UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 1601
6 January - 29 January, 2016

CC Reference 17 - 01
22 Feb., 2017

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI Cruise 1601
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INTRODUCTION

The data presented in this report were collected during cruise 1601* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the RV 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. Occasional stations have multiple bottles tripped at the same depth to provide more water for ancillary programs. Additional bottle depths also appear in combined hydrographic and primary productivity casts. The sample spacing was designed to sample depth intervals as close as 10 meters around the sharp upper thermocline features such as the chlorophyll, oxygen, nitrite maxima and the shallow salinity minimum. Salinity, oxygen and nutrients were determined at sea for all depths sampled. Chlorophyll-*a* and phaeopigments were determined at sea on samples from the top 200 meters, bottom depth permitting.

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

Salinity samples were collected from all rosette bottles and analyzed at sea using a Guildline model 8410 Portasal salinometer. Salinity samples were drawn into 200 ml Kimax high-alumina borosilicate bottles that were rinsed three times with sample prior to filling. The results were compared with the CTD salinity to verify that the rosette bottle did not mis-trip or leak. The salinometer was standardized before and after each group of samples with standardized seawater. Periodic checks on the conductivity of the standardized seawater were made by comparison with IAPSO Standard Seawater batch P155. Salinity values were calculated using the algorithms for the Practical Salinity Scale, 1978 (UNESCO, 1981a) and are reported to three decimal places, provided that accepted standards were met.

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

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

Nutrient samples were analyzed at sea using a QuAAtro continuous flow analyzer (SEAL Analytical). Dissolved silicate, nitrate, and nitrite were analyzed using a modification of the method described by Armstrong (1967) and Gordon et al. (1992). Phosphate was measured with a modification of the Murphy and Riley (1962) protocol and ammonium is analyzed using a modified fluorometric method described by Kerouel and Aminot (1997). Samples were collected in 45ml high-density polypropylene screw top tubes which were acid washed and rinsed with sample three times prior to filling. Standardizations and cadmium-reduction coil efficiency determinations were performed at the beginning of every run. Drift and baseline corrections were performed in each run using a high standard and blank respectively inserted before and after sample sets. A sample of reference material for nutrients in seawater (RMNS), produced by KANSO technos (www.kanso.co.jp) was included in every run and those data were monitored throughout the cruise and available to adjust values for nitrate, nitrite, phosphate, and silicate if appropriate. 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.

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 10.36 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 Thermosalinograph for internal, SBE 38 Thermosalinograph for external, and a WetLabs WETstar fluorometer. 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) *Inorganic Carbon System*: The CalCOFI group collected samples for the characterization of the inorganic carbon system at selected locations along the cruise track with 14 profile and 8 additional surface water stations. Total inorganic carbon and alkalinity will be measured which will allow the calculation of pH and pCO_2. The objectives of these measurements are first the long-term characterization of the inorganic carbon system and its response to changing ocean climate and second measurements of pH in the coastal zone in order to monitor the impact of 'corrosive' waters on benthic ecosystems in the Southern California Bight. (R. Goericke, SIO)

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

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

TABULATED DATA

CTD/Rosette Cast Data

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

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

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

Primary Productivity Data

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

Macrozooplankton Data

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

FOOTNOTES

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

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

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

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

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PERSONNEL

CalCOFI Cruise 1601

SHIP'S CAPTAIN

Chris Skipen, R/V *Reuben Lasker*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Legs)
Griffith, David (Chief Scientist)	Fishery Biologist, NMFS	1
Chastan, Adam	Volunteer	1
Dovel, Shonna	Staff Research Associate, SIO	1
Hays, Amy	Fishery Biologist, NMFS	1
Manion, Sue	Fishery Biologist, NMFS	1
Miller, Melissa	Staff Research Associate, SIO	1
Overcash, Bryan	Fishery Biologist, NMFS	1
Roadman, Megan	Staff Research Associate, SIO	1
Rodgers-Wolgast, Jennifer	Staff Research Associate, SIO	1
Tricky, Jenny	Marine Mammal Observer, MPL	1
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, 6-29 January, 2016

FIGURES

Cruise 1601

1. CalCOFI Cruise 1601 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.

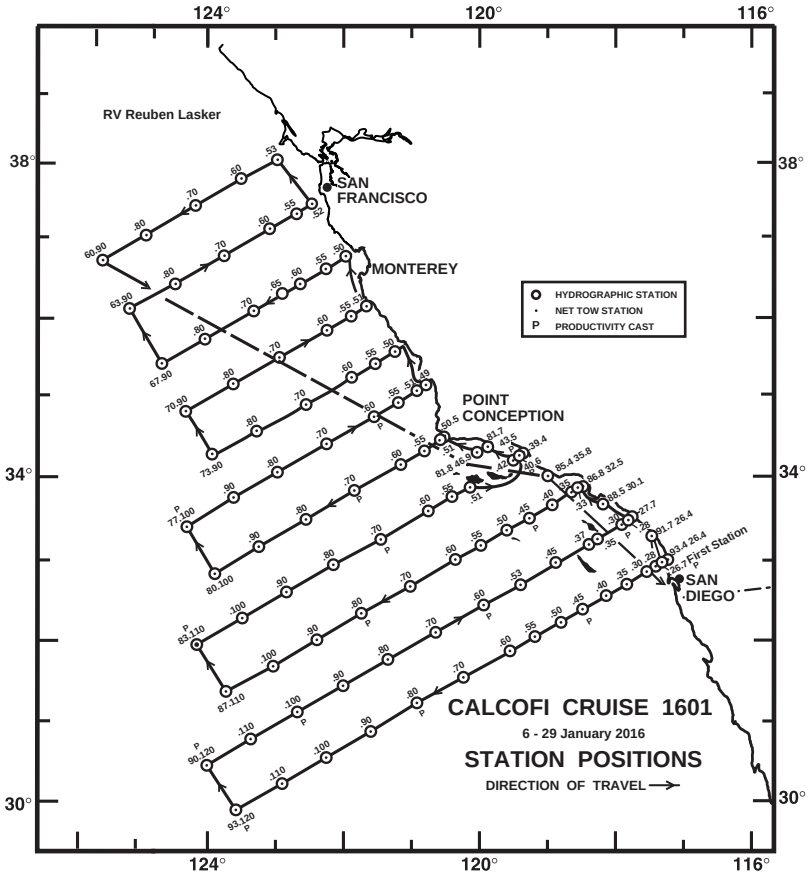

FIGURE 1

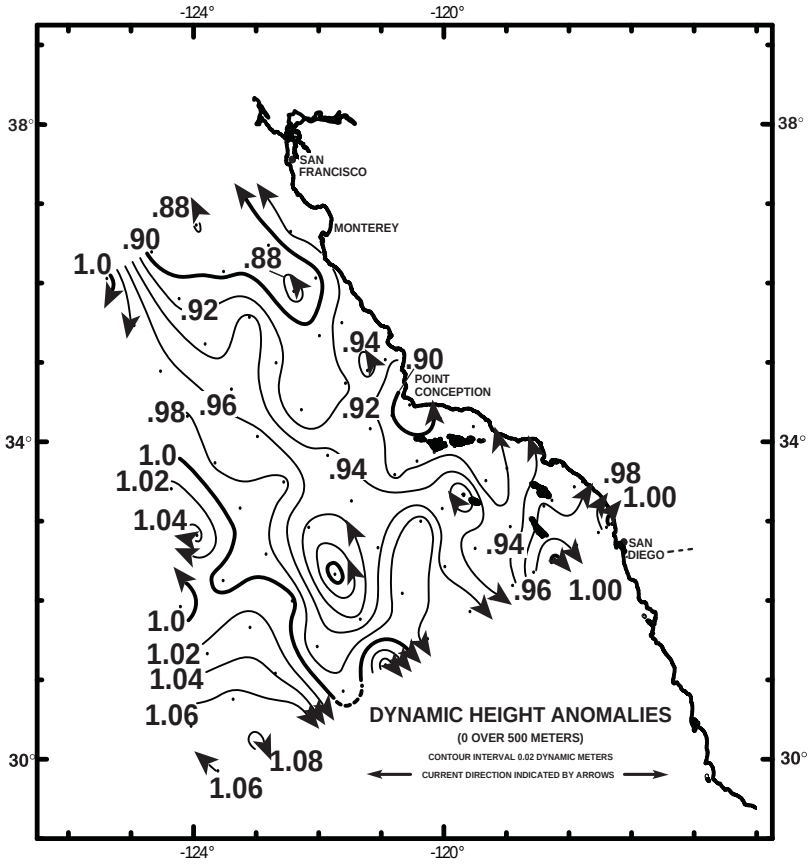

FIGURE 2

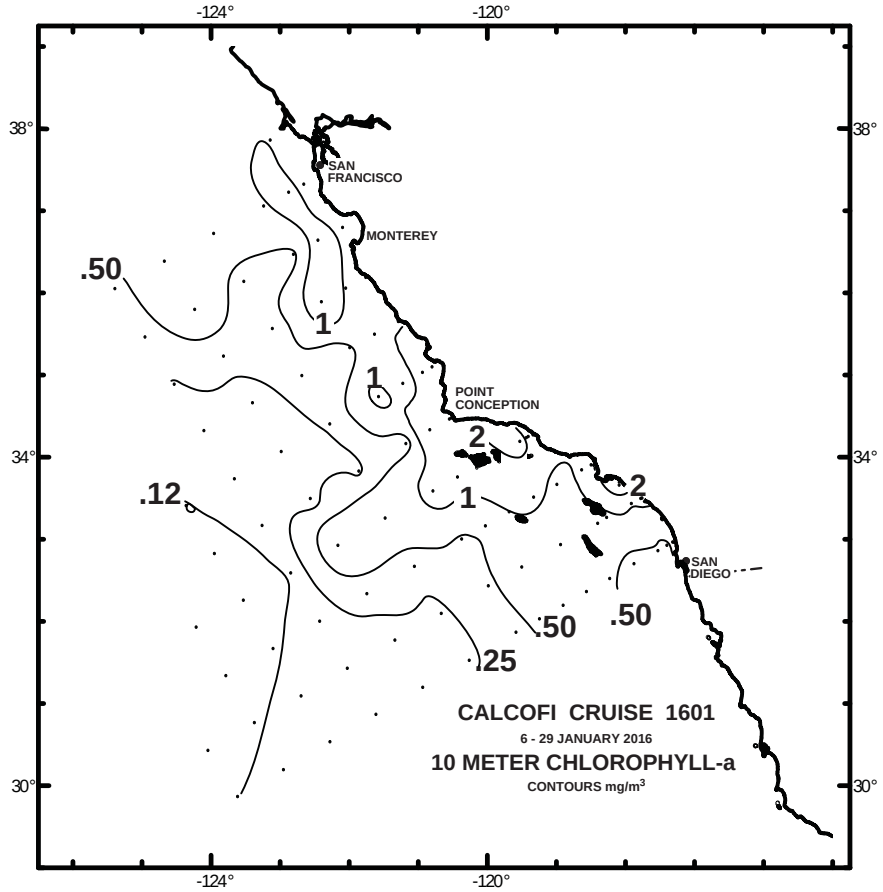

FIGURE 3A

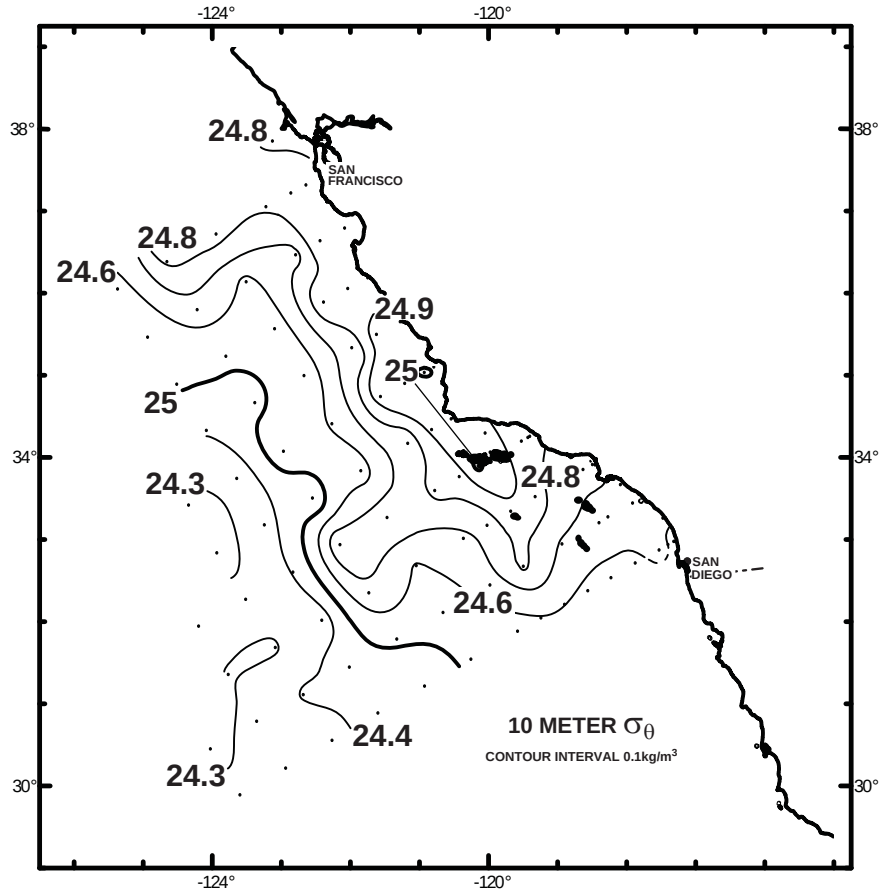

FIGURE 3B

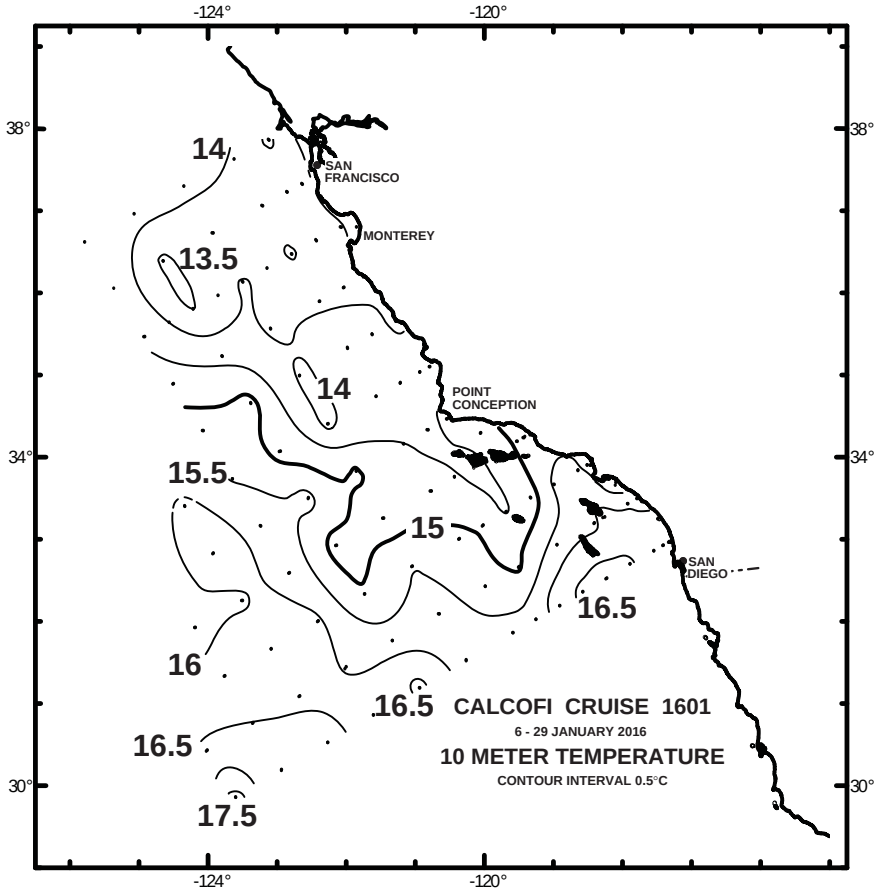

FIGURE 3C

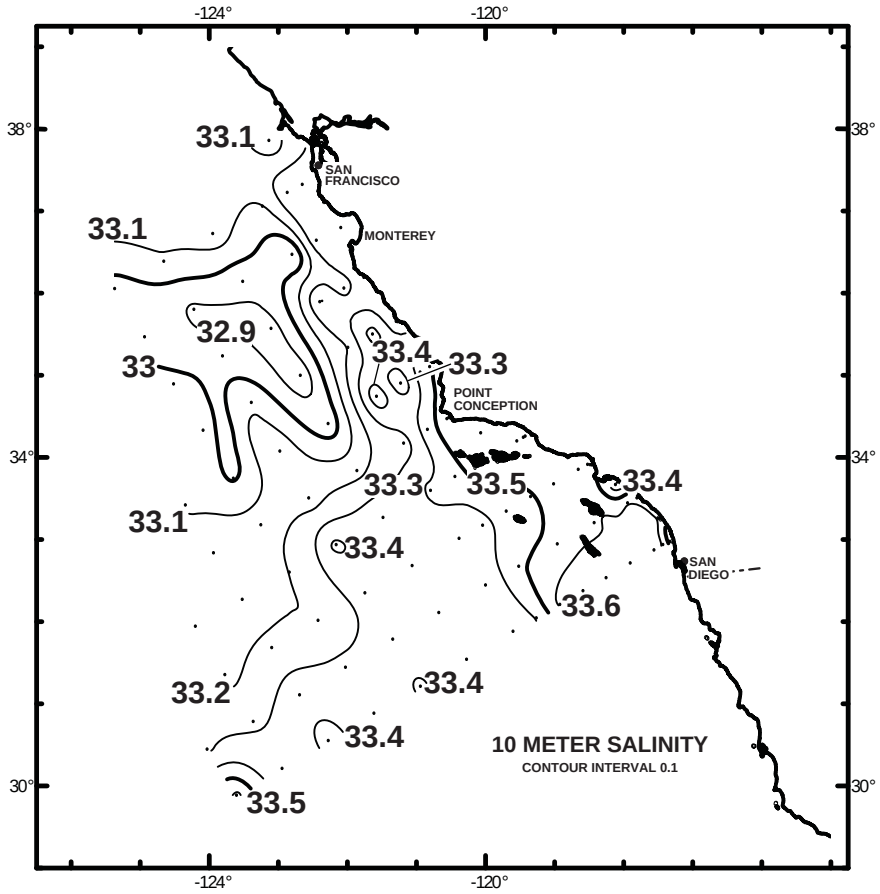

FIGURE 3D

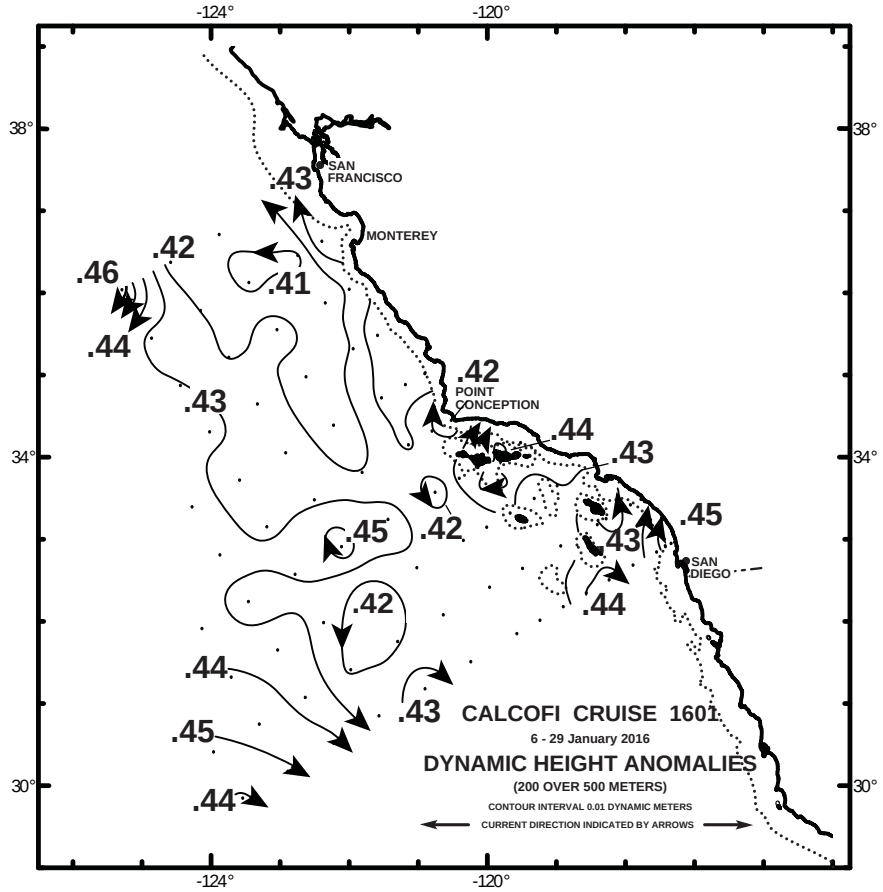

FIGURE 4A

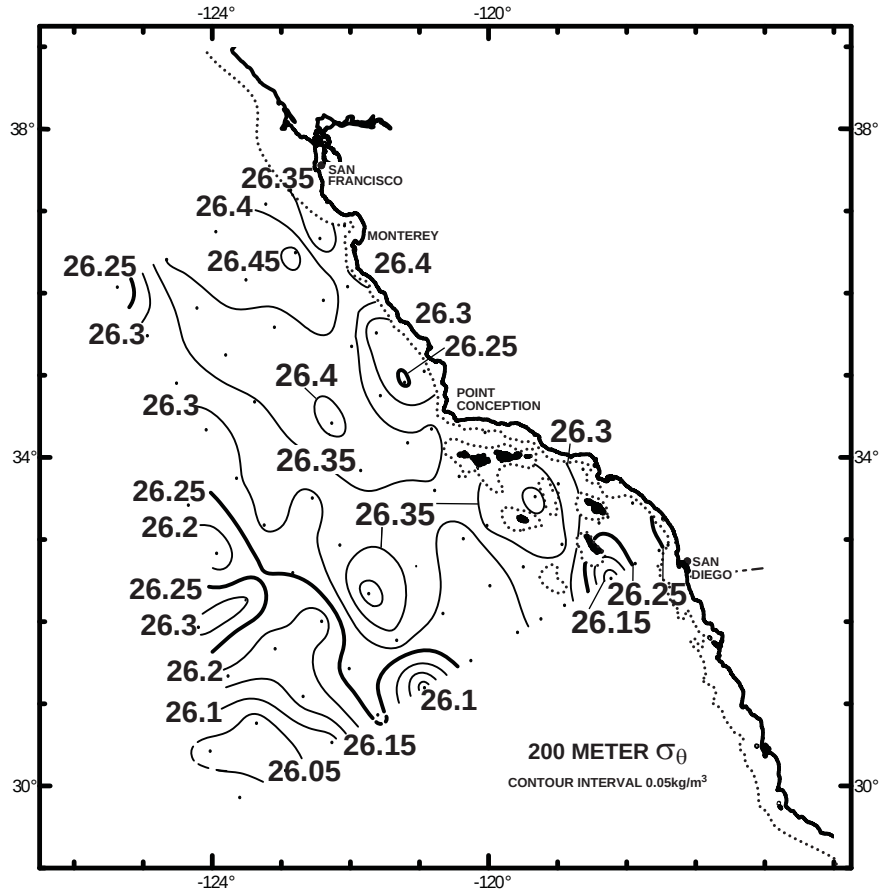

FIGURE 4B

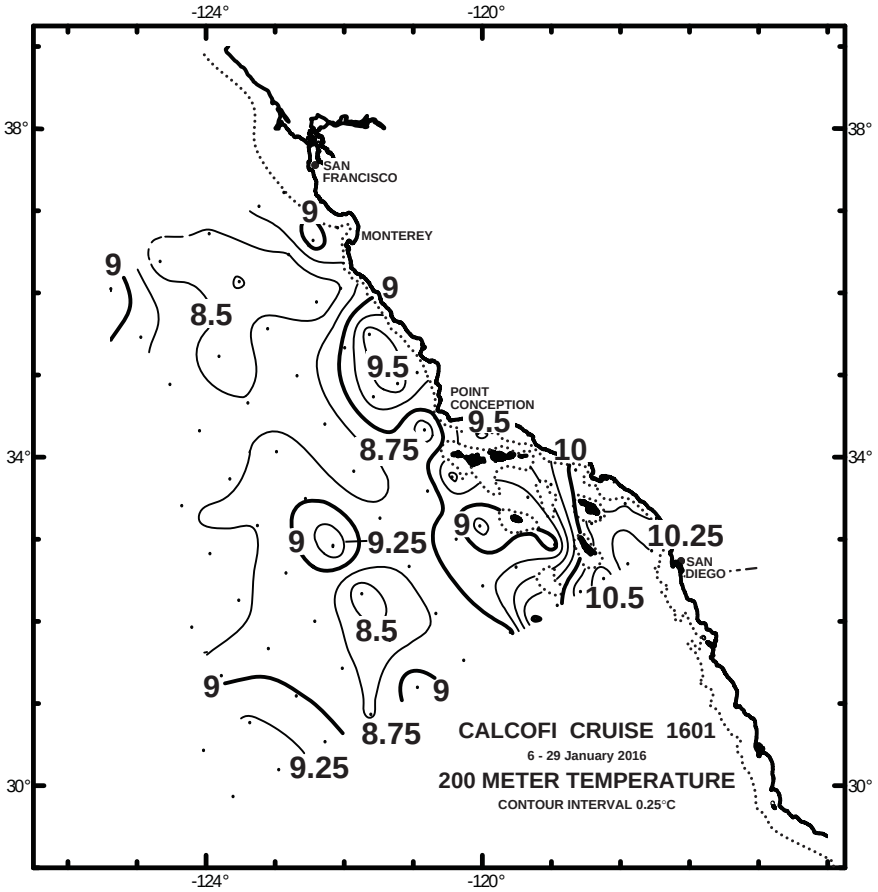

FIGURE 4C

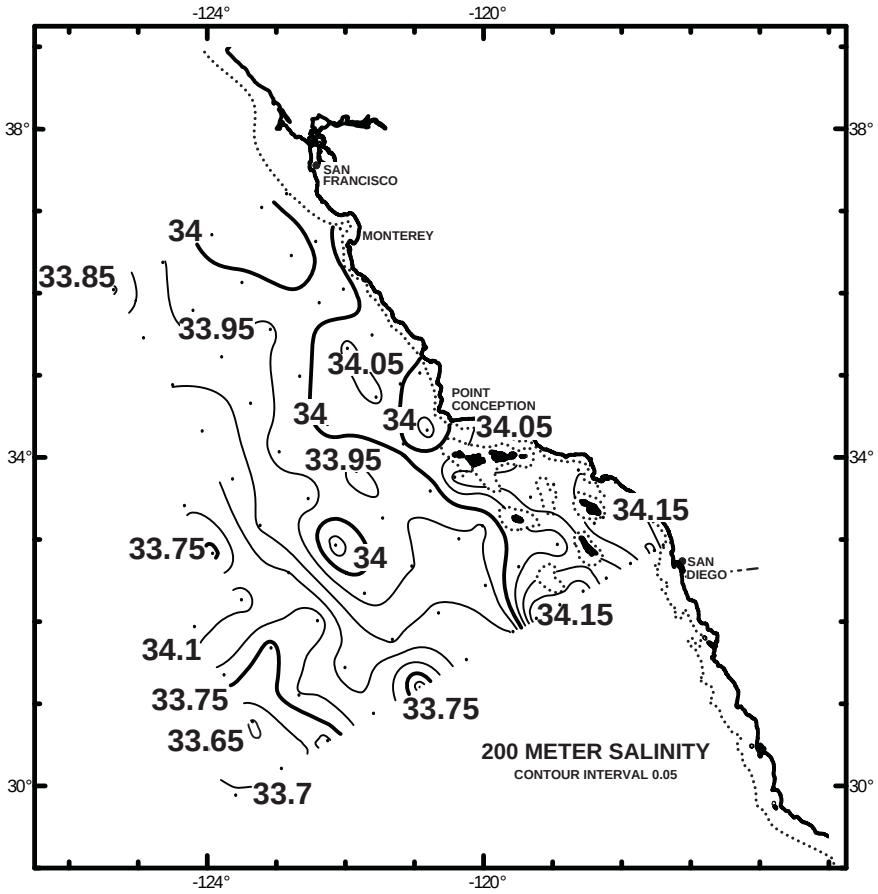

FIGURE 4D

CALCOFI CRUISE 1601

7 - 29 Jan 2016

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

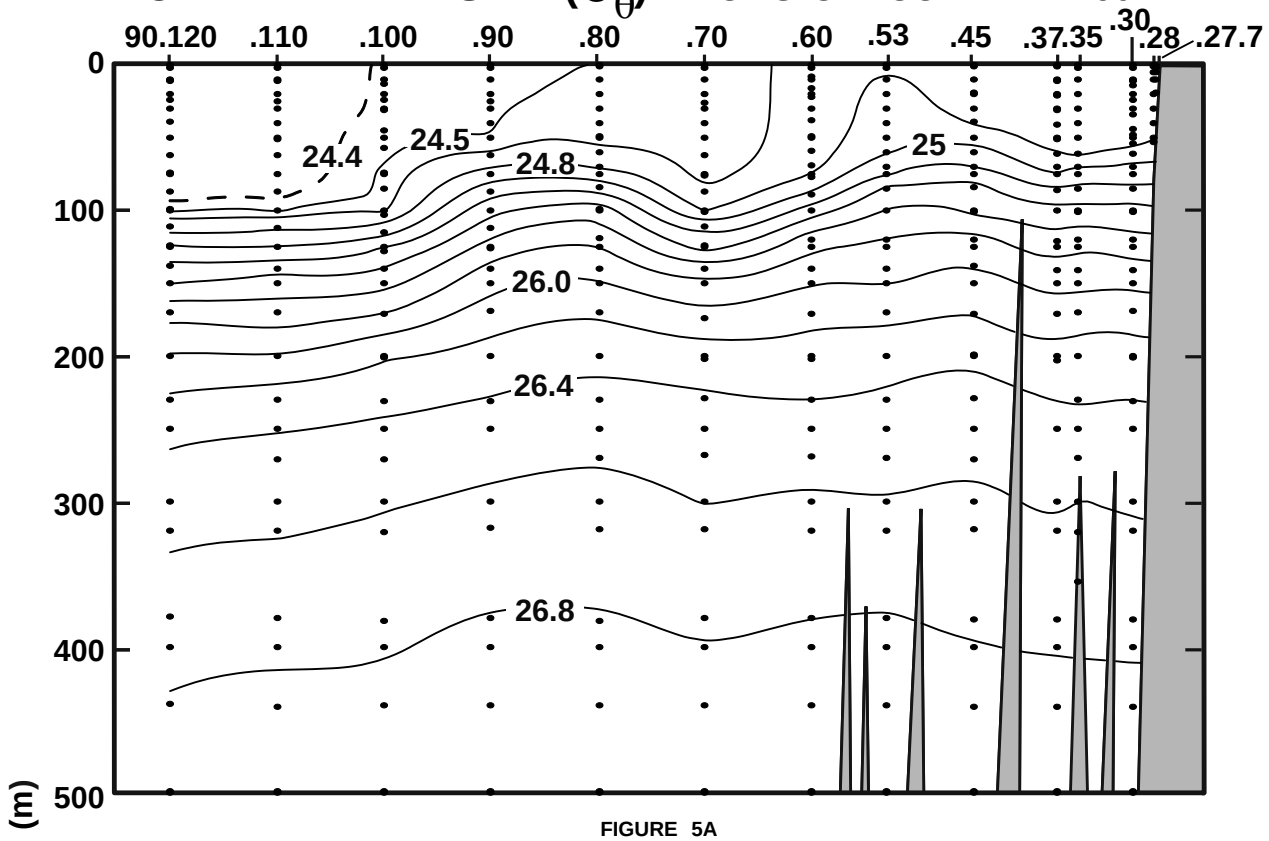

FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

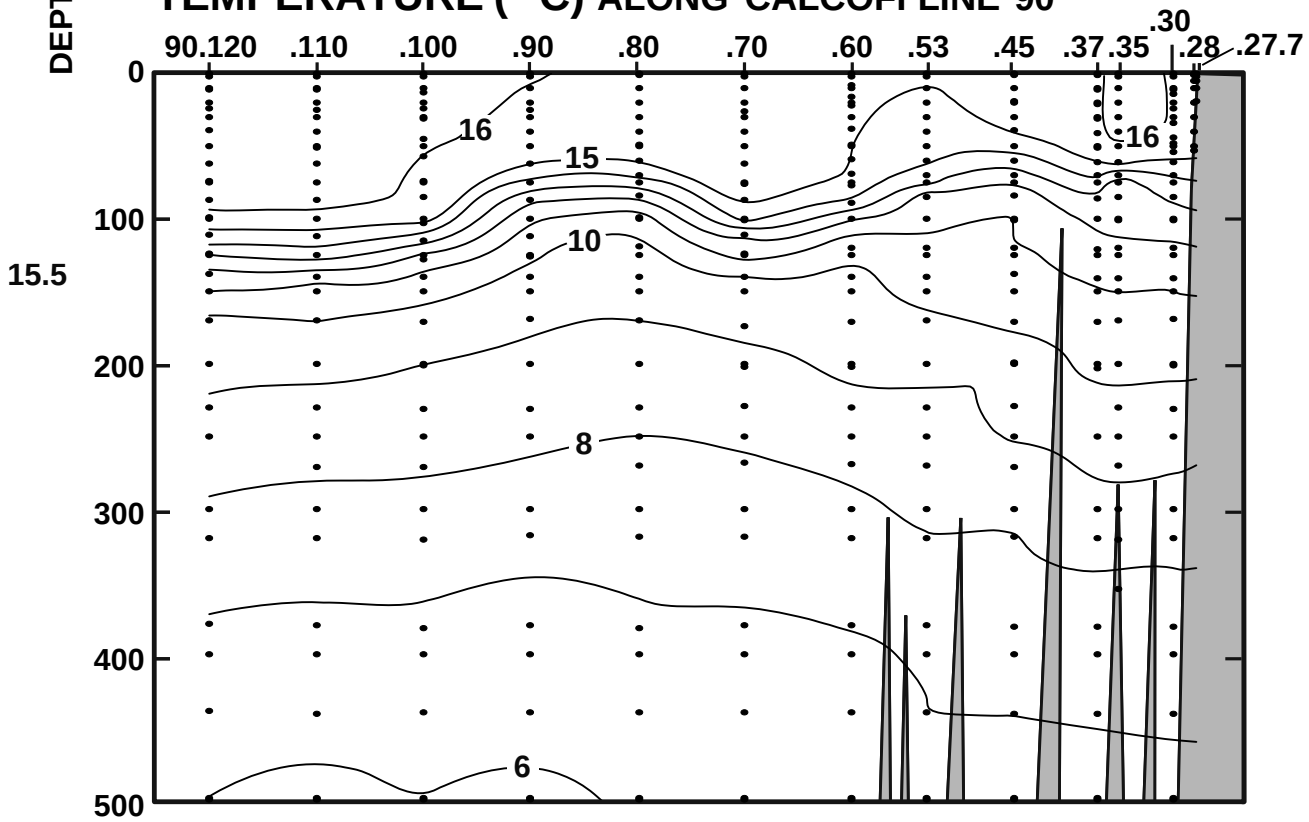

FIGURE 5B

CALCOFI CRUISE 1601

7 - 29 Jan 2016

SALINITY ALONG CALCOFI LINE 90

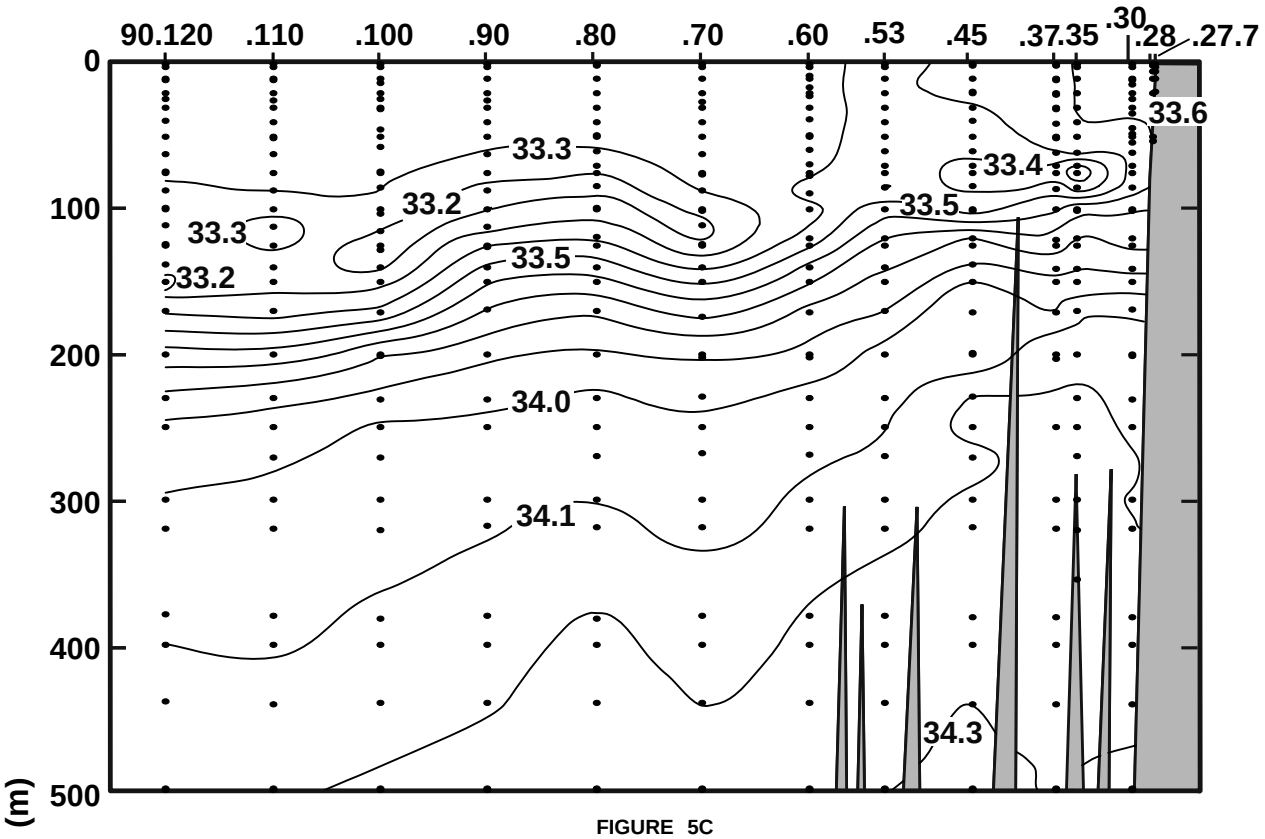

FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

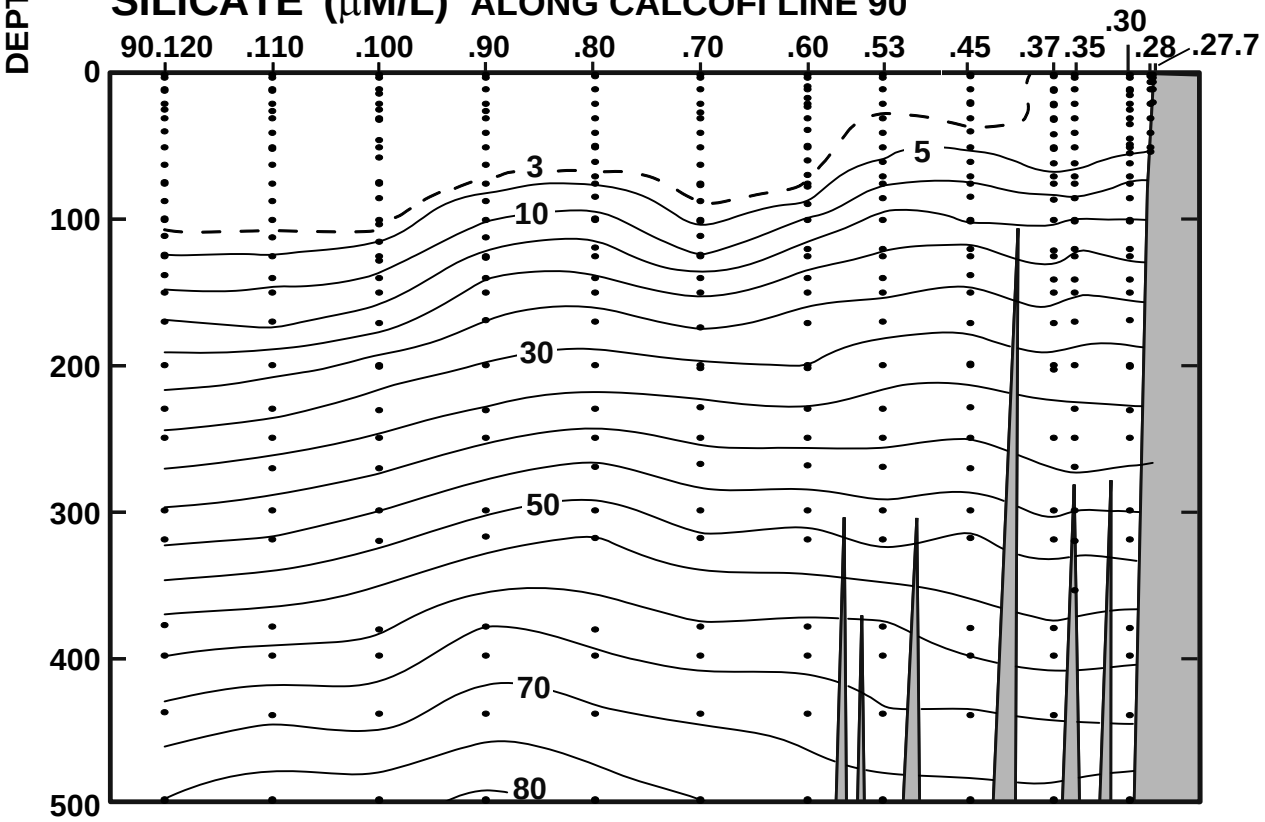

FIGURE 5D

CALCOFI CRUISE 1601

7 - 29 Jan 2016

NITRATE (μM/L) ALONG CALCOFI LINE 90

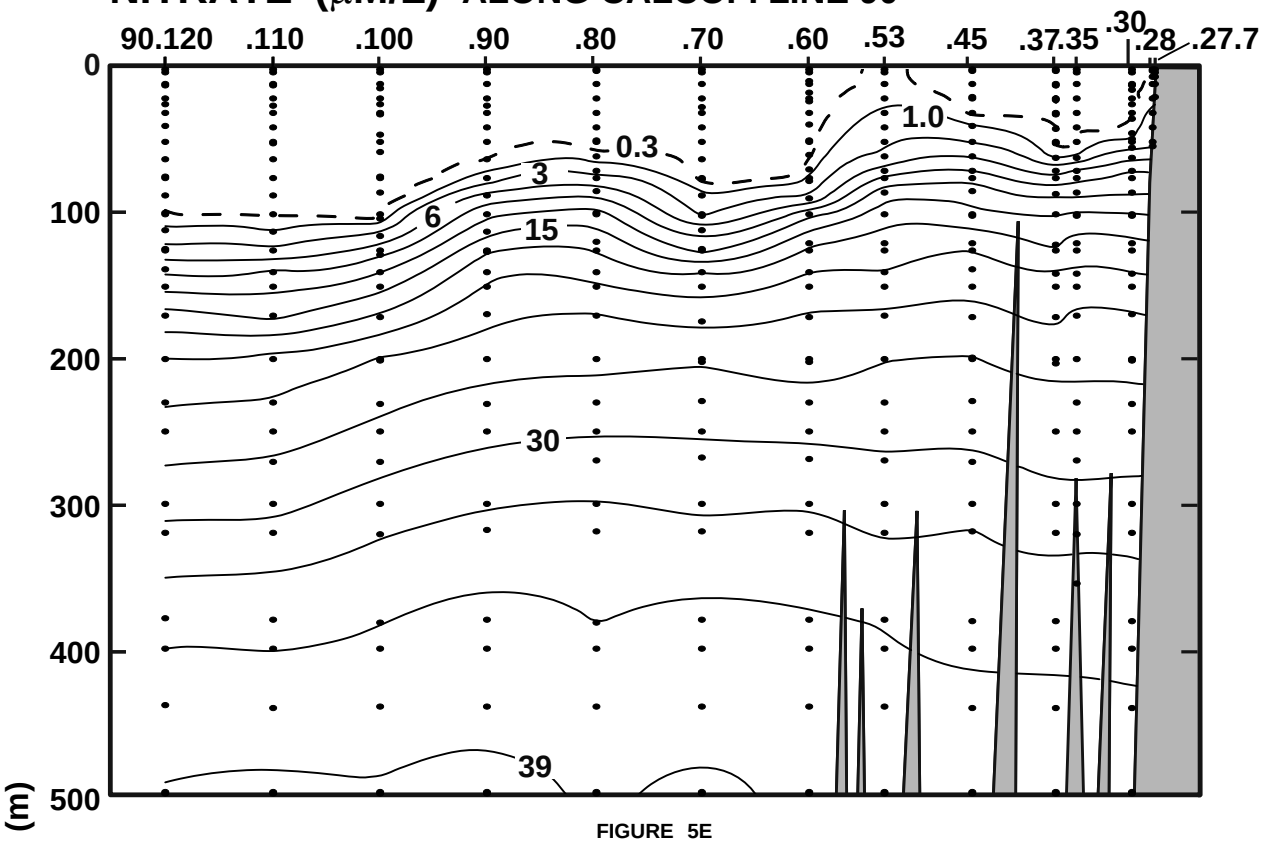

FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

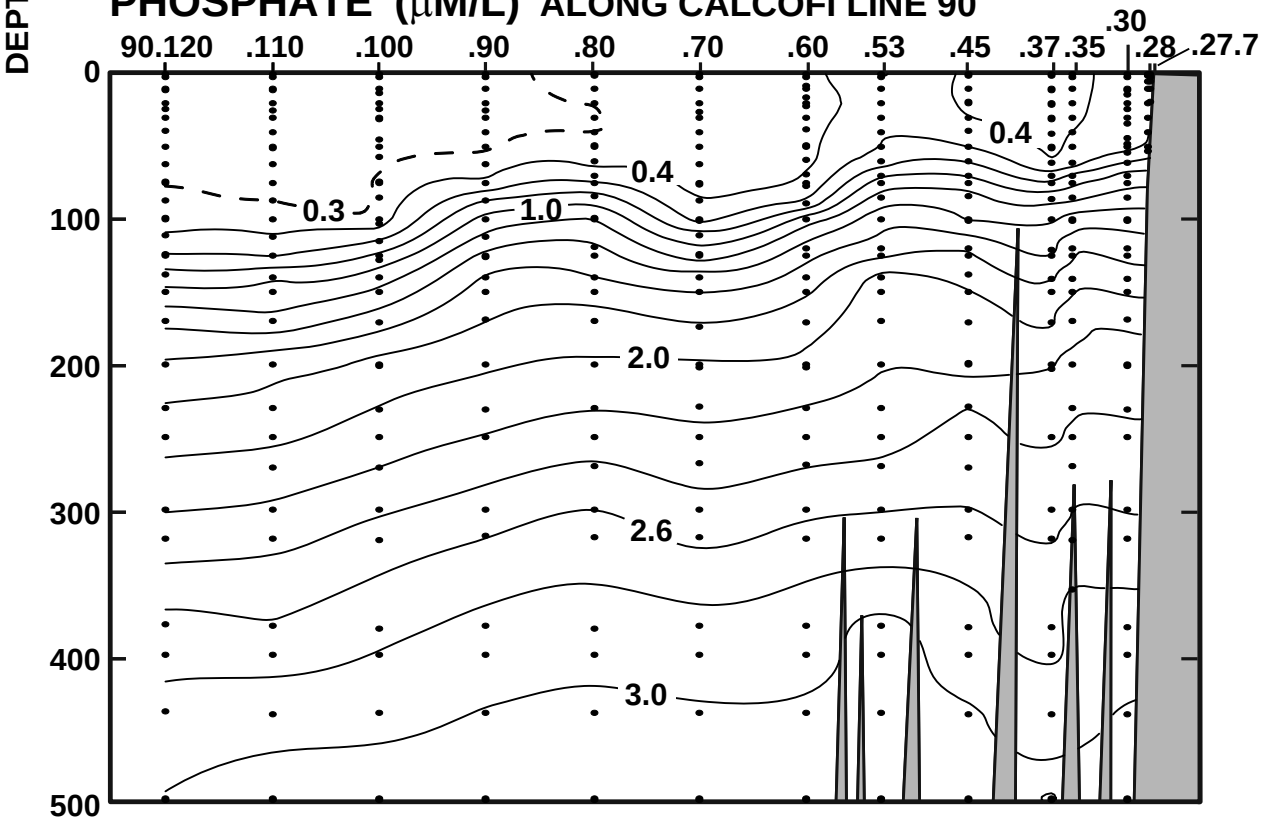

FIGURE 5F

CALCOFI CRUISE 1601

07 - 29 Jan 2016

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

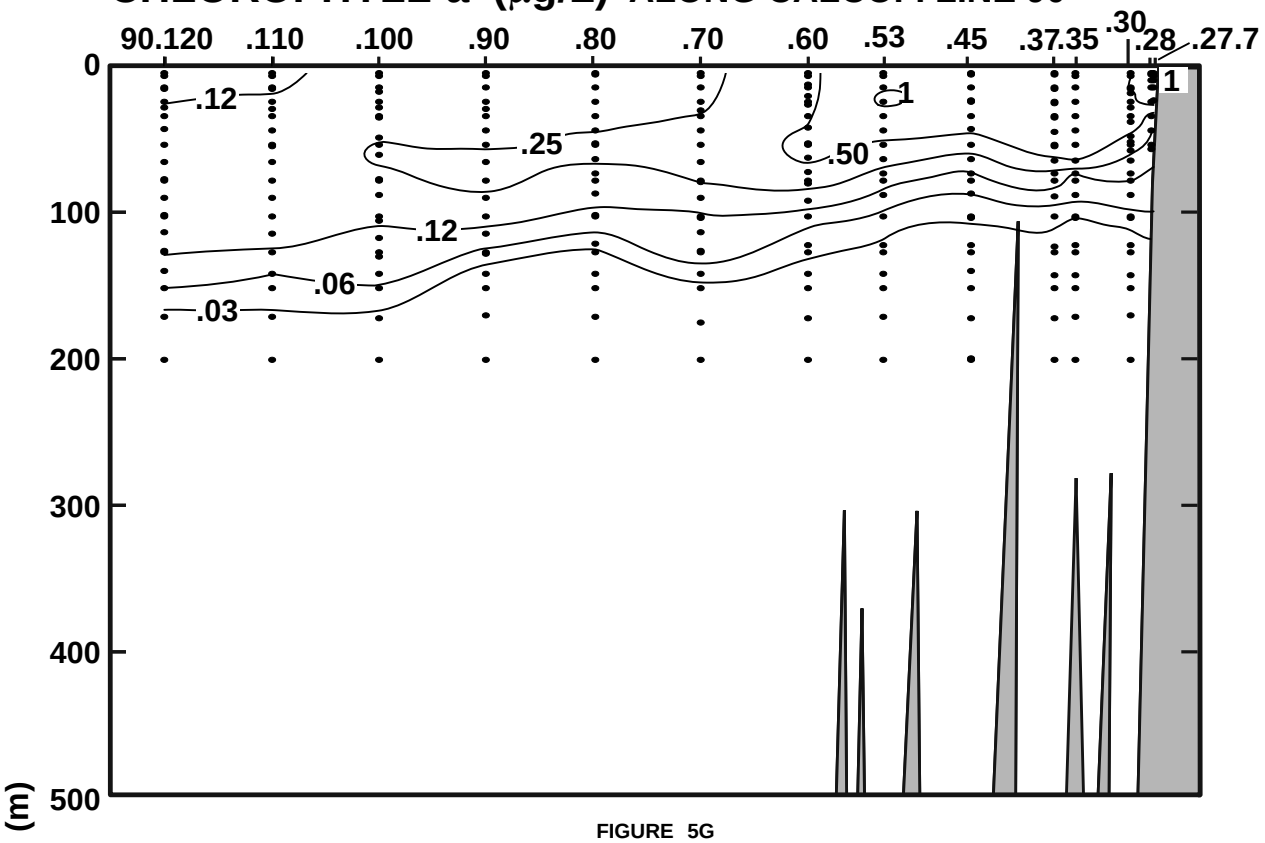

FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

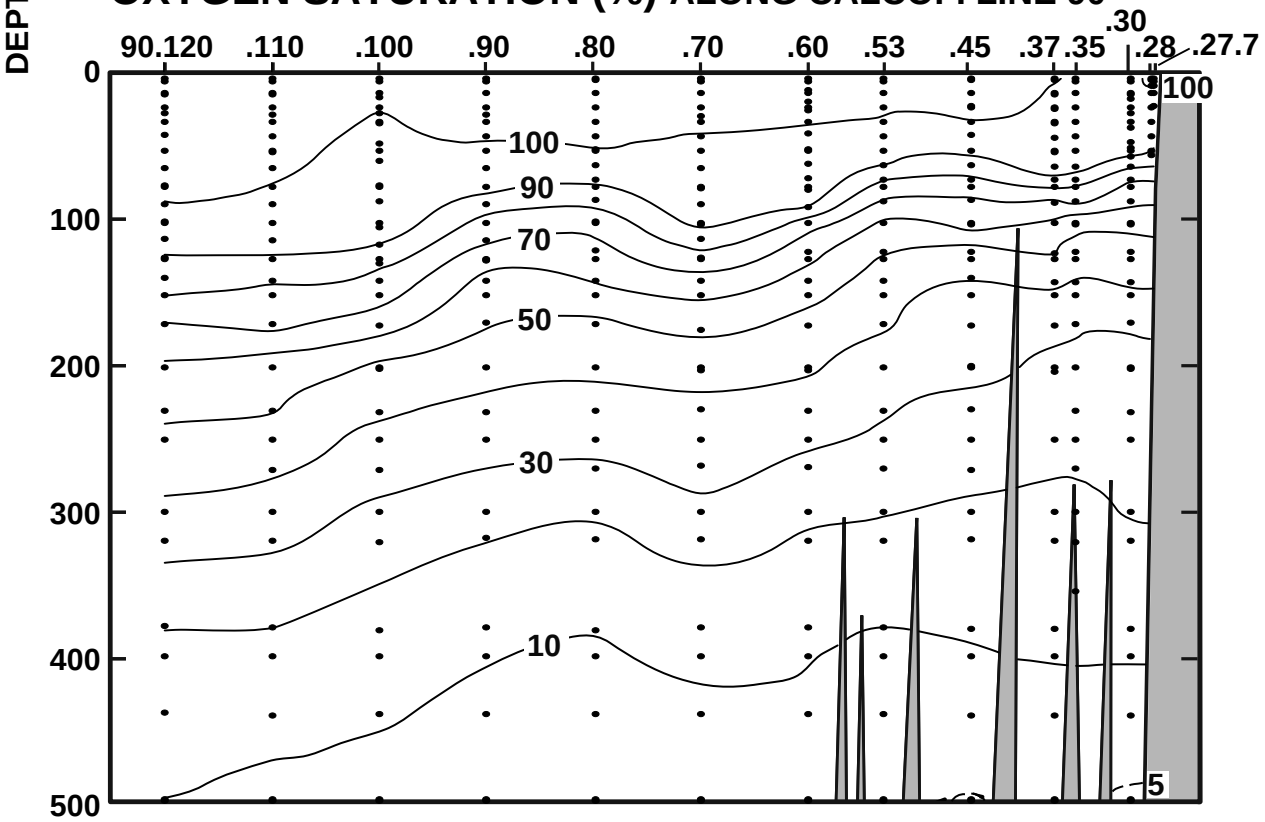

FIGURE 5H

CALCOFI CRUISE 1601

07 - 29 January 2016

OXYGEN (mL/L) ALONG CALCOFI LINE 90

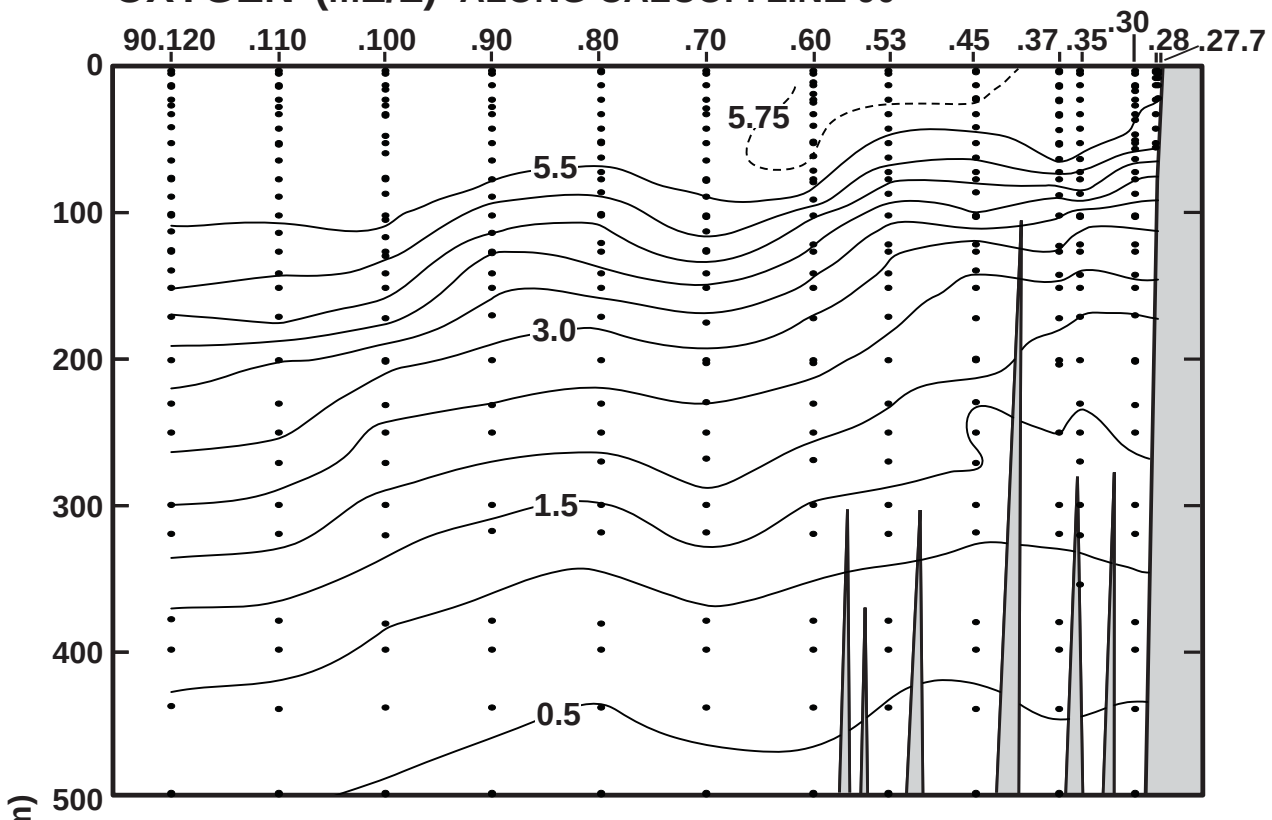

FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

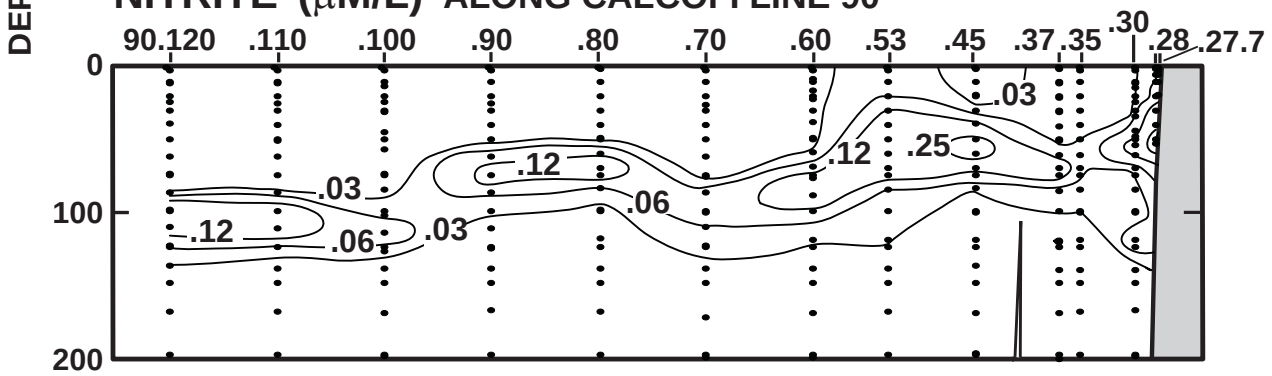

FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

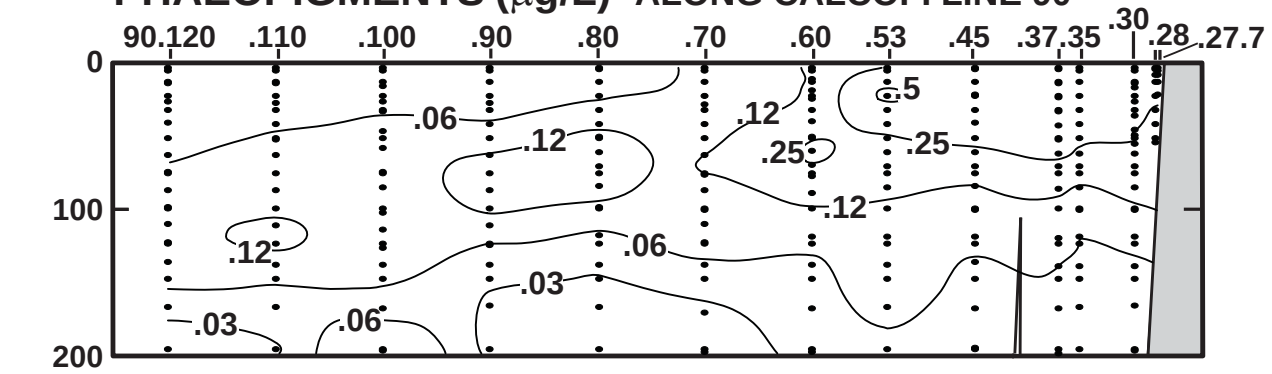

FIGURE 5K

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 60.0 53.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 50.9 N	123 6.3 W	27/01/2016	1123	UTC	84 m	050 09 kn			1024.9 mb	14.2 C	12.0 C				099

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.34	13.34	32.737	24.573	335.4	0.000	6.19	270.3	103.7						1.37	0.45	0	
2	13.34	13.34	32.737	24.573	335.5	0.007	6.19	270.3	103.7						1.37	0.45	2	07
6	13.36	13.36	32.869 D	24.672	326.2	0.020	6.18	269.8	103.7						1.13	0.48	6	06
10 ISL	13.36 D	13.36	33.013 D	24.783	315.8	0.033	6.06	D264.0	D101.7						1.00	0.28	10	
11	13.31	13.31	33.097 D	24.858	308.6	0.036	6.05	264.0	101.5						0.97	0.23	11	05
20	13.39	13.39	33.226 D	24.943	300.8	0.064	5.99	261.6	100.8						1.02	0.41	20	04
30 ISL	13.39 D	13.38	33.265 D	24.974	298.1	0.094	6.01	D261.7	D101.1						0.87	0.43	30	
50	13.29	13.29	33.288 D	25.012	295.2	0.154	5.74	250.5	96.4						0.59	0.48	50	03
71	12.67	12.66	33.376 D	25.204	277.4	0.214	4.99	217.9	82.8						0.15	0.24	72	02
75 ISL	12.54 D	12.53	33.384 D	25.235	274.5	0.225	4.95	D215.5	D 81.9						0.14	0.25	76	
80	12.35	12.34	33.380	25.269	271.5	0.237	4.74	207.0	78.1						0.13	0.26	81	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 1601 STATION 60.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 36.8 N	123 36.7 W	27/01/2016	1523	UTC	3378 m	350 07 kn	360 04 08	1	1025.6 mb	13.9 C	12.0 C		3/8	CS	100

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.10	13.10	33.016	24.837	310.3	0.000	6.12	267.2	102.2						1.13	0.45	0	
2	13.10	13.10	33.016	24.837	310.3	0.006	6.12	267.2	102.2						1.13	0.45	2	12
10	13.11	13.11	33.035 D	24.851	309.3	0.031	6.09	265.8	101.7						1.24	0.26	10	11
20	13.07	13.07	33.154 D	24.950	300.1	0.062	5.92	258.4	98.9						0.65	0.51	20	10
30 ISL	13.06 D	13.06	33.197 D	24.987	296.9	0.092	5.94	D258.7	D 99.2						0.63	0.46	30	
50	13.00	13.00	33.230 D	25.025	293.9	0.152	5.84	255.0	97.5						0.59	0.37	50	09
70	11.64	11.63	33.388 D	25.409	257.8	0.207	4.39	191.8	71.3						0.14	0.18	71	08
75 ISL	11.41 D	11.40	33.424 D	25.478	251.2	0.220	4.17	D181.7	D 67.4						0.12	0.17	76	
100 ISL	10.58 D	10.57	33.606 D	25.769	224.1	0.280	3.40	D148.0	D 54.0						0.07	0.12	101	
101	10.54	10.53	33.581	25.757	225.3	0.281	3.33	145.5	52.9						0.07	0.12	102	07
120	9.91	9.89	33.715 D	25.970	205.4	0.323	3.01	131.2	47.1						0.02	0.11	121	06
125 ISL	9.81 D	9.79	33.728 D	25.996	202.9	0.333	2.99	D130.2	D 46.8						0.02	0.10	126	
141	9.69	9.67	33.816 D	26.085	194.8	0.365	2.78	121.2	43.3						0.02	0.08	142	05
150 ISL	9.53 D	9.51	33.840 D	26.131	190.7	0.383	2.73	D118.6	D 42.4						0.01	0.08	151	
200	8.73	8.70	33.948 D	26.345	171.2	0.474	2.55	111.4	39.0						0.01	0.05	202	04
250 ISL	8.11 D	8.08	34.071 D	26.536	153.7	0.556	1.85	D 80.5	D 27.9								252	
269	7.98	7.95	34.094 D	26.574	150.5	0.585	1.64	71.4	24.6								271	03
300 ISL	7.75 D	7.72	34.119 D	26.628	145.8	0.632	1.40	D 60.8	D 20.9								303	
381	6.74	6.71	34.122 D	26.771	132.9	0.745	1.00	43.6	14.6								384	02
400 ISL	6.58 D	6.55	34.130 D	26.799	130.4	0.771	0.93	D 40.5	D 13.5								403	
500 ISL	5.63 D	5.59	34.139 D	26.929	118.6	0.896	0.64	D 27.9	D 9.1								504	
515	5.54	5.49	34.127	26.931	118.5	0.910	0.58	25.2	8.2								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 1601 STATION 60.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 16.8 N	124 20.3 W	27/01/2016	2033	UTC	4014 m	350 06 kn	360 03 08	1	1025.6 mb	14.7 C	12.9 C		1/8	ST	101

