UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

CalCOFI Cruise 0407
12 – 28 July 2004

CC Reference 07-01
21 August 2007

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093-0227

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI Cruise 0407
12 March – 28 July 2004

CC Reference 07-03
21 August 2007

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INTRODUCTION

The data presented in this report were collected during the 0407* cruise of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the NOAA ship RV *David Starr Jordan*. 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 Game, and the Integrative Oceanography Division (IOD) at Scripps Institution of Oceanography (SIO). IOD contributes to this program by investigations of the physical, chemical and biological structure of the California Current. Data from the cruises were collected and processed by personnel of the Integrative Oceanography Division and the Southwest Fisheries Science Center. Other SIO staff members and volunteers also assisted in the collection of data and chemical analyses at sea. 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 1049) with a rosette was deployed at each station on these cruises. The rosette was equipped with 24 ten-liter plastic (PVC) bottles equipped with epoxy-coated springs and Viton O-rings. Each CTD/rosette cast usually sampled 20 depths to a maximum sampling depth of 525 meters, bottom depth permitting. Occasional stations have multiple bottles tripped at the same depth to provide more water for ancillary programs. The sample spacing was designed to sample depth intervals as close as 10 meters around the sharp upper thermocline features such as the chlorophyll, oxygen, nitrite maxima and the shallow salinity minimum. Salinity, oxygen and nutrients were determined at sea for all depths sampled. Chlorophyll-*a* and phaeopigments were determined at sea on samples from the top 200 meters, bottom depth permitting.

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

Salinity samples were collected from all rosette bottles and analyzed at sea using a Guildline model 8410 Portasal salinometer. Salinity samples were drawn into 200 ml Kimax high-alumina borosilicate bottles that were rinsed three times with sample prior to filling. The results were compared with the CTD salinity to verify that the rosette bottle did not mis-trip or leak. The salinometer was standardized before and after each group of samples with standardized seawater. Periodic checks on the conductivity of the standardized seawater were made by comparison with IAPSO Standard Seawater batch P144. 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.

Nutrient samples were analyzed at sea by the Scripps Ocean Data Facility for dissolved silicate, phosphate, nitrate, nitrite, and ammonium using procedures similar to those described in Gordon et al. (1993) and Koroleff (1969, 1970). Samples were collected in 45 ml high-density polypropylene screw-capped tubes which were rinsed

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

three times prior to filling. Standardizations were done at the beginning and end of each group of samples with a set of mid-concentration range standards prepared fresh for each run. Samples not analyzed immediately after collection were refrigerated and run the following day. Sets of six different concentration standards were analyzed periodically to determine the deviation from linearity as a function of concentration, for the silicate, nitrate and phosphate analyses. Final sample concentrations were corrected for deviations from linearity using a second order polynomial.

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 15.01 µCi of ^{14}C as $NaHCO_3$ (200 µl of 75 µCi/ml stock) 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). An Optical Plankton Counter (OPC, Dave Checkley, SIO) was routinely used in one side of the paired bongo net frame. The purpose of the OPC is to obtain information on the vertical distributions of size categories of zooplankton, using data from the counter, without affecting the ongoing time series of data obtained from the catches of the integrative bongo net.

Avifauna Observations (Point Reys Bird Observatory)

Sea birds were counted within a 300-meter wide strip off to one side of the ship. Counts were made while underway between stations during periods of daylight. These counts were summed over 20 nautical mile (nm) intervals, or the distance between consecutive stations, whichever was less. Included at the end of this report are individual maps of the most numerous bird species (individuals/nm).

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 and salinity were recorded from seawater pumped through the ship's uncontaminated seawater system. Water was drawn from a depth of approximately 3 meters. The data were logged in one-minute averages using a Sea-Bird Electronics, Inc., SBE 21 TSG Thermosalinograph.

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

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

4) *SCCOOS Nearshore and Bio-optical Observations*: The objective of these observations is to extend CalCOFI time series to the nearshore and make bio-optical observations for the development of empirical proxies for particle size load and structure and phytoplankton biomass and rates of primary production. The nearshore observations consist of 9 stations at the ends and interspersed with current CalCOFI lines on the 20 m isobath with a standard set of CalCOFI observations. Bio-optical measurements at all CalCOFI and SCCOOS stations consist of irradiance at 9 wavelengths, light transmission at three wavelengths, fluorescence of Chl a, CDOM and phycoerythrin and light scattering at three wavelengths.

5) *Organic carbon.* At each station several samples were drawn from the CTD for total organic carbon concentration profiles. Casts of 24 ten liter bottles to 1000 meters were filtered for stable isotope measurements of organic carbon. Several solid phase extracts from filtered seawater were taken for chemical and isotope analyses of dissolved organic carbon (L. Aluwihare, SIO)

6) Marine mammal observations. During daylight transits, visual line-transect surveys were conducted by marine mammal observers focusing on cetaceans. Surveys were conduted using handheld 10x binoculars, while mounted 125x "Big Eyes" binoculars are used to confirm species identity of groups. 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.

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). Precision of the higher production values may not warrant all of the digits presented. Incubation time, LAN, and civil twilight are given in local Pacific Standard Time (PST); to convert to UTC, add eight hours to the PST time. Incubation light intensities are listed in a footnote at the bottom of each page.

Macrozooplankton Data

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

FOOTNOTES

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

D: CTD salinity value listed in place of normal shipboard salinity analysis.
ISL: After a depth value indicates that this is an interpolated or extrapolated standard level.
U: Uncertain value. Values which are not used in interpolation because they seem to be in error without apparent reason.

