 D	25.024	293.4	0.086	6.02	D262.1	D100.7	2.5	0.41	1.5	0.20	0.09	1.03	0.38	30	
31	13.14	13.14	33.266	25.024	293.4	0.091	6.04	263.8	101.1	2.5	0.41	1.5	0.20	0.09	1.02	0.38	31	17
41	13.14	13.14	33.275	25.031	293.0	0.120	6.04	263.7	101.1	2.5	0.42	1.6	0.21	0.09	1.10	0.29	41	16
50 ISL	13.17 D	13.17	33.307 D	25.051	291.4	0.145	5.87	D255.9	D 98.4	2.7	0.45	2.0	0.26	0.15	0.75	0.32	50	
51	13.17	13.17	33.295	25.041	292.4	0.149	5.92	258.7	99.3	2.7	0.45	2.0	0.27	0.16	0.72	0.33	51	15
61	12.66	12.65	33.325	25.166	280.7	0.178	5.40	235.8	89.5	4.6	0.68	5.8	0.21	0.00	0.24	0.19	61	14
71	10.91	10.90	33.367	25.524	246.7	0.204	4.35	189.9	69.5	11.7	1.18	14.4	0.05	0.00	0.10	0.11	72	13
75 ISL	10.90 D	10.90	33.398 D	25.549	244.5	0.213	4.16	D181.0	D 66.4	13.1	1.26	15.8	0.04	0.00	0.08	0.10	76	
84	10.45	10.44	33.460	25.677	232.4	0.236	3.81	166.3	60.3	16.2	1.45	18.8	0.03	0.00	0.05	0.09	85	12
100	9.61	9.59	33.592	25.922	209.3	0.271	3.65	159.5	56.8	20.6	1.63	21.3	0.00	0.00	0.03	0.06	101	11
122	9.33	9.31	33.733	26.078	195.0	0.316	3.04	132.6	47.0	24.9	1.87	24.6	0.00	0.00	0.02	0.05	123	10
125 ISL	9.23 D	9.22	33.780 D	26.130	190.1	0.320	2.89	D125.9	D 44.7	25.4	1.89	24.9	0.02	0.00	0.02	0.05	126	
143	8.94	8.93	33.849	26.231	180.8	0.355	2.68	117.0	41.1	28.4	2.01	26.6	0.00	0.00	0.01	0.05	144	09
150 ISL	8.82 D	8.80	33.882 D	26.277	176.6	0.366	2.79	D121.5	D 42.7	29.1	2.00	26.5	0.02	0.00	0.01	0.05	151	
170	8.53	8.52	33.933	26.361	168.9	0.402	3.03	132.1	46.0	30.9	1.96	26.4	0.00	0.00	0.01	0.04	171	08
200	8.14	8.12	33.997	26.471	158.9	0.451	2.33	101.6	35.1	36.9	2.22	29.8	0.00	0.00	0.00	0.03	202	07
231	7.51	7.49	33.985	26.554	151.3	0.499	2.68	117.0	39.8	41.3	2.19	29.7	0.00	0.00			233	06
250 ISL	7.24 D	7.22	33.996 D	26.602	147.0	0.527	2.18	D 94.9	D 32.2	44.9	2.33	31.6	0.02	0.00			252	
271	7.36	7.33	34.053	26.630	144.7	0.558	1.70	74.1	25.2	48.8	2.49	33.7	0.00	0.00			273	05
300 ISL	6.89 D	6.86	34.042 D	26.687	139.6	0.599	1.64	D 71.3	D 24.0	52.3	2.65	34.8	0.01	0.00			302	
322	7.41	7.38	34.197	26.738	135.6	0.628	0.84	36.7	12.5	55.1	2.78	35.6	0.00	0.00			325	04
381	6.82	6.78	34.211	26.831	127.3	0.705	0.62	27.1	9.1	63.2	2.96	37.7	0.00	0.00			384	03
400 ISL	6.67 D	6.63	34.214 D	26.854	125.3	0.732	0.58	D 25.2	D 8.5	65.5	3.00	38.1	0.01	0.00			403	
441	6.41	6.37	34.247	26.915	120.0	0.779	0.42	18.5	6.2	70.5	3.08	39.1	0.00	0.00			445	02
500 ISL	5.88 D	5.83	34.254 D	26.990	113.2	0.852	0.35	D 15.0	D 4.9	77.6	3.19	40.2	0.01	0.00			504	
517	5.91	5.86	34.283	27.009	111.7	0.867	0.29	12.7	4.2	79.7	3.22	40.5	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 REUBEN LASKER CALCOFI CRUISE 1701 STATION 76.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 3.1 N	122 56.1 W	19/01/2017	0340 UTC	4268 m	190 25 kn			1011.7 mb	14.1 C	14.0 C				070

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.05	13.05	33.115	24.923	302.1	0.000	6.14	268.3	102.6	2.7	0.36	0.9	0.12	0.04	0.95	0.33	0	
2	13.05	13.05	33.115	24.923	302.2	0.006	6.14	268.3	102.6	2.7	0.36	0.9	0.12	0.00	0.95	0.33	2	20
10	13.05	13.05	33.115	24.923	302.4	0.030	6.12	267.5	102.2	2.7	0.35	0.9	0.12	0.00	0.88	0.32	10	19
20	13.05	13.05	33.120	24.928	302.2	0.060	6.11	267.0	102.1	2.7	0.35	0.9	0.12	0.00	0.96	0.34	20	18
30	12.99	12.99	33.138	24.954	300.1	0.091	6.00	262.1	100.1	2.9	0.42	1.6	0.19	0.06	0.61	0.31	30	17
40	12.93	12.92	33.154	24.979	297.9	0.120	5.98	261.2	99.6	3.1	0.43	2.0	0.23	0.12	0.42	0.29	40	16
50	12.55	12.54	33.260	25.137	283.1	0.150	5.68	247.9	93.8	4.4	0.61	4.9	0.29	0.00	0.23	0.21	50	15
61	11.50	11.49	33.347	25.401	258.2	0.179	4.53	197.8	73.3	9.9	1.08	12.4	0.03	0.00	0.09	0.14	61	14
70	11.01	11.00	33.393	25.526	246.5	0.202	4.13	180.4	66.2	12.7	1.29	15.4	0.03	0.12	0.06	0.12	71	13
75 ISL	10.48 D	10.47	33.459 D	25.671	232.8	0.212	3.86	D168.1	D 61.1	14.0	1.33	16.2	0.03	0.00	0.06	0.10	76	
86	9.81	9.80	33.460	25.785	222.0	0.239	4.18	182.4	65.2	16.8	1.41	18.1	0.00	0.00	0.05	0.07	87	12
100	9.46	9.45	33.551	25.914	210.1	0.270	3.84	167.5	59.4	20.0	1.58	20.8	0.00	0.00	0.05	0.05	101	11
120	9.29	9.27	33.762	26.107	192.1	0.310	2.96	129.3	45.8	25.4	1.89	24.6	0.00	0.00	0.02	0.06	121	10
125 ISL	9.28 D	9.27	33.789 D	26.129	190.2	0.318	2.88	D125.3	D 44.5	25.6	1.88	24.6	0.01	0.00	0.02	0.06	126	
140	9.00	8.98	33.803	26.186	185.0	0.348	3.13	136.7	48.1	26.3	1.85	24.6	0.00	0.00	0.01	0.06	141	09
150 ISL	8.64 D	8.62	33.840 D	26.271	177.0	0.364	3.53	D153.5	D 53.7	27.6	1.84	24.7	0.01	0.00	0.01	0.05	151	
170	8.30	8.28	33.897	26.368	168.1	0.400	3.46	151.0	52.3	30.2	1.81	25.0	0.00	0.00	0.01	0.04	171	08
200	7.67	7.65	33.932	26.489	157.0	0.449	3.27	142.9	48.8	35.7	1.95	26.9	0.00	0.00	0.00	0.03	202	07
230	7.27	7.25	33.951	26.561	150.5	0.495	3.01	131.3	44.4	40.6	2.07	28.8	0.00	0.00			232	06
250 ISL	7.24 D	7.22	33.989 D	26.596	147.6	0.525	2.68	D116.5	D 39.5	44.2	2.21	30.4	0.01	0.00			252	
271	7.02	7.00	33.997	26.633	144.3	0.556	2.24	D 97.5	D 32.9	47.9	2.35	32.1	0.00	0.06			273	05
300 ISL	6.59 D	6.56	34.006 D	26.698	138.3	0.597	1.91	D 83.2	D 27.8	54.1	2.47	34.0	0.01	0.00			302	
320	6.19	6.16	33.990	26.738	134.6	0.624	1.91	83.2	27.5	58.4	2.56	35.3	0.00	0.00			323	04
381	5.81	5.78	34.058	26.841	125.4	0.704	1.11	48.4	15.8	68.4	2.86	38.8	0.00	0.00			384	03
400 ISL	5.66 D	5.62	34.066 D	26.865	123.2	0.728	1.07	D 46.4	D 15.2	71.2	2.91	39.3	0.01	0.00			403	
441	5.42	5.39	34.108	26.927	117.6	0.776	0.80	34.9	11.3	77.3	3.02	40.6	0.00	0.00			445	02
500 ISL	5.03 D	4.99	34.148 D	27.005	110.6	0.846	0.55	D 23.9	D 7.7	86.8	3.14	41.9	0.01	0.00			504	
516	4.91	4.86	34.154	27.025	108.8	0.861	0.51	22.4	7.2	89.3	3.17	42.3	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 REUBEN LASKER CALCOFI CRUISE 1701 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 43.0 N	123 37.6 W	18/01/2017	2207 UTC	4229 m	210 13 kn	230 04 08	2	1015.6 mb	15.0 C	14.3 C	20 m	8/8	SC	069

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.50	14.50	33.001	24.540	338.6	0.000	5.87	256.3	100.9	2.0	0.24	0.0	0.02	0.03	0.27	0.09	0	
3	14.50	14.49	33.001	24.540	338.6	0.010	5.87	256.3	100.9	2.0	0.24	0.0	0.00	0.00	0.27	0.09	3	20
10	14.50	14.49	33.001	24.541	338.8	0.034	5.86	256.0	100.7	1.6	0.21	0.0	0.00	0.00	0.26	0.12	10	19
20	14.50	14.50	33.000	24.540	339.2	0.068	5.85	255.7	100.6	1.5	0.21	0.0	0.00	0.00	0.28	0.09	20	18
30	14.50	14.49	33.000	24.540	339.5	0.102	5.86	255.9	100.7	1.5	0.22	0.0	0.00	0.00	0.30	0.10	30	17
40	14.50	14.50	33.002	24.541	339.7	0.136	5.86	256.0	100.8	1.5	0.22	0.0	0.00	0.00	0.28	0.09	40	16
50 ISL	14.50 D	14.50	33.002 D	24.542	340.0	0.166	5.81	D253.4	D 99.9	1.5	0.21	0.0	0.01	0.00	0.28	0.09	50	
51	14.51	14.50	33.003	24.542	340.0	0.173	5.87	256.2	100.8	1.5	0.21	0.0	0.00	0.00	0.28	0.09	51	15
60	14.49	14.48	33.003	24.547	339.8	0.204	5.85	255.5	100.5	1.5	0.21	0.0	0.00	0.00	0.30	0.10	60	14
69	14.17	14.16	32.999	24.611	333.9	0.234	5.86	255.7	100.0	1.7	0.25	0.2	0.06	0.18	0.26	0.10	70	13
75 ISL	13.98 D	13.97	32.999 D	24.651	330.3	0.251	5.81	D253.3	D 98.8	2.1	0.30	0.8	0.11	0.00	0.21	0.10	76	
86	13.15	13.14	33.066	24.871	309.6	0.289	5.80	253.3	97.0	2.7	0.38	1.9	0.22	0.00	0.14	0.08	87	12
100 ISL	12.36 D	12.35	33.134 D	25.077	290.3	0.328	5.57	D242.8	D 91.7	4.2	0.51	4.2	0.11	0.00	0.10	0.07	101	
101	12.36	12.34	33.133	25.078	290.2	0.334	5.60	244.7	92.2	4.3	0.52	4.4	0.11	0.00	0.10	0.07	102	11
121	11.63	11.61	33.183	25.254	273.8	0.390	5.39	235.4	87.4	5.8	0.66	6.4	0.04	0.00	0.08	0.07	122	10
125 ISL	11.46 D	11.45	33.173 D	25.275	271.8	0.399	5.32	D231.6	D 85.8	6.8	0.73	7.6	0.03	0.00	0.07	0.06	126	
141	10.40	10.38	33.337	25.592	241.9	0.442	4.83	210.9	76.3	10.7	1.03	12.3	0.00	0.10	0.02	0.04	142	09
150 ISL	9.93 D	9.91	33.455 D	25.764	225.6	0.461	4.50	D195.8	D 70.3	13.7	1.20	14.9	0.02	0.00	0.02	0.04	151	
170	9.46	9.44	33.631	25.979	205.5	0.507	3.82	166.5	59.1	20.5	1.59	20.8	0.00	0.00	0.01	0.03	171	08
200 ISL	8.70 D	8.67	33.818 D	26.247	180.4	0.563	3.64	D158.3	D 55.5	25.6	1.69	23.1	0.01	0.00	0.00	0.02	202	
202	8.65	8.63	33.806	26.245	180.6	0.568	3.67	160.1	55.9	25.9	1.70	23.3	0.00	0.00	0.00	0.02	204	07
232	8.17	8.15	33.937	26.421	164.3	0.620	3.28	143.1	49.5	32.2	1.87	25.9	0.00	0.00			234	06
250 ISL	8.02 D	7.99	33.975 D	26.474	159.5	0.648	3.10	D134.7	D 46.6	34.7	1.93	26.9	0.01	0.00			252	
270	7.73	7.71	33.974	26.515	155.9	0.681	3.03	132.3	45.3	37.5	2.00	27.9	0.00	0.00			272	05
300 ISL	7.02 D	6.99	33.976 D	26.617	146.3	0.725	2.75	D119.7	D 40.4	44.8	2.19	30.6	0.01	0.00			302	
320	6.77	6.74	33.982	26.656	142.8	0.755	2.37	103.6	34.7	49.6	2.32	32.3	0.00	0.00			323	04
380	6.03	6.00	34.004	26.770	132.2	0.838	1.72	75.1	24.7	60.8	2.63	36.2	0.00	0.00			383	03
400 ISL	5.84 D	5.81	34.024 D	26.809	128.6	0.864	1.47	D 63.8	D 21.0	64.5	2.71	37.2	0.01	0.00			403	
441	5.52	5.48	34.041	26.863	123.8	0.916	1.22	53.2	17.3	71.9	2.86	39.1	0.00	0.00			445	02
500 ISL	5.22 D	5.17	34.116 D	26.959	115.2	0.987	0.73	D 31.7	D 10.3	80.1	3.04	41.0	0.01	0.00			504	
515	5.22	5.17	34.128	26.969	114.4	1.004	0.68	29.5	9.5	82.2	3.09	41.5	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 23.1 N	124 19.1 W	18/01/2017	1722 UTC	4555 m	200 20 kn	220 04 08	2	1016.8 mb	15.2 C	13.9 C	21 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	16.27	16.27	33.378	24.440	348.1	0.000	5.60	244.5	99.9	1.9	0.20	0.0	0.01	0.00	0.20	0.07	0	
2 A	16.27	16.27	33.378	24.440	348.2	0.007	5.60	244.5	99.9	1.9	0.20	0.0	0.00	0.00	0.20	0.07	2	24
10	16.27	16.27	33.379	24.441	348.4	0.035	5.61	245.0	100.1	1.9	0.21	0.0	0.00	0.00	0.21	0.06	10	23
16 A	16.28	16.27	33.382	24.442	348.5	0.056	5.60	D244.3	D100.1	1.9	0.20	0.0	0.00	0.00	0.20	0.06	16	22
20 ISL	16.28 D	16.27	33.381 D	24.442	348.7	0.067	5.61	D244.4	D100.1	1.9	0.20	0.0	0.00	0.00	0.21	0.05	20	
25 A	16.28	16.28	33.377	24.439	349.1	0.087	5.60	244.4	99.9	1.9	0.21	0.0	0.00	0.00	0.22	0.04	25	21
30 ISL	16.28 D	16.27	33.380 D	24.442	349.0	0.102	5.61	D244.4	D100.1	1.9	0.21	0.0	0.00	0.00	0.21	0.04	30	
39 A	16.28	16.27	33.381	24.442	349.3	0.136	5.60	244.8	100.0	1.9	0.20	0.0	0.00	0.00	0.21	0.05	39	20
48	16.28	16.28	33.380	24.442	349.6	0.168	5.60	244.7	100.0	1.8	0.20	0.0	0.00	0.00	0.19	0.07	48	19
50 ISL	16.28 D	16.28	33.380 D	24.442	349.7	0.172	5.60	D244.3	D100.1	1.8	0.20	0.0	0.00	0.00	0.19	0.07	50	
56	16.29	16.28	33.380	24.442	349.9	0.196	5.60	244.8	100.0	1.8	0.20	0.0	0.00	0.00	0.19	0.07	56	18
68 A	16.29	16.28	33.378	24.441	350.5	0.238	5.60	244.7	100.0	1.8	0.19	0.0	0.00	0.00	0.21	0.06	69	17
74	16.29	16.27	33.380	24.443	350.4	0.259	5.61	245.0	100.1	1.8	0.19	0.0	0.00	0.00	0.20	0.06	75	16
75 ISL	16.29 D	16.27	33.380 D	24.443	350.5	0.260	5.59	D243.9	D 99.9	1.8	0.19	0.0	0.00	0.00	0.20	0.06	76	
79 A	16.29	16.27	33.378	24.442	350.8	0.276	5.60	244.6	100.0	1.8	0.20	0.0	0.00	0.00	0.20	0.06	80	15
89	15.94	15.92	33.385	24.528	342.9	0.311	5.62	245.3	99.6	1.9	0.21	0.0	0.03	0.00	0.23	0.07	90	14
94	15.73	15.71	33.492	24.657	330.7	0.328											95	13
96	15.69	15.68	33.491	24.663	330.2	0.334	5.54	242.2	97.9	2.5	0.23	0.2	0.15	0.00	0.23	0.14	97	12
100 ISL	14.43 D	14.42	33.368 D	24.843	313.0	0.346	5.55	D241.6	D 95.4	2.7	0.26	0.7	0.12	0.00	0.19	0.12	101	
111	13.63	13.61	33.388	25.026	295.7	0.380	5.51	240.6	93.2	3.3	0.36	2.0	0.00	0.00	0.09	0.08	112	11
125	12.81	12.79	33.500	25.275	272.2	0.420	5.31	231.7	88.3	5.0	0.48	4.4	0.00	0.00	0.04	0.06	126	10
140	11.41	11.40	33.479	25.524	248.7	0.459	4.97	217.3	80.4	8.7	0.81	9.5	0.00	0.00	0.03	0.03	141	09
150 ISL	10.75 D	10.73	33.490 D	25.651	236.6	0.483	4.92	D214.2	D 78.4	11.1	0.98	12.0	0.01	0.00	0.02	0.03	151	
171	9.88	9.86	33.555	25.851	217.9	0.531	4.29	187.6	67.1	16.2	1.33	17.2	0.00	0.00	0.01	0.02	172	08
200 ISL	9.15 D	9.12	33.800 D	26.163	188.6	0.590	3.96	D172.1	D 60.9	22.1	1.53	20.9	0.01	0.00	0.00	0.02	202	
202	9.08	9.06	33.811	26.181	186.9	0.593	3.93	171.8	60.5	22.5	1.54	21.1	0.00	0.00	0.00	0.02	204	07
232	8.58	8.55	33.919	26.345	171.7	0.647	3.56	155.4	54.2	27.7	1.73	23.8	0.00	0.00			234	06
250 ISL	8.22 D	8.19	33.962 D	26.433	163.5	0.678	2.82	D122.8	D 42.6	32.3	1.91	26.3	0.01	0.00			252	
270	7.95	7.92	33.985	26.492	158.2	0.710	2.64	115.3	39.6	37.4	2.11	29.0	0.00	0.00			272	05
300 ISL	7.59 D	7.56	34.012 D	26.566	151.5	0.758	2.38	D103.3	D 35.4	42.7	2.29	31.1	0.01	0.00			302	
320	7.34	7.31	34.026	26.613	147.2	0.786	1.97	85.9	29.1	46.2	2.41	32.5	0.00	0.00			323	04
382	6.55	6.52	34.070	26.756	134.1	0.873	1.25	54.4	18.1	58.7	2.72	36.7	0.00	0.00			385	03
400 ISL	6.46 D	6.42	34.094 D	26.787	131.4	0.900	1.07	D 46.4	D 15.5	60.8	2.80	37.3	0.01	0.00			403	
438	6.45	6.41	34.167	26.848	126.3	0.946	0.67	29.3	9.7	65.2	2.98	38.5	0.00	0.00			442	02
500 ISL	6.01 D	5.96	34.201 D	26.932	118.8	1.026	0.52	D 22.6	D 7.5	72.3	3.07	39.8	0.01	0.00			504	
513	5.93	5.88	34.209	26.948	117.3	1.037	0.45	19.6	6.5	73.8	3.09	40.1	0.00	0.00			517	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 REUBEN LASKER CALCOFI CRUISE 1701 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 27.6 N	120 29.7 W	17/01/2017	0324 UTC	31 m	260 06 kn			1016.4 mb	14.2 C	12.0 C				060

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.93	13.93	33.306	24.894	304.9	0.000	5.74	250.4	97.6	5.2	0.57	2.6	0.20	0.17	1.34	0.46	0	
2	13.93	13.93	33.306	24.894	304.9	0.006	5.74	250.4	97.6	5.2	0.57	2.6	0.20	0.17	1.34	0.46	2	05
5	13.93	13.93	33.308	24.894	305.0	0.015	5.73	250.3	97.6	5.1	0.56	2.6	0.19	0.13	1.39	0.44	5	04
10	13.93	13.92	33.308	24.896	305.0	0.030	5.76	251.5	98.0	5.2	0.59	2.6	0.20	0.11	1.34	0.43	10	03
20	13.86	13.86	33.312	24.913	303.7	0.061	5.70	249.0	96.9						1.24	0.39	20	02
25	13.71	13.71	33.313	24.946	300.7	0.076	5.58	243.7	94.6	5.8	0.64	3.5	0.25	0.27	1.17	0.41	25	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 80.0 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 26.8 N	120 31.5 W	17/01/2017	0407 UTC	77 m	290 08 kn			1016.3 mb	14.2 C	12.2 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	13.95	13.95	33.305	24.888	305.4	0.000	5.81	253.7	99.0	5.0	0.54	2.3	0.18	0.21	1.58	0.46	0	
2	13.95	13.95	33.305	24.888	305.5	0.006	5.81	253.7	99.0	5.0	0.54	2.3	0.18	0.21	1.58	0.46	2	09
5	13.95	13.95	33.306	24.889	305.5	0.015	5.80	253.2	98.8	5.0	0.54	2.3	0.19	0.18	1.44	0.43	5	08
10	13.95	13.95	33.304	24.888	305.8	0.031	5.82	254.0	99.1	4.8	0.51	2.2	0.17	0.16	1.53	0.43	10	06
10	13.95	13.95	33.304	24.888	305.8	0.031											10	07
20	13.89	13.89	33.309	24.904	304.5	0.061	5.71	249.5	97.2	5.4	0.62	2.8	0.25	0.38	1.19	0.38	20	05
30	13.58	13.57	33.316	24.976	298.0	0.091	5.51	240.5	93.1	6.2	0.68	3.7	0.29	0.62	0.82	0.38	30	04
41	13.51	13.50	33.320	24.993	296.7	0.124	5.52	241.1	93.2	6.3	0.69	4.1	0.26	0.50	0.84	0.37	41	03
50	12.77	12.76	33.361	25.172	279.9	0.150	4.89	213.3	81.2	9.0	0.94	8.1	0.25	0.29	0.43	0.30	50	02
64	11.64	11.63	33.430	25.440	254.6	0.187	3.88	169.2	62.9	13.7	1.37	14.7	0.11	0.00	0.10	0.15	65	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 80.0 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 19.2 N	120 48.0 W	17/01/2017	0649 UTC	743 m	330 09 kn			1017.4 mb	13.2 C	12.1 C				062

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.64	13.64	33.322	24.964	298.2	0.000	5.75	251.0	97.3	5.9	0.59	3.6	0.21	0.21	0.50	0.22	0	
2	13.64	13.64	33.322	24.964	298.2	0.006	5.75	251.0	97.3	5.9	0.59	3.6	0.21	0.21	0.50	0.22	2	22
10	13.64	13.64	33.324	24.968	298.2	0.030	5.75	251.2	97.4	5.6	0.59	3.5	0.20	0.19	0.50	0.22	10	19
10	13.64	13.64	33.324	24.968	298.2	0.030											10	21
10	13.64	13.64	33.324	24.967	298.2	0.029											10	20
20	13.64	13.64	33.326	24.969	298.3	0.060	5.74	250.7	97.2	5.6	0.59	3.5	0.20	0.19	0.54	0.20	20	18
30	13.59	13.59	33.320	24.975	298.1	0.090	5.73	250.2	96.9	5.5	0.56	3.3	0.21	0.13	0.76	0.34	30	17
40	13.12	13.12	33.352	25.095	286.9	0.119	5.39	235.2	90.2	6.8	0.73	5.7	0.25	0.13	0.58	0.29	40	16
50	12.29	12.29	33.391	25.287	268.9	0.147	4.58	199.9	75.3	9.7	1.06	11.3	0.13	0.00	0.22	0.16	50	15
60	11.60	11.59	33.419	25.439	254.6	0.173	4.12	179.8	66.8	12.5	1.25	14.4	0.06	0.00	0.19	0.17	60	14
70	11.02	11.01	33.469	25.583	241.1	0.198	3.86	168.7	61.9	14.6	1.62	16.7	0.03	0.00	0.11	0.11	71	13
75 ISL	10.91 D	10.90	33.506 D	25.631	236.6	0.208	3.69	D160.5 D	58.9	16.1	1.64	17.9	0.03	0.00	0.09	0.10	76	
86	10.31	10.30	33.618	25.823	218.6	0.235	3.31	144.7	52.3	19.5	1.68	20.7	0.00	0.00	0.05	0.08	87	12
100 ISL	10.08 D	10.07	33.686 D	25.917	210.0	0.263	3.10	D135.0 D	48.8	21.5	1.78	22.1	0.02	0.00	0.02	0.06	101	
101	10.08	10.07	33.682	25.914	210.2	0.267	3.11	135.7	48.9	21.7	1.79	22.2	0.00	0.00	0.02	0.06	102	11
121	9.98	9.97	33.759	25.991	203.4	0.308	2.90	126.7	45.5	23.0	1.87	23.0	0.00	0.00	0.02	0.05	122	10
125 ISL	9.80 D	9.78	33.816 D	26.066	196.3	0.315	2.77	D120.6 D	43.3	23.8	1.90	23.5	0.02	0.00	0.01	0.05	126	
140	9.46	9.44	33.869	26.164	187.3	0.345	2.64	115.2	40.9	27.0	2.00	25.3	0.00	0.00	0.01	0.05	141	09
150 ISL	9.24 D	9.23	33.917 D	26.236	180.6	0.362	2.55	D111.0 D	39.4	28.6	2.07	26.0	0.01	0.00	0.01	0.05	151	
170	9.23	9.21	34.036	26.333	171.9	0.399	2.11	92.3	32.7	31.9	2.20	27.6	0.00	0.00	0.01	0.04	171	08
200 ISL	8.99 D	8.97	34.082 D	26.408	165.3	0.449	1.81	D 78.6 D	27.8	35.0	2.34	28.8	0.02	0.00	0.00	0.04	202	
201	9.00	8.98	34.085	26.409	165.3	0.451	1.84	80.4	28.4	35.1	2.34	28.9	0.00	0.00	0.00	0.04	203	07
230	8.62	8.59	34.117	26.494	157.6	0.498	1.46	63.9	22.3	40.4	2.48	30.8	0.00	0.00			232	06
250 ISL	8.44 D	8.42	34.126 D	26.529	154.7	0.529	1.37	D 59.7 D	20.9	42.0	2.53	31.4	0.02	0.00			252	
270	8.31	8.28	34.153	26.571	151.0	0.559	1.32	57.5	20.0	43.6	2.57	32.1	0.00	0.00			272	05
300 ISL	7.93 D	7.90	34.192 D	26.659	143.0	0.604	1.07	D 46.7 D	16.1	47.3	2.67	33.4	0.02	0.00			302	
320	7.82	7.79	34.196	26.679	141.4	0.632	1.00	43.4	14.9	49.8	2.73	34.2	0.00	0.00			323	04
380	7.35	7.31	34.216	26.764	134.2	0.715	0.80	34.7	11.8	55.8	2.86	35.9	0.00	0.00			383	03
400 ISL	7.25 D	7.21	34.218 D	26.779	133.0	0.743	0.75	D 32.5 D	11.1	59.2	2.92	36.2	0.01	0.00			403	
441	6.96	6.92	34.235	26.833	128.3	0.795	0.50	21.7	7.3	66.3	3.05	36.6	0.00	0.00			445	02
500 ISL	6.61 D	6.56	34.256 D	26.899	122.7	0.872	0.41	D 18.0 D	6.0	71.1	3.12	38.2	0.02	0.00			504	
515	6.48	6.44	34.264	26.921	120.7	0.887	0.37	16.3	5.4	72.3	3.14	38.6	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 80.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 8.8 N	121 9.3 W	17/01/2017	1049 UTC	2209 m	320 09 kn			1017.7 mb	12.9 C	11.8 C				063

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.74	13.74	33.158	24.818	312.1	0.000	6.02	262.8	102.0	0.9	0.30	0.0	0.04	0.00	0.82	0.21	0	
2	13.74	13.74	33.158	24.818	312.1	0.006	6.02	262.8	102.0	0.9	0.30	0.0	0.04	0.00	0.82	0.21	2	22
10	13.75	13.75	33.158	24.817	312.5	0.031	6.05	264.1	102.5	1.7	0.31	0.1	0.05	0.00	0.87	0.18	10	20
10	13.75	13.75	33.158	24.817	312.5	0.033											10	21
20	13.74	13.74	33.159	24.821	312.5	0.063	6.04	263.8	102.3	1.5	0.30	0.0	0.05	0.00	0.87	0.20	20	19
30	13.72	13.72	33.197	24.854	309.6	0.094	5.95	259.9	100.8	1.6	0.34	0.4	0.14	0.08	0.66	0.22	30	18
40	13.69	13.68	33.310	24.949	300.9	0.124	5.77	252.1	97.8	1.6	0.41	1.4	0.36	0.20	0.33	0.22	40	17
50	13.63	13.63	33.314	24.963	299.8	0.154	5.74	250.9	97.2	1.7	0.44	1.7	0.39	0.17	0.28	0.17	50	16
60	13.11	13.10	33.316	25.070	289.9	0.184	5.62	245.4	94.0	2.3	0.50	2.7	0.44	0.00	0.19	0.15	60	14
71	12.05	12.04	33.341	25.295	268.7	0.215	4.77	208.5	78.1	7.4	0.92	9.8	0.05	0.00	0.07	0.12	72	13
75 ISL	11.78 D	11.77	33.380 D	25.376	261.0	0.224	4.28	D186.2 D	69.6	8.9	1.02	11.4	0.04	0.00	0.07	0.11	76	
86	11.01	11.00	33.407	25.537	245.9	0.253	4.07	177.9	65.2	13.0	1.31	15.7	0.03	0.00	0.05	0.09	87	12
100 ISL	10.42 D	10.41	33.481 D	25.699	230.8	0.285	3.75	D163.2 D	59.3	16.3	1.51	18.7	0.02	0.00	0.03	0.08	101	
101	10.38	10.37	33.473	25.700	230.6	0.289	3.76	164.3	59.4	16.5	1.52	19.0	0.00	0.00	0.03	0.08	102	11
120	9.70	9.69	33.648	25.951	207.0	0.331	3.30	144.1	51.5	21.8	1.77	22.6	0.00	0.00	0.02	0.05	121	10
125 ISL	9.63 D	9.62	33.677 D	25.986	203.9	0.339	3.23	D140.7 D	50.3	22.8	1.81	23.1	0.02	0.00	0.02	0.05	126	
140	9.37	9.35	33.774	26.104	192.9	0.371	2.89	126.0	44.7	25.5	1.93	24.6	0.00	0.00	0.02	0.05	141	09
150 ISL	9.29 D	9.27	33.839 D	26.169	187.0	0.388	2.68	D116.8 D	41.5	27.2	1.99	25.4	0.02	0.00	0.01	0.05	151	
170	9.05	9.03	33.930	26.279	176.9	0.426	2.41	105.3	37.1	30.6	2.11	27.1	0.00	0.00	0.01	0.05	171	08
200	8.64	8.62	34.008	26.405	165.5	0.478	2.16	94.5	33.0	34.8	2.23	28.8	0.00	0.00	0.01	0.04	202	07
231	8.35	8.33	34.076	26.503	156.7	0.527	1.77	77.4	26.9	39.5	2.39	30.8	0.00	0.00			233	06
250 ISL	8.16 D	8.13	34.108 D	26.558	151.8	0.557	1.59	D 69.1 D	24.0	42.8	2.48	31.8	0.02	0.00			252	
271	7.82	7.79	34.127	26.623	145.8	0.588	1.37	59.6	20.4	46.4	2.58	32.8	0.00	0.00			273	05
300 ISL	7.43 D	7.40	34.166 D	26.710	137.8	0.630	1.05	D 45.6 D	15.6	51.5	2.71	34.4	0.01	0.00			302	
321	7.27	7.23	34.176	26.742	135.1	0.658	0.94	41.0	13.9	55.1	2.81	35.5	0.00	0.00			324	04
382	6.66	6.63	34.233	26.870	123.5	0.737	0.57	25.1	8.4	65.1	3.01	37.9	0.00	0.00			385	03
400 ISL	6.49 D	6.46	34.235 D	26.894	121.4	0.760	0.53	D 22.8 D	7.6	66.5	3.03	38.1	0.01	0.00			403	
441	6.45	6.41	34.262	26.922	119.3	0.808	0.44	19.3	6.4	69.6	3.09	38.5	0.00	0.00			445	02
500 ISL	6.16 D	6.11	34.292 D	26.985	114.0	0.880	0.33	D 14.3 D	4.7	75.0	3.18	39.7	0.01	0.00			504	
515	6.10	6.05	34.297	26.997	113.0	0.894	0.33	14.2	4.7	76.3	3.20	40.0	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 REUBEN LASKER CALCOFI CRUISE 1701 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 48.9 N	121 50.5 W	17/01/2017	1749 UTC	3634 m	160 04 kn	220 06 10	1	1018.0 mb	15.0 C	13.8 C	11 m	3/8	ST	064

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.63	13.63	33.174	24.853	308.8	0.000	6.12	267.3	103.5	1.7	0.29	0.0	0.01	0.00	1.00	0.23	0	
2 A	13.63	13.63	33.174	24.853	308.8	0.006	6.12	267.3	103.5	1.7	0.29	0.0	0.00	0.00	1.00	0.23	2	24
9	13.62	13.62	33.176	24.857	308.7	0.028											9	23
10 A	13.63	13.62	33.172	24.853	309.1	0.031	6.12	267.4	103.5	1.6	0.29	0.0	0.00	0.00	1.00	0.25	10	22
13 A	13.60	13.60	33.175	24.861	308.4	0.040	6.09	266.2	103.0	1.7	0.29	0.0	0.00	0.00	1.02	0.26	13	21
20 ISL	13.59 D	13.59	33.180 D	24.867	308.1	0.059	6.07	D264.5 D	102.5	1.6	0.29	0.0	0.01	0.00	1.19	0.31	20	
21 A	13.58	13.58	33.184	24.871	307.7	0.065	6.07	264.9	102.4	1.6	0.29	0.0	0.00	0.00	1.22	0.31	21	20
28	13.55	13.54	33.198	24.890	306.1	0.086	6.02	263.0	101.6	1.7	0.30	0.1	0.04	0.00	1.10	0.34	28	18
28	13.55	13.54	33.196	24.888	306.3	0.086											28	19
30 ISL	13.55 D	13.54	33.201 D	24.892	306.0	0.090	5.97	D260.2 D	100.8	1.9	0.34	0.7	0.11	0.00	0.92	0.31	30	
35 A	13.16	13.16	33.235	24.996	296.2	0.108	5.73	250.3	96.0	2.5	0.45	2.2	0.28	0.00	0.45	0.23	35	17
42 A	12.73	12.72	33.280	25.116	284.9	0.128	5.48	239.1	90.9	3.7	0.61	4.8	0.23	0.00	0.19	0.17	42	16
50	12.24	12.24	33.305	25.229	274.3	0.150	5.13	223.8	84.2	5.7	0.77	7.6	0.09	0.00	0.10	0.14	50	15
61	11.29	11.28	33.353	25.445	254.0	0.179	4.29	187.3	69.1	11.5	1.20	14.4	0.00	0.00	0.07	0.10	61	14
70	10.74	10.73	33.419	25.595	239.9	0.202	3.94	172.1	62.7	14.7	1.41	17.6	0.00	0.00	0.04	0.10	71	13
75 ISL	10.59 D	10.58	33.441 D	25.637	236.0	0.212	3.90	D169.7 D	61.9	16.0	1.48	18.6	0.02	0.00	0.04	0.09	76	
85	10.05	10.04	33.535	25.803	220.4	0.236	3.51	153.4	55.1	18.7	1.62	20.6	0.00	0.00	0.03	0.08	86	12
100	9.75	9.74	33.718	25.997	202.2	0.268	2.84	123.9	44.3	23.7	1.88	23.9	0.00	0.00	0.03	0.06	101	11
121	8.96	8.95	33.769	26.165	186.6	0.309	3.12	136.1	47.8	26.1	1.86	25.1	0.00	0.00	0.02	0.05	122	10
125 ISL	8.96 D	8.95	33.801 D	26.190	184.3	0.314	3.20	D139.2 D	49.1	26.7	1.88	25.4	0.01	0.00	0.02	0.05	126	
140	8.75	8.74	33.864	26.272	176.8	0.343	2.92	127.5	44.6	28.9	1.95	26.3	0.00	0.00	0.01	0.05	141	09
150 ISL	8.66 D	8.65	33.902 D	26.317	172.8	0.359	3.24	D141.2 D	49.5	28.7	1.86	25.4	0.02	0.00	0.01	0.04	151	
170	8.48	8.46	33.926	26.364	168.6	0.395	3.81	166.3	57.9	28.1	1.68	23.4	0.00	0.00	0.01	0.02	171	08
200	7.93	7.91	33.954	26.469	159.0	0.444	3.34	145.7	50.1	34.3	1.89	26.5	0.00	0.00	0.01	0.02	202	07
230	7.54	7.52	33.986	26.550	151.7	0.491	2.68	116.9	39.8	40.9	2.16	29.9	0.00	0.00			232	06
250 ISL	7.32 D	7.30	34.010 D	26.601	147.1	0.520	2.13	D 92.8 D	31.6	45.1	2.29	31.5	0.02	0.00			252	
270	7.02	6.99	34.013	26.646	143.1	0.550	2.05	89.4	30.1	49.3	2.42	33.2	0.00	0.00			272	05
300 ISL	6.75 D	6.72	34.055 D	26.716	136.8	0.591	1.50	D 65.4 D	22.0	55.1	2.60	35.4	0.01	0.00			302	
321	6.46	6.43	34.060	26.758	132.8	0.620	1.31	57.1	19.0	59.1	2.72	37.0	0.00	0.00			324	04
380	6.32	6.28	34.156	26.854	124.6	0.696	0.74	32.2	10.7	66.3	2.95	38.7	0.00	0.00			383	03
400 ISL	6.36 D	6.32	34.194 D	26.880	122.5	0.721	0.57	D 24.9 D	8.3	68.5	3.00	39.1	0.01	0.00			403	
440	6.09	6.05	34.222	26.936	117.6	0.769	0.43	18.8	6.2	73.0	3.10	40.0	0.00	0.00			444	02
500 ISL	5.54 D	5.50	34.238 D	27.018	110.1	0.839	0.34	D 14.7 D	4.8	82.6	3.20	41.7	0.01	0.00			504	
515	5.36	5.31	34.234	27.037	108.3	0.854	0.32	14.1	4.6	85.1	3.22	42.1	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 28.9 N	122 32.1 W	17/01/2017	2234 UTC	4041 m	030 02 kn	270 05 10	1	1018.0 mb	13.8 C	11.9 C	29 m	3/8	ST	065

