UNIVERSITY OF CALIFORNIA, SAN DIEGO SCRIPPS INSTITUTION OF OCEANOGRAPHY

data report

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CalCOFI Cruise 9301
12 – 27 January 1993

CalCOFI Cruise 9304
30 March – 15 April 1993

SIO Reference 93-26
8 October 1993

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LA JOLLA, CALIFORNIA 92093-0227

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Approved for distribution:

Edward A. Frieman, Director

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INTRODUCTION

The data in this report were collected during Cruises 9301 and 9304 of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program aboard the NOAA ship RV *David Starr Jordan.* The CalCOFI program was organized in the late 1940s 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 Marine Life Research Group (MLRG) at Scripps Institution of Oceanography (SIO). MLRG contributes to this program by investigations of the physical, chemical and biological structure of the California Current. Data from CalCOFI Cruises 9301 and 9304 were collected and processed by personnel of the Marine Life Research Group and the Southwest Fisheries Science Center. Volunteers and other SIO staff members also assisted in the collection of data and chemical analyses at sea.

STANDARD PROCEDURES

Hydrographic Cast Data

The hydrographic casts usually consisted of 20 three-liter plastic (PVC) bottles lowered to a maximum sampling depth of 500 meters, bottom depth permitting. Temperature, salinity, oxygen and nutrients were determined at sea for all depths sampled. Chlorophyll-a and phaeopigments were determined at sea from the top 14 depths. A special near-bottom cast was done in the Santa Barbara Basin.

Paired protected reversing thermometers read by two observers were used to determine temperatures which were then recorded to hundredths of a degree Celsius. The temperatures are reported relative to the International Practical Temperature Scale of 1968 (IPTS-68). The new International Temperature Scale of 1990 (ITS-90) differs from the IPTS-68 by less than 0.01° C over oceanic temperature ranges so the distinction between the two scales is of marginal significance for temperatures listed to the nearest hundredth of a degree. Most sampling bottles used below a depth of about 75 meters were equipped with unprotected thermometers for determination of the depth of sampling, using the Saunders (1981) pressure-to-depth conversion technique.

Salinity samples were analyzed at sea using inductive-type salinometers standardized with substandard seawater. Periodic checks on the concentration of the substandard were made by comparison with IAPSO Standard Seawater batch P-77 on 9301 and batch P-80 on 9304. Salinity values have been calculated from the algorithms for the Practical Salinity Scale, 1978 (UNESCO, 1981a) and were reported to three decimal places, provided that accepted standards were met. If only one determination per sample was obtained, or there was doubt concerning the accuracy of the analytical results, the salinities were reported to two decimal places.

Dissolved oxygen was determined by the Winkler method, as modified by Carpenter (1965), using the equipment and procedure outlined by Anderson (1971). Percent oxygen saturation was calculated from the equations of Weiss (1970).

Silicate, phosphate, nitrate and nitrite nutrients were determined at sea using an automated analyzer. The procedures used are similar to those described in Atlas *et al.* (1971).

Samples for chlorophyll-a and phaeopigments were filtered onto GF/F filters. The pigments were extracted with a cold extraction technique in 90% acetone (Venrick and Hayward, 1984), and the fluorescence determined before and after acidification with a Turner Designs fluorometer (Yentsch and Menzel, 1963; Holm-Hansen *et al.* 1965).

Evaluation of the data involved comparisons with 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). Estimates of precision of the standard techniques are given in SIO, 1991.

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

Primary Productivity Casts

Primary productivity casts were taken each day shortly before local apparent noon (LAN). Primary production was estimated from 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 with ten-liter Niskin bottles on 9301 and five-liter Niskin bottles on 9304. The Niskin bottles were equipped with epoxy-coated springs and silicone-rubber O-rings. On cruise 9301 the Niskin bottles were tripped using a Sea-Bird Electronics, Inc. CTD and General Oceanics rosette. Pressure and temperatures reported in the 9301 data were derived from the CTD at the time of the Niskin bottle trip. On cruise 9304 the Niskins were attached to the hydrowire and temperatures were determined from paired protected reversing thermometers. Triplicate samples (two light and one dark control) were drawn from each productivity sample depth into 250 ml polycarbonate incubation bottles. Samples were innoculated with 10 nCi of C as $NaHCO_3$ (200 nl of 50 |iCi/ml stock) prepared in a 0.3 gfliter 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 fluor 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 for all depths.

Macrozooplankton Net Tows

Macrozooplankton was sampled with a 71 cm mouth diameter paired net (bongo net) equipped with 0.505 mm plankton mesh. Bottom depth permitting, the nets were towed obliquely from 210 m 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).

TABULATED DATA

Hydrographic Cast Data

The reported hydrographic cast time is the Coordinated Universal Time (UTC) of the messenger release. 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, taken on most daylight stations, are also reported.

Observed and interpolated standard depth data from hydrographic casts have been interspersed and are presented together sequentially by depth. Interpolated or extrapolated standard level data are noted by the footnote "ISL" printed after the depth. Density-related parameters have been calculated from the International Equation of State of Seawater 1980 (UNESCO, 1981, b). Computed values of potential temperature, sigma-theta, specific volume anomaly (SVA), dynamic height or geopotential anomaly, and pressure are included with both observed and interpolated standard depth levels.

Primary Productivity Casts

In addition to the normal hydrographic data, 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 have been presented to two significant digits (values <1.00) or one decimal (values >1.00). The higher production values may

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

Macrozooplankton Data

Macrozooplankton biomass volumes are tabulated as total biomass volume (cm^/1000 m^ 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.

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

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

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PERSONNEL

CalCOFI Cruise 9301

SHIP'S CAPTAIN

Herbert M. Kirch, RV *David Starr Jordan*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

Griffith, David A. (in charge)	Fishery Biologist, NMFS
Abramenkoff, Dimitry N.	Fishery Biologist, NMFS
Dotson, Ronald C.	Fishery Biologist, NMFS
Gripp, Sherry L.	Staff Research Associate, SIO
Gruber, Dennis W.	Marine Technician, SIO
Manion, Susan M.	Fishery Biologist, NMFS
Masten, Douglas M.	Marine Technician, SIO
Mullin, Michael M.	Director of MLRG, Professor, SIO
Pyle, Peter	Biologist, Pt. Reyes Bird Observatory
Renger, Edward H.	Staff Research Associate, SIO
Rocha, Odete	Lecturer, Federal University of San Carlos, Brazil
Smart, Fiona M.	Student, UCSB
Wilkinson, James R.	Staff Research Associate, SIO

FIGURES

Cruise 9301

1. CalCOFI Cruise 9301, track and station positions.

2. Horizontal distribution of dynamic height anomaly (0 over 500 m). 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) ni
K) phaeopigments.