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FIGURES

Cruise 0407

1. CalCOFI Cruise 0407 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.

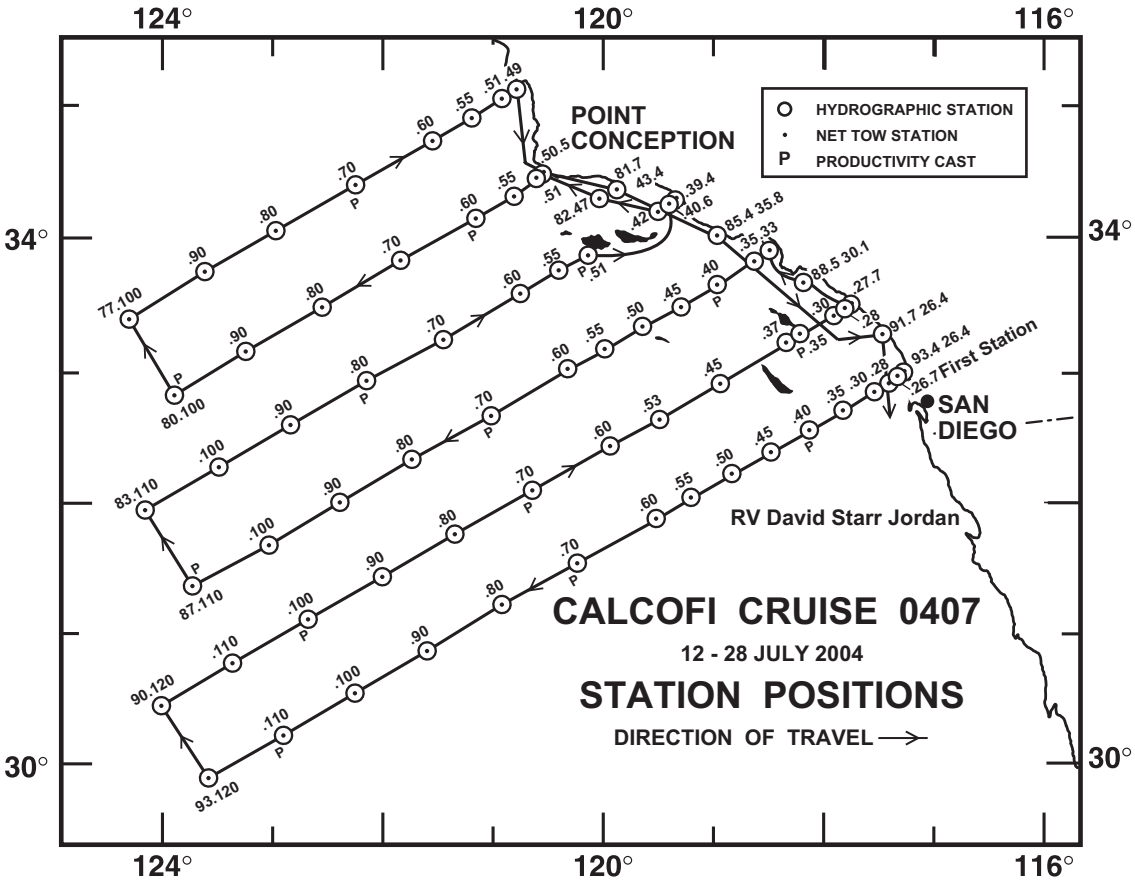


FIGURE 1

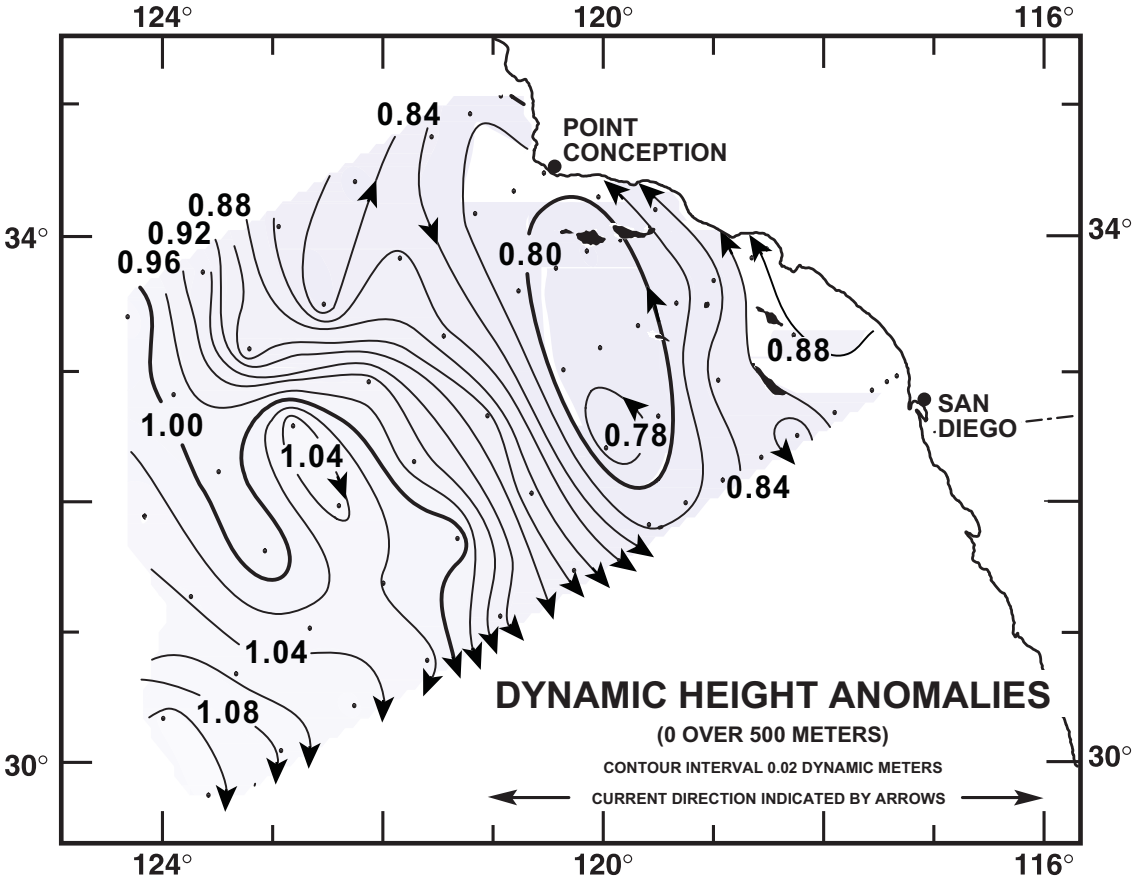


FIGURE 2

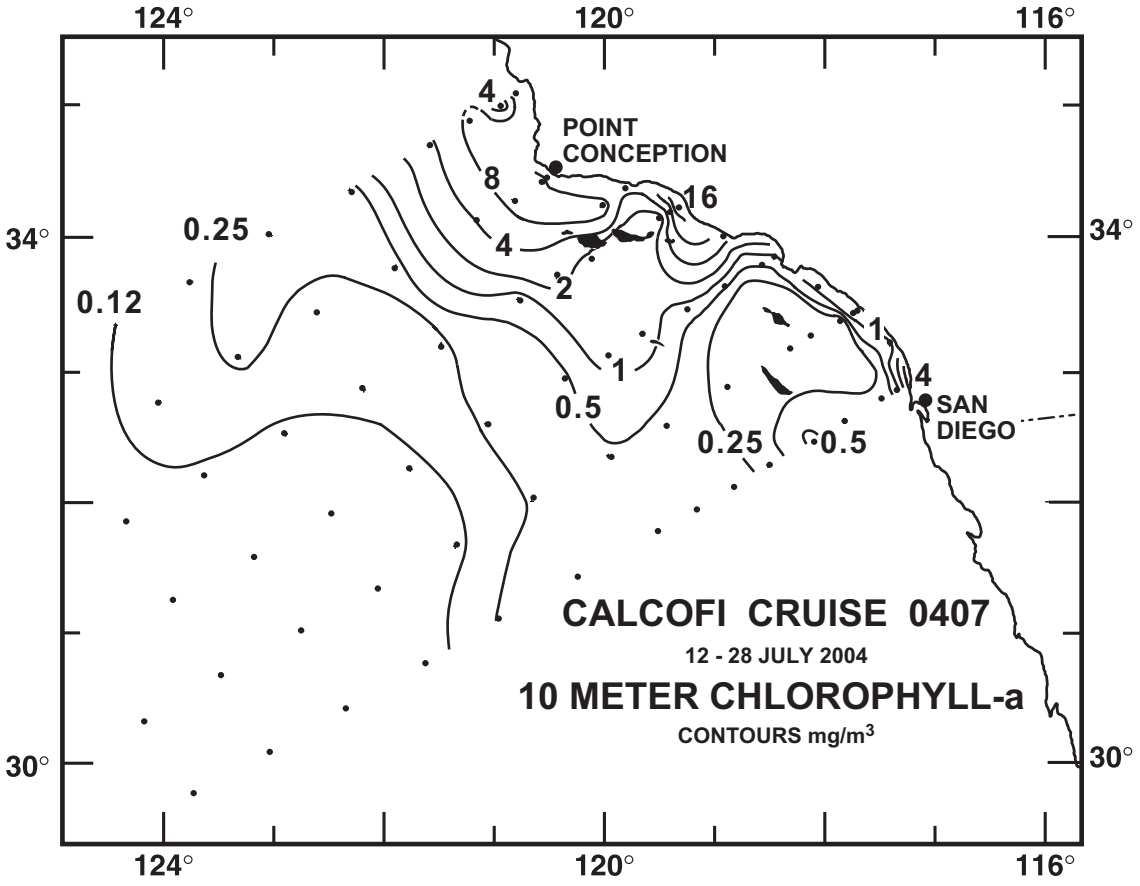


FIGURE 3A

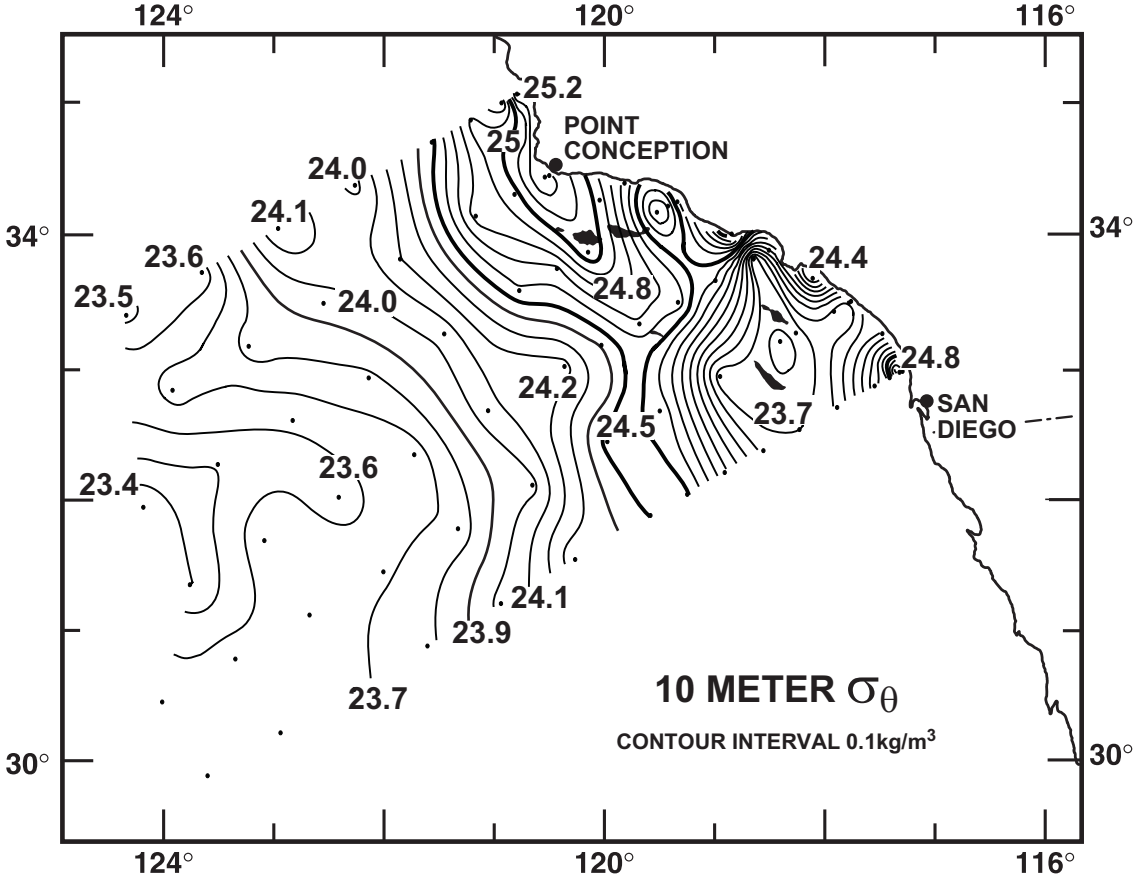


FIGURE 3B

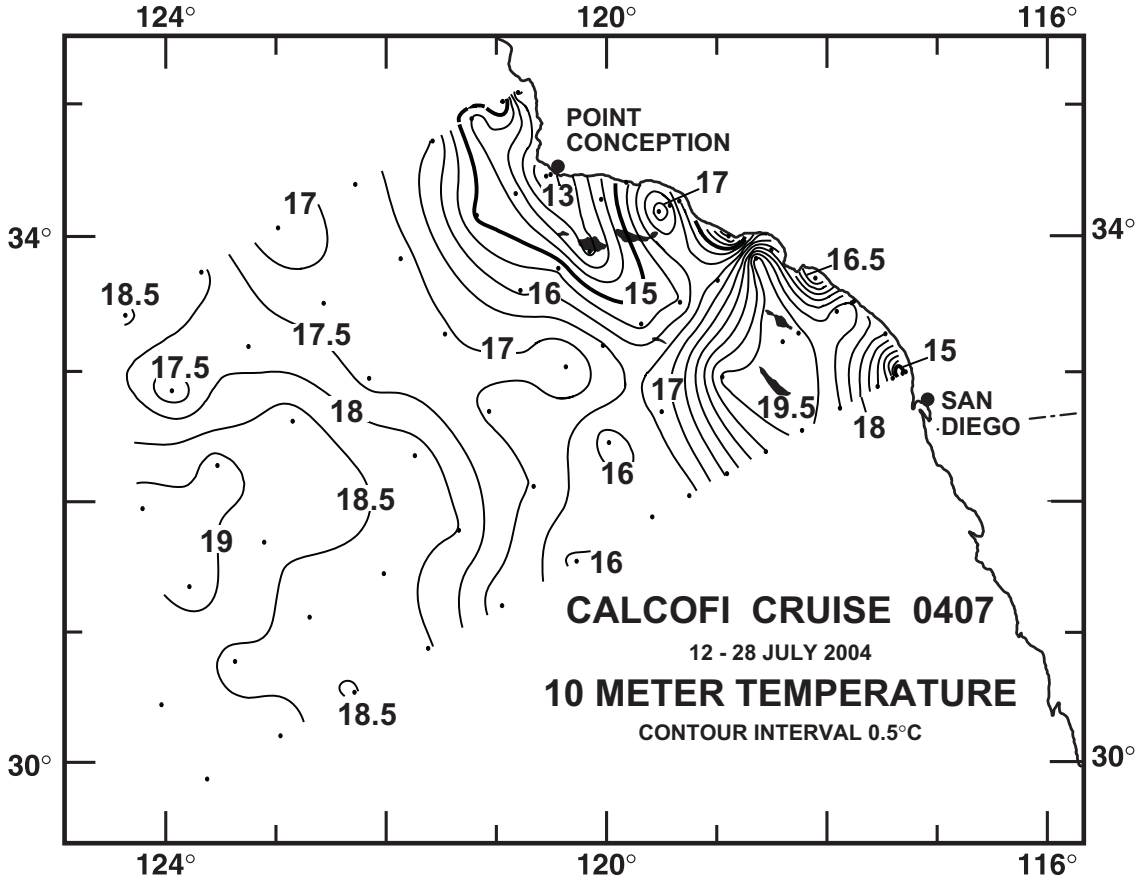


FIGURE 3C

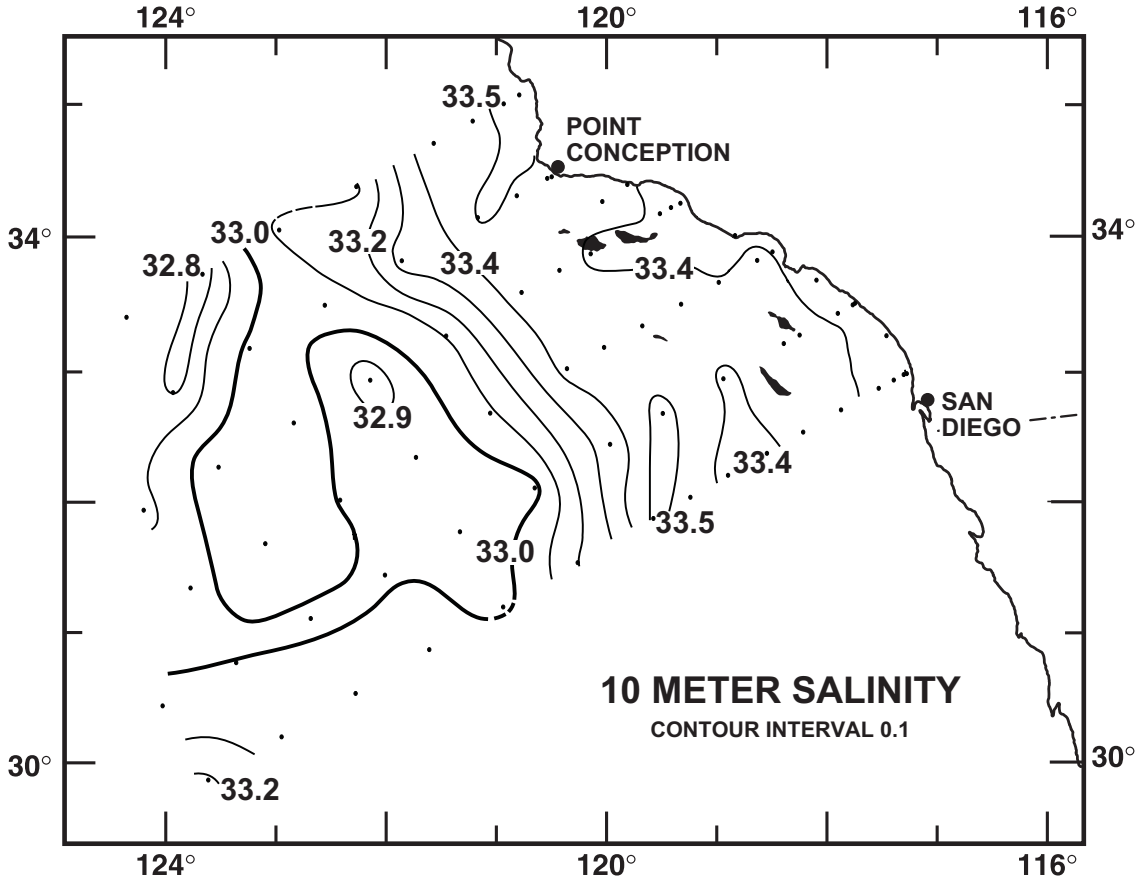


FIGURE 3D

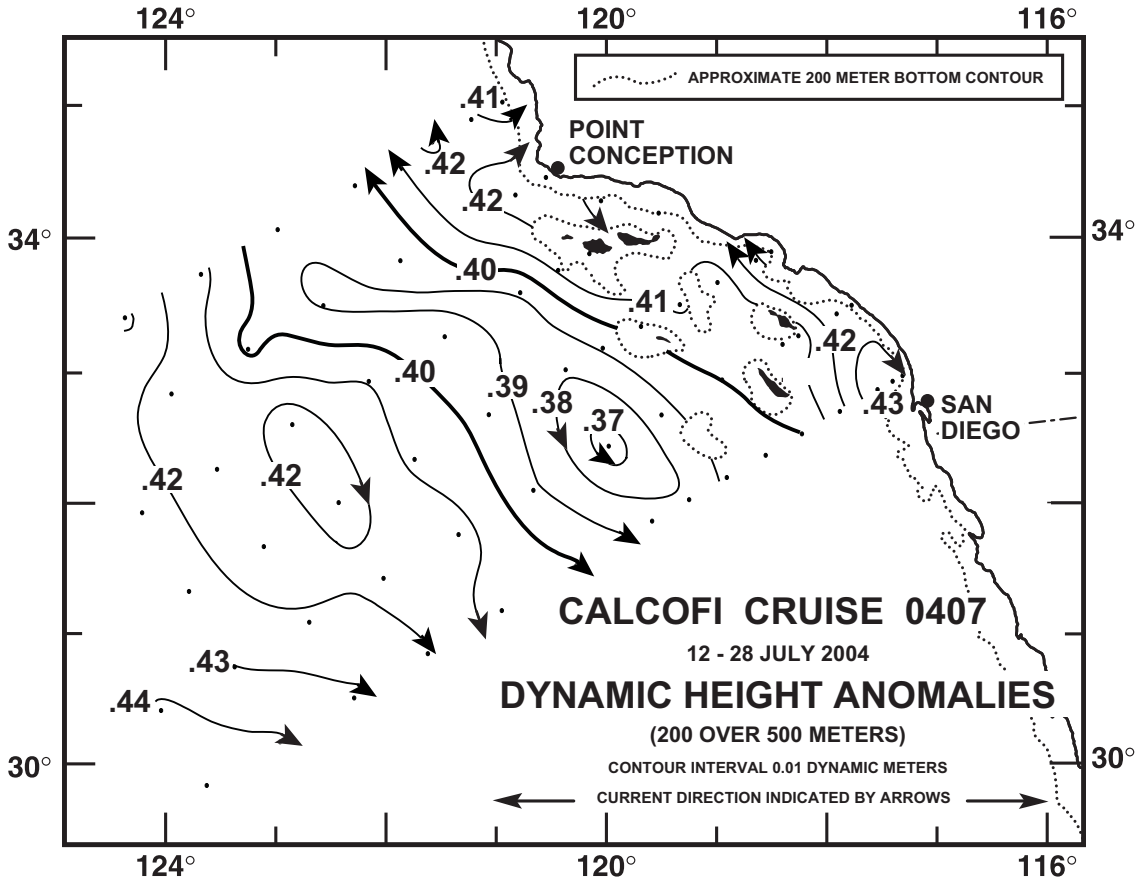


FIGURE 4A

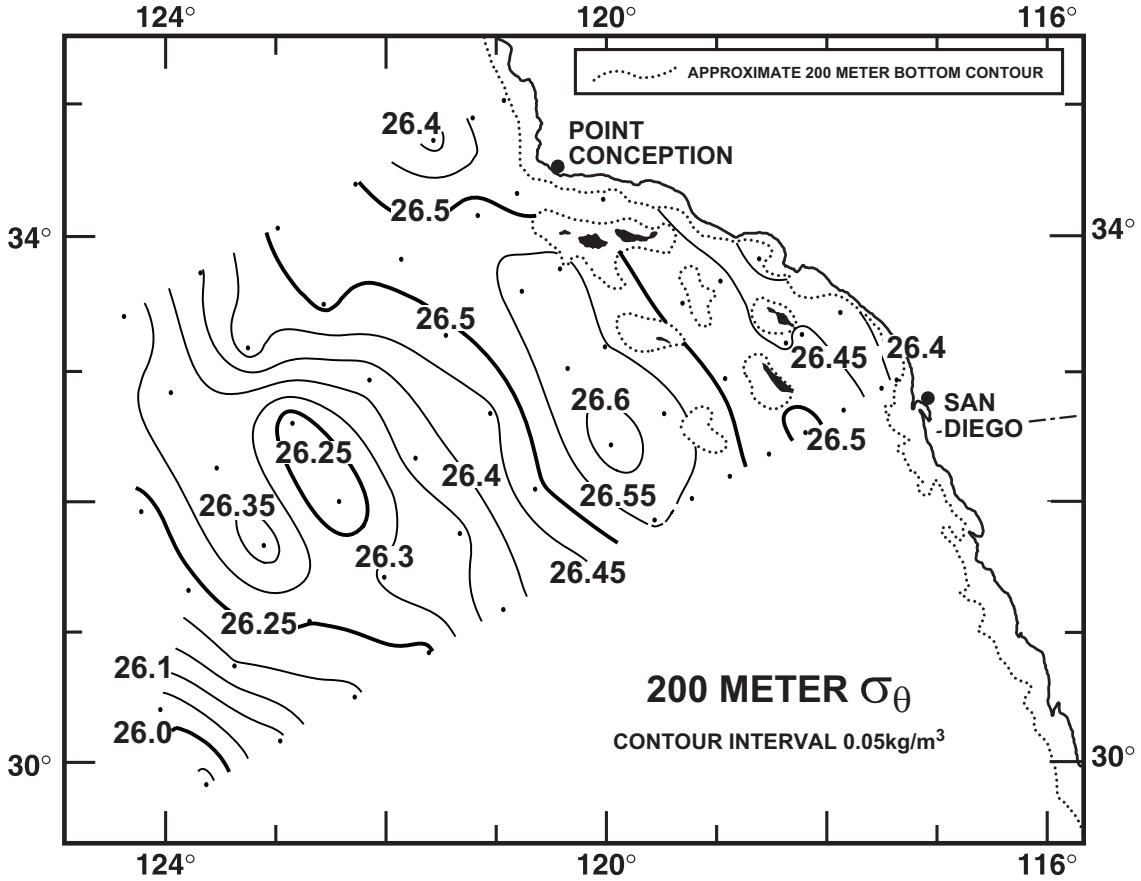


FIGURE 4B

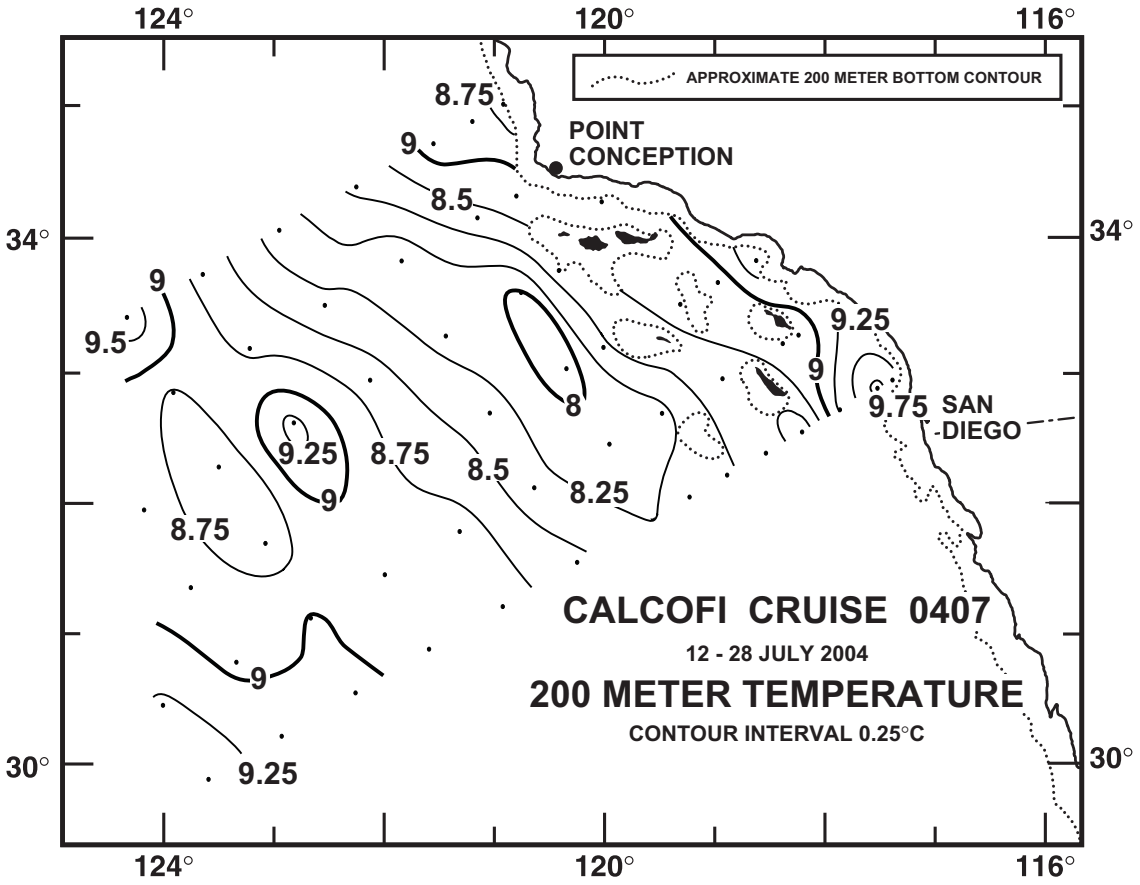


FIGURE 4C

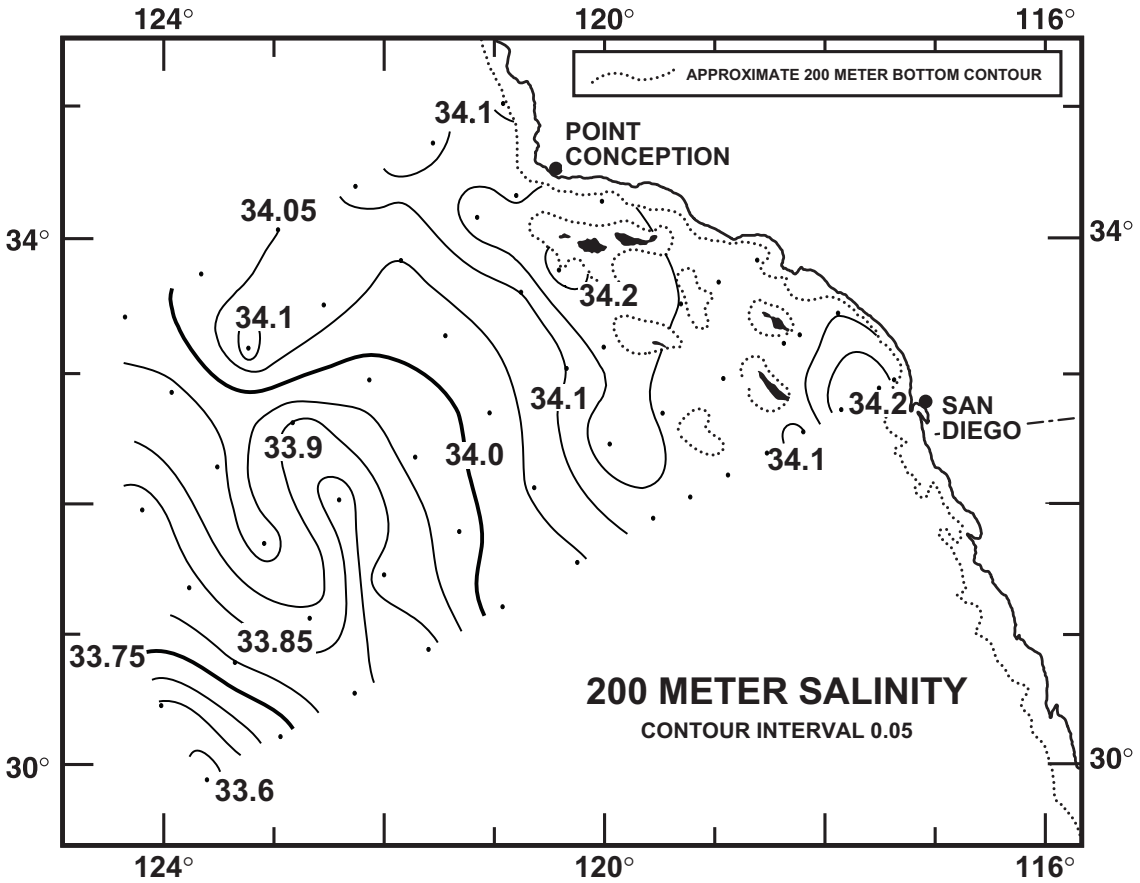


FIGURE 4D

CALCOFI CRUISE 0407

15 - 18 JULY 2004

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

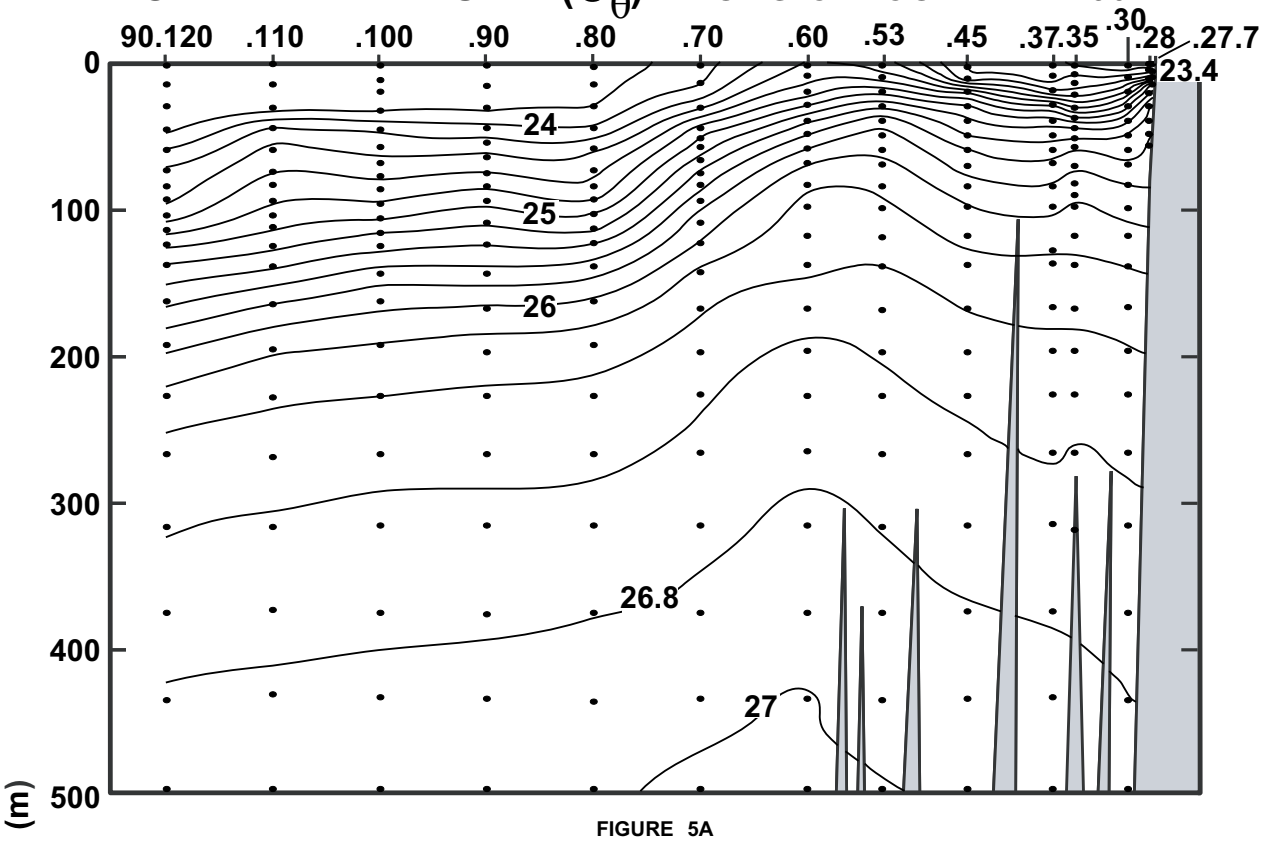


FIGURE 5A

TEMPERATURE (°C) ALONG CALCOFI LINE 90

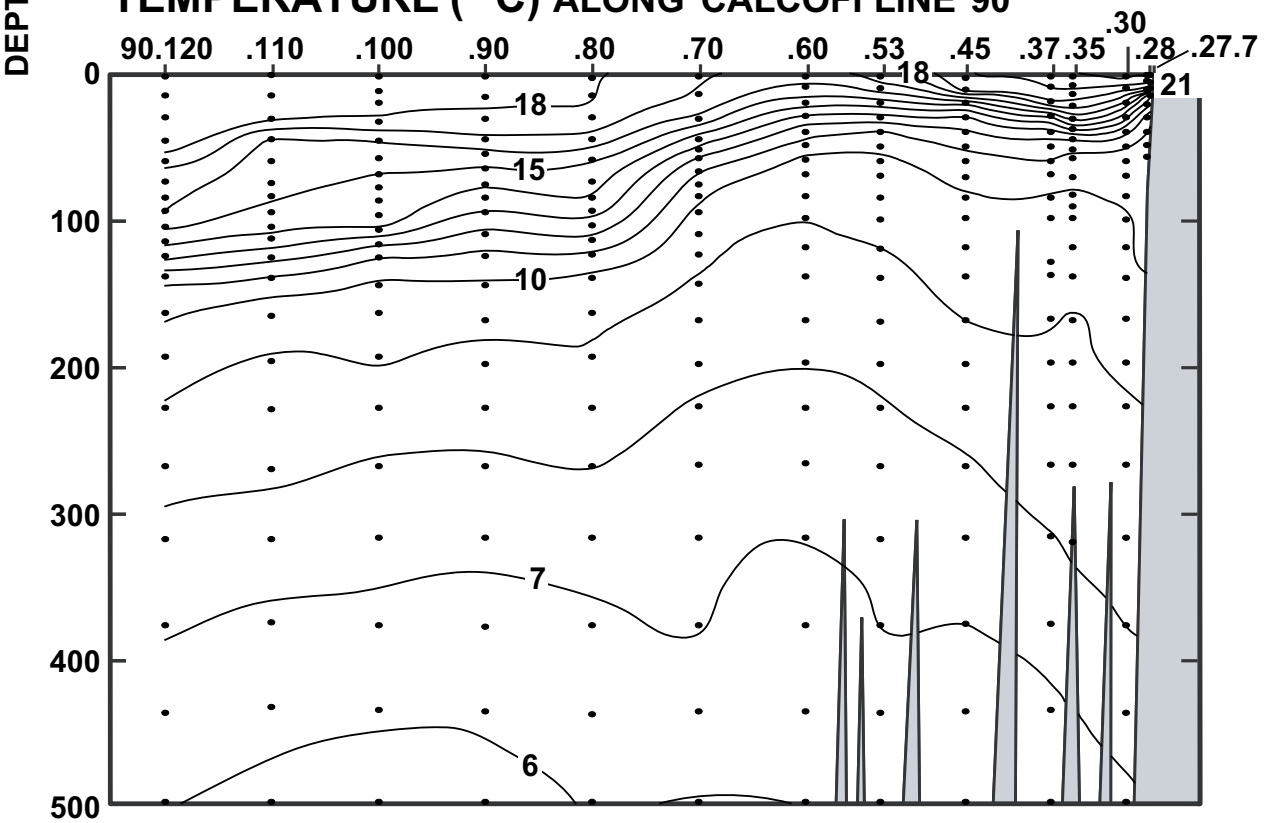


FIGURE 5B

CALCOFI CRUISE 0407

15 -18 July 2004

SALINITY ALONG CALCOFI LINE 90

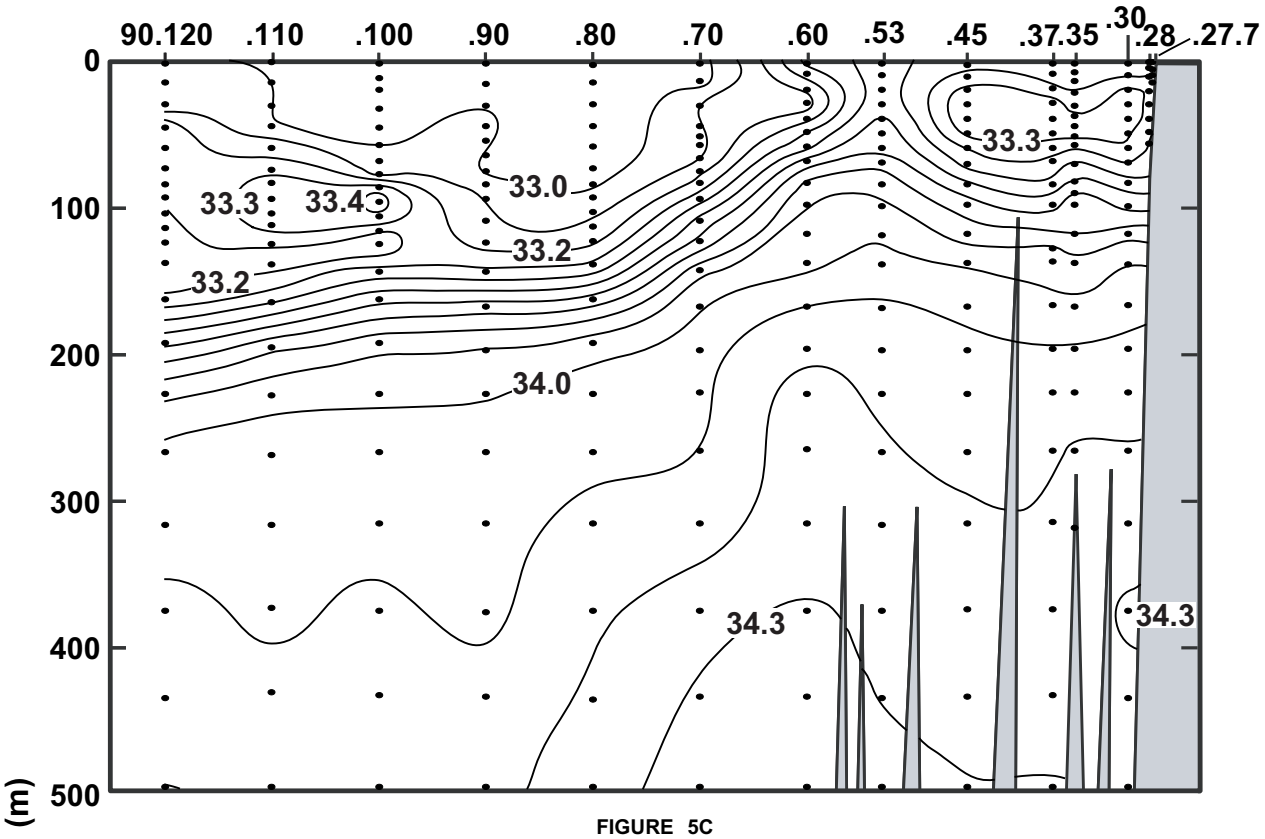


FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

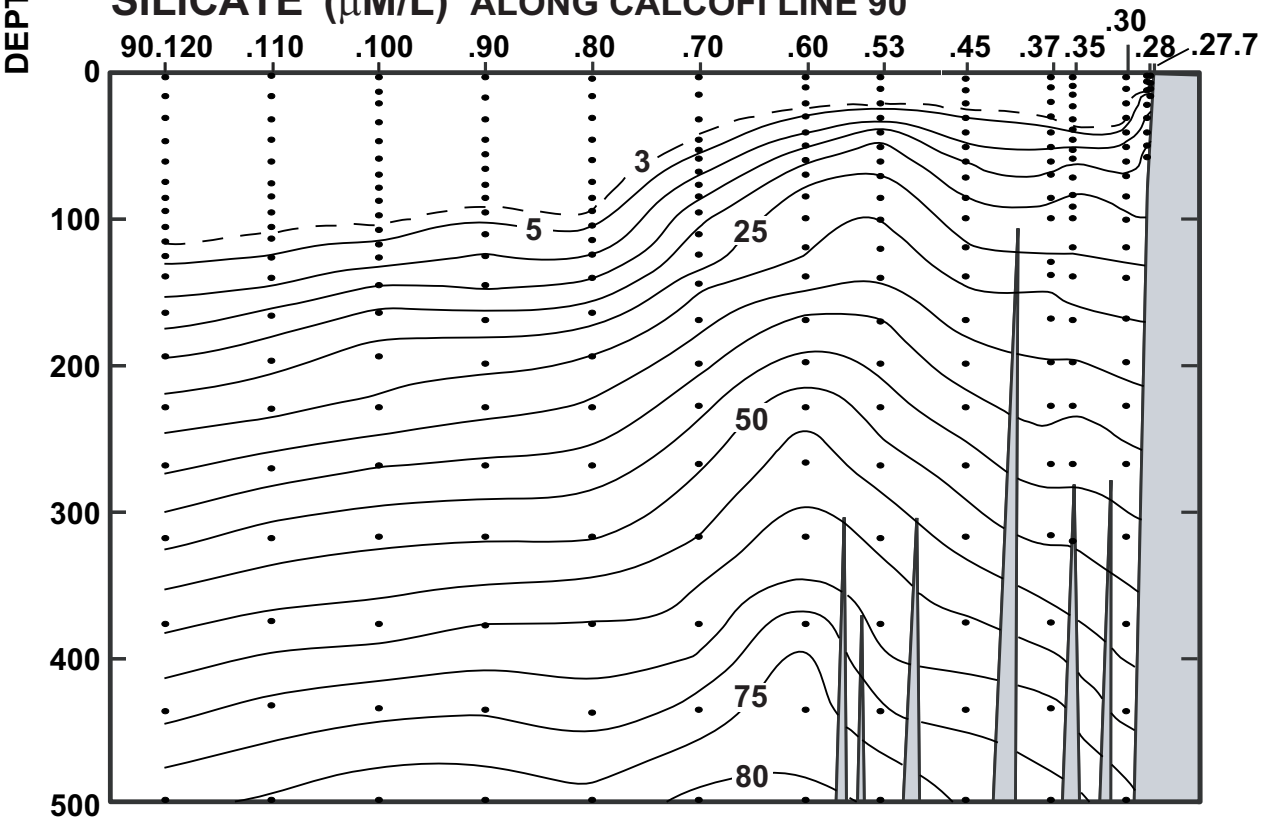


FIGURE 5D

CALCOFI CRUISE 0407

15- 18 July 2006

NITRATE (μM/L) ALONG CALCOFI LINE 90

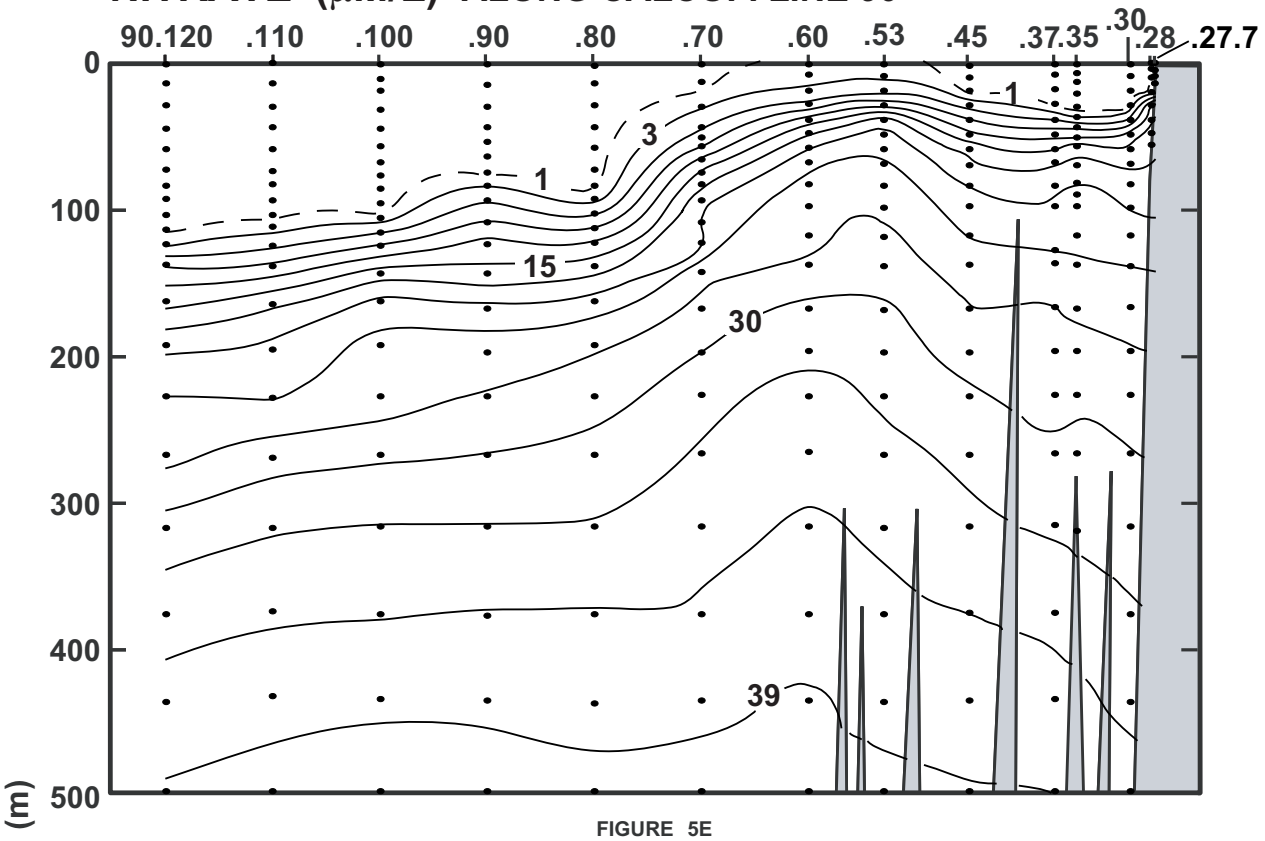


FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

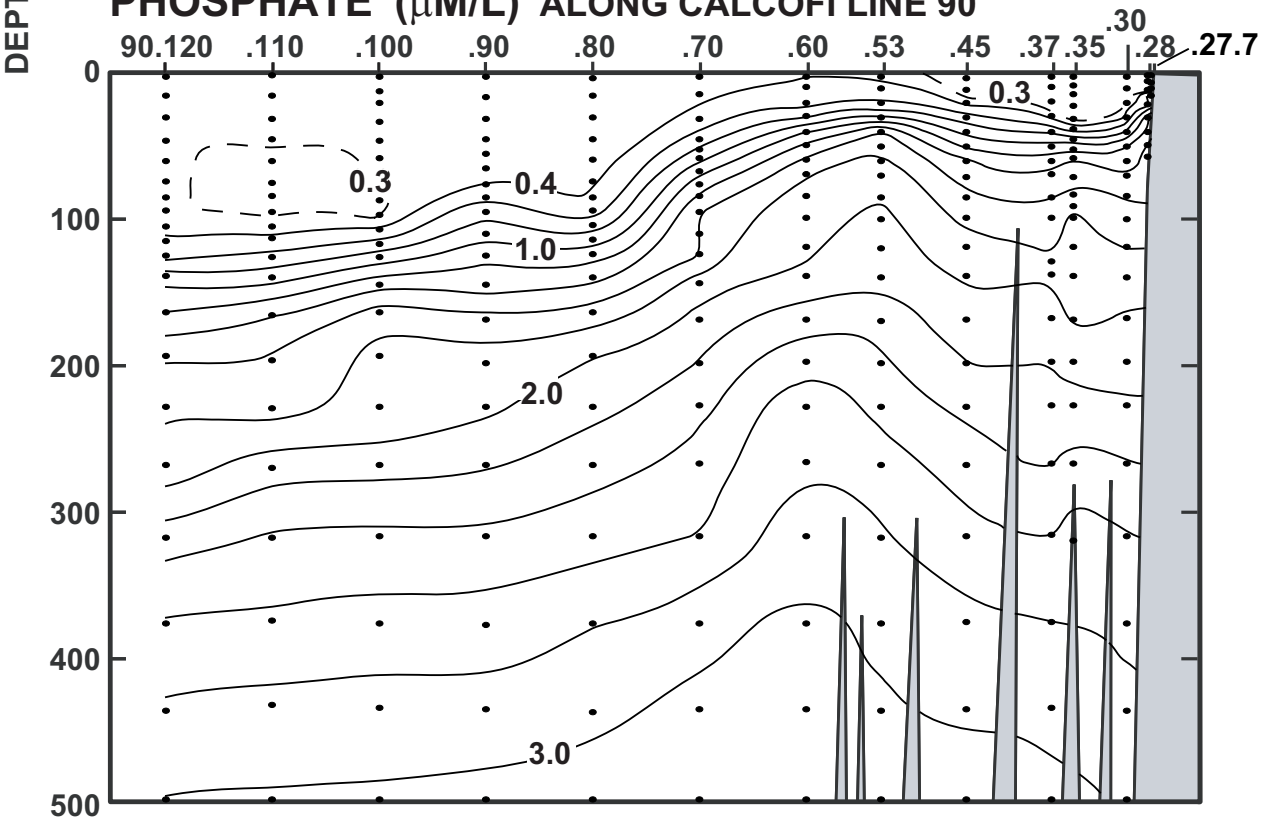


FIGURE 5F

CALCOFI CRUISE 0407

15 - 18 July 2004

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

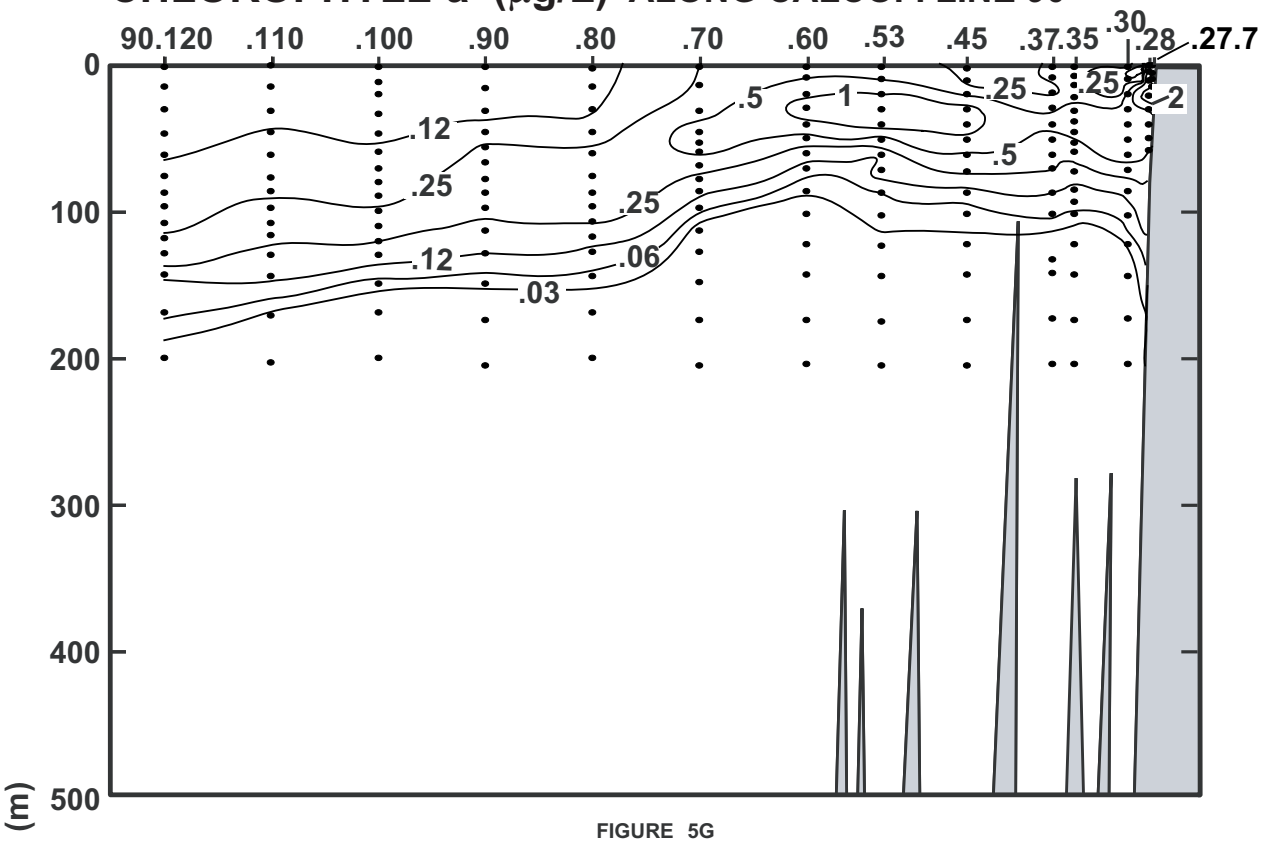


FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

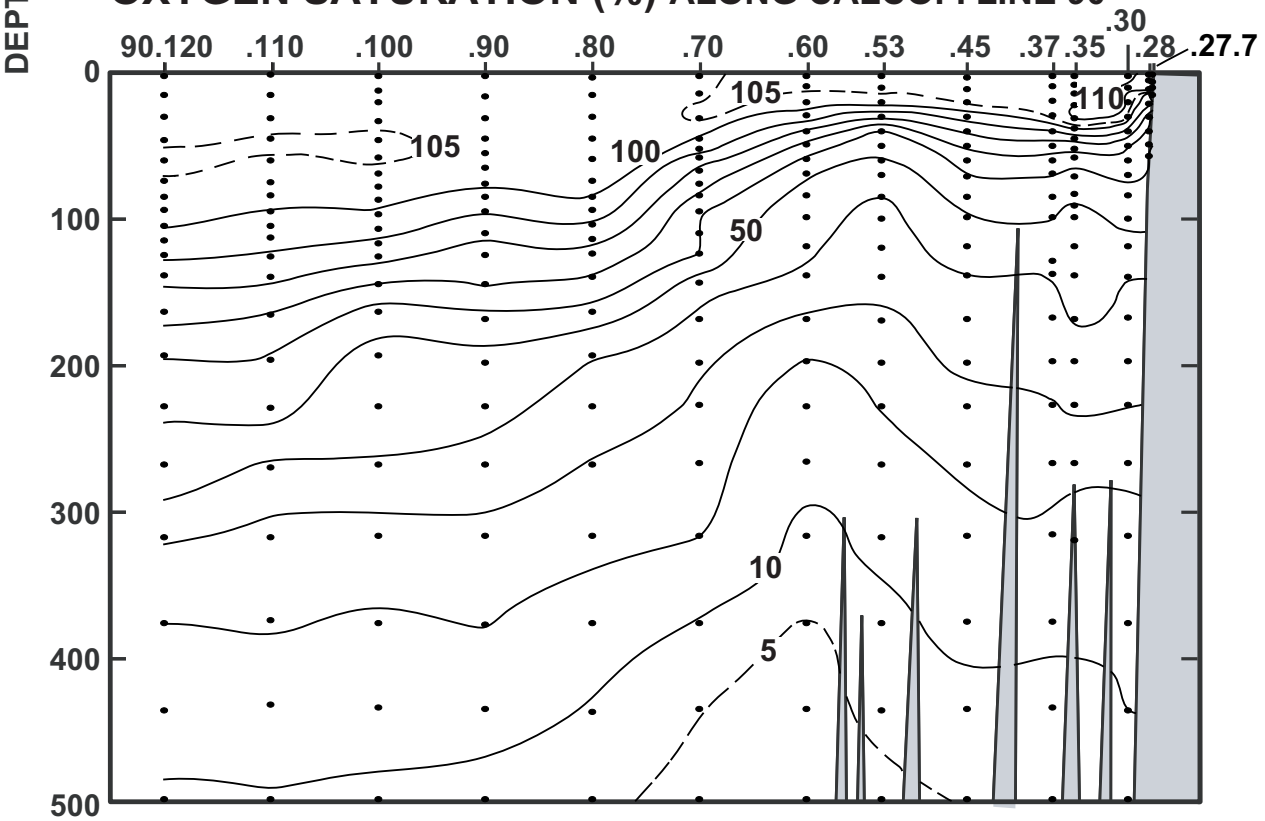


FIGURE 5H

CALCOFI CRUISE 0407

15 - 18 JULY 2004

OXYGEN (mL/L) ALONG CALCOFI LINE 90

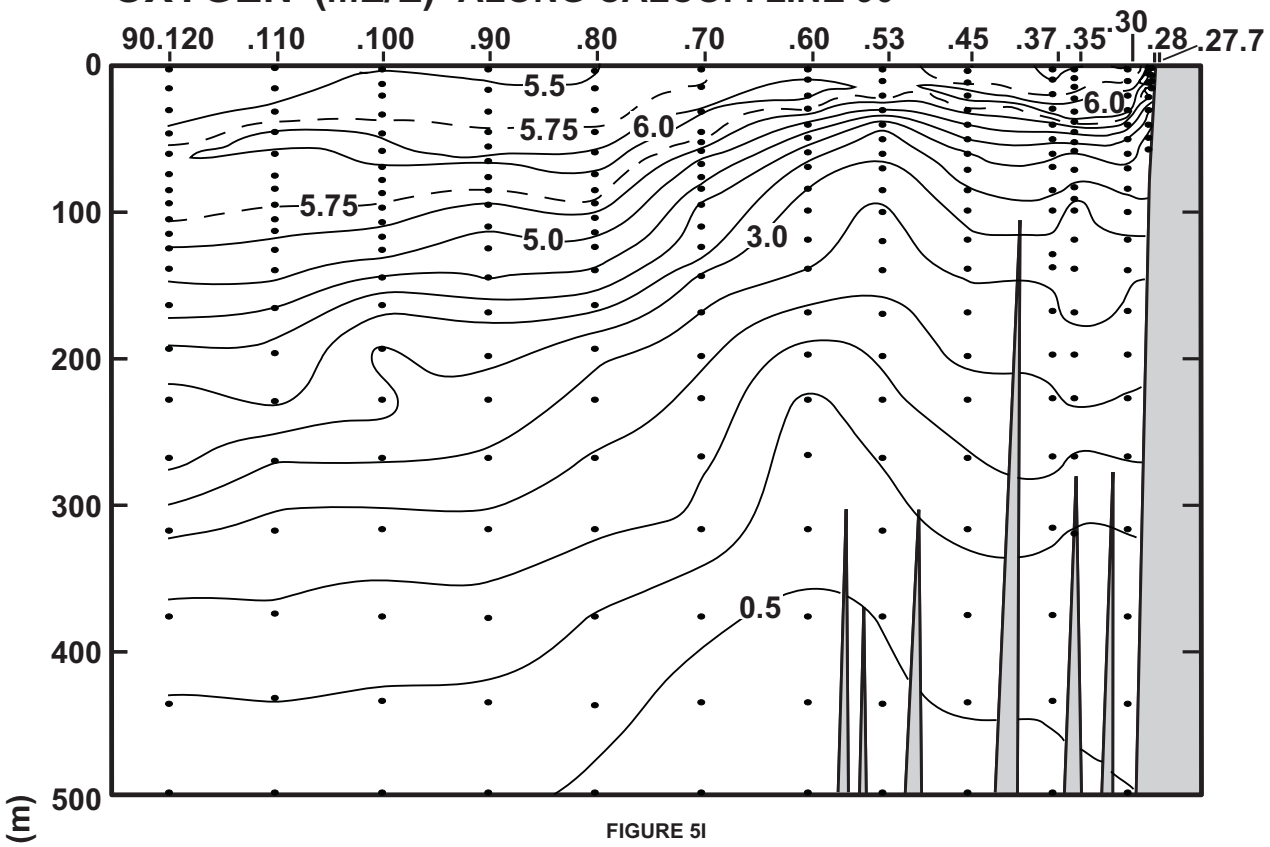


FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

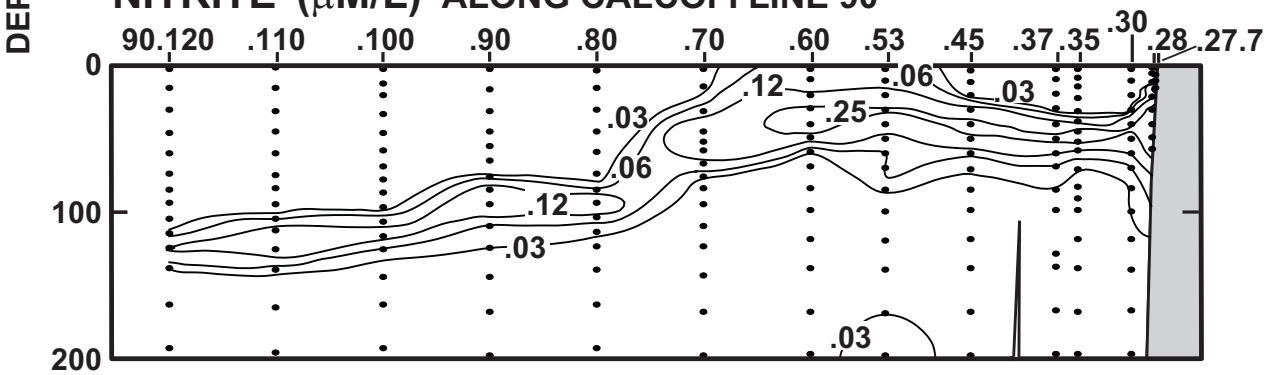


FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

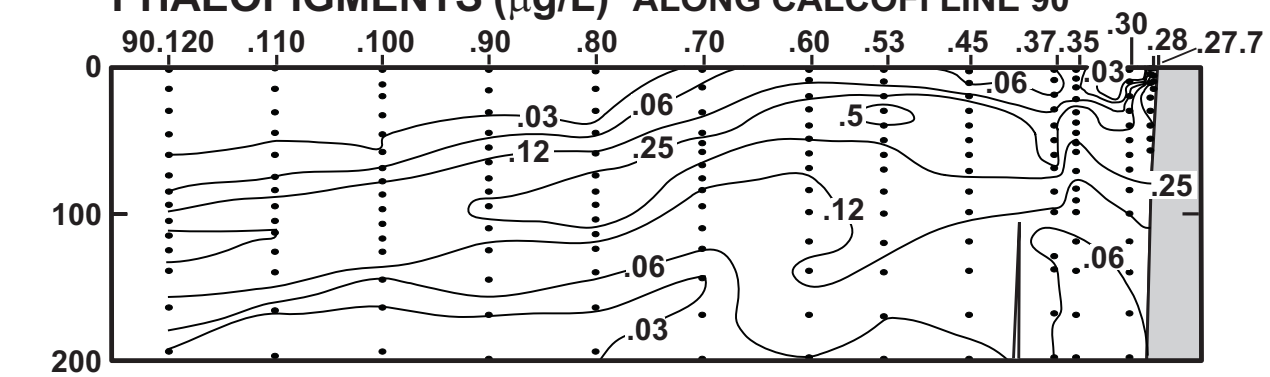


FIGURE 5K

PERSONNEL

CalCOFI Cruise 0407

SHIP'S CAPTAIN

Brian Parker, RV *David Starr Jordan*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Legs)
Hays, Amy E. (Chief Scientist)	Fishery Biologist, NMFS	1,2
Abramenkoff, Dimitry N.	Fishery Biologist, NMFS	2
Baird, Robin	Marine Mammal Observer, Cascadia Research	1,2
Dotson, Ronald C.	Fishery Biologist, NMFS	1
Douglas, Anne	Marine Mammal Observer, Cascadia Research	1,2
King, Andrew L.	Graduate Student, SIO	1,2
Manion, Susan M.	Fishery Biologist, NMFS	1,2
Masten, Douglas M.	Staff Research Associate, SIO	1,2
Nelson, Kristie	Seabird Biologist, Pt. Reyes Bird Observatory	1,2
Ramirez, Fernando	Staff Research Associate, SIO	1,2
Rykaczewski, Ryan R.	Graduate Student, SIO	1,2
Sheldon, Jennifer L.	Staff Research Associate, SIO	1,2
Soldevilla, Melissa S.	Graduate Student, SIO	1,2
Wilkinson, James R.	Programmer Analyst, SIO	1,2
Wolgast, David M.	Staff Research Associate, SIO	1,2

Leg 1: San Diego to Dana Point, California, 12-18 July, 2004
Leg 2: Dana Point to San Diego, California, 18-28 July, 2004

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 77 49

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
35 5.3 N	120 46.7 W	27/07/04	1147	UTC	70 m	320	07 kn			1012.0 mb	13.7 C	13.4 C				

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.02	13.02	33.585	25.293	266.9	0.000	6.33	105.9	3.6	0.45	4.7	0.17	17.59	0.94	0	
1	13.02	13.02	33.585	25.293	266.9	0.003	6.33	105.9	3.6	0.45	4.7	0.17	17.59	0.94	1	208
5	12.99	12.99	33.583	25.298	266.6	0.013	6.30	105.4	3.6	0.41	4.7	0.17	17.92	1.27	5	207
10	12.89	12.89	33.589	25.323	264.3	0.027	6.08	101.5	4.7	0.46	5.7	0.19	16.11	2.00	10	206
20	12.43	12.43	33.620	25.436	253.8	0.053	5.48	90.6	8.0	0.73	8.4	0.25	14.80	2.13	20	205
29	12.25	12.25	33.610	25.463	251.4	0.075	5.33	87.8	8.4	0.72	9.0	0.25	12.46	1.45	29	204
30 ISL	12.20	12.20	33.602	25.467	251.1	0.078	5.30	87.2	8.4	0.75	9.3	0.25	12.03	1.43	30	
40	11.46	11.46	33.562	25.574	241.1	0.102	4.56	73.8	12.1	1.22	14.3	0.29	6.58	1.21	40	203
49	10.50	10.49	33.698	25.851	214.9	0.123	3.00	47.6	23.2	1.83	20.4	0.29	0.51	0.60	49	202
50 ISL	10.48	10.47	33.699	25.855	214.5	0.125	2.99	47.4	23.3	1.84	20.5	0.29	0.51	0.60	50	
60	10.31	10.30	33.713	25.896	210.9	0.146	2.87	45.4	24.1	1.89	21.4	0.24	0.46	0.61	60	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 77 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
35 1.2 N	120 55.1 W	27/07/04	0906	UTC	238 m	320	10 kn			1012.5 mb	15.1 C	14.5 C				

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.00	16.00	33.547	24.631	329.9	0.000	6.23	110.7	2.4	0.13	2.1	0.10	4.63	0.20	0	
2	16.00	16.00	33.547	24.631	330.0	0.007	6.23	110.7	2.4	0.13	2.1	0.10	4.63	0.20	2	215
10	15.67	15.67	33.542	24.702	323.5	0.033	6.02	106.3	3.1	0.23	2.7	0.11	3.55	0.70	10	214
20	15.25	15.25	33.535	24.790	315.4	0.065	5.78	101.2	3.9	0.35	3.4	0.14	1.81	0.81	20	213
30	12.82	12.82	33.475	25.248	271.9	0.094	4.74	78.9	8.3	1.03	11.0	0.38	0.48	0.40	30	212
39	12.20	12.19	33.465	25.361	261.5	0.118	4.51	74.1	10.1	1.20	13.2	0.46	0.41	0.28	39	211
49	11.42	11.41	33.491	25.526	245.9	0.143	4.22	68.2	12.2	1.34	15.3	0.37	0.85	0.34	49	210
50 ISL	11.35	11.34	33.501	25.547	243.9	0.146	4.15	67.0	12.6	1.36	15.6	0.36	0.87	0.36	50	
60	10.70	10.69	33.594	25.735	226.2	0.169	3.45	54.9	16.6	1.59	19.0	0.23	1.02	0.44	60	209
70	10.12	10.11	33.603	25.843	216.2	0.191	3.32	52.2	19.9	1.73	22.0	0.09	0.35	0.25	70	208
75 ISL	9.98	9.97	33.621	25.880	212.7	0.202	3.25	51.0	20.9	1.77	22.7	0.08	0.29	0.24	75	
85	9.81	9.80	33.695	25.967	204.7	0.223	3.03	47.3	22.7	1.84	23.5	0.07	0.17	0.23	85	207
100	9.57	9.56	33.915	26.179	184.9	0.252	2.46	38.3	27.6	2.00	25.6	0.07	0.10	0.19	101	206
119	9.33	9.32	33.956	26.250	178.4	0.287	2.39	37.0	29.5	2.05	26.6	0.05	0.04	0.17	120	205
125 ISL	9.30	9.29	33.961	26.259	177.7	0.297	2.38	36.8	29.7	2.06	26.8	0.05	0.04	0.16	126	
139	9.24	9.22	33.972	26.278	176.2	0.322	2.34	36.2	30.2	2.09	27.1	0.04	0.04	0.15	140	204
150 ISL	9.16	9.14	33.991	26.305	173.8	0.342	2.28	35.2	31.1	2.12	27.5	0.03	0.04	0.14	151	
170	8.97	8.95	34.030	26.367	168.3	0.376	2.14	32.9	33.4	2.17	28.5	0.02	0.04	0.13	171	203
200	8.63	8.61	34.081	26.460	159.9	0.425	1.95	29.7	37.2	2.27	30.0	0.04	0.03	0.12	201	202
230	8.68	8.66	34.133	26.494	157.3	0.473	1.68	25.7	39.6	2.37	30.3	0.06			231	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 77 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD	AMT	TYPE
34 53.3 N	121 11.9 W	27/07/04	0534	UTC	566 m	320	13 kn			1012.9 mb	15.3 C	14.9 C				