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.02	14.02	33.214	24.803	313.6	0.000	6.09	265.9	103.9						1.62	0.10	0	
2	14.02	14.02	33.214	24.803	313.6	0.006	6.09	265.9	103.9						1.62	0.10	2	12
9	13.93	13.93	33.229 D	24.835	310.8	0.028	6.12	267.1	104.1						1.21	0.15	9	11
10 ISL	13.92 D	13.92	33.231 D	24.838	310.5	0.031	6.09	D265.3	D103.6						1.17	0.17	10	
20	13.86	13.86	33.281 D	24.889	306.0	0.063	5.93	259.0	100.8						0.82	0.38	20	10
30 ISL	13.86 D	13.85	33.308 D	24.912	304.1	0.093	5.90	D257.0	D100.2						0.81	0.41	30	
50	13.57	13.56	33.313 D	24.976	298.6	0.154	5.84	254.9	98.7						0.79	0.47	50	09
69	12.34	12.33	33.367 D	25.261	271.9	0.208	4.60	200.6	75.7						0.09	0.12	70	08
75 ISL	11.55 D	11.54	33.360 D	25.402	258.5	0.225	4.46	D194.4	D 72.3						0.08	0.11	76	
98	10.69	10.67	33.483	25.654	235.0	0.281	3.73	162.7	59.3						0.04	0.10	99	07
100 ISL	10.67 D	10.66	33.521 D	25.687	231.9	0.286	3.71	D161.7	D 59.1						0.04	0.10	101	
121	9.77	9.75	33.556 D	25.868	215.0	0.334	3.54	154.3	55.1						0.02	0.08	122	06
125 ISL	9.73 D	9.72	33.558 D	25.875	214.4	0.342	3.54	D154.2	D 55.2						0.01	0.08	126	
141	9.43	9.41	33.699 D	26.036	199.4	0.376	3.26	142.3	50.5						0.01	0.08	142	05
150 ISL	9.33 D	9.31	33.791 D	26.125	191.2	0.393	2.88	D125.4	D 44.6						0.01	0.07	151	
200 ISL	8.66 D	8.64	34.014 D	26.406	165.4	0.483	2.22	D 96.7	D 33.9						0.00	0.05	202	
201	8.64	8.62	34.015 D	26.410	165.0	0.485	2.21	96.6	33.8						0.00	0.05	203	04
250 ISL	8.05 D	8.02	34.096 D	26.565	151.0	0.563	1.66	D 72.0	D 24.9								252	
271	7.91	7.88	34.117 D	26.602	147.8	0.595	1.49	64.9	22.4								273	03
300 ISL	7.56 D	7.53	34.129 D	26.663	142.4	0.637	1.27	D 55.3	D 18.9								303	
381	7.01	6.97	34.199 D	26.797	130.7	0.749	0.73	31.9	10.8								384	02
400 ISL	6.96 D	6.93	34.212 D	26.814	129.4	0.774	0.68	D 29.8	D 10.1								403	
500 ISL	6.13 D	6.09	34.227 D	26.937	118.5	0.899	0.46	D 20.0	D 6.6								504	
516	6.02	5.97	34.211	26.938	118.5	0.914	0.43	18.7	6.2								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 1601 STATION 60.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 56.6 N	125 3.2 W	28/01/2016	0145	UTC	4333 m	240 04 kn	270 08 12	1	1025.0 mb	14.9 C	13.1 C		3/8	AC	102

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.14	15.14	32.901	24.325	359.0	0.000	5.83	254.7	101.5						0.23	0.05	0	
2	15.14	15.14	32.901	24.325	359.1	0.007	5.83	254.7	101.5						0.23	0.05	2	12
9	14.64	14.64	32.920 D	24.447	347.8	0.032	5.85	255.6	100.8						0.26	0.07	9	11
10 ISL	14.63 D	14.63	32.921 D	24.450	347.4	0.036	5.86	D255.6	D101.0						0.26	0.07	10	
20	14.46	14.46	32.915 D	24.481	344.8	0.071	5.86	255.9	100.6						0.29	0.04	20	10
30 ISL	14.43 D	14.43	32.923 D	24.495	343.8	0.105	5.88	D256.1	D100.8						0.35	0.10	30	
49	14.33	14.32	32.928 D	24.522	341.9	0.171	5.84	255.0	100.0						0.47	0.21	49	09
50 ISL	14.28 D	14.27	32.928 D	24.532	341.0	0.174	5.84	D254.7	D 99.9						0.46	0.20	50	
69	14.05	14.04	32.950 D	24.597	335.3	0.239	5.78	252.5	98.4						0.22	0.12	70	08
75 ISL	13.89 D	13.88	33.009 D	24.676	328.0	0.259	5.77	D251.5	D 98.0						0.19	0.11	76	
99	12.12	12.11	33.109	25.103	287.7	0.331	5.31	231.8	86.9						0.07	0.08	100	07
100 ISL	12.09 D	12.08	33.139 D	25.132	284.9	0.336	5.34	D232.4	D 87.3						0.07	0.08	101	
121	11.10	11.08	33.226 D	25.383	261.4	0.394	4.83	210.7	77.3						0.05	0.07	122	06
125 ISL	10.73 D	10.71	33.253 D	25.469	253.2	0.404	4.88	D212.4	D 77.6						0.05	0.06	126	
140	10.17	10.16	33.395 D	25.676	233.8	0.441	3.99	174.0	62.7						0.02	0.05	141	05
150 ISL	9.68 D	9.66	33.459 D	25.808	221.4	0.464	3.92	D170.8	D 61.0						0.01	0.05	151	
200	9.12	9.09	33.845 D	26.203	184.8	0.567	2.72	118.5	41.8						0.01	0.04	202	04
250 ISL	8.41 D	8.39	33.983 D	26.421	164.8	0.655	2.61	D113.4	D 39.5								252	
270	8.36	8.33	34.049 D	26.482	159.4	0.687	2.08	90.9	31.6								272	03
300 ISL	7.23 D	7.20	33.958 D	26.574	150.5	0.734	3.20	D139.1	D 47.2								303	
379	6.24	6.21	33.970 D	26.717	137.5	0.849	2.22	97.0	32.1								382	02
400 ISL	6.05 D	6.01	33.990 D	26.757	133.8	0.878	1.90	D 82.6	D 27.3								403	
500 ISL	5.58 D	5.54	34.122 D	26.920	119.3	1.006	0.73	D 31.7	D 10.3								504	
516	5.34	5.30	34.068	26.907	120.5	1.023	0.86	37.3	12.1								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 1601 STATION 60.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 36.6 N	125 45.6 W	28/01/2016	0658	UTC	4513 m	190 08 kn			1025.1 mb	14.9 C	13.9 C				103

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.41	14.41	32.913	24.490	343.4	0.000	5.92	258.6	101.6						0.24	0.09	0	
2	14.41	14.41	32.913	24.490	343.4	0.007	5.92	258.6	101.6						0.24	0.09	2	12
9	14.41	14.41	32.941 D	24.512	341.5	0.031	5.93	258.7	101.6						0.27	0.08	9	11
10 ISL	14.41 D	14.40	32.942 D	24.514	341.4	0.034	5.94	D258.9	D101.9						0.27	0.08	10	
20	14.15	14.14	32.936 D	24.564	336.9	0.068	5.94	259.2	101.3						0.33	0.08	20	10
30 ISL	14.05 D	14.05	32.943 D	24.589	334.8	0.102	5.96	D259.9	D101.5						0.42	0.13	30	
48	14.03	14.03	32.952 D	24.601	334.3	0.163	5.86	255.7	99.7						0.58	0.22	48	09
50 ISL	14.04 D	14.03	32.952 D	24.601	334.3	0.170	5.88	D256.3	D100.1						0.57	0.22	50	
71	13.98	13.97	32.961 D	24.620	333.1	0.240	5.82	254.2	99.0						0.44	0.20	72	08
75 ISL	13.95 D	13.94	32.970 D	24.634	331.9	0.254	5.74	D250.1	D 97.5						0.39	0.19	76	
99	12.68	12.67	33.056	24.955	301.8	0.328	5.21	227.6	86.3						0.09	0.09	100	07
100 ISL	12.39 D	12.38	33.087 D	25.035	294.2	0.333	5.21	D227.0	D 85.8						0.08	0.09	101	
120	10.66	10.65	33.184 D	25.426	257.2	0.389	4.56	199.2	72.4						0.05	0.07	121	06
125 ISL	10.37 D	10.36	33.249 D	25.527	247.6	0.402	4.52	D196.6	D 71.2						0.04	0.07	126	
141	9.82	9.80	33.403 D	25.741	227.5	0.440	4.10	179.1	64.0						0.02	0.05	142	05
150 ISL	9.72 D	9.71	33.464 D	25.804	221.7	0.460	3.90	D169.7	D 60.7						0.01	0.05	151	
200 ISL	9.56 D	9.54	33.884 D	26.162	188.9	0.564	2.24	D 97.4	D 34.8						0.00	0.04	202	
201	9.55	9.53	33.894 D	26.170	188.1	0.566	2.22	97.0	34.6						0.00	0.04	203	04
250 ISL	9.06 D	9.03	34.019 D	26.349	172.0	0.655	1.93	D 83.9	D 29.7								252	
272	9.18	9.15	34.128 D	26.416	166.3	0.692	1.54	67.1	23.8								274	03
300 ISL	8.56 D	8.53	34.087 D	26.482	160.2	0.738	1.65	D 71.9	D 25.2								302	
380	7.48	7.45	34.130 D	26.676	142.5	0.860	1.14	49.7	16.9								383	02
400 ISL	7.25 D	7.21	34.139 D	26.718	138.7	0.889	1.05	D 45.7	D 15.5								403	
500 ISL	6.33 D	6.29	34.165 D	26.862	125.8	1.022	0.67	D 29.1	D 9.7								504	
516	6.36	6.32	34.200 D	26.886	123.8	1.043	0.58	25.2	8.4								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 1601 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 18.6 N	122 37.3 W	27/01/2016	0612	UTC	85 m	020 10 kn			1024.7 mb	14.0 C	11.5 C				098

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.90	13.90	33.280	24.879	306.3	0.000	5.87	256.4	99.9						0.49	0.11	0	
2	13.90	13.90	33.280	24.879	306.3	0.006	5.87	256.4	99.9						0.49	0.11	2	07
4	13.91	13.91	33.294 D	24.890	305.4	0.012	5.87	256.2	99.9						0.53	0.08	4	06
10	13.90	13.90	33.294 D	24.891	305.5	0.031	5.87	256.2	99.9						0.49	0.09	10	05
20	13.89	13.89	33.294 D	24.893	305.6	0.062	5.87	256.3	99.9						0.48	0.11	20	04
30 ISL	13.86 D	13.85	33.293 D	24.900	305.2	0.092	5.86	D255.5	D 99.7						0.47	0.11	30	
50	13.84	13.84	33.295 D	24.905	305.3	0.154	5.81	253.7	98.8						0.47	0.12	50	03
69	13.30	13.29	33.335 D	25.049	292.2	0.211	5.10	222.8	85.8						0.18	0.40	70	02
75 ISL	13.00 D	12.99	33.371 D	25.136	284.1	0.229	5.04	D219.6	D 84.2						0.15	0.36	76	
78	12.77	12.76	33.370	25.181	279.8	0.235	4.79	209.0	79.6						0.13	0.34	79	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 1601 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 12.8 N	122 50.4 W	27/01/2016	0331	UTC	291 m	340 12 kn			1024.5 mb	13.9 C	12.1 C				097

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.98	13.98	33.266	24.853	308.7	0.000	6.10	266.0	103.8						1.43	0.46	0	
2	13.98	13.98	33.266	24.853	308.8	0.006	6.10	266.0	103.8						1.43	0.46	2	10
9	13.98	13.98	33.284 D	24.867	307.7	0.028	6.08	265.1	103.5						1.42	0.51	9	09
10 ISL	13.97 D	13.96	33.292 D	24.876	306.9	0.031	6.09	D265.3	D103.7						1.40	0.50	10	
20	13.91	13.91	33.314 D	24.905	304.5	0.062	5.96	260.2	101.5						1.18	0.49	20	08
30 ISL	13.90 D	13.89	33.320 D	24.913	304.0	0.093	5.92	D257.7	D100.6						0.83	0.37	30	
50	13.28	13.28	33.396 D	25.097	287.0	0.152	5.17	225.6	86.9						0.13	0.14	50	07
70	12.76	12.75	33.394 D	25.200	277.7	0.209	4.83	211.0	80.4						0.04	0.15	71	06
75 ISL	12.05 D	12.04	33.427 D	25.362	262.4	0.223	4.65	D202.6	D 76.2						0.04	0.17	76	
100	11.51	11.50	33.473	25.499	249.9	0.286	3.99	174.0	64.6						0.06	0.26	101	05
120	10.64	10.63	33.535 D	25.704	230.8	0.336	3.65	159.2	58.0						0.03	0.15	121	04
125 ISL	10.54 D	10.52	33.576 D	25.754	226.1	0.347	3.56	D155.2	D 56.5						0.03	0.15	126	
142	10.27	10.25	33.622 D	25.837	218.6	0.385	3.35	146.4	52.9						0.03	0.13	143	03
150 ISL	9.89 D	9.88	33.707 D	25.967	206.4	0.402	3.12	D135.9	D 48.9						0.02	0.13	151	
200 ISL	8.81 D	8.79	33.971 D	26.349	170.8	0.498	2.27	D 98.6	D 34.7						0.01	0.07	202	
201	8.66	8.64	33.996 D	26.391	166.8	0.499	2.19	95.5	33.4						0.01	0.07	203	02
250 ISL	7.94 D	7.92	34.091 D	26.576	149.9	0.577	1.66	D 72.0	D 24.9								252	
271	7.80	7.77	34.094	26.599	148.0	0.607	1.47	64.2	22.0								273	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 1601 STATION 63.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
37 2.7 N	123 12.0 W	26/01/2016	2358	UTC	2539 m	340 11 kn	300 04 08	1	1023.8 mb	13.9 C	12.5 C		7/8	ST	096

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.66	13.66	33.038	24.742	319.3	0.000	6.09	265.8	102.9						0.85	0.04	0	
2	13.66	13.66	33.038	24.742	319.4	0.006	6.09	265.8	102.9						0.85	0.04	2	12
9	13.57	13.57	33.082 D	24.794	314.7	0.029	6.09	266.0	102.8						0.94	0.35	9	11
10 ISL	13.57 D	13.57	33.095 D	24.804	313.7	0.032	6.11	D266.1	D103.0						0.94	0.35	10	
19	13.60	13.59	33.150 D	24.842	310.3	0.060	6.08	265.5	102.7						0.92	0.40	19	10
20 ISL	13.60 D	13.59	33.153 D	24.845	310.2	0.064	6.08	D264.9	D102.7						0.90	0.40	20	
30 ISL	13.55 D	13.54	33.180 D	24.876	307.5	0.094	6.01	D261.9	D101.4						0.72	0.34	30	
49	13.42	13.41	33.237 D	24.948	301.2	0.153	5.69	248.5	95.8						0.38	0.23	49	09
50 ISL	13.40 D	13.40	33.241 D	24.954	300.7	0.156	5.65	D246.4	D 95.2						0.37	0.22	50	
70	11.94	11.93	33.326 D	25.304	267.7	0.213	4.79	209.0	78.2						0.13	0.13	71	08
75 ISL	11.19 D	11.18	33.349 D	25.461	252.9	0.226	4.43	D193.1	D 71.2						0.12	0.13	76	
100	10.07	10.06	33.468	25.748	226.0	0.285	3.79	165.5	59.5						0.03	0.09	101	07
120	9.46	9.44	33.613 D	25.963	205.9	0.330	3.43	149.8	53.2						0.01	0.06	121	06
125 ISL	9.41 D	9.39	33.683 D	26.026	200.0	0.340	3.26	D141.8	D 50.5						0.01	0.06	126	
140	9.25	9.23	33.802 D	26.146	188.9	0.370	2.86	124.8	44.2						0.01	0.05	141	05
150 ISL	9.17 D	9.15	33.846 D	26.193	184.7	0.389	2.73	D118.9	D 42.1						0.01	0.05	151	
200	8.83	8.81	34.023 D	26.387	167.2	0.477	2.10	91.6	32.2						0.01	0.04	202	04
250 ISL	8.12 D	8.09	34.072 D	26.536	153.8	0.558	1.84	D 80.2	D 27.8								252	
271	8.02	7.99	34.097 D	26.571	150.8	0.590	1.65	72.0	24.8								273	03
300 ISL	7.70 D	7.67	34.106 D	26.624	146.1	0.634	1.47	D 63.7	D 21.9								303	
384	6.86	6.82	34.166 D	26.791	131.2	0.751	0.84	36.6	12.3								387	02
400 ISL	6.65 D	6.61	34.171 D	26.823	128.2	0.772	0.76	D 32.9	D 11.0								403	
500 ISL	5.80 D	5.76	34.201 D	26.957	116.2	0.896	0.49	D 21.1	D 6.9								504	
513	5.75	5.71	34.203	26.964	115.6	0.906	0.44	19.1	6.2								518	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 1601 STATION 63.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 42.7 N	123 55.3 W	26/01/2016	1827	UTC	3807 m	360 06 kn	280 03 06	2	1026.8 mb	14.3 C	13.0 C		6/8	ST	095

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.65	13.65	33.166	24.842	309.8	0.000	6.06	264.6	102.5						0.75	0.38	0	
2	13.65	13.65	33.166	24.842	309.9	0.006	6.06	264.6	102.5						0.75	0.38	2	12
10	13.62	13.62	33.174 D	24.855	308.9	0.031	6.08	265.2	102.7						0.80	0.38	10	11
20	13.63	13.63	33.209 D	24.881	306.7	0.062	6.00	261.8	101.4						0.96	0.38	20	10
30 ISL	13.63 D	13.62	33.240 D	24.906	304.6	0.093	5.97	D260.2	D101.0						0.81	0.36	30	
50	13.59	13.58	33.272 D	24.939	302.1	0.154	5.87	256.3	99.2						0.51	0.31	50	09
71	11.18	11.17	33.306 D	25.428	255.9	0.213	4.54	198.1	72.9						0.08	0.16	72	08
75 ISL	11.05 D	11.04	33.309 D	25.453	253.6	0.224	4.42	D192.4	D 70.8						0.08	0.15	76	
100	9.08	9.07	33.451 D	25.897	211.6	0.282	4.00	D	61.5								101	07
120	8.74	8.72	33.550	26.029	199.4	0.321	3.84	167.5	58.5						0.01	0.06	121	06
125 ISL	8.99 D	8.97	33.671 D	26.084	194.3	0.333	3.39	D147.6	D 52.0						0.01	0.06	126	
140	9.08	9.06	33.837 D	26.200	183.8	0.362	2.82	122.8	43.3						0.01	0.06	141	05
150 ISL	8.95 D	8.93	33.907 D	26.276	176.7	0.380	2.58	D112.4	D 39.6						0.01	0.06	151	
200 ISL	8.47 D	8.45	34.034 D	26.451	161.0	0.465	2.15	D 93.7	D 32.7						0.01	0.04	202	
201	8.46	8.44	34.036 D	26.454	160.7	0.467	2.12	92.3	32.1						0.01	0.04	203	04
250 ISL	8.06 D	8.03	34.114 D	26.578	149.8	0.543	1.55	D 67.4	D 23.3								252	
271	7.81	7.78	34.118 D	26.618	146.2	0.575	1.45	63.3	21.7								273	03
300 ISL	7.49 D	7.46	34.125 D	26.669	141.7	0.617	1.27	D 55.0	D 18.8								302	
382	6.66	6.63	34.151 D	26.805	129.6	0.729	0.80	34.9	11.7								385	02
400 ISL	6.59 D	6.55	34.157 D	26.820	128.5	0.753	0.78	D 33.8	D 11.3								403	
500 ISL	5.63 D	5.59	34.159 D	26.944	117.1	0.877	0.56	D 24.5	D 8.0								504	
516	5.53	5.49	34.171	26.966	115.2	0.888	0.49	21.1	6.9								521	01

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

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RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 63.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 22.4 N	124 37.8 W	26/01/2016	1306	UTC	4139 m	320 03 kn			1024.2 mb	15.0 C	13.1 C				094

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.41	13.41	33.044	24.797	314.1	0.000	6.08	265.2	102.1						0.58	0.23	0	
2	13.41	13.41	33.044	24.797	314.1	0.006	6.08	265.2	102.1						0.58	0.23	2	12
10	13.39	13.39	33.082 D	24.830	311.2	0.032	6.08	265.2	102.1						0.74	0.34	10	11
20	13.42	13.42	33.117 D	24.852	309.5	0.063	6.02	262.8	101.3						0.88	0.23	20	10
30 ISL	13.40 D	13.40	33.120 D	24.860	309.0	0.094	5.99	D261.1	D100.8						0.65	0.20	30	
50 ISL	12.77 D	12.77	33.271 D	25.102	286.5	0.154	5.31	D231.5	D 88.3						0.19	0.14	50	
51	12.89	12.88	33.279 D	25.085	288.1	0.157	5.27	230.0	87.8						0.17	0.14	51	09
70	11.73	11.72	33.406 D	25.405	258.1	0.209	4.37	190.6	71.0						0.09	0.15	71	08
75 ISL	11.57 D	11.56	33.434 D	25.457	253.3	0.222	4.29	D186.7	D 69.5						0.09	0.14	76	
100	9.76	9.75	33.335 D	25.696	230.8	0.283	4.16	D181.1	D 64.8								101	07
120	8.85	8.84	33.488	25.961	205.9	0.324	3.98	173.8	60.8						0.01	0.06	121	06
125 ISL	8.89 D	8.87	33.588 D	26.035	199.0	0.337	3.77	D164.1	D 57.7						0.01	0.06	126	
140	8.88	8.87	33.762 D	26.172	186.3	0.366	3.11	135.7	47.6						0.00	0.05	141	05
150 ISL	8.79 D	8.77	33.804 D	26.220	181.9	0.385	3.00	D130.4	D 45.8						0.00	0.05	151	
200 ISL	8.31 D	8.29	33.946 D	26.406	165.2	0.472	2.73	D118.7	D 41.3						0.00	0.05	202	
201	8.28	8.26	33.953 D	26.416	164.2	0.474	2.72	118.7	41.2						0.00	0.05	203	04
250 ISL	7.75 D	7.72	34.009 D	26.540	153.2	0.552	2.29	D 99.5	D 34.2								252	
270	7.50	7.47	34.025 D	26.589	148.8	0.583	2.04	88.9	30.3								272	03
300 ISL	7.04 D	7.01	34.033 D	26.660	142.2	0.627	1.79	D 77.7	D 26.3								302	
381	6.30	6.27	34.072 D	26.790	130.6	0.738	1.13	49.4	16.4								384	02
400 ISL	6.15 D	6.12	34.086 D	26.820	128.0	0.763	1.01	D 44.0	D 14.6								403	
500 ISL	5.79 D	5.74	34.187 D	26.948	117.0	0.887	0.51	D 22.0	D 7.2								504	
517	5.67	5.63	34.204	26.976	114.5	0.900	0.45	19.4	6.4								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 1601 STATION 63.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 2.3 N	125 20.7 W	26/01/2016	0749	UTC	4216 m	300 01 kn			1024.9 mb	15.1 C	13.9 C				093

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.23	14.23	32.959	24.563	336.4	0.000	5.93	258.9	101.3						0.44	0.14	0	
2	14.23	14.23	32.959	24.563	336.4	0.007	5.93	258.9	101.3						0.44	0.14	2	12
10 ISL	14.23 D	14.22	32.950 D	24.558	337.2	0.034	5.94	D259.0	D101.5						0.42	0.14	10	
11	14.20	14.20	32.951 D	24.564	336.7	0.037	5.93	259.0	101.3						0.42	0.14	11	11
20 ISL	14.07 D	14.06	32.952 D	24.593	334.2	0.068	5.94	D259.0	D101.2						0.42	0.18	20	
21	14.05	14.05	32.951 D	24.596	333.9	0.071	5.93	259.0	101.0						0.42	0.18	21	10
30 ISL	14.04 D	14.03	32.951 D	24.599	333.9	0.101	5.94	D258.7	D101.0						0.46	0.20	30	
50 ISL	14.00 D	14.00	32.956 D	24.611	333.3	0.169	5.91	D257.6	D100.6						0.54	0.25	50	
51	14.00	13.99	32.956 D	24.611	333.3	0.172	5.89	257.2	100.2						0.55	0.25	51	09
71	13.58	13.57	33.058 D	24.776	318.2	0.238	5.62	245.3	94.8						0.17	0.13	72	08
75 ISL	13.53 D	13.52	33.094 D	24.815	314.7	0.251	5.61	D244.6	D 94.6						0.16	0.12	76	
100	11.61	11.59	33.156	25.235	275.0	0.322	4.78	208.5	77.4						0.06	0.10	101	07
121	10.20	10.19	33.335 D	25.623	238.4	0.379	4.16	181.6	65.4						0.02	0.06	122	06
125 ISL	10.08 D	10.07	33.354 D	25.658	235.1	0.389	4.12	D179.2	D 64.6						0.02	0.06	126	
140	9.77	9.76	33.491 D	25.817	220.3	0.423	3.70	161.5	57.7						0.00	0.05	141	05
150 ISL	9.89 D	9.87	33.588 D	25.875	215.1	0.445	3.41	D148.3	D 53.3						0.00	0.05	151	
200	9.27	9.25	33.843 D	26.177	187.4	0.547	2.46	107.5	38.1						0.00	0.03	202	04
250 ISL	9.11 D	9.09	33.979 D	26.310	175.8	0.638	2.05	D 89.3	D 31.6								252	
271	8.74	8.71	33.996 D	26.382	169.1	0.675	2.22	96.8	33.9								273	03
300 ISL	8.39 D	8.36	34.035 D	26.467	161.5	0.723	2.08	D 90.5	D 31.6								302	
381	7.57	7.53	34.123 D	26.660	144.2	0.848	1.30	56.8	19.4								384	02
400 ISL	7.37 D	7.34	34.131 D	26.693	141.2	0.875	1.15	D 49.9	D 17.0								403	
500 ISL	6.43 D	6.39	34.153 D	26.840	128.0	1.011	0.74	D 32.0	D 10.7								504	
516	6.40	6.36	34.168	26.856	126.7	1.023	0.66	28.8	9.6								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 1601 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 47.1 N	122 3.8 W	25/01/2016	0343	UTC	213 m	330 14 kn			1021.9 mb	13.3 C	10.0 C				087

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.94	13.94	33.272	24.864	307.7	0.000	5.97	260.5	101.6						0.93	0.44	0	
2	13.94	13.94	33.272	24.864	307.8	0.006	5.97	260.5	101.6						0.93	0.44	2	10
9	13.94	13.94	33.271 D	24.865	307.9	0.028	5.96	260.0	101.4						0.97	0.43	9	09
10 ISL	13.95 D	13.95	33.276 D	24.866	307.9	0.031	5.98	D260.4	D101.8						0.97	0.43	10	
20	13.96	13.95	33.276 D	24.866	308.1	0.062	5.97	260.4	101.6						0.96	0.41	20	08
30 ISL	13.96 D	13.96	33.277 D	24.866	308.5	0.093	5.97	D260.0	D101.6						0.81	0.39	30	
49	13.97	13.96	33.285 D	24.872	308.5	0.152	5.90	257.6	100.5						0.52	0.36	49	11
50 ISL	13.97 D	13.96	33.287 D	24.874	308.4	0.155	5.90	D257.3	D100.6						0.50	0.35	50	
50	13.97	13.96	33.287 D	24.874	308.4	0.155	5.90	D257.3	D100.6								50	07
70	13.19	13.18	33.363 D	25.092	288.1	0.215	5.24	228.6	87.8						0.08	0.13	71	06
75 ISL	12.99 D	12.98	33.357 D	25.126	284.9	0.230	5.15	D224.2	D 85.9						0.08	0.14	76	
99	11.51	11.49	33.401	25.444	255.2	0.293	4.16	181.6	67.3						0.06	0.16	100	05
100 ISL	11.52 D	11.50	33.415 D	25.453	254.3	0.298	4.14	D180.3	D 67.0						0.06	0.16	101	
121	10.73	10.72	33.566 D	25.712	230.1	0.349	3.62	158.0	57.7						0.04	0.19	122	04
125 ISL	10.51 D	10.49	33.612 D	25.787	223.0	0.358	3.49	D152.0	D 55.3						0.04	0.17	126	
140	9.86	9.84	33.732 D	25.991	203.8	0.390	3.01	131.5	47.1						0.01	0.12	141	03
150 ISL	9.60 D	9.58	33.798 D	26.087	194.9	0.410	2.85	D123.8	D 44.3						0.01	0.11	151	
200	8.83	8.81	34.007 D	26.375	168.4	0.502	2.14	93.5	32.8						0.01	0.08	202	02
250 ISL	8.40 D	8.38	34.056 D	26.480	159.3	0.585	1.93	D 83.9	D 29.3								252	
268	8.20	8.17	34.076	26.527	155.1	0.609	1.78	77.7	26.9								270	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 1601 STATION 66.7 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 37.7 N	122 25.1 W	25/01/2016	0704 UTC	2344 m	330 09 kn			1023.0 mb	13.9 C	11.0 C				088

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.83	13.83	33.278	24.893	304.9	0.000	5.97	263.6	101.3						1.14	0.49	0	
2	13.83	13.83	33.278	24.894	305.0	0.006	5.97	263.6	101.3						1.14	0.49	2	12
9	13.83	13.83	33.280 D	24.895	305.1	0.028	5.96	260.3	101.3						1.16	0.48	9	11
10 ISL	13.83 D	13.83	33.280 D	24.895	305.1	0.031	5.96	D259.9	D101.3						1.17	0.47	10	
19	13.83	13.83	33.280 D	24.895	305.4	0.058	5.97	260.7	101.4						1.25	0.37	19	10
20 ISL	13.83 D	13.83	33.280 D	24.894	305.4	0.062	5.96	D259.7	D101.2						1.23	0.36	20	
30 ISL	13.83 D	13.83	33.280 D	24.895	305.7	0.092	5.96	D259.8	D101.3						1.00	0.32	30	
50	13.71	13.71	33.299 D	24.935	302.5	0.154	5.78	D251.8	D 97.9						0.54	0.23	50	09
70	11.75	11.74	33.414 D	25.408	257.8	0.210	4.30	187.8	70.0						0.06	0.13	71	08
75 ISL	11.53 D	11.52	33.432 D	25.463	252.7	0.223	4.20	D182.9	D 68.0						0.06	0.12	76	
99	10.81	10.80	33.540	25.676	232.9	0.279	3.64	158.8	58.1						0.03	0.10	100	07
100 ISL	10.72 D	10.71	33.569 D	25.716	229.2	0.284	3.60	D156.5	D 57.3						0.03	0.10	101	
119	10.14	10.12	33.729 D	25.941	208.1	0.326	3.04	132.7	47.9						0.02	0.07	120	06
125 ISL	10.16 D	10.14	33.757 D	25.960	206.5	0.339	2.92	D127.3	D 46.1						0.01	0.07	126	
140	10.01	9.99	33.818 D	26.033	199.9	0.369	2.73	119.3	42.9						0.01	0.06	141	05
150 ISL	9.97 D	9.95	33.837 D	26.054	198.1	0.389	2.67	D116.1	D 41.9						0.01	0.06	151	
200 ISL	9.19 D	9.17	33.989 D	26.304	175.3	0.484	2.22	D 96.7	D 34.3						0.01	0.05	202	
201	9.18	9.16	33.991 D	26.307	175.0	0.485	2.22	96.7	34.2						0.01	0.05	203	04
250 ISL	8.75 D	8.73	34.070 D	26.437	163.5	0.569	1.89	D 82.2	D 28.9								252	
270	8.50	8.47	34.092 D	26.494	158.4	0.601	1.75	76.5	26.7								272	03
300 ISL	8.19 D	8.15	34.104 D	26.552	153.3	0.649	1.64	D 71.2	D 24.7								302	
379	7.28	7.24	34.142 D	26.714	138.7	0.765	1.10	47.9	16.2								382	02
400 ISL	7.12 D	7.08	34.165 D	26.755	135.1	0.794	0.97	D 42.1	D 14.3								403	
500 ISL	6.39 D	6.35	34.216 D	26.895	122.8	0.924	0.54	D 23.3	D 7.8								504	
517	6.14	6.10	34.208 D	26.921	120.3	0.945	0.48	20.8	6.9								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 1601 STATION 66.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 27.4 N	122 46.3 W	25/01/2016	1039 UTC	3002 m	330 07 kn			1022.6 mb	14.2 C	11.9 C				089

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.42	13.42	32.873	24.663	326.8	0.000	6.06	264.5	101.8						0.40	0.19	0	
2	13.42	13.41	32.873	24.663	326.9	0.007	6.06	264.5	101.8						0.40	0.19	2	12
10	13.42	13.42	32.872 D	24.663	327.1	0.033	6.04	263.8	101.5						0.42	0.17	10	11
19	13.42	13.42	32.874 D	24.664	327.3	0.063	6.06	264.6	101.8						0.40	0.19	19	10
20 ISL	13.42 D	13.42	32.873 D	24.663	327.4	0.066	6.04	D263.3	D101.5						0.40	0.19	20	
30 ISL	13.42 D	13.41	32.879 D	24.669	327.2	0.099	6.04	D263.1	D101.4						0.36	0.19	30	
50	12.85	12.84	33.131 D	24.979	298.3	0.162	5.44	D237.1	D 90.5						0.28	0.19	50	09
70	10.97	10.96	33.202 D	25.384	260.0	0.218	4.75	207.2	75.9						0.09	0.11	71	08
75 ISL	10.75 D	10.74	33.193 D	25.417	257.0	0.231	4.57	D199.2	D 72.7						0.08	0.10	76	
100 ISL	9.53 D	9.52	33.391 D	25.778	223.0	0.292	3.98	D173.3	D 61.7						0.02	0.06	101	
101	9.52	9.50	33.404	25.790	221.9	0.290	3.95	172.2	61.2						0.01	0.06	102	07
120	9.30	9.29	33.611 D	25.987	203.6	0.335	3.52	153.5	54.3						0.01	0.05	121	06
125 ISL	9.27 D	9.26	33.620 D	25.999	202.5	0.345	3.52	D153.3	D 54.4						0.01	0.04	126	
140	8.74	8.73	33.758 D	26.191	184.5	0.374	3.40	148.3	51.9						0.00	0.03	141	05
150 ISL	8.74 D	8.73	33.820 D	26.240	180.1	0.393	3.08	D133.9	D 47.0						0.00	0.03	151	
200	8.48	8.46	34.055 D	26.465	159.6	0.478	1.90	83.0	28.9						0.01	0.04	202	04
250 ISL	8.02 D	8.00	34.113 D	26.582	149.4	0.556	1.57	D 68.1	D 23.6								252	
270	7.75	7.72	34.108 D	26.618	146.1	0.586	1.47	64.1	22.0								272	03
300 ISL	7.47 D	7.44	34.114 D	26.664	142.2	0.630	1.32	D 57.6	D 19.7								302	
380	6.68	6.64	34.160 D	26.811	129.1	0.739	0.77	33.7	11.3								383	02
400 ISL	6.50 D	6.47	34.177 D	26.847	125.8	0.765	0.67	D 29.0	D 9.7								403	
500 ISL	5.81 D	5.76	34.237 D	26.985	113.5	0.886	0.37	D 16.1	D 5.3								504	
517	5.70	5.65	34.245	27.005	111.8	0.896	0.35	15.1	5.0								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 1601 STATION 66.7 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 7.6 N	123 29.1 W	25/01/2016	1555 UTC	3582 m	320 10 kn	310 05 09	1	1023.2 mb	14.7 C	12.9 C		4/8	CS	090

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.04	14.04	32.911	24.566	336.1	0.000	5.92	258.5	100.8						0.38	0.11	0	
2	14.04	14.04	32.911	24.566	336.2	0.007	5.92	258.5	100.8						0.38	0.11	2	12
10	14.04	14.04	32.914 D	24.568	336.2	0.034	5.91	257.9	100.6						0.37	0.12	10	11
20	14.04	14.04	32.914 D	24.569	336.5	0.068	5.91	257.9	100.5						0.36	0.16	20	10
30 ISL	14.04 D	14.04	32.914 D	24.569	336.7	0.102	5.91	D257.4	D100.5						0.33	0.16	30	
50	13.71	13.71	33.077 D	24.764	318.8	0.168	5.61	244.9	94.9						0.28	0.17	50	09
70	11.87	11.86	33.215 D	25.231	274.6	0.227	4.90	213.7	79.8						0.09	0.11	71	08
75 ISL	10.99 D	10.98	33.221 D	25.396	259.0	0.241	4.77	D207.6	D 76.2						0.08	0.10	76	
100	9.23	9.22	33.346	25.790	221.8	0.299	4.44	193.8	68.3						0.01	0.04	101	07
120	9.24	9.23	33.580 D	25.973	204.9	0.344	3.67	160.3	56.6						0.01	0.04	121	06
125 ISL	9.23 D	9.21	33.617 D	26.004	202.0	0.354	3.50	D152.5	D 54.0						0.01	0.04	126	
140	8.80	8.78	33.730 D	26.161	187.4	0.384	3.29	143.4	50.2						0.00	0.05	141	05
150 ISL	8.67 D	8.65	33.813 D	26.246	179.4	0.402	3.15	D137.0	D 48.0						0.00	0.05	151	
200 ISL	8.22 D	8.20	33.986 D	26.451	160.9	0.488	2.76	D120.1	D 41.7						0.00	0.02	202	
201	8.22	8.20	33.987 D	26.452	160.8	0.490	2.60	113.3	39.2						0.00	0.02	203	04
250 ISL	7.72 D	7.69	34.061 D	26.585	148.9	0.566	1.82	D 79.4	D 27.3								252	
271	7.62	7.60	34.086 D	26.619	146.0	0.598	1.58	69.0	23.6								273	03
300 ISL	7.34 D	7.31	34.113 D	26.681	140.5	0.639	1.28	D 55.7	D 19.0								302	
380	6.34	6.31	34.117 D	26.820	127.9	0.748	0.91	D 39.4	D 13.1								383	02
400 ISL	6.20 D	6.17	34.128 D	26.847	125.5	0.773	0.83	D 36.0	D 11.9								403	
500 ISL	5.47 D	5.43	34.171 D	26.972	114.3	0.894	0.50	D 21.7	D 7.1								504	
518	5.65	5.60	34.226	26.996	112.5	0.910	0.39	16.8	5.5								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 1601 STATION 66.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 47.1 N	124 11.6 W	25/01/2016	2123	UTC	4019 m	300 04 kn	300 04 08	1	1022.8 mb	15.0 C	13.0 C		4/8	AS	091

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.70	13.70	32.876	24.608	332.1	0.000	6.09	265.8	102.9						0.72	0.15	0	
2	13.70	13.70	32.876	24.608	332.1	0.007	6.09	265.8	102.9						0.72	0.15	2	12
9	13.46	13.46	32.871 D	24.654	328.0	0.030	6.08	265.4	102.2						0.80	0.26	9	11
10 ISL	13.45 D	13.45	32.872 D	24.656	327.8	0.033	6.11	D266.5	D102.8						0.81	0.26	10	
19	13.43	13.42	32.873 D	24.663	327.4	0.063	6.10	266.5	102.6						0.93	0.31	19	10
20 ISL	13.42 D	13.41	32.875 D	24.666	327.2	0.066	6.10	D266.0	D102.5						0.92	0.32	20	
30 ISL	13.34 D	13.33	33.026 D	24.799	314.8	0.099	6.04	D263.0	D101.3						0.78	0.39	30	
49	13.38	13.37	33.178 D	24.909	304.9	0.158	5.93	258.8	99.7						0.51	0.53	49	09
50 ISL	13.39 D	13.38	33.182 D	24.911	304.7	0.161	5.91	D257.6	D 99.4						0.50	0.51	50	
69	12.66	12.65	33.315 D	25.159	281.7	0.217	5.25	229.2	87.0						0.16	0.13	70	08
75 ISL	11.85 D	11.84	33.332 D	25.327	265.7	0.234	4.93	D214.7	D 80.3						0.14	0.12	76	
100 ISL	10.25 D	10.24	33.548 D	25.780	223.0	0.295	3.50	D152.4	D 55.2						0.07	0.09	101	
100	10.25	10.24	33.548 D	25.780	223.0	0.295	3.50	D152.4	D 55.2								101	07
120	10.12	10.11	33.686 D	25.910	211.1	0.339	3.13	136.4	49.2						0.01	0.06	121	06
125 ISL	9.99 D	9.97	33.704 D	25.947	207.7	0.350	3.11	D135.5	D 48.8						0.01	0.06	126	
139	9.69	9.68	33.730 D	26.017	201.3	0.378	3.03	132.0	47.2						0.01	0.07	140	05
150 ISL	9.33 D	9.32	33.811 D	26.140	189.8	0.400	2.89	D126.0	D 44.8						0.01	0.06	151	
200	8.70	8.68	33.982 D	26.375	168.3	0.490	2.40	104.7	36.6						0.00	0.04	202	04
250 ISL	8.29 D	8.27	34.079 D	26.515	155.9	0.572	1.83	D 79.7	D 27.7								252	
270	8.07	8.04	34.105 D	26.570	151.0	0.603	1.59	69.4	24.0								272	03
300 ISL	7.52 D	7.49	34.087 D	26.635	144.9	0.648	1.55	D 67.4	D 23.1								302	
380	6.48	6.45	34.093 D	26.783	131.4	0.759	1.02	44.5	14.8								383	02
400 ISL	6.37 D	6.34	34.111 D	26.812	129.0	0.786	0.90	D 39.1	D 13.0								403	
500 ISL	5.61 D	5.57	34.151 D	26.941	117.4	0.910	0.59	D 25.8	D 8.4								504	
515	5.50	5.46	34.155	26.957	116.0	0.931	0.54	23.4	7.6								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 1601 STATION 66.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 27.0 N	124 54.6 W	26/01/2016	0231	UTC	4025 m	330 05 kn			1023.8 mb	15.1 C	13.5 C				092

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.55	14.55	32.919	24.466	345.6	0.000	5.89	257.2	101.3						0.39	0.08	0	
2	14.55	14.55	32.919	24.466	345.7	0.007	5.89	257.2	101.3						0.39	0.08	2	12
9	14.37	14.37	32.921 D	24.505	342.2	0.031	5.90	257.4	101.0						0.41	0.08	9	11
10 ISL	14.37 D	14.37	32.921 D	24.506	342.1	0.035	5.91	D257.7	D101.3						0.41	0.09	10	
20	14.35	14.34	32.921 D	24.511	342.0	0.069	5.91	258.1	101.2						0.42	0.13	20	10
30 ISL	14.33 D	14.33	32.921 D	24.515	341.9	0.103	5.90	D257.2	D101.0						0.45	0.15	30	
50	14.24	14.24	32.925 D	24.537	340.4	0.172	5.87	256.4	100.4						0.51	0.18	50	09
70	13.92	13.91	32.935 D	24.612	333.9	0.240	5.82	254.0	98.8						0.30	0.15	71	08
75 ISL	13.86 D	13.85	32.957 D	24.643	331.1	0.257	5.78	D251.8	D 98.0						0.27	0.14	76	
100 ISL	12.05 D	12.04	33.111 D	25.118	286.3	0.335	5.12	D223.1	D 83.7						0.14	0.10	101	
101	11.69	11.68	33.117 D	25.189	279.4	0.338	5.16	D224.6	D 83.6								102	07
120	10.43	10.41	33.163 D	25.451	254.8	0.389	4.78	208.6	75.4						0.03	0.07	121	06
125 ISL	10.06 D	10.05	33.236 D	25.569	243.5	0.401	4.72	D205.7	D 74.0						0.02	0.06	126	
140	9.81	9.79	33.514 D	25.829	219.1	0.436	3.70	161.2	57.7						0.01	0.04	141	05
150 ISL	9.22 D	9.20	33.588 D	25.984	204.5	0.458	3.65	D159.1	D 56.3						0.01	0.04	151	
200	8.81	8.79	33.949 D	26.332	172.5	0.553	2.65	115.5	40.5						0.00	0.03	202	04
250 ISL	8.36 D	8.34	34.064 D	26.492	158.1	0.636	1.97	D 85.8	D 29.9								252	
270	8.04	8.01	34.079 D	26.553	152.5	0.667	1.82	79.5	27.4								272	03
300 ISL	7.73 D	7.70	34.093 D	26.609	147.6	0.713	1.56	D 68.0	D 23.3								302	
380	6.73	6.69	34.116 D	26.769	133.0	0.826	1.02	44.4	14.9								383	02
400 ISL	6.49 D	6.45	34.108 D	26.794	130.7	0.853	1.00	D 43.4	D 14.5								403	
500 ISL	6.03 D	5.98	34.211 D	26.937	118.4	0.978	0.46	D 20.1	D 6.6								504	
516	5.87	5.82	34.213	26.958	116.3	0.993	0.41	17.6	5.8								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 1601 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 10.6 N	121 43.8 W	24/01/2016	1921	UTC	378 m	300 10 kn	290 04 08	1	1021.9 mb	14.0 C	10.2 C		2/8	AS	086

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.94	13.94	33.248	24.847	309.4	0.000	5.92	258.5	100.8						0.85	0.34	0	
2	13.94	13.94	33.248	24.847	309.4	0.006	5.92	258.5	100.8						0.85	0.34	2	12
9	13.94	13.94	33.252 D	24.850	309.3	0.028	5.91	257.9	100.6						0.71	0.37	9	11
10 ISL	13.93 D	13.93	33.254 D	24.854	309.0	0.031	5.91	D257.4	D100.5						0.72	0.37	10	
20	13.92	13.92	33.255 D	24.857	309.0	0.062	5.91	258.1	100.6						0.81	0.38	20	10
30 ISL	13.92 D	13.92	33.272 D	24.870	308.1	0.093	5.86	D255.4	D 99.7						0.59	0.31	30	
50	13.06	13.05	33.457 D	25.190	278.2	0.153	4.90	213.9	82.0						0.13	0.17	50	09
70	12.69	12.68	33.499 D	25.295	268.8	0.208	4.55	198.6	75.6						0.11	0.19	71	08
75 ISL	12.50 D	12.49	33.503 D	25.335	265.1	0.221	4.43	D192.9	D 73.3						0.10	0.18	76	
100	11.27	11.26	33.575	25.623	238.2	0.281	3.66	159.6	59.0						0.06	0.12	101	07
120	10.84	10.83	33.650 D	25.759	225.7	0.331	3.36	146.6	53.7						0.04	0.12	121	06
125 ISL	10.69 D	10.67	33.667 D	25.798	222.0	0.343	3.29	D143.1	D 52.3						0.04	0.11	126	
140	10.10	10.09	33.790 D	25.996	203.4	0.375	2.83	123.5	44.6						0.02	0.08	141	05
150 ISL	9.68 D	9.66	33.880 D	26.137	190.2	0.395	2.60	D113.0	D 40.5						0.02	0.07	151	
200	8.75	8.72	34.057 D	26.427	163.4	0.484	1.89	82.6	29.0						0.01	0.06	202	04
250 ISL	8.13 D	8.10	34.120 D	26.571	150.5	0.563	1.53	D 66.7	D 23.1								252	
271	8.02	7.99	34.130 D	26.596	148.5	0.594	1.46	63.5	21.9								273	03
300 ISL	7.85 D	7.82	34.142 D	26.631	145.6	0.637	1.33	D 57.8	D 19.9								302	
320	7.72	7.69	34.150 D	26.656	143.5	0.667	1.26	55.1	18.9								323	02
371	7.39	7.35	34.163	26.716	138.5	0.734	1.02	44.7	15.2								374	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 1601 STATION 70.0 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
36 2.7 N	122 1.1 W	24/01/2016	1359 UTC	1289 m	330 20 kn			1020.6 mb	13.8 C	11.8 C				085

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.79	13.79	33.160	24.810	312.9	0.000	6.01	262.2	101.9	2.3	0.36	0.0	0.03	0.05	0.70	0.10	0	
2	13.79	13.79	33.160	24.810	312.9	0.006	6.01	262.2	101.9	2.3	0.36	0.0	0.03	0.05	0.70	0.10	2	12
10	13.80	13.79	33.159 D	24.808	313.4	0.032	6.03	263.3	102.3	2.6	0.36	0.0	0.03	0.05	0.77	0.02	10	11
20	13.80	13.79	33.159 D	24.808	313.6	0.063	6.03	263.0	102.2	2.3	0.53	0.0	0.03	0.07	0.40	0.52	20	10
30 ISL	13.80 D	13.79	33.173 D	24.820	312.8	0.095	6.00	D261.3	D101.7	2.9	0.55	1.1	0.15	0.07	0.35	0.44	30	
50	13.04	13.03	33.299 D	25.071	289.5	0.156	5.54	241.6	92.5	4.0	0.60	3.2	0.38	0.06	0.25	0.27	50	09
70	11.11	11.11	33.331 D	25.459	252.9	0.210	4.29	187.3	68.8	13.0	1.35	14.5	0.04	0.01	0.08	0.12	71	08
75 ISL	10.73 D	10.72	33.425 D	25.601	239.4	0.223	3.99	D173.9	D 63.6	14.4	1.42	15.5	0.04	0.00	0.07	0.11	76	
100	10.60	10.59	33.706	25.843	217.1	0.278	3.07	133.8	48.8	21.4	1.79	20.5	0.04	0.00	0.02	0.06	101	07
120	9.83	9.82	33.699 D	25.969	205.4	0.323	3.16	137.7	49.3	23.5	2.00	22.3	0.03	0.00	0.02	0.05	121	06
125 ISL	9.87 D	9.86	33.785 D	26.030	199.8	0.333	2.92	D127.0	D 45.7	24.5	2.01	22.9	0.03	0.00	0.02	0.05	126	
140	9.47	9.46	33.818 D	26.122	191.2	0.362	2.75	120.2	42.7	27.4	2.04	24.8	0.02	0.00	0.01	0.04	141	05
150 ISL	9.38 D	9.36	33.868 D	26.177	186.2	0.381	2.69	D117.1	D 41.7	28.6	2.06	25.2	0.02	0.00	0.01	0.04	151	
200	8.46	8.44	33.955 D	26.391	166.7	0.470	2.73	119.2	41.5	34.3	2.14	27.5	0.03	0.00	0.00	0.04	202	04
250 ISL	8.29 D	8.27	34.105 D	26.535	154.0	0.551	1.75	D 76.2	D 26.5	41.4	2.45	30.0	0.02	0.00			252	
271	8.26	8.23	34.138 D	26.566	151.4	0.584	1.55	67.7	23.5	44.4	2.58	31.1	0.02	0.08			273	03
300 ISL	8.09 D	8.06	34.186 D	26.631	145.8	0.627	1.14	D 49.5	D 17.2	48.6	2.69	32.5	0.02	0.00			302	
380	7.15	7.11	34.194 D	26.773	133.1	0.740	0.79	34.6	11.7	60.3	2.98	36.1	0.02	0.00			383	02
400 ISL	6.75 D	6.71	34.173 D	26.812	129.3	0.766	0.77	D 33.6	D 11.3	63.3	3.02	36.6	0.02	0.00			403	
500 ISL	6.05 D	6.00	34.234 D	26.952	116.9	0.890	0.42	D 18.4	D 6.1	78.3	3.23	39.4	0.01	0.00			504	
518	5.87	5.83	34.236	26.976	114.7	0.906	0.39	17.0	5.6	81.0	3.27	39.9	0.01	0.00			523	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 70.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 52.7 N	122 22.1 W	24/01/2016	1005 UTC	3033 m	330 16 kn			1020.1 mb	13.8 C	10.7 C				084

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.90	13.90	33.314	24.905	303.8	0.000	6.00	261.7	102.0	3.7	0.47	0.7	0.13	0.12	1.46	0.38	0	
2	13.90	13.90	33.314	24.905	303.8	0.006	6.00	261.7	102.0	3.7	0.47	0.7	0.13	0.12	1.46	0.38	2	12
10	13.90	13.90	33.318 D	24.908	303.8	0.031	5.99	261.2	101.9	3.6	0.46	0.7	0.13	0.03	1.57	0.32	10	11
20	13.90	13.90	33.316 D	24.908	304.1	0.061	5.99	261.3	101.9	3.6	0.46	0.7	0.13	0.01	1.26	0.61	20	10
30 ISL	13.72 D	13.72	33.314 D	24.945	301.0	0.092	5.84	D254.5	D 99.0	5.7	0.67	3.8	0.11	0.00	0.90	0.46	30	
50	12.80	12.79	33.452 D	25.237	273.7	0.150	4.63	202.1	77.1	10.0	1.09	9.9	0.08	0.00	0.18	0.17	50	09
70	11.82	11.81	33.476 D	25.443	254.5	0.203	3.94	172.0	64.2	13.9	1.39	14.4	0.05	0.01	0.08	0.13	71	08
75 ISL	11.30 D	11.29	33.441 D	25.512	248.1	0.216	3.98	D173.5	D 64.2	15.1	1.45	15.5	0.04	0.00	0.07	0.12	76	
100	9.61	9.60	33.525	25.868	214.4	0.271	3.61	157.4	56.1	20.8	1.74	21.2	0.03	0.00	0.02	0.07	101	07
120	9.44	9.42	33.743 D	26.069	195.9	0.315	3.10	135.1	48.0	25.5	1.92	23.6	0.03	0.00	0.01	0.07	121	06
125 ISL	9.36 D	9.35	33.805 D	26.129	190.2	0.325	2.99	D130.2	D 46.3	26.2	1.95	23.9	0.03	0.00	0.01	0.07	126	
140	9.25	9.24	33.854 D	26.185	185.2	0.353	2.83	123.5	43.7	28.5	2.04	25.0	0.03	0.00	0.01	0.06	141	05
150 ISL	8.80 D	8.78	33.872 D	26.272	177.0	0.372	2.99	D130.2	D 45.7	29.8	2.07	25.6	0.03	0.00	0.01	0.06	151	
200	8.26	8.24	33.976 D	26.437	162.3	0.457	2.62	114.1	39.5	36.2	2.19	28.3	0.03	0.00	0.01	0.05	202	04
250 ISL	8.11 D	8.08	34.066 D	26.532	154.2	0.537	1.93	D 83.9	D 29.1	43.2	2.46	30.9	0.02	0.00			252	
270	7.92	7.89	34.090 D	26.579	150.0	0.567	1.65	71.8	24.7	46.0	2.57	31.9	0.02	0.01			272	03
300 ISL	7.55 D	7.52	34.115 D	26.653	143.3	0.612	1.36	D 59.2	D 20.2	51.0	2.72	33.3	0.02	0.00			302	
382	6.83	6.79	34.181 D	26.807	129.6	0.725	0.72	31.2	10.5	64.8	3.14	37.0	0.01	0.00			385	02
400 ISL	6.75 D	6.71	34.188 D	26.824	128.2	0.748	0.69	D 29.9	D 10.1	67.0	3.16	37.4	0.01	0.00			403	
500 ISL	5.92 D	5.88	34.215 D	26.953	116.6	0.872	0.44	D 18.9	D 6.2	79.2	3.28	40.0	0.01	0.00			504	
517	5.82	5.78	34.226	26.975	114.8	0.885	0.38	16.6	5.5	81.3	3.30	40.4	0.01	0.01			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 1601 STATION 70.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 33.2 N	123 4.5 W	24/01/2016	0410 UTC	3831 m	330 15 kn			1020.5 mb	14.1 C	11.9 C				083

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	13.93	13.93	32.855	24.544	338.2	0.000	6.00	262.0	101.9	2.1	0.31	0.0	0.01	0.16	0.35	0.07	0	
1	13.93	13.93	32.855	24.544	338.2	0.003	6.00	262.0	101.9	2.1	0.31	0.0	0.01	0.16	0.35	0.07	1	12
10	13.94	13.94	32.857 D	24.546	338.3	0.034	5.99	261.4	101.7	2.1	0.38	0.2	0.02	0.20	0.34	0.07	10	11
20	13.95	13.95	32.858 D	24.545	338.7	0.068	5.99	261.4	101.7	2.1	0.36	0.0	0.01	0.04	0.34	0.09	20	10
30 ISL	13.57 D	13.57	32.869 D	24.631	330.8	0.102	6.05	D263.6	D101.9	2.5	0.40	0.6	0.16	0.13	0.36	0.13	30	
47	13.33	13.32	32.955 D	24.747	320.2	0.158	5.78	252.3	96.9	3.2	0.48	1.7	0.43	0.27	0.39	0.19	47	09
50 ISL	13.30 D	13.30	32.999 D	24.787	316.6	0.168	5.80	D252.7	D 97.2	3.2	0.48	1.7	0.41	0.26	0.36	0.19	50	
69	13.31	13.30	33.089 D	24.856	310.6	0.227	5.84	255.1	98.1	3.0	0.48	1.2	0.31	0.17	0.19	0.14	70	08
75 ISL	13.26 D	13.25	33.111 D	24.883	308.2	0.246	5.72	D249.3	D 95.9	4.9	0.64	3.8	0.26	0.14	0.16	0.13	76	
100	10.40	10.38	33.237	25.513	248.4	0.313	4.56	199.0	72.0	12.8	1.30	14.5	0.03	0.01	0.06	0.08	101	07
120	9.70	9.69	33.455 D	25.801	221.4	0.363	3.88	169.5	60.5	19.1	1.67	19.8	0.02	0.00	0.02	0.05	121	06
125 ISL	9.57 D	9.55	33.499 D	25.857	216.1	0.374	3.78	D164.4	D 58.6	20.2	1.71	20.4	0.02	0.00	0.02	0.05	126	
140	9.27	9.26	33.606 D	25.988	203.9	0.406	3.51	153.3	54.2	23.4	1.83	22.3	0.02	0.00	0.01	0.04	141	05
150 ISL	9.15 D	9.13	33.702 D	26.084	195.0	0.426	3.30	D143.5	D 50.8	25.2	1.89	23.2	0.02	0.00	0.01	0.04	151	
200 ISL	8.59 D	8.56	33.942 D	26.361	169.6	0.518	2.50	D108.6	D 38.0	34.1	2.19	27.6	0.02	0.00	0.00	0.04	202	
201	8.57	8.55	33.940 D	26.362	169.5	0.520	2.53	110.5	38.6	34.3	2.20	27.7	0.02	0.04	0.00	0.04	203	04
250 ISL	8.10 D	8.08	34.034 D	26.507	156.5	0.600	2.06	D 89.7	D 31.1	40.5	2.38	29.8	0.01	0.02			252	
273	8.02	8.00	34.074 D	26.551	152.7	0.636	1.90	83.0	28.6	43.4	2.47	30.8	0.01	0.01			275	03
300 ISL	7.59 D	7.56	34.058 D	26.603	148.0	0.677	1.75	D 76.0	D 26.0	47.9	2.57	32.2	0.01	0.07			302	
380	6.85	6.81	34.135 D	26.768	133.2	0.791	0.93	40.4	13.5	61.4	2.88	36.4	0.01	0.26			383	02
400 ISL	6.62 D	6.59	34.130 D	26.794	130.9	0.817	0.91	D 39.5	D 13.2	63.9	2.93	37.0	0.01	0.24			403	
500 ISL	5.95 D	5.90	34.167 D	26.912	120.5	0.944	0.60	D 26.1	D 8.6	76.2	3.20	39.6	0.01	0.12			504	
513	5.84	5.80	34.168	26.926	119.3	0.953	0.55	23.8	7.8	77.8	3.23	39.9	0.01	0.11			517	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 1601 STATION 70.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 13.0 N	123 46.7 W	23/01/2016	2221	UTC	4075 m	300 17 kn	300 07 10	1	1019.7 mb	14.5 C	12.0 C		4/8	CU	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	14.34	14.34	32.925	24.513	341.1	0.000	5.92	258.4	101.4	2.0	0.46	0.0	0.02	0.67	0.28	0.10	0	
3	14.34	14.34	32.925	24.513	341.2	0.010	5.92	258.4	101.4	2.0	0.46	0.0	0.02	0.67	0.28	0.10	3	12
8	14.35	14.34	32.924 D	24.513	341.4	0.028	5.91	258.1	101.2	1.9	0.34	0.0	0.01	0.30	0.30	0.09	8	11
10 ISL	14.33 D	14.33	32.925 D	24.516	341.2	0.034	5.93	D258.3	D101.5	1.9	0.34	0.0	0.02	0.31	0.30	0.10	10	
18	14.33	14.32	32.925 D	24.518	341.2	0.062	5.92	D257.9	D101.3								18	10
20 ISL	14.32 D	14.31	32.926 D	24.520	341.1	0.069	5.92	D257.9	D101.3	2.0	0.35	0.0	0.04	0.36	0.31	0.15	20	
30 ISL	14.25 D	14.24	32.934 D	24.542	339.4	0.103	5.90	D257.3	D100.9	2.0	0.37	0.1	0.06	0.41	0.32	0.21	30	
49	14.14	14.13	32.967 D	24.591	335.2	0.168	5.79	252.8	98.8	2.1	0.39	0.1	0.10	0.51	0.33	0.31	49	09
50 ISL	14.13 D	14.12	32.968 D	24.593	335.1	0.171	5.80	D252.7	D 98.9	2.3	0.41	0.4	0.09	0.00	0.32	0.30	50	
69	12.89	12.88	33.050 D	24.910	305.4	0.232	5.33	232.6	88.6	5.1	0.69	5.3	0.04	0.00	0.08	0.09	70	08
75 ISL	12.57 D	12.56	33.062 D	24.980	298.8	0.251	5.34	D232.8	D 88.3	6.5	0.79	6.8	0.04	0.00	0.08	0.08	76	
100	10.38	10.37	33.157	25.453	254.1	0.317	4.84	211.5	76.4	12.0	1.20	13.1	0.02	0.22	0.05	0.06	101	07
120	9.37	9.36	33.412 D	25.820	219.4	0.368	4.31	188.0	66.5	18.3	1.55	18.8	0.02	0.29	0.02	0.04	121	06
125 ISL	9.34 D	9.33	33.505 D	25.898	212.1	0.379	3.77	D164.2	D 58.2	20.2	1.63	20.0	0.02	0.26	0.01	0.04	126	
138	9.10	9.09	33.645 D	26.046	198.3	0.406	3.20	139.8	49.3	25.1	1.84	23.0	0.02	0.19	0.01	0.03	139	05
150 ISL	9.31 D	9.29	33.847 D	26.172	186.7	0.429	2.73	D118.8	D 42.2	26.7	1.86	23.6	0.02	0.18	0.00	0.03	151	
200	8.27	8.25	33.919 D	26.391	166.6	0.518	3.20	139.8	48.4	33.1	1.95	26.1	0.02	0.12	0.00	0.02	202	04
250 ISL	7.73 D	7.70	33.977 D	26.518	155.2	0.599	2.91	D126.4	D 43.4	41.5	2.18	29.2	0.01	0.21			252	
271	7.35	7.32	33.993 D	26.585	149.1	0.631	2.53	110.3	37.4	45.1	2.28	30.5	0.01	0.25			273	03
300 ISL	7.22 D	7.19	34.028 D	26.631	145.1	0.674	1.95	D 84.7	D 28.8	49.9	2.43	32.3	0.01	0.30			302	
379	6.45	6.41	34.069 D	26.768	132.8	0.785	1.20	52.2	17.4	62.8	2.82	37.1	0.01	0.43			382	02
400 ISL	6.43 D	6.39	34.110 D	26.804	129.7	0.813	0.96	D 41.6	D 13.9	65.8	2.87	37.7	0.01	0.40			403	
500 ISL	5.71 D	5.66	34.191 D	26.961	115.7	0.937	0.48	D 20.9	D 6.8	80.0	3.11	40.5	0.01	0.24			504	
514	5.61	5.57	34.181	26.965	115.4	0.947	0.48	20.9	6.8	82.0	3.14	40.8	0.01	0.22			518	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 1601 STATION 70.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 52.5 N	124 29.4 W	23/01/2016	1629	UTC	4335 m	320 15 kn	290 10 11	1	1020.2 mb	14.9 C	11.3 C		4/8	SC	081

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.72	14.72	33.028	24.514	341.1	0.000	5.84	254.8	100.8	2.1	0.33	0.0	0.01	0.40	0.27	0.05	0	
2	14.72	14.72	33.028	24.514	341.1	0.007	5.84	254.8	100.8	2.1	0.33	0.0	0.01	0.40	0.27	0.05	2	12
10 ISL	14.72 D	14.72	33.029 D	24.514	341.4	0.034	5.84	D254.8	D100.9	2.1	0.37	0.0	0.01	0.40	0.23	0.07	10	
11	14.72	14.72	33.029 D	24.514	341.4	0.038	5.86	256.0	101.3	2.1	0.38	0.0	0.01	0.40	0.23	0.07	11	11
20 ISL	14.72 D	14.72	33.028 D	24.515	341.6	0.069	5.85	D254.9	D101.0	2.1	0.36	0.0	0.01	0.32	0.24	0.07	20	
26	14.72	14.72	33.028 D	24.515	341.8	0.089	5.86	255.8	101.2	2.1	0.34	0.0	0.01	0.26	0.24	0.07	26	10
30 ISL	14.72 D	14.71	33.028 D	24.515	341.9	0.103	5.84	D254.7	D100.9	2.1	0.34	0.0	0.01	0.24	0.26	0.08	30	
50 ISL	14.65 D	14.64	33.077 D	24.570	337.4	0.172	5.82	D253.9	D100.5	2.3	0.35	0.1	0.05	0.15	0.37	0.11	50	
63	14.36	14.35	33.101 D	24.650	330.1	0.215	5.80	253.3	99.5	2.4	0.35	0.2	0.08	0.09	0.44	0.12	64	09
75 ISL	14.05 D	14.03	33.148 D	24.752	320.7	0.255	5.78	D251.8	D 98.5	4.5	0.57	3.6	0.06	0.00	0.29	0.13	76	
87	12.13	12.12	33.128 D	25.116	286.1	0.291	5.20	226.8	85.1	6.6	0.79	7.0	0.05	0.00	0.13	0.13	88	08
100 ISL	10.89 D	10.88	33.205 D	25.402	259.0	0.327	4.73	D205.9	D 75.4	10.8	1.12	12.2	0.03	0.00	0.08	0.09	101	
102	10.84	10.82	33.207	25.413	258.0	0.328	4.72	206.0	75.2	11.4	1.17	13.1	0.03	0.00	0.07	0.08	103	07
125 ISL	9.79 D	9.78	33.393 D	25.737	227.5	0.388	4.19	D182.3	D 65.3	17.0	1.48	17.9	0.02	0.00	0.02	0.05	126	
126	9.78	9.77	33.395 D	25.740	227.3	0.391	4.19	182.7	65.2	17.2	1.49	18.1	0.02	0.00	0.02	0.05	127	06
140	9.40	9.38	33.590 D	25.956	207.0	0.421	3.59	156.8	55.6	21.8	1.72	21.6	0.02	0.00	0.01	0.03	141	05
150 ISL	9.13 D	9.11	33.663 D	26.056	197.7	0.442	3.48	D151.4	D 53.5	23.2	1.75	22.2	0.02	0.00	0.01	0.03	151	
200 ISL	8.59 D	8.57	33.902 D	26.330	172.6	0.535	3.22	D140.2	D 49.0	30.1	1.89	25.3	0.02	0.00	0.00	0.02	202	
203	8.58	8.55	33.906 D	26.335	172.1	0.540	3.20	139.6	48.7	30.5	1.90	25.5	0.02	0.00	0.00	0.02	205	04
250 ISL	8.05 D	8.02	34.009 D	26.496	157.5	0.618	2.48	D107.9	D 37.3	38.3	2.15	28.8	0.02	0.00			252	
270	7.87	7.84	34.020 D	26.532	154.4	0.650	2.35	102.3	35.1	41.7	2.26	30.2	0.02	0.00			272	03
300 ISL	7.59 D	7.56	34.038 D	26.587	149.6	0.696	2.05	D 89.3	D 30.6	46.0	2.37	31.7	0.02	0.00			302	
384	6.71	6.67	34.067 D	26.733	136.5	0.817	1.39	60.6	20.3	58.2	2.69	35.8	0.02	0.00			387	02
400 ISL	6.67 D	6.63	34.109 D	26.772	133.0	0.839	1.10	D 48.0	D 16.1	60.9	2.74	36.4	0.02	0.00			403	
500 ISL	5.88 D	5.84	34.186 D	26.935	118.3	0.966	0.52	D 22.5	D 7.4	77.8	3.09	39.9	0.02	0.00			504	
518	5.72	5.68	34.194	26.961	115.9	0.980	0.48	20.8	6.8	80.8	3.15	40.6	0.02	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 1601 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 38.4 N	121 15.6 W	22/01/2016	0940	UTC	36 m	110 10 kn			1018.7 mb	14.4 C	12.9 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	13.93	13.93	33.157	24.778	315.9	0.000	5.90	257.4	100.3	6.6	0.79	3.7	0.42	0.50	0.93	0.41	0	
1	13.93	13.93	33.157	24.778	315.9	0.003	5.90	257.4	100.3	6.6	0.79	3.7	0.42	0.50	0.93	0.41	1	05
5	13.93	13.93	33.154 D	24.776	316.3	0.016	5.86	255.8	99.6	6.5	0.79	3.7	0.41	0.56	0.93	0.42	5	04
10	13.89	13.89	33.220 D	24.837	310.6	0.032	5.76	251.6	97.9	6.1	0.75	3.7	0.43	0.43	0.94	0.44	10	03
20	13.65	13.65	33.381 D	25.010	294.5	0.062	5.45	237.8	92.2	6.8	0.82	4.6	0.49	0.36	0.49	0.40	20	02
30 ISL	13.63 D	13.62	33.387 D	25.020	293.8	0.092	5.42	D236.2	D 91.8	7.0	0.83	4.7	0.51	0.31	0.47	0.42	30	
31	13.63	13.62	33.386	25.019	293.9	0.094	5.40	235.9	91.5	7.0	0.83	4.7	0.51	0.31	0.47	0.42	31	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 1601 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 29.1 N	121 36.2 W	22/01/2016	1256 UTC	972 m	130 22 kn			1017.0 mb	14.5 C	13.3 C				076

