UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI Cruise 0401
5 – 23 January 2004

CC Reference 06-04
3 August 2006

UNIVERSITY OF CALIFORNIA, SAN DIEGO

SCRIPPS INSTITUTION OF OCEANOGRAPHY

LA JOLLA, CALIFORNIA 92093-0227

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INTRODUCTION

The data presented in this report were collected during cruise 0401* of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the RV *David Starr Jordan* of Scripps Institution of Oceanography, University of California, San Diego. 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. SIO staff members from the Ocean Data Facility participate in the chemical analysis of nutrient samples 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 P140. Salinity values were calculated using the algorithms for the Practical Salinity Scale, 1978 (UNESCO, 1981a) and are reported to three decimal places, provided that accepted standards were met.

Dissolved oxygen analyses were performed with an Ocean Data Facility of Scripps Institution of Oceanography designed automated oxygen titrator using photometric end-point detection based on the absorption of 365nm wavelength ultra-violet light. A computer using PC software controlled the titration of the samples and the data logging. The method used a modified-Winkler titration following the technique of Carpenter (1965) with modifications by Culberson (1991), but with higher concentrations of thiosulfate solution (50 g/l). Standard KIO3

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

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

Nutrient samples were analyzed at sea for dissolved silicate, phosphate, nitrate and nitrite using procedures similar to those described in Gordon et al., 1993. Samples were collected in 45 ml high-density polypropylene screw-capped tubes, which were rinsed 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 mimimum of 24 hours. Chlorophyll a and pheopigment 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 10 µCi of ^{14}C as $NaHCO_3$ (200 µl of 50 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, salinity and *in vivo* chlorophyll fluorescence were recorded from seawater pumped through the ship's uncontaminated seawater system. Water was drawn from a depth of approximately 3 meters. The data were logged in one-minute averages using a Sea-Bird Electronics, Inc., SBE 45 MicroTSG Thermosalinograph and a Wetlabs Wetstar fluorometer.

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) *Underway Sea Surface xCO2*. Continuous measurements of the partial pressure of CO2 were made from the ship's uncontaminated seawater system. The seawater was equilibrated in a membrane contactor with a gas loop that was analyzed with a Licor 6262 infrared CO2/H2O analyzer. One-minute averages were recorded and the mole fraction of CO2 (xCO2) at sea surface temperature was calculated. The system was calibrated with standard gases traceable to CMDL every two hours; at that time absolute zero and atmospheric samples were also collected. (G. Friederich, MBARI)

4) Taxon-specific pigments: Water samples were collected from a depth of 10 m for the analysis of taxon-specific pigments (chlorophylls and carotenoids) by high-pressure liquid chromatography. (R. Goericke, SIO)