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.41	14.41	33.450	24.904	303.9	0.000	6.87	118.2	0.6	0.14	0.4	0.05	9.18	0.95	0	
2	14.41	14.41	33.450	24.904	303.9	0.006	6.87	118.2	0.6	0.14	0.4	0.05	9.18	0.95	2	220
10 ISL	14.35	14.35	33.457	24.923	302.4	0.030	6.84	117.6	0.6	0.15	0.5	0.05	9.72	1.41	10	
11	14.34	14.34	33.458	24.926	302.2	0.033	6.84	117.5	0.6	0.15	0.5	0.05	9.82	1.45	11	219
20 ISL	13.50	13.50	33.462	25.103	285.6	0.060	6.18	104.4	2.1	0.30	3.1	0.19	10.59	0.64	20	
21	13.38	13.38	33.462	25.127	283.3	0.063	6.07	102.3	2.4	0.32	3.6	0.21	10.67	0.53	21	218
30 ISL	12.30	12.30	33.455	25.334	263.8	0.087	4.94	81.4	7.6	1.03	11.0	0.45	2.05	0.40	30	
31	12.18	12.18	33.455	25.357	261.6	0.090	4.82	79.2	8.3	1.11	11.8	0.47	1.09	0.39	31	217
40	11.38	11.38	33.483	25.527	245.6	0.113	4.14	66.9	13.0	1.34	15.5	0.36	1.40	0.52	40	216
50 ISL	10.80	10.79	33.608	25.729	226.6	0.136	3.53	56.3	17.1	1.51	18.4	0.21	1.84	0.55	50	
51	10.76	10.75	33.622	25.747	225.0	0.139	3.48	55.5	17.4	1.53	18.6	0.20	1.85	0.55	51	215
61	10.34	10.33	33.706	25.885	211.9	0.160	3.10	49.0	20.3	1.73	21.0	0.21	1.06	0.76	61	214
70	9.92	9.91	33.786	26.019	199.4	0.179	2.75	43.1	24.0	1.87	23.3	0.11	0.34	0.27	70	213
75 ISL	9.89	9.88	33.817	26.048	196.7	0.189	2.71	42.5	24.8	1.90	23.6	0.10	0.37	0.27	75	
85	9.82	9.81	33.836	26.075	194.4	0.208	2.63	41.1	25.4	1.93	24.1	0.08	0.44	0.28	85	212
100 ISL	9.68	9.67	33.896	26.146	188.0	0.237	2.46	38.4	27.4	1.99	24.9	0.08	0.29	0.26	101	
101	9.67	9.66	33.900	26.151	187.6	0.239	2.45	38.2	27.5	1.99	25.0	0.08	0.28	0.26	102	211
120	9.46	9.45	33.961	26.233	180.1	0.274	2.43	37.7	28.6	2.02	25.7	0.05	0.28	0.26	121	210
125 ISL	9.42	9.41	33.985	26.258	177.8	0.283	2.38	36.9	29.2	2.03	25.9	0.05	0.27	0.27	126	
140	9.34	9.32	34.051	26.323	171.9	0.309	2.22	34.4	31.2	2.08	26.6	0.04	0.24	0.30	141	209
150 ISL	9.30	9.28	34.068	26.343	170.2	0.326	2.16	33.4	31.9	2.11	26.9	0.04	0.20	0.27	151	
171	9.20	9.18	34.088	26.375	167.6	0.362	2.03	31.4	33.5	2.18	27.6	0.04	0.10	0.18	172	208
198	8.94	8.92	34.141	26.459	160.2	0.406	1.76	27.0	37.2	2.31	29.1	0.03	0.05	0.14	199	207
200 ISL	8.94	8.92	34.143	26.460	160.0	0.409	1.75	26.9	37.3	2.31	29.1	0.03			201	
228	8.82	8.80	34.157	26.491	157.7	0.454	1.67	25.6	38.6	2.35	29.6	0.02			229	206
250 ISL	8.36	8.33	34.138	26.547	152.5	0.488	1.64	24.9	41.9	2.40	31.0	0.02			252	
268	7.96	7.93	34.128	26.599	147.7	0.515	1.58	23.7	45.1	2.46	32.3	0.03			270	205
300 ISL	7.76	7.73	34.184	26.673	141.2	0.561	1.23	18.4	49.7	2.62	33.5	0.02			302	
318	7.72	7.69	34.221	26.708	138.1	0.586	1.02	15.2	52.1	2.71	34.0	0.02			320	204
377	7.27	7.23	34.245	26.792	130.9	0.665	0.74	10.9	59.4	2.86	35.7	0.02			380	203
400 ISL	7.13	7.09	34.251	26.816	128.9	0.695	0.67	9.9	61.5	2.90	36.2	0.02			403	
439	6.90	6.86	34.259	26.855	125.6	0.745	0.59	8.7	65.0	2.95	37.0	0.02			442	202
500 ISL	6.42	6.37	34.268	26.926	119.3	0.820	0.46	6.7	72.0	3.03	38.6	0.02			504	
512	6.33	6.28	34.270	26.940	118.1	0.834	0.44	6.4	73.4	3.05	38.9	0.02			516	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 77 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 43.1 N	121 33.0 W	27/07/04	0127 UTC	957 m	320 11 kn	320 06 09	2	1012.6 mb	12.1 C	11.0 C	09m	8/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.54	16.54	33.494	24.467	345.6	0.000	6.43	115.5	1.3	0.20	1.5	0.07	3.82	0.40	0	
2	16.54	16.54	33.494	24.467	345.6	0.007	6.43	115.5	1.3	0.20	1.5	0.07	3.82	0.40	2	220
10	16.52	16.52	33.492	24.470	345.6	0.035	6.40	114.9	1.4	0.20	1.4	0.07	2.80	1.10	10	219
20 ISL	15.57	15.57	33.445	24.650	328.8	0.068	5.94	104.6	1.6	0.42	2.5	0.11	1.15	0.42	20	
21	15.42	15.42	33.441	24.680	325.9	0.072	5.88	103.3	1.6	0.45	2.6	0.11	1.02	0.33	21	218
30	13.70	13.70	33.450	25.053	290.6	0.099	5.45	92.4	4.1	0.79	7.4	0.30	1.07	0.44	30	217
40	10.45	10.45	33.542	25.738	225.5	0.125	3.55	56.2	17.9	1.60	19.9	0.14	0.62	0.36	40	216
49	9.93	9.92	33.496	25.791	220.6	0.145	3.71	58.1	18.6	1.63	20.7	0.07	0.48	0.41	49	215
50 ISL	9.92	9.91	33.504	25.799	219.9	0.147	3.69	57.7	18.8	1.64	20.8	0.07	0.47	0.41	50	
60	9.87	9.86	33.592	25.876	212.8	0.169	3.36	52.5	20.7	1.72	22.0	0.05	0.34	0.32	60	214
70	9.93	9.92	33.727	25.971	203.9	0.190	2.92	45.8	23.0	1.83	23.2	0.03	0.24	0.22	70	213
75 ISL	9.89	9.88	33.770	26.012	200.2	0.200	2.81	44.0	23.9	1.87	23.6	0.03	0.18	0.19	75	
85	9.75	9.74	33.835	26.086	193.3	0.220	2.69	42.0	25.4	1.92	24.3	0.03	0.09	0.16	85	212
100	9.58	9.57	33.921	26.182	184.6	0.248	2.49	38.8	27.6	2.01	25.4	0.03	0.06	0.18	101	211
119	9.46	9.45	33.969	26.239	179.5	0.283	2.39	37.1	29.1	2.04	26.1	0.03	0.04	0.16	120	210
125 ISL	9.45	9.44	33.975	26.246	179.0	0.293	2.38	37.0	29.3	2.04	26.2	0.03	0.04	0.16	126	
139	9.42	9.40	33.986	26.259	178.0	0.318	2.35	36.5	29.6	2.05	26.4	0.03	0.05	0.15	140	209
150 ISL	9.37	9.35	34.006	26.283	175.9	0.338	2.27	35.2	30.4	2.08	26.7	0.03	0.05	0.15	151	
170	9.27	9.25	34.045	26.330	171.9	0.373	2.12	32.8	32.1	2.14	27.4	0.03	0.04	0.15	171	208
200	9.15	9.13	34.081	26.378	167.9	0.423	1.99	30.7	33.9	2.20	28.1	0.03	0.03	0.10	201	207
228	8.79	8.77	34.146	26.487	158.0	0.469	1.68	25.7	38.8	2.36	29.8	0.02			229	206
250 ISL	8.59	8.56	34.169	26.536	153.7	0.503	1.54	23.5	41.4	2.44	30.7	0.02			252	
268	8.43	8.40	34.177	26.567	151.0	0.531	1.45	22.0	43.3	2.49	31.3	0.03			270	205
300 ISL	8.07	8.04	34.190	26.632	145.2	0.578	1.29	19.4	47.3	2.58	32.6	0.02			302	
317	7.89	7.86	34.196	26.664	142.4	0.603	1.20	18.0	49.5	2.63	33.2	0.02			319	204
377	7.46	7.42	34.238	26.760	134.1	0.686	0.85	12.6	56.6	2.80	34.9	0.02			379	203
400 ISL	7.27	7.23	34.236	26.785	131.9	0.716	0.80	11.8	58.7	2.83	35.6	0.02			403	
437	6.99	6.95	34.231	26.820	128.9	0.765	0.74	10.9	61.9	2.87	36.6	0.02			440	202
500 ISL	6.70	6.65	34.266	26.888	123.2	0.844	0.54	7.9	68.1	3.00	37.7	0.02			504	
514	6.63	6.58	34.274	26.904	121.9	0.861	0.49	7.1	69.5	3.03	38.0	0.02			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 77 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 23.2 N	122 14.9 W	26/07/04	1916 UTC	4018 m	320 09 kn	320 03 07	2	1015.4 mb	17.8 C	17.0 C	25m	8/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.39	17.39	33.067	23.940	395.8	0.000	5.66	103.1	1.3	0.46	1.9	0.06	0.29	0.06	0	
2 A	17.39	17.39	33.067	23.940	395.8	0.008	5.66	103.1	1.3	0.46	1.9	0.06	0.29	0.06	2	224
8	17.38	17.38	33.066	23.942	395.9	0.032	5.65	102.9	1.3	0.45	1.9	0.06	0.27	0.06	8	221
10 ISL	17.31	17.31	33.085	23.973	392.9	0.040	5.67	103.1	1.3	0.46	1.9	0.06	0.29	0.08	10	
15 A	16.85	16.85	33.146	24.128	378.3	0.059	5.76	103.9	1.4	0.47	2.4	0.08	0.35	0.13	15	220
20 ISL	15.70	15.70	33.227	24.453	347.5	0.077	5.93	104.6	2.4	0.55	3.6	0.12	0.37	0.13	20	
25	14.26	14.26	33.297	24.818	312.8	0.093	6.01	103.0	4.0	0.68	5.5	0.17	0.40	0.13	25	219
30 ISL	12.76	12.76	33.273	25.104	285.7	0.108	5.74	95.3	6.3	0.88	8.4	0.24	0.50	0.22	30	
35 A	11.55	11.55	33.261	25.323	264.8	0.122	5.36	86.8	8.7	1.08	11.3	0.33	0.57	0.29	35	218
44	11.19	11.18	33.390	25.489	249.2	0.145	4.77	76.7	11.5	1.31	14.6	0.50	0.46	0.13	44	217
50 ISL	10.75	10.74	33.373	25.554	243.2	0.160	4.57	72.8	12.8	1.39	16.4	0.38	0.39	0.15	50	
52 A	10.61	10.60	33.365	25.573	241.5	0.165	4.52	71.7	13.2	1.42	17.0	0.32	0.38	0.16	52	216
59	10.38	10.37	33.423	25.658	233.5	0.182	4.23	66.8	15.7	1.56	19.4	0.07	0.40	0.06	59	215
66 A	9.87	9.86	33.457	25.771	222.9	0.198	3.88	60.6	18.5	1.66	21.1	0.05	0.21	0.12	66	214
75 ISL	9.55	9.54	33.540	25.888	211.9	0.217	3.53	54.8	21.8	1.79	23.1	0.03	0.10	0.11	75	
81	9.45	9.44	33.604	25.955	205.7	0.230	3.34	51.7	23.7	1.86	24.1	0.02	0.07	0.10	81	213
96 A	9.20	9.19	33.738	26.100	192.1	0.259	3.02	46.6	26.3	1.92	25.4	0.02	0.02	0.08	96	212
100 ISL	9.17	9.16	33.768	26.128	189.5	0.267	2.94	45.3	26.9	1.94	25.8	0.02	0.01	0.08	101	
108	9.11	9.10	33.819	26.178	185.0	0.282	2.82	43.4	27.9	1.97	26.3	0.02	0.01	0.07	109	211
120	8.99	8.98	33.871	26.238	179.5	0.304	2.87	44.1	28.3	1.94	26.0	0.02	0.01	0.06	121	210
125 ISL	9.00	8.99	33.906	26.264	177.1	0.313	2.71	41.6	29.3	1.98	26.5	0.02	0.01	0.07	126	
139	9.06	9.04	34.003	26.331	171.1	0.337	2.14	32.9	32.6	2.15	28.4	0.02	0.02	0.11	140	209
150 ISL	9.00	8.98	34.044	26.372	167.4	0.356	2.04	31.4	34.1	2.21	29.0	0.02	0.02	0.11	151	
170	8.83	8.81	34.085	26.432	162.1	0.389	1.87	28.7	36.2	2.28	29.5	0.02	0.01	0.11	171	208
198	8.61	8.59	34.127	26.499	156.2	0.433	1.70	25.9	39.4	2.35	30.5	0.02	0.01	0.08	199	207
200 ISL	8.57	8.55	34.127	26.505	155.6	0.437	1.69	25.8	39.7	2.36	30.6	0.02			201	
228	8.01	7.99	34.121	26.586	148.3	0.479	1.60	24.1	44.3	2.44	32.2	0.04			229	206
250 ISL	7.75	7.73	34.118	26.622	145.1	0.511	1.55	23.2	46.8	2.49	33.1	0.04			252	
269	7.59	7.56	34.120	26.647	143.0	0.539	1.48	22.0	48.8	2.54	33.7	0.03			271	205
300 ISL	7.33	7.30	34.147	26.705	137.8	0.582	1.24	18.4	53.1	2.64	34.8	0.03			302	
318	7.17	7.14	34.161	26.739	134.8	0.607	1.10	16.2	55.8	2.70	35.4	0.03			320	204
377	6.42	6.39	34.139	26.823	127.2	0.684	0.95	13.8	64.3	2.82	37.9	0.02			379	203
400 ISL	6.24	6.20	34.142	26.849	124.9	0.713	0.87	12.6	67.0	2.87	38.5	0.02			403	
437	6.06	6.02	34.166	26.891	121.3	0.759	0.73	10.5	71.0	2.95	39.3	0.01			440	202
500 ISL	5.97	5.93	34.280	26.993	112.5	0.832	0.40	5.7	78.5	3.10	40.0	0.01			504	
515	5.95	5.90	34.307	27.017	110.4	0.849	0.32	4.6	80.3	3.14	40.2	0.01			519	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
34 3.3 N	122 56.7 W	26/07/04	1307 UTC	4240 m	320 11 kn			1014.9 mb	17.0 C	16.1 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.45	16.45	33.118	24.199	371.1	0.000	5.88	105.2	1.5	0.42	2.1	0.07	0.30	0.08	0	
2	16.45	16.45	33.118	24.199	371.1	0.007	5.88	105.2	1.5	0.42	2.1	0.07	0.30	0.08	2	220
10	16.44	16.44	33.117	24.201	371.2	0.037	5.88	105.2	1.4	0.42	2.1	0.07	0.30	0.09	10	219
20	13.88	13.88	32.748	24.473	345.5	0.073	6.32	107.1	1.6	0.37	0.3	0.02	0.32	0.09	20	218
30	12.20	12.20	32.759	24.813	313.3	0.106	6.06	99.2	3.0	0.51	1.8	0.10	0.37	0.13	30	217
40	11.09	11.09	32.841	25.080	288.1	0.136	5.51	88.1	5.9	0.84	7.5	0.19	0.36	0.17	40	216
50	10.50	10.49	33.021	25.323	265.1	0.164	4.90	77.4	10.1	1.19	13.4	0.03	0.24	0.14	50	215
60	10.59	10.58	33.246	25.484	250.1	0.189	4.29	68.0	12.7	1.40	17.0	0.04	0.15	0.12	60	214
70	9.72	9.71	33.278	25.656	233.9	0.214	4.21	65.5	16.4	1.54	19.1	0.05	0.06	0.07	70	213
75 ISL	9.47	9.46	33.302	25.715	228.3	0.225	4.17	64.5	17.6	1.58	19.8	0.05	0.05	0.07	75	
85	9.23	9.22	33.371	25.808	219.6	0.248	4.01	61.7	19.7	1.64	21.0	0.03	0.04	0.06	85	212
99	9.26	9.25	33.535	25.932	208.2	0.277	3.54	54.6	23.1	1.80	23.5	0.02	0.02	0.07	99	211
100 ISL	9.27	9.26	33.548	25.940	207.4	0.280	3.50	54.0	23.4	1.81	23.7	0.02	0.02	0.07	100	
119	9.46	9.45	33.782	26.093	193.3	0.318	2.84	44.1	27.8	2.05	26.3	0.02	0.03	0.14	120	210
125 ISL	9.41	9.40	33.836	26.143	188.7	0.329	2.63	40.8	28.9	2.09	26.8	0.02	0.03	0.15	126	
140	9.19	9.17	33.939	26.260	177.9	0.357	2.23	34.4	31.1	2.16	27.8	0.02	0.04	0.17	141	209
150 ISL	9.01	8.99	33.982	26.322	172.1	0.374	2.21	34.0	32.4	2.16	28.4	0.02	0.03	0.13	151	
169	8.64	8.62	34.029	26.417	163.4	0.406	2.17	33.1	34.8	2.17	29.4	0.02	0.00	0.05	170	208
200 ISL	8.08	8.06	34.049	26.518	154.2	0.455	2.18	32.8	39.6	2.23	30.7	0.02	0.01	0.03	201	
201	8.06	8.04	34.049	26.521	153.9	0.457	2.18	32.8	39.8	2.23	30.7	0.02	0.01	0.03	202	207
233	7.75	7.73	34.060	26.576	149.1	0.505	2.01	30.0	43.9	2.33	32.0	0.02			234	206
250 ISL	7.48	7.46	34.061	26.616	145.5	0.530	1.91	28.4	46.7	2.39	32.8	0.02			251	
268	7.20	7.17	34.064	26.658	141.7	0.556	1.78	26.3	49.8	2.46	33.7	0.02			270	205
300 ISL	6.89	6.86	34.088	26.719	136.2	0.601	1.46	21.4	55.1	2.61	35.5	0.02			302	
318	6.75	6.72	34.104	26.751	133.4	0.625	1.27	18.6	57.9	2.70	36.4	0.02			320	204
379	6.25	6.22	34.149	26.853	124.3	0.703	0.85	12.3	66.4	2.89	38.4	0.01			381	203
400 ISL	6.20	6.16	34.176	26.881	121.9	0.729	0.72	10.4	69.0	2.94	38.8	0.01			403	
440	6.14	6.10	34.229	26.931	117.7	0.777	0.51	7.3	73.7	3.03	39.5	0.01			443	202
500 ISL	5.92	5.88	34.284	27.003	111.5	0.846	0.35	5.0	79.8	3.14	40.4	0.01			503	
510	5.88	5.84	34.293	27.015	110.5	0.857	0.32	4.6	80.8	3.16	40.5	0.01			514	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 77 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 43.0 N	123 38.2 W	26/07/04	0701 UTC	4210 m	320 12 kn			1015.9 mb	18.3 C	16.5 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.14	18.14	32.771	23.533	434.6	0.000	5.56	102.6	1.3	0.33	0.0	0.00	0.14	0.03	0	
1	18.14	18.14	32.771	23.533	434.7	0.004	5.56	102.6	1.3	0.33	0.0	0.00	0.14	0.03	1	220
10	18.13	18.13	32.770	23.535	434.8	0.043	5.55	102.4	1.2	0.33	0.0	0.00	0.13	0.03	10	219
20	16.38	16.38	32.651	23.857	404.3	0.085	5.87	104.6	1.2	0.33	0.0	0.00	0.16	0.03	20	218
30	15.70	15.70	32.731	24.072	384.1	0.125	6.07	106.7	1.3	0.33	0.0	0.00	0.27	0.08	30	217
40	13.83	13.82	32.733	24.472	346.1	0.161	6.36	107.7	1.7	0.36	0.0	0.00	0.62	0.20	40	216
50 ISL	13.01	13.00	32.673	24.591	335.0	0.195	6.29	104.6	2.0	0.41	0.4	0.03	0.52	0.15	50	
51	12.96	12.95	32.668	24.597	334.5	0.199	6.28	104.4	2.0	0.42	0.4	0.03	0.50	0.14	51	215
61	12.24	12.23	32.726	24.780	317.2	0.231	6.03	98.7	2.7	0.59	2.7	0.22	0.51	0.24	61	214
70	11.80	11.79	32.771	24.898	306.2	0.259	5.83	94.6	3.5	0.71	4.5	0.41	0.34	0.18	70	213
75 ISL	11.45	11.44	32.791	24.977	298.7	0.275	5.68	91.5	4.4	0.78	5.8	0.33	0.28	0.16	75	
85	10.73	10.72	32.851	25.152	282.2	0.304	5.38	85.3	6.7	0.92	8.8	0.07	0.20	0.13	85	212
100	9.97	9.96	33.040	25.429	256.0	0.344	5.01	78.2	10.8	1.18	13.2	0.02	0.10	0.12	100	211
119	9.56	9.55	33.317	25.713	229.4	0.390	4.14	64.2	17.3	1.56	19.4	0.01	0.03	0.05	120	210
125 ISL	9.53	9.52	33.409	25.790	222.2	0.404	3.85	59.7	19.1	1.66	20.9	0.01	0.02	0.05	126	
139	9.49	9.47	33.609	25.953	207.0	0.434	3.23	50.1	22.9	1.85	23.7	0.01	0.01	0.05	140	209
150 ISL	9.35	9.33	33.737	26.076	195.5	0.456	2.92	45.2	25.6	1.94	25.2	0.01	0.00	0.04	151	
170	9.03	9.01	33.907	26.261	178.3	0.493	2.61	40.1	29.7	2.03	26.8	0.01	0.00	0.03	171	208
200	8.64	8.62	33.998	26.394	166.2	0.545	2.55	38.9	33.1	2.07	28.0	0.01	0.00	0.03	201	207
228	8.36	8.34	34.063	26.488	157.7	0.590	2.05	31.1	37.5	2.27	30.5	0.01			229	206
250 ISL	8.21	8.18	34.098	26.538	153.3	0.624	1.79	27.0	40.8	2.38	31.5	0.01			251	
267	8.08	8.05	34.115	26.571	150.4	0.650	1.65	24.9	43.4	2.44	32.1	0.01			269	205
300 ISL	7.59	7.56	34.113	26.642	144.0	0.699	1.49	22.2	48.4	2.54	33.7	0.01			302	
317	7.33	7.30	34.109	26.676	140.9	0.723	1.42	21.0	51.0	2.59	34.5	0.01			319	204
380	6.78	6.74	34.155	26.788	130.9	0.809	0.98	14.3	60.9	2.81	36.8	0.01			382	203
400 ISL	6.75	6.71	34.181	26.813	128.8	0.835	0.86	12.6	62.7	2.87	37.1	0.01			403	
440	6.70	6.66	34.228	26.857	125.2	0.885	0.65	9.5	66.1	2.96	37.6	0.01			443	202
500 ISL	6.18	6.14	34.239	26.934	118.3	0.958	0.49	7.1	73.7	3.07	39.4	0.01			503	
511	6.09	6.04	34.242	26.948	117.0	0.971	0.46	6.6	75.1	3.09	39.7	0.01			514	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 77 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 23.3 N	124 19.4 W	26/07/04	0055	UTC	4536 m	340	08 kn	350 03 08	2	1016.4 mb	19.8 C	18.0 C	25m	8/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.68	18.68	32.866	23.472	440.4	0.000	5.48	102.2	1.4	0.30	0.0	0.00	0.12	0.02	0	
2	18.68	18.68	32.866	23.472	440.5	0.009	5.48	102.2	1.4	0.30	0.0	0.00	0.12	0.02	2	220
10 ISL	18.67	18.67	32.864	23.474	440.6	0.044	5.48	102.2	1.4	0.30	0.0	0.00	0.12	0.02	10	
15	18.66	18.66	32.862	23.475	440.7	0.066	5.48	102.1	1.4	0.30	0.0	0.00	0.12	0.02	15	219
20 ISL	18.09	18.09	32.819	23.582	430.6	0.088	5.59	103.0	1.3	0.30	0.0	0.00	0.12	0.02	20	
30	16.88	16.88	32.754	23.821	408.1	0.130	5.80	104.4	1.0	0.30	0.0	0.00	0.14	0.03	30	218
45	16.63	16.62	32.803	23.917	399.4	0.190	5.75	103.0	1.2	0.30	0.0	0.00	0.21	0.05	45	217
50 ISL	16.54	16.53	32.811	23.944	397.0	0.210	5.77	103.2	1.2	0.30	0.0	0.00	0.27	0.07	50	
55	16.28	16.27	32.818	24.009	390.9	0.230	5.83	103.7	1.3	0.30	0.0	0.00	0.36	0.11	55	216
65	14.79	14.78	32.852	24.364	357.2	0.267	6.13	105.9	1.8	0.34	0.0	0.00	0.62	0.27	65	215
75	13.86	13.85	32.868	24.572	337.6	0.302	6.13	103.9	2.0	0.34	0.0	0.00	0.61	0.32	75	214
85	13.42	13.41	32.929	24.708	324.8	0.335	5.93	99.6	2.6	0.41	0.7	0.10	0.40	0.38	85	213
95	12.32	12.31	32.873	24.880	308.6	0.367	5.75	94.4	3.5	0.60	3.4	0.38	0.34	0.25	95	212
100 ISL	11.63	11.62	32.865	25.003	296.9	0.382	5.57	90.1	5.1	0.77	6.3	0.29	0.27	0.20	100	
109	10.61	10.60	32.922	25.229	275.4	0.408	5.17	81.8	8.7	1.09	11.8	0.03	0.14	0.12	109	211
124	10.47	10.46	33.251	25.509	249.1	0.447	4.38	69.2	13.4	1.40	17.0	0.03	0.04	0.06	125	210
125 ISL	10.45	10.44	33.268	25.526	247.5	0.450	4.33	68.4	13.8	1.42	17.3	0.03	0.04	0.06	126	
144	9.93	9.91	33.542	25.828	219.1	0.494	3.40	53.2	20.5	1.76	22.4	0.02	0.05 U	0.38 U	145	209
150 ISL	9.82	9.80	33.611	25.901	212.3	0.507	3.18	49.7	22.1	1.83	23.4	0.02	0.02	0.05	151	
169	9.57	9.55	33.789	26.081	195.5	0.546	2.62	40.7	26.1	1.98	25.5	0.01	0.00	0.05	170	208
199	9.47	9.45	33.974	26.243	180.8	0.602	2.09	32.5	30.2	2.14	27.5	0.01	0.01	0.04	200	207
200 ISL	9.47	9.45	33.978	26.246	180.5	0.604	2.07	32.2	30.3	2.14	27.5	0.01			201	
228	9.40	9.37	34.077	26.335	172.7	0.653	1.75	27.2	32.8	2.24	28.6	0.01			229	206
250 ISL	8.92	8.89	34.082	26.417	165.2	0.690	1.86	28.6	35.3	2.25	29.5	0.01			251	
268	8.47	8.44	34.072	26.479	159.4	0.720	1.99	30.2	37.7	2.25	30.3	0.01			269	205
300 ISL	8.03	8.00	34.095	26.563	151.7	0.769	1.80	27.1	42.4	2.37	31.9	0.01			302	
319	7.84	7.81	34.113	26.606	147.9	0.798	1.61	24.1	45.4	2.46	32.8	0.01			321	204
378	7.22	7.18	34.159	26.731	136.6	0.882	1.13	16.7	55.0	2.70	35.2	0.01			380	203
400 ISL	6.91	6.87	34.155	26.771	132.9	0.911	1.03	15.1	58.8	2.77	36.3	0.01			402	
438	6.40	6.36	34.146	26.832	127.2	0.961	0.90	13.0	65.3	2.87	38.1	0.01			441	202
500 ISL	5.96	5.92	34.181	26.916	119.7	1.037	0.63	9.0	74.0	3.00	39.8	0.01			503	
512	5.87	5.83	34.188	26.933	118.2	1.052	0.58	8.3	75.7	3.03	40.1	0.01			515	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 80.0 50.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 27.7 N	120 29.1 W	27/07/04	1732	UTC	22 m	300	11 kn	070 03 05	2	1014.2 mb	15.9 C	15.3 C		8/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.23	15.23	33.446	24.725	321.0	0.000	5.68	99.4	6.6	0.53	3.7	0.15	2.99	0.93	0	
1	15.23	15.23	33.446	24.725	321.0	0.003	5.68	99.4	6.6	0.53	3.7	0.15	2.99	0.93	1	204
5	15.08	15.08	33.446	24.758	318.0	0.016	5.65	98.5	6.7	0.55	4.1	0.16	3.01	0.94	5	203
10	12.84	12.84	33.427	25.207	275.4	0.031	4.75	79.1	10.9	0.98	10.2	0.33	1.92	0.79	10	202
17	12.19	12.19	33.424	25.330	263.8	0.050	4.39	72.1	12.1	1.13	12.0	0.39	1.51	0.81	17	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 27.0 N	120 31.5 W	24/07/04	1057	UTC	72 m	320	14 kn			1012.5 mb	14.8 C	14.0 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	12.50	12.50	33.497	25.327	263.7	0.000	5.56	92.0	7.2	0.76	8.8	0.52	8.45	0.62	0	
2	12.50	12.50	33.497	25.327	263.7	0.005	5.56	92.0	7.2	0.76	8.8	0.52	8.45	0.62	2	209
5	12.53	12.53	33.495	25.320	264.5	0.013	5.58	92.4	7.4	0.74	8.8	0.52	8.06	0.44	5	208
10	12.37	12.37	33.499	25.354	261.4	0.026	5.44	89.8	7.7	0.77	9.4	0.52	8.81	0.51	10	207
20	11.17	11.17	33.496	25.575	240.6	0.051	3.88	62.4	14.6	1.31	15.9	0.52	3.56	0.47	20	206
30	11.11	11.11	33.500	25.589	239.5	0.075	3.84	61.7	14.9	1.35	16.2	0.48	3.38	0.47	30	205
40	11.05	11.05	33.492	25.594	239.2	0.099	3.80	60.9	15.3	1.38	16.6	0.49	3.15	0.46	40	204
49	10.52	10.51	33.494	25.689	230.4	0.121	3.34	53.0	18.2	1.60	20.1	0.40	0.49	0.33	49	203
50 ISL	10.49	10.48	33.498	25.697	229.6	0.123	3.31	52.4	18.4	1.61	20.2	0.37	0.49	0.33	50	
60	10.35	10.34	33.552	25.763	223.5	0.145	3.16	49.9	19.8	1.66	21.1	0.14	0.48	0.39	60	202
69	10.28	10.27	33.586	25.802	220.0	0.165	3.07	48.4	20.8	1.70	21.4	0.11	0.45	0.43	69	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 19.0 N	120 48.0 W	24/07/04	1357 UTC	794 m	340 11 kn	330 02 04	1	1013.5 mb	16.1 C	15.0 C		7/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	14.85	14.85	33.483	24.836	310.4	0.000	6.17	107.1	1.8	0.21	0.9	0.09	7.03	0.47	0	
2	14.85	14.85	33.483	24.836	310.5	0.006	6.17	107.1	1.8	0.21	0.9	0.09	7.03	0.47	2	220
10	14.32	14.32	33.491	24.955	299.3	0.031	6.04	103.8	3.1	0.31	2.3	0.15	8.45	0.27	10	219
20	12.62	12.62	33.556	25.350	262.0	0.059	4.86	80.6	8.9	0.80	9.7	0.23	5.89	0.34	20	218
30	10.45	10.45	33.744	25.895	210.3	0.082	3.11	49.3	20.4	1.61	20.9	0.19	1.92	0.16	30	217
40	9.73	9.73	33.863	26.110	190.0	0.102	2.50	39.0	26.9	1.93	24.5	0.12	0.41	0.29	40	216
50	9.67	9.66	33.892	26.143	187.1	0.121	2.44	38.1	27.7	1.97	24.9	0.11	0.32	0.31	50	215
60	9.62	9.61	33.924	26.177	184.2	0.140	2.40	37.4	28.3	1.97	25.3	0.07	0.13	0.20	60	214
70	9.53	9.52	33.965	26.224	179.9	0.158	2.30	35.8	29.4	2.02	25.9	0.08	0.13	0.19	70	213
75 ISL	9.49	9.48	33.970	26.234	179.0	0.167	2.27	35.3	29.8	2.03	26.1	0.08	0.12	0.19	75	
85	9.45	9.44	33.978	26.247	178.0	0.185	2.24	34.8	30.3	2.04	26.3	0.08	0.12	0.19	85	212
100	9.48	9.47	34.033	26.286	174.7	0.211	2.25	35.0	30.3	2.05	26.3	0.03	0.16	0.13	101	211
119	9.35	9.34	34.057	26.326	171.2	0.244	2.22	34.4	31.3	2.07	26.6	0.03	0.15	0.14	120	210
125 ISL	9.30	9.29	34.065	26.340	170.0	0.254	2.19	33.9	31.8	2.09	26.8	0.03	0.22	0.15	126	
140	9.19	9.17	34.086	26.375	167.0	0.280	2.09	32.3	33.1	2.13	27.4	0.03	0.39	0.18	141	209
150 ISL	9.17	9.15	34.097	26.387	166.1	0.296	2.06	31.8	33.5	2.15	27.6	0.03	0.36	0.18	151	
168	9.13	9.11	34.114	26.407	164.5	0.326	2.00	30.9	34.2	2.17	27.9	0.03	0.24	0.19	169	208
198	8.92	8.90	34.141	26.462	159.8	0.375	1.84	28.3	36.5	2.24	28.8	0.03			199	206
200 ISL	8.91	8.89	34.142	26.464	159.6	0.378	1.83	28.1	36.6	2.24	28.8	0.03	0.23	0.18	201	
229	8.85	8.83	34.160	26.488	157.9	0.424	1.76	27.0	37.8	2.28	29.2	0.02	0.22	0.17	230	207
250 ISL	8.76	8.73	34.180	26.518	155.5	0.457	1.65	25.3	39.2	2.34	29.7	0.02			252	
268	8.66	8.63	34.197	26.547	153.0	0.485	1.54	23.5	40.7	2.39	30.2	0.02			270	205
300 ISL	8.44	8.41	34.208	26.591	149.4	0.533	1.39	21.1	43.4	2.45	31.2	0.01			302	
318	8.28	8.25	34.211	26.617	147.1	0.560	1.30	19.7	45.3	2.49	31.8	0.01			320	204
376	7.56	7.52	34.220	26.731	136.9	0.642	0.97	14.4	53.8	2.69	34.4	0.01			379	203
400 ISL	7.14	7.10	34.184	26.762	134.0	0.674	0.99	14.6	57.3	2.72	35.6	0.01			403	
442	6.47	6.43	34.133	26.813	129.2	0.730	1.01	14.7	63.3	2.78	37.4	0.01			445	202
500 ISL	6.19	6.15	34.198	26.901	121.4	0.802	0.62	8.9	71.3	2.96	39.1	0.01			504	
508	6.15	6.10	34.207	26.913	120.3	0.812	0.57	8.2	72.4	2.98	39.3	0.01			512	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 9.0 N	121 9.1 W	24/07/04	1804 UTC	2190 m	320 09 kn	330 03 06	1	1015.1 mb	17.0 C	16.0 C	13m	7/8	AC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.42	15.42	33.509	24.731	320.3	0.000	6.54	114.9	0.0	0.16	0.0	0.00	2.23	0.04	0	
2 B	15.42	15.42	33.509	24.731	320.4	0.006	6.54	114.9	0.0	0.16	0.0	0.00	2.23	0.04	2	221
8 B	14.99	14.99	33.506	24.823	311.8	0.025	6.60	114.9	0.0	0.16	0.0	0.00	2.80	0.65	8	220
10 ISL	14.89	14.89	33.508	24.847	309.7	0.032	6.57	114.2	0.0	0.16	0.2	0.01	3.66	0.60	10	
18 B	14.15	14.15	33.519	25.013	294.1	0.056	6.44	110.3	0.0	0.17	1.0	0.04	7.86	0.39	18	219
20 ISL	13.71	13.71	33.524	25.108	285.1	0.062	6.08	103.2	1.4	0.30	3.1	0.08	8.62	0.17	20	
28 B	11.83	11.83	33.554	25.499	248.0	0.083	4.45	72.6	9.0	0.97	12.6	0.22	11.67	-0.41 A	28	218
30 ISL	11.45	11.45	33.553	25.569	241.4	0.088	4.17	67.5	11.0	1.13	14.4	0.22	9.88	-0.25	30	
35 B	10.69	10.69	33.554	25.706	228.5	0.099	3.65	58.1	15.5	1.46	18.1	0.22	4.78	0.24	35	217
42	10.26	10.26	33.586	25.805	219.1	0.115	3.36	53.0	18.3	1.63	20.4	0.14	2.31	0.36	42	216
50 B	10.07	10.06	33.636	25.876	212.5	0.132	3.21	50.4	20.1	1.73	21.8	0.09	1.49	0.45	50	215
60	9.83	9.82	33.753	26.008	200.2	0.153	2.85	44.6	23.2	1.85	23.5	0.07	1.27	0.43	60	214
70	9.80	9.79	33.775	26.031	198.3	0.173	2.79	43.6	23.7	1.87	23.8	0.06	1.23	0.19	70	213
75 ISL	9.75	9.74	33.807	26.064	195.2	0.183	2.72	42.5	24.4	1.89	24.1	0.06	1.22	0.21	75	
84	9.63	9.62	33.880	26.141	188.1	0.200	2.57	40.0	26.1	1.94	24.8	0.06	1.20	0.29	84	212
99	9.37	9.36	34.000	26.278	175.4	0.227	2.30	35.7	30.0	2.07	26.2	0.05	0.76	0.16	100	211
100 ISL	9.36	9.35	34.005	26.283	174.9	0.229	2.29	35.5	30.2	2.08	26.3	0.05	0.73	0.16	101	
119	9.17	9.16	34.074	26.368	167.2	0.262	2.09	32.3	33.2	2.17	27.4	0.03	0.39	0.24	120	210
125 ISL	9.14	9.13	34.089	26.385	165.7	0.272	2.05	31.6	33.7	2.19	27.6	0.03	0.41	0.23	126	
139	9.08	9.06	34.118	26.417	162.9	0.295	1.96	30.2	34.7	2.22	28.0	0.02	0.46	0.19	140	209
150 ISL	9.02	9.00	34.137	26.442	160.8	0.312	1.89	29.1	35.6	2.25	28.4	0.02	0.42	0.19	151	
169	8.89	8.87	34.161	26.482	157.4	0.343	1.76	27.0	37.4	2.31	29.0	0.02	0.32	0.20	170	208
198	8.67	8.65	34.184	26.535	152.9	0.388	1.58	24.1	40.2	2.39	30.0	0.02	0.25	0.16	199	207
200 ISL	8.66	8.64	34.185	26.537	152.6	0.391	1.57	24.0	40.3	2.39	30.0	0.02			201	
228	8.60	8.58	34.194	26.554	151.6	0.433	1.51	23.0	41.3	2.42	30.3	0.01			229	206
250 ISL	8.49	8.46	34.206	26.581	149.4	0.466	1.42	21.6	42.9	2.47	30.8	0.01			252	
268	8.39	8.36	34.215	26.603	147.6	0.493	1.34	20.3	44.3	2.52	31.3	0.01			270	205
300 ISL	8.23	8.20	34.224	26.635	145.1	0.540	1.23	18.6	46.3	2.58	32.0	0.01			302	
318	8.14	8.11	34.228	26.652	143.8	0.566	1.17	17.7	47.5	2.61	32.4	0.01			320	204
379	7.70	7.66	34.247	26.732	136.9	0.651	0.92	13.7	53.5	2.74	34.0	0.01			382	203
400 ISL	7.56	7.52	34.255	26.759	134.6	0.680	0.83	12.4	55.7	2.78	34.6	0.01			403	
438	7.32	7.28	34.269	26.805	130.8	0.730	0.68	10.1	59.8	2.86	35.6	0.01			441	202
500 ISL	6.94	6.89	34.285	26.870	125.2	0.810	0.51	7.5	66.1	2.97	37.0	0.01			504	
514	6.85	6.80	34.289	26.886	123.8	0.827	0.47	6.9	67.5	3.00	37.3	0.01			518	201

A) NO EXPLANATION FOR HIGH ACID RATIO.

B) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 80 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 49.2 N	121 50.3 W	25/07/04	0004	UTC	3628 m	300 10 kn	020 03 08	1	1015.1 mb	20.0 C	18.2 C	20m	7/8	CU

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.68	17.68	33.341	24.080	382.4	0.000	5.72	104.9	1.1	0.47	3.8	0.09	0.26	0.05	0	
2	17.68	17.68	33.341	24.081	382.4	0.008	5.72	104.9	1.1	0.47	3.8	0.09	0.26	0.05	2	220
10 ISL	17.20	17.20	33.343	24.197	371.6	0.038	5.75	104.5	0.9	0.47	3.8	0.09	0.37	0.08	10	
11	17.11	17.11	33.343	24.218	369.6	0.042	5.76	104.5	0.9	0.47	3.8	0.09	0.39	0.08	11	219
20 ISL	16.58	16.58	33.333	24.335	358.8	0.074	5.84	104.9	1.0	0.46	3.7	0.09	0.37	0.08	20	
21	16.53	16.53	33.333	24.346	357.7	0.078	5.85	104.9	1.0	0.46	3.7	0.09	0.37	0.08	21	218
30	16.40	16.40	33.374	24.408	352.1	0.110	5.87	105.1	1.1	0.45	3.6	0.09	0.44	0.10	30	217
40	14.07	14.06	33.241	24.815	313.5	0.143	6.06	103.4	1.7	0.59	5.1	0.16	0.62	0.17	40	216
50	12.81	12.80	33.259	25.084	288.1	0.173	5.62	93.4	3.7	0.84	8.3	0.34	0.48	0.17	50	215
61	11.54	11.53	33.231	25.303	267.5	0.204	5.13	83.0	7.4	1.10	12.3	0.67	0.58	0.32	61	214
70	10.80	10.79	33.290	25.481	250.6	0.227	4.66	74.2	11.0	1.34	16.6	0.08	0.34	0.20	70	213
75 ISL	10.48	10.47	33.317	25.558	243.3	0.239	4.44	70.2	13.0	1.43	18.1	0.06	0.26	0.16	75	
85	10.03	10.02	33.390	25.692	230.8	0.263	4.00	62.7	16.8	1.59	20.5	0.02	0.17	0.10	85	212
100	9.74	9.73	33.606	25.909	210.4	0.296	3.22	50.2	22.1	1.84	24.1	0.02	0.05	0.08	100	211
119	9.26	9.25	33.694	26.057	196.7	0.335	3.21	49.5	23.9	1.81	24.4	0.02	0.09	0.09	120	210
125 ISL	9.14	9.13	33.743	26.114	191.4	0.347	3.19	49.1	24.8	1.81	24.7	0.02	0.07	0.08	126	
140	8.88	8.87	33.870	26.255	178.3	0.374	3.11	47.6	27.3	1.84	25.6	0.01	0.02	0.05	141	209
150 ISL	8.71	8.69	33.929	26.328	171.5	0.392	3.07	46.9	29.1	1.86	26.1	0.01	0.02	0.05	151	
169	8.42	8.40	34.006	26.433	161.8	0.423	2.93	44.5	32.8	1.92	27.4	0.02	0.01	0.05	170	208
199	8.06	8.04	34.047	26.520	154.0	0.471	2.30	34.6	39.2	2.18	30.7	0.03	0.02	0.05	200	207
200 ISL	8.05	8.03	34.047	26.521	153.9	0.472	2.30	34.6	39.3	2.18	30.7	0.03			201	
230	7.60	7.58	34.039	26.581	148.5	0.518	2.30	34.3	42.9	2.22	31.7	0.04			231	206
250 ISL	7.36	7.34	34.043	26.618	145.2	0.547	2.12	31.4	46.3	2.31	32.9	0.03			251	
269	7.17	7.14	34.053	26.653	142.1	0.574	1.89	27.9	49.4	2.41	34.1	0.02			271	205
300 ISL	6.91	6.88	34.085	26.714	136.6	0.618	1.53	22.4	52.6	2.56	35.6	0.01			302	
318	6.78	6.75	34.104	26.747	133.8	0.642	1.34	19.6	54.2	2.63	36.4	0.01			320	204
377	6.41	6.38	34.130	26.817	127.7	0.719	1.00	14.5	61.9	2.78	38.3	0.01			379	203
400 ISL	6.20	6.16	34.148	26.859	124.0	0.748	0.84	12.1	66.3	2.86	39.2	0.01			403	
439	5.85	5.81	34.182	26.930	117.4	0.795	0.60	8.6	73.7	2.98	40.7	0.01			442	202
500 ISL	5.58	5.54	34.229	27.001	111.3	0.865	0.41	5.8	80.6	3.08	41.8	0.01			503	
514	5.52	5.48	34.240	27.017	109.9	0.880	0.37	5.3	82.2	3.10	42.0	0.01			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 80 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 28.8 N	122 32.0 W	25/07/04	0629	UTC	3987 m	300 09 kn			1016.8 mb	18.5 C	17.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.40	17.40	33.065	23.936	396.1	0.000	5.74	104.6	1.4	0.43	1.7	0.06	0.22	0.05	0	
2	17.40	17.40	33.065	23.936	396.2	0.008	5.74	104.6	1.4	0.43	1.7	0.06	0.22	0.05	2	220
10	17.35	17.35	33.065	23.948	395.3	0.040	5.74	104.5	1.3	0.43	1.7	0.06	0.24	0.07	10	219
20	16.19	16.19	33.146	24.280	364.0	0.078	5.98	106.4	1.7	0.47	2.6	0.09	0.42	0.10	20	218
30	13.07	13.07	33.482	25.205	276.1	0.110	5.71	95.6	6.8	0.86	7.9	0.32	0.93	0.53	30	217
40	12.31	12.30	33.505	25.371	260.5	0.136	5.19	85.5	9.0	1.11	10.4	0.67	0.85	0.37	40	216
50	11.77	11.76	33.538	25.498	248.6	0.162	4.78	77.9	11.7	1.32	13.5	0.83	0.46	0.21	50	215
60	10.55	10.54	33.484	25.676	231.8	0.186	4.15	65.8	16.1	1.59	19.8	0.12	0.35	0.16	60	214
70	10.17	10.16	33.637	25.861	214.5	0.208	3.35	52.7	21.0	1.80	22.9	0.03	0.13	0.11	70	213
75 ISL	9.95	9.94	33.655	25.912	209.7	0.219	3.16	49.5	23.2	1.87	24.1	0.03	0.08	0.10	75	
85	9.58	9.57	33.660	25.977	203.6	0.239	2.99	46.5	26.2	1.95	25.6	0.03	0.03	0.09	85	212
100	9.37	9.36	33.745	26.078	194.3	0.269	2.83	43.8	26.2	1.96	25.6	0.03	0.02	0.07	100	211
120	9.26	9.25	33.898	26.216	181.6	0.307	2.34	36.2	32.5	2.15	28.8	0.02	0.03	0.10	121	210
125 ISL	9.18	9.17	33.918	26.245	179.0	0.316	2.32	35.8	32.5	2.15	28.8	0.02	0.03	0.10	126	
140	8.91	8.90	33.955	26.317	172.4	0.342	2.24	34.4	32.5	2.15	28.8	0.02	0.02	0.10	141	209
150 ISL	8.72	8.70	33.973	26.361	168.4	0.359	2.44	37.3	33.0	2.09	28.3	0.02	0.01	0.08	151	
169	8.42	8.40	34.005	26.432	161.9	0.391	2.72	41.3	34.0	2.01	27.9	0.02	0.01	0.05	170	208
198	8.31	8.29	34.081	26.509	155.1	0.437	1.88	28.5	39.8	2.30	30.9	0.01	0.03	0.05	199	207
200 ISL	8.29	8.27	34.084	26.514	154.6	0.440	1.85	28.0	40.2	2.31	31.0	0.01			201	
228	7.92	7.90	34.110	26.590	147.8	0.482	1.63	24.5	44.7	2.44	32.4	0.02			229	206
250 ISL	7.67	7.65	34.125	26.639	143.5	0.514	1.49	22.2	47.7	2.50	33.2	0.02			251	
268	7.45	7.42	34.127	26.672	140.5	0.540	1.41	20.9	50.2	2.54	33.9	0.02			270	205
300 ISL	6.83	6.80	34.086	26.726	135.5	0.584	1.46	21.4	55.5	2.60	35.3	0.01			302	
318	6.49	6.46	34.064	26.754	132.9	0.608	1.49	21.6	58.5	2.64	36.1	0.01			320	204
378	5.99	5.96	34.098	26.845	124.7	0.685	1.08	15.5	67.7	2.84	38.4	0.01			380	203
400 ISL	5.86	5.83	34.116	26.876	122.0	0.712	0.93	13.3	71.0	2.90	39.1	0.01			403	
438	5.67	5.63	34.150	26.927	117.5	0.758	0.69	9.8	76.6	2.99	40.2	0.01			441	202
500 ISL	5.30	5.26	34.196	27.008	110.3	0.828	0.47	6.6	85.7	3.12	41.6	0.01			503	
515	5.21	5.17	34.208	27.028	108.4	0.845	0.42	5.9	87.9	3.15	42.0	0.01			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 9.0 N	123 12.7 W	25/07/04	1228 UTC	4230 m	340 11 kn			1016.8 mb	17.7 C	16.9 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.09	18.09	33.014	23.731	415.7	0.000	5.62	103.7	1.5	0.41	1.3	0.04	0.26	0.05	0	
1	18.09	18.09	33.014	23.731	415.8	0.004	5.62	103.7	1.5	0.41	1.3	0.04	0.26	0.05	1	220
10 ISL	17.66	17.66	33.027	23.845	405.2	0.041	5.72	104.7	1.5	0.38	1.0	0.03	0.28	0.06	10	
16	16.91	16.91	32.895	23.922	398.0	0.065	5.85	105.4	1.5	0.36	0.8	0.03	0.32	0.08	16	219
20 ISL	15.94	15.94	32.845	24.106	380.6	0.081	6.01	106.2	1.6	0.37	0.8	0.03	0.35	0.10	20	
30	13.62	13.62	32.840	24.598	333.9	0.116	6.30	106.3	2.1	0.41	0.7	0.04	0.45	0.16	30	218
45	13.00	12.99	33.221	25.017	294.4	0.164	5.92	98.8	4.0	0.75	6.5	0.25	0.59	0.23	45	217
50 ISL	12.55	12.54	33.291	25.159	280.9	0.178	5.68	93.9	5.8	0.90	8.5	0.36	0.52	0.22	50	
55	12.06	12.05	33.325	25.279	269.6	0.192	5.43	88.9	7.6	1.04	10.3	0.45	0.44	0.22	55	216
65	11.22	11.21	33.259	25.383	259.9	0.218	5.12	82.3	9.5	1.18	12.5	0.39	0.38	0.20	65	215
75 ISL	10.63	10.62	33.379	25.581	241.2	0.243	4.62	73.4	13.9	1.44	16.9	0.40	0.28	0.19	75	
76	10.57	10.56	33.395	25.603	239.1	0.246	4.55	72.2	14.4	1.47	17.4	0.40	0.27	0.19	76	214
84	9.93	9.92	33.458	25.762	224.1	0.264	3.79	59.3	18.9	1.67	21.2	0.04	0.16	0.11	84	213
95	9.86	9.85	33.533	25.832	217.7	0.289	3.55	55.5	20.8	1.76	22.4	0.03	0.08	0.14	95	212
100 ISL	9.83	9.82	33.586	25.879	213.4	0.299	3.38	52.8	21.8	1.81	23.0	0.03	0.06	0.12	100	
109	9.74	9.73	33.675	25.963	205.5	0.318	3.10	48.4	23.5	1.88	24.0	0.02	0.04	0.09	110	211
125	9.44	9.43	33.732	26.057	196.8	0.350	2.95	45.7	25.4	1.94	25.0	0.01	0.04	0.11	126	210
146	9.08	9.06	33.890	26.239	179.9	0.390	2.74	42.2	28.7	1.97	26.1	0.02	0.02	0.09	147	209
150 ISL	8.99	8.97	33.905	26.265	177.5	0.397	2.75	42.2	29.1	1.97	26.2	0.02	0.02	0.09	151	
170	8.62	8.60	33.964	26.370	167.9	0.432	2.82	43.0	31.6	1.96	27.0	0.02	0.01	0.09	171	208
200 ISL	8.68	8.66	34.119	26.482	157.9	0.480	1.71	26.1	38.7	2.34	30.2	0.01	0.01	0.10	201	
202	8.68	8.66	34.127	26.488	157.3	0.484	1.64	25.1	39.2	2.37	30.4	0.01	0.01	0.10	203	207
233	7.94	7.92	34.086	26.569	149.9	0.531	1.84	27.6	43.3	2.36	31.8	0.01			234	206
250 ISL	7.77	7.75	34.099	26.604	146.8	0.556	1.70	25.4	45.7	2.42	32.6	0.01			251	
269	7.61	7.58	34.116	26.641	143.6	0.584	1.51	22.5	48.6	2.51	33.4	0.01			271	205
300 ISL	7.04	7.01	34.087	26.698	138.3	0.628	1.53	22.5	53.5	2.58	34.8	0.01			302	
322	6.63	6.60	34.066	26.737	134.6	0.658	1.54	22.4	57.0	2.62	35.7	0.01			324	204
379	6.24	6.21	34.112	26.825	126.9	0.732	1.07	15.4	65.6	2.81	37.9	0.01			381	203
400 ISL	6.09	6.05	34.122	26.852	124.5	0.759	0.96	13.8	68.4	2.86	38.5	0.01			403	
437	5.83	5.79	34.141	26.900	120.2	0.804	0.79	11.3	73.3	2.95	39.5	0.01			440	202
500	5.51	5.47	34.191	26.979	113.2	0.877	0.51	7.2	81.8	3.08	41.0	0.01			503	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 80 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 48.7 N	123 54.2 W	25/07/04	1847 UTC	4380 m	330 07 kn	340 02 04	2	1018.2 mb	19.0 C	17.5 C	28m	8/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.49	17.49	32.797	23.709	417.8	0.000	5.69	103.7	1.4	0.34	0.0	0.00	0.18	0.02	0	
1 A	17.49	17.49	32.797	23.709	417.8	0.004	5.69	103.7	1.4	0.34	0.0	0.00	0.18	0.02	1	222
10 ISL	17.29	17.29	32.787	23.750	414.3	0.042	5.73	104.0	1.4	0.33	0.0	0.00	0.21	0.03	10	
17 A	17.07	17.07	32.781	23.797	410.0	0.070	5.77	104.3	1.4	0.33	0.0	0.00	0.28	0.04	17	221
20 ISL	17.02	17.02	32.783	23.810	408.8	0.083	5.78	104.3	1.4	0.33	0.0	0.00	0.32	0.03	20	
28	16.90	16.90	32.795	23.848	405.5	0.115	5.80	104.5	1.4	0.33	0.0	0.00	0.44	0.01	28	220
30 ISL	16.87	16.87	32.797	23.857	404.7	0.123	5.80	104.4	1.4	0.33	0.0	0.00	0.48	0.00	30	
40 A	16.61	16.60	32.822	23.936	397.4	0.164	5.85	104.8	1.6	0.35	0.1	0.01	0.60	-0.04	40	219
49	16.14	16.13	32.882	24.090	383.0	0.199	6.00	106.5	1.9	0.37	0.6	0.03	0.57	0.14	49	218
50 ISL	16.02	16.01	32.894	24.126	379.6	0.202	6.03	106.8	1.9	0.38	0.7	0.03	0.56	0.14	50	
58 A	14.72	14.71	32.941	24.448	349.1	0.232	6.22	107.4	2.0	0.43	1.3	0.06	0.45	0.14	58	217
66	13.11	13.10	32.809	24.677	327.3	0.259	6.25	104.3	2.4	0.46	1.1	0.07	0.94	0.18	66	216
75 A	12.52	12.51	32.894	24.858	310.2	0.287	5.98	98.6	3.4	0.62	3.9	0.18	0.69	0.26	75	215
86	11.53	11.52	32.946	25.083	288.9	0.320	5.34	86.2	6.0	0.88	8.1	0.14	0.52	0.33	86	214
95	11.14	11.13	33.043	25.229	275.1	0.346	5.23	83.8	8.2	1.06	10.8	0.20	0.33	0.19	95	213
100 ISL	10.79	10.78	33.086	25.325	266.1	0.359	5.10	81.1	9.7	1.16	12.5	0.22	0.25	0.13	100	
106 A	10.43	10.42	33.157	25.443	255.0	0.375	4.90	77.4	11.7	1.29	14.7	0.23	0.19	0.09	106	212
116	10.38	10.37	33.377	25.623	238.1	0.399	4.54	71.7	15.1	1.51	18.1	0.27	0.15	0.10	116	211
124	10.53	10.52	33.549	25.731	228.0	0.418	4.62	73.3	17.9	1.64	20.2	0.12	0.08	0.14	125	210
125 ISL	10.51	10.50	33.557	25.741	227.1	0.420	4.57	72.5	18.2	1.65	20.4	0.11	0.07	0.14	126	
144	9.70	9.68	33.612	25.921	210.2	0.462	3.41	53.1	22.2	1.81	23.2	0.02	0.02	0.08	145	209
150 ISL	9.50	9.48	33.649	25.983	204.4	0.474	3.34	51.8	23.4	1.84	23.8	0.02	0.01	0.06	151	
169	9.03	9.01	33.778	26.160	187.9	0.512	3.10	47.6	26.5	1.88	25.1	0.01	0.00	0.03	170	208
199	8.75	8.73	33.931	26.324	172.8	0.566	3.26	49.8	28.6	1.82	24.8	0.01	0.00	0.03	200	207
200 ISL	8.74	8.72	33.935	26.329	172.4	0.568	3.24	49.5	28.8	1.83	24.9	0.01			201	
228	8.51	8.49	34.025	26.435	162.8	0.614	2.52	38.3	34.2	2.08	28.3	0.01			229	206
250 ISL	8.18	8.15	34.044	26.500	156.8	0.650	2.37	35.8	37.9	2.17	29.7	0.01			251	
269	7.87	7.84	34.046	26.548	152.5	0.679	2.32	34.8	41.0	2.22	30.5	0.01			270	205
300 ISL	7.48	7.45	34.069	26.623	145.7	0.725	1.97	29.3	46.5	2.38	32.4	0.01			302	
317	7.28	7.25	34.079	26.659	142.4	0.750	1.77	26.2	49.5	2.47	33.5	0.01			319	204
378	6.49	6.46	34.075	26.763	132.9	0.834	1.39	20.2	59.5	2.68	36.6	0.01			380	203
400 ISL	6.26	6.22	34.094	26.808	128.8	0.862	1.18	17.0	64.0	2.78	37.7	0.01			402	
437	5.93	5.89	34.134	26.882	122.0	0.909	0.85	12.2	71.4	2.93	39.4	0.01			440	202
500 ISL	5.59	5.55	34.183	26.963	114.8	0.983	0.57	8.1	80.0	3.07	40.9	0.01			503	
515	5.51	5.47	34.195	26.982	113.1	1.001	0.50	7.1	82.0	3.10	41.2	0.01			518	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 81.7 43.5

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 24.2 N	119 48.1 W	27/07/04	2207	UTC	20 m	260	11 kn	260 01 05	1	1012.4 mb	17.9 C	16.3 C		3/8	CU

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.68	17.68	33.487	24.192	371.7	0.000	6.02	110.5	0.9	0.17	0.0	0.02	1.50	0.24	0	
2	17.68	17.68	33.487	24.192	371.8	0.007	6.02	110.5	0.9	0.17	0.0	0.02	1.50	0.24	2	204
5	17.56	17.56	33.485	24.220	369.3	0.019	6.03	110.5	0.9	0.16	0.0	0.02	1.57	0.13	5	203
10	15.36	15.36	33.412	24.670	326.5	0.036	6.06	106.3	2.7	0.27	0.3	0.04	2.43	0.78	10	202
15	12.59	12.59	33.308	25.164	279.6	0.051	5.29	87.6	7.0	0.76	6.0	0.21	2.21	0.51	15	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 82 47

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 16.4 N	120 1.7 W	24/07/04	0639	UTC	577 m	300	06 kn			1010.0 mb	17.7 C	16.5 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.17	16.17	33.507	24.562	336.5	0.000	6.42	114.5	0.3	0.18	0.1	0.05	2.27	0.40	0	
2 A	16.17	16.17	33.507	24.562	336.6	0.007	6.42	114.5	0.3	0.18	0.1	0.05	2.27	0.40	2	224
10	14.36	14.36	33.506	24.958	299.0	0.032	6.21	106.8	0.7	0.26	1.7	0.12	8.39	0.72	10	223
20	12.59	12.59	33.506	25.317	265.1	0.060	4.64	76.9	8.3	0.94	10.1	0.29	4.35	0.55	20	222
30	11.76	11.76	33.488	25.461	251.7	0.086	4.02	65.5	12.7	1.28	14.2	0.48	1.49	0.34	30	221
40	10.98	10.98	33.530	25.636	235.2	0.111	3.64	58.3	16.4	1.47	17.5	0.31	0.68	0.44	40	220
50	10.56	10.55	33.595	25.760	223.6	0.133	3.35	53.2	18.9	1.61	19.7	0.09	0.41	0.37	50	219
60	10.17	10.16	33.711	25.918	208.8	0.155	3.02	47.6	22.2	1.74	21.8	0.04	0.37	0.32	60	218
70	9.85	9.84	33.851	26.082	193.5	0.175	2.64	41.3	26.0	1.90	23.8	0.03	0.27	0.24	70	217
75 ISL	9.71	9.70	33.920	26.159	186.2	0.185	2.47	38.6	27.8	1.97	24.8	0.02	0.23	0.20	75	
85	9.49	9.48	34.035	26.285	174.4	0.203	2.20	34.2	30.8	2.09	26.3	0.02	0.17	0.14	85	216
100	9.35	9.34	34.111	26.368	166.9	0.228	1.98	30.7	33.2	2.18	27.2	0.04	0.17	0.16	101	215
119	9.30	9.29	34.141	26.400	164.2	0.260	1.90	29.4	34.2	2.21	27.6	0.03	0.17	0.13	120	214
125 ISL	9.28	9.27	34.144	26.405	163.8	0.270	1.88	29.1	34.4	2.22	27.7	0.03	0.15	0.15	126	
140	9.23	9.21	34.148	26.417	163.0	0.294	1.84	28.5	35.0	2.24	28.0	0.03	0.12	0.19	141	213
150 ISL	9.18	9.16	34.153	26.429	162.1	0.310	1.77	27.4	35.8	2.27	28.3	0.06	0.16	0.18	151	
170	9.07	9.05	34.164	26.456	159.9	0.343	1.63	25.1	37.5	2.33	28.8	0.11	0.24	0.16	171	212
200	8.96	8.94	34.185	26.490	157.2	0.390	1.55	23.8	39.0	2.38	29.3	0.08	0.11	0.14	201	211
229	8.76	8.74	34.185	26.522	154.7	0.435	1.40	21.4	41.4	2.48	30.4	0.03			230	210
250 ISL	8.60	8.57	34.194	26.554	152.0	0.468	1.24	18.9	44.1	2.55	31.1	0.01			252	
269	8.44	8.41	34.204	26.587	149.2	0.496	1.09	16.6	46.8	2.62	31.7	0.01			271	209
300 ISL	8.17	8.14	34.215	26.637	144.9	0.542	0.91	13.7	51.0	2.73	32.7	0.01			302	
319	8.00	7.97	34.220	26.666	142.3	0.569	0.80	12.0	54.0	2.81	33.1	0.01			321	208
378	7.37	7.33	34.233	26.768	133.2	0.650	0.43	6.4	67.8	3.17	33.1	0.10			381	207
400 ISL	7.12	7.08	34.237	26.807	129.8	0.679	0.35	5.2	72.2	3.21	33.3	0.07			403	
436	6.79	6.75	34.243	26.857	125.3	0.725	0.26	3.8	79.3	3.27	33.5	0.01			439	206
475	6.63	6.59	34.248	26.883	123.3	0.774			87.8	3.43	31.6	0.01			478	205
500 ISL	6.54	6.49	34.250	26.896	122.3	0.804	0.05	0.7	98.2	3.72	27.6	0.01			504	
510	6.51	6.46	34.251	26.901	121.9	0.817	0.03	0.4	102.4	3.86	25.7	0.01			514	204
539	6.47	6.42	34.258	26.912	121.3	0.852	0.02	0.3	110.4	4.27	20.2	1.15			543	203
566	6.43	6.38	34.254	26.915	121.4	0.885	0.03	0.4	116.9	4.93	11.9	3.64			570	202
571	6.43	6.38	34.257	26.917	121.2	0.891	0.03	0.4	117.0	4.96	11.5	3.82			575	201

A) SANTA BARBARA BASIN STATION.