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.28	14.28	33.454	24.935	301.0	0.000	5.91	257.9	101.4	3.0	0.51	1.0	0.16	0.14	0.98	0.58	0	
2	14.28	14.28	33.454	24.935	301.1	0.006	5.91	257.9	101.4	3.0	0.51	1.0	0.16	0.14	0.98	0.58	2	12
10 ISL	14.27 D	14.27	33.453 D	24.937	301.1	0.030	5.90	D257.0	D101.2	3.0	0.50	1.0	0.16	0.17	0.99	0.53	10	
11	14.27	14.26	33.453 D	24.938	301.0	0.033	5.91	258.2	101.5	3.0	0.50	1.0	0.16	0.17	0.99	0.53	11	11
20	14.26	14.26	33.453 D	24.939	301.3	0.061	5.91	257.8	101.3	3.1	0.51	1.1	0.16	0.17	1.04	0.52	20	10
30 ISL	14.21 D	14.21	33.450 D	24.947	300.7	0.091	5.89	D256.6	D100.9	3.3	0.54	1.5	0.23	0.21	0.84	0.45	30	
50 ISL	14.08 D	14.07	33.459 D	24.984	297.9	0.151	5.66	D246.7	D 96.8	3.9	0.60	2.2	0.36	0.28	0.45	0.32	50	
51	14.03	14.02	33.467 D	25.000	296.4	0.154	5.66	246.9	96.6	3.9	0.60	2.3	0.37	0.28	0.43	0.31	51	09
71	13.12	13.11	33.473 D	25.190	278.8	0.212	4.72	206.2	79.2	9.2	0.97	8.6	0.18	0.05	0.15	0.23	72	08
75 ISL	13.06 D	13.05	33.490 D	25.215	276.5	0.224	4.67	D203.2	D 78.1	10.1	1.03	9.6	0.16	0.00	0.14	0.22	76	
100	11.65	11.63	33.535	25.523	247.8	0.287	3.68	160.7	59.8	15.4	1.42	15.6	0.04	0.00	0.07	0.19	101	07
121	10.76	10.74	33.828 D	25.911	211.2	0.338	2.70	117.7	43.1	22.4	1.83	21.2	0.03	0.00	0.03	0.09	122	06
125 ISL	10.60 D	10.58	33.825 D	25.938	208.7	0.347	2.66	D116.0	D 42.4	22.9	1.85	21.5	0.03	0.00	0.03	0.09	126	
140	10.43	10.42	33.873 D	26.004	202.8	0.378	2.57	112.4	40.8	24.5	1.91	22.5	0.03	0.00	0.03	0.09	141	05
150 ISL	10.21 D	10.19	33.928 D	26.086	195.2	0.398	2.39	D104.0	D 37.7	25.6	1.95	23.0	0.03	0.00	0.03	0.09	151	
200	9.68	9.66	34.022 D	26.250	180.6	0.493	2.11	91.9	32.9	31.1	2.14	25.9	0.02	0.00	0.02	0.09	202	04
250 ISL	8.93 D	8.90	34.108 D	26.440	163.4	0.579	1.76	D 76.5	D 27.0	37.7	2.34	28.5	0.02	0.00			252	
270	8.79	8.76	34.148 D	26.494	158.6	0.612	1.55	67.6	23.7	40.3	2.42	29.6	0.02	0.31			272	03
300 ISL	8.40 D	8.37	34.162 D	26.565	152.2	0.659	1.41	D 61.4	D 21.4	44.7	2.50	31.2	0.01	0.00			302	
381	7.06	7.03	34.112 D	26.721	137.9	0.777	1.17	51.2	17.2	56.4	2.70	35.5	0.01	0.00			384	02
400 ISL	6.89 D	6.86	34.131 D	26.759	134.5	0.803	1.00	D 43.5	D 14.6	59.0	2.75	36.0	0.01	0.00			403	
500 ISL	6.32 D	6.28	34.232 D	26.916	120.7	0.932	0.47	D 20.4	D 6.8	72.8	3.02	38.8	0.02	0.00			504	
518	6.17	6.12	34.239	26.942	118.3	0.948	0.43	18.6	6.1	75.3	3.07	39.3	0.02	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 1601 STATION 73.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 19.2 N	121 57.6 W	22/01/2016	1700 UTC	2468 m	150 12 kn	280 09 12	5	1017.7 mb	14.9 C	13.9 C		8/8	NS	077

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.37	14.37	33.193	24.715	321.9	0.000	5.95	259.7	102.1	2.1	0.34	0.0	0.02	0.00	0.46	0.14	0	
3	14.37	14.37	33.193	24.715	322.0	0.010	5.95	259.7	102.1	2.1	0.34	0.0	0.02	0.00	0.46	0.14	3	12
10 ISL	14.37 D	14.37	33.196 D	24.718	322.0	0.033	5.94	D258.8	D101.9	2.1	0.33	0.0	0.01	0.00	0.43	0.15	10	
11	14.37	14.37	33.194 D	24.716	322.2	0.036	5.95	259.9	102.2	2.1	0.33	0.0	0.01	0.00	0.42	0.15	11	11
20	14.37	14.37	33.206 D	24.725	321.5	0.065	5.93	258.8	101.7	2.0	0.34	0.0	0.01	0.00	0.43	0.15	20	10
30 ISL	14.34 D	14.33	33.214 D	24.740	320.5	0.097	5.93	D258.5	D101.7	2.0	0.38	0.2	0.10	0.00	0.42	0.20	30	
50	13.58	13.57	33.277 D	24.946	301.4	0.160	5.83	254.8	98.6	2.1	0.46	0.7	0.27	0.33	0.39	0.28	50	09
70	11.64	11.63	33.213 D	25.273	270.7	0.218	4.82	210.4	78.1	9.5	1.04	10.9	0.06	0.00	0.08	0.13	71	08
75 ISL	11.23 D	11.22	33.231 D	25.361	262.3	0.231	4.75	D207.0	D 76.4	10.9	1.12	12.2	0.05	0.00	0.07	0.12	76	
100 ISL	10.09 D	10.08	33.463 D	25.741	226.6	0.293	3.92	D170.7	D 61.6	17.7	1.53	18.6	0.03	0.00	0.03	0.08	101	
101	10.05	10.04	33.460	25.745	226.3	0.292	3.85	168.2	60.4	17.9	1.55	18.9	0.03	0.00	0.03	0.07	102	07
121	9.88	9.87	33.711 D	25.970	205.4	0.338	3.14	137.0	49.1	23.1	1.78	22.0	0.03	0.00	0.02	0.09	122	06
125 ISL	9.88 D	9.86	33.711 D	25.971	205.3	0.347	3.16	D137.3	D 49.4	23.7	1.80	22.3	0.03	0.00	0.02	0.08	126	
141	9.68	9.67	33.814 D	26.085	194.9	0.379	2.86	124.7	44.6	25.9	1.89	23.5	0.03	0.00	0.02	0.06	142	05
150 ISL	9.59 D	9.58	33.835 D	26.116	192.1	0.397	2.83	D123.1	D 44.0	27.4	1.95	24.2	0.03	0.00	0.02	0.06	151	
200 ISL	9.06 D	9.04	34.060 D	26.379	168.1	0.487	1.99	D 86.7	D 30.7	35.6	2.25	27.9	0.03	0.00	0.01	0.06	202	
201	9.06	9.04	34.061 D	26.380	168.0	0.489	1.94	84.5	29.8	35.8	2.26	28.0	0.03	0.00	0.01	0.06	203	04
250 ISL	8.77 D	8.74	34.147 D	26.495	158.0	0.570	1.55	D 67.2	D 23.7	42.0	2.44	30.2	0.02	0.00			252	
271	8.37	8.34	34.161 D	26.569	151.3	0.602	1.39	60.8	21.1	44.6	2.52	31.2	0.02	0.00			273	03
300 ISL	8.06 D	8.03	34.175 D	26.626	146.2	0.646	1.23	D 53.6	D 18.6	49.3	2.61	32.8	0.02	0.00			302	
380	6.72	6.69	34.145 D	26.792	130.8	0.758	0.90	39.0	13.1	62.3	2.84	37.0	0.01	0.00			383	02
400 ISL	6.63 D	6.59	34.171 D	26.826	127.9	0.784	0.72	D 31.2	D 10.5	64.8	2.88	37.5	0.01	0.00			403	
500 ISL	5.89 D	5.85	34.208 D	26.951	116.8	0.907	0.45	D 19.4	D 6.4	77.5	3.09	40.0	0.02	0.00			504	
515	5.83	5.78	34.217	26.967	115.5	0.916	0.44	19.0	6.2	79.4	3.12	40.4	0.02	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 73.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 58.8 N	122 39.0 W	22/01/2016	2317 UTC	4062 m	170 16 kn	180 04 08	5	1014.5 mb	15.7 C	14.8 C		8/8	ST	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	13.95	13.95	32.824	24.518	340.7	0.000	5.99	261.6	101.7	2.1	0.32	0.0	0.02	0.06	0.33	0.12	0	
3	13.95	13.95	32.824	24.518	340.8	0.010	5.99	261.6	101.7	2.1	0.32	0.0	0.02	0.06	0.33	0.12	3	12
8	13.95	13.95	32.823 D	24.517	341.0	0.028	5.98	261.2	101.6	2.1	0.33	0.0	0.02	0.17	0.33	0.13	8	11
10 ISL	13.95 D	13.95	32.823 D	24.517	341.0	0.034	6.00	D261.4	D101.8	2.1	0.33	0.0	0.02	0.19	0.34	0.13	10	
19	13.94	13.94	32.827 D	24.521	340.9	0.065	5.99	261.8	101.8	2.1	0.34	0.0	0.02	0.26	0.37	0.12	19	10
20 ISL	13.94 D	13.94	32.828 D	24.523	340.8	0.069	5.99	D261.3	D101.8	2.1	0.34	0.1	0.02	0.27	0.37	0.12	20	
30 ISL	13.83 D	13.82	32.832 D	24.550	338.5	0.103	6.00	D261.7	D101.7	2.2	0.37	0.3	0.08	0.33	0.36	0.16	30	
50	13.51	13.50	32.900 D	24.668	327.9	0.170	5.88	D256.2	D 98.9	2.6	0.42	0.7	0.19	0.45	0.36	0.23	50	09
69	12.95	12.94	33.122 D	24.952	301.3	0.230	5.46	238.2	90.9	4.8	0.65	4.5	0.06	0.09	0.13	0.10	70	08
75 ISL	12.45 D	12.44	33.160 D	25.080	289.3	0.248	5.14	D223.9	D 84.7	7.0	0.82	7.1	0.05	0.08	0.11	0.10	76	
100	10.13	10.11	33.332	25.633	236.9	0.312	4.15	181.2	65.2	16.4	1.51	17.9	0.02	0.03	0.02	0.07	101	07
119	9.49	9.48	33.435 D	25.819	219.5	0.358	4.02	175.5	62.3	19.1	1.59	19.6	0.02	0.00	0.01	0.05	120	06
125 ISL	9.31 D	9.29	33.449 D	25.860	215.7	0.371	4.10	D178.5	D 63.3	20.8	1.65	20.6	0.02	0.00	0.01	0.05	126	
139	9.02	9.00	33.636 D	26.052	197.7	0.400	3.52	153.5	54.0	24.9	1.80	23.1	0.02	0.06	0.00	0.04	140	05
150 ISL	8.89 D	8.87	33.738 D	26.152	188.4	0.422	3.26	D142.1	D 50.0	26.7	1.87	24.1	0.02	0.05	0.00	0.04	151	
200	8.60	8.58	33.986 D	26.393	166.5	0.511	2.33	101.5	35.4	35.0	2.18	28.4	0.02	0.02	0.01	0.04	202	04
250 ISL	7.98 D	7.95	34.069 D	26.554	152.0	0.592	1.78	D 77.5	D 26.8	43.1	2.40	31.2	0.02	0.00			252	
269	7.77	7.74	34.077 D	26.591	148.7	0.620	1.66	72.5	24.9	46.2	2.49	32.3	0.02	0.00			271	03
300 ISL	7.28 D	7.25	34.065 D	26.652	143.2	0.666	1.68	D 73.0	D 24.8	51.2	2.61	33.7	0.02	0.00			302	
376	6.62	6.59	34.135 D	26.798	130.2	0.771	0.88	38.2	12.7	63.5	2.92	37.3	0.02	0.15			379	02
400 ISL	6.43 D	6.39	34.146 D	26.833	127.1	0.802	0.77	D 33.6	D 11.2	66.5	2.96	37.8	0.01	0.14			403	
500 ISL	5.91 D	5.87	34.231 D	26.967	115.3	0.924	0.42	D 18.4	D 6.1	78.8	3.12	40.0	0.01	0.08			504	
515	5.73	5.68	34.217	26.979	114.2	0.936	0.42	18.2	6.0	80.7	3.14	40.4	0.01	0.07			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 1601 STATION 73.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 38.9 N	123 21.6 W	23/01/2016	0518 UTC	4154 m	080 19 kn			1016.0 mb	16.1 C	14.1 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	15.14	15.14	33.096	24.474	344.8	0.000	5.78	252.5	100.8	2.1	0.31	0.0	0.01	0.02	0.19	0.05	0	
2	15.14	15.14	33.096	24.474	344.9	0.007	5.78	252.5	100.8	2.1	0.31	0.0	0.01	0.02	0.19	0.05	2	12
9	15.15	15.15	33.094 D	24.472	345.3	0.031	5.80	253.1	101.0	2.1	0.31	0.0	0.01	0.13	0.19	0.05	9	11
10 ISL	15.15 D	15.15	33.094 D	24.472	345.4	0.035	5.79	D252.3	D100.9	2.1	0.31	0.0	0.01	0.15	0.19	0.05	10	
18	15.15	15.15	33.096 D	24.474	345.5	0.063	5.75	251.1	100.2	2.0	0.31	0.0	0.01	0.33	0.18	0.05	18	10
20 ISL	15.06 D	15.05	33.100 D	24.497	343.4	0.069	5.81	D253.1	D101.0	2.1	0.31	0.0	0.01	0.34	0.19	0.06	20	
30 ISL	14.92 D	14.91	33.099 D	24.527	340.8	0.104	5.81	D253.3	D100.8	2.1	0.33	0.0	0.02	0.38	0.24	0.09	30	
50	14.55	14.54	33.114 D	24.619	332.7	0.172	5.76	D250.8	D 99.1	2.3	0.36	0.1	0.05	0.45	0.32	0.16	50	09
70	12.24	12.23	33.081 D	25.058	291.2	0.235	5.37	234.4	88.1	4.9	0.64	4.6	0.06	0.10	0.27	0.17	71	08
75 ISL	12.03 D	12.02	33.091 D	25.105	286.9	0.249	5.21	D226.9	D 85.1	6.3	0.74	6.3	0.05	0.10	0.24	0.15	76	
99	10.29	10.27	33.211	25.512	248.4	0.311	4.75	207.4	74.8	13.1	1.22	14.5	0.02	0.10	0.07	0.08	100	07
100 ISL	10.25 D	10.24	33.220 D	25.524	247.3	0.316	4.71	D205.2	D 74.1	13.3	1.23	14.6	0.02	0.10	0.06	0.08	101	
119	9.48	9.47	33.373 D	25.772	224.0	0.361	4.50	196.6	69.7	16.8	1.38	17.4	0.02	0.19	0.02	0.04	120	06
125 ISL	9.48 D	9.47	33.429 D	25.815	220.0	0.375	4.39	D191.0	D 68.0	18.3	1.44	18.5	0.02	0.00	0.02	0.04	126	
141	9.07	9.05	33.614 D	26.027	200.2	0.409	3.79	165.3	58.2	22.2	1.61	21.5	0.02	0.00	0.01	0.04	142	05
150 ISL	8.97 D	8.95	33.659 D	26.078	195.5	0.427	3.69	D160.7	D 56.6	23.7	1.65	22.2	0.02	0.00	0.01	0.04	151	
200	8.52	8.50	33.910 D	26.346	171.0	0.519	3.04	132.7	46.2	31.9	1.90	26.3	0.02	0.03	0.00	0.03	202	04
250 ISL	7.99 D	7.96	33.983 D	26.485	158.5	0.602	2.87	D124.9	D 43.1	38.3	2.03	28.4	0.02	0.02			252	
271	7.71	7.68	33.993 D	26.534	154.1	0.635	2.68	116.8	39.9	41.0	2.08	29.3	0.02	0.01			273	03
300 ISL	7.48 D	7.45	34.024 D	26.591	149.1	0.679	2.18	D 94.6	D 32.3	46.3	2.24	31.4	0.02	0.02			302	
382	6.70	6.66	34.112 D	26.770	133.0	0.796	1.03	44.9	15.0	61.5	2.71	37.1	0.01	0.05			385	02
400 ISL	6.52 D	6.48	34.120 D	26.800	130.2	0.820	0.92	D 40.2	D 13.4	64.0	2.75	37.6	0.01	0.05			403	
500 ISL	5.89 D	5.84	34.194 D	26.941	117.8	0.945	0.52	D 22.4	D 7.4	78.2	2.98	40.2	0.02	0.04			504	
511	5.85	5.80	34.210	26.958	116.2	0.950	0.45	19.7	6.5	79.7	3.00	40.5	0.02	0.04			515	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 1601 STATION 73.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 18.6 N	124 3.7 W	23/01/2016	1048 UTC	3191 m	280 14 kn			1017.2 mb	15.8 C	12.2 C				080

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.25	15.25	33.034	24.402	351.7	0.000	5.77	252.1	100.8	2.0	0.28	0.0	0.01	0.00	0.18	0.05	0	
2	15.25	15.25	33.034	24.402	351.8	0.007	5.77	252.1	100.8	2.0	0.28	0.0	0.01	0.00	0.18	0.05	2	12
10	15.24	15.24	33.038 D	24.409	351.4	0.036	5.78	252.4	100.9	2.4	0.29	0.0	0.01	0.00	0.18	0.05	10	11
20 ISL	15.24 D	15.24	33.038 D	24.409	351.8	0.071	5.78	D252.0	D100.9	2.1	0.29	0.0	0.01	0.00	0.18	0.06	20	
24	15.24	15.24	33.037 D	24.409	351.9	0.085	5.77	251.8	100.6	2.0	0.29	0.0	0.01	0.00	0.18	0.06	24	10
30 ISL	15.24 D	15.24	33.037 D	24.409	352.1	0.106	5.78	D251.9	D100.8	2.0	0.30	0.0	0.03	0.00	0.22	0.09	30	
50 ISL	14.64 D	14.63	33.026 D	24.533	340.9	0.176	5.86	D255.6	D101.1	2.2	0.35	0.2	0.10	0.00	0.34	0.17	50	
62	14.06	14.06	33.076 D	24.691	326.1	0.217	5.84	255.1	99.6	2.4	0.38	0.3	0.14	0.10	0.41	0.22	63	09
75 ISL	13.73 D	13.72	33.161 D	24.827	313.5	0.259	5.73	D249.8	D 97.1	4.4	0.56	3.4	0.10	0.00	0.27	0.16	76	
88	12.33	12.32	33.141 D	25.087	288.9	0.298	5.22	228.1	85.9	6.4	0.74	6.5	0.05	0.00	0.13	0.10	89	08
100 ISL	11.63 D	11.62	33.199 D	25.264	272.3	0.332	4.90	D213.5	D 79.4	9.4	0.94	9.9	0.04	0.00	0.10	0.08	101	
100	11.63	11.62	33.199 D	25.264	272.3	0.332	4.90	D213.5	D 79.4								101	07
123	9.96	9.95	33.320 D	25.652	235.6	0.391	4.47	195.0	69.9	15.3	1.32	16.5	0.03	0.00	0.04	0.06	124	06
125 ISL	9.90 D	9.89	33.349 D	25.685	232.5	0.395	4.43	D192.8	D 69.2	15.7	1.33	16.8	0.03	0.00	0.04	0.05	126	
140	9.33	9.32	33.454 D	25.860	216.0	0.429	4.36	190.2	67.3	18.7	1.43	18.6	0.02	0.00	0.01	0.03	141	05
150 ISL	9.20 D	9.18	33.529 D	25.941	208.6	0.451	4.21	D183.2	D 64.8	20.5	1.50	19.8	0.02	0.00	0.01	0.03	151	
200	8.74	8.72	33.847 D	26.264	178.9	0.548	3.11	135.7	47.5	29.6	1.86	25.5	0.02	0.00	0.01	0.02	202	04
250 ISL	8.06 D	8.03	33.992 D	26.481	158.9	0.634	2.64	D115.0	D 39.8	39.3	2.11	29.3	0.02	0.00			252	
271	7.78	7.76	34.027 D	26.550	152.7	0.666	2.24	97.8	33.5	43.3	2.22	30.9	0.02	0.00			273	03
300 ISL	7.64 D	7.61	34.077 D	26.611	147.3	0.710	1.68	D 72.9	D 25.0	46.7	2.33	32.2	0.02	0.00			302	
381	7.24	7.21	34.142 D	26.720	138.2	0.827	1.05	45.9	15.6	56.3	2.65	35.6	0.03	0.00			384	02
400 ISL	7.18 D	7.14	34.172 D	26.752	135.5	0.853	0.88	D 38.2	D 13.0	59.7	2.70	36.1	0.02	0.00			403	
500 ISL	6.50 D	6.45	34.266 D	26.920	120.5	0.982	0.41	D 17.9	D 6.0	77.5	2.99	39.2	0.01	0.00			504	
516	6.11	6.07	34.281	26.981	114.5	0.991	0.34	15.0	5.0	80.4	3.04	39.7	0.01	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 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 5.1 N	120 46.4 W	22/01/2016	0434 UTC	63 m	140 05 kn			1019.2 mb	14.1 C	12.5 C				074

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.16	14.16	33.505	25.000	294.8	0.000	5.91	258.1	101.3	5.4	0.58	2.4	0.19	0.19	1.45	0.61	0	
2	14.16	14.16	33.505	25.000	294.8	0.006	5.91	258.1	101.3	5.4	0.58	2.4	0.19	0.19	1.45	0.61	2	09
5	14.15	14.15	33.504	25.001	294.8	0.015	5.90	257.4	100.9	5.3	0.57	2.4	0.19	0.15	1.50	0.60	5	08
10	14.11	14.10	33.502	25.009	294.2	0.029	5.89	256.9	100.7	5.3	0.57	2.4	0.22	0.19	1.65	0.67	10	06
10	14.11	14.10	33.503	25.009	294.2	0.031											10	07
20 ISL	14.03 D	14.02	33.511 D	25.033	292.3	0.059	5.76	D251.1	D 98.4	5.6	0.62	2.8	0.25	0.33	1.36	0.66	20	
21	14.02	14.02	33.509	25.033	292.3	0.062	5.75	251.0	98.2	5.6	0.62	2.9	0.25	0.34	1.33	0.66	21	05
30 ISL	13.84 D	13.83	33.532 D	25.089	287.2	0.088	5.42	D236.1	D 92.2	7.3	0.76	4.3	0.34	0.38	0.80	0.60	30	
31	13.81	13.81	33.530	25.093	286.9	0.091	5.38	234.8	91.5	7.5	0.78	4.5	0.35	0.38	0.74	0.59	31	04
39	13.76	13.75	33.538	25.111	285.5	0.114	5.27	229.8	89.4	8.1	0.83	5.0	0.39	0.44	0.64	0.61	39	03
49	13.61	13.60	33.547	25.148	282.2	0.142	5.03	219.5	85.2	9.3	0.93	6.0	0.47	0.46	0.46	0.61	49	02
50 ISL	13.58 D	13.57	33.549 D	25.157	281.4	0.146	4.96	D216.0	D 83.9	9.5	0.94	6.1	0.48	0.47	0.45	0.63	50	
60	13.51	13.50	33.551	25.172	280.2	0.173	4.84	211.5	81.9	11.0	1.05	6.8	0.59	0.60	0.39	0.81	60	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 1601 STATION 76.7 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
35 1.1 N	120 54.7 W	22/01/2016	0213	UTC	231 m	120 06 kn			1018.3 mb	14.5 C	13.1 C				073

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.22	14.22	33.455	24.949	299.7	0.000	5.96	260.3	102.2	4.1	0.52	1.5	0.15	0.18	1.40	0.52	0	
1	14.22	14.22	33.455	24.949	299.7	0.003	5.96	260.3	102.2	4.1	0.52	1.5	0.15	0.18	1.40	0.52	1	16
10 ISL	14.13 D	14.13	33.449 D	24.962	298.7	0.030	5.97	D260.1	D102.1	4.1	0.51	1.5	0.16	0.28	1.37	0.58	10	
11	14.10	14.10	33.448	24.968	298.2	0.033	5.97	260.4	102.0	4.1	0.51	1.5	0.16	0.29	1.36	0.59	11	15
20 ISL	14.07 D	14.07	33.449 D	24.976	297.7	0.060	5.88	D256.3	D100.5	4.0	0.52	1.7	0.19	0.16	1.44	0.54	20	
21	14.07	14.07	33.453	24.980	297.4	0.063	5.88	256.5	100.4	4.0	0.52	1.7	0.19	0.15	1.45	0.54	21	13
29	14.06	14.05	33.459	24.987	297.0	0.087	5.81	253.6	99.2	4.2	0.55	2.0	0.22	0.35	1.10	0.52	29	12
30 ISL	14.05 D	14.05	33.463 D	24.991	296.6	0.090	5.81	D253.2	D 99.3	4.2	0.55	2.0	0.22	0.35	1.06	0.51	30	
40	14.05	14.04	33.489	25.013	294.8	0.119	5.68	248.0	97.0	4.6	0.59	2.6	0.29	0.39	0.75	0.40	40	11
49	13.93	13.92	33.519	25.060	290.6	0.145	5.49	239.5	93.5	5.5	0.68	3.8	0.46	0.40	0.24	0.23	49	10
50 ISL	13.90 D	13.90	33.549 D	25.090	287.8	0.149	5.31	D231.5	D 90.5	5.8	0.70	4.0	0.47	0.38	0.24	0.23	50	
59	13.60	13.59	33.539	25.145	282.8	0.174	5.01	218.8	84.9	7.9	0.84	6.3	0.56	0.20	0.21	0.21	59	09
70	13.11	13.10	33.570 D	25.267	271.5	0.206	4.54	198.2	76.1	10.7	1.01	9.2	0.37	0.13	0.14	0.19	71	08
75 ISL	12.80 D	12.79	33.558 D	25.320	266.5	0.220	4.19	D182.4	D 69.7	12.2	1.11	11.0	0.27	0.11	0.13	0.18	76	
85	11.85	11.84	33.558	25.503	249.3	0.245	3.78	164.9	61.7	15.3	1.32	14.8	0.05	0.07	0.10	0.16	86	07
99	11.46	11.44	33.592	25.601	240.2	0.279	3.63	158.4	58.8	17.2	1.40	16.3	0.05	0.02	0.08	0.16	100	06
100 ISL	11.41 D	11.39	33.589 D	25.609	239.5	0.283	3.64	D158.5	D 58.9	17.3	1.41	16.5	0.05	0.00	0.08	0.16	101	
119	10.88	10.87	33.673	25.769	224.7	0.326	3.29	143.6	52.6	20.6	1.56	19.0	0.04	0.00	0.05	0.13	120	05
125 ISL	10.46 D	10.44	33.730 D	25.888	213.4	0.340	3.06	D133.2	D 48.5	22.1	1.65	20.0	0.05	0.00	0.04	0.13	126	
140	9.96	9.95	33.802	26.028	200.3	0.370	2.81	122.7	44.1	25.9	1.88	22.6	0.05	0.07	0.03	0.13	141	04
150 ISL	9.72 D	9.70	33.895 D	26.143	189.6	0.390	2.53	D109.9	D 39.4	27.7	1.92	23.5	0.06	0.08	0.02	0.13	151	
170	9.53	9.51	33.934	26.205	184.2	0.428	2.35	102.4	36.5	31.4	1.99	25.4	0.06	0.09	0.02	0.12	171	03
199	9.31	9.29	33.992	26.287	176.9	0.480	2.13	93.1	33.0	34.4	2.08	26.7	0.06	0.03	0.01	0.12	201	02
200 ISL	9.29 D	9.27	33.997 D	26.294	176.3	0.483	2.11	D 91.9	D 32.7	34.5	2.08	26.7	0.06	0.04			202	
210	9.28	9.26	33.998	26.296	176.3	0.499	2.09	91.1	32.3	35.0	2.10	26.9	0.08	0.09			212	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 1601 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 53.1 N	121 11.7 W	21/01/2016	2244	UTC	553 m	190 12 kn	270 04 11	2	1018.7 mb	15.0 C	13.5 C	17 m	8/8	ST	072

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.27	14.27	33.216	24.754	318.2	0.000	6.00	262.0	102.8	2.5	0.38	0.0	0.02	0.27	0.55	0.21	0	
2	14.27	14.27	33.216	24.754	318.2	0.006	6.00	262.0	102.8	2.5	0.38	0.0	0.02	0.27	0.55	0.21	2	21
10	14.20	14.19	33.216	24.770	317.0	0.032	6.00	262.2	102.7	2.5	0.35	0.0	0.02	0.08	0.57	0.20	10	19
10	14.20	14.19	33.216	24.769	317.0	0.031											10	20
20	14.14	14.14	33.222	24.785	315.8	0.063	6.00	261.8	102.5	2.5	0.37	0.0	0.03	0.46	0.67	0.26	20	18
30	14.11	14.10	33.244	24.810	313.8	0.095	5.98	261.0	102.1	2.4	0.39	0.1	0.05	0.14	0.80	0.32	30	17
40	14.10	14.09	33.289	24.848	310.5	0.126	5.95	259.6	101.5	2.6	0.41	0.3	0.09	0.26	0.82	0.38	40	16
50 ISL	13.89 D	13.88	33.336 D	24.928	303.2	0.158	5.83	D253.9	D 99.1	3.0	0.48	1.2	0.23	0.22	0.47	0.33	50	
51	13.86	13.85	33.331	24.929	303.1	0.160	5.78	252.3	98.2	3.1	0.49	1.3	0.25	0.22	0.44	0.32	51	15
60	14.11	14.10	33.460	24.979	298.7	0.187	5.68	248.0	97.1	4.0	0.60	2.2	0.27	0.64	0.40	0.28	60	14
70	13.32	13.31	33.369 D	25.069	290.3	0.218	5.32	D231.7	D 89.4								71	13
75 ISL	13.26 D	13.25	33.378 D	25.090	288.5	0.232	5.28	D229.9	D 88.6	7.0	0.83	6.1	0.19	0.28	0.22	0.20	76	
85	12.69	12.68	33.421	25.236	274.8	0.258	4.79	209.3	79.6	9.0	0.98	8.7	0.13	0.04	0.11	0.14	86	12
100	11.71	11.70	33.505	25.487	251.1	0.298	3.91	170.5	63.5	14.0	1.38	14.1	0.05	0.69	0.10	0.16	101	11
120	10.51	10.50	33.568	25.752	226.2	0.346	3.57	155.7	56.6	18.8	1.62	18.5	0.03	0.20	0.03	0.10	121	10
125 ISL	10.39 D	10.37	33.599 D	25.797	222.0	0.359	3.48	D151.4	D 55.0	20.1	1.69	19.3	0.03	0.27	0.02	0.10	126	
140	10.39	10.37	33.786	25.945	208.4	0.389	2.81	122.7	44.5	23.8	1.89	21.7	0.02	0.47	0.01	0.08	141	09
150 ISL	10.40 D	10.38	33.879 D	26.016	201.9	0.412	2.45	D106.6	D 38.8	25.5	1.96	22.5	0.02	0.37	0.01	0.08	151	
170	10.12	10.10	33.944	26.115	192.9	0.449	2.22	97.0	35.0	28.7	2.10	24.3	0.02	0.17	0.01	0.07	171	08
200 ISL	9.68 D	9.65	34.003 D	26.236	182.0	0.509	2.08	D 90.6	D 32.5	31.5	2.17	25.6	0.02	0.15	0.01	0.05	202	
201	9.65	9.63	33.997	26.235	182.1	0.507	2.11	92.2	33.0	31.6	2.17	25.7	0.02	0.15	0.01	0.05	203	07
231	8.95	8.93	34.075	26.410	165.8	0.560	1.94	84.5	29.8	36.6	2.32	27.9	0.03	0.72			233	06
250 ISL	8.72 D	8.70	34.112 D	26.475	159.9	0.595	1.73	D 75.3	D 26.5	39.0	2.40	28.8	0.02	0.55			252	
271	8.69	8.66	34.151	26.511	156.9	0.624	1.51	65.9	23.1	41.6	2.48	29.7	0.02	0.36			273	05
300 ISL	8.36 D	8.32	34.183 D	26.589	150.0	0.673	1.28	D 55.5	D 19.3	45.9	2.59	31.1	0.01	0.34			302	
320	8.08	8.05	34.187	26.633	146.0	0.698	1.17	50.9	17.6	48.9	2.66	32.0	0.01	0.32			323	04
378	7.55	7.51	34.200	26.722	138.2	0.781	0.91	39.8	13.6	55.5	2.81	34.0	0.01	0.72			381	03
400 ISL	7.35 D	7.31	34.207 D	26.757	135.2	0.816	0.83	D 35.9	D 12.2	58.7	2.86	34.8	0.01	0.49			403	
439	6.94	6.90	34.207	26.813	130.1	0.862	0.69	30.1	10.1	64.4	2.96	36.2	0.01	0.09			443	02
500 ISL	6.33 D	6.28	34.247 D	26.928	119.6	0.945	0.47	D 20.6	D 6.9	75.3	3.13	38.2	0.02	0.53			504	
515	6.16	6.11	34.257	26.958	116.8	0.956	0.40	17.6	5.8	78.0	3.17	38.7	0.02	0.64			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 1601 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 43.5 N	121 32.7 W	21/01/2016	1900 UTC	949 m	190 08 kn	190 04 08	2	1021.3 mb	15.5 C	14.7 C	12 m	7/8	AS	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	14.25	14.25	33.484	24.965	298.1	0.000	5.89	257.2	101.1	4.2		1.7	0.15	0.50	1.02	0.49	0	
2 A	14.25	14.25	33.484	24.965	298.1	0.006	5.89	257.2	101.1	4.2		1.7	0.15	0.50	1.02	0.49	2	24
8	14.17	14.17	33.483	24.980	296.9	0.025											8	23
9 A	14.17	14.17	33.484	24.982	296.8	0.027	5.89	257.3	100.9	4.2	0.55	1.7	0.16	0.12	1.29	0.61	9	22
10 ISL	14.16 D	14.16	33.484 D	24.983	296.7	0.030	5.90	D257.2	D101.1	4.2	0.55	1.7	0.16	0.17	1.25	0.63	10	
11 A	14.16	14.16	33.485	24.983	296.7	0.033	5.89	257.2	100.9	4.2	0.55	1.7	0.15	0.22	1.20	0.65	11	21
20 A	14.16	14.16	33.486	24.985	296.8	0.060	5.88	256.7	100.7	4.2	0.55	1.7	0.15	0.32	1.21	0.65	20	20
30	14.16	14.15	33.485	24.986	297.1	0.089	5.86	256.0	100.4	4.2	0.55	1.8	0.16	0.23	1.02	0.62	30	18
30	14.16	14.15	33.486	24.986	297.0	0.088											30	19
39 A	14.14	14.14	33.484	24.989	297.1	0.116	5.83	254.4	99.8	4.3	0.58	1.9	0.18	0.44	0.82	0.57	39	17
43 A	14.14	14.13	33.487	24.993	296.8	0.128	5.78	252.5	99.0	4.3	0.59	2.0	0.21	0.41	0.68	0.51	43	16
50	14.10	14.09	33.506	25.015	294.9	0.149	5.67	247.6	97.0	4.8	0.63	2.6	0.29	0.39	0.49	0.37	50	15
60	13.66	13.65	33.529	25.125	284.7	0.178	4.99	217.6	84.5	7.6	0.88	6.2	0.45	0.09	0.13	0.17	60	14
70	12.86	12.85	33.525	25.281	270.1	0.205	4.33	189.1	72.2	10.9	1.13	10.4	0.11	0.13	0.13	0.16	71	13
75 ISL	12.42 D	12.41	33.546 D	25.384	260.4	0.220	4.08	D177.8 D	67.4	12.4	1.23	11.9	0.09	0.11	0.12	0.16	76	
84	11.87	11.86	33.565	25.503	249.3	0.242	3.70	161.3	60.4	15.0	1.40	14.6	0.04	0.07	0.10	0.15	85	12
100	11.29	11.28	33.641	25.670	233.7	0.280	3.26	142.4	52.7	18.0	1.60	17.5	0.03	0.04	0.05	0.13	101	11
121	10.54	10.52	33.727	25.871	214.9	0.327	3.00	130.7	47.6	21.8	1.78	20.5	0.03	0.07	0.02	0.08	122	10
125 ISL	10.50 D	10.48	33.751 D	25.897	212.5	0.338	2.95	D128.3 D	46.8	22.5	1.81	20.9	0.03	0.07	0.02	0.08	126	
141	10.33	10.31	33.839	25.996	203.5	0.369	2.65	115.4	41.8	24.9	1.92	22.2	0.03	0.08	0.01	0.08	142	09
150 ISL	10.12 D	10.10	33.867 D	26.054	198.2	0.389	2.59	D112.9 D	40.8	26.0	1.96	22.7	0.03	0.08	0.01	0.08	151	
171	9.79	9.77	33.904	26.138	190.6	0.428	2.50	109.0	39.1	28.3	2.04	24.0	0.03	0.09	0.01	0.08	172	08
200 ISL	9.42 D	9.40	34.061 D	26.323	173.6	0.484	2.01	D 87.6 D	31.2	33.6	2.23	26.6	0.02	0.05	0.00	0.06	202	
201	9.42	9.40	34.061	26.322	173.7	0.483	1.96	85.6	30.5	33.8	2.24	26.7	0.02	0.05	0.00	0.06	203	07
230	8.94	8.92	34.066	26.404	166.3	0.532	2.01	87.8	30.9	36.1	2.27	27.7	0.02	0.10			232	06
250 ISL	8.83 D	8.80	34.096 D	26.446	162.7	0.568	1.88	D 81.8 D	28.8	38.3	2.31	28.6	0.02	0.10			252	
271	8.38	8.35	34.082	26.505	157.3	0.599	1.87	81.5	28.3	40.5	2.36	29.5	0.01	0.09			273	05
300 ISL	8.13 D	8.09	34.143 D	26.592	149.5	0.647	1.44	D 62.4 D	21.6	45.7	2.53	30.9	0.01	0.04			302	
320	8.07	8.03	34.173	26.624	146.8	0.673	1.20	52.3	18.1	49.3	2.64	31.9	0.01	0.01			323	04
382	7.28	7.24	34.197	26.758	134.7	0.761	0.85	36.9	12.5	58.2	2.88	34.5	0.01	0.14			385	03
400 ISL	7.10 D	7.06	34.196 D	26.782	132.6	0.789	0.80	D 34.6 D	11.7	60.6	2.92	35.1	0.01	0.15			403	
440	6.88	6.84	34.224	26.836	127.9	0.837	0.60	26.1	8.8	66.0	3.00	36.5	0.01	0.16			444	02
500 ISL	6.42 D	6.37	34.259 D	26.925	119.9	0.917	0.43	D 18.7 D	6.3	73.4	3.11	38.0	0.01	0.07			504	
517	6.31	6.27	34.261	26.941	118.6	0.931	0.39	17.0	5.6	75.5	3.14	38.4	0.01	0.04			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 1601 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 23.5 N	122 14.8 W	21/01/2016	1256 UTC	4008 m	100 03 kn			1020.0 mb	12.8 C	12.0 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	13.87	13.87	32.916	24.604	332.4	0.000	6.09	266.0	103.3	2.5	0.33	0.0	0.02	0.09	0.28	0.11	0	
2	13.87	13.87	32.916	24.604	332.5	0.007	6.09	266.0	103.3	2.5	0.33	0.0	0.02	0.09	0.28	0.11	2	20
10 ISL	13.84 D	13.84	32.921 D	24.615	331.7	0.034	6.07	D264.7	D103.0	2.4	0.32	0.0	0.02	0.06	0.28	0.10	10	
11	13.82	13.82	32.922	24.620	331.2	0.037	6.06	264.7	102.7	2.4	0.32	0.0	0.02	0.06	0.28	0.10	11	19
20	13.63	13.63	32.991	24.712	322.8	0.066	6.09	266.0	102.8	2.4	0.33	0.1	0.03	0.06	0.35	0.16	20	18
30	13.46	13.45	33.016	24.767	317.8	0.098	6.02	262.8	101.3	2.5	0.37	0.4	0.11	0.09	0.49	0.22	30	17
40	13.46	13.45	33.081	24.817	313.4	0.130	6.02	262.8	101.3	2.4	0.36	0.3	0.09	0.11	0.58	0.33	40	16
50 ISL	13.18 D	13.18	33.140 D	24.919	303.9	0.162	5.73	D249.6 D	95.9	3.3	0.49	2.0	0.38	0.06	0.40	0.27	50	
51	13.12	13.12	33.135	24.927	303.2	0.163	5.73	250.0	95.7	3.4	0.50	2.2	0.41	0.06	0.38	0.26	51	15
60	12.90	12.89	33.234	25.048	291.9	0.190	5.38	234.8	89.6	5.2	0.66	5.0	0.14	0.00	0.16	0.16	60	14
71	11.24	11.23	33.129	25.279	270.0	0.221	4.89	213.5	78.6	10.3	1.02	11.3	0.04	0.00	0.08	0.12	72	13
75 ISL	10.86 D	10.85	33.151 D	25.364	262.0	0.234	4.83	D210.5 D	77.0	11.4	1.10	12.5	0.04	0.00	0.07	0.11	76	
85	10.56	10.55	33.280	25.517	247.7	0.257	4.33	188.9	68.6	14.3	1.29	15.6	0.03	0.02	0.05	0.09	86	12
100	9.96	9.94	33.470	25.769	223.9	0.293	3.75	163.9	58.8	19.0	1.51	19.4	0.03	0.00	0.02	0.08	101	11
121	9.31	9.29	33.567	25.952	206.9	0.338	3.69	161.1	57.0	21.9	1.60	21.2	0.02	0.00	0.01	0.06	122	10
125 ISL	9.31 D	9.30	33.592 D	25.971	205.2	0.348	3.74	D162.9 D	57.8	22.6	1.62	21.6	0.02	0.00	0.01	0.06	126	
141	9.14	9.13	33.700	26.083	194.9	0.378	3.40	148.2	52.3	25.3	1.72	23.0	0.02	0.00	0.01	0.05	142	09
150 ISL	8.74 D	8.73	33.717 D	26.159	187.7	0.398	3.61	D157.1 D	55.1	26.8	1.74	23.6	0.02	0.00	0.01	0.05	151	
171	8.57	8.55	33.858	26.297	175.1	0.433	3.23	141.0	49.1	30.1	1.80	25.0	0.02	0.00	0.00	0.04	172	08
200 ISL	8.60 D	8.58	34.023 D	26.423	163.7	0.485	2.10	D 91.3 D	32.0	36.8	2.13	28.9	0.02	0.00	0.00	0.04	202	
201	8.59	8.57	34.023	26.424	163.6	0.484	2.07	90.2	31.5	37.1	2.14	29.0	0.02	0.00	0.00	0.04	203	07
230	8.22	8.20	34.060	26.511	155.8	0.530	1.88	81.9	28.4	41.5	2.22	30.3	0.02	0.00			232	06
250 ISL	7.97 D	7.95	34.074 D	26.558	151.6	0.565	1.75	D 76.3 D	26.3	44.3	2.29	31.2	0.02	0.00			252	
271	7.76	7.73	34.092	26.604	147.5	0.592	1.60	70.0	24.0	47.2	2.37	32.1	0.02	0.00			273	05
300 ISL	7.43 D	7.40	34.110 D	26.666	142.0	0.639	1.36	D 59.1 D	20.2	52.2	2.52	33.7	0.02	0.00			302	
320	7.20	7.17	34.127	26.712	137.8	0.662	1.14	49.8	16.9	55.6	2.62	34.7	0.02	0.00			323	04
380	6.70	6.67	34.171	26.816	128.6	0.742	0.76	33.2	11.1	64.9	2.88	36.9	0.02	0.00			383	03
400 ISL	6.44 D	6.41	34.164 D	26.845	126.0	0.773	0.73	D 31.8 D	10.6	67.9	2.92	37.6	0.02	0.00			403	
441	6.09	6.06	34.177	26.900	121.0	0.818	0.60	26.0	8.6	74.0	3.01	38.9	0.02	0.01			445	02
500 ISL	5.68 D	5.64	34.211 D	26.979	113.9	0.894	0.44	D 19.2 D	6.3	81.0	3.11	40.0	0.02	0.00			504	
516	5.70	5.66	34.237	26.998	112.4	0.905	0.37	16.1	5.3	82.9	3.14	40.3	0.02	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 1601 STATION 76.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 3.3 N	122 56.8 W	21/01/2016	0655	UTC	4227 m	060 03 kn			1022.1 mb	13.5 C	12.8 C				069

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.79	14.79	33.162	24.602	332.7	0.000	5.90	257.8	102.2	2.1	0.41	0.0	0.02	0.90	0.19	0.07	0	
1	14.79	14.79	33.162	24.602	332.7	0.003	5.90	257.8	102.2	2.1	0.41	0.0	0.02	0.90	0.19	0.07	1	20
10	14.78	14.78	33.164	24.605	332.7	0.033	5.87	256.1	101.5	2.1	0.32	0.0	0.02	0.00	0.18	0.06	10	19
20 ISL	14.71 D	14.70	33.166 D	24.624	331.3	0.067	5.88	D256.2	D101.6	2.0	0.34	0.0	0.02	0.00	0.23	0.07	20	
22	14.65	14.64	33.166	24.636	330.1	0.073	5.87	256.2	101.3	2.0	0.34	0.0	0.02	0.06	0.24	0.08	22	18
30 ISL	14.45 D	14.45	33.177 D	24.686	325.6	0.100	5.90	D256.9	D101.4	2.0	0.32	0.0	0.02	0.03	0.34	0.14	30	
32	14.42	14.42	33.177	24.693	325.0	0.106	5.89	257.3	101.2	2.0	0.32	0.0	0.02	0.02	0.36	0.15	32	17
42	14.38	14.38	33.179	24.703	324.4	0.138	5.84	254.9	100.2	2.0	0.33	0.0	0.02	0.02	0.49	0.19	42	16
50	14.35	14.34	33.180	24.713	323.7	0.164	5.79	252.8	99.3	2.2	0.36	0.1	0.07	0.14	0.50	0.23	50	15
60	14.31	14.30	33.179	24.720	323.3	0.197	5.74	250.7	98.4	2.2	0.40	0.1	0.10	0.20	0.40	0.22	60	14
71	14.25	14.24	33.181	24.734	322.4	0.232	5.75	251.2	98.5	2.2	0.39	0.1	0.13	0.24	0.25	0.13	72	13
75 ISL	14.19 D	14.18	33.169 D	24.738	322.1	0.247	5.71	D248.9	D 97.6	2.3	0.40	0.4	0.16	0.18	0.21	0.12	76	
86	13.67	13.65	33.177	24.853	311.4	0.280	5.64	246.3	95.4	2.7	0.44	1.1	0.25	0.02	0.12	0.08	87	12
99	11.73	11.72	33.117	25.183	280.0	0.318	5.06	220.9	82.1	7.7	0.89	8.6	0.04	0.01	0.11	0.11	100	11
100 ISL	11.76 D	11.75	33.132 D	25.189	279.4	0.323	4.88	D212.8	D 79.3	8.1	0.91	9.0	0.04	0.01	0.10	0.11	101	
118	10.45	10.44	33.290	25.545	245.8	0.368	4.35	190.0	68.8	14.0	1.30	15.7	0.03	0.06	0.05	0.07	119	10
125 ISL	10.14 D	10.12	33.357 D	25.651	235.8	0.388	4.22	D183.5	D 66.2	15.6	1.37	16.8	0.02	0.07	0.04	0.06	126	
139	9.61	9.60	33.454	25.814	220.5	0.417	3.94	172.1	61.2	18.7	1.51	19.1	0.02	0.09	0.02	0.05	140	09
150 ISL	9.45 D	9.43	33.541 D	25.910	211.6	0.444	3.82	D166.2	D 59.1	21.4	1.62	20.9	0.02	0.07	0.01	0.04	151	
169	9.28	9.26	33.740	26.093	194.6	0.479	3.01	131.6	46.6	26.0	1.80	24.0	0.02	0.03	0.01	0.03	170	08
200	8.90	8.88	33.976	26.339	171.8	0.536	2.30	100.5	35.3	33.5	2.06	27.5	0.01	0.00	0.00	0.03	202	07
232	8.37	8.34	33.988	26.432	163.4	0.590	2.46	107.2	37.2	36.1	2.05	28.1	0.01	0.00			234	06
250 ISL	8.14 D	8.12	34.020 D	26.490	158.1	0.623	2.34	D101.8	D 35.3	38.9	2.11	29.0	0.01	0.00			252	
268	7.93	7.90	34.025	26.527	154.8	0.647	2.23	97.3	33.4	41.6	2.16	29.9	0.01	0.00			270	05
300 ISL	7.49 D	7.46	34.022 D	26.589	149.3	0.700	2.25	D 97.8	D 33.4	45.8	2.26	31.1	0.01	0.00			302	
320	7.42	7.39	34.043	26.615	147.1	0.725	1.93	84.1	28.6	48.4	2.32	31.9	0.01	0.06			323	04
379	6.62	6.58	34.083	26.757	134.0	0.808	1.22	53.4	17.8	61.2	2.60	36.0	0.01	0.00			382	03
400 ISL	6.55 D	6.52	34.103 D	26.782	132.0	0.842	1.07	D 46.7	D 15.6	63.9	2.67	36.8	0.01	0.00			403	
441	6.35	6.31	34.163	26.856	125.4	0.889	0.69	30.2	10.0	69.3	2.82	38.2	0.00	0.00			445	02
500 ISL	6.00 D	5.95	34.219 D	26.948	117.3	0.967	0.45	D 19.6	D 6.5	77.3	2.94	39.5	0.00	0.00			504	
513	5.93	5.88	34.226	26.961	116.1	0.975	0.42	18.5	6.1	79.1	2.97	39.8	0.00	0.01			517	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 1601 STATION 76.7 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 43.4 N	123 37.3 W	21/01/2016	0123	UTC	4309 m	130 08 kn	270 08 12	2	1021.7 mb	15.0 C	15.0 C		8/8	ST	068

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.78	15.78	33.013	24.270	364.3	0.000	5.74	250.6	101.2	1.9	0.31	0.0	0.01	0.02	0.13	0.04	0	
2	15.78	15.78	33.013	24.270	364.4	0.007	5.74	250.6	101.2	1.9	0.31	0.0	0.01	0.02	0.13	0.04	2	20
9	15.53	15.52	32.988	24.308	361.0	0.033	5.79	252.6	101.5	1.9	0.28	0.0	0.00	0.00	0.15	0.04	9	19
10 ISL	15.46 D	15.46	32.985 D	24.319	360.0	0.037	5.81	D253.1	D101.7	1.9	0.28	0.0	0.00	0.00	0.15	0.04	10	
20 ISL	15.29 D	15.29	32.988 D	24.360	356.4	0.073	5.81	D253.4	D101.5	1.9	0.30	0.0	0.00	0.00	0.18	0.06	20	
25	15.15	15.15	32.994	24.395	353.2	0.090	5.80	253.4	101.1	1.9	0.31	0.0	0.00	0.18	0.19	0.07	25	18
30 ISL	14.75 D	14.75	33.000 D	24.487	344.6	0.108	5.89	D256.8	D101.8	1.9	0.31	0.0	0.00	0.13	0.25	0.10	30	
39	14.49	14.48	32.996	24.540	339.8	0.138	5.88	256.8	101.0	1.9	0.31	0.0	0.01	0.03	0.35	0.15	39	17
50	14.43	14.42	33.042	24.590	335.4	0.175	5.86	256.1	100.7	2.2	0.33	0.0	0.02	0.08	0.38	0.19	50	16
61	14.18	14.17	33.091	24.680	327.1	0.212	5.83	254.6	99.6	2.4	0.40	0.2	0.11	0.38	0.38	0.22	61	15
75	14.03	14.02	33.124	24.737	322.1	0.257	5.74	250.4	97.7	2.6	0.42	0.6	0.26	0.12	0.33	0.21	76	14
86	13.58	13.56	33.185	24.877	309.1	0.292	5.58	243.5	94.2	3.6	0.51	2.2	0.20	0.00	0.20	0.13	87	13
100	12.43	12.42	33.198	25.114	286.8	0.333	5.14	224.3	84.7	6.4	0.83	6.9	0.05	0.21	0.12	0.12	101	12
112	10.90	10.89	33.236	25.425	257.2	0.366	4.91	214.3	78.3	10.3	1.05	11.1	0.05	0.04	0.07	0.07	113	11
125	10.46	10.44	33.249	25.512	249.0	0.399	4.72	205.9	74.5	12.3	1.21	13.4	0.04	0.05	0.05	0.07	126	10
140	10.24	10.22	33.457	25.713	230.3	0.435	3.74	163.4	58.9	17.8	1.59	18.8	0.03	0.08	0.02	0.07	141	09
150 ISL	9.75 D	9.73	33.569 D	25.883	214.2	0.460	3.56	D155.1	D 55.5	20.0	1.65	20.0	0.03	0.09	0.01	0.06	151	
171	8.96	8.94	33.693	26.107	193.1	0.500	3.62	158.1	55.5	24.6	1.78	22.5	0.03	0.12	0.00	0.03	172	08
200 ISL	8.59 D	8.57	33.863 D	26.298	175.5	0.557	3.24	D140.8	D 49.3	29.9	1.90	25.0	0.02	0.00	0.00	0.03	202	
202	8.59	8.57	33.867	26.302	175.2	0.557	3.18	138.8	48.4	30.3	1.91	25.1	0.02	0.00	0.00	0.03	204	07
233	8.09	8.07	33.972	26.460	160.6	0.609	2.77	120.8	41.7	36.7	2.09	27.6	0.02	0.04			235	06
250 ISL	7.78 D	7.76	33.987 D	26.518	155.3	0.640	2.75	D119.6	D 41.1	39.4	2.15	28.5	0.02	0.15			252	
270	7.56	7.53	33.988	26.551	152.4	0.667	2.62	114.4	39.0	42.6	2.21	29.4	0.02	0.27			272	05
300 ISL	7.26 D	7.23	34.022 D	26.620	146.1	0.716	2.23	D 97.1	D 33.0	48.2	2.39	31.8	0.02	0.15			302	
322	7.04	7.01	34.044	26.669	141.8	0.744	1.71	74.4	25.1	52.4	2.53	33.6	0.02	0.07			325	04
381	6.41	6.37	34.094	26.793	130.4	0.824	1.05	45.7	15.2	64.6	2.88	37.2	0.02	0.19			384	03
400 ISL	6.34 D	6.31	34.125 D	26.827	127.5	0.854	0.87	D 37.8	D 12.6	67.2	2.93	37.7	0.02	0.19			403	
442	6.06	6.02	34.152	26.885	122.4	0.901	0.67	29.3	9.7	73.0	3.03	38.9	0.02	0.19			446	02
500 ISL	5.74 D	5.70	34.194 D	26.959	115.9	0.976	0.50	D 21.9	D 7.2	79.2	3.14	39.8	0.02	0.45			504	
518	5.65	5.60	34.202	26.977	114.3	0.991	0.46	20.1	6.6	81.2	3.17	40.1	0.02	0.53			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 1601 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 23.8 N	124 19.1 W	20/01/2016	1936	UTC	4592 m	140 06 kn	290 07 10	2	1023.8 mb	17.9 C	16.8 C	35 m	8/8	ST	067

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.23	16.23	33.073	24.214	369.6	0.000	5.64	246.5	100.5	1.9	0.25	0.0	0.02	0.00	0.10	0.03	0	
2 A	16.23	16.23	33.073	24.214	369.7	0.007	5.64	246.5	100.5	1.9	0.25	0.0	0.02	0.00	0.10	0.03	2	23
10 ISL	16.12 D	16.12	33.079 D	24.244	367.1	0.037	5.67	D247.3	D100.8	2.4	0.25	0.0	0.01	0.00	0.11	0.04	10	
14	16.12	16.11	33.079	24.246	367.1	0.052	5.66	247.2	100.6	2.6	0.25	0.0	0.01	0.01	0.11	0.04	14	21
14	16.12	16.11	33.078	24.246	367.1	0.050											14	22
20 ISL	16.10 D	16.10	33.077 D	24.248	367.1	0.074	5.68	D247.5	D100.8	2.3	0.28	0.0	0.01	0.01	0.11	0.04	20	
26 A	16.08	16.07	33.074	24.252	366.9	0.096	5.70	248.8	101.1	1.9	0.30	0.0	0.01	0.01	0.11	0.04	26	20
30 ISL	16.05 D	16.04	33.072 D	24.257	366.6	0.111	5.68	D247.6	D100.8	1.9	0.27	0.0	0.02	0.00	0.12	0.04	30	
35 A	15.90	15.90	33.067	24.286	364.0	0.129	5.67	247.5	100.2	1.9	0.24	0.0	0.02	0.00	0.12	0.04	35	19
44	15.75	15.74	33.058	24.314	361.6	0.161	5.66	247.1	99.8	1.9	0.24	0.0	0.01	0.00	0.15	0.08	44	18
50 ISL	15.59 D	15.58	33.020 D	24.322	361.1	0.184	5.69	D248.1	D100.0	1.9	0.25	0.0	0.01	0.00	0.19	0.09	50	
53	15.58	15.57	33.020	24.322	361.1	0.194	5.68	248.1	99.8	1.9	0.25	0.0	0.01	0.00	0.20	0.10	53	17
60 A	15.51	15.50	33.033	24.349	358.8	0.219	5.68	248.2	99.7	1.9	0.26	0.0	0.01	0.00	0.24	0.10	60	16
75 ISL	14.69 D	14.68	32.984 D	24.490	345.7	0.274	5.78	D252.1 D	99.8	2.0	0.30	0.0	0.05	0.00	0.29	0.13	76	
79	14.56	14.55	32.981	24.515	343.5	0.286	5.76	251.8	99.2	2.1	0.31	0.1	0.06	0.06	0.30	0.14	80	14
79	14.56	14.55	32.982	24.516	343.4	0.287											80	15
97	14.00	13.98	33.062	24.697	326.7	0.346	5.66	247.4	96.4	2.9	0.39	1.1	0.17	0.02	0.27	0.19	98	13
100 ISL	13.68 D	13.66	33.075 D	24.773	319.5	0.358	5.66	D246.7 D	95.7	3.7	0.47	2.2	0.15	0.00	0.24	0.17	101	
114 A	11.65	11.63	33.084	25.172	281.4	0.398	5.16	225.4	83.6	7.4	0.82	7.8	0.03	0.00	0.10	0.11	115	12
119	11.17	11.15	33.151	25.312	268.1	0.411	4.91	214.4	78.7	10.0	0.97	10.7	0.03	0.00	0.07	0.09	120	11
125 ISL	10.55 D	10.54	33.172 D	25.436	256.3	0.430	4.88	D212.7 D	77.3	11.2	1.04	11.9	0.03	0.00	0.05	0.10	126	
128 A	10.39	10.37	33.168	25.461	253.9	0.435	4.96	216.7	78.3	11.8	1.08	12.5	0.03	0.00	0.04	0.10	129	10
139	10.10	10.08	33.236	25.564	244.3	0.462	4.80	209.7	75.3	12.9	1.17	14.0	0.02	0.00	0.04	0.06	140	09
150 ISL	9.59 D	9.57	33.346 D	25.734	228.3	0.491	4.78	D208.3 D	74.2	15.5	1.28	16.0	0.02	0.00	0.03	0.05	151	
169	9.19	9.17	33.509	25.927	210.3	0.530	4.22	184.1	64.9	20.0	1.47	19.3	0.02	0.00	0.01	0.03	170	08
200	8.78	8.76	33.807	26.225	182.5	0.591	3.47	151.3	53.0	27.5	1.73	23.7	0.02	0.00	0.00	0.02	202	07
231	8.40	8.38	33.930	26.381	168.2	0.645	2.86	124.8	43.3	33.6	1.92	27.1	0.01	0.00			233	06
250 ISL	8.12 D	8.10	33.980 D	26.463	160.7	0.681	2.70	D117.4 D	40.7	37.0	1.99	28.2	0.01	0.00			252	
271	7.73	7.71	33.990	26.528	154.7	0.710	2.64	115.1	39.4	40.8	2.07	29.3	0.01	0.01			273	05
300 ISL	7.44 D	7.41	34.005 D	26.582	149.9	0.759	2.35	D102.4 D	34.9	46.9	2.26	31.6	0.01	0.00			302	
321	7.15	7.12	34.032	26.644	144.2	0.785	1.86	81.3	27.5	51.3	2.40	33.3	0.01	0.00			324	04
381	6.54	6.51	34.065	26.753	134.3	0.869	1.30	56.7	18.9	61.5	2.63	36.5	0.01	0.00			384	03
400 ISL	6.42 D	6.38	34.079 D	26.781	131.9	0.900	1.18	D 51.4 D	17.1	64.1	2.68	37.2	0.01	0.00			403	
440	6.12	6.08	34.101	26.837	126.9	0.946	0.95	41.3	13.6	69.6	2.80	38.6	0.01	0.00			444	02
500 ISL	5.69 D	5.65	34.154 D	26.933	118.2	1.027	0.64	D 27.7 D	9.1	79.1	2.95	40.3	0.01	0.00			504	
512	5.61	5.57	34.163	26.950	116.7	1.033	0.58	25.2	8.2	81.0	2.98	40.7	0.02	0.00			516	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 80.0 50.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 27.9 N	120 29.7 W	19/01/2016	0507	UTC	24 m	290 13 kn			1020.8 mb	14.9 C	13.9 C				059

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.77	14.77	33.567	24.918	302.6	0.000	6.25	272.9	108.4	7.4	0.99	3.1	0.46	0.53	1.29	0.59	0	
2	14.77	14.77	33.567	24.918	302.6	0.006	6.25	272.9	108.4	7.4	0.99	3.1	0.46	0.53	1.29	0.59	2	05
5	14.77	14.77	33.566	24.916	302.9	0.015	6.24	272.5	108.3	7.5	1.03	3.1	0.45	0.63	1.33	0.58	5	04
10	14.68	14.68	33.567	24.937	301.1	0.030	6.14	267.8	106.2	7.2	0.94	3.1	0.45	0.55	1.34	0.57	10	02
10	14.68	14.68	33.567	24.937	301.1	0.029											10	03
19	14.57	14.57	33.575	24.968	298.5	0.057	5.59	243.8	96.5	5.7	0.72	2.9	0.41	0.38	1.17	0.50	19	01
20 ISL	14.57 D	14.56	33.576 D	24.970	298.3	0.061	5.64	D245.5 D	97.3								20	

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 80.0 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 27.0 N	120 31.4 W	19/01/2016	0548	UTC	66 m	280 13 kn			1021.1 mb	14.9 C	13.9 C				060

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.63	14.63	33.571	24.951	299.5	0.000	5.53	241.5	95.7	5.1	0.64	2.6	0.33	0.14	1.49	0.50	0	
2	14.63	14.63	33.571	24.951	299.5	0.006	5.53	241.5	95.7	5.1	0.64	2.6	0.33	0.14	1.49	0.50	2	09
4	14.63	14.63	33.571	24.950	299.6	0.012	5.54	241.6	95.7	5.0	0.63	2.6	0.33	0.20	1.50	0.49	4	08
9	14.63	14.63	33.572	24.952	299.6	0.028											9	07
10	14.63	14.63	33.571	24.951	299.8	0.030	5.49	239.6	95.0	5.1	0.64	2.7	0.35	0.19	1.30	0.49	10	06
20	14.62	14.62	33.571	24.954	299.8	0.060	5.46	238.3	94.4	5.2	0.65	2.7	0.36	0.26	1.20	0.46	20	05
30	14.51	14.50	33.572	24.980	297.7	0.090	5.18	226.2	89.4	6.1	0.76	3.6	0.55	0.52	0.45	0.28	30	04
40	14.40	14.39	33.572	25.003	295.8	0.120	5.00	218.1	86.0	6.9	0.86	4.2	0.62	0.53	0.35	0.30	40	03
49	14.31	14.30	33.571	25.023	294.2	0.146	4.86	212.0	83.5	7.4	0.88	5.0	0.70	0.31	0.27	0.26	49	02
50 ISL	14.27 D	14.26	33.576 D	25.034	293.1	0.150	4.88	D212.4 D	83.7	7.5	0.89	5.1	0.68	0.31	0.28	0.28	50	
59	14.07	14.06	33.584	25.082	288.8	0.175	4.78	208.7	81.8	8.6	1.00	5.9	0.54	0.35	0.38	0.49	59	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 1601 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 48.3 W	19/01/2016	0841 UTC	780 m	060 02 kn			1021.4 mb	13.2 C	12.9 C				061