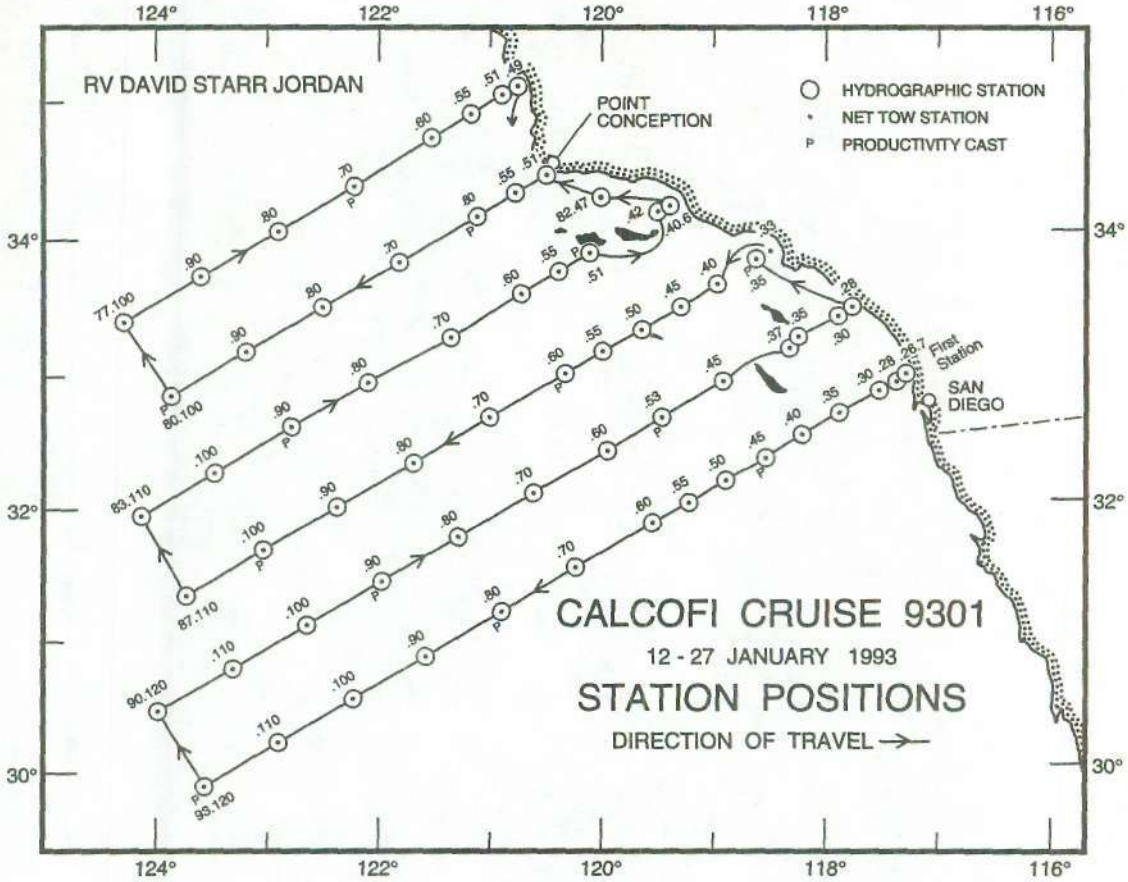

FIGURE 1

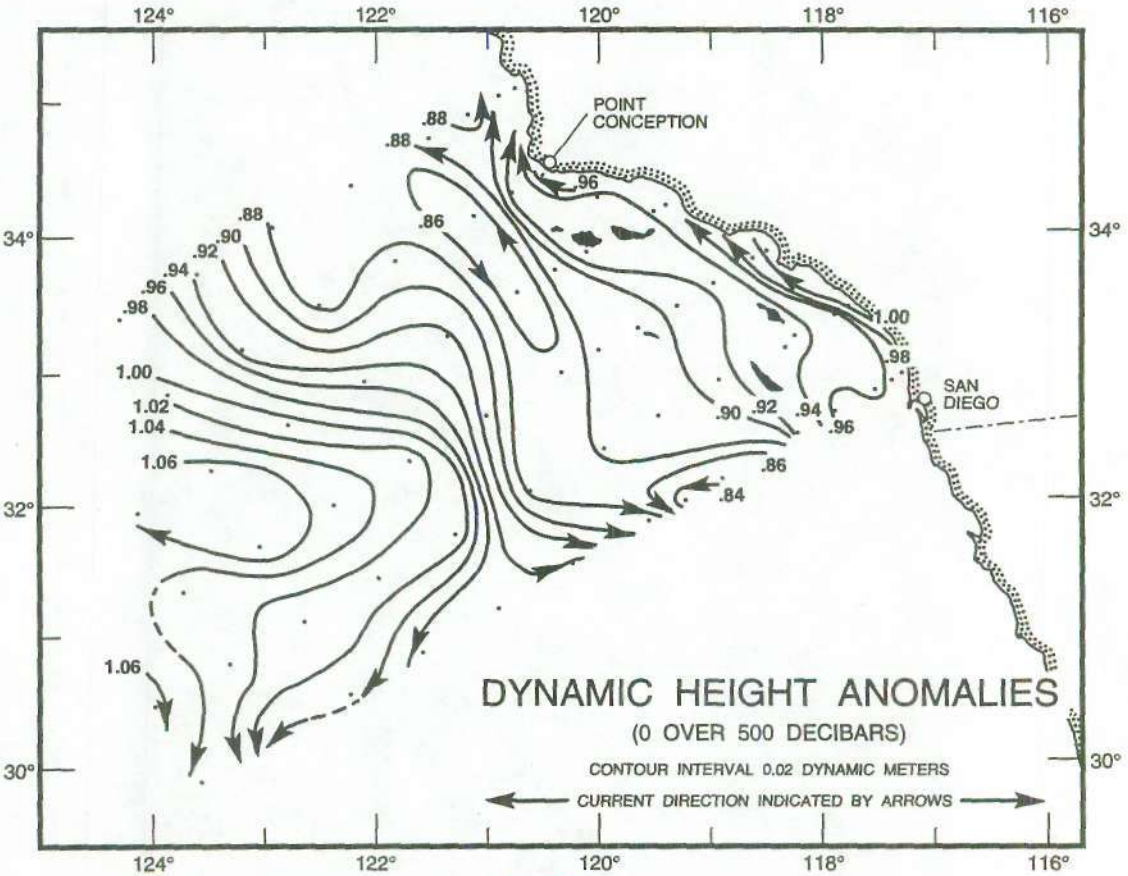

FIGURE 2

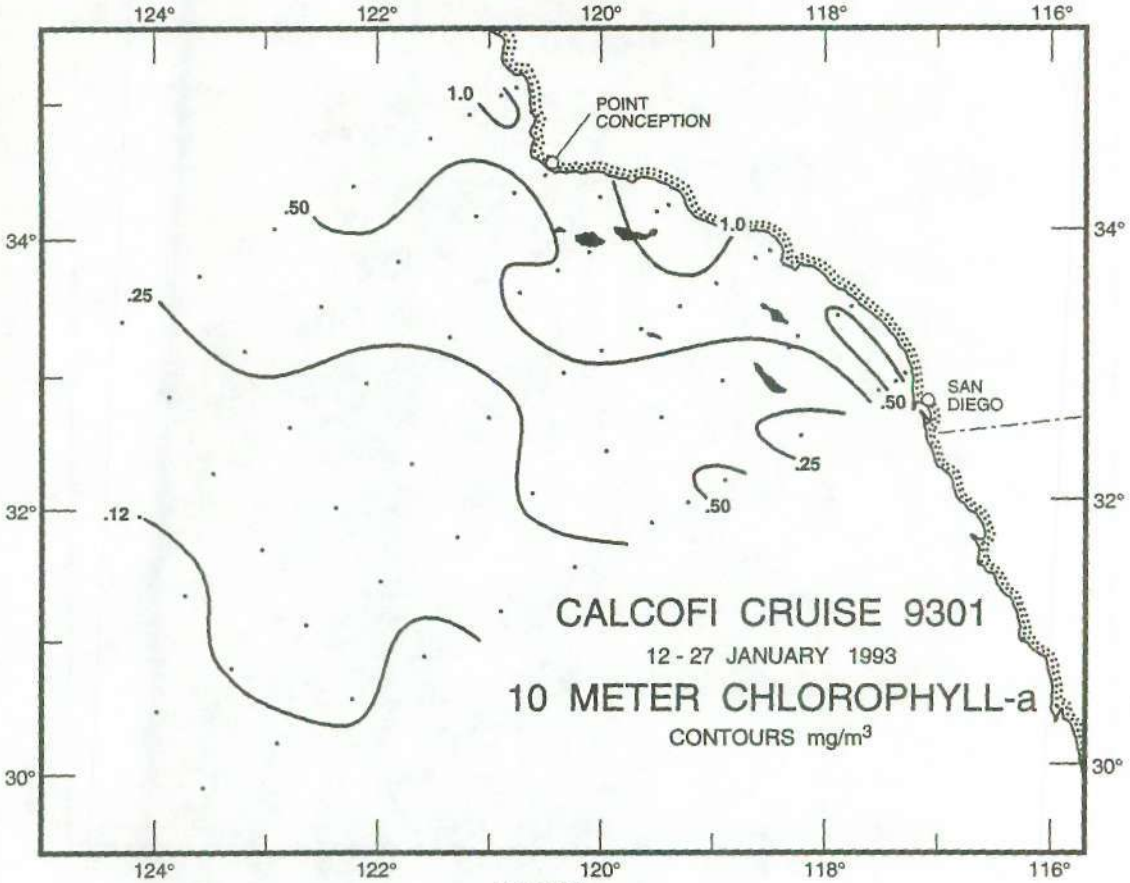

FIGURE 3A

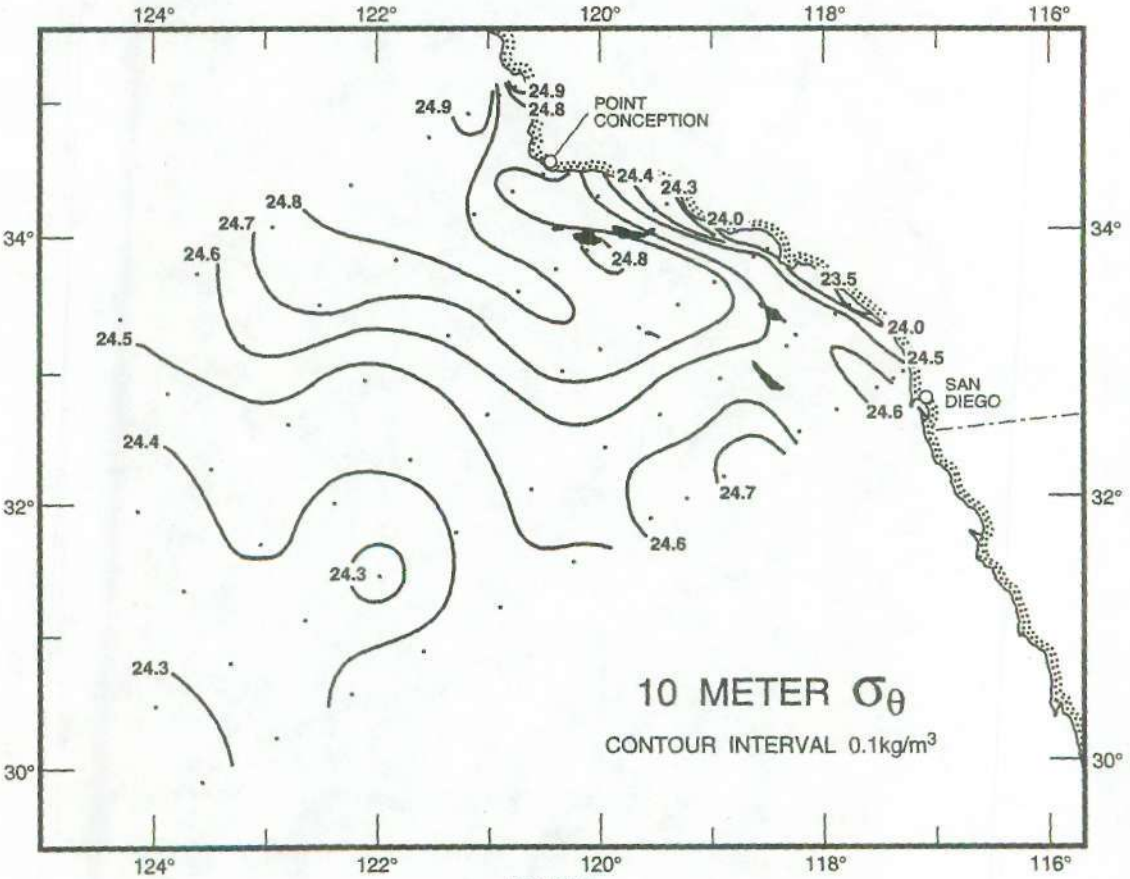

FIGURE 3B

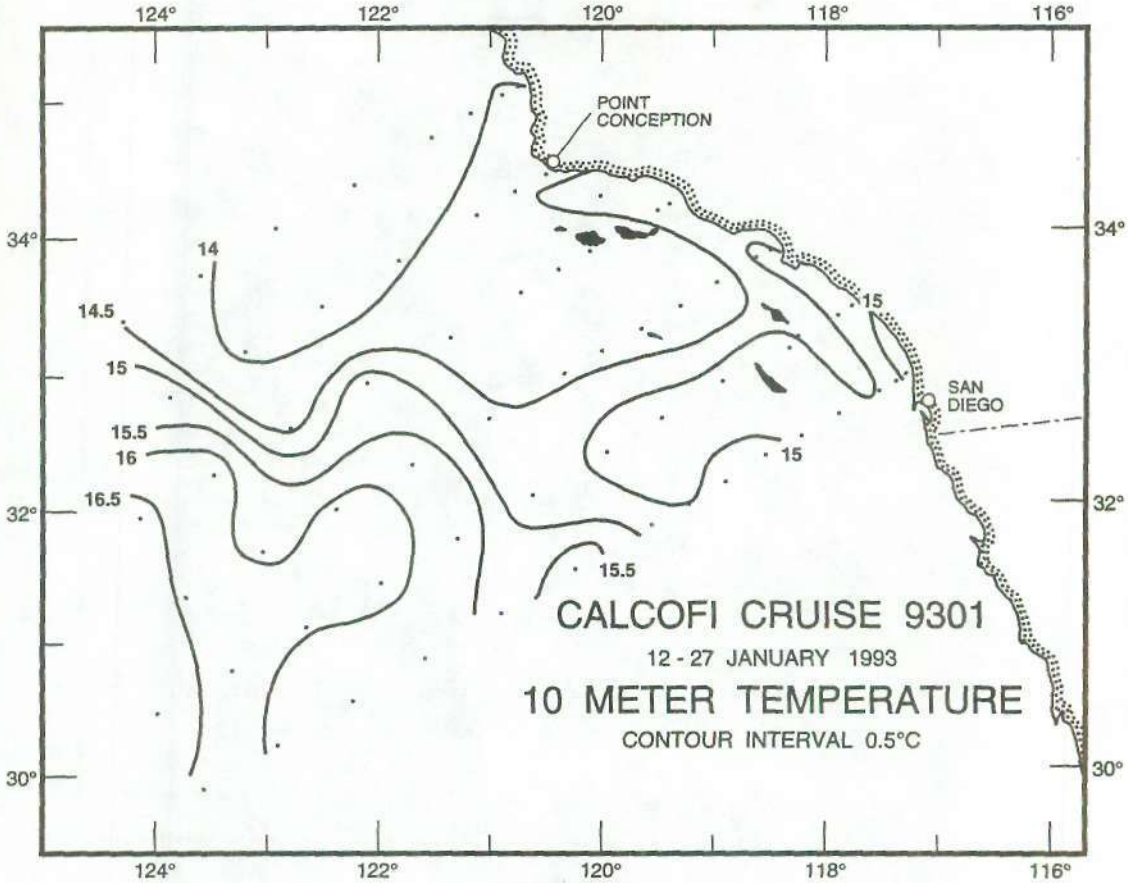

FIGURE 3C

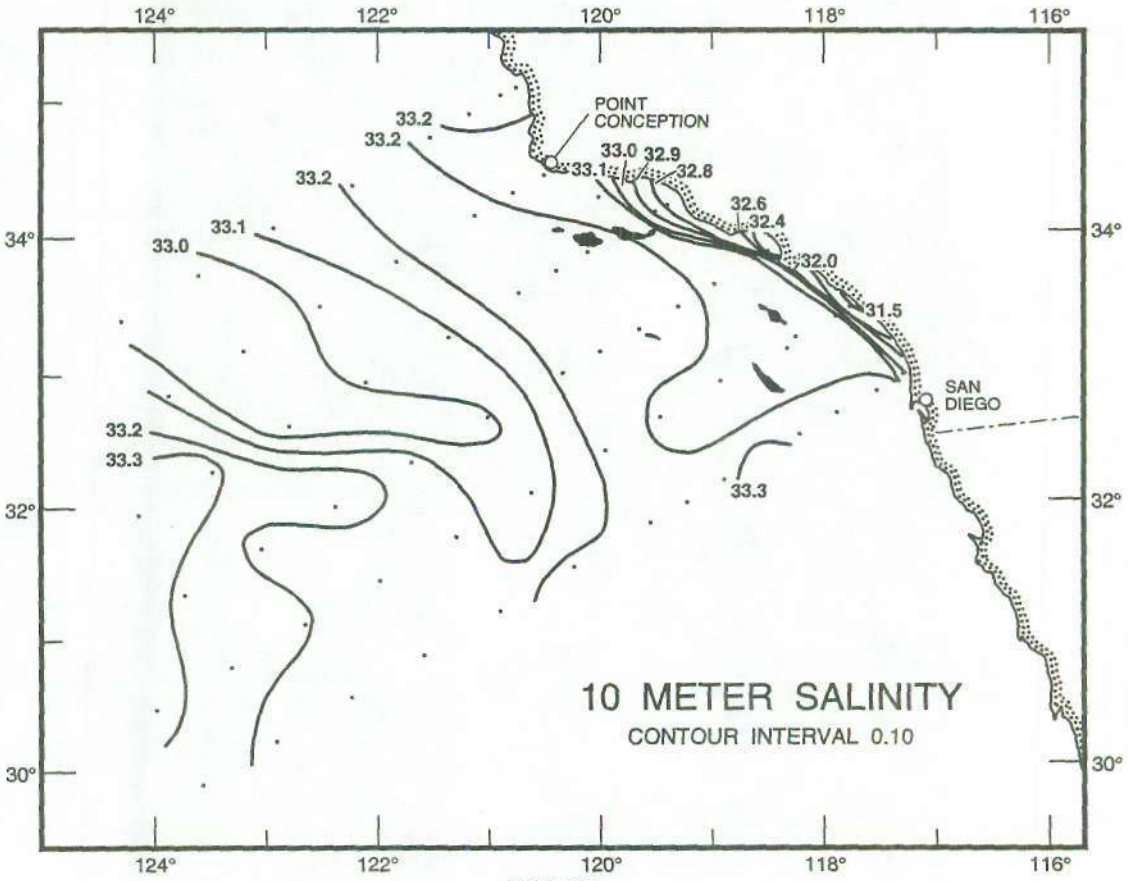

FIGURE 3D

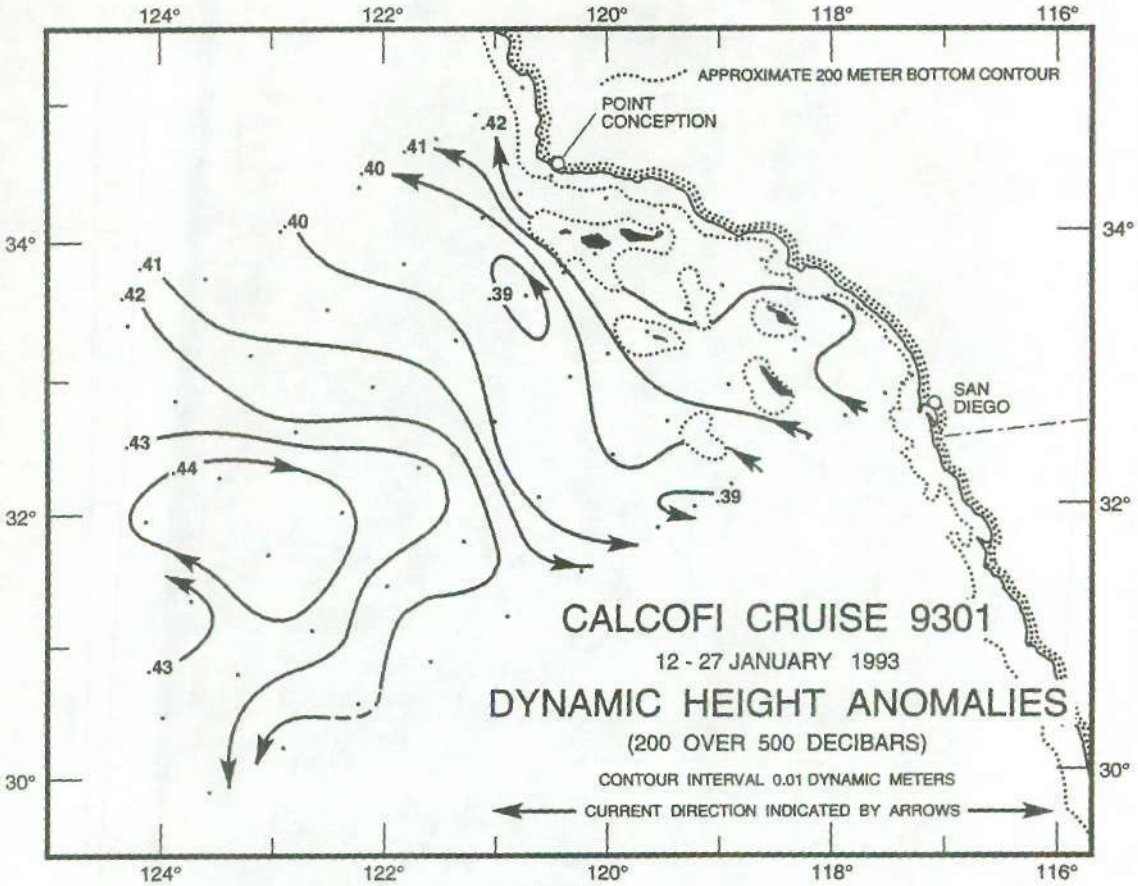

FIGURE 4A

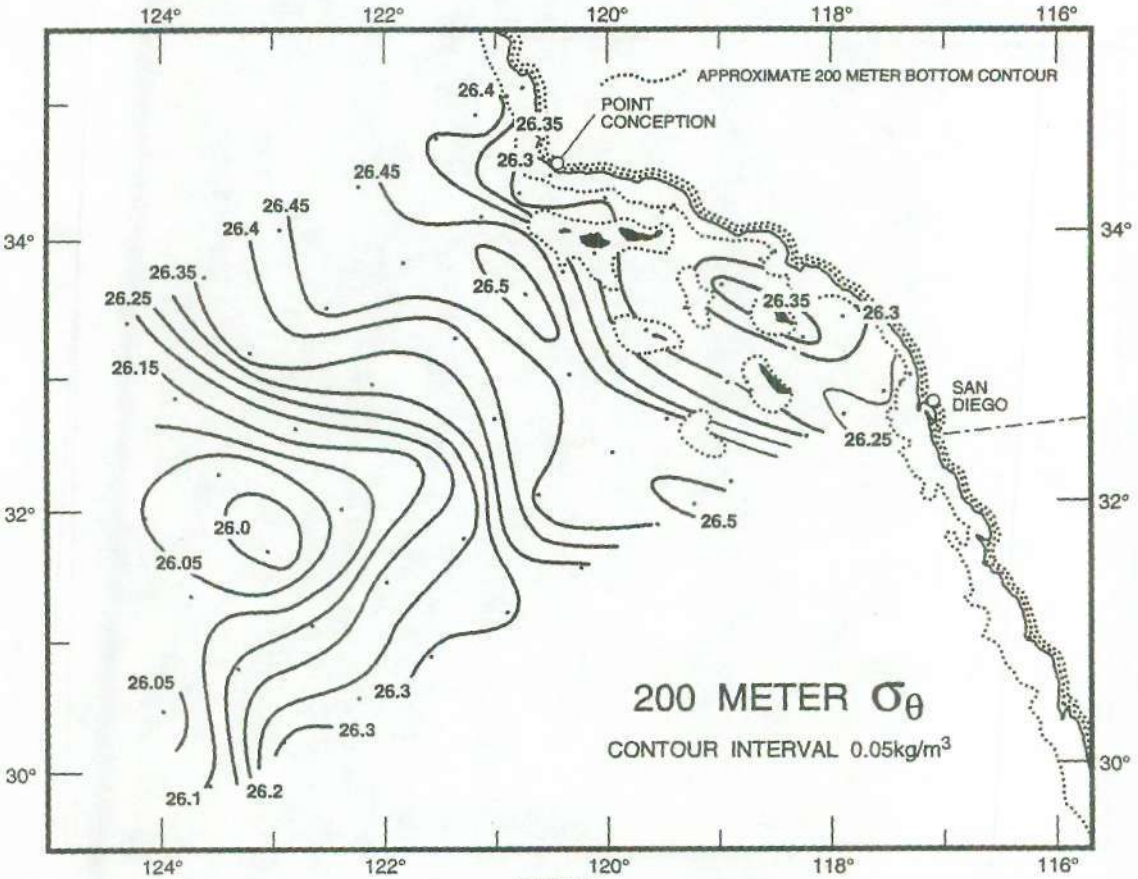

FIGURE 4B

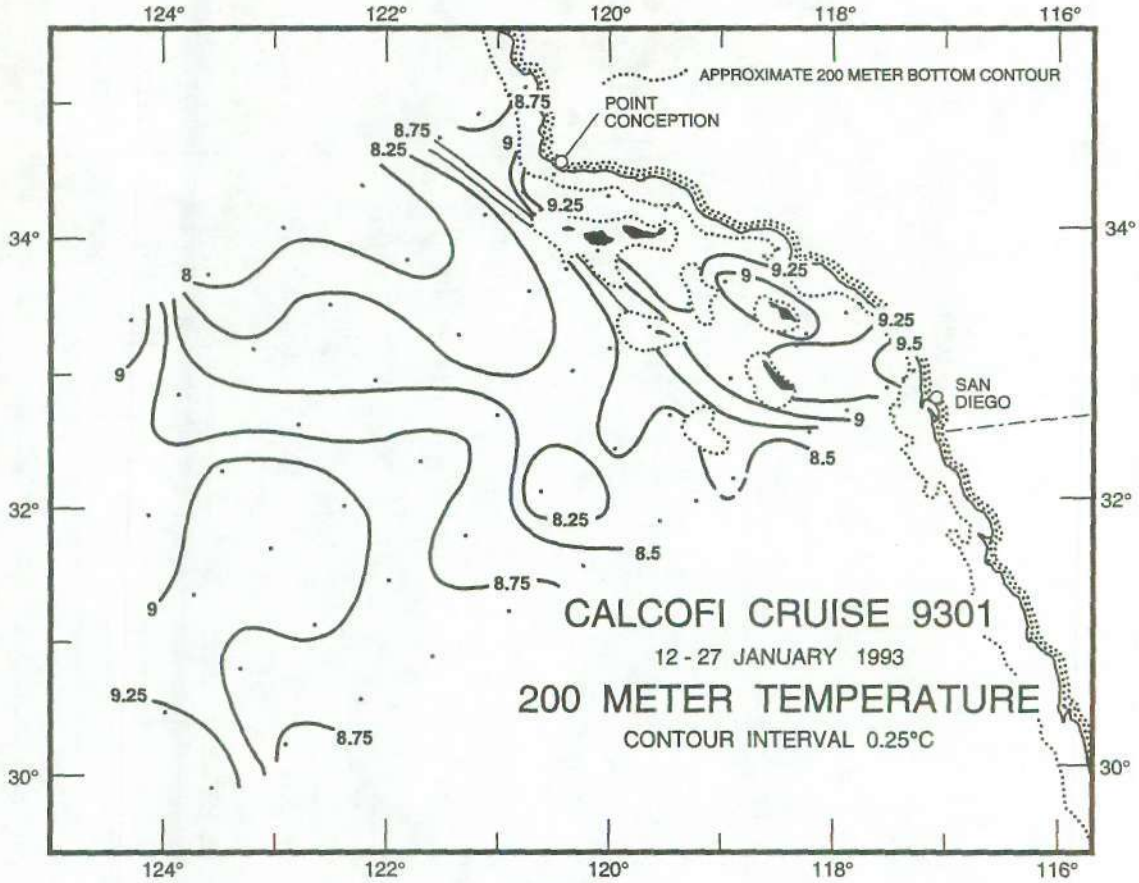

FIGURE 4C

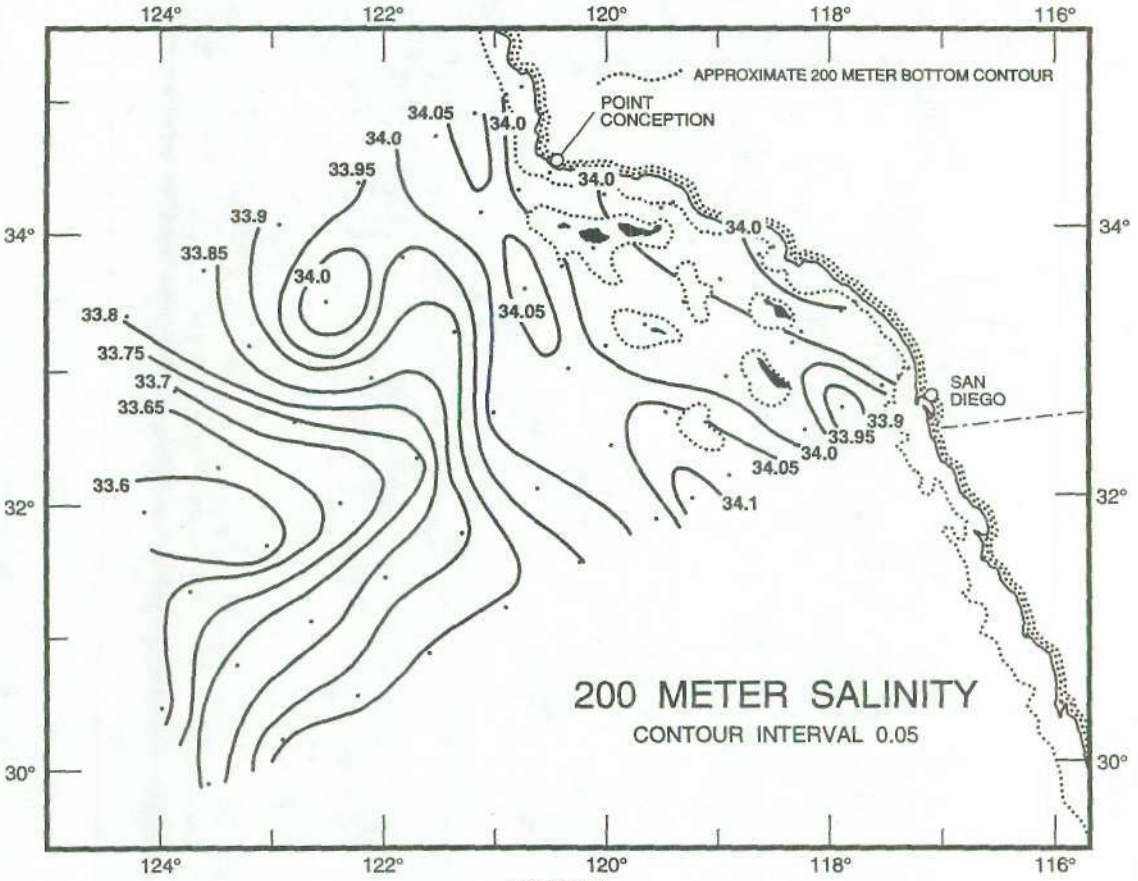

FIGURE 4D

CALCOFI CRUISE 9301

16 - 18 JANUARY 1993