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 83.3 39.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 15.6 N	119 19.4 W	24/07/04	0217	UTC	18 m	260	10 kn	300 01 08	1	1009.2 mb	18.7 C	16.9 C		1/8	CS

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.46	17.46	33.366	24.152	375.5	0.000	8.14	148.7	5.0	0.08	0.0	0.02	12.47	0.35	0	
1	17.46	17.46	33.366	24.152	375.5	0.004	8.14	148.7	5.0	0.08	0.0	0.02	12.47	0.35	1	204
5	17.46	17.46	33.366	24.153	375.7	0.019	8.15	148.9	5.0	0.08	0.0	0.02	9.10	0.97	5	203
10	15.44	15.44	33.345	24.601	333.0	0.036	7.12	125.0	4.8	0.13	0.0	0.02	25.94	1.72	10	202
14	14.11	14.11	33.336	24.880	306.6	0.049	4.65	79.5	7.4	0.22	0.0	0.02	7.87	1.15	14	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 83 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 13.6 N	119 24.5 W	24/07/04	0048	UTC	32 m	280	12 kn	310 01 05	1	1009.3 mb	17.4 C	16.9 C	07m	2/8	CS

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.28	18.28	33.394	23.975	392.4	0.000	6.69	124.2	2.5	0.10	0.0	0.01	2.14	0.28	0	
1	18.28	18.28	33.394	23.975	392.5	0.004	6.69	124.2	2.5	0.10	0.0	0.01	2.14	0.28	1	205
5	18.14	18.14	33.388	24.005	389.8	0.020	6.73	124.6	2.4	0.10	0.0	0.01	1.86	0.34	5	204
10	16.83	16.83	33.363	24.299	361.8	0.038	6.79	122.6	2.7	0.16	0.0	0.01	2.27	0.52	10	203
20	14.40	14.40	33.331	24.815	313.0	0.072	6.27	107.8	4.8	0.33	0.1	0.03	3.30	0.72	20	202
27	13.51	13.51	33.344	25.010	294.6	0.093	5.29	89.3	7.6	0.58	1.2	0.15	2.17	0.55	27	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 10.8 N	119 30.5 W	23/07/04	2241	UTC	113 m	270	11 kn	290 02 06	0	1010.3 mb	18.7 C	17.3 C	12m	0/8	

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.00	18.00	33.397	24.046	385.7	0.000	6.18	114.1	1.6	0.20	0.0	0.00	1.09	0.24	0	
2	18.00	18.00	33.397	24.046	385.7	0.008	6.18	114.1	1.6	0.20	0.0	0.00	1.09	0.24	2	212
10	17.40	17.40	33.376	24.175	373.7	0.038	6.43	117.4	2.0	0.20	0.0	0.00	1.29	0.25	10	211
20	14.80	14.80	33.398	24.782	316.2	0.073	5.53	95.9	4.5	0.58	4.9	0.11	0.92	0.36	20	209
30	13.13	13.13	33.509	25.214	275.3	0.102	4.62	77.4	10.6	0.99	10.0	0.26	0.62	0.34	30	208
40	12.02	12.01	33.374	25.324	264.9	0.129	4.64	75.9	9.8	1.08	11.7	0.22	1.00	0.47	40	207
49	10.85	10.84	33.325	25.499	248.4	0.152	4.24	67.6	12.4	1.31	15.3	0.14	0.77	0.62	49	206
50 ISL	10.77	10.76	33.334	25.521	246.4	0.155	4.19	66.7	12.8	1.33	15.7	0.13	0.73	0.60	50	
60	10.28	10.27	33.470	25.712	228.4	0.178	3.79	59.8	16.3	1.51	18.6	0.06	0.32	0.27	60	205
69	10.11	10.10	33.568	25.817	218.6	0.199	3.57	56.1	18.2	1.60	19.8	0.03	0.17	0.15	69	204
75 ISL	10.00	9.99	33.656	25.904	210.4	0.211	3.35	52.6	20.1	1.68	20.9	0.03	0.10	0.11	75	
86	9.85	9.84	33.804	26.045	197.2	0.234	2.96	46.3	23.3	1.82	22.8	0.02	0.03	0.07	86	203
100 ISL	9.83	9.82	33.880	26.108	191.6	0.261	2.71	42.4	25.2	1.91	23.9	0.03	0.03	0.08	101	
101	9.83	9.82	33.882	26.110	191.5	0.263	2.70	42.3	25.3	1.91	23.9	0.03	0.03	0.08	102	202
114	9.80	9.79	33.915	26.141	188.8	0.288	2.61	40.8	26.0	1.94	24.2	0.03	0.03	0.09	115	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 52.4 N	120 8.0 W	23/07/04	1730	UTC	104 m	310	20 kn	310 03 04	1	1012.4 mb	15.6 C	15.0 C	12m	6/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	13.91	13.91	33.420	24.986	296.1	0.000	5.19	88.4	7.3	0.81	7.8	0.16	1.09	0.24	0	
2 A	13.91	13.91	33.420	24.986	296.2	0.006	5.19	88.4	7.3	0.81	7.8	0.16	1.09	0.24	2	212
7 A	13.90	13.90	33.418	24.986	296.3	0.021	5.18	88.2	7.3	0.81	7.8	0.16	1.35	0.03	7	211
10 ISL	13.26	13.26	33.387	25.093	286.2	0.029	5.08	85.3	7.7	0.88	8.8	0.19	1.37	0.14	10	
17 A	11.53	11.53	33.358	25.402	256.9	0.048	4.65	75.3	8.7	1.12	12.4	0.28	1.41	0.50	17	210
20 ISL	11.20	11.20	33.389	25.486	249.0	0.056	4.40	70.8	10.8	1.23	14.0	0.29	1.26	0.47	20	
25 A	10.86	10.86	33.458	25.601	238.2	0.068	3.97	63.4	14.7	1.40	16.6	0.30	0.96	0.42	25	209
30 ISL	10.56	10.56	33.526	25.706	228.3	0.080	3.61	57.3	17.2	1.54	18.8	0.17	0.76	0.37	30	
32 A	10.47	10.47	33.551	25.741	225.0	0.084	3.50	55.4	18.0	1.59	19.5	0.12	0.70	0.35	32	208
39	10.30	10.30	33.601	25.810	218.6	0.100	3.35	52.9	19.5	1.65	20.4	0.10	0.51	0.31	39	207
46 A	9.89	9.88	33.781	26.020	198.8	0.115	2.89	45.3	24.2	1.85	23.0	0.08	0.32	0.24	46	206
50 ISL	9.80	9.79	33.809	26.057	195.4	0.122	2.84	44.4	24.5	1.86	23.4	0.06	0.23	0.22	50	
53	9.76	9.75	33.821	26.073	193.9	0.128	2.83	44.2	24.8	1.87	23.6	0.05	0.17	0.20	53	205
60	9.66	9.65	33.923	26.169	184.9	0.142	2.61	40.7	27.0	1.95	24.6	0.04	0.10	0.15	60	204
70	9.55	9.54	34.007	26.253	177.1	0.160	2.35	36.6	29.5	2.05	25.6	0.04	0.07	0.12	70	203
75 ISL	9.51	9.50	34.035	26.282	174.5	0.168	2.28	35.5	30.4	2.08	26.0	0.04	0.07	0.12	75	
85	9.45	9.44	34.067	26.317	171.4	0.186	2.20	34.2	31.4	2.11	26.4	0.04	0.06	0.13	85	202
99	9.43	9.42	34.065	26.319	171.5	0.210	2.19	34.0	31.5	2.12	26.5	0.05	0.10	0.11	100	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 83 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 44.8 N	120 24.9 W	23/07/04	1228	UTC	1045 m	320	19 kn			1011.0 mb	15.9 C	15.0 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.99	15.99	33.434	24.546	338.0	0.000	5.83	103.5	3.5	0.33	1.3	0.08	1.91	0.54	0	
2	15.99	15.99	33.434	24.547	338.0	0.007	5.83	103.5	3.5	0.33	1.3	0.08	1.91	0.54	2	220
10	15.43	15.43	33.440	24.676	325.9	0.033	5.83	102.4	3.4	0.35	1.7	0.09	2.67	0.75	10	219
20	13.91	13.91	33.474	25.028	292.7	0.064	5.27	89.8	5.2	0.68	6.6	0.20	2.83	0.74	20	218
30	11.31	11.31	33.561	25.600	238.4	0.091	3.87	62.4	14.6	1.44	17.4	0.23	0.88	0.56	30	217
40	10.37	10.37	33.632	25.822	217.5	0.114	3.37	53.3	19.3	1.65	20.8	0.15	0.84	0.59	40	216
50 ISL	9.99	9.98	33.704	25.943	206.2	0.135	3.09	48.5	21.8	1.75	22.4	0.09	0.77	0.51	50	
51	9.97	9.96	33.710	25.951	205.4	0.137	3.07	48.2	22.0	1.75	22.5	0.09	0.76	0.50	51	215
59	9.90	9.89	33.744	25.990	202.0	0.153	2.97	46.5	22.8	1.78	22.9	0.07	0.59	0.47	59	214
70	9.65	9.64	33.856	26.119	189.9	0.175	2.73	42.6	25.5	1.88	24.4	0.04	0.33	0.41	70	213
75 ISL	9.56	9.55	33.902	26.170	185.2	0.184	2.63	40.9	26.8	1.92	25.0	0.04	0.25	0.38	75	
85	9.41	9.40	33.978	26.254	177.4	0.202	2.45	38.0	29.0	2.00	25.9	0.03	0.15	0.31	85	212
99	9.32	9.31	34.038	26.316	171.8	0.227	2.27	35.2	31.0	2.06	26.7	0.04	0.13	0.25	100	211
100 ISL	9.31	9.30	34.042	26.320	171.4	0.228	2.26	35.0	31.1	2.06	26.7	0.04	0.13	0.25	101	
119	9.17	9.16	34.116	26.401	164.1	0.260	2.05	31.7	33.6	2.15	27.6	0.02	0.04	0.17	120	210
125 ISL	9.10	9.09	34.127	26.421	162.3	0.270	1.99	30.7	34.4	2.18	27.9	0.03	0.04	0.14	126	
139	8.96	8.95	34.146	26.458	159.0	0.292	1.86	28.6	36.1	2.24	28.7	0.04	0.03	0.10	140	209
150 ISL	8.91	8.89	34.164	26.481	157.1	0.310	1.77	27.2	37.1	2.28	29.1	0.04	0.03	0.11	151	
167	8.86	8.84	34.191	26.510	154.6	0.336	1.63	25.0	38.6	2.33	29.5	0.03	0.02	0.12	168	208
198	8.67	8.65	34.229	26.570	149.5	0.384	1.39	21.2	41.5	2.44	30.4	0.02	0.01	0.09	199	207
200 ISL	8.65	8.63	34.229	26.573	149.3	0.387	1.38	21.1	41.7	2.45	30.5	0.02			201	
228	8.38	8.36	34.224	26.611	146.1	0.428	1.29	19.6	44.4	2.51	31.5	0.01			229	206
250 ISL	8.22	8.19	34.237	26.646	143.1	0.460	1.17	17.7	46.5	2.56	32.1	0.01			252	
267	8.12	8.09	34.248	26.670	141.1	0.484	1.08	16.3	48.0	2.60	32.4	0.01			269	205
300 ISL	7.97	7.94	34.244	26.689	139.8	0.530	1.04	15.6	49.5	2.62	33.0	0.01			302	
317	7.91	7.88	34.239	26.694	139.5	0.554	1.03	15.5	50.1	2.63	33.2	0.01			319	204
377	7.64	7.60	34.249	26.742	135.9	0.637	0.89	13.3	53.8	2.72	34.1	0.01			380	203
400 ISL	7.52	7.48	34.255	26.765	134.1	0.668	0.82	12.2	55.6	2.76	34.6	0.01			403	
437	7.33	7.29	34.265	26.800	131.2	0.717	0.70	10.4	58.7	2.83	35.5	0.01			440	202
500 ISL	7.02	6.97	34.283	26.858	126.4	0.798	0.56	8.2	63.6	2.92	36.7	0.01			504	
516	6.94	6.89	34.288	26.873	125.2	0.818	0.52	7.6	64.9	2.94	37.0	0.01			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 83 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 34.7 N	120 45.4 W	23/07/04	0808 UTC	1397 m	310 20 kn			1011.9 mb	16.9 C	15.5 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.89	15.89	33.454	24.584	334.4	0.000	5.92	104.9	1.0	0.43	2.4	0.09	0.53	0.14	0	
3	15.89	15.89	33.454	24.584	334.4	0.010	5.92	104.9	1.0	0.43	2.4	0.09	0.53	0.14	3	222
10 ISL	15.89	15.89	33.453	24.584	334.7	0.033	5.92	104.9	0.9	0.43	2.4	0.09	0.57	0.07	10	
11	15.89	15.89	33.453	24.584	334.7	0.037	5.92	104.9	0.9	0.43	2.4	0.09	0.58	0.06	11	219
20	15.81	15.81	33.447	24.598	333.7	0.067	5.94	105.1	0.9	0.42	2.4	0.09	0.52	0.14	20	218
30	13.41	13.41	33.501	25.151	281.2	0.098	6.02	101.5	0.9	0.44	3.9	0.13	3.02	0.19	30	217
39	12.61	12.60	33.452	25.272	269.9	0.122	5.07	84.0	6.1	0.93	9.6	0.30	1.32	0.50	39	216
50	10.07	10.06	33.424	25.711	228.2	0.150	3.92	61.5	16.9	1.57	19.7	0.09	0.25	0.15	50	215
60	9.99	9.98	33.637	25.891	211.4	0.172	3.22	50.5	20.7	1.73	22.1	0.06	0.28	0.23	60	214
70	9.77	9.76	33.763	26.026	198.7	0.192	2.92	45.6	24.5	1.90	24.4	0.04	0.29	0.25	70	213
75 ISL	9.69	9.68	33.795	26.065	195.2	0.202	2.81	43.8	25.4	1.93	24.9	0.04	0.25	0.25	75	
84	9.55	9.54	33.832	26.117	190.4	0.220	2.65	41.2	26.5	1.95	25.4	0.03	0.18	0.25	84	212
100	9.30	9.29	33.909	26.218	181.1	0.249	2.45	37.9	29.0	2.05	26.6	0.02	0.18	0.25	101	211
119	9.16	9.15	33.978	26.295	174.1	0.283	2.37	36.6	30.6	2.07	27.2	0.02	0.10	0.17	120	210
125 ISL	9.04	9.03	33.976	26.312	172.5	0.293	2.47	38.0	30.7	2.05	27.2	0.03	0.08	0.15	126	
139	8.73	8.72	33.963	26.351	169.1	0.317	2.72	41.6	30.8	2.00	27.2	0.04	0.04	0.13	140	209
150 ISL	8.55	8.53	33.979	26.392	165.4	0.336	2.66	40.5	32.1	2.03	27.7	0.04	0.04	0.12	151	
168	8.31	8.29	34.021	26.461	159.0	0.365	2.57	38.9	35.5	2.09	28.9	0.05	0.03	0.11	169	208
198	7.99	7.97	34.091	26.565	149.7	0.411	1.82	27.4	42.8	2.37	32.0	0.02	0.02	0.10	199	207
200 ISL	7.96	7.94	34.092	26.570	149.2	0.414	1.80	27.0	43.2	2.38	32.1	0.02			201	
228	7.56	7.54	34.099	26.634	143.5	0.455	1.65	24.6	47.3	2.48	33.4	0.02			229	206
250 ISL	7.35	7.33	34.106	26.669	140.4	0.486	1.53	22.7	49.9	2.54	34.3	0.01			252	
268	7.22	7.19	34.112	26.693	138.4	0.511	1.44	21.3	51.8	2.59	34.9	0.01			270	205
300 ISL	7.01	6.98	34.123	26.731	135.2	0.555	1.29	19.0	54.9	2.67	35.7	0.02			302	
317	6.91	6.88	34.132	26.752	133.4	0.578	1.20	17.6	56.5	2.71	36.1	0.02			319	204
377	6.64	6.61	34.187	26.832	126.5	0.656	0.83	12.1	63.0	2.86	37.7	0.01			379	203
400 ISL	6.61	6.57	34.222	26.864	123.9	0.685	0.68	9.9	65.3	2.93	38.1	0.01			403	
437	6.56	6.52	34.275	26.913	119.8	0.730	0.46	6.7	68.9	3.02	38.7	0.01			440	202
500 ISL	6.27	6.23	34.312	26.980	114.0	0.804	0.32	4.6	75.0	3.08	39.9	0.01			504	
516	6.20	6.15	34.321	26.997	112.7	0.822	0.28	4.0	76.5	3.09	40.2	0.01			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 14.7 N	121 26.3 W	23/07/04	0129 UTC	3796 m	330 16 kn	320 05 06	2	1012.7 mb	18.1 C	16.4 C	16m	8/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.06	17.06	33.084	24.031	387.1	0.000	5.74	103.9	1.4	0.41	1.5	0.05	0.29	0.06	0	
2	17.06	17.06	33.084	24.031	387.2	0.008	5.74	103.9	1.4	0.41	1.5	0.05	0.29	0.06	2	220
10	17.07	17.07	33.086	24.031	387.4	0.039	5.74	103.9	1.3	0.40	1.5	0.05	0.16	0.03	10	219
20	16.44	16.44	33.051	24.150	376.3	0.077	5.87	104.9	1.3	0.41	1.6	0.06	0.26	0.10	20	218
30	12.61	12.61	32.868	24.819	312.8	0.111	6.08	100.4	3.0	0.59	3.7	0.20	0.47	0.19	30	217
40	11.77	11.76	32.899	25.002	295.6	0.142	5.78	93.8	4.6	0.79	6.7	0.29	0.70	0.28	40	216
50	11.96	11.95	33.169	25.177	279.2	0.171	5.49	89.6	6.2	1.02	10.0	0.36	0.63	0.36	50	215
60	11.27	11.26	33.218	25.341	263.7	0.198	5.08	81.7	8.5	1.18	12.6	0.44	0.40	0.20	60	214
69	10.90	10.89	33.307	25.477	251.0	0.221	4.64	74.1	11.9	1.37	16.5	0.12	0.23	0.13	69	213
75 ISL	10.63	10.62	33.369	25.573	242.0	0.236	4.35	69.1	14.3	1.49	18.5	0.09	0.15	0.12	75	
85	10.19	10.18	33.470	25.727	227.4	0.259	3.89	61.2	18.2	1.67	21.1	0.04	0.07	0.11	85	212
100	9.60	9.59	33.603	25.930	208.4	0.292	3.22	50.1	22.8	1.82	23.6	0.04	0.04	0.09	100	211
120	9.12	9.11	33.673	26.062	196.2	0.332	3.58	55.1	23.1	1.69	22.6	0.05	0.01	0.07	121	210
125 ISL	9.05	9.04	33.716	26.107	192.0	0.342	3.56	54.7	23.7	1.69	22.6	0.05	0.01	0.06	126	
141	8.88	8.86	33.856	26.244	179.3	0.372	3.50	53.6	26.0	1.71	23.3	0.05	0.01	0.03	142	209
150 ISL	8.81	8.79	33.901	26.290	175.1	0.388	3.40	52.0	27.2	1.74	23.9	0.05	0.01	0.03	151	
169	8.65	8.63	33.960	26.362	168.6	0.420	3.13	47.7	30.1	1.84	25.5	0.05	0.01	0.03	170	208
200	8.14	8.12	34.024	26.490	156.9	0.471	2.77	41.8	36.6	2.01	28.1	0.05	0.00	0.04	201	207
229	7.78	7.76	34.035	26.552	151.3	0.515	2.46	36.8	41.2	2.15	30.1	0.05			230	206
250 ISL	7.57	7.55	34.059	26.601	146.9	0.547	2.08	31.0	45.2	2.30	31.8	0.05			251	
268	7.39	7.36	34.081	26.644	143.1	0.573	1.76	26.1	48.7	2.43	33.1	0.05			270	205
300 ISL	7.01	6.98	34.101	26.713	136.8	0.618	1.43	21.0	54.3	2.57	34.8	0.05			302	
318	6.80	6.77	34.109	26.748	133.6	0.642	1.30	19.0	57.3	2.63	35.6	0.05			320	204
377	6.33	6.30	34.139	26.835	126.0	0.719	0.93	13.5	66.0	2.83	37.8	0.04			379	203
400 ISL	6.14	6.10	34.154	26.871	122.7	0.747	0.80	11.5	69.8	2.90	38.6	0.04			403	
436	5.86	5.82	34.179	26.926	117.7	0.790	0.62	8.9	75.6	3.00	39.7	0.04			439	202
500 ISL	5.47	5.43	34.220	27.007	110.6	0.863	0.42	6.0	84.4	3.10	41.2	0.04			503	
510	5.41	5.37	34.227	27.020	109.4	0.874	0.39	5.5	85.8	3.12	41.4	0.04			514	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 54.4 N	122 7.4 W	22/07/04	1922 UTC	4168 m	330 14 kn	330 03 05	2	1015.0 mb	20.0 C	17.5 C	25m	8/8	SC

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	17.33	17.33	32.825	23.769	412.1	0.000	5.73	104.1	1.2	0.33	0.1	0.00	0.20	0.02	0	
2	A	17.33	17.33	32.825	23.769	412.2	0.008	5.73	104.1	1.2	0.33	0.1	0.00	0.20	0.02	2	222
10	ISL	17.30	17.30	32.825	23.776	411.7	0.041	5.73	104.0	1.2	0.33	0.1	0.00	0.22	0.03	10	
15	A	17.25	17.25	32.826	23.789	410.7	0.062	5.74	104.1	1.2	0.32	0.1	0.00	0.23	0.03	15	221
20	ISL	17.18	17.18	32.827	23.807	409.2	0.082	5.74	104.0	1.2	0.31	0.1	0.00	0.24	0.02	20	
25		17.09	17.09	32.828	23.829	407.2	0.103	5.75	104.0	1.2	0.31	0.1	0.00	0.25	0.02	25	220
30	ISL	17.03	17.03	32.836	23.849	405.4	0.123	5.79	104.6	1.2	0.31	0.0	0.00	0.23	0.03	30	
35	A	16.90	16.89	32.823	23.870	403.6	0.143	5.85	105.4	1.2	0.31	0.0	0.00	0.21	0.04	35	219
44		16.27	16.26	32.885	24.063	385.5	0.179	5.97	106.3	1.4	0.31	0.0	0.00	0.21	0.04	44	218
50	ISL	16.09	16.08	33.034	24.218	370.8	0.201	6.00	106.5	1.6	0.30	0.0	0.00	0.15	0.02	50	
52	A	16.04	16.03	33.085	24.269	366.1	0.209	6.01	106.6	1.7	0.29	0.0	0.00	0.13	0.02	52	217
59		15.78	15.77	33.173	24.395	354.2	0.234	6.01	106.1	1.8	0.28	0.0	0.00	0.14	0.02	59	216
66	A	14.34	14.33	32.973	24.553	339.2	0.258	6.08	104.1	2.0	0.34	0.0	0.00	0.16	0.05	66	215
75	ISL	13.71	13.70	33.094	24.777	318.1	0.288	5.87	99.3	2.6	0.41	0.9	0.03	0.40	0.11	75	
76		13.66	13.65	33.115	24.803	315.6	0.291	5.83	98.6	2.7	0.42	1.0	0.04	0.43	0.12	76	214
86		12.24	12.23	33.080	25.056	291.7	0.321	5.45	89.4	4.8	0.70	5.8	0.10	0.50	0.18	86	213
96	A	11.21	11.20	33.133	25.287	269.7	0.349	5.20	83.5	7.3	0.87	9.0	0.04	0.26	0.14	96	212
100	ISL	10.88	10.87	33.167	25.372	261.6	0.360	5.18	82.6	8.1	0.91	9.7	0.04	0.21	0.13	100	
109		10.26	10.25	33.252	25.546	245.2	0.383	5.10	80.3	10.1	1.01	11.5	0.04	0.15	0.10	109	211
124		9.61	9.60	33.370	25.747	226.3	0.418	4.41	68.5	15.8	1.39	17.4	0.02	0.04	0.06	125	210
125	ISL	9.59	9.58	33.384	25.761	225.0	0.420	4.36	67.7	16.2	1.41	17.7	0.02	0.04	0.06	126	
145		9.31	9.29	33.660	26.022	200.5	0.463	3.43	53.0	22.8	1.75	22.9	0.03	0.01	0.03	146	209
150	ISL	9.24	9.22	33.711	26.073	195.8	0.473	3.33	51.4	23.8	1.77	23.5	0.03	0.01	0.03	151	
170		8.98	8.96	33.863	26.234	180.8	0.511	3.14	48.2	26.9	1.85	24.7	0.03	0.00	0.03	171	208
198		8.69	8.67	33.958	26.354	169.9	0.560	3.02	46.1	30.4	1.91	26.0	0.03	0.00	0.02	199	207
200	ISL	8.66	8.64	33.964	26.364	169.0	0.563	2.99	45.6	30.8	1.92	26.2	0.03			201	
229		8.26	8.24	34.032	26.479	158.5	0.611	2.60	39.3	36.5	2.08	28.6	0.03			230	206
250	ISL	7.92	7.89	34.041	26.536	153.3	0.643	2.47	37.1	40.2	2.16	29.9	0.03			251	
270		7.61	7.58	34.040	26.581	149.2	0.674	2.37	35.3	43.5	2.24	30.9	0.04			271	205
300	ISL	7.26	7.23	34.057	26.644	143.5	0.717	2.02	29.9	48.4	2.39	32.7	0.04			302	
319		7.07	7.04	34.068	26.679	140.4	0.744	1.79	26.3	51.5	2.49	33.8	0.04			321	204
378		6.45	6.42	34.092	26.782	131.1	0.825	1.31	19.0	61.4	2.72	36.7	0.04			380	203
400	ISL	6.26	6.22	34.111	26.822	127.5	0.853	1.11	16.0	65.2	2.81	37.7	0.04			402	
437		5.97	5.93	34.144	26.885	121.8	0.899	0.82	11.8	71.5	2.94	39.1	0.04			440	202
500	ISL	5.51	5.47	34.180	26.970	114.0	0.973	0.57	8.1	81.3	3.08	40.9	0.04			503	
511		5.43	5.39	34.187	26.985	112.7	0.986	0.53	7.5	83.0	3.11	41.2	0.04			514	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 83 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 34.8 N	122 48.8 W	22/07/04	1323 UTC	4274 m	340 16 kn	340 05 05	2	1015.0 mb	18.3 C	16.6 C		8/8	SC

DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0	ISL	18.82	18.82	33.079	23.600	428.2	0.000	5.45	102.0	1.5	0.32	0.0	0.00	0.09	0.01	0	
3		18.82	18.82	33.079	23.600	428.3	0.013	5.45	102.0	1.5	0.32	0.0	0.00	0.09	0.01	3	220
10	ISL	18.82	18.82	33.078	23.600	428.6	0.043	5.45	102.0	1.5	0.32	0.0	0.00	0.09	0.01	10	
16		18.82	18.82	33.077	23.599	428.9	0.069	5.45	102.0	1.4	0.32	0.0	0.00	0.09	0.02	16	219
20	ISL	18.62	18.62	33.065	23.640	425.1	0.086	5.47	102.0	1.4	0.32	0.0	0.00	0.09	0.02	20	
30		18.05	18.04	33.041	23.762	413.8	0.128	5.54	102.2	1.4	0.32	0.0	0.00	0.09	0.02	30	218
46		17.76	17.75	33.080	23.863	404.7	0.193	5.58	102.4	1.4	0.31	0.0	0.00	0.12	0.02	46	217
50	ISL	17.63	17.62	33.071	23.888	402.5	0.209	5.61	102.6	1.4	0.31	0.0	0.00	0.13	0.02	50	
60		17.10	17.09	33.033	23.985	393.5	0.249	5.72	103.6	1.4	0.32	0.0	0.00	0.17	0.04	60	216
75	ISL	15.60	15.59	32.987	24.292	364.5	0.306	5.97	104.9	1.5	0.31	0.0	0.00	0.25	0.08	75	
76		15.49	15.48	32.986	24.316	362.2	0.309	5.98	104.8	1.5	0.31	0.0	0.00	0.26	0.08	76	215
86		14.77	14.76	32.999	24.483	346.6	0.345	5.95	102.8	1.7	0.33	0.0	0.00	0.29	0.13	86	214
95		14.19	14.18	33.077	24.665	329.3	0.375	5.87	100.3	1.8	0.35	0.1	0.01	0.46	0.28	95	213
100	ISL	13.75	13.74	33.141	24.806	316.1	0.391	5.70	96.5	2.5	0.43	1.1	0.08	0.45	0.31	100	
105		13.30	13.29	33.189	24.934	303.9	0.407	5.51	92.5	3.4	0.53	2.5	0.15	0.44	0.33	105	212
115		12.63	12.61	33.143	25.030	294.9	0.437	5.29	87.5	4.6	0.72	6.1	0.10	0.26	0.28	115	211
125	ISL	11.80	11.78	33.151	25.194	279.4	0.466	5.15	83.7	6.4	0.85	8.3	0.04	0.16	0.15	125	
126		11.71	11.69	33.154	25.213	277.6	0.468	5.14	83.4	6.6	0.86	8.5	0.03	0.15	0.14	126	210
138		10.70	10.68	33.185	25.419	258.1	0.501	4.85	77.0	9.9	1.09	12.4	0.02	0.11	0.09	139	209
150	ISL	10.07	10.05	33.302	25.618	239.2	0.530	4.42	69.3	13.9	1.32	16.2	0.02	0.06	0.06	151	
165		9.63	9.61	33.497	25.843	218.0	0.565	3.80	59.1	18.9	1.59	20.3	0.02	0.01	0.03	166	208
192		9.41	9.39	33.837	26.146	189.9	0.620	2.77	42.9	26.5	1.93	25.0	0.03	0.00	0.02	193	207
200	ISL	9.33	9.31	33.896	26.205	184.4	0.635	2.60	40.2	28.0	1.99	25.8	0.03			201	
229		9.01	8.99	34.027	26.359	170.2	0.686	2.23	34.3	32.5	2.12	27.8	0.03			230	206
250	ISL	8.75	8.72	34.079	26.441	162.8	0.721	2.04	31.2	35.7	2.21	29.0	0.03			251	
274		8.42	8.39	34.108	26.515	156.1	0.759	1.86	28.2	39.5	2.30	30.3	0.03			275	205
300	ISL	8.03	8.00	34.125	26.587	149.5	0.799	1.66	25.0	44.0	2.41	31.8	0.03			302	
321		7.72	7.69	34.133	26.639	144.7	0.830	1.50	22.4	47.7	2.50	33.0	0.03			323	204
378		7.09	7.05	34.167	26.755	134.2	0.909	1.07	15.8	56.8	2.72	35.5	0.04			380	203
400	ISL	6.90	6.86	34.175	26.788	131.3	0.939	0.96	14.1	59.6	2.78	36.3	0.04			402	
437		6.61	6.57	34.185	26.835	127.1	0.986	0.81	11.8	64.2	2.86	37.4	0.04			440	202
500	ISL	6.04	6.00	34.206	26.926	118.9	1.064	0.56	8.0	74.0	2.99	39.4	0.04			503	
503		6.01	5.97	34.207	26.931	118.4	1.068	0.55	7.9	74.5	3.00	39.5	0.04			506	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 83 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 14.5 N	123 29.5 W	22/07/04	0715 UTC	4156 m	320 11 kn			1016.1 mb	19.6 C	17.2 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.31	19.31	33.091	23.485	439.2	0.000	5.42	102.4	1.3	0.33	0.0	0.00	0.09	0.01	0	
2	19.31	19.31	33.091	23.485	439.2	0.009	5.42	102.4	1.3	0.33	0.0	0.00	0.09	0.01	2	220
10 ISL	19.30	19.30	33.090	23.488	439.3	0.044	5.42	102.4	1.2	0.33	0.0	0.00	0.10	0.01	10	
15	19.30	19.30	33.090	23.488	439.5	0.066	5.42	102.4	1.2	0.33	0.0	0.00	0.10	0.01	15	219
20 ISL	18.96	18.96	33.081	23.567	432.1	0.088	5.46	102.5	1.2	0.33	0.0	0.00	0.10	0.01	20	
30	18.11	18.10	33.074	23.773	412.7	0.130	5.56	102.7	1.3	0.32	0.0	0.00	0.09	0.02	30	218
45	17.17	17.16	33.125	24.038	387.9	0.190	5.74	104.1	1.0	0.31	0.0	0.00	0.12	0.03	45	217
50 ISL	16.43	16.42	33.093	24.186	373.9	0.209	5.89	105.3	1.1	0.32	0.0	0.00	0.14	0.03	50	
55	15.66	15.65	33.068	24.341	359.3	0.227	6.01	105.8	1.2	0.34	0.0	0.00	0.17	0.04	55	216
65	14.69	14.68	33.109	24.584	336.3	0.262	5.89	101.7	1.4	0.42	1.2	0.07	0.24	0.07	65	215
75 ISL	14.00	13.99	33.112	24.731	322.5	0.295	5.73	97.5	1.9	0.52	2.1	0.37	0.28	0.15	75	
76	13.92	13.91	33.111	24.747	321.0	0.298	5.70	96.9	2.0	0.53	2.2	0.39	0.28	0.16	76	214
85	12.69	12.68	33.120	25.000	297.0	0.326	5.27	87.3	4.1	0.77	6.8	0.10	0.28	0.12	85	213
95	12.10	12.09	33.108	25.104	287.3	0.355	5.07	82.9	5.8	0.91	8.9	0.06	0.19	0.12	95	212
100 ISL	11.68	11.67	33.118	25.190	279.1	0.369	4.91	79.6	7.2	1.02	10.6	0.05	0.16	0.15	100	
110	10.84	10.83	33.175	25.386	260.6	0.396	4.54	72.3	10.6	1.24	14.2	0.03	0.12	0.19	110	211
125	10.09	10.08	33.338	25.642	236.4	0.434	4.06	63.7	15.5	1.50	18.4	0.03	0.05	0.07	126	210
144	9.56	9.54	33.548	25.894	212.7	0.476	3.59	55.7	20.3	1.71	21.6	0.02	0.01	0.04	145	209
150 ISL	9.43	9.41	33.610	25.964	206.2	0.489	3.47	53.7	21.6	1.75	22.3	0.02	0.01	0.04	151	
170	9.06	9.04	33.789	26.164	187.6	0.528	3.16	48.6	25.5	1.83	24.2	0.03	0.00	0.03	171	208
200	8.69	8.67	33.944	26.344	171.0	0.582	3.01	45.9	30.0	1.92	26.0	0.03	0.00	0.03	201	207
229	8.31	8.29	34.016	26.458	160.5	0.630	2.91	44.0	34.3	1.97	27.2	0.03			230	206
250 ISL	7.97	7.94	34.037	26.526	154.3	0.663	2.59	38.9	38.9	2.12	29.2	0.03			251	
268	7.67	7.64	34.045	26.576	149.7	0.691	2.28	34.0	42.9	2.27	31.0	0.03			269	205
300 ISL	7.27	7.24	34.056	26.642	143.7	0.738	1.96	29.0	48.0	2.41	32.9	0.03			302	
319	7.06	7.03	34.059	26.674	140.9	0.765	1.82	26.8	50.8	2.48	33.7	0.03			321	204
381	6.31	6.28	34.073	26.785	130.7	0.849	1.36	19.7	61.8	2.72	36.8	0.03			383	203
400 ISL	6.16	6.12	34.090	26.818	127.8	0.873	1.20	17.3	65.0	2.79	37.6	0.03			402	
438	5.93	5.89	34.127	26.877	122.5	0.921	0.91	13.0	71.0	2.91	38.9	0.03			441	202
500 ISL	5.63	5.59	34.172	26.950	116.1	0.995	0.63	9.0	78.6	3.04	40.3	0.03			503	
511	5.58	5.54	34.180	26.962	115.1	1.008	0.58	8.2	79.9	3.06	40.6	0.03			514	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 83 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 54.8 N	124 10.1 W	22/07/04	0105 UTC	4207 m	340 11 kn	020 04 05	2	1016.4 mb	20.3 C	18.1 C	27m	8/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.72	19.72	32.828	23.180	468.3	0.000	5.41	102.9	0.9	0.31	0.0	0.00	0.08	0.01	0	
2	19.72	19.72	32.828	23.180	468.4	0.009	5.41	102.9	0.9	0.31	0.0	0.00	0.08	0.01	2	220
10 ISL	19.37	19.37	32.857	23.292	458.0	0.046	5.44	102.8	1.0	0.31	0.0	0.00	0.07	0.01	10	
15	19.04	19.04	32.873	23.388	449.0	0.069	5.47	102.7	1.0	0.31	0.0	0.00	0.07	0.01	15	219
20 ISL	18.93	18.93	32.853	23.401	448.0	0.092	5.50	103.0	1.0	0.31	0.0	0.00	0.07	0.01	20	
30	18.37	18.36	32.789	23.491	439.6	0.136	5.55	102.8	1.0	0.31	0.0	0.00	0.08	0.01	30	218
45	15.54	15.53	32.762	24.132	378.9	0.197	6.17	108.1	1.4	0.32	0.0	0.00	0.10	0.02	45	217
50 ISL	15.14	15.13	32.815	24.260	366.8	0.216	6.16	107.1	1.5	0.32	0.0	0.00	0.10	0.02	50	
60	14.72	14.71	32.935	24.443	349.6	0.252	6.15	106.1	1.7	0.31	0.0	0.00	0.11	0.03	60	216
75	14.19	14.18	33.037	24.634	331.8	0.303	6.01	102.7	1.9	0.33	0.0	0.00	0.16	0.06	75	215
85	14.95	14.94	33.331	24.700	325.9	0.336	5.83	101.3	2.0	0.29	0.0	0.00	0.23	0.10	85	214
95	13.91	13.90	33.182	24.805	316.1	0.368	5.86	99.6	2.3	0.35	0.3	0.03	0.29	0.14	95	213
100 ISL	13.55	13.54	33.195	24.888	308.2	0.383	5.76	97.2	2.6	0.40	1.0	0.08	0.30	0.16	100	
104	13.22	13.21	33.210	24.966	300.8	0.396	5.64	94.5	3.1	0.47	2.1	0.11	0.31	0.17	104	212
115	11.65	11.64	33.115	25.193	279.1	0.428	5.18	83.9	6.4	0.89	8.6	0.08	0.24	0.15	115	211
125	10.39	10.38	33.050	25.366	262.6	0.455	4.93	77.7	10.1	1.18	13.0	0.05	0.17	0.12	125	210
139	9.82	9.80	33.240	25.611	239.6	0.490	4.81	75.0	12.6	1.26	14.7	0.02	0.09	0.11	140	209
150 ISL	9.52	9.50	33.353	25.748	226.6	0.515	4.73	73.3	14.4	1.31	15.9	0.02	0.05	0.08	151	
164	9.24	9.22	33.478	25.891	213.3	0.546	4.56	70.3	16.9	1.39	17.5	0.01	0.02	0.04	165	208
194	8.86	8.84	33.768	26.179	186.5	0.606	3.78	57.8	24.2	1.71	22.5	0.01	0.00	0.02	195	207
200 ISL	8.81	8.79	33.813	26.222	182.5	0.617	3.67	56.1	25.3	1.75	23.1	0.01			201	
229	8.58	8.56	33.972	26.383	167.8	0.668	3.21	48.9	30.4	1.90	25.4	0.01			230	206
250 ISL	8.33	8.30	34.019	26.458	160.9	0.703	2.84	43.0	34.6	2.03	27.5	0.01			251	
269	8.07	8.04	34.036	26.511	156.1	0.733	2.53	38.1	38.4	2.15	29.3	0.01			270	205
300 ISL	7.66	7.63	34.057	26.588	149.2	0.780	2.13	31.8	43.9	2.32	31.6	0.01			302	
318	7.42	7.39	34.065	26.628	145.5	0.806	1.93	28.6	47.0	2.42	32.7	0.01			320	204
377	6.74	6.71	34.108	26.756	133.8	0.889	1.27	18.5	57.8	2.72	36.0	0.01			379	203
400 ISL	6.51	6.47	34.119	26.796	130.2	0.919	1.11	16.1	61.6	2.81	37.0	0.01			402	
438	6.17	6.13	34.136	26.853	125.0	0.968	0.91	13.1	67.5	2.93	38.3	0.01			441	202
500 ISL	5.76	5.72	34.171	26.933	117.9	1.043	0.64	9.1	76.1	3.06	40.1	0.01			503	
514	5.67	5.63	34.179	26.950	116.3	1.059	0.58	8.3	78.1	3.09	40.5	0.01			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 85.4 35.8

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 0.8 N	118 49.8 W	28/07/04	0358	UTC	17 m	260 07 kn			1011.5 mb	16.8 C	16.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.02	17.02	33.364	24.255	365.7	0.000	6.62	119.9	5.3	0.17	0.0	0.01	1.95	0.59	0	
2	17.02	17.02	33.364	24.255	365.8	0.007	6.62	119.9	5.3	0.17	0.0	0.01	1.95	0.59	2	204
5	16.65	16.65	33.361	24.339	357.8	0.018	6.50	116.9	5.6	0.19	0.0	0.01	2.47	0.38	5	203
10	12.27	12.27	33.331	25.243	271.9	0.034	4.16	68.4	11.5	0.93	5.6	0.39	1.92	0.22	10	202
14	12.10	12.10	33.318	25.265	269.9	0.045	3.97	65.1	12.8	1.12	8.3	0.55	0.88	0.22	14	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 33

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 53.3 N	118 29.5 W	19/07/04	0931	UTC	55 m	220 02 kn			1012.1 mb	20.4 C	19.5 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.53	20.53	33.402	23.405	446.8	0.000	6.49	125.7	3.5	0.13	0.0	0.00	0.81	0.13	0	
1	20.53	20.53	33.402	23.405	446.9	0.004	6.49	125.7	3.5	0.13	0.0	0.00	0.81	0.13	1	207
5	19.29	19.29	33.407	23.732	415.8	0.022	6.31	119.4	2.7	0.17	0.0	0.00	0.66	0.13	5	206
10	17.79	17.79	33.392	24.093	381.5	0.042	6.71	123.4	2.6	0.16	0.0	0.00	0.76	0.16	10	205
20	13.08	13.08	33.313 D	25.071	288.5	0.075	6.56	109.7	6.9	0.27	0.0	0.01	2.81	0.87	20	204
30	11.41	11.41	33.340	25.410	256.5	0.102	4.41	71.2	11.9	1.18	13.0	0.48	1.58	0.57	30	203
42	11.09	11.08	33.360	25.484	249.7	0.133	3.89	62.4	15.3	1.39	15.4	0.66	0.89	0.56	42	202
50 ISL	10.97	10.96	33.396	25.533	245.2	0.153	3.72	59.5	15.9	1.46	16.9	0.66	0.61	0.44	50	
51	10.95	10.94	33.401	25.541	244.5	0.155	3.70	59.2	16.0	1.47	17.1	0.66	0.58	0.42	51	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 49.4 N	118 37.8 W	19/07/04	1142	UTC	648 m	230 03 kn			1012.0 mb	20.0 C	19.0 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	21.20	21.20	33.489	23.291	457.7	0.000	5.52	108.3	1.3	0.14	0.0	0.00	0.43	0.01	0	
2	21.20	21.20	33.489	23.291	457.8	0.009	5.52	108.3	1.3	0.14	0.0	0.00	0.43	0.01	2	220
10	20.08	20.08	33.454	23.564	432.1	0.045	5.84	112.2	1.3	0.17	0.0	0.00	0.33	0.06	10	219
20	14.08	14.08	33.230	24.804	314.0	0.082	6.41	109.4	3.6	0.37	0.1	0.01	0.59	0.13	20	218
30	12.56	12.56	33.298	25.162	280.1	0.112	5.67	93.8	7.3	0.68	4.8	0.10	1.24	0.39	30	217
40	11.20	11.20	33.285	25.406	257.1	0.139	4.49	72.1	11.2	1.19	13.6	0.10	1.25	0.42	40	216
50	10.59	10.58	33.394	25.599	238.9	0.163	3.99	63.3	14.9	1.42	17.1	0.04	0.54	0.30	50	215
60	10.23	10.22	33.488	25.734	226.3	0.187	3.73	58.8	17.1	1.53	18.8	0.03	0.23	0.22	60	214
69	10.11	10.10	33.610	25.850	215.5	0.207	3.50	55.0	19.1	1.61	20.0	0.03	0.15	0.18	69	213
75 ISL	10.08	10.07	33.692	25.919	209.0	0.219	3.26	51.2	20.8	1.69	21.0	0.03	0.10	0.14	75	
85	10.03	10.02	33.801	26.013	200.4	0.240	2.88	45.3	23.4	1.82	22.5	0.02	0.04	0.09	85	212
99	9.84	9.83	33.847	26.081	194.2	0.267	2.70	42.3	25.2	1.89	23.7	0.02	0.03	0.09	99	211
100 ISL	9.84	9.83	33.853	26.085	193.7	0.269	2.69	42.1	25.3	1.89	23.7	0.02	0.03	0.09	101	
119	9.83	9.82	33.956	26.168	186.3	0.305	2.50	39.1	27.0	1.95	24.3	0.01	0.02	0.07	120	210
125 ISL	9.82	9.81	33.972	26.182	185.1	0.317	2.47	38.7	27.3	1.96	24.4	0.01	0.02	0.07	126	
139	9.77	9.75	33.997	26.210	182.7	0.342	2.41	37.7	28.0	1.99	24.8	0.02	0.02	0.08	140	209
150 ISL	9.72	9.70	34.025	26.241	180.1	0.362	2.34	36.6	28.8	2.02	25.2	0.02	0.02	0.07	151	
169	9.62	9.60	34.074	26.296	175.2	0.396	2.19	34.2	30.5	2.08	26.0	0.01	0.01	0.06	170	208
199	9.47	9.45	34.140	26.373	168.5	0.448	1.96	30.5	33.1	2.18	27.0	0.02	0.01	0.06	200	207
200 ISL	9.47	9.45	34.143	26.375	168.3	0.449	1.95	30.3	33.2	2.18	27.0	0.02			201	
228	9.35	9.32	34.214	26.451	161.7	0.495	1.62	25.1	36.3	2.31	28.2	0.02			229	206
250 ISL	9.25	9.22	34.248	26.494	158.0	0.531	1.44	22.3	38.2	2.39	28.8	0.02			251	
268	9.13	9.10	34.264	26.526	155.3	0.559	1.34	20.7	39.7	2.44	29.3	0.02			270	205
300 ISL	8.76	8.73	34.265	26.586	150.1	0.608	1.22	18.7	42.9	2.51	30.2	0.02			302	
318	8.52	8.49	34.260	26.619	147.1	0.634	1.17	17.8	44.8	2.55	30.8	0.02			320	204
378	7.86	7.82	34.257	26.717	138.5	0.720	0.94	14.1	51.6	2.69	33.3	0.01			380	203
400 ISL	7.56	7.52	34.262	26.765	134.1	0.750	0.81	12.1	55.7	2.78	34.4	0.01			403	
436	7.11	7.07	34.275	26.839	127.3	0.797	0.60	8.8	62.4	2.91	36.0	0.01			439	202
500 ISL	6.71	6.66	34.293	26.908	121.4	0.877	0.45	6.6	68.4	3.01	37.6	0.01			503	
516	6.61	6.56	34.298	26.925	119.9	0.896	0.41	6.0	69.9	3.03	38.0	0.01			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 40

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 39.3 N	118 58.6 W	19/07/04	1749 UTC	722 m	250 08 kn	280 02 05	1	1013.3 mb	20.0 C	18.2 C	21m	0/8

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.69	18.69	33.444	23.911	398.5	0.000	5.91	110.6	0.3	0.22	0.0	0.00	0.41	0.04	0	
2	18.69	18.69	33.444	23.911	398.6	0.008	5.91	110.6	0.3	0.22	0.0	0.00	0.41	0.04	2	221
10 ISL	16.53	16.53	33.404	24.400	352.2	0.038	6.17	110.7	0.6	0.27	0.4	0.03	0.57	0.11	10	
13	15.47	15.47	33.399	24.636	329.8	0.048	6.25	109.8	0.7	0.31	0.6	0.05	0.63	0.14	13	220
20 ISL	14.41	14.41	33.372	24.845	310.1	0.071	5.99	103.0	1.7	0.44	2.4	0.10	1.09	0.47	20	
22	14.14	14.14	33.362	24.894	305.5	0.077	5.91	101.1	2.0	0.51	3.4	0.12	1.23	0.56	22	219
30	12.43	12.43	33.345	25.223	274.3	0.100	4.83	79.7	8.5	1.02	10.9	0.20	1.48	0.66	30	218
36	11.24	11.24	33.397	25.486	249.4	0.116	4.19	67.4	13.0	1.29	15.0	0.23	1.00	0.58	36	217
43	10.54	10.53	33.457	25.656	233.3	0.133	3.74	59.3	16.6	1.50	18.2	0.12	0.63	0.49	43	216
50 ISL	10.35	10.34	33.511	25.731	226.3	0.149	3.59	56.7	17.9	1.57	19.3	0.07	0.45	0.42	50	
55	10.22	10.21	33.520	25.761	223.6	0.160	3.54	55.8	18.3	1.59	19.7	0.06	0.39	0.37	55	215
68	10.08	10.07	33.664	25.897	211.0	0.188	3.15	49.5	21.6	1.74	21.9	0.04	0.22	0.24	68	214
75 ISL	9.95	9.94	33.718	25.961	205.0	0.203	3.01	47.2	23.0	1.79	22.7	0.03	0.18	0.20	75	
81	9.83	9.82	33.761	26.015	200.0	0.215	2.91	45.5	24.1	1.83	23.3	0.02	0.15	0.18	81	213
89	9.69	9.68	33.832	26.094	192.7	0.231	2.77	43.2	25.9	1.89	24.1	0.02	0.09	0.15	89	212
99	9.56	9.55	33.894	26.164	186.2	0.250	2.63	40.9	27.4	1.95	24.9	0.02	0.06	0.14	100	211
100 ISL	9.55	9.54	33.899	26.169	185.7	0.251	2.62	40.8	27.5	1.96	25.0	0.02	0.06	0.14	101	
120	9.36	9.35	33.983	26.266	176.9	0.288	2.41	37.4	30.2	2.04	26.0	0.03	0.06	0.12	121	210
125 ISL	9.33	9.32	33.997	26.282	175.5	0.296	2.37	36.7	30.7	2.06	26.2	0.03	0.06	0.12	126	
140	9.24	9.22	34.033	26.325	171.7	0.323	2.24	34.6	32.3	2.11	26.9	0.04	0.05	0.11	141	209
150 ISL	9.15	9.13	34.062	26.363	168.3	0.340	2.13	32.9	33.7	2.15	27.4	0.07	0.04	0.12	151	
168	9.00	8.98	34.109	26.424	162.9	0.369	1.93	29.7	36.1	2.23	28.3	0.12	0.02	0.15	169	208
199	8.86	8.84	34.138	26.469	159.2	0.419	1.77	27.1	38.1	2.30	29.0	0.15	0.05	0.24	200	207
200 ISL	8.85	8.83	34.141	26.473	158.8	0.421	1.76	27.0	38.3	2.31	29.1	0.15			201	
229	8.55	8.53	34.219	26.581	149.0	0.465	1.38	21.0	43.2	2.48	30.8	0.04			230	206
250 ISL	8.43	8.40	34.240	26.616	146.0	0.496	1.26	19.2	45.0	2.54	31.4	0.02			252	
269	8.33	8.30	34.244	26.635	144.6	0.524	1.20	18.2	46.2	2.57	31.8	0.01			271	205
300 ISL	8.07	8.04	34.245	26.675	141.2	0.568	1.09	16.4	49.2	2.63	32.8	0.01			302	
317	7.90	7.87	34.244	26.700	139.0	0.592	1.02	15.3	51.1	2.67	33.4	0.02			319	204
377	7.29	7.25	34.275	26.813	128.9	0.673	0.68	10.1	59.4	2.86	35.7	0.01			379	203
400 ISL	7.13	7.09	34.279	26.838	126.8	0.702	0.61	9.0	61.8	2.91	36.3	0.01			403	
437	6.89	6.85	34.286	26.877	123.5	0.748	0.51	7.5	65.7	2.97	37.2	0.01			440	202
500 ISL	6.45	6.40	34.320	26.963	115.9	0.824	0.32	4.6	74.1	3.09	38.7	0.01			503	
515	6.35	6.30	34.328	26.983	114.1	0.841	0.28	4.1	76.1	3.12	39.1	0.01			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 29.3 N	119 19.0 W	19/07/04	2143 UTC	1641 m	290 14 kn	290 03 06	0	1013.3 mb	19.9 C	18.1 C	14m	0/8