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.44	14.44	33.429	24.882	306.0	0.000	6.16	268.8	106.0	3.9	0.41	0.3	0.04	0.08	1.67	0.68	0	
2	14.44	14.44	33.429	24.882	306.0	0.006	6.16	268.8	106.0	3.9	0.41	0.3	0.04	0.08	1.67	0.68	2	23
10 ISL	14.35 D	14.35	33.453 D	24.920	302.7	0.031	6.16	268.6	105.9	4.1	0.45	0.5	0.04	0.04	1.79	0.71	10	
10	14.35	14.35	33.453	24.920	302.7	0.031											10	22
11	14.35	14.35	33.452	24.919	302.8	0.032											10	21
11	14.31	14.31	33.452	24.927	302.1	0.034	6.16	269.1	105.9	4.1	0.46	0.5	0.04	0.04	1.80	0.71	11	20
16	14.26	14.25	33.469	24.952	299.9	0.049	5.98	260.9	102.5	4.1	0.46	1.0	0.06	0.09	1.66	0.63	16	19
20	14.23	14.23	33.475	24.962	299.0	0.061	5.89	257.1	101.0	4.1	0.48	1.5	0.10	0.14	1.23	0.67	20	18
30	14.19	14.19	33.505	24.994	296.3	0.090	5.75	251.1	98.6	4.7	0.55	2.2	0.16	0.18	0.71	0.47	30	17
40	14.01	14.00	33.493	25.024	293.8	0.120	5.57	243.0	95.0	5.2	0.61	3.0	0.30	0.25	0.41	0.33	40	16
50	13.85	13.84	33.498	25.061	290.5	0.149	5.57	243.0	94.7	5.8	0.66	3.7	0.35	0.34	0.28	0.27	50	15
60	13.31	13.30	33.485	25.162	281.1	0.178	4.97	217.1	83.6	8.0	0.86	7.0	0.47	0.00	0.18	0.19	60	14
70	12.66	12.65	33.469	25.278	270.3	0.205	4.42	192.9	73.3	11.0	1.08	10.7	0.16	0.03	0.13	0.18	71	13
75 ISL	12.26 D	12.25	33.408 D	25.308	267.6	0.220	4.50	D195.8 D	74.0	11.7	1.13	12.1	0.12	0.00	0.11	0.16	76	
86	10.46	10.45	33.257	25.517	247.7	0.247	4.47	195.2	70.7	13.4	1.25	15.0	0.04	0.00	0.06	0.11	87	12
100	10.09	10.08	33.376	25.673	233.1	0.281	4.10	179.0	64.3	16.7	1.43	17.8	0.03	0.00	0.04	0.09	101	11
120	9.52	9.51	33.472	25.843	217.2	0.326	3.93	171.6	60.9	19.4	1.53	19.9	0.02	0.00	0.02	0.05	121	10
125 ISL	9.50 D	9.48	33.524 D	25.888	213.1	0.338	3.74	D162.6 D	57.9	20.7	1.58	20.7	0.02	0.00	0.02	0.05	126	
140	9.16	9.15	33.682	26.065	196.6	0.367	3.40	148.4	52.4	24.7	1.72	23.1	0.02	0.01	0.01	0.04	141	09
150 ISL	9.09 D	9.07	33.718 D	26.106	192.9	0.389	3.33	D145.0 D	51.2	25.5	1.73	23.5	0.03	0.00	0.01	0.04	151	
170	8.89	8.87	33.799	26.201	184.2	0.425	3.31	144.5	50.7	27.2	1.76	24.2	0.03	0.00	0.01	0.04	171	08
200 ISL	8.51 D	8.49	33.922 D	26.358	169.8	0.480	3.11	D135.4 D	47.3	31.0	1.84	25.6	0.03	0.00	0.01	0.04	202	
201	8.46	8.44	33.913	26.357	169.9	0.479	3.15	137.5	47.8	31.1	1.84	25.6	0.03	0.00	0.01	0.04	203	07
230	8.10	8.08	33.979	26.464	160.2	0.527	2.67	116.6	40.2	37.1	2.03	28.4	0.03	0.01			232	06
250 ISL	7.92 D	7.89	34.014 D	26.519	155.3	0.562	2.33	D101.5 D	35.0	41.8	2.23	30.0	0.03	0.01			252	
270	7.96	7.93	34.147	26.618	146.3	0.588	1.44	62.8	21.6	46.5	2.43	31.7	0.03	0.01			272	05
300 ISL	7.96 D	7.93	34.204 D	26.663	142.6	0.636	1.09	D 47.2 D	16.3	50.0	2.54	32.8	0.03	0.01			302	
321	7.83	7.80	34.211	26.689	140.5	0.662	1.00	43.4	14.9	52.5	2.62	33.5	0.03	0.01			324	04
380	7.33	7.29	34.226	26.773	133.2	0.743	0.76	33.1	11.3	59.1	2.73	35.3	0.03	0.02			383	03
400 ISL	7.06 D	7.02	34.214 D	26.803	130.6	0.774	0.73	D 31.9 D	10.8	61.6	2.78	36.0	0.03	0.00			403	
440	6.74	6.70	34.221	26.852	126.2	0.820	0.61	26.5	8.9	66.7	2.88	37.4	0.03	0.00			444	02
500 ISL	6.30 D	6.26	34.250 D	26.933	119.1	0.900	0.44	D 19.1 D	6.4	73.5	2.94	38.7	0.03	0.00			504	
516	6.28	6.23	34.259	26.944	118.3	0.913	0.43	18.7	6.2	75.3	2.96	39.0	0.03	0.01			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 1601 STATION 80.0 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 9.1 N	121 9.0 W	19/01/2016	1253 UTC	2176 m	120 08 kn			1019.8 mb	14.8 C	13.8 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	14.52	14.52	33.249	24.725	321.0	0.000	5.94	259.2	102.2	2.0	0.32	0.0	0.04	0.00	0.25	0.09	0	
2	14.52	14.52	33.249	24.725	321.0	0.006	5.94	259.2	102.2	2.0	0.32	0.0	0.04	0.00	0.25	0.09	2	21
10 ISL	14.52 D	14.52	33.250 D	24.727	321.1	0.032	5.94	D258.9 D	102.3	1.9	0.32	0.0	0.04	0.00	0.25	0.08	10	
10	14.52	14.52	33.250	24.726	321.2	0.033											10	20
11	14.52	14.52	33.249	24.727	321.1	0.035	5.94	259.3	102.3	1.9	0.32	0.0	0.04	0.00	0.25	0.08	11	19
20	14.34	14.33	33.261	24.775	316.8	0.064	5.95	259.9	102.2	1.9	0.33	0.0	0.03	0.00	0.34	0.13	20	18
30	14.10	14.10	33.251	24.817	313.1	0.096	5.99	261.8	102.4	2.1	0.35	0.0	0.09	0.11	0.75	0.04	30	17
40	14.18	14.18	33.295	24.835	311.8	0.127	5.87	256.4	100.5	1.7	0.38	0.0	0.08	0.27	0.55	0.18	40	16
50 ISL	14.29 D	14.28	33.341 D	24.849	310.8	0.159	5.73	D249.8 D	98.3	2.0	0.42	0.2	0.18	0.40	0.36	0.26	50	
51	14.28	14.28	33.337	24.847	311.0	0.161	5.76	251.4	98.7	2.1	0.42	0.2	0.19	0.41	0.34	0.27	51	15
60	14.22	14.22	33.413	24.919	304.4	0.189	5.66	247.2	97.0	3.0	0.50	1.2	0.28	0.47	0.20	0.19	60	14
71	14.10	14.09	33.441	24.967	300.2	0.222	5.54	241.9	94.7	3.8	0.58	2.3	0.33	0.45	0.19	0.21	72	13
75 ISL	13.80 D	13.79	33.423 D	25.014	295.7	0.236	5.43	D236.6 D	92.3	5.5	0.69	4.4	0.27	0.00	0.16	0.19	76	
86	12.62	12.61	33.415	25.245	273.9	0.265	4.62	201.8	76.6	9.9	1.01	10.1	0.14	0.00	0.08	0.15	87	12
100 ISL	11.32 D	11.31	33.443 D	25.510	248.8	0.304	4.07	D177.2 D	65.6	14.8	1.34	15.3	0.06	0.00	0.06	0.11	101	
101	11.23	11.22	33.481	25.556	244.5	0.304	3.89	170.0	62.7	15.2	1.36	15.7	0.06	0.00	0.05	0.11	102	11
120	10.61	10.59	33.685	25.826	219.2	0.348	3.17	138.2	50.3	20.2	1.64	19.7	0.04	0.00	0.03	0.08	121	10
125 ISL	10.37 D	10.35	33.704 D	25.883	213.9	0.361	3.13	D136.4 D	49.6	21.3	1.68	20.4	0.04	0.00	0.02	0.08	126	
140	10.18	10.16	33.826	26.011	202.1	0.390	2.76	120.6	43.6	24.7	1.81	22.5	0.04	0.00	0.02	0.08	141	09
150 ISL	9.87 D	9.85	33.865 D	26.094	194.3	0.413	2.71	D118.1 D	42.5	26.1	1.84	23.4	0.04	0.00	0.01	0.07	151	
170	9.12	9.10	33.874	26.224	182.2	0.448	2.78	121.2	42.8	29.0	1.89	25.1	0.04	0.00	0.01	0.07	171	08
200	8.93	8.90	34.010	26.361	169.7	0.501	2.30	100.5	35.4	34.3	2.08	27.4	0.03	0.00	0.00	0.06	202	07
231	8.61	8.58	34.047	26.441	162.6	0.552	2.14	93.2	32.6	37.3	2.16	28.7	0.03	0.01			233	06
250 ISL	8.44 D	8.41	34.078 D	26.492	158.1	0.586	1.95	D 84.7 D	29.6	40.0	2.24	29.6	0.03	0.00			252	
270	8.26	8.23	34.103	26.539	154.0	0.614	1.76	76.9	26.6	42.8	2.32	30.6	0.02	0.00			272	05
300 ISL	8.14 D	8.11	34.148 D	26.594	149.4	0.664	1.47	D 63.9 D	22.2	46.2	2.44	31.5	0.03	0.00			302	
322	8.10	8.07	34.201	26.641	145.3	0.691	1.15	50.3	17.4	48.6	2.53	32.3	0.03	0.01			325	04
380	7.52	7.48	34.227	26.748	135.8	0.773	0.84	36.9	12.6	56.7	2.70	34.7	0.02	0.00			383	03
400 ISL	7.35 D	7.31	34.237 D	26.780	133.0	0.806	0.74	D 32.1 D	10.9	59.4	2.75	35.4	0.02	0.00			403	
440	6.96	6.92	34.244	26.841	127.5	0.852	0.61	26.8	9.0	64.6	2.85	36.7	0.02	0.00			444	02
500 ISL	6.24 D	6.19	34.213 D	26.912	120.9	0.933	0.51	D 22.1 D	7.3	73.1	2.95	38.8	0.02	0.00			504	
515	6.18	6.14	34.234	26.935	118.9	0.944	0.46	20.1	6.6	75.2	2.97	39.4	0.02	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 80.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 49.0 N	121 49.7 W	19/01/2016	1934 UTC	3616 m	210 16 kn	280 10 15	2	1021.6 mb	16.8 C	15.8 C	26 m	8/8	ST	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	15.08	15.08	33.166	24.541	338.5	0.000	5.76	251.7	100.4	2.0	0.31	0.0	0.01	0.12	0.20	0.07	0	
3 A	15.08	15.08	33.166	24.541	338.6	0.010	5.76	251.7	100.4	2.0	0.31	0.0	0.01	0.12	0.20	0.07	3	23
9	15.08	15.08	33.165	24.542	338.7	0.031											9	22
10	15.08	15.08	33.164	24.541	338.8	0.034	5.79	252.8	100.8	2.2	0.31	0.0	0.01	0.13	0.19	0.06	10	21
19 A	15.07	15.07	33.165	24.545	338.7	0.064	5.82	254.2	101.3	2.1	0.30	0.0	0.01	0.15	0.20	0.06	19	20
20 ISL	15.07 D	15.07	33.165 D	24.545	338.8	0.068	5.79	D252.6	D100.9	2.1	0.30	0.0	0.01	0.14	0.20	0.05	20	
26 A	15.06	15.05	33.166	24.548	338.7	0.088	5.78	252.5	100.6	2.0	0.30	0.0	0.01	0.09	0.22	0.03	26	19
30 ISL	14.94 D	14.94	33.190 D	24.592	334.6	0.102	5.82	D253.8	D101.1	2.0	0.31	0.0	0.01	0.27	0.23	0.05	30	
36	14.69	14.69	33.203	24.656	328.7	0.122	5.82	254.0	100.5	2.1	0.33	0.0	0.01	0.55	0.24	0.08	36	18
45	14.72	14.72	33.242	24.680	326.7	0.149											44	17
45 A	14.73	14.72	33.242	24.680	326.7	0.151	5.81	253.9	100.5	2.0	0.34	0.0	0.01	0.27	0.28	0.11	45	16
50 ISL	14.71 D	14.70	33.263 D	24.701	324.9	0.169	5.82	D253.6	D100.6	2.1	0.34	0.0	0.03	0.28	0.30	0.16	50	
58	14.37	14.36	33.218	24.738	321.6	0.193	5.77	252.1	99.1	2.2	0.35	0.1	0.06	0.29	0.33	0.23	58	15
70	14.36	14.35	33.257	24.770	318.9	0.232	5.73	250.4	98.4	2.1	0.40	0.3	0.09	0.91	0.32	0.20	71	14
75 ISL	14.43 D	14.42	33.307 D	24.795	316.7	0.250	5.73	D249.7	D 98.5	2.7	0.44	1.1	0.15	0.65	0.25	0.16	76	
85 A	13.76	13.75	33.241	24.883	308.5	0.279	5.46	238.3	92.5	3.7	0.52	2.7	0.25	0.14	0.12	0.09	86	13
94 A	12.31	12.30	33.240	25.169	281.3	0.306	4.99	218.0	82.1	7.6	0.86	8.2	0.13	0.07	0.07	0.12	95	12
100 ISL	11.30 D	11.29	33.256 D	25.369	262.3	0.324	4.92	D214.2	D 79.2	10.3	1.05	11.5	0.08	0.05	0.06	0.10	101	
107	10.44	10.42	33.258	25.523	247.6	0.340	4.48	195.6	70.8	13.3	1.27	15.3	0.03	0.02	0.06	0.09	108	11
120	9.98	9.97	33.342	25.665	234.3	0.371	4.22	184.3	66.1	16.0	1.42	17.6	0.02	0.13	0.04	0.06	121	10
125 ISL	9.92 D	9.91	33.374 D	25.701	231.0	0.385	4.17	D181.4	D 65.1	17.3	1.47	18.4	0.02	0.10	0.03	0.05	126	
140	9.44	9.43	33.533	25.904	211.9	0.416	3.72	162.5	57.6	21.1	1.61	21.1	0.02	0.02	0.01	0.03	141	09
150 ISL	9.18 D	9.17	33.634 D	26.024	200.6	0.439	3.60	D156.7	D 55.5	23.3	1.67	22.2	0.02	0.03	0.01	0.03	151	
170	8.87	8.86	33.780	26.189	185.4	0.475	3.23	141.2	49.5	27.5	1.80	24.5	0.01	0.06	0.00	0.03	171	08
200	8.50	8.48	33.935	26.369	168.8	0.528	2.83	123.5	43.0	32.7	1.93	26.9	0.02	0.03	0.00	0.03	202	07
231	8.07	8.05	33.983	26.472	159.4	0.579	2.70	117.6	40.6	37.2	2.03	28.3	0.02	0.31			233	06
250 ISL	7.83 D	7.80	34.007 D	26.527	154.4	0.613	2.42	D105.1	D 36.2	40.9	2.14	29.7	0.02	0.19			252	
270	7.61	7.58	34.019	26.569	150.7	0.640	2.15	93.6	32.0	44.8	2.25	31.2	0.02	0.07			272	05
300 ISL	7.20 D	7.17	34.046 D	26.647	143.6	0.688	1.76	D 76.4	D 25.9	50.4	2.40	33.3	0.01	0.05			302	
320	7.04	7.01	34.058	26.680	140.7	0.712	1.52	66.5	22.4	54.2	2.50	34.6	0.01	0.03			323	04
381	6.60	6.56	34.113	26.783	131.6	0.796	0.97	42.5	14.2	63.1	2.74	37.2	0.01	0.54			384	03
400 ISL	6.64 D	6.60	34.167 D	26.821	128.4	0.825	0.82	D 35.6	D 11.9	66.5	2.80	37.9	0.01	0.42			403	
440	6.09	6.05	34.164	26.891	121.8	0.871	0.64	27.7	9.1	73.5	2.92	39.3	0.01	0.18			444	02
500 ISL	5.80 D	5.75	34.222 D	26.974	114.5	0.947	0.43	D 18.7	D 6.2	80.6	3.01	40.3	0.01	0.14			504	
512	5.73	5.69	34.227	26.986	113.5	0.956	0.40	17.5	5.7	82.0	3.03	40.5	0.01	0.13			516	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 80.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 29.0 N	122 31.7 W	20/01/2016	0156 UTC	3995 m	250 12 kn			1020.1 mb	17.0 C	16.0 C				064

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.67	15.67	33.137	24.390	352.8	0.000	5.72	250.0	100.8	2.0	0.32	0.0	0.01	0.03	0.13	0.04	0	
3	15.67	15.67	33.137	24.391	352.9	0.011	5.72	250.0	100.8	2.0	0.32	0.0	0.01	0.03	0.13	0.04	3	22
9	15.67	15.66	33.137	24.391	353.1	0.032											9	21
10	15.67	15.66	33.137	24.391	353.1	0.035	5.72	249.9	100.8	2.1	0.32	0.0	0.01	0.06	0.13	0.04	10	20
20 ISL	15.63 D	15.63	33.154 D	24.413	351.3	0.071	5.74	D250.3	D101.1	2.0	0.32	0.0	0.01	0.03	0.13	0.05	20	
24	15.58	15.57	33.185	24.449	348.1	0.085	5.71	249.4	100.4	2.0	0.32	0.0	0.01	0.02	0.13	0.05	24	19
30 ISL	15.57 D	15.57	33.204 D	24.465	346.7	0.106	5.71	D248.9	D100.4	2.0	0.32	0.0	0.01	0.02	0.15	0.06	30	
40	15.55	15.54	33.206	24.472	346.4	0.140	5.69	248.5	100.0	2.0	0.32	0.0	0.01	0.01	0.19	0.09	40	18
49	15.43	15.42	33.187	24.484	345.6	0.171	5.68	248.1	99.6	2.0	0.33	0.0	0.01	0.05	0.22	0.11	49	16
50 ISL	15.42 D	15.41	33.181 D	24.483	345.7	0.176	5.70	D248.4	D 99.9	2.0	0.33	0.0	0.01	0.05	0.22	0.11	50	
50	15.42	15.41	33.186	24.487	345.4	0.175											50	17
61	15.28	15.27	33.179	24.513	343.2	0.213	5.69	248.5	99.5	2.2	0.35	0.1	0.05	0.08	0.28	0.13	61	15
75	14.51	14.50	33.141	24.650	330.5	0.260	5.57	243.3	95.9	3.1	0.44	1.3	0.14	0.04	0.26	0.12	76	14
87	13.67	13.65	33.117	24.806	315.9	0.299	5.56	242.7	94.0	3.6	0.51	2.0	0.14	0.12	0.24	0.14	88	13
100	11.53	11.52	33.134	25.232	275.3	0.337	5.08	221.7	82.1	8.1	0.93	8.6	0.03	0.12	0.13	0.12	101	12
111	10.72	10.71	33.154	25.392	260.2	0.367	4.87	212.5	77.3	11.0	1.14	12.2	0.02	0.03	0.08	0.07	112	11
125	10.09	10.07	33.326	25.635	237.3	0.401	4.27	186.4	67.0	15.5	1.46	17.1	0.02	0.09	0.04	0.06	126	10
139	9.62	9.60	33.486	25.838	218.2	0.433	3.78	165.1	58.8	20.0	1.66	20.4	0.02	0.12	0.02	0.03	140	09
150 ISL	9.42 D	9.40	33.562 D	25.931	209.6	0.460	3.65	D158.9	D 56.5	21.4	1.70	21.1	0.02	0.08	0.01	0.03	151	
170	9.09	9.07	33.679	26.075	196.2	0.497	3.60	157.1	55.3	24.1	1.77	22.4	0.02	0.02	0.00	0.02	171	08
199	9.01	8.99	33.914	26.273	178.1	0.552	2.65	115.5	40.7	30.9	2.05	26.1	0.02	0.09	0.00	0.03	201	07
200 ISL	8.96 D	8.94	33.924 D	26.289	176.6	0.557	2.66	D115.7	D 40.8	31.0	2.05	26.2	0.02	0.09			202	
232	8.47	8.44	33.969	26.401	166.3	0.609	2.58	112.7	39.2	34.7	2.13	27.6	0.02	0.02			234	06
250 ISL	8.27 D	8.24	34.022 D	26.474	159.7	0.642	2.27	D 98.9	D 34.4	38.5	2.26	29.0	0.02	0.04			252	
271	8.06	8.03	34.077	26.549	152.9	0.671	1.83	79.9	27.6	42.9	2.41	30.7	0.01	0.06			273	05
300 ISL	7.69 D	7.66	34.108 D	26.627	145.8	0.718	1.52	D 66.3	D 22.7	48.3	2.54	32.6	0.01	0.04			302	
319	7.44	7.41	34.104	26.660	142.8	0.742	1.40	61.0	20.7	51.9	2.63	33.8	0.02	0.03			322	04
381	6.73	6.69	34.110	26.764	133.5	0.828	1.08	47.1	15.8	60.4	2.80	36.2	0.02	0.03			384	03
400 ISL	6.56 D	6.52	34.116 D	26.791	131.1	0.858	0.98	D 42.8	D 14.3	63.0	2.85	36.8	0.02	0.03			403	
441	6.33	6.29	34.151	26.850	126.0	0.905	0.76	33.2	11.0	68.7	2.96	38.1	0.02	0.04			445	02
500 ISL	6.02 D	5.97	34.202 D	26.931	118.9	0.984	0.52	D 22.7	D 7.5	75.6	3.08	39.3	0.01	0.02			504	
513	5.98	5.93	34.214	26.946	117.7	0.993	0.49	21.5	7.1	77.1	3.11	39.5	0.01	0.01			517	01

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

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RV REUBEN LASKER CALCOFI CRUISE 1601 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 9.3 N	123 13.4 W	20/01/2016	0748 UTC	4230 m	320 07 kn			1022.7 mb	17.0 C	16.0 C				065

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.88	15.88	33.146	24.350	356.7	0.000	5.70	249.0	100.9	2.0	0.28	0.0	0.02	0.02	0.14	0.06	0	
2	15.88	15.88	33.146	24.350	356.7	0.007	5.70	249.0	100.9	2.0	0.28	0.0	0.02	0.02	0.14	0.06	2	20
10	15.88	15.88	33.151	24.354	356.6	0.036	5.70	249.1	100.9	2.0	0.28	0.0	0.01	0.00	0.14	0.05	10	19
20 ISL	15.66 D	15.65	33.161 D	24.413	351.4	0.071	5.73	D249.6	D100.8	1.9	0.27	0.0	0.01	0.00	0.19	0.09	20	
25	15.62	15.62	33.155	24.416	351.2	0.089	5.73	250.2	100.8	1.9	0.27	0.0	0.00	0.00	0.21	0.11	25	18
30 ISL	15.62 D	15.61	33.165 D	24.425	350.5	0.107	5.73	D249.8	D100.9	1.9	0.27	0.0	0.00	0.00	0.19	0.09	30	
40	15.49	15.49	33.167	24.455	348.1	0.141	5.76	251.7	101.2	1.9	0.27	0.0	0.00	0.02	0.15	0.05	40	17
50 ISL	15.41 D	15.41	33.197 D	24.496	344.5	0.177	5.69	D248.2	D 99.8	1.8	0.28	0.0	0.00	0.01	0.15	0.05	50	
51	15.42	15.41	33.191	24.491	344.9	0.179	5.71	249.3	100.1	1.8	0.28	0.0	0.00	0.01	0.15	0.05	51	16
62	15.32	15.31	33.197	24.518	342.8	0.217	5.69	248.5	99.6	1.9	0.29	0.0	0.00	0.01	0.27	0.15	63	15
75 ISL	14.06 D	14.05	33.117 D	24.725	323.3	0.262	5.70	D248.3	D 97.1	2.7	0.40	0.8	0.25	0.00	0.32	0.20	76	
76	14.00	13.99	33.110	24.732	322.6	0.264	5.70	249.1	97.1	2.7	0.41	0.9	0.27	0.00	0.32	0.20	77	14
87	13.51	13.49	33.130	24.849	311.8	0.299	5.71	249.5	96.3	2.8	0.44	1.0	0.28	0.01	0.31	0.16	88	13
100	12.46	12.44	33.193	25.105	287.6	0.338	5.30	231.3	87.4	5.7	0.64	5.0	0.02	0.00	0.15	0.14	101	12
111	11.10	11.09	33.149	25.322	267.0	0.368	4.98	217.3	79.7	9.2	0.97	10.4	0.01	0.02	0.11	0.10	112	11
124	10.00	9.99	33.229	25.574	243.0	0.401	4.70	205.3	73.6	13.7	1.21	14.8	0.01	0.00	0.04	0.05	125	10
125 ISL	9.97 D	9.95	33.264 D	25.608	239.8	0.406	4.67	D203.4	D 73.1	13.9	1.23	15.0	0.01	0.00	0.04	0.05	126	
141	9.71	9.70	33.425	25.775	224.2	0.441	4.07	177.8	63.4	17.8	1.47	18.7	0.01	0.00	0.02	0.04	142	09
150 ISL	9.45 D	9.44	33.524 D	25.896	212.9	0.463	3.82	D166.2	D 59.1	19.9	1.53	19.9	0.01	0.00	0.02	0.03	151	
170	9.06	9.04	33.703	26.099	193.9	0.502	3.57	155.9	54.9	24.6	1.67	22.7	0.01	0.00	0.00	0.02	171	08
200 ISL	8.75 D	8.73	33.909 D	26.310	174.4	0.560	2.83	D123.0	D 43.2	30.1	1.90	26.0	0.01	0.00	0.00	0.02	202	
201	8.65	8.63	33.884	26.306	174.8	0.559	2.80	122.2	42.7	30.3	1.91	26.1	0.01	0.01	0.00	0.02	203	07
231	8.34	8.32	33.955	26.410	165.5	0.610	2.84	123.8	42.9	34.2	1.94	27.1	0.01	0.00			233	06
250 ISL	8.13 D	8.10	33.992 D	26.471	160.0	0.644	2.59	D112.5	D 39.0	37.8	2.04	28.5	0.01	0.00			252	
271	7.77	7.75	34.013	26.540	153.6	0.674	2.32	101.3	34.7	41.8	2.15	30.1	0.02	0.00			273	05
300 ISL	7.39 D	7.36	34.033 D	26.611	147.2	0.721	1.97	D 85.8	D 29.2	46.7	2.27	31.7	0.01	0.00			302	
321	7.18	7.15	34.038	26.645	144.1	0.748	1.85	80.9	27.3	50.2	2.36	32.9	0.01	0.00			324	04
382	6.67	6.63	34.088	26.755	134.3	0.833	1.20	52.3	17.5	60.3	2.64	36.2	0.01	0.00			385	03
400 ISL	6.52 D	6.49	34.107 D	26.789	131.2	0.861	1.03	D 44.6	D 14.9	62.7	2.69	36.8	0.01	0.00			403	
442	6.25	6.21	34.138	26.850	125.9	0.911	0.77	33.8	11.2	68.3	2.79	38.0	0.01	0.00			446	02
500 ISL	5.90 D	5.86	34.186 D	26.932	118.6	0.987	0.56	D 24.3	D 8.0	76.1	2.94	39.6	0.01	0.00			504	
514	5.87	5.83	34.191	26.941	118.0	0.999	0.55	23.9	7.8	78.0	2.97	40.0	0.01	0.00			518	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 1601 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 48.8 N	123 54.6 W	20/01/2016	1325 UTC	4367 m	320 04 kn			1021.4 mb	16.5 C	16.0 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	16.41	16.41	33.181	24.256	365.7	0.000	5.63	245.9	100.7	2.0	0.26	0.0	0.02	0.01	0.11	0.04	0	
2	16.41	16.41	33.181	24.256	365.7	0.007	5.63	245.9	100.7	2.0	0.26	0.0	0.02	0.01	0.11	0.04	2	22
10	16.41	16.41	33.182	24.257	365.9	0.037	5.65	246.7	101.0	2.0	0.26	0.0	0.02	0.06	0.12	0.03	10	20
11	16.41	16.41	33.182	24.257	365.9	0.038											10	21
20 ISL	16.38 D	16.38	33.177 D	24.261	365.9	0.074	5.64	D245.8	D100.8	2.0	0.26	0.0	0.02	0.00	0.12	0.03	20	
25	16.34	16.33	33.174	24.269	365.3	0.092	5.62	245.3	100.3	2.0	0.26	0.0	0.02	0.00	0.12	0.03	25	19
30 ISL	16.31 D	16.31	33.170 D	24.273	365.1	0.110	5.64	D246.0	D100.7	1.9	0.26	0.0	0.02	0.00	0.13	0.04	30	
40	16.24	16.24	33.165	24.285	364.3	0.146	5.62	245.6	100.2	1.9	0.26	0.0	0.01	0.00	0.15	0.06	40	18
50 ISL	16.12 D	16.11	33.150 D	24.302	363.0	0.184	5.62	D245.0	D 99.9	1.9	0.26	0.0	0.01	0.00	0.20	0.12	50	
51	16.11	16.10	33.148	24.304	362.9	0.186	5.62	245.2	99.8	1.9	0.26	0.0	0.01	0.00	0.20	0.13	51	17
62	16.06	16.05	33.146	24.315	362.2	0.226	5.63	245.9	99.9	1.9	0.27	0.0	0.02	0.04	0.23	0.13	62	15
62	16.06	16.05	33.149	24.317	362.0	0.227											62	16
75 ISL	14.81 D	14.80	33.035 D	24.504	344.4	0.274	5.68	D247.7	D 98.3	2.2	0.34	0.1	0.10	0.13	0.21	0.10	76	
76	14.60	14.59	33.032	24.546	340.5	0.276	5.70	249.1	98.3	2.2	0.34	0.1	0.11	0.14	0.21	0.10	77	14
87	14.24	14.23	33.061	24.645	331.3	0.312	5.76	251.4	98.5	2.4	0.37	0.3	0.14	0.26	0.19	0.09	88	13
100	13.93	13.91	33.108	24.746	322.0	0.355	5.70	248.9	96.9	2.8	0.41	0.9	0.23	0.18	0.13	0.08	101	12
113	13.63	13.61	33.122	24.819	315.4	0.396	5.64	246.4	95.3	3.3	0.47	1.8	0.27	0.01	0.09	0.06	114	11
125	12.74	12.72	33.212	25.066	292.0	0.433	5.35	233.5	88.7	5.2	0.54	3.8	0.05	0.03	0.11	0.12	126	10
141	11.01	10.99	33.186	25.368	263.3	0.477	5.04	220.1	80.6	9.4	0.93	10.0	0.03	0.02	0.06	0.07	142	09
150 ISL	10.32 D	10.31	33.230 D	25.522	248.7	0.503	4.96	D216.1	D 78.2	11.9	1.07	12.4	0.02	0.03	0.05	0.06	151	
171	9.41	9.39	33.433	25.832	219.4	0.549	4.38	191.1	67.7	17.8	1.39	18.0	0.02	0.05	0.02	0.04	172	08
200	8.92	8.90	33.727	26.140	190.6	0.608	3.62	158.0	55.5	25.3	1.68	22.8	0.01	0.02	0.00	0.03	202	07
230	8.58	8.56	33.894	26.325	173.6	0.663	3.27	142.7	49.8	30.0	1.80	25.0	0.01	0.00			232	06
250 ISL	8.27 D	8.25	33.960 D	26.424	164.4	0.702	3.05	D132.6	D 46.1	33.5	1.88	26.4	0.01	0.00			252	
270	8.03	8.00	33.982	26.479	159.5	0.730	2.84	124.0	42.7	37.0	1.95	27.8	0.01	0.02			272	05
300 ISL	7.56 D	7.53	34.003 D	26.563	151.8	0.781	2.50	D108.7	D 37.2	43.7	2.15	30.3	0.01	0.00			302	
320	7.25	7.22	34.015	26.617	146.9	0.806	2.14	93.4	31.6	48.2	2.28	31.9	0.01	0.00			323	04
381	6.60	6.57	34.065	26.745	135.1	0.892	1.34	58.6	19.6	60.3	2.61	36.3	0.01	0.00			384	03
400 ISL	6.50 D	6.46	34.082 D	26.772	132.8	0.924	1.17	D 51.0	D 17.0	63.7	2.68	37.1	0.01	0.00			403	
440	6.10	6.07	34.119	26.854	125.4	0.969	0.83	36.0	11.9	70.9	2.84	38.8	0.01	0.00			444	02
500 ISL	5.70 D	5.66	34.174 D	26.948	116.9	1.049	0.56	D 24.1	D 7.9	79.5	2.97	40.3	0.01	0.00			504	
515	5.62	5.57	34.179	26.962	115.6	1.059	0.51	22.4	7.3	81.6	3.00	40.7	0.02	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 81.7 43.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 24.1 N	119 47.9 W	18/01/2016	2206 UTC	17 m	140 03 kn	220 01 08	2	1020.5 mb	15.4 C	14.9 C		8/8	ST	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	15.09	15.09	33.577	24.855	308.5	0.000	5.84	255.0	102.0	3.8	0.51	0.6	0.10	0.09	2.72	0.85	0	
2	15.09	15.09	33.577	24.856	308.6	0.006	5.84	255.0	102.0	3.8	0.51	0.6	0.10	0.09	2.72	0.85	2	04
5	15.06	15.06	33.577	24.863	308.0	0.015	5.74	250.4	100.1	3.6	0.51	0.8	0.10	0.37	2.33	0.80	5	03
10	15.03	15.03	33.577	24.870	307.5	0.031	5.68	247.8	99.0	3.6	0.48	1.0	0.11	0.07	2.06	0.75	10	02
14	15.03	15.02	33.577	24.871	307.5	0.043	5.69	248.4	99.2	3.6	0.50	1.0	0.11	0.16	2.01	0.75	14	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 1601 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 16.7 N	120 2.0 W	19/01/2016	0009	UTC	571 m	160 03 kn	260 01 08	4	1019.6 mb	16.0 C	14.8 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	14.84	14.84	33.571	24.907	303.7	0.000	5.83	254.7	101.3	4.5	0.56	1.6	0.17	0.09	1.90	0.68	0	
2	14.84	14.83	33.571	24.907	303.7	0.006	5.83	254.7	101.3	4.5	0.56	1.6	0.17	0.09	1.90	0.68	2	24
10	14.70	14.70	33.573	24.937	301.1	0.030	5.82	254.1	100.8	4.4	0.54	1.6	0.18	0.06	2.06	0.75	10	23
19	14.48	14.48	33.579	24.990	296.4	0.057	5.69	248.3	98.1	5.2	0.58	2.2	0.19	0.03	1.56	0.63	19	22
20 ISL	14.48 D	14.48	33.580 D	24.991	296.3	0.061	5.69	D248.0 D	98.1	5.2	0.58	2.3	0.20	0.03	1.50	0.62	20	
30	14.44	14.44	33.581	25.000	295.7	0.090	5.59	243.8	96.3	5.3	0.60	2.6	0.24	0.07	0.96	0.52	30	21
40	14.25	14.25	33.580	25.040	292.3	0.119	5.39	235.2	92.5	5.8	0.71	3.4	0.31	0.47	0.63	0.42	40	20
50	13.38	13.37	33.577	25.219	275.5	0.148	4.17	182.2	70.3	10.6	1.10	9.8	0.11	0.03	0.14	0.15	50	19
58	13.01	13.01	33.594	25.305	267.5	0.169	3.75	163.9	62.8	12.8	1.26	12.4	0.07	0.01	0.10	0.14	58	18
69	12.15	12.14	33.662	25.525	246.7	0.198	3.21	139.9	52.7	16.3	1.52	15.9	0.04	0.04	0.06	0.12	70	17
75 ISL	11.99 D	11.98	33.700 D	25.585	241.2	0.214	3.10	D135.0 D	50.8	17.8	1.62	17.3	0.04	0.11	0.04	0.10	76	
84	11.50	11.49	33.782	25.740	226.6	0.233	2.72	118.6	44.1	20.0	1.76	19.3	0.03	0.21	0.02	0.08	85	16
100	11.18	11.17	33.849	25.851	216.4	0.269	2.53	110.4	40.8	22.1	1.87	20.8	0.03	0.12	0.02	0.07	101	15
119	10.64	10.63	33.876	25.970	205.6	0.309	2.42	105.7	38.6	24.6	1.95	22.4	0.03	0.06	0.01	0.06	120	14
125 ISL	10.63 D	10.61	33.884 D	25.978	204.9	0.323	2.42	D105.3 D	38.5	25.4	1.98	22.8	0.02	0.08	0.01	0.06	126	
140	10.36	10.35	33.934 D	26.063	197.1	0.354	2.26	D 98.2 D	35.8								141	13
150 ISL	10.05 D	10.04	33.953 D	26.132	190.8	0.373	2.22	D 96.6 D	34.9	28.9	2.10	24.4	0.02	0.14	0.01	0.04	151	
170	9.80	9.78	34.018	26.225	182.3	0.408	1.96	85.4	30.6	31.7	2.19	25.8	0.02	0.19	0.01	0.03	171	12
200	9.53	9.51	34.063	26.306	175.2	0.462	1.72	75.2	26.8	35.1	2.28	27.1	0.02	0.09	0.01	0.08	202	11
229	9.22	9.20	34.123	26.405	166.4	0.511	1.35	59.0	20.9	39.5	2.44	28.9	0.02	0.18			231	10
250 ISL	9.05 D	9.03	34.153 D	26.455	162.0	0.550	1.08	D 47.1 D	16.7	43.8	2.55	30.0	0.02	0.12			252	
269	8.77	8.74	34.172	26.515	156.6	0.576	0.86	37.4	13.1	47.7	2.65	30.9	0.02	0.06			271	09
300 ISL	8.35 D	8.31	34.185 D	26.592	149.7	0.628	0.79	D 34.5 D	12.0	52.2	2.73	31.6	0.02	0.06			302	
321	8.21	8.17	34.190	26.617	147.6	0.655	0.69	30.2	10.5	55.2	2.78	32.1	0.02	0.06			324	08
380	7.67	7.64	34.211	26.713	139.3	0.739	0.53	23.0	7.9	62.8	2.92	33.0	0.02	0.10			383	07
400 ISL	7.40 D	7.36	34.225 D	26.764	134.6	0.772	0.47	D 20.2 D	6.9	67.8	2.99	32.6	0.02	0.07			403	
440	7.09	7.05	34.236	26.816	130.1	0.820	0.25	11.0	3.7	77.9	3.12	31.9	0.02	0.01			444	06
480	6.79	6.74	34.246	26.866	125.7	0.871	0.08	3.4	1.1	95.1	3.42	25.6	0.02	0.01			484	05
500 ISL	6.75 D	6.70	34.249 D	26.875	125.1	0.903	0.03 D	1.4 D	0.5	102.0	3.58	21.6	0.05	0.00			504	
514	6.72	6.67	34.248	26.877	125.1	0.914	0.01	0.3	0.1	106.8	3.69	18.9	0.07	0.00			518	04
540	6.67	6.62	34.249	26.886	124.6	0.946	0.02	0.8	0.3	115.6	3.94	11.4	1.68	0.00			545	03
566	6.66	6.61	34.251	26.889	124.8	0.978	0.03	1.2	0.4	118.2	4.01	7.6	2.80	0.00			571	02
568	6.66	6.61	34.251	26.889	124.8	0.981	0.03	1.1	0.4	118.4	4.01	7.6	2.81	0.00			573	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 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 14.3 N	119 23.3 W	18/01/2016	1906	UTC	24 m	130 02 kn	260 04 09	2	1022.1 mb	15.8 C	15.4 C		8/8	ST	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	15.32	15.32	33.597	24.822	311.7	0.000	5.76	251.4	101.0	2.8	0.45	0.4	0.07	0.02	2.22	0.67	0	
2	15.32	15.32	33.597	24.822	311.8	0.006	5.76	251.4	101.0	2.8	0.45	0.4	0.07	0.02	2.22	0.67	2	06
5	15.31	15.31	33.598	24.824	311.7	0.016	5.75	251.1	100.9	2.8	0.46	0.4	0.07	0.02	2.22	0.62	5	05
10	15.22	15.21	33.592	24.841	310.2	0.031	5.49	239.5	96.0	3.2	0.54	1.5	0.19	0.15	1.29	0.50	10	03
10	15.22	15.21	33.592	24.841	310.3	0.032											10	04
16	15.08	15.07	33.588	24.869	307.8	0.050	5.31	231.8	92.7	3.7	0.59	2.1	0.28	0.29	0.90	0.38	16	02
20	15.02	15.02	33.582	24.877	307.2	0.062	5.16	225.2	89.9	4.4	0.67	2.8	0.37	0.43	0.73	0.34	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 1601 STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 13.5 N	119 24.9 W	18/01/2016	1806	UTC	34 m	080 05 kn	220 03 07	4	1022.1 mb	14.0 C	13.4 C	07 m	8/8	ST	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	15.28	15.28	33.595	24.828	311.1	0.000	5.71	249.2	100.1	2.7	0.47	0.6	0.09	0.00	2.11	0.63	0	
2 A	15.28	15.28	33.595	24.829	311.2	0.006	5.71	249.2	100.1	2.7	0.47	0.6	0.09	0.00	2.11	0.63	2	08
5 A	15.28	15.28	33.596	24.830	311.2	0.016	5.69	248.3	99.7	2.8	0.46	0.7	0.09	0.02	2.00	0.66	5	07
8 A	15.28	15.28	33.597	24.831	311.2	0.025	5.68	248.2	99.6	2.8	0.46	0.6	0.09	0.02	1.91	0.62	8	04
8	15.28	15.28	33.597	24.831	311.1	0.024											8	06
8	15.28	15.28	33.597	24.831	311.2	0.024											8	05
10 ISL	15.27 D	15.27	33.597 D	24.832	311.1	0.031	5.66	D246.6 D	99.2	2.8	0.48	0.7	0.10	0.03	1.85	0.63	10	
12 A	15.26	15.26	33.596	24.835	310.9	0.037	5.67	247.7	99.4	2.8	0.49	0.8	0.11	0.03	1.79	0.65	12	03
20 ISL	14.84 D	14.83	33.584 D	24.918	303.2	0.062	5.44	D236.9 D	94.4	4.1	0.58	2.0	0.17	0.14	1.22	0.51	20	
23 A	14.79	14.79	33.584	24.927	302.5	0.071	5.43	237.1	94.3	4.6	0.62	2.4	0.20	0.18	1.00	0.47	23	02
27 A	14.72	14.71	33.585	24.945	300.9	0.083	5.38	234.8	93.2	5.0	0.63	2.8	0.22	0.22	0.76	0.39	27	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 1601 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 30.6 W	18/01/2016	1452	UTC	126 m	300 07 kn			1020.2 mb						054

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.06	15.06	33.566	24.853	308.7	0.000	5.83	254.6	101.7	3.3	0.48	0.4	0.05	0.26	2.59	0.74	0	
2	15.06	15.06	33.566	24.853	308.8	0.006	5.83	254.6	101.7	3.3	0.48	0.4	0.05	0.26	2.59	0.74	2	12
10	15.06	15.06	33.555	24.846	309.8	0.031	5.83	254.5	101.7	3.3	0.49	0.3	0.06	0.09	2.53	0.74	10	10
10	15.06	15.06	33.565	24.853	309.1	0.032											10	11
20	14.89	14.89	33.557	24.885	306.4	0.062	5.66	247.1	98.4	3.8	0.54	1.3	0.13	0.15	1.67	0.52	20	09
30	14.62	14.61	33.554	24.942	301.3	0.092	5.49	239.8	95.0	3.8	0.56	1.3	0.11	0.16	1.05	0.44	30	08
40	14.41	14.41	33.547	24.981	297.9	0.122	5.41	236.4	93.2	5.6	0.68	3.4	0.30	0.09	0.90	0.41	40	07
50	13.93	13.92	33.562	25.094	287.4	0.151	4.65	203.1	79.3	8.3	0.96	7.0	0.43	0.00	0.25	0.18	50	06
60	13.30	13.29	33.569	25.229	274.8	0.179	3.87	169.1	65.2	11.6	1.22	11.2	0.12	0.00	0.14	0.14	60	05
70	13.16	13.15	33.596 D	25.278	270.5	0.207	3.76	164.2	63.1	12.2	1.28	12.0	0.10	0.01	0.12	0.13	71	04
75 ISL	12.84 D	12.83	33.640 D	25.375	261.3	0.221	3.64	D158.6 D	60.7	13.3	1.33	12.9	0.10	0.01	0.12	0.14	76	
85	12.46	12.45	33.644	25.453	254.2	0.246	3.42	149.4	56.6	15.6	1.44	14.8	0.10	0.01	0.11	0.17	86	03
100	11.83	11.81	33.707	25.623	238.3	0.282	2.95	128.7	48.1	18.3	1.70	18.0	0.03	0.06	0.03	0.08	101	02
116	11.61	11.60	33.746	25.693	232.0	0.320	2.79	121.6	45.3	19.6	1.75	19.1	0.04	0.04	0.02	0.09	117	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 1601 STATION 83.3 51.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 52.6 N	120 8.1 W	18/01/2016	0828	UTC	91 m	290 09 kn			1020.7 mb	15.1 C	13.9 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	14.36	14.36	33.556	24.998	295.0	0.000	5.55	242.1	95.4	5.8	0.68	3.4	0.19	0.19	1.43	0.52	0	
2	14.36	14.35	33.556	24.998	295.0	0.006	5.55	242.1	95.4	5.8	0.68	3.4	0.19	0.19	1.43	0.52	2	10
10 ISL	14.36 D	14.35	33.579 D	25.016	293.6	0.030	5.53	D241.0 D	95.2	5.8	0.67	3.4	0.18	0.20	1.46	0.47	10	
11	14.36	14.35	33.580	25.017	293.5	0.032	5.52	241.0	95.0	5.8	0.67	3.4	0.18	0.20	1.46	0.46	11	08
11	14.36	14.35	33.578	25.015	293.7	0.032											11	09
20 ISL	14.30 D	14.30	33.579 D	25.028	292.7	0.059	5.48	D238.9 D	94.2	5.9	0.72	3.5	0.18	0.24	1.44	0.56	20	
21	14.29	14.29	33.573	25.026	292.9	0.062	5.49	239.8	94.4	5.9	0.72	3.5	0.18	0.24	1.44	0.57	21	07
30	14.17	14.16	33.572	25.051	290.9	0.088	5.25	229.2	90.0	6.6	0.75	4.4	0.21	0.20	1.19	0.58	30	06
40	14.03	14.02	33.592	25.096	286.9	0.117	4.96	216.6	84.8	7.7	0.85	5.7	0.24	0.19	0.84	0.50	40	05
50	13.88	13.87	33.598	25.134	283.6	0.145	4.88	213.2	83.2	8.3	0.91	6.2	0.23	0.24	0.78	0.49	50	04
61	13.33	13.32	33.599	25.246	273.3	0.176	4.18	182.2	70.3	10.8	1.15	9.9	0.22	0.09	0.28	0.23	61	03
71	13.25	13.24	33.635	25.289	269.4	0.203	3.98	173.8	67.0	12.5	1.24	11.2	0.22	0.12	0.33	0.30	72	02
75 ISL	13.00 D	12.99	33.648 D	25.350	263.7	0.215	3.98	D173.3 D	66.6	13.9	1.34	12.6	0.20	0.10	0.27	0.27	76	
91	11.83	11.82	33.759	25.661	234.4	0.253	2.76	120.6	45.1	19.6	1.75	18.5	0.12	0.03	0.05	0.17	92	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 1601 STATION 83.3 55.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 44.7 N	120 24.4 W	18/01/2016	0428	UTC	966 m	280 09 kn			1020.7 mb	14.9 C	13.1 C				052

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.53	14.53	33.417	24.853	308.8	0.000	5.88	256.6	101.4	3.6	0.44	0.8	0.08	0.15	1.21	0.46	0	
2	14.53	14.53	33.417	24.853	308.8	0.006	5.88	256.6	101.4	3.6	0.44	0.8	0.08	0.15	1.21	0.46	2	21
9	14.54	14.53	33.418	24.853	309.0	0.027											9	20
10	14.54	14.53	33.420	24.855	308.9	0.031	5.88	256.7	101.4	3.5	0.43	0.8	0.08	0.04	1.18	0.44	10	19
19	14.50	14.50	33.426	24.867	308.0	0.059	5.83	254.6	100.5	3.7	0.45	1.0	0.10	0.12	1.33	0.51	19	18
20 ISL	14.46 D	14.46	33.436 D	24.884	306.5	0.062	5.82	D253.7 D	100.3	3.7	0.45	1.0	0.10	0.11	1.32	0.51	20	
30 ISL	14.41 D	14.41	33.450 D	24.906	304.7	0.093	5.77	D251.3 D	99.2	3.9	0.47	1.4	0.13	0.05	1.20	0.53	30	
31	14.41	14.41	33.439	24.897	305.6	0.096	5.82	253.8	100.1	4.0	0.47	1.4	0.14	0.04	1.19	0.53	31	17
40	14.41	14.40	33.478	24.929	302.9	0.123	5.70	248.9	98.1	4.2	0.52	1.9	0.16	0.17	1.03	0.45	40	16
50	14.44	14.43	33.511	24.947	301.4	0.153	5.66	246.9	97.4	4.2	0.55	2.0	0.16	0.31	0.81	0.43	50	15
59	14.30	14.29	33.526	24.990	297.6	0.180	5.56	242.5	95.4	4.4	0.58	2.4	0.18	0.25	0.58	0.29	59	14
68	12.24	12.23	33.334	25.255	272.4	0.206	4.70	205.1	77.2	9.9	1.04	10.3	0.15	0.00	0.10	0.13	69	13
75 ISL	12.08 D	12.07	33.472 D	25.392	259.5	0.225	4.29	D186.8 D	70.3	12.5	1.23	12.9	0.10	0.00	0.08	0.12	76	
85	11.63	11.62	33.607	25.581	241.8	0.250	3.40	148.2	55.2	16.3	1.51	16.5	0.04	0.01	0.05	0.11	86	12
100	11.13	11.12	33.702	25.746	226.4	0.285	3.06	133.5	49.2	19.1	1.66	18.9	0.03	0.00	0.03	0.10	101	11
119	10.94	10.93	33.905	25.938	208.6	0.326	2.43	106.0	39.0	23.5	1.92	21.9	0.03	0.00	0.01	0.07	120	10
125 ISL	10.89 D	10.87	33.911 D	25.954	207.3	0.340	2.44	D106.0 D	39.0	24.0	1.94	22.2	0.02	0.00	0.01	0.07	126	
140	10.66	10.65	33.945	26.020	201.3	0.369	2.34	101.9	37.3	25.1	1.99	22.9	0.02	0.00	0.01	0.07	141	09
150 ISL	10.45 D	10.43	34.009 D	26.108	193.2	0.390	2.18	D 95.0 D	34.6	26.5	2.04	23.6	0.02	0.00	0.01	0.06	151	
170	10.25	10.23	34.050	26.176	187.2	0.427	2.02	88.3	32.0	29.2	2.14	24.9	0.02	0.09	0.01	0.06	171	08
199	9.56	9.54	34.112	26.339	172.1	0.479	1.78	77.8	27.8	34.0	2.27	27.2	0.02	0.02	0.00	0.05	201	07
200 ISL	9.60 D	9.57	34.116 D	26.337	172.3	0.483	1.78	D 77.3 D	27.7	34.1	2.27	27.2	0.02	0.02			202	
229	9.14	9.11	34.145	26.435	163.5	0.530	1.63	71.0	25.1	37.6	2.37	28.8	0.02	0.04			231	06
250 ISL	9.03 D	9.00	34.193 D	26.490	158.7	0.566	1.42	D 61.6 D	21.8	39.9	2.45	29.5	0.02	0.02			252	
269	8.90	8.87	34.210	26.525	155.7	0.594	1.27	55.5	19.5	42.1	2.52	30.1	0.02	0.01			271	05
300 ISL	8.68 D	8.64	34.241 D	26.585	150.5	0.644	1.16	D 50.5 D	17.7	44.7	2.58	31.0	0.02	0.02			302	
318	8.43	8.40	34.220	26.606	148.7	0.669	1.16	50.4	17.6	46.2	2.61	31.5	0.02	0.02			321	04
381	7.08	7.04	34.136	26.738	136.3	0.758	1.07	46.8	15.8	57.8	2.77	35.8	0.01	0.13			384	03
400 ISL	6.89 D	6.86	34.159 D	26.781	132.4	0.788	0.89	D 38.8 D	13.1	59.9	2.83	36.1	0.01	0.00			403	
442	6.92	6.88	34.242	26.844	127.3	0.838	0.60	26.2	8.8	64.8	2.95	36.8	0.01	0.00			446	02
500 ISL	6.62 D	6.58	34.280 D	26.915	121.2	0.915	0.45	D 19.4 D	6.5	71.0	3.06	38.0	0.01	0.00			504	
516	6.52	6.47	34.281	26.930	119.9	0.930	0.42	18.4	6.1	72.8	3.09	38.4	0.01	0.10			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 1601 STATION 83.3 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 34.5 N	120 45.7 W	17/01/2016	2347	UTC	1407 m	300 08 kn	270 05 09	4	1020.6 mb	14.9 C	13.9 C		8/8	ST	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	14.70	14.70	33.423	24.821	311.8	0.000	5.95	259.8	103.0	3.0	0.44	0.3	0.07	0.15	1.22	0.42	0	
2	14.70	14.70	33.423	24.821	311.9	0.006	5.95	259.8	103.0	3.0	0.44	0.3	0.07	0.15	1.22	0.42	2	21
10	14.64	14.64	33.423	24.834	310.9	0.031	5.92	258.4	102.3	3.0	0.42	0.4	0.08	0.10	1.37	0.47	10	19
11	14.66	14.66	33.423	24.831	311.2	0.033											11	20
19	14.55	14.55	33.430	24.860	308.8	0.059	5.88	256.5	101.4	3.2	0.42	0.6	0.09	0.02	1.50	0.56	19	18
20 ISL	14.55 D	14.55	33.433 D	24.862	308.5	0.062	5.88	D256.4 D	101.5	3.2	0.42	0.6	0.08	0.02	1.49	0.56	20	
30	14.56	14.56	33.445	24.870	308.2	0.093	5.82	254.2	100.5	3.4	0.44	0.7	0.08	0.05	1.42	0.55	30	17
39	14.59	14.58	33.470	24.884	307.1	0.121	5.79	252.8	100.0	3.5	0.46	0.9	0.09	0.07	1.40	0.55	39	16
50 ISL	14.50 D	14.50	33.530 D	24.949	301.2	0.155	5.70	D248.3 D	98.3	4.0	0.52	1.5	0.11	0.14	1.17	0.50	50	
51	14.51	14.51	33.503	24.926	303.5	0.157	5.73	250.3	98.9	4.0	0.53	1.6	0.12	0.15	1.15	0.49	51	15
61	14.46	14.45	33.549	24.975	299.2	0.187	5.63	245.6	97.0	4.5	0.56	2.0	0.14	0.14	0.92	0.42	61	14
70	13.70	13.69	33.554 D	25.137	283.9	0.215	5.13	D223.4 D	87.0								71	13
75 ISL	13.65 D	13.64	33.557 D	25.149	282.9	0.229	5.00	D217.7 D	84.7	8.9	0.96	7.9	0.13	0.09	0.44	0.25	76	
84	12.86	12.85	33.549	25.302	268.6	0.253	3.96	172.7	66.0	11.6	1.22	11.7	0.13	0.06	0.13	0.15	85	12
100 ISL	12.04 D	12.02	33.624 D	25.519	248.2	0.296	3.36	D146.5 D	55.1	15.0	1.48	15.4	0.05	0.12	0.06	0.12	101	
102	11.96	11.94	33.622	25.533	246.9	0.299	3.33	145.2	54.4	15.5	1.51	15.9	0.05	0.13	0.06	0.12	103	11
121	10.44	10.43	33.548	25.748	226.6	0.344	3.62	158.0	57.3	18.3	1.59	18.6	0.04	0.02	0.03	0.09	122	10
125 ISL	10.33 D	10.31	33.533 D	25.756	225.9	0.355	3.66	D159.3 D	57.8	19.0	1.62	19.2	0.03	0.02	0.03	0.08	126	
141	9.55	9.53	33.609	25.946	208.0	0.388	3.54	154.5	55.0	22.1	1.73	21.8	0.03	0.03	0.01	0.06	142	09
150 ISL	9.37 D	9.35	33.695 D	26.044	198.9	0.408	3.38	D147.0 D	52.3	24.2	1.81	22.9	0.02	0.02	0.01	0.05	151	
171	9.03	9.01	33.862	26.228	181.7	0.446	2.83	123.6	43.5	29.1	1.98	25.5	0.02	0.01	0.00	0.04	172	08
200	8.80	8.78	33.968	26.348	170.9	0.497	2.50	109.1	38.3	33.2	2.14	27.2	0.02	0.12	0.00	0.05	202	07
231	8.66	8.63	34.124	26.494	157.6	0.548	1.70	74.2	26.0	40.4	2.40	29.7	0.01	0.01			233	06
250 ISL	8.24 D	8.22	34.109 D	26.546	152.9	0.581	1.74	D 75.6 D	26.3	42.6	2.45	30.6	0.01	0.05			252	
269	8.08	8.05	34.116	26.576	150.3	0.606	1.61	70.4	24.3	44.8	2.50	31.5	0.02	0.09			271	05
300 ISL	7.97 D	7.94	34.200 D	26.659	143.1	0.656	1.14	D 49.4 D	17.1	49.4	2.67	32.7	0.01	0.10			302	
320	7.90	7.86	34.234	26.698	139.7	0.680	0.92	40.0	13.8	52.4	2.78	33.4	0.01	0.11			323	04
381	7.36	7.32	34.254	26.793	131.5	0.763	0.67	29.1	9.9	59.8	2.92	35.4	0.01	0.20			384	03
400 ISL	7.14 D	7.11	34.261 D	26.828	128.3	0.793	0.63	D 27.4 D	9.3	63.4	2.97	36.4	0.01	0.00			403	
440	6.51	6.47	34.257	26.910	120.5	0.837	0.45	19.8	6.6	71.2	3.06	38.5	0.01	0.00			444	02
500 ISL	6.16 D	6.12	34.277 D	26.972	115.2	0.914	0.36	D 15.7 D	5.2	76.9	3.15	39.5	0.01	0.00			504	
514	6.12	6.07	34.281	26.982	114.4	0.924	0.34	14.6	4.8	78.2	3.17	39.8	0.01	0.09			518	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 1601 STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 14.7 N	121 27.0 W	17/01/2016	1718 UTC	3490 m	260 01 kn	280 03 06	4	1022.7 mb	15.1 C	14.2 C	15 m	8/8	ST	050

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	14.70	14.70	33.252	24.689	324.4	0.000	5.88	256.9	101.7	2.1	0.33	0.0	0.02	0.03	0.45	0.16	0	
2 A	14.70	14.70	33.252	24.689	324.4	0.007	5.88	256.9	101.7	2.1	0.33	0.0	0.02	0.03	0.45	0.16	2	23
10 ISL	14.70 D	14.70	33.381 D	24.790	315.1	0.032	5.90	D257.2	D102.1	2.4	0.36	0.1	0.04	0.12	0.88	0.37	10	
11 A	14.70	14.70	33.402	24.807	313.5	0.035	5.88	256.7	101.7	2.5	0.36	0.1	0.05	0.13	0.93	0.40	11	20
11	14.70	14.70	33.398	24.803	313.9	0.035											11	22
11	14.70	14.70	33.394	24.801	314.1	0.036											11	21
15 A	14.69	14.69	33.424	24.824	312.0	0.048	5.85	255.3	101.2	2.5	0.36	0.2	0.06	0.06	0.85	0.42	15	19
20 ISL	14.70 D	14.70	33.430 D	24.827	311.9	0.064	5.82	D253.6	D100.7	2.5	0.37	0.3	0.07	0.13	0.78	0.43	20	
26 A	14.74	14.73	33.444	24.831	311.7	0.082	5.79	252.6	100.2	2.5	0.39	0.3	0.08	0.21	0.69	0.44	26	18
30 ISL	14.70 D	14.70	33.439 D	24.835	311.5	0.095	5.77	D251.3	D 99.8	2.5	0.39	0.4	0.08	0.27	0.64	0.43	30	
38	14.69	14.68	33.439	24.840	311.3	0.119	5.76	251.5	99.7	2.6	0.40	0.5	0.10	0.40	0.52	0.39	38	17
50 A	14.73	14.73	33.450	24.838	311.8	0.157	5.75	251.1	99.6	2.5	0.40	0.4	0.09	0.30	0.55	0.39	50	16
55 A	14.73	14.73	33.449	24.838	312.0	0.172	5.77	251.9	99.9	2.6	0.42	0.4	0.10	0.25	0.47	0.33	55	15
62	14.70	14.69	33.450	24.846	311.5	0.194	5.72	249.5	98.9	2.6	0.41	0.5	0.11	0.31	0.34	0.32	63	14
70	14.64	14.63	33.466	24.872	309.3	0.219	5.60	244.6	96.8	3.0	0.46	1.1	0.20	0.39	0.21	0.19	71	13
75 ISL	14.41 D	14.40	33.453 D	24.911	305.7	0.236	5.52	D240.7	D 95.0	4.6	0.59	3.4	0.21	0.27	0.17	0.17	76	
85	13.09	13.08	33.359	25.110	286.8	0.264	4.92	214.6	82.3	7.8	0.86	7.9	0.23	0.03	0.09	0.13	86	12
100	11.04	11.03	33.346	25.485	251.2	0.305	4.23	184.7	67.8	13.5	1.25	14.9	0.04	0.01	0.05	0.11	101	11
119	10.06	10.05	33.453	25.739	227.3	0.350	3.92	170.9	61.4	17.4	1.45	18.5	0.04	0.00	0.03	0.10	120	10
125 ISL	10.00 D	9.99	33.498 D	25.784	223.1	0.366	3.81	D166.1	D 59.8	18.6	1.50	19.3	0.03	0.00	0.03	0.10	126	
141	9.62	9.61	33.616	25.940	208.6	0.398	3.52	153.7	54.8	21.9	1.65	21.5	0.03	0.05	0.02	0.09	142	09
150 ISL	9.45 D	9.43	33.715 D	26.045	198.7	0.419	3.25	D141.6	D 50.4	24.1	1.73	22.7	0.03	0.00	0.02	0.08	151	
171	9.24	9.23	33.881 D	26.209	183.6	0.459	2.66	115.9	41.1	29.1	1.92	25.4	0.02	0.00	0.01	0.07	172	08
200	8.82	8.80	33.955	26.335	172.2	0.507	2.50	109.1	38.3	32.8	2.00	27.3	0.02	0.00	0.01	0.06	202	07
230	8.73	8.71	34.028	26.407	165.9	0.557	2.17	94.5	33.1	36.0	2.12	28.5	0.02	0.04			232	06
250 ISL	8.40 D	8.37	34.045 D	26.472	160.0	0.595	2.13	D 92.5	D 32.3	39.2	2.19	29.7	0.02	0.00			252	
271	8.11	8.08	34.076	26.540	153.8	0.623	1.85	80.5	27.8	42.6	2.27	31.0	0.02	0.00			273	05
300 ISL	7.84 D	7.81	34.114 D	26.610	147.6	0.672	1.54	D 66.8	D 23.0	46.4	2.39	32.3	0.01	0.00			302	
321	7.76	7.73	34.136	26.641	145.0	0.697	1.35	59.1	20.3	49.2	2.47	33.2	0.01	0.00			324	04
380	7.08	7.04	34.132	26.734	136.7	0.780	1.08	47.1	15.9	57.5	2.64	35.6	0.01	0.00			383	03
400 ISL	6.80 D	6.77	34.126 D	26.767	133.6	0.814	1.02	D 44.5	D 15.0	60.2	2.69	36.3	0.01	0.00			403	
441	6.49	6.45	34.150	26.829	128.1	0.861	0.82	35.6	11.9	65.7	2.78	37.8	0.01	0.00			445	02
500 ISL	6.12 D	6.08	34.182 D	26.902	121.7	0.943	0.59	D 25.8	D 8.5	74.0	2.91	39.3	0.01	0.00			504	
515	5.97	5.92	34.187	26.925	119.6	0.953	0.54	23.7	7.8	76.1	2.94	39.7	0.01	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 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 54.8 N	122 7.8 W	17/01/2016	1058 UTC	4128 m	250 07 kn			1021.8 mb	14.0 C	13.5 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	14.87	14.87	33.407	24.772	316.5	0.000	5.93	258.9	103.0	2.4	0.36	0.0	0.03	0.02	0.77	0.34	0	
2	14.87	14.87	33.407	24.772	316.5	0.006	5.93	258.9	103.0	2.4	0.36	0.0	0.03	0.02	0.77	0.34	2	21
10 ISL	14.78 D	14.78	33.425 D	24.808	313.4	0.032	5.95	D259.2	D103.1	2.4	0.35	0.0	0.03	0.01	0.85	0.36	10	
10	14.78	14.78	33.429	24.810	313.2	0.032											10	20
11	14.78	14.78	33.426	24.808	313.5	0.035	5.96	260.1	103.3	2.4	0.35	0.0	0.03	0.01	0.86	0.36	11	19
20	14.76	14.76	33.438	24.822	312.4	0.063	5.88	256.6	101.9	2.5	0.37	0.0	0.04	0.13	1.00	0.50	20	18
30 ISL	14.75 D	14.75	33.457 D	24.839	311.1	0.095	5.78	D251.8	D100.1	2.6	0.41	0.4	0.09	0.28	0.61	0.42	30	
31	14.75	14.75	33.456	24.838	311.2	0.097	5.81	253.6	100.7	2.6	0.41	0.4	0.09	0.30	0.57	0.41	31	17
40	14.72	14.71	33.457	24.846	310.7	0.125	5.71	249.1	98.8	2.7	0.43	0.7	0.14	0.38	0.38	0.35	40	16
50	14.70	14.70	33.480	24.868	309.0	0.156	5.64	246.4	97.7	3.0	0.46	1.0	0.18	0.44	0.31	0.28	50	15
60	14.55	14.54	33.470	24.894	306.8	0.187	5.62	245.2	96.9	3.1	0.48	1.1	0.21	0.45	0.18	0.22	60	14
70	12.72	12.71	33.363	25.185	279.2	0.216	4.90	213.8	81.3	8.3	0.89	8.6	0.22	0.01	0.09	0.13	71	13
75 ISL	12.42 D	12.41	33.355 D	25.237	274.4	0.232	4.67	D203.4	D 77.0	10.0	1.02	10.8	0.16	0.00	0.08	0.13	76	
86	11.40	11.39	33.319	25.399	259.0	0.259	4.29	187.3	69.2	13.8	1.29	15.6	0.04	0.00	0.07	0.12	87	12
100	10.26	10.25	33.501	25.741	226.6	0.293	3.62	158.2	57.1	18.6	1.53	19.5	0.03	0.01	0.04	0.13	101	11
120	9.97	9.96	33.717	25.960	206.3	0.337	2.90	126.7	45.6	23.3	1.77	22.6	0.02	0.02	0.02	0.06	121	10
125 ISL	9.90 D	9.88	33.763 D	26.009	201.8	0.349	2.75	D119.6	D 43.0	24.2	1.81	23.1	0.02	0.02	0.02	0.06	126	
140	9.88	9.87	33.878	26.101	193.4	0.377	2.43	106.0	38.1	27.0	1.92	24.7	0.02	0.01	0.01	0.04	141	09
150 ISL	9.77 D	9.75	33.941 D	26.170	187.1	0.398	2.26	D 98.2	D 35.3	28.2	1.97	25.3	0.02	0.00	0.01	0.05	151	
171	9.68	9.66	34.007	26.236	181.2	0.435	2.06	90.0	32.2	30.7	2.08	26.5	0.02	0.00	0.01	0.06	172	08
200	9.55	9.53	34.082	26.318	174.1	0.486	1.80	78.5	28.0	33.3	2.17	27.5	0.01	0.00	0.01	0.03	202	07
231	9.39	9.36	34.138	26.390	167.9	0.539	1.60	69.6	24.8	35.6	2.25	28.4	0.01	0.00			233	06
250 ISL	9.24 D	9.21	34.172 D	26.440	163.6	0.574	1.48	D 64.4	D 22.9	37.8	2.31	29.1	0.01	0.00			252	
271	8.99	8.96	34.194	26.498	158.4	0.604	1.33	58.1	20.5	40.3	2.38	30.0	0.01	0.00			273	05
300 ISL	8.67 D	8.64	34.227 D	26.575	151.5	0.653	1.11	D 48.3	D 17.0	43.6	2.46	31.0	0.01	0.00			302	
320	8.54	8.51	34.230	26.597	149.7	0.680	1.06	46.4	16.2	45.8	2.51	31.8	0.01	0.00			323	04
382	8.07	8.03	34.242	26.679	142.9	0.770	0.89	39.0	13.5	50.7	2.63	33.1	0.01	0.00			385	03
400 ISL	7.88 D	7.84	34.248 D	26.713	139.8	0.801	0.81	D 35.2	D 12.1	52.9	2.67	33.8	0.01	0.00			403	
441	7.46	7.42	34.242	26.769	134.9	0.852	0.70	30.5	10.4	58.1	2.75	35.3	0.01	0.00			445	02
500 ISL	6.53 D	6.49	34.238 D	26.893	123.1	0.935	0.51	D 22.1	D 7.4	69.0	2.90	38.1	0.01	0.00			504	
518	6.44	6.39	34.249	26.915	121.2	0.950	0.44	19.4	6.4	72.3	2.94	39.0	0.01	0.00			522	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 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 48.6 W	17/01/2016	0450 UTC	4239 m	340 02 kn			1022.7 mb	16.0 C	15.1 C				048