TABULATED DATA

CTD/Rosette Cast Data

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

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

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

Primary Productivity Data

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

Macrozooplankton Data

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

FOOTNOTES

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

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

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FIGURES

Cruise 0401

1. CalCOFI Cruise 0401 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.

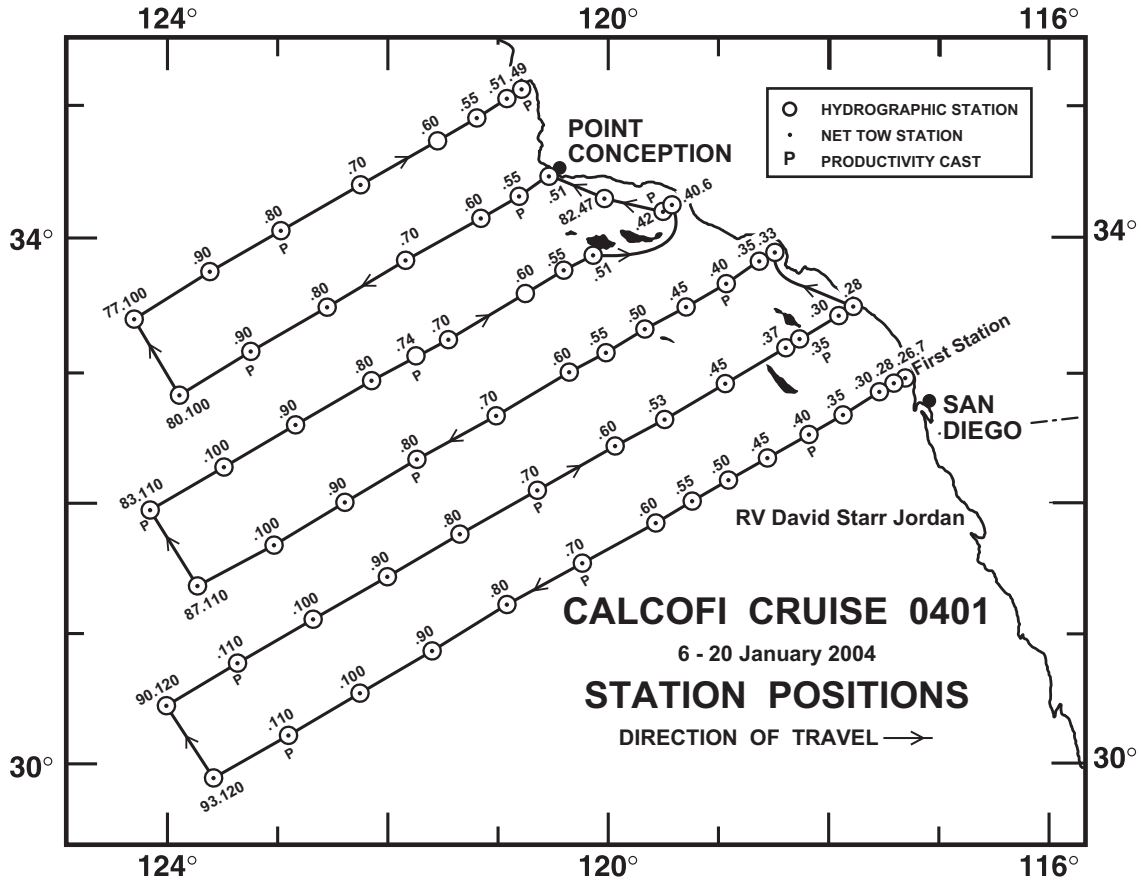


FIGURE 1

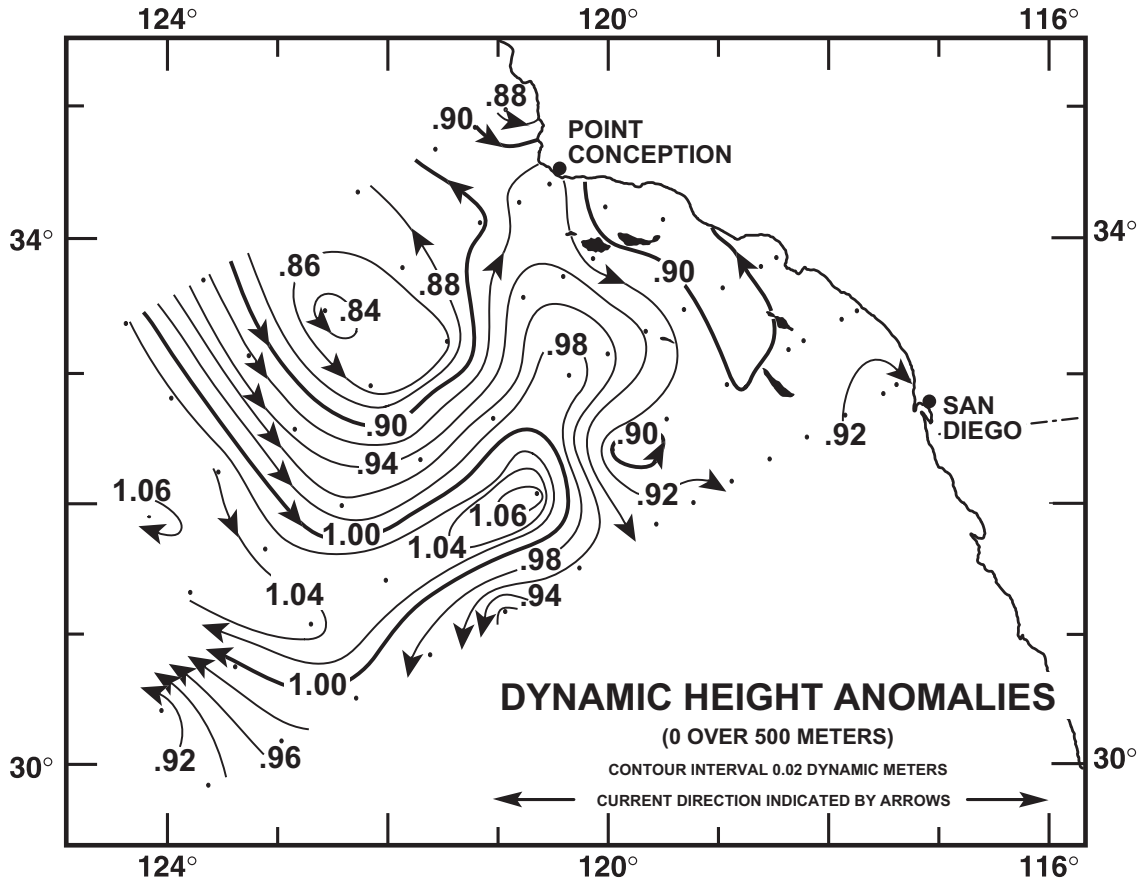


FIGURE 2

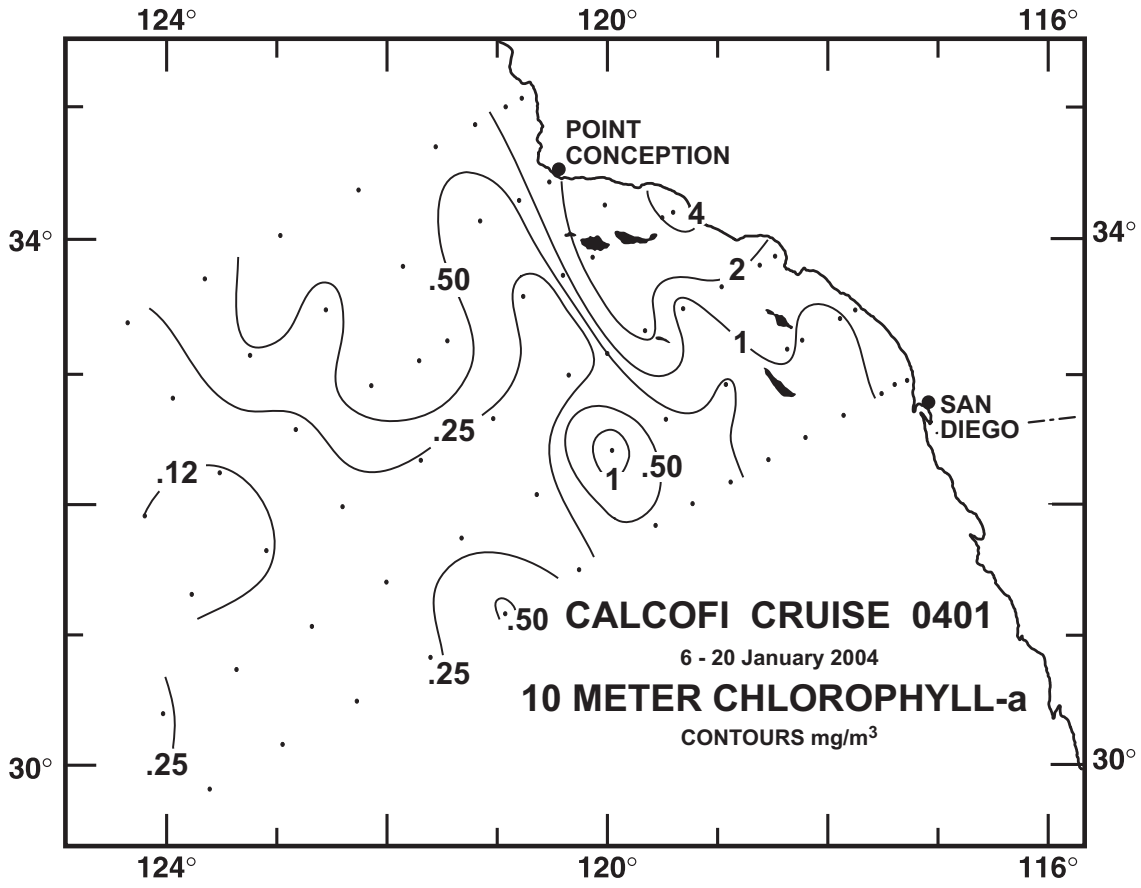


FIGURE 3A

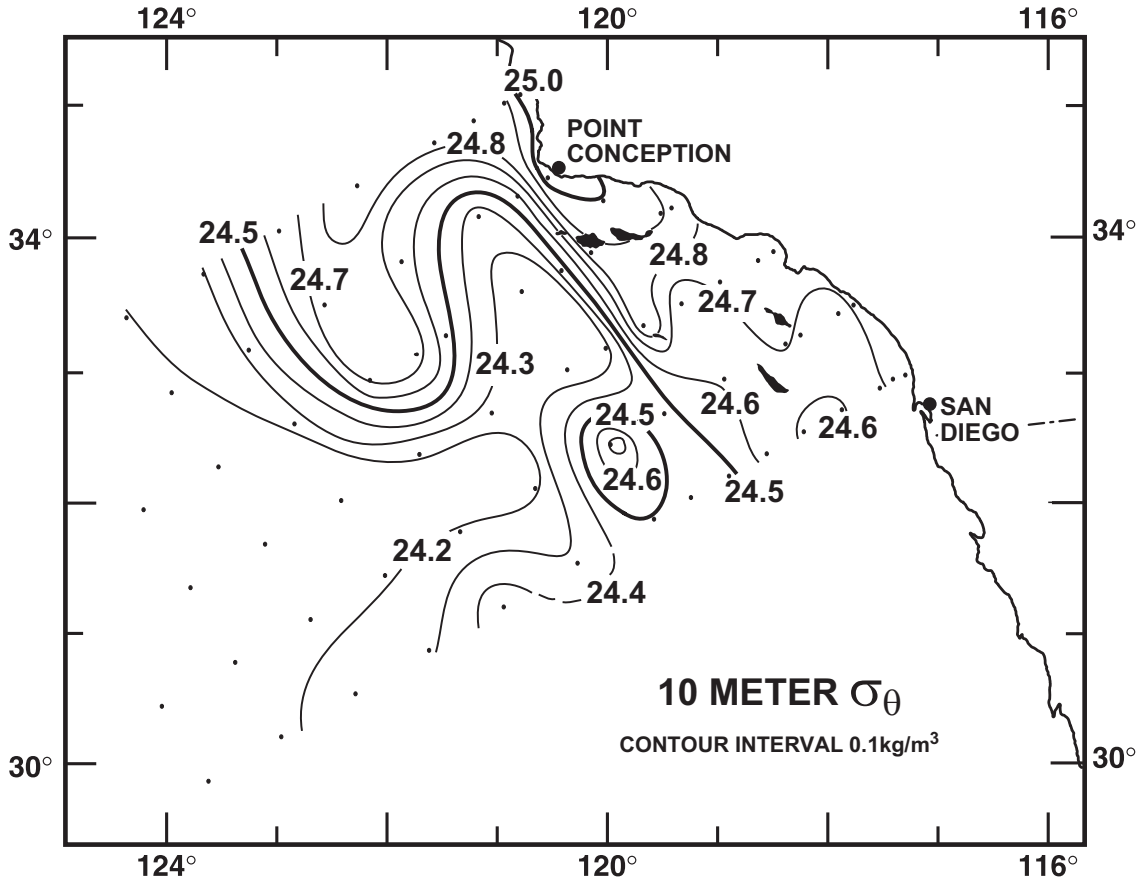


FIGURE 3B

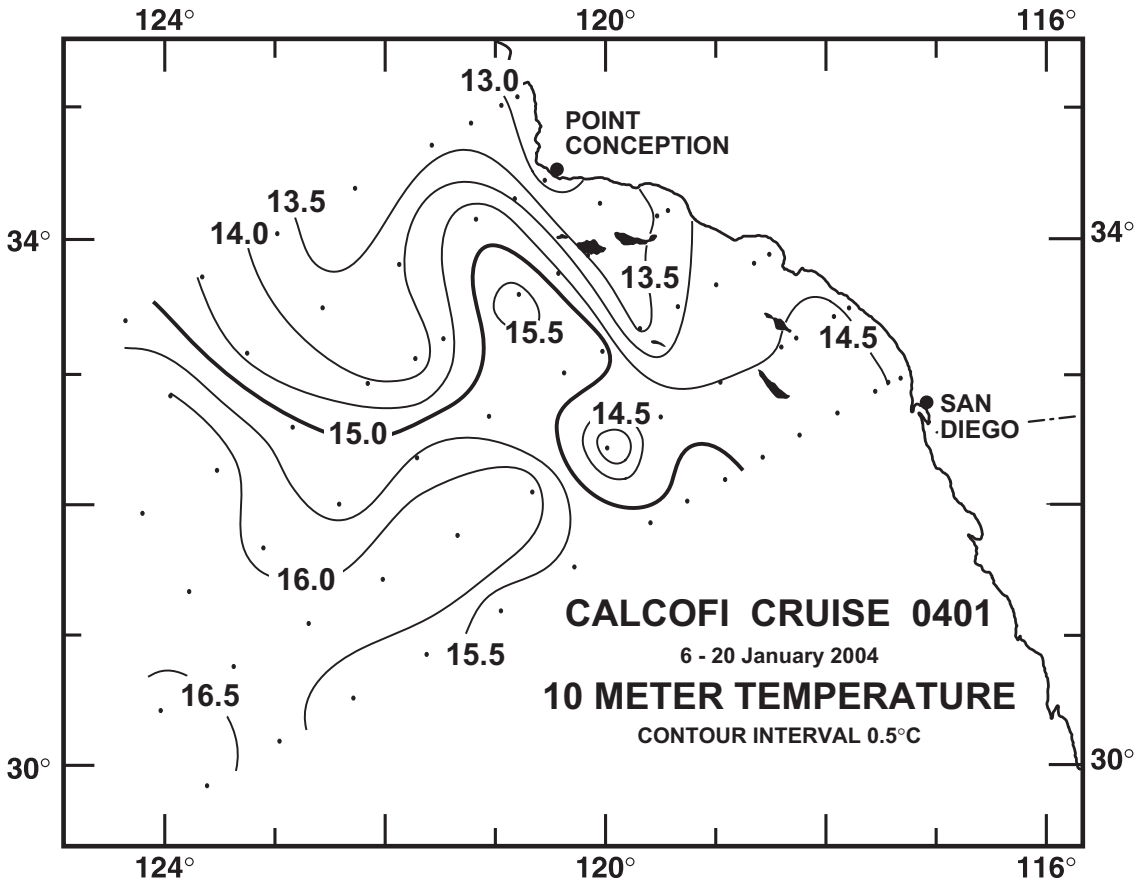


FIGURE 3C

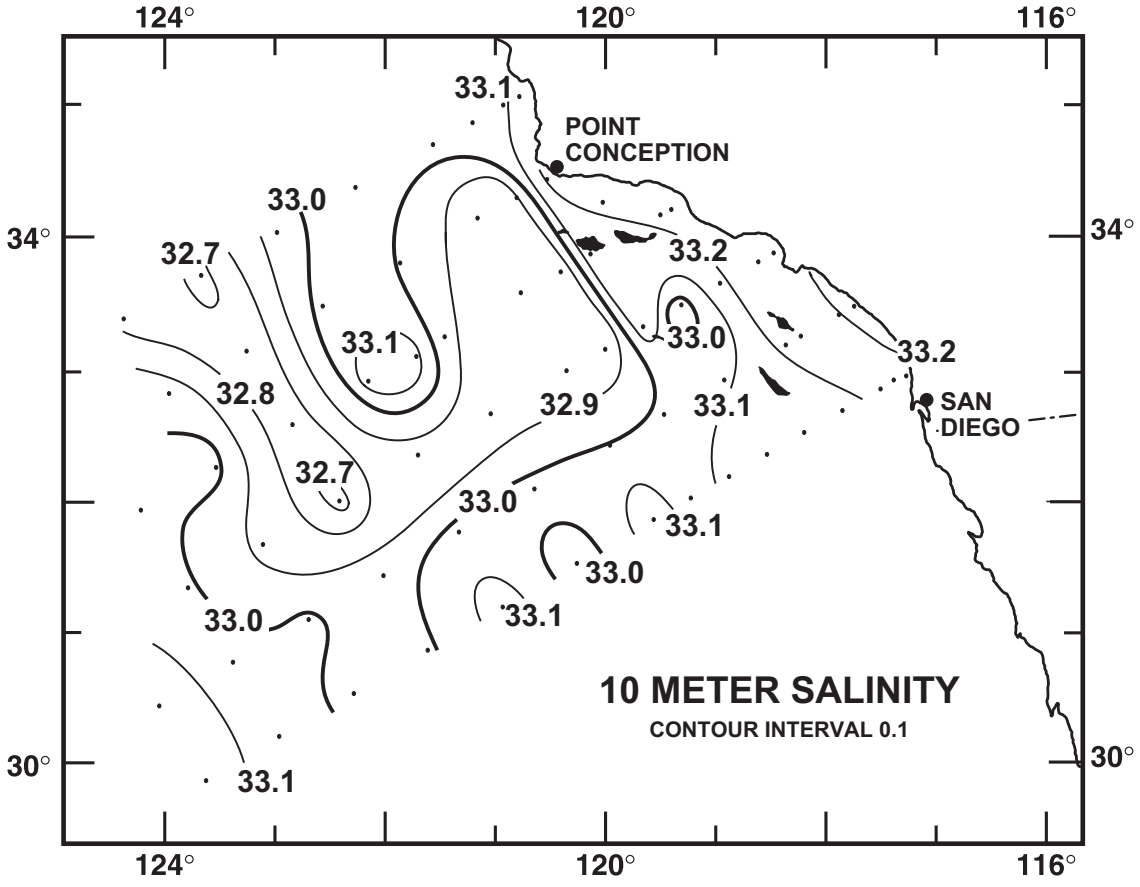


FIGURE 3D

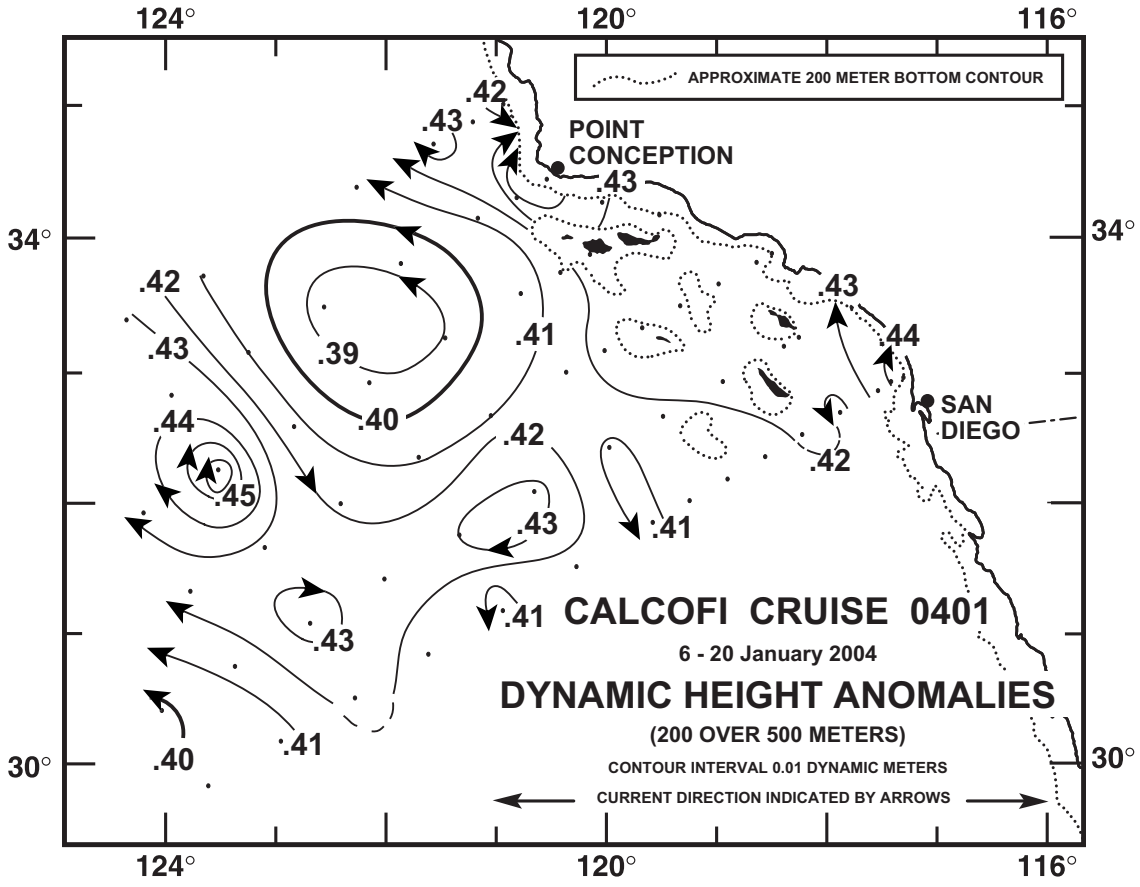


FIGURE 4A

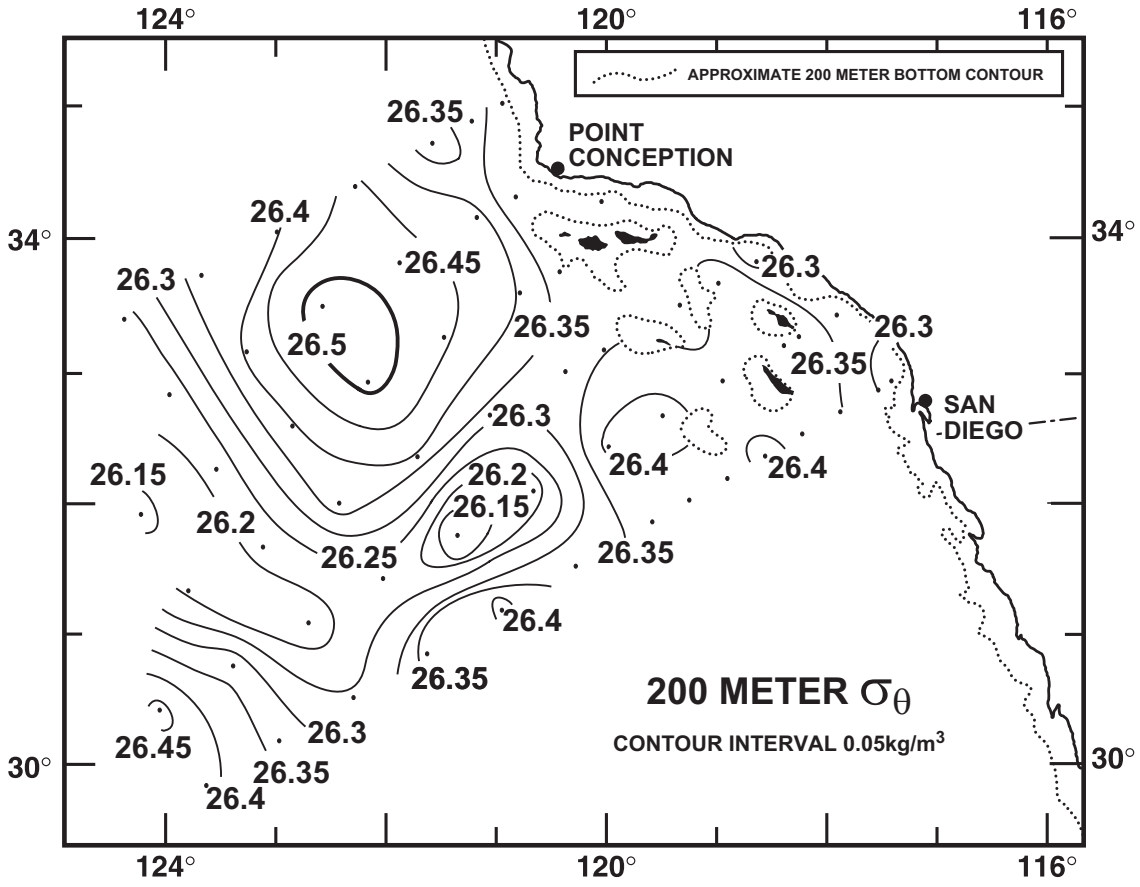


FIGURE 4B

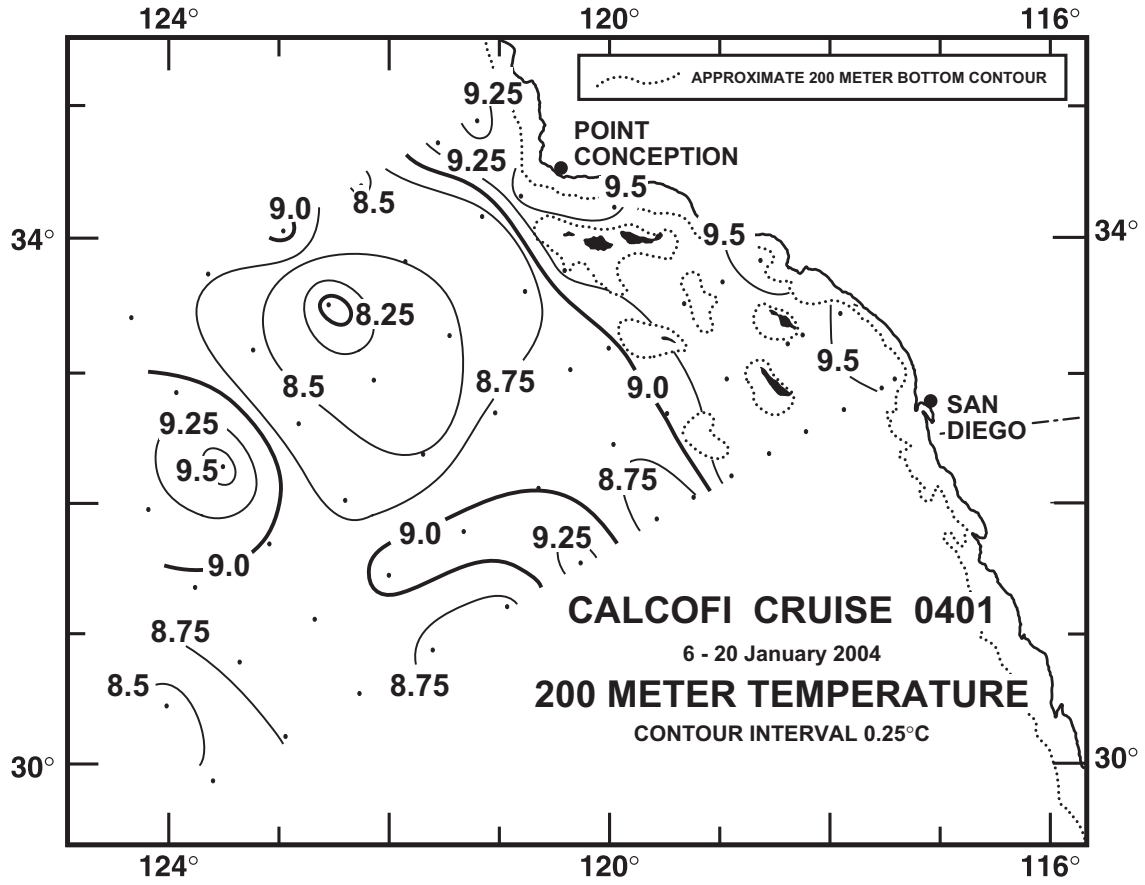


FIGURE 4C

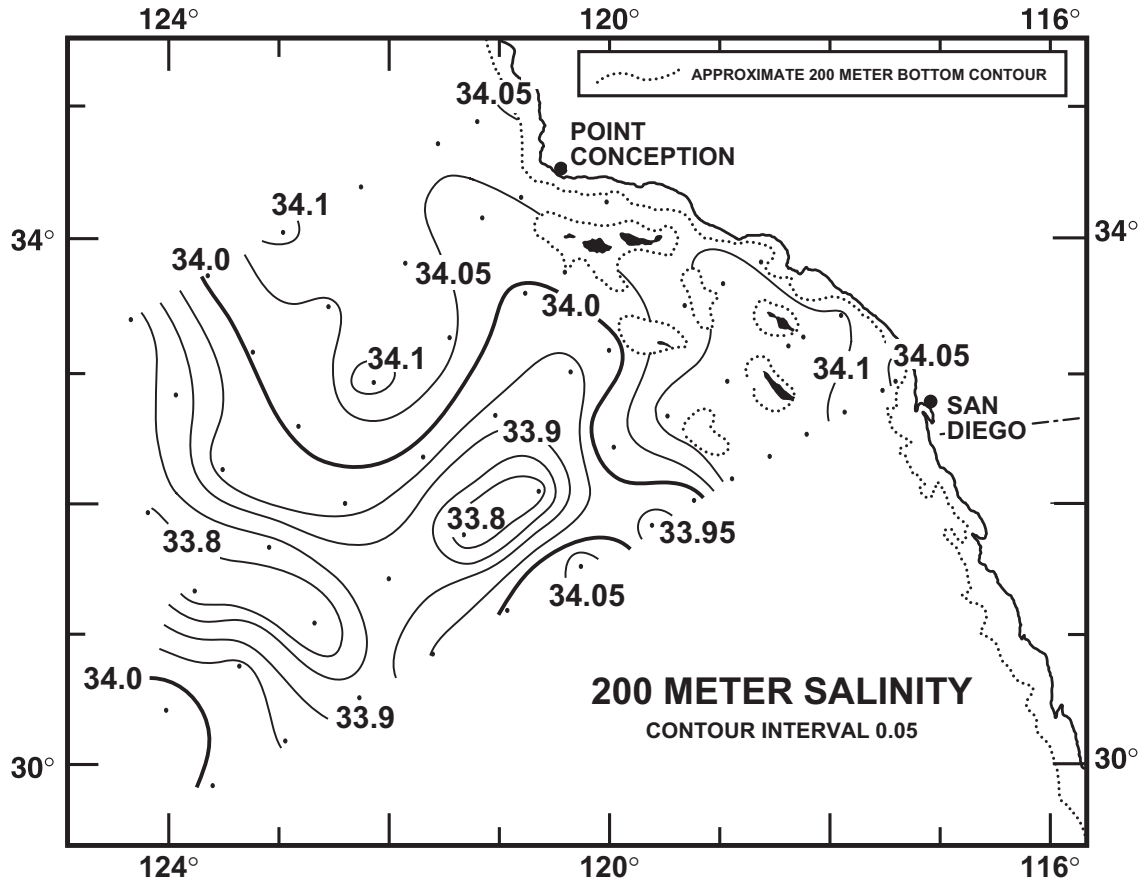


FIGURE 4D

CALCOFI CRUISE 0401

9 - 12 January 2004

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

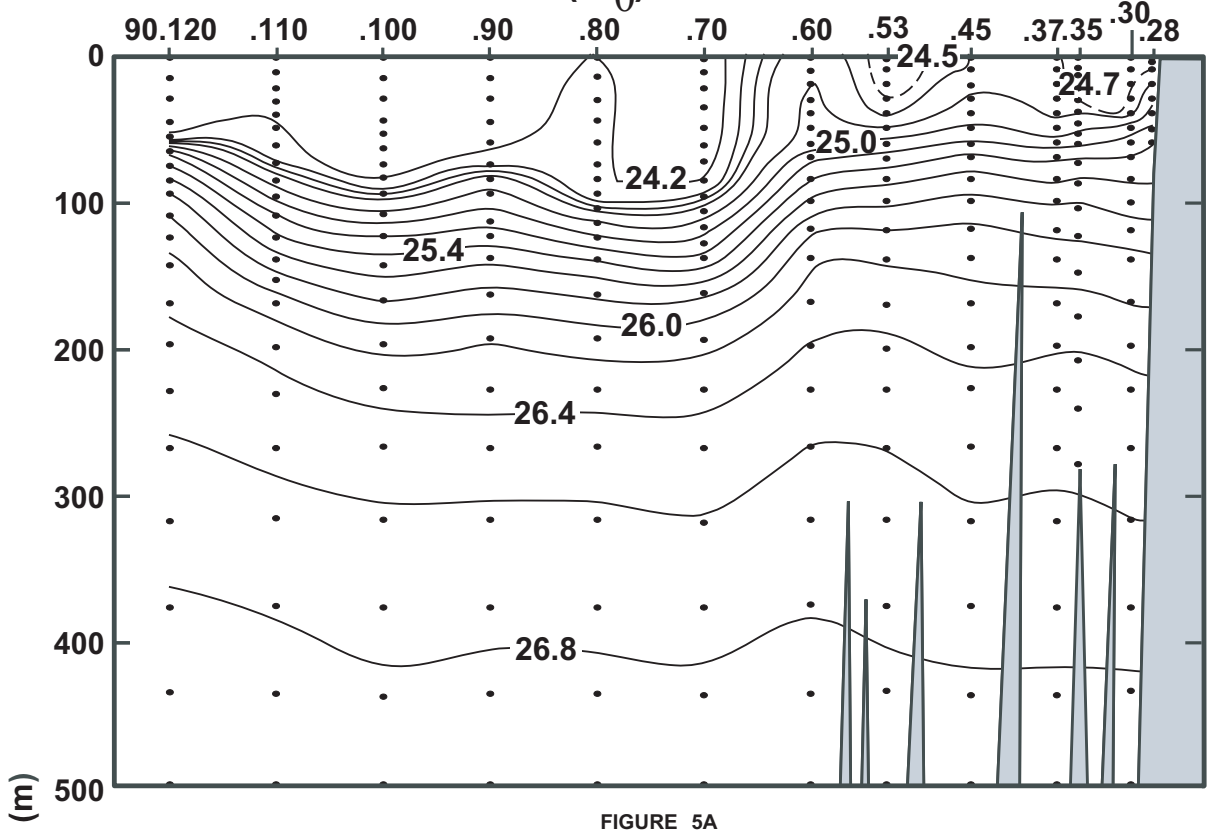


FIGURE 5A

TEMPERATURE (^{o}C) ALONG CALCOFI LINE 90

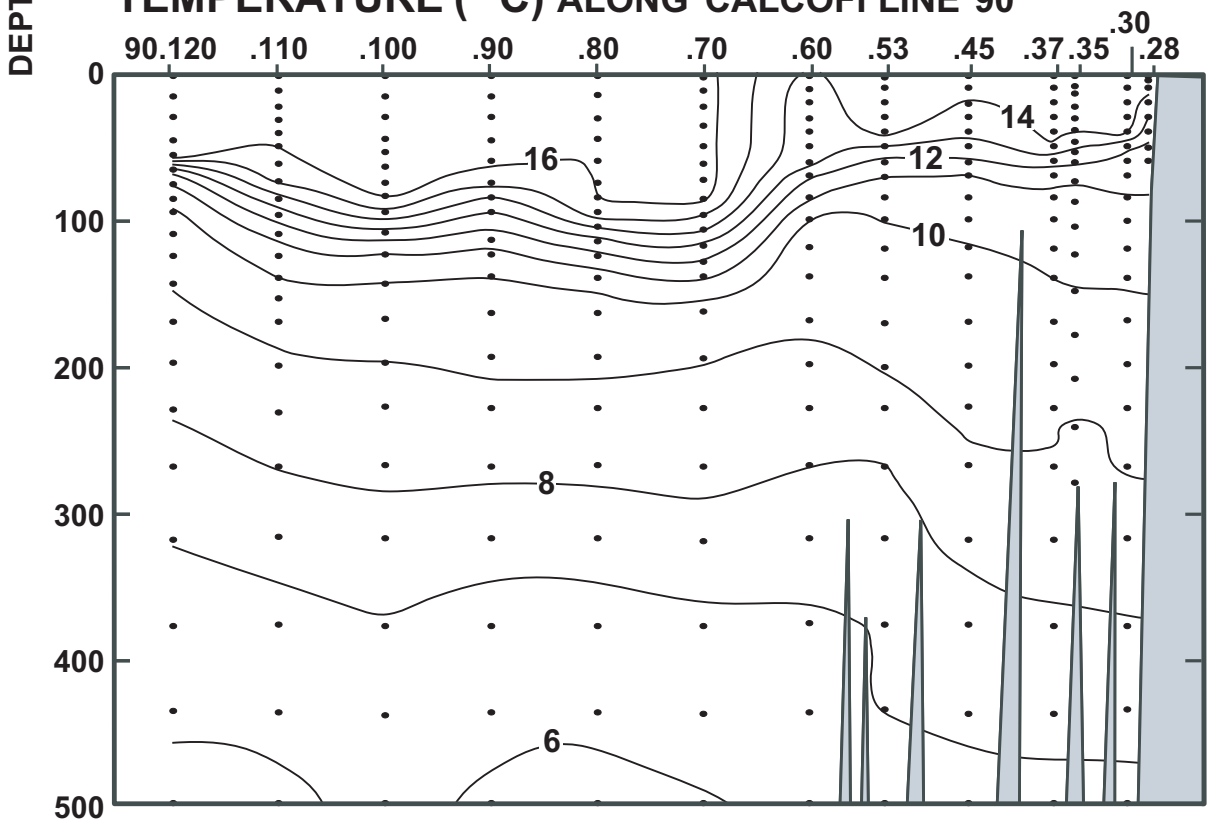


FIGURE 5B

CALCOFI CRUISE 0401

09 - 12 January 2004

SALINITY ALONG CALCOFI LINE 90

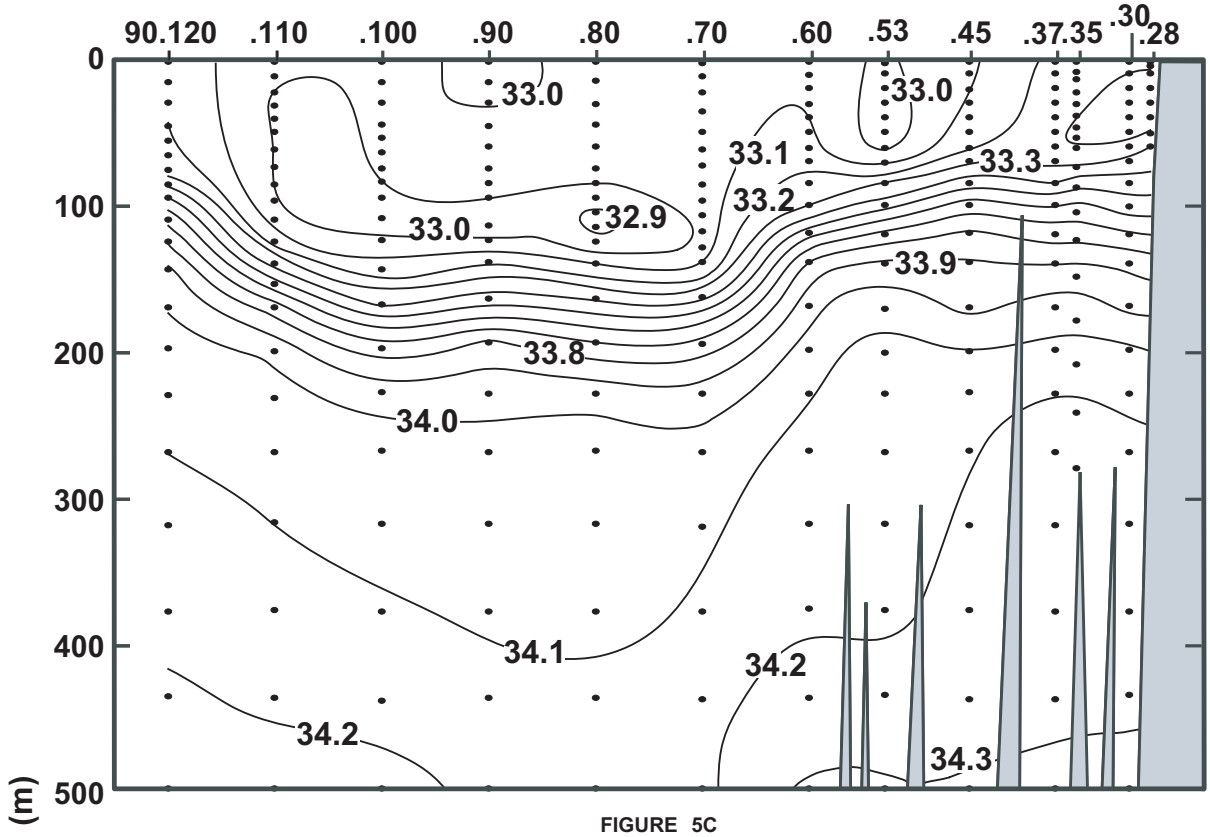


FIGURE 5C

SILICATE (μM/L) ALONG CALCOFI LINE 90

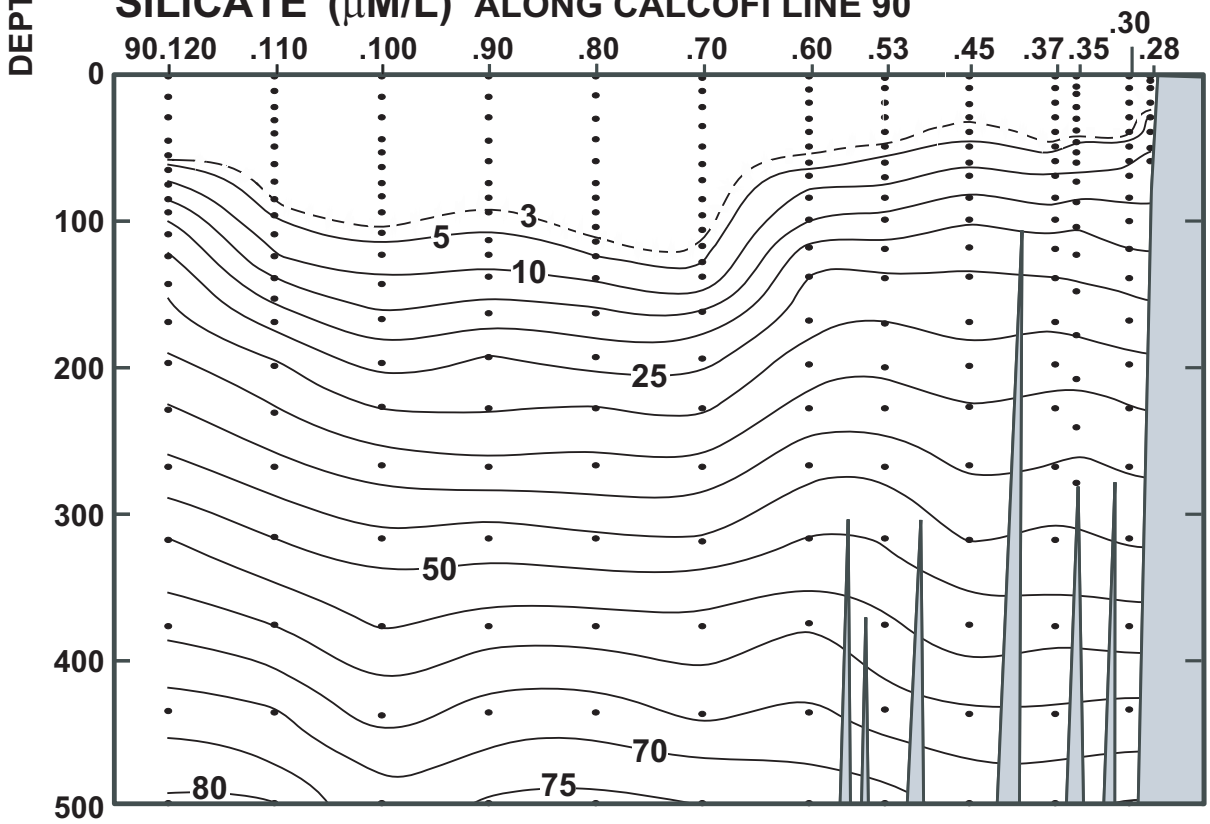


FIGURE 5D

CALCOFI CRUISE 0401

09 - 12 January 2004

NITRATE (μM/L) ALONG CALCOFI LINE 90

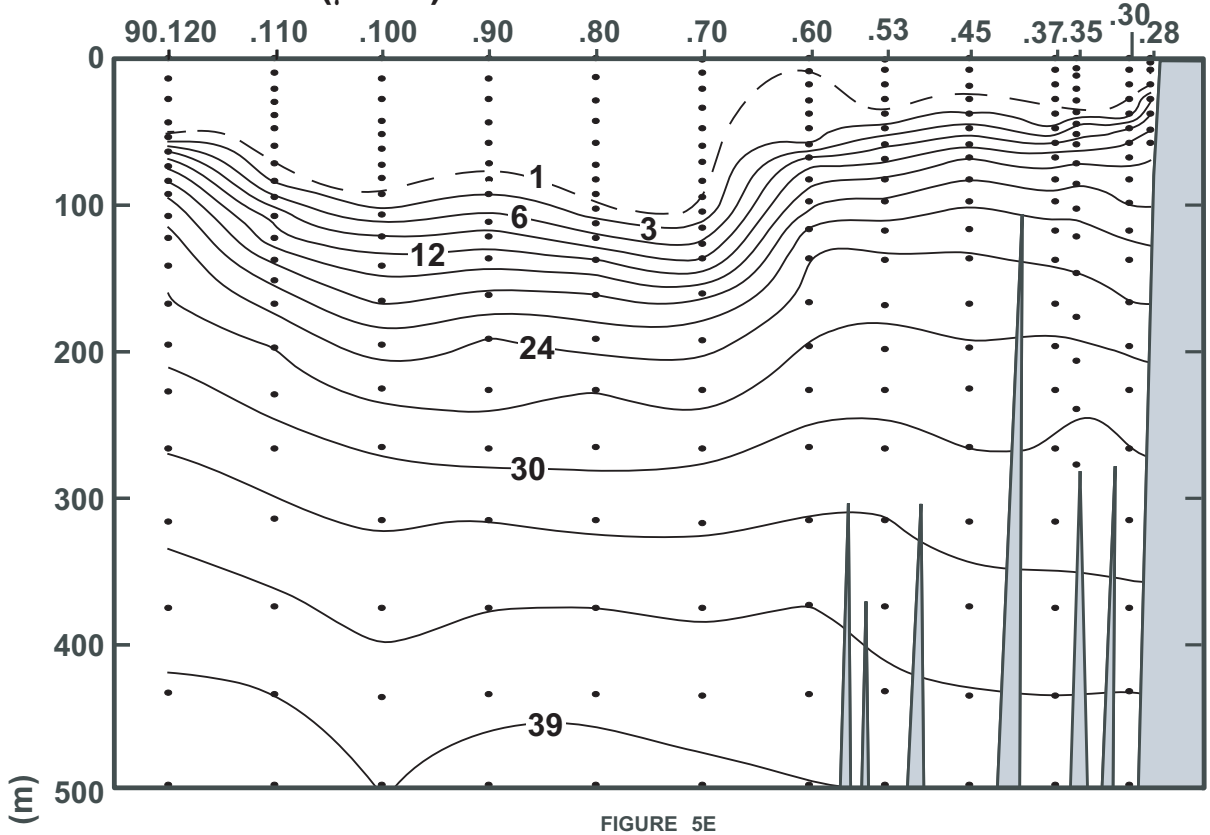


FIGURE 5E

PHOSPHATE (μM/L) ALONG CALCOFI LINE 90

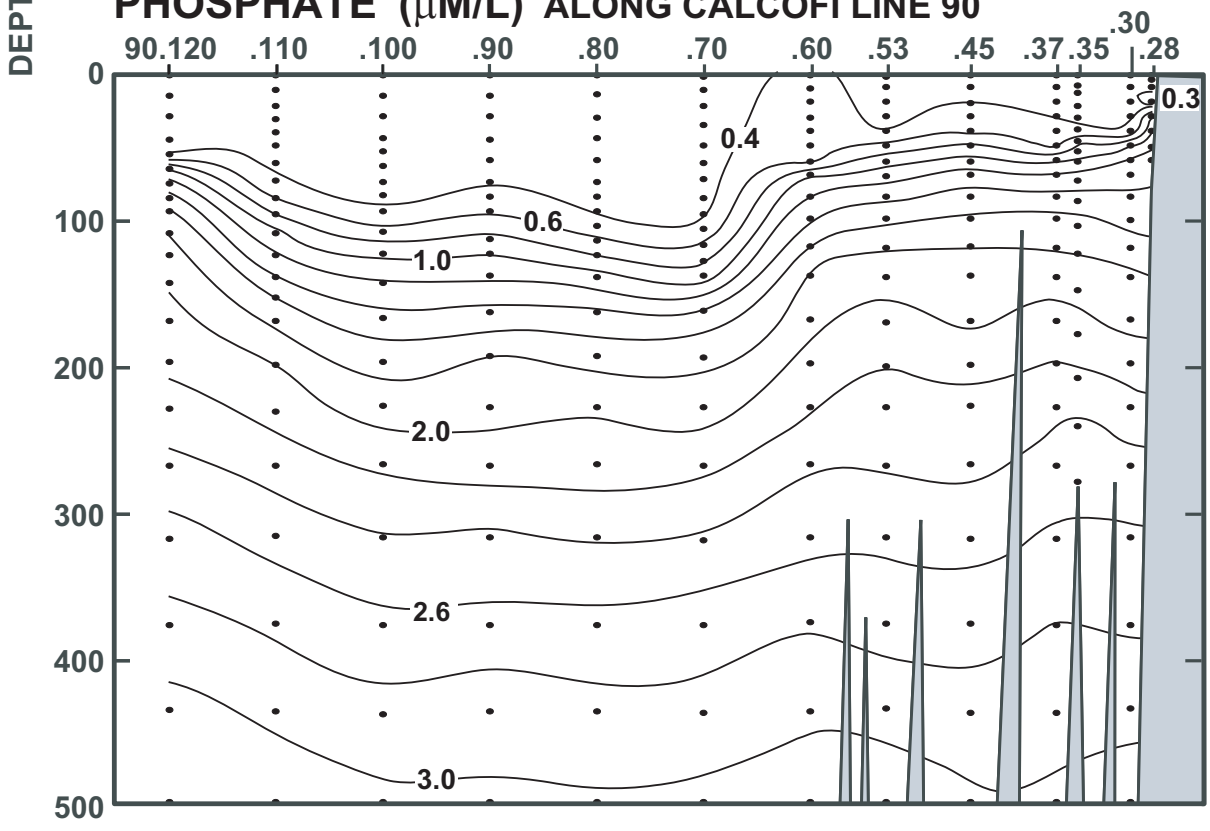


FIGURE 5F

CALCOFI CRUISE 0401

09 - 12 January 2004

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

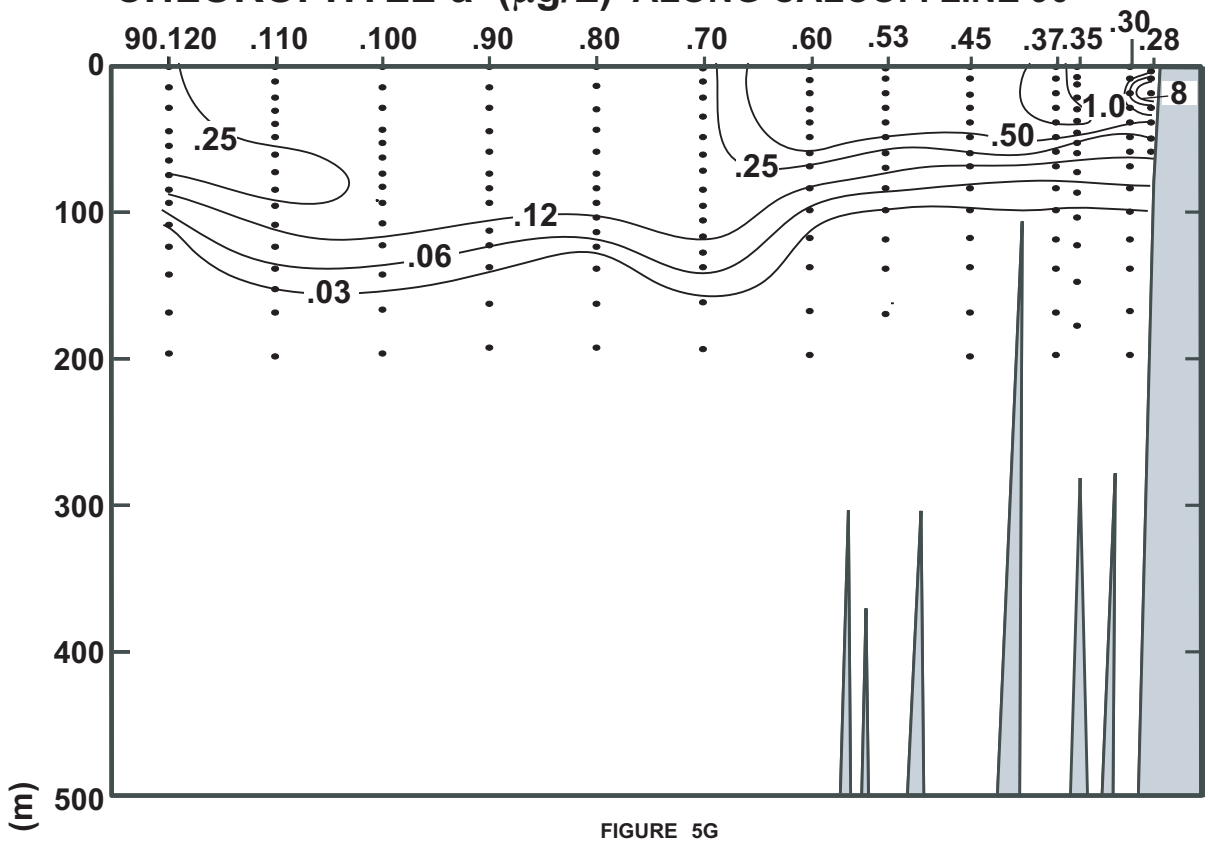


FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

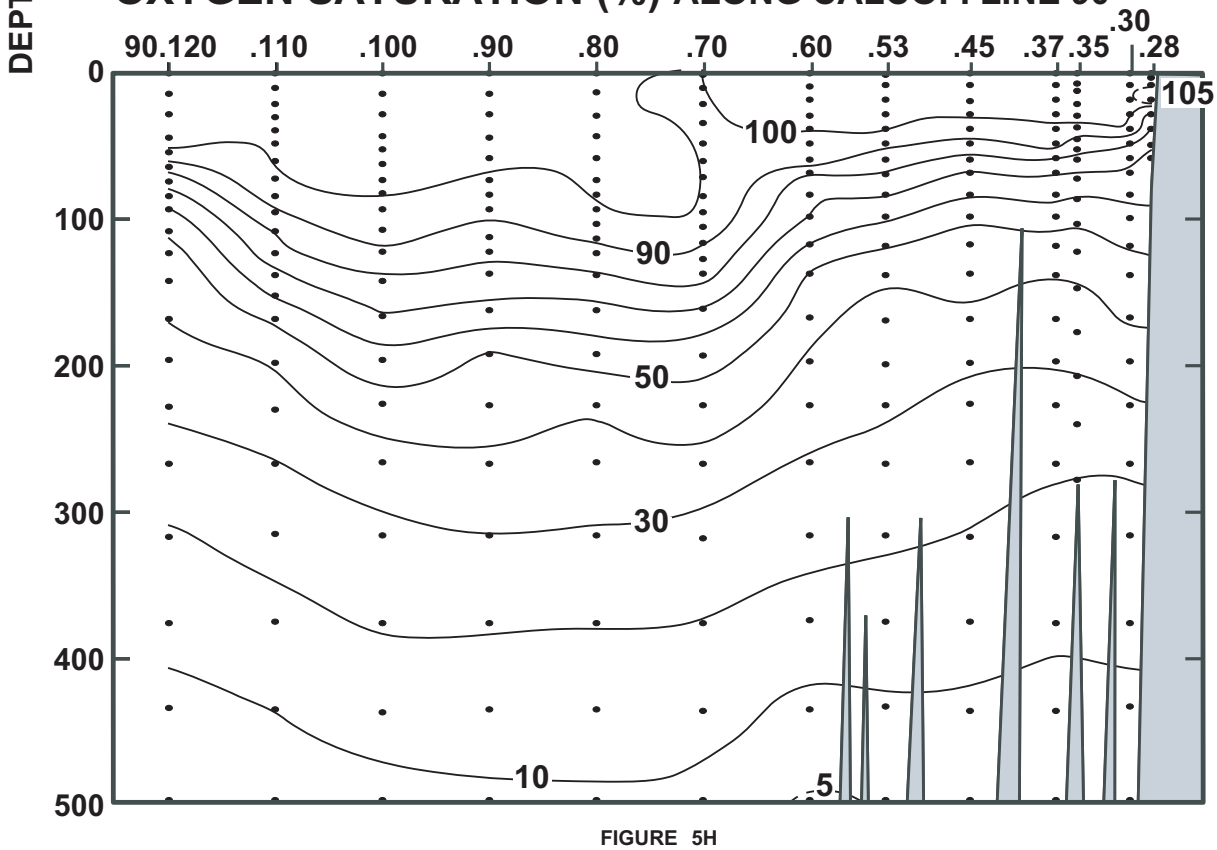


FIGURE 5H

CALCOFI CRUISE 0401

09 - 12 January 2004

OXYGEN (mL/L) ALONG CALCOFI LINE 90

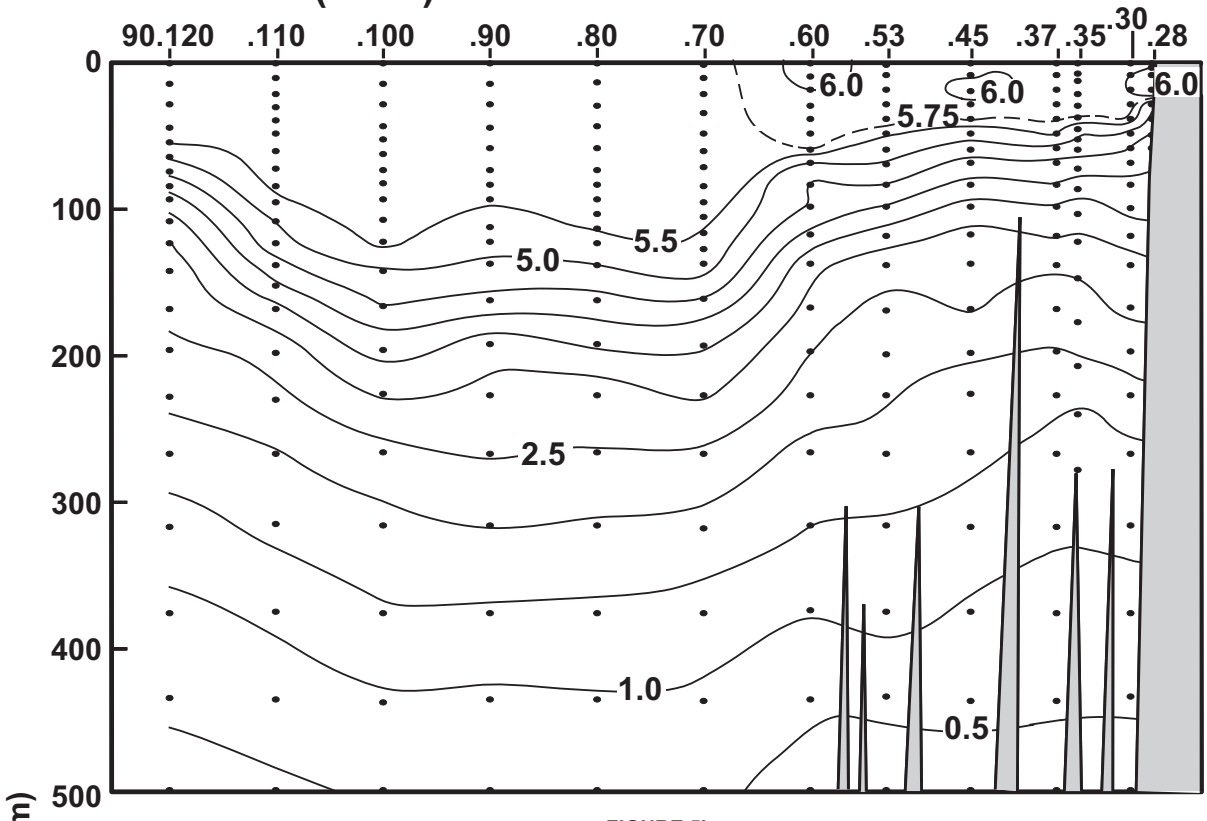


FIGURE 5I

NITRITE (μM/L) ALONG CALCOFI LINE 90

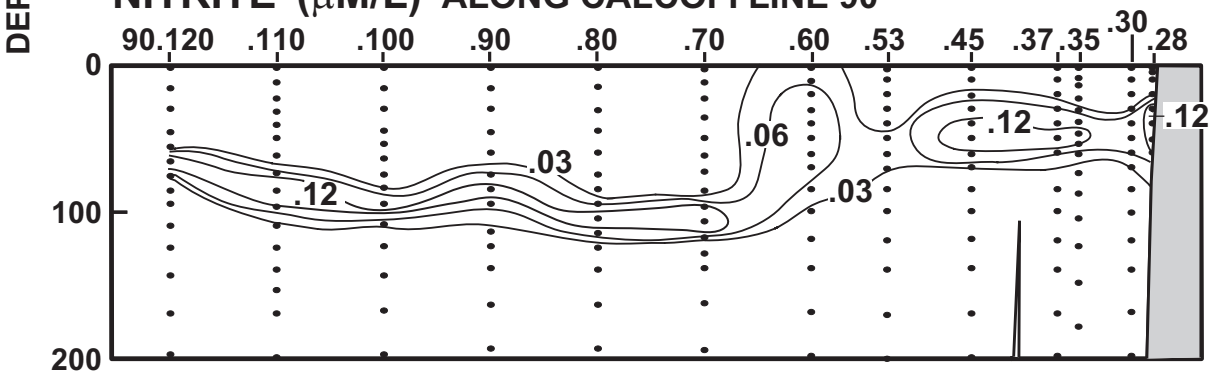


FIGURE 5J

PHAEOPIGMENTS (μg/L) ALONG CALCOFI LINE 90

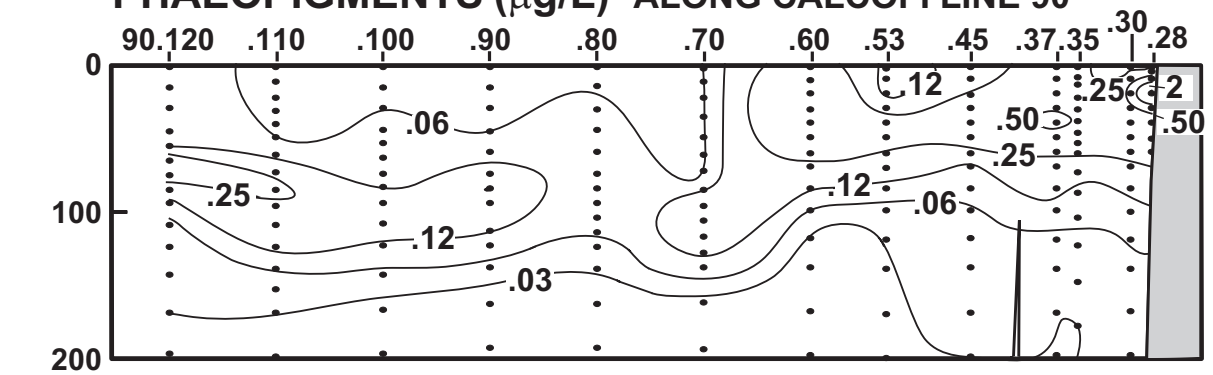


FIGURE 5K

PERSONNEL

CalCOFI Cruise 0401

SHIP'S CAPTAIN

	Participating (Legs)
Brian Parker, RV *David Starr Jordan*	1
Stephen J. Thumm, RV *David Starr Jordan*	2,3,4

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

		Participating (Legs)
Hays, Amy E. (Chief Scientist)	Fishery Biologist, NMFS	1,2,3
Blum, Marguerite	Staff Research Associate, UCSC	3,4
Bradley, Russell	Marine Biologist, Pt. Reyes Bird Observatory	1,2,3
Dotson, Ronald C.	Fishery Biologist, NMFS	1,2,3
Griffith, David A.	Fishery Biologist, NMFS	1
Growney, Valerie A.	Biological Technician, Aquatic Farms	2,3,4
Manion, Susan M.	Fishery Biologist, NMFS	1,2
Mulson, Jason	Laboratory Assistant, UCSC	3,4
Powell, Jesse R.	Staff Research Associate, SIO	1,2
Ramirez, Fernando	Staff Research Associate, SIO	1,2
Schuller, Daniel	Staff Research Associate, SIO	1,2
Sheldon, Jennifer L.	Scientific Aid, Cal. Dept. Fish and Game	1,2
Wilkinson, James R.	Staff Research Associate, SIO	1,2
Wolgast, David M.	Staff Research Associate, SIO	1,2

Leg 1: San Diego to Dana Point, California, 5-11 January, 2004
Leg 2: Dana Point to Avila Beach, California, 11-20 January, 2004
Leg 3: Avila Beach to Monterey, California, 20-23 January, 2004
Leg 4: Monterey to San Diego, California, 23-30 January, 2004

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 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 46.4 W	20/01/04	1829 UTC	66 m	230 02 kn	300 07 08	1	1017.2 mb	14.8 C	12.0 C	16m	1/8	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	12.65	12.65	33.153	25.031	291.8	0.000	5.85	96.9	3.7	0.57	3.9	0.19	1.33	0.49	0	
2	A	12.65	12.65	33.153	25.031	291.8	0.006	5.85	96.9	3.7	0.57	3.9	0.19	1.33	0.49	2	208
5		12.71	12.71	33.156	25.022	292.8	0.015	5.86	97.2	3.5	0.55	3.8	0.20	1.33	0.48	5	207
10	ISL	12.61	12.61	33.157	25.042	291.0	0.029	5.85	96.8	3.6	0.57	4.0	0.21	1.52	0.51	10	
12	A	12.57	12.57	33.158	25.051	290.2	0.035	5.84	96.6	3.7	0.58	4.1	0.21	1.59	0.52	12	206
18		12.16	12.16	33.194	25.157	280.2	0.052	5.35	87.7	6.5	0.81	7.3	0.29	0.62	0.68	18	205
20	ISL	12.10	12.10	33.199	25.173	278.8	0.058	5.28	86.5	6.9	0.84	7.7	0.30	0.60	0.58	20	
25	A	12.01	12.01	33.212	25.200	276.4	0.072	5.16	84.3	7.5	0.89	8.4	0.31	0.55	0.28	25	204
30	ISL	11.91	11.91	33.258	25.255	271.3	0.085	4.90	79.9	9.0	0.99	9.7	0.36	0.46	0.34	30	
37	A	11.80	11.80	33.321	25.324	264.8	0.104	4.57	74.4	11.1	1.13	11.3	0.43	0.34	0.43	37	203
48	A	11.71	11.70	33.329	25.347	262.9	0.133	4.48	72.8	12.0	1.19	11.8	0.40	0.35	0.47	48	202
50	ISL	11.71	11.70	33.330	25.348	262.9	0.138	4.48	72.8	12.1	1.19	11.8	0.40	0.35	0.50	50	
62	A	11.68	11.67	33.335	25.358	262.3	0.170	4.46	72.4	12.5	1.22	12.1	0.39	0.34	0.71	62	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 77 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
35 1.4 N	120 55.1 W	20/01/04	1538 UTC	238 m	050 07 kn	290 05 06	1	1016.9 mb	12.1 C	10.1 C	15m	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	13.20	13.20	33.068	24.857	308.3	0.000	6.10	102.1	1.9	0.40	1.1	0.08	1.23	0.34	0	
2		13.20	13.20	33.068	24.857	308.4	0.006	6.10	102.1	1.9	0.40	1.1	0.08	1.23	0.34	2	215
10		13.20	13.20	33.071	24.860	308.4	0.031	6.11	102.3	1.9	0.40	1.1	0.08	1.29	0.37	10	214
20	ISL	13.14	13.14	33.091	24.888	306.0	0.062	6.08	101.7	2.1	0.42	1.4	0.10	1.06	0.37	20	
21		13.13	13.13	33.093	24.891	305.7	0.065	6.08	101.7	2.1	0.42	1.4	0.10	1.03	0.37	21	213
30		12.94	12.94	33.107	24.940	301.3	0.092	5.96	99.3	2.5	0.51	2.4	0.17	0.85	0.41	30	212
40		12.78	12.77	33.153	25.007	295.1	0.122	5.78	96.0	3.4	0.62	3.4	0.27	0.86	0.49	40	211
50	ISL	12.27	12.26	33.184	25.130	283.7	0.151	5.25	86.3	6.1	0.85	7.4	0.44	0.45	0.34	50	
51		12.17	12.16	33.186	25.150	281.8	0.154	5.18	84.9	6.6	0.88	8.0	0.44	0.40	0.32	51	210
60		10.27	10.26	33.213	25.513	247.3	0.177	4.47	70.4	13.4	1.37	16.2	0.03	0.11	0.14	60	209
71		10.10	10.09	33.349	25.648	234.7	0.204	4.16	65.3	15.6	1.46	17.8	0.02	0.07	0.14	71	208
75	ISL	10.19	10.18	33.429	25.695	230.3	0.213	3.89	61.2	17.0	1.53	18.5	0.02	0.06	0.14	75	
85		10.42	10.41	33.621	25.806	220.0	0.236	3.22	51.0	20.7	1.71	20.3	0.02	0.05	0.14	85	207
100	ISL	10.05	10.04	33.738	25.960	205.6	0.268	2.87	45.1	24.1	1.84	22.5	0.02	0.03	0.15	101	
101		10.02	10.01	33.742	25.969	204.9	0.270	2.86	44.9	24.3	1.85	22.6	0.02	0.03	0.15	102	206
120		9.86	9.85	33.844	26.076	195.1	0.308	2.54	39.8	26.9	1.97	24.1	0.04	0.03	0.14	121	205
125	ISL	9.82	9.81	33.867	26.100	192.9	0.317	2.47	38.6	27.5	1.99	24.5	0.04	0.03	0.13	126	
139		9.71	9.69	33.921	26.161	187.4	0.344	2.30	35.9	29.0	2.05	25.4	0.02	0.02	0.11	140	204
150	ISL	9.66	9.64	33.943	26.187	185.2	0.364	2.24	34.9	29.7	2.08	25.8	0.02	0.02	0.11	151	
170		9.57	9.55	33.972	26.224	182.0	0.401	2.17	33.8	30.8	2.12	26.2	0.03	0.02	0.10	171	203
200		9.31	9.29	34.045	26.324	173.1	0.454	1.98	30.7	33.6	2.19	27.4	0.03	0.01	0.09	201	202
231		8.81	8.79	34.120	26.463	160.3	0.506	1.73	26.5	39.0	2.34	29.4	0.04			232	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 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 11.6 W	20/01/04	1157 UTC	569 m	030 14 kn			1017.1 mb	12.5 C	11.0 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	13.24	13.24	33.074	24.854	308.7	0.000	6.01	100.7	2.8	0.48	1.6	0.16	0.68	0.26	0	
2		13.24	13.24	33.074	24.854	308.7	0.006	6.01	100.7	2.8	0.48	1.6	0.16	0.68	0.26	2	220
10	ISL	13.25	13.25	33.075	24.853	309.0	0.031	6.01	100.7	2.8	0.48	1.6	0.16	0.71	0.20	10	
11		13.25	13.25	33.075	24.853	309.0	0.034	6.01	100.7	2.8	0.48	1.6	0.16	0.71	0.19	11	219
20		13.25	13.25	33.077	24.855	309.1	0.062	6.01	100.7	2.7	0.48	1.6	0.16	0.66	0.24	20	218
30	ISL	13.24	13.24	33.082	24.861	308.8	0.093	6.00	100.5	2.8	0.48	1.7	0.16	0.67	0.22	30	
31		13.24	13.24	33.082	24.861	308.8	0.096	6.00	100.5	2.8	0.48	1.7	0.16	0.67	0.22	31	217
40		13.21	13.20	33.082	24.867	308.5	0.124	5.99	100.3	2.8	0.49	1.8	0.18	0.59	0.22	40	216
49		13.17	13.16	33.080	24.874	308.1	0.151	5.91	98.9	2.9	0.52	2.4	0.21	0.51	0.25	49	215
50	ISL	13.09	13.08	33.082	24.891	306.4	0.154	5.84	97.6	3.2	0.56	3.0	0.20	0.48	0.25	50	
60		12.20	12.19	33.120	25.094	287.4	0.184	5.14	84.3	6.4	0.93	9.1	0.09	0.22	0.22	60	214
70		12.02	12.01	33.146	25.148	282.4	0.213	5.09	83.2	7.3	0.96	9.6	0.15	0.24	0.20	70	213
75	ISL	11.59	11.58	33.158	25.237	274.0	0.226	4.90	79.3	8.8	1.08	11.5	0.11	0.20	0.18	75	
85		10.64	10.63	33.221	25.456	253.3	0.253	4.41	70.0	12.7	1.38	16.2	0.02	0.11	0.15	85	212
100		9.99	9.98	33.456	25.750	225.5	0.289	3.75	58.7	18.4	1.63	20.3	0.01	0.04	0.11	100	211
120		9.58	9.57	33.667	25.984	203.8	0.332	3.29	51.1	22.8	1.77	22.7	0.01	0.02	0.08	121	210
125	ISL	9.59	9.58	33.735	26.035	199.0	0.342	3.07	47.7	24.1	1.83	23.4	0.01	0.02	0.08	126	
140		9.68	9.66	33.918	26.164	187.2	0.371	2.44	38.1	27.7	2.01	25.5	0.01	0.01	0.09	141	209
150	ISL	9.66	9.64	33.977	26.213	182.7	0.389	2.25	35.1	29.0	2.07	26.2	0.01	0.01	0.08	151	
170		9.52	9.50	34.033	26.280	176.7	0.425	2.10	32.7	30.9	2.13	27.0	0.01	0.01	0.05	171	208
200		9.18	9.16	34.097	26.386	167.2	0.477	1.94	30.0	34.0	2.21	28.4	0.01	0.01	0.04	201	207
230		8.87	8.85	34.153	26.480	158.8	0.526	1.72	26.4	37.7	2.32	29.6	0.01			231	206
250	ISL	8.71	8.68	34.170	26.518	155.4	0.557	1.62	24.8	39.6	2.37	30.3	0.01			251	
269		8.56	8.53	34.175	26.546	153.1	0.586	1.56	23.8	41.2	2.40	30.9	0.01			271	205
300	ISL	8.18	8.15	34.162	26.594	148.9	0.633	1.53	23.1	44.1	2.45	32.0	0.00			302	
320		7.92	7.89	34.154	26.626	146.0	0.663	1.50	22.5	46.3	2.49	32.7	0.00			322	204
380		7.28	7.24	34.195	26.751	134.8	0.747	1.00	14.8	55.7	2.73	35.5	0.00			382	203
400	ISL	7.14	7.10	34.204	26.778	132.5	0.774	0.90	13.3	58.1	2.78	36.1	0.00			403	
437		6.90	6.86	34.218	26.822	128.7	0.822	0.76	11.1	62.3	2.85	37.1	0.00			440	202
500	ISL	6.38	6.33	34.240	26.909	120.8	0.901	0.54	7.8	71.1	2.99	38.9	0.01			503	
514		6.26	6.21	34.245	26.929	119.1	0.917	0.49	7.1	73.0	3.02	39.3	0.01			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 77 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
34 43.2 N	121 32.9 W	20/01/04	0742 UTC	945 m	330 25 kn			1018.0 mb	12.9 C	11.9 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	13.26	13.26	33.040	24.824	311.5	0.000	5.92	99.2	2.8	0.50	1.9	0.13	0.59	0.28	0	
2		13.26	13.26	33.040	24.824	311.6	0.006	5.92	99.2	2.8	0.50	1.9	0.13	0.59	0.28	2	220
10	ISL	13.26	13.26	33.041	24.825	311.7	0.031	5.91	99.1	2.8	0.50	1.9	0.13	0.60	0.28	10	
12		13.26	13.26	33.041	24.825	311.8	0.037	5.91	99.1	2.8	0.50	1.9	0.13	0.61	0.28	12	219
20	ISL	13.27	13.27	33.044	24.825	311.9	0.062	5.94	99.6	2.8	0.49	1.8	0.13	0.63	0.26	20	
21		13.27	13.27	33.044	24.825	312.0	0.065	5.94	99.6	2.8	0.49	1.8	0.13	0.63	0.26	21	218
30	ISL	13.24	13.24	33.039	24.828	312.0	0.094	5.90	98.8	2.8	0.51	2.0	0.13	0.58	0.24	30	
31		13.24	13.24	33.038	24.827	312.1	0.097	5.89	98.7	2.8	0.51	2.1	0.13	0.57	0.24	31	217
40		13.10	13.09	33.011	24.834	311.6	0.125	5.79	96.7	3.1	0.56	2.9	0.13	0.51	0.22	40	216
50	ISL	12.36	12.35	32.965	24.943	301.5	0.155	5.51	90.6	4.4	0.75	5.6	0.13	0.30	0.25	50	
51		12.26	12.25	32.964	24.961	299.8	0.158	5.47	89.7	4.6	0.78	6.0	0.13	0.28	0.25	51	215
61		11.11	11.10	33.063	25.250	272.4	0.187	4.96	79.4	8.7	1.09	11.5	0.05	0.19	0.18	61	214
71		10.60	10.59	33.316	25.537	245.3	0.213	4.20	66.6	14.1	1.39	16.2	0.02	0.12	0.15	71	213
75	ISL	10.38	10.37	33.363	25.611	238.3	0.223	4.07	64.3	15.4	1.46	17.4	0.02	0.09	0.14	75	
86		9.89	9.88	33.430	25.747	225.6	0.248	3.91	61.1	17.7	1.58	19.5	0.01	0.04	0.11	86	212
100	ISL	9.67	9.66	33.504	25.841	216.9	0.279	3.75	58.3	19.3	1.65	20.6	0.01	0.03	0.08	100	
101		9.67	9.66	33.510	25.846	216.5	0.281	3.74	58.2	19.4	1.65	20.7	0.01	0.03	0.08	102	211
121		9.72	9.71	33.714	25.997	202.5	0.323	3.10	48.3	23.0	1.79	22.7	0.01	0.02	0.07	122	210
125	ISL	9.72	9.71	33.750	26.026	199.9	0.331	2.99	46.6	23.7	1.82	23.1	0.01	0.02	0.07	126	
143		9.68	9.66	33.884	26.137	189.7	0.366	2.56	39.9	26.5	1.96	24.7	0.01	0.01	0.08	144	209
150	ISL	9.68	9.66	33.913	26.160	187.7	0.379	2.46	38.4	27.1	1.99	25.1	0.01	0.01	0.08	151	
171		9.64	9.62	33.974	26.215	183.0	0.418	2.25	35.1	28.7	2.06	25.8	0.01	0.01	0.06	172	208
199		9.46	9.44	34.058	26.310	174.4	0.468	2.04	31.7	31.3	2.14	26.9	0.00	0.01	0.06	200	207
200	ISL	9.45	9.43	34.060	26.313	174.2	0.470	2.04	31.7	31.4	2.14	26.9	0.00			201	
230		9.17	9.14	34.104	26.394	167.1	0.521	1.92	29.6	33.9	2.21	27.9	0.00			231	206
250	ISL	9.00	8.97	34.132	26.443	162.7	0.554	1.81	27.8	35.8	2.26	28.7	0.00			251	
269		8.84	8.81	34.155	26.487	158.9	0.585	1.70	26.1	37.7	2.31	29.5	0.00			271	205
300	ISL	8.55	8.52	34.183	26.554	152.9	0.633	1.51	23.0	41.1	2.41	30.7	0.00			302	
321		8.33	8.30	34.195	26.597	149.1	0.665	1.39	21.1	43.7	2.48	31.5	0.00			323	204
376		7.60	7.56	34.199	26.709	139.0	0.744	1.11	16.5	51.8	2.65	33.8	0.00			378	203
400	ISL	7.38	7.34	34.205	26.745	135.8	0.777	1.01	15.0	54.5	2.71	34.6	0.00			403	
436		7.11	7.07	34.215	26.791	131.8	0.825	0.87	12.8	58.4	2.79	35.6	0.00			439	202
500	ISL	6.63	6.58	34.232	26.870	124.8	0.907	0.65	9.5	66.5	2.91	37.3	0.00			503	
513		6.53	6.48	34.236	26.887	123.3	0.924	0.61	8.9	68.2	2.94	37.7	0.00			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 77 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
34 23.5 N	122 14.6 W	20/01/04	0044 UTC	4023 m	330 24 kn	330 06 05	2	1019.0 mb	12.7 C	11.1 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	13.21	13.21	33.084	24.868	307.4	0.000	6.03	101.0	3.1	0.48	1.7	0.12	0.57	0.26	0	
2		13.21	13.21	33.084	24.868	307.4	0.006	6.03	101.0	3.1	0.48	1.7	0.12	0.57	0.26	2	220
10	ISL	13.22	13.22	33.084	24.866	307.8	0.031	6.03	101.0	3.0	0.48	1.7	0.12	0.77	0.29	10	
11		13.22	13.22	33.084	24.866	307.8	0.034	6.03	101.0	3.0	0.48	1.7	0.12	0.80	0.29	11	219
20	ISL	13.21	13.21	33.085	24.869	307.8	0.062	6.03	101.0	3.0	0.47	1.7	0.12	0.78	0.32	20	
21		13.21	13.21	33.085	24.869	307.8	0.065	6.03	101.0	3.0	0.47	1.7	0.12	0.78	0.32	21	218
30		13.21	13.21	33.085	24.869	308.0	0.092	6.04	101.2	3.0	0.47	1.7	0.13	0.76	0.21	30	217
41		13.14	13.13	33.092	24.889	306.4	0.126	5.99	100.2	3.1	0.50	2.0	0.14	0.68	0.25	41	216
50	ISL	12.27	12.26	33.091	25.057	290.6	0.153	5.32	87.4	5.8	0.85	7.7	0.10	0.45	0.37	50	
51		12.15	12.14	33.092	25.081	288.3	0.156	5.24	85.8	6.2	0.89	8.4	0.10	0.42	0.38	51	215
60		11.33	11.32	33.123	25.257	271.7	0.181	4.81	77.4	9.2	1.12	12.0	0.07	0.20	0.22	60	214
70		11.29	11.28	33.244	25.358	262.3	0.208	4.49	72.3	11.3	1.22	13.7	0.06	0.13	0.18	70	213
75	ISL	11.17	11.16	33.292	25.417	256.8	0.221	4.30	69.0	12.5	1.30	14.8	0.05	0.12	0.18	75	
86		10.74	10.73	33.377	25.560	243.5	0.248	3.95	62.9	15.2	1.46	17.2	0.03	0.10	0.18	86	212
100		10.00	9.99	33.451	25.745	226.1	0.281	3.87	60.6	17.6	1.56	19.3	0.02	0.05	0.16	100	211
120		9.50	9.49	33.639	25.975	204.6	0.324	3.32	51.5	22.9	1.79	23.4	0.01	0.03	0.11	121	210
125	ISL	9.40	9.39	33.697	26.036	198.8	0.334	3.18	49.2	24.2	1.84	24.1	0.01	0.02	0.10	126	
141		9.16	9.14	33.866	26.208	182.8	0.365	2.82	43.5	27.9	1.95	25.7	0.00	0.01	0.09	142	209
150	ISL	9.07	9.05	33.920	26.264	177.6	0.381	2.72	41.9	29.2	1.98	26.2	0.00	0.01	0.09	151	
170		8.90	8.88	33.990	26.346	170.2	0.416	2.59	39.7	31.5	2.03	26.9	0.00	0.02	0.09	171	208
200	ISL	8.47	8.45	34.054	26.464	159.5	0.465	2.33	35.4	36.1	2.15	28.8	0.01	0.01	0.05	201	
201		8.46	8.44	34.056	26.467	159.2	0.467	2.32	35.2	36.3	2.15	28.9	0.01	0.01	0.05	202	207
229		8.17	8.15	34.114	26.556	151.1	0.510	1.84	27.8	41.9	2.35	31.0	0.00			230	206
250	ISL	8.32	8.29	34.193	26.596	147.9	0.542	1.39	21.1	44.0	2.49	31.6	0.00			251	
268		8.40	8.37	34.240	26.621	145.9	0.568	1.09	16.6	45.8	2.59	32.1	0.00			270	205
300	ISL	7.48	7.45	34.132	26.672	141.0	0.614	1.19	17.7	52.8	2.66	34.9	0.00			302	
318		6.92	6.89	34.065	26.697	138.5	0.639	1.33	19.5	56.5	2.67	36.4	0.00			320	204
379		7.12	7.08	34.180	26.761	133.7	0.722	1.02	15.0	57.9	2.76	35.8	0.00			381	203
400	ISL	6.94	6.90	34.196	26.799	130.3	0.750	0.89	13.1	61.0	2.82	36.5	0.00			403	
439		6.49	6.45	34.211	26.871	123.6	0.799	0.67	9.7	68.1	2.93	38.2	0.00			442	202
500	ISL	5.88	5.84	34.217	26.955	116.0	0.873	0.51	7.3	77.7	3.04	40.2	0.00			503	
516		5.72	5.68	34.220	26.977	113.9	0.891	0.47	6.7	80.2	3.07	40.7	0.00			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 2.8 N	122 56.8 W	19/01/04	1840 UTC	4235 m	340 17 kn	050 06 05	5	1022.1 mb	12.9 C	12.9 C	13m	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	13.68	13.68	32.929	24.653	327.8	0.000	6.04	102.1	2.2	0.40	0.5	0.03	0.70	0.19	0	
2	A	13.68	13.68	32.929	24.653	327.8	0.007	6.04	102.1	2.2	0.40	0.5	0.03	0.70	0.19	2	221
10	A	13.68	13.68	32.931	24.655	327.9	0.033	6.03	101.9	2.1	0.40	0.5	0.03	0.70	0.18	10	220
20	A	13.68	13.68	32.932	24.656	328.1	0.066	6.03	101.9	2.1	0.40	0.5	0.03	0.68	0.20	20	219
30	A	13.69	13.69	32.971	24.685	325.6	0.098	5.97	100.9	2.2	0.42	0.8	0.07	0.56	0.24	30	218
39	A	13.58	13.57	33.026	24.750	319.7	0.127	5.85	98.7	2.4	0.48	1.6	0.16	0.41	0.26	39	217
49		12.66	12.65	33.071	24.967	299.2	0.158	5.32	88.1	5.0	0.79	7.0	0.10	0.20	0.17	49	216
50	ISL	12.44	12.43	33.083	25.019	294.3	0.161	5.21	85.9	5.8	0.86	8.1	0.09	0.19	0.16	50	
57	A	11.06	11.05	33.188	25.356	262.2	0.181	4.53	72.5	11.1	1.30	15.2	0.01	0.12	0.10	57	215
65		10.78	10.77	33.259	25.461	252.4	0.201	4.32	68.8	12.9	1.42	17.2	0.01	0.09	0.09	65	214
70		10.62	10.61	33.389	25.590	240.2	0.214	3.93	62.4	15.6	1.55	19.2	0.01	0.07	0.08	70	213
75	ISL	10.52	10.51	33.455	25.659	233.8	0.225	3.71	58.8	17.1	1.62	20.2	0.01	0.06	0.07	75	
85		10.39	10.38	33.522	25.734	226.9	0.248	3.45	54.5	18.7	1.69	21.1	0.01	0.04	0.06	85	212
100	ISL	10.22	10.21	33.649	25.862	215.0	0.282	3.00	47.3	21.6	1.81	22.9	0.01	0.01	0.06	100	
101		10.21	10.20	33.657	25.870	214.3	0.284	2.97	46.8	21.8	1.82	23.0	0.01	0.01	0.06	101	211
119		9.91	9.90	33.823	26.051	197.5	0.321	2.49	39.0	25.9	1.97	25.2	0.00	0.01	0.06	120	210
125	ISL	9.84	9.83	33.861	26.092	193.6	0.333	2.40	37.6	26.9	2.00	25.6	0.00	0.01	0.06	126	
139		9.70	9.68	33.928	26.168	186.7	0.359	2.25	35.1	28.7	2.06	26.3	0.00	0.01	0.05	140	209
150	ISL	9.58	9.56	33.966	26.218	182.2	0.379	2.18	33.9	29.7	2.09	26.7	0.00	0.01	0.04	151	
170		9.39	9.37	34.020	26.292	175.6	0.415	2.08	32.3	31.3	2.13	27.5	0.00	0.01	0.02	171	208
200		9.16	9.14	34.106	26.396	166.2	0.467	1.82	28.1	34.9	2.25	29.0	0.00	0.00	0.03	201	207
229		8.82	8.80	34.127	26.467	159.9	0.514	1.72	26.4	37.6	2.30	30.1	0.01			230	206
250	ISL	8.58	8.55	34.150	26.523	154.9	0.547	1.57	23.9	40.4	2.38	31.1	0.01			251	
268		8.38	8.35	34.169	26.569	150.8	0.574	1.43	21.7	43.0	2.45	31.9	0.01			270	205
300	ISL	8.12	8.09	34.189	26.624	146.0	0.622	1.26	19.0	46.4	2.53	32.8	0.00			302	
319		7.95	7.92	34.195	26.654	143.4	0.649	1.18	17.7	48.5	2.58	33.3	0.00			321	204
376		7.15	7.11	34.197	26.771	132.8	0.728	0.91	13.4	58.2	2.77	35.8	0.00			378	203
400	ISL	6.96	6.92	34.208	26.806	129.7	0.760	0.80	11.7	61.1	2.83	36.6	0.00			403	
436		6.65	6.61	34.209	26.849	125.9	0.806	0.69	10.1	65.6	2.89	37.7	0.00			439	202
498		5.56	5.52	34.119	26.916	119.2	0.882	0.80	11.4	77.1	2.96	40.5	0.00			501	201
500	ISL	5.53	5.49	34.122	26.922	118.6	0.884									503	