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.70	14.70	33.026	24.517	340.8	0.000	5.84	255.1	100.8	1.8	0.25	0.0	0.03	0.01	0.30	0.05	0	
2	14.70	14.69	33.026	24.517	340.8	0.007	5.84	255.1	100.8	1.8	0.25	0.0	0.03	0.00	0.30	0.05	2	22
10	14.70	14.70	33.028	24.518	341.0	0.034	5.83	254.8	100.7	1.9	0.20	0.5	0.00	0.53	0.31	0.06	10	20
10	14.70	14.70	33.025	24.516	341.2	0.034											10	21
20	14.56	14.56	33.025	24.546	338.6	0.068	5.84	255.4	100.6	1.6	0.25	0.0	0.00	0.00	0.27	0.06	20	19
30	14.51	14.51	33.021	24.554	338.2	0.102	5.85	255.6	100.6	1.6	0.23	0.0	0.00	0.00	0.30	0.06	30	18
40	14.48	14.47	33.022	24.563	337.7	0.136	5.86	256.2	100.7	1.5	0.25	0.0	0.00	0.00	0.31	0.08	40	17
50	14.28	14.27	33.036	24.616	332.9	0.169	5.80	253.5	99.3	1.7	0.30	0.4	0.11	0.00	0.38	0.12	50	15
50	14.28	14.27	33.031	24.613	333.2	0.171											50	16
60	13.69	13.68	33.068	24.762	319.3	0.202	5.76	251.7	97.4	2.2	0.35	1.2	0.18	0.00	0.40	0.18	60	14
70	13.13	13.12	33.153	24.940	302.5	0.233	5.62	245.4	93.9	3.0	0.46	2.9	0.08	0.00	0.22	0.13	71	13
75 ISL	12.56 D	12.55	33.168 D	25.066	290.7	0.246	5.55	D241.9 D	91.7	3.8	0.53	4.0	0.06	0.00	0.17	0.11	76	
86	11.89	11.88	33.197	25.213	276.8	0.279	5.27	230.2	85.9	5.4	0.69	6.5	0.03	0.00	0.06	0.06	87	12
100 ISL	10.84 D	10.83	33.368 D	25.537	246.2	0.314	4.63	D201.5 D	73.8	10.8	1.07	12.7	0.02	0.00	0.03	0.04	101	
101	10.81	10.80	33.365	25.541	245.9	0.318	4.61	201.3	73.5	11.2	1.10	13.1	0.00	0.00	0.03	0.04	102	11
119	9.93	9.92	33.593	25.870	214.9	0.360	4.50	196.7	70.5	15.1	1.22	16.0	0.00	0.00	0.01	0.02	120	10
125 ISL	9.56 D	9.55	33.643 D	25.970	205.3	0.371	4.42	D192.2 D	68.6	17.2	1.35	17.7	0.02	0.00	0.02	0.02	126	
140	9.22	9.21	33.709	26.077	195.5	0.402	3.60	157.2	55.5	22.5	1.66	22.1	0.00	0.00	0.03	0.03	141	09
150 ISL	9.02 D	9.00	33.766 D	26.155	188.2	0.420	3.83	D166.5 D	58.8	23.8	1.68	22.5	0.01	0.00	0.02	0.03	151	
170	8.66	8.64	33.852	26.278	176.8	0.458	3.64	158.9	55.5	26.4	1.72	23.4	0.00	0.00	0.00	0.03	171	08
200	8.10	8.08	33.931	26.426	163.2	0.509	3.41	148.7	51.3	32.5	1.85	25.9	0.00	0.00	0.00	0.02	202	07
230	7.72	7.70	33.964	26.508	155.8	0.557	2.92	127.6	43.6	38.3	2.06	28.6	0.00	0.00			232	06
250 ISL	7.44 D	7.42	33.982 D	26.562	150.9	0.588	2.64	D115.0 D	39.2	41.8	2.17	30.1	0.01	0.00			252	
270	7.19	7.16	33.993	26.606	146.9	0.618	2.40	104.6	35.4	45.4	2.28	31.6	0.00	0.00			272	05
300 ISL	6.89 D	6.86	34.019 D	26.669	141.2	0.661	1.99	D 86.4 D	29.1	50.5	2.39	33.1	0.01	0.00			302	
320	6.42	6.39	33.975	26.697	138.6	0.689	2.18	95.3	31.6	54.0	2.46	34.2	0.00	0.00			323	04
380	6.27	6.23	34.132	26.842	125.7	0.769	0.83	36.3	12.0	66.6	2.92	38.7	0.00	0.00			383	03
400 ISL	5.90 D	5.86	34.102 D	26.865	123.5	0.795	0.89	D 38.7 D	12.7	69.4	2.97	39.4	0.01	0.00			403	
441	5.76	5.72	34.163	26.931	117.7	0.842	0.56	24.5	8.0	75.2	3.08	40.9	0.00	0.00			445	02
500 ISL	5.19 D	5.15	34.181 D	27.013	110.1	0.912	0.45	D 19.6 D	6.4	84.3	3.20	42.2	0.01	0.00			504	
517	5.19	5.15	34.205	27.033	108.4	0.928	0.37	16.3	5.3	86.9	3.23	42.5	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 REUBEN LASKER CALCOFI CRUISE 1701 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 12.7 W	18/01/2017	0416 UTC	4268 m	210 01 kn			1020.0 mb	15.0 C	12.5 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	15.73	15.73	33.255	24.467	345.6	0.000	5.69	248.5	100.4	1.8	0.22	0.0	0.01	0.04	0.17	0.05	0	
2	15.73	15.73	33.255	24.467	345.6	0.007	5.69	248.5	100.4	1.8	0.22	0.0	0.00	0.00	0.17	0.05	2	20
10	15.33	15.33	33.169	24.490	343.7	0.035	5.74	250.8	100.5	1.7	0.22	0.0	0.00	0.06	0.17	0.05	10	19
20 ISL	14.60 D	14.60	33.016 D	24.530	340.2	0.066	5.83	D254.2 D	100.5	1.7	0.26	0.0	0.00	0.07	0.24	0.07	20	
21	14.54	14.54	33.014	24.541	339.2	0.072	5.85	255.7	100.7	1.7	0.26	0.0	0.00	0.07	0.25	0.07	21	18
30	14.46	14.45	33.002	24.551	338.5	0.103	5.86	255.9	100.6	1.7	0.25	0.0	0.00	0.00	0.29	0.08	30	17
40	14.43	14.43	33.002	24.557	338.3	0.136	5.86	256.0	100.6	1.7	0.25	0.0	0.00	0.00	0.33	0.11	40	16
50 ISL	14.41 D	14.40	33.001 D	24.562	338.1	0.168	5.84	D254.6 D	100.2	1.7	0.26	0.0	0.01	0.00	0.31	0.10	50	
51	14.40	14.40	33.001	24.563	338.0	0.174	5.86	256.1	100.6	1.7	0.26	0.0	0.00	0.07	0.31	0.10	51	15
60	14.27	14.26	33.012	24.600	334.7	0.204	5.82	254.1	99.5	1.9	0.30	0.3	0.08	0.20	0.33	0.11	60	14
70	14.65	14.64	33.398	24.817	314.4	0.236	5.61	244.9	96.9	2.7	0.31	0.9	0.10	0.06	0.23	0.17	71	13
75 ISL	14.00 D	13.99	33.326 D	24.899	306.8	0.250	5.54	D241.5 D	94.5	3.0	0.35	1.6	0.08	0.00	0.20	0.14	76	
86	12.97	12.96	33.288	25.077	289.9	0.285	5.45	237.9	90.8	3.8	0.45	3.2	0.03	0.00	0.12	0.10	87	12
100	11.51	11.50	33.218	25.301	268.8	0.324	5.22	228.0	84.4	6.2	0.72	7.2	0.00	0.00	0.05	0.06	101	11
121	10.39	10.37	33.386	25.632	237.6	0.377	4.55	198.7	71.8	12.6	1.15	14.3	0.00	0.00	0.03	0.04	122	10
125 ISL	9.94 D	9.92	33.472 D	25.774	224.0	0.385	4.35	D189.2 D	68.0	14.2	1.24	15.8	0.01	0.00	0.03	0.04	126	
140	9.51	9.49	33.599	25.945	208.1	0.419	3.70	161.4	57.3	20.4	1.60	21.2	0.00	0.00	0.03	0.04	141	09
150 ISL	9.23 D	9.21	33.622 D	26.008	202.2	0.439	3.94	D171.3 D	60.7	21.6	1.61	21.6	0.01	0.00	0.03	0.04	151	
170	8.91	8.89	33.783	26.185	185.7	0.478	3.74	163.3	57.3	23.9	1.64	22.3	0.00	0.00	0.05	0.03	171	08
200	8.70	8.68	33.928	26.333	172.3	0.531	3.16	138.0	48.2	29.5	1.83	25.3	0.00	0.00	0.08	0.03	202	07
230	8.65	8.63	34.070	26.452	161.6	0.582	1.75	76.5	26.8	37.2	2.30	30.0	0.00	0.00			232	06
250 ISL	8.17 D	8.14	34.052 D	26.513	156.0	0.614	1.96	D 85.3 D	29.6	39.3	2.25	30.2	0.01	0.00			252	
269	7.65	7.62	34.014	26.558	151.8	0.643	2.34	102.1	34.8	41.4	2.20	30.4	0.00	0.00			271	05
300 ISL	7.28 D	7.25	34.030 D	26.625	145.7	0.690	1.99	D 86.6 D	29.4	47.0	2.34	32.4	0.01	0.00			302	
319	6.92	6.89	34.024	26.669	141.6	0.716	1.88	82.2	27.6	50.4	2.43	33.6	0.00	0.00			322	04
380	6.37	6.34	34.073	26.782	131.5	0.800	1.17	50.9	16.9	61.2	2.73	37.4	0.00	0.00			383	03
400 ISL	6.16 D	6.12	34.094 D	26.826	127.4	0.827	0.96	D 41.8 D	13.8	64.8	2.81	38.3	0.01	0.00			403	
441	5.88	5.84	34.133	26.892	121.5	0.876	0.70	30.4	10.0	72.1	2.97	40.0	0.00	0.00			445	02
500 ISL	5.47 D	5.43	34.183 D	26.982	113.4	0.949	0.46	D 20.1 D	6.6	79.9	3.12	41.3	0.01	0.00			504	
516	5.42	5.38	34.194	26.997	112.1	0.964	0.43	18.7	6.1	82.0	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 REUBEN LASKER CALCOFI CRUISE 1701 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 48.7 N	123 54.6 W	18/01/2017	0956 UTC	4345 m	230 09 kn			1019.3 mb	15.0 C	14.2 C				067

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.11	15.11	33.211	24.571	335.7	0.000	5.80	253.4	101.1	1.6	0.28	0.1	0.04	0.03	0.31	0.07	0	
2	15.11	15.11	33.211	24.571	335.7	0.007	5.80	253.4	101.1	1.6	0.28	0.1	0.04	0.00	0.31	0.07	2	22
10	15.11	15.11	33.210	24.570	336.1	0.034	5.80	253.3	101.0	1.2	0.27	0.0	0.03	0.00	0.32	0.09	10	20
10	15.11	15.11	33.211	24.570	336.0	0.035											10	21
20	15.10	15.09	33.209	24.573	336.1	0.067	5.79	253.1	100.9	1.2	0.26	0.0	0.03	0.00	0.30	0.08	20	19
30	15.09	15.09	33.210	24.575	336.2	0.101	5.78	252.3	100.6	1.2	0.27	0.0	0.03	0.00	0.36	0.09	30	17
30	15.09	15.09	33.211	24.576	336.1	0.100											30	18
40	15.09	15.08	33.207	24.574	336.7	0.134	5.81	253.9	101.2	1.2	0.28	0.0	0.03	0.00	0.36	0.09	40	16
50	14.94	14.93	33.214	24.612	333.3	0.168	5.75	251.0	99.8	1.2	0.29	0.1	0.06	0.00	0.32	0.08	50	15
60	13.38	13.37	33.219	24.941	302.2	0.200	5.22	227.9	87.7	3.9	0.62	5.4	0.10	0.00	0.34	0.10	60	14
70	12.10	12.09	33.250	25.216	276.1	0.229	4.68	204.4	76.6	7.7	0.95	10.8	0.04	0.00	0.19	0.12	71	13
75 ISL	11.88 D	11.87	33.292 D	25.290	269.3	0.241	4.50	D195.8 D	73.3	9.3	1.07	12.6	0.04	0.00	0.16	0.11	76	
85	11.18	11.17	33.361	25.471	252.1	0.268	4.08	178.2	65.5	12.6	1.30	16.2	0.03	0.00	0.11	0.10	86	12
100 ISL	10.59 D	10.58	33.409 D	25.614	238.8	0.304	3.90	D169.7 D	61.8	15.1	1.41	18.1	0.02	0.00	0.06	0.07	101	
101	10.51	10.50	33.414	25.631	237.2	0.308	3.94	172.0	62.4	15.2	1.42	18.3	0.00	0.00	0.05	0.06	102	11
121	9.61	9.59	33.566	25.903	211.7	0.352	3.62	158.1	56.3	20.1	1.63	21.4	0.00	0.00	0.01	0.04	122	10
125 ISL	9.48 D	9.47	33.639 D	25.979	204.4	0.360	3.47	D151.0 D	53.8	21.1	1.68	22.2	0.01	0.00	0.01	0.04	126	
140	9.29	9.28	33.766	26.110	192.4	0.391	2.92	127.7	45.2	25.1	1.88	24.9	0.00	0.00	0.00	0.04	141	09
150 ISL	9.22 D	9.20	33.813 D	26.159	187.9	0.409	2.81	D122.4 D	43.4	26.2	1.92	25.4	0.01	0.00	0.00	0.03	151	
170	8.96	8.95	33.884	26.256	179.0	0.446	2.72	118.7	41.7	28.5	1.99	26.4	0.00	0.00	0.00	0.03	171	08
200 ISL	8.58 D	8.56	33.986 D	26.397	166.2	0.498	2.37	D103.0 D	36.0	33.3	2.14	28.3	0.01	0.00	0.00	0.03	202	
201	8.58	8.55	33.985	26.396	166.2	0.500	2.36	102.8	35.9	33.4	2.15	28.4	0.00	0.00	0.00	0.03	203	07
230	7.99	7.97	34.016	26.510	155.8	0.547	2.31	100.8	34.7	38.4	2.21	29.9	0.00	0.00			232	06
250 ISL	7.75 D	7.72	34.036 D	26.561	151.2	0.577	2.03	D 88.4 D	30.4	42.1	2.31	31.3	0.01	0.00			252	
270	7.42	7.39	34.044	26.615	146.3	0.607	1.90	82.8	28.1	45.9	2.40	32.7	0.00	0.00			272	05
300 ISL	7.08 D	7.05	34.069 D	26.682	140.2	0.651	1.50	D 65.1 D	22.0	51.4	2.56	34.6	0.01	0.00			302	
320	6.81	6.78	34.071	26.721	136.6	0.678	1.35	59.1	19.8	55.0	2.66	35.8	0.00	0.00			323	04
381	6.22	6.18	34.085	26.811	128.6	0.759	1.06	46.3	15.3	64.1	2.85	38.1	0.00	0.00			384	03
400 ISL	6.06 D	6.02	34.089 D	26.834	126.5	0.785	0.98	D 42.8 D	14.1	66.8	2.89	38.7	0.01	0.00			403	
441	5.77	5.73	34.115	26.892	121.4	0.834	0.79	34.3	11.2	72.7	2.98	40.0	0.00	0.00			445	02
500 ISL	5.61 D	5.57	34.206 D	26.984	113.3	0.906	0.43	D 18.9 D	6.2	80.3	3.13	41.2	0.01	0.00			504	
515	5.45	5.41	34.207	27.003	111.5	0.920	0.41	17.8	5.8	82.3	3.17	41.5	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 81.7 43.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 23.8 N	119 47.5 W	16/01/2017	2056 UTC	36 m	240 08 kn	280 01 08	0	1016.6 mb	16.5 C	14.0 C		0/8		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	14.45	14.45	33.218	24.717	321.7	0.000	6.02	263.0	103.6	4.1	0.39	1.1	0.19	0.64	2.06	0.33	0	
1	14.45	14.45	33.218	24.717	321.7	0.003	6.02	263.0	103.6	4.1	0.39	1.1	0.19	0.64	2.06	0.33	1	05
5	14.46	14.46	33.213	24.711	322.4	0.016	6.02	263.1	103.6	4.1	0.38	1.1	0.18	0.65	1.76	0.32	5	04
10	14.24	14.24	33.219	24.762	317.7	0.032	6.05	264.4	103.7	4.0	0.39	0.9	0.16	0.39	2.00	0.48	10	03
20	14.22	14.21	33.216	24.766	317.7	0.064	5.93	259.1	101.5	4.3	0.40	1.1	0.18	0.45	1.49	0.35	20	02
25	14.22	14.21	33.225	24.773	317.2	0.080	5.96	260.3	102.0	4.3	0.42	1.1	0.19	0.51	1.09	0.37	25	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 81.8 46.9

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 16.4 N	120 1.7 W	16/01/2017	2258 UTC	576 m	280 08 kn	280 02 08	0	1016.2 mb	14.0 C	11.7 C	10 m	0/8		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	14.09	14.09	33.303	24.857	308.4	0.000	6.02	262.7	102.8	4.8	0.43	1.4	0.14	0.02	1.86	0.53	0	
2	14.09	14.09	33.303	24.857	308.4	0.006	6.02	262.7	102.8	4.8	0.43	1.4	0.14	0.00	1.86	0.53	2	24
10	13.98	13.98	33.302	24.880	306.5	0.031	6.02	262.8	102.6	4.8	0.45	1.4	0.15	0.46	1.79	0.61	10	23
20 ISL	13.90 D	13.90	33.301 D	24.897	305.2	0.059	5.94	D258.8 D	101.0	4.7	0.46	1.5	0.14	0.15	1.81	0.67	20	
21	13.90	13.89	33.301	24.898	305.2	0.065	5.96	260.1	101.3	4.7	0.46	1.5	0.14	0.12	1.81	0.68	21	22
30	13.75	13.74	33.309	24.934	301.9	0.092	5.73	250.3	97.2	5.1	0.51	2.4	0.21	0.00	1.19	0.60	30	21
40	13.00	13.00	33.343	25.112	285.3	0.121	4.93	215.1	82.3	7.8	0.84	7.6	0.31	0.00	0.44	0.31	40	20
50	12.31	12.30	33.382	25.278	269.7	0.149	4.38	191.1	72.1	10.9	1.10	11.7	0.11	0.00	0.18	0.15	50	19
60	11.95	11.94	33.405	25.364	261.8	0.176	4.08	178.2	66.7	12.1	1.23	13.4	0.03	0.00	0.15	0.16	60	18
70	11.57	11.56	33.443	25.464	252.5	0.201	3.85	168.0	62.4	14.0	1.35	15.2	0.03	0.00	0.09	0.13	71	17
75 ISL	11.16 D	11.15	33.509 D	25.590	240.6	0.212	3.68	D160.2 D	59.1	16.1	1.47	17.1	0.03	0.00	0.07	0.11	76	
85	10.38	10.37	33.642	25.830	217.9	0.237	3.14	137.2	49.7	20.5	1.72	20.7	0.00	0.00	0.02	0.08	86	16
100	10.01	10.00	33.742	25.973	204.6	0.268	2.87	125.1	45.0	23.2	1.87	22.6	0.00	0.00	0.01	0.06	101	15
121	9.78	9.77	33.825	26.076	195.3	0.310	2.67	116.7	41.8	25.2	1.95	23.9	0.00	0.00	0.01	0.05	122	14
125 ISL	9.72 D	9.70	33.858 D	26.112	191.9	0.317	2.63	D114.4 D	41.0	25.9	1.97	24.2	0.02	0.00	0.01	0.05	126	
140	9.53	9.51	33.919	26.192	184.7	0.346	2.36	103.1	36.8	28.4	2.06	25.5	0.00	0.00	0.01	0.05	141	13
150 ISL	9.33 D	9.32	33.989 D	26.279	176.6	0.363	2.18	D 95.0 D	33.8	30.3	2.12	26.3	0.02	0.00	0.01	0.05	151	
171	9.11	9.09	34.049	26.363	169.0	0.401	1.86	80.9	28.6	34.3	2.26	28.0	0.00	0.00	0.01	0.04	172	12
200	9.00	8.98	34.079	26.404	165.7	0.450	1.75	76.6	27.0	36.0	2.31	28.6	0.00	0.00	0.01	0.05	202	11
230	8.79	8.76	34.120	26.471	159.9	0.498	1.48	64.4	22.6	39.7	2.43	29.7	0.00	0.00			232	10
250 ISL	8.57 D	8.54	34.149 D	26.528	154.8	0.530	1.10	D 47.7 D	16.7	43.8	2.55	30.7	0.01	0.00			252	
270	8.36	8.33	34.161	26.570	151.1	0.560	0.95	41.6	14.5	47.9	2.66	31.7	0.00	0.00			272	09
300 ISL	8.08 D	8.04	34.185 D	26.632	145.7	0.605	0.79	D 34.2 D	11.9	52.6	2.77	32.8	0.01	0.00			302	
320	7.84	7.80	34.195	26.675	141.8	0.634	0.67	29.3	10.1	55.8	2.85	33.4	0.00	0.00			323	08
380	7.26	7.22	34.215	26.775	133.0	0.716	0.47	20.7	7.0	64.7	3.00	34.4	0.00	0.00			383	07
400 ISL	7.09 D	7.05	34.223 D	26.805	130.4	0.744	0.45	D 19.7 D	6.7	67.5	3.05	34.2	0.01	0.00			403	
440	6.94	6.90	34.234	26.834	128.1	0.794	0.29	12.7	4.3	73.2	3.14	33.8	0.00	0.00			444	06
480	6.71	6.67	34.246	26.876	124.6	0.845	0.09	3.8	1.3	84.4	3.29	31.3	0.00	0.00			484	05
500 ISL	6.66 D	6.61	34.251 D	26.888	123.8	0.872	0.07 D	2.9 D	1.0	88.3	3.36	29.9	0.01	0.00			504	
516	6.63	6.58	34.250	26.892	123.6	0.890	0.02	1.0	0.3	91.4	3.41	28.8	0.00	0.00			520	04
540	6.59	6.54	34.251	26.898	123.4	0.919	0.01	0.6	0.2	94.6	3.51	26.6	0.00	0.00			545	03
565	6.56	6.50	34.253	26.904	123.2	0.950	0.01	0.4	0.1	101.7	3.75	20.8	0.00	0.24			570	02
570	6.56	6.50	34.253	26.905	123.2	0.956	0.01	0.3	0.1	101.9	3.73	20.8	0.00	0.26			575	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 15.5 N	119 20.4 W	16/01/2017	1659 UTC	20 m	050 09 kn	220 02 07	1	1017.9 mb	14.0 C	14.0 C		2/8	CU	056

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.19	14.19	33.209	24.765	317.1	0.000	5.60	244.5	95.8	5.7	0.75	2.7	0.35	0.81	1.49	0.55	0	
2	14.19	14.19	33.209	24.765	317.2	0.006	5.60	244.5	95.8	5.7	0.75	2.7	0.35	0.81	1.49	0.55	2	04
5	14.19	14.19	33.213	24.768	317.0	0.016	5.61	244.9	95.9	5.5	0.75	2.7	0.35	0.79	1.77	0.55	5	03
10	14.20	14.20	33.217	24.770	317.0	0.032	5.58	243.8	95.5	5.5	0.77	2.7	0.35	0.84	1.60	0.58	10	01
10	14.20	14.20	33.213	24.767	317.3	0.031											10	02

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 13.7 N	119 24.5 W	16/01/2017	1759 UTC	31 m	080 03 kn	210 02 07	1	1018.2 mb	14.0 C	13.0 C	14 m	2/8	CU	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	14.40	14.40	33.238	24.743	319.2	0.000	5.93	258.7	101.8	3.9	0.38	0.9	0.12	0.03	2.01	0.27	0	
2 A	14.40	14.40	33.238	24.743	319.3	0.006	5.93	258.7	101.8	3.9	0.38	0.9	0.12	0.00	2.01	0.27	2	06
5	14.38	14.38	33.241	24.750	318.7	0.016	5.94	259.6	102.1	3.9	0.39	0.9	0.12	0.00	1.75	0.39	5	05
10 ISL	14.36 D	14.36	33.245 D	24.758	318.2	0.029	5.94	D258.7	D101.9	4.0	0.39	1.1	0.13	0.00	1.68	0.36	10	
11 A	14.23	14.23	33.244	24.784	315.7	0.035	5.85	255.2	100.1	4.1	0.39	1.2	0.14	0.00	1.66	0.36	11	03
11	14.23	14.23	33.245	24.784	315.7	0.036											11	04
16 A	14.07	14.06	33.265	24.835	311.0	0.051	5.34	233.0	91.1	5.5	0.60	3.3	0.29	0.19	1.04	0.34	16	02
20 ISL	14.05 D	14.05	33.270 D	24.841	310.6	0.060	5.33	D232.4 D	91.0	5.7	0.63	3.4	0.31	0.27	1.06	0.37	20	
26 A	14.03	14.02	33.276	24.851	309.7	0.082	5.22	227.9	89.0	5.9	0.68	3.6	0.34	0.38	1.09	0.40	26	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 REUBEN LASKER CALCOFI CRUISE 1701 STATION 83.3 42.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 10.8 N	119 30.4 W	16/01/2017	1432 UTC	111 m	110 02 kn			1017.0 mb	14.0 C	12.4 C				055

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.56	14.56	33.257	24.723	321.1	0.000	5.90	257.5	101.6	3.3	0.31	0.0	0.03	0.00	1.45	0.45	0	
2	14.56	14.56	33.257	24.723	321.2	0.006	5.90	257.5	101.6	3.3	0.31	0.0	0.03	0.00	1.45	0.45	2	11
10	14.48	14.48	33.265	24.748	319.1	0.032	5.87	256.2	101.0	3.4	0.33	0.2	0.04	0.00	1.40	0.39	10	09
10	14.48	14.48	33.271	24.753	318.6	0.032											10	10
20	14.44	14.44	33.288	24.774	316.9	0.064	5.83	254.4	100.2	3.6	0.37	0.6	0.06	0.00	1.30	0.38	20	08
30	14.41	14.41	33.296	24.787	316.0	0.095	5.78	252.5	99.4	3.9	0.38	1.0	0.07	0.06	1.26	0.35	30	07
40	13.54	13.54	33.322	24.987	297.2	0.126	5.43	237.0	91.7	5.7	0.57	3.8	0.16	0.08	0.72	0.36	40	06
50	12.59	12.58	33.356	25.204	276.8	0.155	4.60	200.8	76.1	8.9	0.94	9.2	0.12	0.00	0.29	0.19	50	05
60	11.74	11.73	33.386	25.387	259.6	0.182	4.02	175.4	65.3	11.8	1.22	13.4	0.04	0.00	0.13	0.16	60	04
70	11.53	11.52	33.427	25.459	253.0	0.207	3.84	167.9	62.3	13.4	1.34	15.2	0.04	0.00	0.09	0.14	71	03
75 ISL	11.54 D	11.53	33.432 D	25.462	252.8	0.218	3.81	D166.1 D	61.8	13.7	1.36	15.4	0.03	0.00	0.08	0.13	76	
85	11.35	11.34	33.451	25.510	248.5	0.245	3.78	165.1	61.0	14.4	1.40	16.0	0.03	0.00	0.07	0.13	86	02
100	10.79	10.78	33.570	25.704	230.3	0.281	3.40	148.5	54.2	17.9	1.67	18.9	0.03	0.00	0.03	0.09	101	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 52.2 N	120 8.1 W	16/01/2017	0815 UTC	107 m	330 06 kn			1016.8 mb	15.5 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	14.11	14.11	33.329	24.874	306.7	0.000	5.71	249.5	97.6	4.4	0.46	1.8	0.11	0.03	1.05	0.34	0	
2	14.11	14.11	33.329	24.874	306.8	0.006	5.71	249.5	97.6	4.4	0.46	1.8	0.11	0.00	1.05	0.34	2	11
10	14.09	14.09	33.332	24.881	306.5	0.031	5.69	248.5	97.2	4.3	0.48	2.0	0.11	0.00	1.06	0.37	10	09
10	14.09	14.09	33.328	24.877	306.8	0.030											10	10
20	14.05	14.04	33.332	24.891	305.8	0.061	5.61	245.1	95.8	4.5	0.48	2.4	0.13	0.00	0.92	0.33	20	08
30	13.48	13.47	33.342	25.015	294.2	0.091	5.23	228.1	88.1	5.8	0.66	5.3	0.20	0.00	0.67	0.33	30	07
40	13.19	13.19	33.350	25.079	288.4	0.120	4.98	217.3	83.4	7.5	0.78	6.9	0.17	0.00	0.66	0.40	40	06
50	12.64	12.63	33.395	25.224	274.9	0.149	4.61	201.5	76.5	10.0	0.97	9.6	0.14	0.00	0.53	0.28	50	05
60	11.91	11.90	33.455	25.410	257.4	0.175	4.18	182.4	68.2	13.0	1.19	12.9	0.12	0.00	0.33	0.23	60	04
70	11.75	11.75	33.468	25.449	253.9	0.201	4.10	178.9	66.7	13.6	1.24	13.6	0.11	0.00	0.29	0.25	71	03
75 ISL	11.65 D	11.64	33.492 D	25.488	250.4	0.212	4.05	D176.2 D	65.7	14.1	1.27	14.1	0.11	0.00	0.27	0.23	76	
85	11.51	11.50	33.501	25.520	247.5	0.238	3.93	171.6	63.7	15.0	1.33	15.1	0.10	0.00	0.24	0.19	86	02
100	11.25	11.23	33.529	25.591	241.2	0.275	3.72	162.4	59.9	16.3	1.44	16.5	0.09	0.00	0.16	0.17	101	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 44.8 N	120 24.6 W	16/01/2017	0439 UTC	956 m	340 12 kn			1016.7 mb	13.2 C	11.9 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	13.85	13.85	33.352	24.945	300.0	0.000	5.83	254.5	99.1	4.3	0.46	2.0	0.11	0.16	0.77	0.48	0	
3	13.85	13.85	33.352	24.945	300.1	0.009	5.83	254.5	99.1	4.3	0.46	2.0	0.11	0.16	0.77	0.48	3	21
10	13.85	13.85	33.363	24.954	299.5	0.030	5.82	254.0	98.9	4.3	0.48	2.0	0.11	0.15	0.77	0.52	10	19
10	13.85	13.85	33.361	24.952	299.6	0.029											10	20
20	13.85	13.85	33.359	24.951	300.0	0.060	5.85	255.4	99.4	4.3	0.47	2.0	0.11	0.13	0.74	0.48	20	18
30	13.85	13.85	33.354	24.948	300.6	0.090	5.82	254.3	99.0	4.3	0.47	2.0	0.11	0.15	0.75	0.51	30	17
40	12.52	12.51	33.390	25.243	272.8	0.119	4.54	198.2	75.1	10.1	1.03	10.8	0.17	0.00	0.40	0.33	40	16
50 ISL	11.34 D	11.33	33.438 D	25.501	248.4	0.142	3.89	D169.4 D	62.7	13.5	1.32	15.3	0.11	0.00	0.29	0.27	50	
51	11.34	11.33	33.460	25.518	246.8	0.147	3.90	170.1	62.8	13.8	1.35	15.7	0.10	0.00	0.28	0.27	51	15
60	10.96	10.95	33.456	25.584	240.7	0.169	3.81	166.4	61.0	14.6	1.39	16.5	0.08	0.00	0.24	0.24	60	14
69	10.54	10.53	33.543	25.726	227.4	0.190	3.49	152.4	55.4	17.6	1.56	19.1	0.03	0.00	0.09	0.12	70	13
75 ISL	10.17 D	10.16	33.637 D	25.862	214.6	0.201	3.32	D144.4 D	52.2	18.8	1.62	20.0	0.03	0.00	0.06	0.11	76	
84	10.13	10.12	33.651	25.881	213.0	0.223	3.21	140.1	50.5	20.5	1.71	21.3	0.00	0.00	0.03	0.08	85	12
100	9.96	9.95	33.708	25.954	206.4	0.257	3.05	133.3	47.9	22.1	1.80	22.2	0.00	0.00	0.02	0.10	101	11
120	9.61	9.60	33.847	26.121	191.0	0.296	2.65	115.8	41.3	25.9	1.95	24.3	0.00	0.00	0.01	0.05	121	10
125 ISL	9.48 D	9.47	33.955 D	26.227	180.9	0.303	2.34	D102.0 D	36.4	26.7	1.98	24.7	0.02	0.00	0.01	0.05	126	
140	9.43	9.41	33.959	26.240	180.1	0.333	2.33	101.7	36.2	29.1	2.08	25.9	0.00	0.00	0.01	0.05	141	09
150 ISL	9.23 D	9.21	34.003 D	26.306	173.9	0.348	2.28	D 99.1 D	35.2	30.8	2.15	26.6	0.02	0.00	0.01	0.04	151	
170	9.01	8.99	34.078	26.401	165.3	0.385	1.95	85.1	30.0	34.1	2.28	28.2	0.00	0.00	0.00	0.04	171	08
200	8.94	8.91	34.097	26.429	163.3	0.434	1.84	80.4	28.3	35.4	2.33	28.6	0.00	0.00	0.01	0.04	202	07
230	8.61	8.59	34.144	26.516	155.5	0.482	1.59	69.3	24.2	39.6	2.40	30.0	0.00	0.00			232	06
250 ISL	8.49 D	8.47	34.155 D	26.544	153.3	0.511	1.49	D 65.0 D	22.7	41.4	2.46	30.8	0.02	0.00			252	
270	8.26	8.23	34.160	26.584	149.7	0.543	1.37	59.9	20.8	43.2	2.52	31.5	0.00	0.00			272	05
300 ISL	8.02 D	7.99	34.185 D	26.641	144.8	0.586	1.13	D 49.3 D	17.1	46.9	2.63	32.6	0.01	0.00			302	
321	7.86	7.83	34.202	26.677	141.7	0.618	1.02	44.7	15.3	49.4	2.70	33.4	0.00	0.00			324	04
380	7.49	7.46	34.212 D	26.740	136.6	0.699	0.83	36.1	12.3	54.5	2.81	34.9	0.00	0.00			383	03
400 ISL	7.37 D	7.33	34.227 D	26.770	133.9	0.727	0.75	D 32.8 D	11.2	57.3	2.86	35.7	0.01	0.00			403	
442	6.77	6.73	34.219	26.846	126.9	0.781	0.65	28.5	9.5	63.1	2.97	37.3	0.00	0.00			446	02
500 ISL	6.32 D	6.28	34.257 D	26.936	118.8	0.854	0.44	D 19.1 D	6.4	70.3	3.07	38.8	0.01	0.00			504	
516	6.26	6.21	34.269	26.954	117.3	0.871	0.39	17.0	5.6	72.3	3.10	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 REUBEN LASKER CALCOFI CRUISE 1701 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 34.7 N	120 45.3 W	16/01/2017	0033 UTC	1341 m	340 18 kn	300 04 05	1	1015.9 mb	13.5 C	11.2 C		3/8	CU	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	14.78	14.78	33.305	24.713	322.1	0.000	5.87	256.3	101.6	1.5	0.31	0.2	0.06	0.07	0.65	0.18	0	
3	14.78	14.78	33.305	24.713	322.2	0.010	5.87	256.3	101.6	1.5	0.31	0.2	0.06	0.07	0.65	0.18	3	21
10	14.78	14.78	33.305	24.714	322.4	0.032	5.83	254.5	101.0	1.3	0.30	0.1	0.05	0.00	0.65	0.18	10	19
10	14.78	14.78	33.309	24.717	322.0	0.031											10	20
20	14.78	14.78	33.305	24.714	322.6	0.065	5.84	255.1	101.2	1.2	0.30	0.1	0.05	0.00	0.66	0.18	20	18
30	14.75	14.75	33.301	24.718	322.6	0.097	5.84	254.8	101.0	1.2	0.30	0.1	0.06	0.06	0.66	0.19	30	17
40	14.73	14.72	33.303	24.726	322.2	0.129	5.82	254.3	100.8	1.2	0.31	0.2	0.08	0.06	0.64	0.19	40	16
50	14.16	14.15	33.331	24.869	308.9	0.161	5.70	248.8	97.4	1.4	0.40	1.2	0.37	0.20	0.40	0.23	50	15
60	13.65	13.64	33.322	24.966	299.8	0.191	5.40	235.9	91.4	2.7	0.56	4.1	0.18	0.00	0.20	0.15	60	14
70	12.59	12.58	33.299	25.160	281.5	0.220	4.98	217.7	82.5	5.9	0.81	8.3	0.03	0.00	0.09	0.11	71	13
75 ISL	12.11 D	12.10	33.296 D	25.248	273.2	0.231	4.75	D207.0 D	77.9	7.2	0.91	9.8	0.02	0.00	0.08	0.10	76	
85	11.48	11.47	33.307	25.375	261.3	0.261	4.51	196.9	72.9	10.0	1.10	12.8	0.00	0.00	0.07	0.09	86	12
100	10.64	10.62	33.378	25.581	241.9	0.298	4.20	183.3	66.7	13.6	1.31	16.1	0.00	0.00	0.04	0.07	101	11
119	10.06	10.05	33.563	25.825	219.2	0.342	3.54	154.4	55.5	19.0	1.60	20.6	0.00	0.00	0.02	0.05	120	10
125 ISL	9.83 D	9.81	33.639 D	25.924	209.8	0.353	3.27	D142.3 D	51.1	20.5	1.66	21.6	0.01	0.00	0.02	0.05	126	
140	9.32	9.31	33.754	26.096	193.7	0.386	3.05	133.0	47.1	24.5	1.81	24.0	0.00	0.00	0.01	0.04	141	09
150 ISL	9.08 D	9.06	33.814 D	26.182	185.7	0.402	2.99	D130.2 D	46.0	26.3	1.88	25.0	0.01	0.00	0.01	0.04	151	
170	8.77	8.75	33.913	26.310	173.9	0.441	2.64	115.2	40.3	30.0	2.03	26.9	0.00	0.06	0.01	0.03	171	08
199	8.38	8.36	34.007	26.443	161.7	0.489	2.24	97.7	34.0	35.7	2.18	29.2	0.00	0.00	0.00	0.03	201	07
200 ISL	8.37 D	8.35	34.011 D	26.447	161.3	0.489	2.21	D 96.2 D	33.5	35.9	2.18	29.3	0.01	0.00			202	
230	8.07	8.05	34.073	26.543	152.7	0.538	1.83	79.8	27.6	41.1	2.33	31.2	0.00	0.00			232	06
250 ISL	7.97 D	7.95	34.109 D	26.586	149.0	0.567	1.58	D 68.7 D	23.8	43.7	2.42	32.1	0.01	0.00			252	
270	7.78	7.75	34.120	26.623	145.7	0.598	1.41	61.5	21.1	46.3	2.51	33.0	0.00	0.00			272	05
300 ISL	7.35 D	7.32	34.132 D	26.695	139.2	0.640	1.17	D 51.1 D	17.4	51.4	2.64	34.5	0.01	0.00			302	
321	7.15	7.12	34.148	26.736	135.5	0.669	1.01	44.2	14.9	55.0	2.73	35.6	0.00	0.00			324	04
380	6.58	6.55	34.163	26.825	127.6	0.747	0.75	32.6	10.9	62.9	2.89	37.9	0.00	0.00			383	03
400 ISL	6.53 D	6.50	34.196 D	26.858	124.8	0.773	0.65	D 28.4 D	9.5	65.5	2.94	38.4	0.00	0.00			403	
440	6.26	6.22	34.234	26.924	118.9	0.821	0.46	20.0	6.6	70.6	3.04	39.3	0.00	0.00			444	02
500 ISL	6.07 D	6.02	34.287 D	26.992	113.2	0.892	0.33	D 14.4 D	4.8	76.2	3.12	39.9	0.00	0.00			504	
517	5.97	5.92	34.295	27.011	111.5	0.910	0.31	13.6	4.5	77.7	3.14	40.1	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 REUBEN LASKER CALCOFI CRUISE 1701 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 14.5 N	121 26.8 W	15/01/2017	1827 UTC	3852 m	320 20 kn	210 07 09	2	1019.0 mb	15.0 C	14.0 C	14 m	8/8	SC	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	14.81	14.81	33.174	24.605	332.4	0.000	5.79	253.0	100.3	1.5	0.31	0.1	0.04	0.04	0.34	0.13	0	
2 A	14.81	14.81	33.174	24.605	332.4	0.007	5.79	253.0	100.3	1.5	0.31	0.1	0.04	0.00	0.34	0.13	2	24
10 A	14.81	14.81	33.174	24.606	332.6	0.033	5.79	253.0	100.3	1.5	0.28	0.1	0.03	0.00	0.34	0.12	10	21
11	14.82	14.81	33.176	24.607	332.6	0.036											11	23
11	14.82	14.81	33.173	24.605	332.7	0.035											11	22
16 A	14.82	14.81	33.175	24.606	332.8	0.053	5.79	253.0	100.3	1.5	0.28	0.1	0.03	0.00	0.34	0.11	16	20
20 ISL	14.82 D	14.82	33.174 D	24.605	333.0	0.063	5.80	D252.6	D100.4	1.5	0.29	0.1	0.03	0.00	0.34	0.12	20	
26 A	14.81	14.81	33.172	24.606	333.1	0.087	5.79	252.9	100.2	1.5	0.31	0.1	0.03	0.00	0.33	0.12	26	19
30 ISL	14.80 D	14.80	33.174 D	24.610	332.9	0.097	5.80	D252.6	D100.4	1.5	0.30	0.1	0.03	0.00	0.34	0.12	30	
36	14.79	14.78	33.175	24.614	332.7	0.120	5.79	252.8	100.2	1.5	0.28	0.1	0.03	0.00	0.36	0.12	36	18
45 A	14.75	14.74	33.176	24.624	332.0	0.150	5.78	252.6	100.0	1.5	0.29	0.2	0.04	0.00	0.37	0.13	45	16
45	14.75	14.74	33.176	24.624	332.0	0.148											45	17
50 ISL	14.71 D	14.70	33.185 D	24.639	330.7	0.164	5.77	D251.4	D 99.7	1.7	0.33	0.6	0.10	0.00	0.35	0.15	50	
53 A	14.57	14.56	33.197	24.678	327.1	0.176	5.70	249.0	98.2	1.8	0.35	0.9	0.13	0.09	0.34	0.17	53	15
62	13.52	13.51	33.217	24.912	305.1	0.205	5.37	234.7	90.6	3.2	0.53	3.9	0.19	0.00	0.28	0.15	63	14
70	12.59	12.58	33.244	25.117	285.7	0.228	4.98	217.7	82.5	6.0	0.79	8.0	0.04	0.00	0.12	0.13	71	13
75 ISL	12.11 D	12.10	33.291 D	25.246	273.4	0.240	4.98	D217.1	D 81.7	7.8	0.91	10.0	0.03	0.00	0.10	0.11	76	
86	10.86	10.85	33.338	25.510	248.4	0.271	4.43	193.7	70.7	11.7	1.17	14.4	0.00	0.00	0.05	0.06	87	12
100	10.37	10.36	33.492	25.715	229.1	0.304	4.61	201.3	72.8	12.8	1.12	14.2	0.00	0.00	0.03	0.03	101	11
121	10.01	10.00	33.583	25.849	216.9	0.351	4.53	197.8	71.1	14.8	1.20	15.7	0.00	0.00	0.02	0.04	122	10
125 ISL	9.97 D	9.95	33.595 D	25.865	215.4	0.359	4.46	D194.3	D 70.0	16.2	1.27	16.7	0.02	0.00	0.02	0.03	126	
141	9.17	9.16	33.751	26.118	191.5	0.392	3.87	169.0	59.7	21.5	1.55	20.8	0.00	0.00	0.02	0.03	142	09
150 ISL	9.01 D	8.99	33.837 D	26.212	182.8	0.408	3.64	D158.4	D 55.9	23.6	1.66	22.3	0.01	0.00	0.02	0.03	151	
170	8.87	8.85	33.894	26.279	176.8	0.446	3.00	130.9	45.9	28.3	1.90	25.4	0.00	0.00	0.02	0.04	171	08
200 ISL	8.33 D	8.31	33.945 D	26.403	165.5	0.496	3.36	D146.2	D 50.9	31.0	1.85	25.5	0.01	0.00	0.01	0.03	202	
202	8.26	8.23	33.947	26.415	164.3	0.500	3.32	145.0	50.2	31.2	1.85	25.5	0.00	0.00	0.01	0.03	204	07
229	7.79	7.77	33.981	26.511	155.5	0.543	2.89	126.1	43.2	37.5	2.04	28.3	0.00	0.00			231	06
250 ISL	7.42 D	7.40	33.986 D	26.569	150.3	0.575	2.71	D118.1	D 40.2	42.0	2.18	30.1	0.01	0.00			252	
271	7.13	7.10	34.002	26.622	145.4	0.607	2.29	100.1	33.8	46.4	2.32	32.0	0.00	0.00			273	05
300 ISL	6.92 D	6.90	34.015 D	26.661	142.0	0.649	2.02	D 88.0	D 29.7	50.3	2.46	33.6	0.01	0.00			302	
320	6.84	6.81	34.040	26.692	139.4	0.676	1.65	72.1	24.2	52.9	2.55	34.7	0.00	0.00			323	04
381	6.46	6.43	34.155	26.835	126.6	0.757	0.72	31.4	10.5	64.2	2.93	38.3	0.00	0.00			384	03
400 ISL	6.33 D	6.29	34.176 D	26.869	123.5	0.783	0.62	D 27.0	D 9.0	66.6	2.97	38.8	0.01	0.00			403	
440	6.07	6.03	34.191	26.915	119.6	0.830	0.52	22.6	7.4	71.5	3.04	39.8	0.00	0.00			444	02
500 ISL	5.79 D	5.75	34.257 D	27.003	111.8	0.902	0.32	D 13.9	D 4.6	78.1	3.15	40.8	0.01	0.00			504	
516	5.76	5.72	34.275	27.021	110.3	0.917	0.29	12.7	4.1	79.8	3.18	41.1	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 REUBEN LASKER CALCOFI CRUISE 1701 STATION 83.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 54.7 N	122 7.9 W	15/01/2017	1231 UTC	4230 m	330 22 kn			1018.6 mb	13.4 C	11.8 C				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	15.21	15.21	33.204 D	24.541	338.5	0.000	5.74	250.6	100.2	1.2	0.27	0.0	0.04	0.03	0.26	0.07	0	
3	15.21	15.21	33.204 D	24.543	338.3	0.005	5.73	250.2	100.0	1.4	0.29	0.0	0.05	0.09	0.25	0.07	3	21
10	15.21	15.21	33.203	24.542	338.7	0.034	5.74	250.6	100.2	1.2	0.27	0.0	0.04	0.00	0.26	0.07	10	19
10	15.21	15.21	33.204	24.543	338.6	0.033											10	20
20	15.21	15.21	33.203	24.542	339.0	0.068	5.74	250.9	100.3	1.2	0.27	0.0	0.04	0.00	0.28	0.08	20	18
30	15.21	15.21	33.204	24.544	339.2	0.102	5.74	250.7	100.2	1.2	0.27	0.0	0.04	0.00	0.29	0.10	30	17
40	15.20	15.19	33.203	24.548	339.2	0.136	5.75	251.4	100.4	1.2	0.28	0.0	0.04	0.00	0.28	0.07	40	16
50	15.08	15.07	33.205	24.576	336.9	0.169	5.77	252.0	100.5	1.3	0.28	0.0	0.06	0.00	0.26	0.08	50	15
60	14.31	14.30	33.208	24.743	321.2	0.202	5.62	245.3	96.3	2.3	0.39	1.5	0.23	0.00	0.30	0.17	60	14
70	12.78	12.77	33.185	25.034	293.6	0.233	5.37	234.4	89.1	3.6	0.55	4.3	0.07	0.00	0.22	0.16	71	13
75 ISL	12.27 D	12.26	33.180 D	25.128	284.6	0.244	5.16	D224.8	D 84.8	4.9	0.67	6.2	0.06	0.00	0.19	0.15	76	
86	11.71	11.70	33.221	25.266	271.7	0.278	4.77	208.5	77.5	7.7	0.92	10.4	0.03	0.00	0.13	0.13	87	12
100	11.08	11.07	33.395	25.517	248.2	0.314	3.95	172.4	63.3	13.6	1.37	16.9	0.00	0.00	0.07	0.08	101	11
120	9.99	9.98	33.501	25.788	222.7	0.361	3.77	164.6	59.0	17.9	1.54	19.7	0.00	0.00	0.02	0.04	121	10
125 ISL	9.92 D	9.91	33.590 D	25.870	215.0	0.369	3.37	D146.9	D 52.8	19.2	1.60	20.6	0.02	0.00	0.02	0.04	126	
140	9.35	9.33	33.692	26.043	198.7	0.404	3.26	142.3	50.4	23.3	1.78	23.3	0.00	0.00	0.01	0.04	141	09
150 ISL	9.22 D	9.20	33.770 D	26.125	191.1	0.420	3.01	D131.0	D 46.4	25.0	1.84	24.2	0.02	0.00	0.01	0.03	151	
170	8.94	8.92	33.880	26.256	179.0	0.460	2.78	121.5	42.7	28.4	1.97	26.0	0.00	0.00	0.01	0.03	171	08
200	8.65	8.63	34.051	26.436	162.5	0.512	1.86	81.4	28.4	36.1	2.30	29.5	0.00	0.00	0.00	0.03	202	07
231	8.35	8.33	34.098	26.520	155.1	0.561	1.62	70.8	24.6	40.0	2.42	30.9	0.00	0.00			233	06
250 ISL	8.13 D	8.10	34.138 D	26.585	149.1	0.588	1.35	D 58.9	D 20.4	43.4	2.50	32.0	0.01	0.00			252	
269	7.83	7.80	34.136	26.628	145.3	0.618	1.29	56.1	19.3	46.7	2.58	33.0	0.00	0.00			271	05
300 ISL	7.50 D	7.47	34.145 D	26.684	140.3	0.660	1.14	D 49.6	D 16.9	50.9	2.68	34.3	0.01	0.00			302	
321	7.31	7.28	34.163	26.726	136.6	0.691	0.96	42.0	14.2	53.7	2.75	35.2	0.00	0.00			324	04
380	6.83	6.79	34.202	26.824	128.0	0.769	0.68	29.7	10.0	61.2	2.93	37.1	0.00	0.00			383	03
400 ISL	6.70 D	6.67	34.217 D	26.852	125.5	0.794	0.60	D 25.9	D 8.7	64.2	2.97	37.8	0.01	0.00			403	
439	6.20	6.16	34.197	26.903	120.8	0.843	0.52	22.7	7.5	70.2	3.06	39.2	0.00	0.00			443	02
500 ISL	5.91 D	5.87	34.250 D	26.982	114.0	0.915	0.36	D 15.7	D 5.2								504	
519	5.85	5.81	34.276 D	27.010	111.5	0.936	0.31	D 13.4	D 4.4								523	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 34.6 N	122 48.8 W	15/01/2017	0633 UTC	4286 m	350 15 kn			1019.9 mb	13.9 C	12.8 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	15.16	15.16	33.197	24.548	337.8	0.000	5.78	252.6	100.9	1.4	0.31	0.0	0.03	0.10	0.26	0.07	0	
2	15.16	15.16	33.197	24.548	337.8	0.007	5.78	252.6	100.9	1.4	0.31	0.0	0.03	0.10	0.26	0.07	2	21
10 ISL	15.17 D	15.16	33.196 D	24.547	338.3	0.031	5.77	D251.5	D100.6	1.4	0.30	0.0	0.02	0.09	0.24	0.06	10	
10	15.17	15.16	33.202	24.551	337.8	0.035											10	20
11	15.17	15.17	33.197	24.547	338.2	0.037	5.77	251.8	100.6	1.4	0.30	0.0	0.00	0.09	0.24	0.06	11	19
20 ISL	15.17 D	15.17	33.196 D	24.546	338.7	0.065	5.77	D251.4	D100.6	1.4	0.31	0.0	0.02	0.09	0.25	0.06	20	
21	15.17	15.17	33.197	24.547	338.6	0.071	5.79	252.8	101.0	1.4	0.31	0.0	0.00	0.09	0.25	0.06	21	18
30 ISL	15.17 D	15.17	33.196 D	24.547	338.9	0.099	5.77	D251.3	D100.6	1.4	0.30	0.0	0.02	0.10	0.24	0.06	30	
31	15.17	15.17	33.202	24.551	338.5	0.105	5.77	251.9	100.6	1.4	0.30	0.0	0.00	0.10	0.24	0.06	31	17
40	15.17	15.17	33.202	24.552	338.7	0.136	5.82	254.1	101.5	1.4	0.32	0.0	0.00	0.11	0.25	0.07	40	16
50	15.17	15.16	33.211	24.561	338.3	0.169	5.76	251.5	100.4	1.4	0.30	0.0	0.00	0.10	0.25	0.06	50	15
60	14.68	14.67	33.214	24.668	328.3	0.203	5.69	248.6	98.3	1.5	0.34	0.3	0.16	0.21	0.27	0.11	60	14
70	13.36	13.35	33.218	24.946	302.0	0.234	5.37	234.7	90.3	3.1	0.56	4.2	0.05	0.00	0.14	0.11	71	13
75 ISL	13.06 D	13.05	33.203 D	24.993	297.6	0.248	5.32	D231.8	D 88.9	4.1	0.65	5.6	0.05	0.00	0.14	0.12	76	
85	12.51	12.50	33.242	25.133	284.6	0.278	4.92	214.9	81.3	6.2	0.82	8.4	0.03	0.00	0.14	0.14	86	12
100	10.88	10.87	33.392	25.550	245.0	0.318	4.05	176.8	64.6	13.2	1.35	16.5	0.00	0.00	0.07	0.11	101	11
120	9.83	9.82	33.564	25.864	215.4	0.364	3.52	153.7	55.0	19.7	1.66	21.4	0.00	0.00	0.01	0.04	121	10
125 ISL	9.71 D	9.70	33.615 D	25.924	209.8	0.374	3.45	D150.4	D 53.8	20.3	1.67	21.5	0.01	0.00	0.01	0.04	126	
140	9.27	9.26	33.668	26.037	199.2	0.405	3.64	159.0	56.2	21.9	1.68	21.9	0.00	0.00	0.01	0.03	141	09
150 ISL	9.11 D	9.09	33.736 D	26.116	191.9	0.424	3.65	D159.0	D 56.2	23.2	1.72	22.5	0.01	0.00	0.01	0.03	151	
170	8.87	8.85	33.833	26.231	181.4	0.462	3.40	148.4	52.1	25.9	1.79	23.9	0.00	0.00	0.00	0.02	171	08
200	8.45	8.43	33.929	26.371	168.5	0.515	3.05	133.0	46.2	30.2	1.92	25.9	0.00	0.00	0.00	0.02	202	07
231	8.05	8.02	33.986	26.478	158.9	0.566	2.86	124.7	43.0	35.3	2.05	27.7	0.00	0.00			233	06
250 ISL	7.71 D	7.68	34.009 D	26.546	152.6	0.596	2.51	D109.2	D 37.5	39.2	2.18	29.5	0.01	0.00			252	
270	7.56	7.53	34.028	26.582	149.4	0.625	2.15	93.8	32.0	43.3	2.31	31.3	0.00	0.00			272	05
300 ISL	7.25 D	7.22	34.062 D	26.653	143.0	0.670	1.68	D 72.9	D 24.8	48.4	2.48	33.3	0.01	0.00			302	
320	7.13	7.09	34.087	26.691	139.7	0.697	1.43	62.6	21.1	51.8	2.60	34.6	0.00	0.00			323	04
380	6.75	6.72	34.146	26.789	131.2	0.779	0.85	37.0	12.4	60.1	2.86	37.1	0.00	0.00			383	03
400 ISL	6.54 D	6.50	34.163 D	26.831	127.3	0.807	0.73	D 31.6	D 10.6	62.6	2.91	37.7	0.01	0.00			403	
440	6.33	6.29	34.193	26.883	122.8	0.855	0.56	24.5	8.1	67.8	3.02	38.9	0.00	0.00			444	02
500 ISL	5.90 D	5.86	34.235 D	26.971	114.9	0.929	0.38	D 16.7	D 5.5	75.6	3.14	40.2	0.01	0.00			504	
518	5.80	5.76	34.247	26.993	113.0	0.946	0.34	14.8	4.9	77.9	3.17	40.6	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 REUBEN LASKER CALCOFI CRUISE 1701 STATION 83.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 14.7 N	123 29.6 W	15/01/2017	0046 UTC	4173 m	330 22 kn	350 06 08	1	1020.9 mb	14.9 C	12.9 C		7/8	SC	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	15.17	15.17	33.176	24.530	339.6	0.000	5.78	252.5	100.8	1.6	0.30	0.0	0.02	0.08	0.22	0.06	0	
2	15.17	15.17	33.176	24.530	339.6	0.007	5.79	D252.3	D101.0	1.6	0.30	0.0	0.00	0.08	0.22	0.06	2	21
10 ISL	15.17 D	15.17	33.176 D	24.530	339.9	0.031	5.79	D252.5	D101.1	1.4	0.28	0.0	0.02	0.00	0.22	0.08	10	
11	15.18	15.18	33.177	24.530	339.9	0.037	5.79	252.8	101.0	1.4	0.28	0.0	0.00	0.00	0.22	0.08	11	19
11	15.18	15.18	33.177	24.530	339.9	0.036											11	20
20	15.17	15.17	33.180	24.535	339.7	0.068	5.80	253.1	101.1	1.4	0.28	0.0	0.00	0.00	0.23	0.06	20	18
30	15.20	15.19	33.198	24.543	339.3	0.102	5.78	252.2	100.8	1.4	0.31	0.0	0.03	0.06	0.25	0.07	30	17
40	15.13	15.12	33.197	24.558	338.2	0.136	5.76	251.6	100.4	1.4	0.31	0.0	0.03	0.00	0.25	0.08	40	16
50	14.07	14.06	33.227	24.807	314.7	0.168	5.48	239.4	93.5	2.7	0.48	2.8	0.18	0.00	0.29	0.15	50	15
60	12.79	12.78	33.201	25.045	292.2	0.199	5.26	229.5	87.3	4.5	0.62	5.6	0.04	0.00	0.21	0.17	60	14
70	12.21	12.20	33.274	25.212	276.5	0.227	4.87	212.8	80.0	6.9	0.84	9.1	0.03	0.00	0.14	0.13	71	13
75 ISL	11.78 D	11.77	33.271 D	25.291	269.1	0.239	4.86	211.6	79.0	7.6	0.88	9.8	0.03	0.00	0.11	0.11	76	
86	10.93	10.92	33.285	25.458	253.4	0.269	4.83	210.8	77.1	9.3	0.97	11.3	0.00	0.00	0.05	0.06	87	12
100	10.40	10.39	33.373	25.618	238.4	0.304	4.52	197.2	71.3	12.8	1.20	14.7	0.00	0.00	0.03	0.04	101	11
121	9.81	9.80	33.493	25.811	220.4	0.352	4.08	178.3	63.7	17.4	1.46	18.8	0.00	0.00	0.01	0.03	122	10
125 ISL	9.64 D	9.62	33.539 D	25.876	214.3	0.360	3.85	D167.7	D 59.9	18.7	1.52	19.8	0.01	0.00	0.01	0.03	126	
140	9.26	9.24	33.647	26.023	200.6	0.392	3.40	148.3	52.4	23.3	1.74	23.4	0.00	0.00	0.00	0.03	141	09
150 ISL	9.01 D	8.99	33.755 D	26.147	189.0	0.410	3.21	D139.8	D 49.3	25.4	1.82	24.5	0.01	0.00	0.00	0.03	151	
170	8.85	8.83	33.901	26.288	176.0	0.448	2.73	119.3	41.8	29.5	1.98	26.8	0.00	0.00	0.00	0.02	171	08
200 ISL	8.43 D	8.41	33.988 D	26.421	163.8	0.498	2.43	D105.9	D 36.9	34.4	2.14	28.8	0.01	0.00	0.00	0.03	202	
202	8.42	8.40	33.990	26.424	163.5	0.503	2.41	105.1	36.5	34.7	2.15	28.9	0.00	0.00	0.00	0.03	204	07
231	8.05	8.02	34.050	26.528	154.1	0.549	1.87	81.6	28.1	40.3	2.35	31.5	0.00	0.00			233	06
250 ISL	7.89 D	7.86	34.063 D	26.562	151.1	0.577	1.77	D 77.1	D 26.6	43.0	2.42	32.4	0.01	0.00			252	
270	7.63	7.60	34.075	26.610	146.8	0.607	1.59	69.6	23.8	45.7	2.49	33.3	0.00	0.00			272	05
300 ISL	7.19 D	7.16	34.095 D	26.687	139.8	0.650	1.31	D 57.2	D 19.4	50.8	2.61	34.8	0.01	0.00			302	
320	7.03	7.00	34.097	26.712	137.7	0.678	1.24	54.0	18.2	54.1	2.69	35.8	0.00	0.00			323	04
384	6.60	6.56	34.167	26.826	127.6	0.763	0.72	31.5	10.5	63.0	2.95	38.4	0.00	0.00			387	03
400 ISL	6.49 D	6.45	34.181 D	26.852	125.3	0.785	0.64	D 27.8	D 9.3	65.2	2.99	38.8	0.01	0.00			403	
441	6.19	6.15	34.215	26.918	119.4	0.834	0.47	20.5	6.8	71.0	3.09	39.8	0.00	0.00			445	02
500 ISL	5.73 D	5.69	34.235 D	26.992	112.8	0.904	0.36	D 15.8	D 5.2	78.2	3.18	41.1	0.01	0.00			504	
516	5.67	5.63	34.242	27.005	111.7	0.920	0.34	15.0	4.9	80.2	3.21	41.5	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 REUBEN LASKER CALCOFI CRUISE 1701 STATION 83.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 54.4 N	124 10.2 W	14/01/2017	1851 UTC	4178 m	350 17 kn	360 06 08	1	1023.6 mb	15.0 C	13.8 C	18 m	4/8	CU	047