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.99	15.99	33.196	24.363	355.4	0.000	5.67	247.5	100.5	2.0	0.29	0.1	0.01	0.00	0.13	0.04	0	
2	15.99	15.99	33.196	24.363	355.5	0.007	5.67	247.5	100.5	2.0	0.29	0.1	0.01	0.00	0.13	0.04	2	21
10	15.82	15.82	33.201	24.407	351.6	0.035	5.70	248.9	100.7	2.0	0.32	0.0	0.01	0.00	0.12	0.04	10	19
10	15.82	15.82	33.191	24.399	352.3	0.034											10	20
20 ISL	15.73 D	15.73	33.178 D	24.409	351.8	0.071	5.71	D248.7	D100.6	2.0	0.30	0.0	0.01	0.00	0.12	0.04	20	
25	15.73	15.72	33.176	24.408	352.0	0.088	5.68	248.2	100.3	2.0	0.29	0.1	0.01	0.07	0.13	0.04	25	18
30 ISL	15.73 D	15.72	33.181 D	24.413	351.7	0.107	5.70	D248.5	D100.5	2.0	0.30	0.1	0.01	0.08	0.14	0.05	30	
39	15.64	15.64	33.181	24.432	350.2	0.137	5.69	248.3	100.1	2.0	0.32	0.1	0.01	0.10	0.15	0.06	39	17
49	15.42	15.42	33.153	24.460	347.8	0.172	5.70	248.8	99.9	1.9	0.30	0.0	0.01	0.00	0.21	0.09	49	16
50 ISL	15.41 D	15.41	33.141 D	24.453	348.6	0.177	5.70	D248.5	D 99.9	1.9	0.30	0.0	0.01	0.00	0.21	0.09	50	
60	15.42	15.41	33.209	24.505	343.9	0.210	5.65	246.6	99.0	2.1	0.33	0.2	0.07	0.03	0.25	0.12	60	15
74	15.02	15.01	33.165	24.558	339.3	0.258	5.60	244.3	97.3	2.5	0.37	0.6	0.12	0.03	0.23	0.12	75	14
75 ISL	14.67 D	14.66	33.136 D	24.611	334.2	0.264	5.57	D242.6	D 96.1	2.6	0.38	0.7	0.11	0.03	0.23	0.12	76	
86	13.93	13.92	33.117	24.752	321.0	0.298	5.50	240.2	93.5	3.6	0.50	2.1	0.06	0.01	0.21	0.14	87	13
100	11.99	11.98	33.115	25.132	284.9	0.340	5.21	227.5	85.1	6.5	0.76	6.3	0.02	0.00	0.12	0.11	101	12
111	10.84	10.82	33.163	25.379	261.4	0.370	4.96	216.6	79.0	9.6	1.03	10.8	0.01	0.02	0.07	0.07	112	11
125	10.02	10.00	33.267	25.601	240.5	0.405	4.71	205.5	73.7	13.4	1.27	14.6	0.01	0.03	0.04	0.05	126	10
140	9.50	9.49	33.422	25.808	221.1	0.440	4.28	186.6	66.2	17.7	1.49	18.3	0.01	0.12	0.02	0.04	141	09
150 ISL	9.37 D	9.35	33.509 D	25.898	212.7	0.465	4.03	D175.5	D 62.3	19.9	1.59	19.8	0.01	0.19	0.01	0.03	151	
171	9.08	9.06	33.702	26.095	194.3	0.504	3.50	152.9	53.9	24.4	1.80	22.9	0.01	0.35	0.00	0.02	172	08
200	8.80	8.78	33.847	26.253	179.9	0.558	3.10	135.5	47.5	28.8	1.91	24.6	0.01	0.00	0.00	0.02	202	07
229	8.38	8.35	33.955	26.404	166.0	0.609	2.88	125.8	43.7	33.2	2.00	27.0	0.01	0.01			231	06
250 ISL	8.10 D	8.07	33.989 D	26.473	159.7	0.648	2.67	D116.3	D 40.2	37.3	2.11	28.5	0.01	0.02			252	
270	7.80	7.77	34.015	26.537	153.8	0.674	2.40	104.6	35.8	41.2	2.22	30.0	0.01	0.02			272	05
300 ISL	7.38 D	7.35	34.032 D	26.612	147.0	0.725	2.00	D 87.1	D 29.7	47.2	2.41	32.2	0.01	0.01			302	
320	7.20	7.17	34.067	26.665	142.2	0.748	1.68	73.5	24.9	51.3	2.53	33.7	0.01	0.01			323	04
381	6.60	6.56	34.095	26.769	132.9	0.832	1.18	51.5	17.2	61.3	2.77	36.8	0.01	0.07			384	03
400 ISL	6.52 D	6.49	34.124 D	26.803	130.0	0.864	0.94	D 40.8	D 13.6	64.3	2.83	37.6	0.01	0.00			403	
440	6.23	6.19	34.167	26.876	123.4	0.908	0.71	30.9	10.2	70.6	2.96	39.1	0.01	0.00			444	02
500 ISL	5.73 D	5.68	34.214 D	26.976	114.2	0.988	0.45	D 19.4	D 6.4	80.9	3.13	40.8	0.01	0.00			504	
511	5.62	5.57	34.223	26.996	112.4	0.991	0.43	18.8	6.1	82.8	3.16	41.1	0.01	0.11			515	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 1601 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	16/01/2016	2255 UTC	4175 m	230 10 kn	290 03 09	4	1020.4 mb	17.0 C	16.2 C	29 m			047

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.09	16.09	33.104	24.270	364.3	0.000	5.70	249.1	101.3	2.0	0.28	0.0	0.01	0.02	0.12	0.03	0	
2	16.09	16.09	33.104	24.270	364.3	0.007	5.70	249.1	101.3	2.0	0.28	0.0	0.01	0.02	0.12	0.03	2	21
9	15.98	15.97	33.116	24.306	361.2	0.033											9	20
10	15.94	15.94	33.119	24.316	360.2	0.036	5.68	247.9	100.5	2.0	0.32	0.0	0.01	0.33	0.12	0.03	10	19
20 ISL	15.92 D	15.92	33.123 D	24.323	359.9	0.073	5.68	D247.7	D100.6	1.9	0.30	0.0	0.01	0.18	0.13	0.04	20	
25	15.60	15.60	33.051 D	24.340	358.4	0.091	5.69	248.5	100.1	1.9	0.29	0.0	0.01	0.11	0.14	0.05	25	18
30 ISL	15.53 D	15.52	33.036 D	24.346	358.1	0.109	5.74	D250.1	D100.7	1.9	0.29	0.0	0.01	0.09	0.15	0.06	30	
40	15.41	15.41	33.025	24.363	356.8	0.144	5.72	249.8	100.2	1.9	0.29	0.0	0.02	0.04	0.19	0.09	40	17
50	15.24	15.23	33.019	24.398	353.8	0.179	5.72	249.9	99.9	1.8	0.29	0.0	0.02	0.01	0.23	0.11	50	16
62	14.90	14.89	33.020	24.471	347.2	0.221	5.73	250.1	99.3	2.0	0.33	0.0	0.06	0.21	0.32	0.13	62	15
75	14.26	14.25	33.097	24.668	328.8	0.265	5.69	248.6	97.4	2.4	0.40	0.4	0.20	0.32	0.25	0.12	76	14
87	13.67	13.66	33.127	24.813	315.2	0.304	5.68	247.9	96.0	3.0	0.49	1.3	0.21	0.35	0.16	0.10	88	13
100	12.28	12.26	33.082	25.053	292.5	0.343	5.20	227.1	85.4	6.4	0.81	6.7	0.04	0.12	0.13	0.12	101	12
112	11.04	11.02	33.126	25.316	267.6	0.377	5.03	219.7	80.5	8.7	0.99	9.7	0.03	0.16	0.08	0.08	113	11
125	10.33	10.31	33.226	25.517	248.5	0.410	4.75	207.6	74.9	12.4	1.23	13.9	0.03	0.05	0.06	0.07	126	10
140	9.70	9.68	33.299	25.680	233.3	0.447	4.61	201.1	71.6	14.7	1.36	15.9	0.03	0.10	0.03	0.05	141	09
150 ISL	9.48 D	9.47	33.412 D	25.804	221.7	0.472	4.35	D189.4	D 67.4	17.3	1.49	17.9	0.02	0.09	0.02	0.04	151	
170	9.09	9.07	33.602	26.016	201.8	0.512	3.73	162.6	57.2	22.5	1.74	21.8	0.02	0.08	0.01	0.02	171	08
200	8.62	8.60	33.879	26.307	174.7	0.568	3.06	133.6	46.6	30.1	1.96	26.0	0.02	0.00	0.00	0.02	202	07
230	8.30	8.28	33.959	26.419	164.6	0.619	2.80	122.0	42.3	34.3	2.08	27.8	0.02	0.15			232	06
250 ISL	8.08 D	8.05	34.001 D	26.485	158.6	0.653	2.49	D108.1	D 37.4	37.9	2.19	29.2	0.02	0.09			252	
270	7.83	7.80	34.014	26.532	154.3	0.683	2.29	99.8	34.2	41.5	2.29	30.7	0.02	0.03			272	05
300 ISL	7.41 D	7.38	34.042 D	26.615	146.8	0.730	1.94	D 84.3	D 28.7	48.1	2.48	33.0	0.02	0.03			302	
320	7.07	7.04	34.057	26.675	141.2	0.757	1.59	69.6	23.5	52.5	2.60	34.6	0.02	0.03			323	04
380	6.52	6.49	34.095	26.779	131.9	0.839	1.07	46.7	15.5	62.5	2.84	37.6	0.02	0.00			383	03
400 ISL	6.40 D	6.36	34.115 D	26.811	129.0	0.868	0.92	D 39.8	D 13.3	66.1	2.91	38.4	0.02	0.00			403	
440	6.02	5.98	34.147	26.886	122.2	0.915	0.69	30.0	9.9	73.2	3.05	40.0	0.02	0.00			444	02
500 ISL	5.66 D	5.62	34.189 D	26.965	115.2	0.990	0.50	D 21.9	D 7.2	80.7	3.15	41.1	0.02	0.00			504	
515	5.60	5.56	34.196	26.977	114.2	1.004	0.46	20.1	6.6	82.5	3.17	41.4	0.02	0.05			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 1601 STATION 83.3 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 55.0 N	124 10.4 W	16/01/2016	1802 UTC	4219 m	200 03 kn	300 04 08	1	1022.8 mb	18.0 C	16.7 C	45 m	5/8	CS	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	15.95	15.95	33.124	24.317	359.8	0.000	5.69	248.4	100.7	1.9	0.28	0.0	0.01	0.01	0.14	0.05	0	
2 A	15.95	15.95	33.124	24.317	359.9	0.007	5.69	248.4	100.7	1.9	0.28	0.0	0.01	0.01	0.14	0.05	2	24
10 ISL	15.87 D	15.87	33.126 D	24.337	358.2	0.036	5.70	D248.4	D100.8	1.9	0.29	0.0	0.01	0.00	0.13	0.04	10	
11	15.87	15.87	33.125	24.336	358.4	0.040	5.69	248.5	100.6	1.9	0.29	0.0	0.01	0.00	0.13	0.04	11	21
11	15.87	15.87	33.124	24.336	358.4	0.039											11	23
11	15.87	15.87	33.124	24.336	358.4	0.039											11	22
18	15.82	15.82	33.145	24.363	356.1	0.065	5.69	248.4	100.5	1.9	0.28	0.0	0.01	0.00	0.14	0.04	18	20
20 ISL	15.82 D	15.81	33.145 D	24.364	356.0	0.072	5.69	D248.0	D100.5	1.9	0.28	0.0	0.01	0.00	0.14	0.04	20	
30 ISL	15.76 D	15.76	33.139 D	24.373	355.5	0.108	5.69	D248.1	D100.4	1.9	0.29	0.0	0.01	0.00	0.15	0.06	30	
33 A	15.74	15.73	33.141	24.379	355.0	0.118	5.70	249.0	100.5	1.8	0.29	0.0	0.01	0.00	0.15	0.07	33	19
45 A	15.62	15.61	33.137	24.404	353.1	0.160	5.68	248.0	99.9	1.9	0.29	0.0	0.01	0.00	0.21	0.09	45	18
50 ISL	15.55 D	15.54	33.131 D	24.415	352.2	0.179	5.70	D248.3	D100.1	1.9	0.29	0.0	0.02	0.00	0.23	0.12	50	
56	15.41	15.40	33.119	24.437	350.3	0.199	5.72	249.8	100.2	1.9	0.30	0.0	0.02	0.02	0.26	0.15	56	17
67	15.08	15.07	33.103	24.497	344.9	0.237	5.67	247.7	98.7	2.0	0.33	0.1	0.08	0.05	0.25	0.15	68	15
67	15.08	15.07	33.102	24.497	344.9	0.239											68	16
75 ISL	14.50 D	14.49	33.108 D	24.626	332.8	0.266	5.68	D247.7	D 97.7	2.6	0.40	0.8	0.17	0.00	0.20	0.13	76	
79 A	14.17	14.16	33.104	24.691	326.6	0.278	5.59	244.2	95.5	2.9	0.44	1.2	0.21	0.00	0.18	0.12	80	14
100 ISL	12.26 D	12.25	33.140 D	25.101	287.9	0.345	5.27	D229.6	D 86.5	6.0	0.71	5.6	0.04	0.00	0.11	0.10	101	
101	12.33	12.31	33.143	25.090	289.0	0.345	5.26	229.8	86.5	6.2	0.72	5.8	0.03	0.06	0.10	0.10	102	13
124	10.11	10.09	33.280	25.597	240.9	0.406	4.79	209.4	75.2	12.7	1.21	14.0	0.02	0.00	0.04	0.06	125	12
125 ISL	9.99 D	9.97	33.304 D	25.635	237.3	0.411	4.69	D204.2	D 73.4	13.0	1.23	14.3	0.01	0.00	0.04	0.06	126	
146 A	9.31	9.29	33.517	25.914	211.1	0.456	4.11	179.3	63.4	19.8	1.56	19.8	0.01	0.00	0.01	0.03	147	11
150 ISL	9.24 D	9.22	33.564 D	25.962	206.6	0.467	4.05	D176.1	D 62.4	20.5	1.60	20.4	0.01	0.00	0.01	0.03	151	
154	9.19	9.18	33.570	25.974	205.5	0.472	3.92	171.3	60.4	21.3	1.64	20.9	0.01	0.00	0.01	0.02	155	10
162 A	9.09	9.08	33.677	26.073	196.2	0.488	3.53	154.2	54.3	24.3	1.78	23.1	0.01	0.00	0.00	0.02	163	09
180	8.79	8.77	33.789	26.209	183.6	0.523	3.46	151.0	52.9	27.1	1.82	24.2	0.01	0.00	0.00	0.02	181	08
200	8.51	8.48	33.874	26.320	173.4	0.558	3.30	144.2	50.2	30.2	1.88	25.4	0.01	0.00	0.00	0.02	202	07
230	8.14	8.12	33.966	26.448	161.7	0.609	3.11	135.8	46.9	34.7	1.97	26.9	0.01	0.00			232	06
250 ISL	7.94 D	7.92	33.985 D	26.493	157.7	0.644	2.98	D129.7	D 44.7	38.3	2.09	28.4	0.01	0.00			252	
270	7.65	7.62	33.995	26.544	153.1	0.672	2.61	114.1	39.0	41.9	2.20	29.9	0.01	0.00			272	05
300 ISL	7.28 D	7.25	34.015 D	26.612	146.9	0.721	2.15	D 93.3	D 31.7	47.4	2.37	32.2	0.01	0.00			302	
320	7.11	7.08	34.025	26.644	144.1	0.746	1.92	83.8	28.3	51.1	2.49	33.6	0.01	0.00			323	04
381	6.65	6.62	34.070	26.743	135.5	0.831	1.30	56.8	19.0	59.9	2.74	36.9	0.01	0.00			384	03
400 ISL	6.52 D	6.49	34.084 D	26.771	133.0	0.862	1.18	D 51.4	D 17.2	62.8	2.80	37.6	0.01	0.00			403	
440	6.20	6.16	34.107	26.833	127.4	0.909	0.90	39.1	12.9	69.0	2.94	39.1	0.02	0.00			444	02
500 ISL	5.81 D	5.77	34.152 D	26.917	119.9	0.989	0.65	D 28.3	D 9.3	77.9	3.07	40.6	0.02	0.00			504	
516	5.62	5.58	34.161	26.948	117.0	1.002	0.56	24.6	8.0	80.3	3.11	41.1	0.02	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 85.4 35.8

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
34 0.8 N	118 50.3 W	29/01/2016	1657 UTC	26 m	090 04 kn	270 04 12	1	1017.6 mb	16.2 C	13.0 C		2/8	AS	104

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.30	15.30	33.515	24.762	317.4	0.000	5.80	253.0	101.6						0.86	0.38	0	
2	15.30	15.30	33.515	24.762	317.5	0.006	5.80	253.0	101.6						0.86	0.38	2	05
5	15.30	15.29	33.522	24.769	316.9	0.016	5.80	253.0	101.6						0.86	0.38	5	04
10	15.29	15.29	33.516	24.766	317.4	0.032	5.79	252.7	101.5						1.08	0.21	10	03
20 ISL	15.28 D	15.28	33.550 D	24.794	315.0	0.063	5.80	D252.7	D101.6						0.93	0.32	20	
21	15.28	15.28	33.520	24.772	317.2	0.067	5.76	251.5	100.9						0.91	0.33	21	02
26	15.28	15.27	33.518	24.772	317.4	0.083	5.77	251.7	101.0						0.80	0.55	26	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 1601 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 53.6 N	118 28.9 W	14/01/2016	0741 UTC	53 m	300 04 kn			1017.9 mb	15.8 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	15.20	15.20	33.549	24.811	312.7	0.000	5.58	243.7	97.7	2.6	0.51	1.2	0.14	1.18	1.07	0.23	0	
2	15.20	15.19	33.549	24.812	312.8	0.006	5.58	243.7	97.7	2.6	0.51	1.2	0.14	1.18	1.07	0.23	2	07
6	15.20	15.20	33.550	24.813	312.8	0.019	5.58	243.7	97.7	2.6	0.50	1.2	0.14	1.15	1.05	0.30	6	06
10	15.20	15.20	33.549	24.812	313.0	0.031	5.58	243.8	97.7	2.6	0.50	1.2	0.14	1.16	1.03	0.31	10	04
10	15.20	15.20	33.549	24.812	313.0	0.032											10	05
20	15.19	15.19	33.550	24.814	313.1	0.063	5.60	244.5	98.0	2.6	0.50	1.2	0.14	1.16	1.10	0.31	20	03
30 ISL	15.15 D	15.15	33.543 D	24.818	313.1	0.095	5.48	D238.9	D 95.8	2.8	0.54	1.4	0.16	1.67	0.72	0.31	30	
31	15.16	15.15	33.544	24.818	313.2	0.097	5.45	237.9	95.3	2.8	0.54	1.4	0.16	1.72	0.68	0.31	31	02
40	15.11	15.11	33.558	24.839	311.5	0.125	5.15	224.8	90.0	4.3	0.64	2.1	0.23	2.03	0.53	0.53	40	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 1601 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 49.9 N	118 37.1 W	14/01/2016	0954 UTC	484 m	110 05 kn			1017.7 mb	15.5 C	13.9 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	15.68	15.68	33.613	24.753	318.3	0.000	5.58	243.5	98.6	2.8	0.43	0.5	0.08	0.12	1.10	0.42	0	
2	15.68	15.68	33.613	24.753	318.3	0.006	5.58	243.5	98.6	2.8	0.43	0.5	0.08	0.12	1.10	0.42	2	21
10	15.71	15.70	33.613	24.748	319.1	0.032	5.58	243.5	98.6	2.8	0.43	0.5	0.08	0.16	1.12	0.47	10	19
11	15.71	15.71	33.613	24.748	319.1	0.034											11	20
20 ISL	15.72 D	15.71	33.614 D	24.748	319.5	0.064	5.57	D242.6 D	98.4	2.8	0.43	0.5	0.08	0.20	1.16	0.48	20	
21	15.71	15.71	33.613	24.747	319.6	0.067	5.57	242.9	98.4	2.8	0.43	0.5	0.08	0.20	1.16	0.48	21	18
30	15.65	15.65	33.611	24.761	318.6	0.096	5.53	241.4	97.7	2.6	0.44	0.6	0.10	0.32	1.01	0.44	30	17
40	15.57	15.57	33.605	24.774	317.7	0.128	5.43	237.2	95.8	2.6	0.48	0.9	0.16	0.83	0.60	0.32	40	16
50 ISL	15.52 D	15.51	33.608 D	24.789	316.6	0.160	5.41	D235.9 D	95.3	2.6	0.50	1.0	0.17	0.90	0.49	0.29	50	
51	15.52	15.51	33.605	24.787	316.8	0.162	5.41	236.0	95.2	2.7	0.50	1.0	0.17	0.91	0.48	0.28	51	15
60	15.40	15.39	33.609	24.817	314.2	0.191	5.39	235.3	94.7	2.5	0.51	1.0	0.17	0.94	0.41	0.23	60	14
70	15.08	15.07	33.590 D	24.873	309.2	0.224	4.88	D212.7 D	85.2								71	13
75 ISL	14.96 D	14.95	33.578 D	24.890	307.8	0.239	4.71	D205.3 D	82.0	5.5	0.73	4.2	0.29	0.53	0.27	0.23	76	
85	14.64	14.63	33.568	24.952	302.2	0.268	4.43	193.3	76.6	7.4	0.87	6.4	0.37	0.26	0.18	0.23	86	12
100	13.23	13.22	33.576	25.250	274.0	0.311	3.69	160.8	61.9	11.9	1.20	12.1	0.14	0.00	0.12	0.19	101	11
120	11.75	11.73	33.743	25.666	234.7	0.362	2.87	125.2	46.8	18.4	1.60	18.2	0.03	0.00	0.04	0.12	121	10
125 ISL	11.67 D	11.66	33.760 D	25.694	232.2	0.376	2.84	D123.4 D	46.1	19.2	1.64	18.7	0.03	0.00	0.04	0.11	126	
140	11.35	11.33	33.850	25.824	220.1	0.408	2.55	111.3	41.3	21.4	1.76	20.3	0.03	0.00	0.03	0.11	141	09
150 ISL	11.15 D	11.13	33.916 D	25.912	212.0	0.432	2.36	D102.9 D	38.1	23.6	1.85	21.6	0.03	0.00	0.03	0.10	151	
170	10.65	10.63	34.061	26.114	193.2	0.470	1.96	85.4	31.2	27.9	2.04	24.3	0.04	0.00	0.02	0.09	171	08
200	10.11	10.08	34.148	26.276	178.3	0.525	1.73	75.5	27.3	32.0	2.16	26.2	0.02	0.00	0.01	0.06	202	07
230	9.29	9.27	34.167	26.428	164.3	0.577	1.54	67.4	23.9	37.8	2.29	28.3	0.02	0.01			232	06
250 ISL	9.07 D	9.04	34.204 D	26.493	158.4	0.613	1.34	D 58.2 D	20.6	40.3	2.37	29.2	0.02	0.00			252	
270	8.85	8.82	34.225	26.544	153.9	0.640	1.19	51.7	18.2	42.9	2.45	30.2	0.02	0.00			272	05
300 ISL	8.56 D	8.53	34.264 D	26.622	147.0	0.691	0.93	D 40.4 D	14.2	47.3	2.56	31.4	0.02	0.00			302	
320	8.31	8.28	34.273	26.666	143.0	0.715	0.81	35.5	12.3	50.2	2.63	32.2	0.02	0.00			323	04
380	7.74	7.70	34.288	26.765	134.4	0.798	0.59	25.8	8.8	57.2	2.76	34.3	0.02	0.06			383	03
400 ISL	7.47 D	7.43	34.295 D	26.809	130.4	0.830	0.50	D 21.7 D	7.4	60.8	2.81	35.0	0.02	0.00			403	
440	7.02	6.98	34.305	26.881	123.9	0.875	0.38	16.6	5.6	68.0	2.92	36.3	0.02	0.00			444	02
481	6.68	6.63	34.315	26.935	119.0	0.925	0.32	14.0	4.7	73.0	2.98	37.3	0.01	0.00			485	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 1601 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 58.5 W	14/01/2016	1407 UTC	725 m	270 07 kn			1017.8 mb	15.8 C	13.4 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	15.54	15.54	33.548	24.734	320.1	0.000	5.70	249.0	100.5	2.7	0.37	0.1	0.02	0.06	0.75	0.27	0	
1	15.54	15.54	33.548	24.734	320.1	0.003	5.70	249.0	100.5	2.7	0.37	0.1	0.02	0.06	0.75	0.27	1	24
10 ISL	15.55 D	15.54	33.548 D	24.734	320.4	0.032	5.70	D248.3 D	100.4	2.7	0.38	0.0	0.02	0.07	0.78	0.31	10	
11	15.55	15.55	33.547	24.733	320.6	0.035	5.71	249.0	100.5	2.7	0.38	0.0	0.02	0.07	0.78	0.31	11	23
20 ISL	15.55 D	15.55	33.548 D	24.734	320.8	0.064	5.70	D248.5 D	100.4	2.7	0.38	0.0	0.02	0.05	0.77	0.29	20	
21	15.56	15.55	33.548	24.733	320.9	0.067	5.70	248.6	100.4	2.7	0.38	0.0	0.02	0.05	0.76	0.28	21	22
30	15.33	15.32	33.581	24.809	313.9	0.096	5.77	252.0	101.3	1.9	0.41	0.2	0.02	0.08	0.89	0.52	30	21
40	15.23	15.22	33.575	24.827	312.6	0.127	5.60	244.6	98.1	2.3	0.46	0.7	0.06	0.28	1.15	0.99	40	20
50	15.17	15.16	33.577	24.843	311.4	0.158	5.47	238.6	95.6	2.9	0.54	1.4	0.09	0.40	0.82	0.59	50	19
61	13.44	13.43	33.477	25.129	284.3	0.191	4.63	201.9	78.0	7.7	0.89	7.0	0.19	0.12	0.39	0.40	61	18
71	12.49	12.48	33.500	25.336	264.9	0.219	3.84	167.5	63.5	12.2	1.28	12.6	0.05	0.03	0.13	0.28	72	17
75 ISL	12.25 D	12.24	33.566 D	25.432	255.8	0.231	3.75	D163.1 D	61.6	13.2	1.34	13.5	0.04	0.03	0.12	0.25	76	
86	11.88	11.87	33.623	25.546	245.2	0.257	3.37	147.0	55.0	15.7	1.49	15.9	0.04	0.02	0.07	0.17	87	16
100	11.60	11.59	33.720	25.675	233.3	0.290	3.05	132.9	49.5	18.3	1.65	18.0	0.03	0.02	0.04	0.17	101	15
120	11.27	11.26	33.827	25.818	220.1	0.336	2.67	116.3	43.0	21.0	1.79	19.9	0.03	0.02	0.03	0.13	121	14
125 ISL	11.23 D	11.21	33.875 D	25.864	215.9	0.348	2.57	D111.8 D	41.5	22.0	1.84	20.5	0.02	0.02	0.03	0.13	126	
140	10.84	10.82	33.951	25.994	203.9	0.378	2.30	100.1	36.7	24.9	1.98	22.3	0.02	0.02	0.02	0.11	141	13
150 ISL	10.66 D	10.64	33.995 D	26.060	197.8	0.400	2.19	D 95.5 D	35.0	26.2	2.03	23.0	0.02	0.02	0.02	0.11	151	
170	10.26	10.24	34.039	26.164	188.3	0.437	2.07	90.2	32.7	28.7	2.12	24.3	0.02	0.02	0.01	0.12	171	12
200	9.65	9.63	34.130	26.338	172.3	0.491	1.79	78.1	27.9	33.9	2.28	26.7	0.02	0.02	0.01	0.10	202	11
230	9.25	9.23	34.157	26.426	164.5	0.542	1.65	71.9	25.5	36.9	2.36	27.9	0.02	0.02			232	10
250 ISL	9.00 D	8.97	34.170 D	26.477	159.9	0.577	1.59	D 69.2 D	24.5	39.8	2.45	29.0	0.01	0.03			252	
270	8.77	8.74	34.214	26.548	153.5	0.605	1.28	55.9	19.6	42.7	2.54	30.1	0.01	0.03			272	09
300 ISL	8.54 D	8.51	34.265 D	26.625	146.7	0.654	0.98	D 42.4 D	14.9	47.2	2.67	31.5	0.01	0.02			302	
321	8.28	8.24	34.272	26.671	142.6	0.681	0.81	35.5	12.3	50.3	2.76	32.4	0.01	0.01			324	08
380	7.77	7.73	34.283	26.755	135.4	0.763	0.64	27.8	9.5	56.5	2.86	33.9	0.01	0.03			383	07
400 ISL	7.57 D	7.53	34.291 D	26.791	132.2	0.794	0.57	D 24.9 D	8.5	59.2	2.91	34.6	0.01	0.03			403	
441	7.18	7.14	34.296	26.851	126.9	0.843	0.43	18.9	6.4	64.8	3.01	36.0	0.01	0.02			445	06
500 ISL	6.72 D	6.67	34.316 D	26.931	119.8	0.921	0.32	D 13.9 D	4.7	71.0	3.10	37.1	0.01	0.03			504	
515	6.64	6.59	34.315	26.941	119.0	0.934	0.30	13.2	4.4	72.6	3.12	37.4	0.01	0.03			519	05
600	6.05	6.00	34.344	27.042	110.1	1.031	0.18	7.9	2.6	85.1	3.25	38.2	0.01	0.03			605	04
670	5.76	5.70	34.365	27.096	105.6	1.106	0.14	6.2	2.0	92.2	3.31	38.1	0.02	0.02			676	03
700 ISL	5.66 D	5.60	34.371 D	27.113	104.1	1.145	0.14 D	6.0 D	2.0	94.3	3.33	38.1	0.02	0.02			706	
716	5.63	5.57	34.372	27.117	104.0	1.155	0.13	5.9	1.9	95.4	3.34	38.1	0.02	0.02			722	02
723	5.61	5.55	34.372	27.120	103.8	1.162	0.13	5.6	1.8	95.9	3.41	38.0	0.02	0.06			730	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 1601 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 30.0 N	119 18.6 W	14/01/2016	1808 UTC	1664 m	320 08 kn	260 05 08	1	1019.2 mb	15.9 C	14.2 C	14 m	6/8	SC	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	14.94	14.94	33.534	24.855	308.6	0.000	5.70	249.0	99.3	3.1	0.47	1.0	0.09	0.12	0.96	0.36	0	
2 A	14.94	14.94	33.534	24.855	308.6	0.006	5.70	249.0	99.3	3.1	0.47	1.0	0.09	0.12	0.96	0.36	2	24
10 A	14.74	14.74	33.491	24.866	307.8	0.031	5.74	250.4	99.4	3.9	0.49	1.3	0.10	0.11	1.11	0.46	10	21
10	14.74	14.74	33.517	24.886	306.0	0.030											10	23
10	14.74	14.74	33.502	24.875	307.0	0.032											10	22
15 A	14.48	14.48	33.491	24.922	302.7	0.046	5.72	249.9	98.7	4.2	0.50	1.5	0.10	0.15	1.11	0.42	15	20
20 ISL	14.46 D	14.45	33.498 D	24.933	301.8	0.061	5.72	D249.2 D	98.5	4.3	0.51	1.6	0.11	0.13	1.12	0.42	20	
24 A	14.46	14.46	33.506	24.938	301.5	0.073	5.70	248.6	98.1	4.4	0.52	1.7	0.11	0.11	1.12	0.42	24	18
24	14.46	14.46	33.510	24.940	301.2	0.073											24	19
30 ISL	14.46 D	14.45	33.524 D	24.953	300.2	0.092	5.70	D248.2 D	98.1	4.6	0.54	2.0	0.12	0.13	0.98	0.39	30	
35	14.40	14.40	33.524	24.965	299.2	0.106	5.65	246.6	97.2	4.8	0.56	2.2	0.13	0.15	0.86	0.36	35	17
47 A	14.32	14.31	33.536	24.993	296.9	0.142	5.43	237.0	93.3	5.2	0.63	3.1	0.20	0.23	0.40	0.30	47	16
50 A	14.28	14.27	33.523	24.991	297.3	0.151	5.51	240.3	94.5	5.4	0.61	3.0	0.19	0.25	0.39	0.29	50	15
60	13.98	13.97	33.523	25.054	291.5	0.181	5.23	228.4	89.3	6.4	0.72	4.6	0.27	0.17	0.27	0.24	60	14
70	12.98	12.97	33.467	25.215	276.4	0.209	4.65	203.1	77.7	9.9	0.97	9.0	0.24	0.01	0.13	0.17	71	13
75 ISL	12.14 D	12.13	33.477 D	25.385	260.3	0.224	4.48	D195.3 D	73.6	11.7	1.11	11.1	0.18	0.00	0.11	0.17	76	
86	11.48	11.47	33.551	25.565	243.4	0.250	3.71	161.8	60.0	15.8	1.43	15.7	0.06	0.00	0.06	0.16	87	12
100	10.71	10.70	33.578	25.723	228.5	0.283	3.56	155.3	56.7	18.9	1.57	18.2	0.06	0.01	0.04	0.15	101	11
120	10.97	10.95	33.744	25.809	220.9	0.328	2.98	130.1	47.8	21.2	1.75	20.1	0.03	0.02	0.02	0.10	121	10
125 ISL	10.78 D	10.77	33.837 D	25.914	211.0	0.340	2.72	D118.5 D	43.5	22.1	1.80	20.7	0.03	0.02	0.02	0.09	126	
141	10.61	10.60	33.913	26.004	202.9	0.372	2.46	107.2	39.1	24.9	1.96	22.6	0.02	0.04	0.01	0.08	142	09
150 ISL	10.02 D	10.01	33.931 D	26.120	191.9	0.392	2.50	D108.6 D	39.2	26.9	2.01	23.6	0.02	0.00	0.01	0.08	151	
171	9.44	9.42	34.003	26.272	177.7	0.429	2.29	99.7	35.5	31.5	2.14	26.0	0.02	0.00	0.01	0.07	172	08
200	9.19	9.16	34.141	26.423	164.0	0.478	1.70	74.1	26.3	37.1	2.36	28.1	0.02	0.00	0.00	0.06	202	07
230	9.07	9.04	34.206	26.494	157.9	0.526	1.34	58.4	20.6	40.3	2.49	29.4	0.01	0.00			232	06
250 ISL	8.88 D	8.86	34.236 D	26.548	153.2	0.560	1.18	D 51.1 D	18.0	42.9	2.57	30.2	0.02	0.00			252	
270	8.70	8.67	34.255	26.591	149.3	0.588	0.99	43.2	15.1	45.5	2.65	31.0	0.02	0.00			272	05
300 ISL	8.44 D	8.41	34.275 D	26.648	144.5	0.635	0.83	D 35.9 D	12.6	49.2	2.73	32.1	0.01	0.00			302	
320	8.14	8.11	34.272	26.692	140.5	0.661	0.78	34.1	11.8	51.7	2.78	32.8	0.01	0.00			323	04
380	7.67	7.63	34.290	26.776	133.3	0.743	0.56	24.4	8.4	58.2	2.91	34.5	0.01	0.01			383	03
400 ISL	7.48 D	7.44	34.295 D	26.808	130.5	0.773	0.52	D 22.4 D	7.7	60.3	2.94	34.9	0.01	0.01			403	
440	7.24	7.20	34.297	26.844	127.6	0.821	0.44	19.3	6.5	64.4	3.01	35.7	0.01	0.02			444	02
500 ISL	6.63 D	6.58	34.321 D	26.946	118.2	0.900	0.31	D 13.6 D	4.6	72.9	3.13	37.5	0.01	0.01			504	
516	6.53	6.48	34.322	26.960	117.1	0.913	0.29	12.4	4.2	75.1	3.16	37.9	0.01	0.01			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 1601 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 19.3 N	119 39.8 W	14/01/2016	2155 UTC	79 m	290 17 kn	290 05 10	1	1017.7 mb	14.8 C	13.2 C	10 m	7/8	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	14.46	14.46	33.432	24.880	306.2	0.000	5.71	249.2	98.3	4.1	0.58	2.0	0.12	0.24	1.02	0.34	0	
2	14.46	14.46	33.432	24.880	306.2	0.006	5.71	249.2	98.3	4.1	0.58	2.0	0.12	0.24	1.02	0.34	2	10
5	14.46	14.46	33.433	24.881	306.3	0.015	5.69	248.4	98.1	4.0	0.50	1.8	0.12	0.00	1.03	0.34	5	09
10	14.45	14.45	33.432	24.883	306.2	0.031	5.70	248.8	98.1	4.0	0.51	1.9	0.12	0.00	0.99	0.40	10	07
10	14.45	14.45	33.432	24.883	306.2	0.029											10	08
20	14.43	14.43	33.535	24.966	298.6	0.061	5.70	248.8	98.2	4.3	0.58	1.9	0.11	0.02	1.47	0.44	20	06
30	13.93	13.92	33.511	25.054	290.6	0.090	5.39	235.0	91.8	5.8	0.67	3.8	0.16	0.00	0.92	0.20	30	05
40	12.05	12.04	33.542	25.450	253.1	0.118	3.95	172.4	64.8	13.7	1.33	13.4	0.13	0.00	0.11	0.15	40	04
50 ISL	12.04 D	12.04	33.552 D	25.459	252.5	0.144	3.91	D170.1 D	64.0	14.2	1.34	13.8	0.12	0.00	0.10	0.14	50	
51	12.05	12.04	33.556	25.461	252.3	0.145	3.88	169.5	63.7	14.3	1.34	13.8	0.12	0.00	0.09	0.14	51	03
60	12.00	11.99	33.565	25.478	251.0	0.168	3.85	167.8	63.0	14.4	1.34	13.8	0.13	0.00	0.08	0.14	60	02
69	12.01	12.00	33.553	25.468	252.2	0.191	3.87	168.7	63.3	14.3	1.33	13.8	0.12	0.00	0.10	0.15	70	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 1601 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 9.0 N	120 0.3 W	15/01/2016	0121 UTC	1207 m	300 22 kn	310 05 07	1	1018.4 mb	14.9 C	12.5 C		3/8	ST	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	14.95	14.95	33.370	24.727	320.7	0.000	5.73	250.2	99.7	2.7	0.38	0.4	0.06	0.12	0.49	0.24	0	
1	14.95	14.95	33.370	24.728	320.7	0.003	5.73	250.2	99.7	2.7	0.38	0.4	0.06	0.12	0.49	0.24	1	22
10	14.96	14.95	33.371	24.727	321.1	0.032	5.76	251.5	100.2	2.6	0.37	0.4	0.06	0.11	0.52	0.26	10	20
10	14.96	14.95	33.371	24.727	321.1	0.031											10	21
20	14.96	14.95	33.374	24.731	321.1	0.064	5.72	249.9	99.5	2.6	0.36	0.4	0.06	0.10	0.48	0.26	20	19
29	14.96	14.95	33.372	24.729	321.5	0.093	5.72	249.8	99.5	2.6	0.37	0.4	0.06	0.13	0.50	0.26	29	18
30 ISL	14.96 D	14.95	33.372 D	24.729	321.5	0.097	5.75	D250.4 D	99.9	2.6	0.37	0.4	0.06	0.13	0.51	0.26	30	
41	14.92	14.91	33.372	24.739	321.0	0.132	5.72	249.8	99.4	2.6	0.36	0.4	0.06	0.11	0.53	0.28	41	17
50	14.88	14.87	33.378	24.752	320.0	0.160	5.73	250.3	99.5	2.7	0.38	0.5	0.07	0.11	0.59	0.30	50	16
60	14.60	14.59	33.397	24.827	313.2	0.192	5.66	247.0	97.7	3.2	0.42	1.0	0.12	0.15	0.48	0.25	60	15
70	13.99	13.98	33.415	24.969	299.9	0.223	5.31	231.9	90.6	5.1	0.59	3.5	0.26	0.16	0.12	0.10	71	14
75 ISL	13.73 D	13.72	33.420 D	25.026	294.6	0.239	5.13	D223.3 D	86.9	6.0	0.66	4.5	0.25	0.13	0.11	0.10	76	
85	13.42	13.41	33.415	25.087	289.1	0.267	4.96	216.5	83.6	7.6	0.80	6.6	0.25	0.06	0.07	0.08	86	13
100	12.84	12.82	33.403	25.194	279.2	0.310	4.71	205.6	78.4	9.3	0.93	8.9	0.16	0.03	0.06	0.08	101	12
119	10.77	10.76	33.319	25.512	249.0	0.360	4.44	193.8	70.7	13.3	1.25	14.3	0.04	0.02	0.05	0.07	120	11
125 ISL	10.31 D	10.29	33.359 D	25.624	238.4	0.377	4.39	D191.0 D	69.1	14.8	1.33	15.6	0.04	0.10	0.04	0.07	126	
139	9.76	9.74	33.447	25.786	223.2	0.407	3.99	174.0	62.1	18.2	1.51	18.6	0.03	0.27	0.03	0.05	140	10
150 ISL	9.42 D	9.41	33.648 D	25.997	203.3	0.432	3.53	D153.8 D	54.7	20.8	1.61	20.3	0.02	0.23	0.02	0.04	151	
170	9.18	9.16	33.726	26.099	194.0	0.471	3.23	140.8	49.7	25.5	1.78	23.4	0.02	0.16	0.01	0.03	171	08
200	8.60	8.58	33.942	26.359	169.8	0.525	2.59	113.2	39.5	33.2	2.01	27.0	0.01	0.10	0.00	0.03	202	07
229	8.61	8.58	34.052	26.446	162.2	0.573	2.10	91.7	32.1	37.7	2.18	28.6	0.01	0.07			231	06
250 ISL	8.53 D	8.51	34.117 D	26.508	156.7	0.609	1.81	D 78.8 D	27.6	40.9	2.30	29.6	0.01	0.06			252	
270	8.37	8.34	34.163	26.569	151.2	0.638	1.46	63.5	22.1	44.0	2.42	30.6	0.01	0.05			272	05
300 ISL	8.29 D	8.26	34.212 D	26.621	146.9	0.685	1.17	D 50.9 D	17.7	47.9	2.51	31.7	0.01	0.05			302	
320	8.05	8.01	34.224 D	26.667	142.7	0.714	1.03	D 44.7 D	15.5								323	04
379	7.53	7.50	34.252	26.765	134.2	0.818	0.74	32.4	11.1	58.1	2.75	34.5	0.01	0.05			382	03
400 ISL	7.31 D	7.27	34.265 D	26.808	130.3	0.824	0.64	D 27.8 D	9.5	60.6	2.79	35.1	0.01	0.04			403	
441	6.97	6.92	34.276	26.865	125.3	0.898	0.50	21.7	7.3	65.5	2.87	36.4	0.01	0.03			445	02
500 ISL	6.47 D	6.42	34.290 D	26.943	118.3	0.949	0.39	D 17.0 D	5.7	72.5	2.98	37.8	0.01	0.12			504	
524	6.33	6.28	34.301	26.971	115.9	0.998	0.35	15.2	5.0	75.3	3.02	38.4	0.02	0.15			528	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 1601 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 59.4 N	120 20.8 W	15/01/2016	0522	UTC	715 m	300 18 kn			1018.9 mb	14.1 C	12.6 C				040

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.13	15.13	33.358	24.678	325.4	0.000	5.74	250.4	100.1	2.5	0.32	0.1	0.02	0.04	0.44	0.24	0	
2	15.13	15.13	33.358	24.678	325.5	0.007	5.74	250.4	100.1	2.5	0.32	0.1	0.02	0.04	0.44	0.24	2	21
9	15.14	15.14	33.354	24.674	326.1	0.029	5.75	251.0	100.3	2.2	0.32	0.1	0.02	0.06	0.43	0.22	9	19
10 ISL	15.14 D	15.14	33.355 D	24.676	326.0	0.033	5.75	D250.4	D100.3	2.2	0.32	0.1	0.02	0.06	0.43	0.22	10	
10	15.14	15.14	33.354	24.675	326.1	0.032											10	20
20	15.14	15.14	33.360	24.679	326.0	0.065	5.73	250.2	100.0	2.2	0.32	0.1	0.02	0.03	0.44	0.24	20	18
29	15.14	15.14	33.354	24.675	326.7	0.095	5.77	251.9	100.7	2.2	0.32	0.1	0.02	0.04	0.46	0.24	29	17
30 ISL	15.14 D	15.14	33.355 D	24.676	326.6	0.099	5.75	D250.5	D100.3	2.2	0.32	0.1	0.02	0.04	0.46	0.24	30	
39	15.14	15.14	33.358	24.679	326.7	0.127	5.74	250.4	100.1	2.2	0.33	0.1	0.02	0.07	0.44	0.24	39	16
50 ISL	15.14 D	15.13	33.356 D	24.678	327.1	0.165	5.74	D250.4	D100.2	2.2	0.32	0.1	0.02	0.03	0.45	0.26	50	
51	15.14	15.13	33.354	24.677	327.3	0.167	5.74	250.4	100.1	2.2	0.32	0.1	0.02	0.03	0.46	0.26	51	15
60	15.04	15.03	33.356	24.700	325.3	0.196	5.67	247.7	98.8	2.4	0.35	0.3	0.05	0.11	0.38	0.26	60	14
70	14.91	14.90	33.363	24.734	322.4	0.228	5.64	246.0	97.9	2.7	0.40	0.6	0.09	0.30	0.23	0.19	71	13
75 ISL	14.87 D	14.86	33.371 D	24.749	321.2	0.246	5.62	D244.7	D 97.5	2.8	0.41	0.8	0.10	0.28	0.22	0.17	76	
86	14.78	14.77	33.371	24.770	319.5	0.280	5.58	243.6	96.7	3.1	0.43	1.1	0.14	0.24	0.19	0.13	87	12
100	14.11	14.09	33.373	24.914	306.1	0.324	5.40	235.8	92.3	4.6	0.56	3.0	0.23	0.18	0.14	0.12	101	11
119	11.82	11.80	33.310	25.316	267.9	0.378	4.63	202.1	75.4	10.5	1.05	11.2	0.07	0.05	0.07	0.10	120	10
125 ISL	11.58 D	11.57	33.310 D	25.360	263.8	0.396	4.58	D199.4	D 74.2	12.2	1.15	12.7	0.06	0.04	0.06	0.09	126	
140	11.08	11.06	33.519	25.615	239.9	0.431	3.79	165.5	60.9	16.2	1.40	16.4	0.03	0.03	0.03	0.07	141	09
150 ISL	10.88 D	10.86	33.588 D	25.703	231.7	0.458	3.60	D156.8	D 57.6	18.5	1.51	18.1	0.02	0.02	0.02	0.07	151	
169	10.28	10.26	33.771	25.951	208.5	0.497	3.01	131.4	47.6	22.9	1.72	21.4	0.02	0.01	0.01	0.05	170	08
200	9.22	9.20	33.942	26.261	179.3	0.557	2.55	111.2	39.4	30.6	1.97	25.6	0.01	0.05	0.00	0.04	202	07
231	8.69	8.67	34.059	26.438	163.0	0.610	2.05	89.6	31.4	37.3	2.18	28.5	0.01	0.08			233	06
250 ISL	8.57 D	8.54	34.086 D	26.479	159.5	0.645	1.95	D 84.6	D 29.6	39.7	2.25	29.3	0.01	0.06			252	
269	8.35	8.32	34.120	26.539	154.0	0.670	1.71	74.6	25.9	42.0	2.32	30.2	0.01	0.04			271	05
300 ISL	7.94 D	7.91	34.189 D	26.655	143.4	0.722	1.21	D 52.6	D 18.2	47.6	2.47	32.0	0.01	0.00			302	
320	7.84	7.81	34.197	26.676	141.7	0.745	1.09	47.5	16.3	51.2	2.57	33.1	0.01	0.00			323	04
379	7.28	7.24	34.222	26.777	132.8	0.826	0.79	34.5	11.7	58.6	2.75	35.2	0.01	0.03			382	03
400 ISL	7.12 D	7.08	34.234 D	26.809	130.0	0.860	0.69	D 29.8	D 10.1	61.3	2.80	35.8	0.01	0.03			403	
442	6.79	6.75	34.251	26.869	124.7	0.907	0.52	22.9	7.7	66.8	2.89	37.2	0.01	0.03			446	02
500 ISL	6.49 D	6.45	34.280 D	26.932	119.4	0.985	0.42	D 18.2	D 6.1	72.5	2.95	38.3	0.01	0.04			504	
514	6.37	6.32	34.277	26.946	118.1	0.995	0.39	16.9	5.6	73.9	2.97	38.5	0.01	0.04			518	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 1601 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 1.7 W	15/01/2016	1141	UTC	3778 m	280 12 kn			1017.8 mb	15.0 C	12.8 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	15.50	15.50	33.340	24.585	334.3	0.000	5.73	250.1	100.7	2.0	0.34	0.1	0.02	0.16	0.27	0.09	0	
2	15.50	15.50	33.340	24.585	334.4	0.007	5.73	250.1	100.7	2.0	0.34	0.1	0.02	0.16	0.27	0.09	2	21
10 ISL	15.50 D	15.50	33.343 D	24.587	334.5	0.034	5.68	D247.8	D 99.9	2.0	0.32	0.1	0.01	0.00	0.27	0.09	10	
11	15.49	15.49	33.341	24.587	334.5	0.037	5.69	248.5	100.0	2.0	0.32	0.1	0.01	0.00	0.27	0.09	11	19
11	15.49	15.49	33.342	24.587	334.5	0.036											11	20
20 ISL	15.49 D	15.48	33.342 D	24.590	334.5	0.067	5.68	D247.7	D 99.9	2.0	0.33	0.1	0.01	0.00	0.27	0.10	20	
21	15.48	15.48	33.342	24.591	334.5	0.070	5.69	248.5	100.0	2.0	0.33	0.1	0.01	0.03	0.27	0.10	21	18
30 ISL	15.48 D	15.47	33.342 D	24.592	334.6	0.101	5.69	D247.8	D 99.9	2.0	0.33	0.1	0.02	0.02	0.29	0.09	30	
31	15.47	15.46	33.341	24.593	334.6	0.104	5.69	248.5	100.0	2.0	0.33	0.1	0.02	0.02	0.29	0.08	31	17
40	15.43	15.42	33.339	24.602	334.0	0.134	5.70	249.0	100.1	2.0	0.33	0.1	0.02	0.04	0.32	0.09	40	16
50 ISL	14.85 D	14.84	33.332 D	24.723	322.8	0.168	5.77	D251.3	D100.0	2.1	0.37	0.1	0.03	0.15	0.36	0.20	50	
51	14.82	14.81	33.331	24.728	322.4	0.170	5.79	252.9	100.4	2.1	0.37	0.1	0.03	0.16	0.37	0.22	51	15
60	14.77	14.76	33.337	24.745	321.0	0.199	5.74	250.7	99.4	2.1	0.38	0.2	0.04	0.23	0.32	0.19	60	14
70	14.69	14.68	33.336	24.761	319.8	0.231	5.70	248.9	98.6	2.2	0.41	0.4	0.06	0.31	0.24	0.15	71	13
75 ISL	14.61 D	14.60	33.339 D	24.781	318.1	0.248	5.65	D246.2	D 97.5	3.4	0.52	2.0	0.10	0.24	0.21	0.14	76	
85	13.36	13.35	33.255	24.975	299.7	0.278	5.23	228.3	87.9	5.7	0.73	5.2	0.19	0.11	0.14	0.13	86	12
100 ISL	11.22 D	11.21	33.261 D	25.386	260.6	0.322	4.52	D196.7	D 72.6	11.0	1.15	12.1	0.05	0.00	0.12	0.13	101	
101	11.07	11.05	33.254	25.409	258.4	0.322	4.58	200.0	73.4	11.4	1.18	12.6	0.04	0.00	0.11	0.13	102	11
121	10.08	10.07	33.443	25.728	228.4	0.371	3.98	173.6	62.4	17.5	1.52	18.1	0.03	0.02	0.04	0.06	122	10
125 ISL	10.05 D	10.04	33.489 D	25.768	224.6	0.382	3.88	D168.9	D 60.9	18.2	1.55	18.6	0.02	0.00	0.03	0.05	126	
140	9.62	9.60	33.559	25.895	212.8	0.413	3.66	160.0	57.0	20.9	1.66	20.6	0.02	0.00	0.01	0.04	141	09
150 ISL	9.40 D	9.38	33.635 D	25.991	203.8	0.436	3.54	D154.1	D 54.8	22.7	1.73	21.6	0.02	0.00	0.01	0.04	151	
171	9.24	9.22	33.766	26.120	192.1	0.476	3.13	136.7	48.3	26.4	1.87	23.8	0.02	0.00	0.00	0.03	172	08
200 ISL	8.79 D	8.77	33.953 D	26.338	171.8	0.530	2.59	D112.9	D 39.7	32.6	2.08	26.8	0.02	0.00	0.00	0.03	202	
203	8.75	8.73	33.960	26.350	170.8	0.534	2.52	110.0	38.5	33.3	2.10	27.1	0.02	0.00	0.00	0.03	205	07
230	8.52	8.50	34.039	26.447	162.0	0.579	2.12	92.5	32.3	37.7	2.24	28.7	0.02	0.00			232	06
250 ISL	8.33 D	8.30	34.062 D	26.497	157.6	0.613	1.99	D 86.6	D 30.1	40.5	2.32	29.7	0.01	0.00			252	
271	8.08	8.06	34.085	26.551	152.7	0.643	1.78	77.5	26.7	43.4	2.40	30.8	0.01	0.00			273	05
300 ISL	7.95 D	7.92	34.116 D	26.596	149.0	0.690	1.55	D 67.5	D 23.3	47.0	2.51	32.0	0.01	0.00			302	
320	7.73	7.69	34.136	26.645	144.6	0.716	1.33	58.1	19.9	49.6	2.59	32.8	0.01	0.00			323	04
382	7.00	6.96	34.153	26.762	134.0	0.803	0.93	40.4	13.6	59.6	2.81	35.9	0.01	0.00			385	03
400 ISL	6.98 D	6.94	34.182 D	26.788	131.9	0.831	0.82	D 35.7	D 12.1	61.9	2.86	36.4	0.01	0.00			403	
440	6.60	6.56	34.205	26.858	125.5	0.878	0.63	27.3	9.1	67.2	2.96	37.5	0.01	0.00			444	02
500 ISL	6.28 D	6.23	34.236 D	26.926	119.7	0.957	0.46	D 20.2	D 6.7	74.2	3.07	38.9	0.01	0.00			504	
516	6.15	6.10	34.250	26.953	117.2	0.971	0.41	17.9	5.9	76.1	3.10	39.2	0.01	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 19.5 N	121 42.8 W	15/01/2016	1742	UTC	4008 m	260 12 kn	300 05 07	1	1020.1 mb	16.8 C	15.7 C	19 m	7/8	ST	042

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.15	15.15	33.317	24.642	328.9	0.000	5.77	251.8	100.6	2.0	0.31	0.0	0.02	0.00	0.28	0.09	0	
2 A	15.15	15.15	33.317	24.642	328.9	0.007	5.77	251.8	100.6	2.0	0.31	0.0	0.02	0.00	0.28	0.09	2	24
8	15.07	15.06	33.317	24.662	327.2	0.026	5.79	253.0	100.9	2.0	0.32	0.0	0.01	0.00	0.31	0.10	8	22
8	15.07	15.06	33.317	24.662	327.3	0.027											8	23
10 ISL	15.01 D	15.01	33.320 D	24.676	325.9	0.033	5.81	D253.0	D101.0	2.0	0.32	0.0	0.01	0.00	0.32	0.11	10	
14 A	15.00	14.99	33.320	24.680	325.8	0.046	5.79	252.8	100.7	2.0	0.32	0.0	0.01	0.00	0.34	0.11	14	21
20 A	14.82	14.82	33.344	24.736	320.6	0.065	5.82	254.4	101.0	2.1	0.33	0.0	0.01	0.00	0.41	0.14	20	20
26	14.76	14.76	33.358	24.760	318.5	0.085	5.85	255.3	101.2	2.2	0.35	0.1	0.02	0.02	0.50	0.18	26	19
30 ISL	14.70 D	14.70	33.362 D	24.775	317.1	0.098	5.84	D254.5	D101.0	2.3	0.36	0.2	0.03	0.08	0.48	0.22	30	
33 A	14.64	14.63	33.360	24.788	316.0	0.107	5.79	252.7	100.0	2.4	0.37	0.3	0.04	0.12	0.47	0.24	33	18
44	14.45	14.44	33.363	24.832	312.2	0.141	5.64	246.4	97.1	2.8	0.44	1.0	0.11	0.36	0.32	0.21	44	17
50 ISL	14.20 D	14.19	33.358 D	24.881	307.7	0.161	5.53	D241.1	D 94.7	3.6	0.53	2.2	0.20	0.30	0.24	0.17	50	
53	14.03	14.02	33.349	24.910	305.0	0.169	5.43	237.3	92.7	4.0	0.57	2.8	0.25	0.27	0.20	0.15	53	16
62 A	12.72	12.71	33.293	25.130	284.1	0.196	5.02	219.4	83.4	7.1	0.83	7.1	0.22	0.00	0.16	0.13	62	15
68 A	11.89	11.88	33.263	25.266	271.3	0.212	4.64	202.7	75.7	10.4	1.09	11.3	0.07	0.00	0.11	0.12	69	14
75 ISL	10.95 D	10.94	33.312 D	25.474	251.6	0.232	4.36	D190.0	D 69.7	12.4	1.21	13.4	0.05	0.00	0.08	0.10	76	
76	10.91	10.90	33.321 D	25.489	250.2	0.234	4.30	D187.4	D 68.7								77	13
85	10.32	10.31	33.358	25.620	237.8	0.255	4.20	183.3	66.2	15.2	1.39	16.3	0.03	0.00	0.05	0.08	86	12
100 ISL	9.61 D	9.60	33.502 D	25.850	216.2	0.291	3.86	D168.0	D 60.0	19.4	1.60	19.7	0.02	0.00	0.02	0.06	101	
101	9.58	9.57	33.498	25.852	216.0	0.291	3.85	168.1	59.8	19.7	1.61	20.0	0.02	0.00	0.02	0.06	102	11
120	9.24	9.23	33.615	26.000	202.3	0.331	3.70	161.7	57.1	22.4	1.68	21.6	0.02	0.00	0.01	0.03	121	10
125 ISL	9.18 D	9.17	33.660 D	26.044	198.2	0.343	3.62	D157.6	D 55.8	23.0	1.71	22.0	0.02	0.00	0.01	0.03	126	
139	9.07	9.06	33.701	26.095	193.7	0.369	3.43	149.6	52.7	24.9	1.79	23.1	0.02	0.00	0.01	0.04	140	09
150 ISL	8.90 D	8.89	33.811 D	26.208	183.1	0.391	3.34	D145.3	D 51.2	26.7	1.83	23.8	0.02	0.00	0.00	0.03	151	
170	8.65	8.63	33.887	26.307	174.0	0.426	3.17	138.4	48.3	29.9	1.89	25.1	0.02	0.00	0.00	0.03	171	08
200 ISL	8.23 D	8.21	33.969 D	26.436	162.3	0.478	2.88	D125.4	D 43.6	34.8	2.01	27.0	0.02	0.00	0.00	0.03	202	
201	8.24	8.22	33.968	26.434	162.5	0.478	2.88	125.6	43.5	35.0	2.01	27.1	0.02	0.00	0.00	0.03	203	07
231	7.90	7.88	34.036	26.539	153.0	0.525	2.10	91.5	31.5	42.4	2.31	30.5	0.01	0.00			233	06
250 ISL	7.70 D	7.68	34.061 D	26.588	148.6	0.556	1.84	D 79.9	D 27.4	45.2	2.40	31.4	0.01	0.00			252	
270	7.61	7.58	34.077	26.614	146.4	0.583	1.66	72.4	24.7	48.0	2.50	32.3	0.01	0.00			272	05
300 ISL	7.43 D	7.40	34.120 D	26.675	141.2	0.630	1.40	D 60.9	D 20.8	51.8	2.61	33.6	0.01	0.00			302	
320	7.31	7.28	34.132	26.701	138.9	0.655	1.17	51.2	17.4	54.4	2.68	34.5	0.01	0.00			323	04
380	6.74	6.71	34.177	26.815	128.7	0.735	0.75	32.7	10.9	64.1	2.90	36.9	0.01	0.00			383	03
400 ISL	6.50 D	6.47	34.180 D	26.849	125.6	0.764	0.69	D 29.8	D 10.0	67.0	2.95	37.6	0.01	0.00			403	
440	6.28	6.24	34.221	26.912	120.1	0.809	0.49	21.4	7.1	72.8	3.04	38.9	0.01	0.00			444	02
500 ISL	5.95 D	5.90	34.263 D	26.988	113.4	0.885	0.36	D 15.5	D 5.1	79.3	3.13	39.8	0.01	0.00			504	
516	5.91	5.86	34.276	27.004	112.1	0.897	0.31	13.6	4.5	81.1	3.16	40.0	0.01	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 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 23.6 W	15/01/2016	2330	UTC	4096 m	270 11 kn	310 03 08	2	1018.6 mb	17.9 C	16.1 C		8/8	SC	043

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.14	16.14	33.206	24.338	357.8	0.000	5.66	247.3	100.7	1.8	0.28	0.0	0.01	0.13	0.12	0.04	0	
1	16.14	16.14	33.206	24.338	357.9	0.004	5.66	247.3	100.7	1.8	0.28	0.0	0.01	0.13	0.12	0.04	1	21
9	16.09	16.08	33.200	24.345	357.4	0.033											9	20
10	16.12	16.12	33.200	24.337	358.3	0.036	5.65	246.6	100.4	1.8	0.30	0.0	0.01	0.21	0.12	0.04	10	19
20 ISL	16.12 D	16.12	33.271 D	24.392	353.3	0.072	5.64	D245.8	D100.3	1.8	0.30	0.0	0.01	0.12	0.13	0.04	20	
25	16.15	16.15	33.288	24.400	352.8	0.089	5.63	245.9	100.2	1.9	0.30	0.0	0.01	0.08	0.14	0.04	25	18
30 ISL	16.16 D	16.15	33.296 D	24.404	352.6	0.107	5.64	D245.8	D100.4	1.9	0.30	0.0	0.01	0.06	0.15	0.04	30	
40	16.16	16.15	33.299	24.408	352.5	0.142	5.62	245.5	100.1	1.9	0.29	0.0	0.01	0.02	0.16	0.05	40	17
50	16.04	16.04	33.289	24.427	351.1	0.177	5.62	245.3	99.8	1.9	0.29	0.0	0.01	0.01	0.20	0.08	50	16
62	15.86	15.85	33.287	24.466	347.8	0.219	5.60	244.5	99.1	1.9	0.31	0.0	0.04	0.07	0.26	0.11	62	15
75 ISL	15.55 D	15.54	33.302 D	24.549	340.3	0.266	5.60	D244.1	D 98.5	2.0	0.34	0.1	0.06	0.18	0.19	0.09	76	
77	15.52	15.51	33.299	24.552	340.1	0.271	5.59	244.3	98.3	2.0	0.34	0.1	0.06	0.20	0.18	0.09	78	14
87	15.25	15.23	33.288	24.605	335.3	0.304	5.59	244.2	97.8	1.9	0.31	0.0	0.05	0.08	0.25	0.10	88	13
100	13.74	13.72	33.168	24.832	313.8	0.347	5.48	239.2	92.8	3.8	0.52	2.4	0.11	0.06	0.17	0.12	101	12
111	12.30	12.29	33.151	25.102	288.1	0.380	5.21	227.6	85.6	6.3	0.73	5.9	0.03	0.00	0.12	0.10	112	11
125	10.66	10.64	33.194	25.435	256.4	0.418	4.87	212.5	77.2	10.8	1.11	12.0	0.02	0.00	0.05	0.07	126	10
140	9.97	9.95	33.312	25.645	236.6	0.455	4.47	195.1	69.9	14.8	1.36	16.0	0.02	0.00	0.04	0.04	141	09
150 ISL	9.72 D	9.70	33.390 D	25.748	227.0	0.481	4.36	D190.0	D 67.9	17.7	1.49	18.2	0.01	0.00	0.03	0.04	151	
169	9.32	9.30	33.632	26.002	203.2	0.519	3.48	151.7	53.7	23.3	1.75	22.3	0.01	0.03	0.01	0.03	170	08
200	8.97	8.95	33.771	26.167	188.1	0.579	3.12	136.3	47.9	26.9	1.89	24.4	0.01	0.07	0.00	0.02	202	07
232	8.57	8.55	33.952	26.372	169.2	0.636	2.61	114.1	39.8	33.6	2.07	27.3	0.01	0.07			234	06
250 ISL	8.29 D	8.26	34.009 D	26.460	161.0	0.670	2.35	D102.0	D 35.5	37.4	2.20	28.8	0.01	0.07			252	
270	8.06	8.03	34.049	26.527	155.0	0.698	2.00	87.3	30.1	41.7	2.34	30.5	0.01	0.07			272	05
300 ISL	7.77 D	7.74	34.084 D	26.598	148.7	0.747	1.70	D 74.0	D 25.4	47.0	2.48	32.2	0.01	0.04			302	
320	7.48	7.45	34.108	26.657	143.2	0.773	1.41	61.6	21.0	50.5	2.57	33.4	0.01	0.02			323	04
380	6.98	6.94	34.196	26.799	130.5	0.855	0.77	33.4	11.2	61.1	2.87	36.0	0.01	0.09			383	03
400 ISL	6.91 D	6.88	34.225 D	26.831	127.8	0.885	0.63	D 27.3	D 9.2	64.1	2.92	36.6	0.01	0.07			403	
439	6.55	6.51	34.236	26.888	122.6	0.930	0.52	22.5	7.5	69.7	3.01	37.7	0.01	0.04			443	02
500 ISL	6.05 D	6.01	34.264 D	26.976	114.7	1.008	0.38	D 16.3	D 5.4	77.8	3.12	39.3	0.01	0.05			504	
515	6.00	5.95	34.276	26.992	113.4	1.019	0.32	14.0	4.6	79.8	3.15	39.7	0.01	0.05			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 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 3.9 W	16/01/2016	0506	UTC	4141 m	270 07 kn			1021.3 mb	18.1 C	16.1 C				044