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 77 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 43.1 N	123 37.6 W	19/01/04	1052 UTC	4360 m	340 09 kn			1021.8 mb	13.0 C	12.2 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	14.45	14.45	32.657	24.284	363.0	0.000	5.90	101.1	1.6	0.37	0.0	0.00	0.30	0.11	0	
2		14.45	14.45	32.657	24.284	363.0	0.007	5.90	101.1	1.6	0.37	0.0	0.00	0.30	0.11	2	220
10		14.46	14.46	32.658	24.283	363.3	0.036	5.90	101.1	1.6	0.36	0.0	0.00	0.30	0.11	10	219
20		14.44	14.44	32.658	24.287	363.2	0.073	5.90	101.1	1.6	0.37	0.0	0.00	0.31	0.13	20	218
30		13.73	13.73	32.718	24.481	345.0	0.108	6.04	102.0	1.9	0.39	0.1	0.02	0.59	0.25	30	217
40		13.36	13.35	32.746	24.578	336.1	0.142	5.93	99.4	2.2	0.46	1.0	0.12	0.46	0.27	40	216
50		13.27	13.26	32.825	24.657	328.8	0.175	5.87	98.3	2.4	0.50	1.6	0.17	0.41	0.28	50	215
60		13.64	13.63	33.025	24.737	321.4	0.208	6.00	101.3	2.3	0.42	0.7	0.08	0.60	0.29	60	214
69		12.27	12.26	32.767	24.807	314.9	0.236	5.63	92.3	4.2	0.74	5.4	0.09	0.25	0.23	69	213
75	ISL	11.66	11.65	32.821	24.962	300.2	0.255	5.32	86.1	6.2	0.94	8.9	0.06	0.19	0.18	75	
84		10.92	10.91	33.004	25.238	274.0	0.281	4.92	78.4	9.4	1.19	13.3	0.01	0.11	0.12	84	212
99		9.65	9.64	33.120	25.544	245.0	0.320	4.77	74.0	13.6	1.34	16.2	0.00	0.06	0.06	99	211
100	ISL	9.64	9.63	33.141	25.562	243.3	0.322	4.73	73.4	13.9	1.36	16.5	0.00	0.06	0.06	100	
120		9.46	9.45	33.489	25.864	215.1	0.368	3.86	59.8	20.0	1.64	21.5	0.00	0.02	0.05	121	210
125	ISL	9.37	9.36	33.537	25.916	210.2	0.379	3.76	58.1	21.1	1.68	22.1	0.00	0.02	0.04	126	
140		9.09	9.07	33.649	26.049	197.9	0.409	3.54	54.4	23.9	1.76	23.5	0.00	0.01	0.03	141	209
150	ISL	8.99	8.97	33.747	26.141	189.2	0.429	3.29	50.5	26.0	1.83	24.7	0.00	0.01	0.03	151	
169		8.89	8.87	33.911	26.286	175.9	0.463	2.82	43.2	29.7	1.96	26.8	0.00	0.01	0.03	170	208
199		8.78	8.76	34.009	26.380	167.5	0.515	2.46	37.6	33.0	2.07	28.1	0.00	0.00	0.03	200	207
200	ISL	8.77	8.75	34.011	26.384	167.2	0.516	2.45	37.5	33.2	2.07	28.2	0.00			201	
229		8.27	8.25	34.049	26.490	157.4	0.564	2.20	33.3	38.3	2.21	30.4	0.00			230	206
250	ISL	8.01	7.98	34.060	26.538	153.1	0.596	2.14	32.2	40.8	2.26	31.2	0.00			251	
271		7.76	7.73	34.064	26.578	149.6	0.628	2.08	31.1	43.3	2.31	31.8	0.00			273	205
300	ISL	7.31	7.28	34.070	26.647	143.3	0.670	1.82	26.9	49.1	2.44	33.6	0.00			302	
320		7.00	6.97	34.076	26.695	138.8	0.699	1.62	23.8	53.3	2.54	35.0	0.00			322	204
380		6.41	6.38	34.108	26.800	129.4	0.779	1.15	16.7	62.9	2.78	37.7	0.00			382	203
400	ISL	6.20	6.16	34.114	26.832	126.5	0.805	1.03	14.9	66.5	2.84	38.5	0.00			403	
439		5.86	5.82	34.133	26.890	121.2	0.853	0.82	11.7	73.0	2.94	39.9	0.00			442	202
500	ISL	5.81	5.77	34.222	26.967	114.7	0.925	0.49	7.0	78.9	3.07	40.6	0.00			503	
517		5.80	5.76	34.247	26.988	112.9	0.944	0.40	5.7	80.5	3.11	40.8	0.00			521	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 77 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 23.1 N	124 19.3 W	19/01/04	0446 UTC	4574 m	340 13 kn			1022.0 mb	14.2 C	13.3 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	15.28	15.28	32.755	24.182	372.7	0.000	5.79	101.0	1.5	0.35	0.0	0.00	0.16	0.05	0	
2		15.28	15.28	32.755	24.182	372.8	0.007	5.79	101.0	1.5	0.35	0.0	0.00	0.16	0.05	2	220
10	ISL	15.27	15.27	32.755	24.184	372.8	0.037	5.79	100.9	1.5	0.35	0.0	0.00	0.16	0.04	10	
16		15.27	15.27	32.755	24.184	372.9	0.060	5.79	100.9	1.5	0.35	0.0	0.00	0.16	0.04	16	219
20	ISL	15.24	15.24	32.750	24.187	372.8	0.075	5.79	100.9	1.5	0.35	0.0	0.00	0.16	0.04	20	
30		15.20	15.20	32.750	24.196	372.2	0.112	5.79	100.8	1.4	0.35	0.0	0.00	0.19	0.06	30	218
45		15.39	15.38	32.829	24.216	370.8	0.168	5.73	100.2	1.5	0.34	0.0	0.00	0.27	0.12	45	217
50	ISL	15.24	15.23	32.799	24.226	370.0	0.186	5.75	100.2	1.5	0.34	0.0	0.00	0.30	0.14	50	
56		15.04	15.03	32.755	24.236	369.2	0.208	5.77	100.1	1.5	0.35	0.0	0.00	0.32	0.17	56	216
65		14.94	14.93	32.728	24.237	369.4	0.241	5.78	100.1	1.4	0.35	0.0	0.00	0.33	0.20	65	215
75		13.72	13.71	32.735	24.497	344.7	0.277	5.85	98.8	2.1	0.44	0.6	0.14	0.27	0.25	75	214
85		12.35	12.34	32.716	24.752	320.5	0.310	5.87	96.3	2.9	0.54	1.7	0.08	0.21	0.28	85	213
95		11.59	11.58	32.690	24.874	309.0	0.342	5.72	92.3	3.8	0.67	4.1	0.02	0.16	0.17	95	212
100	ISL	11.39	11.38	32.719	24.933	303.5	0.357	5.64	90.7	4.3	0.73	5.1	0.02	0.14	0.15	100	
110		11.08	11.07	32.797	25.049	292.6	0.387	5.48	87.5	5.6	0.85	7.1	0.01	0.11	0.12	110	211
125		10.33	10.32	32.869	25.236	275.0	0.430	5.29	83.2	8.8	1.06	11.1	0.00	0.07	0.05	126	210
145		9.57	9.55	33.250	25.660	235.0	0.481	4.73	73.3	14.1	1.29	15.8	0.00	0.02	0.02	146	209
150	ISL	9.42	9.40	33.313	25.733	228.0	0.492	4.62	71.4	15.3	1.34	16.7	0.00	0.02	0.02	151	
169		8.99	8.97	33.505	25.952	207.5	0.534	4.26	65.3	19.5	1.51	19.7	0.00	0.01	0.01	170	208
199		8.79	8.77	33.810	26.223	182.4	0.592	3.74	57.2	25.0	1.67	22.7	0.00	0.00	0.01	200	207
200	ISL	8.78	8.76	33.815	26.228	181.9	0.594	3.72	56.8	25.3	1.68	22.8	0.00			201	
228		8.36	8.34	33.914	26.371	168.8	0.643	3.11	47.1	32.1	1.93	26.7	0.00			229	206
250	ISL	8.20	8.17	33.977	26.445	162.1	0.679	2.90	43.8	35.0	2.00	27.8	0.00			251	
268		8.09	8.06	34.013	26.490	158.1	0.708	2.81	42.3	36.9	2.03	28.2	0.00			269	205
300	ISL	7.72	7.69	34.028	26.556	152.2	0.758	2.62	39.1	41.2	2.13	29.7	0.00			302	
319		7.46	7.43	34.026	26.592	148.9	0.786	2.47	36.7	44.2	2.21	30.8	0.00			321	204
377		6.58	6.55	34.055	26.736	135.5	0.869	1.62	23.6	57.5	2.59	35.4	0.00			379	203
400	ISL	6.47	6.43	34.088	26.776	132.0	0.900	1.31	19.0	60.8	2.70	36.5	0.00			402	
439		6.36	6.32	34.142	26.834	127.0	0.950	0.90	13.0	65.7	2.85	37.9	0.00			442	202
500	ISL	5.83	5.79	34.158	26.914	119.7	1.025	0.69	9.9	75.1	2.98	39.8	0.00			503	
513		5.72	5.68	34.162	26.931	118.2	1.041	0.65	9.3	77.1	3.01	40.2	0.00			516	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
34 27.2 N	120 31.5 W	17/01/04	1309 UTC	72 m	140 01 kn			1014.4 mb	12.5 C	11.0 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	12.80	12.80	33.245	25.073	287.8	0.000	5.54	92.1	4.7	0.70	4.1	0.30	1.47	0.58	0	
2		12.80	12.80	33.245	25.073	287.8	0.006	5.54	92.1	4.7	0.70	4.1	0.30	1.47	0.58	2	208
5		12.80	12.80	33.245	25.073	287.9	0.014	5.55	92.3	4.7	0.68	4.1	0.30	1.50	0.61	5	207
10		12.81	12.81	33.245	25.072	288.2	0.029	5.54	92.1	4.6	0.68	4.1	0.30	1.47	0.61	10	206
20	ISL	12.80	12.80	33.246	25.075	288.2	0.058	5.49	91.3	4.9	0.71	4.4	0.32	1.54	0.55	20	
21		12.80	12.80	33.246	25.075	288.2	0.060	5.48	91.1	4.9	0.71	4.4	0.32	1.55	0.54	21	205
30		12.79	12.79	33.246	25.077	288.2	0.086	5.47	90.9	5.0	0.71	4.5	0.33	1.21	0.60	30	204
40		12.49	12.48	33.256	25.143	282.2	0.115	5.17	85.4	6.4	0.85	6.6	0.35	0.59	0.54	40	203
50		12.24	12.23	33.280	25.210	276.1	0.143	4.73	77.7	8.4	1.02	9.5	0.34	0.30	0.41	50	202
61		12.15	12.14	33.293	25.237	273.7	0.173	4.54	74.4	9.3	1.09	10.3	0.36	0.29	0.35	61	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 18.8 N	120 47.8 W	17/01/04	1737 UTC	825 m	330 07 kn	030 04 06	1	1016.8 mb	13.9 C	13.1 C	16m	4/8	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	13.96	13.96	32.884	24.561	336.5	0.000	5.92	100.6	1.8	0.43	0.6	0.06	0.52	0.20	0	
2	A	13.96	13.96	32.884	24.561	336.6	0.007	5.92	100.6	1.8	0.43	0.6	0.06	0.52	0.20	2	220
10	ISL	13.93	13.93	32.889	24.572	335.8	0.034	5.92	100.5	1.8	0.43	0.6	0.06	0.53	0.20	10	
12	A	13.92	13.92	32.894	24.578	335.3	0.040	5.92	100.5	1.8	0.43	0.6	0.06	0.53	0.20	12	219
19		13.82	13.82	32.902	24.604	333.0	0.064	5.92	100.3	1.9	0.43	0.7	0.07	0.52	0.22	19	218
20	ISL	13.81	13.81	32.904	24.608	332.6	0.067	5.92	100.3	1.9	0.43	0.7	0.07	0.52	0.22	20	
26	A	13.70	13.70	32.903	24.630	330.7	0.087	5.90	99.7	2.0	0.45	1.0	0.09	0.52	0.22	26	217
30	ISL	13.54	13.54	32.877	24.642	329.6	0.100	5.87	98.9	2.1	0.48	1.3	0.14	0.47	0.25	30	
38	A	13.07	13.06	32.817	24.690	325.3	0.126	5.78	96.4	2.6	0.57	2.3	0.21	0.36	0.31	38	216
48	A	12.21	12.20	32.798	24.842	311.1	0.158	5.64	92.3	3.6	0.69	4.1	0.09	0.27	0.26	48	215
50	ISL	12.09	12.08	32.815	24.877	307.7	0.164	5.59	91.3	3.9	0.72	4.7	0.07	0.25	0.24	50	
59		11.59	11.58	32.919	25.051	291.3	0.191	5.33	86.2	5.7	0.89	7.8	0.03	0.19	0.17	59	214
69	A	10.86	10.85	33.023	25.263	271.3	0.219	5.03	80.1	8.6	1.10	11.6	0.03	0.13	0.13	69	213
75	ISL	10.92	10.91	33.172	25.368	261.4	0.235	4.70	75.0	10.5	1.20	13.2	0.09	0.16	0.16	75	
85		11.02	11.01	33.385	25.517	247.6	0.261	4.11	65.8	13.7	1.35	15.2	0.18	0.21	0.24	85	212
100	ISL	10.70	10.69	33.529	25.686	231.9	0.297	3.57	56.8	17.4	1.56	18.2	0.12	0.13	0.25	100	
102		10.64	10.63	33.541	25.706	230.0	0.301	3.51	55.8	17.8	1.59	18.6	0.11	0.12	0.25	102	211
120		10.28	10.27	33.680	25.876	214.1	0.341	3.02	47.7	21.4	1.78	21.5	0.02	0.06	0.17	121	210
125	ISL	10.22	10.21	33.733	25.928	209.3	0.352	2.85	44.9	22.6	1.84	22.2	0.02	0.05	0.15	126	
139		10.09	10.07	33.871	26.058	197.2	0.380	2.43	38.2	25.9	1.98	24.0	0.01	0.02	0.11	140	209
150	ISL	9.97	9.95	33.918	26.115	192.0	0.402	2.29	36.0	27.3	2.03	24.8	0.01	0.02	0.11	151	
167		9.78	9.76	33.956	26.177	186.5	0.434	2.19	34.2	28.8	2.08	25.6	0.01	0.02	0.10	168	208
199		9.53	9.51	34.050	26.293	176.1	0.492	1.98	30.8	31.6	2.18	26.9	0.01	0.02	0.11	200	207
200	ISL	9.52	9.50	34.052	26.296	175.9	0.494	1.98	30.8	31.7	2.18	26.9	0.01			201	
229		9.26	9.23	34.113	26.386	167.8	0.544	1.85	28.6	34.1	2.25	28.0	0.01			230	206
250	ISL	9.05	9.02	34.138	26.440	163.0	0.578	1.66	25.6	37.3	2.34	29.0	0.01			251	
268		8.85	8.82	34.153	26.484	159.2	0.607	1.49	22.8	40.2	2.42	29.9	0.01			270	205
300	ISL	8.48	8.45	34.174	26.558	152.5	0.657	1.37	20.8	43.8	2.50	31.0	0.00			302	
319		8.24	8.21	34.182	26.601	148.7	0.686	1.31	19.8	46.0	2.54	31.7	0.00			321	204
375		7.42	7.38	34.193	26.730	136.8	0.766	0.96	14.2	56.5	2.75	34.4	0.00			377	203
400	ISL	7.22	7.18	34.213	26.774	132.9	0.800	0.73	10.8	63.2	2.88	34.5	0.00			403	
429		7.03	6.99	34.235	26.818	129.1	0.838	0.51	7.5	70.0	3.01	34.5	0.00			432	202
500	ISL	6.41	6.36	34.230	26.898	122.0	0.927	0.55	8.0	70.5	3.00	38.1	0.00			503	
505		6.37	6.32	34.230	26.903	121.5	0.933	0.55	8.0	70.5	3.00	38.4	0.00			508	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
34 9.4 N	121 8.9 W	17/01/04	2055 UTC	2178 m	330 15 kn	330 03 06	2	1016.5 mb	13.8 C	12.5 C	20m	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	14.90	14.90	32.823	24.316	359.9	0.000	5.84	101.1	1.4	0.36	0.0	0.00	0.37	0.07	0	
2		14.90	14.90	32.823	24.316	359.9	0.007	5.84	101.1	1.4	0.36	0.0	0.00	0.37	0.07	2	220
10	ISL	14.90	14.90	32.824	24.318	360.1	0.036	5.85	101.3	1.3	0.36	0.0	0.00	0.34	0.10	10	
11		14.90	14.90	32.824	24.318	360.1	0.040	5.85	101.3	1.3	0.36	0.0	0.00	0.34	0.10	11	219
20		14.89	14.89	32.824	24.320	360.1	0.072	5.84	101.1	1.4	0.36	0.0	0.00	0.35	0.09	20	218
30		13.73	13.73	32.833	24.570	336.6	0.107	5.82	98.4	2.1	0.47	1.1	0.15	0.43	0.19	30	217
40		12.70	12.69	32.819	24.764	318.3	0.140	5.87	97.1	3.1	0.62	3.3	0.14	0.31	0.26	40	216
50		12.19	12.18	32.858	24.892	306.3	0.171	5.60	91.7	3.9	0.71	4.8	0.09	0.26	0.18	50	215
60		10.99	10.98	32.830	25.090	287.6	0.201	5.38	85.8	6.3	0.93	8.6	0.02	0.18	0.20	60	214
70		10.77	10.76	32.991	25.254	272.2	0.228	5.00	79.4	8.8	1.14	12.3	0.01	0.13	0.13	70	213
75	ISL	10.60	10.59	33.055	25.333	264.7	0.242	4.80	76.0	10.3	1.24	14.0	0.01	0.11	0.11	75	
85		10.20	10.19	33.172	25.493	249.7	0.268	4.52	71.0	13.0	1.38	16.5	0.00	0.07	0.08	85	212
99		9.61	9.60	33.346	25.727	227.6	0.301	4.55	70.6	15.1	1.36	16.7	0.01	0.03	0.01	99	211
100	ISL	9.60	9.59	33.359	25.739	226.5	0.303	4.53	70.3	15.3	1.37	16.8	0.01	0.03	0.01	100	
120		9.38	9.37	33.573	25.943	207.6	0.347	3.79	58.6	20.3	1.62	21.0	0.00	0.02	0.01	121	210
125	ISL	9.36	9.35	33.640	25.998	202.4	0.357	3.52	54.4	22.0	1.70	22.2	0.00	0.02	0.02	126	
140		9.30	9.28	33.819	26.148	188.5	0.386	2.82	43.6	26.5	1.92	25.4	0.00	0.01	0.04	141	209
150	ISL	9.14	9.12	33.868	26.212	182.6	0.405	2.89	44.5	27.6	1.91	25.5	0.00	0.01	0.04	151	
169		8.79	8.77	33.913	26.303	174.2	0.439	3.03	46.3	28.8	1.89	25.7	0.00	0.00	0.02	170	208
198		8.53	8.51	34.016	26.425	163.2	0.488	2.58	39.3	33.8	2.04	27.9	0.00	0.00	0.01	199	207
200	ISL	8.50	8.48	34.019	26.432	162.5	0.491	2.57	39.1	34.1	2.05	28.0	0.00			201	
228		8.05	8.03	34.038	26.515	155.0	0.535	2.41	36.3	38.9	2.16	29.7	0.00			229	206
250	ISL	7.72	7.70	34.039	26.564	150.5	0.569	2.22	33.2	42.6	2.26	31.1	0.00			251	
268		7.46	7.43	34.037	26.600	147.3	0.596	2.06	30.6	45.5	2.34	32.3	0.00			270	205
300	ISL	7.06	7.03	34.043	26.661	141.8	0.642	1.82	26.8	50.5	2.47	34.0	0.00			302	
318		6.88	6.85	34.055	26.695	138.7	0.667	1.67	24.5	53.3	2.54	34.8	0.00			320	204
380		6.68	6.65	34.177	26.819	127.9	0.750	0.90	13.1	62.7	2.83	36.9	0.00			382	203
400	ISL	6.59	6.55	34.199	26.848	125.3	0.775	0.77	11.2	65.0	2.89	37.4	0.00			403	
438		6.43	6.39	34.231	26.895	121.3	0.822	0.60	8.7	68.9	2.97	38.2	0.00			441	202
500	ISL	6.21	6.17	34.290	26.971	114.9	0.895	0.38	5.5	75.1	3.07	39.2	0.00			503	
509		6.18	6.13	34.299	26.982	113.9	0.906	0.35	5.0	76.0	3.09	39.4	0.00			513	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 80 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 48.8 N	121 50.6 W	18/01/04	0315 UTC	3626 m	320 09 kn			1017.0 mb	13.3 C	12.1 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	13.98	13.98	32.982	24.633	329.7	0.000	5.99	101.9	2.0	0.38	0.2	0.02	0.71	0.28	0	
2		13.98	13.98	32.982	24.633	329.8	0.007	5.99	101.9	2.0	0.38	0.2	0.02	0.71	0.28	2	220
10		13.98	13.98	32.982	24.633	330.0	0.033	5.99	101.9	1.9	0.38	0.2	0.02	0.63	0.28	10	219
20		13.98	13.98	32.983	24.634	330.2	0.066	6.00	102.0	1.9	0.39	0.2	0.02	0.73	0.28	20	218
30		13.98	13.98	32.981	24.633	330.6	0.099	6.00	102.0	1.9	0.38	0.2	0.02	0.68	0.30	30	217
40		13.95	13.94	32.978	24.637	330.4	0.132	5.98	101.6	1.8	0.39	0.2	0.03	0.64	0.26	40	216
50	ISL	13.85	13.84	32.996	24.672	327.4	0.165	5.90	100.1	2.2	0.43	0.7	0.05	0.48	0.20	50	
51		13.84	13.83	32.998	24.675	327.1	0.168	5.89	99.9	2.2	0.43	0.8	0.05	0.46	0.19	51	215
60		11.74	11.73	33.083	25.151	281.9	0.196	4.98	80.8	7.5	1.04	10.9	0.03	0.21	0.17	60	214
70		10.57	10.56	33.169	25.427	255.7	0.223	4.55	72.1	11.9	1.36	16.0	0.01	0.12	0.10	70	213
75	ISL	10.14	10.13	33.227	25.546	244.4	0.235	4.40	69.1	14.0	1.45	17.6	0.00	0.09	0.08	75	
85		9.56	9.55	33.351	25.739	226.2	0.259	4.19	65.0	17.6	1.56	19.6	0.00	0.04	0.05	85	212
100		9.33	9.32	33.519	25.908	210.4	0.291	3.99	61.6	19.9	1.60	20.6	0.00	0.02	0.03	100	211
119		9.15	9.14	33.723	26.097	192.9	0.330	3.44	53.0	23.9	1.76	23.3	0.00	0.01	0.03	120	210
125	ISL	9.09	9.08	33.756	26.132	189.6	0.341	3.44	52.9	24.3	1.76	23.4	0.00	0.01	0.03	126	
140		8.95	8.94	33.820	26.205	183.0	0.369	3.46	53.1	25.3	1.75	23.5	0.00	0.00	0.02	141	209
150	ISL	8.92	8.90	33.887	26.262	177.8	0.387	3.13	48.0	27.6	1.85	24.9	0.00	0.00	0.02	151	
170		8.85	8.83	34.012	26.371	167.8	0.422	2.38	36.5	32.9	2.10	28.1	0.00	0.01	0.03	171	208
200		8.55	8.53	34.080	26.472	158.8	0.471	2.01	30.6	37.5	2.25	30.0	0.00	0.00	0.03	201	207
229		7.95	7.93	34.078	26.561	150.6	0.516	2.00	30.0	42.5	2.38	31.5	0.00			230	206
250	ISL	7.53	7.51	34.064	26.611	146.0	0.547	1.94	28.9	46.4	2.43	32.7	0.00			251	
269		7.19	7.16	34.052	26.650	142.5	0.574	1.86	27.4	49.8	2.46	33.8	0.00			271	205
300	ISL	6.80	6.77	34.049	26.701	137.8	0.618	1.70	24.9	54.6	2.55	35.1	0.00			302	
318		6.62	6.59	34.052	26.727	135.5	0.642	1.60	23.3	57.3	2.61	35.8	0.00			320	204
380		5.95	5.92	34.077	26.834	125.8	0.723	1.22	17.5	68.2	2.84	38.5	0.00			382	203
400	ISL	5.93	5.90	34.105	26.859	123.7	0.748	1.03	14.8	70.4	2.90	39.1	0.00			403	
439		5.89	5.85	34.163	26.910	119.4	0.795	0.69	9.9	74.6	3.00	40.0	0.00			442	202
500	ISL	5.45	5.41	34.202	26.995	111.7	0.866	0.47	6.7	84.4	3.11	41.5	0.00			503	
514		5.35	5.31	34.211	27.014	109.9	0.881	0.42	5.9	86.7	3.14	41.8	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 80 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 29.0 N	122 32.2 W	18/01/04	0903 UTC	4002 m	280 04 kn			1018.2 mb	13.0 C	12.5 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	13.69	13.69	33.058	24.751	318.5	0.000	5.98	101.1	2.2	0.44	0.7	0.07	0.31	0.15	0	
2		13.69	13.69	33.058	24.751	318.5	0.006	5.98	101.1	2.2	0.44	0.7	0.07	0.31	0.15	2	220
10		13.67	13.67	33.057	24.755	318.4	0.032	5.98	101.1	2.2	0.44	0.7	0.07	0.31	0.12	10	219
20		13.67	13.67	33.060	24.757	318.4	0.064	5.98	101.1	2.1	0.43	0.7	0.07	0.31	0.14	20	218
29		13.67	13.67	33.058	24.756	318.8	0.092	5.98	101.1	2.1	0.44	0.7	0.07	0.32	0.14	29	217
30	ISL	13.67	13.67	33.058	24.756	318.8	0.096	5.98	101.1	2.1	0.44	0.7	0.07	0.32	0.14	30	
40		13.65	13.64	33.056	24.759	318.8	0.127	5.97	100.9	2.2	0.44	0.8	0.08	0.35	0.17	40	216
50		13.44	13.43	33.082	24.822	313.1	0.159	5.90	99.3	2.4	0.48	1.6	0.18	0.36	0.24	50	215
59		11.13	11.12	33.278	25.413	256.8	0.185	4.26	68.3	12.1	1.40	16.7	0.02	0.13	0.14	59	214
70		10.30	10.29	33.378	25.636	235.8	0.212	3.96	62.4	16.2	1.59	19.8	0.01	0.08	0.09	70	213
75	ISL	9.94	9.93	33.420	25.730	226.9	0.223	3.90	61.0	17.8	1.63	20.6	0.01	0.06	0.07	75	
85		9.40	9.39	33.509	25.889	212.0	0.245	3.79	58.6	20.6	1.69	21.7	0.01	0.02	0.05	85	212
99		9.22	9.21	33.655	26.032	198.7	0.274	3.40	52.4	23.7	1.81	23.7	0.01	0.01	0.04	99	211
100	ISL	9.20	9.19	33.665	26.043	197.6	0.276	3.38	52.1	23.9	1.81	23.8	0.01	0.01	0.04	100	
119		8.87	8.86	33.836	26.229	180.2	0.312	3.06	46.9	27.8	1.90	25.7	0.00	0.01	0.03	120	210
125	ISL	8.85	8.84	33.884	26.270	176.5	0.323	2.89	44.3	29.1	1.95	26.3	0.00	0.01	0.03	126	
139		8.81	8.80	33.977	26.350	169.2	0.347	2.50	38.3	31.9	2.06	27.7	0.00	0.01	0.03	140	209
150	ISL	8.68	8.66	34.016	26.401	164.6	0.365	2.42	36.9	33.7	2.11	28.4	0.00	0.01	0.03	151	
169		8.39	8.37	34.045	26.468	158.5	0.396	2.29	34.7	36.5	2.17	29.3	0.00	0.00	0.03	170	208
200		7.88	7.86	34.041	26.542	151.9	0.444	2.27	34.0	40.9	2.23	30.8	0.00	0.00	0.03	201	207
228		7.57	7.55	34.060	26.602	146.5	0.486	1.96	29.2	45.2	2.37	32.4	0.01			229	206
250	ISL	7.32	7.30	34.074	26.648	142.3	0.518	1.75	25.9	48.9	2.47	33.6	0.01			251	
270		7.10	7.07	34.083	26.686	138.9	0.546	1.59	23.4	52.2	2.55	34.5	0.00			272	205
300	ISL	6.76	6.73	34.085	26.734	134.6	0.587	1.44	21.0	56.2	2.63	35.7	0.00			302	
318		6.57	6.54	34.086	26.761	132.3	0.611	1.36	19.8	58.5	2.68	36.3	0.00			320	204
378		6.07	6.04	34.127	26.858	123.5	0.687	0.93	13.4	68.4	2.89	38.7	0.00			380	203
400	ISL	6.01	5.98	34.164	26.895	120.3	0.714	0.75	10.8	71.6	2.96	39.2	0.00			403	
438		5.94	5.90	34.230	26.957	115.0	0.759	0.48	6.9	76.8	3.07	40.0	0.00			441	202
500	ISL	5.61	5.57	34.270	27.030	108.6	0.828	0.33	4.7	84.3	3.16	41.2	0.00			503	
516		5.52	5.48	34.281	27.049	106.8	0.846	0.29	4.1	86.2	3.18	41.5	0.00			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 8.3 N	123 13.2 W	18/01/04	1729 UTC	4238 m	020 11 kn	220 08 12	5	1020.8 mb	14.1 C	13.9 C	18m	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	14.10	14.10	32.683	24.377	354.1	0.000	5.94	101.1	1.7	0.37	0.1	0.01	0.47	0.10	0	
2	A	14.10	14.10	32.683	24.377	354.2	0.007	5.94	101.1	1.7	0.37	0.1	0.01	0.47	0.10	2	221
10	ISL	14.11	14.11	32.706	24.393	352.8	0.035	5.97	101.6	1.7	0.37	0.1	0.01	0.52	0.07	10	
13	A	14.12	14.12	32.714	24.397	352.5	0.046	5.97	101.7	1.7	0.37	0.1	0.01	0.55	0.06	13	220
20		13.78	13.78	32.812	24.543	338.8	0.070	5.92	100.2	2.0	0.42	0.7	0.07	0.58	0.22	20	219
28	A	13.76	13.76	32.914	24.626	331.1	0.097	5.96	100.9	2.1	0.40	0.6	0.07	0.59	0.26	28	218
30	ISL	13.76	13.76	32.919	24.630	330.8	0.104	5.97	101.0	2.1	0.40	0.6	0.07	0.65	0.26	30	
35		13.77	13.77	32.933	24.639	330.1	0.120	5.99	101.4	2.1	0.40	0.5	0.06	0.83	0.25	35	217
42	A	13.82	13.81	32.958	24.648	329.4	0.143	6.03	102.2	2.1	0.38	0.4	0.04	0.95	0.26	42	216
50	ISL	13.79	13.78	32.994	24.682	326.4	0.169	6.01	101.8	2.2	0.39	0.5	0.05	0.82	0.27	50	
55	A	13.74	13.73	33.015	24.709	324.0	0.186	5.99	101.4	2.2	0.40	0.6	0.05	0.68	0.27	55	215
67		13.61	13.60	33.034	24.751	320.4	0.224	5.89	99.4	2.3	0.45	1.2	0.13	0.39	0.20	67	214
75	ISL	13.39	13.38	33.068	24.822	313.8	0.250	5.73	96.3	3.0	0.54	2.7	0.41	0.26	0.18	75	
79	A	13.13	13.12	33.092	24.892	307.2	0.262	5.65	94.5	3.4	0.58	3.5	0.51	0.21	0.16	79	213
91		11.29	11.28	33.216	25.337	264.9	0.296	4.44	71.4	10.8	1.31	15.4	0.02	0.15	0.05	91	212
100		10.26	10.25	33.313	25.593	240.5	0.319	4.15	65.3	15.0	1.52	18.8	0.01	0.09	0.06	100	211
120		9.49	9.48	33.469	25.843	217.0	0.365	3.87	60.0	19.8	1.63	21.1	0.00	0.03	0.05	121	210
125	ISL	9.39	9.38	33.530	25.907	211.0	0.376	3.70	57.2	21.2	1.69	22.0	0.00	0.03	0.05	126	
139		9.20	9.18	33.700	26.071	195.7	0.404	3.20	49.3	25.0	1.84	24.5	0.00	0.02	0.04	140	209
150	ISL	9.09	9.07	33.785	26.155	187.9	0.425	3.00	46.2	26.8	1.89	25.5	0.00	0.02	0.04	151	
168		8.92	8.90	33.882	26.259	178.5	0.458	2.82	43.2	29.2	1.94	26.4	0.00	0.01	0.04	169	208
198		8.53	8.51	34.005	26.416	164.0	0.510	2.52	38.3	34.4	2.06	28.3	0.00	0.00	0.03	199	207
200	ISL	8.50	8.48	34.008	26.423	163.4	0.513	2.50	38.0	34.8	2.07	28.5	0.00			201	
230		8.06	8.04	34.044	26.518	154.7	0.561	2.16	32.5	40.0	2.22	30.7	0.00			231	206
250	ISL	7.96	7.93	34.086	26.566	150.5	0.591	1.91	28.7	42.8	2.32	31.5	0.00			251	
270		7.89	7.86	34.125	26.607	146.9	0.621	1.68	25.2	45.4	2.41	32.1	0.00			272	205
300	ISL	7.64	7.61	34.149	26.663	142.0	0.664	1.42	21.2	49.4	2.53	33.2	0.00			302	
320		7.45	7.42	34.155	26.695	139.2	0.692	1.28	19.0	52.1	2.60	34.0	0.00			322	204
376		6.92	6.88	34.166	26.778	131.9	0.768	1.00	14.7	59.3	2.75	36.1	0.00			378	203
400	ISL	6.72	6.68	34.171	26.809	129.2	0.800	0.89	13.0	62.5	2.81	36.9	0.00			403	
432		6.47	6.43	34.183	26.852	125.3	0.840	0.74	10.7	66.9	2.89	38.0	0.00			435	202
500	ISL	5.99	5.95	34.237	26.957	115.9	0.922	0.45	6.5	76.6	3.05	39.8	0.00			503	
506		5.95	5.91	34.242	26.966	115.1	0.929	0.42	6.0	77.5	3.06	40.0	0.00			509	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 80 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 48.8 N	123 54.9 W	18/01/04	2235 UTC	4348 m	040 12 kn	270 04 07	2	1019.2 mb	15.4 C	14.9 C	31m	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	16.05	16.05	32.966	24.173	373.5	0.000	5.69	100.9	2.0	0.34	0.0	0.00	0.14	0.05	0	
2		16.05	16.05	32.966	24.173	373.6	0.007	5.69	100.9	2.0	0.34	0.0	0.00	0.14	0.05	2	220
10	ISL	16.05	16.05	32.969	24.176	373.6	0.037	5.69	100.9	1.9	0.33	0.0	0.00	0.14	0.05	10	
15		16.05	16.05	32.972	24.178	373.5	0.056	5.69	100.9	1.9	0.33	0.0	0.00	0.14	0.05	15	219
20	ISL	16.06	16.06	32.978	24.181	373.4	0.075	5.69	100.9	1.9	0.33	0.0	0.00	0.14	0.05	20	
30		16.09	16.09	32.992	24.185	373.3	0.112	5.69	101.0	1.8	0.33	0.0	0.00	0.15	0.05	30	218
45		16.10	16.09	33.002	24.191	373.2	0.168	5.68	100.8	1.8	0.33	0.0	0.00	0.18	0.06	45	217
50	ISL	16.11	16.10	33.006	24.192	373.3	0.187	5.68	100.8	1.7	0.33	0.0	0.00	0.18	0.06	50	
55		16.11	16.10	33.008	24.194	373.3	0.205	5.67	100.7	1.7	0.33	0.0	0.00	0.19	0.07	55	216
65		16.10	16.09	33.006	24.195	373.5	0.243	5.66	100.5	1.9	0.33	0.0	0.00	0.22	0.08	65	215
75		15.51	15.50	32.943	24.278	365.8	0.280	5.70	100.0	1.9	0.35	0.1	0.03	0.27	0.14	75	214
85		14.52	14.51	32.988	24.527	342.3	0.315	5.76	99.0	2.5	0.45	0.8	0.21	0.24	0.14	85	213
95		12.89	12.88	32.992	24.862	310.4	0.348	5.49	91.3	4.4	0.69	4.7	0.10	0.16	0.14	95	212
100	ISL	12.27	12.26	32.968	24.963	300.8	0.363	5.40	88.6	5.3	0.78	6.3	0.06	0.14	0.13	100	
110		11.33	11.32	32.949	25.123	285.7	0.392	5.24	84.2	7.2	0.94	9.1	0.01	0.10	0.10	110	211
125		10.44	10.43	33.145	25.432	256.4	0.433	4.91	77.5	10.9	1.13	12.9	0.01	0.05	0.06	126	210
146		9.87	9.85	33.324	25.668	234.3	0.484	4.50	70.2	14.7	1.34	16.5	0.01	0.02	0.04	147	209
150	ISL	9.78	9.76	33.371	25.720	229.4	0.494	4.38	68.2	15.7	1.39	17.3	0.01	0.02	0.04	151	
169		9.42	9.40	33.595	25.954	207.5	0.535	3.75	58.0	20.8	1.62	21.2	0.01	0.01	0.02	170	208
199		9.11	9.09	33.854	26.207	184.0	0.594	3.01	46.3	27.0	1.85	24.9	0.01	0.00	0.02	200	207
200	ISL	9.10	9.08	33.860	26.213	183.5	0.596	3.00	46.2	27.2	1.85	25.0	0.01			201	
227		8.74	8.72	33.987	26.370	169.0	0.643	2.82	43.1	31.7	1.93	26.5	0.00			228	206
250	ISL	8.39	8.36	34.041	26.466	160.2	0.681	2.50	37.9	36.1	2.07	28.6	0.00			251	
267		8.13	8.10	34.060	26.521	155.2	0.708	2.25	33.9	39.3	2.18	30.1	0.00			268	205
300	ISL	7.64	7.61	34.072	26.602	147.8	0.758	2.01	30.0	44.7	2.32	31.9	0.00			302	
319		7.39	7.36	34.070	26.636	144.7	0.786	1.92	28.5	47.5	2.38	32.7	0.00			321	204
378		6.85	6.81	34.083	26.722	137.1	0.869	1.57	23.0	55.0	2.56	35.0	0.00			380	203
400	ISL	6.80	6.76	34.119	26.757	134.1	0.899	1.31	19.2	57.7	2.67	35.8	0.00			402	
433		6.73	6.69	34.173	26.810	129.6	0.942	0.92	13.4	62.1	2.82	36.9	0.00			436	202
494		6.12	6.08	34.193	26.906	120.8	1.019	0.64	9.2	72.9	2.96	39.1	0.00			497	201
500	ISL	6.06	6.02	34.195	26.915	120.0	1.026									503	

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 82 47

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
34 16.7 N	120 1.5 W	17/01/04	0840 UTC	578 m	150 01 kn			1014.0 mb	14.0 C	12.8 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	13.10	13.10	33.231	25.003	294.4	0.000	6.19	103.5	1.6	0.38	1.1	0.13	3.70	1.13	0	
2	A	13.10	13.10	33.231	25.004	294.5	0.006	6.19	103.5	1.6	0.38	1.1	0.13	3.70	1.13	2	224
10		13.10	13.10	33.231	25.004	294.7	0.029	6.20	103.7	1.6	0.38	1.1	0.12	3.65	1.26	10	223
20		12.96	12.96	33.230	25.031	292.4	0.059	6.03	100.6	2.0	0.44	1.9	0.15	2.80	0.93	20	222
30		12.46	12.46	33.251	25.145	281.8	0.088	5.20	85.8	6.1	0.84	6.6	0.24	0.88	0.68	30	221
40		12.17	12.16	33.305	25.242	272.7	0.115	4.74	77.8	9.1	1.04	9.4	0.31	0.40	0.43	40	220
50		11.63	11.62	33.345	25.374	260.4	0.142	4.28	69.4	11.8	1.25	12.9	0.18	0.31	0.36	50	219
60		11.04	11.03	33.398	25.523	246.4	0.167	3.92	62.8	13.8	1.43	16.0	0.04	0.12	0.23	60	218
70		10.85	10.84	33.487	25.626	236.8	0.191	3.64	58.1	16.1	1.54	17.5	0.05	0.09	0.20	70	217
75	ISL	10.76	10.75	33.523	25.670	232.8	0.203	3.55	56.6	16.9	1.58	18.1	0.04	0.07	0.17	75	
84		10.61	10.60	33.581	25.742	226.1	0.224	3.40	54.0	18.2	1.64	19.0	0.02	0.05	0.12	84	216
100		10.49	10.48	33.685	25.844	216.8	0.259	3.03	48.1	20.9	1.78	20.7	0.02	0.06	0.13	101	215
120		10.24	10.23	33.774	25.957	206.5	0.302	2.72	42.9	23.9	1.91	22.5	0.03	0.08	0.15	121	214
125	ISL	10.21	10.20	33.801	25.983	204.1	0.312	2.64	41.6	24.5	1.93	22.8	0.03	0.07	0.14	126	
140		10.13	10.11	33.882	26.060	197.1	0.342	2.42	38.1	26.2	2.00	23.8	0.01	0.04	0.11	141	213
150	ISL	10.03	10.01	33.928	26.113	192.3	0.361	2.28	35.8	27.7	2.06	24.5	0.01	0.04	0.10	151	
169		9.81	9.79	34.001	26.207	183.7	0.397	2.04	31.9	30.6	2.16	25.9	0.01	0.04	0.09	170	212
199		9.52	9.50	34.073	26.312	174.3	0.451	1.82	28.3	33.4	2.27	27.5	0.01	0.02	0.14	200	211
200	ISL	9.51	9.49	34.076	26.316	173.9	0.453	1.81	28.2	33.5	2.27	27.6	0.01			201	
229		9.16	9.13	34.141	26.424	164.1	0.502	1.49	23.0	38.3	2.42	29.3	0.00			230	210
250	ISL	8.93	8.90	34.170	26.484	158.8	0.535	1.30	20.0	41.5	2.51	30.4	0.00			251	
270		8.73	8.70	34.188	26.530	154.8	0.567	1.14	17.4	44.4	2.58	31.3	0.00			272	209
300	ISL	8.46	8.43	34.209	26.588	149.6	0.612	0.90	13.7	48.8	2.69	32.5	0.00			302	
319		8.30	8.27	34.217	26.619	147.0	0.641	0.77	11.7	51.5	2.76	33.1	0.00			321	208
378		7.78	7.74	34.224	26.703	139.8	0.725	0.61	9.1	59.0	2.89	34.1	0.00			380	207
400	ISL	7.48	7.44	34.228	26.749	135.5	0.756	0.54	8.0	64.2	2.96	34.2	0.00			403	
437		6.98	6.94	34.237	26.826	128.3	0.804	0.40	5.9	74.0	3.09	34.3	0.00			440	206
479		6.60	6.56	34.241	26.881	123.4	0.857	0.24	3.5	84.7	3.25	33.4	0.00			482	205
500	ISL	6.54	6.49	34.245	26.892	122.6	0.883	0.14	2.0	90.4	3.32	32.1	0.01			503	
514		6.51	6.46	34.248	26.899	122.2	0.900	0.08	1.2	94.9	3.37	30.6	0.01			518	204
538		6.43	6.38	34.252	26.913	121.1	0.929	0.01	0.1	105.5	3.51	26.5	0.01			542	203
566		6.38	6.33	34.260	26.926	120.3	0.963	0.00	0.0	117.8	3.80	18.3	0.01			570	202
570		6.38	6.33	34.256	26.923	120.6	0.968	0.00	0.0	118.1	3.80	18.2	0.01			574	201

A) SANTA BARBARA BASIN STATION.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 83 40.6

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
34 13.4 N	119 24.6 W	17/01/04	0419 UTC	34 m	080 09 kn			1013.2 mb	14.1 C	13.0 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	13.88	13.88	33.227	24.843	309.8	0.000	6.74	114.6	1.8	0.28	0.0	0.00	3.31	0.59	0	
3		13.88	13.88	33.227	24.843	309.8	0.009	6.74	114.6	1.8	0.28	0.0	0.00	3.31	0.59	3	218
6		13.87	13.87	33.225	24.843	309.9	0.019	6.91	117.4	2.0	0.26	0.0	0.00	4.26	1.29	6	217
10	ISL	13.80	13.80	33.229	24.861	308.3	0.031	7.14	121.2	2.3	0.29	0.0	0.00	5.39	1.07	10	
11		13.77	13.77	33.230	24.868	307.6	0.034	7.17	121.6	2.4	0.30	0.0	0.00	5.60	1.02	11	216
20		13.28	13.28	33.227	24.965	298.6	0.061	6.23	104.6	3.7	0.43	0.4	0.07	5.38	1.33	20	215
30		13.15	13.15	33.231	24.994	296.1	0.091	6.04	101.1	4.4	0.51	1.0	0.14	2.48	1.00	30	214

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
34 10.9 N	119 30.5 W	16/01/04	1839 UTC	107 m	160 03 kn	240 04 08	1	1014.8 mb	15.0 C	14.0 C	12m	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	13.60	13.60	33.227	24.900	304.3	0.000	6.39	108.0	0.9	0.31	0.1	0.02	4.63	0.50	0	
1	B	13.60	13.60	33.227	24.900	304.3	0.003	6.39	108.0	0.9	0.31	0.1	0.02	4.63 A	0.50 A	1	221
9	B	13.50	13.50	33.228	24.921	302.5	0.027	6.25	105.4	1.1	0.34	0.2	0.03	3.71	0.62	9	220
10	ISL	13.50	13.50	33.228	24.921	302.5	0.030	6.25	105.4	1.1	0.34	0.2	0.03	3.70	0.61	10	
19	B	13.49	13.49	33.229	24.924	302.5	0.058	6.19	104.4	1.2	0.36	0.3	0.04	3.66	0.37	19	219
20	ISL	13.49	13.49	33.230	24.925	302.5	0.061	6.16	103.9	1.3	0.37	0.4	0.05	3.48	0.32	20	
28	B	13.39	13.39	33.234	24.949	300.4	0.085	5.89	99.1	2.5	0.49	1.8	0.14	1.82	0.12	28	218
30	ISL	13.35	13.35	33.234	24.957	299.7	0.091	5.84	98.2	2.7	0.51	2.1	0.16	1.54	0.22	30	
36	B	13.13	13.13	33.236	25.002	295.5	0.109	5.61	93.9	3.8	0.62	3.4	0.24	0.90	0.51	36	217
43		12.67	12.66	33.245	25.100	286.4	0.129	5.06	83.9	6.2	0.86	7.1	0.32	0.41	0.32	43	216
50	ISL	12.40	12.39	33.256	25.161	280.8	0.149	4.86	80.1	7.4	0.95	8.7	0.28	0.45	0.33	50	
53	B	12.29	12.28	33.266	25.189	278.1	0.157	4.80	78.9	7.9	0.98	9.2	0.25	0.47	0.34	53	215
62		11.77	11.76	33.340	25.345	263.5	0.182	4.33	70.5	11.0	1.20	12.5	0.20	0.31	0.34	62	214
70		11.19	11.18	33.334	25.446	254.0	0.202	4.16	66.8	11.8	1.33	14.8	0.03	0.14	0.20	70	213
75	ISL	11.13	11.12	33.395	25.505	248.5	0.215	3.99	64.1	13.2	1.40	15.8	0.03	0.13	0.18	75	
86		10.99	10.98	33.511	25.620	237.8	0.242	3.61	57.8	16.6	1.53	17.3	0.04	0.11	0.14	86	212
100		10.70	10.69	33.596	25.738	226.9	0.274	3.34	53.2	18.3	1.63	19.0	0.03	0.08	0.13	100	211