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.13	16.13	33.471	24.543	338.3	0.000	5.77	102.8	2.0	0.49	3.5	0.11	0.55	0.04	0	
2	16.13	16.13	33.471	24.543	338.3	0.007	5.77	102.8	2.0	0.49	3.5	0.11	0.55	0.04	2	220
10 ISL	15.47	15.47	33.444	24.671	326.4	0.033	5.73	100.7	2.8	0.55	4.3	0.13	0.75	0.05	10	
11	15.39	15.39	33.441	24.686	325.0	0.037	5.72	100.4	2.9	0.56	4.4	0.13	0.78	0.05	11	219
20 ISL	11.53	11.53	33.409	25.442	253.2	0.063	4.56	73.9	10.8	1.15	13.2	0.26	2.20	0.46	20	
21	11.11	11.11	33.418	25.525	245.3	0.065	4.42	70.9	11.8	1.22	14.2	0.27	2.35	0.51	21	218
30	10.52	10.52	33.463	25.664	232.3	0.087	3.92	62.1	15.2	1.42	17.4	0.19	2.16	0.84	30	217
41	10.25	10.25	33.545	25.775	222.0	0.112	3.50	55.2	18.4	1.59	19.9	0.12	1.02	0.42	41	216
50	10.15	10.14	33.596	25.832	216.8	0.131	3.34	52.6	19.6	1.64	20.8	0.08	0.87	0.40	50	215
60	10.03	10.02	33.638	25.885	211.9	0.153	3.19	50.1	21.0	1.70	21.7	0.06	0.70	0.45	60	214
70	9.77	9.76	33.745	26.012	200.0	0.173	2.95	46.1	23.7	1.81	23.2	0.03	0.26	0.25	70	213
75 ISL	9.69	9.68	33.793	26.063	195.3	0.183	2.85	44.4	24.9	1.84	23.8	0.03	0.22	0.22	75	
85	9.56	9.55	33.876	26.150	187.3	0.202	2.67	41.5	26.9	1.90	24.7	0.02	0.13	0.17	85	212
100	9.40	9.39	33.961	26.242	178.8	0.230	2.47	38.3	29.4	1.99	25.7	0.02	0.03	0.19	101	211
120	9.34	9.33	34.019	26.298	173.9	0.265	2.36	36.6	30.4	2.03	26.2	0.02	0.05	0.15	121	210
125 ISL	9.31	9.30	34.034	26.315	172.4	0.274	2.32	35.9	30.9	2.04	26.4	0.02	0.05	0.14	126	
140	9.22	9.20	34.072	26.359	168.5	0.299	2.20	34.0	32.7	2.09	27.0	0.02	0.03	0.10	141	209
150 ISL	9.15	9.13	34.087	26.382	166.5	0.316	2.08	32.1	33.9	2.14	27.6	0.02	0.02	0.10	151	
169	9.01	8.99	34.108	26.421	163.1	0.347	1.88	28.9	36.0	2.22	28.6	0.02	0.02	0.10	170	208
199	8.87	8.85	34.149	26.476	158.5	0.396	1.78	27.3	37.9	2.26	29.2	0.02	0.02	0.08	200	207
200 ISL	8.87	8.85	34.150	26.477	158.4	0.397	1.78	27.3	37.9	2.26	29.2	0.02			201	
229	8.72	8.70	34.167	26.514	155.4	0.443	1.65	25.2	39.6	2.31	29.8	0.02			230	206
250 ISL	8.53	8.50	34.181	26.555	151.9	0.475	1.54	23.5	41.5	2.37	30.5	0.02			252	
268	8.36	8.33	34.195	26.592	148.6	0.502	1.44	21.8	43.5	2.43	31.1	0.02			270	205
300 ISL	8.13	8.10	34.223	26.649	143.7	0.549	1.19	18.0	47.3	2.54	32.2	0.02			302	
317	8.02	7.99	34.236	26.676	141.4	0.573	1.06	16.0	49.3	2.60	32.7	0.02			319	204
377	7.55	7.51	34.257	26.762	134.0	0.656	0.80	11.9	55.7	2.76	34.5	0.02			379	203
400 ISL	7.32	7.28	34.269	26.804	130.2	0.686	0.68	10.1	59.1	2.82	35.4	0.02			403	
438	6.95	6.91	34.289	26.871	124.1	0.734	0.50	7.3	64.8	2.92	36.7	0.01			441	202
500 ISL	6.58	6.53	34.313	26.941	118.1	0.809	0.35	5.1	72.0	3.03	38.0	0.01			504	
516	6.48	6.43	34.320	26.960	116.5	0.828	0.31	4.5	73.9	3.06	38.3	0.01			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 19.3 N	119 40.0 W	20/07/04	0233 UTC	77 m	300 20 kn	320 06 06	1	1012.1 mb	16.9 C	16.2 C	09m	2/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.51	15.51	33.441	24.659	327.2	0.000	5.68	99.9	3.2	0.52	4.1	0.13	1.37	0.40	0	
2	15.51	15.51	33.441	24.659	327.3	0.007	5.68	99.9	3.2	0.52	4.1	0.13	1.37	0.40	2	209
6	15.49	15.49	33.437	24.661	327.3	0.020	5.68	99.9	3.2	0.52	4.2	0.13	1.36	0.50	6	208
10 ISL	15.34	15.34	33.436	24.693	324.3	0.033	5.66	99.2	3.2	0.53	4.3	0.13	1.51	0.57	10	
11	15.28	15.28	33.436	24.706	323.1	0.036	5.65	98.9	3.2	0.53	4.3	0.13	1.55	0.60	11	207
20 ISL	14.05	14.05	33.431	24.966	298.6	0.064	5.42	92.6	4.0	0.70	6.5	0.17	4.20	1.41	20	
21	13.86	13.86	33.431	25.005	294.9	0.067	5.37	91.4	4.1	0.73	6.9	0.17	4.47	1.49	21	206
30 ISL	11.82	11.82	33.438	25.411	256.4	0.092	4.49	73.2	10.3	1.15	12.9	0.19	3.14	1.28	30	
31	11.61	11.61	33.442	25.453	252.4	0.094	4.39	71.2	11.1	1.20	13.6	0.19	2.88	1.26	31	205
40	10.78	10.78	33.496	25.645	234.4	0.116	3.91	62.3	15.5	1.41	16.9	0.16	1.54	1.08	40	204
50	10.62	10.61	33.563	25.725	226.9	0.139	3.62	57.5	18.5	1.52	18.6	0.17	0.77	0.67	50	203
60	10.05	10.04	33.684	25.917	208.8	0.161	3.14	49.3	23.4	1.72	21.9	0.14	0.42	0.52	60	202
70	9.77	9.76	33.752	26.018	199.5	0.181	2.97	46.4	24.8	1.79	23.1	0.10	0.38	0.26	70	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 9.5 N	120 0.7 W	20/07/04	0604 UTC	1189 m	310 19 kn			1013.0 mb	17.1 C	16.3 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.68	16.68	33.426	24.382	353.6	0.000	5.98	107.7	0.7	0.29	0.6	0.04	1.05	0.25	0	
2	16.68	16.68	33.426	24.382	353.7	0.007	5.98	107.7	0.7	0.29	0.6	0.04	1.05	0.25	2	220
10	16.58	16.58	33.421	24.402	352.1	0.035	5.95	106.9	0.8	0.31	0.8	0.05	1.19	0.11	10	219
20 ISL	14.93	14.93	33.427	24.776	316.7	0.069	5.86	101.9	2.1	0.49	3.3	0.12	0.99	0.19	20	
21	14.68	14.68	33.428	24.831	311.5	0.072	5.85	101.2	2.2	0.51	3.6	0.13	0.97	0.20	21	218
30 ISL	11.64	11.64	33.445	25.450	252.7	0.097	4.42	71.8	12.0	1.27	14.8	0.24	1.16	0.54	30	
31	11.32	11.32	33.455	25.516	246.4	0.100	4.24	68.4	13.2	1.36	16.1	0.24	1.17	0.57	31	217
40	10.39	10.39	33.572	25.772	222.3	0.121	3.49	55.2	19.0	1.66	20.8	0.05	0.47	0.28	40	216
50	9.97	9.96	33.645	25.900	210.2	0.142	3.21	50.3	21.7	1.78	22.5	0.03	0.31	0.20	50	215
61	9.79	9.78	33.710	25.981	202.8	0.165	3.01	47.0	23.7	1.85	23.5	0.02	0.20	0.15	61	214
70	9.53	9.52	33.796	26.092	192.4	0.183	2.81	43.7	26.2	1.92	24.7	0.01	0.09	0.12	70	213
75 ISL	9.44	9.43	33.827	26.131	188.9	0.193	2.74	42.5	27.1	1.95	25.1	0.01	0.07	0.12	75	
85	9.33	9.32	33.878	26.188	183.5	0.211	2.65	41.0	28.3	1.98	25.6	0.01	0.04	0.12	85	212
100	9.17	9.16	33.979	26.294	173.9	0.238	2.55	39.4	30.2	2.01	26.2	0.01	0.05	0.07	101	211
120	9.00	8.99	34.036	26.366	167.4	0.272	2.39	36.8	32.5	2.08	27.2	0.01	0.02	0.06	121	210
125 ISL	8.98	8.97	34.043	26.374	166.7	0.280	2.34	36.0	33.0	2.10	27.4	0.01	0.02	0.06	126	
140	8.90	8.89	34.060	26.401	164.5	0.305	2.20	33.8	34.6	2.15	28.0	0.01	0.04	0.07	141	209
150 ISL	8.79	8.77	34.081	26.434	161.4	0.322	2.09	32.0	36.0	2.20	28.6	0.01	0.03	0.07	151	
170	8.58	8.56	34.125	26.502	155.4	0.353	1.88	28.7	38.7	2.29	29.7	0.01	0.01	0.06	171	208
198	8.47	8.45	34.161	26.547	151.5	0.396	1.61	24.5	41.5	2.40	30.7	0.01	0.01	0.05	199	207
200 ISL	8.46	8.44	34.164	26.551	151.2	0.399	1.59	24.2	41.7	2.41	30.8	0.01			201	
229	8.24	8.22	34.191	26.606	146.4	0.442	1.36	20.6	44.9	2.51	31.7	0.02			230	206
250 ISL	7.99	7.96	34.177	26.633	144.2	0.473	1.37	20.6	46.6	2.53	32.2	0.03			252	
268	7.77	7.74	34.164	26.655	142.3	0.499	1.39	20.8	48.1	2.54	32.7	0.04			270	205
300 ISL	7.50	7.47	34.189	26.714	137.1	0.543	1.13	16.8	52.7	2.67	34.1	0.03			302	
318	7.38	7.35	34.212	26.750	134.0	0.568	0.95	14.1	55.6	2.75	34.9	0.02			320	204
378	7.05	7.01	34.273	26.844	125.8	0.646	0.59	8.7							380	203
400 ISL	6.86	6.82	34.286	26.881	122.5	0.673	0.49	7.2	66.8	2.99	37.5	0.00			403	
439	6.54	6.50	34.304	26.938	117.4	0.720	0.37	5.4	71.3	3.05	38.3	0.00			442	202
500 ISL	6.28	6.23	34.322	26.987	113.4	0.790	0.32	4.6	76.6	3.07	38.8	0.00			504	
515	6.22	6.17	34.327	26.999	112.5	0.807	0.31	4.5	77.9	3.08	38.9	0.00			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 59.7 N	120 20.8 W	20/07/04	1209 UTC	721 m	310 23 kn			1012.5 mb	17.5 C	16.8 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.65	17.65	33.439	24.163	374.5	0.000	5.66	103.8	0.5	0.28	0.3	0.01	0.37	0.07	0	
2	17.65	17.65	33.439	24.163	374.6	0.007	5.66	103.8	0.5	0.28	0.3	0.01	0.37	0.07	2	220
10	17.66	17.66	33.438	24.160	375.1	0.037	5.65	103.7	0.5	0.28	0.2	0.01	0.37	0.08	10	219
20	17.61	17.61	33.441	24.175	374.1	0.075	5.67	103.9	0.5	0.28	0.3	0.02	0.36	0.08	20	218
30	13.15	13.15	33.576	25.261	270.7	0.107	5.00	83.9	3.7	0.93	9.8	0.20	2.20	0.99	30	217
40	11.45	11.45	33.659	25.651	233.8	0.132	3.87	62.7	13.0	1.43	16.8	0.27	2.39	0.59	40	216
50	10.21	10.20	33.730	25.926	207.8	0.154	3.02	47.6	22.6	1.79	22.5	0.12	1.02	0.55	50	215
61	9.88	9.87	33.778	26.020	199.2	0.177	2.79	43.7	25.0	1.89	24.0	0.04	0.49	0.47	61	214
69	9.68	9.67	33.815	26.082	193.4	0.193	2.66	41.5	26.4	1.94	24.8	0.03	0.36	0.34	69	213
75 ISL	9.54	9.53	33.859	26.139	188.0	0.204	2.54	39.5	27.9	1.99	25.5	0.02	0.26	0.28	75	
86	9.28	9.27	33.939	26.244	178.3	0.224	2.35	36.3	30.5	2.07	26.7	0.02	0.11	0.21	86	212
100 ISL	8.95	8.94	33.993	26.340	169.5	0.249	2.33	35.8	32.6	2.10	27.5	0.03	0.03	0.13	101	
102	8.91	8.90	33.999	26.351	168.4	0.252	2.33	35.8	32.8	2.10	27.6	0.03	0.02	0.12	103	211
121	8.87	8.86	34.052	26.399	164.2	0.283	2.10	32.2	34.8	2.18	28.3	0.03	0.02	0.12	122	210
125 ISL	8.79	8.78	34.056	26.414	162.8	0.290	2.10	32.1	35.4	2.19	28.5	0.03	0.02	0.11	126	
138	8.50	8.49	34.065	26.467	158.1	0.311	2.12	32.2	37.3	2.20	29.2	0.03	0.03	0.08	139	209
150 ISL	8.34	8.32	34.078	26.501	154.9	0.330	2.03	30.8	39.1	2.25	29.9	0.03	0.02	0.08	151	
167	8.18	8.16	34.094	26.538	151.7	0.356	1.88	28.4	41.4	2.32	30.8	0.04	0.01	0.07	168	208
200 ISL	7.88	7.86	34.101	26.589	147.4	0.405	1.79	26.8	44.4	2.38	31.7	0.04	0.01	0.06	201	
204	7.85	7.83	34.101	26.593	147.0	0.411	1.79	26.8	44.6	2.38	31.8	0.04	0.01	0.06	205	207
234	7.76	7.74	34.110 D	26.614	145.6	0.455	1.72	25.7	45.8	2.42	32.1	0.04			235	206
250 ISL	7.64	7.62	34.140	26.655	141.9	0.478	1.48	22.1	48.6	2.52	32.9	0.04			252	
266	7.49	7.46	34.170	26.700	137.8	0.500	1.22	18.1	52.0	2.63	33.9	0.03			268	205
300 ISL	7.02	6.99	34.176	26.771	131.4	0.546	1.01	14.9	58.1	2.73	35.6	0.02			302	
317	6.81	6.78	34.175	26.799	128.9	0.568	0.95	13.9	60.8	2.76	36.3	0.02			319	204
384	6.71	6.67	34.266	26.885	121.7	0.652	0.51	7.5	66.9	2.93	37.4	0.01			387	203
400 ISL	6.66	6.62	34.282	26.904	120.1	0.671	0.45	6.6	68.4	2.97	37.7	0.01			403	
433	6.51	6.47	34.307	26.944	116.7	0.710	0.36	5.2	71.6	3.03	38.3	0.01			436	202
500 ISL	6.09	6.05	34.333	27.020	110.1	0.786	0.25	3.6	79.4	3.12	39.1	0.00			504	
501	6.08	6.04	34.333	27.021	110.0	0.788	0.25	3.6	79.5	3.12	39.1	0.00			505	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 39.3 N	121 2.4 W	20/07/04	1803 UTC	3730 m	330 18 kn	330 04 05	0	1015.5 mb	20.0 C	18.0 C	21m	0/8

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.93	16.93	33.088	24.065	383.9	0.000	5.76	104.0	1.2	0.40	1.1	0.04	0.26	0.06	0	
2	16.93	16.93	33.088	24.065	383.9	0.008	5.76	104.0	1.2	0.40	1.1	0.04	0.26	0.06	2	222
10 ISL	16.89	16.89	33.087	24.073	383.4	0.038	5.77	104.1	1.2	0.39	1.1	0.04	0.28	0.06	10	
13	16.88	16.88	33.086	24.075	383.3	0.050	5.77	104.1	1.2	0.39	1.1	0.04	0.29	0.06	13	221
20 ISL	16.47	16.47	33.092	24.175	374.0	0.076	5.87	105.0	1.4	0.41	1.4	0.05	0.40	0.09	20	
30	15.60	15.60	33.129	24.400	352.8	0.113	6.01	105.7	1.6	0.44	2.2	0.07	0.54	0.14	30	220
43	14.29	14.28	33.255	24.780	316.9	0.156	5.97	102.3	1.5	0.59	4.4	0.14	0.43	0.19	43	219
48	14.20	14.19	33.283	24.821	313.2	0.172	5.92	101.3	1.6	0.62	4.7	0.16	0.47	0.25	48	218
50 ISL	14.19	14.18	33.291	24.829	312.5	0.178	5.91	101.1	1.6	0.63	4.7	0.16	0.49	0.25	50	
55	14.11	14.10	33.306	24.858	309.9	0.194	5.89	100.6	1.5	0.64	4.9	0.17	0.54	0.23	55	217
63	13.64	13.63	33.321	24.966	299.7	0.218	5.60	94.8	2.9	0.80	6.2	0.23	0.56	0.27	63	216
73	11.85	11.84	33.138	25.173	280.1	0.247	5.11	83.2	7.0	1.03	10.1	0.33	0.52	0.29	73	215
75 ISL	11.80	11.79	33.167	25.205	277.1	0.253	5.07	82.5	7.4	1.06	10.7	0.37	0.48	0.27	75	
80	11.67	11.66	33.219	25.270	271.0	0.266	5.01	81.3	8.2	1.12	11.8	0.46	0.40	0.24	80	214
86	11.55	11.54	33.243	25.311	267.3	0.283	4.94	79.9	8.7	1.17	12.7	0.47	0.39	0.30	86	213
94	10.95	10.94	33.293	25.458	253.4	0.303	4.57	73.0	12.0	1.31	15.4	0.13	0.26	0.33	94	212
100 ISL	10.52	10.51	33.321	25.555	244.2	0.318	4.37	69.2	14.0	1.40	17.0	0.08	0.20	0.27	100	
109	9.94	9.93	33.371	25.693	231.2	0.340	4.14	64.7	16.6	1.51	18.9	0.01	0.13	0.15	109	211
124	9.29	9.28	33.516	25.912	210.5	0.373	3.90	60.2	20.3	1.62	20.9	0.02	0.06	0.09	125	210
125 ISL	9.26	9.25	33.530	25.928	209.0	0.375	3.88	59.8	20.6	1.63	21.0	0.02	0.06	0.09	126	
143	8.97	8.95	33.773	26.165	186.9	0.411	3.46	53.1	25.2	1.75	23.5	0.02	0.04	0.09	144	209
150 ISL	8.91	8.89	33.827	26.217	182.1	0.424	3.30	50.6	26.6	1.80	24.3	0.02	0.03	0.08	151	
169	8.77	8.75	33.920	26.312	173.4	0.457	2.94	44.9	29.8	1.92	26.2	0.02	0.01	0.06	170	208
198	8.44	8.42	34.007	26.431	162.5	0.506	2.77	42.1	34.0	2.01	27.5	0.01	0.01	0.04	199	207
200 ISL	8.41	8.39	34.010	26.438	161.9	0.509	2.75	41.7	34.4	2.02	27.6	0.01			201	
229	7.95	7.93	34.037	26.529	153.6	0.555	2.44	36.6	39.9	2.14	29.8	0.01			230	206
250 ISL	7.72	7.70	34.066	26.585	148.5	0.587	2.10	31.4	43.8	2.29	31.4	0.01			251	
268	7.55	7.52	34.089	26.628	144.7	0.613	1.80	26.8	47.0	2.42	32.6	0.01			270	205
300 ISL	7.19	7.16	34.111	26.696	138.6	0.658	1.47	21.7	52.5	2.57	34.3	0.01			302	
318	6.99	6.96	34.118	26.730	135.5	0.683	1.33	19.5	55.5	2.64	35.2	0.01			320	204
378	6.36	6.33	34.137	26.829	126.6	0.762	0.95	13.8	65.9	2.84	37.9	0.00			380	203
400 ISL	6.19	6.15	34.153	26.864	123.5	0.789	0.82	11.8	69.1	2.90	38.6	0.00			403	
438	5.94	5.90	34.186	26.922	118.3	0.835	0.61	8.7	74.3	2.99	39.6	0.01			441	202
500 ISL	5.63	5.59	34.248	27.010	110.5	0.906	0.39	5.6	82.6	3.10	40.9	0.00			503	
516	5.55	5.51	34.264	27.032	108.5	0.924	0.33	4.7	84.8	3.13	41.2	0.00			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 19.0 N	121 42.6 W	21/07/04	0026 UTC	4022 m	330 15 kn	350 05 07	1	1015.3 mb	19.4 C	18.2 C	23m	1/8	CU

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.36	18.36	32.978	23.637	424.7	0.000	5.54	102.8	1.7	0.34	0.0	0.00	0.09	0.01	0	
2	18.36	18.36	32.978	23.637	424.7	0.008	5.54	102.8	1.7	0.34	0.0	0.00	0.09	0.01	2	220
10 ISL	18.34	18.34	32.978	23.642	424.5	0.042	5.55	102.9	1.7	0.34	0.1	0.00	0.09	0.02	10	
16	18.33	18.33	32.978	23.645	424.5	0.068	5.56	103.1	1.7	0.33	0.1	0.00	0.09	0.02	16	219
20 ISL	18.11	18.11	32.951	23.678	421.4	0.085	5.59	103.2	1.7	0.33	0.1	0.00	0.09	0.02	20	
30	17.29	17.29	32.888	23.828	407.5	0.126	5.71	103.7	1.6	0.32	0.1	0.00	0.10	0.01	30	218
46	15.43	15.42	32.936	24.290	363.8	0.188	6.13	107.3	1.8	0.32	0.0	0.00	0.15	0.02	46	217
50 ISL	14.89	14.88	32.946	24.415	352.0	0.202	6.12	106.0	1.9	0.33	0.0	0.00	0.17	0.03	50	
56	14.17	14.16	32.969	24.585	335.9	0.223	6.10	104.1	2.2	0.35	0.0	0.00	0.19	0.05	56	216
66	13.66	13.65	33.043	24.747	320.6	0.256	5.96	100.7	2.7	0.41	0.5	0.05	0.60	0.16	66	215
75 ISL	12.85	12.84	33.050	24.915	304.9	0.284	5.67	94.2	3.9	0.62	4.2	0.16	0.69	0.22	75	
76	12.75	12.74	33.051	24.935	303.0	0.287	5.64	93.5	4.1	0.65	4.7	0.18	0.70	0.22	76	214
85	12.11	12.10	33.121	25.112	286.3	0.313	5.55	90.8	5.4	0.92	8.3	0.31	0.62	0.18	85	213
97	11.60	11.59	33.271	25.323	266.3	0.347	5.24	84.9	8.0	1.12	11.4	0.30	0.19	0.13	97	212
100 ISL	11.35	11.34	33.267	25.366	262.3	0.355	5.13	82.7	8.8	1.15	12.2	0.30	0.18	0.13	100	
110	10.42	10.41	33.243	25.511	248.5	0.380	4.78	75.5	11.6	1.24	14.6	0.24	0.16	0.13	110	211
122	9.49	9.48	33.338	25.741	226.8	0.409	4.59	71.1	15.3	1.33	16.6	0.02	0.07	0.07	123	210
125 ISL	9.46	9.45	33.387	25.784	222.7	0.415	4.48	69.3	16.2	1.37	17.3	0.02	0.06	0.07	126	
145	9.24	9.22	33.630	26.010	201.6	0.458	3.64	56.1	22.1	1.68	22.1	0.01	0.01	0.04	146	209
150 ISL	9.20	9.18	33.682	26.057	197.3	0.468	3.45	53.2	23.5	1.74	23.1	0.01	0.01	0.04	151	
169	9.03	9.01	33.839	26.208	183.4	0.504	2.94	45.2	27.8	1.90	25.6	0.01	0.01	0.06	170	208
199	8.61	8.59	33.969	26.375	167.9	0.557	3.20	48.8	30.1	1.83	25.2	0.01	0.00	0.05	200	207
200 ISL	8.60	8.58	33.972	26.379	167.5	0.558	3.19	48.6	30.2	1.83	25.3	0.01			201	
230	8.33	8.31	34.031	26.467	159.7	0.607	2.62	39.7	35.6	2.03	28.2	0.01			231	206
250 ISL	8.00	7.97	34.048	26.530	153.9	0.639	2.37	35.6	39.6	2.15	29.8	0.00			251	
266	7.74	7.71	34.060	26.578	149.5	0.663	2.18	32.6	42.9	2.24	30.9	0.00			267	205
300 ISL	7.52	7.49	34.122	26.659	142.3	0.713	1.55	23.1	49.2	2.49	33.2	0.00			302	
317	7.40	7.37	34.146	26.695	139.1	0.737	1.27	18.8	52.3	2.60	34.3	0.00			319	204
379	6.11	6.08	34.076	26.813	127.9	0.819	1.21	17.4	65.4	2.76	37.8	0.00			381	203
400 ISL	5.95	5.92	34.089	26.844	125.1	0.846	1.09	15.6	68.6	2.82	38.5	0.00			402	
437	5.80	5.76	34.127	26.893	120.9	0.891	0.84	12.0	73.4	2.91	39.4	0.00			440	202
500 ISL	5.50	5.46	34.181	26.972	113.8	0.965	0.56	7.9	81.4	3.04	40.9	0.00			503	
517	5.42	5.38	34.196	26.994	111.9	0.985	0.48	6.8	83.6	3.08	41.3	0.00			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 59.4 N	122 23.7 W	21/07/04	0626 UTC	4100 m	340 15 kn			1016.0 mb	19.0 C	17.6 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.79	18.79	32.993	23.542	433.8	0.000	5.48	102.5	1.5	0.37	0.0	0.00	0.07	0.01	0	
2	18.79	18.79	32.993	23.542	433.8	0.009	5.48	102.5	1.5	0.37	0.0	0.00	0.07	0.01	2	220
10 ISL	18.78	18.78	32.993	23.545	433.9	0.043	5.48	102.5	1.5	0.36	0.0	0.00	0.07	0.02	10	
15	18.77	18.77	32.993	23.547	433.8	0.065	5.48	102.4	1.5	0.36	0.0	0.00	0.07	0.02	15	219
20 ISL	18.52	18.52	32.989	23.607	428.3	0.087	5.51	102.5	1.5	0.36	0.0	0.00	0.07	0.02	20	
30 ISL	17.89	17.88	32.977	23.752	414.7	0.129	5.58	102.6	1.5	0.36	0.1	0.00	0.08	0.02	30	
31	17.82	17.81	32.976	23.768	413.2	0.133	5.59	102.6	1.5	0.36	0.1	0.00	0.08	0.02	31	218
46	17.07	17.06	32.941	23.921	399.1	0.194	5.73	103.6	1.5	0.36	0.1	0.00	0.11	0.03	46	217
50 ISL	16.78	16.77	32.950	23.996	392.1	0.210	5.80	104.3	1.6	0.36	0.1	0.00	0.12	0.04	50	
55	16.38	16.37	32.962	24.097	382.5	0.229	5.88	104.9	1.7	0.36	0.1	0.00	0.14	0.05	55	216
65	15.53	15.52	32.950	24.279	365.4	0.266	6.01	105.4	1.7	0.37	0.1	0.00	0.23	0.08	65	215
75	14.82	14.81	32.955	24.438	350.5	0.302	6.00	103.8	1.9	0.41	0.5	0.02	0.32	0.16	75	214
85	14.26	14.25	32.976	24.573	337.9	0.337	5.93	101.4	2.1	0.44	0.8	0.03	0.32	0.22	85	213
95	13.50	13.49	33.034	24.774	318.9	0.369	5.73	96.5	2.7	0.51	1.7	0.11	0.34	0.24	95	212
100 ISL	13.00	12.99	33.031	24.871	309.7	0.385	5.61	93.5	3.4	0.58	3.0	0.13	0.32	0.25	100	
110	12.02	12.01	33.028	25.057	292.0	0.415	5.34	87.2	5.5	0.77	6.5	0.17	0.24	0.26	110	211
125	11.08	11.06	33.133	25.311	268.1	0.457	4.81	77.0	9.6	1.15	12.8	0.03	0.13	0.11	125	210
145	10.07	10.05	33.310	25.624	238.5	0.508	4.28	67.1	15.1	1.46	17.7	0.01	0.05	0.06	146	209
150 ISL	9.89	9.87	33.351	25.686	232.7	0.520	4.19	65.4	16.2	1.50	18.5	0.01	0.04	0.05	151	
169	9.37	9.35	33.509	25.895	213.1	0.562	3.86	59.7	20.1	1.61	20.8	0.01	0.01	0.04	170	208
199	9.01	8.99	33.806	26.185	186.1	0.622	3.23	49.6	26.1	1.82	24.3	0.01	0.00	0.03	200	207
200 ISL	9.00	8.98	33.813	26.192	185.4	0.624	3.23	49.6	26.2	1.82	24.3	0.01			201	
228	8.65	8.63	33.956	26.359	170.0	0.674	3.23	49.2	29.9	1.83	25.2	0.01			229	206
250 ISL	8.35	8.32	34.010	26.448	161.9	0.710	2.94	44.5	34.1	1.95	27.0	0.01			251	
269	8.07	8.04	34.032	26.508	156.4	0.740	2.62	39.4	38.1	2.08	28.8	0.01			270	205
300 ISL	7.56	7.53	34.048	26.595	148.4	0.788	2.25	33.5	44.2	2.26	31.2	0.01			302	
318	7.26	7.23	34.051	26.640	144.3	0.814	2.05	30.3	47.8	2.36	32.5	0.01			320	204
378	6.42	6.39	34.073	26.771	132.1	0.897	1.43	20.7	60.6	2.67	36.4	0.01			380	203
400 ISL	6.24	6.20	34.090	26.808	128.8	0.926	1.22	17.6	64.2	2.75	37.4	0.01			402	
438	6.01	5.97	34.123	26.863	123.8	0.974	0.92	13.2	69.7	2.87	38.7	0.01			441	202
500 ISL	5.68	5.64	34.165	26.938	117.3	1.048	0.63	9.0	77.9	3.00	40.3	0.01			503	
514	5.60	5.56	34.175	26.956	115.7	1.065	0.57	8.1	79.7	3.03	40.7	0.01			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 39.4 N	123 4.2 W	21/07/04	1208 UTC	4121 m	340 10 kn			1016.1 mb	19.0 C	17.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.02	19.02	33.073	23.545	433.5	0.000	5.47	102.8	1.4	0.27	0.1	0.00	0.09	0.01	0	
2	19.02	19.02	33.073	23.545	433.5	0.009	5.47	102.8	1.4	0.27	0.1	0.00	0.09	0.01	2	220
10 ISL	18.60	18.60	33.095	23.667	422.1	0.043	5.51	102.7	1.3	0.27	0.0	0.00	0.09	0.01	10	
15	18.26	18.26	33.113	23.765	412.9	0.064	5.54	102.6	1.2	0.27	0.0	0.00	0.09	0.01	15	219
20 ISL	18.19	18.19	33.116	23.785	411.2	0.084	5.55	102.7	1.2	0.27	0.0	0.00	0.10	0.01	20	
30	18.00	17.99	33.102	23.821	408.1	0.125	5.56	102.5	1.2	0.27	0.0	0.00	0.12	0.02	30	218
46	16.71	16.70	33.046	24.085	383.4	0.189	5.82	104.6	1.2	0.28	0.0	0.00	0.14	0.02	46	217
50 ISL	16.43	16.42	33.072	24.170	375.5	0.204	5.89	105.3	1.2	0.28	0.0	0.00	0.15	0.04	50	
55	15.98	15.97	33.103	24.296	363.5	0.222	5.96	105.6	1.2	0.28	0.0	0.00	0.16	0.06	55	216
65	14.41	14.40	33.097	24.634	331.5	0.257	5.89	101.1	1.8	0.39	1.2	0.08	0.31	0.12	65	215
75 ISL	13.81	13.80	33.211	24.847	311.5	0.289	5.51	93.5	2.5	0.60	4.3	0.73	0.34	0.20	75	
76	13.77	13.76	33.220	24.862	310.0	0.292	5.47	92.7	2.6	0.62	4.6	0.78	0.34	0.21	76	214
86	12.95	12.94	33.157	24.978	299.1	0.323	5.27	87.8	4.0	0.75	7.1	0.43	0.29	0.21	86	213
96	11.82	11.81	33.121	25.166	281.3	0.352	5.00	81.3	6.7	0.93	9.9	0.03	0.20	0.37	96	212
100 ISL	11.44	11.43	33.139	25.250	273.4	0.363	4.84	78.1	8.1	1.03	11.4	0.03	0.18	0.35	100	
111	10.60	10.59	33.225	25.466	252.9	0.392	4.43	70.2	12.0	1.28	15.4	0.02	0.14 A	0.20 A	111	211
125	9.98	9.97	33.331	25.655	235.1	0.426	4.20	65.7	15.2	1.43	17.9	0.02	0.06	0.07	126	210
145	9.40	9.38	33.589	25.952	207.2	0.470	3.67	56.8	20.7	1.64	21.6	0.01	0.01	0.04	146	209
150 ISL	9.30	9.28	33.645	26.012	201.6	0.480	3.56	55.0	22.0	1.68	22.3	0.01	0.01	0.04	151	
168	9.00	8.98	33.816	26.194	184.6	0.515	3.22	49.4	26.0	1.81	24.4	0.01	0.00	0.03	169	208
197	8.63	8.61	33.969	26.372	168.2	0.566	2.98	45.4	30.9	1.91	26.3	0.01	0.00	0.05	198	207
200 ISL	8.59	8.57	33.976	26.384	167.1	0.571	2.96	45.1	31.4	1.92	26.5	0.01			201	
228	8.19	8.17	34.014	26.475	158.8	0.617	2.73	41.2	36.0	2.05	28.3	0.01			229	206
250 ISL	7.87	7.85	34.030	26.535	153.4	0.651	2.49	37.3	40.0	2.16	29.9	0.01			251	
269	7.60	7.57	34.039	26.582	149.1	0.680	2.26	33.7	43.5	2.26	31.3	0.01			270	205
300 ISL	7.23	7.20	34.062	26.652	142.7	0.725	1.88	27.8	49.0	2.43	33.3	0.01			302	
318	7.04	7.01	34.075	26.689	139.4	0.751	1.67	24.6	52.1	2.52	34.3	0.01			320	204
379	6.49	6.46	34.108	26.789	130.5	0.833	1.18	17.1	61.3	2.75	36.9	0.01			381	203
400 ISL	6.26	6.22	34.115	26.825	127.2	0.860	1.05	15.2	65.2	2.82	37.8	0.01			402	
440	5.86	5.82	34.132	26.889	121.3	0.910	0.82	11.7	72.7	2.94	39.4	0.01			443	202
500 ISL	5.49	5.45	34.182	26.974	113.6	0.980	0.53	7.5	81.6	3.08	41.0	0.01			503	
509	5.44	5.40	34.190	26.987	112.5	0.990	0.49	6.9	82.9	3.10	41.2	0.01			512	201

A) FIRST FLUOROMETER READING NOT RECORDED, CHLOROPHYLL AND PHAEOPIGMENT CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 87 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 19.1 N	123 44.7 W	21/07/04	1821 UTC	3935 m	320 10 kn	340 04 04	1	1017.7 mb	21.0 C	18.8 C	32m	6/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.54	19.54	32.967	23.332	453.8	0.000	5.42	102.8	1.3	0.31	0.1	0.00	0.08	0.02	0	
2 A	19.54	19.54	32.967	23.332	453.9	0.009	5.42	102.8	1.3	0.31	0.1	0.00	0.08	0.02	2	223
10 ISL	19.37	19.37	32.981	23.387	448.9	0.045	5.44	102.8	1.4	0.31	0.0	0.00	0.09	0.01	10	
12	19.33	19.33	32.984	23.399	447.8	0.054	5.44	102.8	1.4	0.31	0.0	0.00	0.09	0.01	12	222
20 A	18.47	18.47	32.952	23.591	429.8	0.089	5.53	102.8	1.3	0.31	0.0	0.00	0.09	0.01	20	221
30 ISL	18.23	18.22	32.994	23.682	421.4	0.132	5.55	102.7	1.4	0.31	0.0	0.00	0.09	0.04	30	
32	18.19	18.18	33.008	23.703	419.5	0.140	5.56	102.8	1.4	0.31	0.0	0.00	0.09	0.04	32	220
45 A	16.61	16.60	33.117	24.163	376.0	0.192	5.96	106.9	1.6	0.27	0.0	0.00	0.10	0.03	45	219
50 ISL	16.30	16.29	33.162	24.269	366.0	0.210	5.96	106.3	1.6	0.26	0.0	0.00	0.11	0.02	50	
56	16.08	16.07	33.219	24.363	357.2	0.232	5.96	105.9	1.7	0.26	0.0	0.00	0.11	0.02	56	218
66 A	15.93	15.92	33.329	24.481	346.2	0.267	5.95	105.5	1.9	0.25	0.0	0.00	0.11	0.04	66	217
75	15.43	15.42	33.347	24.607	334.5	0.298	5.89	103.4	1.9	0.25	0.0	0.00	0.14	0.04	75	216
84 A	14.70	14.69	33.247	24.689	326.9	0.328	5.92	102.3	2.1	0.29	0.0	0.00	0.21	0.09	84	215
94	14.11	14.10	33.285	24.843	312.4	0.360	5.73	97.9	2.6	0.35	0.5	0.02	0.28	0.15	94	214
100 ISL	13.64	13.63	33.260	24.920	305.2	0.378	5.62	95.0	3.1	0.43	1.6	0.07	0.30	0.13	100	
103	13.35	13.34	33.236	24.960	301.4	0.387	5.57	93.6	3.4	0.48	2.4	0.10	0.31	0.12	103	213
112	12.13	12.12	33.126	25.113	286.9	0.414	5.38	88.1	5.1	0.70	5.9	0.16	0.24	0.20	112	212
123 A	11.14	11.12	33.166	25.326	266.6	0.444	5.22	83.7	7.2	0.86	9.0	0.04	0.19	0.11	123	211
125 ISL	11.06	11.04	33.176	25.348	264.6	0.450	5.20	83.2	7.4	0.88	9.3	0.04	0.18	0.11	125	
132	10.81	10.79	33.207	25.416	258.2	0.468	5.15	82.0	8.3	0.93	10.1	0.03	0.15	0.13	133	210
142	10.00	9.98	33.236	25.578	242.8	0.493	5.08	79.5	10.5	1.05	12.1	0.02	0.07	0.10	143	209
150 ISL	9.62	9.60	33.294	25.686	232.6	0.512	4.94	76.7	12.6	1.16	14.0	0.01	0.06	0.08	151	
165	9.22	9.20	33.444	25.868	215.5	0.546	4.54	69.9	16.8	1.37	17.6	0.01	0.03	0.04	166	208
193	8.93	8.91	33.781	26.178	186.6	0.602	3.44	52.7	25.3	1.74	23.7	0.01	0.00	0.02	194	207
200 ISL	8.86	8.84	33.833	26.230	181.8	0.615	3.43	52.5	26.4	1.75	23.9	0.01			201	
228	8.57	8.55	33.966	26.380	168.0	0.664	3.37	51.3	29.6	1.78	24.8	0.01			229	206
250 ISL	8.33	8.30	34.012	26.453	161.4	0.700	3.00	45.4	33.6	1.93	26.8	0.01			251	
268	8.11	8.08	34.028	26.498	157.3	0.729	2.65	39.9	37.1	2.07	28.6	0.01			269	205
300 ISL	7.67	7.64	34.050	26.581	149.8	0.778	2.21	33.0	43.1	2.28	31.1	0.01			302	
318	7.40	7.37	34.054	26.622	146.0	0.804	2.02	29.9	46.5	2.38	32.3	0.01			320	204
377	6.42	6.39	34.040	26.745	134.5	0.887	1.76	25.5	57.8	2.55	35.3	0.00			379	203
400 ISL	6.29	6.25	34.068	26.784	131.1	0.918	1.49	21.5	61.5	2.65	36.4	0.00			402	
437	6.15	6.11	34.121	26.844	125.8	0.965	1.04	15.0	67.1	2.81	38.1	0.01			440	202
500 ISL	5.63	5.59	34.155	26.936	117.4	1.042	0.70	10.0	77.6	2.99	40.2	0.01			503	
512	5.53	5.49	34.162	26.954	115.8	1.056	0.64	9.1	79.6	3.02	40.6	0.01			515	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 88.5 30.2

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 40.3 N	118 5.7 W	19/07/04	0543	UTC	20 m	250	09 kn			1012.2 mb	21.1 C	19.3 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.06	20.06	33.314	23.462	441.4	0.000	6.51	124.9	1.0	0.10	0.0	0.01	1.63	0.39	0	
1	20.06	20.06	33.314	23.462	441.4	0.004	6.51	124.9	1.0	0.10	0.0	0.01	1.63	0.39	1	204
5	19.04	19.04	33.360	23.759	413.2	0.022	6.56	123.5	1.5	0.15	0.0	0.00	1.66	0.52	5	203
10 ISL	15.69	15.69	33.342	24.543	338.6	0.040	6.63	117.0	3.2	0.26	0.0	0.00	1.16	0.45	10	
11	15.07	15.07	33.347	24.684	325.2	0.044	6.64	115.7	3.5	0.28	0.0	0.00	1.12	0.44	11	202
15	14.73	14.73	33.343	24.754	318.6	0.056	6.50	112.5	3.9	0.32	0.1	0.01	1.88	0.84	15	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 90.0 27.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 29.7 N	117 44.8 W	19/07/04	0307	UTC	21 m	330	5 kn	250 01 06	1	1011.5 mb	21.5 C	20.1 C		2/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	21.56	21.56	33.418	23.139	472.2	0.000	6.22	122.8	1.3	0.09	0.0	0.01	1.50	0.29	0	
1	21.56	21.56	33.418	23.139	472.2	0.005	6.22	122.8	1.3	0.09	0.0	0.01	1.50	0.29	1	204
6	20.14	20.14	33.406	23.511	436.9	0.027	6.33	121.7	1.3	0.10	0.0	0.01	1.80	0.25	6	203
10	18.32	18.32	33.392	23.964	393.8	0.044	6.79	126.2	1.2	0.11	0.0	0.01	3.44	0.84	10	202
15	14.20	14.20	33.303	24.835	310.9	0.062	5.09	87.1	7.8	0.71	1.7	0.16	2.05	0.97	15	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 29.0 N	117 46.0 W	19/07/04	0131	UTC	63 m	290	6 kn	300 01 07	1	1011.5 mb	22.1 C	20.2 C	15m	1/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.73	20.73	33.464	23.399	447.4	0.000	5.85	113.7	1.8	0.15	0.0	0.00	0.40	0.06	0	
1	20.73	20.73	33.464	23.399	447.4	0.004	5.85	113.7	1.8	0.15	0.0	0.00	0.40	0.06	1	208
5	20.41	20.41	33.457	23.479	440.0	0.022	5.93	114.6	1.8	0.14	0.0	0.00	0.44	0.08	5	207
10 ISL	19.33	19.33	33.432	23.741	415.1	0.044	6.33	119.9	2.0	0.14	0.0	0.00	0.56	0.14	10	
11	19.00	19.00	33.422	23.817	407.9	0.048	6.40	120.5	2.0	0.14	0.0	0.00	0.59	0.15	11	206
20 ISL	13.88	13.88	33.312	24.909	304.0	0.080	5.67	96.4	6.8	0.51	0.4	0.05	3.02	0.82	20	
21	13.29	13.29	33.315	25.031	292.4	0.083	5.52	92.7	7.5	0.57	0.5	0.06	3.23	0.89	21	205
30	11.20	11.20	33.324	25.436	254.0	0.107	4.33	69.6	11.7	1.22	14.1	0.37	1.01	0.65	30	204
40	10.97	10.97	33.341	25.490	249.0	0.132	4.08	65.3	13.3	1.32	15.1	0.41	0.64	0.46	40	203
49	10.64	10.63	33.392	25.588	239.9	0.154	3.84	61.0	15.3	1.43	16.7	0.40	0.55	0.39	49	202
50 ISL	10.63	10.62	33.395	25.593	239.5	0.157	3.83	60.8	15.4	1.43	16.8	0.40	0.54	0.39	50	
57	10.57	10.56	33.414	25.618	237.3	0.174	3.74	59.3	16.0	1.46	17.2	0.39	0.47	0.40	57	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 90 30

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 25.1 N	117 54.1 W	18/07/04	2210	UTC	635 m	240	06 kn	240 01 07	1	1012.9 mb	24.7 C	21.3 C	19m	1/8	CU

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	21.47	21.47	33.476	23.208	465.6	0.000	5.49	108.2	1.3	0.18	0.0	0.00	0.32	0.06	0	
2	21.47	21.47	33.476	23.208	465.7	0.009	5.49	108.2	1.3	0.18	0.0	0.00	0.32	0.06	2	220
10	19.32	19.32	33.396	23.716	417.5	0.045	5.73	108.5	1.3	0.22	0.0	0.00	0.23	0.06	10	219
20	16.88	16.88	33.276	24.221	369.6	0.084	6.09	110.0	1.5	0.29	0.0	0.00	0.32	0.04	20	218
30	14.57	14.57	33.257	24.722	322.1	0.119	6.31	108.8	1.8	0.39	0.0	0.00	0.56	0.14	30	217
40	12.31	12.30	33.235	25.161	280.4	0.149	5.36	88.2	5.8	0.81	6.1	0.23	1.03	0.19	40	216
50	11.03	11.02	33.271	25.425	255.5	0.176	4.47	71.6	11.4	1.20	13.3	0.15	1.03	0.40	50	215
60	10.71	10.70	33.315	25.516	247.0	0.201	4.22	67.1	13.1	1.31	15.3	0.09	0.69	0.41	60	214
70	10.44	10.43	33.390	25.622	237.2	0.225	3.95	62.5	15.2	1.42	17.2	0.05	0.35	0.31	70	213
75 ISL	10.30	10.29	33.443	25.687	231.1	0.237	3.81	60.1	16.4	1.48	18.2	0.04	0.25	0.25	75	
84	10.08	10.07	33.540	25.801	220.5	0.257	3.60	56.5	18.4	1.58	19.6	0.03	0.14	0.17	84	212
100	9.96	9.95	33.666	25.919	209.5	0.291	3.40	53.3	20.3	1.65	20.7	0.03	0.08	0.12	100	211
119	10.01	10.00	33.864	26.066	196.1	0.330	2.96	46.5	23.3	1.78	22.3	0.02	0.03	0.08	120	210
125 ISL	9.99	9.98	33.912	26.107	192.3	0.341	2.83	44.5	24.3	1.83	22.8	0.02	0.02	0.08	126	
140	9.88	9.86	34.003	26.197	184.1	0.370	2.56	40.1	26.7	1.93	24.1	0.01	0.01	0.07	141	209
150 ISL	9.74	9.72	34.031	26.242	179.9	0.388	2.49	38.9	28.0	1.97	24.7	0.01	0.01	0.06	151	
168	9.48	9.46	34.061	26.309	173.9	0.420	2.42	37.6	30.0	2.02	25.6	0.01	0.01	0.05	169	208
198	9.27	9.25	34.146	26.410	164.9	0.471	2.09	32.4	33.5	2.15	27.2	0.01	0.00	0.05	199	207
200 ISL	9.25	9.23	34.148	26.415	164.5	0.474	2.08	32.2	33.7	2.15	27.3	0.01			201	
228	8.90	8.88	34.159	26.480	158.8	0.519	1.97	30.2	36.8	2.22	28.4	0.01			229	206
250 ISL	8.72	8.69	34.184	26.528	154.6	0.554	1.75	26.8	39.5	2.32	29.4	0.01			251	
268	8.62	8.59	34.210	26.564	151.4	0.581	1.54	23.5	41.6	2.41	30.1	0.01			270	205
300 ISL	8.50	8.47	34.259	26.621	146.5	0.629	1.20	18.3	44.9	2.54	31.0	0.01			302	
318	8.43	8.40	34.283	26.651	144.0	0.655	1.03	15.7	46.6	2.61	31.5	0.01			320	204
378	8.03	7.99	34.310	26.734	137.1	0.739	0.73	11.0	52.4	2.77	33.3	0.01			380	203
400 ISL	7.81	7.77	34.301	26.759	134.9	0.769	0.70	10.5	54.4	2.79	33.9	0.01			403	
438	7.42	7.38	34.282	26.801	131.2	0.820	0.68	10.1	58.0	2.83	35.0	0.01			441	202
500 ISL	6.90	6.85	34.289	26.879	124.3	0.899	0.49	7.2	66.0	2.97	36.8	0.03			503	
515	6.77	6.72	34.291	26.898	122.6	0.917	0.44	6.4	67.9	3.00	37.2	0.04			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 15.1 N	118 14.8 W	18/07/04	1818 UTC	328 m	240 04 kn	250 01 04	0	1013.8 mb	22.9 C	20.5 C	22m	0/8	