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.45	16.45	33.231	24.286	362.8	0.000	5.61	244.8	100.4	1.9	0.30	0.1	0.01	0.08	0.12	0.04	0	
2	16.45	16.45	33.231	24.286	362.8	0.007	5.61	244.8	100.4	1.9	0.30	0.1	0.01	0.08	0.12	0.04	2	21
9	16.45	16.45	33.230	24.285	363.2	0.034											9	20
10	16.45	16.45	33.234	24.288	362.9	0.036	5.62	245.2	100.5	1.9	0.29	0.0	0.01	0.05	0.11	0.04	10	19
20 ISL	16.43 D	16.43	33.234 D	24.294	362.7	0.073	5.62	D245.2	D100.6	1.9	0.35	0.0	0.00	0.19	0.13	0.06	20	
25	16.40	16.40	33.233	24.300	362.3	0.091	5.60	244.4	100.1	1.9	0.38	0.0	0.00	0.26	0.14	0.08	25	18
30 ISL	16.40 D	16.40	33.237 D	24.304	362.2	0.110	5.62	D244.8	D100.4	1.9	0.36	0.0	0.00	0.23	0.15	0.08	30	
39	16.41	16.40	33.239	24.304	362.5	0.142	5.60	244.5	100.1	1.8	0.32	0.0	0.00	0.18	0.17	0.09	39	17
50	16.36	16.35	33.240	24.317	361.6	0.181	5.62	245.2	100.3	1.9	0.29	0.1	0.00	0.10	0.16	0.07	50	16
61	16.35	16.34	33.251	24.328	361.0	0.221	5.61	245.0	100.2	1.8	0.27	0.0	0.00	0.00	0.18	0.08	61	15
75	16.30	16.28	33.244	24.336	360.7	0.272	5.59	244.0	99.7	1.7	0.32	0.0	0.00	0.13	0.23	0.11	76	14
87	15.37	15.35	33.227	24.532	342.3	0.314	5.56	242.7	97.4	2.1	0.32	0.2	0.17	0.06	0.20	0.11	88	13
99	13.63	13.62	33.117	24.814	315.5	0.353	5.48	239.2	92.6	3.9	0.50	2.4	0.06	0.04	0.15	0.13	100	12
100 ISL	13.61 D	13.60	33.120 D	24.821	314.9	0.359	5.47	D238.5 D	92.4	4.0	0.52	2.6	0.06	0.05	0.14	0.13	101	
111	12.45	12.44	33.094	25.030	295.0	0.390	5.28	230.8	87.1	5.7	0.72	5.2	0.03	0.18	0.12	0.13	112	11
125 ISL	11.43 D	11.41	33.124 D	25.245	274.7	0.433	5.04	D219.6 D	81.4	7.9	0.90	8.7	0.03	0.00	0.09	0.09	126	
126	11.44	11.43	33.120	25.239	275.3	0.433	5.06	220.8	81.6	8.1	0.91	9.0	0.03	0.00	0.09	0.09	127	10
139	10.56	10.55	33.178	25.440	256.3	0.467	4.81	210.1	76.2	10.7	1.14	12.5	0.02	0.10	0.07	0.08	140	09
150 ISL	10.09 D	10.07	33.328 D	25.638	237.5	0.497	4.50	D196.0 D	70.6	14.0	1.30	15.1	0.03	0.10	0.05	0.06	151	
169	9.40	9.38	33.538	25.915	211.5	0.537	4.03	175.8	62.3	19.7	1.57	19.8	0.04	0.10	0.01	0.03	170	08
200	8.94	8.91	33.740	26.149	189.8	0.600	3.49	152.2	53.5	25.1	1.79	23.3	0.04	0.16	0.00	0.02	202	07
229	8.56	8.54	33.902	26.334	172.7	0.652	3.01	131.2	45.7	31.1	1.93	26.3	0.02	0.10			231	06
250 ISL	8.28 D	8.26	33.948 D	26.413	165.5	0.691	2.70	D117.6 D	40.9	35.3	2.04	27.7	0.01	0.06			252	
270	7.81	7.78	33.996	26.521	155.4	0.720	2.64	115.0	39.4	39.3	2.15	29.2	0.00	0.02			272	05
300 ISL	7.51 D	7.48	34.025 D	26.588	149.4	0.772	2.21	D 96.1 D	32.8	45.8	2.37	31.7	0.01	0.02			302	
320	7.21	7.18	34.037	26.640	144.6	0.795	1.84	80.2	27.1	50.2	2.51	33.4	0.02	0.02			323	04
379	6.92	6.88	34.131	26.755	134.5	0.877	1.02	44.6	15.0	59.8	2.86	36.7	0.01	0.06			382	03
400 ISL	6.70 D	6.67	34.133 D	26.786	131.8	0.913	0.91	D 39.6 D	13.3	62.4	2.90	37.3	0.01	0.00			403	
441	6.55	6.51	34.175	26.840	127.1	0.958	0.70	30.7	10.2	67.4	2.98	38.5	0.00	0.00			445	02
500 ISL	6.01 D	5.96	34.203 D	26.933	118.6	1.039	0.52	D 22.7 D	7.5	74.9	3.09	39.8	0.03	0.00			504	
514	6.06	6.02	34.222	26.941	118.2	1.047	0.46	20.1	6.6	76.7	3.11	40.1	0.04	0.12			518	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 86.7 110.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 19.6 N	123 44.7 W	16/01/2016	1057	UTC	4055 m	260 10 kn			1022.2 mb	17.3 C	16.1 C				045

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.21	16.21	33.184	24.305	361.0	0.000	5.68	248.1	101.2	2.5	0.40	0.1	0.04	0.07	0.10	0.03	0	
2	16.21	16.21	33.184	24.305	361.0	0.007	5.68	248.1	101.2	2.5	0.40	0.1	0.04	0.07	0.10	0.03	2	21
10 ISL	16.19 D	16.19	33.161 D	24.293	362.5	0.037	5.66	D246.7	D100.7	1.9	0.31	0.0	0.01	0.00	0.10	0.03	10	
10	16.19	16.19	33.160	24.292	362.6	0.037											10	20
11	16.18	16.18	33.159	24.293	362.5	0.040	5.66	247.0	100.6	1.9	0.30	0.0	0.01	0.00	0.10	0.03	11	19
20 ISL	16.04 D	16.04	33.162 D	24.327	359.6	0.073	5.67	D247.0	D100.5	1.9	0.29	0.0	0.01	0.00	0.10	0.04	20	
26	16.00	16.00	33.158 D	24.333	359.2	0.095	5.66	247.1	100.6	1.9	0.28	0.0	0.01	0.00	0.11	0.04	26	18
30 ISL	15.97 D	15.96	33.153 D	24.338	358.9	0.109	5.66	D246.8	D100.3	1.9	0.28	0.0	0.01	0.00	0.12	0.05	30	
41	15.92	15.91	33.147	24.345	358.5	0.144	5.66	247.2	100.2	1.9	0.28	0.0	0.02	0.00	0.14	0.07	41	17
50	15.93	15.92	33.153	24.347	358.7	0.176	5.64	246.4	99.9	1.9	0.28	0.0	0.02	0.00	0.18	0.11	50	16
63	15.85	15.84	33.169	24.378	356.2	0.223	5.64	246.5	99.8	2.0	0.30	0.0	0.04	0.00	0.23	0.11	63	15
75	15.09	15.08	33.151	24.533	341.7	0.265	5.60	244.6	97.5	2.5	0.37	0.3	0.30	0.01	0.26	0.15	76	14
88	14.09	14.07	33.103	24.710	325.1	0.308	5.59	244.2	95.3	3.4	0.44	1.3	0.18	0.00	0.19	0.18	89	13
100 ISL	14.02 D	14.00	33.379 D	24.938	303.9	0.352	5.28	D229.9 D	90.0	4.2	0.46	2.0	0.09	0.00	0.17	0.13	101	
101	13.83	13.82	33.381	24.978	300.1	0.349	5.33	232.8	90.6	4.3	0.46	2.1	0.08	0.07	0.17	0.13	102	12
113	12.40	12.39	33.175	25.103	288.2	0.384	5.24	228.8	86.3	6.3	0.71	5.7	0.03	0.00	0.13	0.10	114	11
125	11.55	11.53	33.222	25.299	269.6	0.418	5.12	223.5	82.8	7.8	0.86	8.2	0.03	0.00	0.08	0.10	126	10
140	10.35	10.33	33.237	25.523	248.4	0.456	4.76	207.7	75.0	12.3	1.20	13.9	0.02	0.00	0.05	0.07	141	09
150 ISL	9.99 D	9.97	33.296 D	25.630	238.3	0.488	4.55	D198.3 D	71.2	14.8	1.32	15.9	0.02	0.00	0.04	0.05	151	
170	9.51	9.49	33.498	25.868	216.0	0.526	3.98	173.9	61.7	19.6	1.57	19.9	0.02	0.00	0.01	0.03	171	08
200	8.94	8.92	33.783	26.182	186.7	0.586	3.56	155.2	54.5	25.9	1.76	23.4	0.01	0.00	0.00	0.02	202	07
231	8.49	8.47	33.919	26.358	170.4	0.642	3.09	134.7	46.9	31.4	1.91	26.1	0.02	0.00			233	06
250 ISL	8.33 D	8.30	33.966 D	26.421	164.8	0.683	2.89	D125.7 D	43.7	34.8	2.03	27.6	0.02	0.00			252	
272	8.04	8.01	34.013	26.502	157.4	0.709	2.48	108.1	37.2	38.8	2.17	29.4	0.02	0.00			274	05
300 ISL	7.65 D	7.62	34.029 D	26.572	151.0	0.763	2.12	D 92.3 D	31.6	46.2	2.36	32.0	0.01	0.00			302	
320	7.16	7.13	34.053	26.660	142.7	0.781	1.77	77.1	26.0	51.4	2.49	33.9	0.01	0.00			323	04
380	6.62	6.58	34.097	26.769	133.0	0.864	1.21	52.9	17.6	61.1	2.74	36.9	0.01	0.00			383	03
400 ISL	6.48 D	6.44	34.097 D	26.787	131.4	0.903	1.10	D 47.7 D	15.9	63.8	2.80	37.6	0.01	0.00			403	
441	6.19	6.15	34.134	26.855	125.3	0.943	0.87	37.8	12.5	69.3	2.91	38.9	0.01	0.00			445	02
500 ISL	5.72 D	5.68	34.188 D	26.956	116.1	1.028	0.57	D 25.0 D	8.2	79.5	3.05	40.6	0.01	0.00			504	
515	5.65	5.60	34.213	26.986	113.5	1.031	0.48	20.9	6.8	82.1	3.08	41.1	0.01	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 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 53.4 N	118 26.7 W	14/01/2016	0651	UTC	32 m	270 09 kn			1018.2 mb	16.0 C	14.0 C				033

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.28	15.28	33.539	24.787	315.1	0.000	5.83	254.4	102.1	2.6	0.55	1.4	0.19	0.86	2.37	0.58	0	
2	15.28	15.27	33.539	24.787	315.1	0.006	5.83	254.4	102.1	2.6	0.55	1.4	0.19	0.86	2.37	0.58	2	04
5	15.28	15.28	33.539	24.787	315.3	0.016	5.92	258.4	103.7	2.6	0.54	1.4	0.19	0.90	2.39	0.66	5	03
10	15.28	15.27	33.539	24.787	315.4	0.032	5.90	257.4	103.3	2.6	0.52	1.4	0.19	0.78	2.32	0.62	10	02
20	15.20	15.19	33.542	24.807	313.8	0.063	5.91	258.1	103.4	2.8	0.56	1.5	0.20	1.04	1.87	0.51	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 1601 STATION 88.5 30.1

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 38.8 N	118 4.7 W	14/01/2016	0303	UTC	25 m	240 04 kn			1018.5 mb	16.5 C	14.5 C				032

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.17	15.17	33.281	24.611	331.8	0.000	5.99	261.4	104.5	2.3	0.44	0.5	0.10	0.12	3.18	0.52	0	
2	15.17	15.17	33.281	24.611	331.8	0.007	5.99	261.4	104.5	2.3	0.44	0.5	0.10	0.12	3.18	0.52	2	05
4	15.17	15.17	33.279	24.610	332.1	0.013	6.00	262.1	104.8	2.3	0.48	0.6	0.10	0.30	3.00	0.78	4	04
10	15.19	15.19	33.305	24.626	330.8	0.033	5.90	257.7	103.1	2.1	0.43	0.6	0.11	0.14	2.97	0.79	10	03
16	15.40	15.40	33.512	24.738	320.2	0.053	5.37	234.5	94.3	2.4	0.56	0.9	0.17	1.39	2.11	0.68	16	02
20	15.47	15.47	33.577	24.773	317.1	0.065	5.06	221.1	89.1	3.3	0.65	1.2	0.22	1.68	1.44	1.07	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 1601 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 44.9 W	14/01/2016	0000	UTC	26 m	290 07 kn	320 01 08	1	1018.5 mb	16.1 C	14.0 C		4/8	ST	031

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.84	15.84	33.576	24.691	324.2	0.000	5.67	247.6	100.5	3.1	0.43	0.5	0.12	0.26	1.26	0.30	0	
2	15.84	15.83	33.576	24.691	324.3	0.007	5.67	247.6	100.5	3.1	0.43	0.5	0.12	0.26	1.26	0.30	2	04
5	15.82	15.82	33.569	24.689	324.6	0.016	5.66	246.9	100.2	3.2	0.42	0.5	0.12	0.16	1.21	0.26	5	03
10	15.74	15.73	33.560	24.701	323.6	0.032	5.61	245.0	99.3	3.4	0.44	0.7	0.15	0.31	1.31	0.35	10	02
19	15.72	15.72	33.559	24.704	323.6	0.062	5.44	237.6	96.2	3.8	0.50	1.2	0.21	0.75	1.30	0.35	19	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 1601 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 46.0 W	13/01/2016	2209	UTC	61 m	280 06 kn	280 01 07	1	1018.2 mb	16.1 C	13.9 C	11 m	2/8	ST	030

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.87	15.87	33.569	24.677	325.5	0.000	5.66	247.2	100.4	3.3	0.44	0.3	0.11	0.05	1.27	0.24	0	
1	15.87	15.87	33.569	24.677	325.5	0.003	5.66	247.2	100.4	3.3	0.44	0.3	0.11	0.05	1.27	0.24	1	08
5	15.80	15.80	33.566	24.691	324.3	0.016	5.66	246.9	100.2	3.3	0.44	0.3	0.11	0.04	1.20	0.25	5	07
10	15.72	15.72	33.567	24.710	322.8	0.033	5.63	245.8	99.5	3.2	0.43	0.4	0.11	0.04	1.35	0.37	10	06
20	15.74	15.73	33.584	24.720	322.1	0.065	5.57	243.0	98.5	3.3	0.45	0.4	0.12	0.10	1.18	0.36	20	05
30	15.61	15.60	33.605	24.766	318.1	0.097	5.22	228.0	92.2	4.7	0.58	1.5	0.40	0.56	0.26	0.19	30	04
40	15.56	15.56	33.603	24.775	317.6	0.129	5.16	225.4	91.0	4.8	0.60	1.8	0.47	0.43	0.24	0.20	40	03
50	15.47	15.47	33.604	24.796	316.0	0.160	5.12	223.3	90.0	4.7	0.63	2.1	0.54	0.54	0.21	0.20	50	02
53	15.36	15.35	33.596	24.815	314.2	0.170	5.07	221.2	89.0	5.0	0.69	2.7	0.52	0.75	0.22	0.22	53	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 1601 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 25.3 N	117 54.1 W	13/01/2016	1715	UTC	613 m	050 10 kn	320 03 07	1	1020.3 mb	14.9 C	13.0 C	13 m	7/8	ST	029

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.93	15.93	33.607	24.692	324.1	0.000	5.60	244.4	99.4	3.0	0.41	0.2	0.05	0.04	0.97	0.43	0	
2 A	15.93	15.93	33.607	24.692	324.1	0.007	5.60	244.4	99.4	3.0	0.41	0.2	0.05	0.04	0.97	0.43	2	24
10 ISL	15.93 D	15.93	33.609 D	24.694	324.2	0.033	5.60	D244.2 D	99.5	3.1	0.43	0.2	0.06	0.12	1.01	0.39	10	
11 A	15.93	15.93	33.609	24.695	324.2	0.036	5.59	244.1	99.3	3.1	0.43	0.2	0.06	0.13	1.01	0.39	11	22
11	15.93	15.93	33.609	24.695	324.2	0.035											11	23
14 A	15.94	15.93	33.608	24.693	324.5	0.045	5.59	244.2	99.4	3.0	0.42	0.2	0.06	0.04	0.90	0.39	14	21
20 ISL	15.93 D	15.93	33.609 D	24.695	324.5	0.065	5.60	D244.1 D	99.5	3.1	0.41	0.2	0.06	0.03	0.91	0.41	20	
24 A	15.93	15.92	33.606	24.695	324.7	0.078	5.58	243.4	99.0	3.1	0.41	0.2	0.06	0.03	0.92	0.42	24	20
30 ISL	15.93 D	15.92	33.608 D	24.696	324.8	0.098	5.58	D243.1 D	99.0	3.1	0.42	0.2	0.07	0.05	0.88	0.36	30	
34	15.91	15.90	33.603	24.697	324.8	0.110	5.55	242.2	98.5	3.1	0.42	0.3	0.08	0.07	0.85	0.33	34	18
34	15.91	15.90	33.604	24.698	324.7	0.109											34	19
44 A	15.80	15.80	33.588	24.710	323.9	0.143	5.44	237.4	96.3	3.5	0.49	0.8	0.17	0.22	0.44	0.25	44	17
48 A	15.72	15.71	33.582	24.725	322.6	0.156	5.38	235.0	95.2	3.7	0.50	0.9	0.21	0.25	0.37	0.25	48	16
50 ISL	15.63 D	15.62	33.576 D	24.740	321.3	0.163	5.27	D229.7 D	93.0	4.1	0.54	1.4	0.27	0.19	0.34	0.25	50	
54	15.48	15.47	33.562	24.763	319.2	0.175	5.11	223.3	90.0	4.7	0.62	2.5	0.37	0.08	0.28	0.26	54	15
61	14.79	14.78	33.523	24.884	307.9	0.197	4.68	204.4	81.2	6.7	0.81	5.3	0.27	0.00	0.19	0.17	61	14
70	14.02	14.01	33.523	25.047	292.5	0.224	4.09	178.6	69.9	9.6	1.09	9.2	0.06	0.00	0.13	0.20	71	13
75 ISL	13.83 D	13.81	33.535 D	25.096	287.9	0.240	3.99	D173.9 D	67.9	10.3	1.15	10.0	0.06	0.00	0.12	0.18	76	
85	13.20	13.19	33.551	25.236	274.9	0.266	3.75	163.6	62.9	11.6	1.28	11.6	0.05	0.50	0.10	0.15	86	12
100 ISL	12.61 D	12.59	33.710 D	25.477	252.3	0.308	3.09	D134.8 D	51.4	15.1	1.51	15.1	0.04	0.00	0.05	0.11	101	
101	12.80	12.79	33.690	25.423	257.5	0.309	3.14	137.1	52.3	15.3	1.52	15.4	0.04	0.00	0.04	0.11	102	11
120	11.77	11.75	33.744	25.664	234.9	0.356	2.87	125.3	46.8	18.5	1.70	18.6	0.08	0.00	0.02	0.09	121	10
125 ISL	11.72 D	11.70	33.784 D	25.703	231.3	0.369	2.77	D120.8 D	45.2	19.4	1.75	19.2	0.07	0.00	0.02	0.08	126	
141	11.10	11.09	33.872	25.885	214.3	0.403	2.55	111.2	41.0	22.2	1.89	21.1	0.02	0.00	0.01	0.05	142	09
150 ISL	11.00 D	10.99	33.948 D	25.963	207.1	0.424	2.41	D104.7 D	38.6	23.9	1.97	22.1	0.02	0.00	0.01	0.05	151	
169	10.77	10.75	34.071	26.101	194.4	0.460	1.98	86.4	31.7	27.5	2.15	24.2	0.02	0.00	0.00	0.05	170	08
200 ISL	10.25 D	10.23	34.182 D	26.279	178.1	0.521	1.65	D 71.9 D	26.1	31.8	2.31	26.2	0.02	0.00	0.00	0.04	202	
201	10.23	10.21	34.179	26.280	178.1	0.520	1.66	72.5	26.3	31.9	2.31	26.2	0.02	0.00	0.00	0.04	203	07
231	9.52	9.49	34.185	26.405	166.6	0.571	1.64	71.6	25.5	35.3	2.38	27.8	0.02	0.01			233	06
250 ISL	9.14 D	9.11	34.177 D	26.461	161.5	0.606	1.64	D 71.2 D	25.3	38.0	2.44	28.7	0.02	0.00			252	
270	8.91	8.88	34.190 D	26.507	157.5	0.638	1.50	D 65.2 D	23.0								272	05
300 ISL	8.54 D	8.51	34.193 D	26.568	152.1	0.685	1.37	D 59.7 D	20.9	44.9	2.59	31.3	0.01	0.00			302	
320	8.21	8.18	34.202	26.626	146.7	0.722	1.19	52.1	18.0	47.7	2.65	32.3	0.01	0.00			323	04
381	7.57	7.53	34.248	26.757	135.0	0.808	0.74	32.4	11.1	57.1	2.88	34.8	0.01	0.00			384	03
400 ISL	7.41 D	7.37	34.252 D	26.784	132.7	0.827	0.69	D 30.0 D	10.2	59.3	2.93	35.3	0.01	0.00			403	
441	7.18	7.13	34.288	26.845	127.4	0.887	0.47	20.4	6.9	64.1	3.03	36.4	0.02	0.00			445	02
500 ISL	6.61 D	6.56	34.318 D	26.947	118.2	0.954	0.31	D 13.3 D	4.5	73.4	3.15	38.0	0.01	0.00			504	
517	6.47	6.42	34.325	26.971	116.0	0.979	0.28	12.3	4.1	76.1	3.19	38.5	0.01	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 1601 STATION 90.0 35.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 15.2 N	118 15.5 W	13/01/2016	1302	UTC	335 m	060 06 kn			1018.7 mb	15.2 C	11.8 C				028

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.23	16.23	33.612	24.629	330.1	0.000	5.55	242.3	99.1	3.1	0.39	0.2	0.04	0.00	0.79	0.27	0	
2	16.23	16.23	33.612	24.629	330.1	0.007	5.55	242.3	99.1	3.1	0.39	0.2	0.04	0.00	0.79	0.27	2	19
10	16.23	16.23	33.608	24.627	330.6	0.033	5.55	242.1	99.1	3.1	0.41	0.2	0.04	0.27	0.79	0.28	10	17
10	16.23	16.23	33.609	24.628	330.6	0.033											10	18
20	16.22	16.22	33.608	24.629	330.8	0.066	5.54	242.0	99.0	3.1	0.40	0.2	0.04	0.19	0.75	0.28	20	16
30	16.22	16.22	33.609	24.630	331.1	0.099	5.56	242.5	99.2	3.1	0.40	0.2	0.04	0.15	0.78	0.27	30	15
40	16.14	16.13	33.597	24.641	330.4	0.132	5.51	240.7	98.3	3.2	0.41	0.3	0.05	0.08	0.75	0.26	40	14
50	15.90	15.90	33.577	24.680	327.0	0.165	5.57	243.0	98.8	3.1	0.43	0.4	0.06	0.17	0.73	0.27	50	13
61	15.47	15.46	33.556	24.761	319.6	0.201	5.44	237.3	95.6	3.6	0.48	1.1	0.11	0.25	0.51	0.22	61	12
70	13.17	13.16	33.239	24.999	296.9	0.229	4.93	215.2	82.5	6.8	0.88	6.8	0.06	0.20	0.11	0.16	71	11
75 ISL	12.61 D	12.60	33.248 D	25.116	285.8	0.245	4.85	D211.2 D	80.3	7.9	0.96	8.2	0.06	0.14	0.10	0.14	76	
85	12.24	12.23	33.309	25.236	274.7	0.271	4.49	196.2	73.8	10.1	1.13	10.9	0.04	0.01	0.08	0.11	86	10
100 ISL	12.57 D	12.56	33.690 D	25.468	253.2	0.313	3.17	D138.0 D	52.5	15.3	1.51	15.4	0.03	0.01	0.03	0.08	101	
101	12.52	12.51	33.686	25.475	252.5	0.313	3.14	137.1	52.1	15.6	1.53	15.7	0.03	0.01	0.03	0.07	102	09
120	11.68	11.66	33.811	25.731	228.5	0.359	2.78	121.3	45.3	19.8	1.77	19.3	0.02	0.00	0.02	0.06	121	08
125 ISL	11.58 D	11.56	33.836 D	25.771	224.9	0.372	2.61	D113.6 D	42.4	20.6	1.81	19.8	0.02	0.00	0.02	0.06	126	
141	11.19	11.17	33.904	25.895	213.4	0.405	2.42	105.8	39.1	23.0	1.93	21.6	0.02	0.01	0.01	0.05	142	07
150 ISL	11.02 D	11.00	33.920 D	25.939	209.4	0.427	2.41	D104.9 D	38.7	24.7	2.01	22.5	0.02	0.00	0.01	0.05	151	
170	10.55	10.53	34.088	26.152	189.5	0.464	1.94	84.7	30.9	28.7	2.18	24.7	0.02	0.00	0.01	0.04	171	06
200 ISL	10.27 D	10.25	34.189 D	26.281	178.0	0.523	1.59	D 69.2 D	25.2	32.1	2.29	26.2	0.03	0.00			202	
200	10.27	10.25	34.189 D	26.281	178.0	0.523	1.59	D 69.2 D	25.2								202	05
230	9.72	9.69	34.205	26.388	168.3	0.571	1.51	65.7	23.5	35.6	2.39	27.7	0.04	0.00			232	04
250 ISL	9.55 D	9.52	34.241 D	26.444	163.4	0.608	1.35	D 58.5 D	21.0	37.4	2.45	28.3	0.03	0.00			252	
270	9.32	9.29	34.241	26.483	160.0	0.637	1.31	57.2	20.3	39.2	2.50	29.0	0.03	0.00			272	03
300 ISL	8.54 D	8.50	34.240 D	26.606	148.5	0.688	1.12	D 48.9 D	17.1	45.1	2.62	31.1	0.02	0.00			302	
321	8.15	8.11	34.228	26.656	143.9	0.714	1.04	45.3	15.7	49.2	2.71	32.6	0.02	0.04			324	02
355	7.87	7.84	34.235	26.703	139.9	0.763	0.90	39.1	13.4	53.1	2.81	33.8	0.02	0.05			358	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 1601 STATION 90.0 37.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 10.9 N	118 23.2 W	13/01/2016	0953	UTC	1155 m	300 15 kn			1019.9 mb	15.0 C	13.8 C				027

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.84	15.84	33.566	24.681	325.1	0.000	5.66	247.2	100.4	3.2	0.39	0.3	0.04	0.09	0.84	0.25	0	
1	15.84	15.84	33.566	24.681	325.2	0.003	5.66	247.2	100.4	3.2	0.39	0.3	0.04	0.09	0.84	0.25	1	22
10 ISL	15.85 D	15.85	33.565 D	24.679	325.7	0.033	5.60	D243.9 D	99.2	3.2	0.37	0.3	0.05	0.05	0.85	0.30	10	
11	15.86	15.85	33.566	24.678	325.8	0.036	5.64	246.1	99.9	3.2	0.37	0.3	0.05	0.04	0.85	0.31	11	20
11	15.86	15.85	33.564	24.678	325.9	0.035											11	23
20 ISL	15.86 D	15.85	33.564 D	24.678	326.1	0.066	5.58	D243.4 D	99.0	3.2	0.38	0.3	0.04	0.07	0.81	0.28	20	
21	15.86	15.85	33.563	24.677	326.3	0.069	5.59	243.9	99.1	3.2	0.38	0.3	0.04	0.07	0.81	0.28	21	19
30 ISL	15.86 D	15.85	33.565 D	24.679	326.4	0.099	5.58	D243.3 D	99.0	3.2	0.36	0.3	0.04	0.04	0.80	0.29	30	
31	15.86	15.85	33.564	24.679	326.5	0.101	5.59	244.1	99.1	3.2	0.36	0.3	0.04	0.04	0.80	0.30	31	18
41	15.86	15.85	33.563	24.678	326.8	0.134	5.58	243.6	98.9	3.2	0.37	0.3	0.04	0.05	0.78	0.28	41	16
41	15.86	15.85	33.563	24.679	326.8	0.133											41	17
50 ISL	15.83 D	15.82	33.560 D	24.684	326.7	0.165	5.57	D242.9 D	98.7	3.1	0.38	0.3	0.05	0.22	0.76	0.29	50	
51	15.79	15.78	33.560	24.692	325.9	0.167	5.58	243.6	98.8	3.1	0.38	0.3	0.05	0.24	0.76	0.29	51	15
61	14.90	14.89	33.485	24.830	313.0	0.199	5.64	246.4	98.1	2.9	0.42	0.6	0.09	0.38	0.41	0.31	61	14
70	14.19	14.18	33.403	24.918	304.8	0.226	5.06	220.8	86.6	6.1	0.69	4.9	0.21	0.09	0.21	0.19	71	13
75 ISL	13.62 D	13.60	33.366 D	25.009	296.3	0.243	4.78	D208.4 D	80.9	7.6	0.83	6.9	0.15	0.00	0.17	0.17	76	
86	12.88	12.86	33.470	25.237	274.7	0.272	4.02	175.6	67.1	11.1	1.14	11.5	0.04	0.00	0.08	0.14	87	12
100	12.19	12.18	33.581	25.456	254.2	0.309	3.57	155.6	58.6	14.1	1.35	14.7	0.03	0.00	0.04	0.10	101	11
121	11.76	11.74	33.718	25.646	236.7	0.361	3.08	134.2	50.1	17.5	1.55	17.7	0.03	0.00	0.03	0.10	122	10
125 ISL	11.56 D	11.54	33.745 D	25.703	231.3	0.373	2.99	D130.3 D	48.6	18.5	1.60	18.4	0.03	0.00	0.03	0.09	126	
141	11.07	11.05	33.868	25.888	214.0	0.406	2.59	113.1	41.7	22.3	1.79	21.3	0.01	0.00	0.01	0.06	142	09
150 ISL	10.97 D	10.95	33.928 D	25.954	208.0	0.428	2.41	D104.9 D	38.7	23.3	1.84	21.9	0.01	0.00	0.01	0.06	151	
171	10.81	10.79	33.990	26.030	201.3	0.468	2.23	97.2	35.6	25.7	1.95	23.3	0.01	0.00	0.01	0.06	172	08
200 ISL	10.39 D	10.36	34.181 D	26.254	180.5	0.527	1.64	D 71.4 D	26.0	31.0	2.18	25.8	0.01	0.00	0.00	0.05	202	
203	10.34	10.32	34.178	26.261	180.0	0.529	1.63	71.3	25.9	31.5	2.20	26.1	0.01	0.00	0.00	0.05	205	07
230	9.85	9.82	34.233 D	26.388	168.3	0.580	1.45	D 63.0 D	22.7								232	06
250 ISL	9.33 D	9.30	34.198 D	26.446	163.0	0.613	1.54	D 66.8 D	23.8	37.6	2.34	28.4	0.01	0.00			252	
270	8.89	8.86	34.199 D	26.519	156.3	0.645	1.40	D 61.1 D	21.6								272	05
300 ISL	8.75 D	8.72	34.235 D	26.569	152.2	0.692	1.19	D 51.7 D	18.2	44.0	2.50	30.9	0.01	0.00			302	
320	8.50	8.47	34.251	26.621	147.5	0.729	1.06	46.0	16.1	46.6	2.56	31.9	0.01	0.00			323	04
381	7.70	7.66	34.242	26.734	137.3	0.816	0.82	35.6	12.2	55.4	2.70	34.6	0.01	0.00			384	03
400 ISL	7.40 D	7.36	34.257 D	26.789	132.2	0.835	0.68	D 29.7 D	10.1	58.3	2.76	35.3	0.01	0.00			403	
441	7.09	7.05	34.277	26.848	127.0	0.895	0.54	23.4	7.9	64.5	2.88	36.9	0.01	0.00			445	02
500 ISL	6.60 D	6.55	34.295 D	26.930	119.7	0.962	0.39	D 16.9 D	5.7	70.9	2.99	38.3	0.01	0.00			504	
516	6.59	6.54	34.305	26.940	119.0	0.986	0.36	15.7	5.2	72.7	3.02	38.6	0.02	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 1601 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 55.3 N	118 55.3 W	13/01/2016	0423	UTC	1676 m	300 08 kn			1020.9 mb	15.1 C	12.9 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	15.70	15.70	33.528	24.684	324.9	0.000	5.78	D251.8	D102.1	2.6	0.37	0.0	0.01	0.06	0.77	0.28	0	
1	15.70	15.70	33.528	24.684	324.9	0.003	5.78	D251.8	D102.1	2.6	0.37	0.0	0.01	0.06	0.77	0.28	1	21
10	15.70	15.69	33.529	24.686	325.0	0.032	5.78	252.5	102.2	2.5	0.37	0.0	0.01	0.00	0.76	0.26	10	19
10	15.70	15.69	33.529	24.686	325.0	0.031											10	20
19	15.63	15.62	33.525	24.699	324.0	0.062	5.74	250.7	101.3	2.5	0.38	0.1	0.02	0.21	0.97	0.41	19	18
20 ISL	15.61 D	15.61	33.518 D	24.698	324.3	0.065	5.76	D250.9	D101.5	2.5	0.38	0.1	0.02	0.22	0.96	0.41	20	
30	15.38	15.37	33.493	24.730	321.5	0.097	5.69	248.4	99.9	2.6	0.40	0.2	0.04	0.37	0.89	0.43	30	17
39	15.06	15.06	33.472	24.784	316.7	0.126	5.55	242.5	96.8	3.2	0.48	1.1	0.13	0.35	0.54	0.34	39	16
50	14.60	14.59	33.464	24.879	308.0	0.160	5.36	233.8	92.5	4.5	0.59	2.7	0.28	0.34	0.37	0.29	50	15
60	13.31	13.30	33.422	25.114	285.8	0.190	5.04	219.8	84.7	6.8	0.79	5.8	0.32	0.08	0.17	0.23	60	14
70	12.74	12.73	33.367	25.183	279.3	0.218	4.73	206.3	78.5	9.0	0.99	9.0	0.13	0.27	0.12	0.17	71	13
75 ISL	12.17 D	12.16	33.362 D	25.289	269.4	0.234	4.62	D201.3 D	75.9	10.2	1.09	10.7	0.10	0.18	0.10	0.15	76	
84	11.31	11.30	33.379	25.462	253.0	0.255	4.26	185.9	68.6	12.5	1.27	13.8	0.03	0.03	0.06	0.12	85	12
100 ISL	10.98 D	10.97	33.451 D	25.577	242.4	0.297	3.97	D172.8 D	63.5	14.4	1.39	15.5	0.02	0.24	0.04	0.10	101	
101	11.13	11.11	33.455	25.555	244.6	0.297	4.02	175.5	64.6	14.6	1.40	15.6	0.02	0.25	0.04	0.10	102	11
120	10.94	10.93	33.804	25.860	216.1	0.341	2.84	123.7	45.4	21.0	1.78	20.4	0.02	0.00	0.01	0.08	121	10
125 ISL	10.72 D	10.71	33.855 D	25.939	208.7	0.354	2.76	D120.0 D	44.0	21.7	1.82	20.9	0.01	0.00	0.01	0.07	126	
138	10.68	10.67	33.899	25.981	205.0	0.379	2.57	112.0	40.9	23.7	1.92	22.2	0.01	0.01	0.01	0.05	139	09
150 ISL	10.61 D	10.59	34.006 D	26.077	196.1	0.405	2.28	D 99.0 D	36.2	25.6	2.01	23.2	0.01	0.01	0.01	0.05	151	
171	10.32	10.29	34.090	26.195	185.5	0.444	1.98	86.4	31.4	29.1	2.17	25.0	0.01	0.02	0.00	0.04	172	08
199	8.90	8.88	33.993	26.352	170.5	0.493	2.42	105.7	37.2	33.0	2.11	27.1	0.01	0.00	0.00	0.04	201	07
200 ISL	8.88 D	8.86	34.009 D	26.368	169.1	0.497	2.39	D104.0 D	36.6	33.2	2.12	27.1	0.01	0.00			202	
229	9.22	9.19	34.205	26.469	160.3	0.543	1.53	66.7	23.7	37.3	2.40	28.4	0.01	0.00			231	06
250 ISL	9.12 D	9.10	34.240 D	26.512	156.6	0.579	1.35	D 58.7 D	20.8	39.9	2.44	29.4	0.01	0.00			252	
271	8.40	8.37	34.171	26.571	151.1	0.609	1.54	67.0	23.3	42.6	2.47	30.5	0.01	0.00			273	05
300 ISL	8.18 D	8.15	34.214 D	26.640	145.0	0.655	1.17	D 51.0 D	17.7	47.5	2.61	32.0	0.01	0.00			302	
319	7.96	7.93	34.217	26.675	141.9	0.680	1.03	44.8	15.5	50.7	2.70	33.1	0.01	0.00			322	04
381	7.50	7.47	34.248	26.766	134.1	0.765	0.75	32.6	11.1	57.3	2.85	34.9	0.01	0.00			384	03
400 ISL	7.39 D	7.35	34.281 D	26.810	130.2	0.794	0.59	D 25.4 D	8.7	59.9	2.91	35.5	0.01	0.00			403	
441	7.01	6.97	34.301	26.878	124.1	0.843	0.43	18.8	6.3	65.6	3.03	36.8	0.01	0.00			445	02
500 ISL	6.60 D	6.55	34.318 D	26.948	118.0	0.918	0.33	D 14.4 D	4.8	71.8	3.10	38.1	0.01	0.00			504	
514	6.56	6.51	34.318	26.954	117.7	0.931	0.31	13.5	4.5	73.2	3.12	38.4	0.01	0.01			518	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 1601 STATION 90.0 53.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 39.0 N	119 28.8 W	12/01/2016	2254	UTC	1315 m	300 06 kn	150 02 09	2	1019.6 mb	16.3 C	13.2 C		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	15.11	15.11	33.455	24.757	317.9	0.000	5.84	254.9	101.9	2.2	0.62	0.4	0.06	11.29	0.84	0.26	0	
2	15.11	15.11	33.455	24.757	318.0	0.006	5.84	254.9	101.9	2.2	0.62	0.4	0.06	11.29	0.84	0.26	2	23
9	15.04	15.03	33.485	24.798	314.3	0.030											9	22
10	14.91	14.91	33.484	24.824	311.9	0.032	5.91	258.0	102.7	1.9	0.46	0.3	0.05	1.11	0.96	0.35	10	21
20	14.83	14.83	33.485	24.843	310.4	0.063	5.86	256.0	101.8	1.9	0.44	0.3	0.05	0.76	1.13	0.62	20	20
29	14.57	14.57	33.443	24.866	308.4	0.092											29	19
30	14.57	14.57	33.443	24.866	308.5	0.094	5.59	244.0	96.5	3.6	0.51	1.8	0.13	0.28	0.72	0.33	30	18
40	14.57	14.57	33.462	24.882	307.3	0.125	5.55	242.3	95.8	3.8	0.59	2.0	0.13	1.20	0.63	0.29	40	17
50	14.45	14.44	33.476	24.920	304.0	0.155	5.43	237.0	93.5	4.4	0.61	2.7	0.17	0.67	0.44	0.24	50	16
60	14.16	14.15	33.476	24.980	298.6	0.185	5.30	231.3	90.7	5.1	0.68	3.6	0.20	1.73	0.33	0.20	60	15
70	13.48	13.47	33.484	25.127	284.9	0.215	4.73	206.4	79.8	8.0	0.99	7.3	0.20	0.79	0.19	0.16	71	14
75 ISL	13.37 D	13.35	33.499 D	25.162	281.6	0.230	4.57	D198.9 D	76.9	9.6	1.09	9.4	0.15	0.58	0.16	0.16	76	
85	11.44	11.43	33.380	25.440	255.1	0.256	4.26	186.1	68.9	12.7	1.28	13.7	0.05	0.16	0.09	0.14	86	13
100	11.35	11.34	33.575	25.608	239.6	0.293	3.61	157.4	58.2	16.5	1.55	16.7	0.04	0.85	0.05	0.11	101	12
120	10.77	10.76	33.693	25.804	221.3	0.339	3.20	139.5	51.0	19.8	1.67	19.3	0.03	0.28	0.03	0.09	121	11
125 ISL	10.72 D	10.71	33.749 D	25.856	216.5	0.351	3.06	D133.3 D	48.8	20.4	1.77	19.7	0.03	1.21	0.03	0.09	126	
140	10.58	10.56	33.780	25.906	212.1	0.382	2.93	127.7	46.5	22.4	2.06	21.1	0.02	3.98	0.02	0.10	141	10
150 ISL	10.42 D	10.40	33.860 D	25.997	203.7	0.405	2.72	D118.4 D	43.1	24.3	2.08	22.2	0.02	3.38	0.02	0.09	151	
170	9.79	9.77	33.895	26.131	191.3	0.443	2.66	116.0	41.5	27.9	2.11	24.4	0.02	2.18	0.01	0.07	171	09
200	9.29	9.27	34.038	26.326	173.2	0.498	2.19	95.4	33.8	33.3	2.19	26.9	0.02	0.00	0.01	0.06	202	08
230	8.80	8.78	34.066	26.426	164.2	0.548	2.03	88.7	31.1	36.6	2.28	28.3	0.02	0.21			232	07
250 ISL	8.59 D	8.56	34.096 D	26.484	159.0	0.583	1.88	D 81.7 D	28.6	39.1	2.35	29.3	0.02	0.18			252	
270	8.41	8.38	34.111	26.524	155.5	0.612	1.74	76.1	26.5	41.6	2.42	30.3	0.02	0.14			272	06
300 ISL	8.18 D	8.15	34.176 D	26.610	147.8	0.660	1.35	D 58.8 D	20.4	45.9	2.59	31.7	0.02	1.14			302	
320	7.97	7.93	34.181	26.645	144.7	0.687	1.23	53.6	18.5	48.7	2.70	32.7	0.02	1.80			323	05
380	7.28	7.24	34.263	26.810	129.7	0.770	0.64	27.9	9.5	60.7	3.07	35.8	0.01	2.35			383	04
400 ISL	7.15 D	7.11	34.275 D	26.838	127.3	0.798	0.56	D 24.3 D	8.3	62.2	3.06	36.2	0.01	1.79			403	
440	7.00	6.96	34.287	26.868	125.0	0.846	0.49	21.2	7.2	65.3	3.04	36.9	0.01	0.66			444	03
500 ISL	6.57 D	6.52	34.298 D	26.937	119.1	0.923	0.38	D 16.7 D	5.6	71.6	3.11	38.3	0.01	0.37			504	
513	6.50	6.45	34.305	26.951	117.8	0.934	0.35	15.4	5.1	73.0	3.13	38.6	0.01	0.31			517	01
514	6.49	6.45	34.302	26.949	118.0	0.936											518	02

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

RV REUBEN LASKER CALCOFI CRUISE 1601 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 57.8 W	12/01/2016	1750 UTC	861 m	010 06 kn	290 08 15	0	1021.7 mb	17.2 C	14.9 C	21 m	0/8		024

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.19	15.19	33.346	24.656	327.5	0.000	5.76	251.7	100.7	2.2	0.34	0.1	0.02	0.09	0.43	0.14	0	
2 A	15.19	15.19	33.346	24.656	327.6	0.007	5.76	251.7	100.7	2.2	0.34	0.1	0.02	0.09	0.43	0.14	2	24
8	15.17	15.17	33.346	24.662	327.2	0.026	5.76	251.7	100.7	2.1	0.33	0.1	0.02	0.10	0.42	0.13	8	23
10 ISL	15.16 D	15.16	33.347 D	24.665	327.0	0.033	5.78	D251.8	D100.9	2.1	0.33	0.1	0.02	0.00	0.42	0.13	10	
16 A	15.15	15.14	33.345	24.666	327.1	0.052	5.76	251.6	100.6	2.1	0.32	0.1	0.02	0.00	0.41	0.14	16	21
20 ISL	15.15 D	15.14	33.347 D	24.668	327.0	0.066	5.76	D251.1	D100.6	2.1	0.32	0.1	0.02	0.00	0.44	0.14	20	
22 A	15.15	15.14	33.345	24.667	327.2	0.072	5.75	251.1	100.4	2.1	0.32	0.1	0.02	0.00	0.46	0.14	22	20
29	15.12	15.11	33.345 D	24.674	326.8	0.096	5.78	D251.7	D100.8								29	19
30 ISL	15.11 D	15.11	33.345 D	24.675	326.7	0.099	5.78	D251.7	D100.7	2.1	0.34	0.1	0.02	0.00	0.48	0.16	30	
38 A	15.09	15.09	33.343	24.677	326.8	0.124	5.77	251.9	100.6	2.2	0.35	0.1	0.02	0.00	0.51	0.17	38	18
49	15.00	14.99	33.342	24.698	325.2	0.160	5.77	251.8	100.3	2.2	0.36	0.1	0.02	0.15	0.58	0.24	49	17
50 ISL	15.00 D	15.00	33.345 D	24.699	325.1	0.165	5.77	D251.4	D100.4	2.2	0.36	0.1	0.02	0.14	0.58	0.25	50	
59	14.98	14.97	33.344	24.704	324.9	0.193	5.74	250.6	99.8	2.3	0.35	0.2	0.03	0.03	0.55	0.27	59	16
69 A	14.90	14.89	33.367	24.741	321.7	0.225	5.69	248.5	98.8	2.7	0.41	0.6	0.08	0.15	0.42	0.25	70	15
75 ISL	14.68 D	14.67	33.395 D	24.809	315.4	0.246	5.59	D243.6	D 96.7	3.1	0.46	1.1	0.14	0.20	0.32	0.19	76	
77 A	14.60	14.58	33.392	24.825	314.0	0.250	5.60	244.3	96.6	3.3	0.47	1.3	0.16	0.21	0.29	0.17	78	14
89	13.80	13.79	33.454	25.040	293.8	0.287	5.34	233.2	90.7	5.2	0.63	3.4	0.26	0.17	0.18	0.15	90	13
100	12.06	12.05	33.347	25.300	269.0	0.318	4.53	198.0	74.2	10.8	1.12	11.4	0.08	0.00	0.08	0.12	101	12
120	10.20	10.19	33.445	25.709	230.1	0.368	4.01	175.1	63.1	16.4	1.48	17.5	0.03	0.22	0.04	0.08	121	11
125 ISL	10.19 D	10.17	33.485 D	25.743	227.1	0.382	3.95	D171.9	D 62.1	17.7	1.54	18.3	0.03	0.18	0.04	0.07	126	
140	9.78	9.76	33.633	25.927	209.9	0.412	3.53	154.1	55.1	21.4	1.70	21.0	0.02	0.04	0.02	0.05	141	10
150 ISL	9.71 D	9.69	33.690 D	25.984	204.7	0.436	3.41	D148.6	D 53.2	23.2	1.77	22.1	0.02	0.00	0.01	0.05	151	
171	9.36	9.34	33.837	26.156	188.7	0.474	2.95	128.8	45.7	27.1	1.92	24.3	0.02	0.00	0.00	0.05	172	09
200 ISL	9.18 D	9.16	33.927 D	26.257	179.7	0.531	2.68	D116.5	D 41.3	30.0	2.03	25.6	0.02	0.00	0.00	0.04	202	
202	9.17	9.15	33.927	26.258	179.6	0.531	2.67	116.5	41.2	30.2	2.04	25.7	0.02	0.01	0.00	0.04	204	08
230	8.82	8.79	34.036	26.400	166.6	0.579	2.25	98.2	34.4	35.3	2.21	28.0	0.02	0.00			232	07
250 ISL	8.44 D	8.41	34.073 D	26.488	158.5	0.616	2.06	D 89.5	D 31.3	38.8	2.30	29.4	0.02	0.00			252	
269	8.18	8.15	34.083	26.536	154.2	0.642	1.85	80.7	27.9	42.2	2.39	30.7	0.02	0.00			271	06
300 ISL	7.80 D	7.77	34.124 D	26.625	146.2	0.693	1.46	D 63.6	D 21.9	47.9	2.56	32.7	0.02	0.00			302	
320	7.60	7.56	34.144	26.670	142.1	0.717	1.24	54.1	18.5	51.6	2.67	33.9	0.02	0.00			323	05
380	7.06	7.02	34.209	26.798	130.7	0.799	0.76	33.3	11.2	61.0	2.89	36.3	0.02	0.00			383	04
400 ISL	6.77 D	6.73	34.210 D	26.838	126.9	0.831	0.70	D 30.4	D 10.2	63.5	2.93	36.9	0.02	0.00			403	
440	6.57	6.53	34.225	26.878	123.6	0.875	0.58	25.1	8.4	68.6	3.02	38.1	0.01	0.00			444	03
500 ISL	6.35 D	6.31	34.264 D	26.938	118.7	0.954	0.45	D 19.4	D 6.4	72.1	3.10	38.5	0.01	0.00			504	
520	6.51	6.46	34.308	26.953	117.8	0.971	0.33	14.6	4.9	73.3	3.13	38.6	0.01	0.17			524	01
520	6.51	6.46	34.308	26.953	117.8	0.970											524	02

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 1601 STATION 90.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 5.0 N	120 38.5 W	12/01/2016	1041 UTC	3853 m	040 07 kn			1022.0 mb	16.0 C	13.9 C				023

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.77	15.77	33.349	24.530	339.5	0.000	5.67	247.4	100.2	2.0	0.32	0.1	0.01	0.04	0.22	0.06	0	
2	15.77	15.77	33.349	24.531	339.5	0.007	5.67	247.4	100.2	2.0	0.32	0.1	0.01	0.04	0.22	0.06	2	22
10	15.76	15.76	33.348	24.532	339.7	0.034	5.68	247.8	100.3	2.0	0.31	0.1	0.01	0.00	0.23	0.07	10	20
11	15.76	15.76	33.348	24.532	339.7	0.037											11	21
20 ISL	15.76 D	15.76	33.349 D	24.534	339.9	0.068	5.68	D247.5	D100.3	2.0	0.32	0.0	0.01	0.00	0.24	0.07	20	
26	15.74	15.74	33.347	24.538	339.7	0.088	5.67	247.4	100.1	2.0	0.32	0.0	0.01	0.00	0.24	0.06	26	19
30 ISL	15.74 D	15.73	33.348 D	24.539	339.7	0.103	5.68	D247.6	D100.3	2.0	0.32	0.0	0.01	0.00	0.26	0.07	30	
40	15.71	15.70	33.345	24.545	339.5	0.136	5.66	247.2	99.9	2.0	0.32	0.0	0.01	0.00	0.30	0.09	40	18
50	15.68	15.67	33.343	24.550	339.3	0.170	5.66	246.9	99.8	2.0	0.32	0.1	0.01	0.00	0.34	0.10	50	17
62	15.65	15.64	33.342	24.557	339.1	0.211	5.65	246.7	99.6	2.0	0.33	0.1	0.01	0.04	0.30	0.12	62	15
63	15.65	15.64	33.342	24.557	339.1	0.214											64	16
75 ISL	15.63 D	15.62	33.343 D	24.562	339.1	0.256	5.63	D245.3	D 99.2	2.1	0.33	0.1	0.02	0.06	0.26	0.12	76	
76	15.63	15.62	33.341	24.560	339.2	0.258	5.64	246.0	99.3	2.1	0.33	0.1	0.02	0.06	0.26	0.12	77	14
87	15.11	15.10	33.301	24.644	331.6	0.295	5.52	241.1	96.3	2.9	0.42	1.3	0.08	0.09	0.15	0.08	88	13
100 ISL	14.30 D	14.29	33.268 D	24.793	317.7	0.339	5.42	D236.0	D 92.9	3.9	0.54	2.7	0.12	0.06	0.12	0.08	101	
101	14.12	14.11	33.256	24.821	315.0	0.340	5.42	236.4	92.5	4.0	0.55	2.8	0.12	0.06	0.11	0.08	102	12
111	12.12	12.10	33.177	25.157	282.9	0.370	5.05	220.3	82.6	7.6	0.90	8.0	0.05	0.00	0.10	0.10	112	11
124	11.43	11.41	33.198	25.301	269.3	0.406	4.88	212.8	78.7	9.7	1.07	10.9	0.04	0.00	0.09	0.09	125	10
125 ISL	11.34 D	11.32	33.219 D	25.334	266.2	0.412	4.84	D210.9	D 78.0	10.1	1.10	11.3	0.04	0.00	0.09	0.09	126	
140	9.95	9.94	33.387	25.706	230.8	0.446	4.15	181.0	64.9	16.9	1.50	18.0	0.02	0.00	0.04	0.05	141	09
150 ISL	9.62 D	9.60	33.484 D	25.837	218.5	0.472	3.97	D173.0	D 61.7	19.2	1.59	19.6	0.02	0.00	0.03	0.04	151	
174	9.21	9.19	33.689	26.064	197.4	0.519	3.36	146.8	51.9	24.7	1.82	23.4	0.02	0.00	0.01	0.03	175	08
200 ISL	8.77 D	8.75	33.887 D	26.290	176.4	0.571	2.87	D125.0	D 43.9	30.6	2.02	26.5	0.02	0.00	0.00	0.02	202	
202	8.75	8.73	33.892	26.297	175.8	0.571	2.81	122.8	43.0	31.1	2.04	26.8	0.02	0.00	0.00	0.02	204	07
229	8.38	8.36	33.980	26.423	164.2	0.617	2.51	109.7	38.1	36.0	2.15	28.6	0.02	0.00			231	06
250 ISL	8.18 D	8.15	34.013 D	26.480	159.1	0.655	2.34	D101.7	D 35.3	39.2	2.24	29.7	0.01	0.00			252	
268	7.89	7.86	34.027	26.534	154.2	0.679	2.21	96.3	33.1	41.9	2.31	30.6	0.01	0.00			270	05
300 ISL	7.57 D	7.54	34.045 D	26.595	148.7	0.732	1.95	D 84.9	D 29.1	47.3	2.45	32.5	0.01	0.00			302	
319	7.29	7.26	34.057	26.644	144.3	0.755	1.72	75.0	25.4	50.5	2.54	33.6	0.02	0.00			322	04
380	6.90	6.86	34.143	26.767	133.4	0.840	0.95	41.5	14.0	60.4	2.84	36.7	0.02	0.00			383	03
400 ISL	6.74 D	6.70	34.167 D	26.808	129.7	0.872	0.81	D 35.1	D 11.8	63.3	2.90	37.3	0.01	0.00			403	
440	6.48	6.44	34.197	26.867	124.5	0.917	0.60	26.1	8.7	69.1	3.02	38.6	0.01	0.00			444	02
500 ISL	6.23 D	6.18	34.260 D	26.951	117.3	0.996	0.39	D 17.1	D 5.7	75.1	3.12	39.4	0.02	0.00			504	
515	6.20	6.15	34.274	26.965	116.1	1.007	0.34	14.9	4.9	76.6	3.15	39.6	0.02	0.00			519	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 90.0 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 45.5 N	121 18.5 W	12/01/2016	0412	UTC	3661 m	320 08 kn			1023.9 mb	16.5 C	15.0 C				022