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

B) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 52.9 N	120 8.1 W	16/01/04	1205 UTC	94 m	300 13 kn			1012.0 mb	13.2 C	13.0 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	13.37	13.37	33.098	24.847	309.4	0.000	6.08	102.2	1.9	0.44	1.3	0.07	1.75	0.66	0	
2		13.37	13.37	33.098	24.847	309.4	0.006	6.08	102.2	1.9	0.44	1.3	0.07	1.75	0.66	2	210
10	ISL	13.35	13.35	33.098	24.851	309.2	0.031	6.05	101.6	1.8	0.43	1.3	0.07	3.45	3.49	10	
11		13.35	13.35	33.098	24.851	309.3	0.034	6.05	101.6	1.8	0.43	1.3	0.07	3.63	3.81	11	209
20		12.72	12.72	33.155	25.020	293.4	0.061	5.46	90.6	4.5	0.72	5.3	0.19	1.07	0.55	20	208
30	ISL	12.65	12.65	33.179	25.052	290.6	0.090	5.36	88.8	5.2	0.76	5.9	0.18	0.87	0.45	30	
31		12.64	12.64	33.178	25.053	290.5	0.093	5.35	88.6	5.2	0.76	6.0	0.18	0.85	0.44	31	207
39		12.45	12.44	33.218	25.121	284.2	0.116	5.14	84.8	6.6	0.85	7.3	0.18	0.73	0.54	39	206
50		12.14	12.13	33.271	25.222	274.9	0.147	4.83	79.2	8.5	0.99	9.5	0.18	0.57	0.47	50	205
58		11.96	11.95	33.293	25.273	270.2	0.169	4.66	76.1	9.3	1.06	10.5	0.18	0.50	0.48	58	204
69		11.91	11.90	33.301	25.289	269.0	0.198	4.61	75.2	9.6	1.10	10.9	0.18	0.49	0.40	69	203
75	ISL	11.72	11.71	33.337	25.352	263.1	0.214	4.44	72.2	10.7	1.17	12.1	0.17	0.40	0.37	75	
79		11.59	11.58	33.367	25.400	258.7	0.225	4.32	70.0	11.6	1.23	12.9	0.17	0.35	0.36	79	202
88		11.49	11.48	33.428	25.465	252.6	0.248	4.14	67.0	13.4	1.32	13.8	0.17	0.39	0.38	88	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 83 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 44.7 N	120 24.1 W	16/01/04	0832 UTC	985 m	320 26 kn			1012.8 mb	14.1 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	14.66	14.66	32.850	24.388	353.0	0.000	5.84	100.6	1.2	0.39	0.2	0.05	0.38	0.15	0	
2		14.66	14.66	32.850	24.389	353.1	0.007	5.84	100.6	1.2	0.39	0.2	0.05	0.38	0.15	2	220
10	ISL	14.66	14.66	32.850	24.389	353.3	0.035	5.83	100.5	1.2	0.39	0.2	0.05	0.38	0.15	10	
11		14.66	14.66	32.850	24.389	353.3	0.039	5.83	100.5	1.2	0.39	0.2	0.05	0.38	0.15	11	219
20	ISL	14.56	14.56	32.842	24.404	352.1	0.071	5.86	100.8	1.5	0.38	0.2	0.04	0.39	0.15	20	
21		14.55	14.55	32.841	24.406	352.0	0.074	5.86	100.7	1.5	0.38	0.2	0.04	0.39	0.15	21	218
30		14.48	14.48	32.835	24.416	351.3	0.106	5.87	100.8	1.4	0.38	0.2	0.04	0.40	0.17	30	217
41		14.39	14.38	32.831	24.432	350.0	0.144	5.88	100.7	1.4	0.38	0.2	0.04	0.44	0.20	41	216
50	ISL	14.14	14.13	32.849	24.498	343.9	0.176	5.88	100.2	1.6	0.42	0.6	0.09	0.42	0.22	50	
51		14.08	14.07	32.852	24.513	342.6	0.179	5.88	100.1	1.6	0.42	0.6	0.10	0.42	0.22	51	215
60		12.97	12.96	32.877	24.757	319.5	0.209	5.77	96.0	2.7	0.60	3.1	0.21	0.31	0.25	60	214
71		12.74	12.73	32.905	24.824	313.4	0.244	5.72	94.7	3.0	0.63	3.7	0.17	0.29	0.23	71	213
75	ISL	12.42	12.41	32.943	24.915	304.8	0.256	5.60	92.2	3.7	0.68	4.7	0.13	0.24	0.20	75	
84		11.58	11.57	33.039	25.147	282.8	0.282	5.30	85.7	5.7	0.82	7.5	0.03	0.13	0.12	84	212
100		10.62	10.61	33.121	25.382	260.7	0.326	5.05	80.0	8.9	1.04	11.2	0.02	0.08	0.06	100	211
119		9.82	9.81	33.327	25.678	232.7	0.373	4.39	68.5	14.9	1.41	17.3	0.01	0.04	0.04	120	210
125	ISL	9.64	9.63	33.422	25.782	223.0	0.386	4.13	64.2	17.2	1.52	19.0	0.01	0.03	0.04	126	
140		9.32	9.30	33.647	26.010	201.6	0.418	3.53	54.5	22.4	1.73	22.5	0.01	0.02	0.05	141	209
150	ISL	9.28	9.26	33.733	26.084	194.7	0.438	3.37	52.1	23.9	1.78	23.4	0.01	0.02	0.05	151	
170		9.21	9.19	33.823	26.166	187.4	0.476	3.11	48.0	25.8	1.84	24.2	0.01	0.02	0.04	171	208
200		9.35	9.33	34.038	26.313	174.2	0.531	2.17	33.6	31.4	2.12	26.9	0.01	0.01	0.05	201	207
229		9.09	9.07	34.139	26.434	163.2	0.579	1.80	27.8	35.9	2.28	28.7	0.01			230	206
250	ISL	8.58	8.55	34.134	26.510	156.1	0.613	1.83	27.9	39.2	2.32	29.9	0.01			251	
268		8.11	8.08	34.116	26.568	150.8	0.641	1.88	28.3	42.0	2.34	30.9	0.01			270	205
300	ISL	7.71	7.68	34.133	26.640	144.2	0.688	1.63	24.4	46.8	2.47	32.5	0.01			302	
318		7.59	7.56	34.152	26.672	141.4	0.713	1.43	21.3	49.4	2.55	33.3	0.01			320	204
379		7.31	7.27	34.250	26.790	131.1	0.797	0.78	11.6	57.9	2.82	35.3	0.01			381	203
400	ISL	7.08	7.04	34.251	26.823	128.2	0.824	0.69	10.2	61.2	2.88	36.1	0.01			403	
439		6.63	6.59	34.243	26.878	123.1	0.873	0.60	8.7	67.0	2.96	37.6	0.01			442	202
500	ISL	6.34	6.29	34.279	26.945	117.4	0.946	0.43	6.2	72.9	3.06	38.8	0.01			503	
522		6.24	6.19	34.293	26.969	115.3	0.972	0.37	5.3	75.0	3.09	39.3	0.01			526	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 83 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 35.1 N	120 45.6 W	16/01/04	0420 UTC	1388 m	330 28 kn			1012.5 mb	15.0 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	15.58	15.58	32.891	24.220	369.0	0.000	5.74	100.8	1.0	0.35	0.0	0.00	0.24	0.06	0	
3	15.58	15.58	32.891	24.221	369.1	0.011	5.74	100.8	1.0	0.35	0.0	0.00	0.24	0.06	3	220
10 ISL	15.59	15.59	32.893	24.220	369.4	0.037	5.73	100.6	1.0	0.35	0.0	0.00	0.24	0.06	10	
17	15.59	15.59	32.895	24.222	369.4	0.063	5.73	100.6	1.0	0.35	0.0	0.00	0.24	0.06	17	219
20 ISL	15.59	15.59	32.893	24.220	369.6	0.074	5.73	100.6	1.0	0.35	0.0	0.00	0.24	0.06	20	
30 ISL	15.58	15.58	32.888	24.219	370.1	0.111	5.74	100.8	1.0	0.35	0.0	0.00	0.25	0.07	30	
31	15.58	15.58	32.888	24.219	370.1	0.115	5.74	100.8	1.0	0.35	0.0	0.00	0.25	0.07	31	218
46	15.51	15.50	32.881	24.230	369.5	0.170	5.75	100.8	1.0	0.35	0.0	0.00	0.26	0.08	46	217
50 ISL	15.04	15.03	32.855	24.313	361.7	0.185	5.81	100.9	1.1	0.37	0.1	0.02	0.41	0.17	50	
56	14.28	14.27	32.825	24.451	348.7	0.206	5.89	100.7	1.4	0.41	0.4	0.06	0.61	0.29	56	216
66	13.58	13.57	32.849	24.614	333.4	0.240	5.87	98.9	1.9	0.48	1.1	0.11	0.46	0.31	66	215
75 ISL	12.60	12.59	32.813	24.780	317.7	0.269	5.79	95.6	2.7	0.61	3.0	0.16	0.26	0.21	75	
76	12.49	12.48	32.810	24.798	315.9	0.273	5.77	95.0	2.8	0.63	3.3	0.16	0.24	0.20	76	214
85	11.67	11.66	32.855	24.987	298.0	0.300	5.51	89.2	4.2	0.76	5.7	0.04	0.14	0.15	85	213
96	10.72	10.71	32.898	25.191	278.8	0.332	5.29	83.9	7.1	0.99	9.7	0.01	0.10	0.09	96	212
100 ISL	10.49	10.48	32.937	25.261	272.1	0.343	5.19	81.9	8.1	1.07	11.0	0.01	0.09	0.08	100	
110	10.08	10.07	33.064	25.430	256.2	0.369	4.93	77.2	10.7	1.23	13.7	0.01	0.07	0.06	110	211
124	9.63	9.62	33.282	25.675	233.2	0.404	4.53	70.3	14.6	1.40	16.8	0.01	0.03	0.04	125	210
125 ISL	9.60	9.59	33.302	25.695	231.2	0.406	4.50	69.8	15.0	1.41	17.0	0.01	0.03	0.04	126	
144	9.11	9.09	33.648	26.045	198.3	0.447	3.91	60.1	21.3	1.62	21.1	0.00	0.01	0.01	145	209
150 ISL	9.05	9.03	33.707	26.101	193.1	0.458	3.77	57.9	22.5	1.66	21.9	0.00	0.01	0.01	151	
171	8.91	8.89	33.838	26.226	181.6	0.498	3.33	51.0	26.1	1.80	24.1	0.00	0.01	0.01	172	208
198	8.58	8.56	33.986	26.393	166.2	0.545	2.78	42.3	32.2	2.00	27.2	0.00	0.00	0.01	199	207
200 ISL	8.55	8.53	33.993	26.403	165.2	0.548	2.74	41.7	32.7	2.02	27.4	0.00			201	
230	8.08	8.06	34.059	26.527	153.9	0.596	2.25	33.9	39.5	2.23	30.1	0.00			231	206
250 ISL	7.82	7.80	34.079	26.581	149.0	0.626	2.00	29.9	43.0	2.34	31.4	0.00			251	
269	7.59	7.56	34.085	26.619	145.6	0.654	1.83	27.3	45.9	2.42	32.4	0.00			271	205
300 ISL	7.15	7.12	34.081	26.678	140.2	0.699	1.70	25.1	50.5	2.51	33.8	0.00			302	
319	6.89	6.86	34.076	26.710	137.3	0.725	1.65	24.2	53.3	2.56	34.5	0.00			321	204
375	6.36	6.33	34.094	26.795	129.7	0.800	1.28	18.5	62.0	2.76	36.9	0.00			377	203
400 ISL	6.17	6.13	34.110	26.832	126.4	0.832	1.09	15.7	65.9	2.84	37.9	0.00			403	
438	5.92	5.88	34.139	26.887	121.5	0.879	0.82	11.7	71.9	2.95	39.2	0.00			441	202
500 ISL	5.51	5.47	34.193	26.981	113.1	0.951	0.51	7.2	82.1	3.10	40.9	0.00			503	
513	5.42	5.38	34.204	27.000	111.3	0.966	0.45	6.4	84.2	3.13	41.3	0.00			516	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 14.9 N	121 26.6 W	15/01/04	2131 UTC	3800 m	330 25 kn	330 05 05	2	1013.8 mb	14.0 C	13.9 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	14.30	14.30	32.935	24.530	339.5	0.000	6.03	103.2	1.4	0.37	0.1	0.01	0.69	0.16	0	
2	14.30	14.30	32.935	24.530	339.6	0.007	6.03	103.2	1.4	0.37	0.1	0.01	0.69	0.16	2	220
10 ISL	14.30	14.30	32.936	24.531	339.7	0.034	6.03	103.2	1.5	0.38	0.0	0.01	0.69	0.17	10	
11	14.30	14.30	32.936	24.531	339.7	0.037	6.03	103.2	1.5	0.38	0.0	0.01	0.69	0.17	11	219
20	14.22	14.22	32.960	24.567	336.6	0.068	6.03	103.0	1.6	0.37	0.1	0.01	0.75	0.19	20	218
30	13.92	13.92	33.067	24.712	323.1	0.101	6.06	103.0	1.9	0.41	0.6	0.05	0.85	0.26	30	217
41	13.59	13.58	33.139	24.835	311.6	0.136	5.92	100.0	2.3	0.48	1.7	0.13	0.64	0.30	41	216
50 ISL	13.07	13.06	33.152	24.950	300.9	0.163	5.50	91.9	4.1	0.70	5.2	0.22	0.35	0.21	50	
51	12.98	12.97	33.153	24.968	299.2	0.166	5.44	90.7	4.4	0.73	5.7	0.22	0.32	0.20	51	215
61	11.59	11.58	33.210	25.277	269.9	0.195	4.62	74.8	9.0	1.18	12.8	0.03	0.19	0.13	61	214
70	10.64	10.63	33.283	25.504	248.4	0.218	4.20	66.7	13.7	1.46	17.4	0.02	0.11	0.10	70	213
75 ISL	10.45	10.44	33.328	25.572	242.0	0.230	4.03	63.7	15.1	1.54	18.8	0.02	0.11	0.09	75	
85	10.29	10.28	33.410	25.663	233.5	0.254	3.79	59.7	16.8	1.63	20.3	0.01	0.10	0.08	85	212
100	9.73	9.72	33.498	25.826	218.3	0.288	3.64	56.7	20.0	1.72	22.1	0.01	0.04	0.06	100	211
119	9.23	9.22	33.759	26.112	191.5	0.327	2.97	45.8	25.9	1.92	25.3	0.01	0.01	0.06	120	210
125 ISL	9.14	9.13	33.803	26.161	186.9	0.338	2.88	44.4	26.9	1.95	25.8	0.01	0.01	0.06	126	
139	9.01	9.00	33.875	26.238	179.8	0.364	2.74	42.1	28.8	1.99	26.5	0.01	0.01	0.05	140	209
150 ISL	8.94	8.92	33.940	26.300	174.2	0.383	2.57	39.4	30.5	2.04	27.2	0.01	0.01	0.05	151	
168	8.83	8.81	34.026	26.385	166.4	0.414	2.32	35.5	33.2	2.12	28.2	0.01	0.01	0.04	169	208
199	8.41	8.39	34.075	26.489	157.0	0.464	2.12	32.2	37.7	2.23	29.8	0.01	0.00	0.03	200	207
200 ISL	8.39	8.37	34.075	26.492	156.8	0.466	2.12	32.2	37.9	2.23	29.8	0.01			201	
229	7.80	7.78	34.071	26.577	149.0	0.510	2.09	31.3	43.1	2.32	31.3	0.02			230	206
250 ISL	7.71	7.69	34.114	26.624	144.8	0.541	1.73	25.8	46.3	2.45	32.4	0.01			251	
269	7.65	7.62	34.152	26.663	141.5	0.568	1.38	20.6	49.2	2.57	33.4	0.00			271	205
300 ISL	7.09	7.06	34.137	26.731	135.2	0.611	1.28	18.9	55.5	2.68	35.3	0.00			302	
317	6.74	6.71	34.119	26.764	132.1	0.634	1.22	17.8	59.1	2.73	36.3	0.00			319	204
378	5.98	5.95	34.111	26.857	123.6	0.712	1.02	14.6	69.1	2.87	38.6	0.00			380	203
400 ISL	5.83	5.80	34.127	26.888	120.8	0.739	0.90	12.9	72.5	2.92	39.3	0.00			403	
437	5.64	5.60	34.162	26.940	116.3	0.782	0.68	9.7	78.0	3.01	40.4	0.00			440	202
500 ISL	5.35	5.31	34.211	27.014	109.8	0.854	0.45	6.4	85.9	3.12	41.6	0.00			503	
514	5.28	5.24	34.222	27.031	108.2	0.869	0.40	5.6	87.6	3.15	41.9	0.00			518	201

RV DAVID STARR JORDAN | CALCOFI CRUISE 0401 | STATION 83 74

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 5.8 N	121 41.8 W	15/01/04	1853 UTC	4018 m	330 20 kn	320 03 06	2	1016.8 mb	14.0 C	13.8 C	12m	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	13.68	13.68	33.128	24.807	313.1	0.000	6.02	101.8	2.2	0.44	1.2	0.10	0.89	0.32	0	
2	B	13.68	13.68	33.128	24.807	313.2	0.006	6.02	101.8	2.2	0.44	1.2	0.10	0.89	0.32	2	218
10	B	13.68	13.68	33.127	24.807	313.4	0.031	6.02	101.8	2.2	0.44	1.2	0.10	0.86	0.30	10	217
19	B	13.68	13.68	33.127	24.807	313.7	0.060	6.02	101.8	2.1	0.44	1.2	0.10	0.88	0.30	19	216
20	ISL	13.68	13.68	33.127	24.807	313.7	0.063	6.02	101.8	2.1	0.44	1.2	0.10	0.88	0.30	20	
29	B	13.65	13.65	33.128	24.814	313.3	0.091	5.98	101.1	2.2	0.45	1.4	0.11	0.83	0.31	29	215
30	ISL	13.58	13.58	33.132	24.831	311.6	0.094	5.90	99.6	2.5	0.49	2.0	0.12	0.77	0.30	30	
37	B	12.82	12.82	33.170	25.012	294.6	0.115	5.19	86.3	5.3	0.85	7.5	0.17	0.35	0.24	37	214
45		11.61	11.60	33.232	25.290	268.3	0.138	4.46	72.3	9.9	1.27	14.3	0.02	0.22	0.17	45	213
50	ISL	10.93	10.92	33.303	25.468	251.4	0.151	4.12	65.8	13.1	1.45	17.4	0.01	0.15	0.14	50	
53	B	10.56	10.55	33.350	25.570	241.8	0.158	3.95	62.6	15.0	1.54	18.9	0.01	0.12	0.12	53	212
75	ISL	9.96	9.95	33.539	25.820	218.4	0.209	3.51	55.0	20.0	1.70	21.8	0.01	0.12	0.12	75	
100		9.27	9.26	33.759	26.105	191.7	0.260	3.00	46.3	25.7	1.88	25.1	0.01	0.13 A	0.13 A	101	211

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

B) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN | CALCOFI CRUISE 0401 | STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 54.5 N	122 7.7 W	15/01/04	1250 UTC	4184 m	330 16 kn			1016.1 mb	14.2 C	13.9 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	14.02	14.02	33.113	24.726	320.9	0.000	6.00	102.2	1.9	0.39	0.4	0.04	0.80	0.25	0	
2		14.02	14.02	33.113	24.726	320.9	0.006	6.00	102.2	1.9	0.39	0.4	0.04	0.80	0.25	2	220
10	ISL	14.01	14.01	33.113	24.728	320.9	0.032	5.99	102.0	1.9	0.38	0.4	0.04	0.79	0.24	10	
11		14.01	14.01	33.113	24.728	321.0	0.035	5.99	102.0	1.9	0.38	0.4	0.04	0.79	0.24	11	219
20		14.02	14.02	33.113	24.726	321.4	0.064	5.99	102.0	1.8	0.39	0.4	0.04	0.74	0.28	20	218
30	ISL	14.00	14.00	33.114	24.731	321.2	0.096	5.99	102.0	1.8	0.39	0.5	0.05	0.70	0.26	30	
31		14.00	14.00	33.114	24.731	321.2	0.100	5.99	102.0	1.8	0.39	0.5	0.05	0.70	0.26	31	217
40		13.87	13.86	33.134	24.774	317.4	0.128	5.90	100.2	2.1	0.44	1.0	0.10	0.53	0.25	40	216
50		13.72	13.71	33.149	24.817	313.6	0.160	5.76	97.5	2.4	0.51	2.1	0.16	0.43	0.24	50	215
60		12.45	12.44	33.180	25.092	287.5	0.190	4.98	82.1	6.5	0.96	9.6	0.08	0.26	0.20	60	214
70		10.97	10.96	33.274	25.439	254.6	0.217	4.20	67.1	12.6	1.41	16.6	0.02	0.16	0.14	70	213
75	ISL	10.57	10.56	33.330	25.553	243.9	0.229	3.99	63.3	14.7	1.53	18.5	0.02	0.12	0.12	75	
85		10.09	10.08	33.447	25.726	227.5	0.253	3.71	58.2	18.1	1.66	20.7	0.02	0.07	0.09	85	212
100	ISL	9.45	9.44	33.635	25.979	203.7	0.285	3.28	50.8	23.2	1.83	23.7	0.01	0.01	0.08	100	
101		9.42	9.41	33.647	25.994	202.4	0.287	3.26	50.5	23.5	1.84	23.9	0.01	0.01	0.08	101	211
120		9.24	9.23	33.797	26.140	188.8	0.325	2.91	44.9	26.5	1.93	25.4	0.01	0.01	0.06	121	210
125	ISL	9.22	9.21	33.839	26.176	185.5	0.334	2.79	43.1	27.5	1.97	25.9	0.01	0.01	0.06	126	
139		9.15	9.13	33.942	26.268	177.0	0.359	2.44	37.6	30.0	2.06	27.2	0.01	0.01	0.05	140	209
150	ISL	9.07	9.05	33.981	26.312	173.1	0.379	2.28	35.1	31.1	2.09	27.7	0.01	0.01	0.05	151	
170		8.86	8.84	34.024	26.379	167.1	0.413			33.2	2.13	28.4	0.01	0.00	0.05	171	208
200	ISL	8.43	8.41	34.113	26.516	154.5	0.461	1.79	27.2	39.8	2.34	30.8	0.01	0.00	0.03	201	
201		8.42	8.40	34.116	26.520	154.2	0.462	1.78	27.0	40.0	2.35	30.9	0.01	0.00	0.03	202	207
229		8.24	8.22	34.166	26.587	148.3	0.505	1.40	21.2	44.2	2.51	32.2	0.01			230	206
250	ISL	7.86	7.83	34.150	26.631	144.3	0.535	1.45	21.7	47.1	2.54	33.0	0.01			251	
269		7.49	7.46	34.128	26.667	141.0	0.563	1.49	22.1	49.7	2.55	33.6	0.01			271	205
300	ISL	7.21	7.18	34.145	26.720	136.3	0.606	1.26	18.6	54.3	2.66	34.9	0.01			302	
321		7.08	7.05	34.165	26.754	133.3	0.634	1.05	15.5	57.5	2.75	35.8	0.01			323	204
381		6.50	6.47	34.191	26.854	124.4	0.711	0.75	10.9	66.8	2.93	38.1	0.00			383	203
400	ISL	6.34	6.30	34.197	26.879	122.1	0.735	0.68	9.8	69.5	2.97	38.6	0.00			403	
437		6.04	6.00	34.205	26.924	118.1	0.779	0.57	8.2	74.6	3.03	39.6	0.01			440	202
500	ISL	5.53	5.49	34.215	26.996	111.7	0.851	0.44	6.2	83.5	3.12	41.3	0.00			503	
517		5.39	5.35	34.218	27.015	109.9	0.870	0.40	5.7	85.9	3.15	41.7	0.00			521	201

RV DAVID STARR JORDAN | CALCOFI CRUISE 0401 | STATION 83 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 34.5 N	122 48.5 W	15/01/04	0643 UTC	4194 m	300 08 kn			1018.9 mb	16.8 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	15.36	15.36	32.762	24.170	373.9	0.000	5.78	101.0	1.2	0.36	0.1	0.00	0.15	0.05	0	
2		15.36	15.36	32.762	24.170	373.9	0.007	5.78	101.0	1.2	0.36	0.1	0.00	0.15	0.05	2	220
10		15.36	15.36	32.761	24.169	374.2	0.037	5.77	100.8	1.1	0.36	0.0	0.00	0.14	0.05	10	219
20	ISL	15.41	15.41	32.787	24.179	373.6	0.075	5.77	100.9	1.1	0.36	0.0	0.00	0.17	0.07	20	
21		15.42	15.42	32.790	24.179	373.6	0.079	5.77	100.9	1.1	0.36	0.0	0.00	0.17	0.07	21	218
30		15.09	15.09	32.723	24.199	371.9	0.112	5.80	100.7	1.1	0.36	0.0	0.00	0.22	0.11	30	217
40		13.95	13.94	32.705	24.426	350.5	0.148	5.87	99.6	1.8	0.46	0.7	0.03	0.66	0.31	40	216
50	ISL	13.83	13.82	33.021	24.695	325.2	0.182	6.03	102.2	1.9	0.43	0.9	0.00	0.74	0.33	50	
51		13.82	13.81	33.045	24.716	323.3	0.185	6.04	102.4	1.9	0.43	0.9	0.00	0.75	0.33	51	215
60		13.70	13.69	33.043	24.739	321.3	0.214	5.88	99.4	2.0	0.49	1.5	0.05	0.59	0.33	60	214
69		13.65	13.64	33.059	24.762	319.4	0.243	5.93	100.2	2.0	0.46	1.2	0.04	0.45	0.26	69	213
75	ISL	13.08	13.07	33.098	24.906	305.7	0.262	5.54	92.5	3.7	0.67	4.6	0.02	0.33	0.22	75	
85		11.60	11.59	33.155	25.233	274.6	0.291	4.84	78.4	7.9	1.10	11.7	0.00	0.14	0.15	85	212
99		9.10	9.09	33.129	25.640	235.8	0.327	4.83	74.0	14.6	1.39	16.6	0.00	0.03	0.03	99	211
100	ISL	9.12	9.11	33.156	25.657	234.2	0.329	4.78	73.3	15.0	1.41	16.9	0.00	0.03	0.03	100	
120		9.55	9.54	33.560	25.905	211.2	0.373	3.55	55.1	21.2	1.75	22.5	0.00	0.01	0.05	121	210
125	ISL	9.54	9.53	33.637	25.967	205.5	0.384	3.31	51.4	22.7	1.83	23.5	0.00	0.01	0.05	126	
139		9.52	9.50	33.823	26.116	191.6	0.412	2.80	43.5	26.4	2.00	25.6	0.00	0.01	0.05	140	209
150	ISL	9.39	9.37	33.880	26.182	185.6	0.432	2.75	42.6	27.8	2.00	25.9	0.00	0.01	0.05	151	
169		9.09	9.07	33.916	26.258	178.6	0.467	2.66	41.0	29.2	2.01	26.5	0.00	0.01	0.06	170	208
199		8.70	8.68	34.010	26.394	166.2	0.519	2.54	38.8	33.0	2.07	27.8	0.00	0.01	0.04	200	207
200	ISL	8.70	8.68	34.013	26.396	166.0	0.520	2.52	38.5	33.1	2.08	27.9	0.00			201	
228		8.58	8.56	34.090	26.475	159.0	0.566	2.03	30.9	37.5	2.26	29.5	0.00			229	206
250	ISL	8.30	8.27	34.114	26.537	153.4	0.600	1.83	27.7	41.0	2.35	30.8	0.00			251	
268		8.05	8.02	34.124	26.583	149.3	0.627	1.71	25.7	43.7	2.42	31.8	0.00			270	205
300	ISL	7.78	7.75	34.155	26.647	143.6	0.674	1.41	21.1	48.1	2.56	33.2	0.00			302	
318		7.64	7.61	34.170	26.680	140.8	0.700	1.26	18.8	50.5	2.63	33.9	0.00			320	204
378		7.00	6.96	34.179	26.777	132.0	0.782	0.98	14.4	58.8	2.82	36.2	0.00			380	203
400	ISL	6.77	6.73	34.181	26.810	129.1	0.811	0.88	12.9	62.2	2.87	37.1	0.00			403	
437		6.42	6.38	34.190	26.864	124.2	0.857	0.72	10.4	67.8	2.94	38.4	0.00			440	202
500	ISL	6.04	6.00	34.229	26.944	117.2	0.933	0.49	7.0	76.0	3.07	39.7	0.00			503	
512		5.97	5.93	34.237	26.959	115.8	0.947	0.45	6.5	77.6	3.09	40.0	0.00			515	201

RV DAVID STARR JORDAN | CALCOFI CRUISE 0401 | STATION 83 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 14.8 N	123 29.6 W	15/01/04	0102 UTC	4252 m	260 06 kn	270 02 07	1	1018.0 mb	17.8 C	16.4 C		4/8	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	16.54	16.54	33.033	24.113	379.3	0.000	5.65	101.2	1.1	0.35	0.0	0.00	0.11	0.02	0	
1		16.54	16.54	33.033	24.113	379.3	0.004	5.65	101.2	1.1	0.35	0.0	0.00	0.11	0.02	1	220
10	ISL	16.45	16.45	33.032	24.133	377.7	0.038	5.66	101.2	1.0	0.34	0.0	0.00	0.10	0.03	10	
15		16.38	16.38	33.030	24.148	376.4	0.057	5.66	101.1	1.0	0.34	0.0	0.00	0.10	0.03	15	219
20	ISL	16.34	16.34	33.027	24.155	375.9	0.076	5.66	101.0	1.0	0.34	0.0	0.00	0.11	0.03	20	
30	ISL	16.28	16.28	33.022	24.165	375.3	0.113	5.67	101.0	1.0	0.34	0.0	0.00	0.13	0.04	30	
31		16.28	16.28	33.022	24.165	375.3	0.117	5.67	101.0	1.0	0.34	0.0	0.00	0.13	0.04	31	218
46		16.25	16.24	33.026	24.176	374.8	0.173	5.66	100.8	1.0	0.34	0.0	0.00	0.19	0.07	46	217
50	ISL	16.24	16.23	33.027	24.179	374.6	0.188	5.66	100.8	1.1	0.34	0.0	0.00	0.22	0.07	50	
55		16.22	16.21	33.024	24.181	374.5	0.207	5.66	100.7	1.1	0.35	0.0	0.00	0.25	0.08	55	216
65		16.08	16.07	33.026	24.215	371.6	0.244	5.66	100.4	1.0	0.35	0.0	0.00	0.25	0.11	65	215
74		15.46	15.45	33.012	24.343	359.6	0.277	5.71	100.1	1.3	0.38	0.1	0.04	0.28	0.15	74	214
75	ISL	15.30	15.29	33.007	24.374	356.7	0.281	5.71	99.7	1.4	0.39	0.2	0.07	0.27	0.15	75	
84		13.72	13.71	32.962	24.673	328.2	0.311	5.65	95.5	2.3	0.55	2.0	0.28	0.22	0.19	84	213
94		12.44	12.43	32.920	24.894	307.3	0.343	5.53	91.0	3.7	0.69	4.5	0.05	0.23	0.23	94	212
100	ISL	11.68	11.67	32.938	25.050	292.4	0.361	5.37	87.0	5.5	0.85	7.3	0.04	0.19	0.20	100	
110		10.73	10.72	33.073	25.325	266.3	0.389	4.85	77.0	9.9	1.19	13.0	0.01	0.11	0.13	110	211
124		10.52	10.51	33.519	25.710	230.1	0.424	3.35	53.1	18.0	1.72	21.2	0.01	0.07	0.07	125	210
125	ISL	10.50	10.49	33.538	25.728	228.3	0.426	3.28	52.0	18.4	1.74	21.5	0.01	0.07	0.07	126	
144		10.12	10.10	33.770	25.974	205.3	0.467	2.53	39.8	23.9	1.98	24.8	0.00	0.02	0.04	145	209
150	ISL	10.04	10.02	33.815	26.023	200.8	0.480	2.40	37.7	25.0	2.02	25.3	0.00	0.01	0.04	151	
169		9.85	9.83	33.907	26.127	191.3	0.517	2.17	34.0	27.5	2.10	26.3	0.00	0.00	0.04	170	208
199		9.69	9.67	33.975	26.208	184.3	0.573	2.03	31.7	29.5	2.15	27.1	0.00	0.00	0.03	200	207
200	ISL	9.68	9.66	33.978	26.212	183.9	0.575	2.02	31.5	29.6	2.15	27.1	0.00			201	
228		9.40	9.37	34.066	26.327	173.5	0.625	1.79	27.8	32.5	2.26	28.3	0.00			229	206
250	ISL	9.24	9.21	34.121	26.396	167.3	0.662	1.63	25.2	34.9	2.33	29.2	0.00			251	
268		9.14	9.11	34.157	26.441	163.4	0.692	1.51	23.3	36.7	2.38	29.8	0.00			269	205
300	ISL	8.98	8.95	34.197	26.498	158.5	0.744	1.36	20.9	39.0	2.45	30.4	0.00			302	
318		8.90	8.87	34.211	26.522	156.6	0.772	1.30	20.0	40.1	2.48	30.7	0.00			320	204
378		8.60	8.56	34.236	26.589	151.2	0.864	1.13	17.2	43.4	2.58	31.7	0.00			380	203
400	ISL	8.49	8.45	34.243	26.612	149.4	0.897	1.07	16.3	44.7	2.61	32.1	0.00			402	
438		8.23	8.18	34.251	26.658	145.5	0.953	0.96	14.5	47.7	2.67	32.9	0.00			441	202
500	ISL	7.47	7.42	34.243	26.764	135.8	1.041	0.78	11.6	56.2	2.81	35.2	0.00			503	
515		7.29	7.24	34.242	26.789	133.5	1.061	0.74	11.0	58.3	2.85	35.7	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 83 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 55.2 N	124 10.1 W	14/01/04	1929 UTC	4214 m	340 08 kn	220 06 08	2	1021.3 mb	18.0 C	17.0 C	35m	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	16.50	16.50	33.025	24.116	379.0	0.000	5.63	100.8	1.0	0.38	0.1	0.00	0.11	0.02	0	
1	A	16.50	16.50	33.025	24.116	379.0	0.004	5.63	100.8	1.0	0.38	0.1	0.00	0.11	0.02	1	223
10	ISL	16.49	16.49	33.025	24.119	379.1	0.038	5.62	100.6	1.0	0.37	0.0	0.00	0.12	0.02	10	
14		16.48	16.48	33.025	24.121	378.9	0.053	5.62	100.5	1.0	0.36	0.0	0.00	0.12	0.02	14	222
20	ISL	16.41	16.41	33.027	24.139	377.4	0.076	5.63	100.6	1.0	0.37	0.1	0.00	0.12	0.03	20	
25	A	16.36	16.36	33.029	24.152	376.3	0.095	5.63	100.5	1.0	0.38	0.1	0.00	0.12	0.03	25	221
30	ISL	16.35	16.35	33.030	24.155	376.2	0.113	5.63	100.5	1.0	0.37	0.1	0.00	0.13	0.03	30	
40		16.34	16.33	33.031	24.159	376.2	0.151	5.62	100.3	1.0	0.35	0.0	0.00	0.16	0.04	40	220
50	ISL	16.31	16.30	33.027	24.163	376.1	0.189	5.61	100.0	1.1	0.35	0.0	0.00	0.21	0.08	50	
55	A	16.29	16.28	33.026	24.167	375.9	0.207	5.61	100.0	1.1	0.35	0.0	0.00	0.23	0.09	55	219
64		16.14	16.13	32.996	24.178	375.1	0.241	5.64	100.2	1.0	0.38	0.0	0.00	0.22	0.08	64	218
73		16.01	16.00	33.000	24.211	372.2	0.275	5.65	100.1	1.1	0.37	0.0	0.00	0.25	0.10	73	217
75	ISL	15.82	15.81	32.997	24.251	368.4	0.282	5.67	100.1	1.2	0.37	0.0	0.01	0.25	0.11	75	
80	A	15.33	15.32	32.991	24.355	358.6	0.300	5.72	100.0	1.4	0.39	0.1	0.04	0.26	0.14	80	216
89		14.97	14.96	33.006	24.445	350.3	0.332	5.73	99.4	1.4	0.42	0.2	0.07	0.26	0.14	89	215
96		14.53	14.52	33.025	24.554	340.0	0.357	5.72	98.4	1.6	0.46	0.7	0.21	0.23	0.16	96	214
100	ISL	14.25	14.24	33.031	24.618	334.0	0.370	5.68	97.1	1.8	0.50	1.3	0.30	0.21	0.16	100	
105	A	13.89	13.88	33.034	24.695	326.8	0.387	5.61	95.2	2.2	0.55	2.1	0.36	0.19	0.15	105	213
117		12.95	12.93	33.028	24.879	309.4	0.425	5.47	91.1	3.6	0.65	4.0	0.08	0.17	0.16	117	212
125	ISL	12.28	12.26	33.011	24.995	298.4	0.449	5.35	87.8	4.7	0.77	6.0	0.05	0.14	0.14	125	
129		11.94	11.92	33.006	25.056	292.7	0.461	5.28	86.0	5.3	0.84	7.1	0.03	0.13	0.13	130	211
141		10.89	10.87	33.043	25.275	271.8	0.495	5.06	80.6	7.9	1.03	10.6	0.02	0.08	0.12	142	210
150	ISL	10.47	10.45	33.153	25.434	256.8	0.518	4.77	75.4	10.6	1.21	13.8	0.01	0.06	0.10	151	
153	A	10.36	10.34	33.198	25.488	251.7	0.526	4.66	73.5	11.6	1.27	14.8	0.01	0.06	0.09	154	209
172		9.65	9.63	33.490	25.835	219.0	0.571	4.02	62.5	17.5	1.52	19.3	0.01	0.02	0.04	173	208
194		9.30	9.28	33.745	26.091	195.0	0.616	3.42	52.8	22.8	1.70	22.5	0.00	0.01	0.03	195	207
200	ISL	9.19	9.17	33.791	26.145	190.0	0.628	3.32	51.2	24.1	1.74	23.2	0.00			201	
229		8.71	8.69	33.938	26.336	172.2	0.680	2.97	45.3	29.8	1.90	26.1	0.00			230	206
250	ISL	8.48	8.45	34.004	26.424	164.3	0.716	2.68	40.7	33.4	2.01	27.7	0.00			251	
268		8.30	8.27	34.040	26.479	159.2	0.745	2.44	36.9	36.3	2.10	28.9	0.00			269	205
300	ISL	7.91	7.88	34.077	26.567	151.3	0.795	2.04	30.6	41.8	2.28	31.1	0.00			302	
318		7.68	7.65	34.088	26.609	147.4	0.821	1.84	27.5	44.9	2.38	32.2	0.00			320	204
379		6.93	6.89	34.117	26.738	135.7	0.908	1.31	19.2	55.6	2.66	35.4	0.00			381	203
400	ISL	6.73	6.69	34.126	26.772	132.6	0.936	1.17	17.1	58.9	2.73	36.3	0.00			402	
439		6.40	6.36	34.144	26.830	127.4	0.987	0.93	13.5	64.9	2.85	37.7	0.00			442	202
500	ISL	5.85	5.81	34.181	26.930	118.3	1.062	0.61	8.7	75.8	3.01	39.9	0.00			503	
513		5.73	5.69	34.190	26.952	116.2	1.077	0.54	7.7	78.1	3.04	40.4	0.00			516	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 87 33

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 53.4 N	118 29.5 W	12/01/04	1026 UTC	56 m	360 01 kn			1018.1 mb	14.9 C	13.0 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	14.08	14.08	33.225	24.800	313.8	0.000	6.19	105.6	1.1	0.32	0.1	0.03	1.71	0.43	0	
1		14.08	14.08	33.225	24.800	313.8	0.003	6.19	105.6	1.1	0.32	0.1	0.03	1.71	0.43	1	207
5		14.07	14.07	33.225	24.802	313.8	0.016	6.19	105.6	1.1	0.32	0.1	0.02	1.79	0.39	5	206
10	ISL	14.05	14.05	33.225	24.806	313.5	0.031	6.19	105.6	1.1	0.32	0.1	0.02	1.80	0.39	10	
11		14.05	14.05	33.225	24.806	313.5	0.035	6.19	105.6	1.1	0.32	0.1	0.02	1.80	0.39	11	205
20	ISL	13.62	13.62	33.212	24.885	306.3	0.062	6.13	103.6	1.4	0.36	0.6	0.06	2.84	0.84	20	
21		13.56	13.56	33.210	24.896	305.3	0.065	6.12	103.3	1.4	0.36	0.6	0.06	2.94	0.89	21	204
30	ISL	13.20	13.20	33.192	24.954	299.9	0.093	5.65	94.7	3.6	0.60	3.3	0.30	2.08	0.61	30	
31		13.16	13.16	33.190	24.961	299.4	0.096	5.58	93.4	3.9	0.63	3.7	0.33	1.92	0.56	31	203
39		12.71	12.70	33.167	25.032	292.8	0.119	5.08	84.2	6.6	0.93	6.9	0.50	0.95	0.48	39	202
46		12.43	12.42	33.213	25.121	284.4	0.140	4.75	78.3	8.6	1.10	8.6	0.53	0.73	0.49	46	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 49.3 N	118 37.8 W	12/01/04	1239 UTC	676 m	100 04 kn			1018.2 mb	14.4 C	13.0 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	14.47	14.47	33.221	24.715	321.9	0.000	6.07	104.4	0.2	0.31	0.3	0.00	1.59	0.47	0	
2		14.47	14.47	33.221	24.715	322.0	0.006	6.07	104.4	0.2	0.31	0.3	0.00	1.59	0.47	2	223
10	ISL	14.43	14.43	33.220	24.723	321.4	0.032	6.06	104.2	0.2	0.31	0.3	0.00	1.79	0.56	10	
11		14.42	14.42	33.220	24.725	321.3	0.035	6.06	104.1	0.2	0.31	0.3	0.00	1.82	0.58	11	222
20	ISL	14.08	14.08	33.220	24.797	314.7	0.064	5.88	100.3	1.6	0.40	0.9	0.05	1.95	0.68	20	
21		14.03	14.03	33.220	24.807	313.8	0.067	5.87	100.1	1.7	0.41	1.0	0.05	1.96	0.69	21	221
30		13.71	13.71	33.214	24.868	308.1	0.095	6.11	103.5	1.5	0.35	0.6	0.03	2.84	0.82	30	220
40		13.29	13.28	33.189	24.934	302.1	0.126	5.79	97.2	3.2	0.53	2.7	0.18	2.76	0.64	40	219
50		12.10	12.09	33.164	25.146	282.1	0.155	4.62	75.6	8.8	1.08	11.1	0.43	0.32	A 0.21 A	50	218
60		11.66	11.65	33.226	25.277	269.9	0.182	4.43	71.9	10.0	1.19	13.0	0.31	0.21	0.33	60	217
70		11.25	11.24	33.336	25.437	254.8	0.209	4.08	65.6	12.7	1.34	15.2	0.06	0.11	0.15	70	216
75	ISL	11.13	11.12	33.378	25.491	249.8	0.221	3.96	63.6	13.6	1.39	16.0	0.05	0.09	0.14	75	
86		10.96	10.95	33.453	25.580	241.6	0.248	3.77	60.3	15.0	1.47	17.2	0.02	0.07	0.12	86	215
100		10.78	10.77	33.529	25.672	233.2	0.282	3.56	56.8	16.6	1.55	17.9	0.01	0.04	0.07	100	214
120		10.50	10.49	33.666	25.828	218.8	0.327	3.20	50.8	19.6	1.69	20.1	0.01	0.03	0.05	121	213
125	ISL	10.44	10.43	33.710	25.872	214.6	0.338	3.08	48.8	20.6	1.74	20.7	0.01	0.03	0.05	126	
139		10.28	10.26	33.831	25.995	203.3	0.367	2.73	43.1	23.5	1.87	22.4	0.01	0.02	0.05	140	212
150	ISL	10.14	10.12	33.906	26.077	195.7	0.389	2.52	39.7	25.5	1.95	23.6	0.01	0.02	0.05	151	
169		9.92	9.90	33.999	26.188	185.6	0.425	2.28	35.8	28.1	2.05	25.1	0.01	0.02	0.05	170	211
199		9.66	9.64	34.056	26.276	177.8	0.480	2.21	34.5	29.8	2.09	26.1	0.01	0.01	0.07	200	210
200	ISL	9.65	9.63	34.060	26.281	177.4	0.481	2.20	34.3	30.0	2.10	26.2	0.01			201	
228		9.23	9.20	34.179	26.443	162.4	0.529	1.73	26.8	36.0	2.31	28.6	0.00			229	209
250	ISL	9.05	9.02	34.221	26.505	156.9	0.564	1.46	22.5	38.9	2.42	29.7	0.00			251	
269		8.92	8.89	34.238	26.539	154.0	0.594	1.28	19.7	40.9	2.50	30.4	0.01			271	208
300	ISL	8.57	8.54	34.256	26.608	147.8	0.640	1.08	16.5	44.8	2.61	31.7	0.01			302	
318		8.36	8.33	34.262	26.645	144.5	0.667	0.99	15.0	47.1	2.66	32.4	0.01			320	207
379		7.86	7.82	34.278	26.733	137.0	0.752	0.76	11.4	53.7	2.79	34.2	0.01			381	206
400	ISL	7.64	7.60	34.283	26.770	133.7	0.781	0.67	10.0	56.7	2.85	35.0	0.01			403	
437		7.27	7.23	34.292	26.830	128.3	0.829	0.53	7.8	61.9	2.94	36.2	0.01			440	205
500	ISL	6.92	6.87	34.300	26.885	123.8	0.909	0.42	6.2	67.4	3.03	37.5	0.00			503	
512		6.85	6.80	34.302	26.896	122.8	0.924	0.40	5.9	68.6	3.04	37.7	0.00			516	204
555		6.45	6.40	34.319	26.963	116.7	0.975	0.30	4.4	75.8	3.12	38.4	0.01			559	203
600	ISL	6.13	6.08	34.337	27.019	111.7	1.026	0.24	3.5	82.5	3.19	39.1	0.01			604	
601		6.12	6.07	34.337	27.021	111.5	1.028	0.24	3.5	82.6	3.19	39.1	0.01			605	202
668		5.63	5.57	34.366	27.105	103.8	1.100	0.16	2.3	93.5	3.28	39.3	0.01			673	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 0401 STATION 87 40