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.97	14.97	33.093	24.510	341.4	0.000	5.81	254.0	100.9	1.8	0.28	0.1	0.02	0.37	0.29	0.08	0	
3 A	14.97	14.97	33.093	24.510	341.5	0.010	5.81	254.0	100.9	1.8	0.28	0.1	0.00	0.37	0.29	0.08	3	24
9	14.96	14.96	33.093	24.511	341.6	0.031	5.79	253.0	100.5	1.8	0.27	0.0	0.00	0.09	0.31	0.07	9	21
9	14.96	14.96	33.092	24.510	341.7	0.030											9	23
9	14.96	14.96	33.093	24.511	341.6	0.029											9	22
10 ISL	14.96 D	14.96	33.091 D	24.510	341.8	0.029	5.80	D252.7	D100.7	1.8	0.27	0.0	0.02	0.10	0.31	0.07	10	
14 A	14.96	14.96	33.091	24.510	341.9	0.048	5.79	253.1	100.6	1.7	0.29	0.0	0.00	0.13	0.31	0.08	14	20
20 ISL	14.96 D	14.96	33.091 D	24.511	342.0	0.064	5.79	D252.5	D100.6	1.7	0.26	0.0	0.01	0.00	0.29	0.09	20	
21 A	14.96	14.96	33.092	24.512	342.0	0.072	5.78	252.7	100.4	1.7	0.26	0.0	0.00	0.00	0.29	0.09	21	19
28	14.96	14.96	33.096	24.515	341.9	0.096	5.78	252.5	100.4	1.7	0.26	0.0	0.00	0.00	0.31	0.09	28	18
30 ISL	14.97 D	14.96	33.094 D	24.512	342.2	0.098	5.79	D252.6	D100.6	1.7	0.26	0.0	0.02	0.00	0.32	0.09	30	
34 A	14.98	14.97	33.102	24.517	341.9	0.116	5.78	252.4	100.3	1.7	0.26	0.0	0.00	0.00	0.33	0.08	34	17
46	14.43	14.43	33.176	24.691	325.7	0.156	5.64	246.5	97.0	2.3	0.40	1.4	0.19	0.17	0.41	0.21	46	15
46	14.43	14.43	33.176	24.691	325.7	0.158											46	16
50 ISL	14.10 D	14.09	33.151 D	24.742	320.9	0.165	5.62	D245.0	D 95.9	2.6	0.41	1.8	0.17	0.00	0.38	0.21	50	
58 A	13.72	13.71	33.172	24.835	312.2	0.195	5.55	242.5	94.0	3.1	0.43	2.6	0.14	0.00	0.33	0.20	58	14
69 A	12.71	12.70	33.222	25.077	289.4	0.228	5.07	221.3	84.0	5.4	0.73	7.1	0.03	0.00	0.16	0.14	70	13
75 ISL	11.77 D	11.76	33.293 D	25.310	267.3	0.241	4.79	D208.6	D 77.9	8.2	0.93	10.4	0.03	0.00	0.12	0.12	76	
86	10.68	10.67	33.360	25.560	243.7	0.273	4.21	184.0	66.9	13.2	1.31	16.3	0.00	0.00	0.04	0.07	87	12
100	10.12	10.11	33.455	25.730	227.7	0.306	3.89	169.9	61.1	17.0	1.51	19.5	0.00	0.00	0.02	0.05	101	11
120	9.46	9.44	33.617	25.966	205.6	0.349	3.43	149.7	53.1	22.4	1.75	22.8	0.00	0.00	0.02	0.04	121	10
125 ISL	9.26 D	9.25	33.689 D	26.054	197.3	0.356	3.25	D141.6	D 50.2	23.4	1.79	23.4	0.01	0.00	0.01	0.04	126	
142	8.92	8.91	33.764	26.168	186.8	0.392	3.12	136.4	47.9	26.9	1.91	25.5	0.00	0.00	0.01	0.04	143	09
150 ISL	8.81 D	8.80	33.813 D	26.224	181.6	0.404	3.15	D137.0	D 48.2	28.0	1.93	25.9	0.01	0.00	0.01	0.04	151	
170	8.55	8.53	33.884	26.320	172.8	0.442	2.93	128.1	44.6	30.8	1.97	26.9	0.00	0.00	0.01	0.04	171	08
199	8.21	8.19	33.961	26.433	162.6	0.491	2.62	114.5	39.6	35.4	2.11	28.8	0.00	0.00	0.01	0.03	201	07
200 ISL	8.21 D	8.19	33.964 D	26.435	162.4	0.490	2.62	D114.1	D 39.6	35.6	2.12	28.9	0.01	0.00			202	
230	7.71	7.69	34.010	26.545	152.3	0.540	2.27	99.2	33.9	41.4	2.28	31.1	0.00	0.00			232	06
250 ISL	7.42 D	7.39	34.037 D	26.609	146.4	0.568	2.02	D 87.8	D 30.0	45.9	2.41	32.6	0.01	0.00			252	
270	7.12	7.09	34.042	26.655	142.2	0.599	1.74	76.0	25.6	50.3	2.53	34.2	0.00	0.00			272	05
300 ISL	6.80 D	6.77	34.059 D	26.712	137.1	0.639	1.49	D 64.9	D 21.8	55.3	2.72	35.8	0.01	0.00			302	
320	6.98	6.95	34.172	26.777	131.5	0.666	0.83	36.4	12.3	58.6	2.85	36.8	0.00	0.00			323	04
381	6.62	6.59	34.215	26.861	124.3	0.744	0.56	24.5	8.2	65.9	3.00	38.5	0.00	0.00			384	03
400 ISL	6.39 D	6.36	34.209 D	26.887	121.9	0.768	0.52	D 22.8	D 7.6	68.5	3.04	39.1	0.01	0.00			403	
443	5.99	5.95	34.213	26.942	116.9	0.819	0.44	19.3	6.3	74.4	3.14	40.4	0.00	0.00			447	02
500 ISL	5.62 D	5.58	34.238 D	27.008	111.1	0.886	0.34	D 14.8	D 4.9	81.5	3.23	41.6	0.01	0.00			504	
514	5.53	5.49	34.249	27.027	109.4	0.899	0.30	13.1	4.3	83.3	3.25	41.9	0.00	0.00			518	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 0.5 N	118 50.5 W	12/01/2017	0818 UTC	48 m	300 04 kn			1013.7 mb	15.9 C	14.8 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	14.77	14.77	33.178	24.618	331.1	0.000	5.84	254.7	101.0	3.4	0.39	0.6	0.11	0.53	0.50	0.25	0	
2	14.77	14.77	33.178	24.618	331.2	0.007	5.84	254.7	101.0	3.4	0.39	0.6	0.11	0.53	0.50	0.25	2	07
5	14.77	14.77	33.178	24.619	331.2	0.017	5.81	253.7	100.6	3.4	0.37	0.5	0.10	0.50	0.49	0.24	5	06
10	14.73	14.73	33.194	24.640	329.4	0.033	5.82	254.1	100.7	3.3	0.37	0.4	0.08	0.48	0.52	0.22	10	04
10	14.73	14.73	33.184	24.632	330.1	0.033											10	05
20	14.29	14.29	33.250	24.777	316.7	0.065	5.60	244.6	96.1	4.1	0.47	1.5	0.23	0.95	0.34	0.17	20	03
30	13.92	13.92	33.276	24.874	307.7	0.097	5.28	230.5	89.9	5.4	0.59	3.5	0.62	1.29	0.29	0.17	30	02
40	13.34	13.33	33.293	25.006	295.4	0.127	4.71	205.6	79.2	8.0	0.87	7.3	0.69	0.78	0.19	0.17	40	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 53.4 N	118 29.3 W	12/01/2017	0519 UTC	51 m	250 07 kn			1015.0 mb	15.0 C	13.8 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	14.84	14.84	33.180	24.604	332.5	0.000	6.13	267.5	106.2	3.5	0.27	0.0	0.02	0.01	1.88	0.50	0	
2	14.84	14.84	33.180	24.604	332.5	0.007	6.13	267.5	106.2	3.5	0.27	0.0	0.00	0.00	1.88	0.50	2	08
5	14.84	14.84	33.178	24.603	332.7	0.017	6.13	267.7	106.3	3.5	0.27	0.0	0.00	0.00	1.95	0.48	5	07
10	14.76	14.76	33.180	24.621	331.2	0.033	6.12	267.3	105.9	3.5	0.29	0.0	0.00	0.00	1.81	0.45	10	05
10	14.76	14.76	33.180	24.621	331.2	0.035											10	06
20	14.29	14.28	33.302	24.817	312.8	0.065	5.30	231.2	90.8	4.8	0.58	2.8	0.53	0.33	0.78	0.35	20	04
30	13.86	13.86	33.258	24.872	307.9	0.096	4.98	217.4	84.6	6.6	0.73	5.4	0.91	2.02	0.45	0.27	30	03
40	13.62	13.61	33.272	24.933	302.4	0.127	4.76	207.9	80.5	7.1	0.80	7.0	1.15	1.27	0.33	0.28	40	02
50	13.26	13.25	33.276	25.009	295.4	0.157	4.49	195.8	75.3	8.5	0.89	9.6	1.25	1.32	0.24	0.21	50	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 86.7 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 49.4 N	118 37.6 W	12/01/2017	1032 UTC	661 m	190 10 kn			1013.1 mb	16.0 C	15.0 C				036

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.02	15.02	33.166	24.555	337.1	0.000	6.00	261.8	104.3	3.4	0.29	0.0	0.02	0.00	0.57	0.16	0	
3	15.02	15.02	33.166	24.556	337.2	0.010	6.00	261.8	104.3	3.4	0.29	0.0	0.00	0.00	0.57	0.16	3	21
10	15.03	15.03	33.181	24.565	336.5	0.034	6.02	262.5	104.6	3.1	0.27	0.0	0.00	0.00	0.51	0.17	10	19
10	15.03	15.03	33.187	24.570	336.1	0.033											10	20
20	14.97	14.96	33.288	24.661	327.7	0.067	5.87	256.2	102.1	2.7	0.31	0.0	0.00	0.00	0.83	0.31	20	18
30	14.10	14.09	33.285	24.844	310.5	0.099	5.18	226.1	88.5	5.1	0.60	3.7	0.38	0.00	0.63	0.25	30	17
40	12.89	12.88	33.326	25.122	284.4	0.128	4.61	201.0	76.7	7.9	0.91	8.4	0.28	0.00	0.33	0.21	40	16
50	12.38	12.38	33.333	25.225	274.8	0.156	4.21	183.8	69.5	10.3	1.10	12.5	0.50	0.00	0.17	0.16	50	15
60	11.96	11.95	33.356	25.324	265.6	0.183	3.95	172.5	64.6	12.1	1.22	14.6	0.32	0.00	0.10	0.14	60	14
70	11.51	11.50	33.424	25.460	252.8	0.209	3.81	166.0	61.6	13.9	1.38	15.8	0.06	0.00	0.06	0.12	71	13
75 ISL	11.41 D	11.40	33.451 D	25.499	249.3	0.218	3.79	D165.1 D	61.3	14.4	1.40	16.1	0.05	0.00	0.06	0.11	76	
85	11.15	11.14	33.479	25.569	242.8	0.247	3.65	159.4	58.7	15.5	1.45	16.9	0.03	0.00	0.05	0.10	86	12
100	10.58	10.57	33.591	25.757	225.2	0.282	3.28	143.2	52.1	18.6	1.63	19.4	0.00	0.00	0.03	0.07	101	11
121	10.02	10.01	33.771	25.994	203.1	0.327	2.80	122.2	44.0	23.5	1.87	22.8	0.03	0.00	0.01	0.06	122	10
125 ISL	9.94 D	9.92	33.812 D	26.040	198.8	0.331	2.73	D118.8 D	42.8	24.2	1.90	23.1	0.03	0.00	0.01	0.06	126	
140	9.74	9.73	33.898	26.140	189.7	0.364	2.52	109.9	39.4	26.6	1.99	24.5	0.00	0.00	0.00	0.05	141	09
150 ISL	9.66 D	9.65	33.912 D	26.164	187.5	0.380	2.48	D107.7 D	38.6	27.3	2.01	24.9	0.02	0.00	0.00	0.04	151	
170	9.52	9.50	33.962	26.228	182.0	0.420	2.38	103.8	37.0	28.6	2.06	25.5	0.00	0.00	0.01	0.04	171	08
200 ISL	9.39 D	9.37	34.043 D	26.314	174.5	0.471	2.18	D 94.7 D	33.8	30.8	2.15	26.4	0.02	0.00	0.00	0.04	202	
201	9.37	9.35	34.056	26.327	173.2	0.475	2.17	94.7	33.7	30.9	2.15	26.5	0.00	0.00	0.00	0.04	203	07
231	9.03	9.01	34.082	26.402	166.6	0.526	1.97	85.9	30.3	34.2	2.25	28.1	0.00	0.00			233	06
250 ISL	8.83 D	8.80	34.104 D	26.452	162.2	0.556	1.84	D 80.1 D	28.2	36.3	2.31	28.8	0.01	0.00			252	
270	8.69	8.66	34.133	26.498	158.2	0.589	1.66	72.5	25.4	38.6	2.38	29.6	0.00	0.00			272	05
300 ISL	8.36 D	8.33	34.158 D	26.568	151.9	0.635	1.45	D 63.2 D	22.0	42.8	2.49	31.0	0.01	0.00			302	
322	8.07	8.03	34.176	26.627	146.6	0.668	1.24	53.9	18.6	45.9	2.57	32.1	0.00	0.00			325	04
380	7.35	7.32	34.223	26.768	133.7	0.750	0.77	33.5	11.4	55.6	2.82	35.1	0.00	0.00			383	03
400 ISL	7.22 D	7.18	34.234 D	26.796	131.3	0.777	0.68	D 29.7 D	10.1	58.4	2.87	35.8	0.02	0.00			403	
440	6.85	6.81	34.257	26.865	125.2	0.827	0.51	22.2	7.5	63.9	2.98	37.1	0.00	0.00			444	02
500 ISL	6.52 D	6.48	34.283 D	26.931	119.6	0.903	0.39	D 16.8 D	5.6	68.7	3.06	38.0	0.01	0.00			504	
516	6.50	6.45	34.284	26.935	119.5	0.920	0.37	16.3	5.4	69.9	3.08	38.2	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 REUBEN LASKER CALCOFI CRUISE 1701 STATION 86.7 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 39.3 N	118 58.3 W	12/01/2017	1436 UTC	730 m	210 06 kn			1011.3 mb	15.5 C	14.8 C				037

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.21	15.21	33.274	24.597	333.1	0.000	5.89	257.1	102.9	2.4	0.28	0.0	0.01	0.00	0.36	0.09	0	
2	15.21	15.21	33.274	24.597	333.2	0.007	5.89	257.1	102.9	2.4	0.28	0.0	0.00	0.00	0.36	0.09	2	24
10	15.15	15.15	33.286	24.620	331.3	0.033	5.96	260.0	103.9	2.3	0.28	0.0	0.00	0.00	0.44	0.13	10	22
10	15.15	15.15	33.288	24.621	331.2	0.033											10	23
20	15.04	15.04	33.294	24.650	328.7	0.066	5.92	258.3	103.1	2.3	0.29	0.0	0.00	0.00	0.60	0.17	20	21
30 ISL	14.42 D	14.42	33.307 D	24.794	315.4	0.096	5.81	253.3	99.9	2.7	0.34	0.2	0.05	0.00	1.10	0.36	30	
31	14.57	14.56	33.306	24.762	318.4	0.102	5.80	253.1	100.0	2.7	0.35	0.3	0.06	0.00	1.15	0.38	31	20
40	14.00	13.99	33.319	24.891	306.4	0.130	5.26	229.5	89.7	5.0	0.60	4.2	0.29	0.00	0.66	0.32	40	19
50	12.10	12.10	33.361	25.299	267.7	0.159	4.21	183.5	68.9	10.6	1.14	12.3	0.03	0.00	0.19	0.21	50	18
59	11.63	11.62	33.386	25.409	257.4	0.182	4.09	178.6	66.4	11.7	1.21	13.6	0.00	0.00	0.12	0.15	59	17
70	10.98	10.97	33.451	25.577	241.7	0.210	3.92	171.0	62.7	14.6	1.38	16.7	0.00	0.00	0.05	0.11	71	16
75 ISL	10.62 D	10.61	33.495 D	25.674	232.5	0.220	3.86	D168.3 D	61.4	15.3	1.42	17.3	0.01	0.00	0.05	0.10	76	
85	10.30	10.29	33.513	25.744	226.1	0.245	3.75	163.4	59.1	16.8	1.50	18.5	0.00	0.00	0.04	0.08	86	15
100	10.02	10.01	33.614	25.871	214.3	0.278	3.50	152.7	54.9	19.5	1.63	20.5	0.00	0.00	0.02	0.07	101	14
119	9.84	9.83	33.717	25.982	204.2	0.317	3.19	139.2	49.9	22.0	1.75	22.1	0.00	0.00	0.01	0.06	120	13
125 ISL	9.84 D	9.82	33.802 D	26.049	198.0	0.328	2.96	D129.0 D	46.4	23.3	1.81	22.8	0.01	0.00	0.01	0.06	126	
141	9.71	9.69	33.916	26.160	187.8	0.360	2.48	108.1	38.7	26.7	1.98	24.7	0.00	0.00	0.01	0.05	142	12
150 ISL	9.65 D	9.64	33.960 D	26.204	183.8	0.376	2.39	D103.8 D	37.2	27.8	2.01	25.2	0.01	0.00	0.01	0.05	151	
170	9.36	9.34	33.990	26.276	177.3	0.414	2.28	99.3	35.3	30.0	2.08	26.3	0.00	0.00	0.01	0.04	171	11
200	9.05	9.03	34.069	26.388	167.2	0.465	2.01	87.8	31.0	33.5	2.19	27.9	0.00	0.00	0.01	0.04	202	10
230	8.63	8.60	34.085	26.468	160.1	0.514	1.89	82.2	28.8	36.9	2.27	29.1	0.00	0.00			232	09
250 ISL	8.46 D	8.43	34.125 D	26.526	154.9	0.545	1.68	D 73.0 D	25.5	39.2	2.36	29.9	0.01	0.00			252	
270	8.34	8.31	34.147	26.562	151.9	0.577	1.50	65.4	22.7	41.6	2.44	30.7	0.00	0.00			272	08
300 ISL	8.06 D	8.02	34.181 D	26.632	145.7	0.621	1.23	D 53.5 D	18.5	45.5	2.55	32.1	0.01	0.00			302	
320	7.93	7.90	34.193	26.660	143.3	0.650	1.11	48.3	16.6	48.1	2.62	33.0	0.00	0.00			323	07
380	7.32	7.28	34.236	26.783	132.3	0.733	0.71	31.1	10.6	56.9	2.83	35.4	0.00	0.00			383	06
400 ISL	7.21 D	7.17	34.245 D	26.806	130.4	0.760	0.64	D 27.6 D	9.4	59.2	2.87	35.9	0.01	0.00			403	
440	6.82	6.77	34.261	26.873	124.3	0.810	0.50	21.8	7.3	63.9	2.96	36.9	0.00	0.00			444	05
500 ISL	6.36 D	6.32	34.305 D	26.969	115.8	0.884	0.31	D 13.5 D	4.5	73.5	3.09	38.0	0.01	0.00			504	
515	6.27	6.22	34.321	26.994	113.5	0.899	0.28	12.3	4.1	75.9	3.12	38.3	0.00	0.00			519	04
600 ISL	5.85 D	5.79	34.350 D	27.072	106.9	0.996	0.18	D 7.9 D	2.6	84.9	3.21	38.5	0.01	0.00			605	
601	5.83	5.78	34.348	27.072	106.9	0.994	0.19	8.5	2.8	85.0	3.21	38.5	0.00	0.00			606	03
700 ISL	5.38 D	5.32	34.386 D	27.158	99.4	1.101	0.11	D 4.7 D	1.5	97.3	3.34	36.7	0.02	0.00			706	
720	5.30	5.24	34.394	27.175	98.0	1.116	0.09	4.0	1.3	99.7	3.37	36.3	0.00	0.00			726	02
725	5.27	5.21	34.400	27.183	97.3	1.121	0.10	4.4	1.4	100.2	3.36	36.2	0.00	0.00			732	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 86.7 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.4 N	119 19.2 W	12/01/2017	1851 UTC	1654 m	250 14 kn	240 05 11	2	1013.3 mb	16.0 C	15.5 C	13 m	8/8	SC	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	14.71	14.71	33.347	24.761	317.5	0.000	6.06	264.5	104.9	3.1	0.32	0.2	0.05	0.08	1.12	0.49	0	
1 A	14.71	14.71	33.347	24.761	317.5	0.003	6.06	264.5	104.9	3.1	0.32	0.2	0.05	0.08	1.12	0.49	1	23
10 A	14.70	14.70	33.346	24.762	317.7	0.032	6.02	262.7	104.2	2.7	0.30	0.0	0.04	0.00	1.37	0.23	10	20
10	14.70	14.70	33.345 D	24.761	317.8	0.031											10	22
10	14.70	14.70	33.348	24.764	317.6	0.030											10	21
15 A	14.57	14.56	33.346	24.792	315.1	0.048	5.99	261.2	103.3	2.6	0.32	0.0	0.04	0.07	1.13	0.32	15	19
20 ISL	14.45 D	14.45	33.344 D	24.814	313.1	0.062	5.95	D259.4	D102.4	2.7	0.35	0.5	0.06	0.08	0.98	0.35	20	
24 A	14.32	14.32	33.349	24.846	310.2	0.076	5.90	257.4	101.3	2.8	0.37	0.9	0.08	0.09	0.85	0.36	24	18
30 ISL	14.25 D	14.25	33.354 D	24.865	308.6	0.093	5.80	D252.7	D 99.4	3.1	0.42	1.7	0.13	0.14	0.78	0.30	30	
33	14.20	14.20	33.357	24.879	307.4	0.104	5.64	246.2	96.6	3.2	0.44	2.1	0.16	0.16	0.75	0.26	33	17
42 A	13.73	13.73	33.355	24.974	298.6	0.131	5.40	235.5	91.5	4.3	0.56	4.0	0.26	0.09	0.51	0.20	42	16
50 A	13.37	13.37	33.353	25.046	291.9	0.155	5.19	226.3	87.3	5.4	0.68	5.9	0.27	0.06	0.39	0.25	50	15
60	12.46	12.45	33.379	25.246	273.1	0.183	4.65	202.8	76.8	8.6	0.94	10.2	0.19	0.00	0.22	0.12	60	14
70	11.68	11.67	33.419	25.426	256.1	0.209	4.15	181.2	67.5	11.9	1.18	13.9	0.05	0.00	0.19	0.11	71	13
75 ISL	11.48 D	11.47	33.437 D	25.476	251.4	0.222	4.07	D177.0 D	65.8	13.5	1.27	15.4	0.04	0.00	0.15	0.11	76	
85	10.63	10.62	33.516	25.690	231.3	0.246	3.66	159.5	58.1	16.7	1.46	18.3	0.03	0.00	0.07	0.11	86	12
100 ISL	10.17 D	10.16	33.616 D	25.846	216.7	0.280	3.42	148.7	53.8	18.7	1.57	19.9	0.03	0.00	0.04	0.09	101	
101	10.19	10.17	33.588	25.823	218.9	0.282	3.40	148.3	53.5	18.9	1.58	20.0	0.03	0.00	0.04	0.09	102	11
121	9.90	9.88	33.697	25.957	206.6	0.325	3.07	134.0	48.1	22.2	1.73	22.1	0.03	0.00	0.02	0.07	122	10
125 ISL	9.89 D	9.87	33.698 D	25.959	206.5	0.333	3.08	D134.0 D	48.2	22.6	1.75	22.3	0.03	0.00	0.02	0.07	126	
140	9.67	9.66	33.759	26.043	198.8	0.363	2.91	126.7	45.3	24.1	1.82	23.2	0.03	0.00	0.01	0.07	141	09
150 ISL	9.50 D	9.48	33.828 D	26.125	191.2	0.383	2.75	D119.8 D	42.8	26.0	1.89	24.2	0.02	0.00	0.01	0.07	151	
171	9.17	9.15	33.939	26.266	178.2	0.422	2.37	103.2	36.5	29.9	2.05	26.2	0.00	0.00	0.01	0.06	172	08
200	8.90	8.87	34.052	26.399	166.1	0.472	1.97	86.0	30.3	34.0	2.19	28.0	0.00	0.00	0.01	0.04	202	07
230	8.60	8.58	34.133	26.510	156.1	0.520	1.54	67.0	23.4	39.1	2.38	29.8	0.00	0.00			232	06
250 ISL	8.45 D	8.42	34.162 D	26.557	152.0	0.552	1.37	D 59.4 D	20.8	41.4	2.45	30.7	0.02	0.00			252	
270	8.29	8.26	34.182	26.597	148.5	0.581	1.22	53.0	18.4	43.8	2.51	31.5	0.00	0.00			272	05
300 ISL	8.06 D	8.03	34.198 D	26.644	144.5	0.627	1.10	D 47.8 D	16.5	47.4	2.62	32.5	0.02	0.00			302	
320	7.85	7.81	34.218	26.692	140.2	0.653	0.91	39.9	13.7	49.8	2.69	33.1	0.00	0.00			323	04
380	7.45	7.42	34.244	26.771	133.6	0.735	0.70	30.3	10.3	55.8	2.80	34.7	0.00	0.00			383	03
400 ISL	7.36 D	7.32	34.252 D	26.791	132.0	0.765	0.64	D 27.7 D	9.4	58.3	2.85	35.4	0.02	0.00			403	
440	6.92	6.88	34.267	26.864	125.3	0.813	0.48	21.0	7.1	63.3	2.95	36.8	0.00	0.00			444	02
500 ISL	6.38 D	6.34	34.307 D	26.967	115.9	0.890	0.32	D 14.0 D	4.7	72.8	3.08	37.8	0.02	0.00			504	
516	6.28	6.24	34.314	26.986	114.3	0.904	0.28	12.2	4.1	75.3	3.12	38.1	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 REUBEN LASKER CALCOFI CRUISE 1701 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 19.2 N	119 39.7 W	13/01/2017	0004 UTC	72 m	300 17 kn	250 05 10	2	1012.5 mb	13.5 C	12.0 C		1/8	CU	039