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.82	15.82	33.329	24.503	342.1	0.000	5.69	248.2	100.6	1.9	0.32	0.1	0.01	0.08	0.19	0.05	0	
1	15.82	15.82	33.329	24.503	342.1	0.003	5.69	248.2	100.6	1.9	0.32	0.1	0.01	0.08	0.19	0.05	1	20
10	15.75	15.74	33.331	24.523	340.6	0.034	5.69	248.3	100.5	1.9	0.32	0.1	0.01	0.16	0.18	0.05	10	19
20	15.73	15.73	33.331	24.527	340.5	0.068	5.68	248.1	100.4	1.9	0.30	0.1	0.01	0.01	0.19	0.06	20	18
30	15.69	15.69	33.331	24.536	340.0	0.102	5.68	247.9	100.2	1.9	0.30	0.1	0.01	0.04	0.21	0.07	30	17
40	15.67	15.67	33.333	24.542	339.7	0.136	5.69	248.2	100.3	1.9	0.30	0.1	0.00	0.00	0.24	0.08	40	16
49	15.58	15.58	33.328	24.559	338.5	0.167	5.70	249.0	100.4	1.9	0.31	0.1	0.01	0.02	0.32	0.17	49	15
50 ISL	15.57 D	15.56	33.328 D	24.563	338.1	0.172	5.68	D247.6	D100.0	1.9	0.31	0.1	0.02	0.03	0.31	0.16	50	
60	15.09	15.08	33.293	24.641	331.0	0.204	5.59	244.1	97.5	2.3	0.36	0.5	0.10	0.11	0.26	0.13	60	14
70	14.34	14.33	33.231	24.755	320.3	0.236	5.46	238.2	93.6	3.4	0.48	1.8	0.22	0.02	0.23	0.13	71	13
75 ISL	13.51 D	13.50	33.198 D	24.899	306.6	0.254	5.21	D227.0 D	87.9	4.8	0.62	3.9	0.16	0.02	0.20	0.14	76	
84	12.33	12.32	33.162	25.103	287.3	0.279	5.08	221.8	83.6	7.2	0.87	7.5	0.04	0.02	0.16	0.16	85	12
99	10.58	10.57	33.238	25.482	251.3	0.319	4.65	203.0	73.7	11.5	1.19	12.9	0.02	0.00	0.10	0.11	100	11
100 ISL	10.52 D	10.51	33.269 D	25.516	248.1	0.324	4.59	D199.8 D	72.6	11.7	1.20	13.1	0.02	0.00	0.10	0.10	101	
119	9.79	9.78	33.366	25.716	229.4	0.367	4.31	188.1	67.2	16.2	1.43	17.0	0.01	0.00	0.03	0.05	120	10
125 ISL	9.65 D	9.63	33.443 D	25.800	221.5	0.383	4.24	D184.6 D	65.9	17.4	1.48	17.8	0.01	0.00	0.03	0.05	126	
140	9.37	9.35	33.550	25.929	209.5	0.413	3.91	170.5	60.4	20.4	1.60	19.8	0.01	0.00	0.01	0.03	141	09
150 ISL	9.27 D	9.26	33.632 D	26.009	202.1	0.436	3.73	D162.3 D	57.6	22.7	1.70	21.3	0.01	0.00	0.01	0.03	151	
170	9.01	8.99	33.784	26.171	187.1	0.473	3.09	134.9	47.5	27.2	1.90	24.2	0.01	0.02	0.00	0.02	171	08
200	8.61	8.59	33.913	26.335	172.1	0.527	2.78	121.2	42.3	31.7	2.02	26.2	0.01	0.00	0.00	0.02	202	07
230	8.30	8.28	34.018	26.465	160.2	0.576	2.34	102.1	35.4	37.2	2.19	28.1	0.01	0.00			232	06
250 ISL	7.99 D	7.96	34.019 D	26.513	155.9	0.611	2.32	D101.0 D	34.9	41.4	2.31	29.7	0.01	0.00			252	
270	7.70	7.67	34.055	26.584	149.4	0.638	1.85	80.6	27.6	45.7	2.42	31.3	0.01	0.00			272	05
300 ISL	7.39 D	7.36	34.094 D	26.660	142.5	0.686	1.48	D 64.3 D	21.9	51.5	2.60	33.1	0.01	0.00			302	
319	7.40	7.37	34.141	26.696	139.5	0.709	1.11	48.6	16.5	55.2	2.72	34.3	0.01	0.00			322	04
382	6.92	6.88	34.211	26.818	128.7	0.793	0.67	29.3	9.9	63.2	2.92	36.0	0.01	0.00			385	03
400 ISL	6.73 D	6.70	34.221 D	26.852	125.6	0.820	0.60	D 26.0 D	8.7	65.5	2.96	36.5	0.01	0.00			403	
440	6.49	6.45	34.238	26.899	121.6	0.866	0.49	21.4	7.1	70.6	3.04	37.6	0.01	0.00			444	02
500 ISL	6.14 D	6.10	34.253 D	26.956	116.7	0.942	0.40	D 17.5 D	5.8	77.0	3.13	38.7	0.01	0.00			504	
513	6.03	5.99	34.260	26.975	115.0	0.952	0.38	16.6	5.5	78.3	3.15	38.9	0.01	0.00			517	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 1601 STATION 90.0 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 24.9 N	121 59.7 W	11/01/2016	2124	UTC	3850 m	310 03 kn	300 02 09	1	1023.0 mb	18.0 C	15.9 C	38 m	3/8	ST	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	16.06	16.06	33.333	24.452	346.9	0.000	5.65	246.9	100.5	1.9	0.29	0.0	0.01	0.00	0.14	0.03	0	
2	16.06	16.06	33.333	24.452	347.0	0.007	5.65	246.9	100.5	1.9	0.29	0.0	0.01	0.00	0.14	0.03	2	23
9	15.97	15.97	33.334	24.475	345.1	0.031											9	22
10	15.96	15.96	33.328	24.472	345.4	0.035	5.66	247.3	100.5	1.9	0.29	0.0	0.01	0.00	0.14	0.04	10	20
20 ISL	15.91 D	15.90	33.331 D	24.487	344.3	0.069	5.68	D247.4	D100.6	1.9	0.29	0.0	0.01	0.00	0.14	0.04	20	
25	15.89	15.89	33.325	24.487	344.5	0.086	5.65	246.8	100.1	1.8	0.29	0.0	0.01	0.00	0.14	0.04	25	19
30 ISL	15.88 D	15.88	33.329 D	24.492	344.2	0.104	5.67	D247.3	D100.5	1.8	0.29	0.0	0.01	0.00	0.16	0.05	30	
40	15.85	15.85	33.325	24.496	344.1	0.138	5.65	246.8	100.0	1.8	0.29	0.0	0.01	0.00	0.21	0.06	40	18
50	15.83	15.82	33.325	24.503	343.9	0.172	5.65	246.6	99.9	1.8	0.29	0.0	0.02	0.00	0.23	0.09	50	17
62	15.17	15.16	33.297	24.627	332.3	0.213	5.60	244.5	97.7	2.2	0.34	0.3	0.08	0.00	0.29	0.12	62	15
62	15.17	15.16	33.297	24.628	332.3	0.212											62	16
75	13.75	13.74	33.255	24.894	307.1	0.254	5.53	241.3	93.7	2.9	0.42	1.2	0.17	0.00	0.30	0.15	76	14
87	12.21	12.19	33.158	25.125	285.3	0.290	5.12	223.5	83.9	6.8	0.82	7.0	0.07	0.00	0.22	0.15	88	13
100	11.22	11.21	33.199	25.338	265.1	0.326	4.76	208.0	76.5	9.7	1.07	11.3	0.03	0.00	0.15	0.13	101	12
112	10.58	10.56	33.260	25.500	250.0	0.357	4.53	197.8	71.8	12.4	1.24	14.0	0.02	0.00	0.10	0.10	113	11
125 ISL	10.20 D	10.19	33.406 D	25.679	233.1	0.391	4.00	D174.3 D	63.0	16.2	1.45	17.5	0.02	0.00	0.05	0.06	126	
126	10.18	10.17	33.403	25.680	233.1	0.390	4.01	175.2	63.1	16.5	1.47	17.8	0.02	0.00	0.05	0.06	127	10
140	9.68	9.67	33.518	25.854	216.8	0.422	3.68	160.7	57.3	19.9	1.62	20.2	0.02	0.00	0.02	0.04	141	09
150 ISL	9.55 D	9.53	33.592 D	25.934	209.4	0.446	3.59	D156.1 D	55.7	21.6	1.68	21.2	0.02	0.00	0.01	0.03	151	
169	9.17	9.15	33.703	26.081	195.7	0.482	3.31	144.6	51.0	24.9	1.79	23.1	0.01	0.00	0.00	0.03	170	08
200	8.80	8.78	33.878	26.278	177.5	0.540	2.82	123.0	43.1	30.4	1.97	25.8	0.01	0.00	0.00	0.02	202	07
231	8.44	8.42	33.976	26.411	165.4	0.593	2.49	108.6	37.8	35.4	2.11	27.8	0.01	0.00			233	06
250 ISL	8.21 D	8.18	34.022 D	26.483	158.8	0.627	2.27	D 98.6 D	34.2	39.2	2.21	29.2	0.01	0.00			252	
270	7.86	7.84	34.052 D	26.558	151.9	0.658	1.96	D 85.3 D	29.4								272	05
300 ISL	7.50 D	7.47	34.079 D	26.632	145.2	0.703	1.63	D 70.9 D	24.2	49.3	2.49	32.7	0.01	0.00			302	
318	7.26	7.23	34.087	26.672	141.6	0.726	1.40	60.9	20.6	52.9	2.59	33.9	0.01	0.00			321	04
380	6.52	6.48	34.132	26.809	129.1	0.809	0.88	38.5	12.8	65.1	2.85	37.0	0.01	0.00			383	03
400 ISL	6.36 D	6.32	34.165 D	26.857	124.7	0.839	0.72	D 31.2 D	10.4	67.9	2.90	37.6	0.01	0.00			403	
440	6.16	6.12	34.190	26.903	120.8	0.884	0.57	24.9	8.2	73.3	3.01	38.7	0.01	0.00			444	02
500 ISL	5.80 D	5.76	34.253 D	26.998	112.3	0.959	0.36	D 15.7 D	5.2	81.4	3.12	39.8	0.01	0.00			504	
513	5.73	5.68	34.264	27.016	110.7	0.969	0.32	14.0	4.6	83.2	3.14	40.0	0.01	0.00			517	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 1601 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 4.7 N	122 39.6 W	11/01/2016	1607	UTC	3992 m	150 01 kn	300 03 13	1	1024.4 mb	17.2 C	15.9 C	32 m	7/8	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	16.33	16.33	33.360	24.412	350.8	0.000	5.59	243.9	99.8	1.9	0.28	0.0	0.01	0.00	0.15	0.04	0	
2 A	16.33	16.33	33.360	24.412	350.8	0.007	5.59	243.9	99.8	1.9	0.28	0.0	0.01	0.00	0.15	0.04	2	22
10 ISL	16.33 D	16.33	33.359 D	24.412	351.1	0.035	5.60	D244.3	D100.2	1.9	0.28	0.0	0.01	0.00	0.15	0.05	10	
13	16.33	16.33	33.357	24.411	351.3	0.046	5.59	243.9	99.8	1.9	0.28	0.0	0.01	0.00	0.16	0.05	13	20
13	16.33	16.33	33.357	24.411	351.3	0.047											13	23
20 ISL	16.33 D	16.33	33.359 D	24.413	351.4	0.071	5.60	D244.2	D100.1	1.9	0.28	0.0	0.01	0.00	0.15	0.05	20	
24 A	16.33	16.33	33.360	24.414	351.4	0.084	5.59	244.0	99.9	1.9	0.28	0.0	0.01	0.00	0.15	0.05	24	19
30 ISL	16.32 D	16.32	33.360 D	24.416	351.5	0.106	5.60	D244.1	D100.1	1.9	0.28	0.0	0.01	0.00	0.17	0.05	30	
31 A	16.32	16.32	33.358	24.414	351.7	0.109	5.59	244.0	99.9	1.9	0.28	0.0	0.01	0.00	0.17	0.05	31	18
45	16.16	16.15	33.345	24.443	349.4	0.158	5.59	244.1	99.6	1.9	0.29	0.0	0.01	0.00	0.25	0.09	45	17
50 ISL	16.10 D	16.09	33.341 D	24.454	348.5	0.177	5.61	D244.7	D 99.9	1.9	0.29	0.0	0.02	0.00	0.25	0.10	50	
56	16.00	15.99	33.325	24.463	347.9	0.196											56	16
57 A	15.98	15.97	33.325	24.469	347.3	0.200	5.62	245.3	99.7	1.9	0.29	0.0	0.03	0.00	0.27	0.11	57	15
74	15.67	15.66	33.304	24.523	342.8	0.259	5.61	245.1	99.0	1.9	0.31	0.0	0.02	0.05	0.23	0.09	75	14
75 ISL	15.67 D	15.66	33.306 D	24.525	342.6	0.264	5.63	D245.4	D 99.2	1.9	0.31	0.0	0.02	0.05	0.23	0.09	76	
85	15.62	15.61	33.302	24.533	342.1	0.296	5.64	246.3	99.4	1.9	0.31	0.0	0.02	0.05	0.22	0.09	86	13
100 ISL	15.48 D	15.46	33.299 D	24.564	339.7	0.350	5.63	D245.6	D 98.9	2.0	0.33	0.1	0.04	0.07	0.15	0.07	101	
103 A	14.85	14.83	33.295	24.697	327.0	0.357	5.61	245.0	97.3	2.0	0.33	0.1	0.05	0.07	0.13	0.06	104	12
115 A	13.33	13.31	33.189	24.932	304.7	0.395	5.33	232.7	89.5	5.1	0.62	3.9	0.11	0.00	0.09	0.08	116	11
125 ISL	11.85 D	11.83	33.167 D	25.201	279.0	0.428	5.23	D227.8	D 85.1	7.5	0.84	7.6	0.05	0.00	0.09	0.10	126	
128	11.52	11.51	33.161	25.256	273.8	0.433	5.05	220.5	81.6	8.2	0.91	8.8	0.03	0.00	0.09	0.10	129	10
140	10.80	10.78	33.187	25.406	259.6	0.465	4.83	211.0	76.9	10.7	1.11	12.0	0.03	0.00	0.07	0.08	141	09
150 ISL	10.41 D	10.40	33.270 D	25.537	247.3	0.493	4.68	D203.7	D 73.9	13.0	1.24	14.1	0.03	0.00	0.06	0.07	151	
171	9.59	9.57	33.428	25.799	222.6	0.540	4.16	181.5	64.5	18.0	1.52	18.5	0.02	0.00	0.02	0.04	172	08
200 ISL	9.01 D	8.99	33.804 D	26.187	186.2	0.603	3.10	D135.0	D 47.6	27.2	1.87	24.2	0.02	0.00	0.01	0.12	202	
201	8.98	8.96	33.792	26.183	186.7	0.601	3.10	135.2	47.5	27.5	1.88	24.4	0.02	0.00	0.01	0.12	203	07
231	8.68	8.66	33.930	26.338	172.5	0.655	2.76	120.4	42.1	32.1	2.01	26.4	0.02	0.00			233	06
250 ISL	8.44 D	8.42	34.014 D	26.441	162.9	0.691	2.33	D101.2	D 35.3	35.5	2.10	27.7	0.02	0.00			252	
271	8.08	8.05	34.011	26.494	158.1	0.721	2.34	102.2	35.3	39.3	2.20	29.2	0.01	0.00			273	05
300 ISL	7.78 D	7.75	34.072 D	26.586	149.8	0.770	1.80	D 78.3	D 26.9	44.9	2.37	31.3	0.02	0.00			302	
321	7.52	7.49	34.069	26.622	146.6	0.797	1.64	71.4	24.3	49.0	2.50	32.8	0.02	0.00			324	04
382	6.89	6.86	34.121	26.750	135.0	0.883	1.02	44.7	15.0	59.5	2.75	35.9	0.01	0.00			385	03
400 ISL	6.70 D	6.67	34.131 D	26.785	131.9	0.912	0.92	D 40.1	D 13.4	62.0	2.81	36.5	0.01	0.00			403	
440	6.45	6.41	34.151	26.835	127.5	0.959	0.73	32.0	10.7	67.4	2.93	37.8	0.01	0.00			444	02
500 ISL	6.00 D	5.95	34.217 D	26.946	117.5	1.038	0.46	D 20.1	D 6.6	76.7	3.08	39.1	0.01	0.00			504	
519	5.95	5.90	34.244	26.973	115.1	1.055	0.37	16.3	5.4	79.6	3.13	39.6	0.01	0.00			523	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 1601 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 45.3 N	123 20.0 W	11/01/2016	0829	UTC	4063 m	170 04 kn			1023.7 mb	17.3 C	16.0 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	16.52	16.52	33.287	24.312	360.3	0.000	5.60	244.3	100.3	1.9	0.28	0.1	0.01	0.00	0.11	0.04	0	
2	16.52	16.52	33.287	24.313	360.3	0.007	5.60	244.3	100.3	1.9	0.28	0.1	0.01	0.00	0.11	0.04	2	20
10 ISL	16.52 D	16.52	33.287 D	24.314	360.5	0.036	5.61	D244.6	D100.6	1.9	0.31	0.1	0.01	0.00	0.11	0.04	10	
11	16.52	16.52	33.294	24.318	360.1	0.040	5.60	244.5	100.4	1.9	0.31	0.1	0.01	0.07	0.11	0.04	11	19
20 ISL	16.70 D	16.70	33.362 D	24.330	359.3	0.072	5.58	D243.2	D100.4	1.9	0.30	0.1	0.01	0.00	0.14	0.04	20	
25	16.77	16.76	33.390	24.337	358.9	0.090	5.55	242.4	100.1	2.0	0.29	0.1	0.01	0.00	0.15	0.04	25	18
30 ISL	16.77 D	16.77	33.395 D	24.339	358.8	0.109	5.56	D242.3	D100.2	2.0	0.29	0.0	0.01	0.00	0.15	0.05	30	
40	16.76	16.76	33.392	24.340	359.1	0.144	5.55	242.2	100.0	2.0	0.30	0.0	0.01	0.01	0.16	0.05	40	17
50 ISL	16.75 D	16.74	33.390 D	24.343	359.2	0.181	5.55	D241.8	D100.0	2.0	0.28	0.0	0.01	0.00	0.18	0.07	50	
51	16.74	16.73	33.388	24.342	359.3	0.183	5.55	242.3	100.0	2.0	0.28	0.1	0.01	0.00	0.18	0.07	51	16
62	16.74	16.73	33.386	24.343	359.6	0.223	5.56	242.6	100.1	2.1	0.28	0.1	0.01	0.00	0.20	0.11	62	15
75	16.71	16.70	33.381	24.347	359.7	0.270	5.55	242.2	99.9	1.9	0.27	0.0	0.01	0.00	0.22	0.07	76	14
87	16.37	16.36	33.302	24.365	358.3	0.313	5.57	243.3	99.6	1.9	0.30	0.0	0.03	0.03	0.18	0.07	88	13
100	15.59	15.57	33.220	24.478	347.9	0.359	5.56	243.0	97.9	2.2	0.35	0.3	0.19	0.02	0.17	0.09	101	12
112	14.65	14.64	33.364	24.793	318.1	0.399	5.41	236.4	93.5	3.6	0.41	1.1	0.22	0.00	0.16	0.15	113	11
125	13.49	13.47	33.317	24.998	298.7	0.439	5.28	230.6	89.1	5.0	0.58	3.5	0.04	0.00	0.11	0.14	126	10
140	11.39	11.37	33.212	25.320	268.0	0.481	5.02	219.0	80.9	9.1	0.98	9.8	0.02	0.01	0.06	0.07	141	09
150 ISL	10.57 D	10.56	33.281 D	25.519	249.1	0.510	4.86	D211.5	D 77.0	10.6	1.07	11.3	0.02	0.00	0.05	0.06	151	
170	10.04	10.02	33.351	25.665	235.5	0.556	4.68	204.3	73.3	13.6	1.25	14.3	0.02	0.00	0.03	0.05	171	08
200	9.30	9.28	33.641	26.013	202.9	0.622	3.50	153.0	54.1	23.4	1.74	21.9	0.02	0.00	0.00	0.03	202	07
230	8.71	8.68	33.869	26.286	177.3	0.679	3.31	144.4	50.5	28.7	1.84	24.2	0.02	0.00			232	06
250 ISL	8.45 D	8.43	33.947 D	26.387	168.1	0.717	3.07	D133.7	D 46.6	32.6	1.96	25.7	0.02	0.00			252	
271	8.14	8.11	33.985	26.465	161.0	0.748	2.74	119.7	41.3	36.7	2.08	27.3	0.02	0.00			273	05
300 ISL	7.72 D	7.69	34.015 D	26.550	153.2	0.797	2.39	D104.2	D 35.8	41.8	2.23	29.3	0.02	0.00			302	
320	7.52	7.49	34.022	26.585	150.1	0.824	2.18	94.9	32.3	45.3	2.33	30.7	0.02	0.00			323	04
380	6.80	6.76	34.070	26.724	137.4	0.910	1.38	60.1	20.1	57.6	2.61	34.9	0.02	0.00			383	03
400 ISL	6.56 D	6.52	34.089 D	26.770	133.1	0.942	1.20	D 52.2	D 17.4	61.4	2.71	35.9	0.01	0.00			403	
441	6.19	6.15	34.129	26.850	125.8	0.990	0.87	37.9	12.5	69.2	2.93	37.8	0.01	0.00			445	02
500 ISL	5.79 D	5.75	34.185 D	26.946	117.2	1.068	0.56	D 24.5	D 8.0	78.7	3.09	39.4	0.01	0.00			504	
516	5.67	5.63	34.198	26.970	115.0	1.081	0.50	21.7	7.1	81.3	3.13	39.8	0.01	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 90.0 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
30 24.9 N	124 0.2 W	11/01/2016	0155	UTC	4242 m	190 03 kn	210 02 07	1	1021.3 mb	18.0 C	16.1 C		7/8	SC	018

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.79	16.79	33.265	24.234	367.8	0.000	5.57	243.0	100.3	1.8	0.30	0.0	0.01	0.20	0.11	0.03	0	
2	16.79	16.79	33.265	24.234	367.8	0.007	5.57	243.0	100.3	1.8	0.30	0.0	0.01	0.20	0.11	0.03	2	23
10 ISL	16.65 D	16.65	33.275 D	24.275	364.2	0.037	5.61	D244.5	D100.8	1.9	0.28	0.1	0.01	0.00	0.11	0.04	10	
10	16.65	16.65	33.269	24.269	364.7	0.038											10	22
11	16.65	16.65	33.269	24.270	364.7	0.040	5.61	245.1	100.9	1.9	0.28	0.1	0.01	0.00	0.11	0.04	11	20
20 ISL	16.64 D	16.64	33.286 D	24.285	363.6	0.073	5.60	D244.3	D100.7	1.9	0.28	0.1	0.01	0.00	0.12	0.04	20	
24	16.63	16.62	33.281	24.285	363.8	0.088	5.58	243.5	100.2	1.9	0.28	0.1	0.01	0.19	0.12	0.04	24	19
30 ISL	16.61 D	16.60	33.280 D	24.289	363.6	0.110	5.60	D244.2	D100.6	1.9	0.28	0.1	0.01	0.00	0.13	0.04	30	
39	16.63	16.62	33.291	24.294	363.4	0.142	5.57	243.3	100.1	2.0	0.27	0.1	0.01	0.00	0.13	0.04	39	18
50	16.65	16.64	33.297	24.295	363.8	0.182	5.58	243.9	100.4	2.1	0.27	0.2	0.01	0.00	0.14	0.05	50	17
62	16.64	16.63	33.297	24.297	364.0	0.226	5.57	243.3	100.2	1.8	0.27	0.0	0.01	0.00	0.15	0.06	62	16
74	16.65	16.64	33.312	24.307	363.5	0.270	5.57	243.0	100.0	1.8	0.27	0.0	0.01	0.00	0.18	0.07	75	15
75 ISL	16.65 D	16.64	33.311 D	24.306	363.6	0.275	5.57	D243.0	D100.2	1.8	0.28	0.0	0.01	0.00	0.18	0.07	76	
86	16.55	16.54	33.301	24.322	362.4	0.313											87	14
87	16.49	16.48	33.286	24.325	362.2	0.317	5.58	243.7	100.0	1.9	0.39	0.1	0.02	1.54	0.19	0.08	88	24
99	15.60	15.58	33.212	24.470	348.7	0.359	5.58	243.5	98.1	2.3	0.36	0.3	0.23	0.10	0.13	0.07	100	12
100 ISL	15.56 D	15.54	33.219 D	24.484	347.3	0.365	5.57	D242.9	D 97.9	2.4	0.36	0.4	0.23	0.09	0.13	0.07	101	
111	14.71	14.69	33.282	24.718	325.3	0.400	5.46	238.3	94.3	3.4	0.41	1.2	0.17	0.01	0.13	0.10	112	11
124	13.35	13.33	33.240	24.968	301.5	0.441	5.30	231.5	89.1	4.9	0.60	3.7	0.06	0.08	0.13	0.12	125	10
125 ISL	12.87 D	12.86	33.227 D	25.052	293.5	0.446	5.36	D233.4	D 89.1	5.1	0.62	4.0	0.06	0.08	0.13	0.12	126	
138	11.75	11.74	33.189	25.236	276.0	0.481	5.09	222.3	82.7	7.6	0.87	8.1	0.03	0.03	0.08	0.09	139	09
150 ISL	11.01 D	10.99	33.212 D	25.389	261.5	0.516	5.04	D219.4	D 80.6	10.5	1.05	11.1	0.02	0.03	0.06	0.07	151	
170	9.81	9.79	33.385	25.730	229.2	0.561	4.45	194.1	69.3	15.3	1.35	16.1	0.02	0.03	0.02	0.04	171	08
200	9.31	9.28	33.645	26.016	202.6	0.626	3.78	165.2	58.4	22.0	1.63	21.1	0.02	0.03	0.00	0.02	202	07
230	8.86	8.83	33.826	26.229	182.8	0.684	3.36	146.4	51.4	27.2	1.82	23.8	0.02	0.13			232	06
250 ISL	8.58 D	8.56	33.922 D	26.348	171.9	0.724	3.17	D137.9	D 48.2	31.0	1.93	25.3	0.02	0.11			252	
269	8.23	8.20	33.974 D	26.442	163.1	0.756	2.87	D124.7	D 43.3								271	05
300 ISL	7.88 D	7.85	34.007 D	26.521	156.0	0.806	2.50	D108.9	D 37.5	40.4	2.19	29.1	0.01	0.05			302	
320	7.65	7.62	34.021	26.566	152.0	0.833	2.22	97.0	33.1	44.2	2.30	30.7	0.01	0.03			323	04
379	6.92	6.88	34.075	26.711	138.7	0.919	1.39	60.8	20.4	56.6	2.67	35.3	0.01	0.00			382	03
400 ISL	6.73 D	6.70	34.101 D	26.757	134.5	0.952	1.20	D 52.2	D 17.5	59.9	2.74	36.0	0.01	0.00			403	
439	6.45	6.41	34.123	26.812	129.7	0.999	0.93	40.7	13.5	66.1	2.87	37.5	0.02	0.04			443	02
500 ISL	5.99 D	5.95	34.178 D	26.915	120.3	1.081	0.68	D 29.7	D 9.8	75.2	3.01	39.2	0.02	0.00			504	
512	5.92	5.87	34.187	26.932	118.8	1.090	0.64	28.0	9.2	76.9	3.04	39.5	0.02	0.00			516	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 1601 STATION 91.7 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
33 14.3 N	117 27.8 W	07/01/2016	2349	UTC	25 m	290 20 kn	290 04 06	1	1010.9 mb	15.0 C	12.9 C		7/8	SC	003

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.13	16.13	33.604	24.645	328.6	0.000	5.48	239.0	97.6	3.9	0.44	0.4	0.08	0.51	0.64	0.26	0	
2	16.13	16.13	33.604	24.645	328.7	0.007	5.48	239.0	97.6	3.9	0.44	0.4	0.08	0.51	0.64	0.26	2	05
5	16.13	16.13	33.604	24.645	328.7	0.017	5.49	239.7	97.9	3.8	0.46	0.4	0.08	0.83	0.50	0.21	5	04
9	16.13	16.13	33.604	24.646	328.8	0.030	5.53	241.2	98.6	3.9	0.46	0.4	0.08	1.07	0.66	0.29	9	02
9	16.13	16.13	33.605	24.647	328.7	0.030											9	03
10 ISL	16.14 D	16.14	33.605 D	24.643	329.1	0.033	5.50	D239.9	D 98.1	3.9	0.46	0.4	0.08	1.01	0.66	0.29	10	
16	16.12	16.12	33.604	24.649	328.8	0.053	5.49	239.6	97.9	3.8	0.44	0.4	0.08	0.66	0.66	0.29	16	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 1601 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 57.2 N	117 18.4 W	07/01/2016	1818	UTC	64 m	320 11 kn	240 05 07	1	1013.3 mb	14.0 C	11.8 C	13 m	6/8	NS	001

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.25	16.25	33.515	24.550	337.6	0.000	5.48	239.2	97.9	3.4	0.42	0.2	0.05	0.56	0.60	0.20	0	
2 A	16.25	16.25	33.515	24.551	337.6	0.007	5.48	239.2	97.9	3.4	0.42	0.2	0.05	0.56	0.60	0.20	2	10
10 A	16.25	16.25	33.515	24.550	338.0	0.034	5.48	239.1	97.8	3.4	0.44	0.2	0.06	0.35	0.55	0.25	10	08
10	16.25	16.25	33.516	24.551	337.9	0.033											10	09
14 A	16.25	16.25	33.521	24.554	337.7	0.047	5.47	238.8	97.8	3.4	0.41	0.2	0.05	0.40	0.56	0.22	14	07
20 ISL	16.25 D	16.25	33.525 D	24.558	337.5	0.068	5.48	D238.7	D 97.8	3.4	0.43	0.2	0.06	0.35	0.54	0.23	20	
23 A	16.25	16.25	33.526	24.560	337.5	0.078	5.46	238.1	97.5	3.4	0.44	0.2	0.06	0.32	0.53	0.24	23	06
30 ISL	16.25 D	16.24	33.538 D	24.570	336.8	0.102	5.46	D238.0	D 97.5	3.5	0.45	0.3	0.07	0.33	0.49	0.23	30	
33	16.26	16.25	33.545	24.574	336.5	0.111	5.43	236.9	97.0	3.6	0.45	0.3	0.07	0.33	0.47	0.22	33	05
43 A	16.25	16.24	33.549	24.580	336.4	0.145	5.44	237.2	97.1	3.6	0.44	0.3	0.07	0.42	0.43	0.24	43	04
49 A	16.22	16.21	33.543	24.581	336.4	0.165	5.43	236.8	96.8	3.7	0.44	0.3	0.07	0.47	0.50	0.25	49	03
50 ISL	16.22 D	16.21	33.540 D	24.579	336.6	0.170	5.44	D237.1	D 97.1	3.7	0.44	0.3	0.07	0.47	0.50	0.26	50	
56	16.12	16.11	33.534	24.599	335.0	0.189	5.42	236.4	96.5	3.8	0.46	0.4	0.08	0.44	0.48	0.36	56	02
62	15.59	15.58	33.596	24.765	319.3	0.208	5.00	218.2	88.2	5.8	0.69	2.7	0.18	0.93	0.39	0.44	62	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 1601 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 54.8 N	117 23.4 W	08/01/2016	0252	UTC	612 m	290 22 kn			1011.5 mb	14.9 C	12.5 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	16.34	16.34	33.616	24.608	332.1	0.000	5.50	240.1	98.5	3.3	0.40	0.3	0.06	0.70	0.53	0.24	0	
2	16.34	16.34	33.616	24.608	332.2	0.007	5.50	240.1	98.5	3.3	0.40	0.3	0.06	0.70	0.53	0.24	2	20
10	16.35	16.34	33.616	24.606	332.7	0.033	5.48	238.9	98.1	3.5	0.50	0.5	0.06	5.49	0.46	0.22	10	19
20 ISL	16.35 D	16.35	33.616 D	24.605	333.1	0.067	5.49	D239.1 D	98.2	3.3	0.42	0.3	0.06	1.46	0.49	0.24	20	
21	16.35	16.35	33.615	24.606	333.1	0.070	5.47	238.6	97.9	3.3	0.41	0.3	0.06	1.06	0.49	0.24	21	18
30 ISL	16.36 D	16.35	33.616 D	24.605	333.5	0.101	5.48	D239.0 D	98.2	3.3	0.41	0.3	0.06	0.51	0.48	0.23	30	
31	16.36	16.35	33.616	24.604	333.6	0.103	5.47	238.7	98.0	3.3	0.41	0.3	0.06	0.45	0.48	0.23	31	17
41	16.35	16.35	33.614	24.605	333.8	0.137	5.53	241.4	99.1	3.3	0.47	0.3	0.06	1.24	0.48	0.22	41	16
50	16.31	16.30	33.609	24.613	333.5	0.167	5.41	235.9	96.7	3.5	0.43	0.5	0.08	0.45	0.45	0.23	50	15
61	15.42	15.41	33.538	24.757	320.0	0.202	4.95	216.0	87.0	5.5	0.69	3.3	0.19	0.99	0.20	0.18	61	14
71	13.92	13.91	33.401	24.973	299.6	0.233	4.59	200.3	78.2	7.7	0.91	6.8	0.12	0.50	0.16	0.17	72	13
75 ISL	14.17 D	14.16	33.667 D	25.126	285.2	0.247	3.61	D157.1 D	61.8	8.9	1.02	8.2	0.10	0.43	0.13	0.15	76	
86	13.46	13.45	33.601	25.222	276.2	0.277	3.60	157.0	60.8	12.3	1.31	12.1	0.04	0.24	0.05	0.10	87	12
100 ISL	12.97 D	12.96	33.588 D	25.311	268.2	0.316	3.60	D156.9 D	60.2	13.0	1.38	13.0	0.04	0.44	0.05	0.09	101	
101	12.65	12.64	33.583	25.369	262.6	0.318	3.62	157.8	60.1	13.1	1.38	13.1	0.04	0.45	0.05	0.09	102	11
119	12.36	12.35	33.717	25.530	247.8	0.364	3.06	133.4	50.5	16.8	1.63	16.4	0.05	0.53	0.02	0.08	120	10
125 ISL	11.59 D	11.58	33.655 D	25.627	238.5	0.380	3.34	D145.6 D	54.3	18.0	1.69	17.5	0.05	0.53	0.02	0.07	126	
138	11.67	11.65	33.845	25.762	226.1	0.408	2.57	112.3	41.9	20.7	1.82	19.7	0.06	0.53	0.01	0.07	139	09
150 ISL	11.39 D	11.37	33.881 D	25.841	218.8	0.438	2.49	D108.4 D	40.3	22.6	1.91	21.0	0.05	0.55	0.01	0.06	151	
169	11.03	11.01	34.002	26.001	204.1	0.475	2.10	91.4	33.7	25.6	2.06	23.0	0.03	0.57	0.01	0.04	170	08
200 ISL	10.52 D	10.50	34.112 D	26.178	187.9	0.539	1.86	D 80.8 D	29.5	28.9	2.24	25.1	0.02	0.94	0.00	0.03	202	
201	10.49	10.46	34.107	26.180	187.7	0.537	1.87	81.4	29.7	29.0	2.25	25.1	0.02	0.95	0.00	0.03	203	07
230	10.09	10.06	34.191	26.315	175.4	0.590	1.52	66.1	23.9	33.2	2.34	26.9	0.02	0.15			232	06
250 ISL	9.93 D	9.91	34.250 D	26.388	168.9	0.629	1.36	D 59.2 D	21.4	35.6	2.40	27.7	0.02	0.15			252	
270	9.52	9.49	34.242	26.451	163.1	0.658	1.35	58.7	20.9	38.0	2.46	28.5	0.01	0.15			272	05
300 ISL	9.10 D	9.06	34.237 D	26.516	157.4	0.710	1.28	D 55.5 D	19.7	41.0	2.56	29.5	0.02	0.95			302	
320	8.89	8.86	34.249	26.559	153.7	0.737	1.17	50.8	17.9	43.0	2.63	30.1	0.03	1.48			323	04
381	8.08	8.04	34.216	26.658	144.8	0.828	1.08	46.9	16.2	50.5	2.72	33.3	0.01	5.62			384	03
400 ISL	7.88 D	7.84	34.223 D	26.693	141.7	0.861	0.99	D 43.2 D	14.9	52.8	2.77	33.9	0.01	4.15			403	
446	7.35	7.30	34.267	26.805	131.5	0.918	0.65	28.3	9.6	58.3	2.90	35.3	0.01	0.58			450	02
500 ISL	6.80 D	6.75	34.266 D	26.881	124.6	0.994	0.52	D 22.4 D	7.6	67.2	3.04	37.2	0.02	0.46			504	
522	6.62	6.57	34.286	26.921	120.9	1.014	0.41	17.9	6.0	70.9	3.10	38.0	0.02	0.41			526	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 1601 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 50.9 N	117 31.1 W	08/01/2016	0554	UTC	839 m	290 16 kn			1012.8 mb	14.0 C	12.0 C				005

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.19	16.19	33.595	24.626	330.4	0.000	5.47	238.6	97.6	3.0	0.42	0.4	0.08	0.30	0.51	0.21	0	
2	16.19	16.19	33.595	24.626	330.5	0.007	5.47	238.6	97.6	3.0	0.42	0.4	0.08	0.30	0.51	0.21	2	20
10	16.19	16.19	33.598	24.627	330.6	0.033	5.49	239.3	97.9	3.1	0.49	0.4	0.07	1.62	0.49	0.22	10	19
19	16.19	16.19	33.598	24.628	330.8	0.063	5.48	239.1	97.8	3.1	0.50	0.4	0.08	1.21	0.49	0.24	19	18
20 ISL	16.19 D	16.19	33.596 D	24.627	331.0	0.067	5.48	D238.9 D	97.8	3.1	0.50	0.4	0.07	1.23	0.50	0.24	20	
30	16.19	16.19	33.595	24.627	331.4	0.099	5.51	240.3	98.3	3.2	0.51	0.4	0.07	1.44	0.56	0.23	30	17
40	16.18	16.17	33.594	24.630	331.4	0.132	5.48	238.9	97.7	3.0	0.43	0.3	0.08	0.47	0.52	0.26	40	16
50 ISL	16.14 D	16.13	33.586 D	24.634	331.5	0.167	5.46	D237.8 D	97.2	3.1	0.47	0.5	0.08	0.80	0.54	0.25	50	
51	16.07	16.06	33.586	24.648	330.1	0.169	5.46	238.0	97.1	3.1	0.47	0.5	0.08	0.83	0.55	0.24	51	15
60	15.34	15.33	33.449	24.707	324.8	0.198	5.19	226.6	91.0	4.5	0.58	2.6	0.16	0.73	0.17	0.16	60	14
71	13.11	13.10	33.225	25.001	296.8	0.232	4.94	215.7	82.7	6.8	0.87	6.5	0.06	1.56	0.10	0.14	72	13
75 ISL	13.13 D	13.12	33.313 D	25.065	290.8	0.246	4.67	D203.3 D	78.1	8.1	0.99	7.9	0.05	1.66	0.09	0.13	76	
86	12.75	12.73	33.492	25.280	270.7	0.275	3.96	172.8	65.8	11.6	1.33	11.8	0.03	1.92	0.06	0.09	87	12
100	12.48	12.47	33.727	25.515	248.7	0.312	3.02	131.9	50.1	16.3	1.78	16.1	0.03	1.66	0.02	0.05	101	11
122	11.53	11.51	33.798	25.750	226.8	0.364	2.77	120.9	45.0	19.6	1.75	19.0	0.02	2.00	0.01	0.05	123	10
125 ISL	11.36 D	11.34	33.810 D	25.790	223.0	0.373	2.78	D120.9 D	44.9	20.1	1.77	19.3	0.02	1.78	0.01	0.05	126	
141	11.09	11.07	33.908	25.915	211.4	0.405	2.48	108.0	39.9	22.7	1.90	21.1	0.02	0.59	0.01	0.04	142	09
150 ISL	11.09 D	11.07	33.974 D	25.968	206.7	0.427	2.25	D 98.0 D	36.3	24.6	1.99	22.1	0.02	0.66	0.01	0.04	151	
174	10.52	10.50	34.131	26.191	186.0	0.471	1.73	75.5	27.6	29.7	2.23	24.7	0.02	0.83	0.00	0.04	175	08
199	10.24	10.22	34.217	26.308	175.4	0.517	1.51	66.0	23.9	32.3	2.30	25.9	0.02	0.09	0.00	0.03	201	07
200 ISL	10.25 D	10.23	34.223 D	26.311	175.1	0.522	1.51	D 65.7 D	23.9	32.4	2.30	25.9	0.02	0.10			202	
227	10.03	10.00	34.260	26.379	169.2	0.565	1.35	58.7	21.2	34.6	2.39	26.8	0.02	0.47			229	06
250 ISL	9.88 D	9.85	34.303 D	26.439	164.1	0.607	1.16	D 50.6 D	18.3	35.6	2.45	26.7	0.02	1.02			252	
267	9.67	9.64	34.292	26.465	161.8	0.631	1.20	52.4	18.8	36.3	2.49	26.7	0.02	1.43			269	05
300 ISL	9.41 D	9.38	34.325 D	26.535	155.9	0.688	0.97	D 42.1 D	15.1	40.8	2.57	28.6	0.02	0.86			302	
322	8.82	8.78	34.282	26.596	150.1	0.718	1.01	44.2	15.6	43.8	2.62	29.9	0.02	0.48			325	04
379	7.99	7.95	34.232	26.683	142.3	0.801	0.98	42.7	14.7	50.7	2.70	32.5	0.02	0.44			382	03
400 ISL	7.82 D	7.78	34.245 D	26.720	139.1	0.836	0.86	D 37.5 D	12.9	52.8	2.74	33.0	0.02	0.66			403	
439	7.48	7.43	34.266	26.787	133.2	0.884	0.69	30.2	10.3	56.6	2.82	34.0	0.02	1.07			443	02
500 ISL	6.77 D	6.73	34.294 D	26.907	122.2	0.968	0.42	D 18.3 D	6.1	66.9	3.00	36.6	0.01	0.98			504	
513	6.69	6.64	34.291	26.915	121.5	0.978	0.42	18.5	6.2	69.1	3.04	37.2	0.01	0.96			517	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 1601 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 41.3 N	117 51.9 W	08/01/2016	1036	UTC	625 m	290 23 kn			1012.4 mb	14.1 C	11.9 C				006

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.57	16.57	33.651	24.580	334.8	0.000	5.43	236.7	97.6	3.6	0.43	0.5	0.09	0.14	0.43	0.21	0	
2	16.57	16.57	33.651	24.580	334.8	0.007	5.43	236.7	97.6	3.6	0.43	0.5	0.09	0.14	0.43	0.21	2	20
10	16.58	16.57	33.647	24.577	335.4	0.034	5.39	235.0	96.9	3.6	0.43	0.5	0.09	0.14	0.43	0.19	10	19
20	16.59	16.58	33.646	24.575	336.0	0.067	5.38	234.6	96.8	3.6	0.43	0.5	0.09	0.09	0.44	0.22	20	18
30	16.59	16.59	33.647	24.575	336.4	0.101	5.38	234.9	96.9	3.6	0.43	0.5	0.10	0.14	0.46	0.27	30	17
40	16.59	16.59	33.646	24.574	336.8	0.134	5.37	234.5	96.7	3.6	0.43	0.5	0.09	0.10	0.45	0.20	40	16
50	16.59	16.58	33.647	24.576	337.0	0.168	5.37	234.1	96.6	3.6	0.44	0.6	0.10	0.14	0.45	0.20	50	15
60	16.35	16.34	33.650	24.634	331.7	0.202	5.22	227.7	93.5	4.1	0.49	1.2	0.12	0.13	0.41	0.23	60	14
70	15.01	15.00	33.592	24.889	307.7	0.234	3.99	174.1	69.6	9.0	1.02	7.8	0.06	0.04	0.05	0.10	71	13
75 ISL	14.70 D	14.69	33.595 D	24.958	301.2	0.250	3.95	D172.1 D	68.4	9.1	1.03	8.3	0.05	0.07	0.05	0.11	76	
85	12.97	12.96	33.382	25.151	282.9	0.278	4.38	191.0	73.1	9.3	1.06	9.3	0.04	0.14	0.05	0.12	86	12
100	13.14	13.13	33.686	25.352	264.3	0.319	3.24	141.3	54.4	14.2	1.43	13.9	0.03	0.23	0.03	0.06	101	11
120	11.91	11.90	33.717	25.615	239.6	0.370	3.09	134.7	50.5	17.4	1.59	17.2	0.02	0.05	0.02	0.06	121	10
125 ISL	11.50 D	11.48	33.732 D	25.704	231.2	0.384	3.15	D137.1 D	51.1	17.9	1.60	17.7	0.02	0.09	0.02	0.05	126	
140	10.35	10.33	33.641	25.837	218.5	0.416	3.47	151.5	54.9	19.3	1.62	19.2	0.02	0.22	0.02	0.04	141	09
150 ISL	10.20 D	10.18	33.708 D	25.916	211.3	0.439	3.38	D146.9 D	53.2	21.7	1.75	20.6	0.02	0.15	0.01	0.04	151	
170	10.53	10.51	34.009	26.094	195.0	0.477	2.23	97.3	35.5	26.5	2.02	23.3	0.02	0.01	0.01	0.03	171	08
200 ISL	10.04 D	10.02	34.121 D	26.267	179.2	0.537	1.90	D 82.8 D	30.0	30.9	2.17	25.4	0.02	0.00	0.00	0.02	202	
201	9.99	9.96	34.120	26.275	178.4	0.535	1.90	82.9	29.9	31.1	2.18	25.5	0.02	0.00	0.00	0.02	203	07
230	9.58	9.55	34.168	26.382	168.8	0.585	1.77	77.3	27.6	33.8	2.26	26.6	0.02	0.00			232	06
250 ISL	9.62 D	9.59	34.253 D	26.442	163.6	0.623	1.41	D 61.3 D	22.0	36.4	2.33	27.6	0.02	0.00			252	
269	9.57	9.54	34.302 D	26.490	159.5	0.654	1.12	D 48.9 D	17.5								271	05
300 ISL	8.60 D	8.57	34.209 D	26.572	151.8	0.703	1.39	D 60.3 D	21.1	42.9	2.49	30.2	0.01	0.00			302	
319	8.29	8.25	34.208	26.619	147.4	0.741	1.25	54.5	18.9	45.4	2.55	31.1	0.01	0.00			322	04
380	7.50	7.47	34.228	26.750	135.6	0.827	0.83	36.2	12.4	55.9	2.78	34.2	0.01	0.00			383	03
400 ISL	7.40 D	7.36	34.254 D	26.786	132.5	0.845	0.70	D 30.5 D	10.4	58.1	2.83	34.7	0.01	0.00			403	
440	7.15	7.10	34.271	26.836	128.2	0.906	0.61	26.5	9.0	62.4	2.92	35.7	0.02	0.00			444	02
500 ISL	6.59 D	6.54	34.271 D	26.912	121.4	0.973	0.48	D 20.7 D	6.9	69.7	3.01	37.3	0.02	0.00			504	
525	6.44	6.39	34.301	26.956	117.5	1.010	0.37	16.2	5.4	72.7	3.05	37.9	0.02	0.04			529	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 1601 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 30.6 N	118 12.8 W	08/01/2016	1504	UTC	1652 m	290 21 kn	270 10 15	1	1014.9 mb	15.0 C	12.1 C	13 m	7/8	SC	007

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.78	16.78	33.693	24.565	336.2	0.000	5.30	231.1	95.7	4.0	0.47	0.7	0.19	0.08	0.52	0.30	0	
2	16.78	16.77	33.693	24.565	336.2	0.007	5.30	231.1	95.7	4.0	0.47	0.7	0.19	0.08	0.52	0.30	2	21
9	16.77	16.77	33.693	24.567	336.4	0.030	5.29	231.0	95.6	3.9	0.47	0.7	0.18	0.08	0.51	0.29	9	19
9	16.77	16.77	33.693	24.566	336.4	0.030											9	20
10 ISL	16.77 D	16.77	33.694 D	24.568	336.3	0.034	5.30	D231.1 D	95.8	3.9	0.47	0.7	0.18	0.08	0.52	0.29	10	
19	16.79	16.78	33.693	24.564	337.0	0.064	5.31	231.7	95.9	3.9	0.47	0.7	0.18	0.07	0.53	0.27	19	18
20 ISL	16.79 D	16.78	33.694 D	24.565	337.0	0.068	5.30	D230.9 D	95.7	3.9	0.47	0.7	0.18	0.07	0.53	0.27	20	
30 ISL	16.79 D	16.78	33.693 D	24.565	337.3	0.102	5.29	D230.4 D	95.5	3.9	0.47	0.8	0.18	0.09	0.52	0.28	30	
32	16.78	16.78	33.692	24.565	337.4	0.108	5.28	D230.2 D	95.4	3.9	0.47	0.8	0.18	0.09	0.52	0.29	32	17
41	16.79	16.79	33.692	24.564	337.8	0.138	5.27	229.9	95.2	4.0	0.48	0.8	0.19	0.10	0.53	0.27	41	16
50	16.79	16.78	33.691	24.565	338.0	0.169	5.28	230.5	95.4	4.0	0.48	0.8	0.19	0.09	0.52	0.26	50	15
61	16.78	16.77	33.692	24.569	338.1	0.206	5.24	228.8	94.7	4.2	0.48	0.9	0.18	0.08	0.53	0.32	61	14
69	16.66	16.65	33.689	24.593	336.1	0.233	5.08	221.5	91.5	4.5	0.54	1.6	0.16	0.09	0.45	0.26	70	13
75 ISL	16.28 D	16.26	33.690 D	24.684	327.6	0.254	4.57	D199.2 D	81.8	6.5	0.75	4.2	0.12	0.00	0.30	0.20	76	
85	15.43	15.42	33.671	24.859	311.1	0.285	3.64	158.7	63.9	9.8	1.11	8.4	0.05	0.00	0.04	0.09	86	12
100	14.48	14.47	33.670	25.065	291.8	0.330	3.47	151.4	59.9	11.2	1.23	10.2	0.03	0.01	0.02	0.06	101	11
122	12.72	12.70	33.750	25.487	252.1	0.390	2.97	129.7	49.5	16.1	1.56	15.5	0.02	0.01	0.01	0.06	123	10
125 ISL	12.34 D	12.33	33.778 D	25.581	243.1	0.399	2.91	D126.7 D	48.1	16.7	1.59	16.0	0.02	0.01	0.01	0.06	126	
140	11.63	11.61	33.807	25.739	228.3	0.433	2.78	121.3	45.2	19.5	1.73	18.4	0.02	0.01	0.01	0.05	141	09
150 ISL	11.35 D	11.34	33.851 D	25.824	220.4	0.457	2.67	D116.3 D	43.2	20.8	1.79	19.3	0.02	0.02	0.01	0.04	151	
171	11.01	10.99	33.929	25.948	209.1	0.500	2.43	106.2	39.1	23.5	1.91	21.2	0.02	0.03	0.01	0.04	172	08
200 ISL	10.74 D	10.71	34.067 D	26.105	194.8	0.562	1.96	D 85.5 D	31.4	26.9	2.10	23.2	0.02	0.07	0.00	0.03	202	
201	10.73	10.70	34.064	26.105	194.9	0.561	2.00	87.3	32.0	27.0	2.11	23.3	0.02	0.07	0.00	0.03	203	07
233	10.07	10.04	34.219	26.340	173.1	0.620	1.46	63.6	23.0	33.7	2.34	26.1	0.02	0.00			235	06
250 ISL	9.87 D	9.84	34.308 D	26.443	163.6	0.652	1.16	D 50.5 D	18.2	35.7	2.42	26.8	0.02	0.00			252	
271	9.65	9.62	34.314	26.485	160.0	0.683	1.08	47.0	16.8	38.1	2.51	27.6	0.02	0.00			273	05
300 ISL	9.19 D	9.16	34.324 D	26.568	152.5	0.731	0.94	D 40.9 D	14.6	41.5	2.53	28.9	0.02	0.00			302	
320	8.53	8.50	34.229	26.598	149.7	0.759	1.23	53.7	18.8	43.9	2.54	29.9	0.03	0.00			323	04
382	7.34	7.30	34.171	26.730	137.4	0.848	1.06	46.1	15.7	55.0	2.72	33.8	0.01	0.00			385	03
400 ISL	7.20 D	7.16	34.177 D	26.754	135.3	0.877	0.97	D 42.2 D	14.3	56.3	2.77	34.0	0.01	0.00			403	
437	7.30	7.26	34.269	26.813	130.5	0.922	0.64	27.7	9.4	59.1	2.88	34.4	0.01	0.00			441	02
500 ISL	6.71 D	6.66	34.300 D	26.919	120.9	1.006	0.40	D 17.2 D	5.8	68.9	3.04	36.6	0.01	0.00			504	
522	6.51	6.46	34.308	26.952	117.9	1.027	0.33	14.6	4.9	72.3	3.09	37.4	0.01	0.05			526	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 1601 STATION 93.3 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 21.0 N	118 33.0 W	08/01/2016	1933	UTC	1137 m	280 20 kn	280 07 10	1	1017.0 mb	15.6 C	12.0 C	12 m	5/8	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	16.63	16.63	33.672	24.582	334.5	0.000	5.47	238.8	98.6	3.2	0.38	0.1	0.08	0.04	0.60	0.31	0	
2 A	16.63	16.63	33.672	24.582	334.6	0.007	5.47	238.8	98.6	3.2	0.38	0.1	0.08	0.04	0.60	0.31	2	24
9 A	16.63	16.63	33.665	24.578	335.3	0.030	5.47	238.7	98.5	3.2	0.38	0.1	0.08	0.04	0.61	0.32	9	22
9	16.63	16.63	33.665	24.578	335.3	0.031											9	23
10 ISL	16.63 D	16.63	33.666 D	24.579	335.2	0.034	5.48	D238.9 D	98.7	3.2	0.38	0.1	0.08	0.04	0.60	0.32	10	
13 A	16.63	16.63	33.665	24.578	335.5	0.044	5.50	239.8	99.0	3.2	0.37	0.1	0.08	0.04	0.59	0.31	13	21
20 ISL	16.63 D	16.62	33.666 D	24.580	335.5	0.068	5.48	D238.9 D	98.7	3.2	0.39	0.1	0.08	0.05	0.63	0.29	20	
21 A	16.64	16.63	33.665	24.577	335.8	0.071	5.48	238.9	98.6	3.2	0.39	0.1	0.08	0.05	0.64	0.29	21	20
30	16.63	16.62	33.666	24.580	335.8	0.101	5.47	238.7	98.5	3.3	0.39	0.1	0.09	0.06	0.60	0.29	30	19
40 A	16.61	16.60	33.665	24.585	335.8	0.134	5.46	238.4	98.4	3.2	0.39	0.1	0.08	0.05	0.65	0.37	40	18
42 A	16.61	16.60	33.663	24.584	336.0	0.141	5.46	238.3	98.3	3.2	0.39	0.1	0.08	0.05	0.61	0.31	42	17
50 ISL	16.61 D	16.60	33.662 D	24.584	336.2	0.169	5.46	D238.0 D	98.3	3.3	0.39	0.1	0.08	0.05	0.60	0.31	50	
50	16.61	16.60	33.673	24.593	335.4	0.168											50	16
52	16.60	16.59	33.662	24.585	336.2	0.175	5.45	238.0	98.2	3.3	0.39	0.1	0.08	0.05	0.60	0.31	52	15
60	16.49	16.48	33.655	24.607	334.4	0.201	5.45	237.8	97.9	3.2	0.39	0.1	0.08	0.05	0.56	0.27	60	14
70	15.84	15.83	33.568	24.689	326.9	0.235	5.30	231.5	94.0	4.0	0.48	1.2	0.16	0.06	0.31	0.23	71	13
75 ISL	14.93 D	14.92	33.435 D	24.786	317.7	0.253	4.92	D214.5 D	85.6	5.6	0.66	3.5	0.12	0.00	0.23	0.19	76	
85	13.98	13.96	33.501	25.040	293.7	0.281	4.15	181.3	70.9	8.8	1.01	7.9	0.05	0.00	0.08	0.11	86	12
100	12.91	12.90	33.569	25.307	268.5	0.323	3.70	161.6	61.8	11.6	1.24	11.4	0.03	0.00	0.04	0.09	101	11
120	12.27	12.26	33.811	25.621	239.2	0.374	2.72	118.6	44.8	18.3	1.68	17.5	0.03	0.00	0.01	0.05	121	10
125 ISL	12.13 D	12.11	33.816 D	25.652	236.3	0.390	2.72	D118.4 D	44.7	19.2	1.73	18.2	0.02	0.00	0.01	0.05	126	
141	11.48	11.46	33.929	25.862	216.6	0.422	2.35	102.5	38.1	22.2	1.90	20.4	0.01	0.00	0.01	0.04	142	09
150 ISL	11.22 D	11.20	33.962 D	25.934	209.9	0.445	2.30	D100.1 D	37.1	23.7	1.97	21.3	0.01	0.00	0.01	0.04	151	
169	10.84	10.82	34.079	26.095	195.0	0.479	1.94	84.5	31.0	27.0	2.11	23.2	0.01	0.00	0.00	0.03	170	08
200	10.47	10.44	34.194	26.251	180.9	0.537	1.60	69.7	25.4	30.9	2.26	25.0	0.02	0.00	0.00	0.03	202	07
231	9.93	9.90	34.194	26.344	172.6	0.592	1.66	72.3	26.1	33.2	2.28	26.0	0.02	0.00			233	06
250 ISL	9.00 D	8.97	34.109 D	26.430	164.4	0.630	2.03 D	88.2 D	31.2	35.3	2.28	26.9	0.02	0.00			252	
270	8.77	8.75	34.115	26.470	160.8	0.656	1.94	84.4	29.6	37.6	2.28	27.9	0.01	0.00			272	05
300 ISL	8.30 D	8.27	34.193 D	26.604	148.5	0.709	1.35 D	58.6 D	20.4	43.0	2.47	29.8	0.01	0.00			302	
321	8.26	8.23	34.215	26.628	146.6	0.734	1.16	50.7	17.6	46.7	2.60	31.1	0.00	0.02			324	04
380	7.45	7.41	34.220	26.752	135.4	0.817	0.86	37.4	12.7	55.8	2.79	33.9	0.00	0.01			383	03
400 ISL	7.14 D	7.11	34.223 D	26.798	131.1	0.851	0.76 D	33.0 D	11.2	58.7	2.84	34.6	0.00	0.00			403	
440	6.84	6.79	34.231	26.847	126.8	0.895	0.64	27.8	9.3	64.5	2.93	36.1	0.01	0.00			444	02
500 ISL	6.40 D	6.35	34.275 D	26.941	118.5	0.978	0.43 D	18.8 D	6.3	71.7	3.06	37.5	0.00	0.00			504	
521	6.28	6.23	34.281	26.961	116.7	0.994	0.39	17.1	5.7	74.2	3.11	38.0	0.00	0.00			525	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 93.3 50.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
32 11.0 N	118 53.1 W	08/01/2016	2345	UTC	1436 m	300 18 kn	300 08 08	1	1017.2 mb	15.0 C	12.9 C		6/8	SC	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	16.39	16.39	33.621	24.598	333.0	0.000	5.47	238.7	98.1	3.5	0.43	0.4	0.07	0.25	0.59	0.28	0	
2	16.39	16.39	33.621	24.598	333.1	0.007	5.47	238.7	98.1	3.5	0.43	0.4	0.07	0.25	0.59	0.28	2	20
10	16.40	16.40	33.622	24.599	333.3	0.033	5.47	238.7	98.1	3.5	0.44	0.4	0.07	0.28	0.59	0.19	10	19
20 ISL	16.36 D	16.36	33.616 D	24.603	333.3	0.067	5.46	D237.9 D	97.8	3.5	0.44	0.4	0.08	0.62	0.59	0.26	20	
22	16.37	16.36	33.623	24.608	332.9	0.073	5.47	238.5	97.9	3.5	0.44	0.4	0.08	0.69	0.59	0.27	22	18
30	16.40	16.39	33.620	24.599	334.0	0.100	5.50	239.9	98.5	3.5	0.43	0.4	0.08	0.41	0.59	0.28	30	17
39	16.36	16.35	33.611	24.602	334.1	0.130	5.45	238.0	97.7	3.5	0.44	0.4	0.07	0.37	0.62	0.23	39	16
50	16.27	16.26	33.609	24.621	332.6	0.167	5.45	237.6	97.3	3.5	0.43	0.5	0.07	0.63	0.64	0.23	50	15
61	14.85	14.84	33.500	24.853	310.8	0.202	4.84	211.3	84.1	5.8	0.71	3.8	0.12	0.08	0.17	0.13	61	14
69	13.82	13.81	33.441	25.024	294.7	0.227	4.30	187.8	73.2	8.6	1.01	7.7	0.06	0.06	0.09	0.12	70	13
75 ISL	12.71 D	12.70	33.488 D	25.283	270.0	0.244	3.87	D168.6 D	64.3	9.9	1.10	9.5	0.05	0.00	0.08	0.11	76	
86	11.93	11.92	33.441	25.396	259.5	0.273	4.09	178.3	66.7	12.3	1.26	12.8	0.03	0.00	0.05	0.10	87	12
98	12.01	11.99	33.591	25.499	250.0	0.303	3.55	154.9	58.1	14.5	1.43	14.5	0.03	0.05	0.03	0.08	99	11
100 ISL	11.62 D	11.61	33.573 D	25.557	244.5	0.310	3.62	D157.6 D	58.8	15.0	1.46	14.9	0.03	0.05	0.03	0.08	101	
124	10.78	10.77	33.875	25.943	208.2	0.362	2.56	111.9	41.0	21.5	1.87	19.8	0.02	0.04	0.01	0.05	125	10
125 ISL	10.57 D	10.55	33.800 D	25.923	210.1	0.367	2.67	D116.2 D	42.5	21.8	1.88	20.0	0.02	0.10	0.01	0.05	126	
137	10.29	10.27	33.900	26.050	198.3	0.389	2.67	116.4	42.2	24.7	1.94	22.0	0.02	0.87	0.01	0.03	138	09
150 ISL	10.35 D	10.34	34.046 D	26.153	188.9	0.417	2.18 D	95.0 D	34.6	26.8	2.05	23.0	0.02	0.00	0.00	0.03	151	
169	10.28	10.26	34.128	26.230	182.0	0.450	1.85	80.9	29.4	29.8	2.22	24.5	0.02	0.00	0.00	0.03	170	08
200 ISL	9.95 D	9.93	34.172 D	26.322	173.9	0.508	1.73 D	75.2 D	27.2	32.4	2.29	25.6	0.02	0.00	0.00	0.03	202	
202	9.89	9.87	34.174	26.334	172.9	0.508	1.70	74.2	26.7	32.6	2.29	25.7	0.02	0.03	0.00	0.03	204	07
231	8.74	8.72	34.058	26.430	163.8	0.557	2.14	93.2	32.7	36.1	2.24	27.5	0.02	0.09			233	06
250 ISL	8.50 D	8.48	34.066 D	26.473	160.0	0.592	2.08 D	90.5 D	31.6	38.1	2.29	28.2	0.02	0.10			252	
271	8.32	8.29	34.079	26.511	156.7	0.621	1.97	86.0	29.9	40.2	2.34	29.0	0.02	0.12			273	05
300 ISL	8.57 D	8.54	34.230 D	26.592	149.8	0.670	1.30 D	56.4 D	19.8	44.1	2.53	30.1	0.02	0.11			302	
319	8.20	8.17	34.221	26.643	145.2	0.695	1.15	49.9	17.3	46.6	2.65	30.8	0.02	0.10			322	04
380	7.62	7.58	34.264	26.762	134.6	0.780	0.69	30.2	10.3	56.1	2.87	33.5	0.01	0.11			383	03
400 ISL	7.09 D	7.05	34.220 D	26.803	130.5	0.811	0.74 D	32.0 D	10.8	59.9	2.93	34.3	0.01	0.08			403	
440	6.79	6.75	34.292	26.901	121.7	0.856	0.41	18.1	6.1	67.4	3.05	36.0	0.01	0.03			444	02
500 ISL	6.51 D	6.47	34.321 D	26.962	116.6	0.934	0.32 D	14.0 D	4.7	71.3	3.15	36.9	0.02	0.12			504	
518	6.50	6.46	34.319	26.962	116.9	0.949	0.31	13.7	4.6	72.5	3.18	37.2	0.02	0.15			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 1601 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 1.1 N	119 13.6 W	09/01/2016	0338	UTC	1575 m	310 12 kn			1019.0 mb	15.0 C	13.1 C				010

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.67	15.67	33.407	24.597	333.1	0.000	5.66	247.2	99.9	2.4	0.34	0.1	0.03	0.05	0.63	0.26	0	
2	15.67	15.67	33.407	24.597	333.2	0.007	5.66	247.2	99.9	2.4	0.34	0.1	0.03	0.05	0.63	0.26	2	21
10	15.68	15.67	33.401	24.592	334.0	0.033	5.66	247.0	99.8	2.3	0.35	0.1	0.05	0.10	0.61	0.25	10	19
10	15.68	15.67	33.401	24.592	333.9	0.032											10	20
20	15.68	15.67	33.401	24.593	334.3	0.067	5.66	247.0	99.9	2.3	0.33	0.1	0.03	0.03	0.62	0.30	20	18
30 ISL	15.66 D	15.66	33.399 D	24.595	334.3	0.101	5.66	D246.8 D	99.9	2.3	0.34	0.1	0.03	0.06	0.61	0.27	30	
31	15.66	15.65	33.401	24.597	334.2	0.104	5.66	247.0	99.8	2.3	0.34	0.1	0.03	0.06	0.61	0.26	31	17
40	15.65	15.64	33.399	24.598	334.4	0.134	5.65	246.8	99.7	2.3	0.34	0.1	0.06	0.06	0.60	0.27	40	16
50	15.55	15.55	33.390	24.613	333.3	0.167	5.63	245.9	99.2	2.3	0.35	0.2	0.04	0.12	0.53	0.24	50	15
61	15.57	15.56	33.423	24.635	331.6	0.204	5.54	241.7	97.5	2.8	0.40	0.6	0.07	0.14	0.48	0.22	61	14
70	14.49	14.48	33.369	24.829	313.3	0.233	5.20	226.8	89.5	4.8	0.61	3.3	0.18	0.12	0.19	0.15	71	13
75 ISL	13.58 D	13.57	33.328 D	24.985	298.5	0.250	4.95	D215.9 D	83.7	6.5	0.77	5.7	0.14	0.08	0.17	0.14	76	
84	12.46	12.45	33.317	25.200	278.1	0.274	4.49	196.2	74.2	9.6	1.07	10.0	0.06	0.02	0.12	0.12	85	12
100	11.37	11.36	33.453	25.510	248.9	0.316	3.96	173.0	64.0	13.5	1.34	14.1	0.03	0.03	0.05	0.09	101	11
121	10.60	10.58	33.610	25.769	224.6	0.366	3.52	153.8	56.0	18.0	1.57	17.7	0.02	0.00	0.02	0.05	122	10
125 ISL	10.14 D	10.13	33.648 D	25.878	214.3	0.377	3.56	D154.9 D	56.0	19.1	1.62	18.5	0.02	0.00	0.01	0.04	126	
140	10.17	10.15	33.807	25.998	203.2	0.406	2.97	129.4	46.7	23.2	1.82	21.2	0.02	0.05	0.00	0.03	141	09
150 ISL	10.39 D	10.38	34.001 D	26.111	192.9	0.428	2.40	D104.3 D	38.0	25.0	1.93	22.1	0.02	0.07	0.00	0.03	151	
170	10.38	10.36	34.092	26.186	186.3	0.465	1.96	85.4	31.1	28.5	2.16	23.8	0.01	0.11	0.00	0.03	171	08
200 ISL	10.05 D	10.03	34.211 D	26.336	172.7	0.520	1.57	D 68.3 D	24.7	32.7	2.31	25.6	0.03	0.05	0.00	0.03	202	
201	10.04	10.02	34.208	26.335	172.8	0.520	1.57	68.6	24.8	32.9	2.31	25.7	0.03	0.05	0.00	0.03	203	07
231	9.62	9.59	34.276	26.460	161.5	0.570	1.25	54.7	19.6	37.1	2.46	27.2	0.02	0.08			233	06
250 ISL	9.45 D	9.42	34.300 D	26.506	157.4	0.603	1.11	D 48.1 D	17.2	39.1	2.50	27.8	0.02	0.00			252	
271	9.02	8.99	34.281	26.561	152.5	0.633	1.08	47.3	16.7	41.4	2.55	28.5	0.02	0.00			273	05
300 ISL	8.63 D	8.59	34.263 D	26.610	148.2	0.680	1.05	D 45.7 D	16.0	45.4	2.62	30.1	0.01	0.00			302	
324	8.19	8.16	34.251	26.667	142.9	0.712	0.94	41.0	14.2	48.7	2.67	31.4	0.01	0.02			327	04
381	7.42	7.38	34.234	26.767	133.9	0.791	0.78	34.2	11.6	56.6	2.83	33.6	0.02	0.15			384	03
400 ISL	7.13 D	7.09	34.241 D	26.814	129.5	0.820	0.70	D 30.3 D	10.3	59.8	2.86	34.4	0.01	0.11			403	
444	6.54	6.49	34.213	26.872	124.2	0.872	0.65	28.4	9.5	67.0	2.94	36.4	0.01	0.01			448	02
500 ISL	6.18 D	6.14	34.252 D	26.950	117.3	0.944	0.45	D 19.6 D	6.5	73.7	3.06	37.8	0.02	0.08			504	
516	6.09	6.04	34.258	26.967	115.8	0.958	0.40	17.6	5.8	75.6	3.09	38.3	0.03	0.10			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 1601 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 51.3 N	119 33.8 W	09/01/2016	0730	UTC	1884 m	300 09 kn			1020.2 mb	15.0 C	12.1 C				011

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.70	15.70	33.344	24.544	338.2	0.000	5.65	246.6	99.6	2.1		0.0	0.03	0.07	0.36	0.16	0	
2	15.70	15.69	33.344	24.544	338.3	0.007	5.65	246.6	99.6	2.1		0.0	0.03	0.07	0.36	0.16	2	20
10	15.70	15.70	33.344	24.544	338.6	0.034	5.65	246.6	99.7	2.1	0.31	0.0	0.02	0.00	0.35	0.13	10	19
20	15.70	15.70	33.343	24.543	339.0	0.068	5.65	246.9	99.8	2.1	0.33	0.1	0.02	0.03	0.37	0.14	20	18
30 ISL	15.70 D	15.69	33.344 D	24.546	339.1	0.102	5.66	D246.5 D	99.8	2.1	0.33	0.0	0.02	0.05	0.37	0.14	30	
31	15.70	15.69	33.343	24.545	339.2	0.105	5.65	246.6	99.7	2.1	0.33	0.0	0.02	0.05	0.37	0.14	31	17
40	15.70	15.69	33.344	24.546	339.4	0.136	5.66	247.0	99.8	2.1	0.32	0.0	0.02	0.00	0.35	0.14	40	16
49	15.70	15.69	33.343	24.544	339.9	0.166	5.66	247.2	99.9	2.1	0.33	0.0	0.02	0.01	0.36	0.13	49	15
50 ISL	15.71 D	15.70	33.344 D	24.545	339.9	0.171	5.65	D246.1 D	99.6	2.1	0.33	0.0	0.02	0.02	0.36	0.13	50	
62	15.67	15.66	33.351	24.559	338.9	0.210	5.64	246.5	99.5	2.1	0.33	0.1	0.02	0.09	0.36	0.14	62	14
72	15.55	15.54	33.359	24.592	336.1	0.244	5.60	244.3	98.4	2.4	0.36	0.3	0.05	0.11	0.33	0.16	73	13
75 ISL	15.53 D	15.51	33.367 D	24.604	335.1	0.256	5.60	D244.1 D	98.5	2.5	0.38	0.4	0.06	0.14	0.31	0.17	76	
86	15.12	15.10	33.403	24.722	324.1	0.290	5.54	241.8	96.6	3.1	0.43	0.8	0.10	0.23	0.27	0.22	87	12
100 ISL	11.65 D	11.63	33.170 D	25.239	274.7	0.335	4.92	D214.2 D	79.7	8.7	0.98	9.6	0.05	0.00	0.13	0.14	101	
101	11.62	11.61	33.169	25.242	274.4	0.335	4.90	214.1	79.4	9.1	1.02	10.2	0.04	0.00	0.12	0.13	102	11
121	10.47	10.45	33.353	25.592	241.4	0.386	4.30	187.6	67.9	14.6	1.37	16.0	0.03	0.01	0.05	0.08	122	10
125 ISL	10.34 D	10.32	33.421 D	25.667	234.3	0.399	4.08	D177.5 D	64.3	15.5	1.41	16.7	0.03	0.01	0.04	0.08	126	
143	9.80	9.78	33.536	25.849	217.4	0.437	3.78	164.8	58.9	19.6	1.61	20.0	0.02	0.01	0.02	0.05	144	09
150 ISL	9.70 D	9.68	33.612 D	25.925	210.2	0.455	3.63	D158.1 D	56.6	21.0	1.66	20.9	0.02	0.01	0.02	0.04	151	
170	9.32	9.30	33.737	26.084	195.4	0.493	3.27	142.7	50.6	24.9	1.81	23.3	0.02	0.01	0.01	0.03	171	08
200 ISL	8.93 D	8.91	33.900 D	26.275	177.9	0.553	2.87	D125.0 D	44.1	30.0	1.97	25.8	0.02	0.05	0.00	0.03	202	
202	8.95	8.93	33.914	26.283	177.2	0.552	2.78	121.4	42.7	30.4	1.98	25.9	0.02	0.05	0.00	0.03	204	07
235	8.67	8.65	33.992	26.388	167.8	0.609	2.47	107.8	37.7	34.4	2.13	27.7	0.02	0.00			237	06
250 ISL	8.47 D	8.44	34.029 D	26.449	162.2	0.639	2.26	D 98.4 D	34.4	37.6	2.22	28.9	0.02	0.00			252	
274	8.08	8.05	34.076	26.545	153.4	0.672	1.89	82.6	28.5	42.7	2.37	30.8	0.02	0.00			276	05
300 ISL	7.85 D	7.82	34.117 D	26.611	147.5	0.716	1.57	D 68.4 D	23.6	47.1	2.50	32.3	0.02	0.00			302	
324	7.59	7.55	34.139	26.668	142.4	0.746	1.29	56.4	19.3	51.2	2.62	33.8	0.02	0.00			327	04
383	7.03	6.99	34.177	26.777	132.6	0.827	0.88	38.3	12.9	59.9	2.83	36.2	0.02	0.02			386	03
400 ISL	6.86 D	6.82	34.191 D	26.812	129.5	0.856	0.78	D 34.1 D	11.5	62.5	2.88	36.8	0.02	0.00			403	
445	6.46	6.42	34.218	26.886	122.8	0.906	0.60	26.0	8.7	69.2	3.00	38.3	0.02	0.00			449	02
500 ISL	6.04 D	6.00	34.268 D	26.980	114.3	0.978	0.41	D 17.7 D	5.8	76.4	3.10	39.6	0.01	0.00			504	
514	6.02	5.98	34.274	26.988	113.8	0.987	0.38	16.6	5.5	78.2	3.13	39.9	0.01	0.00			518	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 1601 STATION 93.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 30.8 N	120 14.3 W	09/01/2016	1330	UTC	3905 m	270 10 kn			1020.7 mb	15.8 C	12.2 C				012