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.90	20.90	33.460	23.350	452.1	0.000	5.49	107.1	1.3	0.19	0.0	0.00	0.32	0.07	0	
2	20.90	20.90	33.460	23.350	452.1	0.009	5.49	107.1	1.3	0.19	0.0	0.00	0.32	0.07	2	220
8	19.78	19.78	33.431	23.624	426.2	0.035	5.60	107.0	1.3	0.19	0.0	0.00	0.29	0.07	8	219
10 ISL	19.64	19.64	33.430	23.660	422.9	0.044	5.61	106.9	1.3	0.19	0.0	0.00	0.29	0.07	10	
14	19.45	19.45	33.428	23.707	418.5	0.061	5.65	107.3	1.3	0.19	0.0	0.00	0.30	0.07	14	218
20 ISL	18.80	18.80	33.407	23.856	404.5	0.085	5.80	108.8	1.4	0.20	0.0	0.00	0.37	0.08	20	
22	18.49	18.49	33.396	23.925	398.0	0.093	5.87	109.4	1.5	0.21	0.0	0.00	0.41	0.08	22	217
30 ISL	16.62	16.62	33.349	24.338	358.8	0.124	6.20	111.4	1.9	0.25	0.1	0.01	0.66	0.39	30	
31	16.34	16.34	33.344	24.399	353.0	0.127	6.22	111.2	1.9	0.26	0.1	0.01	0.69	0.42	31	216
38	14.32	14.31	33.298	24.807	314.3	0.151	6.00	102.9	3.4	0.46	2.2	0.09	0.78	0.32	38	215
45	11.81	11.80	33.235	25.255	271.6	0.171	5.04	82.0	8.4	0.94	8.9	0.22	0.63	0.28	45	214
50 ISL	11.41	11.40	33.255	25.345	263.2	0.184	4.73	76.3	9.8	1.07	10.8	0.26	0.48	0.25	50	
52	11.36	11.35	33.274	25.369	260.9	0.190	4.62	74.5	10.4	1.11	11.5	0.28	0.42	0.24	52	213
58	10.59	10.58	33.384	25.591	239.9	0.205	3.98	63.1	14.5	1.40	16.6	0.09	0.29	0.24	58	212
71	10.22	10.21	33.529	25.768	223.3	0.235	3.62	57.0	17.8	1.56	19.2	0.03	0.17	0.14	71	211
75 ISL	10.09	10.08	33.559	25.813	219.1	0.244	3.58	56.2	18.5	1.59	19.7	0.03	0.14	0.12	75	
83	9.91	9.90	33.619	25.891	211.9	0.261	3.43	53.7	20.1	1.65	20.7	0.02	0.10	0.09	83	210
91	9.96	9.95	33.704	25.949	206.5	0.278	2.98	46.7	22.5	1.78	22.5	0.02	0.11	0.15	91	209
99	9.80	9.79	33.778	26.034	198.6	0.294	2.88	45.0	24.0	1.83	23.3	0.02	0.04	0.13	99	208
100 ISL	9.77	9.76	33.780	26.040	198.0	0.296	2.89	45.1	24.0	1.83	23.3	0.02	0.04	0.13	100	
119	9.31	9.30	33.793	26.126	190.2	0.333	3.21	49.6	24.5	1.78	23.3	0.01	0.01	0.05	120	207
125 ISL	9.27	9.26	33.829	26.161	187.0	0.344	3.15	48.7	25.2	1.80	23.6	0.01	0.01	0.05	126	
139	9.24	9.22	33.923	26.239	179.8	0.370	2.92	45.1	27.2	1.87	24.4	0.01	0.00	0.04	140	206
150 ISL	9.10	9.08	33.959	26.290	175.2	0.389	2.87	44.2	28.7	1.90	25.1	0.01	0.00	0.04	151	
169	8.85	8.83	34.003	26.364	168.5	0.422	2.77	42.4	31.2	1.96	26.3	0.01	0.00	0.04	170	205
198	8.73	8.71	34.099	26.459	160.0	0.470	2.27	34.7	35.3	2.14	28.1	0.01	0.00	0.03	199	204
200 ISL	8.70	8.68	34.100	26.464	159.6	0.473	2.26	34.5	35.6	2.15	28.2	0.01			201	
228	8.26	8.24	34.107	26.537	153.0	0.516	2.12	32.1	39.8	2.24	29.6	0.01			229	203
250 ISL	8.28	8.25	34.174	26.587	148.7	0.550	1.75	26.5	42.5	2.37	30.5	0.01			251	
268	8.29	8.26	34.221	26.623	145.6	0.576	1.41	21.4	44.4	2.49	31.1	0.01			270	202
300 ISL	8.24	8.21	34.266	26.666	142.1	0.622	1.10	16.6	47.7	2.62	32.0	0.01			302	
321	8.20	8.17	34.296	26.696	139.7	0.652	0.89	13.5	49.8	2.71	32.6	0.01			323	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 37

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 11.2 N	118 23.4 W	18/07/04	1517 UTC	1177 m	280 05 kn	270 01 04	1	1013.2 mb	21.3 C	19.9 C	22m	1/8	CC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.25	20.25	33.439	23.507	437.1	0.000	5.48	105.6	1.2	0.20	0.0	0.00	0.27	0.06	0	
2	20.25	20.25	33.439	23.507	437.1	0.009	5.48	105.6	1.2	0.20	0.0	0.00	0.27	0.06	2	220
9	20.17	20.17	33.436	23.526	435.6	0.039	5.48	105.4	1.2	0.20	0.0	0.00	0.29	0.05	9	219
10 ISL	20.07	20.07	33.406	23.530	435.3	0.044	5.49	105.4	1.2	0.20	0.0	0.00	0.28	0.05	10	
19	19.18	19.18	33.396	23.752	414.4	0.082	5.67	107.1	1.2	0.22	0.0	0.00	0.20	0.06	19	218
20 ISL	18.80	18.80	33.375	23.832	406.8	0.086	5.74	107.6	1.3	0.23	0.0	0.00	0.22	0.06	20	
29	15.04	15.04	33.245	24.612	332.6	0.119	6.20	107.9	2.6	0.36	0.1	0.00	0.42	0.10	29	217
30 ISL	14.74	14.74	33.238	24.672	326.9	0.123	6.15	106.4	2.9	0.40	0.6	0.01	0.45	0.11	30	
40	12.54	12.53	33.220	25.106	285.8	0.153	5.35	88.4	6.7	0.79	6.3	0.16	0.58	0.24	40	216
50	11.61	11.60	33.270	25.320	265.6	0.181	4.65	75.4	9.6	1.07	10.8	0.28	0.35	0.22	50	215
60	11.01	11.00	33.347	25.488	249.7	0.207	4.13	66.1	12.5	1.30	14.8	0.11	0.29	0.21	60	214
69	10.49	10.48	33.427	25.642	235.2	0.228	3.86	61.1	15.4	1.45	17.5	0.06	0.26	0.26	69	213
75 ISL	10.23	10.22	33.464	25.716	228.4	0.242	3.79	59.7	16.7	1.51	18.6	0.04	0.21	0.25	75	
85	9.94	9.93	33.524	25.812	219.4	0.265	3.69	57.8	18.3	1.58	19.8	0.03	0.12	0.19	85	212
99	9.81	9.80	33.651	25.933	208.2	0.295	3.29	51.4	20.5	1.70	21.3	0.02	0.07	0.10	99	211
100 ISL	9.80	9.79	33.662	25.943	207.2	0.297	3.27	51.1	20.7	1.70	21.4	0.02	0.07	0.10	100	
125 ISL	9.57	9.56	33.887	26.157	187.4	0.346	2.79	43.4	25.2	1.83	23.4	0.01	0.01	0.06	126	
129	9.52	9.51	33.914	26.187	184.7	0.353			26.1	1.86	23.8	0.01	0.01	0.05	130	210
138	9.39	9.37	33.943	26.231	180.7	0.370	2.61	40.5	28.3	1.96	25.4	0.01	0.01	0.08	139	209
150 ISL	9.27	9.25	33.981	26.280	176.2	0.391	2.46	38.0	30.1	2.03	26.4	0.01	0.01	0.08	151	
168	9.14	9.12	34.033	26.342	170.7	0.422	2.28	35.2	31.8	2.09	27.1	0.01	0.00	0.07	169	208
198	8.91	8.89	34.104	26.434	162.4	0.472	2.03	31.2	35.2	2.20	28.5	0.02	0.01	0.07	199	207
200 ISL	8.89	8.87	34.108	26.441	161.9	0.476	2.02	31.0	35.4	2.20	28.5	0.02			201	
228	8.66	8.64	34.148	26.508	155.9	0.520	1.91	29.2	38.2	2.26	29.1	0.02			229	206
250 ISL	8.52	8.49	34.163	26.542	153.1	0.554	1.81	27.6	40.2	2.32	29.7	0.01			251	
268	8.41	8.38	34.172	26.566	151.1	0.582	1.71	26.0	41.9	2.38	30.3	0.01			270	205
300 ISL	8.13	8.10	34.201	26.632	145.3	0.629	1.40	21.1	46.1	2.52	31.7	0.01			302	
317	7.96	7.93	34.217	26.670	141.9	0.653	1.23	18.5	48.6	2.59	32.5	0.01			319	204
377	7.40	7.36	34.252	26.779	132.2	0.736	0.81	12.0	56.7	2.80	34.9	0.01			379	203
400 ISL	7.14	7.10	34.262	26.824	128.2	0.766	0.68	10.0	60.7	2.88	36.0	0.01			403	
436	6.75	6.71	34.277	26.889	122.2	0.811	0.51	7.5	66.8	2.98	37.5	0.01			439	202
500 ISL	6.38	6.33	34.307	26.962	115.9	0.887	0.35	5.1	73.8	3.08	39.0	0.00			503	
515	6.29	6.24	34.315	26.980	114.3	0.904	0.31	4.5	75.4	3.10	39.3	0.00			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 55.1 N	118 56.1 W	18/07/04	0956 UTC	1695 m	290 08 kn			1012.5 mb	19.0 C	17.9 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.82	19.82	33.406	23.594	428.7	0.000	5.50	105.1	1.3	0.23	0.0	0.00	0.20	0.05	0	
3	19.82	19.82	33.406	23.595	428.8	0.013	5.50	105.1	1.3	0.23	0.0	0.00	0.20	0.05	3	220
10 ISL	19.69	19.69	33.391	23.617	426.9	0.043	5.61	107.0	1.4	0.24	0.0	0.00	0.21	0.05	10	
11	19.67	19.67	33.389	23.621	426.6	0.047	5.62	107.1	1.4	0.24	0.0	0.00	0.21	0.05	11	219
20	15.21	15.21	33.259	24.586	334.8	0.081	6.31	110.2	1.5	0.34	0.0	0.00	0.36	0.13	20	218
30	12.81	12.81	33.208	25.044	291.4	0.113	5.65	93.9	5.1	0.70	4.8	0.15	1.24	0.40	30	217
40	11.89	11.88	33.222	25.230	273.8	0.141	4.97	81.0	7.7	0.95	9.3	0.31	1.17	0.46	40	216
50	11.24	11.23	33.268	25.385	259.3	0.168	4.53	72.8	10.4	1.16	12.5	0.24	0.92	0.49	50	215
60	10.49	10.48	33.403	25.623	236.8	0.192	3.92	62.1	15.3	1.45	17.3	0.06	0.43	0.37	60	214
71	10.29	10.28	33.463	25.705	229.3	0.218	3.79	59.8	16.8	1.52	18.4	0.03	0.28	0.30	71	213
75 ISL	10.17	10.16	33.506	25.759	224.3	0.227	3.70	58.2	17.7	1.56	19.1	0.03	0.21	0.25	75	
85	9.89	9.88	33.623	25.897	211.3	0.249	3.45	54.0	20.2	1.65	20.9	0.02	0.08	0.14	85	212
99	9.80	9.79	33.746	26.009	201.0	0.278	3.15	49.2	22.6	1.75	22.3	0.01	0.05	0.14	99	211
100 ISL	9.79	9.78	33.752	26.015	200.4	0.280	3.14	49.1	22.7	1.76	22.4	0.01	0.05	0.14	100	
119	9.52	9.51	33.848	26.135	189.4	0.317	2.94	45.7	25.4	1.85	23.8	0.01	0.02	0.07	120	210
125 ISL	9.47	9.46	33.891	26.177	185.5	0.328	2.83	43.9	26.5	1.89	24.4	0.01	0.02	0.07	126	
139	9.37	9.35	33.987	26.268	177.1	0.353	2.57	39.8	29.0	1.98	25.6	0.01	0.01	0.06	140	209
150 ISL	9.25	9.23	34.027	26.319	172.5	0.373	2.49	38.5	30.5	2.01	26.2	0.01	0.01	0.06	151	
169	9.01	8.99	34.069	26.391	166.0	0.405	2.42	37.2	32.9	2.06	27.0	0.01	0.01	0.07	170	208
199	8.67	8.65	34.127	26.490	157.1	0.453	2.13	32.5	37.3	2.20	28.7	0.01	0.01	0.05	200	207
200 ISL	8.66	8.64	34.128	26.492	156.9	0.455	2.12	32.4	37.4	2.21	28.8	0.01			201	
229	8.35	8.33	34.152	26.559	151.0	0.499	1.80	27.3	41.6	2.35	30.4	0.01			230	206
250 ISL	8.10	8.07	34.166	26.608	146.6	0.531	1.61	24.3	44.7	2.44	31.4	0.01			251	
269	7.90	7.87	34.178	26.647	143.1	0.558	1.46	21.9	47.4	2.51	32.2	0.01			271	205
300 ISL	7.69	7.66	34.202	26.697	138.8	0.602	1.23	18.4	50.9	2.61	33.2	0.00			302	
318	7.58	7.55	34.213	26.722	136.7	0.627	1.11	16.5	52.9	2.67	33.8	0.00			320	204
377	6.99	6.95	34.220	26.811	128.9	0.705	0.86	12.6	60.7	2.83	36.0	0.00			379	203
400 ISL	6.83	6.79	34.232	26.842	126.1	0.734	0.74	10.8	63.6	2.88	36.7	0.00			403	
437	6.61	6.57	34.257	26.892	121.8	0.780	0.56	8.2	68.0	2.96	37.8	0.00			440	202
500 ISL	6.30	6.25	34.301	26.968	115.2	0.855	0.36	5.2	74.3	3.08	39.1	0.00			503	
515	6.23	6.18	34.312	26.986	113.7	0.872	0.31	4.5	75.8	3.11	39.4	0.00			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 53

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 39.2 N	119 28.9 W	18/07/04	0400 UTC	1316 m	310 12 kn			1013.6 mb	18.3 C	17.1 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.39	17.39	33.541	24.303	361.1	0.000	5.84	106.7	0.4	0.40	2.3	0.09	0.34	0.06	0	
2	17.39	17.39	33.541	24.303	361.2	0.007	5.84	106.7	0.4	0.40	2.3	0.09	0.34	0.06	2	220
10	16.62	16.62	33.536	24.481	344.5	0.035	5.94	106.9	0.6	0.41	2.5	0.09	0.40	0.09	10	219
20	14.51	14.51	33.510	24.930	302.0	0.068	5.92	102.1	2.2	0.59	4.7	0.15	0.92	0.22	20	218
30	12.67	12.67	33.559	25.343	262.9	0.096	5.03	83.5	7.1	1.02	10.9	0.26	2.13	0.71	30	217
40	10.79	10.79	33.612	25.733	226.0	0.120	3.59	57.3	18.1	1.62	19.9	0.18	1.23	0.48	40	216
50	10.31	10.30	33.661	25.855	214.6	0.143	3.27	51.7	21.0	1.75	21.9	0.08	0.30	0.29	50	215
60	9.77	9.76	33.656	25.943	206.4	0.164	3.20	50.0	22.5	1.82	23.2	0.05	0.11	0.17	60	214
70	9.65	9.64	33.764	26.047	196.7	0.184	2.83	44.1	25.2	1.90	24.3	0.08	0.16	0.20	70	213
75 ISL	9.56	9.55	33.801	26.091	192.6	0.193	2.73	42.5	26.3	1.93	24.8	0.07	0.13	0.20	75	
85	9.39	9.38	33.857	26.162	186.0	0.212	2.60	40.3	28.1	1.99	25.6	0.03	0.06	0.17	85	212
100	9.25	9.24	33.918	26.233	179.6	0.240	2.44	37.7	30.0	2.04	26.6	0.02	0.05	0.14	101	211
120	8.99	8.98	33.990	26.331	170.7	0.275	2.31	35.5	32.4	2.10	27.6	0.03	0.02	0.13	121	210
125 ISL	8.92	8.91	33.999	26.349	169.0	0.283	2.31	35.5	32.8	2.10	27.8	0.03	0.01	0.13	126	
140	8.71	8.70	34.022	26.401	164.4	0.308	2.32	35.4	34.3	2.12	28.3	0.02	0.00	0.11	141	209
150 ISL	8.60	8.58	34.056	26.444	160.4	0.325	2.15	32.8	36.3	2.19	29.1	0.02	0.00	0.09	151	
170	8.41	8.39	34.122	26.526	153.1	0.356	1.75	26.6	40.4	2.35	30.6	0.03	0.01	0.06	171	208
199	8.18	8.16	34.145	26.579	148.5	0.400	1.58	23.9	43.7	2.43	31.6	0.06	0.00	0.05	200	207
200 ISL	8.17	8.15	34.146	26.581	148.3	0.401	1.57	23.7	43.8	2.43	31.6	0.06			201	
229	7.93	7.91	34.176	26.641	143.0	0.443	1.38	20.7	47.3	2.53	32.4	0.04			230	206
250 ISL	7.77	7.75	34.195	26.679	139.7	0.473	1.20	18.0	50.0	2.62	33.2	0.03			252	
269	7.62	7.59	34.210	26.713	136.7	0.499	1.04	15.5	52.5	2.69	34.0	0.03			271	205
300 ISL	7.35	7.32	34.226	26.765	132.2	0.541	0.90	13.3	56.5	2.78	34.9	0.02			302	
319	7.20	7.17	34.234	26.792	129.8	0.566	0.84	12.4	58.6	2.82	35.4	0.01			321	204
378	7.05	7.01	34.268	26.840	126.1	0.641	0.53	7.8	62.5	2.92	36.5	0.01			380	203
400 ISL	6.92	6.88	34.279	26.867	123.9	0.669	0.47	6.9	64.9	2.96	37.0	0.01			403	
438	6.64	6.60	34.297	26.919	119.2	0.715	0.41	6.0	69.8	3.03	38.0	0.01			441	202
500 ISL	6.16	6.12	34.330	27.009	111.3	0.787	0.29	4.2	78.8	3.13	39.5	0.01			503	
515	6.04	5.99	34.339	27.031	109.2	0.803	0.26	3.7	81.0	3.16	39.9	0.01			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 25.0 N	119 57.5 W	17/07/04	2301	UTC	895 m	320	07 kn	340 02 06	1	1014.7 mb	19.2 C	17.6 C	20m	1/8	CS

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.52	16.52	33.427	24.420	350.0	0.000	5.92	106.2	0.3	0.40	2.1	0.09	0.39	0.08	0	
2	16.52	16.52	33.427	24.420	350.1	0.007	5.92	106.2	0.3	0.40	2.1	0.09	0.39	0.08	2	222
9	15.77	15.77	33.343	24.526	340.2	0.031	6.00	106.0	0.6	0.42	2.4	0.10	0.45	0.12	9	219
10 ISL	15.68	15.68	33.331	24.537	339.2	0.035	6.00	105.8	0.6	0.42	2.5	0.10	0.47	0.12	10	
20	14.56	14.56	33.218	24.694	324.5	0.068	6.02	103.7	1.4	0.52	3.2	0.12	0.85	0.17	20	218
29	12.92	12.92	33.145	24.973	298.1	0.096	5.87	97.8	3.3	0.75	6.5	0.25	1.36	0.53	29	217
30 ISL	12.74	12.74	33.150	25.012	294.4	0.099	5.78	95.9	3.8	0.79	7.1	0.29	1.34	0.53	30	
40	11.31	11.31	33.266	25.371	260.4	0.126	4.80	77.3	9.9	1.21	13.7	0.52	0.83	0.34	40	216
49	10.75	10.74	33.409	25.582	240.5	0.149	4.28	68.2	14.3	1.43	17.5	0.16	0.36	0.25	49	215
50 ISL	10.64	10.63	33.413	25.605	238.4	0.151	4.22	67.0	14.8	1.45	17.9	0.14	0.33	0.24	50	
59	9.73	9.72	33.459	25.795	220.4	0.172	3.75	58.4	19.1	1.63	20.8	0.02	0.17	0.17	59	214
69	9.45	9.44	33.634	25.978	203.2	0.193	3.35	51.9	22.6	1.77	23.0	0.02	0.09	0.12	69	213
75 ISL	9.31	9.30	33.719	26.067	194.8	0.205	3.19	49.3	24.4	1.82	23.9	0.02	0.06	0.12	75	
84	9.14	9.13	33.816	26.171	185.2	0.222	3.00	46.2	26.6	1.87	24.8	0.01	0.03	0.11	84	212
99	9.01	9.00	33.896	26.254	177.5	0.249	2.76	42.4	29.0	1.95	26.0	0.02	0.02	0.10	100	211
100 ISL	9.01	9.00	33.898	26.256	177.4	0.251	2.76	42.4	29.0	1.95	26.0	0.02	0.02	0.10	101	
119	8.98	8.97	33.917	26.276	175.9	0.285	2.73	41.9	29.6	1.95	26.2	0.01	0.02	0.09	120	210
125 ISL	8.95	8.94	33.931	26.291	174.5	0.295	2.68	41.1	30.1	1.97	26.5	0.01	0.02	0.11	126	
139	8.82	8.81	33.972	26.344	169.8	0.319	2.50	38.3	32.2	2.05	27.4	0.01	0.03	0.14	140	209
150 ISL	8.60	8.58	34.016	26.413	163.4	0.338	2.30	35.0	35.3	2.14	28.6	0.01	0.02	0.12	151	
169	8.23	8.21	34.097	26.533	152.2	0.368	1.90	28.7	41.0	2.31	30.7	0.01	0.01 A	0.06 A	170	208
198	8.06	8.04	34.187	26.630	143.6	0.411	1.31	19.7	46.5	2.53	32.3	0.01	0.01	0.06	199	207
200 ISL	8.03	8.01	34.192	26.638	142.8	0.413	1.28	19.3	47.0	2.55	32.4	0.01			201	
229	7.62	7.60	34.240	26.736	133.9	0.454	0.92	13.7	53.7	2.73	34.2	0.02			230	206
250 ISL	7.50	7.48	34.248	26.760	131.9	0.481	0.83	12.4	55.7	2.77	34.7	0.02			252	
267	7.43	7.40	34.248	26.770	131.2	0.504	0.79	11.7	56.8	2.79	35.0	0.01			269	205
300 ISL	7.18	7.15	34.262	26.817	127.2	0.546	0.64	9.5	60.5	2.86	35.9	0.01			302	
318	7.03	7.00	34.272	26.846	124.7	0.569	0.56	8.2	63.0	2.91	36.4	0.01			320	204
378	6.47	6.44	34.316	26.956	114.7	0.641	0.32	4.6	73.3	3.08	38.3	0.01			380	203
400 ISL	6.33	6.29	34.326	26.983	112.4	0.666	0.29	4.2	75.8	3.11	38.8	0.01			403	
437	6.16	6.12	34.338	27.014	109.8	0.707	0.26	3.8	78.8	3.14	39.4	0.00			440	202
500 ISL	6.01	5.97	34.344	27.039	108.2	0.776	0.23	3.3	81.8	3.18	39.7	0.00			503	
515	5.98	5.93	34.346	27.044	107.9	0.792	0.22	3.2	82.5	3.19	39.8	0.00			519	201

A) SECOND FLUOROMETER READING NOT RECORDED, CHLOROPHYLL AND PHAEOPIGMENT
CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 5.0 N	120 38.3 W	17/07/04	1735	UTC	3826 m	310	07 kn	310 03 06	1	1014.8 mb	20.5 C	18.0 C	22m	3/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.11	17.11	32.967	23.930	396.8	0.000	5.72	103.6	1.8	0.36	0.5	0.02	0.25	0.04	0	
2	17.11	17.11	32.967	23.930	396.8	0.008	5.72	103.6	1.8	0.36	0.5	0.02	0.25	0.04	2	221
10 ISL	16.98	16.98	32.970	23.963	393.9	0.040	5.73	103.5	1.7	0.36	0.5	0.02	0.26	0.06	10	
14	16.91	16.91	32.972	23.981	392.3	0.055	5.74	103.5	1.7	0.36	0.5	0.02	0.27	0.07	14	220
20 ISL	16.66	16.66	33.027	24.081	382.9	0.079	5.85	105.0	1.7	0.39	1.0	0.03	0.29	0.08	20	
30 ISL	15.84	15.84	33.118	24.338	358.7	0.116	6.02	106.4	1.8	0.47	2.5	0.07	0.36	0.10	30	
31	15.73	15.73	33.127	24.370	355.8	0.119	6.03	106.3	1.8	0.48	2.7	0.08	0.37	0.10	31	219
45	13.40	13.39	33.155	24.886	306.8	0.166	5.90	99.2	3.2	0.70	5.7	0.21	0.64	0.19	45	218
50 ISL	13.02	13.01	33.190	24.989	297.2	0.181	5.82	97.1	3.7	0.80	6.8	0.25	0.67	0.29	50	
52	12.85	12.84	33.186	25.019	294.3	0.187	5.75	95.6	4.0	0.84	7.3	0.26	0.68	0.32	52	217
58	11.83	11.82	33.018	25.084	288.2	0.204	5.20	84.5	6.4	0.93	8.7	0.17	0.54	0.27	58	216
67	11.08	11.07	33.082	25.270	270.6	0.229	4.87	77.9	9.2	1.14	12.6	0.10	0.36	0.25	67	215
75 ISL	10.56	10.55	33.171	25.431	255.5	0.250	4.68	74.1	11.7	1.29	15.3	0.04	0.21	0.15	75	
76	10.51	10.50	33.182	25.448	253.9	0.253	4.66	73.7	12.0	1.31	15.6	0.03	0.19	0.14	76	214
84	10.20	10.19	33.231	25.539	245.3	0.273	4.39	69.0	14.2	1.42	17.3	0.02	0.14	0.12	84	213
95	9.76	9.75	33.358	25.712	229.0	0.299	3.91	60.9	17.8	1.59	20.0	0.02	0.08	0.07	95	212
100 ISL	9.60	9.59	33.423	25.789	221.8	0.310	3.87	60.1	19.1	1.61	20.7	0.02	0.05	0.07	100	
110	9.35	9.34	33.538	25.920	209.5	0.332	3.78	58.4	20.8	1.64	21.3	0.01	0.01	0.08	111	211
124	9.19	9.18	33.623	26.012	201.0	0.360	3.93	60.5	21.2	1.58	20.7	0.01	0.02	0.06	125	210
125 ISL	9.17	9.16	33.635	26.025	199.8	0.362	3.89	59.9	21.5	1.59	20.9	0.01	0.02	0.06	126	
144	8.89	8.87	33.863	26.248	179.0	0.398	2.96	45.4	28.6	1.91	25.8	0.01	0.00	0.03	145	209
150 ISL	8.83	8.81	33.905	26.290	175.1	0.409	2.80	42.9	30.0	1.96	26.5	0.01	0.00	0.03	151	
169	8.68	8.66	33.990	26.380	166.9	0.442	2.49	38.0	33.2	2.06	27.9	0.01	0.00	0.05	170	208
199	8.32	8.30	34.058	26.489	157.0	0.490	2.13	32.3	38.4	2.21	30.0	0.01	0.00	0.05	200	207
200 ISL	8.30	8.28	34.059	26.493	156.6	0.492	2.12	32.1	38.6	2.21	30.1	0.01			201	
228	7.88	7.86	34.075	26.569	149.8	0.535	1.92	28.8	43.4	2.33	31.7	0.01			229	206
250 ISL	7.63	7.61	34.088	26.615	145.6	0.567	1.75	26.1	46.7	2.42	32.7	0.00			251	
268	7.45	7.42	34.099	26.650	142.6	0.593	1.62	24.1	49.2	2.48	33.3	0.00			270	205
300 ISL	7.14	7.11	34.115	26.706	137.6	0.638	1.48	21.8	53.0	2.56	34.2	0.01			302	
318	7.01	6.98	34.131	26.737	134.9	0.662	1.39	20.4	55.0	2.61	34.7	0.01			320	204
378	7.06	7.02	34.257	26.830	127.1	0.741	0.65	9.6	61.7	2.88	36.2	0.00			380	203
400 ISL	6.90	6.86	34.283	26.873	123.3	0.768	0.50	7.3	65.2	2.96	36.9	0.00			403	
437	6.53	6.49	34.314	26.947	116.5	0.813	0.35	5.1	71.6	3.06	38.2	0.00			440	202
500 ISL	5.96	5.92	34.346	27.047	107.4	0.883	0.24	3.4	81.6	3.16	40.1	0.00			503	
515	5.83	5.79	34.354	27.069	105.4	0.899	0.21	3.0	84.0	3.18	40.5	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 44.9 N	121 18.8 W	17/07/04	0747 UTC	3634 m	310 04 kn			1014.8 mb	17.2 C	16.5 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.05	18.05	32.997	23.727	416.0	0.000	5.51	101.6	1.7	0.33	0.0	0.00	0.10	0.02	0	
3	18.05	18.05	32.997	23.728	416.1	0.012	5.51	101.6	1.7	0.33	0.0	0.00	0.10	0.02	3	220
10 ISL	18.04	18.04	32.999	23.732	416.0	0.042	5.51	101.6	1.7	0.33	0.0	0.00	0.09	0.02	10	
15	18.03	18.03	33.000	23.735	415.8	0.062	5.51	101.6	1.7	0.33	0.0	0.00	0.08	0.02	15	219
20 ISL	17.99	17.99	32.997	23.743	415.3	0.083	5.53	101.9	1.7	0.33	0.0	0.00	0.09	0.02	20	
30	17.72	17.71	32.981	23.796	410.5	0.124	5.59	102.4	1.8	0.33	0.0	0.00	0.11	0.02	30	218
45	16.61	16.60	32.935	24.023	389.3	0.184	5.79	103.8	1.8	0.34	0.0	0.00	0.15	0.04	45	217
50 ISL	16.05	16.04	32.931	24.148	377.5	0.204	5.88	104.2	1.8	0.34	0.0	0.00	0.20	0.06	50	
59	15.08	15.07	32.939	24.369	356.6	0.237	6.01	104.5	1.9	0.34	0.0	0.00	0.30	0.13	59	216
74	14.31	14.30	32.968	24.556	339.2	0.289	5.97	102.2	2.2	0.38	0.1	0.01	0.40	0.30	74	215
75 ISL	14.28	14.27	32.969	24.563	338.6	0.292	5.97	102.1	2.2	0.38	0.1	0.01	0.41	0.30	75	
85	13.97	13.96	32.988	24.642	331.3	0.326	5.88	100.0	2.4	0.42	0.6	0.05	0.45	0.30	85	214
94	13.38	13.37	33.025	24.791	317.2	0.355	5.71	95.9	2.9	0.52	2.2	0.25	0.39	0.38	94	213
100 ISL	12.82	12.81	33.059	24.928	304.2	0.374	5.51	91.5	4.0	0.63	4.2	0.16	0.32	0.34	100	
104	12.45	12.44	33.081	25.017	295.8	0.386	5.36	88.3	4.9	0.71	5.7	0.07	0.27	0.32	104	212
114	11.82	11.81	33.110	25.158	282.5	0.414	5.08	82.6	6.7	0.91	9.1	0.04	0.16	0.16	114	211
124	10.80	10.79	33.181	25.398	259.7	0.442	4.82	76.7	10.1	1.11	12.4	0.01	0.10	0.10	124	210
125 ISL	10.72	10.71	33.188	25.417	257.9	0.444	4.80	76.3	10.4	1.13	12.7	0.01	0.10	0.10	126	
140	9.79	9.77	33.315	25.674	233.6	0.481	4.47	69.6	14.8	1.34	16.4	0.01	0.05	0.07	141	209
150 ISL	9.44	9.42	33.447	25.835	218.4	0.504	4.16	64.4	18.0	1.49	18.9	0.01	0.03	0.05	151	
164	9.17	9.15	33.642	26.031	200.0	0.533	3.67	56.5	22.4	1.68	22.1	0.01	0.01	0.03	165	208
194	8.97	8.95	33.946	26.301	175.0	0.589	2.66	40.9	30.2	1.99	26.5	0.00	0.01	0.03	195	207
200 ISL	8.90	8.88	33.974	26.334	171.9	0.600	2.57	39.4	31.3	2.02	27.0	0.00			201	
229	8.54	8.52	34.043	26.445	161.9	0.648	2.34	35.6	35.8	2.14	28.7	0.00			230	206
250 ISL	8.27	8.24	34.071	26.508	156.2	0.681	2.13	32.2	39.2	2.24	30.0	0.00			251	
269	8.03	8.00	34.087	26.557	151.8	0.711	1.95	29.3	42.3	2.33	31.1	0.00			270	205
300 ISL	7.68	7.65	34.110	26.626	145.5	0.757	1.70	25.4	46.9	2.45	32.5	0.00			302	
318	7.49	7.46	34.122	26.663	142.2	0.783	1.56	23.2	49.6	2.52	33.2	0.00			320	204
378	6.87	6.83	34.179	26.795	130.3	0.864	0.97	14.2	60.3	2.79	36.2	0.00			380	203
400 ISL	6.73	6.69	34.195	26.827	127.5	0.893	0.83	12.1	63.0	2.86	36.9	0.00			402	
439	6.51	6.47	34.218	26.874	123.4	0.942	0.65	9.4	67.4	2.95	37.9	0.00			442	202
500 ISL	6.06	6.02	34.252	26.960	115.7	1.015	0.44	6.3	75.7	3.07	39.5	0.00			503	
513	5.97	5.93	34.260	26.978	114.1	1.029	0.39	5.6	77.5	3.10	39.9	0.00			516	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 25.0 N	121 59.4 W	17/07/04	0158 UTC	3873 m	340 10 kn	040 04 08	2	1014.2 mb	19.0 C	17.8 C	29m	8/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.40	18.40	32.994	23.639	424.5	0.000	5.49	101.9	1.7	0.32	0.0	0.00	0.07	0.02	0	
2	18.40	18.40	32.994	23.639	424.5	0.008	5.49	101.9	1.7	0.32	0.0	0.00	0.07	0.02	2	220
10 ISL	18.22	18.22	32.993	23.683	420.6	0.042	5.50	101.7	1.7	0.32	0.0	0.00	0.07	0.02	10	
16	18.04	18.04	32.992	23.727	416.7	0.067	5.51	101.6	1.7	0.32	0.0	0.00	0.08	0.02	16	219
20 ISL	18.01	18.01	32.992	23.734	416.1	0.084	5.52	101.7	1.7	0.32	0.0	0.00	0.08	0.02	20	
30 ISL	17.95	17.94	32.991	23.748	415.1	0.126	5.53	101.8	1.7	0.32	0.0	0.00	0.10	0.03	30	
31	17.94	17.93	32.991	23.751	414.9	0.130	5.53	101.7	1.7	0.32	0.0	0.00	0.10	0.03	31	218
45	16.74	16.73	33.035	24.070	384.9	0.186	5.80	104.3	1.6	0.32	0.0	0.00	0.15	0.04	45	217
50 ISL	16.26	16.25	33.024	24.172	375.2	0.205	5.88	104.7	1.6	0.33	0.0	0.00	0.21	0.06	50	
55	15.78	15.77	33.010	24.269	366.1	0.223	5.95	104.9	1.6	0.34	0.0	0.00	0.28	0.09	55	216
65	14.90	14.89	32.999	24.454	348.7	0.259	6.01	104.1	1.9	0.37	0.4	0.02	0.34	0.13	65	215
75 ISL	14.16	14.15	32.972	24.590	335.9	0.293	5.94	101.4	2.2	0.39	0.5	0.02	0.34	0.17	75	
76	14.09	14.08	32.973	24.605	334.5	0.297	5.93	101.1	2.2	0.39	0.5	0.02	0.34	0.17	76	214
85	13.61	13.60	33.064	24.774	318.6	0.326	5.75	97.1	2.7	0.55	2.9	0.17	0.36	0.18	85	213
95	12.96	12.95	33.105	24.936	303.4	0.357	5.47	91.1	3.8	0.73	5.7	0.20	0.29	0.33	95	212
100 ISL	12.55	12.54	33.107	25.018	295.7	0.372	5.33	88.0	4.6	0.79	6.9	0.16	0.26	0.29	100	
110	11.73	11.72	33.109	25.174	280.9	0.401	5.07	82.3	6.7	0.91	9.2	0.05	0.20	0.16	110	211
125	10.75	10.74	33.165	25.394	260.1	0.441	4.71	74.9	10.4	1.16	13.2	0.03	0.12	0.10	126	210
145	9.87	9.85	33.322	25.667	234.4	0.491	4.53	70.7	14.1	1.30	15.9	0.01	0.03	0.09	146	209
150 ISL	9.70	9.68	33.389	25.747	226.8	0.502	4.37	68.0	15.7	1.38	17.1	0.01	0.03	0.08	151	
169	9.21	9.19	33.653	26.033	199.9	0.543	3.68	56.7	22.2	1.67	21.9	0.01	0.01	0.03	170	208
199	8.76	8.74	33.908	26.304	174.7	0.599	3.11	47.5	28.8	1.87	25.4	0.00	0.01	0.06	200	207
200 ISL	8.75	8.73	33.913	26.310	174.2	0.601	3.10	47.4	29.0	1.87	25.5	0.00			201	
229	8.41	8.39	33.991	26.424	163.8	0.650	2.86	43.4	33.5	1.96	27.2	0.00			230	206
250 ISL	8.12	8.09	34.019	26.490	157.8	0.684	2.64	39.8	37.4	2.07	28.7	0.00			251	
269	7.85	7.82	34.034	26.542	153.1	0.713	2.42	36.2	41.0	2.18	30.1	0.00			270	205
300 ISL	7.45	7.42	34.057	26.617	146.2	0.760	2.05	30.4	46.4	2.35	32.1	0.00			302	
318	7.22	7.19	34.066	26.657	142.6	0.786	1.85	27.3	49.5	2.44	33.1	0.00			320	204
379	6.46	6.43	34.077	26.769	132.4	0.869	1.40	20.3	60.2	2.67	36.2	0.00			381	203
400 ISL	6.30	6.26	34.097	26.806	129.1	0.897	1.21	17.5	63.6	2.75	37.1	0.00			402	
437	6.08	6.04	34.135	26.864	123.9	0.944	0.89	12.8	69.5	2.89	38.5	0.00			440	202
500 ISL	5.63	5.59	34.174	26.951	116.0	1.019	0.59	8.4	79.0	3.05	40.3	0.00			503	
510	5.56	5.52	34.180	26.964	114.8	1.031	0.54	7.7	80.5	3.07	40.6	0.00			513	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 5.1 N	122 39.6 W	16/07/04	1907	UTC	4014 m	020	10 kn	020 02 05	1	1015.7 mb	20.1 C	18.5 C	33m	7/8	AS

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.42	18.42	32.977	23.621	426.2	0.000	5.51	102.3	1.7	0.33	0.0	0.00	0.08	0.01	0	
2	18.42	18.42	32.977	23.622	426.2	0.009	5.51	102.3	1.7	0.33	0.0	0.00	0.08	0.01	2	222
10 ISL	18.34	18.34	32.976	23.641	424.7	0.043	5.50	102.0	1.7	0.32	0.0	0.00	0.08	0.01	10	
12	18.32	18.32	32.976	23.646	424.3	0.051	5.50	101.9	1.7	0.32	0.0	0.00	0.08	0.01	12	221
20	18.29	18.29	32.975	23.653	423.9	0.085	5.52	102.2	1.7	0.32	0.0	0.00	0.08	0.01	20	220
30 ISL	18.01	18.00	32.986	23.730	416.8	0.127	5.59	103.0	1.7	0.32	0.0	0.00	0.10	0.02	30	
33	17.82	17.81	32.987	23.777	412.4	0.139	5.63	103.3	1.7	0.32	0.0	0.00	0.11	0.02	33	219
46	16.02	16.01	32.956	24.174	374.9	0.191	6.02	106.7	1.9	0.31	0.0	0.00	0.10	0.03	46	218
50 ISL	15.79	15.78	32.970	24.236	369.1	0.206	6.02	106.2	1.9	0.31	0.0	0.00	0.11	0.03	50	
58	15.50	15.49	33.001	24.325	360.9	0.235	6.01	105.4	1.9	0.31	0.0	0.00	0.14	0.03	58	217
69	14.98	14.97	33.020	24.453	348.9	0.274	6.01	104.3	2.0	0.31	0.0	0.00	0.16	0.06	69	216
75 ISL	14.72	14.71	33.033	24.519	342.8	0.294	5.98	103.3	2.1	0.32	0.0	0.00	0.19	0.10	75	
78	14.66	14.65	33.063	24.555	339.4	0.305	5.95	102.6	2.2	0.32	0.0	0.00	0.21	0.12	78	215
87	15.00	14.99	33.362	24.713	324.7	0.335	5.83	101.4	2.3	0.27	0.0	0.00	0.22	0.16	87	214
97	14.85	14.84	33.444	24.809	315.9	0.367	5.71	99.1	2.6	0.29	0.1	0.01	0.26	0.22	97	213
100 ISL	14.61	14.60	33.432	24.851	311.9	0.376	5.67	97.9	2.7	0.31	0.3	0.03	0.26	0.21	100	
107	13.79	13.77	33.367	24.973	300.4	0.397	5.57	94.6	3.3	0.41	1.6	0.10	0.26	0.16	107	212
117	12.06	12.04	33.246	25.219	276.9	0.426	5.35	87.5	5.6	0.69	6.0	0.16	0.26	0.13	117	211
125 ISL	11.10	11.08	33.139	25.312	268.0	0.448	5.23	83.8	7.4	0.87	8.9	0.06	0.17	0.19	125	
126	11.00	10.98	33.129	25.322	267.0	0.451	5.21	83.3	7.7	0.89	9.2	0.04	0.16	0.20	126	210
145	9.81	9.79	33.341	25.691	232.0	0.498	4.47	69.7	14.9	1.33	16.5	0.01	0.04	0.05	146	209
150 ISL	9.67	9.65	33.403	25.763	225.3	0.510	4.24	65.9	16.6	1.43	18.1	0.01	0.03	0.04	151	
164	9.45	9.43	33.571	25.930	209.7	0.540	3.63	56.2	20.8	1.67	21.7	0.00	0.01	0.03	165	208
194	9.10	9.08	33.858	26.212	183.5	0.599	2.95	45.4	27.4	1.89	25.1	0.00	0.00	0.02	195	207
200 ISL	9.01	8.99	33.890	26.251	179.9	0.610	2.98	45.8	28.0	1.88	25.2	0.00			201	
229	8.53	8.51	33.981	26.398	166.3	0.660	3.20	48.7	31.0	1.84	25.5	0.00			230	206
250 ISL	8.19	8.16	34.016	26.477	159.0	0.694	2.92	44.1	35.4	1.97	27.4	0.00			251	
269	7.90	7.87	34.035	26.535	153.7	0.724	2.55	38.2	39.8	2.13	29.5	0.00			270	205
300 ISL	7.53	7.50	34.067	26.614	146.6	0.771	2.05	30.5	45.6	2.33	31.9	0.00			302	
318	7.35	7.32	34.083	26.652	143.1	0.797	1.79	26.5	48.7	2.44	33.1	0.00			320	204
378	6.84	6.80	34.122	26.754	134.1	0.880	1.26	18.4	57.4	2.68	35.8	0.00			380	203
400 ISL	6.56	6.52	34.125	26.794	130.4	0.909	1.13	16.4	61.6	2.76	36.9	0.00			402	
436	6.12	6.08	34.134	26.858	124.4	0.955	0.94	13.5	68.5	2.87	38.5	0.00			439	202
500 ISL	5.71	5.67	34.194	26.957	115.5	1.032	0.58	8.3	78.6	3.03	40.2	0.00			503	
515	5.62	5.58	34.209	26.980	113.4	1.049	0.49	7.0	81.0	3.07	40.6	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 90 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 44.8 N	123 20.0 W	16/07/04	1252	UTC	4012 m	40	12 kn			1014.0 mb	18.1 C	17.0 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.34	18.34	32.999	23.658	422.7	0.000	5.48	101.6	1.6	0.33	0.0	0.00	0.09	0.00	0	
1	18.34	18.34	32.999	23.658	422.7	0.004	5.48	101.6	1.6	0.33	0.0	0.00	0.09	0.00	1	220
10 ISL	18.34	18.34	33.000	23.659	422.9	0.042	5.48	101.6	1.6	0.32	0.0	0.00	0.09	0.01	10	
15	18.34	18.34	33.000	23.659	423.1	0.063	5.48	101.6	1.6	0.32	0.0	0.00	0.09	0.02	15	219
20 ISL	18.31	18.31	33.001	23.668	422.4	0.085	5.49	101.7	1.6	0.32	0.0	0.00	0.10	0.02	20	
30 ISL	18.25	18.24	33.002	23.684	421.3	0.127	5.50	101.8	1.7	0.32	0.0	0.00	0.11	0.01	30	
31	18.24	18.23	33.002	23.686	421.1	0.131	5.50	101.8	1.7	0.32	0.0	0.00	0.11	0.01	31	218
45	15.82	15.81	32.976	24.234	369.1	0.186	6.00	105.9	1.8	0.31	0.0	0.00			45	217
50 ISL	15.71	15.70	33.071	24.332	360.0	0.205	5.99	105.5	1.9	0.30	0.0	0.00	0.13	0.03	50	
60	15.48	15.47	33.162	24.453	348.7	0.240	5.96	104.6	2.0	0.29	0.0	0.00	0.15	0.04	60	216
75	15.17	15.16	33.254	24.592	335.9	0.291	5.90	102.9	2.1	0.28	0.0	0.00	0.18	0.06	75	215
84	15.14	15.13	33.364	24.684	327.4	0.321	5.83	101.7	2.2	0.27	0.0	0.00	0.22	0.09	84	214
95	14.70	14.69	33.367	24.781	318.4	0.357	5.77	99.8	2.4	0.29	0.0	0.00	0.29	0.16	95	213
100 ISL	14.51	14.50	33.373	24.827	314.2	0.372	5.71	98.4	2.6	0.31	0.2	0.02	0.33	0.17	100	
105	14.29	14.27	33.375	24.875	309.7	0.388	5.65	96.9	2.8	0.34	0.6	0.05	0.34	0.18	105	212
113	13.74	13.72	33.352	24.971	300.7	0.412	5.57	94.4	3.4	0.42	1.8	0.15	0.27	0.25	113	211
125 ISL	12.38	12.36	33.222	25.140	284.6	0.448	5.39	88.8	5.1	0.66	5.2	0.17	0.23	0.20	125	
126	12.26	12.24	33.211	25.154	283.3	0.450	5.37	88.2	5.3	0.68	5.5	0.17	0.23	0.19	126	210
140	10.93	10.91	33.170	25.367	263.1	0.489	5.17	82.5	8.3	0.91	9.6	0.03	0.14	0.17	141	209
150 ISL	10.19	10.17	33.228	25.540	246.7	0.514	4.93	77.4	11.4	1.11	12.9	0.02	0.08	0.12	151	
166	9.35	9.33	33.394	25.808	221.2	0.552	4.50	69.5	16.6	1.39	17.5	0.00	0.02	0.03	167	208
197	8.95	8.93	33.776	26.171	187.3	0.615	3.86	59.2	23.5	1.62	21.7	0.00	0.00	0.02	198	207
200 ISL	8.92	8.90	33.800	26.195	185.1	0.621	3.84	58.9	24.0	1.63	21.9	0.00			201	
230	8.61	8.59	33.961	26.370	169.0	0.674	3.58	54.5	28.8	1.73	23.8	0.00			231	206
250 ISL	8.43	8.40	34.015	26.440	162.7	0.707	3.08	46.7	32.9	1.91	26.2	0.00			251	
271	8.22	8.19	34.044	26.495	157.8	0.740	2.51	37.9	37.5	2.12	28.8	0.00			272	205
300 ISL	7.78	7.75	34.066	26.577	150.2	0.785	2.06	30.8	43.5	2.32	31.4	0.00			302	
319	7.47	7.44	34.073	26.627	145.6	0.813	1.86	27.6	47.2	2.42	32.7	0.00			321	204
376	6.80	6.77	34.086	26.731	136.2	0.894	1.46	21.3	56.3	2.63	35.4	0.00			378	203
400 ISL	6.54	6.50	34.097	26.774	132.2	0.926	1.27	18.5	60.4	2.72	36.6	0.00			402	
434	6.21	6.17	34.117	26.833	126.8	0.970	1.02	14.7	66.2	2.85	38.1	0.00			437	202
500 ISL	5.82	5.78	34.174	26.928	118.4	1.051	0.67	9.6	75.6	3.02	39.8	0.00			503	
503	5.80	5.76	34.177	26.933	118.0	1.054	0.65	9.3	76.0	3.03	39.9	0.00			506	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 90 120