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

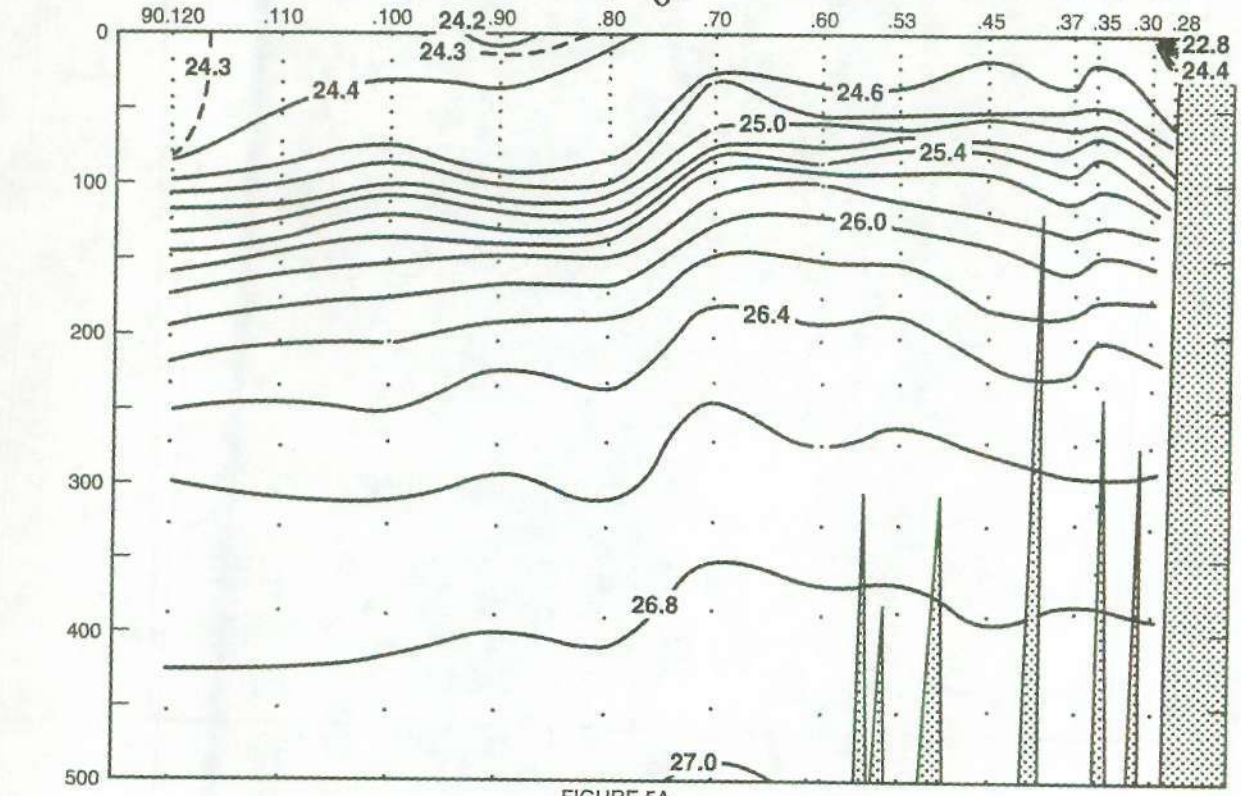

FIGURE 5A

DEPTH (m)

TEMPERATURE (°C) ALONG CALCOFI LINE 90

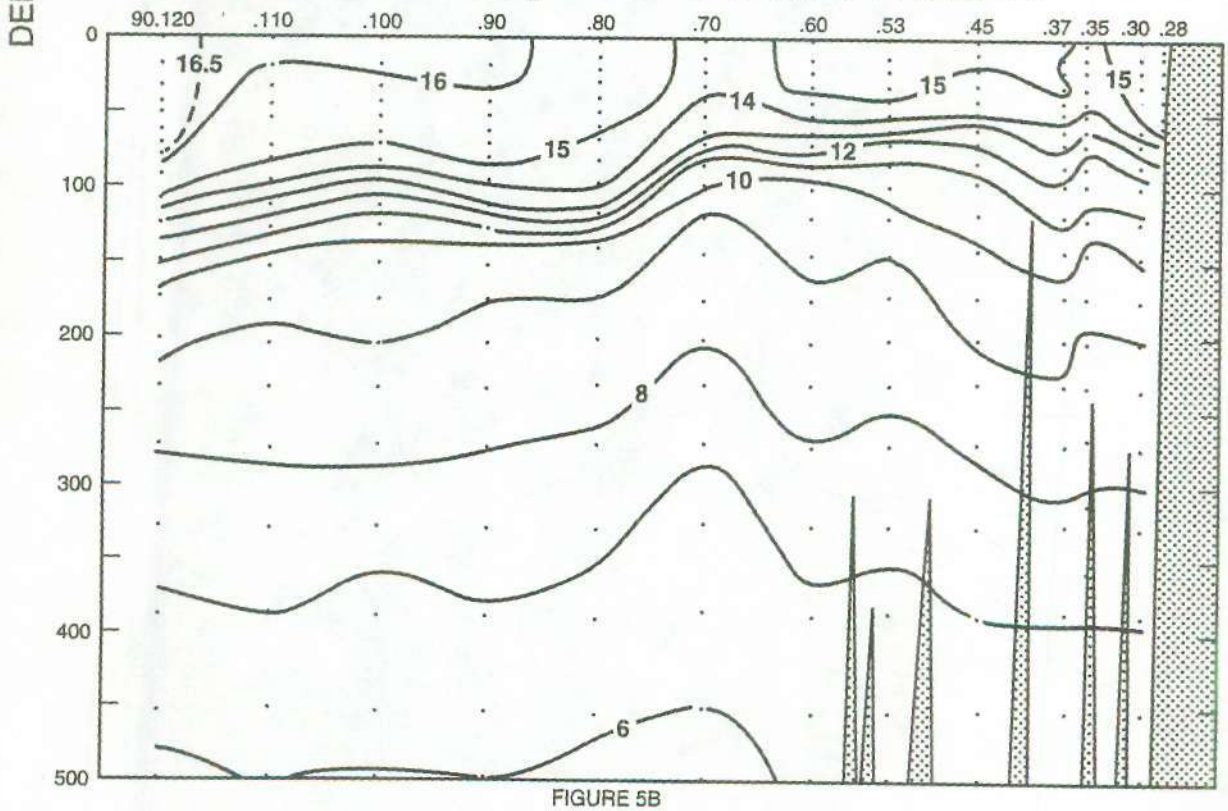

FIGURE 5B

CALCOFI CRUISE 9301

16 - 18 JANUARY 1993

SALINITY ALONG CALCOFI LINE 90

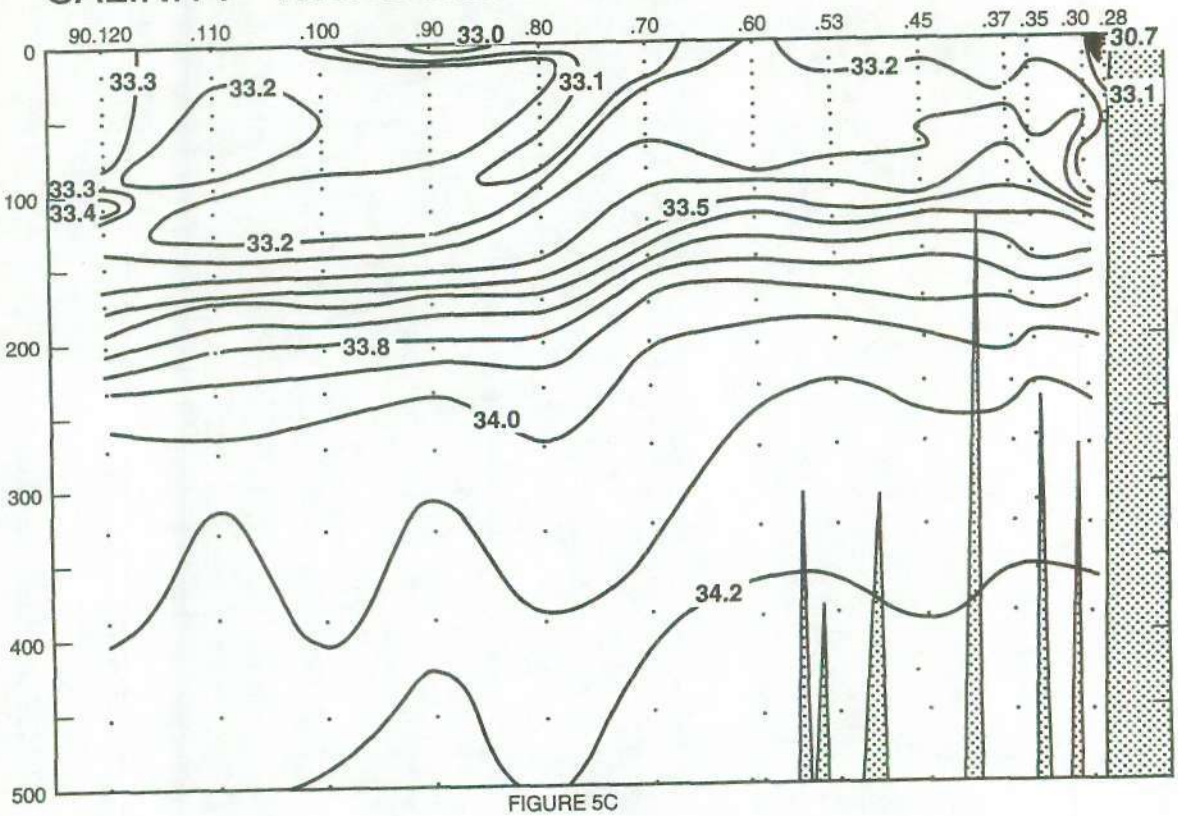

FIGURE 5C

DEPTH (m)

SILICATE (µM/l) ALONG CALCOFI LINE 90

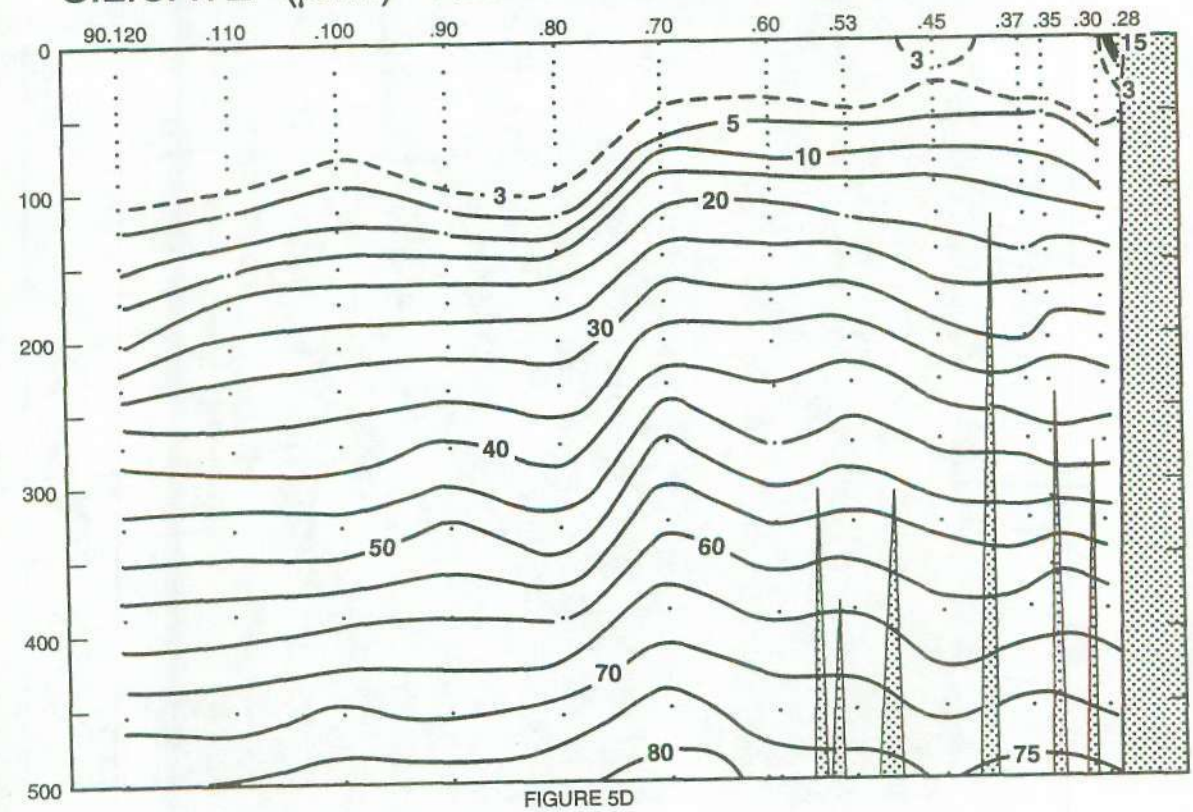

FIGURE 5D

CALCOFI CRUISE 9301

16 - 18 JANUARY 1993

NITRATE (µM/l) ALONG CALCOFI LINE 90

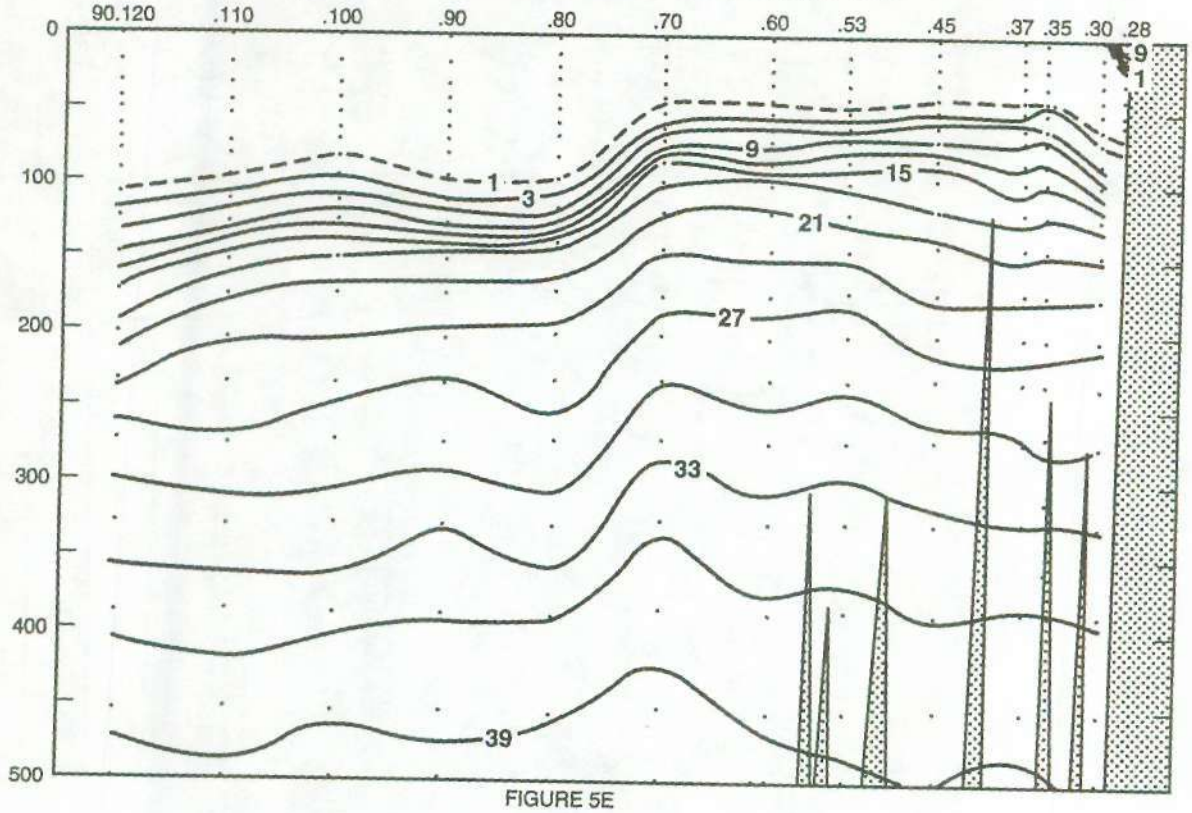

FIGURE 5E

DEPTH (m)