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.31	14.31	33.310	24.819	312.0	0.000	6.06	264.5	104.0	2.4	0.35	0.8	0.11	0.04	0.89	0.33	0	
2	14.31	14.30	33.310	24.819	312.1	0.006	6.06	264.5	104.0	2.4	0.35	0.8	0.11	0.00	0.89	0.33	2	09
10	14.31	14.31	33.310	24.818	312.4	0.031	6.05	263.9	103.8	2.6	0.35	0.9	0.11	0.00	0.87	0.29	10	07
10	14.31	14.31	33.311	24.819	312.4	0.030											10	08
20	14.31	14.30	33.312	24.820	312.5	0.063	6.07	264.8	104.1	2.5	0.34	0.9	0.11	0.00	0.87	0.29	20	06
30	13.36	13.36	33.300	25.006	295.1	0.093	5.28	230.1	88.7	4.9	0.65	5.6	0.15	0.00	0.28	0.20	30	05
41	13.20	13.19	33.315	25.051	291.2	0.125	5.26	229.3	88.1	5.2	0.72	6.0	0.16	0.07	0.23	0.17	41	04
50	13.19	13.18	33.352 D	25.082	288.4	0.149	5.20	226.8	87.2	6.7	0.77	6.6	0.28	0.16	0.26	0.19	50	03
61	12.78	12.77	33.398	25.200	277.5	0.182	5.06	220.6	84.1	7.6	0.81	7.6	0.23	0.16	0.24	0.19	61	02
71	10.74	10.73	33.519	25.672	232.6	0.208	3.64	158.8	58.0	17.2	1.50	18.5	0.05	0.00	0.06	0.11	72	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 9.2 N	120 0.4 W	13/01/2017	0327 UTC	1212 m	330 16 kn			1013.8 mb	13.8 C	11.9 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	14.33	14.33	33.320	24.822	311.7	0.000	6.11	266.5	104.9	3.0	0.38	0.9	0.07	0.08	1.07	0.45	0	
2	14.33	14.32	33.320	24.822	311.8	0.006	6.11	266.5	104.9	3.0	0.38	0.9	0.07	0.08	1.07	0.45	2	21
10	14.34	14.33	33.320	24.820	312.2	0.031	6.10	266.2	104.7	3.0	0.38	0.8	0.07	0.00	1.12	0.40	10	19
10	14.34	14.33	33.318	24.819	312.3	0.030											10	20
20	14.06	14.05	33.292	24.858	308.9	0.062	5.98	260.8	102.0	2.5	0.40	1.2	0.16	0.08	0.81	0.37	20	18
30	13.68	13.67	33.280	24.926	302.7	0.093	5.72	249.7	96.9	2.2	0.46	2.2	0.38	0.06	0.50	0.25	30	17
39	13.38	13.37	33.318	25.018	294.2	0.120	5.48	239.0	92.2	3.5	0.63	4.8	0.20	0.00	0.19	0.14	39	16
50	12.78	12.78	33.324	25.141	282.8	0.152	5.03	219.4	83.6	6.1	0.83	7.9	0.06	0.00	0.12	0.12	50	15
60	12.32	12.31	33.397	25.287	269.1	0.179	4.68	204.1	77.0	9.4	1.03	10.9	0.12	0.00	0.16	0.13	60	14
70	11.18	11.17	33.438	25.531	246.0	0.205	4.06	177.3	65.3	13.5	1.31	15.6	0.00	0.00	0.10	0.10	71	13
75 ISL	10.86 D	10.85	33.484 D	25.625	237.3	0.215	3.66	D159.6 D	58.5	15.2	1.41	17.1	0.02	0.00	0.08	0.09	76	
85	10.30	10.29	33.543	25.768	223.8	0.240	3.55	154.8	56.0	18.5	1.60	20.1	0.00	0.00	0.04	0.06	86	12
100 ISL	9.96 D	9.95	33.607 D	25.875	213.9	0.271	3.35	D145.9 D	52.5	20.2	1.69	21.4	0.01	0.00	0.03	0.06	101	
101	9.98	9.97	33.601	25.868	214.6	0.275	3.37	147.2	52.9	20.3	1.70	21.4	0.00	0.00	0.03	0.06	102	11
120	9.39	9.37	33.725	26.062	196.4	0.314	3.06	133.6	47.4	24.0	1.85	23.8	0.00	0.00	0.01	0.05	121	10
125 ISL	9.37 D	9.35	33.749 D	26.085	194.4	0.322	3.04	D132.1 D	47.0	24.7	1.87	24.2	0.00	0.00	0.01	0.05	126	
140	9.14	9.12	33.810	26.169	186.7	0.353	2.91	126.9	44.8	26.6	1.92	25.2	0.00	0.00	0.01	0.05	141	09
150 ISL	9.06 D	9.04	33.840 D	26.206	183.4	0.370	2.87	D124.9 D	44.1	27.7	1.95	25.7	0.01	0.00	0.01	0.04	151	
169	8.74	8.73	33.905	26.307	174.1	0.405	2.73	119.2	41.8	29.9	2.00	26.7	0.00	0.00	0.01	0.03	170	08
199	8.50	8.47	33.965	26.393	166.5	0.456	2.46	D106.8 D	37.3	33.1	2.14	28.1	0.00	0.00	0.01	0.04	201	07
200 ISL	8.49 D	8.47	33.975 D	26.401	165.7	0.457	2.48	D107.7 D	37.6	33.3	2.14	28.2	0.01	0.00			202	
229	8.11	8.09	34.038	26.509	156.0	0.504	2.08	90.7	31.4	38.7	2.28	30.3	0.00	0.00			231	06
250 ISL	8.03 D	8.00	34.064 D	26.543	153.1	0.537	1.86	D 81.1 D	28.0	40.7	2.34	31.0	0.01	0.00			252	
269	7.89	7.87	34.076	26.572	150.6	0.566	1.75	76.4	26.3	42.6	2.39	31.6	0.00	0.00			271	05
300 ISL	7.50 D	7.47	34.126 D	26.670	141.7	0.612	1.29	D 56.2 D	19.2	48.0	2.57	33.3	0.00	0.00			302	
321	7.35	7.32	34.143	26.704	138.7	0.641	1.13	49.3	16.7	51.7	2.69	34.5	0.00	0.00			324	04
380	7.00	6.96	34.210	26.807	129.7	0.720	0.73	32.0	10.8	58.7	2.88	36.3	0.00	0.00			383	03
400 ISL	6.79 D	6.75	34.207 D	26.834	127.4	0.747	0.68	D 29.5 D	9.9	61.6	2.93	37.0	0.00	0.00			403	
439	6.48	6.44	34.241	26.901	121.3	0.794	0.50	21.6	7.2	67.3	3.03	38.4	0.00	0.00			443	02
500 ISL	6.19 D	6.15	34.299 D	26.986	113.9	0.868	0.32	D 14.0 D	4.6	74.3	3.16	39.4	0.00	0.00			504	
516	6.06	6.02	34.302	27.005	112.3	0.884	0.30	13.1	4.3	76.1	3.19	39.7	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 REUBEN LASKER CALCOFI CRUISE 1701 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 59.8 N	120 20.7 W	13/01/2017	0716 UTC	1475 m	310 17 kn			1015.1 mb	14.0 C	11.0 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	14.54	14.54	33.184 D	24.671	326.1	0.000	6.08	D265.1	D104.8								0	
2	14.54	14.54	33.184 D	24.671	326.2	0.003	6.08	D265.1	D104.8								2	21
10	14.55	14.55	33.186	24.671	326.4	0.033	6.06	264.5	104.4	1.7	0.29	0.0	0.03	0.00	0.62	0.15	10	19
11	14.55	14.55	33.183	24.670	326.5	0.034											10	20
20	14.56	14.55	33.186	24.671	326.7	0.065	6.08	265.3	104.7	1.4	0.28	0.0	0.00	0.00	0.63	0.16	20	18
30	14.54	14.54	33.186	24.674	326.8	0.098	6.06	264.6	104.4	1.2	0.30	0.0	0.00	0.00	0.63	0.17	30	17
40	14.34	14.33	33.172	24.708	323.9	0.130	6.10	266.3	104.6	1.2	0.32	0.0	0.05	0.07	0.65	0.19	40	16
50	13.76	13.76	33.169	24.825	313.0	0.162	5.91	258.0	100.2	1.6	0.38	0.7	0.17	0.15	0.40	0.20	50	15
61	13.54	13.53	33.193	24.889	307.2	0.196	5.81	D253.1	D 98.0	1.9	0.43	1.4	0.24	0.16	0.24	0.14	61	14
70	13.80	13.79	33.343	24.954	301.3	0.224	5.64	246.0	95.7	1.9	0.51	2.5	0.55	0.00	0.16	0.15	71	13
75 ISL	13.69 D	13.68	33.362 D	24.990	298.0	0.237	5.63	D245.5	D 95.5	2.7	0.58	3.7	0.39	0.00	0.14	0.14	76	
86	13.07	13.06	33.331	25.092	288.6	0.271	5.25	229.1	87.8	4.5	0.74	6.5	0.03	0.00	0.09	0.12	87	12
100 ISL	11.29 D	11.28	33.383 D	25.468	252.8	0.308	4.25	D184.9	D 68.4	11.6	1.24	14.3	0.03	0.00	0.05	0.09	101	
101	11.15	11.14	33.374	25.487	251.0	0.312	4.26	186.1	68.5	12.1	1.28	14.8	0.03	0.00	0.05	0.09	102	11
121	10.06	10.05	33.551	25.816	220.0	0.359	3.59	156.6	56.3	18.4	1.66	20.6	0.00	0.00	0.03	0.05	122	10
125 ISL	9.97 D	9.96	33.575 D	25.849	216.9	0.366	3.59	D156.1	D 56.2	19.3	1.69	21.1	0.02	0.00	0.02	0.05	126	
140	9.53	9.51	33.675	26.001	202.7	0.399	3.23	141.1	50.2	22.3	1.81	23.1	0.00	0.00	0.01	0.04	141	09
150 ISL	9.39 D	9.38	33.735 D	26.070	196.4	0.418	3.15	D137.3	D 48.8	24.1	1.87	24.0	0.02	0.00	0.01	0.03	151	
170	9.00	8.98	33.858	26.230	181.6	0.457	2.81	122.4	43.1	27.7	1.99	25.9	0.00	0.00	0.01	0.02	171	08
200	8.50	8.48	33.981	26.405	165.4	0.509	2.54	110.6	38.5	33.5	2.15	28.5	0.00	0.00	0.00	0.02	202	07
231	8.24	8.22	34.024	26.478	158.9	0.559	2.17	94.6	32.8	36.9	2.26	29.7	0.00	0.00			233	06
250 ISL	7.92 D	7.89	34.065 D	26.559	151.5	0.589	1.91	D 83.2	D 28.7	41.1	2.39	31.2	0.02	0.00			252	
271	7.69	7.66	34.088	26.611	146.8	0.620	1.59	69.2	23.7	45.6	2.54	33.0	0.00	0.00			273	05
300 ISL	7.39 D	7.36	34.129 D	26.687	140.0	0.662	1.25	D 54.3	D 18.5	50.4	2.67	34.4	0.01	0.00			302	
322	7.20	7.17	34.143	26.724	136.7	0.692	1.05	45.6	15.4	54.0	2.77	35.5	0.00	0.00			325	04
380	6.91	6.87	34.175	26.791	131.1	0.770	0.79	34.4	11.6	59.1	2.89	36.8	0.00	0.00			383	03
400 ISL	6.87 D	6.83	34.186 D	26.806	130.0	0.798	0.75	D 32.5	D 10.9	61.1	2.94	37.3	0.01	0.00			403	
439	6.62	6.58	34.220	26.866	124.7	0.846	0.56	24.6	8.2	65.0	3.03	38.2	0.00	0.00			443	02
500 ISL	6.26 D	6.22	34.261 D	26.947	117.7	0.922	0.38	D 16.6	D 5.5	72.2	3.14	39.5	0.01	0.00			504	
517	6.13	6.09	34.285	26.983	114.4	0.939	0.32	14.1	4.7	74.2	3.17	39.9	0.00	0.00			521	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 86.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 39.4 N	121 1.8 W	13/01/2017	1314 UTC	3783 m	350 13 kn			1016.2 mb	12.2 C	10.8 C				042

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.34	15.34	33.301	24.589	333.9	0.000	5.91	257.7	103.4	1.4	0.28	0.0	0.01	0.02	0.44	0.14	0	
2	15.34	15.34	33.301	24.589	334.0	0.007	5.91	257.7	103.4	1.4	0.28	0.0	0.00	0.00	0.44	0.14	2	21
10	15.35	15.34	33.296	24.584	334.7	0.034	5.94	259.3	104.1	1.3	0.27	0.0	0.00	0.00	0.44	0.12	10	19
10	15.35	15.34	33.292	24.582	334.9	0.035											10	20
20 ISL	15.37 D	15.36	33.298 D	24.582	335.3	0.064	5.94	D259.0	D104.1	1.2	0.27	0.0	0.00	0.00	0.45	0.11	20	
21	15.37	15.36	33.299	24.582	335.2	0.070	5.94	259.3	104.1	1.2	0.27	0.0	0.00	0.00	0.46	0.11	21	18
30	15.33	15.33	33.288	24.583	335.5	0.101	5.95	259.8	104.3	1.1	0.27	0.0	0.00	0.00	0.43	0.14	30	17
40	15.32	15.31	33.284	24.584	335.8	0.134	5.93	258.8	103.8	1.1	0.27	0.0	0.00	0.00	0.43	0.14	40	16
50	15.32	15.31	33.287	24.587	335.8	0.168	5.90	257.3	103.2	1.1	0.28	0.0	0.00	0.00	0.44	0.15	50	15
60	15.04	15.03	33.335	24.684	326.9	0.201	5.77	252.0	100.6	1.3	0.33	0.2	0.08	0.13	0.51	0.22	60	14
70	14.37	14.36	33.322	24.818	314.3	0.233	5.60	244.3	96.2	2.2	0.44	2.0	0.27	0.00	0.29	0.16	71	13
75 ISL	14.37 D	14.36	33.332 D	24.826	313.7	0.247	5.49	239.1	94.2	2.9	0.52	3.3	0.21	0.00	0.23	0.15	76	
86	13.02	13.00	33.289	25.070	290.7	0.282	5.24	228.6	87.5	4.4	0.69	6.2	0.08	0.00	0.11	0.12	87	12
100	11.28	11.27	33.309	25.414	258.0	0.320	4.49	195.8	72.2	10.9	1.14	13.4	0.00	0.00	0.08	0.08	101	11
120	9.90	9.88	33.523	25.821	219.5	0.368	3.88	169.4	60.7	18.0	1.52	19.5	0.00	0.00	0.02	0.05	121	10
125 ISL	9.81 D	9.79	33.562 D	25.867	215.2	0.378	3.85	D167.4	D 60.0	19.2	1.58	20.4	0.01	0.00	0.02	0.05	126	
140	9.50	9.48	33.698	26.024	200.5	0.410	3.19	139.1	49.5	22.9	1.77	23.0	0.00	0.00	0.01	0.06	141	09
150 ISL	9.47 D	9.46	33.796 D	26.105	193.1	0.429	2.77	D120.7	D 43.0	24.6	1.84	24.0	0.01	0.00	0.01	0.05	151	
170	9.07	9.05	33.872	26.230	181.6	0.468	2.70	117.8	41.5	28.0	1.97	25.9	0.00	0.00	0.01	0.04	171	08
200	8.54	8.52	33.979	26.397	166.2	0.520	2.44	106.3	37.1	33.3	2.11	28.2	0.00	0.00	0.00	0.03	202	07
231	8.22	8.20	34.030	26.487	158.1	0.570	2.12	92.4	32.0	37.5	2.24	29.7	0.00	0.00			233	06
250 ISL	8.04 D	8.01	34.061 D	26.539	153.5	0.600	1.92	D 83.7	D 29.0	40.4	2.33	30.8	0.01	0.00			252	
271	7.85	7.82	34.087	26.587	149.2	0.632	1.67	72.8	25.0	43.6	2.43	32.1	0.00	0.00			273	05
300 ISL	7.61 D	7.58	34.120 D	26.648	143.8	0.675	1.37	D 59.7	D 20.5	47.7	2.54	33.3	0.01	0.00			302	
321	7.35	7.32	34.120	26.686	140.5	0.704	1.26	55.1	18.7	50.7	2.62	34.2	0.00	0.00			324	04
380	6.89	6.86	34.162	26.783	131.8	0.785	0.89	38.7	13.0	57.9	2.79	36.3	0.00	0.00			383	03
400 ISL	6.78 D	6.74	34.183 D	26.815	129.1	0.812	0.76	D 33.0	D 11.1	61.0	2.85	37.1	0.01	0.00			403	
440	6.31	6.27	34.179	26.874	123.7	0.862	0.61	26.7	8.9	67.1	2.98	38.7	0.00	0.00			444	02
500 ISL	6.10 D	6.05	34.249 D	26.958	116.5	0.936	0.38	D 16.4	D 5.4	73.3	3.08	39.7	0.01	0.00			504	
516	6.02	5.98	34.256	26.973	115.2	0.953	0.35	15.2	5.0	75.0	3.11	39.9	0.00	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 19.2 N	121 43.2 W	13/01/2017	1908 UTC	4041 m	320 15 kn	320 06 10	1	1018.9 mb	13.5 C	12.5 C	12 m	3/8	CU	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	14.90	14.90	33.287	24.675	325.7	0.000	5.94	259.4	103.1	1.7	0.30	0.1	0.04	0.08	0.64	0.18	0	
1 A	14.90	14.89	33.287	24.675	325.7	0.003	5.94	259.4	103.1	1.7	0.30	0.1	0.04	0.08	0.64	0.18	1	24
9	14.89	14.89	33.287	24.675	325.9	0.028											8	23
9 A	14.89	14.89	33.286	24.676	325.9	0.029	5.94	259.3	103.1	1.2	0.34	0.1	0.03	1.54	0.64	0.19	9	22
10 ISL	14.89 D	14.89	33.286 D	24.676	326.0	0.031	5.97	D260.2	D103.6	1.2	0.33	0.1	0.03	0.00	0.63	0.19	10	
14 A	14.89	14.89	33.288	24.677	325.9	0.046	5.95	259.9	103.3	1.0	0.29	0.0	0.03	0.00	0.63	0.19	14	21
20 ISL	14.89 D	14.89	33.286 D	24.676	326.3	0.064	5.97	D260.0	D103.6	1.0	0.29	0.0	0.03	0.00	0.64	0.21	20	
24 A	14.89	14.89	33.286	24.677	326.3	0.078	5.92	258.4	102.7	1.0	0.29	0.0	0.03	0.07	0.65	0.22	24	20
30 ISL	14.87 D	14.86	33.286 D	24.682	326.0	0.097	5.95	D259.5	D103.3	1.0	0.28	0.0	0.03	0.00	0.66	0.19	30	
30	14.87	14.86	33.286	24.682	326.0	0.098											30	19
31	14.77	14.77	33.289	24.705	323.9	0.101	5.94	259.5	102.9	1.0	0.28	0.0	0.03	0.00	0.66	0.19	31	18
38 A	14.46	14.46	33.319	24.795	315.6	0.124	5.69	248.6	98.0	1.3	0.41	1.2	0.29	0.14	0.53	0.28	38	17
46 A	14.19	14.18	33.333	24.864	309.2	0.149	5.71	249.2	97.7	1.1	0.43	1.3	0.37	0.34	0.35	0.23	46	16
50 ISL	14.15 D	14.14	33.345 D	24.881	307.7	0.160	5.74	D250.2	D 98.2	1.1	0.42	1.2	0.41	0.36	0.29	0.20	50	
53	13.97	13.96	33.349	24.921	304.0	0.170	5.72	249.8	97.5	1.0	0.42	1.2	0.44	0.38	0.24	0.18	53	15
61	13.17	13.16	33.279	25.030	293.7	0.194	5.34	233.1	89.4	3.3	0.63	5.1	0.14	0.00	0.15	0.15	61	14
71	12.54	12.53	33.259	25.138	283.6	0.223	4.99	217.9	82.5	5.6	0.82	8.3	0.04	0.00	0.12	0.14	72	13
75 ISL	12.28 D	12.27	33.227 D	25.164	281.2	0.234	5.04	D219.5	D 82.8	6.5	0.85	8.9	0.03	0.00	0.11	0.12	76	
86	11.45	11.44	33.329	25.398	259.2	0.264	4.79	209.2	77.4	8.9	0.93	10.6	0.03	0.00	0.07	0.08	87	12
100	10.43	10.42	33.463	25.683	232.2	0.298	3.80	165.6	60.0	15.8	1.47	18.4	0.00	0.00	0.04	0.07	101	11
120	9.65	9.64	33.718	26.014	201.1	0.341	2.96	129.2	46.1	23.3	1.83	23.6	0.00	0.00	0.02	0.05	121	10
125 ISL	9.53 D	9.52	33.765 D	26.070	195.8	0.352	2.96	D129.0	D 46.1	24.0	1.87	24.0	0.02	0.00	0.02	0.05	126	
140	9.54	9.53	33.838	26.126	190.9	0.380	2.54	110.9	39.5	26.3	1.97	25.1	0.00	0.00	0.01	0.04	141	09
150 ISL	9.49 D	9.47	33.899 D	26.183	185.7	0.400	2.41	D105.0	D 37.5	27.4	2.02	25.6	0.01	0.00	0.01	0.04	151	
171	9.36	9.34	33.957	26.250	179.8	0.438	2.19	95.4	33.9	29.6	2.12	26.7	0.00	0.00	0.01	0.03	172	08
199	9.10	9.07	34.049	26.365	169.4	0.487	1.92	D 83.5	D 29.6	33.2	2.24	28.4	0.00	0.00	0.00	0.03	201	07
200 ISL	9.09 D	9.07	34.052 D	26.369	169.1	0.490	1.91	D 83.0	D 29.4	33.3	2.24	28.4	0.02	0.00			202	
231	8.82	8.79	34.112	26.459	161.1	0.540	1.62	70.6	24.8	37.0	2.35	29.6	0.00	0.00			233	06
250 ISL	8.64 D	8.61	34.147 D	26.515	156.1	0.572	1.48	D 64.4	D 22.6	39.5	2.42	30.5	0.01	0.00			252	
271	8.37	8.34	34.163	26.569	151.2	0.602	1.28	55.9	19.5	42.3	2.50	31.5	0.00	0.00			273	05
300 ISL	8.15 D	8.12	34.184 D	26.621	146.8	0.648	1.14	D 49.6	D 17.2	45.4	2.58	32.6	0.01	0.00			302	
320	7.97	7.94	34.189	26.651	144.2	0.675	1.03	44.8	15.4	47.6	2.64	33.3	0.00	0.00			323	04
380	7.38	7.34	34.219	26.761	134.4	0.758	0.74	32.2	11.0	55.2	2.81	35.6	0.00	0.00			383	03
400 ISL	7.23 D	7.19	34.229 D	26.791	131.8	0.788	0.68	D 29.5	D 10.0	57.1	2.84	36.0	0.01	0.00			403	
440	7.03	6.99	34.242	26.829	128.8	0.837	0.58	25.4	8.6	60.8	2.91	36.7	0.00	0.00			444	02
500 ISL	6.52 D	6.47	34.276 D	26.926	120.0	0.916	0.41	D 18.0	D 6.0	68.7	3.04	38.3	0.01	0.00			504	
516	6.43	6.39	34.280	26.941	118.8	0.931	0.37	16.0	5.3	70.8	3.07	38.7	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 REUBEN LASKER CALCOFI CRUISE 1701 STATION 86.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 59.3 N	122 23.7 W	14/01/2017	0044 UTC	4101 m	330 18 kn	300 06 07	1	1017.9 mb	13.5 C	12.2 C		6/8	CU	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	16.02	16.02	33.122	24.300	361.4	0.000	5.68	248.2	100.8	1.4	0.24	0.0	0.02	0.01	0.13	0.04	0	
2	16.02	16.02	33.122	24.300	361.5	0.007	5.68	248.2	100.8	1.4	0.24	0.0	0.00	0.00	0.13	0.04	2	21
10	16.02	16.02	33.120	24.299	361.9	0.036	5.70	248.8	101.1	1.1	0.22	0.0	0.00	0.00	0.13	0.04	10	19
10	16.02	16.02	33.122	24.300	361.8	0.034											10	20
20 ISL	16.00 D	16.00	33.120 D	24.303	361.8	0.069	5.70	248.5	101.1	1.0	0.23	0.0	0.01	0.00	0.14	0.05	20	
25	16.00	16.00	33.120	24.303	362.0	0.090	5.70	249.0	101.1	0.9	0.23	0.0	0.00	0.00	0.14	0.05	25	18
30 ISL	16.00 D	15.99	33.122 D	24.306	361.9	0.106	5.71	249.0	101.2	0.9	0.23	0.0	0.01	0.00	0.16	0.06	30	
39	15.56	15.55	33.091	24.381	355.0	0.141	5.73	250.2	100.6	0.8	0.24	0.0	0.00	0.00	0.20	0.10	39	17
50	15.33	15.32	33.109	24.448	349.0	0.180	5.75	251.0	100.5	0.9	0.26	0.0	0.03	0.00	0.26	0.11	50	16
62	14.49	14.48	33.252	24.739	321.6	0.220	5.76	251.4	99.1	1.9	0.29	0.1	0.23	0.00	0.27	0.22	62	15
75 ISL	13.79 D	13.78	33.316 D	24.934	303.4	0.258	5.55	241.8	94.2	2.8	0.36	1.5	0.09	0.00	0.24	0.18	76	
76	13.60	13.58	33.307	24.967	300.3	0.263	5.53	241.6	93.5	2.9	0.37	1.7	0.07	0.00	0.24	0.17	77	14
89	12.47	12.45	33.238	25.137	284.3	0.301	5.20	227.0	85.8	5.0	0.63	5.6	0.03	0.00	0.17	0.15	90	13
100	11.34	11.33	33.265	25.368	262.3	0.332	4.98	217.5	80.3	7.2	0.82	8.8	0.00	0.00	0.09	0.10	101	12
112	10.75	10.74	33.345	25.536	246.6	0.362	4.72	206.0	75.1	10.3	1.03	12.2	0.00	0.00	0.04	0.05	113	11
125	9.85	9.84	33.488	25.802	221.4	0.392	3.84	167.8	60.0	17.6	1.55	19.6	0.00	0.00	0.01	0.04	126	10
140	9.36	9.34	33.599	25.969	205.7	0.424	3.77	164.6	58.3	20.3	1.61	20.9	0.00	0.00	0.00	0.03	141	09
150 ISL	9.19 D	9.18	33.703 D	26.078	195.6	0.443	3.70	D161.1	D 57.0	21.8	1.65	21.6	0.01	0.00	0.00	0.02	151	
170	8.92	8.90	33.812	26.207	183.7	0.483	3.47	151.5	53.2	24.9	1.73	23.1	0.00	0.00	0.00	0.02	171	08
200	8.48	8.46	33.959	26.391	166.7	0.535	2.84	124.0	43.2	31.5	1.98	26.8	0.00	0.00	0.00	0.02	202	07
229	8.13	8.11	34.010	26.483	158.3	0.583	2.44	106.4	36.7	36.6	2.15	28.9	0.00	0.00			231	06
250 ISL	7.86 D	7.84	34.024 D	26.535	153.7	0.614	2.28	D 99.2	D 34.2	39.6	2.24	30.1	0.01	0.00			252	
270	7.71	7.68	34.039	26.570	150.7	0.646	2.02	88.0	30.1	42.5	2.33	31.2	0.00	0.00			272	05
300 ISL	7.35 D	7.32	34.060 D	26.638	144.6	0.689	1.70	D 74.0	D 25.2	46.9	2.46	32.9	0.01	0.00			302	
320	7.22	7.19	34.069	26.664	142.3	0.719	1.54	67.1	22.7	49.8	2.55	34.0	0.00	0.00			323	04
380	6.56	6.52	34.118	26.792	130.7	0.801	0.97	42.4	14.1	60.4	2.81	37.1	0.00	0.00			383	03
400 ISL	6.44 D	6.40	34.145 D	26.830	127.3	0.827	0.79	D 34.2	D 11.4	63.2	2.88	37.7	0.01	0.00			403	
442	6.25	6.21	34.203	26.901	121.1	0.879	0.54	23.5	7.8	69.1	3.02	38.9	0.00	0.00			446	02
500 ISL	5.92 D	5.88	34.244 D	26.976	114.5	0.948	0.38	D 16.4	D 5.4	75.6	3.11	40.1	0.01	0.00			504	
516	5.83	5.79	34.250	26.992	113.1	0.965	0.35	15.3	5.0	77.4	3.14	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 REUBEN LASKER CALCOFI CRUISE 1701 STATION 86.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 39.3 N	123 3.6 W	14/01/2017	0618 UTC	3780 m	350 21 kn			1020.0 mb	13.7 C	11.0 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	15.97	15.97	33.160	24.340	357.6	0.000	5.74	250.4	101.7	1.7	0.24	0.0	0.01	0.00	0.13	0.03	0	
2	15.97	15.97	33.160	24.341	357.6	0.007	5.74	250.4	101.7	1.7	0.24	0.0	0.00	0.00	0.13	0.03	2	21
10	15.98	15.97	33.160	24.339	358.0	0.036	5.73	250.0	101.5	1.6	0.23	0.0	0.00	0.00	0.13	0.04	10	19
10	15.98	15.97	33.162	24.341	357.9	0.036											10	20
20	15.98	15.97	33.166	24.345	357.9	0.072	5.72	249.8	101.4	1.6	0.23	0.0	0.00	0.00	0.14	0.04	20	18
29	15.98	15.98	33.158	24.338	358.8	0.104	5.74	250.5	101.7	1.6	0.23	0.0	0.00	0.00	0.14	0.03	29	17
30 ISL	15.99 D	15.98	33.160 D	24.339	358.8	0.105	5.74	250.3	101.8	1.6	0.23	0.0	0.00	0.00	0.15	0.04	30	
40	15.37	15.37	33.129	24.452	348.3	0.143	5.78	252.4	101.2	1.6	0.27	0.0	0.00	0.00	0.26	0.08	40	16
50	15.32	15.31	33.165	24.492	344.8	0.178	5.74	250.4	100.3	1.7	0.31	0.1	0.05	0.11	0.30	0.11	50	15
60	15.32	15.31	33.221	24.536	341.0	0.212	5.70	248.7	99.7	1.8	0.34	0.3	0.08	0.19	0.28	0.21	60	14
70	15.11	15.10	33.249	24.603	334.9	0.246	5.69	248.5	99.2	1.8	0.33	0.5	0.14	0.20	0.23	0.12	71	13
75 ISL	14.65 D	14.64	33.249 D	24.703	325.5	0.260	5.65	D246.2	D 97.5	2.4	0.36	1.2	0.12	0.00	0.21	0.13	76	
86	13.64	13.63	33.304	24.956	301.6	0.297	5.49	239.7	92.9	3.7	0.43	2.8	0.09	0.00	0.15	0.13	87	12
100	12.84	12.83	33.349	25.151	283.3	0.338	5.29	231.0	88.1	5.1	0.59	5.1	0.03	0.00	0.10	0.10	101	11
119	11.29	11.27	33.381	25.469	253.3	0.389	4.88	213.2	78.7	9.0	0.91	10.4	0.00	0.00	0.05	0.06	120	10
125 ISL	10.83 D	10.82	33.383 D	25.552	245.4	0.403	4.61	D200.5	D 73.4	11.3	1.06	12.8	0.01	0.00	0.04	0.05	126	
140	9.90	9.88	33.468	25.779	223.9	0.439	4.10	179.2	64.2	17.2	1.44	18.6	0.00	0.00	0.01	0.03	141	09
150 ISL	9.65 D	9.64	33.532 D	25.870	215.5	0.460	3.86	D168.1	D 60.1	19.5	1.54	20.1	0.01	0.00	0.01	0.03	151	
170	9.05	9.04	33.715	26.109	193.0	0.501	3.53	154.0	54.2	24.1	1.73	23.2	0.00	0.00	0.00	0.02	171	08
200 ISL	8.69 D	8.67	33.893 D	26.306	174.8	0.557	3.36	D146.4	D 51.3	28.2	1.81	24.8	0.01	0.00	0.00	0.02	202	
203	8.66	8.64	33.902	26.318	173.7	0.562	3.34	D145.2	D 50.9	28.6	1.82	25.0	0.00	0.00	0.00	0.02	205	07
227	8.21	8.19	33.981	26.449	161.6	0.602	2.74	119.4	41.3	35.6	2.09	28.6	0.00	0.00			229	06
250 ISL	7.95 D	7.93	34.009 D	26.510	156.1	0.639	2.34	D102.0	D 35.2	39.5	2.22	30.3	0.01	0.00			252	
270	7.71	7.68	34.027	26.560	151.6	0.669	2.09	91.3	31.3	43.0	2.33	31.8	0.00	0.00			272	05
300 ISL	7.33 D	7.30	34.072 D	26.650	143.4	0.715	1.61	D 70.1	D 23.9	48.4	2.51	33.8	0.01	0.00			302	
319	7.22	7.19	34.095	26.684	140.5	0.741	1.37	60.0	20.3	51.8	2.63	35.1	0.00	0.00			322	04
379	6.62	6.58	34.125	26.791	130.8	0.822	1.02	44.3	14.8	61.4	2.86	37.9	0.00	0.00			382	03
400 ISL	6.46 D	6.42	34.152 D	26.833	127.0	0.852	0.78	D 34.1	D 11.4	64.6	2.92	38.6	0.01	0.00			403	
440	6.09	6.05	34.172	26.897	121.3	0.899	0.59	25.7	8.5	70.9	3.03	39.9	0.00	0.00			444	02
500 ISL	5.75 D	5.71	34.247 D	26.999	112.1	0.972	0.34	D 15.0	D 4.9	78.7	3.16	41.2	0.01	0.00			504	
517	5.65	5.61	34.260	27.022	110.1	0.988	0.34	15.0	4.9	80.9	3.20	41.6	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 REUBEN LASKER CALCOFI CRUISE 1701 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 44.8 W	14/01/2017	1226 UTC	3912 m	350 16 kn			1020.4 mb	15.0 C	13.5 C				046

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.92	15.92	33.094 D	24.300	361.5	0.000	5.66	246.6	100.1	1.7	0.23	0.0	0.01	0.02	0.14	0.03	0	
2	15.92	15.92	33.094 D	24.300	361.5	0.004	5.66	246.6	100.1	1.7	0.23	0.0	0.00	0.00	0.14	0.03	2	21
10 ISL	15.93 D	15.93	33.094 D	24.299	361.9	0.033	5.68	D247.8	D100.6	1.5	0.21	0.0	0.01	0.00	0.14	0.03	10	
11	15.94	15.93	33.097	24.301	361.8	0.040	5.68	247.5	100.5	1.5	0.21	0.0	0.00	0.00	0.14	0.03	11	19
11	15.94	15.93	33.096	24.300	361.8	0.038											11	20
20	15.93	15.93	33.097	24.301	362.0	0.072	5.67	247.2	100.4	1.5	0.21	0.0	0.00	0.00	0.14	0.03	20	18
30 ISL	15.93 D	15.93	33.094 D	24.300	362.5	0.106	5.68	D247.6	D100.5	1.5	0.20	0.0	0.00	0.00	0.15	0.03	30	
31	15.93	15.93	33.095	24.301	362.5	0.112	5.68	247.7	100.6	1.5	0.20	0.0	0.00	0.00	0.15	0.03	31	17
40	15.78	15.77	33.098	24.338	359.2	0.145	5.68	247.6	100.2	1.4	0.21	0.0	0.00	0.00	0.16	0.03	40	16
50	15.37	15.36	33.154	24.472	346.8	0.180	5.70	248.5	99.8	1.5	0.24	0.0	0.08	0.00	0.28	0.11	50	15
61	14.56	14.55	33.245	24.718	323.6	0.217	5.68	247.6	97.9	2.2	0.31	0.6	0.33	0.00	0.29	0.12	61	14
71	14.22	14.21	33.260	24.801	316.0	0.249	5.62	244.8	96.2	2.7	0.33	1.3	0.15	0.00	0.24	0.13	72	13
75 ISL	13.86 D	13.85	33.371 D	24.962	300.7	0.258	5.50	D239.7	D 93.5	3.2	0.38	2.0	0.12	0.00	0.22	0.13	76	
86	12.86	12.85	33.312	25.118	286.0	0.294	5.32	231.6	88.5	4.6	0.50	4.1	0.03	0.00	0.17	0.12	87	12
100 ISL	11.88 D	11.87	33.283 D	25.283	270.6	0.330	5.12	D222.9	D 83.4	6.5	0.69	7.3	0.02	0.00	0.08	0.07	101	
101	11.84	11.82	33.286	25.294	269.5	0.336	5.12	223.1	83.4	6.7	0.70	7.5	0.00	0.00	0.08	0.07	102	11
120	10.63	10.62	33.376	25.581	242.4	0.384	4.48	195.3	71.2	12.7	1.17	14.2	0.00	0.00	0.04	0.05	121	10
125 ISL	10.51 D	10.49	33.406 D	25.626	238.2	0.394	4.42	D192.6	D 70.1	13.9	1.24	15.4	0.01	0.00	0.04	0.04	126	
140	9.78	9.76	33.494	25.819	220.0	0.431	4.06	176.6	63.3	17.5	1.45	18.9	0.00	0.00	0.02	0.03	141	09
150 ISL	9.39 D	9.37	33.614 D	25.977	205.2	0.450	3.82	D166.5	D 59.2	19.8	1.54	20.3	0.01	0.00	0.01	0.02	151	
170	9.04	9.03	33.764	26.149	189.2	0.492	3.55	154.5	54.5	24.2	1.71	23.0	0.00	0.00	0.00	0.02	171	08
200	8.65	8.63	33.900	26.318	173.7	0.546	3.37	146.5	51.3	28.2	1.81	24.7	0.00	0.00	0.00	0.03	202	07
231	8.14	8.12	33.973	26.453	161.3	0.598	2.72	118.3	41.0	35.4	2.08	28.5	0.00	0.00			233	06
250 ISL	7.88 D	7.85	34.005 D	26.518	155.3	0.627	2.51	D109.2	D 37.6	38.8	2.18	29.8	0.01	0.00			252	
270	7.64	7.61	34.021	26.566	151.0	0.659	2.20	95.7	32.8	42.4	2.29	31.3	0.00	0.00			272	05
300 ISL	7.18 D	7.15	34.045 D	26.650	143.3	0.703	1.84	D 79.9	D 27.1	47.9	2.45	33.3	0.00	0.00			302	
320	6.98	6.95	34.047	26.679	140.8	0.732	1.64	71.1	24.0	51.7	2.56	34.6	0.00	0.00			323	04
381	6.49	6.45	34.104	26.791	130.7	0.814	0.99	43.1	14.4	61.8	2.86	38.0	0.00	0.00			384	03
400 ISL	6.34 D	6.31	34.122 D	26.825	127.7	0.839	0.86	D 37.4	D 12.4	64.4	2.91	38.6	0.00	0.00			403	
443	6.04	6.00	34.146	26.882	122.6	0.893	0.67	29.2	9.6	70.5	3.02	39.8	0.00	0.00			447	02
500 ISL	5.74 D	5.70	34.204 D	26.967	115.2	0.962	0.45	D 19.5	D 6.4	77.8	3.15	41.1	0.00	0.00			504	
515	5.64	5.60	34.217	26.989	113.2	0.978	0.40	17.6	5.8	79.7	3.18	41.5	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 86.8 32.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 53.2 N	118 26.8 W	12/01/2017	0436 UTC	22 m	250 02 kn			1014.7 mb	15.1 C	14.2 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	14.86	14.86	33.138	24.568	335.9	0.000	6.08	265.5	105.4	3.4	0.28	0.0	0.01	0.03	1.06	0.30	0	
2	14.86	14.86	33.138	24.568	335.9	0.007	6.08	265.5	105.4	3.4	0.28	0.0	0.00	0.00	1.06	0.30	2	05
5	14.86	14.86	33.137	24.567	336.1	0.017	6.08	265.2	105.3	3.4	0.26	0.0	0.00	0.00	1.12	0.31	5	04
10	14.82	14.82	33.139	24.578	335.3	0.034	6.06	264.6	105.0	3.4	0.28	0.0	0.00	0.00	1.48	0.43	10	03
15	14.65	14.64	33.228	24.683	325.4	0.050	5.93	258.8	102.4	3.4	0.31	0.0	0.03	0.00	1.70	0.51	15	02
20	14.56	14.56	33.259	24.727	321.5	0.066	5.80	252.9	99.9	3.7	0.31	0.1	0.10	0.11	1.35	0.57	20	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 39.7 N	118 4.8 W	12/01/2017	0059 UTC	21 m	250 11 kn	210 03 08	1	1013.9 mb	15.2 C	14.0 C		4/8	AS	032

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.22	15.22	31.962	23.585	429.6	0.000	6.06	264.6	105.0	7.5	0.53	3.6	0.36	0.78	3.09	0.39	0	
2	15.22	15.21	31.962	23.586	429.6	0.009	6.06	264.6	105.0	7.5	0.53	3.6	0.36	0.78	3.09	0.39	2	04
5	15.21	15.21	31.992	23.609	427.5	0.022	6.06	264.9	105.1	7.5	0.54	3.6	0.38	0.94	3.28	0.42	5	03
10	15.01	15.01	33.092	24.500	342.7	0.041	6.03	263.0	104.7	3.4	0.28	0.1	0.05	0.08	1.68	0.34	10	02
15	14.86	14.86	33.233	24.642	329.4	0.058	5.54	241.8	96.1	3.8	0.43	0.4	0.10	0.68	0.91	0.26	15	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 29.3 N	117 45.2 W	11/01/2017	2220 UTC	33 m	240 05 kn	210 03 05	1	1014.3 mb	17.1 C	15.0 C		3/8	SC	031

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.26	15.26	33.185	24.518	340.7	0.000	6.02	262.6	105.1	3.0	0.32	0.0	0.03	0.01	1.52	0.28	0	
2	15.26	15.26	33.185	24.518	340.8	0.007	6.02	262.6	105.1	3.0	0.32	0.0	0.03	0.00	1.52	0.28	2	05
5	15.24	15.24	33.186	24.523	340.4	0.017	6.01	262.2	104.9	2.9	0.30	0.0	0.00	0.00	1.42	0.26	5	04
10	15.11	15.11	33.182	24.549	338.1	0.034	6.04	263.7	105.3	3.1	0.31	0.0	0.04	0.00	1.97	0.48	10	03
20	14.82	14.82	33.250	24.663	327.5	0.067	5.65	246.5	97.9	3.7	0.40	0.6	0.13	0.43	0.85	0.43	20	02
25	14.69	14.69	33.262	24.701	324.1	0.084	5.48	238.9	94.6	4.2	0.52	1.2	0.18	0.65	0.60	0.45	25	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 90.0 28.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.0 N	117 46.2 W	11/01/2017	2035 UTC	67 m	300 05 kn	210 02 04	1	1015.1 mb	15.6 C	14.9 C	14 m	5/8	SC	030