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 25.0 N	123 59.8 W	16/07/04	0652 UTC	4226 m	020 12 kn			1016.0 mb	18.3 C	17.1 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.56	18.56	33.009	23.611	427.1	0.000	5.47	101.9	1.8	0.33	0.0	0.00	0.07	0.01	0	
2	18.56	18.56	33.009	23.611	427.2	0.009	5.47	101.9	1.8	0.33	0.0	0.00	0.07	0.01	2	220
10 ISL	18.56	18.56	33.008	23.611	427.5	0.043	5.46	101.7	1.7	0.33	0.0	0.00	0.07	0.01	10	
15	18.56	18.56	33.008	23.611	427.7	0.064	5.46	101.7	1.7	0.33	0.0	0.00	0.07	0.01	15	219
20 ISL	18.57	18.57	33.014	23.613	427.6	0.085	5.46	101.7	1.7	0.33	0.0	0.00	0.07	0.01	20	
30	18.58	18.57	33.025	23.620	427.4	0.128	5.47	101.9	1.7	0.33	0.0	0.00	0.07	0.01	30	218
46	18.75	18.74	33.265	23.762	414.4	0.196	5.50	102.9	1.7	0.31	0.0	0.00	0.08	0.02	46	217
50 ISL	18.42	18.41	33.246	23.829	408.1	0.212	5.63	104.7	1.7	0.31	0.0	0.00	0.09	0.02	50	
60	17.38	17.37	33.160	24.016	390.5	0.252	5.92	107.8	1.7	0.32	0.0	0.00	0.11	0.03	60	216
74	16.29	16.28	33.111	24.233	370.2	0.305	5.84	104.1	1.8	0.32	0.0	0.00	0.15	0.05	74	215
75 ISL	16.23	16.22	33.102	24.240	369.6	0.309	5.84	104.0	1.8	0.32	0.0	0.00	0.15	0.05	75	
85	15.91	15.90	33.074	24.291	365.0	0.346	5.85	103.5	1.8	0.33	0.0	0.00	0.16	0.06	85	214
94	16.16	16.15	33.253	24.372	357.6	0.378	5.75	102.3	1.9	0.31	0.0	0.00	0.18	0.09	94	213
100 ISL	15.68	15.66	33.191	24.432	351.9	0.399	5.77	101.7	2.0	0.33	0.0	0.00	0.19	0.13	100	
105	15.12	15.10	33.120	24.501	345.5	0.417	5.78	100.7	2.1	0.34	0.0	0.00	0.19	0.17	105	212
115	14.23	14.21	33.175	24.733	323.5	0.450	5.62	96.2	2.9	0.44	0.7	0.04	0.28	0.29	115	211
125	13.36	13.34	33.240	24.962	301.8	0.482	5.49	92.3	3.7	0.52	2.4	0.13	0.43	0.32	125	210
139	11.44	11.42	33.090	25.213	277.8	0.522	5.15	83.1	7.2	0.89	8.6	0.03	0.13	0.19	140	209
150 ISL	10.69	10.67	33.119	25.369	263.0	0.552	4.96	78.7	9.4	1.05	11.4	0.02	0.10	0.14	151	
164	10.19	10.17	33.238	25.548	246.2	0.588	4.73	74.3	12.1	1.20	13.9	0.01	0.07	0.10	165	208
194	9.39	9.37	33.575	25.944	209.0	0.656	3.94	60.9	19.8	1.56	20.1	0.00	0.01	0.03	195	207
200 ISL	9.30	9.28	33.636	26.006	203.2	0.668	3.80	58.7	21.1	1.61	21.0	0.00			201	
229	8.94	8.92	33.875	26.251	180.4	0.724	3.30	50.6	26.8	1.78	24.0	0.00			230	206
250 ISL	8.59	8.56	33.971	26.381	168.3	0.760	3.24	49.3	30.6	1.82	25.1	0.00			251	
269	8.29	8.26	34.022	26.467	160.4	0.792	3.19	48.3	33.9	1.87	26.0	0.00			270	205
300 ISL	7.96	7.93	34.065	26.550	152.9	0.840	2.53	38.0	39.8	2.13	29.2	0.00			302	
319	7.78	7.75	34.076	26.585	149.8	0.869	2.07	31.0	43.5	2.31	31.3	0.00			321	204
378	7.11	7.07	34.122	26.717	137.8	0.954	1.36	20.0	54.0	2.62	34.6	0.00			380	203
400 ISL	6.88	6.84	34.133	26.758	134.1	0.984	1.19	17.4	57.5	2.71	35.6	0.00			402	
438	6.52	6.48	34.152	26.821	128.4	1.034	0.96	13.9	63.5	2.83	37.2	0.00			441	202
500 ISL	6.04	6.00	34.203	26.924	119.1	1.110	0.60	8.6	73.6	3.01	39.3	0.00			503	
514	5.93	5.89	34.215	26.947	117.0	1.127	0.52	7.5	75.9	3.05	39.8	0.00			517	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 91.7 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 14.8 N	117 27.8 W	28/07/04	1314 UTC	16 m	090 01 kn	200 01 04	1	1014.2 mb	19.0 C	16.9 C		7/8 SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.57	20.57	33.404	23.396	447.7	0.000	5.99	116.1	2.0	0.13	0.0	0.00	1.45	0.22	0	
1	20.57	20.57	33.404	23.396	447.7	0.004	5.99	116.1	2.0	0.13	0.0	0.00	1.45	0.22	1	204
5	20.56	20.56	33.402	23.397	447.8	0.022	5.98	115.9	2.0	0.14	0.0	0.00	1.35	0.12	5	203
10	18.10	18.10	33.367	23.999	390.5	0.043	6.20	114.7	3.2	0.22	0.0	0.00	0.89	0.22	10	202
15	13.67	13.67	33.284	24.930	301.8	0.061	5.39	91.3	6.9	0.65	1.5	0.11	2.37	0.73	15	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 93.4 26.4

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 57.4 N	117 16.8 W	13/07/04	0607 UTC	16 m	010 04 kn			1009.8 mb	19.8 C	18.7 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.29	19.29	33.480	23.787	410.3	0.000	6.70	126.9	4.5	0.16	0.0	0.01	2.24	0.45	0	
2	19.29	19.29	33.480	23.787	410.4	0.008	6.70	126.9	4.5	0.16	0.0	0.01	2.24	0.45	2	203
6	16.94	16.94	33.446	24.337	358.1	0.024	6.15	111.3	6.0	0.28	0.0	0.02	3.13	0.76	6	202
10 ISL	15.20	15.20	33.408	24.702	323.4	0.037	5.57	97.4	7.9	0.48	0.7	0.08	5.47	0.89	10	
11	14.76	14.76	33.404	24.795	314.7	0.040	5.42	93.9	8.4	0.53	0.9	0.09	6.06	0.92	11	201

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 93 26.8

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 57.0 N	117 18.4 W	13/07/04	0414 UTC	69 m	010 27 kn			1009.9 mb	19.2 C	19.1 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.72	19.72	33.423	23.633	425.0	0.000	6.32	120.6	3.9	0.18	0.0	0.01	1.20	0.29	0	
2	19.72	19.72	33.423	23.633	425.1	0.009	6.32	120.6	3.9	0.18	0.0	0.01	1.20	0.29	2	208
5	17.60	17.60	33.415	24.157	375.3	0.021	6.46	118.4	3.8	0.17	0.0	0.01	1.77	0.36	5	207
10	13.42	13.42	33.375	25.051	290.2	0.037	5.26	88.6	9.2	0.64	1.7	0.12	3.03	0.81	10	206
20	11.46	11.46	33.339	25.400	257.2	0.065	4.55	73.6	11.4	1.08	10.7	0.44	1.87	0.84	20	205
30	10.93	10.93	33.385	25.532	244.9	0.090	4.06	64.9	13.4	1.32	14.8	0.47	1.05	0.69	30	204
40	10.54	10.54	33.471	25.667	232.2	0.113	3.64	57.7	16.5	1.51	17.9	0.26	0.41	0.45	40	203
50	10.48	10.47	33.517	25.714	228.0	0.136	3.38	53.5	18.5	1.61	18.8	0.48	0.28	0.28	50	202
62	10.40	10.39	33.530	25.738	226.0	0.164	3.34	52.8	18.9	1.62	19.3	0.45	0.25	0.29	62	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 28

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 54.5 N	117 23.8 W	13/07/04	0725 UTC	599 m	270 01 kn			1010.7 mb	19.7 C	18.3 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.62	20.62	33.477	23.438	443.7	0.000	5.58	108.3	1.2	0.19	0.0	0.00	0.25	0.06	0	
2	20.62	20.62	33.477	23.438	443.7	0.009	5.58	108.3	1.2	0.19	0.0	0.00	0.25	0.06	2	220
10 ISL	16.15	16.15	33.340	24.438	348.6	0.041	6.19	110.2	2.4	0.31	0.4	0.03	0.39	0.13	10	
11	15.41	15.41	33.336	24.601	333.1	0.044	6.25	109.7	2.5	0.32	0.5	0.03	0.42	0.14	11	219
20 ISL	12.21	12.21	33.281	25.216	274.8	0.071	5.02	82.4	7.5	0.93	8.3	0.32	0.57	0.29	20	
21	11.98	11.98	33.277	25.256	270.9	0.074	4.85	79.2	8.1	1.00	9.3	0.35	0.58	0.31	21	218
30 ISL	11.22	11.22	33.309	25.421	255.5	0.098	4.46	71.7	10.8	1.19	12.6	0.26	0.57	0.36	30	
31	11.21	11.21	33.313	25.426	255.0	0.100	4.44	71.4	11.0	1.20	12.8	0.25	0.57	0.36	31	217
41	10.83	10.83	33.367	25.535	244.8	0.125	4.13	65.9	13.4	1.34	15.4	0.11	0.53	0.42	41	216
50	10.51	10.50	33.434	25.644	234.7	0.147	3.86	61.2	15.5	1.46	17.4	0.06	0.41	0.33	50	215
60	10.34	10.33	33.517	25.738	225.9	0.170	3.63	57.3	17.3	1.56	18.8	0.03	0.25	0.26	60	214
70	10.21	10.20	33.653	25.866	213.9	0.192	3.21	50.6	20.3	1.69	20.6	0.02	0.14	0.33	70	213
75 ISL	10.15	10.14	33.696	25.910	209.9	0.202	3.02	47.5	21.6	1.75	21.4	0.02	0.10	0.28	75	
86	10.03	10.02	33.763	25.983	203.2	0.225	2.72	42.7	23.9	1.86	22.9	0.02	0.05	0.15	86	212
100	9.95	9.94	33.834	26.052	196.9	0.253	2.61	40.9	25.2	1.91	23.6	0.02	0.04	0.12	101	211
120	9.91	9.90	33.906	26.116	191.3	0.292	2.44	38.3	26.8	1.97	24.3	0.01	0.03	0.20	121	210
125 ISL	9.90	9.89	33.930	26.136	189.5	0.302	2.40	37.6	27.2	1.99	24.5	0.01	0.03	0.18	126	
140	9.84	9.82	34.007	26.207	183.1	0.329	2.30	36.0	28.5	2.04	25.1	0.01	0.03	0.11	141	209
150 ISL	9.79	9.77	34.057	26.254	178.8	0.348	2.21	34.6	29.6	2.08	25.5	0.01	0.03	0.11	151	
170	9.68	9.66	34.138	26.336	171.5	0.383	2.04	31.9	31.6	2.14	26.3	0.01	0.02	0.12	171	208
200	9.56	9.54	34.174	26.385	167.5	0.433	1.89	29.5	33.6	2.21	27.1	0.01	0.03	0.06	201	207
229	9.60	9.57	34.290	26.469	160.1	0.481	1.29	20.1	37.5	2.43	28.5	0.01			230	206
250 ISL	9.34	9.31	34.281	26.505	157.0	0.514	1.38	21.4	38.6	2.42	29.0	0.01			251	
269	9.04	9.01	34.252	26.531	154.8	0.544	1.46	22.5	39.4	2.41	29.3	0.01			271	205
300 ISL	8.70	8.67	34.256	26.588	149.8	0.591	1.32	20.2	42.7	2.49	30.4	0.00			302	
319	8.52	8.49	34.264	26.623	146.8	0.619	1.19	18.1	45.0	2.56	31.1	0.00			321	204
378	8.00	7.96	34.273	26.709	139.4	0.704	0.92	13.8	51.1	2.72	33.0	0.00			380	203
400 ISL	7.91	7.87	34.285	26.732	137.5	0.734	0.83	12.5	52.5	2.76	33.4	0.00			403	
439	7.75	7.71	34.303	26.770	134.5	0.787	0.70	10.5	55.1	2.82	34.1	0.00			442	202
500 ISL	7.08	7.03	34.289	26.854	126.8	0.867	0.57	8.4	63.3	2.95	36.3	0.01			503	
513	6.94	6.89	34.287	26.872	125.2	0.883	0.54	7.9	65.1	2.98	36.8	0.01			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 30

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 50.7 N	117 32.0 W	13/07/04	1002 UTC	856 m	340 06 kn			1009.1 mb	19.0 C	18.3 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	20.14	20.14	33.451	23.545	433.4	0.000	5.54	106.5	1.0	0.20	0.0	0.00	0.21	0.06	0	
2	20.14	20.14	33.451	23.545	433.5	0.009	5.54	106.5	1.0	0.20	0.0	0.00	0.21	0.06	2	220
10	16.99	16.99	33.367	24.265	365.1	0.041	6.20	112.3	1.7	0.24	0.0	0.00	0.25	0.09	10	219
20	13.80	13.80	33.218	24.853	309.4	0.074	6.09	103.3	1.6	0.50	1.4	0.06	0.52	0.18	20	218
30	11.48	11.48	33.244	25.323	264.8	0.103	4.84	78.2	9.3	1.06	10.7	0.25	0.49	0.25	30	217
40	10.63	10.63	33.393	25.591	239.5	0.128	4.05	64.3	14.4	1.38	16.3	0.10	0.45	0.31	40	216
50	10.49	10.48	33.492	25.692	230.0	0.152	3.68	58.3	16.4	1.50	18.0	0.04	0.35	0.29	50	215
60	10.21	10.20	33.669	25.879	212.6	0.174	3.12	49.2	20.7	1.72	21.0	0.03	0.14	0.18	60	214
70	10.05	10.04	33.740	25.961	204.9	0.195	2.79	43.8	23.3	1.85	22.7	0.03	0.08	0.16	70	213
75 ISL	10.00	9.99	33.768	25.992	202.1	0.205	2.70	42.4	24.1	1.88	23.2	0.03	0.06	0.14	75	
84	9.93	9.92	33.815	26.040	197.7	0.223	2.61	40.9	25.1	1.91	23.7	0.02	0.04	0.12	84	212
99	9.77	9.76	33.900	26.134	189.1	0.252	2.53	39.6	26.8	1.95	24.6	0.02	0.03	0.14	100	211
100 ISL	9.77	9.76	33.907	26.139	188.6	0.254	2.51	39.2	27.0	1.96	24.7	0.02	0.03	0.14	101	
119	9.85	9.84	34.043	26.233	180.2	0.289	2.10	32.9	30.0	2.10	25.8	0.01	0.02	0.11	120	210
125 ISL	9.86	9.85	34.089	26.267	177.1	0.300	1.97	30.9	30.9	2.15	26.2	0.01	0.02	0.12	126	
139	9.88	9.86	34.186	26.340	170.5	0.324	1.71	26.8	32.6	2.24	26.9	0.01	0.03	0.15	140	209
150 ISL	9.84	9.82	34.210	26.365	168.3	0.343	1.66	26.0	33.3	2.26	27.1	0.01	0.02	0.12	151	
169	9.78	9.76	34.224	26.387	166.7	0.374	1.63	25.5	34.0	2.28	27.3	0.01	0.01	0.07	170	208
199	9.86	9.84	34.295	26.429	163.4	0.424	1.26	19.8	36.0	2.42	28.1	0.01	0.02	0.09	200	207
200 ISL	9.86	9.84	34.297	26.431	163.2	0.425	1.25	19.6	36.1	2.42	28.1	0.01			201	
229	9.75	9.72	34.334	26.479	159.3	0.472	1.07	16.8	38.0	2.50	28.8	0.01			230	206
250 ISL	9.66	9.63	34.347	26.504	157.3	0.505	0.99	15.5	39.0	2.53	29.1	0.01			251	
268	9.56	9.53	34.352	26.525	155.7	0.534	0.95	14.8	39.8	2.55	29.3	0.01			270	205
300 ISL	9.34	9.31	34.354	26.563	152.6	0.583	0.89	13.8	41.6	2.59	29.8	0.00			302	
317	9.19	9.15	34.352	26.586	150.7	0.609	0.87	13.5	42.8	2.62	30.2	0.00			319	204
377	8.44	8.40	34.335	26.691	141.4	0.696	0.75	11.4	48.9	2.73	32.1	0.00			379	203
400 ISL	8.34	8.30	34.334	26.706	140.3	0.729	0.72	10.9	49.9	2.75	32.4	0.00			403	
437	8.19	8.14	34.331	26.727	138.9	0.780	0.69	10.4	51.5	2.78	33.0	0.00			440	202
500 ISL	7.49	7.44	34.303	26.808	131.7	0.866	0.60	8.9	58.6	2.89	35.1	0.00			503	
517	7.30	7.25	34.296	26.830	129.7	0.888	0.57	8.4	60.5	2.92	35.7	0.00			521	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 40.8 N	117 52.4 W	13/07/04	1401 UTC	619 m	300 03 kn	280 03 06	2	1011.0 mb	19.9 C	18.1 C		8/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.85	19.85	33.464	23.631	425.3	0.000	5.60	107.1	1.2	0.20	0.0	0.00	0.22	0.06	0	
2	19.85	19.85	33.464	23.631	425.3	0.009	5.60	107.1	1.2	0.20	0.0	0.00	0.22	0.06	2	220
10	19.05	19.05	33.443	23.820	407.5	0.042	5.80	109.3	1.4	0.21	0.0	0.00	0.22	0.07	10	219
20	16.15	16.15	33.372	24.463	346.5	0.080	6.33	112.7	2.3	0.28	0.1	0.01	0.36	0.15	20	218
30	13.62	13.62	33.304	24.956	299.8	0.112	5.70	96.4	5.1	0.63	4.7	0.15	0.69	0.25	30	217
39	12.24	12.23	33.284	25.213	275.5	0.138	5.02	82.5	8.0	0.95	9.5	0.24	0.75	0.31	39	216
49	11.09	11.08	33.373	25.494	248.9	0.164	4.20	67.4	12.9	1.27	13.6	0.55	0.74	0.51	49	215
50 ISL	11.01	11.00	33.383	25.516	246.8	0.166	4.14	66.3	13.3	1.30	14.0	0.55	0.72	0.51	50	
60	10.49	10.48	33.488	25.689	230.5	0.190	3.64	57.7	16.6	1.53	18.0	0.33	0.42	0.39	60	214
69	10.22	10.21	33.595	25.819	218.4	0.211	3.26	51.4	19.4	1.68	20.6	0.04	0.24	0.27	69	213
75 ISL	10.14	10.13	33.631	25.861	214.5	0.223	3.14	49.4	20.4	1.73	21.4	0.03	0.19	0.22	75	
85	10.05	10.04	33.680	25.915	209.6	0.245	3.02	47.4	21.8	1.79	22.0	0.02	0.14	0.18	85	212
99	9.85	9.84	33.809	26.049	197.1	0.273	2.75	43.0	24.7	1.90	23.4	0.02	0.05	0.13	99	211
100 ISL	9.84	9.83	33.814	26.055	196.6	0.275	2.74	42.9	24.8	1.90	23.5	0.02	0.05	0.13	100	
119	9.76	9.75	33.895	26.132	189.7	0.312	2.55	39.9	26.7	1.98	24.5	0.01	0.03	0.12	120	210
125 ISL	9.73	9.72	33.930	26.164	186.8	0.323	2.48	38.7	27.4	2.01	24.8	0.01	0.02	0.12	126	
138	9.68	9.66	34.008	26.234	180.4	0.347	2.31	36.1	29.1	2.07	25.3	0.01	0.01	0.11	139	209
150 ISL	9.63	9.61	34.070	26.291	175.3	0.368	2.18	34.0	30.5	2.12	25.9	0.01	0.01	0.09	151	
168	9.55	9.53	34.148	26.365	168.6	0.399	1.97	30.7	32.6	2.21	26.9	0.01	0.01	0.07	169	208
198	9.33	9.31	34.234	26.469	159.4	0.448	1.53	23.7	36.9	2.40	28.5	0.01	0.01	0.06	199	207
200 ISL	9.30	9.28	34.239	26.478	158.5	0.452	1.49	23.1	37.4	2.42	28.6	0.01			201	
228	8.88	8.86	34.298	26.592	148.2	0.495	1.07	16.4	43.2	2.60	30.5	0.01			229	206
250 ISL	8.77	8.74	34.301	26.612	146.7	0.527	1.00	15.3	44.7	2.63	31.0	0.01			251	
268	8.72	8.69	34.312	26.628	145.4	0.553	0.94	14.4	45.1	2.66	31.1	0.01			270	205
300 ISL	8.53	8.50	34.305	26.653	143.6	0.600	0.93	14.2	46.6	2.69	31.6	0.01			302	
316	8.41	8.38	34.299	26.667	142.5	0.622	0.93	14.1	47.5	2.70	31.9	0.01			318	204
377	7.87	7.83	34.288	26.740	136.3	0.708	0.80	12.0	52.9	2.80	33.6	0.00			379	203
400 ISL	7.77	7.73	34.294	26.759	134.8	0.739	0.73	10.9	54.3	2.84	34.0	0.00			403	
435	7.62	7.58	34.304	26.789	132.4	0.785	0.63	9.4	56.8	2.90	34.6	0.00			438	202
500 ISL	6.94	6.89	34.296	26.879	124.4	0.869	0.49	7.2	65.5	3.02	36.9	0.01			503	
515	6.78	6.73	34.295	26.900	122.4	0.887	0.46	6.7	67.5	3.05	37.4	0.01			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 40

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 30.6 N	118 12.9 W	13/07/04	1820 UTC	1649 m	290 09 kn	270 04 06	1	1012.4 mb	19.0 C	17.5 C	14m	3/8	AS

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.90	19.90	33.491	23.638	424.5	0.000	5.78	110.7	1.9	0.16	0.0	0.00	0.59	0.09	0	
2 A	19.90	19.90	33.491	23.639	424.6	0.008	5.78	110.7	1.9	0.16	0.0	0.00	0.59	0.09	2	221
10 A	19.67	19.67	33.488	23.696	419.4	0.042	5.87	111.9	1.9	0.14	0.0	0.00	0.51	0.08	10	220
20 A	14.63	14.63	33.356	24.786	315.8	0.079	5.80	100.2	2.6	0.23	0.0	0.01	0.55	0.35	20	219
29 A	11.83	11.83	33.394	25.375	259.8	0.105	4.34	70.7	7.6	0.93	5.4	0.23	1.67	0.61	29	218
30 ISL	11.70	11.70	33.401	25.405	257.0	0.107	4.26	69.2	8.0	0.98	6.4	0.22	1.63	0.62	30	
37 A	11.15	11.15	33.436	25.532	245.0	0.125	3.95	63.5	11.1	1.24	13.0	0.08	1.39	0.65	37	217
46	10.26	10.25	33.467	25.712	228.0	0.146	3.78	59.6	16.4	1.49	18.2	0.07	0.25	0.27	46	216
50 ISL	10.20	10.19	33.490	25.740	225.4	0.155	3.74	58.9	17.0	1.51	18.7	0.06	0.21	0.25	50	
54 A	10.14	10.13	33.507	25.764	223.3	0.164	3.71	58.3	17.4	1.53	19.0	0.04	0.17	0.24	54	215
61	10.05	10.04	33.611	25.861	214.3	0.180	3.35	52.6	19.8	1.66	20.7	0.03	0.07	0.13	61	214
70	9.79	9.78	33.690	25.966	204.4	0.199	3.29	51.4	21.6	1.70	21.7	0.02	0.04	0.08	70	213
75 ISL	9.72	9.71	33.723	26.003	201.0	0.209	3.24	50.5	22.4	1.72	22.0	0.02	0.03	0.08	75	
84	9.64	9.63	33.774	26.057	196.1	0.227	3.14	48.9	23.6	1.76	22.5	0.02	0.01	0.10	84	212
100	9.52	9.51	33.871	26.152	187.3	0.257	2.93	45.5	25.6	1.84	23.7	0.01	0.01	0.05	101	211
120	9.24	9.23	33.965	26.272	176.4	0.294	2.74	42.3	28.7	1.92	25.2	0.01	0.01	0.04	121	210
125 ISL	9.18	9.17	33.985	26.297	174.0	0.302	2.69	41.5	29.4	1.94	25.5	0.01	0.01	0.04	126	
139	9.03	9.01	34.031	26.357	168.6	0.326	2.57	39.5	31.4	2.00	26.3	0.01	0.01	0.05	140	209
150 ISL	8.88	8.86	34.050	26.396	165.1	0.345	2.52	38.7	32.8	2.03	26.8	0.01	0.01	0.05	151	
169	8.63	8.61	34.067	26.449	160.4	0.376	2.46	37.5	35.1	2.08	27.7	0.01	0.01	0.04	170	208
199	8.29	8.27	34.093	26.521	153.9	0.423	2.24	33.9	39.3	2.20	29.2	0.01	0.00	0.04	200	207
200 ISL	8.28	8.26	34.094	26.524	153.7	0.424	2.23	33.8	39.4	2.20	29.2	0.01			201	
229	8.07	8.05	34.124	26.579	148.9	0.468	1.94	29.2	42.7	2.32	30.5	0.00			230	206
250 ISL	8.16	8.13	34.186	26.615	146.0	0.499	1.56	23.6	44.8	2.45	31.1	0.00			251	
269	8.27	8.24	34.246	26.646	143.5	0.527	1.20	18.2	46.7	2.57	31.6	0.00			271	205
300 ISL	8.16	8.13	34.288	26.696	139.3	0.570	0.87	13.1	49.9	2.70	32.4	0.00			302	
319	8.10	8.07	34.314	26.725	136.8	0.597	0.74	11.2	52.0	2.76	33.0	0.00			321	204
378	7.31	7.27	34.296	26.826	127.7	0.675	0.60	8.9	60.3	2.88	35.4	0.00			380	203
400 ISL	7.16	7.12	34.302	26.852	125.5	0.703	0.53	7.8	62.5	2.94	36.0	0.00			403	
438	6.95	6.91	34.316	26.893	122.1	0.750	0.42	6.2	66.0	3.04	36.9	0.00			441	202
500 ISL	6.45	6.40	34.315	26.959	116.2	0.824	0.33	4.8	72.7	3.10	38.6	0.00			503	
517	6.31	6.26	34.316	26.979	114.5	0.843	0.31	4.5	74.6	3.12	39.1	0.00			521	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 20.9 N	118 32.5 W	14/07/04	0013 UTC	1197 m	300 15 kn	320 03 06	1	1012.1 mb	19.2 C	17.9 C	20m	2/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	19.00	19.00	33.363	23.772	411.8	0.000	5.51	103.7	1.5	0.26	0.0	0.00	0.17	0.03	0	
2	19.00	19.00	33.363	23.772	411.9	0.008	5.51	103.7	1.5	0.26	0.0	0.00	0.17	0.03	2	220
10	18.99	18.99	33.363	23.775	411.9	0.041	5.52	103.8	1.5	0.26	0.0	0.00	0.16	0.04	10	219
20	16.75	16.75	33.337	24.298	362.3	0.080	6.09	109.7	1.1	0.24	0.0	0.00	0.22	0.05	20	218
29	13.92	13.92	33.234	24.841	310.8	0.110	6.40	108.9	0.3	0.39	0.0	0.00	1.00	0.40	29	217
30 ISL	13.73	13.73	33.234	24.880	307.1	0.113	6.33	107.3	0.5	0.42	0.4	0.02	0.99	0.43	30	
40	12.35	12.34	33.274	25.184	278.3	0.143	5.22	86.0	4.7	0.83	6.5	0.23	0.63	0.62	40	216
50	11.06	11.05	33.360	25.489	249.4	0.169	4.10	65.7	12.4	1.29	14.6	0.11	0.69	0.66	50	215
60	10.43	10.42	33.433	25.657	233.6	0.193	3.81	60.3	16.0	1.47	17.8	0.03	0.24	0.30	60	214
70	10.16	10.15	33.518	25.770	223.1	0.216	3.63	57.1	18.1	1.56	19.2	0.03	0.11	0.21	70	213
75 ISL	10.01	10.00	33.567	25.833	217.2	0.227	3.54	55.5	19.2	1.60	19.9	0.02	0.07	0.16	75	
84	9.79	9.78	33.657	25.940	207.1	0.246	3.38	52.8	21.1	1.68	21.2	0.01	0.04	0.09	84	212
100	9.70	9.69	33.793	26.062	195.9	0.278	3.07	47.9	23.8	1.78	22.7	0.01	0.03	0.06	100	211
119	9.49	9.48	33.892	26.174	185.6	0.315	2.87	44.6	26.3	1.86	24.0	0.01	0.01	0.05	120	210
125 ISL	9.41	9.40	33.925	26.213	182.1	0.326	2.77	43.0	27.4	1.90	24.6	0.01	0.01	0.05	126	
139	9.23	9.21	33.996	26.298	174.3	0.350	2.53	39.1	30.1	2.00	26.0	0.01	0.00	0.04	140	209
150 ISL	9.11	9.09	34.033	26.346	169.9	0.369	2.41	37.2	31.6	2.05	26.7	0.01	0.00	0.03	151	
170	8.94	8.92	34.076	26.407	164.4	0.403	2.27	34.9	33.9	2.12	27.5	0.01	0.00	0.03	171	208
199	8.74	8.72	34.109	26.465	159.5	0.450	2.10	32.1	36.6	2.19	28.6	0.01	0.00	0.04	200	207
200 ISL	8.73	8.71	34.110	26.467	159.3	0.451	2.09	32.0	36.7	2.19	28.6	0.01			201	
231	8.35	8.33	34.134	26.545	152.3	0.500	1.90	28.8	40.9	2.31	30.0	0.01			232	206
250 ISL	8.10	8.07	34.135	26.584	148.9	0.528	1.79	27.0	43.4	2.37	30.9	0.01			251	
271	7.80	7.77	34.131	26.625	145.2	0.559	1.68	25.2	46.4	2.44	31.9	0.00			273	205
300 ISL	7.29	7.26	34.122	26.691	139.1	0.600	1.53	22.6	51.9	2.54	33.6	0.00			302	
317	7.01	6.98	34.122	26.730	135.5	0.624	1.43	21.0	55.3	2.60	34.5	0.00			319	204
378	6.60	6.57	34.191	26.840	125.7	0.703	0.87	12.7	64.7	2.85	36.9	0.00			380	203
400 ISL	6.50	6.46	34.214	26.872	123.0	0.731	0.71	10.3	67.5	2.92	37.5	0.00			403	
439	6.36	6.32	34.255	26.923	118.6	0.778	0.48	7.0	71.9	3.02	38.5	0.00			442	202
500 ISL	6.10	6.06	34.320	27.008	111.2	0.848	0.29	4.2	78.4	3.13	39.7	0.00			503	
511	6.05	6.00	34.332	27.024	109.8	0.860	0.26	3.7	79.6	3.15	39.9	0.00			515	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 10.8 N	118 53.6 W	14/07/04	0433 UTC	1466 m	320 19 kn			1013.4 mb	15.3 C	15.1 C			

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	17.62	17.62	33.360	24.109	379.6	0.000	5.71	104.7	1.2	0.29	0.0	0.00	0.34	0.07	0	
2	17.62	17.62	33.360	24.109	379.7	0.008	5.71	104.7	1.2	0.29	0.0	0.00	0.34	0.07	2	220
10 ISL	17.58	17.58	33.364	24.123	378.7	0.038	5.73	104.9	1.2	0.29	0.1	0.01	0.36	0.08	10	
11	17.57	17.57	33.365	24.126	378.4	0.042	5.73	104.9	1.2	0.29	0.1	0.01	0.36	0.08	11	219
20 ISL	15.23	15.23	33.414	24.701	323.9	0.073	6.02	105.3	2.3	0.49	3.2	0.13	1.06	0.31	20	
21	14.91	14.91	33.420 D	24.775	316.8	0.077	6.03	104.8	2.5	0.52	3.7	0.14	1.15	0.34	21	218
30	12.85	12.85	33.333	25.133	282.9	0.104	5.23	87.1	5.2	0.93	8.6	0.69	1.40	0.53	30	217
40	11.97	11.96	33.350	25.315	265.8	0.131	4.71	77.0	8.1	1.16	12.6	0.53	0.69	0.33	40	216
50	11.25	11.24	33.386	25.476	250.7	0.157	4.18	67.3	12.2	1.38	16.4	0.05	0.32	0.18	50	215
60	10.92	10.91	33.435	25.573	241.7	0.181	3.88	62.0	14.8	1.50	18.2	0.03	0.25	0.14	60	214
70	10.33	10.32	33.566	25.778	222.3	0.205	3.39	53.5	19.1	1.70	20.9	0.02	0.14	0.10	70	213
75 ISL	10.10	10.09	33.608	25.850	215.6	0.216	3.28	51.6	20.4	1.74	21.6	0.02	0.10	0.08	75	
85	9.76	9.75	33.673	25.958	205.5	0.237	3.17	49.5	22.3	1.79	22.6	0.02	0.05	0.06	85	212
100	9.53	9.52	33.768	26.070	195.1	0.267	2.97	46.1	24.5	1.87	23.9	0.01	0.02	0.06	100	211
120	9.30	9.29	33.893	26.206	182.6	0.304	2.72	42.1	27.5	1.96	25.3	0.01	0.01	0.05	121	210
125 ISL	9.25	9.24	33.922	26.237	179.8	0.313	2.65	41.0	28.3	1.99	25.7	0.01	0.01	0.05	126	
139	9.12	9.10	33.991	26.312	172.9	0.338	2.48	38.2	30.6	2.06	26.7	0.01	0.01	0.04	140	209
150 ISL	8.97	8.95	34.027	26.364	168.2	0.357	2.38	36.6	32.5	2.11	27.4	0.01	0.01	0.04	151	
169	8.70	8.68	34.072	26.442	161.1	0.388	2.23	34.1	35.6	2.18	28.4	0.01	0.00	0.03	170	208
200	8.43	8.41	34.128	26.528	153.4	0.437	1.91	29.0	40.0	2.33	29.9	0.01	0.00	0.03	201	207
228	8.07	8.05	34.119	26.575	149.3	0.479	1.86	28.0	42.8	2.38	30.8	0.01			229	206
250 ISL	7.75	7.73	34.130	26.631	144.2	0.512	1.70	25.4	46.3	2.48	31.9	0.00			251	
269	7.48	7.45	34.144	26.681	139.6	0.539	1.53	22.7	49.7	2.57	32.9	0.00			271	205
300 ISL	7.10	7.07	34.158	26.746	133.8	0.581	1.28	18.9	55.5	2.70	34.6	0.00			302	
318	6.94	6.91	34.168	26.776	131.2	0.605	1.14	16.7	58.5	2.76	35.4	0.00			320	204
378	6.90	6.86	34.224	26.826	127.3	0.682	0.81	11.9	61.9	2.90	36.2	0.00			380	203
400 ISL	6.81	6.77	34.249	26.858	124.6	0.710	0.67	9.8	64.1	2.96	36.8	0.00			403	
439	6.61	6.57	34.288	26.916	119.5	0.758	0.45	6.6	68.6	3.06	37.9	0.00			442	202
500 ISL	6.25	6.21	34.312	26.983	113.8	0.829	0.33	4.8	75.4	3.14	39.2	0.00			503	
510	6.19	6.14	34.316	26.994	112.8	0.840	0.31	4.5	76.5	3.15	39.4	0.00			514	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 0.7 N	119 14.0 W	14/07/04	0836 UTC	1588 m	320 17 kn			1013.9 mb	15.1 C	14.3 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.25	16.25	33.478	24.521	340.4	0.000	5.78	103.2	2.4	0.47	3.2	0.09	0.45	0.08	0	
3	16.25	16.25	33.478	24.521	340.5	0.010	5.78	103.2	2.4	0.47	3.2	0.09	0.45	0.08	3	220
10	16.24	16.24	33.478	24.524	340.4	0.034	5.79	103.4	2.4	0.46	3.2	0.09	0.42	0.09	10	219
20	16.21	16.21	33.475	24.529	340.3	0.068	5.79	103.3	2.4	0.47	3.2	0.09	0.43	0.09	20	218
30	13.51	13.51	33.362	25.023	293.4	0.100	5.59	94.4	4.6	0.76	7.1	0.31	0.72	0.31	30	217
40	12.62	12.61	33.354	25.194	277.4	0.128	5.16	85.5	6.6	0.96	9.8	0.40	0.75	0.42	40	216
50	11.66	11.65	33.363	25.383	259.6	0.155	4.63	75.2	10.2	1.22	13.8	0.40	0.64	0.37	50	215
60	11.18	11.17	33.381	25.484	250.1	0.181	4.33	69.6	12.3	1.35	16.2	0.25	0.41	0.22	60	214
70	10.57	10.56	33.496	25.682	231.5	0.205	3.78	60.0	16.8	1.58	19.6	0.05	0.29	0.17	70	213
75 ISL	10.28	10.27	33.563	25.784	221.8	0.216	3.48	54.9	19.2	1.68	21.1	0.04	0.23	0.14	75	
85	9.79	9.78	33.693	25.969	204.5	0.237	2.99	46.7	23.5	1.83	23.5	0.01	0.12	0.10	85	212
100	9.42	9.41	33.833	26.139	188.6	0.267	2.75	42.6	26.9	1.92	25.0	0.02	0.03	0.07	100	211
120	9.24	9.23	33.928	26.243	179.1	0.304	2.56	39.6	29.2	1.99	25.9	0.02	0.01	0.06	121	210
125 ISL	9.19	9.18	33.954	26.271	176.5	0.312	2.51	38.7	29.9	2.01	26.2	0.02	0.01	0.06	126	
139	9.04	9.02	34.020	26.347	169.6	0.337	2.35	36.2	31.9	2.07	27.2	0.01	0.01	0.05	140	209
150 ISL	8.92	8.90	34.058	26.396	165.1	0.355	2.21	33.9	33.8	2.13	28.0	0.01	0.01	0.05	151	
168	8.72	8.70	34.102	26.462	159.1	0.384	1.99	30.4	36.9	2.23	29.1	0.02	0.00 A	0.04 A	169	208
198	8.43	8.41	34.133	26.532	153.0	0.431	1.76	26.7	40.5	2.34	30.4	0.02	0.00	0.04	199	207
200 ISL	8.40	8.38	34.135	26.538	152.5	0.434	1.75	26.6	40.9	2.35	30.5	0.02			201	
228	7.85	7.83	34.145	26.628	144.2	0.476	1.59	23.8	46.2	2.46	31.9	0.01			229	206
250 ISL	7.41	7.39	34.124	26.675	139.9	0.507	1.57	23.3	50.0	2.51	33.0	0.01			251	
268	7.11	7.08	34.111	26.707	137.0	0.532	1.56	23.0	52.9	2.55	33.8	0.01			270	205
300 ISL	6.98	6.95	34.158	26.762	132.2	0.575	1.24	18.2	57.4	2.68	35.1	0.00			302	
318	6.91	6.88	34.185	26.793	129.5	0.598	1.01	14.8	59.9	2.76	35.7	0.00			320	204
378	6.70	6.67	34.298	26.911	119.1	0.673	0.42	6.1	68.8	3.01	37.6	0.00			380	203
400 ISL	6.61	6.57	34.311	26.934	117.3	0.699	0.38	5.5	70.8	3.05	38.0	0.00			403	
439	6.45	6.41	34.317	26.960	115.2	0.744	0.32	4.6	73.5	3.08	38.4	0.00			442	202
500 ISL	6.21	6.17	34.332	27.004	111.7	0.814	0.26	3.8	78.1	3.14	39.2	0.00			503	
514	6.16	6.11	34.335	27.013	111.1	0.829	0.25	3.6	79.1	3.15	39.4	0.00			518	201

A) FIRST FLUOROMETER READING NOT RECORDED, CHLOROPHYLL AND PHAEOPIGMENT
CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 51.0 N	119 34.0 W	14/07/04	1237 UTC	1984 m	340 16 kn			1013.4 mb	14.9 C	14.1 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.49	16.49	33.531	24.507	341.7	0.000	5.82	104.5	1.6	0.42	2.6	0.08	0.41	0.09	0	
3	16.49	16.49	33.531	24.507	341.8	0.010	5.82	104.5	1.6	0.42	2.6	0.08	0.41	0.09	3	220
10 ISL	16.49	16.49	33.530	24.506	342.1	0.034	5.82	104.5	1.6	0.42	2.6	0.08	0.44	0.09	10	
11	16.49	16.49	33.530	24.506	342.1	0.038	5.82	104.5	1.6	0.42	2.6	0.08	0.45	0.09	11	219
20 ISL	16.48	16.48	33.530	24.509	342.2	0.068	5.82	104.4	1.6	0.42	2.6	0.08	0.46	0.11	20	
21	16.48	16.48	33.530	24.509	342.2	0.072	5.82	104.4	1.6	0.42	2.6	0.08	0.46	0.11	21	218
30 ISL	14.10	14.10	33.500	25.009	294.8	0.100	5.70	97.5	4.8	0.78	7.1	0.23	0.70	0.30	30	
31	13.81	13.81	33.498	25.067	289.2	0.103	5.68	96.6	5.2	0.82	7.7	0.25	0.73	0.32	31	217
41	12.65	12.64	33.381	25.209	276.0	0.132	5.20	86.2	6.8	0.99	9.7	0.45	0.82	0.33	41	216
50	11.29	11.28	33.443	25.513	247.2	0.155	4.26	68.7	13.0	1.38	16.6	0.32	0.40	0.22	50	215
61	10.10	10.09	33.464	25.737	226.0	0.181	3.80	59.7	17.8	1.59	20.0	0.06	0.11	0.11	61	214
71	9.73	9.72	33.558	25.873	213.3	0.203	3.55	55.3	20.3	1.70	21.7	0.08	0.06	0.11	71	213
75 ISL	9.62	9.61	33.594	25.919	208.9	0.212	3.45	53.7	21.3	1.73	22.2	0.07	0.05	0.10	75	
86	9.39	9.38	33.692	26.033	198.3	0.234	3.17	49.1	23.9	1.81	23.6	0.03	0.03	0.07	86	212
100	9.17	9.16	33.823	26.172	185.4	0.261	2.88	44.4	27.1	1.91	25.3	0.02	0.01	0.09	100	211
119	9.12	9.11	33.910	26.248	178.6	0.295	2.48	38.2	30.2	2.04	26.7	0.01	0.02	0.13	120	210
125 ISL	9.10	9.09	33.936	26.272	176.4	0.306	2.39	36.8	31.0	2.07	27.0	0.01	0.02	0.12	126	
142	9.02	9.00	34.002	26.336	170.6	0.336	2.22	34.1	33.1	2.13	27.7	0.01	0.01	0.09	143	209
150 ISL	8.97	8.95	34.027	26.364	168.2	0.349	2.17	33.3	34.0	2.16	28.1	0.01	0.01	0.09	151	
168	8.79	8.77	34.074	26.429	162.3	0.379	2.06	31.5	36.4	2.23	29.0	0.01	0.01	0.09	169	208
198	8.26	8.24	34.131	26.556	150.7	0.426	1.80	27.2	41.8	2.34	30.6	0.03	0.00	0.04	199	207
200 ISL	8.23	8.21	34.132	26.561	150.2	0.429	1.79	27.1	42.1	2.35	30.7	0.03			201	
234	7.80	7.78	34.137	26.629	144.1	0.479	1.63	24.4	46.3	2.45	32.1	0.02			235	206
250 ISL	7.55	7.53	34.130	26.660	141.4	0.502	1.58	23.5	48.9	2.50	32.8	0.02			251	
273	7.21	7.18	34.122	26.702	137.6	0.534	1.49	22.0	52.6	2.57	33.8	0.01			275	205
300 ISL	7.00	6.97	34.131	26.738	134.5	0.571	1.34	19.7	55.8	2.64	34.8	0.01			302	
319	6.90	6.87	34.144	26.762	132.4	0.596	1.21	17.7	57.9	2.69	35.4	0.01			321	204
380	6.61	6.58	34.210	26.854	124.5	0.674	0.73	10.6	65.6	2.90	37.3	0.00			382	203
400 ISL	6.45	6.41	34.217	26.881	122.1	0.699	0.65	9.4	68.3	2.95	37.9	0.00			403	
435	6.19	6.15	34.229	26.924	118.3	0.741	0.55	7.9	72.7	3.02	38.9	0.01			438	202
500 ISL	6.01	5.97	34.300	27.004	111.5	0.816	0.32	4.6	78.9	3.13	39.9	0.00			503	
505	6.00	5.96	34.305	27.009	111.1	0.821	0.30	4.3	79.4	3.14	40.0	0.00			508	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 30.7 N	120 15.0 W	14/07/04	1903 UTC	3930 m	350 15 kn	350 03 06	2	1015.9 mb	15.9 C	15.1 C	21m	8/8	ST