PHOSPHATE (µM/l) ALONG CALCOFI LINE 90

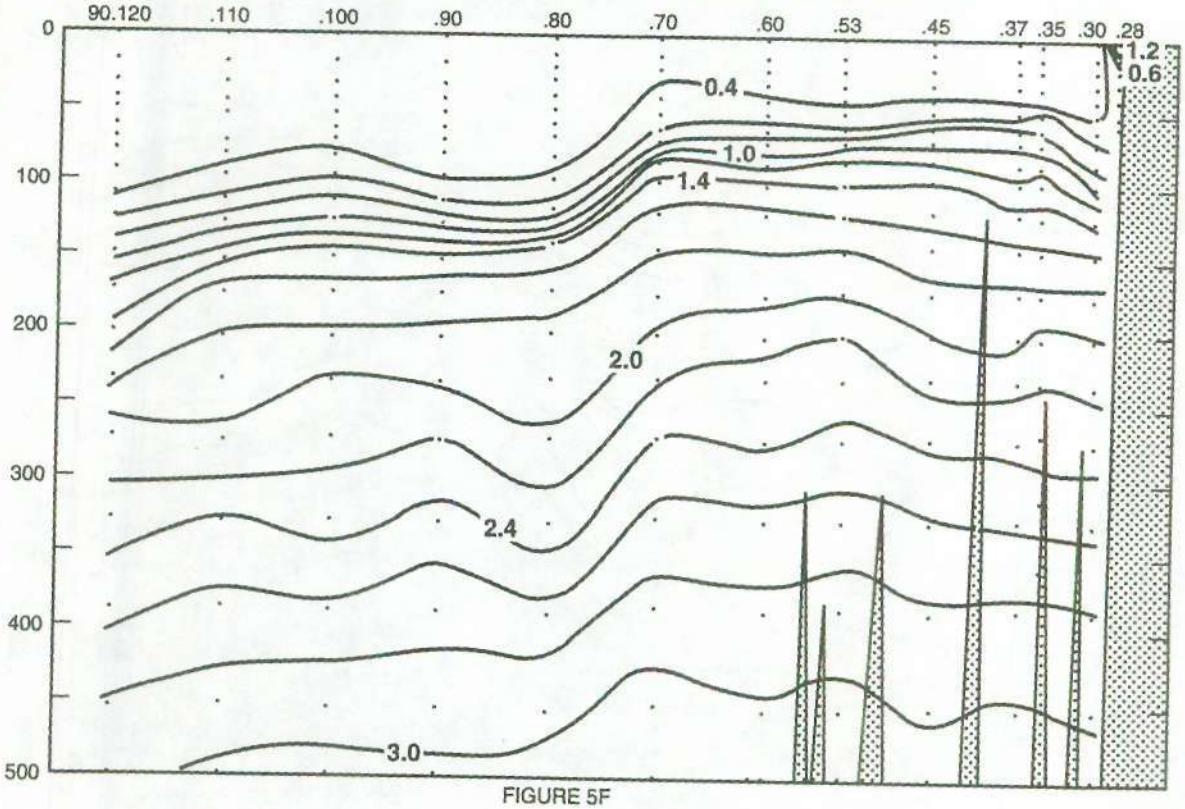

FIGURE 5F

CALCOFI CRUISE 9301

16 - 18 JANUARY 1993

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

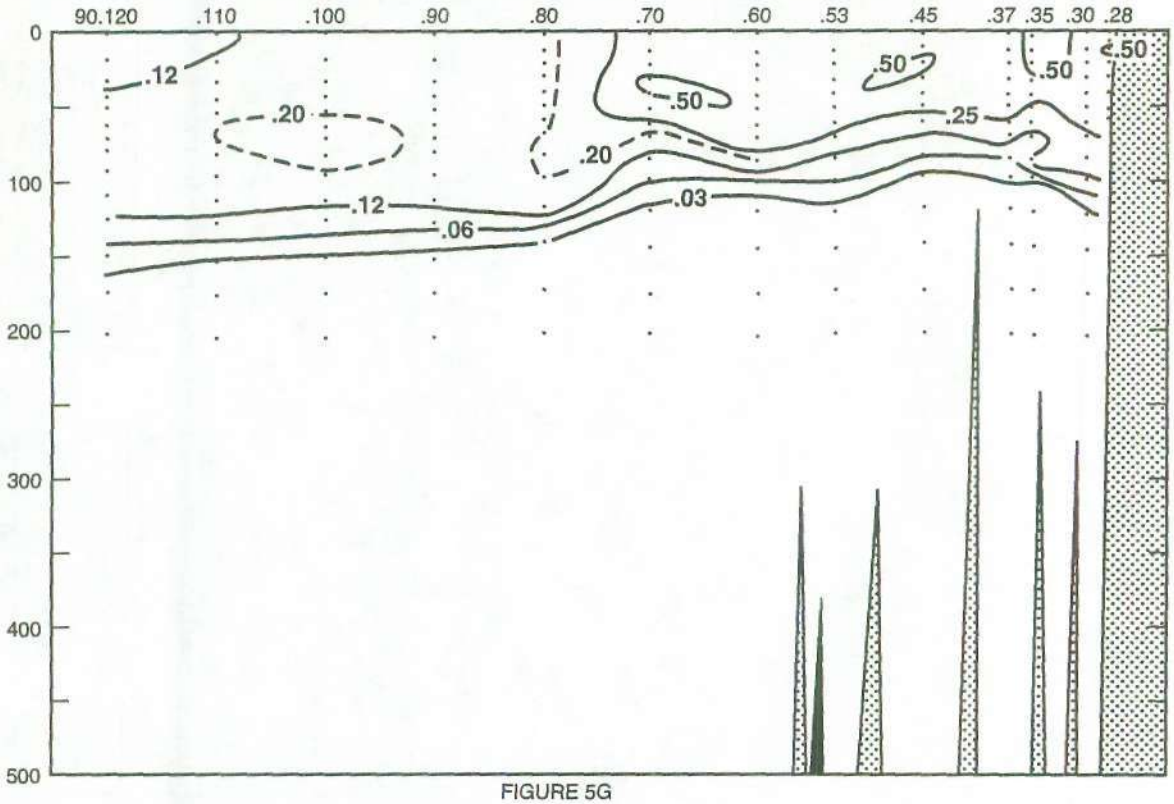

FIGURE 5G

DEPTH (m)

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

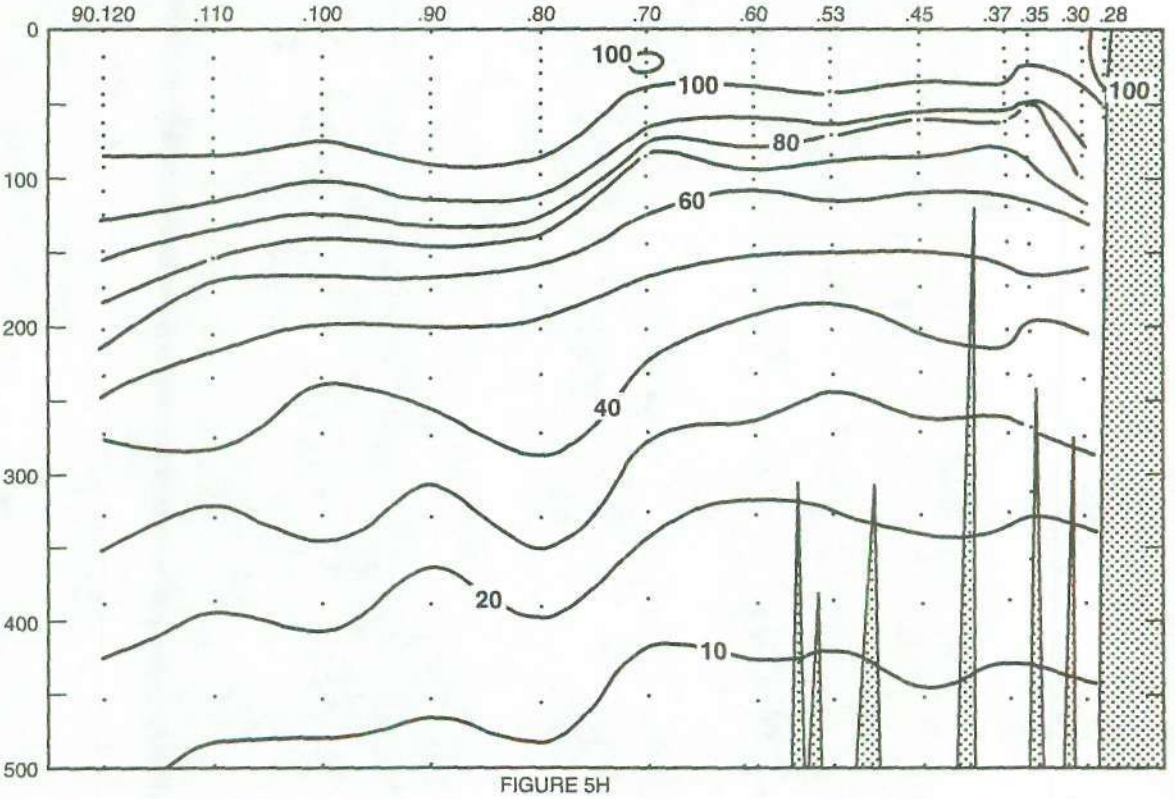

FIGURE 5H

CALCOFI CRUISE 9301

16 - 18 JANUARY 1993

OXYGEN (ml/l) ALONG CALCOFI LINE 90

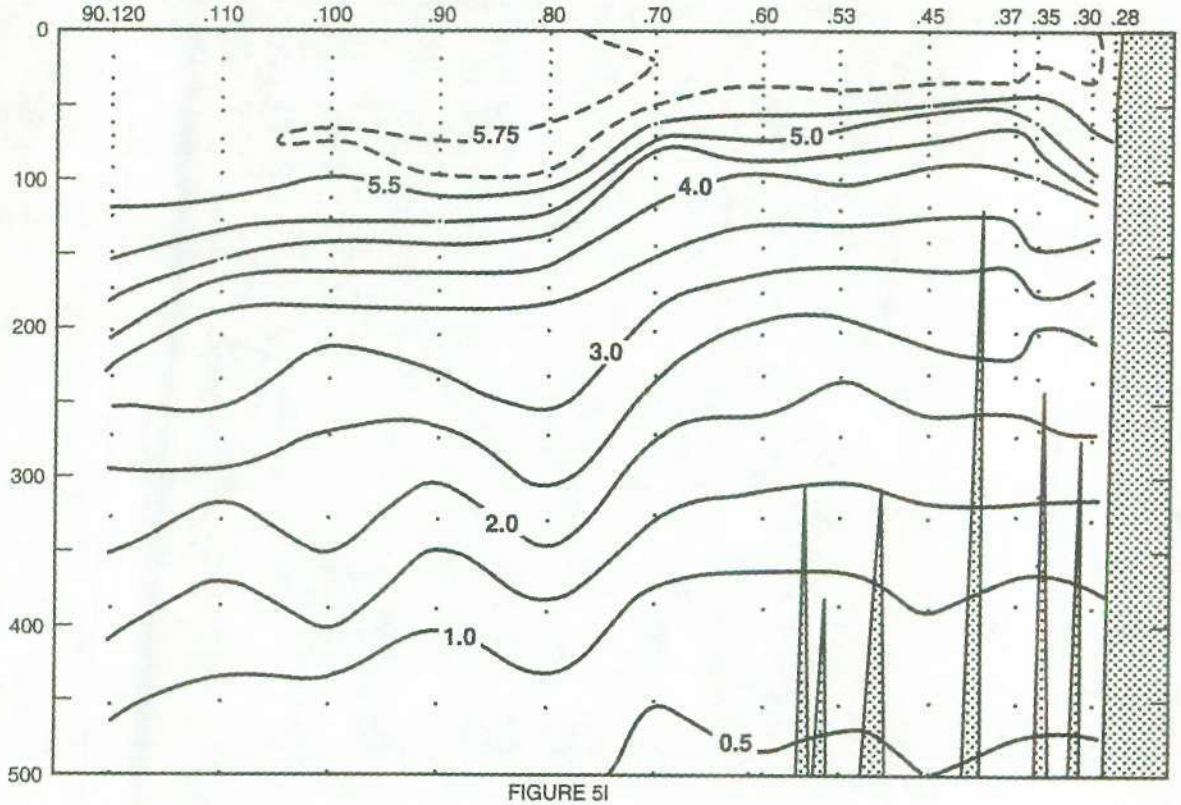

FIGURE 5I

DEPTH (m)

NITRITE (µM/l) ALONG CALCOFI LINE 90

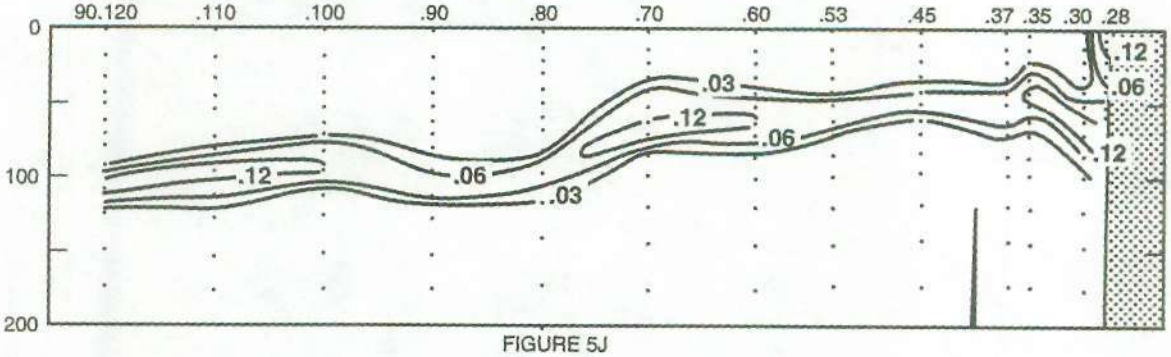

FIGURE 5J

PHAEOPIGMENTS (µg/l) ALONG CALCOFI LINE 90

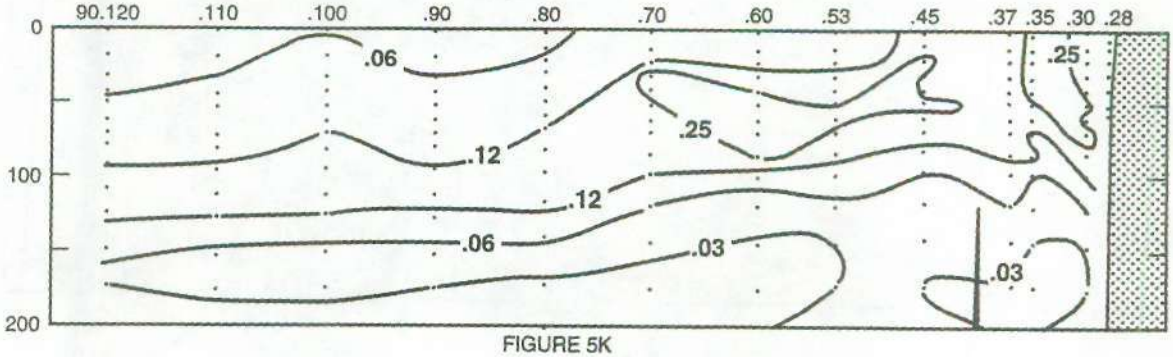

FIGURE 5K

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 77 49

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	SEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
35 5.3 N	120 46.6 W	25/01/93	1415 UTC	69 m	090 10 kn			1016.3 mb	13.9 C	11.0 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
	0 ISL	13.85	13.85	33.224	24.846	309.4	0.000	5.75	97.7	6.4	0.65	2.6	0.49	1.02	0.41	0
1	1	13.85	13.85	33.224	24.847	309.4	0.003	5.75	97.7	6.4	0.65	2.6	0.49	1.02	0.41	1
1	6	13.85	13.85	33.230	24.851	309.1	0.019	5.73	97.3	6.5	0.67	2.7	0.51	0.93	0.41	6
	10 ISL	13.69	13.69	33.259	24.907	303.9	0.031	5.52	93.5	6.7	0.71	3.4	0.59	0.53	0.33	10
1	11	13.65	13.65	33.267	24.921	302.6	0.034	5.46	92.4	6.8	0.72	3.6	0.61	0.43	0.31	11
	20 ISL	13.51	13.51	33.300	24.975	297.7	0.061	5.35	90.3	7.0	0.74	4.1	0.64	0.30	0.27	20
1	21	13.50	13.50	33.302	24.979	297.4	0.064	5.34	90.1	7.0	0.74	4.1	0.64	0.29	0.27	21
	30 ISL	13.42	13.42	33.321	25.010	294.6	0.090	5.27	88.8	7.2	0.74	4.5	0.61	0.15	0.23	30
1	31	13.41	13.41	33.323	25.014	294.3	0.093	5.26	88.6	7.2	0.74	4.5	0.61	0.14	0.23	31
1	41	13.32	13.31	33.336	25.042	291.9	0.123	5.21	87.6	7.6	0.77	4.9	0.59	0.12	0.22	41
	50 ISL	13.25	13.24	33.344	25.062	290.2	0.149	5.14	86.3	7.9	0.80	5.3	0.55	0.11	0.20	50
1	51	13.24	13.23	33.345	25.065	289.9	0.152	5.13	86.1	8.0	0.80	5.4	0.54	0.11	0.20	51
1	61	13.03	13.02	33.366	25.123	284.6	0.181	4.93	82.4	9.2	0.88	6.7	0.47	0.10	0.23	61