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 39.5 N	118 58.4 W	12/01/04	1759 UTC	760 m	130 07 kn	170 03 09	1	1020.4 mb	13.2 C	12.4 C	14m	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	14.38	14.38	33.220	24.733	320.2	0.000	6.15	105.6	0.7	0.29	0.1	0.01	1.96	0.48	0	
3	A	14.38	14.38	33.220	24.733	320.3	0.010	6.15	105.6	0.7	0.29	0.1	0.01	1.96	0.48	3	220
10	A	14.36	14.36	33.221	24.738	320.0	0.032	6.13	105.2	0.7	0.30	0.1	0.01	1.88	0.49	10	219
20	ISL	13.88	13.88	33.194	24.818	312.7	0.064	5.83	99.1	2.2	0.44	1.7	0.12	2.17	0.73	20	
23	A	13.67	13.67	33.182	24.852	309.5	0.073	5.69	96.3	2.9	0.51	2.5	0.16	2.26	0.77	23	218
30	ISL	13.16	13.16	33.148	24.928	302.4	0.094	5.31	88.9	4.5	0.71	5.1	0.20	1.08	0.53	30	
33	A	12.90	12.90	33.144	24.977	297.9	0.103	5.13	85.4	5.4	0.81	6.4	0.22	0.55	0.41	33	217
42	A	11.97	11.96	33.236	25.226	274.3	0.129	4.58	74.8	8.9	1.12	11.3	0.10	0.21	0.26	42	216
50	ISL	11.48	11.47	33.269	25.343	263.4	0.151	4.43	71.6	10.7	1.23	13.2	0.07	0.16	0.25	50	
52		11.39	11.38	33.276	25.365	261.3	0.156	4.40	71.0	11.0	1.25	13.5	0.07	0.15	0.25	52	215
61	A	11.02	11.01	33.360	25.497	248.9	0.179	4.07	65.2	13.0	1.38	15.7	0.03	0.09	0.15	61	214
70		10.88	10.87	33.414	25.564	242.8	0.201	3.90	62.3	14.1	1.45	16.7	0.02	0.08	0.15	70	213
75	ISL	10.65	10.64	33.448	25.631	236.5	0.213	3.80	60.4	15.7	1.51	17.7	0.02	0.07	0.14	75	
85		10.17	10.16	33.521	25.771	223.4	0.236	3.60	56.6	19.1	1.63	19.7	0.02	0.05	0.10	85	212
99		9.94	9.93	33.619	25.886	212.6	0.266	3.35	52.5	21.2	1.73	21.2	0.02	0.03	0.08	99	211
100	ISL	9.93	9.92	33.629	25.896	211.8	0.269	3.32	52.0	21.4	1.74	21.3	0.02	0.03	0.08	101	
119		9.86	9.85	33.821	26.057	196.8	0.307	2.74	42.9	25.2	1.91	23.6	0.01	0.02	0.06	120	210
125	ISL	9.84	9.83	33.865	26.095	193.3	0.319	2.62	41.0	26.1	1.95	24.1	0.01	0.02	0.06	126	
139		9.80	9.78	33.949	26.168	186.8	0.346	2.40	37.6	28.0	2.04	25.0	0.01	0.01	0.05	140	209
150	ISL	9.78	9.76	33.999	26.211	183.0	0.366	2.24	35.0	29.1	2.09	25.6	0.01	0.01	0.05	151	
169		9.72	9.70	34.065	26.272	177.5	0.400	2.00	31.3	30.9	2.17	26.6	0.01	0.01	0.05	170	208
199		9.44	9.42	34.141	26.379	168.0	0.452	1.78	27.7	34.3	2.28	27.9	0.02	0.01	0.07	200	207
200	ISL	9.43	9.41	34.143	26.382	167.7	0.454	1.77	27.5	34.4	2.28	27.9	0.02			201	
229		9.13	9.10	34.191	26.468	160.0	0.501	1.56	24.1	37.6	2.39	29.2	0.00			230	206
250	ISL	8.99	8.96	34.209	26.505	156.9	0.535	1.46	22.5	39.3	2.44	29.8	0.00			251	
269		8.89	8.86	34.220	26.530	154.8	0.564	1.38	21.2	40.7	2.48	30.3	0.00			271	205
300	ISL	8.68	8.65	34.237	26.576	150.9	0.612	1.23	18.8	43.2	2.55	31.1	0.00			302	
318		8.53	8.50	34.246	26.607	148.3	0.639	1.14	17.4	44.9	2.60	31.6	0.00			320	204
378		7.76	7.72	34.271	26.742	136.0	0.724	0.79	11.8	54.1	2.80	34.3	0.00			380	203
400	ISL	7.55	7.51	34.279	26.779	132.7	0.753	0.68	10.1	57.1	2.86	35.1	0.00			403	
438		7.22	7.18	34.292	26.837	127.7	0.803	0.53	7.8	62.3	2.95	36.3	0.00			441	202
500	ISL	6.69	6.64	34.309	26.923	119.9	0.880	0.36	5.3	71.3	3.08	37.9	0.00			503	
518		6.53	6.48	34.315	26.949	117.6	0.901	0.31	4.5	73.9	3.12	38.4	0.00			522	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 87 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 29.5 N	119 19.2 W	12/01/04	2051	UTC	1646 m	140	04 kn	280 02 06	2	1020.1 mb	15.8 C	12.6 C	18m	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	14.06	14.06	32.955	24.595	333.3	0.000	6.06	103.2	2.0	0.37	0.1	0.00	0.69	0.11	0	
1		14.06	14.06	32.955	24.595	333.3	0.003	6.06	103.2	2.0	0.37	0.1	0.00	0.69	0.11	1	220
10		14.01	14.01	32.955	24.606	332.6	0.033	6.06	103.1	2.0	0.37	0.1	0.00	0.51	0.11	10	219
20		13.94	13.94	32.960	24.625	331.1	0.066	6.05	102.8	1.9	0.38	0.1	0.01	0.56	0.17	20	218
30		13.85	13.85	32.983	24.661	327.9	0.099	5.97	101.3	2.3	0.41	0.5	0.05	1.07	0.97	30	217
40		13.61	13.60	33.002	24.725	322.0	0.132	5.80	97.9	2.7	0.50	1.6	0.16	0.63	0.35	40	216
50		12.60	12.59	33.107	25.007	295.4	0.163	5.26	87.0	6.5	0.81	6.8	0.16	0.30	0.23	50	215
60		10.82	10.81	33.204	25.411	257.1	0.190	4.65	74.1	11.5	1.24	13.9	0.02	0.13	0.12	60	214
69		10.51	10.50	33.373	25.597	239.6	0.213	4.11	65.1	15.3	1.42	16.8	0.03	0.10	0.04	69	213
75	ISL	10.37	10.36	33.427	25.663	233.4	0.227	3.94	62.2	16.6	1.48	17.9	0.03	0.08	0.05	75	
85		10.22	10.21	33.468	25.721	228.1	0.250	3.82	60.1	17.8	1.54	18.8	0.03	0.05	0.06	85	212
99		10.17	10.16	33.510	25.762	224.4	0.282	3.69	58.1	18.7	1.59	19.4	0.03	0.04	0.07	99	211
100	ISL	10.16	10.15	33.514	25.767	224.0	0.284	3.68	57.9	18.8	1.60	19.5	0.03	0.04	0.07	100	
119		10.04	10.03	33.622	25.872	214.5	0.326	3.36	52.7	21.0	1.71	21.0	0.02	0.03	0.07	120	210
125	ISL	10.05	10.04	33.666	25.905	211.5	0.338	3.21	50.4	21.7	1.75	21.5	0.02	0.03	0.07	126	
139		10.08	10.06	33.771	25.982	204.5	0.368	2.87	45.1	23.4	1.85	22.8	0.01	0.02	0.06	140	209
150	ISL	10.00	9.98	33.842	26.051	198.1	0.390	2.68	42.1	24.9	1.92	23.7	0.01	0.02	0.06	151	
170		9.79	9.77	33.953	26.173	186.9	0.428	2.40	37.5	27.8	2.03	25.1	0.01	0.01	0.05	171	208
200		9.49	9.47	34.075	26.319	173.7	0.482	1.99	30.9	32.5	2.20	27.3	0.00	0.01	0.05	201	207
229		9.19	9.16	34.147	26.424	164.2	0.531	1.72	26.6	36.1	2.31	28.8	0.01			230	206
250	ISL	9.04	9.01	34.180	26.474	159.8	0.565	1.55	23.9	38.2	2.38	29.4	0.01			251	
268		8.91	8.88	34.202	26.512	156.5	0.594	1.42	21.8	40.1	2.44	29.9	0.00			270	205
300	ISL	8.57	8.54	34.240	26.596	149.0	0.643	1.17	17.8	44.4	2.57	31.2	0.00			302	
318		8.36	8.33	34.257	26.641	144.9	0.669	1.04	15.8	46.9	2.64	32.0	0.00			320	204
377		7.75	7.71	34.278	26.749	135.3	0.752	0.75	11.2	54.5	2.81	34.2	0.00			379	203
400	ISL	7.52	7.48	34.284	26.787	131.9	0.782	0.66	9.8	57.7	2.87	35.0	0.00			403	
437		7.18	7.14	34.292	26.842	127.1	0.830	0.54	8.0	62.7	2.96	36.1	0.00			440	202
500	ISL	6.71	6.66	34.309	26.920	120.2	0.908	0.38	5.6	70.2	3.05	37.7	0.00			503	
513		6.61	6.56	34.313	26.937	118.7	0.924	0.35	5.1	71.7	3.07	38.0	0.00			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 87 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 19.5 N	119 39.8 W	13/01/04	0033	UTC	79 m		00 kn	280 02 06	1	1020.0 mb	13.4 C	11.9 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	13.37	13.37	33.122	24.865	307.6	0.000	6.23	104.7	2.1	0.45	1.0	0.08	3.23	0.20	0	
2		13.37	13.37	33.122	24.865	307.7	0.006	6.23	104.7	2.1	0.45	1.0	0.08	3.23	0.20	2	208
10		13.31	13.31	33.158	24.905	304.0	0.031	6.27	105.3	1.8	0.42	0.8	0.05	2.48	0.51	10	207
20		13.30	13.30	33.164	24.912	303.7	0.061	6.21	104.3	1.8	0.42	0.8	0.06	2.77	0.44	20	206
30		13.22	13.22	33.153	24.920	303.2	0.091	6.11	102.4	2.2	0.46	1.3	0.07	2.39	0.51	30	205
40		13.04	13.03	33.127	24.936	301.9	0.122	5.92	98.8	2.9	0.57	2.6	0.10	1.95	0.57	40	204
50		12.92	12.91	33.162	24.987	297.3	0.152	5.67	94.4	3.7	0.64	4.0	0.17	1.36	0.54	50	203
60		11.46	11.45	33.076	25.197	277.5	0.180	5.24	84.6	7.0	0.97	9.1	0.09	0.61	0.40	60	202
70		10.95	10.94	33.158	25.352	262.9	0.207	4.78	76.3	10.3	1.15	12.2	0.08	0.12	0.19	70	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST	TIME	BOTTOM	WIND	SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
33 9.1 N	120 0.2 W	13/01/04	0358	UTC	1215 m	210	03 kn			1021.8 mb	14.9 C	13.0 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	15.24	15.24	32.795	24.221	369.0	0.000	5.79	100.9	1.1	0.37	0.0	0.00	0.25	0.08	0	
2		15.24	15.24	32.795	24.221	369.0	0.007	5.79	100.9	1.1	0.37	0.0	0.00	0.25	0.08	2	220
10	ISL	15.22	15.22	32.799	24.229	368.5	0.037	5.80	101.0	1.1	0.36	0.0	0.00	0.25	0.08	10	
11		15.22	15.22	32.801	24.231	368.4	0.041	5.80	101.0	1.1	0.36	0.0	0.00	0.25	0.08	11	219
20		15.08	15.08	32.801	24.261	365.7	0.074	5.82	101.1	1.2	0.37	0.0	0.00	0.31	0.10	20	218
30		14.89	14.89	32.809	24.309	361.5	0.110	5.86	101.4	1.2	0.37	0.0	0.00	0.36	0.13	30	217
40		14.79	14.78	32.811	24.332	359.6	0.146	5.86	101.2	1.3	0.38	0.0	0.00	0.41	0.18	40	216
50		14.68	14.67	32.806	24.352	358.0	0.182	5.88	101.3	1.4	0.39	0.1	0.01	0.51	0.24	50	215
60		13.67	13.66	32.861	24.604	334.1	0.216	5.82	98.3	2.0	0.51	1.2	0.11	0.48	0.32	60	214
69		12.85	12.84	32.877	24.780	317.5	0.246	5.66	93.9	3.1	0.64	3.5	0.11			69	213
75	ISL	12.43	12.42	32.920	24.895	306.7	0.265	5.56	91.5	3.9	0.72	4.9	0.11	0.32	0.24	75	
84		11.88	11.87	33.001	25.062	290.9	0.291	5.38	87.6	5.6	0.85	7.2	0.12	0.21	0.16	84	212
98		10.95	10.94	33.109	25.315	267.1	0.330	4.95	79.0	9.5	1.14	12.2	0.05	0.13	0.13	98	211
100	ISL	10.82	10.81	33.124	25.349	263.8	0.336	4.91	78.2	10.0	1.17	12.7	0.04	0.12	0.12	100	
119		9.79	9.78	33.277	25.644	236.0	0.383	4.58	71.3	14.2	1.38	16.4	0.01	0.04	0.05	120	210
125	ISL	9.64	9.63	33.331	25.711	229.7	0.397	4.48	69.6	15.2	1.42	17.2	0.01	0.03	0.05	126	
140		9.43	9.41	33.475	25.858	216.0	0.431	4.18	64.7	17.9	1.53	19.2	0.01	0.02	0.04	141	209
150	ISL	9.30	9.28	33.590	25.969	205.6	0.452	3.83	59.1	20.7	1.65	21.1	0.01	0.02	0.05	151	
170		9.08	9.06	33.802	26.171	186.9	0.491	3.16	48.6	26.2	1.88	24.7	0.00	0.03	0.06	171	208
199		8.77	8.75	33.959	26.343	171.0	0.543	2.84	43.4	30.5	1.98	26.5	0.00	0.01	0.03	200	207
200	ISL	8.76	8.74	33.961	26.346	170.8	0.545	2.84	43.4	30.6	1.98	26.5	0.00			201	
230		8.50	8.48	34.004	26.420	164.2	0.595	2.77	42.1	33.4	2.04	27.5	0.00			231	206
250	ISL	8.31	8.28	34.042	26.479	158.9	0.627	2.49	37.7	36.6	2.15	28.9	0.00			251	
269		8.12	8.09	34.077	26.536	153.8	0.657	2.17	32.7	40.0	2.27	30.4	0.00			271	205
300	ISL	7.81	7.78	34.114	26.611	147.1	0.704	1.75	26.2	45.4	2.45	32.4	0.00			302	
318		7.65	7.62	34.134	26.650	143.6	0.730	1.53	22.8	48.4	2.55	33.3	0.00			320	204
377		7.36	7.32	34.233	26.770	133.1	0.811	0.90	13.3	56.1	2.80	35.1	0.00			379	203
400	ISL	7.21	7.17	34.235	26.793	131.1	0.842	0.83	12.3	58.1	2.84	35.7	0.00			402	
438		6.95	6.91	34.225	26.821	128.8	0.891	0.78	11.5	61.4	2.89	36.6	0.00			441	202
500	ISL	6.50	6.45	34.253	26.904	121.5	0.969	0.54	7.8	69.2	3.10	38.4	0.00			503	
510		6.43	6.38	34.258	26.917	120.3	0.981	0.50	7.3	70.5	3.13	38.7	0.00			513	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 87 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 59.3 N	120 21.0 W	13/01/04	0749 UTC	721 m	00 kn			1022.2 mb	14.7 C	12.8 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	15.34	15.34	32.807	24.209	370.2	0.000	5.77	100.8	1.2	0.35	0.1	0.00	0.19	0.07	0	
2		15.34	15.34	32.807	24.209	370.2	0.007	5.77	100.8	1.2	0.35	0.1	0.00	0.19	0.07	2	220
10	ISL	15.32	15.32	32.802	24.209	370.4	0.037	5.78	100.9	1.1	0.35	0.1	0.00	0.19	0.07	10	
16		15.30	15.30	32.795	24.209	370.6	0.059	5.78	100.9	1.1	0.35	0.1	0.00	0.19	0.07	16	219
20	ISL	15.29	15.29	32.792	24.209	370.8	0.074	5.78	100.8	1.4	0.35	0.1	0.00	0.20	0.07	20	
30	ISL	15.25	15.25	32.784	24.212	370.8	0.111	5.77	100.6	2.2	0.35	0.1	0.00	0.21	0.07	30	
31		15.25	15.25	32.784	24.212	370.8	0.115	5.77	100.6	2.3	0.35	0.1	0.00	0.21	0.07	31	218
45		15.02	15.01	32.729	24.220	370.4	0.167	5.81	100.8	2.3	0.36	0.1	0.00	0.29	0.12	45	217
50	ISL	14.83	14.82	32.729	24.260	366.7	0.185	5.82	100.5	2.4	0.37	0.1	0.01	0.34	0.19	50	
55		14.64	14.63	32.746	24.314	361.7	0.203	5.83	100.3	2.5	0.39	0.1	0.02	0.37	0.25	55	216
65		14.40	14.39	32.852	24.447	349.3	0.239	5.81	99.6	2.7	0.42	0.4	0.12	0.32	0.25	65	215
75		13.98	13.97	32.869	24.548	339.9	0.273	5.79	98.4	3.1	0.47	0.9	0.21	0.23	0.24	75	214
85		13.41	13.40	32.828	24.632	332.1	0.307	5.78	97.0	3.4	0.53	1.7	0.18	0.21	0.29	85	213
95		12.33	12.32	32.850	24.860	310.5	0.339	5.57	91.4	4.7	0.67	4.3	0.03	0.17	0.20	95	212
100	ISL	11.82	11.81	32.882	24.981	299.0	0.354	5.45	88.5	5.8	0.78	6.2	0.02	0.14	0.17	100	
110		10.97	10.96	32.970	25.203	277.9	0.383	5.23	83.4	8.2	0.98	9.7	0.01	0.08	0.12	110	211
125		10.27	10.26	33.113	25.436	256.0	0.423	5.04	79.3	10.9	1.11	12.2	0.01	0.05	0.07	126	210
144		9.86	9.84	33.271	25.629	238.0	0.470	4.68	73.0	14.3	1.30	15.6	0.01	0.04	0.04	145	209
150	ISL	9.71	9.69	33.353	25.717	229.7	0.484	4.48	69.7	16.0	1.38	17.0	0.01	0.03	0.03	151	
169		9.29	9.27	33.628	26.001	203.0	0.525	3.75	57.9	22.1	1.66	21.5	0.01	0.01	0.02	170	208
199		8.89	8.87	33.935	26.305	174.7	0.582	2.75	42.2	30.8	1.99	26.7	0.00	0.01	0.02	200	207
200	ISL	8.88	8.86	33.940	26.311	174.2	0.584	2.75	42.1	30.9	1.99	26.8	0.00			201	
228		8.48	8.46	34.010	26.428	163.4	0.631	2.70	41.0	33.8	2.04	27.7	0.00			229	206
250	ISL	8.04	8.01	34.029	26.509	155.9	0.666	2.58	38.8	38.1	2.13	29.2	0.00			251	
267		7.70	7.67	34.034	26.563	150.9	0.692	2.45	36.6	41.7	2.21	30.4	0.00			268	205
300	ISL	7.30	7.27	34.041	26.626	145.3	0.741	2.17	32.1	46.6	2.35	32.3	0.00			302	
319		7.15	7.12	34.049	26.653	142.9	0.768	1.97	29.0	49.2	2.43	33.2	0.00			321	204
377		6.88	6.84	34.149	26.770	132.6	0.848	1.14	16.7	58.2	2.74	35.9	0.00			379	203
400	ISL	6.66	6.62	34.147	26.798	130.1	0.879	1.04	15.2	61.0	2.80	36.8	0.00			402	
438		6.29	6.25	34.140	26.841	126.2	0.927	0.96	13.9	65.6	2.87	38.0	0.00			441	202
500	ISL	5.99	5.95	34.221	26.944	117.1	1.003	0.54	7.8	75.4	3.05	39.8	0.00			503	
514		5.92	5.88	34.239	26.967	115.0	1.019	0.45	6.4	77.6	3.09	40.2	0.00			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 39.5 N	121 1.8 W	13/01/04	1343 UTC	3781 m	010 07 kn			1020.9 mb	14.8 C	13.0 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	15.35	15.35	32.797	24.199	371.1	0.000	5.76	100.6	1.3	0.35	0.0	0.00	0.20	0.08	0	
2		15.35	15.35	32.797	24.199	371.2	0.007	5.76	100.6	1.3	0.35	0.0	0.00	0.20	0.08	2	220
10		15.35	15.35	32.793	24.196	371.7	0.037	5.75	100.4	1.3	0.35	0.0	0.00	0.19	0.07	10	219
20		15.21	15.21	32.761	24.202	371.4	0.074	5.78	100.6	1.3	0.35	0.0	0.00	0.24	0.10	20	218
30	ISL	15.16	15.16	32.752	24.207	371.3	0.111	5.78	100.5	1.2	0.36	0.0	0.00	0.29	0.13	30	
31		15.15	15.15	32.751	24.208	371.1	0.115	5.78	100.5	1.2	0.36	0.0	0.00	0.30	0.13	31	217
40		14.69	14.68	32.693	24.262	366.2	0.148	5.84	100.6	1.3	0.37	0.0	0.00	0.43	0.22	40	216
50		14.68	14.67	32.809	24.354	357.7	0.185	5.79	99.8	1.6	0.40	0.3	0.05	0.43	0.26	50	215
60		13.81	13.80	32.833	24.554	338.9	0.219	5.84	98.9	1.9	0.46	0.9	0.09	0.39	0.25	60	214
69		13.69	13.68	32.958	24.676	327.6	0.249	5.88	99.4	2.0	0.47	1.1	0.13	0.44	0.28	69	213
75	ISL	13.20	13.19	32.941	24.761	319.5	0.269	5.79	96.8	2.5	0.53	2.0	0.10	0.35	0.25	75	
85		12.12	12.11	32.888	24.929	303.6	0.300	5.54	90.6	4.0	0.70	4.5	0.02	0.17	0.18	85	212
99		10.76	10.75	32.987	25.253	272.9	0.340	5.16	82.0	7.8	1.02	10.2	0.01	0.09	0.10	99	211
100	ISL	10.74	10.73	33.007	25.272	271.1	0.343	5.11	81.1	8.2	1.05	10.7	0.01	0.09	0.10	100	
120		10.41	10.40	33.317	25.571	243.1	0.394	4.08	64.4	15.0	1.53	18.5	0.01	0.07	0.09	121	210
125	ISL	10.25	10.24	33.352	25.626	238.0	0.406	3.98	62.7	16.1	1.58	19.4	0.01	0.06	0.08	126	
140		9.73	9.71	33.430	25.774	224.1	0.441	3.85	59.9	18.9	1.67	21.1	0.00	0.03	0.06	141	209
150	ISL	9.39	9.37	33.506	25.889	213.3	0.463	3.80	58.8	20.9	1.71	22.0	0.00	0.02	0.04	151	
169		8.89	8.87	33.667	26.095	194.0	0.502	3.69	56.5	24.4	1.77	23.3	0.01	0.00	0.02	170	208
199		8.87	8.85	33.918	26.295	175.6	0.557	3.16	48.4	28.2	1.86	25.0	0.00	0.00	0.02	200	207
200	ISL	8.86	8.84	33.923	26.301	175.1	0.559	3.14	48.1	28.4	1.87	25.1	0.00			201	
229		8.52	8.50	34.023	26.432	163.1	0.608	2.52	38.3	34.4	2.09	28.2	0.00			230	206
250	ISL	8.26	8.23	34.067	26.506	156.3	0.641	2.12	32.1	39.1	2.25	30.3	0.00			251	
269		8.00	7.97	34.090	26.563	151.1	0.671	1.84	27.7	43.2	2.37	31.9	0.00			270	205
300	ISL	7.49	7.46	34.094	26.641	144.0	0.716	1.71	25.4	48.1	2.47	33.3	0.00			302	
318		7.21	7.18	34.091	26.678	140.6	0.742	1.68	24.8	50.6	2.52	33.8	0.00			320	204
378		6.72	6.69	34.134	26.780	131.6	0.824	1.12	16.4	59.9	2.77	36.5	0.00			380	203
400	ISL	6.57	6.53	34.150	26.812	128.7	0.852	0.99	14.4	62.9	2.83	37.2	0.00			402	
437		6.34	6.30	34.179	26.866	124.0	0.899	0.80	11.6	67.6	2.92	38.1	0.00			440	202
500	ISL	6.02	5.98	34.237	26.953	116.3	0.975	0.49	7.0	75.5	3.07	39.8	0.00			503	
515		5.94	5.89	34.251	26.974	114.4	0.992	0.41	5.9	77.4	3.10	40.2	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 87 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 20.5 N	121 40.9 W	13/01/04	2003 UTC	3020 m	290 01 kn	180 07 10	1	1021.9 mb	15.9 C	13.6 C	32m	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	15.76	15.76	32.878	24.170	373.8	0.000	5.71	100.6	1.4	0.39	0.0	0.00	0.14	0.08	0	
2	A	15.76	15.76	32.878	24.171	373.9	0.007	5.71	100.6	1.4	0.39	0.0	0.00	0.14	0.08	2	222
10	ISL	15.74	15.74	32.877	24.175	373.7	0.037	5.70	100.4	1.4	0.38	0.0	0.00	0.15	0.07	10	
14		15.73	15.73	32.876	24.176	373.7	0.052	5.70	100.4	1.4	0.37	0.0	0.00	0.16	0.06	14	221
20	ISL	15.72	15.72	32.875	24.178	373.7	0.075	5.70	100.3	1.4	0.36	0.0	0.00	0.15	0.06	20	
24	A	15.72	15.72	32.875	24.178	373.8	0.090			1.4	0.35	0.0	0.00	0.15	0.06	24	220
30	ISL	15.63	15.63	32.862	24.188	373.0	0.112	5.71	100.3	1.4	0.35	0.0	0.00	0.17	0.07	30	
32		15.60	15.60	32.861	24.194	372.5	0.120	5.71	100.3	1.4	0.35	0.0	0.00	0.17	0.07	32	219
41		14.78	14.77	32.695	24.245	367.9	0.153	5.83	100.6	1.5	0.36	0.0	0.00	0.33	0.17	41	218
50	A	14.40	14.39	32.713	24.339	359.1	0.186	5.83	99.8	1.7	0.40	0.2	0.06	0.48	0.29	50	217
62		13.49	13.48	32.858	24.639	330.9	0.227	5.84	98.2	2.4	0.50	1.5	0.14	0.43	0.29	62	216
74	A	12.68	12.67	32.904	24.834	312.4	0.266	5.66	93.6	3.5	0.65	3.9	0.16	0.21	0.20	74	215
75	ISL	12.67	12.66	32.923	24.851	310.9	0.269	5.63	93.1	3.6	0.67	4.2	0.15	0.20	0.19	75	
86		12.49	12.48	33.127	25.044	292.8	0.302	5.18	85.5	5.7	0.89	8.3	0.05	0.14	0.15	86	214
97	A	11.36	11.35	33.186	25.301	268.4	0.333	4.58	73.8	9.8	1.23	14.0	0.02	0.12	0.15	97	213
100	ISL	11.10	11.09	33.217	25.372	261.7	0.341	4.41	70.7	11.2	1.32	15.4	0.02	0.11	0.14	100	
111		10.22	10.21	33.356	25.634	236.9	0.368	3.99	62.8	16.1	1.56	19.4	0.02	0.05	0.10	111	212
124		9.10	9.09	33.538	25.960	205.9	0.397	4.09	62.8	20.1	1.58	20.4	0.01	0.01	0.03	125	211
125	ISL	9.10	9.09	33.553	25.972	204.8	0.399	4.09	62.8	20.2	1.58	20.4	0.01	0.01	0.03	126	
140	A	9.05	9.03	33.685	26.083	194.6	0.429	3.95	60.7	21.6	1.58	20.8	0.01	0.01	0.02	141	210
150	ISL	8.96	8.94	33.778	26.170	186.5	0.448	3.81	58.4	23.8	1.66	22.1	0.01	0.00	0.02	151	
154		8.92	8.90	33.810	26.202	183.6	0.455	3.75	57.5	24.7	1.69	22.6	0.01	0.00	0.02	155	209
169		8.80	8.78	33.863	26.262	178.1	0.483	3.45	52.8	26.6	1.76	23.8	0.01	0.00	0.01	170	208
199		8.47	8.45	33.990	26.413	164.2	0.534	3.12	47.4	31.7	1.87	26.0	0.01	0.00	0.02	200	207
200	ISL	8.46	8.44	33.992	26.417	164.0	0.536	3.11	47.2	31.9	1.88	26.1	0.01			201	
229		8.11	8.09	34.024	26.495	156.9	0.582	2.74	41.3	37.1	2.05	28.5	0.01			230	206
250	ISL	7.77	7.75	34.030	26.550	151.9	0.614	2.43	36.3	41.0	2.15	29.9	0.00			251	
269		7.48	7.45	34.037	26.597	147.6	0.643			44.4	2.24	31.1	0.00			271	205
300	ISL	7.28	7.25	34.079	26.659	142.2	0.688	1.74	25.7	49.4	2.43	33.0	0.00			302	
320		7.20	7.17	34.110	26.694	139.1	0.716	1.48	21.8	52.4	2.56	34.1	0.00			322	204
378		6.85	6.81	34.174	26.794	130.4	0.794	0.94	13.8	60.7	2.81	36.6	0.00			380	203
400	ISL	6.67	6.63	34.184	26.826	127.5	0.822	0.83	12.1	63.8	2.87	37.3	0.00			402	
438		6.31	6.27	34.188	26.877	122.9	0.870	0.70	10.1	69.3	2.94	38.5	0.00			441	202
500	ISL	5.59	5.55	34.176	26.958	115.3	0.944	0.60	8.5	80.0	3.04	40.6	0.00			503	
513		5.44	5.40	34.175	26.975	113.7	0.959	0.58	8.2	82.3	3.06	41.0	0.00			516	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 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 23.2 W	14/01/04	0212 UTC	4094 m	360 08 kn			1021.5 mb	14.8 C	13.1 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	15.15	15.15	32.649	24.128	377.8	0.000	5.83	101.3	1.3	0.36	0.0	0.00	0.17	0.05	0	
2		15.15	15.15	32.649	24.128	377.9	0.008	5.83	101.3	1.3	0.36	0.0	0.00	0.17	0.05	2	220
10	ISL	15.12	15.12	32.650	24.136	377.4	0.038	5.82	101.1	1.2	0.35	0.0	0.00	0.18	0.05	10	
15		15.10	15.10	32.653	24.143	376.9	0.057	5.81	100.9	1.2	0.35	0.0	0.00	0.18	0.05	15	219
20	ISL	15.13	15.13	32.662	24.143	377.0	0.075	5.81	100.9	1.2	0.35	0.0	0.00	0.20	0.05	20	
30		15.15	15.15	32.681	24.154	376.3	0.113	5.82	101.2	1.2	0.36	0.0	0.00	0.25	0.07	30	218
46		14.86	14.85	32.705	24.235	368.9	0.173	5.88	101.6	1.3	0.36	0.0	0.00	0.41	0.14	46	217
50	ISL	14.61	14.60	32.760	24.331	359.9	0.187	5.96	102.5	1.4	0.37	0.0	0.00	0.62	0.19	50	
55		14.14	14.13	32.812	24.470	346.8	0.205	6.03	102.8	1.7	0.38	0.1	0.01	0.86	0.25	55	216
65		12.46	12.45	32.714	24.729	322.2	0.238	5.76	94.7	3.2	0.68	3.7	0.06			65	215
75		11.68	11.67	32.698	24.863	309.6	0.270	5.69	92.0	4.1	0.77	5.4	0.04	0.21	0.33	75	214
85		10.90	10.89	32.751	25.044	292.4	0.300	5.51	87.7	6.0	0.92	8.2	0.02	0.15	0.20	85	213
95		10.01	10.00	32.820	25.251	272.9	0.328	5.38	84.0	8.4	1.07	10.9	0.02	0.07	0.06	95	212
100	ISL	9.78	9.77	32.880	25.336	264.9	0.342	5.30	82.3	9.4	1.12	11.9	0.02	0.05	0.05	100	
110		9.57	9.56	33.035	25.491	250.3	0.368	5.07	78.5	11.6	1.22	13.9	0.01	0.04	0.04	110	211
125		9.53	9.52	33.340	25.736	227.3	0.403	4.50	69.7	15.6	1.41	17.4	0.01	0.02	0.03	126	210
143		9.16	9.14	33.551	25.961	206.2	0.442	4.14	63.7	19.5	1.54	19.9	0.01	0.01	0.03	144	209
150	ISL	9.09	9.07	33.634	26.037	199.1	0.457	4.05	62.2	20.7	1.56	20.5	0.01	0.01	0.03	151	
169		8.97	8.95	33.828	26.208	183.3	0.493	3.80	58.3	23.8	1.63	21.9	0.01	0.01	0.02	170	208
198		8.64	8.62	33.972	26.373	168.1	0.544	3.03	46.2	30.6	1.90	26.0	0.00	0.00	0.02	199	207
200	ISL	8.62	8.60	33.977	26.380	167.5	0.547	3.01	45.9	30.9	1.91	26.1	0.00			201	
229		8.34	8.32	34.013	26.452	161.1	0.595	2.82	42.7	34.2	2.01	27.6	0.00			230	206
250	ISL	8.04	8.01	34.027	26.508	156.0	0.628	2.64	39.7	37.8	2.10	28.9	0.00			251	
268		7.76	7.73	34.034	26.555	151.8	0.656	2.47	36.9	41.1	2.19	30.1	0.00			269	205
300	ISL	7.32	7.29	34.041	26.623	145.5	0.703	2.17	32.1	46.6	2.35	32.2	0.00			302	
317		7.09	7.06	34.043	26.657	142.5	0.728	2.02	29.7	49.6	2.43	33.2	0.00			319	204
377		6.30	6.27	34.051	26.769	132.2	0.810	1.59	23.0	60.4	2.66	36.3	0.00			379	203
400	ISL	6.31	6.27	34.100	26.807	129.0	0.840	1.27	18.4	63.5	2.79	37.2	0.00			402	
438		6.33	6.29	34.175	26.864	124.2	0.888	0.77	11.1	68.1	3.00	38.3	0.00			441	202
500	ISL	5.98	5.94	34.231	26.953	116.2	0.963	0.49	7.0	76.6	3.12	39.8	0.00			503	
513		5.91	5.87	34.243	26.972	114.6	0.978	0.43	6.2	78.4	3.15	40.1	0.00			516	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 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 4.4 W	14/01/04	0800 UTC	4130 m	050 09 kn			1021.2 mb	15.9 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	15.81	15.81	32.849	24.137	377.0	0.000	5.73	101.0	1.2	0.35	0.0	0.01	0.12	0.04	0	
2		15.81	15.81	32.849	24.137	377.0	0.008	5.73	101.0	1.2	0.35	0.0	0.01	0.12	0.04	2	220
10	ISL	15.71	15.71	32.843	24.155	375.6	0.038	5.73	100.8	1.1	0.35	0.0	0.00	0.11	0.04	10	
15		15.63	15.63	32.838	24.169	374.4	0.056	5.73	100.7	1.0	0.35	0.0	0.00	0.11	0.04	15	219
20	ISL	15.59	15.59	32.829	24.171	374.3	0.075	5.73	100.6	1.0	0.35	0.0	0.00	0.13	0.05	20	
30		15.55	15.55	32.822	24.175	374.3	0.113	5.73	100.5	1.0	0.35	0.0	0.00	0.17	0.08	30	218
45		15.55	15.54	32.829	24.181	374.2	0.169	5.74	100.7	1.0	0.35	0.0	0.01	0.20	0.10	45	217
50	ISL	15.58	15.57	32.839	24.182	374.2	0.187	5.74	100.7	1.0	0.35	0.0	0.01	0.20	0.09	50	
55		15.60	15.59	32.848	24.185	374.1	0.206	5.73	100.6	1.0	0.35	0.0	0.01	0.20	0.09	55	216
65		15.59	15.58	32.850	24.189	374.0	0.244	5.70	100.1	1.0	0.35	0.0	0.01	0.24	0.12	65	215
75		15.48	15.47	32.848	24.212	372.1	0.281	5.69	99.7	1.1	0.36	0.0	0.02	0.22	0.13	75	214
85		14.06	14.05	32.891	24.548	340.2	0.316	5.80	98.7	2.0	0.47	0.7	0.24	0.25	0.20	85	213
95		13.14	13.13	32.958	24.787	317.6	0.349	5.65	94.4	2.8	0.57	2.4	0.14	0.19	0.20	95	212
100	ISL	12.69	12.68	32.958	24.875	309.3	0.365	5.57	92.2	3.4	0.65	3.6	0.09	0.16	0.19	100	
110		11.81	11.80	32.958	25.042	293.4	0.395	5.38	87.4	5.0	0.82	6.6	0.02	0.12	0.15	110	211
124		10.69	10.68	33.062	25.324	266.7	0.434	5.05	80.1	8.6	1.08	11.2	0.02	0.08	0.09	125	210
125	ISL	10.65	10.64	33.071	25.338	265.4	0.437	5.03	79.7	8.8	1.09	11.4	0.02	0.08	0.09	126	
145		10.07	10.05	33.273	25.595	241.3	0.488	4.74	74.3	12.1	1.22	14.3	0.01	0.04	0.05	146	209
150	ISL	9.92	9.90	33.322	25.658	235.3	0.500	4.67	73.0	13.0	1.26	15.0	0.01	0.03	0.04	151	
169		9.41	9.39	33.507	25.887	213.9	0.542	4.43	68.5	16.4	1.40	17.6	0.01	0.01	0.02	170	208
200		8.92	8.90	33.824	26.214	183.4	0.604	4.03	61.8	22.5	1.57	20.9	0.01	0.00	0.01	201	207
229		8.62	8.60	33.978	26.381	167.9	0.655	3.58	54.6	28.0	1.72	23.7	0.01			230	206
250	ISL	8.34	8.31	34.020	26.457	161.0	0.689	3.05	46.2	33.1	1.93	26.6	0.01			251	
269		8.08	8.05	34.034	26.508	156.4	0.719	2.56	38.5	37.8	2.13	29.2	0.01			270	205
300	ISL	7.68	7.65	34.063	26.589	149.0	0.767	2.06	30.7	44.0	2.34	31.9	0.01			302	
318		7.46	7.43	34.076	26.631	145.2	0.793	1.84	27.3	47.2	2.44	33.0	0.01			320	204
378		6.85	6.81	34.112	26.745	135.0	0.877	1.32	19.3	56.6	2.69	36.0	0.01			380	203
400	ISL	6.66	6.62	34.129	26.784	131.4	0.907	1.14	16.6	60.1	2.77	36.9	0.01			402	
438		6.35	6.31	34.157	26.847	125.8	0.955	0.87	12.6	66.0	2.90	38.2	0.00			441	202
500	ISL	5.86	5.82	34.181	26.929	118.4	1.031	0.62	8.9	75.4	3.01	39.9	0.00			503	
514		5.75	5.71	34.187	26.947	116.7	1.048	0.56	8.0	77.5	3.03	40.3	0.00			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 87 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 19.5 N	123 44.7 W	14/01/04	1333 UTC	4006 m	290 07 kn			1020.4 mb	16.0 C	15.2 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	16.45	16.45	33.001	24.109	379.7	0.000	5.75	102.8	1.3	0.36	0.0	0.00	0.11	0.03	0	
2		16.45	16.45	33.001	24.109	379.7	0.008	5.75	102.8	1.3	0.36	0.0	0.00	0.11	0.03	2	220
10	ISL	16.44	16.44	33.005	24.115	379.4	0.038	5.69	101.7	1.3	0.36	0.0	0.00	0.11	0.03	10	
15		16.43	16.43	33.005	24.117	379.4	0.057	5.64	100.8	1.3	0.36	0.0	0.00	0.11	0.03	15	219
20	ISL	16.42	16.42	33.015	24.127	378.5	0.076	5.65	100.9	1.3	0.36	0.0	0.00	0.11	0.04	20	
30	ISL	16.38	16.38	33.032	24.150	376.7	0.114	5.68	101.4	1.4	0.35	0.0	0.00	0.12	0.05	30	
31		16.37	16.37	33.033	24.153	376.4	0.117	5.68	101.4	1.4	0.35	0.0	0.00	0.12	0.05	31	218
45		16.23	16.22	33.013	24.170	375.3	0.170	5.65	100.6	1.3	0.35	0.0	0.00	0.17	0.06	45	217
50	ISL	16.24	16.23	33.018	24.172	375.2	0.189	5.65	100.6	1.3	0.35	0.0	0.00	0.19	0.07	50	
59		16.25	16.24	33.025	24.175	375.2	0.223	5.65	100.6	1.3	0.35	0.0	0.00	0.22	0.08	59	216
74		16.24	16.23	33.024	24.177	375.5	0.279	5.62	100.0	1.3	0.35	0.0	0.00	0.22	0.09	74	215
75	ISL	16.22	16.21	33.023	24.181	375.2	0.283	5.62	100.0	1.3	0.35	0.0	0.00	0.22	0.09	75	
84		16.01	16.00	33.014	24.222	371.5	0.316	5.64	99.9	1.4	0.37	0.0	0.02	0.21	0.11	84	214
94		14.73	14.72	32.932	24.440	350.9	0.352	5.74	99.1	1.9	0.45	0.4	0.20	0.21	0.14	94	213
100	ISL	14.12	14.11	32.957	24.588	336.9	0.373	5.70	97.2	2.2	0.49	1.0	0.30	0.18	0.14	100	
104		13.72	13.71	32.979	24.687	327.5	0.386	5.68	96.1	2.5	0.52	1.6	0.32	0.16	0.13	104	212
114		12.58	12.56	32.950	24.891	308.1	0.418	5.48	90.5	4.0	0.69	4.6	0.04	0.12	0.12	114	211
124		11.63	11.61	32.944	25.065	291.6	0.448	5.34	86.4	5.7	0.84	7.3	0.02	0.10	0.10	124	210
125	ISL	11.55	11.53	32.948	25.082	289.9	0.451	5.32	85.9	5.9	0.86	7.6	0.02	0.10	0.10	125	
139		10.69	10.67	33.058	25.321	267.3	0.490	5.04	80.0	8.9	1.07	11.3	0.01	0.07	0.07	140	209
150	ISL	10.21	10.19	33.233	25.540	246.6	0.518	4.66	73.2	12.2	1.25	14.6	0.01	0.04	0.05	151	
164		9.76	9.74	33.465	25.797	222.4	0.551	4.17	65.0	16.6	1.46	18.3	0.01	0.01	0.03	165	208
194		9.01	8.99	33.700	26.102	193.8	0.613	3.73	57.2	23.0	1.69	22.3	0.01	0.00	0.02	195	207
200	ISL	8.95	8.93	33.757	26.156	188.8	0.625	3.56	54.6	24.5	1.75	23.2	0.01			201	
228		8.76	8.74	33.985	26.365	169.5	0.675	2.78	42.5	31.1	1.98	26.9	0.00			229	206
250	ISL	8.42	8.39	34.040	26.461	160.7	0.711	2.59	39.3	34.9	2.07	28.3	0.00			251	
269		8.10	8.07	34.049	26.516	155.6	0.741	2.52	38.0	37.8	2.13	29.1	0.00			270	205
300	ISL	7.68	7.65	34.069	26.594	148.5	0.789	2.17	32.4	43.3	2.30	31.3	0.00			302	
318		7.45	7.42	34.075	26.632	145.1	0.815	1.96	29.1	46.6	2.40	32.5	0.00			320	204
377		6.72	6.69	34.097	26.750	134.3	0.897	1.50	21.9	56.6	2.64	35.4	0.00			379	203
400	ISL	6.43	6.39	34.108	26.797	129.9	0.928	1.30	18.8	60.8	2.74	36.7	0.00			402	
437		6.02	5.98	34.131	26.868	123.4	0.975	0.99	14.2	67.5	2.88	38.5	0.00			440	202
500	ISL	5.74	5.70	34.193	26.953	116.0	1.050	0.63	9.0	76.6	3.03	40.2	0.00			503	
515		5.67	5.63	34.208	26.973	114.1	1.067	0.54	7.7	78.8	3.07	40.6	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 28.9 N	117 46.2 W	12/01/04	0030 UTC	74 m	120 09 kn	250 02 06	0	1014.1 mb	16.9 C	15.1 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	14.75	14.75	33.213	24.649	328.2	0.000	5.99	103.6	0.9	0.33	0.0	0.00	0.67	0.24	0	
2		14.75	14.75	33.213	24.649	328.2	0.007	5.99	103.6	0.9	0.33	0.0	0.00	0.67	0.24	2	208
5		14.66	14.66	33.209	24.665	326.8	0.016	6.00	103.6	0.9	0.33	0.0	0.00	0.78	0.29	5	207
10		14.34	14.34	33.194	24.722	321.5	0.033	6.07	104.1	1.2	0.34	0.1	0.02	2.10	0.67	10	206
20		13.58	13.58	33.101	24.807	313.7	0.064	6.63	111.9	0.5	0.20	0.0	0.01	12.38	2.37	20	205
30		12.98	12.98	33.117	24.940	301.3	0.095	5.10	85.0	5.8	0.80	5.5	0.29	1.69	0.61	30	204
40		12.19	12.18	33.155	25.122	284.2	0.124	4.76	78.1	7.2	1.01	9.5	0.12	0.36	0.35	40	203
50	ISL	11.86	11.85	33.206	25.224	274.7	0.152	4.48	73.0	9.1	1.15	11.6	0.14	0.24	0.30	50	
51		11.83	11.82	33.213	25.235	273.7	0.155	4.45	72.4	9.3	1.16	11.8	0.14	0.23	0.30	51	202
60		11.40	11.39	33.315	25.393	258.8	0.179	4.11	66.3	11.9	1.32	14.0	0.13	0.13	0.37	60	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 30

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 25.0 N	117 54.4 W	12/01/04	0322 UTC	611 m	170 11 kn			1015.5 mb	15.0 C	13.7 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	14.69	14.69	33.200	24.652	327.9	0.000	5.97	103.2	1.1	0.35	0.0	0.00	0.63	0.25	0	
2		14.69	14.69	33.200	24.652	328.0	0.007	5.97	103.2	1.1	0.35	0.0	0.00	0.63	0.25	2	220
10		14.65	14.65	33.199	24.660	327.4	0.033	5.97	103.1	1.1	0.34	0.0	0.00	0.65	0.31	10	219
20		14.56	14.56	33.198	24.679	325.9	0.065	5.94	102.4	1.2	0.35	0.0	0.00	0.88	0.48	20	218
30		14.55	14.55	33.198	24.681	326.0	0.098	5.93	102.2	1.2	0.34	0.0	0.00	0.82	0.38	30	217
40		14.51	14.50	33.196	24.688	325.6	0.131	5.87	101.0	1.4	0.36	0.3	0.02	0.93	0.49	40	216
50		12.17	12.16	33.156	25.127	284.0	0.161	4.81	78.8	7.2	1.00	9.4	0.06	0.25	0.36	50	215
60		11.73	11.72	33.223	25.261	271.4	0.189	4.52	73.4	9.3	1.16	11.9	0.03	0.16	0.29	60	214
70		11.35	11.34	33.322	25.408	257.6	0.215	4.27	68.8	11.3	1.26	13.8	0.02	0.10	0.19	70	213
75	ISL	11.20	11.19	33.369	25.472	251.7	0.228	4.12	66.2	12.4	1.33	14.8	0.02	0.09	0.17	75	
85		10.97	10.96	33.451	25.577	241.9	0.253	3.84	61.5	14.5	1.45	16.6	0.01	0.07	0.15	85	212
100	ISL	10.71	10.70	33.536	25.689	231.5	0.288	3.68	58.6	16.3	1.51	17.6	0.01	0.04	0.09	100	
101		10.70	10.69	33.542	25.696	230.9	0.291	3.67	58.4	16.4	1.51	17.7	0.01	0.04	0.09	101	211
120		10.40	10.39	33.712	25.881	213.7	0.333	3.23	51.1	20.0	1.68	20.2	0.01	0.02	0.06	121	210
125	ISL	10.32	10.31	33.756	25.929	209.2	0.343	3.11	49.2	21.1	1.73	20.8	0.01	0.02	0.06	126	
140		10.09	10.07	33.872	26.059	197.2	0.374	2.82	44.4	23.9	1.84	22.5	0.00	0.01	0.05	141	209
150	ISL	9.98	9.96	33.914	26.111	192.5	0.393	2.75	43.2	24.9	1.87	23.1	0.00	0.01	0.04	151	
169		9.80	9.78	33.974	26.188	185.5	0.429	2.66	41.6	26.5	1.91	24.0	0.01	0.01	0.03	170	208
199		9.53	9.51	34.115	26.343	171.3	0.483	2.14	33.3	31.5	2.14	26.6	0.00	0.01	0.04	200	207
200	ISL	9.52	9.50	34.117	26.347	171.1	0.484	2.13	33.2	31.6	2.14	26.7	0.00			201	
229		9.19	9.16	34.165	26.438	162.8	0.533	1.90	29.4	35.2	2.24	28.1	0.00			230	206
250	ISL	9.11	9.08	34.206	26.484	158.9	0.567	1.61	24.8	37.5	2.37	29.1	0.00			251	
269		9.05	9.02	34.238	26.518	156.0	0.597	1.36	21.0	39.5	2.49	29.9	0.00			271	205
300	ISL	8.80	8.77	34.254	26.571	151.5	0.644	1.19	18.2	42.5	2.58	30.9	0.00			302	
318		8.61	8.58	34.256	26.602	148.8	0.671	1.14	17.4	44.3	2.62	31.4	0.00			320	204
378		7.92	7.88	34.269	26.718	138.5	0.757	0.84	12.6	52.1	2.77	33.7	0.00			380	203
400	ISL	7.67	7.63	34.278	26.761	134.5	0.787	0.72	10.8	55.6	2.84	34.6	0.00			403	
435		7.30	7.26	34.292	26.825	128.7	0.834	0.54	8.0	61.3	2.96	36.0	0.00			438	202
500	ISL	6.72	6.67	34.311	26.921	120.2	0.914	0.37	5.4	70.5	3.09	37.8	0.00			503	
517		6.57	6.52	34.317	26.945	118.0	0.935	0.32	4.7	72.9	3.12	38.3	0.00			521	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 15.2 N	118 14.9 W	11/01/04	1748 UTC	281 m	360 03 kn	190 03 08	4	1014.3 mb	15.3 C	14.9 C	20m	6/8

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	14.60	14.60	33.211	24.680	325.3	0.000	5.93	102.3	0.8	0.32	0.0	0.00	0.82	0.28	0	
2	A	14.60	14.60	33.211	24.680	325.3	0.007	5.93	102.3	0.8	0.32	0.0	0.00	0.82	0.28	2	218
9		14.60	14.60	33.209	24.678	325.7	0.029	5.93	102.3	0.8	0.32	0.0	0.00	0.78	0.28	9	217
10	ISL	14.60	14.60	33.209	24.678	325.7	0.033	5.93	102.3	0.8	0.32	0.0	0.00	0.78	0.29	10	
14	A	14.59	14.59	33.209	24.681	325.6	0.046	5.92	102.1	0.8	0.32	0.0	0.01	0.79	0.31	14	216
20	ISL	14.58	14.58	33.210	24.684	325.5	0.065	5.90	101.7	1.0	0.33	0.1	0.01	0.84	0.29	20	
23		14.57	14.57	33.210	24.686	325.3	0.075	5.89	101.5	1.1	0.34	0.1	0.01	0.89	0.28	23	215
30	ISL	14.45	14.45	33.207	24.709	323.3	0.098	5.86	100.8	1.4	0.38	0.4	0.04	1.12	0.39	30	
31	A	14.43	14.43	33.207	24.714	322.9	0.101	5.86	100.7	1.4	0.39	0.5	0.05	1.16	0.41	31	214
39		14.16	14.15	33.208	24.771	317.7	0.126	5.80	99.1	1.5	0.41	0.9	0.07	1.44	0.48	39	213
47	A	13.22	13.21	33.192	24.951	300.7	0.151	5.14	86.2	5.0	0.76	5.9	0.18	0.51	0.35	47	212
50	ISL	13.02	13.01	33.191	24.990	297.1	0.160	5.03	84.0	5.8	0.83	7.0	0.16	0.34	0.32	50	
54		12.79	12.78	33.192	25.036	292.8	0.172	4.93	81.9	6.5	0.90	8.1	0.11	0.22	0.30	54	211
61	A	12.18	12.17	33.204	25.162	280.8	0.192	4.73	77.6	7.7	1.03	10.1	0.05	0.17	0.28	61	210
74		11.05	11.04	33.334	25.471	251.7	0.227	4.17	66.8	12.0	1.33	15.0	0.02	0.09	0.14	74	209
75	ISL	11.01	11.00	33.345	25.487	250.2	0.229	4.13	66.1	12.3	1.35	15.3	0.02	0.09	0.13	75	
88	A	10.72	10.71	33.493	25.654	234.6	0.261	3.68	58.6	15.6	1.51	17.8	0.01	0.04	0.10	88	208
100	ISL	10.50	10.49	33.619	25.791	221.8	0.288	3.30	52.3	18.7	1.65	19.8	0.01	0.02	0.08	100	
105		10.42	10.41	33.666	25.841	217.1	0.299	3.16	50.0	19.9	1.70	20.5	0.01	0.02	0.08	106	207
124		10.18	10.17	33.787	25.977	204.6	0.339	2.87	45.2	22.6	1.81	22.1	0.01	0.01	0.05	125	206
125	ISL	10.17	10.16	33.795	25.985	203.9	0.341	2.85	44.9	22.7	1.82	22.2	0.01	0.01	0.05	126	
149		9.98	9.96	33.965	26.150	188.7	0.388	2.50	39.3	25.8	1.95	24.0	0.01	0.01	0.05	150	205
150	ISL	9.97	9.95	33.970	26.156	188.2	0.390	2.49	39.1	25.9	1.95	24.1	0.01	0.01	0.05	151	
179		9.62	9.60	34.072	26.295	175.6	0.443	2.21	34.5	29.9	2.09	26.1	0.01	0.00	0.03	180	204
200	ISL	9.35	9.33	34.133	26.387	167.2	0.479	2.02	31.3	32.9	2.19	27.3	0.01	0.00	0.03	201	
209		9.24	9.22	34.156	26.423	163.9	0.494	1.93	29.9	34.2	2.24	27.8	0.01	0.00	0.03	210	203
242		8.89	8.86	34.228	26.536	153.8	0.546	1.37	21.0	39.9	2.46	30.1	0.01			243	202
250	ISL	8.87	8.84	34.230	26.540	153.4	0.558	1.36	20.9	40.2	2.47	30.2	0.01			251	
280		8.80	8.77	34.235	26.556	152.5	0.604	1.30	19.9	41.5	2.51	30.5	0.01			282	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 37