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	15.94	15.94	33.203	24.380	353.8	0.000	5.94	105.2	1.0	0.46	2.3	0.09	0.51	0.04	0	
2	15.94	15.94	33.203	24.380	353.9	0.007	5.94	105.2	1.0	0.46	2.3	0.09	0.51	0.04	2	221
10 ISL	15.92	15.92	33.203	24.385	353.7	0.035	5.93	105.0	1.0	0.45	2.3	0.08	0.50	0.07	10	
13	15.91	15.91	33.203	24.387	353.5	0.046	5.92	104.8	1.0	0.45	2.3	0.08	0.49	0.09	13	220
20 ISL	15.86	15.86	33.199	24.396	353.0	0.071	5.93	104.9	1.0	0.44	2.3	0.09	0.47	0.14	20	
22	15.84	15.84	33.198	24.400	352.7	0.078	5.93	104.9	1.0	0.44	2.3	0.09	0.47	0.15	22	219
30	15.25	15.25	33.110	24.463	346.9	0.106	6.03	105.3	1.5	0.46	2.2	0.09	0.54	0.12	30	218
37	14.15	14.14	32.998	24.611	332.9	0.130	6.04	103.1	2.3	0.46	1.6	0.07	0.58	0.19	37	217
43	13.60	13.59	33.033	24.751	319.6	0.149	5.87	99.1	2.9	0.55	3.0	0.13	0.60	0.19	43	216
50 ISL	12.77	12.76	33.036	24.919	303.8	0.171	5.62	93.2	4.1	0.65	4.6	0.15	0.63	0.37	50	
55	12.29	12.28	33.060	25.030	293.3	0.186	5.45	89.5	5.1	0.73	5.8	0.17	0.65	0.47	55	215
68	12.37	12.36	33.363	25.250	272.8	0.223	5.13	84.6	7.3	1.02	10.0	0.46	0.37	0.13	68	214
75 ISL	11.90	11.89	33.405	25.372	261.3	0.241	4.85	79.2	9.5	1.16	12.6	0.45	0.27	0.14	75	
81	11.44	11.43	33.411	25.461	252.9	0.257	4.60	74.3	11.4	1.26	14.6	0.44	0.21	0.14	81	213
90	11.10	11.09	33.433	25.540	245.5	0.279	4.33	69.5	13.3	1.37	16.7	0.31	0.12	0.10	90	212
100	10.82	10.81	33.446	25.600	240.0	0.303	4.13	65.9	14.8	1.45	18.1	0.07	0.12	0.09	100	211
119	9.46	9.45	33.626	25.971	204.9	0.346	3.44	53.3	22.3	1.75	22.7	0.02	0.02	0.05	120	210
125 ISL	9.39	9.38	33.690	26.032	199.2	0.358	3.31	51.2	23.5	1.79	23.4	0.02	0.02	0.05	126	
139	9.21	9.19	33.781	26.133	189.9	0.385	3.07	47.4	25.6	1.85	24.4	0.02	0.01	0.05	140	209
150 ISL	9.10	9.08	33.857	26.210	182.8	0.406	2.87	44.2	27.6	1.91	25.4	0.02	0.01	0.05	151	
169	8.92	8.90	33.961	26.320	172.6	0.439	2.59	39.7	31.0	2.01	27.0	0.01	0.01	0.04	170	208
199	8.58	8.56	34.039	26.435	162.2	0.490	2.42	36.9	34.8	2.09	28.4	0.02	0.00	0.04	200	207
200 ISL	8.57	8.55	34.041	26.438	162.0	0.491	2.41	36.7	34.9	2.09	28.4	0.02			201	
229	8.23	8.21	34.072	26.515	155.1	0.537	2.19	33.1	39.0	2.21	29.9	0.01			230	206
250 ISL	7.94	7.91	34.086	26.569	150.2	0.569	2.00	30.0	42.5	2.31	31.0	0.01			251	
270	7.68	7.65	34.097	26.616	146.0	0.599	1.82	27.2	45.9	2.40	32.1	0.01			272	205
300 ISL	7.41	7.38	34.117	26.670	141.2	0.642	1.57	23.3	49.9	2.52	33.4	0.01			302	
316	7.29	7.26	34.130	26.698	138.8	0.664	1.44	21.3	52.0	2.58	34.1	0.01			318	204
378	6.76	6.72	34.197	26.824	127.5	0.747	0.85	12.4	62.7	2.84	36.7	0.01			380	203
400 ISL	6.54	6.50	34.210	26.864	123.8	0.775	0.71	10.3	66.4	2.91	37.7	0.01			403	
438	6.20	6.16	34.229	26.923	118.4	0.821	0.54	7.8	72.2	3.00	39.1	0.00			441	202
500 ISL	5.89	5.85	34.274	26.998	111.9	0.892	0.37	5.3	79.2	3.10	40.2	0.00			503	
515	5.82	5.78	34.285	27.016	110.4	0.909	0.33	4.7	80.9	3.13	40.5	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 10.4 N	120 55.4 W	15/07/04	0051 UTC	3826 m	010 10 kn	040 03 08	1	1015.3 mb	17.4 C	16.0 C	18m	7/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	16.62	16.62	32.949	24.030	387.2	0.000	5.85	104.9	1.6	0.35	0.3	0.02	0.27	0.03	0	
2	16.62	16.62	32.949	24.030	387.3	0.008	5.85	104.9	1.6	0.35	0.3	0.02	0.27	0.03	2	220
10 ISL	16.60	16.60	32.950	24.036	387.0	0.039	5.85	104.8	1.5	0.35	0.3	0.02	0.26	0.06	10	
15	16.58	16.58	32.950	24.041	386.7	0.058	5.85	104.8	1.5	0.35	0.3	0.02	0.25	0.09	15	219
20 ISL	16.55	16.55	32.966	24.060	385.0	0.077	5.86	104.9	1.5	0.35	0.3	0.02	0.26	0.09	20	
30	16.30	16.30	32.943	24.100	381.5	0.116	5.92	105.5	1.6	0.35	0.2	0.02	0.32	0.08	30	218
45	15.17	15.16	33.005	24.400	353.3	0.171	6.09	106.1	1.7	0.39	1.0	0.04	0.46	0.14	45	217
50 ISL	14.80	14.79	33.014	24.487	345.1	0.188	6.07	105.0	1.8	0.41	1.3	0.05	0.47	0.16	50	
55	14.49	14.48	33.054	24.583	336.0	0.205	6.05	104.0	1.8	0.45	1.6	0.06	0.48	0.20	55	216
65	14.29	14.28	33.346	24.851	310.8	0.238	5.85	100.3	2.7	0.66	5.1	0.16	0.76	0.40	65	215
75	13.48	13.47	33.387	25.050	292.1	0.268	5.56	93.8	5.0	0.81	7.0	0.27	0.41	0.32	75	214
85	12.48	12.47	33.303	25.183	279.6	0.296	5.21	86.0	6.2	0.94	8.8	0.53	0.34	0.19	85	213
95	10.74	10.73	33.146	25.380	260.7	0.323	4.85	77.1	10.1	1.12	12.5	0.11	0.23	0.29	95	212
100 ISL	10.30	10.29	33.169	25.474	251.8	0.336	4.71	74.2	11.8	1.20	14.0	0.09	0.18	0.26	100	
111	9.84	9.83	33.292	25.648	235.5	0.363	4.49	70.0	14.6	1.34	16.3	0.03	0.09	0.13	111	211
125	9.58	9.57	33.394	25.770	224.1	0.395	4.45	69.0	16.2	1.37	17.1	0.02	0.05	0.07	126	210
145	9.33	9.31	33.681	26.036	199.3	0.437	3.24	50.1	23.8	1.81	23.7	0.00	0.01	0.07	146	209
150 ISL	9.27	9.25	33.730	26.084	194.8	0.447	3.08	47.6	25.0	1.86	24.5	0.00	0.01	0.07	151	
170	9.07	9.05	33.878	26.232	181.1	0.485	2.69	41.4	28.7	1.98	26.3	0.00	0.01	0.06	171	208
199	8.86	8.84	34.039	26.391	166.5	0.535	2.15	33.0	34.5	2.17	28.5	0.00	0.01	0.06	200	207
200 ISL	8.85	8.83	34.041	26.395	166.2	0.537	2.14	32.8	34.6	2.17	28.6	0.00			201	
230	8.44	8.42	34.077	26.487	157.9	0.586	2.02	30.7	38.7	2.25	30.0	0.00			231	206
250 ISL	8.08	8.05	34.089	26.551	152.0	0.617	1.89	28.5	42.3	2.33	31.2	0.00			251	
269	7.74	7.71	34.095	26.605	147.0	0.645	1.76	26.3	45.9	2.41	32.3	0.00			270	205
300 ISL	7.29	7.26	34.100	26.674	140.8	0.690	1.56	23.1	51.1	2.52	33.8	0.00			302	
319	7.06	7.03	34.103	26.708	137.6	0.716	1.43	21.0	54.1	2.59	34.7	0.00			321	204
378	6.47	6.44	34.134	26.813	128.2	0.794	1.02	14.8	63.8	2.80	37.3	0.00			380	203
400 ISL	6.36	6.32	34.165	26.851	124.8	0.822	0.84	12.2	67.1	2.88	38.0	0.00			402	
436	6.22	6.18	34.217	26.911	119.6	0.866	0.58	8.4	72.0	2.99	38.9	0.00			439	202
500 ISL	5.89	5.85	34.267	26.993	112.4	0.941	0.38	5.4	79.3	3.10	40.2	0.00			503	
512	5.83	5.79	34.276	27.008	111.1	0.954	0.34	4.9	80.7	3.12	40.5	0.00			515	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 50.8 N	121 35.4 W	15/07/04	0642 UTC	4095 m	020 15 kn			1017.1 mb	17.0 C	15.7 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.07	18.07	33.065	23.775	411.5	0.000	5.51	101.7	1.8	0.33	0.0	0.00	0.07	0.01	0	
2	18.07	18.07	33.065	23.775	411.6	0.008	5.51	101.7	1.8	0.33	0.0	0.00	0.07	0.01	2	220
10 ISL	18.08	18.08	33.064	23.772	412.2	0.041	5.51	101.7	1.7	0.33	0.0	0.00	0.07	0.02	10	
15	18.08	18.08	33.064	23.772	412.3	0.062	5.51	101.7	1.7	0.33	0.0	0.00	0.07	0.02	15	219
20 ISL	17.97	17.97	33.059	23.795	410.3	0.082	5.54	102.0	1.7	0.33	0.0	0.00	0.08	0.02	20	
30 ISL	17.55	17.54	33.046	23.887	401.8	0.123	5.63	102.8	1.8	0.33	0.0	0.00	0.10	0.03	30	
31	17.49	17.48	33.044	23.900	400.6	0.127	5.64	102.9	1.8	0.33	0.0	0.00	0.10	0.03	31	218
45	16.39	16.38	33.024	24.142	377.9	0.181	5.84	104.3	1.7	0.33	0.0	0.00	0.16	0.05	45	217
50 ISL	16.10	16.09	33.009	24.197	372.9	0.200	5.88	104.4	1.7	0.33	0.0	0.00	0.18	0.07	50	
56	15.75	15.74	32.999	24.268	366.3	0.222	5.92	104.3	1.8	0.33	0.0	0.00	0.20	0.11	56	216
65	15.01	15.00	33.035	24.458	348.3	0.255	5.94	103.2	1.9	0.34	0.0	0.00	0.37	0.23	65	215
75	14.44	14.43	33.067	24.605	334.6	0.289	5.85	100.5	2.1	0.39	0.5	0.05	0.37	0.26	75	214
85	14.03	14.02	33.102	24.718	324.1	0.322	5.75	97.9	2.6	0.40	0.4	0.03	0.32	0.28	85	213
95	13.32	13.31	33.175	24.919	305.1	0.353	5.54	93.0	3.7	0.52	2.6	0.14	0.29	0.40	95	212
100 ISL	12.95	12.94	33.182	24.998	297.6	0.368	5.46	91.0	4.3	0.58	3.7	0.15	0.27	0.39	100	
111	12.15	12.14	33.171	25.144	283.9	0.400	5.32	87.2	5.7	0.71	6.1	0.16	0.22	0.29	111	211
125	11.22	11.20	33.169	25.314	267.8	0.439	5.15	82.7	7.8	0.88	9.0	0.03	0.12	0.18	125	210
144	10.39	10.37	33.234	25.510	249.4	0.488	4.84	76.4	11.1	1.11	12.8	0.01	0.08	0.10	145	209
150 ISL	10.12	10.10	33.292	25.602	240.8	0.503	4.66	73.1	12.9	1.21	14.5	0.01	0.06	0.08	151	
169	9.42	9.40	33.521	25.896	213.0	0.546	4.01	62.0	19.1	1.54	19.7	0.01	0.02	0.03	170	208
200	9.01	8.99	33.876	26.240	180.9	0.607	3.00	46.1	27.8	1.87	25.0	0.00	0.00	0.02	201	207
229	8.57	8.55	34.012	26.416	164.6	0.657	2.66	40.5	33.7	2.02	27.4	0.00			230	206
250 ISL	8.21	8.18	34.036	26.490	157.9	0.691	2.58	39.0	37.1	2.08	28.6	0.00			251	
269	7.89	7.86	34.033	26.535	153.7	0.720	2.52	37.8	40.1	2.13	29.6	0.00			270	205
300 ISL	7.42	7.39	34.040	26.608	147.0	0.767	2.24	33.2	45.6	2.28	31.5	0.00			302	
318	7.17	7.14	34.044	26.647	143.5	0.793	2.04	30.1	48.9	2.38	32.7	0.00			320	204
377	6.49	6.46	34.072	26.761	133.1	0.875	1.43	20.8	59.5	2.65	36.2	0.00			379	203
400 ISL	6.27	6.23	34.085	26.800	129.5	0.905	1.23	17.8	63.6	2.74	37.3	0.00			402	
437	6.00	5.96	34.117	26.860	124.2	0.952	0.95	13.6	69.7	2.87	38.6	0.00			440	202
500 ISL	5.96	5.92	34.226	26.952	116.3	1.028	0.51	7.3	76.2	3.04	39.7	0.00			503	
515	5.95	5.90	34.252	26.974	114.5	1.045	0.40	5.7	77.8	3.08	39.9	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 30.7 N	122 15.3 W	15/07/04	1231 UTC	4198 m	010 12 kn			1014.9 mb	17.9 C	16.5 C		

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.54	18.54	33.065	23.659	422.6	0.000	5.44	101.3	1.7	0.32	0.1	0.00	0.07	0.01	0	
2	18.54	18.54	33.065	23.659	422.6	0.008	5.44	101.3	1.7	0.32	0.1	0.00	0.07	0.01	2	220
10 ISL	18.55	18.55	33.064	23.656	423.2	0.042	5.45	101.5	1.7	0.32	0.1	0.00	0.07	0.01	10	
16	18.55	18.55	33.064	23.656	423.4	0.068	5.45	101.5	1.7	0.32	0.1	0.00	0.07	0.01	16	219
20 ISL	18.55	18.55	33.064	23.657	423.5	0.085	5.45	101.5	1.7	0.32	0.1	0.00	0.07	0.01	20	
30 ISL	18.55	18.54	33.064	23.657	423.8	0.127	5.45	101.5	1.8	0.32	0.1	0.00	0.07	0.01	30	
32	18.55	18.54	33.064	23.657	423.9	0.135	5.45	101.5	1.8	0.32	0.1	0.00	0.07	0.01	32	218
44	18.05	18.04	33.112	23.817	409.0	0.185	5.59	103.1	1.8	0.31	0.1	0.00	0.08	0.02	44	217
50 ISL	17.66	17.65	33.120	23.918	399.6	0.210	5.67	103.8	1.8	0.31	0.1	0.00	0.09	0.02	50	
61	16.82	16.81	33.109	24.109	381.7	0.253	5.80	104.5	1.8	0.32	0.1	0.00	0.11	0.03	61	216
75 ISL	15.73	15.72	33.043	24.307	363.1	0.305	5.91	104.2	2.0	0.31	0.1	0.00	0.16	0.05	75	
76	15.66	15.65	33.041	24.321	361.8	0.308	5.91	104.0	2.0	0.31	0.1	0.00	0.16	0.05	76	215
86	15.32	15.31	33.101	24.442	350.5	0.344	5.85	102.3	2.0	0.32	0.1	0.00	0.18	0.09	86	214
95	14.81	14.80	33.201	24.630	332.8	0.375	5.76	99.7	2.1	0.33	0.1	0.00	0.22	0.18	95	213
100 ISL	14.21	14.20	33.180	24.741	322.3	0.391	5.71	97.7	2.3	0.38	0.6	0.01	0.32	0.41	100	
104	13.65	13.64	33.152	24.835	313.4	0.404	5.65	95.5	2.8	0.45	1.5	0.04	0.40	0.55	104	212
114	12.23	12.22	33.148	25.111	287.1	0.434	5.29	86.8	5.9	0.73	6.2	0.19	0.41	0.26	114	211
125 ISL	11.64	11.62	33.129	25.206	278.1	0.465	5.16	83.6	7.0	0.86	8.3	0.09	0.20	0.17	125	
127	11.58	11.56	33.128	25.217	277.2	0.471	5.15	83.3	7.2	0.87	8.5	0.06	0.16	0.17	127	210
145	10.24	10.22	33.261	25.557	244.9	0.518	4.79	75.3	11.9	1.15	13.5	0.01	0.06	0.08	146	209
150 ISL	10.00	9.98	33.312	25.637	237.3	0.530	4.67	73.1	13.3	1.22	14.8	0.01	0.05	0.07	151	
162	9.58	9.56	33.441	25.808	221.3	0.557	4.37	67.8	16.6	1.38	17.5	0.01	0.03	0.05	163	208
196	9.08	9.06	33.789	26.161	188.3	0.627	3.42	52.6	24.8	1.73	23.0	0.00	0.00	0.03	197	207
200 ISL	9.04	9.02	33.814	26.187	185.9	0.634	3.37	51.8	25.4	1.75	23.4	0.00			201	
229	8.79	8.77	33.940	26.325	173.3	0.686	3.05	46.6	29.6	1.87	25.4	0.00			230	206
250 ISL	8.60	8.57	34.010	26.410	165.6	0.722	2.67	40.7	33.5	2.01	27.4	0.00			251	
269	8.40	8.37	34.055	26.476	159.6	0.753	2.32	35.2	37.2	2.15	29.1	0.00			270	205
300 ISL	7.96	7.93	34.084	26.565	151.5	0.801	1.99	29.9	42.7	2.31	31.2	0.00			302	
317	7.70	7.67	34.089	26.607	147.6	0.826	1.86	27.8	45.6	2.38	32.1	0.00			319	204
379	6.95	6.91	34.110	26.730	136.5	0.915	1.36	20.0	55.9	2.64	35.3	0.00			381	203
400 ISL	6.74	6.70	34.131	26.775	132.4	0.943	1.15	16.8	59.9	2.74	36.4	0.00			402	
437	6.41	6.37	34.168	26.848	125.7	0.991	0.82	11.9	66.7	2.89	38.0	0.00			440	202
500	5.92	5.88	34.199	26.935	117.8	1.067	0.56	8.0	75.6	3.03	39.8	0.00			503	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 10.8 N	122 55.4 W	15/07/04	1842 UTC	3748 m	050 13 kn	030 03 05	1	1016.1 mb	19.0 C	17.0 C	25m	7/8	AC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.72	18.72	33.055	23.607	427.6	0.000	5.44	101.6	1.7	0.33	0.0	0.00	0.09	0.02	0	
2	18.72	18.72	33.055	23.607	427.7	0.009	5.44	101.6	1.7	0.33	0.0	0.00	0.09	0.02	2	221
10 ISL	18.70	18.70	33.052	23.610	427.6	0.043	5.43	101.4	1.6	0.32	0.0	0.00	0.08	0.02	10	
16	18.69	18.69	33.053	23.613	427.5	0.068	5.43	101.4	1.6	0.32	0.0	0.00	0.08	0.02	16	220
20 ISL	18.66	18.66	33.050	23.619	427.1	0.086	5.44	101.5	1.6	0.32	0.0	0.00	0.09	0.01	20	
26	18.62	18.62	33.045	23.625	426.8	0.111	5.46	101.8	1.6	0.32	0.0	0.00	0.10	0.01	26	219
30 ISL	18.31	18.30	33.045	23.702	419.5	0.128	5.56	103.1	1.6	0.32	0.0	0.00	0.10	0.02	30	
36	17.72	17.71	33.043	23.844	406.1	0.153	5.72	104.8	1.6	0.32	0.0	0.00	0.11	0.04	36	218
50 ISL	16.46	16.45	32.984	24.095	382.5	0.208	5.92	105.8	1.7	0.32	0.0	0.00	0.14	0.04	50	
52	16.30	16.29	32.977	24.127	379.6	0.216	5.93	105.7	1.7	0.32	0.0	0.00	0.14	0.04	52	217
66	15.69	15.68	33.007	24.288	364.7	0.268	5.96	104.9	1.8	0.32	0.0	0.00	0.15	0.10	66	216
75 ISL	14.99	14.98	32.951	24.398	354.3	0.300	6.00	104.1	1.8	0.32	0.0	0.00	0.18	0.18	75	
76	14.92	14.91	32.947	24.410	353.2	0.304	6.00	104.0	1.8	0.32	0.0	0.00	0.18	0.19	76	215
86	14.64	14.63	33.028	24.533	341.8	0.338	5.94	102.4	1.9	0.33	0.0	0.00	0.26	0.15	86	214
96	14.46	14.45	33.085	24.615	334.2	0.372	5.90	101.4	2.1	0.33	0.0	0.00	0.26	0.36	96	213
100 ISL	14.38	14.37	33.123	24.661	329.9	0.385	5.85	100.4	2.2	0.35	0.2	0.01	0.28	0.35	100	
106	14.07	14.05	33.163	24.757	320.9	0.405	5.73	97.7	2.4	0.37	0.4	0.02	0.33	0.30	106	212
115	12.87	12.85	33.125	24.970	300.7	0.433	5.44	90.5	4.3	0.61	3.8	0.21	0.42	0.28	115	211
125	12.21	12.19	33.147	25.114	287.1	0.462	5.23	85.8	5.6	0.76	6.3	0.15	0.38	0.33	125	210
139	11.18	11.16	33.169	25.321	267.4	0.501	5.05	81.0	8.2	0.95	9.8	0.02	0.11	0.13	140	209
150 ISL	10.58	10.56	33.226	25.472	253.3	0.530	4.87	77.2	10.4	1.09	12.2	0.02	0.08	0.11	151	
164	10.00	9.98	33.335	25.656	235.9	0.564	4.59	71.8	13.5	1.26	15.1	0.01	0.05	0.09	165	208
194	9.27	9.25	33.661	26.030	200.7	0.630	3.69	56.9	21.9	1.65	21.6	0.01	0.01	0.02	195	207
200 ISL	9.19	9.17	33.712	26.083	195.8	0.641	3.59	55.3	23.0	1.69	22.3	0.01			201	
229	8.89	8.87	33.902	26.280	177.6	0.696	3.23	49.5	27.7	1.80	24.4	0.01			230	206
250 ISL	8.69	8.66	33.980	26.373	169.2	0.732	2.93	44.7	31.2	1.92	26.1	0.00			251	
268	8.50	8.47	34.020	26.433	163.7	0.762	2.67	40.6	34.3	2.03	27.6	0.00			269	205
300 ISL	8.04	8.01	34.056	26.531	154.7	0.813	2.30	34.6	40.0	2.20	30.0	0.00			302	
318	7.77	7.74	34.066	26.579	150.4	0.840	2.10	31.4	43.4	2.30	31.2	0.00			320	204
378	6.99	6.95	34.115	26.728	136.7	0.926	1.36	20.0	55.2	2.65	35.1	0.00			380	203
400 ISL	6.80	6.76	34.131	26.767	133.2	0.956	1.18	17.3	58.6	2.73	36.0	0.00			402	
438	6.51	6.47	34.155	26.825	128.0	1.006	0.93	13.5	64.0	2.84	37.3	0.00			441	202
500 ISL	6.01	5.97	34.190	26.917	119.7	1.083	0.64	9.2	73.8	2.99	39.3	0.00			503	
514	5.90	5.86	34.198	26.937	117.8	1.099	0.58	8.3	76.0	3.03	39.8	0.00			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0407 STATION 93 120

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
29 51.0 N	123 35.1 W	16/07/04	0036 UTC	4133 m	040 15 kn	080 04 08	1	1014.2 mb	20.0 C	18.7 C	38m	5/8	SC

DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRES db	SAMP
0 ISL	18.88	18.88	33.208	23.683	420.2	0.000	5.42	101.7	1.7	0.32	0.0	0.00	0.06	0.01	0	
2	18.88	18.88	33.208	23.683	420.3	0.008	5.42	101.7	1.7	0.32	0.0	0.00	0.06	0.01	2	220
10 ISL	18.87	18.87	33.209	23.687	420.2	0.042	5.42	101.6	1.7	0.31	0.0	0.00	0.06	0.01	10	
16	18.85	18.85	33.209	23.692	420.0	0.067	5.42	101.6	1.7	0.31	0.0	0.00	0.06	0.01	16	219
20 ISL	18.84	18.84	33.206	23.693	420.1	0.084	5.42	101.6	1.7	0.31	0.0	0.00	0.07	0.01	20	
30	18.80	18.79	33.208	23.705	419.3	0.126	5.43	101.7	1.7	0.31	0.0	0.00	0.08	0.01	30	218
46	18.49	18.48	33.194	23.772	413.4	0.193	5.50	102.4	1.7	0.31	0.0	0.00	0.09	0.02	46	217
50 ISL	18.38	18.37	33.215	23.815	409.4	0.209	5.55	103.1	1.7	0.31	0.0	0.00	0.10	0.02	50	
61	17.94	17.93	33.291	23.982	393.9	0.253	5.67	104.5	1.6	0.30	0.0	0.00	0.12	0.03	61	216
75	17.06	17.05	33.369	24.252	368.5	0.307	5.71	103.5	1.7	0.28	0.0	0.00	0.16	0.05	75	215
85	17.14	17.13	33.477	24.317	362.7	0.343	5.66	102.8	1.7	0.27	0.0	0.00	0.19	0.09	85	214
95	17.08	17.06	33.533	24.374	357.6	0.379	5.62	102.0	1.8	0.27	0.0	0.00	0.22	0.13	95	213
100 ISL	16.23	16.21	33.335	24.419	353.3	0.397	5.68	101.3	1.9	0.31	0.0	0.00	0.21	0.17	100	
104	15.45	15.43	33.162	24.461	349.3	0.411	5.74	100.7	2.0	0.34	0.0	0.00	0.21	0.20	104	212
115	14.24	14.22	33.011	24.605	335.7	0.449	5.73	98.0	2.3	0.41	0.1	0.01	0.27	0.30	115	211
125 ISL	13.06	13.04	33.030	24.859	311.5	0.481	5.46	91.1	4.0	0.61	3.4	0.17	0.23	0.28	125	
126	12.95	12.93	33.036	24.885	309.0	0.484	5.43	90.4	4.2	0.63	3.8	0.18	0.22	0.28	126	210
140	11.77	11.75	33.043	25.116	287.1	0.526	5.19	84.3	6.5	0.85	7.8	0.02	0.17	0.20	141	209
150 ISL	11.04	11.02	33.105	25.297	270.0	0.554	5.01	80.1	8.7	1.00	10.4	0.02	0.13	0.15	151	
164	10.24	10.22	33.227	25.531	247.8	0.590	4.76	74.9	12.0	1.18	13.7	0.01	0.07	0.10	165	208
194	9.54	9.52	33.479	25.844	218.4	0.660	4.18	64.8	17.8	1.46	18.6	0.00	0.02	0.03	195	207
200 ISL	9.42	9.40	33.550	25.920	211.4	0.673	4.03	62.4	19.3	1.52	19.6	0.00			201	
227	8.94	8.92	33.846	26.228	182.5	0.726	3.43	52.6	26.0	1.74	23.5	0.00			228	206
250 ISL	8.68	8.65	33.957	26.356	170.7	0.767	3.16	48.2	29.8	1.85	25.3	0.00			251	
268	8.50	8.47	33.995	26.414	165.5	0.797	3.00	45.6	32.6	1.92	26.4	0.00			269	205
300 ISL	8.00	7.97	34.036	26.521	155.6	0.848	2.54	38.2	39.1	2.12	29.2	0.00			302	
316	7.74	7.71	34.044	26.566	151.5	0.873	2.31	34.5	42.4	2.23	30.6	0.00			318	204
380	6.93	6.89	34.079	26.708	138.5	0.966	1.60	23.5	54.0	2.56	34.5	0.00			382	203
400 ISL	6.66	6.62	34.082	26.747	134.9	0.993	1.43	20.8	58.0	2.65	35.7	0.00			402	
438	6.20	6.16	34.096	26.818	128.3	1.043	1.13	16.3	65.5	2.80	37.7	0.00			441	202
500 ISL	5.82	5.78	34.175	26.929	118.3	1.119	0.66	9.4	75.6	3.00	39.7	0.00			503	
512	5.75	5.71	34.191	26.950	116.4	1.134	0.57	8.1	77.5	3.04	40.1	0.00			515	201

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 77 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 23.2 N	122 14.9 W	26/07/04	1916 UTC	25 m	1225 - 1938 PST	1215 PST	1938 PST	299.8 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	17.39	33.067	23.940	5.66	103.1	1.3	0.46	1.9	0.06	0.29	0.06	88. A	6.7	6.4	6.5	0.14
8	17.38	33.066	23.942	5.65	102.9	1.3	0.45	1.9	0.06	0.27	0.06					
15	16.85	33.146	24.128	5.76	103.9	1.4	0.47	2.4	0.08	0.35	0.13	40.	6.7	6.8	6.8	0.13
25	14.26	33.297	24.818	6.01	103.0	4.0	0.68	5.5	0.17	0.40	0.13					
35	11.55	33.261	25.323	5.36	86.8	8.7	1.08	11.3	0.33	0.57	0.29	12.	5.6	5.5	5.6	0.10
44	11.19	33.390	25.489	4.77	76.7	11.5	1.31	14.6	0.50	0.46	0.13					
52	10.61	33.365	25.573	4.52	71.7	13.2	1.42	17.0	0.32	0.38	0.16	4.1	1.5	1.5	1.5	0.14
59	10.38	33.423	25.658	4.23	66.8	15.7	1.56	19.4	0.07	0.40	0.06					
66	9.87	33.457	25.771	3.88	60.6	18.5	1.66	21.1	0.05	0.21	0.12	1.7	0.22	0.24	0.23	0.08
81	9.45	33.604	25.955	3.34	51.7	23.7	1.86	24.1	0.02	0.07	0.10					
96	9.20	33.738	26.100	3.02	46.6	26.3	1.92	25.4	0.02	0.02	0.08	0.28	0.02	0.04	0.03	0.07

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 9.0 N	121 9.1 W	24/07/04	1804 UTC	13 m	1209 - 1939 PST	1209 PST	1942 PST	1209.5 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.42	33.509	24.731	6.54	114.9	0.0	0.16	0.0	0.00	2.23	0.04	79. A	15.2	13.4	14.3	0.37
8	14.99	33.506	24.823	6.60	114.9	0.0	0.16	0.0	0.00	2.80	0.65	39.	29.1	20.7	24.9	0.32
18	14.15	33.519	25.013	6.44	110.3	0.0	0.17	1.0	0.04	7.86	0.39	12.	44.7	48.1	46.4	0.47
28	11.83	33.554	25.499	4.45	72.6	9.0	0.97	12.6	0.22	11.67	-0.41 B	3.7	46.5	48.5	47.5	0.57
35	10.69	33.554	25.706	3.65	58.1	15.5	1.46	18.1	0.22	4.78	0.24	1.6	6.5	5.8	6.2	0.26
42	10.26	33.586	25.805	3.36	53.0	18.3	1.63	20.4	0.14	2.31	0.36					
50	10.07	33.636	25.876	3.21	50.4	20.1	1.73	21.8	0.09	1.49	0.45	0.27	0.32	0.44	0.38	0.13

B) NO EXPLANATION FOR HIGH ACID RATIO.

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 80 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 48.7 N	123 54.2 W	25/07/04	1847 UTC	28 m	1223 - 1944 PST	1223 PST	1944 PST	262.3 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	17.49	32.797	23.709	5.69	103.7	1.4	0.34	0.0	0.00	0.18	0.02	95. A	3.4	3.2	3.3	0.18
17	17.07	32.781	23.797	5.77	104.3	1.4	0.33	0.0	0.00	0.28	0.04	39.	4.2	4.2	4.2	0.18
28	16.90	32.795	23.848	5.80	104.5	1.4	0.33	0.0	0.00	0.44	0.01					
40	16.61	32.822	23.936	5.85	104.8	1.6	0.35	0.1	0.01	0.60	-0.04	11.	4.4	4.3	4.4	0.13
49	16.14	32.882	24.090	6.00	106.5	1.9	0.37	0.6	0.03	0.57	0.14					
58	14.72	32.941	24.448	6.22	107.4	2.0	0.43	1.3	0.06	0.45	0.14	4.2	2.1	2.3	2.2	0.15
66	13.11	32.809	24.677	6.25	104.3	2.4	0.46	1.1	0.07	0.94	0.18					
75	12.52	32.894	24.858	5.98	98.6	3.4	0.62	3.9	0.18	0.69	0.26	1.6	0.78	0.93	0.85	0.11
86	11.53	32.946	25.083	5.34	86.2	6.0	0.88	8.1	0.14	0.52	0.33					
95	11.14	33.043	25.229	5.23	83.8	8.2	1.06	10.8	0.20	0.33	0.19					
106	10.43	33.157	25.443	4.90	77.4	11.7	1.29	14.7	0.23	0.19	0.09	0.30	0.08	0.12	0.10	0.09

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 52.4 N	120 8.0 W	23/07/04	1730 UTC	12 m	1205 - 1935 PST	1207 PST	1933 PST	629.5 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	13.91	33.420	24.986	5.19	88.4	7.3	0.81	7.8	0.16	1.09	0.24	77. A	25.3	26.0	25.6	0.25
7	13.90	33.418	24.986	5.18	88.2	7.3	0.81	7.8	0.16	1.35	0.03	41.	31.5	32.0	31.8	0.37
17	11.53	33.358	25.402	4.65	75.3	8.7	1.12	12.4	0.28	1.41	0.50	11.	21.4	21.6	21.5	0.23
25	10.86	33.458	25.601	3.97	63.4	14.7	1.40	16.6	0.30	0.96	0.42	4.1	8.5	8.6	8.6	0.15
32	10.47	33.551	25.741	3.50	55.4	18.0	1.59	19.5	0.12	0.70	0.35	1.7	1.5	1.6	1.6	0.12
39	10.30	33.601	25.810	3.35	52.9	19.5	1.65	20.4	0.10	0.51	0.31					
46	9.89	33.781	26.020	2.89	45.3	24.2	1.85	23.0	0.08	0.32	0.24	0.28	0.12	0.17	0.15	0.08

A) INCUBATION LIGHT INTENSITIES WERE 92, 39, 12, 4.2, 1.8, 0.28 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 54.4 N	122 7.4 W	22/07/04	1922 UTC	25 m	1220 - 1939 PST	1215 PST	1942 PST	163.7 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	17.33	32.825	23.769	5.73	104.1	1.2	0.33	0.1	0.00	0.20	0.02	88. A	3.8	3.8	3.8	0.12
15	17.25	32.826	23.789	5.74	104.1	1.2	0.32	0.1	0.00	0.23	0.03	40.	4.7	4.3	4.5	0.17
25	17.09	32.828	23.829	5.75	104.0	1.2	0.31	0.1	0.00	0.25	0.02					
35	16.90	32.823	23.870	5.85	105.4	1.2	0.31	0.0	0.00	0.21	0.04	12.	2.4	2.5	2.4	0.09
44	16.27	32.885	24.063	5.97	106.3	1.4	0.31	0.0	0.00	0.21	0.04					
52	16.04	33.085	24.269	6.01	106.6	1.7	0.29	0.0	0.00	0.13	0.02	4.1	0.48	0.52	0.50	0.09
59	15.78	33.173	24.395	6.01	106.1	1.8	0.28	0.0	0.00	0.14	0.02					
66	14.34	32.973	24.553	6.08	104.1	2.0	0.34	0.0	0.00	0.16	0.05	1.7	0.11	0.21	0.16	0.07
76	13.66	33.115	24.803	5.83	98.6	2.7	0.42	1.0	0.04	0.43	0.12					
86	12.24	33.080	25.056	5.45	89.4	4.8	0.70	5.8	0.10	0.50	0.18					
96	11.21	33.133	25.287	5.20	83.5	7.3	0.87	9.0	0.04	0.26	0.14	0.28	0.10	0.11	0.10	0.05

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 87 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 19.1 N	123 44.7 W	21/07/04	1821 UTC	32 m	1220 - 1940 PST	1221 PST	1943 PST	97.9 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	19.54	32.967	23.332	5.42	102.8	1.3	0.31	0.1	0.00	0.08	0.02	91. A	1.7	1.7	1.7	0.12
12	19.33	32.984	23.399	5.44	102.8	1.4	0.31	0.0	0.00	0.09	0.01					
20	18.47	32.952	23.591	5.53	102.8	1.3	0.31	0.0	0.00	0.09	0.01	38.	1.4	1.5	1.5	0.16
32	18.19	33.008	23.703	5.56	102.8	1.4	0.31	0.0	0.00	0.09	0.04					
45	16.61	33.117	24.163	5.96	106.9	1.6	0.27	0.0	0.00	0.10	0.03	12.	1.1	1.0	1.1	0.15
56	16.08	33.219	24.363	5.96	105.9	1.7	0.26	0.0	0.00	0.11	0.02					
66	15.93	33.329	24.481	5.95	105.5	1.9	0.25	0.0	0.00	0.11	0.04	4.2	0.55	0.56	0.56	0.11
75	15.43	33.347	24.607	5.89	103.4	1.9	0.25	0.0	0.00	0.14	0.04					
84	14.70	33.247	24.689	5.92	102.3	2.1	0.29	0.0	0.00	0.21	0.09	1.8	0.27	0.33	0.30	0.07
94	14.11	33.285	24.843	5.73	97.9	2.6	0.35	0.5	0.02	0.28	0.15					
103	13.35	33.236	24.960	5.57	93.6	3.4	0.48	2.4	0.10	0.31	0.12					
112	12.13	33.126	25.113	5.38	88.1	5.1	0.70	5.9	0.16	0.24	0.20					
123	11.14	33.166	25.326	5.22	83.7	7.2	0.86	9.0	0.04	0.19	0.11	0.27	0.12	0.11	0.11	0.05

RV DAVID STARR JORDAN — CALCOFI CRUISE 0407 — STATION 93 40

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 30.6 N	118 12.9 W	13/07/04	1820 UTC	14 m	1200 - 1926 PST	1159 PST	1928 PST	418.2 mg C/m2

DEPTH m	TEMP DEG C	SALINITY	SIGMA THETA	OXYGEN ml/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	19.90	33.491	23.639	5.78	110.7	1.9	0.16	0.0	0.00	0.59	0.09	80. A	5.5	6.0	5.8	0.24
10	19.67	33.488	23.696	5.87	111.9	1.9	0.14	0.0	0.00	0.51	0.08	33.	15.7	14.4	15.1	0.30
20	14.63	33.356	24.786	5.80	100.2	2.6	0.23	0.0	0.01	0.55	0.35	11.	15.4	17.7	16.5	0.43
29	11.83	33.394	25.375	4.34	70.7	7.6	0.93	5.4	0.23	1.67	0.61	4.2	8.1	7.5	7.8	0.22
37	11.15	33.436	25.532	3.95	63.5	11.1	1.24	13.0	0.08	1.39	0.65	1.7	1.8	2.0	1.9	0.12
46	10.26	33.467	25.712	3.78	59.6	16.4	1.49	18.2	0.07	0.25	0.27					
54	10.14	33.507	25.764	3.71	58.3	17.4	1.53	19.0	0.04	0.17	0.24	0.27	0.06	0.10	0.08	0.06

A) INCUBATION LIGHT INTENSITIES WERE 92, 39, 12, 4.2, 1.8, 0.28 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)
77	49	35 05.3	120 47.3	7/27	0435	0441	117	50	332	332
77	51	35 00.7	120 55.7	7/27	0206	0227	423	212	104	104
77	55	34 53.0	121 12.1	7/26	2238	2260	427	209	164	164
77	60	34 43.3	121 33.6	7/26	1833	1855	422	208	119	119
77	70	34 23.0	122 15.5	7/26	1220	1242	415	213	197	140
77	80	34 03.1	122 57.1	7/26	0604	0626	409	215	100	100
77	90	33 42.4	123 38.8	7/26	0001	0023	436	212	87	87
77	100	33 23.0	124 19.9	7/25	1759	1821	455	202	46	46
80	50.5	34 27.6	120 29.3	7/27	0946	0949	80	17	50	50
80	51	34 27.1	120 32.5	7/24	0351	0358	138	63	72	72
80	55	34 19.0	120 48.6	7/24	0708	0729	410	203	136	136
80	60	34 09.4	121 09.8	7/24	1114	1136	396	211	197	197
80	70	33 49.2	121 50.2	7/24	1712	1734	409	214	139	139
80	80	33 28.1	122 32.1	7/24	2326	2348	401	214	234	234
80	90	33 09.4	123 11.6	7/25	0535	0557	400	208	165	165
80	100	32 48.3	123 54.8	7/25	1149	1210	411	212	58	58
81.7	43.5	34 24.0	119 48.1	7/27	1421	1424	54	20	18	18
82	47	34 16.7	120 03.0	7/23	2350	0011	393	210	199	199
83	39.4	34 15.6	119 19.3	7/23	1829	1831	37	11	27	27
83	40.6	34 13.1	119 24.7	7/23	1730	1733	53	21	75	75
83	42	34 10.6	119 30.8	7/23	1532	1548	293	147	85	85
83	51	33 52.1	120 08.3	7/23	0844	0856	168	112	95	95
83	55	33 45.1	120 25.7	7/23	0541	0602	438	195	151	151
83	60	33 34.5	120 46.2	7/23	0122	0143	419	211	265	265
83	70	33 14.9	121 25.9	7/22	1840	1901	421	207	140	140
83	80	32 53.6	122 07.1	7/22	1220	1241	393	212	97	97
83	90	32 35.2	122 49.0	7/22	0624	0646	431	211	30	30
83	100	32 14.5	123 32.4	7/22	0016	0037	415	214	51	51
83	110	31 54.2	124 10.5	7/21	1812	1833	404	207	22	22
85.4	35.8	34 00.7	118 49.8	7/27	2011	2013	42	15	144	144
87	33	33 52.8	118 29.7	7/19	0219	0223	76	34	277	277
87	35	33 49.2	118 37.3	7/19	0459	0521	433	209	60	60
87	40	33 38.6	118 58.5	7/19	0839	0901	430	211	68	68
87	45	33 28.8	119 18.6	7/19	1451	1512	422	209	154	154
87	50	33 18.5	119 40.7	7/19	1925	1930	121	42	240	240
87	55	33 08.8	120 01.8	7/19	2312	2334	426	212	195	195
87	60	32 58.9	120 21.8	7/20	0254	0315	347	216	804	804
87	70	32 39.0	121 04.2	7/20	1128	1150	474	211	76	76
87	80	32 17.7	121 42.1	7/20	1736	1758	412	204	51	51
87	90	31 59.2	122 24.6	7/20	2324	2345	434	212	74	74
87	100	31 39.1	123 04.6	7/21	0514	0536	430	203	42	42
87	110	31 18.4	123 45.8	7/21	1129	1150	429	210	19	19
88.5	30.1	33 40.2	118 05.7.	7/18	2155	2157	48	17	189	189
90	27.7	33 29.6	117 44.9	7/18	1918	1920	54	14	204	204
90	28	33 28.5	117 46.2	7/18	1816	1823	156	65	282	282
90	30	33 24.8	117 54.3	7/18	1519	1540	431	207	93	93
90	35	33 14.6	118 15.3	7/18	1116	1137	414	212	82	82
90	37	33 11.1	118 24.4	7/18	0832	0853	424	211	66	66
90	45	32 54.6	118 56.6	7/18	0300	0322	425	214	108	108
90	53	32 39.1	119 29.6	7/17	2104	2126	432	211	241	241
90	60	32 24.4	119 57.8	7/17	1611	1633	398	207	201	201
90	70	32 05.2	120 39.0	7/17	0827	0849	425	213	87	87
90	80	31 44.4	121 18.9	7/17	0054	0115	418	213	77	77
90	90	31 24.9	121 59.8	7/16	1900	1921	428	205	44	44
90	100	31 05.2	122 39.3	7/16	1207	1228	446	212	22	22
90	110	30 44.8	123 19.7	7/16	0550	0612	433	216	16	16
90	120	30 25.4	124 00.1	7/15	2350	0012	457	213	28	28
91.7	26.4	33 14.8	117 27.8	7/28	0529	0531	45	6	111	111
93	26.7	32 56.2	117 18.8	7/12	2123	2129	133	55	188	188
93	28	32 53.6	117 24.9	7/13	0033	0055	435	210	110	110
93	30	32 50.3	117 32.8	7/13	0310	0331	423	214	95	95
93	35	32 40.8	117 52.5	7/13	0719	0740	415	220	65	65
93	40	32 30.2	118 13.3	7/13	1120	1141	430	212	442	442
93	45	32 20.0	118 32.5	7/13	1729	1751	481	192	27	27
93	50	32 09.9	118 54.5	7/13	2146	2208	455	209	99	99
93	55	32 00.3	119 14.6	7/14	0145	0206	426	213	202	202
93	60	31 51.1	119 33.9	7/14	0546	0607	437	208	158	158
93	70	31 30.4	120 15.8	7/14	1208	1230	428	212	161	161
93	80	31 09.6	120 55.8	7/14	1802	1823	434	206	168	168
93	90	30 50.8	121 36.0	7/14	2345	0007	434	212	35	35
93	100	30 30.6	122 15.3	7/15	0536	0557	432	214	19	19
93	110	30 11.3	122 55.8	7/15	1145	1207	456	216	13	13
93	120	29 51.2	123 35.7	7/15	1755	1817	440	213	16	16
93.4	26.4	32 57.4	117 16.8	7/12	2221	2223	41	11	122	122

FIGURES

Avifauna Observations

CalCOFI Cruise 0407

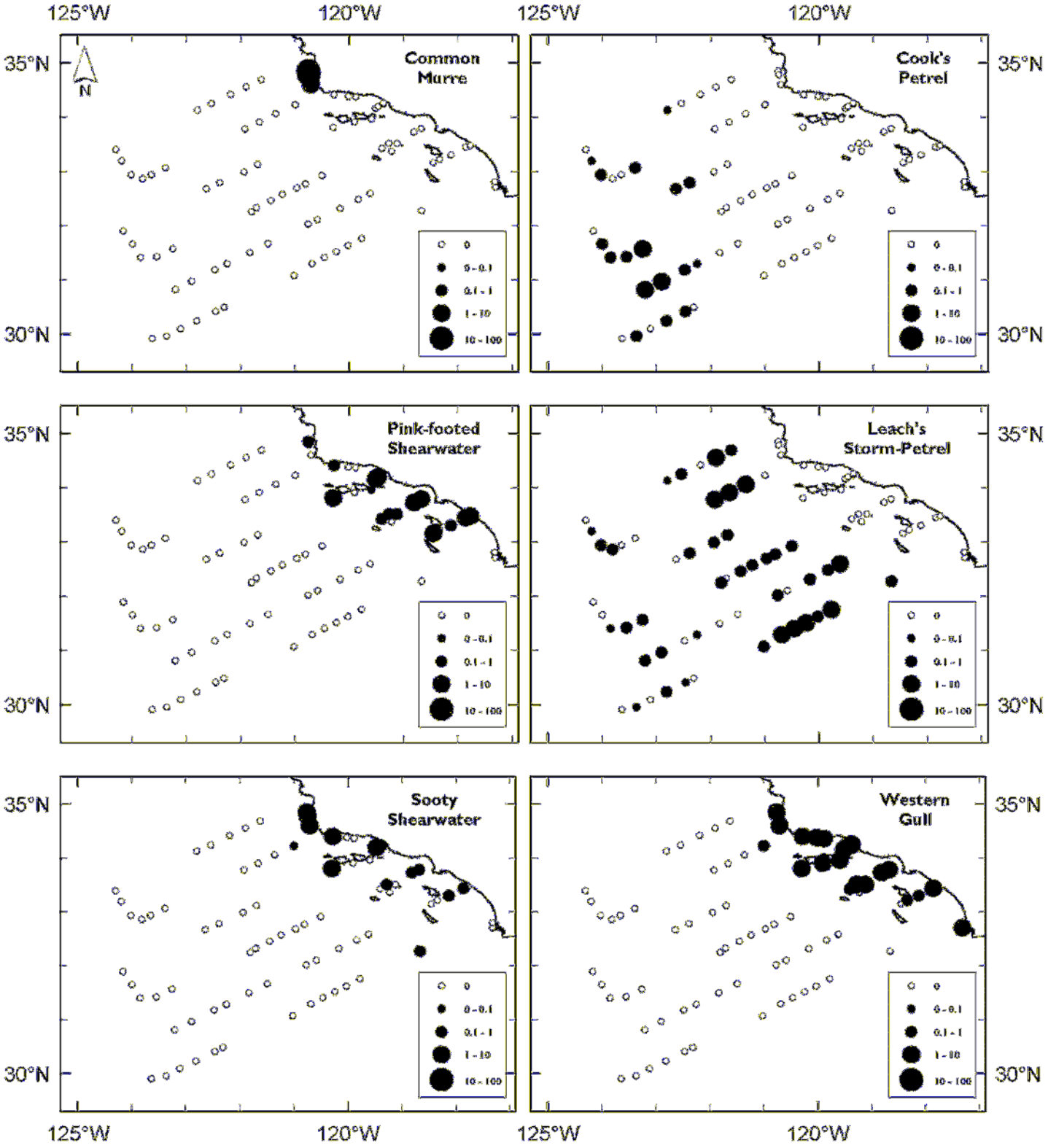
1a. Common Murre distribution.

1b. Cook's Petrel distribution.

1c. Pink-footed Shearwater distribution.

1d. Leach's Storm Petrel distribution.

1e. Sooty Shearwater distribution.

1f. Western Gull distribution.

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