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 77 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	SEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
35 1.4 N	120 55.3 W	25/01/93	1128 UTC	251 m	080 09 kn			1017.2 mb	14.4 C	12.2 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
	0 ISL	14.19	14.19	33.252	24.798	314.0	0.000	5.95	101.8	3.9	0.42	0.4	0.06	1.43	0.56	0
1	1	14.19	14.19	33.252	24.798	314.1	0.003	5.95	101.8	3.9	0.42	0.4	0.06	1.43	0.56	1
1	5	14.21	14.21	33.256	24.797	314.3	0.016	5.94	101.7	3.9	0.42	0.4	0.06	1.43	0.54	5
	10 ISL	14.20	14.20	33.253	24.797	314.4	0.031	5.94	101.6	4.0	0.43	0.4	0.06	1.39	0.54	10
1	11	14.19	14.19	33.251	24.797	314.4	0.035	5.94	101.6	4.0	0.43	0.4	0.06	1.38	0.54	11
	20 ISL	14.14	14.14	33.251	24.808	313.6	0.063	5.87	100.3	4.0	0.44	0.7	0.11	1.27	0.53	20
1	21	14.14	14.14	33.251	24.808	313.6	0.066	5.86	100.1	4.0	0.44	0.7	0.12	1.25	0.53	21
	30 ISL	14.13	14.13	33.247	24.807	314.0	0.094	5.88	100.5	4.1	0.47	1.0	0.17	0.97	0.48	30
1	31	14.13	14.13	33.247	24.807	314.0	0.097	5.88	100.5	4.1	0.47	1.0	0.18	0.95	0.47	31
1	41	14.08	14.07	33.252	24.822	312.9	0.129	5.80	99.0	4.2	0.48	1.1	0.20	1.05	0.50	41
1	50	13.97	13.96	33.264	24.854	310.1	0.157	5.63	95.9	4.9	0.54	1.9	0.36	0.48	0.31	50
1	61	13.51	13.50	33.311	24.985	297.9	0.190	5.12	86.4	6.3	0.72	4.9	0.25	0.14	0.21	61
1	71	13.33	13.32	33.331	25.037	293.2	0.220	4.99	83.9	7.0	0.80	6.1	0.17	0.11	0.18	71
	75 ISL	13.18	13.17	33.347	25.079	289.2	0.231	4.89	82.0	7.7	0.85	6.9	0.15	0.10	0.17	75
1	85	12.70	12.69	33.398	25.214	276.7	0.260	4.59	76.2	10.0	0.99	9.2	0.11	0.08	0.16	85
1	100	11.87	11.86	33.480	25.436	255.8	0.300	4.11	67.1	13.2	1.24	13.1	0.02	0.05	0.13	100
1	119	10.40	10.39	33.645	25.829	218.6	0.345	3.45	54.6	21.3	1.63	19.5	0.05	0.03	0.11	120
	125 ISL	10.14	10.13	33.693	25.911	210.9	0.358	3.27	51.5	23.3	1.72	20.8	0.09	0.03	0.11	126
1	139	9.74	9.72	33.790	26.054	197.6	0.386	2.91	45.4	27.3	1.87	22.9	0.16	0.02	0.12	140
	150 ISL	9.48	9.46	33.849	26.143	189.3	0.407	2.74	42.5	29.5	1.95	24.2	0.12	0.02	0.11	151
1	169	9.14	9.12	33.926	26.258	178.6	0.442	2.56	39.5	32.4	2.05	25.9	0.02	0.01	0.08	170
1	199	8.76	8.74	33.998	26.375	168.0	0.494	2.31	35.3	36.6	2.17	27.6	0.08			200
	200 ISL	8.75	8.73	33.999	26.377	167.8	0.496	2.31	35.3	36.7	2.17	27.6	0.08			201
1	230	8.43	8.41	34.042	26.461	160.3	0.545	2.16	32.8	40.6	2.27	29.0	0.08			231

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 77 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	SEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 53.4 N	121 11.9 W	25/01/93	0733 UTC	562 m	320 09 kn			1018.1 mb	14.8 C	13.2 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
	0 ISL	13.67	13.67	33.250	24.904	303.9	0.000	5.97	101.1	4.4	0.47	1.1	0.11	0.70	0.30	0
1	1	13.67	13.67	33.250	24.904	304.0	0.003	5.97	101.1	4.4	0.47	1.1	0.11	0.70	0.30	1
	10 ISL	13.59	13.59	33.252	24.922	302.5	0.030	5.98	101.1	4.4	0.46	1.2	0.11	0.71	0.37	10
1	11	13.58	13.58	33.252	24.924	302.3	0.033	5.98	101.0	4.4	0.46	1.2	0.11	0.71	0.38	11
1	20	13.55	13.55	33.252	24.930	302.0	0.061	5.98	101.0	4.3	0.46	1.2	0.11	0.82	0.39	20
	30 ISL	13.55	13.55	33.254	24.932	302.1	0.091	5.94	100.3	4.3	0.48	1.3	0.13	0.76	0.43	30
1	31	13.55	13.55	33.254	24.932	302.1	0.094	5.93	100.1	4.3	0.48	1.3	0.13	0.75	0.43	31
1	41	13.54	13.53	33.270	24.947	301.0	0.124	5.80	97.9	4.6	0.53	2.0	0.21	0.42	0.35	41
1	50	13.22	13.21	33.298	25.033	293.0	0.151	5.45	91.4	5.9	0.67	4.1	0.29	0.30	0.19	50
1	59	12.20	12.19	33.294	25.228	274.5	0.176	4.85	79.6	9.2	0.96	9.0	0.12	0.13	0.23	59
1	69	10.94	10.93	33.227	25.408	257.6	0.203	4.71	75.2	11.7	1.17	12.5	0.03	0.11	0.18	69
	75 ISL	10.81	10.80	33.322	25.505	248.5	0.218	4.47	71.2	13.4	1.27	14.2	0.02	0.08	0.15	75
1	84	10.62	10.61	33.443	25.632	236.5	0.240	4.07	64.6	15.8	1.39	16.2	0.01	0.04	0.11	84
1	99	10.26	10.25	33.569	25.793	221.5	0.274	3.70	58.3	19.0	1.55	18.6	0.01	0.03	0.09	99
	100 ISL	10.23	10.22	33.576	25.803	220.5	0.276	3.68	58.0	19.2	1.56	18.8	0.01	0.03	0.09	101
1	118	9.82	9.81	33.701	25.970	205.0	0.315	3.34	52.2	22.7	1.72	21.3	0.01	0.02	0.07	119
	125 ISL	9.76	9.75	33.748	26.017	200.7	0.329	3.20	50.0	23.8	1.77	22.0	0.01	0.02	0.07	126
1	142	9.65	9.63	33.854	26.119	191.5	0.362	2.88	44.9	26.4	1.88	23.4	0.01	0.01	0.07	143
	150 ISL	9.56	9.54	33.897	26.167	187.0	0.377	2.76	42.9	27.7	1.93	24.1	0.01	0.01	0.07	151
1	173	9.20	9.18	33.996	26.303	174.4	0.419	2.49	38.5	31.6	2.06	26.2	0.01	0.01	0.06	174
	200 ISL	8.65	8.63	34.060	26.440	161.8	0.464	2.30	35.1	36.7	2.17	28.2	0.01	0.00	0.06	201
1	203	8.59	8.57	34.064	26.453	160.6	0.469	2.29	34.9	37.2	2.18	28.4	0.01	0.00	0.06	204
1	232	8.14	8.12	34.081	26.535	153.2	0.515	2.19	33.0	41.6	2.27	29.7	0.00			233
	250 ISL	7.89	7.86	34.088	26.578	149.3	0.542	2.08	31.2	44.6	2.34	30.6	0.00			251
1	272	7.62	7.59	34.096	26.623	145.2	0.574	1.92	28.6	48.2	2.42	31.6	0.00			274
	300 ISL	7.39	7.36	34.111	26.668	141.3	0.614	1.72	25.5	51.8	2.52	32.7	0.00			302
1	328	7.22	7.19	34.127	26.705	138.2	0.653	1.52	22.5	55.1	2.62	33.7	0.00			330
1	387	6.83	6.79	34.157	26.783	131.5	0.733	1.11	16.2	63.3	2.81	35.6	0.00			390
	400 ISL	6.73	6.69	34.156	26.796	130.4	0.750	1.06	15.5	64.6	2.83	36.0	0.00			403
1	454	6.30	6.26	34.159	26.855	125.2	0.819	0.89	12.9	70.5	2.91	37.8	0.00			457
	500 ISL	5.90	5.86	34.201	26.940	117.4	0.875	0.64	9.2	78.4	3.04	39.4	0.01			503
1	525	5.69	5.65	34.224	26.984	113.3	0.904	0.51	7.3	82.7	3.11	40.2	0.01			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 77 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 43.3 N	121 33.0 W	25/01/93	0300 UTC	941 a	310 07 kn			1018.2 mb	14.8 C	13.5 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A uq/1	PHAEO uq/1	PRESS db
	0 ISL	13.76	13.76	33.183	24.833	310.6	0.000	5.96	101.0	3.7	0.43	0.7	0.05	0.49	0.20	0
1	1	13.76	13.76	33.183	24.833	310.6	0.003	5.96	101.0	3.7	0.43	0.7	0.05	0.49	0.20	1
	10 ISL	13.69	13.69	33.189	24.853	309.1	0.031	5.95	100.7	3.8	0.44	0.8	0.06	0.51	0.21	10
1	12	13.67	13.67	33.191	24.858	308.6	0.037	5.94	100.5	3.3	0.44	0.8	0.07	0.52	0.21	12
	20 ISL	13.61	13.61	33.199	24.877	307.0	0.062	5.91	99.9	3.9	0.45	1.0	0.09	0.56	0.25	20
1	22	13.60	13.60	33.200	24.880	306.8	0.068	5.90	99.7	3.9	0.45	1.1	0.09	0.57	0.26	22
	30 ISL	13.60	13.60	33.200	24.880	307.0	0.092	5.90	99.7	3.8	0.46	1.1	0.09	0.55	0.25	30
1	32	13.60	13.60	33.200	24.880	307.1	0.099	5.90	99.7	3.8	0.46	1.1	0.09	0.55	0.25	32
1	42	13.49	13.48	33.199	24.902	305.3	0.129	5.79	97.6	4.1	0.50	1.6	0.15	0.37	0.25	42
	50 ISL	13.37	13.36	33.204	24.930	302.8	0.154	5.70	95.8	4.4	0.54	2.3	0.17	0.26	0.23	50
1	52	13.32	13.31	33.205	24.941	301.8	0.160	5.67	95.2	4.5	0.55	2.5	0.18	0.24	0.22	52
1	61	12.93	12.92	33.214	25.026	293.9	0.186	5.46	91.0	5.6	0.67	4.2	0.27	0.14	0.17	61
1	71	11.88	11.87	33.190	25.208	276.7	0.215	5.11	83.3	8.2	0.91	8.0	0.13	0.12	0.17	71
	75 ISL	11.39	11.38	33.215	25.318	266.3	0.226	4.92	79.3	10.0	1.04	10.2	0.09	0.10	0.15	75
1	84	10.47	10.46	33.318	25.561	243.3	0.249	4.45	70.4	14.2	1.30	14.9	0.02	0.06	0.10	84
1	98	10.23	10.22	33.533	25.770	223.7	0.281	3.82	60.2	18.2	1.50	18.1	0.01	0.04	0.07	98
	100 ISL	10.22	10.21	33.554	25.788	222.0	0.286	3.76	59.2	18.6	1.52	18.4	0.01	0.04	0.07	100
1	118	10.14	10.13	33.703	25.918	210.0	0.325	3.34	52.6	21.3	1.66	20.4	0.01	0.01	0.05	119
	125 ISL	10.03	10.02	33.758	25.980	204.3	0.339	3.18	50.0	22.8	1.72	21.4	0.01	0.01	0.05	126
1	144	9.66	9.64	33.884	26.140	189.4	0.377	2.81	43.8	27.0	1.88	23.8	0.01	0.01	0.05	145
	150 ISL	9.56	9.54	33.912	26.179	185.9	0.388	2.73	42.5	28.1	1.92	24.4	0.01			151
2	174	9.19	9.17	33.994	26.303	174.4	0.431	2.50	38.6	31.8	2.04	26.2	0.00			175
	200 ISL	8.89	8.87	34.039	26.387	167.0	0.476	2.38	36.5	34.6	2.12	27.3	0.00			201
2	204	8.86	8.84	34.046	26.397	166.1	0.482	2.35	36.0	35.0	2.13	27.5	0.00			205
2	233	8.82	8.80	34.137	26.475	159.2	0.529	1.84	28.2	39.2	2.31	29.3	0.00			234
	250 ISL	8.46	8.43	34.128	26.524	154.7	0.556	1.91	29.0	41.2	2.31	29.9	0.00			251
2	274	7.82	7.79	34.088	26.588	148.7	0.592	2.15	32.2	44.0	2.31	30.5	0.00			276
	300 ISL	7.26	7.23	34.049	26.638	144.1	0.631	2.16	31.9	47.7	2.34	31.6	0.00			302
2	330	6.77	6.74	34.025	26.686	139.7	0.673	2.18	31.8	52.5	2.42	33.1	0.00			332
2	390	6.46	6.42	34.117	26.801	129.5	0.754	1.25	18.1	63.5	2.76	37.0	0.00			393
	400 ISL	6.37	6.33	34.120	26.815	128.2	0.767	1.17	16.9	65.1	2.79	37.5	0.00			403
2	456	5.93	5.89	34.135	26.883	122.1	0.837	0.89	12.8	72.9	2.94	39.5	0.00			459
	500 ISL	5.82	5.78	34.201	26.949	116.4	0.889	0.62	8.9	77.9	3.05	40.3	0.00			503
2	525	5.76	5.71	34.239	26.987	113.1	0.918	0.46	6.6	80.8	3.12	40.7	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 77 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 23.4 N	122 14.8 N	25/01/93	1811 UTC	4018 m	020 08 kn	020 02 08	1	1021.0 ab	16.1 C	15.0 C		3/8	CS