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
33 11.1 N	118 23.0 W	11/01/04	1452 UTC	1175 m	280 01 kn	190 03 12	0	1013.1 mb	14.9 C	14.1 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	14.48	14.48	33.219	24.711	322.3	0.000	5.94	102.2	0.7	0.32	0.0	0.01	1.14	0.33	0	
2		14.48	14.48	33.219	24.711	322.3	0.006	5.94	102.2	0.7	0.32	0.0	0.01	1.14	0.33	2	220
10		14.48	14.48	33.223	24.715	322.2	0.032	5.94	102.2	0.6	0.32	0.0	0.00	1.22	0.27	10	219
20		14.48	14.48	33.220	24.713	322.7	0.064	5.95	102.4	0.7	0.32	0.0	0.00	1.18	0.35	20	218
30		14.26	14.26	33.217	24.757	318.8	0.097	5.89	100.9	1.5	0.39	0.5	0.04	1.33	0.48	30	217
40		14.18	14.17	33.222	24.778	317.1	0.128	5.78	98.8	2.1	0.44	1.1	0.08	1.03	0.57	40	216
50		13.99	13.98	33.220	24.816	313.7	0.160	5.62	95.7	3.1	0.52	2.2	0.16	0.64	0.42	50	215
60		12.45	12.44	33.200	25.108	286.0	0.190	4.84	79.8	7.1	0.97	9.2	0.10	0.19	0.25	60	214
70		11.36	11.35	33.264	25.361	262.1	0.217	4.38	70.6	10.5	1.24	13.5	0.02	0.11	0.22	70	213
75	ISL	11.12	11.11	33.303	25.435	255.2	0.230	4.24	68.0	11.5	1.31	14.6	0.02	0.09	0.19	75	
85		10.87	10.86	33.395	25.551	244.3	0.255	3.99	63.7	13.4	1.41	16.2	0.01	0.06	0.14	85	212
100		10.47	10.46	33.585	25.769	223.9	0.290	3.47	55.0	17.7	1.60	19.2	0.01	0.03	0.12	100	211
120		10.15	10.14	33.751	25.954	206.7	0.333	3.04	47.9	21.6	1.77	21.6	0.01	0.01	0.04	121	210
125	ISL	10.11	10.10	33.790	25.991	203.3	0.344	2.92	46.0	22.5	1.81	22.1	0.01	0.01	0.04	126	
140		10.01	9.99	33.895	26.091	194.2	0.373	2.60	40.9	25.1	1.92	23.6	0.00	0.01	0.05	141	209
150	ISL	9.93	9.91	33.952	26.149	188.9	0.393	2.44	38.3	26.6	1.98	24.4	0.00	0.01	0.04	151	
170		9.73	9.71	34.041	26.252	179.4	0.429	2.19	34.2	29.3	2.08	25.8	0.01	0.01	0.03	171	208
199		9.34	9.32	34.124	26.381	167.7	0.480	1.97	30.5	33.2	2.21	27.4	0.01	0.00	0.03	200	207
200	ISL	9.33	9.31	34.127	26.385	167.3	0.481	1.96	30.4	33.3	2.21	27.4	0.01			201	
229		9.23	9.20	34.195	26.455	161.3	0.529	1.63	25.2	36.3	2.33	28.7	0.01			230	206
250	ISL	9.06	9.03	34.219	26.502	157.2	0.562	1.50	23.1	38.3	2.41	29.4	0.00			251	
269		8.88	8.85	34.231	26.540	153.9	0.592	1.40	21.5	40.2	2.47	30.0	0.00			271	205
300	ISL	8.55	8.52	34.251	26.607	147.9	0.639	1.17	17.8	44.0	2.58	31.3	0.00			302	
319		8.35	8.32	34.260	26.645	144.5	0.667	1.03	15.6	46.4	2.64	32.1	0.00			321	204
378		7.82	7.78	34.278	26.739	136.4	0.749	0.75	11.2	53.3	2.81	34.0	0.00			380	203
400	ISL	7.62	7.58	34.283	26.772	133.4	0.779	0.67	10.0	56.0	2.86	34.7	0.00			403	
438		7.27	7.23	34.292	26.830	128.4	0.829	0.54	8.0	60.8	2.93	36.0	0.00			441	202
500	ISL	6.76	6.71	34.309	26.914	120.9	0.906	0.38	5.6	68.3	3.02	37.7	0.00			503	
517		6.62	6.57	34.314	26.937	118.8	0.927	0.33	4.8	70.3	3.04	38.2	0.00			521	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 55.0 N	118 56.1 W	11/01/04	0927 UTC	1689 m	320 08 kn			1014.0 mb	14.7 C	13.8 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	14.48	14.48	33.082	24.606	332.3	0.000	5.98	102.8	1.7	0.37	0.1	0.01	0.42	0.18	0	
2		14.48	14.48	33.082	24.606	332.4	0.007	5.98	102.8	1.7	0.37	0.1	0.01	0.42	0.18	2	220
10		14.48	14.48	33.083	24.607	332.5	0.033	5.98	102.8	1.7	0.36	0.1	0.01	0.43	0.15	10	219
20	ISL	13.92	13.92	33.110	24.745	319.7	0.066	6.07	103.2	2.3	0.40	0.6	0.04	0.42	0.26	20	
21		13.85	13.85	33.113	24.761	318.1	0.069	6.08	103.2	2.4	0.41	0.7	0.04	0.42	0.28	21	218
30		13.59	13.59	33.132	24.829	311.9	0.097	5.95	100.5	2.9	0.47	1.6	0.08	0.53	0.39	30	217
40		13.28	13.27	33.129	24.890	306.3	0.128	5.83	97.8	3.4	0.55	2.8	0.14	0.62	0.38	40	216
50		12.62	12.61	33.150	25.036	292.6	0.158	5.18	85.7	6.0	0.84	7.4	0.25	0.45	0.31	50	215
61		11.84	11.83	33.211	25.232	274.2	0.189	4.74	77.2	8.9	1.08	11.1	0.08	0.20	0.19	61	214
70		10.93	10.92	33.287	25.456	253.0	0.213	4.32	69.0	12.1	1.31	15.0	0.03	0.10	0.10	70	213
75	ISL	10.69	10.68	33.340	25.540	245.1	0.226	4.16	66.1	13.3	1.37	16.2	0.02	0.07	0.10	75	
85		10.48	10.47	33.457	25.668	233.2	0.250	3.86	61.1	15.5	1.46	17.9	0.01	0.04	0.09	85	212
100		10.27	10.26	33.651	25.855	215.7	0.283	3.31	52.2	19.4	1.65	20.5	0.01	0.02	0.05	100	211
119		9.97	9.96	33.813	26.033	199.2	0.323	2.86	44.9	23.1	1.81	22.9	0.01	0.01	0.05	120	210
125	ISL	9.90	9.89	33.847	26.071	195.6	0.334	2.79	43.7	23.9	1.84	23.4	0.01	0.01	0.05	126	
139		9.76	9.74	33.907	26.142	189.2	0.361	2.69	42.0	25.4	1.89	24.2	0.01	0.01	0.05	140	209
150	ISL	9.63	9.61	33.932	26.183	185.5	0.382	2.65	41.3	26.3	1.91	24.7	0.01	0.01	0.05	151	
170		9.43	9.41	33.974	26.249	179.6	0.419	2.55	39.6	28.0	1.96	25.5	0.01	0.00	0.04	171	208
200		9.37	9.35	34.100	26.358	169.9	0.471	2.09	32.4	32.0	2.12	27.2	0.00	0.00	0.03	201	207
228		9.26	9.23	34.164	26.426	164.0	0.518	1.75	27.1	35.2	2.26	28.4	0.00			229	206
250	ISL	9.02	8.99	34.185	26.481	159.1	0.553	1.65	25.4	37.4	2.32	29.2	0.00			251	
268		8.79	8.76	34.193	26.524	155.3	0.582	1.61	24.7	39.1	2.35	29.9	0.00			270	205
300	ISL	8.49	8.46	34.213	26.587	149.8	0.630	1.41	21.5	42.6	2.45	31.0	0.00			302	
319		8.33	8.30	34.224	26.620	146.9	0.659	1.28	19.4	44.8	2.51	31.7	0.00			321	204
377		7.82	7.78	34.251	26.718	138.3	0.741	0.93	13.9	51.6	2.69	33.7	0.00			379	203
400	ISL	7.58	7.54	34.262	26.762	134.4	0.773	0.79	11.8	55.1	2.77	34.7	0.00			403	
438		7.19	7.15	34.279	26.831	128.2	0.823	0.59	8.7	60.8	2.89	36.2	0.00			441	202
500	ISL	6.78	6.73	34.303	26.906	121.6	0.900	0.41	6.0	67.6	3.01	37.8	0.00			503	
513		6.70	6.65	34.308	26.921	120.3	0.916	0.37	5.4	69.0	3.03	38.1	0.00			516	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 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 28.5 W	11/01/04	0412 UTC	1298 m	310 14 kn			1015.5 mb	15.8 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	14.92	14.92	32.991	24.442	348.0	0.000	5.89	102.1	1.4	0.36	0.0	0.00	0.26	0.10	0	
3		14.92	14.92	32.991	24.442	348.0	0.010	5.89	102.1	1.4	0.36	0.0	0.00	0.26	0.10	3	220
10		14.93	14.93	32.992	24.440	348.4	0.035	5.90	102.3	1.5	0.36	0.0	0.00	0.27	0.09	10	219
20		14.93	14.93	32.997	24.445	348.3	0.070	5.89	102.1	1.3	0.36	0.0	0.00	0.28	0.09	20	218
30		14.58	14.58	32.969	24.498	343.4	0.104	5.96	102.6	1.4	0.36	0.0	0.00	0.40	0.18	30	217
40		14.39	14.38	32.978	24.546	339.2	0.138	5.92	101.5	1.5	0.39	0.3	0.00	0.65	0.34	40	216
50		12.97	12.96	32.948	24.811	314.0	0.171	5.55	92.4	3.2	0.66	4.0	0.05	0.35	0.35	50	215
61		11.64	11.63	32.987	25.095	287.2	0.204	5.21	84.4	6.3	0.93	8.5	0.05	0.18	0.20	61	214
71		11.02	11.01	33.074	25.274	270.3	0.232	4.96	79.3	8.5	1.12	11.3	0.02	0.14	0.19	71	213
75	ISL	10.79	10.78	33.124	25.354	262.8	0.243	4.83	76.8	9.7	1.19	12.5	0.02	0.12	0.16	75	
85		10.34	10.33	33.263	25.540	245.2	0.268	4.49	70.8	12.6	1.34	15.4	0.02	0.07	0.09	85	212
100		10.07	10.06	33.459	25.739	226.6	0.303	3.97	62.3	16.1	1.51	18.3	0.01	0.03	0.05	100	211
120		9.78	9.77	33.729	25.999	202.4	0.346	3.26	50.9	21.4	1.75	22.0	0.01	0.01	0.03	121	210
125	ISL	9.74	9.73	33.783	26.048	197.8	0.356	3.10	48.4	22.5	1.80	22.7	0.01	0.01	0.03	126	
140		9.63	9.61	33.916	26.170	186.5	0.385	2.70	42.1	25.6	1.93	24.4	0.01	0.00	0.03	141	209
150	ISL	9.54	9.52	33.974	26.231	181.0	0.404	2.56	39.8	27.2	1.98	25.1	0.01	0.00	0.03	151	
171		9.34	9.32	34.056	26.328	172.2	0.441	2.39	37.0	30.2	2.06	26.3	0.01	0.00	0.02	172	208
200	ISL	9.06	9.04	34.133	26.433	162.6	0.489	2.10	32.4	34.2	2.20	27.9	0.02	0.00	0.03	201	
201		9.05	9.03	34.134	26.436	162.4	0.491	2.09	32.2	34.3	2.20	27.9	0.02	0.00	0.03	202	207
229		8.68	8.66	34.129	26.490	157.6	0.536	2.04	31.2	37.0	2.26	28.9	0.01			230	206
250	ISL	8.29	8.26	34.124	26.547	152.5	0.568	1.97	29.8	40.4	2.32	30.0	0.01			251	
269		7.96	7.93	34.125	26.597	147.9	0.597	1.88	28.2	43.7	2.38	31.0	0.01			271	205
300	ISL	7.68	7.65	34.147	26.655	142.8	0.642	1.60	23.9	47.6	2.50	32.4	0.01			302	
318		7.57	7.54	34.161	26.682	140.4	0.667	1.44	21.4	49.6	2.57	33.1	0.01			320	204
377		7.07	7.03	34.164	26.756	134.1	0.748	1.19	17.5	56.0	2.70	35.0	0.00			379	203
400	ISL	7.05	7.01	34.204	26.790	131.2	0.779	0.96	14.1	58.3	2.80	35.6	0.00			403	
435		7.02	6.98	34.269	26.846	126.5	0.824	0.60	8.8	62.1	2.95	36.5	0.00			438	202
500	ISL	6.38	6.33	34.298	26.955	116.5	0.903	0.38	5.5	72.6	3.10	38.8	0.00			503	
515		6.23	6.18	34.305	26.980	114.2	0.920	0.33	4.8	75.0	3.13	39.3	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 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 57.6 W	10/01/04	2315 UTC	916 m	310 18 kn	300 04 06	1	1016.1 mb	16.2 C	15.0 C	14m	3/8	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	13.87	13.87	33.052	24.709	322.4	0.000	6.11	103.7	2.2	0.42	0.7	0.05	0.86	0.32	0	
2		13.87	13.87	33.052	24.710	322.5	0.006	6.11	103.7	2.2	0.42	0.7	0.05	0.86	0.32	2	220
10	ISL	13.77	13.77	33.065	24.740	319.8	0.032	6.10	103.3	2.3	0.43	0.9	0.05	1.07	0.42	10	
11		13.75	13.75	33.068	24.747	319.2	0.035	6.10	103.3	2.3	0.43	0.9	0.05	1.09	0.44	11	219
20		13.51	13.51	33.094	24.816	312.9	0.064	5.99	101.0	2.6	0.48	1.8	0.08	0.90	0.50	20	218
30	ISL	13.46	13.46	33.096	24.828	312.0	0.095	5.96	100.3	2.5	0.49	1.9	0.08	0.82	0.49	30	
31		13.46	13.46	33.096	24.828	312.0	0.098	5.96	100.3	2.5	0.49	1.9	0.08	0.82	0.49	31	217
40		13.43	13.42	33.102	24.839	311.2	0.126	5.95	100.1	2.6	0.49	2.0	0.07	0.75	0.51	40	216
50		13.40	13.39	33.107	24.849	310.5	0.157	5.89	99.0	2.6	0.51	2.2	0.09	0.64	0.43	50	215
61		13.38	13.37	33.106	24.853	310.5	0.191	5.85	98.3	2.7	0.53	2.4	0.11	0.54	0.38	61	214
70		12.11	12.10	33.149	25.133	283.8	0.218	4.95	81.0	7.5	0.97	9.5	0.10	0.17	0.16	70	213
75	ISL	11.74	11.73	33.190	25.234	274.3	0.232	4.68	76.0	9.1	1.10	11.6	0.08	0.15	0.15	75	
85		11.17	11.16	33.258	25.391	259.5	0.259	4.44	71.3	11.3	1.25	14.0	0.04	0.11	0.13	85	212
100		9.78	9.77	33.276	25.645	235.5	0.296	4.48	69.8	14.7	1.40	17.0	0.02	0.04	0.05	100	211
119		9.23	9.22	33.552	25.950	206.8	0.338	3.86	59.5	21.0	1.66	21.4	0.01	0.01	0.02	120	210
125	ISL	9.23	9.22	33.643	26.021	200.2	0.350	3.64	56.1	22.5	1.72	22.3	0.01	0.01	0.02	126	
139		9.22	9.20	33.808	26.152	188.0	0.377	3.19	49.2	25.2	1.83	23.9	0.01	0.01	0.02	140	209
150	ISL	9.20	9.18	33.885	26.216	182.2	0.398	3.02	46.6	26.4	1.87	24.5	0.01	0.01	0.02	151	
169		9.12	9.10	33.965	26.292	175.4	0.432	2.85	43.9	28.3	1.91	25.2	0.01	0.00	0.02	170	208
199		8.80	8.78	34.055	26.413	164.4	0.483	2.46	37.7	33.3	2.07	27.4	0.01	0.00	0.02	200	207
200	ISL	8.79	8.77	34.057	26.417	164.1	0.484	2.45	37.5	33.4	2.07	27.4	0.01			201	
229		8.50	8.48	34.096	26.492	157.4	0.531	2.31	35.1	36.8	2.16	28.5	0.01			230	206
250	ISL	8.25	8.22	34.125	26.553	151.9	0.563	2.05	31.0	40.4	2.28	29.8	0.01			251	
268		8.02	7.99	34.145	26.604	147.3	0.590	1.81	27.2	43.6	2.39	31.0	0.01			270	205
300	ISL	7.65	7.62	34.151	26.663	142.0	0.637	1.60	23.9	47.9	2.51	32.4	0.01			302	
318		7.45	7.42	34.149	26.690	139.6	0.662	1.50	22.3	50.2	2.56	33.1	0.01			320	204
376		6.86	6.82	34.169	26.788	130.9	0.740	1.03	15.1	59.5	2.78	36.0	0.01			378	203
400	ISL	6.81	6.77	34.209	26.827	127.5	0.771	0.81	11.9	62.2	2.86	36.6	0.01			403	
437		6.78	6.74	34.276	26.884	122.7	0.818	0.51	7.5	66.1	2.98	37.4	0.00			440	202
500	ISL	6.33	6.28	34.320	26.979	114.2	0.892	0.30	4.3	74.3	3.11	39.1	0.00			503	
516		6.22	6.17	34.331	D 27.002	112.2	0.910	0.25	3.6	76.4	3.14	39.5	0.00			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 4.9 N	120 38.3 W	10/01/04	1801 UTC	3816 m	340 13 kn	010 02 07	2	1019.8 mb	15.3 C	15.0 C	32m	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	16.29	16.29	33.045	24.179	372.9	0.000	5.61	100.0	1.0	0.34	0.1	0.00	0.16	0.06	0	
3	A	16.29	16.29	33.045	24.179	373.0	0.011	5.61	100.0	1.0	0.34	0.1	0.00	0.16	0.06	3	221
10	ISL	16.28	16.28	33.045	24.182	373.0	0.037	5.61	100.0	0.8	0.34	0.1	0.00	0.15	0.05	10	
12		16.28	16.28	33.045	24.182	373.1	0.045	5.61	100.0	0.8	0.34	0.1	0.00	0.15	0.05	12	220
20	ISL	16.29	16.29	33.046	24.181	373.4	0.075	5.60	99.8	0.8	0.34	0.1	0.00	0.16	0.06	20	
23	A	16.29	16.29	33.046	24.181	373.5	0.086	5.60	99.8	0.8	0.34	0.1	0.00	0.16	0.06	23	219
30	ISL	16.29	16.29	33.046	24.181	373.7	0.112	5.60	99.8	0.8	0.34	0.1	0.00	0.16	0.06	30	
36		16.29	16.28	33.045	24.181	374.0	0.134	5.60	99.8	0.8	0.34	0.1	0.00	0.16	0.05	36	218
50	A	16.29	16.28	33.046	24.182	374.3	0.187	5.60	99.8	0.9	0.34	0.1	0.00	0.17	0.04	50	217
62		16.29	16.28	33.047	24.183	374.6	0.232	5.59	99.6	0.9	0.34	0.1	0.00	0.19	0.06	62	216
73	A	16.28	16.27	33.044	24.183	374.9	0.273	5.60	99.8	0.9	0.34	0.1	0.00	0.21	0.06	73	215
75	ISL	16.28	16.27	33.045	24.184	374.9	0.280	5.60	99.8	0.9	0.34	0.1	0.00	0.21	0.06	75	
86		16.26	16.25	33.051	24.194	374.3	0.322	5.60	99.7	0.9	0.34	0.2	0.00	0.21	0.07	86	214
97	A	14.94	14.93	33.019	24.462	348.9	0.361	5.73	99.4	1.5	0.39	0.3	0.11	0.21	0.22	97	213
100	ISL	14.71	14.70	33.041	24.528	342.6	0.372	5.72	98.7	1.6	0.41	0.4	0.15	0.21	0.21	100	
107		14.15	14.13	33.086	24.681	328.2	0.395	5.64	96.3	2.1	0.46	1.2	0.20	0.19	0.19	107	212
118		12.73	12.71	33.030	24.924	305.1	0.430	5.46	90.5	3.5	0.63	4.0	0.03	0.13	0.17	118	211
125	ISL	12.19	12.17	33.029	25.026	295.4	0.451	5.37	88.0	4.4	0.73	5.6	0.02	0.11	0.15	125	
129		11.94	11.92	33.037	25.080	290.4	0.463	5.33	86.9	4.9	0.78	6.5	0.01	0.10	0.13	130	210
139	A	11.17	11.15	33.076	25.251	274.1	0.491	5.23	83.9	6.7	0.90	8.8	0.01	0.07	0.09	140	209
150	ISL	10.35	10.33	33.194	25.486	251.8	0.520	4.93	77.7	10.4	1.12	12.6	0.01	0.04	0.05	151	
163		9.57	9.55	33.371	25.755	226.4	0.551	4.48	69.5	15.4	1.40	17.1	0.00	0.02	0.02	164	208
195		9.05	9.03	33.732	26.121	192.1	0.618	3.56	54.7	23.5	1.74	22.8	0.00	0.00	0.02	196	207
200	ISL	9.00	8.98	33.771	26.160	188.5	0.628	3.47	53.3	24.4	1.77	23.3	0.00			201	
229		8.72	8.70	33.933	26.331	172.8	0.680	3.06	46.7	29.3	1.91	25.8	0.00			230	206
250	ISL	8.50	8.47	33.999	26.417	164.9	0.715	2.72	41.3	33.1	2.03	27.6	0.00			251	
269		8.28	8.25	34.035	26.479	159.3	0.746	2.43	36.8	36.6	2.15	29.2	0.00			270	205
300	ISL	7.91	7.88	34.072	26.563	151.6	0.794	2.05	30.8	42.1	2.32	31.2	0.00			302	
320		7.65	7.62	34.085	26.611	147.2	0.824	1.84	27.4	45.7	2.43	32.4	0.00			322	204
378		6.85	6.81	34.107	26.741	135.3	0.906	1.35	19.8	56.4	2.69	35.6	0.00			380	203
400	ISL	6.71	6.67	34.123	26.772	132.6	0.936	1.18	17.2	59.2	2.76	36.4	0.00			402	
438		6.50	6.46	34.150	26.822	128.3	0.985	0.93	13.5	63.9	2.86	37.5	0.00			441	202
500	ISL	5.90	5.86	34.175	26.919	119.4	1.062	0.63	9.0	74.9	3.04	39.7	0.00			503	
512		5.78	5.74	34.181	26.938	117.5	1.076	0.57	8.1	77.0	3.07	40.1	0.00			515	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 45.1 N	121 18.9 W	10/01/04	1040 UTC	3674 m	290 02 kn			1020.1 mb	16.3 C	15.3 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	16.12	16.12	33.024	24.202	370.8	0.000	5.64	100.2	1.1	0.33	0.0	0.00	0.15	0.04	0	
2		16.12	16.12	33.024	24.202	370.9	0.007	5.64	100.2	1.1	0.33	0.0	0.00	0.15	0.04	2	220
10	ISL	16.08	16.08	33.022	24.210	370.4	0.037	5.65	100.3	1.1	0.33	0.0	0.00	0.17	0.04	10	
15		16.04	16.04	33.020	24.217	369.8	0.056	5.65	100.2	1.1	0.33	0.0	0.00	0.18	0.05	15	219
20	ISL	16.03	16.03	33.021	24.221	369.6	0.074	5.65	100.2	1.1	0.33	0.0	0.00	0.19	0.06	20	
30	ISL	16.02	16.02	33.020	24.222	369.8	0.111	5.65	100.1	1.1	0.33	0.0	0.00	0.20	0.07	30	
31		16.02	16.02	33.020	24.222	369.8	0.115	5.65	100.1	1.1	0.33	0.0	0.00	0.20	0.07	31	218
45		16.02	16.01	33.021	24.224	370.1	0.167	5.64	100.0	1.0	0.33	0.0	0.00	0.21	0.08	45	217
50	ISL	16.02	16.01	33.020	24.223	370.4	0.185	5.64	100.0	1.0	0.33	0.0	0.00	0.21	0.08	50	
60		16.02	16.01	33.017	24.221	370.8	0.222	5.65	100.1	1.0	0.33	0.0	0.00	0.21	0.07	60	216
75		16.01	16.00	33.016	24.223	371.1	0.278	5.64	99.9	1.1	0.33	0.0	0.00			75	215
85		16.01	16.00	33.015	24.223	371.5	0.315	5.63	99.8	1.1	0.33	0.0	0.00			85	214
95		15.63	15.62	32.978	24.280	366.3	0.352	5.67	99.7	1.1	0.35	0.1	0.03			95	213
100	ISL	14.93	14.92	32.922	24.389	355.9	0.370	5.72	99.1	1.3	0.39	0.5	0.14	0.13	0.03	100	
105		14.09	14.07	32.876	24.531	342.4	0.387	5.74	97.7	1.8	0.46	0.8	0.23			105	212
115		12.59	12.57	32.889	24.841	312.8	0.420	5.51	91.0	3.6	0.65	4.2	0.03	0.07	0.02	115	211
125		11.79	11.77	32.917	25.014	296.4	0.450	5.37	87.2	4.9	0.79	6.7	0.02	0.02	0.06	125	210
140		10.48	10.46	33.095	25.386	261.1	0.492	4.99	78.8	9.4	1.09	12.2	0.00	0.00	0.03	141	209
150	ISL	10.00	9.98	33.220	25.565	244.2	0.518	4.71	73.7	12.3	1.25	15.0	0.00	0.00	0.02	151	
164		9.62	9.60	33.387	25.759	226.0	0.550	4.32	67.1	16.1	1.43	18.1	0.00	0.01	0.01	165	208
194		9.13	9.11	33.701	26.084	195.6	0.614	3.60	55.4	22.8	1.68	22.5	0.00	0.00	0.01	195	207
200	ISL	9.08	9.06	33.755	26.134	190.9	0.625	3.42	52.6	24.2	1.74	23.4	0.00			201	
229		8.84	8.82	33.955	26.329	172.9	0.678	2.68	41.0	30.3	1.97	26.9	0.00			230	206
250	ISL	8.55	8.52	34.016	26.422	164.4	0.713	2.54	38.7	33.7	2.06	28.2	0.00			251	
268		8.25	8.22	34.037	26.485	158.7	0.743	2.49	37.6	36.4	2.11	28.9	0.00			269	205
300	ISL	7.68	7.65	34.058	26.585	149.4	0.792	2.15	32.1	42.3	2.27	31.0	0.00			302	
318		7.37	7.34	34.061 D	26.632	145.0	0.818	1.93	28.6							320	204
378		6.64	6.61	34.082	26.749	134.4	0.902	1.40	20.4	57.3	2.65	36.0	0.00			380	203
400	ISL	6.43	6.39	34.094	26.786	131.0	0.931	1.22	17.7	61.2	2.73	37.0	0.00			402	
437		6.12	6.08	34.119	26.846	125.6	0.979	0.96	13.8	67.5	2.86	38.4	0.00			440	202
500	ISL	5.76	5.72	34.174	26.935	117.6	1.055	0.63	9.0	76.6	3.02	40.2	0.00			503	
516		5.67	5.63	34.188	26.958	115.7	1.074	0.54	7.7	78.9	3.06	40.6	0.00			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 25.1 N	121 59.5 W	10/01/04	0443 UTC	3832 m	160 05 kn			1020.5 mb	17.5 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	16.26	16.26	32.981	24.137	377.0	0.000	5.64	100.4	1.3	0.35	0.0	0.00	0.14	0.06	0	
2		16.26	16.26	32.981	24.137	377.0	0.008	5.64	100.4	1.3	0.35	0.0	0.00	0.14	0.06	2	220
10	ISL	16.26	16.26	32.982	24.138	377.2	0.038	5.64	100.4	1.2	0.36	0.0	0.00	0.14	0.05	10	
16		16.25	16.25	32.984	24.142	377.0	0.060	5.64	100.4	1.2	0.37	0.0	0.00	0.14	0.04	16	219
20	ISL	16.25	16.25	32.986	24.144	377.0	0.075	5.64	100.4	1.2	0.37	0.0	0.00	0.14	0.04	20	
30		16.24	16.24	32.993	24.152	376.5	0.113	5.64	100.4	1.2	0.35	0.0	0.00	0.13	0.06	30	218
46		16.27	16.26	33.019	24.166	375.7	0.173	5.64	100.5	1.2	0.34	0.0	0.00	0.14	0.06	46	217
50	ISL	16.28	16.27	33.025	24.168	375.6	0.188	5.63	100.3	1.2	0.34	0.0	0.00	0.15	0.06	50	
60		16.32	16.31	33.041	24.172	375.6	0.226	5.62	100.2	1.2	0.34	0.0	0.00	0.19	0.06	60	215
75		15.40	15.39	33.001	24.347	359.2	0.281	5.72	100.1	1.5	0.38	0.1	0.06	0.23	0.19	75	214
85		13.91	13.90	33.028	24.685	327.1	0.315	5.67	96.3	2.3	0.46	1.0	0.20	0.23	0.26	85	213
95		13.02	13.01	33.010	24.851	311.5	0.347	5.55	92.5	3.2	0.57	2.9	0.06	0.19	0.21	95	212
100	ISL	12.57	12.56	32.997	24.928	304.2	0.363	5.49	90.7	3.8	0.64	4.1	0.05	0.16	0.18	100	
114		11.40	11.39	32.989	25.141	284.0	0.404	5.32	85.7	5.9	0.86	7.7	0.01	0.09	0.11	114	211
124		10.74	10.73	33.029	25.290	270.0	0.431	5.20	82.6	7.9	0.99	10.0	0.01	0.06	0.09	125	210
125	ISL	10.69	10.68	33.038	25.305	268.5	0.434	5.18	82.2	8.1	1.00	10.2	0.01	0.06	0.09	126	
139		10.05	10.03	33.198	25.540	246.4	0.470	4.90	76.7	11.2	1.18	13.5	0.00	0.03	0.05	140	209
150	ISL	9.65	9.63	33.306	25.690	232.2	0.497	4.69	72.8	13.9	1.31	15.8	0.00	0.02	0.03	151	
164		9.29	9.27	33.446	25.859	216.4	0.528	4.35	67.1	17.5	1.47	18.6	0.00	0.01	0.02	165	208
194		9.11	9.09	33.820	26.180	186.5	0.588	3.19	49.1	25.3	1.82	24.1	0.00	0.00	0.02	195	207
200	ISL	9.08	9.06	33.857	26.214	183.4	0.599	3.10	47.7	26.2	1.85	24.6	0.00			201	
229		8.84	8.82	33.955	26.329	172.9	0.651	2.88	44.1	29.6	1.94	26.0	0.00			230	206
250	ISL	8.54	8.51	34.004	26.414	165.1	0.687	2.71	41.2	32.9	2.02	27.4	0.00			251	
269		8.21	8.18	34.033	26.488	158.4	0.717	2.54	38.4	36.4	2.11	28.8	0.00			270	205
300	ISL	7.64	7.61	34.051	26.586	149.3	0.765	2.22	33.1	43.5	2.32	31.5	0.00			302	
318		7.32	7.29	34.054	26.634	144.9	0.792	2.02	29.9	47.6	2.44	33.0	0.00			320	204
378		6.62	6.59	34.080	26.750	134.2	0.875	1.43	20.8	57.4	2.67	35.9	0.00			380	203
400	ISL	6.43	6.39	34.099	26.790	130.6	0.904	1.22	17.7	61.2	2.77	36.9	0.00			402	
437		6.16	6.12	34.134	26.853	125.0	0.952	0.91	13.1	67.4	2.93	38.4	0.00			440	202
500	ISL	5.80	5.76	34.175	26.931	118.1	1.028	0.63	9.0	76.0	3.04	40.1	0.00			503	
517		5.70	5.66	34.186	26.952	116.2	1.048	0.56	8.0	78.3	3.07	40.5	0.00			520	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 4.9 N	122 39.8 W	09/01/04	2252 UTC	4007 m	160 09 kn	170 04 07	2	1019.9 mb	18.0 C	15.9 C	37m	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	16.42	16.42	33.029	24.137	377.0	0.000	5.62	100.4	1.2	0.34	0.0	0.00	0.15	0.06	0	
2		16.42	16.42	33.029	24.137	377.0	0.008	5.62	100.4	1.2	0.34	0.0	0.00	0.15	0.06	2	220
10	ISL	16.36	16.36	33.021	24.145	376.5	0.038	5.63	100.5	1.1	0.34	0.0	0.00	0.15	0.05	10	
16		16.30	16.30	33.014	24.154	375.9	0.060	5.64	100.5	1.1	0.34	0.0	0.00	0.16	0.05	16	219
20	ISL	16.29	16.29	33.013	24.156	375.9	0.075	5.64	100.5	1.1	0.34	0.0	0.00	0.16	0.05	20	
30		16.27	16.27	33.013	24.160	375.7	0.113	5.64	100.5	1.1	0.34	0.0	0.00	0.17	0.06	30	218
45		16.27	16.26	33.013	24.161	376.1	0.169	5.63	100.3	1.1	0.35	0.0	0.00	0.19	0.07	45	217
50	ISL	16.27	16.26	33.014	24.162	376.2	0.188	5.64	100.5	1.1	0.35	0.0	0.00	0.18	0.06	50	
54		16.27	16.26	33.014	24.162	376.3	0.203	5.64	100.5	1.1	0.35	0.0	0.00	0.18	0.06	54	216
64		16.27	16.26	33.013	24.162	376.7	0.241	5.64	100.5	1.0	0.35	0.0	0.00	0.21	0.07	64	215
75		16.25	16.24	33.009	24.163	376.8	0.282	5.64	100.4	1.0	0.35	0.0	0.00	0.20	0.08	75	214
84		16.19	16.18	32.996	24.167	376.7	0.316	5.65	100.5	1.1	0.35	0.0	0.00	0.20	0.09	84	213
95		14.75	14.74	33.013	24.498	345.4	0.356	5.75	99.3	1.6	0.42	0.3	0.13	0.26	0.23	95	212
100	ISL	13.99	13.98	32.975	24.628	333.0	0.373	5.69	96.8	2.2	0.50	1.5	0.11	0.23	0.22	100	
109		12.64	12.63	32.913	24.850	311.8	0.402	5.56	91.9	3.7	0.68	4.4	0.03	0.14	0.15	109	211
124		10.93	10.92	32.966	25.207	277.8	0.446	5.63 U	89.7 U	6.9	0.95	9.2	0.01	0.09	0.11	124	210
125	ISL	10.86	10.85	32.972	25.224	276.2	0.449	5.60	89.1	7.1	0.97	9.5	0.01	0.09	0.11	125	
144		9.97	9.95	33.126	25.497	250.5	0.499	4.93	77.0	11.5	1.22	13.8	0.01	0.04	0.05	145	209
150	ISL	9.79	9.77	33.186	25.574	243.3	0.514	4.77	74.3	12.6	1.28	14.8	0.01	0.03	0.04	151	
168		9.42	9.40	33.383	25.788	223.2	0.556	4.50	69.6	16.1	1.43	17.5	0.01	0.01	0.02	169	208
198		8.99	8.97	33.746	26.141	190.2	0.618	3.71	56.9	23.5	1.71	22.5	0.01	0.00	0.02	199	207
200	ISL	8.97	8.95	33.763	26.158	188.6	0.621	3.67	56.3	23.9	1.72	22.8	0.01			201	
228		8.72	8.70	33.936	26.333	172.5	0.672	3.07	46.9	29.7	1.89	26.0	0.01			229	206
250	ISL	8.48	8.45	34.014	26.432	163.5	0.709	2.65	40.3	34.1	2.04	28.1	0.01			251	
268		8.26	8.23	34.051	26.494	157.8	0.738	2.36	35.7	37.5	2.16	29.5	0.01			269	205
300	ISL	7.82	7.79	34.082	26.584	149.6	0.787	2.01	30.1	43.2	2.33	31.6	0.01			302	
318		7.57	7.54	34.089	26.626	145.8	0.814	1.87	27.8	46.2	2.41	32.6	0.01			320	204
378		6.98	6.94	34.119	26.733	136.2	0.898	1.46	21.4	54.7	2.62	35.0	0.01			380	203
400	ISL	6.83	6.79	34.137	26.767	133.2	0.928	1.27	18.6	57.7	2.71	35.9	0.01			402	
439		6.62	6.58	34.173	26.824	128.2	0.979	0.94	13.7	62.9	2.87	37.3	0.01			442	202
500	ISL	6.35	6.30	34.239	26.912	120.5	1.055	0.56	8.1	70.3	3.02	38.9	0.01			503	
516		6.28	6.23	34.256	26.935	118.5	1.074	0.46	6.6	72.2	3.06	39.3	0.01			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 45.3 N	123 20.5 W	09/01/04	1742 UTC	4021 m	160 13 kn	170 03 07	2	1020.9 mb	18.0 C	16.9 C	32m	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	16.27	16.27	33.030	24.172	373.6	0.000	5.63	100.3	1.2	0.36	0.0	0.00	0.14	0.04	0	
2	A	16.27	16.27	33.030	24.172	373.7	0.007	5.63	100.3	1.2	0.36	0.0	0.00	0.14	0.04	2	222
10	ISL	16.25	16.25	33.027	24.175	373.7	0.037	5.64	100.4	1.2	0.35	0.0	0.00	0.15	0.04	10	
12		16.24	16.24	33.027	24.177	373.5	0.045	5.64	100.4	1.2	0.35	0.0	0.00	0.15	0.04	12	221
20	ISL	16.08	16.08	32.998	24.192	372.4	0.075	5.66	100.4	1.2	0.35	0.0	0.00	0.16	0.05	20	
23	A	16.02	16.02	32.987	24.197	372.0	0.086	5.67	100.5	1.2	0.35	0.0	0.00	0.16	0.05	23	220
30	ISL	16.00	16.00	32.985	24.200	371.9	0.112	5.66	100.3	1.2	0.35	0.0	0.00	0.16	0.05	30	
32		15.99	15.99	32.983	24.201	371.9	0.119	5.66	100.2	1.2	0.35	0.0	0.00	0.16	0.05	32	219
41		15.99	15.98	32.984	24.202	372.1	0.153	5.66	100.2	1.2	0.35	0.0	0.00	0.17	0.05	41	218
50	A	15.98	15.97	32.986	24.206	372.0	0.186	5.66	100.2	1.2	0.35	0.0	0.00	0.19	0.06	50	217
62		15.92	15.91	32.993	24.225	370.5	0.231	5.67	100.3	1.3	0.35	0.0	0.00	0.26	0.08	62	216
74	A	15.21	15.20	33.041	24.420	352.3	0.274	5.72	99.8	1.7	0.39	0.2	0.06	0.42	0.23	74	215
75	ISL	15.08	15.07	33.036	24.444	350.0	0.278	5.72	99.5	1.8	0.40	0.3	0.09	0.41	0.23	75	
86		13.59	13.58	32.982	24.715	324.3	0.315	5.60	94.5	2.8	0.60	2.6	0.29	0.29	0.27	86	214
97	A	12.52	12.51	32.984	24.928	304.1	0.349	5.38	88.7	4.6	0.79	6.2	0.07	0.24	0.24	97	213
100	ISL	12.22	12.21	33.003	25.000	297.3	0.358	5.29	86.7	5.4	0.86	7.5	0.06	0.22	0.23	100	
110		11.33	11.32	33.082	25.226	275.9	0.387	5.00	80.5	7.9	1.07	11.2	0.02	0.15	0.20	110	212
125		10.46	10.45	33.147	25.430	256.6	0.427	4.86	76.8	10.4	1.17	13.0	0.02	0.09	0.14	126	211
140	A	10.01	9.99	33.365	25.677	233.4	0.464	4.28	67.0	15.2	1.43	17.4	0.01	0.05	0.06	141	210
150	ISL	9.73	9.71	33.491	25.822	219.8	0.486	4.03	62.8	17.9	1.55	19.6	0.01	0.03	0.04	151	
154		9.63	9.61	33.540	25.877	214.6	0.495	3.93	61.1	19.0	1.59	20.3	0.01	0.02	0.04	155	209
170		9.29	9.27	33.752	26.098	193.9	0.528	3.34	51.6	23.5	1.77	23.1	0.01	0.01	0.03	171	208
200		8.88	8.86	33.974	26.337	171.6	0.583	2.62	40.2	31.0	2.01	27.0	0.01	0.00	0.03	201	207
232		8.49	8.47	34.044	26.453	161.1	0.636	2.37	36.0	35.7	2.13	28.8	0.01			233	206
250	ISL	8.28	8.25	34.067	26.503	156.6	0.664	2.17	32.8	38.5	2.22	30.0	0.01			251	
269		8.04	8.01	34.081	26.551	152.4	0.694	1.96	29.5	41.6	2.32	31.3	0.01			270	205
300	ISL	7.57	7.54	34.091	26.627	145.4	0.740	1.76	26.2	46.9	2.45	32.9	0.01			302	
317		7.32	7.29	34.095	26.666	141.8	0.764	1.66	24.6	49.8	2.52	33.7	0.01			319	204
377		6.71	6.68	34.137	26.783	131.2	0.846	1.13	16.5	59.9	2.76	36.6	0.01			379	203
400	ISL	6.49	6.45	34.154	26.826	127.3	0.876	0.95	13.8	64.0	2.84	37.6	0.01			402	
437		6.16	6.12	34.182	26.891	121.4	0.922	0.70	10.1	70.6	2.96	39.1	0.01			440	202
500	ISL	5.72	5.68	34.234	26.988	112.7	0.996	0.43	6.1	80.4	3.11	40.8	0.01			503	
509		5.66	5.62	34.242	27.001	111.4	1.006	0.39	5.6	81.8	3.13	41.1	0.01			512	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 90 120

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
30 25.2 N	124 0.2 W	09/01/04	0847 UTC	4197 m	150 10 kn			1017.1 mb	17.8 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	16.82	16.82	33.196	24.173	373.5	0.000	5.57	100.4	1.2	0.36	0.1	0.00	0.26	0.10	0	
2		16.82	16.82	33.196	24.173	373.6	0.007	5.57	100.4	1.2	0.36	0.1	0.00	0.26	0.10	2	220
10	ISL	16.82	16.82	33.196	24.173	373.8	0.037	5.57	100.4	1.1	0.35	0.0	0.00	0.26	0.10	10	
16		16.82	16.82	33.196	24.174	374.0	0.060	5.57	100.4	1.1	0.35	0.0	0.00	0.26	0.10	16	219
20	ISL	16.82	16.82	33.196	24.174	374.1	0.075	5.57	100.4	1.1	0.35	0.0	0.00	0.26	0.10	20	
30		16.83	16.83	33.196	24.172	374.6	0.112	5.57	100.4	1.1	0.35	0.0	0.00	0.27	0.10	30	218
46		16.84	16.83	33.202	24.175	374.9	0.172	5.57	100.4	1.2	0.35	0.0	0.00	0.27	0.11	46	217
50	ISL	16.84	16.83	33.205	24.177	374.8	0.187	5.57	100.4	1.2	0.35	0.0	0.00	0.27	0.11	50	
56		16.84	16.83	33.210	24.181	374.6	0.210	5.56	100.3	1.2	0.36	0.1	0.00	0.27	0.11	56	216
66		12.51	12.50	33.232	25.121	284.9	0.243	5.06	83.6	7.2	1.00	9.5	0.18	0.40	0.37	66	215
75	ISL	11.11	11.10	33.240	25.388	259.6	0.267	4.68	75.0	10.5	1.25	14.0	0.05	0.25	0.31	75	
76		11.05	11.04	33.240	25.398	258.6	0.270	4.64	74.3	10.8	1.27	14.4	0.03	0.23	0.30	76	214
86		10.35	10.34	33.381	25.631	236.7	0.294	4.17	65.8	14.8	1.48	17.9	0.01	0.14	0.21	86	213
95		9.89	9.88	33.500	25.801	220.6	0.315	3.81	59.6	18.1	1.62	20.4	0.01	0.08	0.09	95	212
100	ISL	9.72	9.71	33.562	25.878	213.4	0.326	3.63	56.6	19.7	1.68	21.5	0.01	0.05	0.08	100	
110		9.50	9.49	33.672	26.000	201.9	0.347	3.32	51.5	22.5	1.79	23.2	0.01	0.02	0.05	110	211
125		9.31	9.30	33.791	26.125	190.4	0.376	2.98	46.1	25.5	1.89	24.9	0.01	0.01	0.03	126	210
144		9.05	9.03	33.920	26.267	177.2	0.411	2.69	41.4	29.1	1.99	26.5	0.00	0.01	0.05	145	209
150	ISL	8.99	8.97	33.943	26.295	174.7	0.422	2.68	41.2	29.7	2.00	26.7	0.00	0.01	0.05	151	
170		8.80	8.78	33.992	26.364	168.5	0.456	2.64	40.4	31.6	2.02	27.2	0.01	0.00	0.03	171	208
198		8.39	8.37	34.041	26.465	159.2	0.502	2.40	36.4	36.1	2.15	29.1	0.00	0.00	0.02	199	207
200	ISL	8.37	8.35	34.043	26.470	158.8	0.505	2.38	36.1	36.4	2.16	29.2	0.00			201	
230		8.07	8.05	34.069	26.536	153.0	0.552	2.10	31.6	40.5	2.28	30.8	0.00			231	206
250	ISL	7.87	7.84	34.085	26.578	149.3	0.582	1.93	28.9	43.4	2.37	31.8	0.00			251	
269		7.66	7.63	34.099	26.620	145.5	0.610	1.76	26.3	46.3	2.45	32.8	0.00			270	205
300	ISL	7.26	7.23	34.117	26.691	139.1	0.654	1.46	21.6	51.8	2.60	34.5	0.00			302	
319		7.03	7.00	34.128	26.732	135.4	0.680	1.28	18.8	55.2	2.68	35.4	0.00			321	204
378		6.64	6.61	34.177	26.824	127.3	0.758	0.85	12.4	63.5	2.87	37.5	0.00			380	203
400	ISL	6.45	6.41	34.191	26.860	124.0	0.785	0.73	10.6	66.9	2.95	38.3	0.00			402	
436		6.15	6.11	34.213	26.917	119.0	0.829	0.56	8.1	72.4	3.06	39.4	0.00			439	202
500	ISL	5.76	5.72	34.255	26.999	111.6	0.903	0.37	5.3	80.9	3.14	40.9	0.00			503	
514		5.68	5.64	34.265	27.017	110.0	0.918	0.33	4.7	82.7	3.16	41.2	0.00			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 93 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 56.9 N	117 18.2 W	06/01/04	0053 UTC	60 m	340 06 kn			1018.5 mb	15.0 C	13.2 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	14.25	14.25	33.213	24.755	318.1	0.000	5.94	101.7	2.1	0.39	0.2	0.02	1.30	0.33	0	
1		14.25	14.25	33.213	24.755	318.1	0.003	5.94	101.7	2.1	0.39	0.2	0.02	1.30	0.33	1	207
6		14.16	14.16	33.210	24.772	316.7	0.019	5.93	101.4	2.1	0.38	0.3	0.02	1.29	0.35	6	206
10	ISL	14.04	14.04	33.208	24.795	314.6	0.032	5.88	100.3	2.2	0.40	0.5	0.03	1.31	0.39	10	
11		13.98	13.98	33.206	24.806	313.5	0.035	5.87	100.0	2.2	0.41	0.6	0.03	1.31	0.40	11	205
20	ISL	12.60	12.60	33.167	25.052	290.3	0.062	4.96	82.1	6.4	0.89	7.6	0.10	0.81	0.44	20	
21		12.44	12.44	33.165	25.082	287.5	0.065	4.85	80.0	7.0	0.95	8.5	0.11	0.74	0.44	21	204
30	ISL	12.10	12.10	33.200	25.174	279.0	0.090	4.54	74.3	8.8	1.08	10.5	0.28	0.39	0.35	30	
31		12.09	12.09	33.205	25.180	278.4	0.093	4.53	74.2	8.9	1.08	10.6	0.29	0.36	0.34	31	203
41		11.66	11.65	33.244	25.290	268.1	0.120	4.30	69.8	10.5	1.20	12.7	0.18	0.19	0.25	41	202
50	ISL	11.48	11.47	33.313	25.377	260.1	0.144	4.08	66.0	11.9	1.28	14.4	0.12	0.11	0.19	50	
51		11.46	11.45	33.320	25.386	259.3	0.147	4.06	65.6	12.1	1.29	14.6	0.11	0.10	0.18	51	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 93 28