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	15.80	15.80	33.355	24.528	339.7	0.000	5.66	247.3	100.2	2.0	0.30	0.0	0.01	0.00	0.22	0.07	0	
1	15.80	15.80	33.355	24.528	339.8	0.003	5.66	247.3	100.2	2.0	0.30	0.0	0.01	0.00	0.22	0.07	1	20
10	15.81	15.81	33.353	24.526	340.3	0.034	5.65	246.7	99.9	2.0	0.29	0.0	0.01	0.00	0.21	0.07	10	19
20	15.73	15.72	33.347	24.540	339.3	0.068	5.65	246.8	99.8	2.0	0.30	0.0	0.02	0.00	0.26	0.08	20	18
30	15.66	15.65	33.342	24.552	338.5	0.102	5.65	246.7	99.6	2.0	0.30	0.0	0.02	0.02	0.30	0.10	30	17
41	15.64	15.64	33.343	24.557	338.4	0.139	5.65	246.7	99.6	2.1	0.31	0.0	0.02	0.00	0.30	0.11	41	16
50 ISL	15.64 D	15.63	33.343 D	24.559	338.5	0.171	5.65	D246.1 D	99.5	2.0	0.31	0.0	0.02	0.00	0.31	0.12	50	
52	15.64	15.63	33.341	24.557	338.7	0.176	5.64	246.1	99.3	2.0	0.31	0.0	0.02	0.02	0.32	0.12	52	15
60	15.63	15.62	33.342	24.560	338.7	0.204	5.64	246.3	99.4	2.0	0.31	0.0	0.02	0.04	0.30	0.10	60	14
71	15.46	15.45	33.333	24.592	336.0	0.241	5.61	245.2	98.6	2.2	0.34	0.3	0.04	0.10	0.21	0.09	72	13
75 ISL	15.33 D	15.32	33.325 D	24.614	334.0	0.256	5.58	D243.0 D	97.7	3.2	0.45	1.7	0.05	0.00	0.19	0.09	76	
86	12.86	12.84	33.170	25.009	296.4	0.289	5.19	226.8	86.4	6.0	0.74	5.7	0.09	0.00	0.12	0.11	87	12
98	11.76	11.75	33.179	25.225	276.0	0.323	4.99	217.9	81.1	8.3	0.94	9.2	0.04	0.00	0.11	0.11	99	11
100 ISL	11.66 D	11.65	33.191 D	25.253	273.4	0.331	4.98	D216.9 D	80.8	8.6	0.96	9.5	0.04	0.00	0.11	0.11	101	
120	10.49	10.47	33.241	25.501	250.0	0.381	4.75	207.3	75.1	11.7	1.17	13.2	0.02	0.00	0.07	0.07	121	10
125 ISL	10.16 D	10.14	33.327 D	25.625	238.3	0.396	4.61	D200.7 D	72.4	13.5	1.26	14.7	0.02	0.00	0.06	0.06	126	
140	9.55	9.54	33.467	25.835	218.5	0.428	4.06	177.4	63.0	18.8	1.54	19.2	0.02	0.00	0.03	0.04	141	09
150 ISL	9.45 D	9.43	33.522 D	25.895	213.0	0.452	3.93	D171.0 D	60.8	20.8	1.62	20.6	0.01	0.00	0.02	0.03	151	
170	9.12	9.10	33.706	26.092	194.6	0.490	3.42	149.4	52.7	24.8	1.78	23.2	0.01	0.00	0.00	0.02	171	08
200 ISL	8.76 D	8.73	33.887 D	26.292	176.2	0.549	2.98	D129.7 D	45.5	29.9	1.93	25.8	0.01	0.00	0.00	0.02	202	
202	8.75	8.72	33.886	26.293	176.1	0.549	2.98	129.8	45.4	30.2	1.94	25.9	0.01	0.00	0.00	0.02	204	07
233	8.31	8.29	33.988	26.440	162.6	0.602	2.54	110.8	38.4	36.3	2.12	28.4	0.01	0.00			235	06
250 ISL	8.15 D	8.13	34.025 D	26.494	157.8	0.633	2.26	D 98.2 D	34.0	39.6	2.24	29.7	0.01	0.00			252	
271	7.94	7.91	34.069	26.560	151.8	0.661	1.89	82.3	28.3	43.6	2.38	31.2	0.01	0.00			273	05
300 ISL	7.59 D	7.56	34.108 D	26.642	144.4	0.709	1.50	D 65.3 D	22.4	48.5	2.53	32.9	0.01	0.00			302	
319	7.48	7.45	34.119	26.667	142.3	0.732	1.33	57.8	19.7	51.6	2.62	34.0	0.01	0.00			322	04
382	6.99	6.95	34.168	26.775	132.8	0.819	0.87	37.8	12.7	59.9	2.82	36.4	0.01	0.00			385	03
400 ISL	6.85 D	6.81	34.194 D	26.815	129.2	0.847	0.72	D 31.1 D	10.5	62.4	2.88	36.9	0.01	0.00			403	
440	6.58	6.53	34.230	26.881	123.4	0.893	0.54	23.6	7.9	68.0	3.00	38.0	0.01	0.00			444	02
500 ISL	6.20 D	6.16	34.264 D	26.957	116.7	0.971	0.40	D 17.5 D	5.8	75.1	3.09	39.3	0.01	0.00			504	
520	6.08	6.03	34.268	26.976	115.0	0.988	0.35	15.4	5.1	77.4	3.12	39.8	0.01	0.00			524	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 1601 STATION 93.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
31 11.1 N	120 54.5 W	09/01/2016	1938	UTC	3846 m	200 05 kn	300 05 07	1	1022.4 mb	16.7 C	14.1 C	35 m	4/8	SC	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	16.77	16.77	33.416	24.354	356.3	0.000	5.54	242.1	100.0	2.0	0.39	0.1	0.02	3.14	0.17	0.05	0	
2 A	16.77	16.77	33.416	24.354	356.3	0.007	5.54	242.1	100.0	2.0	0.39	0.1	0.02	3.14	0.17	0.05	2	23
10 ISL	16.70 D	16.69	33.416 D	24.372	355.0	0.036	5.55	D242.0 D	99.9	2.0	0.32	0.0	0.02	1.09	0.17	0.05	10	
14	16.68	16.67	33.413	24.374	354.9	0.050	5.54	241.8	99.7	1.9	0.29	0.0	0.02	0.06	0.17	0.05	14	21
14	16.68	16.67	33.413	24.374	354.9	0.048											14	22
20 ISL	16.67 D	16.67	33.415 D	24.377	354.8	0.071	5.55	D242.1 D	100.0	2.0	0.29	0.0	0.02	0.15	0.17	0.05	20	
25 A	16.67	16.67	33.412	24.376	355.1	0.089	5.56	242.9	100.1	2.0	0.29	0.0	0.02	0.22	0.18	0.05	25	20
30 ISL	16.67 D	16.66	33.415 D	24.379	355.0	0.107	5.56	D242.4 D	100.1	2.0	0.29	0.0	0.02	0.13	0.17	0.05	30	
35 A	16.67	16.66	33.412	24.377	355.4	0.125	5.54	241.8	99.7	1.9	0.28	0.0	0.02	0.03	0.17	0.05	35	19
44	16.65	16.64	33.412	24.382	355.2	0.157	5.53	241.6	99.5	1.9	0.29	0.0	0.02	0.05	0.20	0.06	44	18
50 ISL	16.62 D	16.61	33.408 D	24.387	355.0	0.179	5.56	D242.2 D	99.9	2.0	0.30	0.0	0.02	0.14	0.20	0.06	50	
53	16.59	16.58	33.400	24.388	355.0	0.189	5.56	242.7	99.8	2.0	0.30	0.0	0.02	0.18	0.21	0.06	53	17
60 A	16.49	16.48	33.392	24.404	353.7	0.213	5.56	242.7	99.7	2.0	0.28	0.0	0.02	0.00	0.19	0.06	60	16
75 ISL	16.19 D	16.17	33.360 D	24.451	349.7	0.268	5.61	D244.7 D	100.0	2.0	0.29	0.0	0.02	0.00	0.24	0.08	76	
79	16.11	16.09	33.347	24.459	349.1	0.278											79	15
80	16.10	16.08	33.348	24.462	348.8	0.284	5.61	244.8	99.7	2.1	0.29	0.0	0.02	0.00	0.26	0.08	81	14
97	15.71	15.69	33.319	24.528	343.1	0.342	5.60	244.6	98.8	2.0	0.31	0.1	0.04	0.05	0.19	0.07	98	13
100 ISL	15.26 D	15.25	33.296 D	24.608	335.5	0.355	5.61	D244.7 D	98.2	2.2	0.33	0.3	0.07	0.05	0.18	0.08	101	
114 A	14.23	14.21	33.267	24.808	316.7	0.398	5.48	239.3	93.8	3.3	0.45	1.5	0.18	0.03	0.13	0.09	115	12
119	13.64	13.63	33.232	24.902	307.8	0.414	5.40	235.9	91.3	4.0	0.52	2.5	0.17	0.00	0.12	0.09	120	11
125 A	13.14	13.12	33.195	24.975	300.9	0.432	5.32	232.4	89.0	5.1	0.63	4.1	0.10	0.04	0.11	0.09	126	10
140	11.83	11.81	33.174	25.211	278.5	0.475	5.08	222.0	82.7	7.9	0.88	8.2	0.04	0.12	0.09	0.09	141	09
150 ISL	10.90 D	10.88	33.221 D	25.414	259.1	0.506	5.01	D218.0 D	79.9	10.6	1.06	11.2	0.03	0.00	0.07	0.08	151	
170	9.88	9.86	33.373	25.708	231.4	0.551	4.25	185.5	66.4	16.0	1.43	17.1	0.02	0.00	0.04	0.04	171	08
200	9.20	9.17	33.682	26.062	198.1	0.616	3.59	156.9	55.4	23.5	1.71	22.1	0.02	0.00	0.00	0.02	202	07
228	8.74	8.71	33.875	26.287	177.3	0.668	3.02	131.6	46.1	29.8	1.93	25.7	0.02	0.00			230	06
250 ISL	8.45 D	8.42	33.959 D	26.397	167.1	0.710	2.81	D122.3 D	42.7	34.0	2.05	27.3	0.02	0.00			252	
270	8.12	8.10	33.997	26.477	159.8	0.739	2.53	110.3	38.1	37.9	2.16	28.8	0.02	0.00			272	05
300 ISL	7.66 D	7.63	34.047 D	26.584	149.9	0.790	2.01	D 87.5 D	30.0	44.5	2.36	31.2	0.02	0.00			302	
319	7.42	7.39	34.055	26.625	146.2	0.814	1.79	78.2	26.6	48.7	2.48	32.8	0.02	0.00			322	04
380	6.81	6.77	34.103	26.748	135.1	0.900	1.18	51.5	17.3	59.1	2.75	36.0	0.01	0.00			383	03
400 ISL	6.70 D	6.66	34.131 D	26.785	131.8	0.931	0.98	D 42.7 D	14.3	62.4	2.82	36.7	0.01	0.00			403	
440	6.31	6.27	34.157	26.857	125.3	0.978	0.77	33.5	11.1	68.9	2.95	38.3	0.01	0.00			444	02
500 ISL	5.98 D	5.93	34.228 D	26.957	116.4	1.056	0.45	D 19.5 D	6.4	76.9	3.09	39.7	0.01	0.00			504	
516	5.89	5.84	34.235	26.974	114.9	1.069	0.41	17.9	5.9	79.0	3.13	40.1	0.01	0.00			520	01

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

RV REUBEN LASKER CALCOFI CRUISE 1601 STATION 93.3 90.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
30 51.3 N	121 34.9 W	10/01/2016	0153	UTC	4079 m	210 09 kn			1020.5 mb	17.2 C	15.1 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	16.19	16.19	33.357	24.443	347.9	0.000	5.65	246.5	100.6	1.9	0.31	0.0	0.01	0.10	0.13	0.04	0	
2	16.19	16.19	33.357	24.443	347.9	0.007	5.65	246.5	100.6	1.9	0.31	0.0	0.01	0.10	0.13	0.04	2	20
9	16.20	16.19	33.356	24.440	348.4	0.031	5.62	245.4	100.2	1.9	0.30	0.0	0.01	0.05	0.12	0.04	9	19
10 ISL	16.20 D	16.19	33.359 D	24.443	348.2	0.035	5.64	D245.8	D100.5	1.9	0.30	0.0	0.01	0.05	0.13	0.04	10	
20 ISL	16.17 D	16.16	33.360 D	24.451	347.8	0.070	5.64	D245.7	D100.4	1.9	0.30	0.0	0.01	0.06	0.16	0.05	20	
23	16.15	16.15	33.358 D	24.452	347.8	0.081	5.64	D245.7	D100.4								23	18
30 ISL	15.93 D	15.93	33.337 D	24.487	344.6	0.105	5.66	D246.8	D100.4	1.9	0.31	0.0	0.01	0.07	0.19	0.07	30	
39	15.68	15.68	33.316	24.527	341.1	0.136	5.69	248.7	100.4	1.9	0.31	0.0	0.01	0.08	0.22	0.08	39	17
50	15.65	15.65	33.321	24.539	340.4	0.173	5.69	248.5	100.3	1.9	0.36	0.0	0.01	0.29	0.26	0.10	50	16
62	15.60	15.59	33.321	24.551	339.7	0.214	5.69	248.5	100.2	1.8	0.32	0.0	0.01	0.19	0.30	0.11	62	15
75 ISL	15.14 D	15.12	33.340 D	24.668	328.9	0.259	5.66	D246.9	D 98.8	1.9	0.38	0.1	0.04	0.43	0.29	0.17	76	
76	15.14	15.13	33.335	24.664	329.3	0.261	5.68	247.8	99.0	1.9	0.38	0.1	0.04	0.45	0.29	0.17	77	14
88	14.91	14.89	33.324	24.707	325.6	0.300	5.64	246.5	98.0	2.1	0.43	0.4	0.08	0.85	0.17	0.12	89	13
100	13.38	13.37	33.205	24.932	304.2	0.338	5.39	235.5	90.7	4.4	0.60	3.4	0.19	0.11	0.10	0.10	101	12
111	11.27	11.25	33.169	25.308	268.3	0.369	5.13	223.8	82.4	7.6	0.88	7.9	0.03	0.09	0.09	0.08	112	11
125	10.46	10.45	33.235	25.501	250.1	0.406	4.90	213.8	77.4	11.1	1.14	12.4	0.02	0.35	0.05	0.07	126	10
140	9.65	9.63	33.413	25.777	224.0	0.441	4.28	187.0	66.6	16.7	1.45	17.6	0.02	0.14	0.02	0.05	141	09
150 ISL	9.48 D	9.46	33.542 D	25.906	212.0	0.465	4.03	D175.4	D 62.4	18.9	1.55	19.2	0.01	0.14	0.02	0.04	151	
171	9.16	9.14	33.668	26.056	198.1	0.507	3.57	156.0	55.0	23.7	1.75	22.5	0.01	0.15	0.00	0.02	172	08
200	8.72	8.70	33.840	26.260	179.2	0.561	3.23	140.9	49.3	28.4	1.88	24.9	0.01	0.25	0.00	0.01	202	07
229	8.40	8.37	33.968	26.411	165.3	0.611	2.63	114.8	39.9	35.1	2.10	27.9	0.01	0.08			231	06
250 ISL	8.22 D	8.19	34.001 D	26.465	160.5	0.647	2.45	D106.7	D 37.1	38.7	2.21	29.3	0.01	0.09			252	
270	7.89	7.87	34.029	26.535	154.1	0.677	2.12	92.7	31.8	42.2	2.32	30.7	0.01	0.10			272	05
300 ISL	7.56 D	7.53	34.068 D	26.615	146.9	0.725	1.72	D 75.0	D 25.7	47.6	2.47	32.4	0.01	0.17			302	
319	7.34	7.31	34.079 D	26.655	143.2	0.753	1.56	D 67.8	D 23.1								322	04
381	6.69	6.65	34.128	26.784	131.6	0.835	0.95	41.5	13.9	62.0	2.87	37.0	0.02	0.36			384	03
400 ISL	6.57 D	6.53	34.144 D	26.812	129.1	0.863	0.85	D 37.1	D 12.4	64.9	2.92	37.5	0.01	0.29			403	
442	6.22	6.18	34.181	26.888	122.3	0.913	0.61	26.6	8.8	71.1	3.02	38.6	0.01	0.12			446	02
500 ISL	5.86 D	5.82	34.231 D	26.973	114.7	0.986	0.44	D 19.1	D 6.3	78.6	3.14	40.0	0.01	0.21			504	
512	5.86	5.82	34.247	26.986	113.6	0.995	0.37	16.0	5.2	80.2	3.16	40.3	0.01	0.23			516	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 1601 STATION 93.3 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE	ORD
30 31.2 N	122 14.7 W	10/01/2016	0748	UTC	389 m	230 07 kn			1020.0 mb	17.9 C	15.9 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	16.97	16.97	33.430	24.318	359.8	0.000	5.53	241.6	100.2	2.1	0.26	0.0	0.01	0.00	0.14	0.05	0	
2	16.97	16.97	33.430	24.318	359.8	0.007	5.53	241.6	100.2	2.1	0.26	0.0	0.01	0.00	0.14	0.05	2	20
10 ISL	16.97 D	16.97	33.438 D	24.324	359.5	0.036	5.54	D241.4	D100.3	2.1	0.27	0.0	0.01	0.00	0.13	0.05	10	
11	16.97	16.97	33.445	24.330	359.0	0.040	5.52	241.0	99.9	2.1	0.27	0.0	0.01	0.02	0.13	0.05	11	19
20 ISL	16.97 D	16.97	33.438 D	24.324	359.9	0.072	5.53	D241.0	D100.1	2.1	0.28	0.0	0.01	0.03	0.13	0.05	20	
25	16.96	16.96	33.436 D	24.326	359.9	0.091	5.53	D241.1	D100.1								25	18
30 ISL	16.96 D	16.95	33.436 D	24.327	359.9	0.109	5.53	D241.0	D100.0	2.1	0.29	0.0	0.01	0.05	0.14	0.05	30	
40	16.95	16.94	33.438	24.332	359.9	0.144	5.52	240.9	99.8	2.1	0.30	0.1	0.01	0.06	0.14	0.06	40	17
50	16.95	16.94	33.438	24.333	360.1	0.180	5.52	241.0	99.9	2.1	0.25	0.0	0.01	0.00	0.16	0.06	50	16
62	16.94	16.93	33.437	24.335	360.4	0.223	5.52	240.8	99.8	2.0	0.27	0.0	0.01	0.00	0.17	0.06	62	15
75 ISL	16.94 D	16.93	33.432 D	24.332	361.2	0.272	5.52	D240.5	D 99.8	2.0	0.26	0.0	0.01	0.00	0.17	0.07	76	
76	16.94	16.93	33.437	24.336	360.8	0.274	5.51	240.4	99.6	2.0	0.26	0.0	0.01	0.00	0.17	0.07	77	14
86	16.94	16.92	33.436	24.337	361.1	0.310	5.52	241.0	99.9	2.0	0.26	0.0	0.01	0.00	0.18	0.07	87	13
100	16.52	16.50	33.374	24.387	356.7	0.360	5.54	242.0	99.4	2.0	0.28	0.0	0.02	0.05	0.16	0.07	101	12
113	15.54	15.53	33.291	24.544	342.1	0.405	5.50	240.2	96.7	2.6	0.36	0.5	0.21	0.01	0.13	0.09	114	11
125 ISL	13.87 D	13.86	33.249 D	24.868	311.2	0.448	5.34	D232.5	D 90.7	4.1	0.50	2.2	0.13	0.00	0.17	0.15	126	
126	13.55	13.53	33.252	24.937	304.6	0.448	5.36	234.2	90.5	4.2	0.51	2.4	0.13	0.00	0.17	0.15	127	10
142	12.19	12.17	33.182	25.150	284.4	0.495	5.13	224.2	84.2	6.9	0.79	7.1	0.02	0.00	0.09	0.10	143	09
150 ISL	11.51 D	11.49	33.221 D	25.307	269.5	0.521	5.07	D220.8	D 81.9	9.1	0.93	9.5	0.02	0.00	0.07	0.08	151	
170	9.99	9.97	33.288	25.623	239.4	0.568	4.59	200.4	71.8	14.4	1.27	15.7	0.01	0.00	0.03	0.05	171	08
200	9.15	9.12	33.684	26.072	197.2	0.633	3.72	162.2	57.2	23.4	1.63	21.9	0.01	0.00	0.00	0.02	202	07
231	8.60	8.57	33.917	26.341	172.1	0.691	3.02	131.6	45.9	31.3	1.89	26.2	0.01	0.00			233	06
250 ISL	8.29 D	8.26	33.965 D	26.426	164.3	0.729	2.95	D128.2	D 44.6	34.1	1.95	27.0	0.01	0.00			252	
269	8.09	8.06	33.992	26.477	159.7	0.753	2.78	121.4	41.9	37.0	2.00	27.9	0.01	0.00			271	05
300 ISL	7.67 D	7.64	34.015 D	26.557	152.5	0.808	2.35	D102.1	D 35.0	43.2	2.18	30.4	0.01	0.00			302	
325	7.32	7.29	34.027	26.617	146.9	0.839	1.99	87.0	29.5	48.1	2.33	32.4	0.01	0.00			328	04
379	6.65	6.61	34.075	26.747	135.0	0.915	1.30	56.7	18.9	60.2	2.65	36.2	0.01	0.00			382	03
400 ISL	6.48 D	6.44	34.093 D	26.784	131.7	0.951	1.13	D 48.9	D 16.3	63.6	2.72	37.0	0.01	0.00			403	
441	6.17	6.13	34.128	26.852	125.6	0.996	0.84	36.6	12.1	70.3	2.85	38.8	0.01	0.00			445	02
500 ISL	5.87 D	5.83	34.212 D	26.957	116.2	1.076	0.51	D 22.1	D 7.3	78.6	2.99	40.1	0.01	0.00			504	
519	5.76	5.71	34.227	26.984	113.9	1.090	0.45	19.6	6.4	81.2	3.03	40.5	0.01	0.00			523	01

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

RV REUBEN LASKER — CALCOFI CRUISE 1601 — 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 54.9 W	10/01/2016	1351	UTC	361 m	250 09 kn			1020.2 mb	17.3 C	15.9 C				016

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.66	16.66	33.309	24.298	361.7	0.000	5.56	242.9	100.0	1.9	0.27	0.0	0.01	0.05	0.15	0.05	0	
2	16.66	16.65	33.309	24.298	361.7	0.007	5.56	242.9	100.0	1.9	0.27	0.0	0.01	0.05	0.15	0.05	2	20
10 ISL	16.66 D	16.65	33.308 D	24.298	362.0	0.037	5.58	D243.4	D100.4	1.9	0.28	0.0	0.01	0.09	0.14	0.05	10	
11	16.66	16.66	33.309	24.298	362.0	0.040	5.56	243.0	100.1	1.9	0.28	0.0	0.01	0.10	0.14	0.05	11	19
20 ISL	16.66 D	16.65	33.308 D	24.298	362.3	0.073	5.58	D243.2	D100.3	1.9	0.27	0.0	0.01	0.00	0.14	0.05	20	
25	16.67	16.67	33.304	24.293	363.0	0.090	5.57	243.2	100.2	1.9	0.27	0.0	0.01	0.00	0.14	0.05	25	18
30 ISL	16.68 D	16.68	33.315 D	24.299	362.6	0.109	5.58	D243.1	D100.3	1.9	0.27	0.0	0.01	0.00	0.14	0.05	30	
41	16.66	16.65	33.312	24.302	362.7	0.149	5.56	242.8	100.0	1.9	0.26	0.0	0.01	0.04	0.14	0.06	41	23
50 ISL	16.67 D	16.66	33.320 D	24.307	362.6	0.183	5.56	D242.6	D100.1	1.9	0.27	0.0	0.01	0.02	0.15	0.06	50	
51	16.67	16.66	33.315	24.304	363.0	0.185	5.56	242.9	100.0	1.9	0.27	0.0	0.01	0.02	0.15	0.06	51	22
62	16.75	16.74	33.347	24.310	362.7	0.225	5.56	242.9	100.2	2.0	0.26	0.0	0.01	0.00	0.16	0.06	62	15
75	16.75	16.74	33.354	24.316	362.7	0.272	5.55	242.2	99.9	1.9	0.26	0.0	0.01	0.00	0.17	0.06	76	14
87	16.74	16.72	33.349	24.316	363.1	0.315	5.55	242.4	99.9	1.9	0.26	0.0	0.01	0.00	0.18	0.07	88	13
100	16.76	16.74	33.355	24.317	363.4	0.363	5.53	241.4	99.6	1.9	0.27	0.0	0.01	0.00	0.18	0.08	101	12
111	15.18	15.16	33.365	24.681	328.9	0.401	5.45	238.0	95.2	3.2	0.36	0.5	0.30	0.01	0.16	0.13	112	11
125	13.31	13.29	33.198	24.943	303.9	0.445	5.34	233.3	89.7	4.7	0.59	3.3	0.07	0.00	0.03	0.04	126	10
140	11.64	11.62	33.218	25.279	271.9	0.488	5.05	220.7	81.9	7.9	0.86	8.6	0.02	0.00	0.07	0.10	141	09
150 ISL	11.09 D	11.08	33.263 D	25.413	259.3	0.518	4.97	D216.5	D 79.6	9.8	0.98	10.6	0.02	0.00	0.06	0.08	151	
171	10.08	10.06	33.357	25.662	235.7	0.567	4.59	200.6	72.0	13.8	1.23	15.0	0.01	0.00	0.03	0.04	172	08
200 ISL	9.44 D	9.42	33.656 D	26.002	204.0	0.634	4.00	D173.9	D 61.9	19.8	1.47	19.3	0.01	0.00	0.01	0.02	202	
202	9.37	9.34	33.643	26.005	203.7	0.635	4.01	175.1	62.0	20.3	1.49	19.6	0.01	0.00	0.01	0.02	204	07
230	9.11	9.08	33.870	26.225	183.4	0.689	3.41	148.8	52.5	26.2	1.71	23.0	0.01	0.00			232	06
250 ISL	8.67 D	8.64	33.950 D	26.356	171.2	0.727	3.22	D140.1	D 49.1	29.7	1.80	24.6	0.01	0.00			252	
271	8.34	8.31	33.962	26.416	165.6	0.760	3.01	131.5	45.6	33.4	1.90	26.4	0.01	0.00			273	05
300 ISL	7.91 D	7.88	34.006 D	26.515	156.6	0.810	2.48	D107.9	D 37.2	39.6	2.10	29.1	0.01	0.00			302	
320	7.65	7.62	34.012	26.559	152.6	0.838	2.21	96.5	33.0	43.9	2.24	31.1	0.01	0.00			322	04
381	6.92	6.88	34.054	26.695	140.2	0.928	1.58	68.8	23.1	55.3	2.52	34.6	0.01	0.00			384	03
400 ISL	6.79 D	6.75	34.081 D	26.734	136.7	0.957	1.39	D 60.4	D 20.3	58.7	2.60	35.6	0.01	0.00			403	
441	6.38	6.34	34.112	26.812	129.6	1.009	1.01	44.2	14.7	66.0	2.77	37.6	0.01	0.00			445	02
500 ISL	5.99 D	5.94	34.186 D	26.922	119.7	1.086	0.64	D 28.0	D 9.2								504	
516	5.89	5.84	34.198 D	26.944	117.7	1.105	0.56	D 24.4	D 8.0								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 1601 — 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 51.3 N	123 34.5 W	10/01/2016	2002	UTC	4134 m	280 07 kn	280 02 08	2	1022.6 mb	18.1 C	16.2 C	32 m	8/8	SC	017

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	17.63	17.63	33.606	24.296	361.9	0.000	5.46	238.6	100.3	2.1	0.26	0.0	0.01	0.05	0.10	0.03	0	
1 A	17.63	17.63	33.606	24.296	361.9	0.004	5.46	238.6	100.3	2.1	0.26	0.0	0.01	0.05	0.10	0.03	1	23
10 ISL	17.63 D	17.62	33.635 D	24.319	360.0	0.037	5.46	D238.0	D100.2	2.1	0.25	0.1	0.01	0.16	0.11	0.04	10	
12	17.63	17.63	33.645	24.325	359.5	0.043	5.44	237.6	99.9	2.1	0.25	0.1	0.01	0.19	0.11	0.04	12	22
13	17.64	17.64	33.637	24.319	360.2	0.047											13	24
20 ISL	17.64 D	17.64	33.643 D	24.322	360.1	0.073	5.45	D237.8	D100.2	2.1	0.26	0.1	0.01	0.00	0.12	0.04	20	
24 A	17.62	17.61	33.635	24.323	360.2	0.087	5.44	237.6	99.9	2.1	0.26	0.1	0.01	0.00	0.12	0.04	24	20
30 ISL	17.59 D	17.59	33.630 D	24.325	360.2	0.109	5.46	D238.0	D100.1	2.1	0.26	0.0	0.01	0.00	0.12	0.04	30	
32 A	17.59	17.58	33.627	24.325	360.3	0.115	5.45	238.0	100.0	2.1	0.26	0.0	0.01	0.00	0.12	0.04	32	19
44	17.59	17.58	33.627	24.326	360.7	0.159	5.44	237.5	99.8	2.1	0.25	0.1	0.01	0.00	0.14	0.05	44	18
50 ISL	17.64 D	17.63	33.645 D	24.327	360.8	0.181	5.44	D237.2	D 99.9	2.1	0.25	0.1	0.01	0.00	0.15	0.06	50	
56 A	17.64	17.63	33.645	24.327	361.0	0.202	5.44	237.3	99.8	2.1	0.25	0.1	0.01	0.00	0.16	0.06	56	17
68	17.71	17.70	33.667	24.329	361.3	0.245	5.43	236.9	99.8	2.1	0.25	0.1	0.01	0.02	0.16	0.06	69	16
75 ISL	17.72 D	17.71	33.671 D	24.329	361.6	0.272	5.43	D236.7	D 99.9	2.1	0.25	0.0	0.01	0.03	0.16	0.06	76	
80	17.73	17.72	33.672	24.328	361.9	0.289	5.44	237.4	100.0	2.1	0.25	0.0	0.01	0.03	0.16	0.06	81	15
93	18.05	18.03	33.803	24.353	360.1	0.336	5.36	234.0	99.3	2.0	0.25	0.1	0.01	0.07	0.20	0.07	94	14
100 ISL	18.14 D	18.12	33.821 D	24.345	361.1	0.363	5.36	D233.5	D 99.4	2.1	0.24	0.1	0.02	0.16	0.26	0.10	101	
105 A	16.47	16.45	33.866	24.777	319.8	0.378	5.33	232.5	95.7	2.2	0.23	0.1	0.03	0.22	0.30	0.12	106	13
115 A	14.29	14.27	33.416	24.910	307.0	0.409	5.05	220.6	86.6	4.9	0.61	2.6	0.07	0.08	0.19	0.09	116	11
115	14.29	14.27	33.426	24.918	306.2	0.410											116	12
125	13.22	13.20	33.421	25.134	285.8	0.439	4.75	207.2	79.6	7.0	0.81	6.3	0.03	0.00	0.17	0.22	126	10
141	11.90	11.88	33.360	25.342	266.0	0.483	4.73	206.6	77.2	9.0	0.97	9.5	0.02	0.01	0.10	0.15	142	09
150 ISL	11.15 D	11.13	33.356 D	25.476	253.4	0.511	4.78	D208.1	D 76.7	10.3	1.06	11.0	0.02	0.00	0.08	0.12	151	
166	10.17	10.15	33.363	25.651	236.8	0.545	4.61	201.3	72.4	12.7	1.23	13.7	0.02	0.00	0.04	0.05	167	08
194	9.33	9.30	33.643	26.011	202.9	0.607	4.06	177.3	62.7	20.3	1.52	19.4	0.02	0.00	0.01	0.02	195	07
200 ISL	9.15 D	9.13	33.710 D	26.091	195.4	0.624	3.80	D165.5	D 58.5	21.5	1.56	20.0	0.02	0.00			202	
229	8.76	8.73	33.883	26.290	177.0	0.673	3.53	154.1	53.9	27.5	1.75	23.2	0.02	0.01			231	06
250 ISL	8.52 D	8.49	33.952 D	26.381	168.6	0.715	3.36	D146.3	D 51.1	32.1	1.90	25.2	0.02	0.02			252	
269	8.17	8.14	33.994	26.468	160.6	0.741	2.88	125.6	43.4	36.3	2.03	27.1	0.02	0.02			271	05
300 ISL	7.68 D	7.65	34.029 D	26.567	151.5	0.795	2.43	D105.9	D 36.3	42.9	2.23	29.8	0.02	0.02			302	
319	7.43	7.40	34.040	26.612	147.4	0.818	2.12	92.4	31.4	47.0	2.36	31.5	0.02	0.02			321	04
379	6.75	6.72	34.104	26.756	134.3	0.903	1.24	54.2	18.1	59.8	2.74	35.7	0.02	0.03			382	03
400 ISL	6.62 D	6.58	34.129 D	26.794	130.9	0.937	1.09	D 47.4	D 15.9	62.1	2.81	36.2	0.02	0.03			403	
440	6.54	6.50	34.190	26.854	125.9	0.982	0.77	33.4	11.1	66.3	2.94	37.2	0.02	0.02			444	02
500 ISL	6.24 D	6.19	34.262 D	26.951	117.3	1.062	0.44	D 19.3	D 6.4	75.1	3.10	38.9	0.02	0.05			504	
514	6.07	6.02	34.248	26.961	116.4	1.072	0.44	19.3	6.4	77.2	3.14	39.3	0.02	0.06			518	01

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

RV REUBEN LASKER — CALCOFI CRUISE 1601 — 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 17.1 W	07/01/2016	2102	UTC	23 m	330 10 kn	240 05 07	1	1011.6 mb	14.0 C	11.9 C		6/8	NS	002

DEPTH m	TEMP DEG C	POTTEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/L	OXYGEN µmol/Kg	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	PRES db	SAMP
0	16.05	16.05	32.465	23.789	410.1	0.000	5.86	256.1	103.6	8.2	1.11	1.6	0.45	2.17	1.03	0.46	0	
2	16.05	16.05	32.465	23.789	410.2	0.008	5.86	256.1	103.6	8.2	1.11	1.6	0.45	2.17	1.03	0.46	2	04
5	16.07	16.07	33.327	24.445	347.8	0.020	5.54	241.8	98.5	4.0	0.52	0.4	0.12	1.01	0.70	0.34	5	03
10	16.10	16.10	33.443	24.528	340.1	0.037	5.49	239.7	97.8	3.5	0.45	0.2	0.07	0.48	0.64	0.28	10	02
18	16.13	16.13	33.471	24.544	338.9	0.064	5.50	239.9	97.9	3.5	0.44	0.2	0.06	1.37	0.60	0.33	18	01

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

CALCOFI CRUISE 1601 STATION 76.7 60.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 43.5 N	121 32.7 W	21/01/2016	1900 UTC	12 m	1218 - 1745 PST	1217 PST	1748 PST	500.5 mg C/m2	071

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.25	33.484	24.965	5.89	101.1	4.2		1.7	0.15	0.50	1.02	0.49	77. A	22.7	22.4	22.5	0.67
9	14.17	33.484	24.982	5.89	100.9	4.2	0.55	1.7	0.16	0.12	1.29	0.61	32.	18.7	19.5	19.1	0.71
11	14.16	33.485	24.983	5.89	100.9	4.2	0.55	1.7	0.15	0.22	1.20	0.65	24.	20.2	20.2	20.2	0.16
20	14.16	33.486	24.985	5.88	100.7	4.2	0.55	1.7	0.15	0.32	1.21	0.65	7.7	11.7	11.3	11.5	0.79
30	14.16	33.485	24.986	5.86	100.4	4.2	0.55	1.8	0.16	0.23	1.02	0.62					
39	14.14	33.484	24.989	5.83	99.8	4.3	0.58	1.9	0.18	0.44	0.82	0.57	0.68	1.4	1.3	1.4	0.65
43	14.14	33.487	24.993	5.78	99.0	4.3	0.59	2.0	0.21	0.41	0.68	0.51	0.41	1.2	1.3	1.3	0.59

CALCOFI CRUISE 1601 STATION 76.7 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 23.8 N	124 19.1 W	20/01/2016	1936 UTC	35 m	1238 - 1800 PST	1228 PST	1800 PST	188.8 mg C/m2	067

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	16.23	33.073	24.214	5.64	100.5	1.9	0.25	0.0	0.02	0.00	0.10	0.03	92. A	2.0	1.8	1.9	0.40
14	16.12	33.079	24.246	5.66	100.6	2.6	0.25	0.0	0.01	0.01	0.11	0.04					
26	16.08	33.074	24.252	5.70	101.1	1.9	0.30	0.0	0.01	0.01	0.11	0.04	32.	1.9	1.8	1.9	0.39
35	15.90	33.067	24.286	5.67	100.2	1.9	0.24	0.0	0.02	0.00	0.12	0.04	22.	2.2	1.9	2.0	0.42
44	15.75	33.058	24.314	5.66	99.8	1.9	0.24	0.0	0.01	0.00	0.15	0.08					
53	15.58	33.020	24.322	5.68	99.8	1.9	0.25	0.0	0.01	0.00	0.20	0.10					
60	15.51	33.033	24.349	5.68	99.7	1.9	0.26	0.0	0.01	0.00	0.24	0.10	7.2	2.1	2.0	2.0	0.55
79	14.56	32.981	24.515	5.76	99.2	2.1	0.31	0.1	0.06	0.06	0.30	0.14					
97	14.00	33.062	24.697	5.66	96.4	2.9	0.39	1.1	0.17	0.02	0.27	0.19					
114	11.65	33.084	25.172	5.16	83.6	7.4	0.82	7.8	0.03	0.00	0.10	0.11	0.67	0.31	0.30	0.30	0.34
119	11.17	33.151	25.312	4.91	78.7	10.0	0.97	10.7	0.03	0.00	0.07	0.09					
128	10.39	33.168	25.461	4.96	78.3	11.8	1.08	12.5	0.03	0.00	0.04	0.10	0.36	1.8	0.16	0.99	0.39

CALCOFI CRUISE 1601 STATION 80.0 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 49.0 N	121 49.7 W	19/01/2016	1934 UTC	26 m	1210 - 1800 PST	1218 PST	1755 PST	181.7 mg C/m2	063

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
3	15.08	33.166	24.541	5.76	100.4	2.0	0.31	0.0	0.01	0.12	0.20	0.07	84. A	3.2	3.2	3.2	0.44
10	15.08	33.164	24.541	5.79	100.8	2.2	0.31	0.0	0.01	0.13	0.19	0.06					
19	15.07	33.165	24.545	5.82	101.3	2.1	0.30	0.0	0.01	0.15	0.20	0.06	33.	2.8	3.0	2.9	0.41
26	15.06	33.166	24.548	5.78	100.6	2.0	0.30	0.0	0.01	0.09	0.22	0.03	22.	2.8	2.7	2.8	0.51
36	14.69	33.203	24.656	5.82	100.5	2.1	0.33	0.0	0.01	0.55	0.24	0.08					
45	14.73	33.242	24.680	5.81	100.5	2.0	0.34	0.0	0.01	0.27	0.28	0.11	7.0	2.5	2.4	2.5	0.53
58	14.37	33.218	24.738	5.77	99.1	2.2	0.35	0.1	0.06	0.29	0.33	0.23					
70	14.36	33.257	24.770	5.73	98.4	2.1	0.40	0.3	0.09	0.91	0.32	0.20					
85	13.76	33.241	24.883	5.46	92.5	3.7	0.52	2.7	0.25	0.14	0.12	0.09	0.66	0.13	0.16	0.14	0.46
94	12.31	33.240	25.169	4.99	82.1	7.6	0.86	8.2	0.13	0.07	0.07	0.12	0.39	0.01	0.08	0.05	0.43

CALCOFI CRUISE 1601 STATION 83.3 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
34 13.5 N	119 24.9 W	18/01/2016	1806 UTC	07 m	1218 - 1750 PST	1208 PST	1744 PST	527.2 mg C/m2	055

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.28	33.595	24.829	5.71	100.1	2.7	0.47	0.6	0.09	0.00	2.11	0.63	64. A	44.3	43.2	43.7	0.58
5	15.28	33.596	24.830	5.69	99.7	2.8	0.46	0.7	0.09	0.02	2.00	0.66	33.	37.6	38.9	38.3	0.46
8	15.28	33.597	24.831	5.68	99.6	2.8	0.46	0.6	0.09	0.02	1.91	0.62	17.	35.3	36.6	36.0	0.19
12	15.26	33.596	24.835	5.67	99.4	2.8	0.49	0.8	0.11	0.03	1.79	0.65	7.2	17.1	15.6	16.3	0.50
23	14.79	33.584	24.927	5.43	94.3	4.6	0.62	2.4	0.20	0.18	1.00	0.47	0.64	1.4	1.1	1.3	0.36
27	14.72	33.585	24.945	5.38	93.2	5.0	0.63	2.8	0.22	0.22	0.76	0.39	0.27	0.78	0.49	0.64	0.29

CALCOFI CRUISE 1601 STATION 83.3 70.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 14.7 N	121 27.0 W	17/01/2016	1718 UTC	15 m	1222 - 1805 PST	1216 PST	1745 PST	335.6 mg C/m2	050

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.70	33.252	24.689	5.88	101.7	2.1	0.33	0.0	0.02	0.03	0.45	0.16	81. A	7.2	7.1	7.1	1.2
11	14.70	33.402	24.807	5.88	101.7	2.5	0.36	0.1	0.05	0.13	0.93	0.40	32.	13.2	14.3	13.8	0.81
15	14.69	33.424	24.824	5.85	101.2	2.5	0.36	0.2	0.06	0.06	0.85	0.42	22.	12.0	13.0	12.5	0.02
26	14.74	33.444	24.831	5.79	100.2	2.5	0.39	0.3	0.08	0.21	0.69	0.44	7.0	5.4	5.5	5.5	0.40
38	14.69	33.439	24.840	5.76	99.7	2.6	0.40	0.5	0.10	0.40	0.52	0.39					
50	14.73	33.450	24.838	5.75	99.6	2.5	0.40	0.4	0.09	0.30	0.55	0.39	0.60	0.80	0.56	0.68	0.40
55	14.73	33.449	24.838	5.77	99.9	2.6	0.42	0.4	0.10	0.25	0.47	0.33	0.36	0.25	0.20	0.22	0.32

A) INCUBATION LIGHT INTENSITIES WERE 55.8, 32.3, 21.5, 6.9, 0.66, 0.40 PERCENT RESPECTIVELY.

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 55.0 N	124 10.4 W	16/01/2016	1802 UTC	45 m	1222 - 1805 PST	1226 PST	1759 PST	201.7 mg C/m2	046

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.95	33.124	24.317	5.69	100.7	1.9	0.28	0.0	0.01	0.01	0.14	0.05	93. A	2.8	2.7	2.7	0.33
11	15.87	33.125	24.336	5.69	100.6	1.9	0.29	0.0	0.01	0.00	0.13	0.04					
18	15.82	33.145	24.363	5.69	100.5	1.9	0.28	0.0	0.01	0.00	0.14	0.04					
33	15.74	33.141	24.379	5.70	100.5	1.8	0.29	0.0	0.01	0.00	0.15	0.07	32.	2.2	2.4	2.3	0.37
45	15.62	33.137	24.404	5.68	99.9	1.9	0.29	0.0	0.01	0.00	0.21	0.09	22.	2.7	3.1	2.9	0.27
56	15.41	33.119	24.437	5.72	100.2	1.9	0.30	0.0	0.02	0.02	0.26	0.15					
67	15.08	33.103	24.497	5.67	98.7	2.0	0.33	0.1	0.08	0.05	0.25	0.15					
79	14.17	33.104	24.691	5.59	95.5	2.9	0.44	1.2	0.21	0.00	0.18	0.12	6.8	0.62	0.80	0.71	0.60
101	12.33	33.143	25.090	5.26	86.5	6.2	0.72	5.8	0.03	0.06	0.10	0.10					
124	10.11	33.280	25.597	4.79	75.2	12.7	1.21	14.0	0.02	0.00	0.04	0.06					
146	9.31	33.517	25.914	4.11	63.4	19.8	1.56	19.8	0.01	0.00	0.01	0.03	0.69	0.04	0.06	0.05	0.28
154	9.19	33.570	25.974	3.92	60.4	21.3	1.64	20.9	0.01	0.00	0.01	0.02					
162	9.09	33.677	26.073	3.53	54.3	24.3	1.78	23.1	0.01	0.00	0.00	0.02	0.40	0.00	0.01	0.01	0.22

CALCOFI CRUISE 1601 STATION 86.7 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 30.0 N	119 18.6 W	14/01/2016	1808 UTC	14 m	1205 - 1745 PST	1206 PST	1740 PST	651.2 mg C/m2	037

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	14.94	33.534	24.855	5.70	99.3	3.1	0.47	1.0	0.09	0.12	0.96	0.36	80. A	18.2	18.6	18.4	1.1
10	14.74	33.491	24.866	5.74	99.4	3.9	0.49	1.3	0.10	0.11	1.11	0.46	33.	21.9	22.4	22.2	1.4
15	14.48	33.491	24.922	5.72	98.7	4.2	0.50	1.5	0.10	0.15	1.11	0.42	19.	19.8	20.5	20.2	0.91
24	14.46	33.506	24.938	5.70	98.1	4.4	0.52	1.7	0.11	0.11	1.12	0.42	7.2	17.2	13.6	15.4	0.98
35	14.40	33.524	24.965	5.65	97.2	4.8	0.56	2.2	0.13	0.15	0.86	0.36					
47	14.32	33.536	24.993	5.43	93.3	5.2	0.63	3.1	0.20	0.23	0.40	0.30	0.58	0.57	0.73	0.65	1.3
50	14.28	33.523	24.991	5.51	94.5	5.4	0.61	3.0	0.19	0.25	0.39	0.29	0.42	0.21	0.30	0.25	0.98

CALCOFI CRUISE 1601 STATION 86.7 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 19.5 N	121 42.8 W	15/01/2016	1742 UTC	19 m	1215 - 1755 PST	1216 PST	1754 PST	247.7 mg C/m2	042

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.15	33.317	24.642	5.77	100.6	2.0	0.31	0.0	0.02	0.00	0.28	0.09	85. A	3.6	3.6	3.6	1.2
8	15.07	33.317	24.662	5.79	100.9	2.0	0.32	0.0	0.01	0.00	0.31	0.10					
14	15.00	33.320	24.680	5.79	100.7	2.0	0.32	0.0	0.01	0.00	0.34	0.11	32.	4.8	5.0	4.9	0.36
20	14.82	33.344	24.736	5.82	101.0	2.1	0.33	0.0	0.01	0.00	0.41	0.14	20.	5.6	5.4	5.5	1.1
26	14.76	33.358	24.760	5.85	101.2	2.2	0.35	0.1	0.02	0.02	0.50	0.18					
33	14.64	33.360	24.788	5.79	100.0	2.4	0.37	0.3	0.04	0.12	0.47	0.24	7.0	4.4	6.7	5.6	0.71
44	14.45	33.363	24.832	5.64	97.1	2.8	0.44	1.0	0.11	0.36	0.32	0.21					
53	14.03	33.349	24.910	5.43	92.7	4.0	0.57	2.8	0.25	0.27	0.20	0.15					
62	12.72	33.293	25.130	5.02	83.4	7.1	0.83	7.1	0.22	0.00	0.16	0.13	0.67	0.24	0.38	0.31	0.56
68	11.89	33.263	25.266	4.64	75.7	10.4	1.09	11.3	0.07	0.00	0.11	0.12	0.41	0.04	0.40	0.22	0.56

CALCOFI CRUISE 1601 STATION 90.0 30.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
33 25.3 N	117 54.1 W	13/01/2016	1715 UTC	13 m	1200 - 1740 PST	1200 PST	1733 PST	573.5 mg C/m2	029

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.93	33.607	24.692	5.60	99.4	3.0	0.41	0.2	0.05	0.04	0.97	0.43	79. A	19.1	19.5	19.3	0.80
11	15.93	33.609	24.695	5.59	99.3	3.1	0.43	0.2	0.06	0.13	1.01	0.39	27.	17.9	18.5	18.2	0.71
14	15.94	33.608	24.693	5.59	99.4	3.0	0.42	0.2	0.06	0.04	0.90	0.39	19.	26.6	18.4	22.5	0.78
24	15.93	33.606	24.695	5.58	99.0	3.1	0.41	0.2	0.06	0.03	0.92	0.42	5.9	11.9	12.2	12.1	0.95
34	15.91	33.603	24.697	5.55	98.5	3.1	0.42	0.3	0.08	0.07	0.85	0.33					
44	15.80	33.588	24.710	5.44	96.3	3.5	0.49	0.8	0.17	0.22	0.44	0.25	0.55	1.0	0.75	0.88	0.81
48	15.72	33.582	24.725	5.38	95.2	3.7	0.50	0.9	0.21	0.25	0.37	0.25	0.35	0.28	0.64	0.46	0.81

CALCOFI CRUISE 1601 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 57.8 W	12/01/2016	1750 UTC	21 m	1210 - 1740 PST	1208 PST	1739 PST	409.9 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	15.19	33.346	24.656	5.76	100.7	2.2	0.34	0.1	0.02	0.09	0.43	0.14	86. A	7.8	7.5	7.6	0.45
8	15.17	33.346	24.662	5.76	100.7	2.1	0.33	0.1	0.02	0.10	0.42	0.13					
16	15.15	33.345	24.666	5.76	100.6	2.1	0.32	0.1	0.02	0.00	0.41	0.14	31.	7.0	8.2	7.6	0.49
22	15.15	33.345	24.667	5.75	100.4	2.1	0.32	0.1	0.02	0.00	0.46	0.14	20.	7.1	8.5	7.8	0.23
38	15.09	33.343	24.677	5.77	100.6	2.2	0.35	0.1	0.02	0.00	0.51	0.17	6.2	6.1	5.7	5.9	0.61
49	15.00	33.342	24.698	5.77	100.3	2.2	0.36	0.1	0.02	0.15	0.58	0.24					
59	14.98	33.344	24.704	5.74	99.8	2.3	0.35	0.2	0.03	0.03	0.55	0.27					
69	14.90	33.367	24.741	5.69	98.8	2.7	0.41	0.6	0.08	0.15	0.42	0.25	0.64	1.0	2.9	2.0	0.44
77	14.60	33.392	24.825	5.60	96.6	3.3	0.47	1.3	0.16	0.21	0.29	0.17	0.36	0.35	0.64	0.49	0.41

A) INCUBATION LIGHT INTENSITIES WERE 55.8, 32.3, 21.5, 6.9, 0.66, 0.40 PERCENT RESPECTIVELY.

CALCOFI CRUISE 1601 STATION 90.0 100.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 4.7 N	122 39.6 W	11/01/2016	1607 UTC	32 m	1210 - 1800 PST	1211 PST	1748 PST	172.4 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	16.33	33.360	24.412	5.59	99.8	1.9	0.28	0.0	0.01	0.00	0.15	0.04	91. A	1.4	1.5	1.5	0.43
13	16.33	33.357	24.411	5.59	99.8	1.9	0.28	0.0	0.01	0.00	0.16	0.05					
24	16.33	33.360	24.414	5.59	99.9	1.9	0.28	0.0	0.01	0.00	0.15	0.05	32.	1.8	1.8	1.8	0.52
31	16.32	33.358	24.414	5.59	99.9	1.9	0.28	0.0	0.01	0.00	0.17	0.05	23.	2.5	3.1	2.8	0.39
45	16.16	33.345	24.443	5.59	99.6	1.9	0.29	0.0	0.01	0.00	0.25	0.09					
57	15.98	33.325	24.469	5.62	99.7	1.9	0.29	0.0	0.03	0.00	0.27	0.11	6.5	2.1	2.0	2.0	0.97
74	15.67	33.304	24.523	5.61	99.0	1.9	0.31	0.0	0.02	0.05	0.23	0.09					
85	15.62	33.302	24.533	5.64	99.4	1.9	0.31	0.0	0.02	0.05	0.22	0.09					
103	14.85	33.295	24.697	5.61	97.3	2.0	0.33	0.1	0.05	0.07	0.13	0.06	0.71	0.30	0.23	0.26	0.39
115	13.33	33.189	24.932	5.33	89.5	5.1	0.62	3.9	0.11	0.00	0.09	0.08	0.40	0.13	0.35	0.24	0.39

CALCOFI CRUISE 1601 STATION 93.3 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 57.2 N	117 18.4 W	07/01/2016	1818 UTC	13 m	1155 - 1740 PST	1155 PST	1725 PST	326.7 mg C/m2	001

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	16.25	33.515	24.551	5.48	97.9	3.4	0.42	0.2	0.05	0.56	0.60	0.20	79. A	14.5	13.7	14.1	0.42
10	16.25	33.515	24.550	5.48	97.8	3.4	0.44	0.2	0.06	0.35	0.55	0.25	31.	12.3	12.1	12.2	0.37
14	16.25	33.521	24.554	5.47	97.8	3.4	0.41	0.2	0.05	0.40	0.56	0.22	19.	11.8	11.7	11.7	0.07
23	16.25	33.526	24.560	5.46	97.5	3.4	0.44	0.2	0.06	0.32	0.53	0.24	6.6	6.1	5.5	5.8	0.56
33	16.26	33.545	24.574	5.43	97.0	3.6	0.45	0.3	0.07	0.33	0.47	0.22					
43	16.25	33.549	24.580	5.44	97.1	3.6	0.44	0.3	0.07	0.42	0.43	0.24	0.62	0.72	0.49	0.60	0.42
49	16.22	33.543	24.581	5.43	96.8	3.7	0.44	0.3	0.07	0.47	0.50	0.25	0.31	0.33	0.34	0.34	0.28

CALCOFI CRUISE 1601 STATION 93.3 45.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
32 21.0 N	118 33.0 W	08/01/2016	1933 UTC	12 m	1245 - 1735 PST	1201 PST	1734 PST	347.4 mg C/m2	008

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	16.63	33.672	24.582	5.47	98.6	3.2	0.38	0.1	0.08	0.04	0.60	0.31	77. A	12.5	12.2	12.4	1.4
9	16.63	33.665	24.578	5.47	98.5	3.2	0.38	0.1	0.08	0.04	0.61	0.32	32.	12.3	12.8	12.6	0.88
13	16.63	33.665	24.578	5.50	99.0	3.2	0.37	0.1	0.08	0.04	0.59	0.31	19.	11.5	15.7	13.6	1.3
21	16.64	33.665	24.577	5.48	98.6	3.2	0.39	0.1	0.08	0.05	0.64	0.29	6.8	8.4	9.3	8.8	1.0
30	16.63	33.666	24.580	5.47	98.5	3.3	0.39	0.1	0.09	0.06	0.60	0.29					
40	16.61	33.665	24.585	5.46	98.4	3.2	0.39	0.1	0.08	0.05	0.65	0.37	0.60	0.91	0.76	0.84	1.5
42	16.61	33.663	24.584	5.46	98.3	3.2	0.39	0.1	0.08	0.05	0.61	0.31	0.46	0.47	0.35	0.41	0.82

CALCOFI CRUISE 1601 STATION 93.3 80.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
31 11.1 N	120 54.5 W	09/01/2016	1938 UTC	35 m	1240 - 1755 PST	1211 PST	1748 PST	185.6 mg C/m2	013

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	16.77	33.416	24.354	5.54	100.0	2.0	0.39	0.1	0.02	3.14	0.17	0.05	92. A	0.53	2.7	1.6	0.28
14	16.68	33.413	24.374	5.54	99.7	1.9	0.29	0.0	0.02	0.06	0.17	0.05					
25	16.67	33.412	24.376	5.56	100.1	2.0	0.29	0.0	0.02	0.22	0.18	0.05	33.	2.3	2.4	2.4	0.36
35	16.67	33.412	24.377	5.54	99.7	1.9	0.28	0.0	0.02	0.03	0.17	0.05	22.	2.6	2.8	2.7	0.06
44	16.65	33.412	24.382	5.53	99.5	1.9	0.29	0.0	0.02	0.05	0.20	0.06					
53	16.59	33.400	24.388	5.56	99.8	2.0	0.30	0.0	0.02	0.18	0.21	0.06					
60	16.49	33.392	24.404	5.56	99.7	2.0	0.28	0.0	0.02	0.00	0.19	0.06	7.2	1.7	1.6	1.6	0.45
80	16.10	33.348	24.462	5.61	99.7	2.1	0.29	0.0	0.02	0.00	0.26	0.08					
97	15.71	33.319	24.528	5.60	98.8	2.0	0.31	0.1	0.04	0.05	0.19	0.07					
114	14.23	33.267	24.808	5.48	93.8	3.3	0.45	1.5	0.18	0.03	0.13	0.09	0.67	0.25	0.41	0.33	0.30
119	13.64	33.232	24.902	5.40	91.3	4.0	0.52	2.5	0.17	0.00	0.12	0.09					
125	13.14	33.195	24.975	5.32	89.0	5.1	0.63	4.1	0.10	0.04	0.11	0.09	0.42	0.27	0.28	0.28	0.17

CALCOFI CRUISE 1601 STATION 93.3 120.0

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE	ORD
29 51.3 N	123 34.5 W	10/01/2016	2002 UTC	32 m	1300 - 1810 PST	1222 PST	1759 PST	142.0 mg C/m2	017

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/L	OXY PCT	SIO3* µM	PO4* µM	NO3* µM	NO2* µM	NH4* µM	CHL-A µg/L	PHAEO µg/L	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	17.63	33.606	24.296	5.46	100.3	2.1	0.26	0.0	0.01	0.05	0.10	0.03	95. A	1.5	1.5	1.5	0.35
12	17.63	33.645	24.325	5.44	99.9	2.1	0.25	0.1	0.01	0.19	0.11	0.04					
24	17.62	33.635	24.323	5.44	99.9	2.1	0.26	0.1	0.01	0.00	0.12	0.04	32.	1.4	1.5	1.4	0.48
32	17.59	33.627	24.325	5.45	100.0	2.1	0.26	0.0	0.01	0.00	0.12	0.04	22.	1.8	1.8	1.8	0.23
44	17.59	33.627	24.326	5.44	99.8	2.1	0.25	0.1	0.01	0.00	0.14	0.05					
56	17.64	33.645	24.327	5.44	99.8	2.1	0.25	0.1	0.01	0.00	0.16	0.06	6.8	1.7	1.9	1.8	0.46
68	17.71	33.667	24.329	5.43	99.8	2.1	0.25	0.1	0.01	0.02	0.16	0.06					
80	17.73	33.672	24.328	5.44	100.0	2.1	0.25	0.0	0.01	0.03	0.16	0.06					
93	18.05	33.803	24.353	5.36	99.3	2.0	0.25	0.1	0.01	0.07	0.20	0.07					
105	16.47	33.866	24.777	5.33	95.7	2.2	0.23	0.1	0.03	0.22	0.30	0.12	0.65	0.25	0.15	0.20	0.52
115	14.29	33.416	24.910	5.05	86.6	4.9	0.61	2.6	0.07	0.08	0.19	0.09	0.40	0.07	0.06	0.07	0.52

A) INCUBATION LIGHT INTENSITIES WERE 55.8, 32.3, 21.5, 6.9, 0.66, 0.40 PERCENT RESPECTIVELY.

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505mm

Line	Sta.	Latitude N	Longitude W	Date Mo/Day	Time (PST) Start	Time (PST) End	Water Volume Strained (m^3)	Max. Tow Depth (m)	Volume per 1000 m^3 Strained Total (cm^3)	Volume per 1000 m^3 Strained Small (cm^3)
60.0	53.0	35 05.3	120 46.6	01/27	0406	0413	161	56	118	118
60.0	60.0	35 05.3	120 46.6	01/27	0811	0832	445	210	31	31
60.0	70.0	35 05.3	120 46.6	01/27	1326	1348	452	218	62	31
60.0	80.0	35 05.3	120 46.6	01/27	1832	1854	482	206	897	48
60.0	90.0	35 05.3	120 46.6	01/27	2344	0005	459	199	408	76
63.3	52.0	35 05.3	120 46.6	01/26	2252	2300	185	68	81	81
63.3	55.0	35 05.3	120 46.6	01/26	2016	2038	524	211	147	36
63.3	60.0	35 05.3	120 46.6	01/26	1650	1712	486	210	43	27
63.3	70.0	35 05.3	120 46.6	01/26	1123	1145	459	215	131	44
63.3	80.0	35 05.3	120 46.6	01/26	0554	0615	450	202	105	89
63.3	90.0	35 05.3	120 46.6	01/26	0037	0058	425	219	273	73
66.7	50.0	35 05.3	120 46.6	01/24	2036	2057	490	214	102	57
66.7	55.0	35 05.3	120 46.6	01/25	0001	0022	445	216	63	47
66.7	60.0	35 05.3	120 46.6	01/25	0333	0354	433	204	196	58
66.7	70.0	35 05.3	120 46.6	01/25	0849	0910	434	208	65	44
66.7	80.0	35 05.3	120 46.6	01/25	1410	1432	426	214	47	47
66.7	90.0	35 05.3	120 46.6	01/25	1918	1940	466	212	191	41
70.0	51.0	35 05.3	120 46.6	01/24	1026	1047	510	197	24	24
70.0	55.0	35 05.3	120 46.6	01/24	0657	0718	543	198	37	28
70.0	60.0	35 05.3	120 46.6	01/24	0304	0326	447	225	130	67
70.0	70.0	35 05.3	120 46.6	01/23	2108	2130	503	214	201	62
70.0	80.0	35 05.3	120 46.6	01/23	1509	1531	518	207	199	83
70.0	90.0	35 05.3	120 46.6	01/23	0916	0937	500	213	14	14
73.3	50.0	35 05.3	120 46.6	01/22	0231	0234	68	30	103	103
73.3	55.0	35 05.3	120 46.6	01/22	0549	0610	480	205	100	81
73.3	60.0	35 05.3	120 46.6	01/22	0955	1016	528	191	375	129
73.3	70.0	35 05.3	120 46.6	01/22	1619	1641	511	208	23	23
73.3	80.0	35 05.3	120 46.6	01/22	2207	2228	484	206	268	256
73.3	90.0	35 05.3	120 46.6	01/23	0337	0359	535	186	52	52
76.7	49.0	35 05.3	120 46.6	01/21	2113	2118	116	38	155	155
76.7	51.0	35 05.3	120 46.6	01/21	1909	1929	410	194	110	110
76.7	55.0	35 05.3	120 46.6	01/21	1547	1608	473	212	40	32
76.7	60.0	35 05.3	120 46.6	01/21	1210	1231	511	210	43	33
76.7	70.0	35 05.3	120 46.6	01/21	0555	0616	502	209	219	96
76.7	80.0	35 05.3	120 46.6	01/21	0001	0022	485	214	443	186
76.7	90.0	35 05.3	120 46.6	01/20	1827	1848	502	210	173	149
76.7	100.0	35 05.3	120 46.6	01/20	1240	1302	422	216	26	26
80.0	50.5	35 05.3	120 46.6	01/18	2114	2116	64	13	16	16
80.0	51.0	35 05.3	120 46.6	01/18	2242	2250	204	61	59	59
80.0	55.0	35 05.3	120 46.6	01/19	0207	0229	475	223	114	101
80.0	60.0	35 05.3	120 46.6	01/19	0611	0633	513	203	150	64
80.0	70.0	35 05.3	120 46.6	01/19	1259	1321	507	209	209	53
80.0	80.0	35 05.3	120 46.6	01/19	1919	1941	486	208	183	115
80.0	90.0	35 05.3	120 46.6	01/20	0105	0126	489	214	86	74
80.0	100.0	35 05.3	120 46.6	01/20	0637	0658	522	204	56	36
81.7	43.5	35 05.3	120 46.6	01/18	1414	1416	45	15	22	22
81.8	46.9	35 05.3	120 46.6	01/18	1738	1800	471	208	183	30
83.3	39.4	35 05.3	120 46.6	01/18	1043	1045	57	13	53	53
83.3	40.6	35 05.3	120 46.6	01/18	0935	0938	88	30	79	79
83.3	42.0	35 05.3	120 46.6	01/18	0751	0804	296	127	41	20
83.3	51.0	35 05.3	120 46.6	01/18	0129	0139	239	104	159	138
83.3	55.0	35 05.3	120 46.6	01/17	2154	2216	477	211	96	42
83.3	60.0	35 05.3	120 46.6	01/17	1713	1735	569	204	88	76
83.3	70.0	35 05.3	120 46.6	01/17	1043	1105	492	210	63	63
83.3	80.0	35 05.3	120 46.6	01/17	0402	0424	505	205	93	93
83.3	90.0	35 05.3	120 46.6	01/16	2154	2216	512	210	47	47
83.3	100.0	35 05.3	120 46.6	01/16	1557	1620	479	209	192	192
83.3	110.0	35 05.3	120 46.6	01/16	0902	0924	488	207	72	72
85.4	35.8	35 05.3	120 46.6	01/29	0908	0910	53	12	38	38
86.7	33.0	35 05.3	120 46.6	01/14	0021	0025	94	37	128	128
86.7	35.0	35 05.3	120 46.6	01/14	0301	0322	474	212	86	36
86.7	40.0	35 05.3	120 46.6	01/14	0717	0738	500	210	136	120
86.7	45.0	35 05.3	120 46.6	01/14	1114	1135	498	219	64	64
86.7	50.0	35 05.3	120 46.6	01/14	1444	1451	184	55	92	92
86.7	55.0	35 05.3	120 46.6	01/14	1833	1855	431	210	56	56
86.7	60.0	35 05.3	120 46.6	01/14	2234	2255	500	217	8	8
86.7	70.0	35 05.3	120 46.6	01/15	0445	0506	499	210	76	50
86.7	80.0	35 05.3	120 46.6	01/15	1040	1101	523	214	199	65
86.7	90.0	35 05.3	120 46.6	01/15	1626	1647	432	220	28	23
86.7	100.0	35 05.3	120 46.6	01/15	2210	2231	495	205	75	75
86.7	110.0	35 05.3	120 46.6	01/16	0355	0416	508	205	156	156
86.8	32.5	35 05.3	120 46.6	01/13	2301	2304	88	28	102	102
88.5	30.1	35 05.3	120 46.6	01/13	1914	1917	71	20	42	42
90.0	27.7	35 05.3	120 46.6	01/13	1611	1613	65	20	62	62
90.0	28.0	35 05.3	120 46.6	01/13	1451	1504	296	124	17	17
90.0	30.0	35 05.3	120 46.6	01/13	1026	1047	483	214	60	14
90.0	35.0	35 05.3	120 46.6	01/13	0605	0626	470	206	49	28
90.0	37.0	35 05.3	120 46.6	01/13	0303	0324	450	214	80	49
90.0	45.0	35 05.3	120 46.6	01/12	2139	2200	487	209	74	64
90.0	53.0	35 05.3	120 46.6	01/12	1615	1637	525	202	25	21
90.0	60.0	35 05.3	120 46.6	01/12	1113	1134	402	212	37	37
90.0	70.0	35 05.3	120 46.6	01/12	0406	0427	482	205	77	52
90.0	80.0	35 05.3	120 46.6	01/11	2135	2156	525	198	151	86
90.0	90.0	35 05.3	120 46.6	01/11	1458	1519	485	210	87	66
90.0	100.0	35 05.3	120 46.6	01/11	0658	0719	468	202	41	34
90.0	110.0	35 05.3	120 46.6	01/11	0150	0211	438	216	48	48
90.0	120.0	35 05.3	120 46.6	01/10	1931	1952	510	212	61	61
91.7	26.4	35 05.3	120 46.6	01/07	1601	1603	49	16	20	20
93.3	26.7	35 05.3	120 46.6	01/07	1147	1207	593	204	719	42
93.3	28.0	35 05.3	120 46.6	01/07	2014	2036	625	201	202	26
93.3	30.0	35 05.3	120 46.6	01/07	2313	2335	532	228	197	24
93.3	35.0	35 05.3	120 46.6	01/08	0351	0412	525	208	74	46
93.3	40.0	35 05.3	120 46.6	01/08	0834	0856	519	216	15	15
93.3	45.0	35 05.3	120 46.6	01/08	1255	1316	654	198	53	9
93.3	50.0	35 05.3	120 46.6	01/08	1657	1719	527	206	34	17
93.3	55.0	35 05.3	120 46.6	01/08	2045	2106	511	209	43	43
93.3	60.0	35 05.3	120 46.6	01/09	0042	0103	518	210	44	44
93.3	70.0	35 05.3	120 46.6	01/09	0643	0704	495	211	77	48
93.3	80.0	35 05.3	120 46.6	01/09	1238	1300	436	215	14	14
93.3	90.0	35 05.3	120 46.6	01/09	1854	1916	476	208	53	34
93.3	100.0	35 05.3	120 46.6	01/10	0051	0112	459	213	48	24
93.3	110.0	35 05.3	120 46.6	01/10	0000	0000	495	204	51	51
93.3	120.0	35 05.3	120 46.6	01/10	0001	0001	484	216	17	17
93.4	26.4	35 05.3	120 46.6	01/07	0001	0001	71	14	28	28