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.21	15.21	33.223	24.558	336.9	0.000	5.96	260.0	104.1	2.9	0.32	0.0	0.03	0.05	0.90	0.21	0	
1	15.21	15.21	33.223	24.558	336.9	0.003	5.96	260.0	104.1	2.9	0.32	0.0	0.03	0.00	0.90	0.21	1	08
5	15.21	15.21	33.221	24.556	337.2	0.017	5.94	259.0	103.6	2.8	0.32	0.0	0.00	0.00	0.88	0.22	5	07
10	15.15	15.15	33.228	24.575	335.6	0.034	5.93	258.8	103.4	2.7	0.30	0.0	0.00	0.00	0.90	0.29	10	06
20	15.02	15.02	33.250	24.620	331.6	0.067	5.90	257.6	102.7	2.6	0.29	0.0	0.00	0.00	1.14	0.30	20	05
30	14.73	14.72	33.279	24.707	323.6	0.100	5.60	244.6	96.9	3.3	0.37	0.2	0.11	0.22	0.90	0.38	30	04
40	13.68	13.67	33.319	24.958	300.0	0.131	4.79	208.9	81.1	6.9	0.82	6.3	0.67	0.10	0.34	0.24	40	03
50	12.98	12.97	33.333	25.109	285.9	0.160	4.35	190.0	72.7	9.2	1.07	9.8	0.44	0.80	0.24	0.21	50	02
55	12.43	12.42	33.384	25.256	272.0	0.174	3.97	173.3	65.6	11.3	1.19	12.4	0.21	0.00	0.14	0.18	55	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 25.1 N	117 54.1 W	11/01/2017	1701 UTC	618 m	200 12 kn	310 04 09	5	1015.6 mb	16.0 C	16.0 C	14 m	8/8	SC	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	15.44	15.44	33.332	24.590	333.8	0.000	5.74	250.6	100.8	2.2	0.31	0.0	0.02	0.01	0.34	0.10	0	
2 A	15.44	15.44	33.332	24.591	333.8	0.007	5.74	250.6	100.8	2.2	0.31	0.0	0.00	0.00	0.34	0.10	2	24
10 A	15.44	15.44	33.332	24.592	334.0	0.033	5.73	250.2	100.6	2.0	0.30	0.0	0.00	0.00	0.33	0.12	10	21
10	15.44	15.44	33.331	24.591	334.1	0.033											10	23
10	15.44	15.44	33.334	24.593	333.8	0.033											10	22
16 A	15.44	15.44	33.335	24.594	334.0	0.053	5.75	250.8	100.9	2.0	0.29	0.0	0.00	0.00	0.36	0.11	16	20
20 ISL	15.44 D	15.44	33.335 D	24.594	334.1	0.064	5.74	250.0	100.7	2.0	0.29	0.0	0.02	0.00	0.37	0.11	20	
24 A	15.41	15.41	33.335	24.602	333.5	0.080	5.72	249.8	100.4	2.0	0.29	0.0	0.00	0.00	0.38	0.11	24	19
30 ISL	15.29 D	15.28	33.338 D	24.631	330.9	0.097	5.71	D249.1	D100.0	2.4	0.32	0.0	0.04	0.00	0.97	0.24	30	
33	15.18	15.17	33.334	24.652	329.0	0.110	5.66	247.1	98.9	2.6	0.33	0.0	0.05	0.00	1.26	0.31	33	17
33	15.18	15.17	33.340	24.657	328.6	0.110											33	18
42 A	14.57	14.57	33.321	24.773	317.8	0.139	5.27	230.0	90.9	3.9	0.50	2.2	0.29	0.12	0.50	0.25	42	16
49 A	13.65	13.65	33.303	24.951	300.9	0.161	4.81	210.0	81.4	5.9	0.72	5.7	0.18	0.00	0.31	0.22	49	15
50 ISL	13.39 D	13.39	33.315 D	25.013	295.1	0.162	4.76	D207.5	D 80.2	6.2	0.75	6.2	0.17	0.00	0.30	0.22	50	
60	12.28	12.28	33.347	25.255	272.2	0.192	4.14	180.5	68.0	10.1	1.10	11.5	0.04	0.00	0.18	0.20	60	14
71	11.98	11.97	33.385	25.343	264.1	0.222	3.99	174.2	65.2	11.6	1.22	13.3	0.04	0.00	0.12	0.16	72	13
75 ISL	11.64 D	11.63	33.395 D	25.413	257.5	0.230	4.04	D175.8	D 65.5	12.2	1.25	14.1	0.04	0.00	0.10	0.15	76	
85	11.01	10.99	33.430	25.556	244.0	0.257	3.93	171.4	62.9	13.8	1.34	15.9	0.03	0.00	0.06	0.13	86	12
100	10.53	10.52	33.543	25.729	227.9	0.293	3.57	155.8	56.6	17.1	1.53	18.6	0.03	0.00	0.03	0.08	101	11
120	10.02	10.01	33.643	25.893	212.7	0.337	3.33	145.2	52.2	20.2	1.67	21.0	0.00	0.00	0.02	0.08	121	10
125 ISL	9.95 D	9.93	33.700 D	25.952	207.2	0.346	3.27	D142.4	D 51.3	21.1	1.72	21.5	0.02	0.00	0.01	0.07	126	
141	9.96	9.94	33.862	26.076	195.8	0.380	2.76	120.5	43.4	23.9	1.87	23.1	0.00	0.00	0.01	0.04	142	09
150 ISL	9.92 D	9.90	33.924 D	26.131	190.8	0.396	2.59	D112.7	D 40.6	25.2	1.91	23.8	0.02	0.00	0.01	0.04	151	
170	9.39	9.37	33.933	26.227	182.0	0.435	2.55	111.3	39.5	27.9	2.00	25.5	0.00	0.00	0.00	0.04	171	08
200	9.27	9.25	34.061	26.347	171.2	0.488	2.20	96.1	34.1	31.3	2.13	26.7	0.00	0.00	0.01	0.04	202	07
231	8.85	8.82	34.137	26.475	159.6	0.539	1.70	74.0	26.0	37.3	2.35	29.2	0.00	0.00			233	06
250 ISL	8.53 D	8.50	34.145 D	26.530	154.6	0.568	1.60	D 69.7	D 24.4	39.7	2.42	30.0	0.02	0.00			252	
270	8.48	8.45	34.189	26.574	150.9	0.599	1.32	57.6	20.1	42.3	2.50	30.9	0.00	0.00			272	05
300 ISL	8.06 D	8.03	34.169 D	26.621	146.7	0.644	1.32	D 57.5	D 19.9	46.2	2.60	32.4	0.02	0.00			302	
320	7.86	7.83	34.200	26.676	141.7	0.672	1.06	46.1	15.9	48.8	2.67	33.4	0.00	0.00			323	04
380	7.42	7.38	34.245	26.776	133.0	0.754	0.69	30.1	10.2	55.8	2.86	35.3	0.00	0.00			383	03
400 ISL	7.22 D	7.18	34.247 D	26.805	130.5	0.783	0.65	D 28.3	D 9.6	58.3	2.90	35.8	0.02	0.00			403	
440	6.92	6.87	34.262	26.861	125.6	0.832	0.50	21.7	7.3	63.1	2.99	36.9	0.00	0.00			444	02
500 ISL	6.40 D	6.36	34.291 D	26.953	117.3	0.909	0.35	D 15.2	D 5.1	70.9	3.10	38.5	0.01	0.00			504	
517	6.30	6.25	34.296	26.970	115.8	0.925	0.31	13.5	4.5	73.0	3.13	39.0	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; SECONDARY CRUISE-CORRECTED O2;

RV REUBEN LASKER CALCOFI CRUISE 1701 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 14.9 N	118 14.9 W	11/01/2017	1143 UTC	354 m	210 10 kn			1014.9 mb	17.1 C	16.9 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	14.83	14.83	33.243	24.654	327.7	0.000	5.89	257.2	102.2	3.2	0.31	0.0	0.01	0.02	0.33	0.07	0	
2	14.83	14.83	33.243	24.654	327.8	0.007	5.89	257.2	102.2	3.2	0.31	0.0	0.00	0.00	0.33	0.07	2	19
10	14.83	14.83	33.232	24.647	328.7	0.033	5.90	257.6	102.3	3.1	0.31	0.0	0.00	0.00	0.32	0.10	10	17
10	14.83	14.83	33.234	24.648	328.6	0.034											10	18
20	14.49	14.49	33.253	24.736	320.6	0.065	5.97	260.5	102.7	3.3	0.31	0.0	0.00	0.00	0.54	0.19	20	16
30	13.97	13.96	33.262	24.853	309.7	0.097	5.20	226.8	88.5	4.8	0.56	2.9	0.25	0.07	0.99	0.33	30	15
40	12.69	12.68	33.299	25.140	282.6	0.127	4.42	193.0	73.3	8.4	0.97	9.5	0.10	0.07	0.45	0.25	40	14
50	11.69	11.69	33.334	25.356	262.2	0.154	4.17	182.1	67.8	11.0	1.18	13.5	0.04	0.00	0.16	0.19	50	13
60	11.41	11.40	33.387	25.449	253.6	0.180	3.98	173.8	64.3	12.6	1.29	14.9	0.03	0.00	0.10	0.15	60	12
70	10.85	10.84	33.465	25.610	238.5	0.204	3.85	167.9	61.4	14.6	1.40	16.7	0.00	0.00	0.07	0.12	71	11
75 ISL	10.66 D	10.65	33.498 D	25.669	233.0	0.214	3.82	D166.4 D	60.8	15.5	1.45	17.5	0.02	0.00	0.06	0.11	76	
85	10.41	10.40	33.525	25.735	227.0	0.239	3.59	156.6	56.7	17.4	1.54	19.2	0.00	0.00	0.03	0.08	86	10
100	9.99	9.98	33.597	25.862	215.1	0.272	3.41	148.7	53.4	19.8	1.67	21.0	0.00	0.00	0.02	0.06	101	09
120	9.91	9.90	33.782	26.021	200.6	0.314	2.84	124.1	44.6	23.5	1.86	23.2	0.00	0.00	0.01	0.05	121	08
125 ISL	9.89 D	9.87	33.813 D	26.049	198.0	0.322	2.79	D121.6 D	43.8	24.5	1.90	23.7	0.01	0.00	0.01	0.05	126	
140	9.60	9.58	33.909	26.173	186.5	0.353	2.50	109.2	39.0	27.2	2.01	25.2	0.00	0.00	0.00	0.04	141	07
150 ISL	9.43 D	9.41	33.923 D	26.211	183.1	0.370	2.52	D109.5 D	39.0	28.3	2.05	25.8	0.01	0.00	0.00	0.04	151	
171	9.17	9.15	33.989	26.306	174.4	0.408	2.29	100.1	35.4	30.6	2.12	27.0	0.00	0.00	0.01	0.03	172	06
200	9.05	9.03	34.129	26.435	162.8	0.457	1.82	79.6	28.1	35.3	2.29	28.3	0.00	0.00	0.00	0.04	202	05
231	8.83	8.81	34.173	26.505	156.8	0.507	1.54	67.0	23.6	38.5	2.42	29.5	0.00	0.00			233	04
250 ISL	8.59 D	8.56	34.202 D	26.567	151.2	0.537	1.36	D 59.0 D	20.7	41.2	2.49	30.6	0.02	0.00			252	
271	8.28	8.25	34.197	26.611	147.3	0.568	1.25	54.6	18.9	44.2	2.56	31.7	0.00	0.00			273	03
300 ISL	7.87 D	7.83	34.199 D	26.674	141.5	0.611	1.08	D 46.9 D	16.2	48.5	2.66	33.3	0.02	0.00			302	
320	7.65	7.62	34.208	26.712	138.2	0.637	0.94	41.0	14.0	51.5	2.73	34.3	0.00	0.00			323	02
381	7.29	7.25	34.227	26.781	132.5	0.720	0.75	D 32.5 D	11.1	57.2	2.86	35.8	0.00	0.00			384	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 11.0 N	118 23.4 W	11/01/2017	0833 UTC	1170 m	220 10 kn			1017.0 mb	16.5 C	15.0 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	14.84	14.84	33.231	24.644	328.6	0.000	5.88	256.6	101.9	3.0	0.32	0.0	0.02	0.02	0.30	0.07	0	
2	14.84	14.84	33.231	24.644	328.7	0.007	5.88	256.6	101.9	3.0	0.32	0.0	0.00	0.00	0.30	0.07	2	22
10	14.76	14.75	33.254	24.680	325.6	0.033	5.88	256.8	101.8	2.8	0.30	0.0	0.00	0.00	0.33	0.13	10	20
20	14.67	14.67	33.266	24.708	323.3	0.065	5.89	257.0	101.7	2.7	0.30	0.0	0.00	0.00	0.39	0.14	20	19
30	14.47	14.47	33.284	24.765	318.1	0.097	5.71	249.3	98.3	2.6	0.34	0.0	0.04	0.09	1.00	0.34	30	17
30	14.47	14.47	33.286	24.767	317.9	0.098											30	18
40	13.45	13.44	33.286	24.978	298.0	0.128	4.68	204.4	78.9	6.5	0.79	6.7	0.27	0.00	0.54	0.25	40	16
50	12.10	12.09	33.323	25.271	270.4	0.157	4.24	185.2	69.5	9.6	1.11	11.9	0.06	0.00	0.33	0.24	50	15
60	11.75	11.75	33.370	25.373	260.9	0.183	4.05	176.8	65.9	11.5	1.21	13.9	0.04	0.00	0.17	0.17	60	14
70	11.21	11.20	33.404	25.498	249.2	0.209	4.01	174.8	64.4	12.8	1.29	15.2	0.03	0.00	0.10	0.15	71	13
75 ISL	11.08 D	11.07	33.425 D	25.538	245.5	0.219	3.97	D173.0 D	63.7	14.2	1.37	16.4	0.03	0.00	0.07	0.13	76	
85	10.61	10.60	33.537	25.710	229.4	0.245	3.49	152.5	55.5	16.9	1.54	18.7	0.00	0.00	0.03	0.08	86	12
100 ISL	10.17 D	10.16	33.638 D	25.864	215.0	0.277	3.26	D142.0 D	51.4	19.6	1.68	20.7	0.02	0.00	0.02	0.06	101	
101	10.07	10.05	33.635	25.879	213.6	0.280	3.24	141.3	50.9	19.8	1.69	20.9	0.00	0.00	0.02	0.06	102	11
120	9.63	9.61	33.734	26.031	199.5	0.319	3.03	132.1	47.1	23.1	1.81	23.2	0.00	0.00	0.01	0.04	121	10
125 ISL	9.58 D	9.57	33.783 D	26.076	195.3	0.328	2.95	D128.2 D	45.8	23.8	1.85	23.6	0.02	0.00	0.01	0.04	126	
140	9.48	9.47	33.867	26.158	187.8	0.358	2.64	115.3	41.0	26.0	1.95	24.7	0.00	0.00	0.01	0.04	141	09
150 ISL	9.37 D	9.36	33.911 D	26.211	183.0	0.376	2.58	D112.2 D	40.0	27.8	2.02	25.4	0.02	0.00	0.01	0.03	151	
170	9.24	9.22	34.049	26.342	171.0	0.412	2.13	92.8	32.9	31.4	2.16	27.0	0.00	0.00	0.00	0.03	171	08
200	8.97	8.94	34.110	26.434	162.9	0.462	1.81	79.1	27.9	35.3	2.29	28.6	0.03	0.00	0.01	0.04	202	07
230	8.74	8.71	34.149	26.501	157.1	0.510	1.59	69.5	24.4	38.4	2.39	29.6	0.00	0.00			232	06
250 ISL	8.58 D	8.55	34.180 D	26.551	152.7	0.542	1.43	D 62.1 D	21.8	40.4	2.46	30.4	0.02	0.00			252	
271	8.35	8.32	34.186	26.592	149.1	0.573	1.31	57.1	19.8	42.6	2.53	31.2	0.00	0.00			273	05
300 ISL	8.05 D	8.02	34.200 D	26.647	144.2	0.616	1.12	D 48.7 D	16.9	45.3	2.59	32.0	0.01	0.00			302	
321	7.96	7.93	34.199	26.660	143.4	0.646	1.09	47.6	16.4	47.2	2.64	32.6	0.00	0.00			324	04
380	7.27	7.23	34.212	26.771	133.4	0.727	0.79	34.4	11.7	55.7	2.81	35.5	0.00	0.00			383	03
400 ISL	7.15 D	7.11	34.231 D	26.803	130.6	0.756	0.65	D 28.2 D	9.6	58.2	2.86	36.1	0.01	0.00			403	
440	6.87	6.83	34.262	26.867	125.0	0.805	0.49	21.2	7.1	63.1	2.97	37.3	0.00	0.00			444	02
500 ISL	6.34 D	6.29	34.285 D	26.956	117.0	0.881	0.34	D 14.8 D	4.9	70.8	3.10	38.7	0.01	0.00			504	
515	6.26	6.21	34.300	26.979	115.0	0.895	0.31	13.3	4.4	72.7	3.13	39.0	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 REUBEN LASKER CALCOFI CRUISE 1701 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	11/01/2017	0310 UTC	1698 m	230 09 kn			1017.2 mb	15.8 C	14.6 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	15.29	15.29	33.343	24.631	329.9	0.000	5.95	259.6	104.1	2.2	0.30	0.0	0.02	0.07	0.85	0.21	0	
2	15.29	15.29	33.343	24.631	329.9	0.007	5.95	259.6	104.1	2.2	0.30	0.0	0.00	0.07	0.85	0.21	2	21
10	15.13	15.13	33.343	24.668	326.7	0.033	5.93	259.0	103.5	2.1	0.28	0.0	0.00	0.00	0.84	0.21	10	19
10	15.13	15.13	33.343	24.668	326.7	0.032											10	20
20	14.68	14.68	33.355	24.775	316.9	0.065	5.88	256.6	101.6	2.6	0.32	0.5	0.04	0.00	0.98	0.40	20	18
30	14.33	14.33	33.359	24.853	309.8	0.096	5.70	249.0	97.9	3.4	0.42	1.8	0.10	0.00	1.31	0.54	30	17
40	13.37	13.37	33.367	25.057	290.6	0.126	4.99	217.7	84.0	6.1	0.70	6.4	0.31	0.19	0.44	0.27	40	16
50	11.13	11.12	33.454	25.552	243.6	0.153	3.72	162.2	59.7	14.9	1.40	17.4	0.06	0.00	0.31	0.28	50	15
60	10.60	10.59	33.509	25.689	230.8	0.177	3.52	153.6	55.9	17.0	1.53	19.1	0.04	0.00	0.19	0.19	60	14
70	10.34	10.33	33.565	25.778	222.5	0.199	3.36	146.7	53.1	18.8	1.63	20.2	0.03	0.00	0.14	0.16	71	13
75 ISL	10.24 D	10.23	33.588 D	25.812	219.4	0.208	3.36	D146.2 D	52.9	19.4	1.66	20.7	0.03	0.00	0.11	0.14	76	
86	9.99	9.98	33.633	25.890	212.1	0.234	3.21	139.9	50.3	20.7	1.71	21.8	0.00	0.00	0.06	0.11	87	12
100	9.66	9.65	33.712	26.007	201.3	0.263	3.03	132.4	47.3	22.9	1.80	23.3	0.00	0.00	0.02	0.07	101	11
122	9.30	9.29	33.844	26.169	186.4	0.306	2.71	118.2	41.9	26.9	1.95	25.3	0.00	0.00	0.01	0.04	123	10
125 ISL	9.26 D	9.24	33.863 D	26.191	184.3	0.310	2.65	D115.2 D	40.9	27.3	1.97	25.6	0.01	0.00	0.01	0.04	126	
140	9.11	9.10	33.919	26.259	178.1	0.338	2.46	107.5	38.0	29.5	2.04	26.6	0.00	0.00	0.01	0.05	141	09
150 ISL	8.92 D	8.90	33.999 D	26.352	169.5	0.355	2.25	D 97.8 D	34.5	31.0	2.09	27.3	0.02	0.00	0.01	0.05	151	
171	8.80	8.78	34.038	26.402	165.1	0.391	2.05	89.3	31.3	34.2	2.21	28.6	0.00	0.00	0.00	0.04	172	08
200 ISL	8.54 D	8.52	34.095 D	26.488	157.6	0.437	1.77	D 76.8 D	26.9	37.9	2.34	30.3	0.02	0.00	0.00	0.04	202	
201	8.55	8.52	34.093	26.486	157.8	0.440	1.74	76.1	26.6	38.1	2.34	30.3	0.00	0.00	0.00	0.04	203	07
230	8.26	8.23	34.123	26.554	151.8	0.485	1.56	67.9	23.5	41.3	2.43	31.4	0.00	0.00			232	06
250 ISL	8.13 D	8.11	34.153 D	26.596	148.1	0.514	1.42	D 61.6 D	21.4	43.6	2.51	32.1	0.02	0.00			252	
270	7.96	7.93	34.165	26.633	144.9	0.544	1.22	53.1	18.3	45.9	2.59	32.8	0.00	0.00			272	05
300 ISL	7.67 D	7.64	34.191 D	26.696	139.4	0.586	0.98	D 42.6 D	14.6	49.9	2.70	33.9	0.01	0.00			302	
321	7.53	7.50	34.206	26.728	136.6	0.616	0.87	38.0	13.0	52.6	2.77	34.7	0.00	0.00			324	04
380	7.01	6.98	34.245	26.833	127.3	0.694	0.59	25.5	8.6	60.7	2.95	36.9	0.00	0.00			383	03
400 ISL	6.84 D	6.80	34.256 D	26.865	124.4	0.720	0.51	D 22.2 D	7.5	62.5	2.99	37.3	0.01	0.00			403	
440	6.66	6.62	34.274	26.904	121.3	0.768	0.43	18.6	6.2	66.1	3.07	38.2	0.00	0.00			444	02
500 ISL	6.28 D	6.23	34.300 D	26.975	115.1	0.841	0.32	D 14.0 D	4.6	73.1	3.16	39.6	0.02	0.00			504	
515	6.15	6.10	34.308	26.999	112.9	0.856	0.28	12.4	4.1	74.8	3.18	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 REUBEN LASKER CALCOFI CRUISE 1701 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 38.9 N	119 29.0 W	10/01/2017	2147 UTC	1323 m	250 13 kn	350 01 09	1	1018.1 mb	17.1 C	15.0 C	15 m	1/8	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	15.72	15.72	33.353	24.545	338.1	0.000	5.80	253.0	102.3	1.6	0.29	0.1	0.03	0.15	0.46	0.08	0	
2	15.72	15.72	33.353	24.545	338.2	0.007	5.80	253.0	102.3	1.6	0.29	0.1	0.03	0.15	0.46	0.08	2	22
10	15.31	15.31	33.347	24.632	330.2	0.034	5.82	254.1	101.9	1.4	0.29	0.0	0.00	0.00	0.55	0.14	10	20
10	15.31	15.31	33.345	24.630	330.3	0.034											10	21
20	14.90	14.90	33.346	24.721	322.0	0.066	5.90	257.3	102.4	1.4	0.32	0.0	0.03	0.00	0.86	0.22	20	19
30	14.34	14.33	33.341	24.837	311.2	0.098	5.84	255.0	100.3	1.4	0.36	0.4	0.11	0.00	0.86	0.31	30	17
30	14.34	14.33	33.340	24.837	311.3	0.096											30	18
40	14.23	14.22	33.343	24.862	309.2	0.129	5.86	255.6	100.3	1.9	0.37	0.9	0.13	0.07	0.75	0.34	40	16
50 ISL	14.06 D	14.05	33.353 D	24.906	305.3	0.157	5.72	D249.3 D	97.6	2.3	0.45	1.7	0.20	0.15	0.58	0.32	50	
51	14.03	14.02	33.352	24.911	304.9	0.163	5.70	249.0	97.3	2.4	0.46	1.8	0.20	0.16	0.57	0.32	51	15
60	13.55	13.54	33.362	25.018	294.9	0.190	5.25	229.3	88.8	5.0	0.66	5.0	0.42	0.07	0.26	0.19	60	14
70	12.37	12.36	33.324	25.223	275.6	0.218	4.78	208.7	78.8	7.4	0.89	9.2	0.13	0.00	0.16	0.14	71	13
75 ISL	12.12 D	12.11	33.334 D	25.277	270.5	0.230	4.69	D204.2 D	76.8	8.8	0.99	10.8	0.10	0.00	0.13	0.13	76	
85	11.61	11.59	33.357	25.391	259.8	0.258	4.25	185.5	68.9	11.4	1.18	13.9	0.04	0.00	0.09	0.10	86	12
100	10.48	10.46	33.472	25.683	232.3	0.295	3.80	165.7	60.1	15.7	1.47	17.9	0.03	0.00	0.05	0.06	101	11
121	9.72	9.71	33.661	25.958	206.5	0.341	3.36	146.8	52.5	20.8	1.70	21.3	0.00	0.00	0.01	0.03	122	10
125 ISL	9.64 D	9.62	33.678 D	25.986	203.9	0.348	3.39	D147.6 D	52.8	21.3	1.71	21.6	0.02	0.00	0.01	0.03	126	
140	9.34	9.32	33.709	26.059	197.2	0.380	3.32	144.8	51.3	22.9	1.75	22.7	0.03	0.00	0.01	0.03	141	09
150 ISL	9.14 D	9.12	33.803 D	26.164	187.4	0.398	3.01	D131.0 D	46.4	25.3	1.86	24.1	0.02	0.00	0.01	0.03	151	
171	9.06	9.04	33.944	26.288	176.1	0.437	2.39	104.4	36.8	30.3	2.10	26.9	0.00	0.00	0.01	0.03	172	08
200	8.75	8.73	34.033	26.406	165.4	0.487	2.03	88.6	31.1	34.6	2.23	28.7	0.00	0.00	0.00	0.03	202	07
231	8.24	8.21	34.060	26.507	156.2	0.537	2.01	87.6	30.4	38.5	2.29	29.9	0.00	0.00			233	06
250 ISL	8.02 D	7.99	34.092 D	26.566	150.9	0.566	1.74	D 75.7 D	26.2	41.7	2.41	31.1	0.02	0.00			252	
270	7.86	7.83	34.127	26.617	146.4	0.595	1.46	63.7	21.9	45.1	2.53	32.3	0.00	0.00			272	05
300 ISL	7.68 D	7.65	34.190 D	26.694	139.5	0.639	1.10	D 47.7 D	16.4	49.6	2.66	33.7	0.02	0.00			302	
320	7.46	7.43	34.191	26.726	136.7	0.666	0.96	41.9	14.3	52.7	2.75	34.7	0.00	0.00			323	04
380	6.95	6.92	34.198	26.803	130.1	0.746	0.77	33.6	11.3	59.5	2.88	36.5	0.00	0.00			383	03
400 ISL	6.87 D	6.83	34.220 D	26.833	127.5	0.774	0.65	D 28.1 D	9.5	61.6	2.92	37.0	0.02	0.00			403	
440	6.56	6.52	34.234	26.886	122.8	0.822	0.54	23.7	7.9	65.9	3.01	38.0	0.00	0.00			444	02
500 ISL	6.09 D	6.04	34.284 D	26.988	113.7	0.896	0.34	D 14.9 D	4.9	73.6	3.15	39.8	0.02	0.00			504	
515	6.03	5.98	34.298	27.006	112.1	0.910	0.31	13.7	4.5	75.5	3.19	40.2	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 90.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 25.2 N	119 57.5 W	10/01/2017	1818	UTC	873 m	240 05 kn	150 05 10	1	1020.9 mb	17.5 C	15.8 C	20 m	1/8	CS	024

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.95	15.95	33.365	24.503	342.1	0.000	5.66	247.3	100.5	1.7	0.29	0.0	0.02	0.00	0.29	0.07	0	
2 A	15.95	15.95	33.365	24.503	342.2	0.007	5.66	247.3	100.5	1.7	0.29	0.0	0.00	0.00	0.29	0.07	2	24
8	15.88	15.88	33.367	24.520	340.8	0.027	5.72	249.6	101.3	1.7	0.28	0.0	0.00	0.00	0.29	0.07	8	22
8	15.88	15.88	33.363	24.517	341.1	0.027											8	23
10 ISL	15.82 D	15.81	33.366 D	24.534	339.5	0.031	5.73	D249.9	D101.4	1.7	0.28	0.0	0.01	0.00	0.30	0.08	10	
15 A	15.78	15.78	33.370	24.546	338.5	0.051	5.74	D250.2	D101.5	1.7	0.28	0.0	0.00	0.00	0.32	0.09	15	21
20 ISL	15.75 D	15.75	33.370 D	24.552	338.1	0.065	5.74	D250.3	D101.5	1.7	0.29	0.0	0.01	0.00	0.39	0.13	20	
23 A	15.65	15.65	33.375	24.578	335.8	0.078	5.75	251.1	101.4	1.7	0.29	0.0	0.00	0.00	0.43	0.15	23	20
30 ISL	15.41 D	15.41	33.367 D	24.626	331.4	0.099	5.73	D249.6	D100.5	1.7	0.31	0.0	0.03	0.00	0.65	0.23	30	
31	15.39	15.39	33.371	24.633	330.8	0.105	5.69	248.5	99.9	1.7	0.31	0.0	0.03	0.00	0.68	0.25	31	19
38	15.16	15.16	33.363	24.678	326.7	0.129											38	18
39 A	15.18	15.17	33.363	24.675	327.0	0.131	5.57	243.3	97.4	2.0	0.36	0.6	0.12	0.00	0.56	0.28	39	17
47	14.66	14.65	33.335	24.766	318.6	0.157	5.43	236.9	93.8	2.8	0.46	2.1	0.24	0.00	0.34	0.23	47	16
50 ISL	14.57 D	14.56	33.329 D	24.781	317.2	0.165	5.47	D238.2	D 94.3	3.1	0.49	2.6	0.22	0.00	0.31	0.21	50	
57	13.98	13.97	33.309	24.890	307.1	0.188	5.26	229.5	89.6	3.8	0.57	3.8	0.17	0.00	0.25	0.17	57	15
64 A	13.08	13.07	33.284	25.052	291.7	0.209	4.90	214.1	82.0	6.5	0.78	6.9	0.06	0.00	0.20	0.19	65	14
75 ISL	12.36 D	12.35	33.333 D	25.231	274.9	0.239	4.57	D199.2	D 75.3	8.4	0.95	9.6	0.04	0.00	0.14	0.15	76	
76 A	12.17	12.16	33.332	25.267	271.5	0.243	4.58	199.8	75.1	8.6	0.96	9.9	0.04	0.00	0.13	0.15	77	13
88	11.79	11.78	33.413	25.400	259.1	0.275	4.15	180.9	67.5	11.5	1.19	13.1	0.03	0.00	0.10	0.10	89	12
100 ISL	11.28 D	11.27	33.473 D	25.541	245.9	0.304	3.88	D169.0	D 62.5	12.5	1.27	14.3	0.03	0.00	0.09	0.08	101	
101	11.21	11.20	33.449	25.535	246.5	0.308	4.01	175.0	64.5	12.5	1.28	14.4	0.03	0.00	0.09	0.08	102	11
120	10.35	10.34	33.614	25.816	220.1	0.352	3.45	150.4	54.5	18.5	1.63	19.7	0.00	0.00	0.03	0.05	121	10
125 ISL	10.27 D	10.25	33.634 D	25.846	217.3	0.362	3.42	D148.8	D 53.9	19.1	1.65	20.1	0.02	0.00	0.03	0.05	126	
140	9.93	9.91	33.707	25.961	206.7	0.395	3.26	142.0	51.0	20.9	1.72	21.2	0.00	0.00	0.02	0.04	141	09
150 ISL	9.67 D	9.66	33.776 D	26.057	197.8	0.414	3.15	D137.1	D 49.1	22.6	1.79	22.2	0.02	0.00	0.01	0.03	151	
171	9.39	9.37	33.876	26.182	186.3	0.455	2.80	122.2	43.4	26.4	1.94	24.5	0.00	0.00	0.01	0.02	172	08
200 ISL	9.09 D	9.07	34.038 D	26.358	170.1	0.507	2.36	D102.5	D 36.3	31.2	2.11	26.6	0.02	0.00	0.00	0.02	202	
201	9.01	8.99	34.037	26.369	169.0	0.509	2.35	102.5	36.1	31.4	2.12	26.6	0.00	0.00	0.00	0.02	203	07
230	8.69	8.67	34.071	26.447	162.1	0.557	2.22	96.7	33.9	35.0	2.21	28.1	0.03	0.00			232	06
250 ISL	8.51 D	8.48	34.094 D	26.493	158.1	0.589	2.06	D 89.8	D 31.4	37.8	2.30	29.2	0.02	0.00			252	
270	8.30	8.27	34.124	26.550	152.9	0.620	1.79	78.3	27.2	40.6	2.39	30.3	0.00	0.00			272	05
300 ISL	8.02 D	7.99	34.157 D	26.619	146.9	0.666	1.40	D 60.8	D 21.0	45.6	2.57	32.2	0.02	0.00			302	
321	7.75	7.71	34.193	26.687	140.7	0.695	1.11	48.2	16.5	49.2	2.70	33.5	0.00	0.00			324	04
381	6.99	6.95	34.215	26.812	129.2	0.776	0.71	30.9	10.4	59.9	2.93	36.6	0.00	0.00			384	03
400 ISL	6.93 D	6.89	34.246 D	26.845	126.4	0.802	0.59	D 25.7	D 8.7	62.1	2.97	37.1	0.02	0.00			403	
440	6.59	6.54	34.256	26.900	121.6	0.850	0.50	21.7	7.2	66.6	3.04	38.1	0.00	0.00			444	02
500 ISL	6.27 D	6.23	34.290 D	26.968	115.7	0.924	0.35	D 15.4	D 5.1	72.1	3.14	39.2	0.02	0.00			504	
515	6.24	6.19	34.300	26.981	114.7	0.939	0.32	13.8	4.6	73.5	3.16	39.5	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 4.9 N	120 38.3 W	10/01/2017	1058	UTC	3858 m	270 04 kn			1020.6 mb	16.0 C	15.0 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	14.92	14.92	33.158	24.569	335.8	0.000	5.92	258.2	102.7	1.6	0.29	0.0	0.03	0.00	0.36	0.09	0	
2	14.92	14.92	33.158	24.570	335.8	0.007	5.92	258.2	102.7	1.6	0.29	0.0	0.03	0.00	0.36	0.09	2	22
10	14.91	14.91	33.158	24.573	335.7	0.034	5.90	257.7	102.4	1.4	0.27	0.0	0.00	0.00	0.40	0.11	10	20
11	14.91	14.91	33.157	24.573	335.8	0.035											10	21
20	14.59	14.59	33.171	24.651	328.6	0.067	5.96	260.0	102.7	1.4	0.29	0.0	0.00	0.00	0.50	0.16	20	19
30	14.44	14.44	33.297	24.781	316.6	0.099	5.93	258.8	102.0	1.3	0.32	0.0	0.05	0.00	0.81	0.33	30	17
30	14.44	14.44	33.288	24.774	317.2	0.099											30	18
40	14.32	14.31	33.323	24.828	312.4	0.131	5.79	252.5	99.3	1.3	0.36	0.5	0.14	0.20	0.60	0.32	40	16
50	14.17	14.16	33.326	24.863	309.4	0.162	5.73	250.2	98.1	1.4	0.39	1.0	0.24	0.30	0.39	0.27	50	15
60	13.93	13.93	33.310	24.899	306.2	0.193	5.50	240.0	93.6	2.4	0.50	2.9	0.34	0.09	0.30	0.15	60	14
70	11.78	11.78	33.223	25.253	272.6	0.222	5.00	218.1	81.3	5.9	0.77	7.9	0.06	0.00	0.12	0.13	71	13
75 ISL	11.51 D	11.50	33.247 D	25.322	266.1	0.233	4.69	D204.2	D 75.8	8.4	0.95	10.6	0.05	0.00	0.10	0.11	76	
85	10.37	10.36	33.343	25.599	239.8	0.260	4.19	182.9	66.1	13.2	1.30	15.9	0.03	0.00	0.05	0.07	86	12
100	9.93	9.91	33.485	25.786	222.3	0.295	3.86	168.5	60.4	17.6	1.50	19.2	0.03	0.00	0.03	0.04	101	11
120	9.31	9.30	33.645	26.012	201.2	0.337	3.61	157.7	55.8	21.5	1.65	21.6	0.00	0.00	0.02	0.03	121	10
125 ISL	9.28 D	9.26	33.688 D	26.052	197.5	0.345	3.64	D158.4	D 56.2	22.5	1.70	22.4	0.02	0.00	0.02	0.03	126	
140	9.19	9.17	33.785	26.143	189.2	0.376	2.98	130.2	46.0	25.6	1.86	24.6	0.00	0.00	0.01	0.03	141	09
150 ISL	9.20 D	9.19	33.817 D	26.165	187.3	0.393	2.81	D122.2	D 43.3	27.1	1.93	25.5	0.02	0.00	0.01	0.03	151	
170	8.98	8.96	33.917	26.279	176.8	0.431	2.38	103.6	36.5	30.2	2.07	27.2	0.00	0.00	0.01	0.02	171	08
199	8.53	8.51	33.985	26.404	165.4	0.481	2.36	103.1	36.0	33.8	2.13	28.5	0.00	0.00	0.00	0.02	201	07
200 ISL	8.46 D	8.44	33.986 D	26.414	164.5	0.481	2.42	D105.2	D 36.7	33.9	2.14	28.6	0.02	0.00			202	
230	8.07	8.05	34.040	26.517	155.2	0.531	2.01	87.7	30.3	39.5	2.29	30.7	0.00	0.00			232	06
250 ISL	7.91 D	7.88	34.078 D	26.571	150.4	0.560	1.71	D 74.5	D 25.7	42.8	2.38	31.7	0.02	0.00			252	
270	7.58	7.56	34.072	26.614	146.5	0.591	1.64	71.3	24.4	46.1	2.46	32.7	0.00	0.00			272	05
300 ISL	7.29 D	7.26	34.080 D	26.663	142.2	0.634	1.50	D 65.1	D 22.1	50.5	2.57	34.1	0.02	0.00			302	
320	6.98	6.95	34.100	26.722	136.7	0.662	1.22	53.4	18.0	53.4	2.65	35.0	0.00	0.00			323	04
380	6.52	6.49	34.166	26.836	126.6	0.741	0.70	30.5	10.2	64.1	2.92	38.1	0.00	0.00			383	03
400 ISL	6.51 D	6.47	34.216 D	26.877	123.0	0.767	0.55	D 23.8	D 7.9	66.3	2.96	38.4	0.02	0.00			403	
440	6.29	6.25	34.247	26.930	118.4	0.815	0.43	18.7	6.2	70.5	3.03	38.9	0.00	0.00			444	02
500 ISL	5.78 D	5.74	34.259 D	27.005	111.6	0.885	0.32	D 13.8	D 4.5	76.9	3.15	40.3	0.01	0.00			504	
516	5.81	5.77	34.276	27.015	111.0	0.901	0.30	13.0	4.3	78.6	3.18	40.6	0.00	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 90.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME UTC	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 45.0 N	121 18.8 W	10/01/2017	0523		3679 m	310 04 kn			1021.7 mb	16.0 C	14.4 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	16.15	16.15	33.256	24.373	354.5	0.000	5.68	247.7	101.0	1.5	0.25	0.0	0.01	0.02	0.16	0.04	0	
2	16.15	16.15	33.256	24.373	354.5	0.007	5.68	247.7	101.0	1.5	0.25	0.0	0.00	0.00	0.16	0.04	2	20
10	16.15	16.15	33.257	24.375	354.7	0.036	5.64	246.0	100.3	1.5	0.30	0.0	0.00	0.07	0.16	0.05	10	19
20	15.96	15.96	33.270	24.429	349.9	0.071	5.64	246.4	100.1	1.5	0.28	0.0	0.00	0.00	0.25	0.11	20	18
30	15.54	15.54	33.245	24.503	343.1	0.105	5.69	248.3	100.0	1.4	0.26	0.0	0.00	0.00	0.28	0.13	30	17
40	15.56	15.55	33.267	24.517	342.1	0.140	5.67	247.5	99.8	1.4	0.27	0.0	0.00	0.00	0.41	0.19	40	16
50	15.50	15.49	33.263	24.527	341.5	0.174	5.64	246.3	99.1	1.4	0.28	0.1	0.05	0.14	0.34	0.16	50	15
60	15.17	15.16	33.289	24.621	332.9	0.208	5.55	242.3	96.9	1.6	0.33	0.4	0.12	0.24	0.23	0.14	60	14
70	13.24	13.23	33.202	24.958	300.9	0.239	5.15	224.8	86.4	4.7	0.64	5.7	0.04	0.00	0.14	0.14	71	13
75 ISL	12.74 D	12.73	33.203 D	25.056	291.6	0.252	5.13	D223.6 D	85.3	5.9	0.74	7.3	0.03	0.00	0.13	0.14	76	
85	11.75	11.74	33.228	25.264	272.0	0.282	4.69	204.9	76.3	8.4	0.94	10.6	0.00	0.00	0.10	0.13	86	12
100	10.90	10.88	33.317	25.489	250.8	0.321	4.31	188.0	68.8	12.4	1.24	14.7	0.00	0.00	0.06	0.07	101	11
121	9.66	9.64	33.552	25.884	213.5	0.370	3.75	163.8	58.4	19.5	1.57	20.4	0.00	0.00	0.01	0.03	122	10
125 ISL	9.59 D	9.57	33.584 D	25.920	210.1	0.377	3.75	D163.4 D	58.3	20.1	1.60	20.7	0.02	0.00	0.01	0.03	126	
141	9.32	9.30	33.676	26.037	199.3	0.411	3.49	152.3	53.9	22.3	1.70	22.2	0.00	0.00	0.01	0.02	142	09
150 ISL	9.19 D	9.18	33.737 D	26.104	193.1	0.428	3.47	D150.9 D	53.5	24.1	1.75	23.0	0.02	0.00	0.01	0.02	151	
170	8.85	8.83	33.877	26.268	177.8	0.466	3.04	132.6	46.6	28.0	1.85	24.9	0.00	0.00	0.00	0.02	171	08
200	8.58	8.56	33.996	26.404	165.5	0.518	2.56	111.8	39.0	34.1	2.12	28.3	0.00	0.00	0.00	0.02	202	07
230	8.39	8.36	34.084	26.504	156.5	0.566	1.70	74.2	25.8	39.3	2.38	30.7	0.00	0.00			232	06
250 ISL	8.16 D	8.13	34.103 D	26.553	152.2	0.597	1.59	D 69.4 D	24.1	42.1	2.46	31.6	0.02	0.00			252	
271	8.00	7.97	34.137	26.605	147.6	0.628	1.32	57.4	19.8	45.1	2.54	32.5	0.00	0.00			273	05
300 ISL	7.46 D	7.43	34.136 D	26.683	140.4	0.671	1.17	D 50.9 D	17.4	51.0	2.67	34.4	0.01	0.00			302	
320	7.16	7.13	34.146	26.732	135.9	0.697	0.99	43.3	14.6	55.0	2.76	35.7	0.00	0.00			323	04
381	6.72	6.68	34.199	26.836	126.8	0.778	0.66	28.6	9.6	62.7	2.92	37.4	0.00	0.00			384	03
400 ISL	6.66 D	6.63	34.218 D	26.859	124.9	0.804	0.57	D 24.8 D	8.3	64.7	2.96	37.8	0.01	0.00			403	
440	6.38	6.34	34.229	26.906	120.8	0.851	0.48	20.8	6.9	68.8	3.03	38.8	0.00	0.00			444	02
500 ISL	5.99 D	5.94	34.267 D	26.986	113.7	0.924	0.34	D 14.8 D	4.9	76.2	3.15	40.0	0.01	0.00			504	
516	5.90	5.85	34.271	27.001	112.4	0.939	0.31	13.4	4.4	78.1	3.18	40.4	0.00	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 90.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME UTC	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 24.8 N	121 59.5 W	09/01/2017	2334		3937 m	300 04 kn	250 04 08	2	1020.4 mb	16.9 C	15.8 C	30 m	6/8	SC	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	16.28	16.28	33.185	24.289	362.5	0.000	5.64	246.1	100.6	1.3	0.28	0.1	0.03	0.04	0.14	0.03	0	
2	16.28	16.28	33.185	24.289	362.6	0.007	5.64	246.1	100.6	1.3	0.28	0.1	0.03	0.00	0.14	0.03	2	22
10	16.15	16.14	33.192	24.326	359.4	0.036	5.66	247.1	100.7	0.9	0.27	0.0	0.00	0.00	0.15	0.03	10	20
10	16.15	16.14	33.188	24.323	359.6	0.036											10	21
20 ISL	15.96 D	15.96	33.205 D	24.379	354.6	0.069	5.66	246.5	100.2	0.7	0.26	0.0	0.01	0.00	0.19	0.05	20	
25	15.84	15.84	33.195	24.397	353.1	0.090	5.65	246.8	100.0	0.6	0.26	0.0	0.00	0.00	0.22	0.06	25	19
30 ISL	15.82 D	15.82	33.190 D	24.398	353.1	0.104	5.65	246.5	99.9	0.6	0.26	0.0	0.01	0.00	0.26	0.09	30	
40	15.74	15.73	33.197	24.423	351.1	0.143	5.66	246.9	99.8	0.6	0.26	0.0	0.00	0.00	0.34	0.14	40	18
50	15.50	15.49	33.215	24.491	345.0	0.177	5.60	244.5	98.4	0.7	0.30	0.0	0.10	0.00	0.39	0.22	50	17
62	14.75	14.74	33.190	24.635	331.5	0.218	5.56	242.8	96.2	1.2	0.38	1.0	0.36	0.00	0.37	0.23	62	15
62	14.75	14.74	33.189	24.635	331.6	0.216											62	16
75	13.28	13.27	33.147	24.906	306.0	0.259	5.41	236.0	90.7	2.6	0.53	3.6	0.05	0.06	0.21	0.18	76	14
87	12.64	12.63	33.198	25.073	290.3	0.295	5.18	226.2	85.8	4.3	0.64	5.6	0.03	0.00	0.16	0.12	88	13
100	11.73	11.71	33.216	25.260	272.7	0.332	4.86	212.0	78.9	6.9	0.88	9.5	0.00	0.00	0.10	0.24	101	12
112	10.78	10.76	33.289	25.487	251.2	0.363	4.50	196.6	71.7	10.5	1.12	13.4	0.00	0.00	0.05	0.07	113	11
125	10.03	10.01	33.515	25.793	222.3	0.394	3.81	166.3	59.8	16.9	1.52	19.0	0.00	0.00	0.02	0.03	126	10
140	9.41	9.39	33.639	25.992	203.5	0.426	3.53	153.9	54.6	20.9	1.67	21.8	0.00	0.00	0.00	0.02	141	09
150 ISL	9.27 D	9.26	33.706 D	26.067	196.6	0.444	3.47	D151.2 D	53.6	21.9	1.70	22.4	0.02	0.00	0.00	0.02	151	
170	9.06	9.04	33.768	26.150	189.1	0.485	3.37	147.1	51.8	23.9	1.76	23.5	0.00	0.00	0.00	0.02	171	08
200	8.68	8.66	33.919	26.329	172.7	0.539	2.85	124.2	43.4	29.2	1.94	26.4	0.00	0.00	0.00	0.02	202	07
230	8.41	8.39	34.014	26.445	162.2	0.589	2.28	99.4	34.6	34.6	2.15	29.1	0.00	0.00			232	06
250 ISL	7.93 D	7.91	34.030 D	26.530	154.3	0.620	2.24	D 97.3 D	33.6	39.2	2.28	30.5	0.01	0.00			252	
270	7.72	7.69	34.066	26.589	148.9	0.651	1.79	78.0	26.7	43.9	2.40	32.0	0.00	0.00			272	05
300 ISL	7.45 D	7.42	34.090 D	26.647	143.8	0.695	1.48	D 64.4 D	22.0	48.5	2.53	33.6	0.01	0.00			302	
320	7.25	7.22	34.111	26.693	139.7	0.723	1.24	54.2	18.4	51.5	2.62	34.7	0.00	0.00			323	04
380	6.62	6.58	34.140	26.803	129.8	0.804	0.86	37.4	12.5	60.6	2.88	37.4	0.00	0.00			383	03
400 ISL	6.53 D	6.50	34.158 D	26.828	127.6	0.831	0.78	D 33.8 D	11.3	63.5	2.93	38.1	0.01	0.00			403	
440	6.15	6.11	34.178	26.894	121.6	0.880	0.61	26.4	8.7	69.3	3.04	39.5	0.00	0.00			444	02
500 ISL	5.92 D	5.88	34.227 D	26.963	115.7	0.953	0.40	D 17.5 D	5.8	75.1	3.10	40.7	0.01	0.00			504	
516	5.84	5.79	34.234	26.979	114.3	0.969	0.37	16.3	5.4	76.6	3.12	41.0	0.00	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 5.1 N	122 39.5 W	09/01/2017	1748 UTC	4039 m	350 02 kn	160 02 06	2	1021.6 mb	18.5 C	18.0 C	31 m	6/8	SC	020