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	13.86	13.86	33.202	24.827	311.2	0.000	6.00	101.9	3.2	0.38	0.1	0.01	0.60	0.30	0
1	2	13.86	13.86	33.202	24.828	311.2	0.006	6.00	101.9	3.2	0.38	0.1	0.01	0.60	0.30	2
	10 ISL	13.84	13.84	33.203	24.833	311.0	0.031	6.00	101.9	3.2	0.38	0.1	0.01	0.58	0.30	10
1	17	13.81	13.81	33.204	24.840	310.5	0.053	6.00	101.8	3.2	0.38	0.1	0.01	0.56	0.31	17
	20 ISL	13.80	13.80	33.204	24.842	310.4	0.062	6.00	101.8	3.2	0.38	0.1	0.01	0.57	0.31	20
	30 ISL	13.79	13.79	33.206	24.846	310.3	0.093	5.98	101.4	3.2	0.38	0.1	0.01	0.60	0.31	30
1	31	13.79	13.79	33.206	24.846	310.3	0.096	5.98	101.4	3.2	0.38	0.1	0.01	0.60	0.31	31
1	41	13.80	13.79	33.212	24.849	310.3	0.127	5.98	101.5	3.2	0.40	0.2	0.02	0.59	0.33	41
	50 ISL	13.78	13.77	33.218	24.858	309.7	0.155	5.92	100.4	3.3	0.42	0.5	0.04	0.45	0.28	50
1	52	13.78	13.77	33.219	24.859	309.7	0.161	5.91	100.2	3.3	0.42	0.6	0.04	0.41	0.27	52
1	62	13.15	13.14	33.277	25.031	293.5	0.192	5.44	91.1	5.5	0.64	3.8	0.22	0.23	0.22	62
1	72	12.54	12.53	33.257	25.135	283.8	0.220	5.18	85.6	6.9	0.80	6.4	0.15	0.18	0.19	72
	75 ISL	12.18	12.17	33.243	25.193	278.3	0.229	5.15	84.5	7.3	0.84	7.2	0.11	0.18	0.18	75
1	81	11.44	11.43	33.223	25.315	266.7	0.245	5.09	82.2	8.3	0.92	8.8	0.03	0.17	0.16	81
1	95	10.37	10.36	33.247	25.523	247.1	0.281	4.61	72.7	12.9	1.26	14.1	0.02	0.09	0.10	95
	100 ISL	10.00	9.99	33.277	25.609	239.0	0.293	4.49	70.3	14.6	1.35	15.7	0.02	0.07	0.08	100
1	109	9.42	9.41	33.346	25.758	224.8	0.314	4.31	66.6	17.5	1.49	18.1	0.01	0.04	0.05	110
1	125	8.85	8.84	33.483	25.956	206.2	0.349	4.10	62.6	21.1	1.62	20.5	0.00	0.01	0.02	126
1	150	8.58	8.56	33.715	26.180	185.4	0.398	3.44	52.3	27.2	1.86	24.3	0.00	0.01	0.02	151
1	175	8.25	8.23	33.837	26.326	171.9	0.442	3.28	49.5	30.6	1.91	25.8	0.00	0.00	0.02	176
	200 ISL	7.89	7.87	33.945	26.465	159.1	0.484	3.09	46.3	35.5	2.00	27.3	0.00	0.00	0.02	201
1	203	7.85	7.83	33.956	26.479	157.8	0.488	3.06	45.8	36.1	2.01	27.5	0.00	0.00	0.02	204
1	233	7.57	7.55	34.009	26.562	150.4	0.535	2.67	39.7	42.0	2.17	29.7	0.00			234
	250 ISL	7.30	7.28	34.013	26.603	146.6	0.560	2.53	37.4	45.5	2.25	30.8	0.00			251
1	273	6.92	6.89	34.012	26.655	141.8	0.593	2.35	34.4	50.1	2.35	32.3	0.00			275
	300 ISL	6.69	6.66	34.039	26.708	137.1	0.631	1.96	28.6	55.2	2.50	34.2	0.00			302
1	328	6.49	6.46	34.068	26.757	132.7	0.669	1.56	22.6	60.3	2.66	36.0	0.00			330
1	387	5.85	5.82	34.085	26.853	124.0	0.744	1.14	16.3	71.2	2.88	38.9	0.00			390
	400 ISL	5.77	5.74	34.095	26.871	122.4	0.760	1.04	14.8	73.2	2.92	39.4	0.00			403
1	453	5.54	5.50	34.151	26.943	116.0	0.823	0.68	9.7	80.2	3.06	41.0	0.00			456
	500 ISL	5.40	5.36	34.216	27.012	110.0	0.877	0.46	6.5	85.7	3.15	41.8	0.00			503
1	525	5.32	5.28	34.251	27.049	106.7	0.904	0.35	4.9	88.6	3.20	42.2	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/POREL	CID AMT TYPE
34 3.3 N	122 56.5 W	25/01/93	1235 UTC	4232 -	020 15	fen		1019.8 ab	14.8 C	13.3 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
1	0	13.90	13.90	33.154	24.782	315.5	0.000	5.92	100.6	3.4	0.42	0.4	0.01	0.46	0.13	0
	10 ISL	13.89	13.89	33.153	24.784	315.6	0.032	5.92	100.6	3.4	0.42	0.4	0.02	0.47	0.14	10
1	16	13.88	13.88	33.153	24.786	315.6	0.050	5.92	100.6	3.4	0.42	0.4	0.02	0.47	0.14	16
	20 ISL	13.86	13.86	33.152	24.789	315.4	0.063	5.92	100.5	3.4	0.42	0.4	0.02	0.47	0.15	20
1	30	13.81	13.81	33.150	24.798	314.8	0.095	5.92	100.4	3.5	0.43	0.4	0.02	0.43	0.17	30
1	40	13.78	13.77	33.148	24.803	314.6	0.126	5.90	100.0	3.4	0.42	0.5	0.01	0.34	0.15	40
	50 ISL	13.75	13.74	33.148	24.810	314.3	0.158	5.91	100.1	3.4	0.42	0.4	0.01	0.27	0.15	50
1	51	13.75	13.74	33.148	24.810	314.3	0.161	5.91	100.1	3.4	0.42	0.4	0.01	0.26	0.15	51
1	60	13.69	13.68	33.148	24.822	313.4	0.189	5.87	99.3	3.5	0.46	0.8	0.02	0.21	0.15	60
1	69	11.35	11.34	33.187	25.303	267.6	0.215	4.80	77.3	10.2	1.11	11.0	0.06	0.18	0.20	69
	75 ISL	10.54	10.53	33.229	25.479	250.9	0.231	4.65	73.6	12.7	1.27	13.9	0.04	0.13	0.16	75
1	79	10.21	10.20	33.257	25.558	243.4	0.241	4.55	71.5	13.8	1.31	14.9	0.02	0.09	0.12	79
1	94	9.63	9.62	33.382	25.752	225.2	0.276	4.21	65.4	17.4	1.48	17.8	0.01	0.04	0.06	94
	100 ISL	9.37	9.36	33.402	25.810	219.7	0.289	4.20	64.9	18.2	1.52	18.6	0.01	0.03	0.04	100
1	108	9.08	9.07	33.429	25.878	213.4	0.306	4.19	64.3	19.3	1.57	19.5	0.01	0.02	0.03	109
1	124	8.85	8.84	33.570	26.024	199.8	0.339	3.76	57.5	23.2	1.73	22.1	0.01	0.01	0.02	125
	125 ISL	8.85	8.84	33.579	26.031	199.1	0.341	3.73	57.0	23.4	1.74	22.2	0.01	0.01	0.02	126
1	148	8.77	8.75	33.760	26.186	184.9	0.386	3.17	48.4	27.8	1.89	24.9	0.00	0.00	0.02	149
	150 ISL	8.75	8.73	33.769	26.196	183.9	0.389	3.16	48.2	28.1	1.90	25.1	0.00	0.00	0.02	151
1	173	8.46	8.44	33.841	26.298	174.7	0.430	3.02	45.8	30.9	1.98	26.3	0.00	0.00	0.02	174
	200 ISL	7.97	7.95	33.927	26.439	161.6	0.476	3.11	46.7	34.5	2.00	27.2	0.00	0.00	0.02	201
1	204	7.90	7.88	33.939	26.459	159.8	0.482	3.11	46.6	35.1	2.00	27.3	0.00	0.00	0.02	205
1	233	7.71	7.69	34.004	26.538	152.7	0.528	2.63	39.3	40.4	2.16	29.5	0.00			234
	250 ISL	7.58	7.56	34.025	26.573	149.6	0.553	2.46	36.6	42.9	2.23	30.4	0.00			251
1	272	7.39	7.36	34.042	26.614	146.0	0.586	2.28	33.8	46.2	2.31	31.4	0.00			274
	300 ISL	7.04	7.01	34.050	26.669	141.0	0.626	2.03	29.8	51.4	2.44	33.1	0.00			302
1	328	6.69	6.66	34.058	26.723	136.1	0.665	1.76	25.7	56.8	2.57	34.8	0.00			330
1	387	6.29	6.26	34.119	26.824	127.1	0.742	1.10	15.9	66.7	2.85	38.0	0.00			390
	400 ISL	6.19	6.15	34.130	26.846	125.2	0.759	1.00	14.4	68.8	2.89	38.5	0.00			403
1	453	5.78	5.74	34.167	26.927	117.8	0.823	0.68	9.7	77.3	3.03	40.3	0.00			456
	500 ISL	5.38	5.34	34.183	26.988	112.2	0.877	0.54	7.6	84.6	3.12	41.7	0.00			503
1	525	5.16	5.12	34.193	27.022	109.0	0.905	0.47	6.6	88.5	3.17	42.4	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 77 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 43.3 N	123 38.0 W	25/01/93	0659 UTC	4149 -	020 19 kn			1021.0 mb	14.5 C	12.7 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN nl/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.06	14.06	32.927	24.574	335.4	0.000	5.93	101.0	2.4	0.35	0.0	0.00	0.26	0.10	0
1	1	14.06	14.06	32.927	24.574	335.4	0.003	5.93	101.0	2.4	0.35	0.0	0.00	0.26	0.10	1
	10 ISL	14.05	14.05	32.928	24.577	335.3	0.034	5.92	100.8	2.4	0.34	0.0	0.01	0.27	0.10	10
1	16	14.05	14.05	32.928	24.577	335.5	0.054	5.92	100.8	2.4	0.34	0.0	0.01	0.28	0.10	16
	20 ISL	14.00	14.00	32.929	24.588	334.5	0.067	5.93	100.9	2.4	0.34	0.0	0.01	0.29	0.10	20
1	29	13.89	13.89	32.930	24.612	332.5	0.097	5.94	100.8	2.4	0.35	0.0	0.01	0.30	0.10	29
	30 ISL	13.88	13.88	32.930	24.614	332.3	0.100	5.94	100.8	2.4	0.35	0.0	0.01	0.30	0.10	30
1	40	13.84	13.83	32.927	24.620	332.0	0.134	5.94	100.7	2.4	0.35	0.1	0.02	0.33	0.12	40
1	49	13.77	13.76	32.920	24.629	331.4	0.163	5.93	100.4	2.4	0.35	0.1	0.02	0.31	0.15	49
	50 ISL	13.76	13.75	32.917	24.629	331.4	0.167	5.93	100.3	2.4	0.35	0.1	0.02	0.31	0.15	50
1	58	13.61	13.60	32.900	24.647	330.0	0.193	5.93	100.0	2.4	0.36	0.2	0.04	0.33	0.17	58
1	69	13.32	13.31	32.933	24.731	322.2	0.229	5.87	98.4	2.7	0.41	0.7	0.07	0.23	0.14	69
	75 ISL	13.25	13.24	33.043	24.830	312.9	0.248	5.71	95.7	3.4	0.48	1.6	0.04	0.19	0.14	75
1	77	13.20	13.19	33.079	24.868	309.4	0.254	5.65	94.6	3.7	0.51	2.0	0.03	0.18	0.14	77
1	91	11.74	11.73	33.074	25.144	283.2	0.296	5.39	87.5	6.3	0.77	6.1	0.01	0.08	0.08	91
	100 ISL	11.07	11.06	33.118	25.300	268.5	0.321	5.22	83.5	8.3	0.92	8.8	0.01	0.05	0.06	100
1	107	10.61	10.60	33.162	25.416	257.6	0.339	5.10	80.8	9.9	1.03	10.8	0.01	0.04	0.05	107
1	120	9.71	9.70	33.235	25.625	237.8	0.371	4.94	76.8	12.7	1.19	13.7	0.01	0.03	0.04	121
	125 ISL	9.46	9.45	33.257	25.683	232.4	0.383	4.86	75.1	14.0	1.26	14.9	0.01	0.03	0.04	126
1	146	8.71	8.69	33.378	25.896	212.3	0.430	4.44	67.6	19.8	1.54	19.6	0.01	0.01	0.04	147
	150 ISL	8.61	8.59	33.423	25.947	207.5	0.438	4.32	65.6	21.0	1.59	20.4	0.01	0.01	0.04	151
1	170	8.26	8.24	33.651	26.179	185.8	0.477	3.76	56.7	26.6	1.78	23.9	0.01	0.00	0.02	171
1	200	7.94	7.92	33.828	26.365	168.5	0.531	3.35	50.2	32.0	1.90	26.4	0.01	0.00	0.02	201
1	229	7.67	7.65	33.970	26.517	154.6	0.578	2.80	41.8	39.0	2.08	29.2	0.00			230
	250 ISL	7.48	7.46	34.004	26.571	149.7	0.609	2.56	38.0	42.6	2.18	30.6	0.00			251
1	269	7.31	7.28	34.013	26.602	147.0	0.638	2.39	35.4	45.6	2.27	31.6	0.00			271
	300 ISL	6.97	6.94	34.037	26.668	141.0	0.682	2.03	29.8	51.5	2.43	33.6	0.00			302
1	324	6.71	6.68	34.051	26.715	136.8	0.716	1.76	25.7	56.0	2.54	35.1	0.00			326
1	385	6.16	6.13	34.070	26.802	129.0	0.797	1.32	19.0	65.6	2.76	38.0	0.00			387
	400 ISL	6.07	6.04	34.083	26.824	127.1	0.816	1.19	17.1	67.8	2.81	38.6	0.00			403
1	452	5.80	5.76	34.133	26.897	120.6	0.880	0.79	11.3	75.2	2.98	40.3	0.00			455
	500 ISL	5.45	5.41	34.161	26.963	114.7	0.937	0.59	8.4	82.3	3.07	41.5	0.00			503
1	525	5.27	5.23	34.177	26.997	111.6	0.965	0.49	6.9	86.0	3.12	42.1	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 77 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 23.3 N	124 19.3 H	25/01/93	0050 UTC	4028 -	020 20 kn	360 06 04	1	1020.2 Bb	14.9 C	12.7 C	23a 02	5/8 CC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.23	14.23	32.914	24.528	339.7	0.000	5.89	100.6	2.5	0.36	0.0	0.00	0.24	0.10	0
1	1	14.23	14.23	32.914	24.528	339.7	0.003	5.89	100.6	2.5	0.36	0.0	0.00	0.24	0.10	1
	10 ISL	14.24	14.24	32.914	24.527	340.1	0.034	5.90	100.8	2.5	0.35	0.0	0.00	0.24	0.10	10
1	15	14.25	14.25	32.914	24.525	340.5	0.051	5.91	101.0	2.5	0.35	0.0	0.00	0.24	0.10	15
	20 ISL	14.25	14.25	32.914	24.525	340.6	0.068	5.90	100.9	2.5	0.35	0.0	0.00	0.24	0.10	20
1	30	14.25	14.25	32.914	24.525	340.8	0.102	5.89	100.7	2.4	0.35	0.0	0.00	0.24	0.10	30
1	40	14.24	14.23	32.915	24.528	340.8	0.136	5.90	100.8	2.4	0.35	0.0	0.00	0.26	0.11	40
1	50	14.24	14.23	32.915	24.529	341.1	0.170	5.89	100.7	2.2	0.35	0.0	0.00	0.26	0.12	50
1	60	14.21	14.20	32.915	24.535	340.7	0.204	5.89	100.6	2.2	0.35	0.0	0.00	0.25	0.13	60
1	71	14.20	14.19	32.914	24.537	340.9	0.242	5.89	100.6	2.1	0.36	0.0	0.00	0.26	0.12	71
	75 ISL	13.82	13.81	32.956	24.648	330.4	0.255	5.81	98.5	2.7	0.42	0.7	0.01	0.23	0.15	75
1	80	13.25	13.24	33.016	24.809	315.0	0.271	5.70	95.5	3.7	0.51	1.7	0.03	0.18	0.18	80
1	96	12.07	12.06	33.055	25.069	290.6	0.320	5.46	89.2	6.0	0.71	4.8	0.01	0.09	0.09	96
	100 ISL	11.83	11.82	33.069	25.124	285.4	0.331	5.40	87.8	6.5	0.76	5.7	0.01	0.08	0.08	100
1	109	11.38	11.37	33.106	25.236	274.9	0.357	5.27	84.9	7.5	0.87	7.6	0.01	0.06	0.06	109
1	125	10.99	10.97	33.195	25.375	261.9	0.400	5.17	82.6	8.6	0.94	9.1	0.01	0.05	0.06	126
1	149	9.49	9.47	33.394	25.785	223.1	0.458	4.14	64.1	18.2	1.55	19.1	0.00	0.01	0.03	150
	150 ISL	9.46	9.44	33.402	25.797	222.1	0.460	4.12	63.8	18.4	1.56	19.3	0.00	0.01	0.03	151
1	174	9.01	8.99	33.590	26.016	201.6	0.511	3.66	56.1	23.0	1.74	22.4	0.00	0.00	0.03	175
	200 ISL	9.04	9.02	33.803	26.178	186.8	0.561	3.02	46.4	27.4	1.93	25.1	0.00	0.00	0.03	201
1	204	9.04	9.02	33.832	26.201	184.7	0.569	2.94	45.2	28.1	1.95	25.5	0.00	0.00	0.03	205
1	232	8.34	8.32	33.915	26.375	168.4	0.618	2.89	43.7	32.9	2.02	27.4	0.00			233
	250 ISL	8.13	8.10	33.980	26.458	160.8	0.648	2.64	39.8	36.7	2.12	28.9	0.00			251
1	272	7.96	7.93	34.047	26.536	153.7	0.682	2.31	34.7	41.1	2.24	30.6	0.00			274
	300 ISL	7.70	7.67	34.064	26.587	149.2	0.725	2.19	32.7	44.3	2.31	31.5	0.00			302
1	327	7.40	7.37	34.060	26.627	145.7	0.765	2.09	31.0	47.7	2.37	32.4	0.00			329
1	386	6.49	6.46	34.102	26.785	131.0	0.846	1.30	18.9	62.9	2.74	37.3	0.00			388
	400 ISL	6.40	6.36	34.117	26.808	128.8	0.864	1.16	16.8	65.2	2.80	37.9	0.00			402
1	453	6.15	6.11	34.170	26.883	122.3	0.931	0.78	11.2	72.3	2.97	39.5	0.00			456
	500 ISL	5.77	5.73	34.187	26.944	116.8	0.987	0.61	8.7	78.9	3.06	41.0	0.00			503
1	524	5.58	5.54	34.197	26.976	113.9	1.015	0.52	7.4	82.3	3.10	41.8	0.00			528