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 55.0 N	117 24.9 W	06/01/04	0640 UTC	656 m	00 kn			1018.5 mb	15.1 C	13.1 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	14.55	14.55	33.214	24.693	324.0	0.000	5.88	101.3	1.7	0.36	0.0	0.01	1.05	0.37	0	
2		14.55	14.55	33.214	24.693	324.1	0.006	5.88	101.3	1.7	0.36	0.0	0.01	1.05	0.37	2	220
10		14.55	14.55	33.217	24.695	324.1	0.032	5.89	101.5	1.6	0.35	0.0	0.01	1.02	0.33	10	219
20		14.55	14.55	33.219	24.697	324.2	0.065	5.88	101.3	1.6	0.35	0.0	0.01	1.00	0.37	20	218
30		14.55	14.55	33.214	24.693	324.8	0.097	5.88	101.3	1.6	0.36	0.0	0.01	0.99	0.40	30	217
40		13.94	13.93	33.167	24.785	316.4	0.129	5.36	91.2	4.1	0.64	3.9	0.09	0.56	0.28	40	216
50		12.12	12.11	33.185	25.159	280.9	0.159	4.67	76.5	8.4	1.05	10.1	0.05	0.38	0.31	50	215
60		11.75	11.74	33.243	25.273	270.2	0.187	4.39	71.4	10.2	1.18	12.2	0.03	0.22	0.25	60	214
70		11.42	11.41	33.333	25.404	258.0	0.213	4.09	66.0	12.5	1.31	14.3	0.03	0.12	0.17	70	213
75	ISL	11.25	11.24	33.380	25.471	251.7	0.226	3.96	63.7	13.6	1.37	15.2	0.03	0.09	0.14	75	
85		10.96	10.95	33.475	25.597	239.9	0.250	3.71	59.4	15.6	1.47	16.7	0.04	0.05	0.10	85	212
99		10.71	10.70	33.608	25.745	226.2	0.283	3.36	53.5	18.2	1.61	18.8	0.02	0.03	0.09	99	211
100	ISL	10.70	10.69	33.614	25.752	225.6	0.285	3.34	53.2	18.3	1.62	18.9	0.02	0.03	0.09	100	
120		10.59	10.58	33.706	25.843	217.3	0.330	3.02	48.0	20.5	1.73	20.4	0.02	0.02	0.06	121	210
125	ISL	10.55	10.54	33.729	25.868	215.1	0.340	2.96	47.0	21.1	1.75	20.7	0.02	0.02	0.06	126	
140		10.42	10.40	33.797	25.944	208.2	0.372	2.79	44.2	22.8	1.82	21.6	0.01	0.02	0.06	141	209
150	ISL	10.29	10.27	33.847	26.006	202.5	0.393	2.69	42.5	23.9	1.87	22.4	0.01	0.02	0.05	151	
169		10.03	10.01	33.937	26.121	192.0	0.430	2.54	39.9	25.9	1.94	23.7	0.01	0.01	0.04	170	208
199		9.74	9.72	34.043	26.252	180.0	0.486	2.45	38.3	28.2	1.99	24.8	0.01	0.02	0.04	200	207
200	ISL	9.73	9.71	34.047	26.257	179.6	0.488	2.43	38.0	28.4	2.00	24.9	0.01			201	
229		9.48	9.45	34.144	26.375	169.0	0.538	1.92	29.9	33.2	2.21	27.1	0.01			230	206
250	ISL	9.24	9.21	34.184	26.445	162.6	0.573	1.71	26.5	35.9	2.31	28.3	0.01			251	
269		9.03	9.00	34.207	26.497	158.0	0.604	1.59	24.5	37.9	2.37	29.1	0.01			271	205
300	ISL	8.86	8.83	34.228	26.541	154.4	0.652	1.43	21.9	40.1	2.44	29.9	0.01			302	
319		8.75	8.72	34.234	26.563	152.6	0.681	1.35	20.7	41.5	2.48	30.3	0.01			321	204
379		7.97	7.93	34.255	26.699	140.3	0.769	1.01	15.2	49.8	2.66	32.9	0.00			381	203
400	ISL	7.81	7.77	34.268	26.733	137.3	0.798	0.87	13.0	52.3	2.73	33.6	0.00			403	
437		7.56	7.52	34.289	26.786	132.7	0.848	0.64	9.5	56.7	2.84	34.7	0.00			440	202
500	ISL	6.95	6.90	34.298	26.879	124.4	0.929	0.47	6.9	65.1	2.98	36.9	0.00			503	
513		6.82	6.77	34.300	26.899	122.6	0.945	0.43	6.3	66.8	3.01	37.4	0.00			516	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 93 30

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 50.9 N	117 32.0 W	06/01/04	0827 UTC	851 m	040 04 kn			1018.2 mb	14.9 C	11.2 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	14.51	14.51	33.214	24.701	323.2	0.000	5.99	103.1	1.8	0.35	0.0	0.00	1.08	0.28	0	
1		14.51	14.51	33.214	24.701	323.3	0.003	5.99	103.1	1.8	0.35	0.0	0.00	1.08	0.28	1	220
10	ISL	14.52	14.52	33.219	24.703	323.3	0.032	6.00	103.3	1.6	0.35	0.0	0.00	1.11	0.28	10	
11		14.52	14.52	33.219	24.703	323.4	0.036	6.00	103.3	1.6	0.35	0.0	0.00	1.11	0.28	11	219
20	ISL	14.52	14.52	33.214	24.700	324.0	0.065	5.99	103.1	1.7	0.36	0.0	0.00	1.09	0.26	20	
21		14.52	14.52	33.214	24.700	324.0	0.068	5.99	103.1	1.7	0.36	0.0	0.00	1.09	0.26	21	218
30		14.48	14.48	33.208	24.704	323.9	0.097	5.94	102.2	1.8	0.37	0.1	0.01	1.27	0.35	30	217
41		13.50	13.49	33.140	24.854	309.8	0.132	5.36	90.3	4.3	0.68	3.9	0.23	0.70	0.46	41	216
50	ISL	12.40	12.39	33.150	25.078	288.6	0.159	4.90	80.7	7.3	0.97	8.8	0.06	0.29	0.31	50	
51		12.28	12.27	33.156	25.106	286.0	0.162	4.85	79.7	7.7	1.00	9.3	0.04	0.25	0.29	51	215
61		11.63	11.62	33.275	25.320	265.8	0.189	4.31	69.9	10.8	1.21	12.7	0.04	0.12	0.19	61	214
70		11.54	11.53	33.297	25.354	262.8	0.213	4.27	69.1	11.3	1.24	13.0	0.03	0.10	0.15	70	213
75	ISL	11.49	11.48	33.309	25.373	261.1	0.226	4.24	68.6	11.5	1.25	13.3	0.04	0.09	0.14	75	
85		11.36	11.35	33.346	25.425	256.3	0.252	4.13	66.6	12.3	1.29	14.2	0.05	0.07	0.13	85	212
99		11.11	11.10	33.448	25.550	244.8	0.287	3.77	60.5	14.8	1.44	16.3	0.04	0.05	0.11	99	211
100	ISL	11.09	11.08	33.455	25.559	243.9	0.290	3.75	60.2	14.9	1.45	16.4	0.04	0.05	0.11	100	
119		10.72	10.71	33.591	25.731	228.0	0.334	3.44	54.8	17.5	1.58	18.5	0.00	0.03	0.06	120	210
125	ISL	10.63	10.62	33.635	25.781	223.4	0.348	3.33	53.0	18.6	1.63	19.3	0.00	0.02	0.06	126	
140		10.40	10.38	33.750	25.911	211.3	0.381	3.06	48.5	21.5	1.77	21.2	0.00	0.01	0.05	141	209
150	ISL	10.21	10.19	33.839	26.013	201.8	0.401	2.87	45.3	23.4	1.84	22.4	0.00	0.01	0.05	151	
169		9.88	9.86	33.985	26.183	186.0	0.438	2.57	40.3	26.4	1.94	24.1	0.00	0.01	0.05	170	208
199		9.55	9.53	34.058	26.296	175.9	0.492	2.48	38.6	28.8	2.00	25.3	0.00	0.00	0.03	200	207
200	ISL	9.54	9.52	34.061	26.300	175.5	0.494	2.47	38.4	29.0	2.01	25.4	0.00			201	
229		9.25	9.22	34.153	26.419	164.7	0.543	1.98	30.6	33.9	2.20	27.7	0.00			230	206
250	ISL	9.07	9.04	34.192	26.479	159.4	0.577	1.77	27.3	36.7	2.31	28.8	0.00			251	
269		8.92	8.89	34.215	26.521	155.7	0.607	1.62	24.9	38.9	2.39	29.5	0.00			271	205
300	ISL	8.68	8.65	34.243	26.581	150.5	0.655	1.32	20.2	42.3	2.51	30.7	0.00			302	
318		8.53	8.50	34.251	26.611	147.9	0.682	1.18	18.0	44.1	2.56	31.3	0.00			320	204
378		7.82	7.78	34.231	26.702	139.8	0.768	1.12	16.8	49.9	2.64	33.2	0.00			380	203
400	ISL	7.68	7.64	34.248	26.736	136.9	0.798	0.95	14.2	52.5	2.71	34.0	0.00			403	
437		7.46	7.42	34.283	26.796	131.7	0.848	0.64	9.5	57.4	2.85	35.3	0.00			440	202
500	ISL	6.81	6.76	34.302	26.901	122.1	0.928	0.42	6.1	67.2	3.01	37.5	0.00			503	
514		6.67	6.62	34.307	26.924	120.0	0.945	0.37	5.4	69.4	3.04	38.0	0.00			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 93 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
32 41.0 N	117 52.5 W	06/01/04	1235 UTC	619 m	020 04 kn			1017.0 mb	15.1 C	11.2 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	14.93	14.93	33.185	24.589	333.9	0.000	5.79	100.5	1.4	0.34	0.0	0.00	0.61	0.30	0	
1		14.93	14.93	33.185	24.589	333.9	0.003	5.79	100.5	1.4	0.34	0.0	0.00	0.61	0.30	1	220
10	ISL	14.89	14.89	33.185	24.598	333.4	0.033	5.79	100.4	1.5	0.34	0.0	0.00	0.63	0.28	10	
11		14.89	14.89	33.185	24.598	333.4	0.037	5.79	100.4	1.5	0.34	0.0	0.00	0.63	0.28	11	219
20		14.89	14.89	33.186	24.599	333.6	0.067	5.79	100.4	1.4	0.34	0.0	0.00	0.64	0.29	20	218
30		14.90	14.90	33.184	24.595	334.2	0.100	5.80	100.6	1.5	0.34	0.0	0.01	0.63	0.27	30	217
40		14.89	14.88	33.185	24.599	334.2	0.134	5.79	100.4	1.5	0.34	0.0	0.01	0.65	0.28	40	216
50		14.85	14.84	33.171	24.597	334.6	0.167	5.74	99.5	1.8	0.38	0.4	0.03	0.57	0.30	50	215
60		12.98	12.97	33.051	24.889	306.9	0.199	5.24	87.3	4.6	0.76	5.8	0.07	0.26	0.30	60	214
70		11.90	11.89	33.116	25.147	282.5	0.229	4.89	79.7	7.3	1.00	9.9	0.03	0.15	0.19	70	213
75	ISL	11.56	11.55	33.158	25.243	273.5	0.242	4.76	77.0	8.3	1.08	11.2	0.02	0.12	0.16	75	
85		11.10	11.09	33.253	25.400	258.7	0.269	4.54	72.8	10.2	1.19	13.1	0.01	0.08	0.11	85	212
100		10.62	10.61	33.421	25.615	238.5	0.306	4.16	66.1	13.3	1.34	15.9	0.01	0.04	0.06	100	211
120		10.28	10.27	33.682	25.878	214.0	0.352	3.44	54.3	18.6	1.59	19.6	0.01	0.02	0.04	121	210
125	ISL	10.20	10.19	33.728	25.928	209.3	0.362	3.33	52.5	19.7	1.64	20.3	0.01	0.01	0.04	126	
140		9.96	9.94	33.835	26.052	197.8	0.393	3.09	48.5	22.3	1.74	21.8	0.00	0.00	0.03	141	209
150	ISL	9.81	9.79	33.880	26.113	192.2	0.412	3.02	47.2	23.5	1.78	22.5	0.00	0.00	0.03	151	
170		9.54	9.52	33.951	26.213	183.1	0.450	2.89	45.0	25.8	1.84	23.8	0.00	0.00	0.02	171	208
200		9.30	9.28	34.079	26.353	170.4	0.503	2.44	37.8	30.5	2.02	26.1	0.00	0.00	0.02	201	207
228		9.13	9.11	34.154	26.439	162.7	0.549	2.00	30.9	34.6	2.20	28.0	0.00			229	206
250	ISL	8.90	8.87	34.197	26.510	156.3	0.584	1.67	25.6	38.3	2.34	29.4	0.00			251	
268		8.70	8.67	34.225	26.563	151.5	0.612	1.43	21.9	41.3	2.44	30.4	0.00			270	205
300	ISL	8.41	8.38	34.264	26.639	144.8	0.660	1.07	16.3	46.0	2.58	31.8	0.00			302	
318		8.25	8.22	34.279	26.675	141.6	0.685	0.92	13.9	48.3	2.65	32.5	0.00			320	204
378		7.72	7.68	34.293	26.766	133.8	0.768	0.69	10.3	54.4	2.81	34.3	0.00			380	203
400	ISL	7.47	7.43	34.286	26.796	131.1	0.797	0.64	9.5	57.5	2.85	35.2	0.00			403	
437		7.06	7.02	34.277	26.847	126.5	0.845	0.57	8.4	63.0	2.91	36.6	0.00			440	202
500	ISL	6.58	6.53	34.307	26.936	118.6	0.922	0.37	5.4	71.3	3.05	38.4	0.00			503	
516		6.46	6.41	34.315	26.958	116.6	0.941	0.32	4.6	73.4	3.08	38.8	0.00			519	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 93 40

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 30.9 N	118 13.1 W	06/01/04	1802 UTC	1621 m	020 01 kn	240 02 07	1	1018.6 mb	16.0 C	12.9 C	17m	6/8	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	14.87	14.87	33.155	24.579	334.9	0.000	5.85	101.4	1.8	0.36	0.0	0.00	0.62	0.24	0	
2	A	14.87	14.87	33.155	24.579	334.9	0.007	5.85	101.4	1.8	0.36	0.0	0.00	0.62	0.24	2	221
10	ISL	14.81	14.81	33.155	24.592	333.9	0.033	5.84	101.1	1.8	0.36	0.0	0.00	0.64	0.25	10	
12	A	14.79	14.79	33.155	24.596	333.6	0.040	5.84	101.1	1.8	0.36	0.0	0.00	0.65	0.25	12	220
20		14.75	14.75	33.156	24.606	332.9	0.067	5.84	101.0	1.8	0.36	0.0	0.00	0.65	0.30	20	219
27	A	14.75	14.75	33.158	24.608	332.9	0.090	5.85	101.2	1.8	0.36	0.0	0.00	0.69	0.31	27	218
30	ISL	14.75	14.75	33.160	24.609	332.9	0.100	5.84	101.0	1.8	0.36	0.0	0.00	0.72	0.31	30	
34		14.76	14.75	33.163	24.609	333.0	0.113	5.82	100.7	1.9	0.37	0.1	0.00	0.75	0.32	34	217
39	A	13.52	13.51	33.102	24.821	312.9	0.130	5.48	92.4	3.7	0.62	3.7	0.06	0.34	0.32	39	216
50	ISL	12.00	11.99	33.092	25.109	285.6	0.162	4.98	81.3	7.1	0.98	9.3	0.02	0.17	0.21	50	
51	A	11.93	11.92	33.096	25.125	284.1	0.165	4.95	80.7	7.3	1.00	9.7	0.02	0.16	0.20	51	215
63		11.51	11.50	33.173	25.263	271.3	0.199	4.73	76.5	9.0	1.11	11.7	0.01	0.11	0.14	63	214
75	A	10.88	10.87	33.274	25.455	253.2	0.230	4.53	72.3	11.0	1.22	13.6	0.01	0.08	0.10	75	213
87		10.66	10.65	33.413	25.602	239.5	0.260	4.02	63.9	14.3	1.41	16.4	0.00	0.05	0.06	87	212
99		10.62	10.61	33.592	25.749	225.8	0.288	3.44	54.7	18.0	1.60	18.9	0.00	0.02	0.05	99	211
100	ISL	10.61	10.60	33.602	25.758	224.9	0.290	3.41	54.2	18.2	1.61	19.0	0.00	0.02	0.05	100	
119		10.34	10.33	33.750	25.921	209.9	0.331	3.01	47.6	21.4	1.75	21.2	0.00	0.01	0.04	120	210
125	ISL	10.31	10.30	33.796	25.962	206.1	0.344	2.88	45.5	22.4	1.80	21.8	0.00	0.01	0.04	126	
138		10.25	10.23	33.887	26.043	198.7	0.370	2.62	41.4	24.4	1.89	22.9	0.00	0.00	0.03	139	209
150	ISL	10.13	10.11	33.947	26.111	192.5	0.393	2.46	38.8	25.8	1.95	23.8	0.00	0.00	0.03	151	
168		9.90	9.88	34.019	26.206	183.8	0.427	2.28	35.8	27.8	2.03	25.0	0.00	0.00	0.03	169	208
198		9.49	9.47	34.127	26.359	169.8	0.480	2.04	31.7	32.0	2.16	27.0	0.00	0.00	0.03	199	207
200	ISL	9.46	9.44	34.131	26.367	169.1	0.484	2.02	31.4	32.3	2.17	27.1	0.00			201	
228		9.10	9.08	34.172	26.458	160.9	0.530	1.78	27.5	36.2	2.29	28.7	0.00			229	206
250	ISL	8.82	8.79	34.187	26.515	155.9	0.565	1.65	25.3	38.9	2.36	29.7	0.00			251	
268		8.60	8.57	34.195	26.555	152.2	0.592	1.55	23.6	41.1	2.41	30.4	0.00			270	205
300	ISL	8.29	8.26	34.220	26.623	146.3	0.640	1.30	19.7	45.0	2.53	31.8	0.00			302	
318		8.13	8.10	34.232	26.656	143.3	0.666	1.16	17.5	47.3	2.59	32.5	0.00			320	204
379		7.43	7.39	34.235	26.761	133.9	0.751	0.89	13.2	55.7	2.76	34.9	0.00			381	203
400	ISL	7.26	7.22	34.240	26.790	131.5	0.779	0.81	12.0	58.0	2.81	35.6	0.00			403	
439		7.02	6.98	34.255	26.835	127.6	0.829	0.67	9.9	62.0	2.89	36.6	0.00			442	202
500	ISL	6.75	6.70	34.295	26.904	121.8	0.905	0.45	6.6	67.9	3.02	37.9	0.00			503	
515		6.68	6.63	34.305	26.922	120.3	0.923	0.39	5.7	69.3	3.05	38.2	0.00			518	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 20.8 N	118 33.1 W	06/01/04	2100 UTC	1339 m	00 kn	360 01 07	2	1016.5 mb	16.5 C	13.7 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	14.91	14.91	33.191	24.598	333.1	0.000	5.91	102.6	1.9	0.36	0.1	0.00	1.01	0.29	0	
2		14.91	14.91	33.191	24.598	333.1	0.007	5.91	102.6	1.9	0.36	0.1	0.00	1.01	0.29	2	220
10		14.65	14.65	33.189	24.652	328.2	0.033	5.92	102.2	1.9	0.35	0.1	0.00	0.76	0.25	10	219
20		14.62	14.62	33.189	24.659	327.8	0.066	5.91	102.0	1.9	0.36	0.1	0.01	0.87	0.33	20	218
29		14.61	14.61	33.194	24.665	327.5	0.095	5.87	101.2	1.9	0.36	0.1	0.01	0.93	0.38	29	217
30	ISL	14.61	14.61	33.193	24.665	327.6	0.099	5.87	101.2	1.9	0.36	0.1	0.01	0.93	0.38	30	
40		14.61	14.60	33.190	24.662	328.1	0.131	5.87	101.2	1.9	0.36	0.2	0.01	0.90	0.32	40	216
50		14.48	14.47	33.175	24.679	326.8	0.164	5.79	99.6	2.5	0.43	0.9	0.05	0.72	0.29	50	215
59		13.24	13.23	33.109	24.883	307.5	0.193	5.31	89.0	4.7	0.72	5.1	0.14	0.35	0.29	59	214
70		11.69	11.68	33.163	25.222	275.3	0.225	4.78	77.6	8.4	1.07	10.8	0.03	0.16	0.25	70	213
75	ISL	11.31	11.30	33.235	25.348	263.5	0.238	4.53	72.9	10.2	1.19	12.9	0.02	0.11	0.20	75	
84		10.93	10.92	33.385	25.533	246.0	0.261	4.08	65.2	13.3	1.37	15.8	0.01	0.06	0.10	84	212
100		10.82	10.81	33.598	25.718	228.8	0.299	3.37	53.8	17.7	1.61	18.9	0.01	0.02	0.06	100	211
119		10.17	10.16	33.730	25.934	208.6	0.341	3.06	48.2	21.9	1.78	21.8	0.01	0.01	0.05	120	210
125	ISL	10.10	10.09	33.781	25.986	203.8	0.353	2.92	45.9	23.0	1.83	22.4	0.01	0.01	0.05	126	
139		10.01	9.99	33.897	26.092	194.0	0.381	2.60	40.9	25.4	1.93	23.7	0.01	0.00	0.04	140	209
150	ISL	9.90	9.88	33.971	26.169	187.0	0.402	2.42	38.0	27.1	2.00	24.6	0.01	0.00	0.04	151	
169		9.68	9.66	34.069	26.282	176.5	0.436	2.19	34.2	29.9	2.10	26.0	0.01	0.00	0.03	170	208
198		9.31	9.29	34.147	26.404	165.5	0.486	1.93	29.9	34.0	2.23	27.9	0.00	0.00	0.02	199	207
200	ISL	9.29	9.27	34.151	26.411	164.9	0.489	1.91	29.6	34.3	2.24	28.0	0.00			201	
228		9.10	9.08	34.199	26.479	158.9	0.535	1.58	24.4	37.9	2.38	29.4	0.00			229	206
250	ISL	8.93	8.90	34.218	26.521	155.3	0.569	1.45	22.3	40.0	2.44	30.1	0.00			251	
268		8.77	8.74	34.227	26.554	152.5	0.597	1.36	20.8	41.7	2.49	30.6	0.00			270	205
300	ISL	8.35	8.32	34.249	26.636	145.0	0.645	1.12	17.0	46.4	2.61	32.2	0.00			302	
318		8.10	8.07	34.259	26.682	140.9	0.670	0.98	14.8	49.4	2.68	33.1	0.00			320	204
378		7.39	7.35	34.270	26.795	130.8	0.752	0.69	10.2	58.6	2.85	35.6	0.00			380	203
400	ISL	7.21	7.17	34.282	26.830	127.7	0.780	0.59	8.7	61.5	2.91	36.3	0.00			403	
437		6.94	6.90	34.302	26.883	123.0	0.827	0.45	6.6	66.0	2.99	37.4	0.00			440	202
500	ISL	6.49	6.44	34.316	26.955	116.7	0.902	0.34	4.9	73.4	3.09	38.9	0.00			503	
514		6.39	6.34	34.319	26.971	115.3	0.918	0.32	4.6	75.0	3.11	39.2	0.00			517	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 10.6 N	118 53.5 W	07/01/04	0045 UTC	1462 m	00 kn	360 02 06	2	1016.2 mb	16.5 C	14.1 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	15.32	15.32	33.144	24.472	345.0	0.000	5.79	101.3	1.3	0.36	0.0	0.00	0.42	0.18	0	
1		15.32	15.32	33.144	24.472	345.0	0.003	5.79	101.3	1.3	0.36	0.0	0.00	0.42	0.18	1	220
10		15.32	15.32	33.142	24.471	345.4	0.035	5.81	101.6	1.3	0.36	0.0	0.00	0.40	0.17	10	219
20		15.29	15.29	33.140	24.477	345.2	0.069	5.79	101.2	1.3	0.37	0.0	0.00	0.45	0.20	20	218
30		15.28	15.28	33.137	24.477	345.5	0.104	5.79	101.2	1.4	0.37	0.0	0.00	0.51	0.20	30	217
40		15.27	15.26	33.136	24.479	345.7	0.138	5.78	101.0	1.2	0.36	0.0	0.00	0.51	0.19	40	216
50		14.67	14.66	33.082	24.567	337.5	0.172	5.74	99.1	1.6	0.43	0.6	0.08	0.49	0.25	50	215
60		12.49	12.48	32.965	24.918	304.1	0.204	5.46	90.0	4.2	0.78	5.5	0.07	0.25	0.33	60	214
70		11.36	11.35	32.919	25.093	287.6	0.234	5.30	85.3	6.0	0.93	8.3	0.03	0.19	0.27	70	213
75	ISL	11.02	11.01	32.985	25.205	277.0	0.248	5.13	81.9	7.4	1.03	10.0	0.02	0.16	0.23	75	
84		10.59	10.58	33.138	25.400	258.6	0.272	4.82	76.4	10.1	1.20	12.9	0.01	0.11	0.16	84	212
100		10.01	10.00	33.256	25.591	240.7	0.312	4.54	71.1	13.3	1.36	15.8	0.01	0.06	0.09	100	211
119		9.89	9.88	33.627	25.901	211.7	0.355	3.57	55.9	19.6	1.67	20.5	0.01	0.02	0.03	120	210
125	ISL	9.89	9.88	33.704	25.961	206.1	0.368	3.34	52.3	20.9	1.74	21.5	0.01	0.02	0.03	126	
140		9.91	9.89	33.849	26.071	196.0	0.398	2.87	45.0	23.4	1.86	23.2	0.01	0.01	0.03	141	209
150	ISL	9.86	9.84	33.924	26.139	189.8	0.417	2.66	41.7	25.1	1.93	24.1	0.01	0.01	0.03	151	
170		9.70	9.68	34.035	26.252	179.4	0.454	2.37	37.0	28.2	2.04	25.5	0.01	0.00	0.03	171	208
199		9.48	9.46	34.134	26.366	169.1	0.505	2.13	33.1	31.6	2.16	26.8	0.01	0.01	0.02	200	207
200	ISL	9.45	9.43	34.132	26.370	168.8	0.506	2.13	33.1	31.7	2.16	26.9	0.01			201	
229		8.51	8.49	34.078	26.477	158.8	0.554	2.25	34.2	36.3	2.19	28.8	0.00			230	206
250	ISL	8.40	8.37	34.129	26.534	153.8	0.587	2.00	30.4	39.3	2.30	29.9	0.00			251	
269		8.30	8.27	34.165	26.578	150.0	0.615	1.69	25.6	42.0	2.42	30.8	0.00			271	205
300	ISL	8.06	8.03	34.210	26.649	143.6	0.661	1.30	19.6	46.8	2.57	32.3	0.00			302	
318		7.91	7.88	34.230	26.687	140.2	0.686	1.10	16.5	49.6	2.64	33.1	0.00			320	204
378		7.44	7.40	34.270	26.788	131.5	0.768	0.71	10.5	57.3	2.84	35.2	0.00			380	203
400	ISL	7.23	7.19	34.275	26.821	128.5	0.797	0.63	9.3	60.3	2.90	36.0	0.00			403	
437		6.88	6.84	34.281	26.875	123.7	0.843	0.52	7.6	65.3	2.98	37.3	0.00			440	202
500	ISL	6.45	6.40	34.308	26.954	116.7	0.919	0.35	5.1	72.7	3.09	38.8	0.00			503	
515		6.35	6.30	34.315	26.973	115.1	0.936	0.31	4.5	74.4	3.11	39.2	0.00			518	201

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 93 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
32 0.8 N	119 14.1 W	07/01/04	0433 UTC	1586 m	00 kn			1016.3 mb	16.0 C	12.5 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	15.11	15.11	33.033	24.433	348.8	0.000	5.81	101.1	1.6	0.36	0.0	0.00	0.35	0.14	0	
2		15.11	15.11	33.033	24.433	348.9	0.007	5.81	101.1	1.6	0.36	0.0	0.00	0.35	0.14	2	220
10	ISL	15.13	15.13	33.041	24.435	348.9	0.035	5.81	101.2	1.6	0.36	0.1	0.00	0.36	0.15	10	
15		15.15	15.15	33.048	24.436	348.9	0.052	5.81	101.2	1.6	0.36	0.1	0.00	0.37	0.15	15	219
20	ISL	15.17	15.17	33.057	24.439	348.8	0.070	5.80	101.1	1.6	0.36	0.1	0.00	0.39	0.16	20	
30		15.21	15.21	33.072	24.442	348.8	0.105	5.79	101.0	1.6	0.35	0.0	0.00	0.43	0.19	30	218
45		15.17	15.16	33.063	24.444	349.0	0.157	5.78	100.7	1.7	0.37	0.1	0.02	0.48 A	0.31 A	45	217
50	ISL	14.19	14.18	32.982	24.591	335.2	0.174	5.71	97.5	2.5	0.48	1.4	0.13	0.47	0.37	50	
54		13.34	13.33	32.925	24.720	322.8	0.187	5.64	94.6	3.3	0.59	2.7	0.20	0.46	0.41	54	216
64		12.11	12.10	32.897	24.938	302.3	0.219	5.44	88.9	5.1	0.79	6.0	0.08	0.25	0.34	64	215
74		11.60	11.59	32.936	25.063	290.6	0.248	5.27	85.2	6.4	0.91	8.2	0.03	0.19	0.28	74	214
75	ISL	11.57	11.56	32.947	25.077	289.3	0.251	5.25	84.8	6.5	0.92	8.3	0.03	0.18	0.27	75	
85		11.22	11.21	33.065	25.232	274.7	0.279	5.06	81.2	7.9	1.06	10.0	0.02	0.13	0.17	85	213
94		10.61	10.60	33.132	25.392	259.6	0.303	4.85	76.9	10.2	1.16	12.7	0.01	0.11	0.13	94	212
100	ISL	10.34	10.33	33.202	25.493	250.0	0.319	4.69	73.9	11.8	1.24	14.2	0.01	0.09	0.10	100	
109		10.04	10.03	33.311	25.629	237.3	0.341	4.45	69.7	14.2	1.37	16.2	0.01	0.05	0.07	109	211
124		9.53	9.52	33.444	25.817	219.6	0.375	4.18	64.8	17.8	1.52	18.9	0.01	0.02	0.04	125	210
125	ISL	9.51	9.50	33.455	25.829	218.5	0.377	4.15	64.3	18.0	1.53	19.1	0.01	0.02	0.04	126	
144		9.24	9.22	33.658	26.032	199.6	0.417	3.64	56.1	22.3	1.70	21.9	0.01	0.01	0.03	145	209
150	ISL	9.11	9.09	33.698	26.084	194.7	0.429	3.56	54.8	23.6	1.74	22.7	0.01	0.01	0.03	151	
169		8.74	8.72	33.799	26.222	181.9	0.464	3.41	52.1	27.2	1.83	24.6	0.01	0.00	0.02	170	208
199		8.71	8.69	33.959	26.352	170.1	0.517	3.09	47.2	30.0	1.90	25.7	0.01	0.01	0.02	200	207
200	ISL	8.70	8.68	33.961	26.355	169.9	0.519	3.09	47.2	30.1	1.90	25.7	0.01			201	
228		8.30	8.28	33.998	26.446	161.6	0.565	3.10	46.9	33.7	2.03	26.5	0.01			229	206
250	ISL	8.18	8.15	34.063	26.515	155.4	0.600	2.54	38.3	38.1	2.19	28.5	0.00			251	
268		8.09	8.06	34.113	26.568	150.7	0.628	2.00	30.1	42.0	2.33	30.4	0.00			270	205
300	ISL	7.62	7.59	34.128	26.649	143.3	0.675	1.62	24.2	48.3	2.51	32.7	0.00			302	
318		7.32	7.29	34.123	26.688	139.7	0.700	1.51	22.4	51.6	2.59	33.8	0.00			320	204
377		6.70	6.67	34.126	26.776	131.9	0.780	1.17	17.1	60.8	2.79	36.5	0.00			379	203
400	ISL	6.58	6.54	34.165	26.823	127.7	0.810	0.94	13.7	64.1	2.89	37.3	0.00			402	
436		6.46	6.42	34.236	26.895	121.3	0.855	0.59	8.6	68.9	3.03	38.3	0.00			439	202
500	ISL	6.20	6.16	34.306	26.985	113.6	0.930	0.33	4.8	76.4	3.17	39.5	0.00			503	
516		6.13	6.08	34.324	27.008	111.5	0.948	0.26	3.7	78.3	3.20	39.8	0.00			519	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 0401 | STATION 93 60

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
31 50.9 N	119 34.1 W	07/01/04	0837 UTC	1853 m	230 07 kn			1017.3 mb	15.3 C	12.8 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	15.27	15.27	33.167	24.501	342.3	0.000	5.77	100.9	2.1	0.34	0.1	0.00	0.42	0.20	0	
1		15.27	15.27	33.167	24.501	342.3	0.003	5.77	100.9	2.1	0.34	0.1	0.00	0.42	0.20	1	220
10		15.27	15.27	33.166	24.501	342.6	0.034	5.77	100.8	2.1	0.34	0.1	0.00	0.42	0.19	10	219
20	ISL	15.23	15.23	33.157	24.503	342.7	0.069	5.78	100.9	2.2	0.35	0.1	0.00	0.45	0.19	20	
21		15.22	15.22	33.156	24.504	342.6	0.072	5.78	100.9	2.2	0.35	0.1	0.00	0.45	0.19	21	218
30		15.17	15.17	33.149	24.510	342.3	0.103	5.78	100.8	2.2	0.35	0.1	0.00	0.48	0.21	30	217
40		15.10	15.09	33.138	24.517	342.0	0.137	5.78	100.7	2.2	0.35	0.1	0.00	0.53	0.21	40	216
50		15.05	15.04	33.138	24.528	341.2	0.171	5.74	99.9	2.3	0.36	0.1	0.01	0.60	0.28	50	215
60		13.39	13.38	33.025	24.788	316.6	0.204	5.44	91.4	4.2	0.64	3.5	0.14	0.33	0.37	60	214
70		12.13	12.12	32.988	25.005	296.1	0.235	5.27	86.2	6.0	0.83	6.9	0.04	0.18	0.20	70	213
75	ISL	11.72	11.71	32.999	25.090	288.1	0.249	5.16	83.7	7.1	0.92	8.5	0.03	0.14	0.16	75	
85		11.10	11.09	33.055	25.246	273.4	0.277	4.95	79.2	9.3	1.08	11.4	0.01	0.09	0.11	85	212
100		10.27	10.26	33.183	25.490	250.3	0.317	4.68	73.6	12.6	1.26	14.6	0.02	0.05	0.08	100	211
120		9.81	9.80	33.335	25.686	232.0	0.365	4.43	69.1	15.5	1.37	16.7	0.02	0.03	0.04	121	210
125	ISL	9.66	9.65	33.391	25.755	225.6	0.376	4.33	67.3	16.6	1.41	17.5	0.02	0.02	0.03	126	
140		9.23	9.21	33.557	25.954	206.8	0.409	4.03	62.1	20.0	1.55	20.0	0.01	0.01	0.02	141	209
150	ISL	9.05	9.03	33.631	26.041	198.8	0.429	3.87	59.4	22.0	1.63	21.3	0.01	0.00	0.02	151	
169		8.82	8.80	33.746	26.168	187.1	0.466	3.57	54.6	25.9	1.76	23.6	0.01	0.00	0.02	170	208
199		8.55	8.53	33.940	26.362	169.2	0.519	2.93	44.6	32.5	1.95	27.0	0.01	0.00	0.02	200	207
200	ISL	8.54	8.52	33.945	26.367	168.6	0.521	2.91	44.3	32.7	1.96	27.1	0.01			201	
229		8.33	8.31	34.042	26.476	158.8	0.568	2.47	37.4	37.5	2.11	28.9	0.01			230	206
250	ISL	8.00	7.97	34.055	26.536	153.4	0.601	2.25	33.8	41.3	2.22	30.6	0.01			251	
269		7.66	7.63	34.048	26.580	149.3	0.630	2.10	31.3	44.8	2.31	32.0	0.01			271	205
300	ISL	7.16	7.13	34.039	26.644	143.5	0.675	1.98	29.2	49.8	2.40	33.4	0.00			302	
318		6.90	6.87	34.036	26.677	140.4	0.701	1.91	28.0	52.7	2.45	34.1	0.00			320	204
378		6.31	6.28	34.071	26.783	130.8	0.782	1.33	19.2	62.9	2.71	37.2	0.00			380	203
400	ISL	6.12	6.08	34.089	26.822	127.3	0.810	1.14	16.4	66.9	2.79	38.2	0.00			402	
438		5.85	5.81	34.123	26.883	121.8	0.858	0.85	12.2	73.3	2.92	39.7	0.00			441	202
500	ISL	5.58	5.54	34.170	26.954	115.7	0.931	0.59	8.4	80.6	3.04	40.9	0.00			503	
513		5.52	5.48	34.180	26.969	114.3	0.946	0.54	7.7	82.1	3.06	41.2	0.00			516	201

RV DAVID STARR JORDAN | CALCOFI CRUISE 0401 | 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 15.4 W	07/01/04	1729 UTC	3929 m	160 05 kn	330 01 06	1	1019.5 mb	17.9 C	16.0 C	25m	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	15.52	15.52	32.946	24.276	363.7	0.000	5.70	100.0	2.2	0.34	0.0	0.00	0.21	0.08	0	
1	A	15.52	15.52	32.946	24.276	363.7	0.004	5.70	100.0	2.2	0.34	0.0	0.00	0.21	0.08	1	221
8		15.40	15.40	32.922	24.284	363.2	0.029	5.76	100.8	2.3	0.34	0.0	0.00	0.23	0.08	8	220
10	ISL	15.30	15.30	32.919	24.304	361.4	0.036	5.77	100.8	2.3	0.34	0.0	0.00	0.23	0.08	10	
18	A	14.94	14.94	32.917	24.381	354.3	0.065	5.80	100.5	2.3	0.34	0.0	0.00	0.26	0.10	18	219
20	ISL	14.93	14.93	32.920	24.385	353.9	0.072	5.80	100.5	2.3	0.34	0.0	0.00	0.27	0.10	20	
28		14.91	14.91	32.926	24.395	353.3	0.100	5.80	100.5	2.4	0.35	0.0	0.00	0.34	0.15	28	218
30	ISL	14.85	14.85	32.925	24.407	352.2	0.107	5.81	100.5	2.4	0.36	0.0	0.01	0.39	0.18	30	
39	A	14.55	14.54	32.926	24.472	346.2	0.139	5.84	100.4	2.6	0.39	0.3	0.06	0.60	0.34	39	217
48		14.32	14.31	32.947	24.536	340.3	0.170	5.81	99.5	2.7	0.42	0.5	0.12	0.56	0.42	48	216
50	ISL	14.24	14.23	32.943	24.550	339.0	0.176	5.80	99.1	2.8	0.43	0.6	0.15	0.53	0.40	50	
58	A	13.85	13.84	32.933	24.623	332.2	0.203	5.72	97.0	3.2	0.48	1.3	0.24	0.39	0.30	58	215
67		13.22	13.21	32.975	24.783	317.2	0.233	5.54	92.7	4.2	0.61	3.7	0.12	0.19	0.20	67	214
75	ISL	12.54	12.53	33.011	24.944	302.0	0.257	5.39	89.0	5.5	0.72	5.5	0.05	0.16	0.17	75	
76	A	12.45	12.44	33.018	24.967	299.8	0.260	5.37	88.5	5.7	0.73	5.8	0.04	0.16	0.17	76	213
92		11.28	11.27	33.258	25.372	261.6	0.305	4.58	73.7	10.7	1.13	12.2	0.02	0.11	0.15	92	212
100	ISL	11.08	11.07	33.363	25.489	250.6	0.326	4.21	67.5	13.0	1.29	14.5	0.01	0.09	0.12	100	
110	A	10.94	10.93	33.474	25.601	240.2	0.350	3.83	61.3	15.5	1.44	16.7	0.01	0.06	0.09	110	211
124		10.48	10.47	33.589	25.771	224.2	0.383	3.55	56.3	18.0	1.56	18.9	0.01	0.03	0.06	125	210
125	ISL	10.46	10.45	33.604	25.786	222.8	0.385	3.50	55.4	18.4	1.58	19.1	0.01	0.03	0.06	126	
139		10.21	10.19	33.824	26.001	202.7	0.415	2.85	45.0	23.8	1.80	22.1	0.01	0.01	0.03	140	209
150	ISL	10.05	10.03	33.920	26.104	193.2	0.437	2.71	42.6	26.1	1.89	23.4	0.01	0.01	0.03	151	
169		9.80	9.78	34.012	26.218	182.7	0.472	2.48	38.8	28.3	1.97	24.6	0.01	0.00	0.02	170	208
199		9.44	9.42	34.103	26.349	170.8	0.525	2.29	35.6	31.9	2.07	26.2	0.01	0.00	0.02	200	207
200	ISL	9.43	9.41	34.107	26.354	170.4	0.527	2.27	35.3	32.1	2.08	26.3	0.01			201	
229		9.17	9.14	34.202	26.470	159.8	0.575	1.76	27.2	37.1	2.29	28.4	0.01			230	206
250	ISL	8.90	8.87	34.214	26.523	155.1	0.608	1.63	25.0	39.7	2.36	29.3	0.01			251	
269		8.64	8.61	34.208	26.559	151.9	0.637	1.57	24.0	41.9	2.40	30.0	0.01			270	205
300	ISL	8.23	8.20	34.210	26.624	146.1	0.683	1.37	20.7	46.2	2.51	31.5	0.00			302	
318		8.01	7.98	34.216	26.662	142.7	0.709	1.24	18.7	48.8	2.58	32.4	0.00			320	204
380		7.56	7.52	34.288	26.785	131.9	0.794	0.69	10.3	57.2	2.82	34.8	0.00			382	203
400	ISL	7.39	7.35	34.294	26.814	129.3	0.821	0.59	8.8	59.6	2.88	35.5	0.00			402	
438		7.06	7.02	34.299	26.864	124.9	0.869	0.47	6.9	64.3	2.97	36.7	0.00			441	202
500	ISL	6.49	6.44	34.318	26.957	116.5	0.944	0.32	4.7	73.1	3.09	38.8	0.00			503	
510		6.40	6.35	34.322	26.972	115.2	0.955	0.30	4.4	74.5	3.11	39.1	0.00			513	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

RV DAVID STARR JORDAN CALCOFI CRUISE 0401 STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT	TYPE
31 10.7 N	120 55.3 W	07/01/04	2211 UTC	3826 m	200 01 kn	260 01 07	1	1018.0 mb	17.5 C	14.5 C	21m	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	15.31	15.31	33.165	24.491	343.3	0.000	5.81	101.6	2.5	0.35	0.1	0.00	0.48	0.24	0	
2		15.31	15.31	33.165	24.491	343.3	0.007	5.81	101.6	2.5	0.35	0.1	0.00	0.48	0.24	2	220
9		15.29	15.29	33.166	24.496	343.0	0.031	5.81	101.6	2.5	0.35	0.0	0.00	0.52	0.19	9	219
10	ISL	15.29	15.29	33.166	24.496	343.0	0.034	5.81	101.6	2.5	0.35	0.0	0.00	0.52	0.19	10	
20		15.27	15.27	33.166	24.501	342.9	0.069	5.80	101.4	2.5	0.35	0.0	0.00	0.53	0.20	20	218
30		15.26	15.26	33.168	24.505	342.8	0.103	5.80	101.3	2.5	0.35	0.0	0.00	0.53	0.21	30	217
39		15.25	15.24	33.166	24.506	343.0	0.134	5.79	101.1	2.5	0.35	0.1	0.00	0.60	0.25	39	216
50		14.79	14.78	33.115	24.567	337.5	0.171	5.61	97.1	3.3	0.46	1.1	0.10	0.65	0.43	50	215
60		13.22	13.21	33.038	24.832	312.4	0.204	5.38	90.1	4.9	0.69	4.2	0.11	0.40 A	0.41 A	60	214
69		12.17	12.16	33.082	25.070	289.9	0.231	5.00	81.9	7.3	0.93	8.0	0.04	0.23	0.37	69	213
75	ISL	11.85	11.84	33.142	25.177	279.8	0.248	4.78	77.8	8.7	1.05	10.0	0.03	0.17	0.30	75	
85		11.56	11.55	33.253	25.317	266.7	0.275	4.44	71.9	10.9	1.20	12.6	0.02	0.12	0.18	85	212
100		11.01	11.00	33.386	25.520	247.7	0.314	4.01	64.2	14.1	1.39	15.7	0.01	0.06	0.09	100	211
118		9.76	9.75	33.383	25.732	227.6	0.357	4.28	66.7	16.6	1.45	17.8	0.01	0.03	0.05	119	210
125	ISL	9.55	9.54	33.484	25.845	216.9	0.372	4.05	62.8	18.8	1.54	19.3	0.01	0.02	0.04	126	
138		9.34	9.32	33.699	26.048	198.0	0.399	3.50	54.1	23.1	1.71	22.2	0.01	0.00	0.02	139	209
150	ISL	9.15	9.13	33.800	26.158	187.8	0.422	3.26	50.2	25.7	1.80	23.7	0.01	0.00	0.02	151	
168		8.93	8.91	33.890	26.263	178.0	0.455	3.02	46.3	28.8	1.90	25.3	0.01	0.00	0.02	169	208
198		8.67	8.65	34.014	26.401	165.5	0.507	2.53	38.6	33.9	2.07	27.8	0.00	0.00	0.03	199	207
200	ISL	8.65	8.63	34.019	26.408	164.8	0.510	2.50	38.1	34.3	2.08	28.0	0.00			201	
228		8.29	8.27	34.073	26.506	155.9	0.555	2.14	32.4	39.6	2.25	30.0	0.00			229	206
250	ISL	8.05	8.02	34.093	26.558	151.3	0.589	2.00	30.1	42.4	2.30	30.8	0.00			251	
268		7.86	7.83	34.104	26.595	148.0	0.616	1.91	28.6	44.4	2.34	31.4	0.00			269	205
300	ISL	7.55	7.52	34.129	26.660	142.3	0.662	1.60	23.8	49.2	2.49	33.0	0.00			302	
318		7.38	7.35	34.143	26.695	139.1	0.687	1.41	20.9	52.0	2.58	33.9	0.00			320	204
378		6.81	6.77	34.179	26.803	129.4	0.768	0.94	13.8	61.3	2.79	36.5	0.00			380	203
400	ISL	6.67	6.63	34.195	26.835	126.7	0.796	0.81	11.8	64.1	2.85	37.2	0.00			402	
438		6.48	6.44	34.225	26.884	122.4	0.843	0.61	8.9	68.6	2.94	38.2	0.00			441	202
500	ISL	6.18	6.14	34.280	26.967	115.2	0.917	0.38	5.5	75.9	3.08	39.6	0.00			503	
515		6.11	6.06	34.293	26.986	113.5	0.934	0.33	4.8	77.7	3.11	39.9	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 0401 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 35.7 W	08/01/04	0352 UTC	4113 m	120 02 kn			1019.0 mb	17.1 C	14.4 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	15.84	15.84	32.985	24.235	367.6	0.000	5.69	100.5	1.3	0.33	0.0	0.00	0.17	0.06	0	
2		15.84	15.84	32.985	24.235	367.7	0.007	5.69	100.5	1.3	0.33	0.0	0.00	0.17	0.06	2	220
10	ISL	15.61	15.61	32.983	24.285	363.2	0.037	5.73	100.7	1.4	0.33	0.0	0.00	0.19	0.07	10	
15		15.40	15.40	32.980	24.329	359.1	0.055	5.77	101.0	1.4	0.33	0.0	0.00	0.22	0.08	15	219
20	ISL	15.25	15.25	32.966	24.351	357.2	0.073	5.80	101.2	1.4	0.33	0.0	0.00	0.27	0.09	20	
30		15.06	15.06	32.952	24.382	354.5	0.108	5.83	101.3	1.3	0.34	0.0	0.00	0.37	0.13	30	218
45		15.20	15.19	33.025	24.409	352.5	0.161	5.79	101.0	1.4	0.35	0.0	0.00	0.45	0.19	45	217
50	ISL	15.02	15.01	32.996	24.425	351.0	0.179	5.81	100.9	1.4	0.36	0.0	0.01	0.58	0.26	50	
55		14.77	14.76	32.966	24.456	348.2	0.196	5.83	100.7	1.5	0.36	0.0	0.03	0.65	0.31	55	216
66		14.19	14.18	32.997	24.603	334.5	0.234	5.77	98.5	1.8	0.44	0.7	0.17	0.25	0.20	66	215
75	ISL	13.74	13.73	33.032	24.723	323.2	0.263	5.71	96.6	2.5	0.54	2.3	0.17	0.20	0.22	75	
76		13.67	13.66	33.034	24.739	321.8	0.267	5.70	96.3	2.6	0.56	2.6	0.17	0.20	0.22	76	214
86		12.23	12.22	32.991	24.988	298.0	0.298	5.32	87.2	5.0	0.80	6.6	0.04	0.15	0.19	86	213
95		11.84	11.83	33.055	25.111	286.5	0.324	5.31	86.4	5.7	0.80	7.0	0.03	0.11	0.11	95	212
100	ISL	11.50	11.49	33.049	25.169	281.0	0.338	5.28	85.3	6.3	0.85	7.9	0.02	0.09	0.10	100	
110		10.81	10.80	33.044	25.289	269.8	0.366	5.15	81.9	8.1	1.00	10.5	0.01	0.06	0.08	110	211
125	ISL	10.12	10.11	33.204	25.532	246.8	0.404	4.74	74.3	12.2	1.25	14.6	0.01	0.03	0.04	126	
126		10.08	10.07	33.217	25.549	245.2	0.407	4.71	73.8	12.5	1.27	14.9	0.01	0.03	0.04	127	210
146		9.48	9.46	33.431	25.816	220.2	0.453	4.36	67.5	16.6	1.42	17.9	0.01	0.02	0.03	147	209
150	ISL	9.37	9.35	33.491	25.881	214.1	0.462	4.19	64.7	18.2	1.49	19.0	0.01	0.02	0.03	151	
168		8.93	8.91	33.748	26.152	188.6	0.498	3.49	53.5	25.1	1.77	23.6	0.01	0.00	0.03	169	208
199		8.64	8.62	33.952	26.357	169.6	0.554	3.48	53.1	28.7	1.76	24.2	0.00	0.00	0.02	200	207
200	ISL	8.63	8.61	33.955	26.361	169.3	0.555	3.47	52.9	28.8	1.76	24.3	0.00			201	
229		8.29	8.27	34.003	26.451	161.1	0.603	3.13	47.4	33.4	1.91	26.5	0.00			230	206
250	ISL	7.97	7.94	34.022	26.514	155.4	0.637	2.66	40.0	38.5	2.11	29.1	0.00			251	
267		7.72	7.69	34.035	26.561	151.1	0.663	2.26	33.8	42.7	2.27	31.2	0.00			268	205
300	ISL	7.37	7.34	34.072	26.641	143.9	0.711	1.82	27.0	48.5	2.45	33.1	0.00			302	
318		7.24	7.21	34.096	26.678	140.6	0.737	1.64	24.2	51.1	2.52	33.7	0.00			320	204
378		7.09	7.05	34.199	26.781	131.8	0.819	0.95	14.0	58.1	2.79	35.6	0.00			380	203
400	ISL	6.90	6.86	34.220	26.823	128.0	0.847	0.78	11.4	61.8	2.88	36.4	0.00			402	
437		6.53	6.49	34.246	26.894	121.5	0.893	0.57	8.3	68.2	3.00	37.8	0.00			440	202
500	ISL	6.12	6.08	34.278	26.973	114.6	0.968	0.39	5.6	76.3	3.10	39.6	0.00			503	
516		6.01	5.96	34.286	26.993	112.7	0.986	0.34	4.9	78.4	3.13	40.1	0.00			519	201