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.75	16.75	33.208	24.199	371.1	0.000	5.55	242.5	100.0	1.1	0.22	0.0	0.01	0.00	0.12	0.03	0	
2 A	16.75	16.75	33.208	24.199	371.1	0.007	5.55	242.5	100.0	1.1	0.22	0.0	0.00	0.00	0.12	0.03	2	23
10 ISL	16.74 D	16.74	33.207 D	24.200	371.3	0.034	5.55	D242.0 D	99.9	1.1	0.21	0.0	0.00	0.00	0.12	0.04	10	
12	16.74	16.74	33.222	24.212	370.3	0.045	5.53	241.6	99.6	1.1	0.21	0.0	0.00	0.00	0.12	0.04	12	21
12	16.74	16.74	33.208	24.201	371.3	0.044											12	22
20 ISL	16.77 D	16.77	33.228 D	24.211	370.7	0.071	5.55	D241.9 D	99.9	1.1	0.22	0.0	0.00	0.00	0.13	0.04	20	
24 A	16.86	16.85	33.261	24.217	370.3	0.089	5.51	240.8	99.5	1.1	0.22	0.0	0.00	0.00	0.13	0.04	24	20
30 ISL	16.96 D	16.95	33.303 D	24.226	369.6	0.108	5.51	D240.1 D	99.6	1.1	0.22	0.0	0.00	0.00	0.14	0.04	30	
35 A	16.97	16.97	33.312	24.229	369.5	0.130	5.50	240.1	99.5	1.1	0.22	0.0	0.00	0.00	0.14	0.04	35	19
46	16.82	16.82	33.283 D	24.242	368.6	0.168	5.52	D240.6 D	99.5								46	18
50 ISL	16.75 D	16.74	33.265 D	24.247	368.3	0.183	5.53	D241.1 D	99.6	1.1	0.23	0.0	0.00	0.00	0.19	0.07	50	
58 A	16.78	16.77	33.279	24.252	368.2	0.214	5.50	240.1	99.1	1.1	0.23	0.0	0.00	0.00	0.22	0.08	58	17
72	15.82	15.81	33.283	24.473	347.4	0.264	5.63	245.7	99.5	1.6	0.24	0.0	0.05	0.00	0.26	0.16	73	16
75 ISL	15.54 D	15.53	33.298 D	24.547	340.5	0.273	5.63	D245.3 D	99.0	1.7	0.25	0.1	0.07	0.00	0.26	0.16	76	
86	14.77	14.76	33.330	24.741	322.3	0.311	5.56	242.9	96.4	2.3	0.30	0.6	0.14	0.00	0.27	0.16	87	14
86	14.77	14.76	33.331	24.741	322.3	0.311											87	15
99 A	13.71	13.69	33.303	24.943	303.3	0.352	5.40	235.9	91.5	3.3	0.43	2.5	0.06	0.00	0.20	0.19	100	13
100 ISL	13.60 D	13.59	33.295 D	24.958	301.8	0.354	5.38	D234.3 D	90.9	3.4	0.44	2.7	0.05	0.00	0.19	0.18	101	
108	12.82	12.80	33.281	25.104	288.0	0.379	5.21	227.6	86.7	4.4	0.55	4.5	0.00	0.00	0.15	0.14	109	12
118 A	12.21	12.19	33.289	25.227	276.5	0.407	4.94	215.6	81.1	6.7	0.75	7.7	0.00	0.00	0.10	0.10	119	11
125 ISL	11.63 D	11.62	33.323 D	25.361	263.7	0.425	4.85	D211.1 D	78.6	8.5	0.90	10.0	0.01	0.00	0.08	0.08	126	
129	11.34	11.32	33.328	25.420	258.2	0.436	4.63	202.1	74.6	9.5	0.99	11.4	0.00	0.00	0.07	0.07	130	10
140	10.38	10.36	33.407	25.650	236.4	0.463	4.27	186.6	67.5	14.1	1.30	16.2	0.00	0.00	0.03	0.05	141	09
150 ISL	10.13 D	10.12	33.445 D	25.722	229.7	0.487	4.19	D182.4 D	65.8	16.1	1.39	17.7	0.01	0.00	0.02	0.04	151	
170	9.36	9.34	33.639	26.002	203.3	0.530	3.81	166.2	58.9	20.1	1.57	20.7	0.00	0.00	0.01	0.02	171	08
200	8.89	8.87	33.814	26.213	183.7	0.588	3.37	147.2	51.7	25.2	1.76	23.8	0.00	0.00	0.00	0.02	202	07
230	8.45	8.43	33.935	26.377	168.6	0.640	2.97	129.6	45.1	30.3	1.92	26.3	0.00	0.00			232	06
250 ISL	8.25 D	8.22	33.974 D	26.439	163.0	0.675	2.75	D119.8 D	41.6	33.9	2.05	28.0	0.01	0.00			252	
270	7.99	7.96	34.003	26.501	157.3	0.706	2.40	104.8	36.1	37.6	2.18	29.6	0.00	0.00			272	05
300 ISL	7.56 D	7.53	34.040 D	26.593	148.9	0.754	1.95	D 85.0 D	29.1	43.7	2.36	32.0	0.01	0.00			302	
320	7.30	7.27	34.062	26.647	144.1	0.781	1.66	72.2	24.5	47.8	2.48	33.6	0.00	0.00			323	04
380	6.65	6.62	34.111	26.775	132.4	0.864	1.01	44.1	14.8	59.1	2.79	37.1	0.00	0.00			383	03
400 ISL	6.54 D	6.50	34.134 D	26.808	129.5	0.893	0.88	D 38.3 D	12.8	61.7	2.84	37.7	0.01	0.00			403	
440	6.28	6.24	34.171	26.871	123.9	0.941	0.63	27.3	9.1	66.9	2.95	38.9	0.00	0.00			444	02
500 ISL	5.90 D	5.86	34.214 D	26.955	116.5	1.017	0.45	D 19.4 D	6.4	74.6	3.09	40.3	0.01	0.00			504	
515	5.81	5.76	34.218	26.971	115.1	1.030	0.41	18.0	5.9	76.5	3.12	40.7	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 90.0 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
30 45.1 N	123 19.7 W	09/01/2017	1153 UTC	4056 m	230 05 kn			1020.0 mb	18.8 C	18.0 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	17.29	17.29	33.379	24.204	370.6	0.000	5.48	239.1	99.8	1.7	0.21	0.1	0.02	0.00	0.12	0.03	0	
2	17.29	17.28	33.379	24.204	370.7	0.007	5.48	239.1	99.7	1.7	0.21	0.1	0.00	0.00	0.12	0.03	2	20
10	17.31	17.31	33.386	24.203	371.1	0.037	5.47	238.8	99.7	1.1	0.19	0.0	0.00	0.00	0.11	0.03	10	19
20 ISL	17.24 D	17.23	33.372 D	24.212	370.6	0.071	5.50	D239.7 D	100.0	1.1	0.20	0.0	0.01	0.00	0.11	0.03	20	
25	17.25	17.24	33.377	24.214	370.6	0.093	5.48	239.2	99.7	1.0	0.20	0.0	0.00	0.00	0.12	0.03	25	18
30 ISL	17.20 D	17.20	33.365 D	24.215	370.7	0.108	5.50	D239.6 D	99.9	1.0	0.20	0.0	0.01	0.00	0.12	0.03	30	
40	17.18	17.18	33.358	24.215	371.1	0.148	5.49	239.7	99.8	1.0	0.21	0.0	0.00	0.00	0.12	0.03	40	17
50	16.79	16.78	33.282	24.249	368.1	0.185	5.51	240.8	99.4	0.9	0.23	0.0	0.00	0.00	0.14	0.04	50	16
62	16.50	16.49	33.191	24.248	368.6	0.230	5.56	242.7	99.5	0.8	0.23	0.0	0.00	0.00	0.18	0.06	62	15
75	16.45	16.44	33.188	24.257	368.2	0.277	5.57	243.4	99.7	0.8	0.24	0.0	0.00	0.00	0.22	0.08	76	14
87	16.55	16.53	33.319	24.338	361.0	0.321	5.51	240.6	98.9	0.9	0.20	0.0	0.00	0.00	0.22	0.10	88	13
100	14.62	14.60	33.340	24.781	318.8	0.365	5.46	238.3	94.2	2.2	0.34	1.0	0.09	0.00	0.21	0.19	101	12
112	13.20	13.19	33.310	25.050	293.4	0.402	5.30	231.4	88.9	3.6	0.50	3.5	0.03	0.00	0.13	0.15	113	11
125	12.26	12.24	33.318	25.241	275.4	0.439	5.00	218.1	82.1	5.9	0.71	6.9	0.00	0.00	0.10	0.10	126	10
140	10.86	10.84	33.337	25.512	249.5	0.479	4.51	197.0	72.0	10.9	1.12	13.1	0.00	0.00	0.05	0.06	141	09
150 ISL	10.13 D	10.12	33.431 D	25.710	230.7	0.502	4.22	D183.8 D	66.3	14.4	1.30	16.0	0.01	0.00	0.03	0.05	151	
170	9.21	9.19	33.660	26.042	199.4	0.545	3.66	159.6	56.4	21.4	1.66	21.8	0.00	0.00	0.00	0.02	171	08
200	8.83	8.81	33.840	26.243	180.8	0.602	3.42	149.4	52.4	25.4	1.76	23.6	0.00	0.00	0.00	0.02	202	07
230	8.47	8.45	33.939	26.377	168.6	0.655	3.02	131.6	45.8	30.2	1.93	26.0	0.00	0.00			232	06
250 ISL	8.10 D	8.07	33.984 D	26.469	160.1	0.689	2.76	D120.0 D	41.5	34.6	2.06	27.9	0.01	0.00			252	
270	7.83	7.80	34.008	26.528	154.7	0.719	2.42	105.7	36.3	38.9	2.19	29.8	0.00	0.00			272	05
300 ISL	7.38 D	7.35	34.030 D	26.610	147.2	0.766	2.04	D 88.7 D	30.2	44.4	2.38	32.1	0.01	0.00			302	
320	7.17	7.14	34.040	26.647	143.9	0.794	1.76	76.9	26.0	48.2	2.50	33.6	0.00	0.06			323	04
380	6.50	6.46	34.087	26.776	132.1	0.877	1.10	48.2	16.0	59.7	2.78	37.3	0.00	0.00			383	03
400 ISL	6.46 D	6.42	34.120 D	26.808	129.4	0.905	0.92	D 40.2 D	13.4	62.5	2.85	37.9	0.01	0.00			403	
440	6.20	6.16	34.169	26.881	122.9	0.953	0.63	27.5	9.1	68.3	3.00	39.2	0.00	0.00			444	02
500 ISL	5.85 D	5.81	34.213 D	26.960	115.9	1.028	0.46	D 20.1 D	6.6	75.1	3.13	40.4	0.01	0.00			504	
516	5.76	5.72	34.220	26.977	114.5	1.044	0.42	18.2	6.0	76.9	3.16	40.7	0.00	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 25.1 N	123 59.4 W	09/01/2017	0608 UTC	4260 m	250 06 kn			1019.8 mb	18.0 C	17.4 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	17.71	17.71	33.426	24.138	376.9	0.000	5.42	236.6	99.6	1.4	0.21	0.1	0.01	0.29	0.12	0.03	0	
2	17.71	17.71	33.426	24.138	376.9	0.008	5.42	236.6	99.6	1.4	0.21	0.1	0.00	0.29	0.12	0.03	2	22
10	17.71	17.71	33.438	24.148	376.3	0.038	5.43	236.9	99.7	1.4	0.23	0.0	0.00	0.06	0.12	0.03	10	20
10	17.71	17.71	33.437	24.148	376.4	0.039											10	21
20 ISL	17.71 D	17.71	33.440 D	24.151	376.4	0.072	5.45	D237.8	D100.2	1.4	0.22	0.0	0.01	0.00	0.11	0.03	20	
25	17.71	17.71	33.448	24.157	376.0	0.094	5.43	236.8	99.7	1.4	0.21	0.0	0.00	0.00	0.11	0.03	25	19
30 ISL	17.71 D	17.70	33.440 D	24.152	376.7	0.110	5.44	D237.4	D100.0	1.4	0.21	0.0	0.01	0.00	0.11	0.03	30	
40	17.71	17.70	33.441	24.153	377.0	0.151	5.42	236.7	99.6	1.4	0.21	0.0	0.00	0.00	0.12	0.03	40	18
50	17.70	17.69	33.441	24.155	377.2	0.188	5.42	236.7	99.6	1.4	0.21	0.0	0.00	0.00	0.12	0.03	50	17
61	17.68	17.67	33.440	24.160	377.1	0.230	5.42	236.4	99.4	1.4	0.21	0.0	0.00	0.00	0.14	0.04	61	16
75	17.74	17.72	33.457	24.162	377.5	0.283	5.41	236.2	99.5	1.4	0.20	0.0	0.00	0.00	0.19	0.05	76	15
87	17.68	17.67	33.459	24.177	376.5	0.328	5.40	235.8	99.2	1.3	0.20	0.0	0.00	0.00	0.22	0.07	88	14
100	16.49	16.47	33.530	24.513	344.7	0.375	5.56	242.7	99.8	1.9	0.20	0.0	0.00	0.00	0.24	0.23	101	12
100	16.49	16.47	33.530	24.514	344.7	0.374											101	13
112	16.28	16.26	33.592	24.611	335.9	0.416	5.39	235.2	96.3	2.2	0.25	0.0	0.13	0.00	0.23	0.19	113	11
125	14.95	14.93	33.539	24.865	311.8	0.458	5.36	233.8	93.2	2.9	0.33	1.4	0.08	0.00	0.15	0.13	126	10
140	13.05	13.03	33.430	25.174	282.3	0.502	5.13	223.8	85.8	4.6	0.52	4.3	0.00	0.00	0.10	0.10	141	09
150 ISL	11.95 D	11.93	33.405 D	25.367	263.9	0.530	5.00	D217.9	D 81.7	7.7	0.76	8.0	0.02	0.00	0.08	0.08	151	
171	10.11	10.09	33.461	25.739	228.5	0.581	4.35	189.9	68.3	14.0	1.26	15.7	0.00	0.00	0.02	0.04	172	08
200 ISL	9.18 D	9.16	33.717 D	26.091	195.4	0.643	3.70	D161.0	D 57.0	22.0	1.62	21.7	0.01	0.00	0.00	0.02	202	
201	9.07	9.05	33.715	26.108	193.8	0.644	3.64	159.0	56.0	22.2	1.63	21.9	0.00	0.00	0.00	0.01	203	07
230	8.77	8.75	33.847	26.259	180.0	0.699	3.33	145.2	50.8	26.7	1.79	24.3	0.00	0.00			232	06
250 ISL	8.56 D	8.53	33.926 D	26.355	171.1	0.735	3.27	D142.2	D 49.7	30.7	1.93	26.1	0.01	0.00			252	
271	8.13	8.10	33.980	26.462	161.2	0.769	2.69	117.2	40.5	34.8	2.07	28.0	0.00	0.00			273	05
300 ISL	7.70 D	7.67	34.012 D	26.550	153.1	0.816	2.43	D105.8	D 36.3	40.2	2.22	30.2	0.01	0.00			302	
320	7.43	7.40	34.018	26.594	149.2	0.845	2.16	94.2	32.0	43.9	2.33	31.7	0.00	0.00			323	04
380	6.72	6.69	34.066	26.730	136.7	0.931	1.39	60.4	20.2	55.0	2.65	35.9	0.00	0.00			383	03
400 ISL	6.52 D	6.49	34.094 D	26.779	132.2	0.959	1.17	D 50.8	D 17.0	58.4	2.73	36.8	0.01	0.00			403	
440	6.24	6.20	34.119	26.836	127.2	1.010	0.86	37.7	12.5	65.2	2.90	38.7	0.00	0.00			444	02
500 ISL	5.83 D	5.78	34.165 D	26.925	119.2	1.086	0.62	D 26.8	D 8.8	73.5	3.06	40.3	0.01	0.00			504	
516	5.72	5.68	34.172	26.944	117.5	1.103	0.53	23.2	7.6	75.8	3.10	40.7	0.00	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 13.9 N	117 28.4 W	06/01/2017	0622 UTC	32 m	210 05 kn			1015.0 mb	15.1 C	14.8 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	15.00	15.00	33.271	24.639	329.1	0.000	5.84	254.6	101.5	1.8	0.32	0.1	0.03	0.20	1.41	0.31	0	
2	15.00	15.00	33.271	24.639	329.2	0.007	5.84	254.6	101.5	1.8	0.32	0.1	0.03	0.20	1.41	0.31	2	05
5	15.00	15.00	33.272	24.640	329.2	0.017	5.85	255.0	101.7	1.8	0.31	0.1	0.03	0.18	1.44	0.32	5	04
10	14.99	14.99	33.271	24.642	329.2	0.033	5.84	254.8	101.6	1.9	0.34	0.5	0.03	0.07	1.58	0.34	10	03
15	14.79	14.79	33.288	24.699	323.9	0.049	5.64	246.1	97.7	2.4	0.37	0.9	0.08	0.29	1.41	0.37	15	02
20 ISL	14.54 D	14.54	33.309 D	24.769	317.4	0.062	5.48	D238.7	D 94.4	3.2	0.47	2.0	0.16	0.63	1.00	0.33	20	
25	14.45	14.44	33.317	24.795	315.1	0.081	5.20	227.0	89.5	3.9	0.56	3.1	0.25	0.97	0.59	0.29	25	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 18.4 W	06/01/2017	0218 UTC	61 m	300 06 kn			1014.3 mb	15.5 C	15.4 C				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	15.12	15.12	33.308	24.643	328.8	0.000	5.79	252.7	101.0	1.5	0.33	0.0	0.00	0.07	1.00	0.32	0	
1	15.12	15.12	33.308	24.643	328.8	0.003	5.79	252.7	101.0	1.5	0.33	0.0	0.00	0.07	1.00	0.32	1	07
5	15.12	15.12	33.311	24.646	328.7	0.016	5.78	252.2	100.8	1.5	0.34	0.0	0.00	0.17	1.00	0.30	5	06
10	15.11	15.11	33.305	24.643	329.1	0.033	5.82	253.8	101.4	1.6	0.31	0.0	0.00	0.00	0.91	0.32	10	08
20	15.07	15.07	33.323	24.666	327.2	0.066	5.74	250.3	100.0	1.5	0.32	0.0	0.00	0.27	0.99	0.31	20	04
30	14.97	14.96	33.311	24.680	326.3	0.098	5.60	244.5	97.4	2.1	0.36	0.6	0.07	0.22	0.90	0.32	30	03
40	14.22	14.21	33.323	24.849	310.4	0.130	5.01	218.5	85.7	4.6	0.69	4.6	0.31	0.00	0.38	0.26	40	02
50 ISL	13.71 D	13.70	33.332 D	24.962	299.9	0.160	4.89	D213.2	D 82.9	6.2	0.84	6.7	0.29	0.00	0.36	0.30	50	
55	13.08	13.08	33.344	25.097	287.2	0.175	4.60	200.7	77.0	7.0	0.91	7.8	0.28	0.07	0.35	0.31	55	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 54.4 N	117 23.7 W	06/01/2017	0858 UTC	598 m	230 07 kn			1014.2 mb	15.1 C	14.5 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	15.38	15.38	33.343	24.613	331.6	0.000	5.73	250.1	100.5	1.4	0.30	0.1	0.02	0.00	0.57	0.17	0	
2	15.38	15.37	33.343	24.613	331.6	0.007	5.73	250.1	100.5	1.4	0.30	0.1	0.00	0.00	0.57	0.17	2	20
10	15.37	15.37	33.342	24.615	331.8	0.033	5.74	250.4	100.6	1.3	0.30	0.0	0.00	0.00	0.54	0.18	10	19
20	15.32	15.32	33.344	24.628	330.9	0.066	5.78	252.3	101.3	1.5	0.31	0.0	0.00	0.00	0.70	0.20	20	18
30	15.02	15.02	33.324	24.678	326.4	0.099	5.51	240.5	96.0	2.4	0.42	1.0	0.15	0.12	0.63	0.28	30	17
40	14.19	14.18	33.319	24.853	310.1	0.131	5.21	227.1	89.1	4.3	0.63	3.4	0.44	0.24	0.37	0.27	40	16
50	13.56	13.55	33.339	24.998	296.5	0.161	4.76	207.7	80.4	6.6	0.82	6.6	0.44	0.00	0.27	0.29	50	15
60	13.07	13.06	33.351	25.106	286.4	0.190	4.46	194.6	74.6	8.3	0.96	8.8	0.13	0.00	0.23	0.26	60	14
70	12.18	12.17	33.372	25.295	268.7	0.218	4.19	182.8	68.8	10.0	1.12	11.8	0.06	0.00	0.15	0.19	71	13
75 ISL	11.75 D	11.74	33.448 D	25.434	255.5	0.229	4.06	D176.7 D	66.0	11.3	1.22	13.3	0.05	0.00	0.13	0.17	76	
85	11.27	11.26	33.472	25.542	245.4	0.257	3.67	160.1	59.1	13.8	1.42	16.3	0.04	0.00	0.08	0.12	86	12
100	10.83	10.82	33.501	25.644	236.1	0.293	3.67	160.1	58.6	14.7	1.47	17.6	0.03	0.00	0.06	0.12	101	11
119	10.12	10.11	33.610	25.851	216.7	0.336	3.39	147.7	53.2	18.3	1.65	20.6	0.03	0.00	0.04	0.07	120	10
125 ISL	10.02 D	10.01	33.697 D	25.936	208.7	0.347	3.28	D142.8 D	51.5	19.4	1.69	21.3	0.03	0.00	0.03	0.06	126	
139	9.67	9.66	33.741	26.029	200.1	0.377	3.11	135.7	48.5	21.9	1.79	23.0	0.00	0.00	0.01	0.05	140	09
150 ISL	9.53 D	9.51	33.801 D	26.100	193.6	0.398	3.04	D132.4 D	47.3	23.4	1.84	23.6	0.02	0.00	0.01	0.05	151	
170	9.42	9.40	33.905	26.199	184.6	0.437	2.77	120.9	43.0	26.0	1.94	24.7	0.00	0.00	0.01	0.04	171	08
200	9.25	9.23	34.023	26.321	173.7	0.491	2.37	103.5	36.7	29.3	2.08	26.2	0.03	0.00	0.01	0.05	202	07
231	9.01	8.99	34.093	26.414	165.4	0.543	2.11	92.0	32.5	32.5	2.19	27.8	0.00	0.00			233	06
250 ISL	8.92 D	8.90	34.151 D	26.474	160.1	0.574	1.78	D 77.6 D	27.4	34.7	2.28	28.6	0.02	0.00			252	
270	8.80	8.77	34.163	26.504	157.7	0.606	1.65	71.8	25.2	37.1	2.37	29.4	0.00	0.00			272	05
300 ISL	8.40 D	8.37	34.189 D	26.587	150.2	0.652	1.34	D 58.4 D	20.4	41.4	2.48	31.0	0.02	0.00			302	
320	8.08	8.05	34.185	26.632	146.1	0.682	1.29	56.2	19.4	44.2	2.56	32.2	0.00	0.00			323	04
382	7.45	7.41	34.220	26.752	135.4	0.770	0.82	35.6	12.1	53.5	2.81	35.1	0.00	0.00			385	03
400 ISL	7.23 D	7.19	34.230 D	26.792	131.7	0.795	0.73	D 31.8 D	10.8	55.9	2.85	35.7	0.02	0.00			403	
441	6.89	6.85	34.254	26.858	125.8	0.846	0.56	24.3	8.2	61.5	2.95	37.1	0.00	0.00			445	02
500 ISL	6.42 D	6.37	34.289 D	26.949	117.7	0.921	0.36	D 15.5 D	5.2	69.7	3.08	38.8	0.02	0.00			504	
519	6.30	6.26	34.306	26.978	115.2	0.940	0.32	13.9	4.6	72.3	3.12	39.4	0.00	0.00			523	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 50.7 N	117 32.1 W	06/01/2017	1138 UTC	858 m	310 08 kn			1014.9 mb	16.0 C	15.1 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	15.33	15.33	33.340	24.620	330.9	0.000	5.76	251.3	100.9	1.2	0.31	0.0	0.02	0.00	0.67	0.15	0	
2	15.33	15.33	33.340	24.620	331.0	0.007	5.76	251.3	100.9	1.2	0.31	0.0	0.00	0.00	0.67	0.15	2	20
10	15.34	15.34	33.340	24.620	331.3	0.033	5.72	249.5	100.2	1.2	0.30	0.0	0.00	0.00	0.68	0.11	10	19
20	15.32	15.32	33.338	24.623	331.4	0.066	5.70	248.9	99.9	1.3	0.32	0.0	0.03	0.00	0.84	0.23	20	18
30	14.79	14.79	33.327	24.730	321.5	0.099	5.44	237.3	94.2	2.7	0.47	1.6	0.21	0.06	0.98	0.27	30	17
40	13.43	13.42	33.335	25.021	294.0	0.130	4.71	205.5	79.4	6.3	0.83	6.7	0.36	0.00	0.33	0.29	40	16
50	12.53	12.52	33.382	25.235	273.8	0.158	4.12	179.6	68.1	9.6	1.12	11.7	0.14	0.00	0.15	0.17	50	15
60	12.14	12.14	33.411	25.331	264.9	0.185	3.91	170.7	64.2	11.1	1.23	13.1	0.31	0.09	0.09	0.18	60	14
70	11.85	11.84	33.447	25.415	257.2	0.211	3.81	166.2	62.1						0.10	0.16	71	13
75 ISL	11.75 D	11.74	33.460 D	25.444	254.6	0.222	3.81	D166.1 D	62.1	12.5	1.33	14.7	0.15	0.00	0.09	0.16	76	
85	11.43	11.42	33.477	25.515	248.0	0.249	3.69	160.9	59.6	13.4	1.39	15.7	0.03	0.00	0.08	0.14	86	12
100	10.99	10.98	33.588	25.682	232.4	0.285	3.32	144.9	53.2	16.5	1.57	18.2	0.03	0.00	0.04	0.09	101	11
120	10.61	10.60	33.671	25.815	220.2	0.330	3.13	136.7	49.8	18.5	1.68	20.0	0.00	0.00	0.02	0.08	121	10
125 ISL	10.56 D	10.55	33.693 D	25.841	217.9	0.340	3.12	D136.0 D	49.6	19.3	1.73	20.5	0.03	0.00	0.02	0.08	126	
140	10.23	10.22	33.797	25.979	205.1	0.373	2.76	120.5	43.6	21.7	1.86	22.1	0.03	0.00	0.01	0.06	141	09
150 ISL	10.05 D	10.03	33.862 D	26.062	197.4	0.393	2.71	D117.8 D	42.6	23.2	1.92	23.0	0.03	0.00	0.01	0.06	151	
170	9.86	9.84	33.968	26.178	186.9	0.432	2.37	103.5	37.2	26.3	2.03	24.7	0.03	0.00	0.00	0.05	171	08
200	9.49	9.46	34.088	26.333	172.6	0.485	1.99	87.0	31.0	30.7	2.19	26.8	0.03	0.00	0.01	0.04	202	07
230	9.26	9.23	34.140	26.411	165.8	0.536	1.75	76.2	27.1	33.6	2.31	28.0	0.00	0.00			232	06
250 ISL	9.10 D	9.08	34.171 D	26.461	161.4	0.570	1.62	D 70.5 D	25.0	36.5	2.41	29.1	0.02	0.00			252	
270	8.78	8.75	34.207	26.541	154.2	0.600	1.33	58.1	20.4	39.4	2.50	30.2	0.00	0.00			272	05
300 ISL	8.46 D	8.43	34.222 D	26.603	148.7	0.648	1.20	D 52.4 D	18.3	42.5	2.57	31.4	0.02	0.00			302	
320	8.21	8.18	34.210	26.632	146.2	0.676	1.15	50.2	17.4	44.6	2.61	32.2	0.00	0.00			323	04
381	7.42	7.38	34.242	26.774	133.3	0.761	0.77	33.4	11.4	54.0	2.82	35.3	0.00	0.00			384	03
400 ISL	7.22 D	7.18	34.229 D	26.792	131.7	0.789	0.71	D 30.8 D	10.5	56.0	2.86	35.8	0.02	0.00			403	
440	6.99	6.94	34.241	26.835	128.2	0.838	0.59	25.5	8.6	60.2	2.94	36.9	0.00	0.00			444	02
500 ISL	6.56 D	6.52	34.282 D	26.924	120.2	0.917	0.40	D 17.3 D	5.8	67.4	3.08	38.6	0.02	0.00			504	
515	6.44	6.40	34.287	26.945	118.4	0.930	0.36	15.8	5.3	69.3	3.11	39.0	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 REUBEN LASKER CALCOFI CRUISE 1701 STATION 93.3 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 40.6 N	117 52.5 W	06/01/2017	1516 UTC	613 m	310 08 kn	210 03 07	1	1016.1 mb	15.0 C	13.2 C	19 m	2/8	CS	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	15.73	15.73	33.397	24.577	335.0	0.000	5.65	246.8	99.9	0.9	0.30	0.0	0.01	0.00	0.58	0.12	0	
2	15.73	15.73	33.397	24.577	335.0	0.007	5.65	246.8	99.9	0.9	0.30	0.0	0.00	0.00	0.58	0.12		20
10	15.73	15.73	33.388	24.570	336.0	0.034	5.66	247.0	100.0	0.9	0.29	0.0	0.00	0.00	0.65	0.02	10	19
20	15.72	15.72	33.390	24.574	336.0	0.067	5.65	246.5	99.8	0.8	0.30	0.0	0.00	0.00	0.48	0.07	20	18
30	15.34	15.33	33.347	24.627	331.3	0.101	5.66	246.9	99.1	1.5	0.34	0.1	0.03	0.00	0.95	0.06	30	17
40	14.53	14.53	33.319	24.780	317.0	0.133	5.21	227.5	89.8	3.5	0.58	3.0	0.17	0.00	0.46	0.26	40	16
50	13.30	13.29	33.310	25.028	293.6	0.163	4.70	205.3	79.0	5.8	0.82	6.7	0.12	0.00	0.31	0.27	50	15
60	12.88	12.87	33.320	25.120	285.1	0.192	4.58	199.7	76.2	6.7	0.91	8.1	0.09	0.00	0.26	0.28	60	14
70	11.49	11.48	33.393	25.439	254.9	0.219	4.08	178.2	66.0	11.1	1.24	14.2	0.04	0.00	0.10	0.16	71	13
75 ISL	11.15 D	11.14	33.429 D	25.529	246.4	0.216	4.11	D179.0 D	66.0	12.4	1.32	15.4	0.03	0.00	0.08	0.14	76	
85	10.58	10.57	33.507	25.692	231.1	0.256	3.70	161.6	58.8	15.1	1.47	18.0	0.00	0.00	0.05	0.09	86	12
100	10.12	10.11	33.610	25.851	216.2	0.289	3.39	148.1	53.4	18.3	1.63	20.4	0.00	0.00	0.02	0.05	101	11
120	9.99	9.98	33.716	25.956	206.8	0.332	3.10	135.4	48.7	20.5	1.76	21.8	0.00	0.00	0.01	0.04	121	10
125 ISL	9.81 D	9.79	33.728 D	25.996	202.9	0.327	3.13	D136.2 D	48.9	21.3	1.79	22.2	0.01	0.00	0.01	0.04	126	
140	9.99	9.97	33.938	26.131	190.6	0.371	2.40	104.7	37.7						0.01	0.03	141	09
150 ISL	9.77 D	9.75	33.960 D	26.186	185.6	0.376	2.48	D107.8 D	38.7	25.4	1.96	24.2	0.02	0.00	0.01	0.04	151	
170	9.58	9.56	34.030	26.271	177.9	0.426	2.22	96.6	34.5	28.7	2.10	25.9	0.00	0.00	0.00	0.04	171	08
200	9.24	9.22	34.096	26.379	168.2	0.478	1.98	86.4	30.6	31.7	2.20	27.3	0.00	0.00	0.00	0.04	202	07
230	8.86	8.84	34.127	26.465	160.6	0.527	1.81	79.0	27.8	35.2	2.29	28.8	0.00	0.00			232	06
250 ISL	8.68 D	8.65	34.188 D	26.541	153.7	0.546	1.51	D 65.9 D	23.1	38.1	2.41	29.9	0.01	0.00			252	
270	8.51	8.48	34.197	26.576	150.7	0.590	1.32	57.6	20.1	41.0	2.52	31.0	0.00	0.00			272	05
300 ISL	8.06 D	8.03	34.218 D	26.659	143.1	0.621	1.06	D 45.9 D	15.9	45.9	2.62	32.6	0.01	0.00			302	
321	7.71	7.68	34.194	26.693	140.0	0.664	1.00	43.6	14.9	49.3	2.69	33.8	0.00	0.00			324	04
381	7.03	6.99	34.239	26.826	128.0	0.744	0.61	26.5	9.0	59.0	2.92	36.9	0.00	0.00			384	03
400 ISL	7.01 D	6.97	34.242 D	26.831	127.8	0.757	0.61	D 26.3 D	8.9	60.5	2.95	37.2	0.01	0.00			403	
441	6.74	6.70	34.256	26.880	123.7	0.820	0.49	D 21.1 D	7.1	63.6	3.00	37.7	0.00	0.00			445	02
500 ISL	6.39 D	6.35	34.294 D	26.957	117.0	0.881	0.35	D 15.0 D	5.0	69.2	3.09	38.9	0.01	0.00			504	
517	6.34	6.30	34.295	26.964	116.5	0.911	0.33	14.3	4.8	70.9	3.12	39.3	0.00	0.08			521	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 30.8 N	118 11.7 W	06/01/2017	1905 UTC	1776 m	230 03 kn	260 03 08	1	1017.9 mb	16.0 C	14.5 C	20 m	2/8	CS	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	15.97	15.97	33.387	24.516	340.9	0.000	5.64	246.0	100.0	0.6	0.28	0.1	0.03	0.10	0.36	0.12	0	
2 A	15.97	15.96	33.387	24.516	340.9	0.007	5.64	246.0	100.0	0.6	0.28	0.1	0.03	0.10	0.36	0.12	2	24
8	15.96	15.96	33.386	24.517	341.0	0.027	5.67	247.6	100.7	0.0	0.28	0.0	0.00	0.00	0.35	0.11	8	22
8	15.96	15.96	33.385	24.516	341.1	0.027											8	23
10 ISL	15.87 D	15.87	33.384 D	24.536	339.3	0.031	5.66	D246.9 D	100.3	0.1	0.30	0.0	0.02	0.00	0.36	0.12	10	
15 A	15.86	15.86	33.387	24.540	339.1	0.051	5.62	245.5	99.6	0.0	0.34	0.0	0.00	0.00	0.37	0.13	15	21
20 ISL	15.85 D	15.85	33.384 D	24.541	339.2	0.065	5.66	D246.6 D	100.2	0.0	0.32	0.0	0.01	0.00	0.40	0.14	20	
23 A	15.85	15.84	33.384 D	24.542	339.2	0.076	5.64	246.3	99.9	0.0	0.30	0.0	0.00	0.00	0.42	0.14	23	20
30	15.84	15.84	33.386	24.545	339.2	0.102	5.63	245.9	99.7	0.0	0.29	0.0	0.00	0.00	0.40	0.14	30	19
40 A	15.84	15.83	33.387	24.547	339.3	0.136	5.64	246.2	99.8	0.0	0.28	0.0	0.00	0.00	0.43	0.15	40	18
47	15.32	15.31	33.379	24.656	329.1	0.160	5.59	243.8	97.9	0.2	0.31	0.0	0.05	0.00	0.59	0.31	47	16
47	15.32	15.31	33.377	24.655	329.2	0.159											47	17
50 ISL	14.46 D	14.45	33.341 D	24.814	314.1	0.167	5.41	235.7	93.1	1.3	0.43	1.7	0.05	0.00	0.50	0.30	50	
57	13.64	13.63	33.254	24.916	304.5	0.191	5.00	218.1	84.5	3.9	0.70	5.6	0.06	0.00	0.29	0.26	57	15
65 A	12.65	12.64	33.269	25.125	284.7	0.214	4.70	205.3	77.9	6.2	0.89	8.7	0.04	0.00	0.20	0.21	66	14
75 ISL	11.80 D	11.79	33.328 D	25.333	265.1	0.240	4.48	D195.1 D	72.9	8.5	1.07	11.4	0.03	0.00	0.13	0.16	76	
78 A	11.75	11.74	33.332	25.346	264.0	0.250	4.35	189.9	70.8	9.2	1.12	12.3	0.03	0.00	0.11	0.15	79	13
89	11.27	11.26	33.440	25.517	247.9	0.278	3.96	172.8	63.8	11.8	1.29	14.8	0.00	0.00	0.08	0.12	90	12
100	10.72	10.70	33.522	25.679	232.6	0.304	3.67	160.2	58.5	14.8	1.47	17.8	0.00	0.00	0.05	0.08	101	11
120	9.98	9.97	33.619	25.882	213.7	0.349	3.34	145.5	52.3	18.7	1.67	21.0	0.00	0.00	0.00	0.03	121	10
125 ISL	9.94 D	9.93	33.646 D	25.909	211.2	0.358	3.31	D144.3 D	51.9	19.5	1.70	21.5	0.02	0.00	0.01	0.03	126	
141	9.60	9.58	33.750	26.049	198.3	0.392	3.02	131.9	47.0	22.1	1.81	23.0	0.00	0.00	0.01	0.04	142	09
150 ISL	9.54 D	9.53	33.827 D	26.118	191.9	0.409	2.87	D125.0 D	44.7	23.7	1.87	23.8	0.01	0.00	0.01	0.04	151	
170	9.29	9.27	33.939	26.247	180.0	0.447	2.53	110.4	39.2	27.3	2.01	25.6	0.00	0.00	0.01	0.03	171	08
200	9.06	9.03	34.062	26.382	167.8	0.499	2.11	92.2	32.6	31.6	2.17	27.5	0.00	0.00	0.00	0.03	202	07
231	8.76	8.74	34.139	26.490	158.1	0.550	1.70	74.0	26.0	36.5	2.36	29.4	0.00	0.00			233	06
250 ISL	8.59 D	8.56	34.169 D	26.540	153.7	0.579	1.55	D 67.6 D	23.7	39.4	2.43	30.5	0.01	0.00			252	
270	8.14	8.11	34.147	26.592	148.9	0.610	1.42	61.9	21.4	42.5	2.51	31.8	0.00	0.00			272	05
300 ISL	7.93 D	7.90	34.210 D	26.673	141.7	0.653	1.06	D 46.0 D	15.9	46.2	2.62	32.9	0.01	0.00			302	
320	7.74	7.71	34.195	26.689	140.4	0.683	1.03	44.8	15.3	48.7	2.69	33.6	0.00	0.00			323	04
380	7.13	7.09	34.235 D	26.809	129.7	0.764	0.65	28.5	9.6	57.8	2.90	36.4	0.00	0.00			383	03
400 ISL	7.05 D	7.01	34.254 D	26.835	127.5	0.790	0.59	D 25.7 D	8.7	59.7	2.93	36.8	0.01	0.00			403	
440	6.76	6.72	34.252	26.874	124.2	0.852	0.50	21.7	7.3	63.4	2.99	37.7	0.00	0.00			444	02
500 ISL	6.28 D	6.23	34.290 D	26.968	115.8	0.913	0.37	D 15.9 D	5.3	71.0	3.11	39.2	0.01	0.00			504	
515	6.20	6.15	34.296	26.984	114.4	0.941	0.34	14.6	4.8	72.9	3.14	39.6	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 20.6 N	118 33.3 W	06/01/2017	2300 UTC	1417 m	190 01 kn	280 03 08	1	1016.0 mb	14.9 C	13.3 C	18 m	7/8	ST	008