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
34 27.0 N	120 31.3 H	23/01/93	1038 UTC	72 -	030 23 kn			1018.5 mb	13.4 C	9.5 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
1	0	14.21	14.21	33.129	24.699	323.5	0.000	5.72	97.8	5.2	0.55	1.3	0.21	0.50	0.25	0
1	5	14.21	14.21	33.130	24.699	323.5	0.016	5.71	97.7	5.2	0.55	1.3	0.22	0.49	0.25	5
	10 ISL	14.19	14.19	33.132	24.705	323.1	0.032	5.71	97.6	5.0	0.56	1.3	0.22	0.51	0.24	10
1	11	14.19	14.19	33.132	24.705	323.1	0.036	5.71	97.6	5.0	0.56	1.3	0.22	0.51	0.24	11
	20 ISL	14.22	14.22	33.132	24.699	323.9	0.065	5.71	97.7	5.0	0.55	1.4	0.22	0.49	0.24	20
1	21	14.22	14.22	33.132	24.699	324.0	0.068	5.71	97.7	5.0	0.55	1.4	0.22	0.49	0.24	21
1	30	14.13	14.13	33.171	24.749	319.5	0.097	5.60	95.6	5.5	0.60	1.8	0.26	0.38	0.30	30
1	40	13.98	13.97	33.234	24.829	312.2	0.128	5.39	91.8	6.0	0.65	2.8	0.27	0.23	0.31	40
	50 ISL	13.94	13.93	33.256	24.854	310.1	0.160	5.30	90.2	6.1	0.67	3.2	0.24	0.18	0.28	50
1	51	13.93	13.92	33.257	24.857	309.8	0.163	5.29	90.0	6.1	0.67	3.3	0.24	0.18	0.28	51
1	61	13.70	13.69	33.294	24.933	302.8	0.193	5.09	86.2	6.9	0.76	4.8	0.22	0.14	0.28	61

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
34 19.0 N	120 48.2 H	23/01/93	1340 UTC	825 -	340 23 kn			1019.2 ab	13.2 C	10.8 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN al/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.48	14.48	33.170	24.674	325.8	0.000	5.70	98.1	4.0	0.47	1.0	0.20	0.48	0.25	0
1	1	14.48	14.48	33.170	24.674	325.9	0.003	5.70	98.1	4.0	0.47	1.0	0.20	0.48	0.25	1
	10 ISL	14.47	14.47	33.172	24.677	325.8	0.033	5.70	98.0	4.0	0.47	1.0	0.20	0.49	0.25	10
1	11	14.47	14.47	33.172	24.677	325.8	0.036	5.70	98.0	4.0	0.47	1.0	0.20	0.49	0.25	11
1	20	14.46	14.46	33.174	24.681	325.7	0.065	5.69	97.8	4.0	0.48	1.0	0.20	0.49	0.24	20
1	29	13.99	13.99	33.248	24.837	311.1	0.094	5.44	92.7	5.0	0.59	2.8	0.20	0.44	0.30	29
	30 ISL	13.91	13.91	33.257	24.861	308.9	0.097	5.39	91.7	5.2	0.61	3.2	0.20	0.42	0.30	30
1	40	13.13	13.12	33.330	25.075	288.7	0.127	4.87	81.5	7.6	0.85	6.9	0.14	0.24	0.23	40
1	50	12.80	12.79	33.355	25.160	280.9	0.155	4.64	77.2	8.7	0.95	8.6	0.07	0.16	0.19	50
1	58	12.71	12.70	33.379	25.196	277.6	0.178	4.58	76.0	9.3	0.98	9.1	0.10	0.14	0.19	58
1	68	12.56	12.55	33.389	25.233	274.3	0.205	4.47	74.0	9.6	1.02	9.7	0.05	0.11	0.15	68
	75 ISL	12.10	12.09	33.431	25.354	263.0	0.224	4.29	70.3	11.1	1.13	11.6	0.03	0.08	0.13	75
1	81	11.69	11.68	33.473	25.464	252.7	0.239	4.13	67.1	12.6	1.23	13.3	0.02	0.06	0.11	81
1	96	11.40	11.39	33.521	25.554	244.4	0.277	3.94	63.7	14.4	1.33	14.9	0.01	0.04	0.09	96
	100 ISL	11.30	11.29	33.535	25.583	241.7	0.286	3.88	62.6	14.9	1.36	15.4	0.01	0.03	0.08	100
1	115	10.93	10.92	33.592	25.695	231.4	0.322	3.63	58.1	17.1	1.47	17.2	0.01	0.02	0.07	116
	125 ISL	10.72	10.71	33.638	25.768	224.7	0.345	3.49	55.6	18.7	1.55	18.3	0.01	0.02	0.07	126
1	141	10.40	10.38	33.714	25.883	214.0	0.380	3.26	51.6	21.4	1.68	20.1	0.01	0.02	0.07	142
	150 ISL	10.20	10.18	33.753	25.948	208.0	0.399	3.13	49.3	22.8	1.74	21.1	0.01	0.02	0.07	151
1	170	9.79	9.77	33.842	26.087	195.1	0.439	2.80	43.8	26.1	1.88	23.4	0.01	0.01	0.07	171
1	200	9.42	9.40	33.998	26.270	178.2	0.495	2.16	33.5	32.2	2.12	26.6	0.02	0.00	0.06	201
1	228	8.89	8.87	34.066	26.408	165.5	0.543	1.90	29.1	37.3	2.24	28.7	0.02			229
	250 ISL	8.53	8.50	34.090	26.484	158.6	0.579	1.96	29.8	40.1	2.28	29.5	0.01			251
1	267	8.31	8.28	34.101	26.526	154.8	0.606	2.03	30.7	41.9	2.31	29.9	0.01			269
	300 ISL	8.08	8.05	34.129	26.583	149.9	0.656	1.89	28.5	44.8	2.39	30.7	0.01			302
1	322	7.96	7.93	34.147	26.615	147.2	0.689	1.71	25.7	47.0	2.46	31.4	0.01			324
1	382	7.38	7.34	34.197	26.739	136.1	0.773	1.13	16.8	57.1	2.72	34.6	0.00			384
	400 ISL	7.20	7.16	34.200	26.766	133.6	0.798	1.04	15.4	59.5	2.77	35.3	0.00			403
1	447	6.71	6.67	34.202	26.835	127.4	0.859	0.88	12.8	65.9	2.88	37.0	0.00			450
	500 ISL	6.11	6.07	34.220	26.928	118.7	0.924	0.63	9.1	75.6	3.03	39.5	0.00			503
1	518	5.90	5.85	34.227	26.960	115.7	0.945	0.54	7.7	78.9	3.08	40.3	0.00			522

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 9.0 N	121 9.1 W	23/01/93	1749 UTC	2221 -	330 14 kn	320 07 07	1	1022.6 Bb	14.8 C	12.3 C		1/8	CI

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 UM/1	CHL-A ug/1	PHAEO uq/1	PRESS db
	0 ISL	14.18	14.18	33.239	24.790	314.8	0.000	5.91	101.1	3.2	0.41	0.3	0.02	0.47	0.22	0
1	3	14.18	14.18	33.239	24.790	314.9	0.009	5.91	101.1	3.2	0.41	0.3	0.02	0.47	0.22	3
	10 ISL	14.18	14.18	33.240	24.791	315.0	0.031	5.89	100.7	3.2	0.40	0.2	0.02	0.46	0.21	10
1	13	14.18	14.18	33.240	24.791	315.0	0.041	5.88	100.6	3.2	0.40	0.2	0.02	0.45	0.20	13
	20 ISL	14.17	14.17	33.241	24.794	315.0	0.063	5.88	100.5	3.1	0.40	0.3	0.02	0.46	0.21	20
1	23	14.16	14.16	33.242	24.797	314.8	0.072	5.88	100.5	3.1	0.40	0.3	0.02	0.46	0.22	23
	30 ISL	14.17	14.17	33.242	24.795	315.1	0.094	5.89	100.7	3.1	0.40	0.3	0.02	0.47	0.21	30
1	33	14.17	14.17	33.242	24.795	315.2	0.104	5.89	100.7	3.1	0.40	0.3	0.02	0.47	0.20	33
1	43	14.18	14.17	33.242	24.793	315.7	0.135	5.87	100.4	3.1	0.40	0.3	0.02	0.46	0.20	43
	50 ISL	12.71	12.70	33.220	25.073	289.1	0.157	5.30	87.9	6.5	0.75	5.8	0.08	0.30	0.22	50
1	53	12.02	12.01	33.224	25.208	276.3	0.165	5.03	82.2	8.2	0.92	8.4	0.10	0.23	0.23	S3
1	62	11.23	11.22	33.286	25.402	258.0	0.189	4.66	74.9	11.4	1.13	12.0	0.05	0.17	0.19	62
1	72	10.86	10.85	33.380	25.541	245.0	0.214	4.28	68.3	14.5	1.30	14.9	0.04	0.13	0.17	72
	75 ISL	10.60	10.59	33.385	25.590	240.3	0.222	4.26	67.6	15.2	1.34	15.6	0.03	0.11	0.15	75
1	85	9.74	9.73	33.394	25.743	225.8	0.245	4.21	65.6	17.1	1.46	17.5	0.02	0.06	0.09	85
	100 ISL	9.29	9.28	33.493	25.894	211.7	0.278	4.00	61.7	19.9	1.58	19.7	0.02	0.03	0.06	100
1	101	9.28	9.27	33.501	25.902	211.0	0.280	3.98	61.4	20.1	1.59	19.8	0.02	0.03	0.06	102
1	120	9.18	9.17	33.678	26.057	196.7	0.319	3.47	53.5	24.0	1.74	22.4	0.01	0.01	0.04	121
	125 ISL	9.17	9.16	33.726	26.096	193.1	0.328	3.31	51.0	25.1	1.79	23.1	0.01	0.01	0.04	126
1	145	9.14	9.12	33.898	26.236	180.3	0.366	2.79	43.0	29.3	1.94	25.3	0.00	0.01	0.03	146
	150 ISL	9.02	9.00	33.911	26.265	177.5	0.375	2.79	42.9	30.0	1.95	25.6	0.00	0.01	0.03	151
1	176	8.34	8.32	33.943	26.396	165.4	0.419	2.93	44.4	33.6	1.99	26.8	0.01	0.01	0.03	177
	200 ISL	8.17	8.15	34.021	26.483	157.5	0.458	2.62	39.5	37.8	2.11	28.2	0.00	0.00	0.03	201
1	206	8.15	8.13	34.039	26.500	156.0	0.467	2.53	38.2	38.8	2.14	28.5	0.00	0.00	0.03	207
1	235	7.93	7.91	34.057	26.547	152.0	0.512	2.39	35.9	41.4	2.20	29.5	0.00			236
	250 ISL	7.80	7.78	34.090	26.593	147.9	0.534	2.09	31.3	44.8	2.32	30.7	0.00			251
1	275	7.60	7.57	34.149	26.668	141.1	0.571	1.56	23.3	50.9	2.54	32.7	0.00			277
	300 ISL	7.44	7.41	34.169	26.707	137.7	0.605	1.35	20.0	54.0	2.63	33.7	0.00			302
1	330	7.25	7.22	34.177	26.740	134.9	0.646	1.23	18.2	57.0	2.69	34.6	0.00			332
1	389	6.71	6.67	34.209	26.840	126.0	0.723	0.84	12.3	65.9	2.90	37.0	0.00			392
	400 ISL	6.63	6.59	34.214	26.855	124.7	0.737	0.79	11.5	67.3	2.92	37.4	0.00			403
1	455	6.29	6.25	34.236	26.917	119.3	0.804	0.61	8.8	73.5	3.00	38.8	0.00			458
	500 ISL	6.11	6.07	34.247	26.949	116.7	0.857	0.54	7.8	77.0	3.04	39.4	0.00			503
1	526	6.00	5.95	34.253	26.968	115.2	0.887	0.50	7.2	79.0	3.07	39.8	0.00			530

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 80 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 48.9 N	121 50.6 N	24/01/93	0015 UTC	3626 -	340 16 kll	320 07 08	0	1021.8 ab	14.0 C	12.0 C	19a 02	0/8	

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 UM/1	CHL-A uq/1	PHAEO ug/1	PRESS db
	0 ISL	13.98	13.98	33.172	24.780	315.7	0.000	5.93	101.0	1.8	0.40	0.3	0.02	0.39	0.17	0
1	1	13.98	13.98	33.172	24.780	315.8	0.003	5.93	101.0	1.8	0.40	0.3	0.02	0.39	0.17	1
1	10	13.97	13.97	33.173	24.783	315.7	0.032	5.92	100.8	1.9	0.40	0.3	0.02	0.40	0.18	10
1	20	13.86	13.86	33.184	24.814	313.0	0.063	5.91	100.4	1.8	0.41	0.5	0.03	0.42	0.21	20
	30 ISL	13.75	13.75	33.212	24.859	309.0	0.094	5.90	100.0	2.1	0.43	0.7	0.06	0.48	0.27	30
1	31	13.74	13.74	33.214	24.862	308.7	0.097	5.90	100.0	2.1	0.43	0.7	0.06	0.49	0.27	31
1	41	13.73	13.72	33.216	24.866	308.7	0.128	5.90	100.0	2.0	0.44	0.8	0.06	0.49	0.27	41
1	50	13.79	13.78	33.251	24.881	307.5	0.156	5.93	100.6	2.0	0.42	0.7	0.05	0.57	0.32	50
1	61	13.79	13.78	33.260	24.888	307.1	0.190	5.88	99.8	2.1	0.44	0.8	0.06	0.55	0.31	61
1	71	13.34	13.33	33.231	24.958	300.7	0.220	5.70	95.8	4.4	0.55	2.4	0.10	0.29	0.24	71
	75 ISL	12.69	12.68	33.217	25.075	289.6	0.232	5.50	91.2	5.9	0.69	4.8	0.08	0.22	0.20	75
1	84	11.12	11.11	33.213	25.365	262.0	0.257	5.03	80.6	9.3	1.01	10.4	0.02	0.13	0.13	84
1	99	10.15	10.14	33.249	25.562	243.4	0.295	4.79	75.2	12.2	1.19	13.6	0.01	0.07	0.09	99
	100 ISL	10.09	10.08	33.256	25.577	242.0	0.297	4.76	74.6	12.5	1.21	13.9	0.01	0.07	0.09	100
1	118	9.27	9.26	33.403	25.827	218.4	0.338	4.20	64.7	18.3	1.52	19.1	0.00	0.04	0.03	119
	125 ISL	9.06	9.05	33.459	25.905	211.2	0.353	4.06	62.3	20.0	1.59	20.3	0.00	0.03	0.03	126
1	144	8.67	8.65	33.609	26.083	194.5	0.392	3.79	57.7	23.8	1.71	22.5	0.00	0.01	0.02	145
	150 ISL	8.58	8.56	33.659	26.136	189.6	0.403	3.72	56.5	24.9	1.73	23.0	0.00	0.01	0.02	151
1	174	8.28	8.26	33.836	26.321	172.4	0.447	31.47	52.4	29.1	1.81	24.7	0.00	0.00	0.01	175
	200 ISL	7.97	7.95	33.944	26.452	160.3	0.490	3.25	48.8	34.1	1.91	26.5	0.00	0.00	0.01	201
1	204	7.92	7.90	33.954	26.468	159.0	0.497	3.22	48.3	34.8	1.93	26.7	0.00	0.00	0.01	205
1	232	7.59	7.57	33.983	26.538	152.6	0.540	3.08	45.8	38.6	2.01	28.0	0.00			233
	250 ISL	7.36	7.34	33.990	26.577	149.1	0.567	2.93	43.4	41.5	2.08	29.1	0.00			251
1	273	7.07	7.04	33.997	26.623	145.0	0.601	2.68	39.4	45.9	2.19	30.7	0.00			275
	300 ISL	6.73	6.70	34.016	26.684	139.4	0.640	2.28	33.3	52.3	2.37	32.9	0.00			302
1	328	6.41	6.38	34.038	26.744	133.9	0.678	1.86	26.9	59.0	2.55	35.2	0.00			330
1	388	5.92	5.89	34.075	26.836	125.6	0.756	1.23	17.6	69.3	2.81	38.4	0.00			390
	400 ISL	5.81	5.78	34.085	26.858	123.7	0.771	1.13	16.1	71.6	2.86	38.9	0.00			403
1	453	5.39	5.35	34.131	26.945	115.6	0.834	0.76	10.8	81.2	3.02	40.9	0.00			456
	500 ISL	5.20	5.16	34.174	27.002	110.7	0.887	0.57	8.0	86.6	3.09	41.9	0.00			503
1	523	5.11	5.07	34.195	27.029	108.2	0.912	0.47	6.6	89.3	3.13	42.4	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 80 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	NEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT	TYPE
33 29.0 N	122 32.1 H	24/01/93	0638 UTC	3994 •	360 22 kn			1022.9 *mb*	13.3 C	11.2 C			