RV DAVID STARR JORDAN | CALCOFI CRUISE 0401 | STATION 93 100

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 30.9 N	122 15.5 W	08/01/04	0935 UTC	4166 m	140 06 kn			1019.1 mb	17.0 C	13.9 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	15.67	15.67	32.970	24.261	365.1	0.000	5.70	100.3	1.3	0.35	0.0	0.00	0.17	0.06	0	
1		15.67	15.67	32.970	24.261	365.2	0.004	5.70	100.3	1.3	0.35	0.0	0.00	0.17	0.06	1	220
10	ISL	15.54	15.54	32.963	24.285	363.2	0.036	5.72	100.4	1.3	0.35	0.0	0.00	0.18	0.06	10	
15		15.43	15.43	32.958	24.306	361.4	0.055	5.74	100.5	1.3	0.35	0.0	0.00	0.19	0.06	15	219
20	ISL	15.37	15.37	32.958	24.319	360.3	0.073	5.75	100.6	1.3	0.35	0.0	0.00	0.21	0.07	20	
30		15.28	15.28	32.962	24.342	358.3	0.109	5.77	100.7	1.4	0.36	0.0	0.00	0.27	0.09	30	218
45		15.16	15.15	32.981	24.383	354.9	0.162	5.80	101.0	1.4	0.35	0.0	0.00	0.35	0.17	45	217
50	ISL	15.09	15.08	32.970	24.390	354.3	0.180	5.79	100.7	1.5	0.37	0.0	0.02	0.41	0.19	50	
55		14.94	14.93	32.948	24.406	353.0	0.197	5.78	100.2	1.6	0.39	0.1	0.06	0.45	0.22	55	216
65		14.21	14.20	32.876	24.505	343.7	0.232	5.76	98.3	2.0	0.45	0.5	0.20	0.37	0.30	65	215
75		13.31	13.30	32.858	24.675	327.7	0.266	5.65	94.7	2.7	0.54	1.7	0.17	0.30	0.33	75	214
85		12.96	12.95	32.937	24.806	315.5	0.298	5.55	92.4	3.4	0.59	3.1	0.04	0.22	0.30	85	213
95		12.09	12.08	32.937	24.973	299.7	0.329	5.38	87.9	5.0	0.80	6.5	0.04	0.17	0.22	95	212
100	ISL	11.71	11.70	32.959	25.061	291.4	0.344	5.28	85.6	6.0	0.88	8.0	0.03	0.15	0.21	100	
109		11.10	11.09	33.030	25.227	275.7	0.369	5.06	81.0	8.1	1.03	10.7	0.02	0.13	0.19	109	211
124		10.28	10.27	33.230	25.526	247.5	0.408	4.54	71.5	12.8	1.33	15.7	0.01	0.08	0.10	125	210
125	ISL	10.23	10.22	33.242	25.543	245.8	0.411	4.50	70.8	13.1	1.34	15.9	0.01	0.08	0.10	126	
144		9.56	9.54	33.463	25.828	219.0	0.455			17.9	1.53	19.4	0.00	0.02	0.03	145	209
150	ISL	9.50	9.48	33.535	25.894	212.8	0.468	3.71	57.5	19.3	1.59	20.4	0.00	0.02	0.03	151	
169		9.40	9.38	33.728	26.061	197.3	0.507	3.35	51.9	23.1	1.75	22.8	0.00	0.01	0.02	170	208
199		8.88	8.86	33.861	26.249	180.0	0.563	3.54	54.2	26.0	1.73	23.3	0.00	0.00	0.02	200	207
200	ISL	8.88	8.86	33.867	26.254	179.6	0.565	3.51	53.8	26.2	1.74	23.4	0.00			201	
229		8.79	8.77	34.031	26.397	166.6	0.615	2.40	36.7	33.1	2.09	27.8	0.00			230	206
250	ISL	8.59	8.56	34.081	26.467	160.2	0.650	2.34	35.7	36.0	2.15	28.6	0.00			251	
268		8.37	8.34	34.100	26.516	155.8	0.678	2.28	34.6	38.2	2.18	28.9	0.00			269	205
300	ISL	7.88	7.85	34.131	26.614	146.8	0.727	1.77	26.5	44.9	2.41	31.5	0.00			302	
318		7.60	7.57	34.142	26.663	142.3	0.753	1.46	21.8	48.7	2.54	33.1	0.00			320	204
378		7.03	6.99	34.158	26.756	134.0	0.835	1.14	16.8	56.8	2.71	35.4	0.00			380	203
400	ISL	6.74	6.70	34.159	26.797	130.3	0.865	1.03	15.0	60.9	2.78	36.5	0.00			402	
438		6.27	6.23	34.172	26.869	123.6	0.913	0.83	12.0	68.0	2.89	38.2	0.00			441	202
500	ISL	6.04	6.00	34.255	26.965	115.2	0.987	0.46	6.6	75.9	3.06	39.7	0.00			503	
516		5.98	5.93	34.276	26.989	113.1	1.005	0.36	5.2	77.9	3.11	40.1	0.00			519	201

RV DAVID STARR JORDAN | CALCOFI CRUISE 0401 | STATION 93 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
30 11.2 N	122 55.6 W	08/01/04	1734 UTC	4000 m	170 15 kn	190 03 06	1	1018.8 mb	17.0 C	13.9 C	32m	4/8 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	16.48	16.48	33.064	24.151	375.7	0.000	5.61	100.4	1.3	0.35	0.0	0.00	0.16	0.06	0	
2	A	16.48	16.48	33.064 D	24.151	375.8	0.008	5.61	100.4	1.3	0.35	0.0	0.00	0.16	0.06	2	222
10	ISL	16.48	16.48	33.063	24.150	376.1	0.038	5.61	100.4	1.3	0.35	0.0	0.00	0.16	0.05	10	
12		16.48	16.48	33.063 D	24.150	376.1	0.045	5.61	100.4	1.3	0.35	0.0	0.00	0.16	0.05	12	221
20	ISL	16.47	16.47	33.066	24.155	375.9	0.075	5.60	100.2	1.3	0.35	0.0	0.00	0.16	0.06	20	
23	A	16.47	16.47	33.067	24.156	375.9	0.086	5.60	100.2	1.3	0.35	0.0	0.00	0.16	0.06	23	220
30	ISL	16.47	16.47	33.063	24.153	376.4	0.113	5.60	100.2	1.3	0.35	0.0	0.00	0.17	0.05	30	
32		16.47	16.46	33.062	24.152	376.5	0.120	5.60	100.2	1.3	0.35	0.0	0.00	0.17	0.05	32	219
41		16.47	16.46	33.062	24.153	376.8	0.154	5.60	100.2	1.3	0.35	0.0	0.00	0.17	0.05	41	218
50	A	16.46	16.45	33.067	24.159	376.5	0.188	5.59	100.0	1.3	0.35	0.0	0.00	0.19	0.05	50	217
62		16.31	16.30	33.048	24.179	374.9	0.233	5.62	100.2	1.4	0.36	0.0	0.00	0.27	0.11	62	216
74	A	13.86	13.85	32.871	24.574	337.4	0.276	5.79	98.1	2.5	0.49	1.0	0.16	0.34	0.19	74	215
75	ISL	13.72	13.71	32.884	24.613	333.7	0.279	5.76	97.4	2.7	0.52	1.5	0.16	0.34	0.19	75	
86		12.41	12.40	33.048	24.998	297.1	0.314	5.34	87.9	5.4	0.87	7.6	0.14	0.28	0.22	86	214
97	A	11.24	11.23	33.003	25.180	279.9	0.346	5.13	82.3	7.6	1.01	10.1	0.02	0.18	0.16	97	213
100	ISL	11.05	11.04	33.026	25.232	275.0	0.354	5.06	80.9	8.2	1.05	10.8	0.02	0.16	0.15	100	
111		10.52	10.51	33.147	25.420	257.3	0.383	4.85	76.7	10.3	1.17	13.0	0.01	0.09	0.10	111	212
125		9.88	9.87	33.269	25.623	238.1	0.418	4.74	74.0	13.0	1.25	14.7	0.01	0.04	0.04	126	211
140	A	9.46	9.44	33.530	25.896	212.4	0.452	3.93	60.9	19.4	1.60	20.3	0.01	0.01	0.03	141	210
150	ISL	9.34	9.32	33.610	25.978	204.8	0.473	3.73	57.6	21.1	1.64	21.5	0.01	0.01	0.04	151	
156		9.28	9.26	33.642	26.013	201.6	0.485	3.69	57.0	21.6	1.67	21.7	0.01	0.01	0.04	157	209
171		9.03	9.01	33.749	26.137	190.1	0.514	3.62	55.6	23.7	1.66	22.5	0.01	0.00	0.03	172	208
200		8.76	8.74	33.941	26.330	172.3	0.567	3.07	46.9	29.3	1.84	25.4	0.01	0.00	0.03	201	207
229		8.43	8.41	34.053	26.469	159.5	0.615	2.18	33.1	36.9	2.16	29.6	0.01			230	206
250	ISL	8.11	8.08	34.085	26.543	152.8	0.648	1.90	28.6	41.2	2.30	31.2	0.01			251	
268		7.83	7.80	34.098	26.595	148.0	0.675	1.78	26.7	44.5	2.38	32.1	0.01			269	205
300	ISL	7.41	7.38	34.127	26.678	140.4	0.721	1.49	22.1	50.2	2.53	33.9	0.01			302	
320		7.18	7.15	34.140 D	26.721	136.6	0.749									322	204
381		6.58	6.55	34.153	26.813	128.3	0.829	0.90	13.1	62.9	2.81	37.5	0.01			383	203
400	ISL	6.45	6.41	34.169	26.843	125.7	0.853	0.79	11.5	65.5	2.87	38.0	0.01			402	
439		6.23	6.19	34.208	26.903	120.4	0.901	0.59	8.5	70.8	2.97	38.9	0.01			442	202
500	ISL	5.87	5.83	34.263	26.992	112.4	0.972	0.37	5.3	79.1	3.09	40.4	0.01			503	
510		5.81	5.77	34.272	27.007	111.1	0.984	0.33	4.7	80.5	3.11	40.6	0.01			513	201

A) PRIMARY PRODUCTIVITY SAMPLES WERE TAKEN FROM THESE LEVELS.

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI	CLD AMT TYPE
29 50.9 N	123 35.0 W	09/01/04	0234 UTC	4110 m	180 14 kn			1016.9 mb	17.2 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	16.70	16.70	33.137	24.156	375.2	0.000	5.60	100.7	1.2	0.36	0.0	0.00	0.21	0.08	0	
2		16.70	16.70	33.137	24.156	375.3	0.008	5.60	100.7	1.2	0.36	0.0	0.00	0.21	0.08	2	220
10	ISL	16.70	16.70	33.136	24.155	375.6	0.038	5.60	100.7	1.2	0.36	0.0	0.00	0.22	0.07	10	
15		16.70	16.70	33.135	24.155	375.8	0.056	5.60	100.7	1.2	0.36	0.0	0.00	0.22	0.07	15	219
20	ISL	16.70	16.70	33.135	24.155	375.9	0.075	5.60	100.7	1.2	0.36	0.0	0.00	0.22	0.06	20	
30		16.71	16.71	33.135	24.153	376.4	0.113	5.60	100.7	1.2	0.36	0.0	0.00	0.21	0.06	30	218
45		16.70	16.69	33.136	24.157	376.6	0.169	5.60	100.7	1.2	0.35	0.0	0.00	0.23	0.08	45	217
50	ISL	16.69	16.68	33.135	24.158	376.6	0.188	5.60	100.6	1.2	0.36	0.1	0.00	0.23	0.09	50	
55		16.67	16.66	33.134	24.162	376.3	0.207	5.59	100.4	1.2	0.36	0.1	0.00	0.24	0.09	55	216
65		13.71	13.70	33.053	24.745	320.9	0.242	5.70	96.4	3.3	0.63	3.3	0.17	0.43	0.33	65	215
75		12.14	12.13	33.086	25.079	289.1	0.272	5.19	85.0	6.2	0.97	9.3	0.08	0.34	0.37	75	214
85		11.39	11.38	33.115	25.240	273.9	0.300	4.95	79.8	8.3	1.12	12.0	0.03	0.22	0.32	85	213
95		10.75	10.74	33.216	25.433	255.7	0.327	4.66	74.1	11.1	1.28	14.7	0.02	0.15	0.23	95	212
100	ISL	10.50	10.49	33.267	25.516	247.9	0.339	4.51	71.4	12.5	1.35	16.0	0.02	0.12	0.18	100	
110		10.09	10.08	33.382	25.676	232.8	0.363	4.17	65.4	15.5	1.49	18.4	0.01	0.07	0.09	110	211
124		9.60	9.59	33.592	25.922	209.7	0.394	3.57	55.5	20.6	1.71	21.9	0.01	0.02	0.04	125	210
125	ISL	9.58	9.57	33.603	25.934	208.6	0.397	3.54	55.0	20.9	1.72	22.1	0.01	0.02	0.04	126	
143		9.27	9.25	33.761	26.108	192.4	0.433	3.19	49.3	24.5	1.83	24.0	0.00	0.01	0.03	144	209
150	ISL	9.16	9.14	33.804	26.159	187.6	0.446	3.14	48.4	25.4	1.85	24.4	0.00	0.01	0.03	151	
169		8.90	8.88	33.893	26.270	177.4	0.481	3.08	47.2	27.7	1.88	25.2	0.00	0.00	0.02	170	208
199		8.52	8.50	33.989	26.405	165.1	0.532	2.90	44.1	32.3	1.97	26.8	0.00	0.00	0.02	200	207
200	ISL	8.50	8.48	33.991	26.410	164.6	0.534	2.89	43.9	32.5	1.98	26.9	0.00			201	
229		8.02	8.00	34.039	26.520	154.5	0.580	2.52	37.9	38.6	2.15	29.4	0.00			230	206
250	ISL	7.76	7.74	34.049	26.566	150.4	0.612	2.33	34.8	41.8	2.24	30.7	0.00			251	
268		7.57	7.54	34.055	26.598	147.5	0.639	2.16	32.2	44.3	2.32	31.6	0.00			269	205
300	ISL	7.29	7.26	34.095	26.670	141.1	0.685	1.72	25.4	49.2	2.48	33.3	0.00			302	
318		7.15	7.12	34.120	26.709	137.6	0.710	1.47	21.7	52.1	2.58	34.2	0.00			320	204
378		6.57	6.54	34.160	26.820	127.6	0.790	0.93	13.5	62.2	2.92	37.2	0.00			380	203
400	ISL	6.38	6.34	34.175	26.857	124.3	0.817	0.78	11.3	66.3	2.96	38.2	0.00			402	
437		6.10	6.06	34.202	26.914	119.1	0.862	0.58	8.3	72.8	3.01	39.5	0.00			440	202
500	ISL	5.76	5.72	34.254	26.999	111.7	0.935	0.38	5.4	80.4	3.25	40.8	0.00			503	
517		5.67	5.63	34.268	27.021	109.7	0.954	0.32	4.6	82.4	3.32	41.1	0.00			520	201

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 77 49

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
35 5.3 N	120 46.4 W	20/01/04	1829 UTC	16 m	1217 - 1826 PST	1217 PST	1817 PST	409.5 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	12.65	33.153	25.031	5.85	96.9	3.7	0.57	3.9	0.19	1.33	0.49	83. A	18.7	20.7	19.7	0.16
5	12.71	33.156	25.022	5.86	97.2	3.5	0.55	3.8	0.20	1.33	0.48					
12	12.57	33.158	25.051	5.84	96.6	3.7	0.58	4.1	0.21	1.59	0.52	32.	17.8	18.3	18.1	0.12
18	12.16	33.194	25.157	5.35	87.7	6.5	0.81	7.3	0.29	0.62	0.68					
25	12.01	33.212	25.200	5.16	84.3	7.5	0.89	8.4	0.31	0.55	0.28	9.1	3.8	3.9	3.9	0.03
37	11.80	33.321	25.324	4.57	74.4	11.1	1.13	11.3	0.43	0.34	0.43	2.9	0.94	0.90	0.92	0.08
48	11.71	33.329	25.347	4.48	72.8	12.0	1.19	11.8	0.40	0.35	0.47	1.00	0.35	0.28	0.31	0.08
62	11.68	33.335	25.358	4.46	72.4	12.5	1.22	12.1	0.39	0.34	0.71	0.26	0.05	0.02	0.03	0.09

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 2.8 N	122 56.8 W	19/01/04	1840 UTC	13 m	1226 - 1817 PST	1226 PST	1819 PST	182.8 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	13.68	32.929	24.653	6.04	102.1	2.2	0.40	0.5	0.03	0.70	0.19	79. A	5.2	6.0	5.6	0.08
10	13.68	32.931	24.655	6.03	101.9	2.1	0.40	0.5	0.03	0.70	0.18	31.	7.6	8.0	7.8	0.08
20	13.68	32.932	24.656	6.03	101.9	2.1	0.40	0.5	0.03	0.68	0.20	9.4	5.3	4.9	5.1	0.09
30	13.69	32.971	24.685	5.97	100.9	2.2	0.42	0.8	0.07	0.56	0.24	2.9	2.1	2.1	2.1	0.04
39	13.58	33.026	24.750	5.85	98.7	2.4	0.48	1.6	0.16	0.41	0.26	1.00	0.52	0.64	0.58	0.04
49	12.66	33.071	24.967	5.32	88.1	5.0	0.79	7.0	0.10	0.20	0.17					
57	11.06	33.188	25.356	4.53	72.5	11.1	1.30	15.2	0.01	0.12	0.10	0.12	0.02	0.02	0.02	0.04

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 18.8 N	120 47.8 W	17/01/04	1737 UTC	16 m	1215 - 1816 PST	1217 PST	1817 PST	217.4 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	13.96	32.884	24.561	5.92	100.6	1.8	0.43	0.6	0.06	0.52	0.20	83. A	7.7	7.8	7.8	0.09
12	13.92	32.894	24.578	5.92	100.5	1.8	0.43	0.6	0.06	0.53	0.20	32.	7.4	7.8	7.6	0.08
19	13.82	32.902	24.604	5.92	100.3	1.9	0.43	0.7	0.07	0.52	0.22					
26	13.70	32.903	24.630	5.90	99.7	2.0	0.45	1.0	0.09	0.52	0.22	8.3	3.9	3.9	3.9	0.08
38	13.07	32.817	24.690	5.78	96.4	2.6	0.57	2.3	0.21	0.36	0.31	2.6	1.4	1.4	1.4	0.04
48	12.21	32.798	24.842	5.64	92.3	3.6	0.69	4.1	0.09	0.27	0.26	1.00	0.32	0.32	0.32	0.04
59	11.59	32.919	25.051	5.33	86.2	5.7	0.89	7.8	0.03	0.19	0.17					
69	10.86	33.023	25.263	5.03	80.1	8.6	1.10	11.6	0.03	0.13	0.13	0.13	0.04	0.06	0.05	0.05

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 8.3 N	123 13.2 W	18/01/04	1729 UTC	18 m	1226 - 1827 PST	1227 PST	1826 PST	299.5 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	14.10	32.683	24.377	5.94	101.1	1.7	0.37	0.1	0.01	0.47	0.10	84. A	6.4	6.2	6.3	0.09
13	14.12	32.714	24.397	5.97	101.7	1.7	0.37	0.1	0.01	0.55	0.06	33.	7.5	7.7	7.6	0.07
20	13.78	32.812	24.543	5.92	100.2	2.0	0.42	0.7	0.07	0.58	0.22					
28	13.76	32.914	24.626	5.96	100.9	2.1	0.40	0.6	0.07	0.59	0.26	9.2	6.2	6.4	6.3	0.08
35	13.77	32.933	24.639	5.99	101.4	2.1	0.40	0.5	0.06	0.83	0.25					
42	13.82	32.958	24.648	6.03	102.2	2.1	0.38	0.4	0.04	0.95	0.26	2.8	3.4	3.7	3.5	0.08
55	13.74	33.015	24.709	5.99	101.4	2.2	0.40	0.6	0.05	0.68	0.27	0.92	0.72	0.85	0.79	0.08
67	13.61	33.034	24.751	5.89	99.4	2.3	0.45	1.2	0.13	0.39	0.20					
79	13.13	33.092	24.892	5.65	94.5	3.4	0.58	3.5	0.51	0.21	0.16	0.12	0.03	0.01	0.02	0.08

A) INCUBATION LIGHT INTENSITIES WERE 92, 33, 8.9, 2.8, 0.9, 0.11 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 10.9 N	119 30.5 W	16/01/04	1839 UTC	12 m	1211 - 1811 PST	1212 PST	1808 PST	683.0 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	13.60	33.227	24.900	6.39	108.0	0.9	0.31	0.1	0.02	4.63 B	0.50 B	88. A	44.7	48.5	46.6	0.28
9	13.50	33.228	24.921	6.25	105.4	1.1	0.34	0.2	0.03	3.71	0.62	32.	31.5	30.1	30.8	0.27
19	13.49	33.229	24.924	6.19	104.4	1.2	0.36	0.3	0.04	3.66	0.37	8.8	14.1	16.0	15.0	0.17
28	13.39	33.234	24.949	5.89	99.1	2.5	0.49	1.8	0.14	1.82	0.12	2.8	2.9	2.8	2.9	0.07
36	13.13	33.236	25.002	5.61	93.9	3.8	0.62	3.4	0.24	0.90	0.51	1.00	0.48	0.39	0.44	0.08
43	12.67	33.245	25.100	5.06	83.9	6.2	0.86	7.1	0.32	0.41	0.32					
53	12.29	33.266	25.189	4.80	78.9	7.9	0.98	9.2	0.25	0.47	0.34	0.11	0.02	0.01	0.02	0.09

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

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 83 74

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 5.8 N	121 41.8 W	15/01/04	1853 UTC	12 m	1222 - 1815 PST	1223 PST	1811 PST	234.1 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	13.68	33.128	24.807	6.02	101.8	2.2	0.44	1.2	0.10	0.89	0.32	77. A	11.6	11.5	11.6	0.08
10	13.68	33.127	24.807	6.02	101.8	2.2	0.44	1.2	0.10	0.86	0.30	28.	10.9	10.9	10.9	0.09
19	13.68	33.127	24.807	6.02	101.8	2.1	0.44	1.2	0.10	0.88	0.30	8.8	5.3	5.6	5.4	0.08
29	13.65	33.128	24.814	5.98	101.1	2.2	0.45	1.4	0.11	0.83	0.31	2.4	1.9	1.9	1.9	0.07
37	12.82	33.170	25.012	5.19	86.3	5.3	0.85	7.5	0.17	0.35	0.24	0.88	0.33	0.26	0.29	0.05
45	11.61	33.232	25.290	4.46	72.3	9.9	1.27	14.3	0.02	0.22	0.17					
53	10.56	33.350	25.570	3.95	62.6	15.0	1.54	18.9	0.01	0.12	0.12	0.11	0.00	0.00	0.00	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 83 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 55.2 N	124 10.1 W	14/01/04	1929 UTC	35 m	1233 - 1820 PST	1231 PST	1823 PST	151.1 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	16.50	33.025	24.116	5.63	100.8	1.0	0.38	0.1	0.00	0.11	0.02	96. A	1.4	1.4	1.4	0.05
14	16.48	33.025	24.121	5.62	100.5	1.0	0.36	0.0	0.00	0.12	0.02					
25	16.36	33.029	24.152	5.63	100.5	1.0	0.38	0.1	0.00	0.12	0.03	33.	1.4	1.5	1.5	0.08
40	16.34	33.031	24.159	5.62	100.3	1.0	0.35	0.0	0.00	0.16	0.04					
55	16.29	33.026	24.167	5.61	100.0	1.1	0.35	0.0	0.00	0.23	0.09	9.0	1.9	1.8	1.9	0.06
64	16.14	32.996	24.178	5.64	100.2	1.0	0.38	0.0	0.00	0.22	0.08					
73	16.01	33.000	24.211	5.65	100.1	1.1	0.37	0.0	0.00	0.25	0.10					
80	15.33	32.991	24.355	5.72	100.0	1.4	0.39	0.1	0.04	0.26	0.14	3.0	1.1	1.2	1.1	0.03
89	14.97	33.006	24.445	5.73	99.4	1.4	0.42	0.2	0.07	0.26	0.14					
96	14.53	33.025	24.554	5.72	98.4	1.6	0.46	0.7	0.21	0.23	0.16					
105	13.89	33.034	24.695	5.61	95.2	2.2	0.55	2.1	0.36	0.19	0.15	1.00	0.30	0.38	0.34	0.03
117	12.95	33.028	24.879	5.47	91.1	3.6	0.65	4.0	0.08	0.17	0.16					
129	11.94	33.006	25.056	5.28	86.0	5.3	0.84	7.1	0.03	0.13	0.13					
141	10.89	33.043	25.275	5.06	80.6	7.9	1.03	10.6	0.02	0.08	0.12					
153	10.36	33.198	25.488	4.66	73.5	11.6	1.27	14.8	0.01	0.06	0.09	0.12	0.02	0.00	0.01	0.04

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 87 40

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 39.5 N	118 58.4 W	12/01/04	1759 UTC	14 m	1207 - 1803 PST	1210 PST	1806 PST	717.8 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
3	14.38	33.220	24.733	6.15	105.6	0.7	0.29	0.1	0.01	1.96	0.48	72. A	38.4	40.0	39.2	0.26
10	14.36	33.221	24.738	6.13	105.2	0.7	0.30	0.1	0.01	1.88	0.49	33.	28.1	30.2	29.2	0.21
23	13.67	33.182	24.852	5.69	96.3	2.9	0.51	2.5	0.16	2.26	0.77	8.0	13.6	13.5	13.5	0.12
33	12.90	33.144	24.977	5.13	85.4	5.4	0.81	6.4	0.22	0.55	0.41	2.7	1.4	1.3	1.3	0.06
42	11.97	33.236	25.226	4.58	74.8	8.9	1.12	11.3	0.10	0.21	0.26	1.00	0.19	0.26	0.23	0.05
52	11.39	33.276	25.365	4.40	71.0	11.0	1.25	13.5	0.07	0.15	0.25					
61	11.02	33.360	25.497	4.07	65.2	13.0	1.38	15.7	0.03	0.09	0.15	0.12	0.02	0.02	0.02	0.03

A) INCUBATION LIGHT INTENSITIES WERE 92, 33, 8.9, 2.8, 0.9, 0.11 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 87 80

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 20.5 N	121 40.9 W	13/01/04	2003 UTC	32 m	1245 - 1820 PST	1221 PST	1819 PST	174.6 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	15.76	32.878	24.171	5.71	100.6	1.4	0.39	0.0	0.00	0.14	0.08	91. A	1.4	1.5	1.5	0.08
14	15.73	32.876	24.176	5.70	100.4	1.4	0.37	0.0	0.00	0.16	0.06					
24	15.72	32.875	24.178			1.4	0.35	0.0	0.00	0.15	0.06	32.	1.5	1.5	1.5	0.14
32	15.60	32.861	24.194	5.71	100.3	1.4	0.35	0.0	0.00	0.17	0.07					
41	14.78	32.695	24.245	5.83	100.6	1.5	0.36	0.0	0.00	0.33	0.17					
50	14.40	32.713	24.339	5.83	99.8	1.7	0.40	0.2	0.06	0.48	0.29	9.1	3.8	3.7	3.7	0.07
62	13.49	32.858	24.639	5.84	98.2	2.4	0.50	1.5	0.14	0.43	0.29					
74	12.68	32.904	24.834	5.66	93.6	3.5	0.65	3.9	0.16	0.21	0.20	2.9	0.82	0.88	0.85	0.04
86	12.49	33.127	25.044	5.18	85.5	5.7	0.89	8.3	0.05	0.14	0.15					
97	11.36	33.186	25.301	4.58	73.8	9.8	1.23	14.0	0.02	0.12	0.15	0.95	0.21	0.20	0.20	0.04
111	10.22	33.356	25.634	3.99	62.8	16.1	1.56	19.4	0.02	0.05	0.10					
124	9.10	33.538	25.960	4.09	62.8	20.1	1.58	20.4	0.01	0.01	0.03					
140	9.05	33.685	26.083	3.95	60.7	21.6	1.58	20.8	0.01	0.01	0.02	0.12	0.00	0.00	0.00	0.02

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 15.2 N	118 14.9 W	11/01/04	1748 UTC	20 m	1207 - 1802 PST	1207 PST	1801 PST	400.5 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	14.60	33.211	24.680	5.93	102.3	0.8	0.32	0.0	0.00	0.82	0.28	86. A	5.1	5.4	5.3	0.13
9	14.60	33.209	24.678	5.93	102.3	0.8	0.32	0.0	0.00	0.78	0.28					
14	14.59	33.209	24.681	5.92	102.1	0.8	0.32	0.0	0.01	0.79	0.31	34.	11.8	12.2	12.0	0.14
23	14.57	33.210	24.686	5.89	101.5	1.1	0.34	0.1	0.01	0.89	0.28					
31	14.43	33.207	24.714	5.86	100.7	1.4	0.39	0.5	0.05	1.16	0.41	9.3	8.9	9.1	9.0	0.09
39	14.16	33.208	24.771	5.80	99.1	1.5	0.41	0.9	0.07	1.44	0.48					
47	13.22	33.192	24.951	5.14	86.2	5.0	0.76	5.9	0.18	0.51	0.35	2.7	1.9	1.9	1.9	0.05
54	12.79	33.192	25.036	4.93	81.9	6.5	0.90	8.1	0.11	0.22	0.30					
61	12.18	33.204	25.162	4.73	77.6	7.7	1.03	10.1	0.05	0.17	0.28	0.93	0.33	0.34	0.34	0.03
74	11.05	33.334	25.471	4.17	66.8	12.0	1.33	15.0	0.02	0.09	0.14					
88	10.72	33.493	25.654	3.68	58.6	15.6	1.51	17.8	0.01	0.04	0.10	0.12	0.01	0.00	0.01	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 90 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 4.9 N	120 38.3 W	10/01/04	1801 UTC	32 m	1218 - 1810 PST	1217 PST	1804 PST	112.9 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
3	16.29	33.045	24.179	5.61	100.0	1.0	0.34	0.1	0.00	0.16	0.06	87. A	0.12	0.15	0.13	0.03
12	16.28	33.045	24.182	5.61	100.0	0.8	0.34	0.1	0.00	0.15	0.05					
23	16.29	33.046	24.181	5.60	99.8	0.8	0.34	0.1	0.00	0.16	0.06	33.	1.5	1.6	1.5	0.04
36	16.29	33.045	24.181	5.60	99.8	0.8	0.34	0.1	0.00	0.16	0.05					
50	16.29	33.046	24.182	5.60	99.8	0.9	0.34	0.1	0.00	0.17	0.04	9.1	1.3	1.4	1.4	0.03
62	16.29	33.047	24.183	5.59	99.6	0.9	0.34	0.1	0.00	0.19	0.06					
73	16.28	33.044	24.183	5.60	99.8	0.9	0.34	0.1	0.00	0.21	0.06	3.0	0.90	0.93	0.92	0.03
86	16.26	33.051	24.194	5.60	99.7	0.9	0.34	0.2	0.00	0.21	0.07					
97	14.94	33.019	24.462	5.73	99.4	1.5	0.39	0.3	0.11	0.21	0.22	0.95	0.61	0.51	0.56	0.03
107	14.15	33.086	24.681	5.64	96.3	2.1	0.46	1.2	0.20	0.19	0.19					
118	12.73	33.030	24.924	5.46	90.5	3.5	0.63	4.0	0.03	0.13	0.17					
129	11.94	33.037	25.080	5.33	86.9	4.9	0.78	6.5	0.01	0.10	0.13					
139	11.17	33.076	25.251	5.23	83.9	6.7	0.90	8.8	0.01	0.07	0.09	0.13	0.03	0.05	0.04	0.03

A) INCUBATION LIGHT INTENSITIES WERE 92, 33, 8.9, 2.8, 0.9, 0.11 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 90 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
30 45.3 N	123 20.5 W	9/01/04	1742 UTC	32 m	1225 - 1815 PST	1228 PST	1816 PST	136.7 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	16.27	33.030	24.172	5.63	100.3	1.2	0.36	0.0	0.00	0.14	0.04	91. A	1.4	1.3	1.3	0.06
12	16.24	33.027	24.177	5.64	100.4	1.2	0.35	0.0	0.00	0.15	0.04					
23	16.02	32.987	24.197	5.67	100.5	1.2	0.35	0.0	0.00	0.16	0.05	33.	1.7	1.7	1.7	0.06
32	15.99	32.983	24.201	5.66	100.2	1.2	0.35	0.0	0.00	0.16	0.05					
41	15.99	32.984	24.202	5.66	100.2	1.2	0.35	0.0	0.00	0.17	0.05					
50	15.98	32.986	24.206	5.66	100.2	1.2	0.35	0.0	0.00	0.19	0.06	9.1	1.4	1.3	1.3	0.04
62	15.92	32.993	24.225	5.67	100.3	1.3	0.35	0.0	0.00	0.26	0.08					
74	15.21	33.041	24.420	5.72	99.8	1.7	0.39	0.2	0.06	0.42	0.23	2.9	1.5	1.5	1.5	0.04
86	13.59	32.982	24.715	5.60	94.5	2.8	0.60	2.6	0.29	0.29	0.27					
97	12.52	32.984	24.928	5.38	88.7	4.6	0.79	6.2	0.07	0.24	0.24	0.95	0.32	0.36	0.34	0.02
110	11.33	33.082	25.226	5.00	80.5	7.9	1.07	11.2	0.02	0.15	0.20					
125	10.46	33.147	25.430	4.86	76.8	10.4	1.17	13.0	0.02	0.09	0.14					
140	10.01	33.365	25.677	4.28	67.0	15.2	1.43	17.4	0.01	0.05	0.06	0.12	0.00	0.00	0.00	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 93 40

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 30.9 N	118 13.1 W	6/01/04	1802 UTC	17 m	1204 - 1758 PST	1207 PST	1800 PST	236.2 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	14.87	33.155	24.579	5.85	101.4	1.8	0.36	0.0	0.00	0.62	0.24	83. A	8.4	8.7	8.5	0.10
12	14.79	33.155	24.596	5.84	101.1	1.8	0.36	0.0	0.00	0.65	0.25	34.	7.2	7.8	7.5	0.10
20	14.75	33.156	24.606	5.84	101.0	1.8	0.36	0.0	0.00	0.65	0.30					
27	14.75	33.158	24.608	5.85	101.2	1.8	0.36	0.0	0.00	0.69	0.31	8.7	5.1	4.6	4.8	0.11
34	14.76	33.163	24.609	5.82	100.7	1.9	0.37	0.1	0.00	0.75	0.32					
39	13.52	33.102	24.821	5.48	92.4	3.7	0.62	3.7	0.06	0.34	0.32	3.0	1.2	1.3	1.2	0.03
51	11.93	33.096	25.125	4.95	80.7	7.3	1.00	9.7	0.02	0.16	0.20	1.00	0.18	0.21	0.20	0.04
63	11.51	33.173	25.263	4.73	76.5	9.0	1.11	11.7	0.01	0.11	0.14					
75	10.88	33.274	25.455	4.53	72.3	11.0	1.22	13.6	0.01	0.08	0.10	0.11	0.02	0.01	0.01	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 93 70

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 30.7 N	120 15.4 W	7/01/04	1729 UTC	25 m	1215 - 1809 PST	1215 PST	1809 PST	213.4 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	15.52	32.946	24.276	5.70	100.0	2.2	0.34	0.0	0.00	0.21	0.08	94. A	1.3	1.0	1.1	0.07
8	15.40	32.922	24.284	5.76	100.8	2.3	0.34	0.0	0.00	0.23	0.08					
18	14.94	32.917	24.381	5.80	100.5	2.3	0.34	0.0	0.00	0.26	0.10	33.	3.4	3.3	3.4	0.06
28	14.91	32.926	24.395	5.80	100.5	2.4	0.35	0.0	0.00	0.34	0.15					
39	14.55	32.926	24.472	5.84	100.4	2.6	0.39	0.3	0.06	0.60	0.34	9.1	5.1	5.2	5.1	0.06
48	14.32	32.947	24.536	5.81	99.5	2.7	0.42	0.5	0.12	0.56	0.42					
58	13.85	32.933	24.623	5.72	97.0	3.2	0.48	1.3	0.24	0.39	0.30	2.8	1.9	1.9	1.9	0.02
67	13.22	32.975	24.783	5.54	92.7	4.2	0.61	3.7	0.12	0.19	0.20					
76	12.45	33.018	24.967	5.37	88.5	5.7	0.73	5.8	0.04	0.16	0.17	0.94	0.03	0.05	0.04	0.03
92	11.28	33.258	25.372	4.58	73.7	10.7	1.13	12.2	0.02	0.11	0.15					
110	10.94	33.474	25.601	3.83	61.3	15.5	1.44	16.7	0.01	0.06	0.09	0.12	0.01	0.02	0.01	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 0401 — STATION 93 110

LATITUDE	LONGITUDE	DAY/MO/YR	CAST TIME	SECCHI	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
30 11.2 N	122 55.6 W	8/01/04	1734 UTC	32 m	1225 - 1815 PST	1226 PST	1819 PST	126.9 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	16.48	33.064D	24.151	5.61	100.4	1.3	0.35	0.0	0.00	0.16	0.06	91. A	1.7	1.6	1.6	0.02
12	16.48	33.063D	24.150	5.61	100.4	1.3	0.35	0.0	0.00	0.16	0.05					
23	16.47	33.067	24.156	5.60	100.2	1.3	0.35	0.0	0.00	0.16	0.06	33.	1.8	1.8	1.8	0.04
32	16.47	33.062	24.152	5.60	100.2	1.3	0.35	0.0	0.00	0.17	0.05					
41	16.47	33.062	24.153	5.60	100.2	1.3	0.35	0.0	0.00	0.17	0.05					
50	16.46	33.067	24.159	5.59	100.0	1.3	0.35	0.0	0.00	0.19	0.05	9.1	1.1	1.2	1.2	0.04
62	16.31	33.048	24.179	5.62	100.2	1.4	0.36	0.0	0.00	0.27	0.11					
74	13.86	32.871	24.574	5.79	98.1	2.5	0.49	1.0	0.16	0.34	0.19	2.9	1.1	1.0	1.1	0.03
86	12.41	33.048	24.998	5.34	87.9	5.4	0.87	7.6	0.14	0.28	0.22					
97	11.24	33.003	25.180	5.13	82.3	7.6	1.01	10.1	0.02	0.18	0.16	0.95	0.23	0.20	0.22	0.02
111	10.52	33.147	25.420	4.85	76.7	10.3	1.17	13.0	0.01	0.09	0.10					
125	9.88	33.269	25.623	4.74	74.0	13.0	1.25	14.7	0.01	0.04	0.04					
140	9.46	33.530	25.896	3.93	60.9	19.4	1.60	20.3	0.01	0.01	0.03	0.12	0.00	-0.01	0.00	0.02

A) INCUBATION LIGHT INTENSITIES WERE 92, 33, 8.9, 2.8, 0.9, 0.11 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 05.0	120 46.7	01/20	1113	1119	141	56	14	14
77	51	35 02.1	120 54.9	01/20	0835	0856	443	208	50	50
77	55	34 53.3	121 11.6	01/20	0511	0532	472	211	123	123
77	70	34 23.2	122 15.1	01/19	1752	1814	492	208	77	77
77	80	34 03.0	122 57.5	01/19	0926	0948	496	213	38	38
77	90	33 43.0	123 37.1	01/19	0357	0419	461	216	104	83
77	100	33 22.6	124 19.8	01/18	2148	2209	465	211	37	37
80	51	34 27.7	120 32.5	01/17	0555	0601	146	55	55	55
80	55	34 19.1	120 48.4	01/17	0829	0851	442	220	57	57
80	60	34 10.1	121 09.1	01/17	1359	1421	482	211	81	33
80	70	33 48.1	121 51.5	01/17	2021	2042	475	213	213	213
80	80	33 29.1	122 32.9	01/18	0206	0228	479	209	121	121
80	90	33 08.8	123 13.5	01/18	0823	0845	430	217	74	74
80	100	32 47.9	123 56.0	01/18	1543	1604	477	213	38	38
82	47	34 16.8	120 02.4	01/17	0152	0213	474	210	80	80
83	40.6	34 13.9	119 24.7	01/16	2056	2059	57	20	17	17
83	42	34 10.7	119 29.8	01/16	1129	1139	209	90	72	72
83	51	33 53.3	120 09.3	01/16	0454	0502	170	70	124	124
83	55	33 44.2	120 24.0	01/16	0143	0205	444	214	59	47
83	70	33 15.0	121 27.6	01/15	1437	1459	511	205	33	33
83	80	32 53.5	122 08.4	01/15	0559	0620	473	211	262	262
83	90	32 33.9	122 47.8	01/14	2345	0006	442	212	90	90
83	100	32 14.4	123 29.6	01/14	1801	1822	475	211	103	103
83	110	31 55.5	124 09.5	01/14	1228	1250	459	209	59	59
87	33	33 52.9	118 29.8	01/12	0317	0323	119	50	25	25
87	35	33 48.1	118 39.6	01/12	0554	0615	445	212	52	52
87	40	33 39.7	118 58.0	01/12	0852	0914	442	214	38	38
87	45	33 29.9	119 19.6	01/12	1352	1414	448	212	83	83
87	50	33 19.9	119 39.6	01/12	1717	1724	145	62	234	234
87	55	33 08.4	120 00.2	01/12	2109	2131	465	210	65	65
87	60	32 59.1	120 21.5	01/13	0059	0121	490	212	69	69
87	70	32 40.7	121 01.3	01/13	0652	0713	496	207	44	44
87	80	32 20.6	121 41.9	01/13	1257	1319	446	212	27	27
87	90	31 59.2	122 22.9	01/13	1911	1933	471	215	278	34
87	100	31 39.1	123 05.2	01/14	0101	0123	481	211	33	33
87	110	31 19.6	123 46.2	01/14	0635	0657	449	215	29	29
90	28	33 28.8	117 45.4	01/11	1718	1723	100	41	40	40
90	30	33 25.0	117 53.4	01/11	2029	2050	450	212	65	65
90	35	33 15.4	118 13.8	01/11	1044	1105	455	209	40	40
90	37	33 11.3	118 22.4	01/11	0811	0833	447	212	38	38
90	45	32 55.0	118 56.4	01/11	0254	0316	448	214	96	96
90	53	32 39.4	119 28.3	01/10	2123	2144	455	215	72	46
90	60	32 25.0	119 57.8	01/10	1623	1644	451	213	115	102
90	70	32 05.3	120 39.0	01/10	0852	0914	478	221	25	25
90	80	31 45.3	121 19.5	01/10	0345	0407	468	214	39	39
90	90	31 25.0	122 00.1	01/09	2145	2207	459	215	83	83
90	100	31 05.3	122 38.9	01/09	1605	1626	468	214	47	47
90	110	30 44.1	123 20.4	01/09	0836	0858	453	214	26	26
90	120	30 25.1	124 00.4	01/09	0150	0212	480	206	62	62
93	26.7	32 57.0	117 18.8	01/05	1746	1759	265	130	45	45
93	28	32 54.8	117 24.3	01/05	2016	2038	435	209	53	53
93	30	32 51.6	117 32.5	01/06	0139	0200	446	209	67	67
93	35	32 41.5	117 52.3	01/06	0543	0605	449	213	82	82
93	40	32 31.6	118 13.1	01/06	0851	0912	450	211	85	85
93	45	32 20.4	118 33.6	01/06	1407	1428	428	207	131	131
93	50	32 10.4	118 53.8	01/06	1750	1812	451	216	84	84
93	55	32 00.9	119 13.2	01/06	2138	2159	449	214	54	54
93	60	31 50.7	119 34.1	01/07	0143	0205	449	213	118	118
93	70	31 30.8	120 14.7	01/07	0830	0851	426	210	56	56
93	80	31 10.4	120 55.0	01/07	1521	1543	454	212	88	88
93	90	30 50.4	121 36.3	01/07	2104	2126	446	215	132	132
93	100	30 30.5	122 15.8	01/08	0237	0259	455	211	121	121
93	110	30 11.1	122 55.1	01/08	0826	0847	437	212	37	37
93	120	29 50.7	123 33.9	01/08	1948	2009	494	205	55	55

FIGURES

Avifauna Observations

CalCOFI Cruise 0401

1a. Cassin’s Auklet distribution.

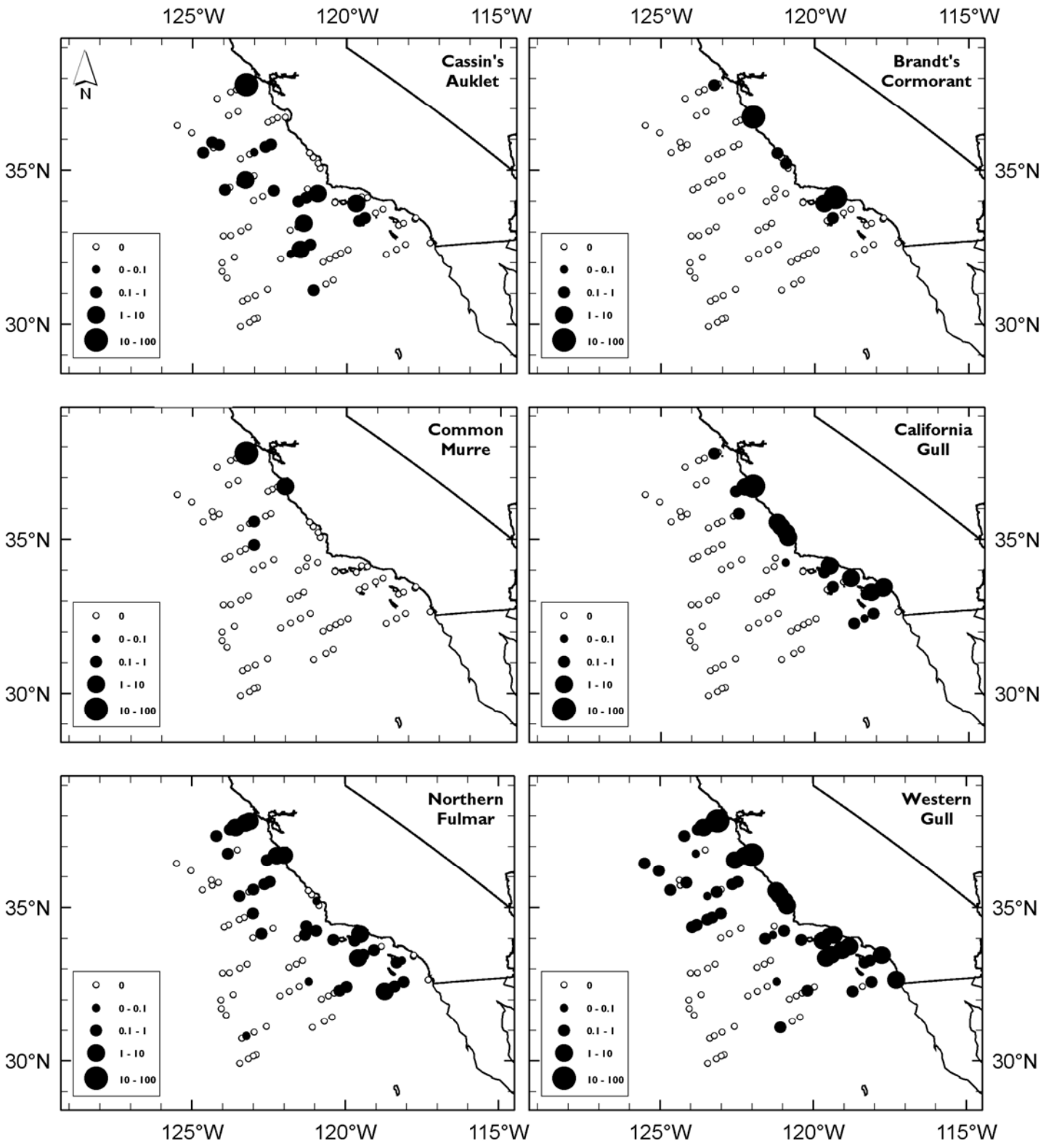
1b. Brandt’s Cormorant distribution.

1c. Common Murre istribution.

1d. California Gull distribution.

1e. Northern Fulmar distribution.

1f. Western Gull distribution.


CalCOFI Cruise 0401
125°W
120°W
115°W
35°N
30°N
N
Cassin's Auklet
Brandt's Cormorant
Common Murre
California Gull
Northern Fulmar
Western Gull
0
0 - 0.1
0.1 - 1
1 - 10
10 - 100