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.12	16.12	33.397	24.489	343.4	0.000	5.66	246.9	100.7	0.5	0.29	0.1	0.03	0.00	0.38	0.07	0	
2	16.12	16.11	33.397	24.490	343.4	0.007	5.66	246.9	100.7	0.5	0.29	0.1	0.03	0.00	0.38	0.07	2	21
10	15.90	15.90	33.398	24.540	338.9	0.034	5.67	247.3	100.5	0.0	0.27	0.0	0.00	0.00	0.34	0.09	10	19
10	15.90	15.90	33.398	24.539	339.0	0.035											10	20
20	15.84	15.83	33.394	24.552	338.2	0.068	5.67	247.4	100.4	0.0	0.27	0.0	0.00	0.00	0.43	0.08	20	18
30	15.81	15.81	33.391	24.555	338.2	0.102	5.66	247.2	100.2	0.0	0.29	0.0	0.00	0.00	0.50	0.11	30	17
40	15.74	15.74	33.386	24.568	337.3	0.136	5.66	246.9	99.9	0.0	0.29	0.0	0.00	0.11	0.69	0.21	40	16
50	15.32	15.31	33.358	24.640	330.7	0.169	5.53	241.3	96.8	0.6	0.37	0.7	0.09	0.00	0.68	0.27	50	15
60	13.51	13.50	33.268	24.954	301.0	0.201	4.99	217.9	84.2	4.2	0.70	5.7	0.10	0.07	0.43	0.32	60	14
70	12.10	12.09	33.364	25.304	267.8	0.229	4.31	188.1	70.6	9.0	1.09	11.6	0.04	0.00	0.15	0.17	71	13
75 ISL	11.41 D	11.40	33.394 D	25.455	253.5	0.240	4.29	D186.6 D	69.2	10.4	1.18	13.2	0.04	0.00	0.12	0.15	76	
85	10.92	10.91	33.435	25.576	242.2	0.267	3.90	170.0	62.3	13.0	1.37	16.2	0.03	0.00	0.07	0.11	86	12
100	10.13	10.12	33.582	25.828	218.4	0.301	3.39	147.8	53.3	18.2	1.64	20.4	0.00	0.00	0.02	0.07	101	11
120	9.72	9.71	33.693	25.983	204.1	0.344	3.12	136.0	48.6	21.1	1.78	22.7	0.00	0.00	0.01	0.05	121	10
125 ISL	9.65 D	9.63	33.717 D	26.014	201.2	0.353	3.11	D135.6 D	48.5	21.9	1.81	23.2	0.02	0.00	0.01	0.05	126	
140	9.40	9.39	33.793	26.114	192.0	0.383	2.82	123.1	43.7	24.2	1.91	24.4	0.00	0.00	0.00	0.04	141	09
150 ISL	9.37 D	9.35	33.833 D	26.151	188.7	0.401	2.77	D120.3 D	42.8	26.1	1.97	25.3	0.02	0.00	0.00	0.04	151	
170	9.00	8.98	33.958	26.309	174.0	0.438	2.37	103.5	36.5	29.7	2.09	27.0	0.00	0.00	0.00	0.03	171	08
200	8.73	8.70	34.048	26.423	163.8	0.489	2.07	90.5	31.7	33.4	2.22	28.5	0.00	0.00	0.00	0.03	202	07
230	8.39	8.37	34.103	26.518	155.3	0.537	1.69	73.8	25.7	38.5	2.40	30.5	0.00	0.00			232	06
250 ISL	8.14 D	8.11	34.139 D	26.585	149.2	0.568	1.47	D 64.1 D	22.2	41.8	2.50	31.7	0.02	0.00			252	
270	7.91	7.89	34.156	26.632	144.9	0.597	1.26	54.9	18.9	45.0	2.60	32.8	0.00	0.00			272	05
300 ISL	7.68 D	7.65	34.181 D	26.687	140.2	0.641	1.07	D 46.6 D	16.0	48.7	2.68	33.8	0.02	0.00			302	
320	7.53	7.50	34.195	26.720	137.4	0.668	0.95	41.6	14.2	51.3	2.74	34.5	0.00	0.00			323	04
380	7.06	7.03	34.230	26.814	129.2	0.748	0.65	28.5	9.6	58.7	2.93	36.4	0.00	0.00			383	03
400 ISL	6.87 D	6.84	34.240 D	26.848	126.1	0.775	0.57	D 24.9 D	8.4	60.9	2.96	37.0	0.02	0.00			403	
440	6.60	6.56	34.258	26.900	121.6	0.823	0.46	19.9	6.7	65.4	3.03	38.0	0.00	0.00			444	02
500 ISL	6.15 D	6.10	34.301 D	26.993	113.2	0.896	0.31	D 13.6 D	4.5	73.3	3.15	39.4	0.02	0.00			504	
515	6.06	6.01	34.307	27.010	111.8	0.910	0.29	12.6	4.2	75.3	3.18	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 REUBEN LASKER CALCOFI CRUISE 1701 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 10.4 N	118 53.6 W	07/01/2017	0233 UTC	1501 m	240 02 kn			1016.9 mb	14.8 C	12.5 C				009

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.77	15.77	33.377	24.552	337.5	0.000	5.67	247.3	100.2	0.6	0.29	0.1	0.02	0.74	0.37	0.13	0	
2	15.77	15.77	33.377	24.552	337.5	0.007	5.67	247.3	100.2	0.6	0.29	0.1	0.00	0.74	0.37	0.13	2	21
10 ISL	15.59 D	15.59	33.365 D	24.583	334.8	0.031	5.67	247.2	99.9	0.6	0.31	0.1	0.02	0.67	0.43	0.17	10	
11	15.60	15.60	33.366	24.582	334.9	0.037	5.67	247.5	99.9	0.6	0.31	0.1	0.00	0.66	0.44	0.17	11	19
20	15.47	15.47	33.363	24.610	332.6	0.067	5.67	247.5	99.6	0.6	0.33	0.2	0.03	0.61	0.52	0.20	20	18
30	15.36	15.35	33.360	24.632	330.8	0.100	5.67	247.5	99.4	0.6	0.31	0.2	0.04	0.18	0.67	0.24	30	17
40	14.71	14.70	33.355	24.770	318.0	0.133	5.60	244.6	96.9	1.0	0.38	1.1	0.12	0.21	0.62	0.32	40	16
50 ISL	14.41 D	14.40	33.356 D	24.835	312.1	0.162	5.61	D244.4 D	96.4	1.9	0.49	2.8	0.26	0.00	0.42	0.25	50	
50	14.41	14.40	33.356 D	24.835	312.1	0.162	5.61	D244.4 D	96.4								50	15
60	13.60	13.59	33.354 D	25.002	296.5	0.193	5.31	231.9	89.8	2.9	0.60	4.4	0.40	0.00	0.22	0.19	60	14
70	12.69	12.68	33.343	25.175	280.1	0.223	4.93	215.2	81.8	5.4	0.82	7.9	0.15	0.00	0.14	0.15	71	13
75 ISL	12.33 D	12.32	33.352 D	25.251	272.9	0.235	4.79	D208.7 D	78.9	7.7	0.97	10.4	0.11	0.00	0.13	0.14	76	
85	11.22	11.21	33.399	25.494	250.0	0.263	4.05	176.6	65.1	12.2	1.27	15.4	0.04	0.00	0.11	0.12	86	12
100	10.26	10.25	33.485	25.729	227.8	0.299	3.77	164.7	59.5	16.2	1.48	18.7	0.03	0.00	0.04	0.07	101	11
120	9.63	9.62	33.674	25.982	204.1	0.342	3.20	139.4	49.7						0.01	0.05	121	10
125 ISL	9.53 D	9.51	33.718 D	26.035	199.2	0.351	3.10	D135.1 D	48.2	21.7	1.73	22.3	0.02	0.00	0.01	0.05	126	
141	9.33	9.31	33.791 D	26.125	191.0	0.383	2.81	D122.1 D	43.4	25.2	1.89	24.6	0.00	0.00	0.01	0.04	142	09
150 ISL	9.25 D	9.24	33.856 D	26.188	185.2	0.400	2.76	D120.0 D	42.6	26.9	1.96	25.5	0.02	0.00	0.01	0.04	151	
170	8.98	8.96	33.962 D	26.314	173.5	0.436	2.31	100.8	35.5	30.5	2.10	27.5	0.00	0.00	0.00	0.04	171	08
200	8.78	8.76	34.031 D	26.400	166.0	0.487	2.08	90.8	31.9	33.2	2.22	28.6	0.00	0.17	0.00	0.03	202	07
230	8.51	8.48	34.078	26.481	158.8	0.530	1.87	81.4	28.4	36.8	2.31	30.0	0.00	0.00			232	06
250 ISL	8.26 D	8.23	34.116 D	26.549	152.6	0.568	1.63	D 70.8 D	24.6	39.6	2.40	31.0	0.02	0.00			252	
270	8.10	8.07	34.129	26.584	149.7	0.591	1.50	65.5	22.6	42.5	2.49	32.0	0.00	0.00			272	05
300 ISL	7.81 D	7.78	34.165 D	26.656	143.2	0.643	1.22	D 53.0 D	18.2	46.5	2.61	33.2	0.02	0.00			302	
321	7.65	7.62	34.180	26.690	140.3	0.665	1.05	45.6	15.6	49.4	2.69	34.1	0.00	0.00			324	04
380	7.06	7.03	34.222	26.807	129.8	0.745	0.71	31.0	10.5	60.8	2.89	36.5	0.00	0.00			383	03
400 ISL	6.92 D	6.89	34.236 D	26.838	127.1	0.779	0.60	D 26.1 D	8.8	62.4	2.94	37.1	0.01	0.00			403	
441	6.65	6.61	34.264	26.897	121.9	0.821	0.44	19.4	6.5	65.6	3.03	38.1	0.00	0.00			445	02
500 ISL	6.31 D	6.26	34.297 D	26.969	115.6	0.901	0.34	D 14.6 D	4.9	71.5	3.10	39.3	0.01	0.00			504	
516	6.23	6.18	34.300	26.982	114.6	0.910	0.31	13.4	4.4	73.0	3.12	39.6	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 REUBEN LASKER CALCOFI CRUISE 1701 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 13.6 W	07/01/2017	0609 UTC	1591 m	150 06 kn			1017.9 mb	15.2 C	13.8 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	16.22	16.22	33.372	24.447	347.5	0.000	5.62	245.1	100.1	1.0	0.33	0.1	0.01	0.10	0.20	0.05	0	
1	16.22	16.22	33.372	24.447	347.5	0.004	5.62	245.1	100.1	1.0	0.33	0.1	0.00	0.10	0.20	0.05	1	21
10	16.21	16.20	33.363	24.444	348.1	0.035	5.59	244.1	99.7	0.9	0.26	0.0	0.00	0.00	0.21	0.06	10	19
10	16.21	16.20	33.369	24.448	347.7	0.035											10	20
20	16.05	16.05	33.363	24.479	345.1	0.070	5.61	245.0	99.8	0.9	0.29	0.0	0.00	0.00	0.25	0.08	20	18
30	15.91	15.91	33.367	24.515	342.0	0.104	5.63	245.9	99.8	1.0	0.28	0.0	0.00	0.00	0.40	0.15	30	17
41	15.89	15.88	33.379	24.530	340.9	0.142	5.60	244.3	99.2	1.0	0.28	0.0	0.03	0.00	0.54	0.22	41	16
50 ISL	15.71 D	15.71	33.350 D	24.547	339.6	0.172	5.61	D244.3 D	98.9	1.0	0.30	0.1	0.05	0.00	0.48	0.23	50	
51	15.51	15.50	33.352	24.594	335.2	0.176	5.55	242.1	97.5	1.0	0.30	0.1	0.05	0.08	0.47	0.24	51	15
60	14.92	14.91	33.356	24.728	322.7	0.205	5.57	243.0	96.7	1.3	0.36	0.8	0.12	0.10	0.40	0.23	60	14
70	13.56	13.55	33.223	24.908	305.7	0.237	5.23	228.5	88.4	3.3	0.56	3.9	0.15	0.00	0.20	0.18	71	13
75 ISL	13.50 D	13.48	33.259 D	24.950	301.8	0.252	5.19	D226.0 D	87.5	4.3	0.65	5.2	0.12	0.00	0.18	0.18	76	
85	12.69	12.68	33.279	25.126	285.2	0.281	4.78	208.8	79.3	6.2	0.82	7.8	0.04	0.00	0.14	0.16	86	12
100	11.41	11.40	33.392	25.455	254.1	0.322	4.14	180.5	66.8	11.2	1.19	14.0	0.00	0.00	0.06	0.09	101	11
120	10.59	10.57	33.578	25.746	226.8	0.370	3.55	155.0	56.4	16.4	1.51	18.6	0.00	0.00	0.03	0.05	121	10
125 ISL	10.57 D	10.56	33.592 D	25.760	225.6	0.382	3.54	D154.3 D	56.3	17.4	1.55	19.3	0.01	0.00	0.03	0.04	126	
140	9.98	9.96	33.721	25.964	206.5	0.413	3.20	139.6	50.2	20.2	1.68	21.2	0.00	0.00	0.01	0.03	141	09
150 ISL	9.71 D	9.70	33.823 D	26.087	194.9	0.435	3.07	D133.4 D	47.8	23.4	1.79	23.1	0.01	0.00	0.01	0.03	151	
170	8.86	8.84	33.920	26.301	174.7	0.471	2.55	111.2	39.0	29.8	2.01	26.8	0.00	0.00	0.00	0.03	171	08
200	8.48	8.46	34.054	26.465	159.7	0.521	1.97	85.8	29.9	36.3	2.24	29.6	0.00	0.00	0.00	0.03	202	07
230	8.21	8.18	34.131	26.568	150.4	0.567	1.51	65.9	22.8	41.0	2.42	31.1	0.00	0.00			232	06
250 ISL	8.17 D	8.14	34.135 D	26.577	149.9	0.599	1.48	D 64.5 D	22.4	43.3	2.49	32.0	0.01	0.00			252	
270	7.90	7.87	34.150	26.630	145.2	0.627	1.28	55.7	19.2	45.6	2.55	32.8	0.00	0.00			272	05
300 ISL	7.83 D	7.80	34.185 D	26.668	142.1	0.672	1.08	D 47.2 D	16.3	48.1	2.62	33.3	0.01	0.00			302	
320	7.68	7.65	34.192	26.695	139.8	0.698	1.00	43.6	15.0	49.8	2.66	33.7	0.00	0.00			323	04
381	7.14	7.11	34.235	26.807	129.9	0.781	0.66	28.6	9.7	58.0	2.85	36.0	0.00	0.00			384	03
400 ISL	7.01 D	6.97	34.236 D	26.827	128.2	0.809	0.63	D 27.3 D	9.2	60.1	2.89	36.5	0.01	0.00			403	
441	6.70	6.66	34.262	26.889	122.7	0.857	0.46	20.2	6.8	64.8	2.99	37.5	0.00	0.00			445	02
500 ISL	6.25 D	6.20	34.299 D	26.978	114.8	0.931	0.32	D 14.0 D	4.7	72.2	3.11	39.2	0.01	0.00			504	
515	6.16	6.11	34.320	27.008	112.1	0.943	0.30	12.9	4.3	74.0	3.14	39.6	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 34.0 W	07/01/2017	0952 UTC	1960 m	010 01 kn			1018.2 mb	17.0 C	16.0 C				011

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.95	15.95	33.318	24.467	345.5	0.000	5.64	246.0	99.9	1.0	0.29	0.1	0.03	0.02	0.27	0.04	0	
2	15.95	15.95	33.318	24.467	345.6	0.007	5.64	246.0	99.9	1.0	0.29	0.1	0.03	0.00	0.27	0.04	2	20
10	15.66	15.66	33.316	24.529	339.9	0.034	5.70	249.0	100.5	0.4	0.29	0.0	0.00	0.00	0.33	0.07	10	19
20	15.48	15.47	33.319	24.574	336.0	0.068	5.72	249.9	100.6	0.3	0.27	0.0	0.00	0.00	0.41	0.08	20	18
30	15.35	15.34	33.312	24.598	334.1	0.102	5.72	249.6	100.2	0.3	0.29	0.0	0.00	0.00	0.56	0.15	30	17
40	15.31	15.31	33.308	24.603	333.9	0.135	5.71	249.2	99.9	0.3	0.29	0.0	0.04	0.00	0.60	0.21	40	16
50	15.29	15.28	33.309	24.609	333.7	0.168	5.65	246.8	98.9	0.3	0.32	0.0	0.05	0.11	0.48	0.21	50	15
60	15.31	15.30	33.342	24.631	331.9	0.202	5.57	243.3	97.5	0.5	0.35	0.4	0.10	0.15	0.36	0.13	60	14
70	12.91	12.90	33.194	25.016	295.3	0.233	5.11	223.2	85.1	3.8	0.66	5.4	0.05	0.00	0.24	0.19	71	13
75 ISL	12.68 D	12.67	33.218 D	25.079	289.4	0.246	4.99	D217.2 D	82.7	5.2	0.78	7.4	0.04	0.00	0.20	0.16	76	
85	11.57	11.56	33.256	25.318	266.7	0.276	4.58	199.8	74.1	8.2	1.01	11.3	0.03	0.00	0.11	0.11	86	12
100	10.72	10.70	33.392	25.578	242.2	0.314	4.02	175.5	64.0	12.8	1.33	16.1	0.00	0.00	0.05	0.07	101	11
120	9.71	9.69	33.590 D	25.905	211.5	0.357	3.53	154.1	55.0	18.8	1.61	20.8	0.00	0.00	0.01	0.03	121	10
125 ISL	9.71 D	9.69	33.595 D	25.909	211.2	0.368	3.47	151.2	54.1	19.5	1.64	21.2	0.02	0.00	0.01	0.03	126	
140	9.41	9.40	33.679	26.023	200.6	0.400	3.30	144.1	51.1	21.7	1.72	22.6	0.00	0.00	0.01	0.03	141	09
150 ISL	9.23 D	9.21	33.749 D	26.108	192.8	0.419	3.19	D138.9 D	49.3	23.5	1.79	23.5	0.02	0.00	0.01	0.02	151	
170	8.97	8.96	33.859	26.235	181.0	0.457	2.81	122.4	43.1	27.0	1.92	25.4	0.00	0.00	0.00	0.02	171	08
200	8.54	8.52	33.961	26.384	167.4	0.510	2.59	113.1	39.4	31.5	2.02	27.3	0.00	0.00	0.00	0.02	202	07
230	8.25	8.23	34.032	26.483	158.5	0.559	2.13	92.8	32.2	36.4	2.21	29.4	0.00	0.00			232	06
250 ISL	7.96 D	7.93	34.069 D	26.556	151.8	0.590	1.87	D 81.1 D	28.0	39.8	2.32	30.5	0.01	0.00			252	
270	7.81	7.78	34.099	26.603	147.7	0.620	1.65	72.1	24.8	43.2	2.42	31.7	0.00	0.00			272	05
300 ISL	7.64 D	7.61	34.134 D	26.655	143.2	0.664	1.40	D 61.0 D	20.9	47.3	2.53	33.3	0.01	0.00			302	
320	7.29	7.26	34.120	26.694	139.6	0.692	1.28	55.9	18.9	50.1	2.60	34.3	0.00	0.00			323	04
380	6.87	6.83	34.160	26.785	131.7	0.773	0.89	39.0	13.1	57.7	2.78	36.3	0.00	0.00			383	03
400 ISL	6.65 D	6.61	34.179 D	26.830	127.5	0.801	0.75	D 32.6 D	10.9	60.7	2.84	36.9	0.01	0.00			403	
440	6.40	6.36	34.222	26.897	121.6	0.849	0.53	23.0	7.6	66.6	2.96	38.2	0.00	0.00			444	02
500 ISL	6.08 D	6.03	34.265 D	26.973	115.0	0.923	0.37	D 16.3 D	5.4	73.2	3.08	39.7	0.01	0.00			504	
515	5.99	5.94	34.270	26.989	113.7	0.937	0.35	15.1	5.0	74.9	3.11	40.1	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 31.1 N	120 14.6 W	07/01/2017	1645 UTC	3577 m	120 10 kn	120 02 08	1	1020.0 mb	17.5 C	16.2 C	17 m	7/8	NS	012

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.53	15.53	33.284	24.534	339.2	0.000	5.71	249.3	100.4	0.7	0.29	0.0	0.02	0.00	0.38	0.12	0	
2 A	15.53	15.53	33.284	24.534	339.2	0.007	5.71	249.3	100.4	0.7	0.29	0.0	0.00	0.00	0.38	0.12	2	23
10 ISL	15.53 D	15.53	33.284 D	24.535	339.4	0.031	5.70	D248.6	D100.3	0.8	0.28	0.0	0.01	0.00	0.40	0.11	10	
13 A	15.53	15.53	33.284	24.535	339.5	0.044	5.70	249.0	100.3	0.8	0.28	0.0	0.00	0.00	0.41	0.10	13	21
13	15.53	15.53	33.284	24.536	339.5	0.043											13	22
19 A	15.48	15.48	33.289	24.550	338.3	0.064	5.72	249.9	100.5	0.6	0.29	0.0	0.00	0.00	0.43	0.13	19	20
20 ISL	15.47 D	15.47	33.290 D	24.554	338.0	0.065	5.71	D248.9	D100.3	0.6	0.29	0.0	0.01	0.00	0.45	0.14	20	
26	15.42	15.42	33.301	24.573	336.3	0.088	5.69	248.3	99.8	0.6	0.30	0.0	0.00	0.00	0.51	0.20	26	19
30 ISL	15.40 D	15.40	33.299 D	24.576	336.2	0.099	5.70	D248.3	D 99.9	0.6	0.31	0.0	0.02	0.00	0.54	0.20	30	
32 A	15.41	15.40	33.298	24.574	336.4	0.108	5.68	247.9	99.6	0.6	0.31	0.0	0.00	0.00	0.55	0.20	32	17
32	15.41	15.40	33.303	24.578	336.0	0.108											32	18
42	15.39	15.38	33.304	24.583	335.9	0.142	5.65	246.6	99.0	0.6	0.30	0.1	0.03	0.00	0.51	0.24	42	16
50 ISL	15.39 D	15.38	33.299 D	24.580	336.5	0.167	5.64	D245.9	D 98.9	0.6	0.31	0.1	0.04	0.00	0.47	0.22	50	
54 A	15.38	15.38	33.298	24.580	336.6	0.182	5.65	246.8	99.1	0.6	0.31	0.1	0.04	0.00	0.45	0.21	54	15
65 A	15.34	15.33	33.299	24.592	335.8	0.219	5.63	245.7	98.6	0.7	0.32	0.1	0.05	0.00	0.35	0.19	66	14
75	13.69	13.68	33.211	24.873	309.2	0.251	5.32	232.3	90.0	2.3	0.54	3.7	0.16	0.00	0.17	0.13	76	13
85	12.27	12.26	33.233	25.170	280.9	0.281	4.78	208.9	78.6	6.5	0.90	9.5	0.00	0.00	0.07	0.11	86	12
100	11.20	11.19	33.287	25.411	258.2	0.321	4.38	191.2	70.4	10.5	1.17	13.8	0.00	0.00	0.05	0.08	101	11
119	10.22	10.20	33.434	25.698	231.2	0.368	4.07	177.8	64.1	15.0	1.39	17.5	0.00	0.00	0.03	0.05	120	10
125 ISL	9.88 D	9.87	33.511 D	25.814	220.2	0.381	4.05	D176.4	D 63.3	16.5	1.47	18.7	0.01	0.00	0.02	0.04	126	
139	9.53	9.52	33.611	25.951	207.5	0.412	3.56	155.4	55.3	20.1	1.65	21.5	0.00	0.00	0.01	0.03	140	09
150 ISL	9.26 D	9.24	33.744 D	26.099	193.6	0.433	3.24	D141.2	D 50.1	22.7	1.76	23.1	0.01	0.00	0.01	0.03	151	
170	8.96	8.94	33.860	26.238	180.8	0.472	2.81	122.8	43.2	27.4	1.96	25.9	0.00	0.00	0.00	0.03	171	08
200 ISL	8.59 D	8.57	33.956 D	26.371	168.6	0.524	2.52	D109.8	D 38.4	31.4	2.06	27.7	0.01	0.00	0.00	0.03	202	
201	8.54	8.52	33.953	26.376	168.1	0.526	2.54	110.8	38.6	31.5	2.06	27.8	0.00	0.00	0.00	0.03	203	07
231	8.12	8.10	34.023	26.496	157.2	0.575	2.15	93.8	32.4	37.7	2.25	30.2	0.00	0.00			233	06
250 ISL	8.00 D	7.97	34.085 D	26.563	151.1	0.604	1.68	D 72.9	D 25.2	41.6	2.40	31.7	0.01	0.00			252	
271	7.73	7.71	34.115	26.626	145.5	0.635	1.39	60.6	20.8	46.0	2.56	33.3	0.00	0.00			273	05
300 ISL	7.40 D	7.37	34.129 D	26.685	140.2	0.677	1.19	D 51.8	D 17.7	50.6	2.66	34.5	0.01	0.00			302	
320	7.12	7.09	34.124	26.721	136.9	0.705	1.09	47.5	16.1	53.7	2.73	35.4	0.00	0.00			323	04
380	6.52	6.49	34.159	26.830	127.1	0.784	0.78	34.2	11.4	62.8	2.90	38.3	0.00	0.00			383	03
400 ISL	6.51 D	6.47	34.182 D	26.850	125.5	0.811	0.65	D 28.1	D 9.4	65.3	2.95	38.7	0.01	0.00			403	
442	6.14	6.10	34.210	26.921	119.0	0.860	0.47	20.7	6.8	70.8	3.07	39.7	0.00	0.00			446	02
500 ISL	5.86 D	5.82	34.256 D	26.993	112.8	0.930	0.34	D 14.7	D 4.9	77.1	3.15	40.6	0.02	0.00			504	
518	5.77	5.72	34.270	27.016	110.8	0.948	0.30	12.9	4.2	79.1	3.18	40.9	0.00	0.00			522	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 93.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 11.2 N	120 54.3 W	07/01/2017	2136 UTC	3908 m	140 10 kn	180 03 03	4	1017.8 mb	16.2 C	16.2 C	26 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	16.86	16.86	33.292	24.238	367.4	0.000	5.51	240.5	99.4	1.0	0.27	0.1	0.03	0.03	0.16	0.04	0	
2	16.86	16.86	33.292	24.238	367.4	0.007	5.51	240.5	99.4	1.0	0.27	0.1	0.03	0.00	0.16	0.04	2	20
10	16.84	16.83	33.301	24.251	366.5	0.037	5.51	240.4	99.4	0.7	0.25	0.0	0.00	0.00	0.14	0.04	10	19
20 ISL	16.69 D	16.69	33.346 D	24.320	360.3	0.070	5.55	D242.0	D 99.9	0.7	0.26	0.0	0.02	0.00	0.18	0.07	20	
20	16.69	16.69	33.346 D	24.320	360.3	0.070	5.51	D240.4	D 99.2								20	18
30	16.60	16.60	33.342	24.338	358.9	0.109	5.52	240.9	99.1	0.7	0.27	0.1	0.00	0.36	0.22	0.09	30	17
40	16.38	16.38	33.340	24.388	354.5	0.145	5.53	241.6	99.0	0.6	0.26	0.0	0.00	0.00	0.27	0.11	40	16
50	15.66	15.65	33.294	24.516	342.5	0.180	5.57	243.3	98.2	0.6	0.31	0.0	0.07	0.09	0.28	0.13	50	15
61	15.22	15.21	33.300	24.618	333.2	0.217	5.58	243.8	97.6	0.5	0.34	0.1	0.07	0.27	0.24	0.11	61	14
70	14.58	14.57	33.281	24.742	321.6	0.246	5.40	235.7	93.1	1.7	0.44	1.9	0.19	0.09	0.17	0.14	71	13
75 ISL	14.00 D	13.99	33.276 D	24.860	310.5	0.260	5.33	D232.3	D 90.8	3.1	0.56	3.8	0.14	0.00	0.15	0.14	76	
85	12.70	12.69	33.261	25.109	286.8	0.292	4.83	210.7	80.1	5.8	0.80	7.6	0.04	0.00	0.12	0.13	86	12
100	11.71	11.70	33.340	25.359	263.3	0.333	4.39	191.8	71.4	9.1	1.07	11.9	0.03	0.00	0.08	0.10	101	11
120	10.85	10.84	33.463	25.611	239.7	0.384	3.94	171.8	62.8	13.4	1.35	16.2	0.00	0.00	0.05	0.06	121	10
125 ISL	10.77 D	10.75	33.474 D	25.634	237.6	0.394	3.95	D171.9	D 62.9	14.9	1.42	17.3	0.02	0.00	0.04	0.05	126	
140	9.78	9.77	33.628	25.923	210.3	0.429	3.50	152.6	54.6	19.2	1.64	20.8	0.00	0.00	0.01	0.03	141	09
150 ISL	9.69 D	9.67	33.652 D	25.958	207.1	0.449	3.49	D151.8	D 54.3	21.1	1.71	22.0	0.01	0.00	0.01	0.03	151	
170	9.20	9.18	33.818	26.167	187.6	0.489	3.02	131.7	46.6	24.8	1.85	24.4	0.00	0.00	0.00	0.02	171	08
200	8.64	8.62	33.970	26.375	168.2	0.542	2.55	111.2	38.9	31.1	2.06	27.3	0.00	0.00	0.00	0.02	202	07
230	8.44	8.41	34.020	26.446	162.1	0.592	2.20	95.8	33.3	35.1	2.20	29.2	0.00	0.00			232	06
250 ISL	8.22 D	8.20	34.057 D	26.508	156.5	0.625	1.96	D 85.3	D 29.6	38.5	2.30	30.5	0.01	0.00			252	
270	7.91	7.88	34.083	26.575	150.3	0.654	1.72	74.9	25.8	42.0	2.40	31.8	0.00	0.00			272	05
300 ISL	7.63 D	7.60	34.113 D	26.640	144.6	0.700	1.44	D 62.6	D 21.5	46.8	2.54	33.4	0.01	0.00			302	
320	7.41	7.38	34.124	26.680	141.0	0.727	1.23	53.5	18.2	50.0	2.63	34.5	0.00	0.00			323	04
380	6.93	6.89	34.182	26.795	130.8	0.809	0.76	33.3	11.2	58.6	2.87	36.9	0.00	0.00			383	03
400 ISL	6.67 D	6.64	34.192 D	26.837	126.9	0.837	0.71	D 30.9	D 10.4	61.1	2.91	37.4	0.01	0.00			403	
440	6.49	6.45	34.217	26.881	123.2	0.885	0.54	23.8	7.9	66.0	2.98	38.6	0.00	0.00			444	02
500 ISL	6.03 D	5.99	34.248 D	26.965	115.7	0.960	0.40	D 17.3	D 5.7	73.8	3.11	40.2	0.00	0.00			504	
516	5.92	5.88	34.252	26.983	114.1	0.975	0.35	15.3	5.1	75.9	3.15	40.6	0.00	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 35.1 W	08/01/2017	0325 UTC	4116 m	160 15 kn			1018.1 mb	15.8 C	15.8 C				014

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.49	16.49	33.244	24.286	362.8	0.000	5.56	243.0	99.7	0.4	0.26	0.0	0.01	0.11	0.13	0.04	0	
2	16.49	16.49	33.244	24.286	362.8	0.007	5.56	243.0	99.7	0.4	0.26	0.0	0.00	0.11	0.13	0.04	2	20
10	16.49	16.49	33.245	24.288	363.0	0.036	5.56	242.7	99.6	0.4	0.30	0.0	0.00	0.00	0.12	0.04	10	19
20 ISL	16.39 D	16.39	33.249 D	24.314	360.8	0.069	5.59	D243.8	D100.0	0.4	0.28	0.0	0.00	0.00	0.14	0.04	20	
25	16.39	16.39	33.274	24.334	359.1	0.090	5.56	242.7	99.4	0.4	0.27	0.0	0.00	0.00	0.15	0.05	25	18
30 ISL	16.49 D	16.48	33.313 D	24.342	358.5	0.106	5.56	D242.5	D 99.7	0.5	0.28	0.0	0.00	0.00	0.18	0.06	30	
41	16.72	16.71	33.418	24.371	356.2	0.148	5.50	240.1	99.1	0.8	0.29	0.1	0.00	0.27	0.24	0.08	41	17
50	16.60	16.60	33.394	24.379	355.7	0.180	5.52	241.2	99.3	0.7	0.28	0.0	0.00	0.00	0.27	0.09	50	16
62	16.57	16.56	33.408	24.399	354.3	0.222	5.49	239.8	98.6	0.7	0.28	0.0	0.00	0.00	0.32	0.12	62	15
75	15.17	15.16	33.288	24.620	333.5	0.267	5.45	238.1	95.2	1.3	0.39	1.0	0.17	0.00	0.33	0.20	76	14
87	13.26	13.24	33.245 D	24.988	298.5	0.304	5.28	D230.2	D 88.6								88	13
100	11.94	11.93	33.274	25.265	272.3	0.342	4.83	210.7	78.8	6.8	0.88	9.1	0.00	0.00	0.10	0.13	101	12
112	11.21	11.19	33.373	25.478	252.2	0.373	4.21	184.0	67.7	10.9	1.20	13.9	0.00	0.00	0.07	0.11	113	11
125	10.46	10.45	33.434	25.656	235.4	0.405	4.05	176.8	64.1	13.9	1.39	17.0	0.00	0.11	0.04	0.07	126	10
140	9.90	9.88	33.546	25.839	218.2	0.439	3.64	159.0	57.0	17.4	1.56	19.8	0.00	0.00	0.02	0.04	141	09
150 ISL	9.58 D	9.56	33.627 D	25.956	207.3	0.460	3.53	D153.5	D 54.8	19.8	1.67	21.4	0.01	0.00	0.01	0.03	151	
170	9.20	9.18	33.788	26.143	189.8	0.500	2.98	129.9	45.9	24.6	1.89	24.6	0.00	0.00	0.00	0.02	171	08
200	8.86	8.84	33.911	26.295	176.0	0.555	2.67	116.6	40.9	28.5	2.02	26.6	0.00	0.00	0.00	0.02	202	07
230	8.56	8.53	34.006	26.417	164.9	0.606	2.24	97.9	34.1	33.6	2.19	28.9	0.00	0.00			232	06
250 ISL	8.33 D	8.30	34.037 D	26.477	159.5	0.639	2.12	D 92.4	D 32.2	36.8	2.29	30.0	0.01	0.00			252	
271	8.06	8.03	34.072	26.545	153.3	0.671	1.80	78.4	27.1	40.1	2.39	31.3	0.00	0.00			273	05
300 ISL	7.66 D	7.63	34.105 D	26.629	145.6	0.716	1.54	D 66.8	D 22.9	45.2	2.52	32.9	0.01	0.00			302	
321	7.41	7.38	34.117	26.675	141.5	0.745	1.32	57.7	19.6	48.9	2.62	34.2	0.00	0.00			324	04
379	6.88	6.84	34.179	26.799	130.4	0.824	0.81	35.1	11.8	58.6	2.90	36.9	0.00	0.00			382	03
400 ISL	6.68 D	6.65	34.192 D	26.836	127.1	0.853	0.70	D 30.2	D 10.1	61.2	2.94	37.5	0.01	0.00			403	
441	6.36	6.32	34.219	26.899	121.4	0.902	0.53	23.2	7.7	66.5	3.03	38.6	0.00	0.00			445	02
500 ISL	5.90 D	5.86	34.257 D	26.989	113.3	0.975	0.37	D 16.3	D 5.4	74.8	3.14	40.3	0.01	0.00			504	
518	5.79	5.75	34.252	26.999	112.4	0.992	0.36	15.8	5.2	77.4	3.18	40.8	0.00	0.00			522	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 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 30.9 N	122 15.0 W	08/01/2017	0857 UTC	4158 m	200 14 kn			1018.9 mb	17.5 C	17.0 C				015

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.40	16.40	33.222	24.290	362.4	0.000	5.57	243.3	99.6	0.8	0.24	0.1	0.02	0.00	0.15	0.03	0	
2	16.40	16.40	33.222	24.290	362.4	0.007	5.57	243.3	99.6	0.8	0.24	0.1	0.00	0.00	0.15	0.03	2	20
10	16.40	16.40	33.222	24.291	362.7	0.036	5.57	243.2	99.6	0.3	0.26	0.0	0.00	0.00	0.13	0.04	10	19
20 ISL	16.40 D	16.39	33.231 D	24.299	362.3	0.069	5.57	242.7	99.6	0.3	0.25	0.0	0.01	0.00	0.14	0.04	20	
25	16.37	16.37	33.255	24.323	360.1	0.090	5.57	243.1	99.5	0.3	0.25	0.0	0.00	0.00	0.15	0.04	25	18
30 ISL	16.42 D	16.41	33.281 D	24.334	359.3	0.106	5.55	242.1	99.4	0.3	0.26	0.0	0.01	0.00	0.17	0.05	30	
40	16.55	16.54	33.369	24.372	356.0	0.144	5.53	241.3	99.2	0.4	0.27	0.0	0.00	0.00	0.20	0.07	40	17
50 ISL	16.46 D	16.45	33.351 D	24.380	355.6	0.178	5.52	240.7	98.9	0.4	0.28	0.0	0.01	0.00	0.23	0.08	50	
51	16.45	16.44	33.361	24.390	354.7	0.183	5.52	241.1	98.9	0.4	0.28	0.0	0.00	0.00	0.24	0.08	51	16
61	16.44	16.43	33.355	24.387	355.3	0.219	5.54	241.9	99.2	0.4	0.30	0.0	0.00	0.00	0.31	0.12	61	15
75	15.83	15.82	33.307	24.489	346.0	0.268	5.50	240.2	97.3	0.6	0.33	0.2	0.14	0.15	0.31	0.17	76	14
88	14.50	14.49	33.242	24.730	323.4	0.311	5.38	235.0	92.6	1.8	0.47	1.9	0.23	0.00	0.24	0.18	89	13
100	12.90	12.89	33.198	25.022	295.6	0.348	5.19	226.7	86.4	3.5	0.64	5.0	0.04	0.00	0.16	0.17	101	12
112	12.11	12.09	33.211	25.186	280.2	0.383	5.05	220.5	82.7	4.7	0.76	7.1	0.03	0.00	0.11	0.10	113	11
125 ISL	10.98 D	10.97	33.342 D	25.494	251.0	0.417	4.60	D200.5	D 73.6	9.0	1.07	12.1	0.02	0.00	0.06	0.08	126	
126	10.86	10.84	33.315	25.495	250.9	0.420	4.56	199.2	72.7	9.3	1.09	12.4	0.00	0.00	0.06	0.07	127	10
140	10.03	10.01	33.438	25.733	228.3	0.454	4.11	179.6	64.5	14.9	1.42	17.7	0.00	0.00	0.02	0.04	141	09
150 ISL	9.54 D	9.53	33.564 D	25.912	211.4	0.475	3.92	D170.5	D 60.8	17.3	1.52	19.3	0.02	0.00	0.02	0.04	151	
170	9.12	9.10	33.728	26.110	192.9	0.516	3.49	152.1	53.6	22.1	1.72	22.6	0.00	0.00	0.00	0.03	171	08
200	8.81	8.78	33.906	26.299	175.5	0.572	2.86	124.7	43.7	28.0	1.95	25.9	0.00	0.00	0.00	0.02	202	07
230	8.59	8.56	33.988	26.398	166.7	0.623	2.34	102.2	35.7	32.3	2.15	28.5	0.00	0.00			232	06
250 ISL	8.41 D	8.38	34.032 D	26.460	161.1	0.656	2.28	D 99.4	D 34.7	34.9	2.22	29.3	0.01	0.00			252	
270	8.08	8.05	34.037	26.514	156.2	0.688	2.10	91.5	31.6	37.6	2.28	30.2	0.00	0.00			272	05
300 ISL	7.62 D	7.59	34.051 D	26.593	149.0	0.734	1.89	D 82.3	D 28.2	43.5	2.45	32.3	0.01	0.00			302	
320	7.38	7.35	34.081	26.650	143.8	0.762	1.51	65.9	22.4	47.5	2.56	33.7	0.00	0.00			323	04
381	6.71	6.67	34.125	26.779	132.1	0.847	0.98	42.7	14.3	58.1	2.85	36.8	0.00	0.00			384	03
400 ISL	6.62 D	6.58	34.147 D	26.808	129.6	0.873	0.84	D 36.4	D 12.2	61.0	2.90	37.5	0.01	0.00			403	
440	6.26	6.22	34.179	26.882	122.9	0.922	0.63	27.5	9.1	66.9	3.02	38.9	0.00	0.00			444	02
500 ISL	5.82 D	5.78	34.217 D	26.967	115.2	0.996	0.43	D 18.6	D 6.1	75.2	3.15	40.4	0.01	0.00			504	
516	5.75	5.71	34.240	26.994	112.8	1.011	0.35	15.3	5.0	77.4	3.19	40.8	0.00	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
30 10.9 N	122 55.1 W	08/01/2017	1536 UTC	3795 m	190 17 kn	110 03 06	1	1017.8 mb	18.5 C	18.0 C	19 m	4/8	ST	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	17.31	17.31	33.362	24.185	372.4	0.000	5.48	239.1	99.8	0.0	0.21	0.0	0.00	0.00	0.12	0.03	0	
2 A	17.31	17.31	33.362	24.185	372.5	0.007	5.48	239.1	99.7	0.0	0.21	0.0	0.00	0.00	0.12	0.03	2	24
10	17.32	17.32	33.363	24.185	372.8	0.037	5.48	239.4	99.9	0.7	0.23	0.0	0.00	0.00	0.11	0.02	10	22
10	17.32	17.32	33.362	24.184	372.9	0.037											10	23
14 A	17.32	17.32	33.367	24.187	372.8	0.052	5.46	238.3	99.4	0.3	0.21	0.0	0.00	0.00	0.11	0.03	14	21
20 ISL	17.42 D	17.41	33.406 D	24.195	372.2	0.071	5.46	D238.1 D	99.7	0.2	0.21	0.0	0.01	0.00	0.12	0.03	20	
21 A	17.41	17.41	33.411	24.200	371.8	0.078	5.44	237.6	99.4	0.2	0.21	0.0	0.00	0.00	0.12	0.03	21	20
30 ISL	17.55 D	17.54	33.459 D	24.205	371.6	0.109	5.45	D237.7 D	99.8	0.2	0.21	0.0	0.01	0.00	0.12	0.03	30	
34 A	17.55	17.54	33.462	24.208	371.5	0.127	5.42	236.7	99.3	0.2	0.21	0.0	0.00	0.00	0.12	0.03	34	19
46	17.51	17.50	33.469	24.224	370.5	0.171	5.41	236.3	99.0	0.2	0.22	0.0	0.00	0.00	0.14	0.04	46	18
50 ISL	17.49 D	17.48	33.458 D	24.220	370.9	0.183	5.45	D237.6 D	99.7	0.2	0.22	0.0	0.01	0.00	0.14	0.05	50	
58 A	17.47	17.46	33.461	24.227	370.6	0.216	5.42	236.6	99.1	0.2	0.23	0.0	0.00	0.00	0.16	0.05	58	17
69 A	17.47	17.46	33.458	24.226	371.1	0.256	5.45	238.0	99.7	0.2	0.25	0.0	0.00	0.00	0.18	0.06	70	16
75 ISL	17.51 D	17.50	33.475 D	24.229	371.0	0.277	5.44	D237.1 D	99.5	0.2	0.23	0.0	0.01	0.00	0.19	0.06	76	
77	17.53	17.51	33.484	24.233	370.8	0.286	5.41	236.2	99.0	0.2	0.22	0.0	0.00	0.00	0.19	0.06	78	15
84	17.26	17.25	33.484	24.296	365.0	0.312	5.47	238.7	99.5	0.4	0.23	0.0	0.00	0.00	0.24	0.13	85	13
85	17.04	17.03	33.484	24.348	360.0	0.315											86	14
95	15.75	15.74	33.505	24.660	330.4	0.350	5.47	238.9	96.7	1.0	0.25	0.0	0.08	0.00	0.26	0.21	96	12
100 ISL	15.35 D	15.33	33.426 D	24.690	327.6	0.366	5.52	D240.4 D	96.7	1.4	0.31	0.6	0.07	0.00	0.24	0.20	101	
110	13.96	13.95	33.314	24.900	307.7	0.398	5.33	232.7	90.7	2.1	0.44	1.8	0.06	0.00	0.19	0.16	111	11
125	12.26	12.24	33.287	25.217	277.6	0.442	5.00	218.2	82.1	4.7	0.71	6.2	0.03	0.00	0.10	0.11	126	10
140	11.33	11.31	33.319	25.414	259.0	0.482	4.68	204.3	75.4	8.3	1.00	10.8	0.00	0.00	0.06	0.07	141	09
150 ISL	10.57 D	10.56	33.392 D	25.605	240.9	0.508	4.60	D200.4 D	73.0	10.8	1.16	13.3	0.02	0.00	0.04	0.05	151	
170	9.66	9.64	33.507	25.849	217.9	0.553	4.02	175.6	62.6	15.9	1.47	18.3	0.00	0.00	0.01	0.03	171	08
200	9.06	9.04	33.745	26.132	191.5	0.615	3.54	154.4	54.4	22.1	1.71	22.2	0.00	0.00	0.00	0.02	202	07
231	8.62	8.60	33.904	26.327	173.4	0.671	3.15	137.5	48.0	27.4	1.89	25.0	0.00	0.00			233	06
250 ISL	8.35 D	8.32	33.962 D	26.415	165.4	0.704	2.87	D125.1 D	43.5	31.1	2.02	26.8	0.01	0.00			252	
270	8.01	7.99	33.998	26.493	158.1	0.736	2.51	109.6	37.8	35.1	2.16	28.7	0.00	0.00			272	05
300 ISL	7.63 D	7.60	34.026 D	26.572	151.0	0.783	2.18	D 94.8 D	32.5	40.8	2.33	30.8	0.01	0.00			302	
320	7.40	7.37	34.040	26.615	147.1	0.812	1.90	82.7	28.1	44.6	2.45	32.3	0.00	0.00			322	04
381	6.79	6.75	34.095	26.744	135.5	0.898	1.22	53.2	17.8	55.2	2.75	36.0	0.00	0.00			384	03
400 ISL	6.59 D	6.55	34.109 D	26.783	131.9	0.926	1.07	D 46.5 D	15.6	58.8	2.83	36.9	0.01	0.00			403	
441	6.21	6.17	34.162	26.873	123.6	0.976	0.69	30.1	10.0	66.7	2.99	38.7	0.00	0.00			445	02
500 ISL	5.96 D	5.92	34.223 D	26.954	116.6	1.050	0.46	D 20.2 D	6.7	73.1	3.13	39.7	0.01	0.00			504	
515	5.88	5.84	34.236	26.975	114.8	1.064	0.40	17.6	5.8	74.8	3.16	40.0	0.00	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 93.3 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
29 50.9 N	123 34.8 W	09/01/2017	0111 UTC	4140 m	200 14 kn	250 04 05	4	1017.5 mb	18.0 C	18.0 C		8/8	ST	017

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	17.77	17.77	33.417	24.118	378.8	0.000	5.43	236.9	99.8	0.6	0.21	0.0	0.00	0.00	0.10	0.03	0	
2	17.77	17.77	33.417	24.118	378.9	0.008	5.43	236.9	99.8	0.6	0.21	0.0	0.00	0.00	0.10	0.03	2	20
10	17.77	17.77	33.432	24.129	378.1	0.038	5.43	236.8	99.8	0.5	0.21	0.0	0.00	0.00	0.10	0.02	10	19
20 ISL	17.76 D	17.75	33.413 D	24.119	379.4	0.072	5.43	236.7	99.8	0.6	0.21	0.0	0.00	0.00	0.10	0.02	20	
25	17.75	17.74	33.415	24.123	379.3	0.095	5.43	237.1	99.8	0.6	0.21	0.0	0.00	0.00	0.10	0.02	25	21
30 ISL	17.75 D	17.74	33.413 D	24.122	379.5	0.111	5.43	236.7	99.8	0.6	0.21	0.0	0.00	0.00	0.11	0.02	30	
40	17.72	17.71	33.428	24.142	378.1	0.152	5.42	236.8	99.6	0.5	0.20	0.0	0.00	0.00	0.11	0.03	40	17
50	17.64	17.64	33.433	24.164	376.3	0.189	5.43	237.0	99.6	0.5	0.20	0.0	0.00	0.00	0.15	0.04	50	16
62	17.65	17.64	33.436	24.167	376.5	0.235	5.43	237.1	99.6	0.5	0.21	0.0	0.00	0.00	0.16	0.05	62	15
75	17.64	17.63	33.445	24.175	376.2	0.284	5.41	236.4	99.3	0.5	0.21	0.0	0.00	0.00	0.21	0.06	76	14
87	17.64	17.63	33.438	24.171	377.1	0.329	5.41	236.3	99.3	0.5	0.20	0.0	0.00	0.00	0.22	0.07	88	13
100	17.56	17.54	33.459	24.209	374.0	0.378	5.45	237.7	99.7	0.5	0.20	0.0	0.00	0.00	0.22	0.09	101	12
112	16.38	16.36	33.504	24.520	344.5	0.421	5.48	239.3	98.1	1.1	0.23	0.0	0.07	0.00	0.22	0.19	113	11
125 ISL	14.52 D	14.50	33.306 D	24.777	320.0	0.463	5.49	D239.0 D	94.5	1.9	0.37	1.0	0.12	0.00	0.17	0.13	126	
126	14.48	14.46	33.306	24.786	319.2	0.467	5.41	236.0	93.0	2.0	0.38	1.1	0.13	0.00	0.17	0.13	127	10
141	13.50	13.48	33.266	24.958	303.1	0.514	5.14	224.4	86.7	3.5	0.56	3.9	0.00	0.00	0.12	0.10	142	09
150 ISL	12.46 D	12.44	33.332 D	25.214	278.7	0.540	5.11	D222.6 D	84.4	5.8	0.75	6.9	0.02	0.00	0.09	0.08	151	
170	10.75	10.73	33.371	25.559	245.8	0.593	4.45	194.2	70.8	10.9	1.16	13.5	0.00	0.00	0.04	0.05	171	08
200 ISL	9.45 D	9.42	33.624 D	25.976	206.4	0.661	3.82	D166.4 D	59.2	18.8	1.57	20.2	0.01	0.00	0.01	0.02	202	
201	9.38	9.36	33.622	25.985	205.5	0.663	3.78	164.9	58.5	19.1	1.58	20.4	0.00	0.00	0.01	0.02	203	07
231	8.98	8.95	33.805	26.194	186.2	0.721	3.43	149.5	52.6	23.8	1.74	23.2	0.00	0.00			233	06
250 ISL	8.74 D	8.71	33.906 D	26.311	175.4	0.756	3.03	D131.8 D	46.2	28.0	1.90	25.3	0.00	0.00			252	
271	8.38	8.36	33.978	26.422	165.1	0.792	2.60	113.6	39.5	32.5	2.07	27.7	0.00	0.00			273	05
300 ISL	7.98 D	7.95	34.032 D	26.526	155.6	0.839	2.20	D 95.8 D	33.1	37.8	2.23	29.7	0.00	0.00			302	
322	7.67	7.64	34.038	26.577	151.0	0.872	2.01	87.6	30.0	41.8	2.35	31.3	0.00	0.00			325	04
382	6.93	6.90	34.095	26.725	137.4	0.959	1.22	53.4	17.9	54.1	2.69	35.6	0.00	0.00			385	03
400 ISL	6.78 D	6.74	34.109 D	26.757	134.5	0.985	1.10	D 47.7 D	16.0	56.8	2.76	36.4	0.00	0.00			403	
442	6.45	6.41	34.143	26.828	128.2	1.039	0.79	34.6	11.5	63.2	2.91	38.2	0.00	0.00			446	02
500 ISL	5.99 D	5.94	34.180 D	26.918	120.1	1.113	0.58	D 25.2 D	8.3	71.4	3.07	39.8	0.00	0.00			504	
516	5.90	5.86	34.197	26.941	118.0	1.130	0.49	21.4	7.0	73.6	3.12	40.3	0.00	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 93.4 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 57.1 N	117 17.3 W	06/01/2017	0352 UTC	26 m	320 04 kn			1015.0 mb	15.6 C	15.5 C				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	15.29	15.29	33.314	24.609	332.0	0.000	5.77	251.5	100.9	1.3	0.36	0.1	0.01	0.40	0.72	0.24	0	
1	15.29	15.29	33.314	24.609	332.1	0.003	5.77	251.5	100.9	1.3	0.36	0.1	0.00	0.40	0.72	0.24	1	05
5	15.29	15.29	33.319	24.613	331.7	0.017	5.74	250.6	100.5	1.3	0.31	0.0	0.00	0.00	0.71	0.21	5	04
10	15.29	15.29	33.318	24.614	331.9	0.033	5.76	251.3	100.8	1.3	0.33	0.1	0.00	0.31	0.74	0.23	10	03
15	15.28	15.27	33.342	24.635	330.0	0.050	5.76	251.3	100.8	1.3	0.36	0.0	0.00	0.00	0.74	0.23	15	02
20 ISL	15.26 D	15.26	33.341 D	24.638	329.9	0.066	5.78	D252.0 D	101.1	1.4	0.34	0.1	0.02	0.00	0.79	0.24	20	
25	15.25	15.25	33.340	24.640	329.9	0.083	5.72	249.6	100.1	1.4	0.32	0.1	0.00	0.00	0.84	0.25	25	01

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

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 76.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 53.3 N	121 12.3 W	19/01/2017	1914 UTC	14 m	1216 - 1845 PST	1216 PST	1746 PST	468.4 mg C/m2	073

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.06	33.321	25.082	5.60	93.7	7.7	0.76	6.3	0.28	0.14	1.04	0.33	80. A	15.8	20.1	18.0	0.32
11	13.01	33.321	25.092	5.57	93.0	7.6	0.74	6.3	0.27	0.13	1.01	0.44	30.	14.5	15.6	15.1	0.30
17	13.00	33.322	25.094	5.60	93.5	7.7	0.75	6.3	0.27	0.11	1.12	0.27	16.	13.9	14.1	14.0	0.66
26	12.98	33.322	25.099	5.56	92.8	7.6	0.74	6.3	0.27	0.13	0.93	0.37	5.8	9.0	8.9	8.9	0.33
36	12.94	33.336	25.119	5.43	90.6	7.9	0.77	6.7	0.30	0.13	0.70	0.37					
44	12.47	33.370	25.236	4.84	79.9	9.4	0.94	9.3	0.29	0.00	0.43	0.32	0.80	0.84	0.90	0.87	0.28
53	12.22	33.416	25.321	4.44	73.0	11.3	1.12	12.3	0.20	0.00	0.24	0.21	0.30	0.20	0.30	0.25	0.27

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 76.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 23.1 N	124 19.1 W	18/01/2017	1722 UTC	21 m	1228 - 1800 PST	1228 PST	1759 PST	60.1 mg C/m2	068

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	16.27	33.378	24.440	5.60	99.9	1.9	0.20	0.0	0.00	0.00	0.20	0.07	86. A	1.9	2.0	2.0	0.21
10	16.27	33.379	24.441	5.61	100.1	1.9	0.21	0.0	0.00	0.00	0.21	0.06					
16	16.28	33.382	24.442	5.60D	100.1	1.9	0.20	0.0	0.00	0.00	0.20	0.06	31.	1.5	1.7	1.6	0.27
25	16.28	33.377	24.439	5.60	99.9	1.9	0.21	0.0	0.00	0.00	0.22	0.04	16.	1.6	1.2	1.4	0.24
39	16.28	33.381	24.442	5.60	100.0	1.9	0.20	0.0	0.00	0.00	0.21	0.05	5.8	0.26	0.16	0.21	0.56
48	16.28	33.380	24.442	5.60	100.0	1.8	0.20	0.0	0.00	0.00	0.19	0.07					
56	16.29	33.380	24.442	5.60	100.0	1.8	0.20	0.0	0.00	0.00	0.19	0.07					
68	16.29	33.378	24.441	5.60	100.0	1.8	0.19	0.0	0.00	0.00	0.21	0.06	0.69	0.16	0.08	0.12	0.17
74	16.29	33.380	24.443	5.61	100.1	1.8	0.19	0.0	0.00	0.00	0.20	0.06					
79	16.29	33.378	24.442	5.60	100.0	1.8	0.20	0.0	0.00	0.00	0.20	0.06	0.31	0.28	0.09	0.19	0.17

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 80.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 48.9 N	121 50.5 W	17/01/2017	1749 UTC	11 m	1215 - 1805 PST	1218 PST	1754 PST	389.8 mg C/m2	064

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.63	33.174	24.853	6.12	103.5	1.7	0.29	0.0	0.00	0.00	1.00	0.23	76. A	14.5	14.8	14.7	0.44
10	13.63	33.172	24.853	6.12	103.5	1.6	0.29	0.0	0.00	0.00	1.00	0.25	25.	15.5	14.9	15.2	0.38
13	13.60	33.175	24.861	6.09	103.0	1.7	0.29	0.0	0.00	0.00	1.02	0.26	16.	14.6	14.3	14.5	0.40
21	13.58	33.184	24.871	6.07	102.4	1.6	0.29	0.0	0.00	0.00	1.22	0.31	5.3	12.4	11.3	11.8	0.35
28	13.55	33.198	24.890	6.02	101.6	1.7	0.30	0.1	0.04	0.00	1.10	0.34					
35	13.16	33.235	24.996	5.73	96.0	2.5	0.45	2.2	0.28	0.00	0.45	0.23	0.76	1.0	0.49	0.74	0.32
42	12.73	33.280	25.116	5.48	90.9	3.7	0.61	4.8	0.23	0.00	0.19	0.17	0.28	0.35	0.20	0.28	0.17

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 13.7 N	119 24.5 W	16/01/2017	1759 UTC	14 m	1205 - 1750 PST	1208 PST	1742 PST	667.0 mg C/m2	057

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.40	33.238	24.743	5.93	101.8	3.9	0.38	0.9	0.12	0.00	2.01	0.27	80. A	36.8	38.5	37.6	0.47
5	14.38	33.241	24.750	5.94	102.1	3.9	0.39	0.9	0.12	0.00	1.75	0.39					
11	14.23	33.244	24.784	5.85	100.1	4.1	0.39	1.2	0.14	0.00	1.66	0.36	30.	39.1	38.8	39.0	0.36
16	14.07	33.265	24.835	5.34	91.1	5.5	0.60	3.3	0.29	0.19	1.04	0.34	17.	16.4	17.4	16.9	0.34
26	14.03	33.276	24.851	5.22	89.0	5.9	0.68	3.6	0.34	0.38	1.09	0.40	5.8	12.3	11.8	12.0	0.27

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 14.5 N	121 26.8 W	15/01/2017	1827 UTC	14 m	1215 - 1810 PST	1215 PST	1745 PST	160.3 mg C/m2	051

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.81	33.174	24.605	5.79	100.3	1.5	0.31	0.1	0.04	0.00	0.34	0.13	80. A	5.3	5.2	5.2	0.21
10	14.81	33.174	24.606	5.79	100.3	1.5	0.28	0.1	0.03	0.00	0.34	0.12	33.	5.3	5.2	5.2	0.22
16	14.82	33.175	24.606	5.79	100.3	1.5	0.28	0.1	0.03	0.00	0.34	0.11	17.	5.3	5.3	5.3	0.22
26	14.81	33.172	24.606	5.79	100.2	1.5	0.31	0.1	0.03	0.00	0.33	0.12	5.8	3.3	2.9	3.1	0.22
36	14.79	33.175	24.614	5.79	100.2	1.5	0.28	0.1	0.03	0.00	0.36	0.12					
45	14.75	33.176	24.624	5.78	100.0	1.5	0.29	0.2	0.04	0.00	0.37	0.13	0.72	0.46	0.26	0.36	0.22
53	14.57	33.197	24.678	5.70	98.2	1.8	0.35	0.9	0.13	0.09	0.34	0.17	0.30	0.22	0.18	0.20	0.17

A) INCUBATION LIGHT INTENSITIES WERE 53.7, 30.5, 17.3, 5.6, 0.7, 0.29 PERCENT RESPECTIVELY.

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 83.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 54.4 N	124 10.2 W	14/01/2017	1851 UTC	18 m	1230 - 1820 PST	1226 PST	1758 PST	174.4 mg C/m2	047

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	14.97	33.093	24.510	5.81	100.9	1.8	0.28	0.1	0.00	0.37	0.29	0.08	77. A	3.4	3.5	3.4	0.22
9	14.96	33.093	24.511	5.79	100.5	1.8	0.27	0.0	0.00	0.09	0.31	0.07					
14	14.96	33.091	24.510	5.79	100.6	1.7	0.29	0.0	0.00	0.13	0.31	0.08	30.	4.6	4.1	4.4	0.21
21	14.96	33.092	24.512	5.78	100.4	1.7	0.26	0.0	0.00	0.00	0.29	0.09	17.	4.4	4.3	4.4	0.17
28	14.96	33.096	24.515	5.78	100.4	1.7	0.26	0.0	0.00	0.00	0.31	0.09					
34	14.98	33.102	24.517	5.78	100.3	1.7	0.26	0.0	0.00	0.00	0.33	0.08	5.5	3.0	2.6	2.8	0.19
46	14.43	33.176	24.691	5.64	97.0	2.3	0.40	1.4	0.19	0.17	0.41	0.21					
58	13.72	33.172	24.835	5.55	94.0	3.1	0.43	2.6	0.14	0.00	0.33	0.20	0.71	0.59	0.45	0.52	0.18
69	12.71	33.222	25.077	5.07	84.0	5.4	0.73	7.1	0.03	0.00	0.16	0.14	0.28	0.12	0.19	0.16	0.12

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 86.7 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 29.4 N	119 19.2 W	12/01/2017	1851 UTC	13 m	1206 - 1740 PST	1206 PST	1739 PST	460.9 mg C/m2	038

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	14.71	33.347	24.761	6.06	104.9	3.1	0.32	0.2	0.05	0.08	1.12	0.49	89. A	18.4	17.0	17.7	0.29
10	14.70	33.346	24.762	6.02	104.2	2.7	0.30	0.0	0.04	0.00	1.37	0.23	31.	17.6	17.9	17.8	0.25
15	14.57	33.346	24.792	5.99	103.3	2.6	0.32	0.0	0.04	0.07	1.13	0.32	17.	16.5	16.1	16.3	0.31
24	14.32	33.349	24.846	5.90	101.3	2.8	0.37	0.9	0.08	0.09	0.85	0.36	5.9	7.9	7.4	7.7	0.34
33	14.20	33.357	24.879	5.64	96.6	3.2	0.44	2.1	0.16	0.16	0.75	0.26					
42	13.73	33.355	24.974	5.40	91.5	4.3	0.56	4.0	0.26	0.09	0.51	0.20	0.70	2.2	0.90	1.6	0.17
50	13.37	33.353	25.046	5.19	87.3	5.4	0.68	5.9	0.27	0.06	0.39	0.25	0.27	0.32	0.34	0.33	0.14

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 19.2 N	121 43.2 W	13/01/2017	1908 UTC	12 m	1215 - 1815 PST	1216 PST	1752 PST	266.7 mg C/m2	043

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	14.90	33.287	24.675	5.94	103.1	1.7	0.30	0.1	0.04	0.08	0.64	0.18	88. A	6.7	6.8	6.8	0.27
9	14.89	33.286	24.676	5.94	103.1	1.2	0.34	0.1	0.03	1.54	0.64	0.19	32.	8.9	8.8	8.9	0.28
14	14.89	33.288	24.677	5.95	103.3	1.0	0.29	0.0	0.03	0.00	0.63	0.19	17.	8.1	8.8	8.4	0.24
24	14.89	33.286	24.677	5.92	102.7	1.0	0.29	0.0	0.03	0.07	0.65	0.22	4.6	7.0	6.7	6.8	0.26
31	14.77	33.289	24.705	5.94	102.9	1.0	0.28	0.0	0.03	0.00	0.66	0.19					
38	14.46	33.319	24.795	5.69	98.0	1.3	0.41	1.2	0.29	0.14	0.53	0.28	0.77	3.7	1.4	2.6	0.16
46	14.19	33.333	24.864	5.71	97.7	1.1	0.43	1.3	0.37	0.34	0.35	0.23	0.28	0.35	0.46	0.40	0.17

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 25.1 N	117 54.1 W	11/01/2017	1701 UTC	14 m	1205 - 1745 PST	1200 PST	1732 PST	165.6 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	15.44	33.332	24.591	5.74	100.8	2.2	0.31	0.0	0.00	0.00	0.34	0.10	80. A	4.7	4.8	4.8	0.20
10	15.44	33.332	24.592	5.73	100.6	2.0	0.30	0.0	0.00	0.00	0.33	0.12	33.	5.8	5.9	5.9	0.23
16	15.44	33.335	24.594	5.75	100.9	2.0	0.29	0.0	0.00	0.00	0.36	0.11	17.	5.8	5.9	5.9	0.22
24	15.41	33.335	24.602	5.72	100.4	2.0	0.29	0.0	0.00	0.00	0.38	0.11	7.2	2.9	2.9	2.9	1.5
33	15.18	33.334	24.652	5.66	98.9	2.6	0.33	0.0	0.05	0.00	1.26	0.31					
42	14.57	33.321	24.773	5.27	90.9	3.9	0.50	2.2	0.29	0.12	0.50	0.25	1.0	1.6	0.96	1.3	0.19
49	13.65	33.303	24.951	4.81	81.4	5.9	0.72	5.7	0.18	0.00	0.31	0.22	0.46	0.26	0.22	0.24	0.20

RV REUBEN LASKER — CALCOFI CRUISE 1701 — STATION 90.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 25.2 N	119 57.5 W	10/01/2017	1818 UTC	20 m	1208 - 1745 PST	1208 PST	1738 PST	291.0 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	15.95	33.365	24.503	5.66	100.5	1.7	0.29	0.0	0.00	0.00	0.29	0.07	86. A	5.0	4.6	4.8	0.16
8	15.88	33.367	24.520	5.72	101.3	1.7	0.28	0.0	0.00	0.00	0.29	0.07					
15	15.78	33.370	24.546	5.74D	101.5	1.7	0.28	0.0	0.00	0.00	0.32	0.09	32.	4.7	4.8	4.7	0.23
23	15.65	33.375	24.578	5.75	101.4	1.7	0.29	0.0	0.00	0.00	0.43	0.15	17.	5.8	5.9	5.9	0.21
31	15.39	33.371	24.633	5.69	99.9	1.7	0.31	0.0	0.03	0.00	0.68	0.25					
39	15.18	33.363	24.675	5.57	97.4	2.0	0.36	0.6	0.12	0.00	0.56	0.28	5.0	5.9	5.8	5.8	0.18
47	14.66	33.335	24.766	5.43	93.8	2.8	0.46	2.1	0.24	0.00	0.34	0.23					
57	13.98	33.309	24.890	5.26	89.6	3.8	0.57	3.8	0.17	0.00	0.25	0.17					
64	13.08	33.284	25.052	4.90	82.0	6.5	0.78	6.9	0.06	0.00	0.20	0.19	0.74	0.53	0.44	0.48	0.10
76	12.17	33.332	25.267	4.58	75.1	8.6	0.96	9.9	0.04	0.00	0.13	0.15	0.29	0.16	0.19	0.17	0.08

A) INCUBATION LIGHT INTENSITIES WERE 53.7, 30.5, 17.3, 5.6, 0.7, 0.29 PERCENT RESPECTIVELY.

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 5.1 N	122 39.5 W	09/01/2017	1748 UTC	31 m	1215 - 1800 PST	1218 PST	1749 PST	139.6 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	16.75	33.208	24.199	5.55	100.0	1.1	0.22	0.0	0.00	0.00	0.12	0.03	91. A	2.7	1.8	2.2	0.10
12	16.74	33.222	24.212	5.53	99.6	1.1	0.21	0.0	0.00	0.00	0.12	0.04					
24	16.86	33.261	24.217	5.51	99.5	1.1	0.22	0.0	0.00	0.00	0.13	0.04	30.	1.6	1.6	1.6	0.12
35	16.97	33.312	24.229	5.50	99.5	1.1	0.22	0.0	0.00	0.00	0.14	0.04	18.	1.5	1.7	1.6	0.12
58	16.78	33.279	24.252	5.50	99.1	1.1	0.23	0.0	0.00	0.00	0.22	0.08	5.7	1.6	1.4	1.5	0.16
72	15.82	33.283	24.473	5.63	99.5	1.6	0.24	0.0	0.05	0.00	0.26	0.16					
86	14.77	33.330	24.741	5.56	96.4	2.3	0.30	0.6	0.14	0.00	0.27	0.16					
99	13.71	33.303	24.943	5.40	91.5	3.3	0.43	2.5	0.06	0.00	0.20	0.19	0.74	0.38	0.29	0.34	0.10
108	12.82	33.281	25.104	5.21	86.7	4.4	0.55	4.5	0.00	0.00	0.15	0.14					
118	12.21	33.289	25.227	4.94	81.1	6.7	0.75	7.7	0.00	0.00	0.10	0.10	0.29	0.04	0.04	0.04	0.11

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 93.3 40.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 30.8 N	118 11.7 W	06/01/2017	1905 UTC	20 m	1210 - 1730 PST	1159 PST	1731 PST	280.5 mg C/m2	007

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.97	33.387	24.516	5.64	100.0	0.6	0.28	0.1	0.03	0.10	0.36	0.12	86. A	3.6	3.4	3.5	0.26
8	15.96	33.386	24.517	5.67	100.7	0.0	0.28	0.0	0.00	0.00	0.35	0.11					
15	15.86	33.387	24.540	5.62	99.6	0.0	0.34	0.0	0.00	0.00	0.37	0.13	32.	5.3	5.5	5.4	0.21
23	15.85	33.384D	24.542	5.64	99.9	0.0	0.30	0.0	0.00	0.00	0.42	0.14	17.	6.3	5.9	6.1	0.21
30	15.84	33.386	24.545	5.63	99.7	0.0	0.29	0.0	0.00	0.00	0.40	0.14					
40	15.84	33.387	24.547	5.64	99.8	0.0	0.28	0.0	0.00	0.00	0.43	0.15	4.6	5.2	5.1	5.2	0.20
47	15.32	33.379	24.656	5.59	97.9	0.2	0.31	0.0	0.05	0.00	0.59	0.31					
57	13.64	33.254	24.916	5.00	84.5	3.9	0.70	5.6	0.06	0.00	0.29	0.26					
65	12.65	33.269	25.125	4.70	77.9	6.2	0.89	8.7	0.04	0.00	0.20	0.21	0.68	0.41	0.39	0.40	0.29
78	11.75	33.332	25.346	4.35	70.8	9.2	1.12	12.3	0.03	0.00	0.11	0.15	0.25	0.22	0.31	0.26	0.06

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 93.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 31.1 N	120 14.6 W	07/01/2017	1645 UTC	17 m	1208 - 1745 PST	1208 PST	1747 PST	291.4 mg C/m2	012

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.53	33.284	24.534	5.71	100.4	0.7	0.29	0.0	0.00	0.00	0.38	0.12	83. A	6.2	6.2	6.2	0.21
13	15.53	33.284	24.535	5.70	100.3	0.8	0.28	0.0	0.00	0.00	0.41	0.10	31.	6.7	7.0	6.9	0.18
19	15.48	33.289	24.550	5.72	100.5	0.6	0.29	0.0	0.00	0.00	0.43	0.13	18.	7.1	7.3	7.2	0.17
26	15.42	33.301	24.573	5.69	99.8	0.6	0.30	0.0	0.00	0.00	0.51	0.20					
32	15.41	33.298	24.574	5.68	99.6	0.6	0.31	0.0	0.00	0.00	0.55	0.20	5.6	5.3	7.1	6.2	0.48
42	15.39	33.304	24.583	5.65	99.0	0.6	0.30	0.1	0.03	0.00	0.51	0.24					
54	15.38	33.298	24.580	5.65	99.1	0.6	0.31	0.1	0.04	0.00	0.45	0.21	0.76	0.58	0.42	0.50	0.44
65	15.34	33.299	24.592	5.63	98.6	0.7	0.32	0.1	0.05	0.00	0.35	0.19	0.28	0.20 B	0.20 B	0.20	0.14

B) PRODUCTIVITY REPLICATES POOR UNCERTAIN VALUE ELIMINATED

RV REUBEN LASKER CALCOFI CRUISE 1701 STATION 93.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
30 10.9 N	122 55.1 W	08/01/2017	1536 UTC	19 m	1217 - 1840 PST	1219 PST	1758 PST	80.7 mg C/m2	016

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	17.31	33.362	24.185	5.48	99.7	0.0	0.21	0.0	0.00	0.00	0.12	0.03	85. A	1.4 B	1.4 B	1.4	0.12
10	17.32	33.363	24.185	5.48	99.9	0.7	0.23	0.0	0.00	0.00	0.11	0.02					
14	17.32	33.367	24.187	5.46	99.4	0.3	0.21	0.0	0.00	0.00	0.11	0.03	32.	1.6	1.4	1.5	0.11
21	17.41	33.411	24.200	5.44	99.4	0.2	0.21	0.0	0.00	0.00	0.12	0.03	18.	1.5	1.4	1.4	0.10
34	17.55	33.462	24.208	5.42	99.3	0.2	0.21	0.0	0.00	0.00	0.12	0.03	6.4	0.79	0.74	0.76	0.08
46	17.51	33.469	24.224	5.41	99.0	0.2	0.22	0.0	0.00	0.00	0.14	0.04					
58	17.47	33.461	24.227	5.42	99.1	0.2	0.23	0.0	0.00	0.00	0.16	0.05	0.92	0.11	2.0	1.0	0.12
69	17.47	33.458	24.226	5.45	99.7	0.2	0.25	0.0	0.00	0.00	0.18	0.06	0.38	0.04	0.11	0.07	0.09

B) PRODUCTIVITY REPLICATES POOR UNCERTAIN VALUE ELIMINATED

A) INCUBATION LIGHT INTENSITIES WERE 53.7, 30.5, 17.3, 5.6, 0.7, 0.29 PERCENT RESPECTIVELY.

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505mm

Line	Sta.	Latitude N	Longitude W	Date Mo/Day	Time (PST) Start	Time (PST) End	Water Volume Strained (m^3)	Max. Tow Depth (m)	Volume per 1000 m^3 Strained Total (cm^3)	Volume per 1000 m^3 Strained Small (cm^3)
63.3	52.0	37 18.8	122 37.1	01/27	1200	1206	134	51	60	60
63.3	55.0	37 12.5	122 50.1	01/27	1657	1718	466	205	122	122
66.7	50.0	36 47.2	122 03.4	01/27	0727	0746	385	189	67	67
66.7	55.0	36 37.2	122 24.9	01/27	0434	0455	462	193	247	208
70.0	51.0	36 10.3	121 43.5	01/26	2114	2135	408	204	123	123
70.0	55.0	36 03.1	122 00.3	01/26	2347	0008	454	203	291	265
73.3	50.0	35 38.3	121 15.3	01/26	1331	1333	69	17	15	15
73.3	55.0	35 28.5	121 36.5	01/26	1616	1637	440	200	64	64
76.7	49.0	35 05.3	120 46.5	01/19	1819	1824	131	46	69	69
76.7	51.0	35 01.2	120 55.2	01/19	1554	1615	536	182	291	71
76.7	55.0	34 53.4	121 11.9	01/19	1214	1235	495	209	24	24
76.7	60.0	34 43.3	121 33.0	01/19	0801	0822	532	199	85	55
76.7	70.0	34 23.2	122 14.7	01/19	0200	0221	505	201	442	260
76.7	80.0	34 03.2	122 56.3	01/18	2017	2038	480	203	421	380
76.7	90.0	33 43.3	123 38.0	01/18	1515	1536	474	198	11	11
76.7	100.0	33 23.4	124 19.4	01/18	0826	0847	464	214	4	4
80.0	50.5	34 27.7	120 29.7	01/16	1931	1933	63	16	47	47
80.0	51.0	34 26.9	120 31.5	01/16	2055	2101	141	52	78	78
80.0	55.0	34 19.3	120 47.7	01/17	0012	0033	479	197	94	94
80.0	60.0	34 09.0	121 09.1	01/17	0408	0429	480	200	281	281
80.0	70.0	33 48.9	121 50.6	01/17	0849	0910	411	205	182	182
80.0	80.0	33 29.0	122 31.9	01/17	1548	1609	468	202	26	26
80.0	90.0	33 09.0	123 12.8	01/17	2131	2152	417	203	127	127
80.0	100.0	32 48.8	123 54.5	01/18	0308	0329	445	206	90	90
81.7	43.5	34 23.8	119 47.2	01/16	1307	1309	64	23	16	16
81.8	46.9	34 16.5	120 01.4	01/16	1623	1644	502	193	40	28
83.3	39.4	34 15.6	119 20.3	01/16	0905	0906	43	12	23	23
83.3	40.6	34 13.6	119 24.4	01/16	1041	1043	50	16	180	180
83.3	42.0	34 10.7	119 30.4	01/16	0724	0735	235	108	17	17
83.3	51.0	33 52.1	120 07.9	01/16	0109	0123	361	128	61	61
83.3	55.0	33 44.7	120 24.4	01/15	2157	2218	433	203	86	86
83.3	60.0	33 34.7	120 45.2	01/15	1750	1811	500	189	74	54
83.3	70.0	33 14.7	121 26.3	01/15	1144	1205	478	203	40	40
83.3	80.0	32 54.6	122 07.7	01/15	0527	0548	462	200	69	69
83.3	90.0	32 34.3	122 49.0	01/14	2330	2351	473	199	51	51
83.3	100.0	32 14.7	123 29.5	01/14	1741	1803	507	204	55	55
83.3	110.0	31 54.2	124 09.7	01/14	1150	1211	479	199	61	61
85.4	35.8	34 00.6	118 50.5	01/12	0031	0034	83	26	60	60
86.7	33.0	33 53.5	118 29.3	01/11	2204	2208	108	38	46	46
86.7	35.0	33 49.4	118 37.7	01/12	0349	0410	460	206	46	46
86.7	40.0	33 39.4	118 58.4	01/12	0805	0826	486	204	6	6
86.7	45.0	33 29.5	119 19.0	01/12	1213	1234	443	189	50	34
86.7	50.0	33 19.3	119 39.8	01/12	1657	1702	150	37	401	67
86.7	55.0	33 09.4	120 00.3	01/12	2040	2101	421	205	119	95
86.7	60.0	32 59.9	120 20.4	01/13	0034	0055	482	203	122	108
86.7	70.0	32 39.4	121 01.6	01/13	0632	0653	523	199	69	69
86.7	80.0	32 19.3	121 42.5	01/13	1206	1228	482	202	118	68
86.7	90.0	31 59.4	122 23.6	01/13	1740	1801	491	192	69	69
86.7	100.0	31 39.3	123 03.5	01/13	2322	2343	465	203	39	39
86.7	110.0	31 19.4	123 44.6	01/14	0523	0544	497	202	131	131
86.8	32.5	33 53.3	118 26.8	01/11	2046	2048	73	16	55	55
88.5	30.1	33 39.8	118 04.9	01/11	1707	1709	47	11	22	22
90.0	27.7	33 29.3	117 45.2	01/11	1429	1432	85	14	24	24
90.0	28.0	33 29.0	117 46.2	01/11	1327	1340	277	128	29	29
90.0	30.0	33 25.1	117 54.3	01/11	0809	0829	442	205	27	16
90.0	35.0	33 15.0	118 14.9	01/11	0455	0516	451	210	58	40
90.0	37.0	33 11.1	118 23.5	01/11	0151	0212	434	205	71	71
90.0	45.0	32 55.0	118 56.2	01/10	2037	2058	421	213	47	47
90.0	53.0	32 39.1	119 29.1	01/10	1514	1535	443	207	84	84
90.0	60.0	32 25.1	119 57.7	01/10	0923	0944	434	207	85	53
90.0	70.0	32 05.0	120 38.4	01/10	0417	0438	440	213	203	93
90.0	80.0	31 45.1	121 18.9	01/09	2235	2256	422	205	57	57
90.0	90.0	31 24.9	121 59.5	01/09	1646	1707	460	199	57	57
90.0	100.0	31 05.2	122 39.4	01/09	1059	1120	431	207	19	19
90.0	110.0	30 45.2	123 19.9	01/09	0503	0524	469	211	17	17
90.0	120.0	30 25.2	123 59.8	01/08	2322	2343	485	197	17	17
91.7	26.4	33 13.9	117 28.4	01/05	2234	2237	99	19	10	10
93.3	26.7	32 57.3	117 18.4	01/05	1913	1918	145	38	48	48
93.3	28.0	32 54.7	117 23.7	01/06	0213	0234	494	196	122	51
93.3	30.0	32 50.8	117 31.9	01/06	0445	0506	492	206	45	35
93.3	35.0	32 40.8	117 52.4	01/06	0823	0844	460	208	13	13
93.3	40	32 30.9	118 11.8	01/06	1210	1231	444	214	11	11
93.3	45	32 20.8	118 33.1	01/06	1605	1626	448	204	18	18
93.3	50	32 10.6	118 53.6	01/06	1935	1956	493	190	47	47
93.3	55	32 00.8	119 13.7	01/06	2308	2329	382	212	115	37
93.3	60	31 50.9	119 33.9	01/07	0253	0314	426	210	54	54
93.3	70	31 30.8	120 14.7	01/07	0742	0803	457	204	20	20
93.3	80	31 11.0	120 54.2	01/07	1433	1454	452	201	31	31
93.3	90	30 50.6	121 35.3	01/07	2024	2045	446	206	52	52
93.3	100	30 31.1	122 15.2	01/08	0154	0215	429	210	58	58
93.3	110	30 10.8	122 55.3	01/08	0639	0700	430	205	14	14
93.3	120	29 51.0	123 34.9	01/08	1312	1333	482	199	12	12
93.4	26.4	32 57.1	117 17.3	01/05	2008	2010	63	13	16	16