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PBAEO uq/1	PRESS db
	0 ISL	13.53	13.53	33.004	24.742	319.4	0.000	6.01	101.3	2.9	0.39	0.0	0.02	0.34	0.12	0
1	1	13.53	13.53	33.004	24.742	319.4	0.003	6.01	101.3	2.9	0.39	0.0	0.02	0.34	0.12	1
	10 ISL	13.51	13.51	33.004	24.746	319.2	0.032	6.02	101.4	2.9	0.38	0.0	0.02	0.35	0.12	10
1	11	13.51	13.51	33.004	24.746	319.2	0.035	6.02	101.4	2.9	0.38	0.0	0.02	0.35	0.12	11
	20 ISL	13.49	13.49	33.002	24.749	319.2	0.064	6.02	101.4	2.9	0.38	0.0	0.02	0.35	0.12	20
1	22	13.49	13.49	33.002	24.749	319.3	0.070	6.02	101.4	2.9	0.38	0.0	0.02	0.35	0.12	22
	30 ISL	13.51	13.51	33.002	24.745	319.8	0.096	6.03	101.6	2.9	0.38	0.0	0.02	0.35	0.12	30
1	32	13.52	13.52	33.002	24.743	320.1	0.102	6.03	101.6	2.9	0.38	0.0	0.02	0.35	0.12	32
1	42	13.54	13.53	33.001	24.739	320.8	0.134	6.01	101.3	2.9	0.38	0.0	0.02	0.33	0.13	42
	50 ISL	12.45	12.44	33.064	25.002	295.8	0.159	5.54	91.3	5.3	0.66	4.1	0.04	0.30	0.21	50
1	52	12.15	12.14	33.083	25.074	289.0	0.165	5.42	88.8	5.9	0.73	5.2	0.04	0.29	0.23	52
1	61	11.63	11.62	33.112	25.193	277.8	0.190	5.26	85.2	7.1	0.83	7.0	0.02	0.23	0.18	61
1	72	10.46	10.45	33.152	25.433	255.1	0.220	4.86	76.8	11.6	1.17	12.6	0.02	0.10	0.08	72
	75 ISL	10.27	10.26	33.164	25.475	251.2	0.227	4.82	75.8	12.2	1.20	13.2	0.02	0.08	0.07	75
1	86	9.77	9.76	33.209	25.594	240.0	0.254	4.75	73.9	13.7	1.27	14.6	0.01	0.05	0.04	86
1	100	9.22	9.21	33.283	25.741	226.3	0.287	4.51	69.4	16.9	1.45	17.5	0.01	0.02	0.03	100
1	120	8.88	8.87	33.403	25.889	212.5	0.331	4.19	64.0	20.5	1.61	20.1	0.01	0.01	0.02	121
	125 ISL	8.79	8.78	33.440	25.932	208.5	0.341	4.09	62.4	21.6	1.65	20.9	0.01	0.01	0.02	126
1	145	8.49	8.48	33.615	26.115	191.4	0.381	3.62	54.9	26.1	1.81	23.8	0.01	0.01	0.02	146
	150 ISL	8.50	8.48	33.677	26.162	187.0	0.391	3.47	52.6	27.3	1.85	24.4	0.01	0.01	0.02	151
1	174	8.52	8.50	33.933	26.360	168.8	0.433	2.78	42.3	32.9	2.01	26.7	0.00	0.00	0.02	175
	200 ISL	8.37	8.35	34.033	26.462	159.6	0.476	2.40	36.4	37.3	2.14	28.5	0.00	0.01	0.02	201
1	205	8.32	8.30	34.039	26.475	158.5	0.484	2.36	35.7	38.0	2.16	28.8	0.00	0.01	0.02	206
1	234	7.99	7.97	34.068	26.547	152.0	0.529	2.18	32.8	42.5	2.26	30.1	0.00			235
	250 ISL	7.79	7.77	34.076	26.583	148.8	0.553	2.08	31.1	44.9	2.32	30.9	0.00			251
1	273	7.48	7.45	34.081	26.632	144.4	0.587	1.94	28.8	48.4	2.40	32.0	0.00			275
	300 ISL	7.10	7.07	34.076	26.681	139.9	0.625	1.78	26.2	53.0	2.50	33.5	0.00			302
1	328	6.73	6.70	34.071	26.728	135.7	0.664	1.62	23.6	57.7	2.60	35.0	0.00			330
1	387	6.22	6.19	34.089	26.809	128.4	0.742	1.26	18.2	66.2	2.78	37.5	0.00			389
	400 ISL	6.14	6.10	34.096	26.825	127.0	0.758	1.17	16.8	68.0	2.82	37.9	0.00			403
1	453	5.83	5.79	34.136	26.896	120.8	0.824	0.81	11.6	75.5	2.97	39.5	0.00			456
	500 ISL	5.51	5.47	34.183	26.973	113.8	0.879	0.57	8.1	82.8	3.09	40.9	0.00			503
1	522	5.36	5.32	34.206	27.009	110.5	0.904	0.46	6.5	86.2	3.14	41.5	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 9.0 N	123 13.3 W	24/01/93	1207 UTC	4233 •	360 21 kn			1021.2 «b	14.3 C	12.4 C			

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS <U>
	0 ISL	13.88	13.88	32.919	24.605	332.4	0.000	5.93	100.6	2.4	0.38	0.1	0.01	0.29	0.12	0
1	1	13.88	13.88	32.919	24.605	332.4	0.003	5.93	100.6	2.4	0.38	0.1	0.01	0.29	0.12	1
	10 ISL	13.89	13.89	32.918	24.602	332.9	0.033	5.96	101.1	2.4	0.37	0.1	0.01	0.28	0.11	10
1	15	13.89	13.89	32.918	24.602	333.0	0.050	5.97	101.3	2.4	0.37	0.1	0.01	0.28	0.10	15
	20 ISL	13.89	13.89	32.918	24.603	333.2	0.067	5.96	101.1	2.4	0.37	0.1	0.01	0.28	0.10	20
1	30	13.87	13.87	32.919	24.608	333.0	0.100	5.94	100.7	2.4	0.37	0.1	0.01	0.29	0.10	30
1	40	13.84	13.83	32.920	24.615	332.6	0.133	5.96	101.0	2.4	0.37	0.1	0.02	0.29	0.11	40
1	50	13.83	13.82	32.917	24.615	332.8	0.166	5.95	100.8	2.3	0.37	0.1	0.02	0.29	0.11	50
1	59	13.78	13.77	32.923	24.630	331.6	0.196	5.93	100.4	2.3	0.37	0.2	0.03	0.26	0.11	59
1	70	13.20	13.19	32.987	24.797	316.0	0.232	5.78	96.7	3.4	0.49	1.7	0.11	0.16	0.11	70
	75 ISL	12.82	12.81	33.017	24.895	306.7	0.248	5.68	94.3	4.1	0.57	2.8	0.08	0.14	0.10	75
1	78	12.58	12.57	33.034	24.955	301.1	0.257	5.61	92.7	4.6	0.62	3.6	0.06	0.13	0.10	78
1	94	11.62	11.61	33.076	25.168	281.0	0.303	5.31	86.0	7.4	0.87	7.4	0.02	0.10	0.09	94
	100 ISL	11.23	11.22	33.138	25.287	269.7	0.320	5.02	80.6	9.4	1.03	10.1	0.02	0.10	0.10	100
1	108	10.72	10.71	33.232	25.451	254.3	0.341	4.60	73.1	12.4	1.24	13.7	0.02	0.10	0.10	108
1	124	9.79	9.78	33.379	25.724	228.5	0.379	4.09	63.8	17.6	1.52	18.5	0.01	0.03	0.05	125
	125 ISL	9.74	9.73	33.387	25.739	227.1	0.382	4.07	63.4	17.9	1.53	18.7	0.01	0.03	0.05	126
1	147	8.80	8.78	33.561	26.026	200.1	0.429	3.74	57.1	23.7	1.75	22.5	0.01	0.01	0.02	148
	150 ISL	8.74	8.72	33.586	26.054	197.4	0.435	3.68	56.1	24.4	1.77	22.9	0.01	0.01	0.02	151
1	173	8.51	8.49	33.758	26.225	181.6	0.478	3.26	49.5	28.8	1.91	25.2	0.00	0.00	0.02	174
	200 ISL	8.26	8.24	33.887	26.364	168.8	0.525	2.93	44.3	33.0	2.01	27.0	0.00	0.00	0.02	201
1	203	8.24	8.22	33.899	26.377	167.6	0.530	2.90	43.8	33.4	2.02	27.2	0.00	0.00	0.02	204
1	231	8.03	8.01	34.006	26.492	157.1	0.576	2.63	39.6	37.9	2.11	28.6	0.00			232
	250 ISL	7.83	7.81	34.038	26.547	152.2	0.605	2.44	36.5	41.0	2.19	29.7	0.00			251
1	272	7.59	7.56	34.056	26.596	147.8	0.638	2.21	32.9	44.7	2.29	31.0	0.00			274
	300 ISL	7.33	7.30	34.077	26.650	143.0	0.679	1.93	28.6	49.3	2.43	32.5	0.00			302
1	327	7.10	7.07	34.093	26.695	139.1	0.717	1.67	24.6	53.8	2.56	33.8	0.00			329
1	386	6.56	6.52	34.130	26.798	129.8	0.796	1.13	16.4	63.5	2.78	36.7	0.00			388
	400 ISL	6.42	6.38	34.133	26.818	127.9	0.814	1.05	15.2	65.8	2.82	37.3	0.00			403
1	451	5.94	5.90	34.147	26.891	121.3	0.878	0.81	11.6	73.7	2.94	39.1	0.00			454
	500 ISL	5.64	5.60	34.185	26.959	115.3	0.936	0.58	8.3	80.6	3.05	40.5	0.00			503
1	522	5.51	5.47	34.203	26.989	112.6	0.961	0.47	6.7	83.7	3.10	41.2	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 80 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 49.0 N	123 54.0 W	24/01/93	1742 UTC	4225 •	020 21 kn	010 04 04	1	1022.1 mb	15.4 C	14.0 C		3/8	CC

CAST	DEPTH •		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	15.19	15.19	33.094	24.462	346.0	0.000	5.76	100.5	2.3	0.34	0.0	0.00	0.18	0.09	0
1	1		15.19	15.19	33.094	24.462	346.0	0.003	5.76	100.5	2.3	0.34	0.0	0.00	0.18	0.09	1
	10	ISL	15.19	15.19	33.095	24.464	346.2	0.035	5.76	100.5	2.3	0.35	0.0	0.00	0.18	0.08	10
1	15		15.19	15.19	33.096	24.464	346.2	0.052	5.76	100.5	2.3	0.35	0.0	0.00	0.18	0.07	15
	20	ISL	15.18	15.18	33.096	24.467	346.1	0.069	5.76	100.4	2.3	0.35	0.0	0.00	0.18	0.07	20
	30	ISL	15.17	15.17	33.096	24.469	346.2	0.104	5.75	100.2	2.2	0.34	0.0	0.00	0.18	0.08	30
1	31		15.17	15.17	33.096	24.469	346.2	0.107	5.75	100.2	2.2	0.34	0.0	0.00	0.18	0.08	31
1	40		15.18	15.17	33.096	24.467	346.7	0.138	5.76	100.4	2.2	0.34	0.0	0.00	0.19	0.08	40
	50	ISL	15.19	15.18	33.094	24.464	347.3	0.173	5.76	100.5	2.2	0.34	0.0	0.00	0.18	0.07	50
1	51		15.19	15.18	33.094	24.464	347.3	0.177	5.76	100.5	2.2	0.34	0.0	0.00	0.18	0.07	51
1	60		15.17	15.16	33.094	24.469	347.2	0.208	5.76	100.4	2.2	0.34	0.0	0.00	0.18	0.08	60
1	71		15.18	15.17	33.096	24.468	347.5	0.246	5.76	100.4	2.2	0.34	0.0	0.00	0.18	0.07	71
	75	ISL	15.18	15.17	33.096	24.469	347.6	0.260	5.76	100.4	2.1	0.34	0.0	0.00	0.18	0.08	75
1	79		15.17	15.16	33.096	24.471	347.5	0.274	5.75	100.2	2.1	0.34	0.0	0.00	0.18	0.10	79
1	94		13.93	13.92	33.093	24.732	323.0	0.324	5.67	96.4	3.1	0.48	1.3	0.11	0.14	0.09	94
	100	ISL	13.57	13.56	33.121	24.827	314.0	0.343	5.61	94.7	3.6	0.54	2.1	0.09	0.13	0.10	100
1	110		13.01	13.00	33.198	24.999	297.8	0.374	5.46	91.1	4.8	0.64	3.9	0.04	0.12	0.12	110
1	125		11.99	11.97	33.376	25.333	266.2	0.416	5.13	83.9	7.3	0.82	7.8	0.01	0.06	0.07	126
1	148		10.64	10.62	33.450	25.636	237.6	0.474	4.92	78.2	10.5	1.02	11.7	0.01	0.02	0.05	149
	150	ISL	10.51	10.49	33.449	25.657	235.6	0.479	4.89	77.5	11.0	1.05	12.2	0.01	0.02	0.05	151
1	174		9.16	9.14	33.467	25.896	213.0	0.533	4.52	69.5	17.3	1.40	17.6	0.00	0.01	0.03	175
	200	ISL	8.60	8.58	33.655	26.131	191.0	0.585	4.06	61.7	23.0	1.62	21.3	0.00	0.00	0.01	201
1	204		8.56	8.54	33.690	26.164	187.9	0.593	3.99	60.6	23.8	1.64	21.8	0.00	0.00	0.01	205
1	233		8.13	8.11	33.890	26.387	167.2	0.644	3.52	53.0	30.7	1.82	25.2	0.00			234
	250	ISL	7.84	7.82	33.939	26.468	159.7	0.672	3.39	50.7	34.3	1.90	26.5	0.00			251
1	272		7.47	7.44	33.967	26.543	152.7	0.706	3.26	48.4	38.8	1.99	27.9	0.00			273
	300	ISL	7.14	7.11	33.994	26.611	146.5	0.748	2.89	42.6	44.2	2.15	30.1	0.00			302
1	329		6.85	6.82	34.008	26.662	142.0	0.790	2.47	36.1	49.7	2.31	32.3	0.00			331
1	387		6.25	6.22	34.030	26.759	133.2	0.870	1.81	26.1	61.1	2.58	36.0	0.00			389
	400	ISL	6.13	6.09	34.036	26.779	131.4	0.887	1.69	24.3	63.3	2.63	36.7	0.00			402
1	453		5.73	5.69	34.069	26.855	124.5	0.955	1.25	17.8	71.8	2.83	39.0	0.00			456
	500	ISL	5.47	5.43	34.116	26.925	118.3	1.012	0.89	12.6	79.1	2.97	40.5	0.00			503
1	523		5.35	5.31	34.139	26.957	115.3	1.039	0.72	10.2	82.6	3.04	41.3	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 82 47

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY-	WET	SECCHI/FOREL	CLD AMT	TYPE
34 16.6 N	120 1.5 W	23/01/93	0633 UTC	574 •	290 08 kn			1018.4 mb	15.2 C	13.2 C			

CAST	DEPTH a		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	14.90	14.90	33.187	24.597	333.2	0.000	5.82	101.0	3.4	0.37	0.2	0.04	0.95	0.39	0
1	1	A	14.90	14.90	33.187	24.597	333.2	0.003	5.82	101.0	3.4	0.37	0.2	0.04	0.95	0.39	1
1	7		14.89	14.89	33.186	24.599	333.2	0.023	5.84	101.3	3.4	0.38	0.2	0.04	0.97	0.39	7
	10	ISL	14.90	14.90	33.186	24.596	333.5	0.033	5.83	101.2	3.4	0.38	0.2	0.04	0.96	0.39	10
1	17		14.91	14.91	33.186	24.594	333.9	0.057	5.82	101.0	3.3	0.37	0.1	0.04	0.95	0.40	17
	20	ISL	14.88	14.88	33.190	24.604	333.1	0.067	5.80	100.6	3.4	0.37	0.2	0.05	0.90	0.39	20
1	27		14.72	14.72	33.210	24.654	328.5	0.090	5.70	98.5	3.7	0.41	0.7	0.09	0.71	0.35	27
	30	ISL	14.58	14.58	33.228	24.698	324.4	0.100	5.62	96.9	4.0	0.45	1.2	0.12	0.58	0.34	30
1	38		14.19	14.18	33.279	24.820	313.0	0.125	5.38	92.1	5.1	0.58	2.9	0.17	0.28	0.29	38
1	48		13.92 B	13.91	33.310	24.900	305.6	0.156	5.09	86.6	6.1	0.70	4.6	0.10	0.19	0.19	48
	50	ISL	13.81	13.80	33.317	24.928	303.0	0.162	5.02	85.2	6.4	0.73	5.1	0.08	0.17	0.18	50
1	58		13.39	13.38	33.341	25.032	293.3	0.186	4.82	81.1	7.6	0.84	6.7	0.03	0.11	0.15	58
1	68		13.19	13.18	33.357	25.085	288.5	0.215	4.84	81.2	8.2	0.85	7.1	0.09	0.12	0.16	68
	75	ISL	12.78	12.77	33.380	25.184	279.2	0.235	4.64	77.1	9.3	0.95	8.7	0.06	0.10	0.14	75
1	83		12.23	12.22	33.420	25.321	266.3	0.257	4.34	71.3	10.9	1.10	11.1	0.01	0.06	0.11	83
1	98		11.43	11.42	33.533	25.558	244.0	0.295	3.92	63.4	14.6	1.32	14.8	0.01	0.04	0.08	98
	100	ISL	11.37	11.36	33.541	25.576	242.4	0.300	3.89	62.8	14.9	1.34	15.1	0.01	0.04	0.08	100
1	118		10.89	10.88	33.607 C	25.713	229.7	0.342	3.66	58.5	17.2	1.47	17.2	0.01	0.02	0.07	119
	125	ISL	10.65	10.64	33.655	25.793	222.2	0.358	3.51	55.9	18.8	1.55	18.4	0.01	0.02	0.07	126
1	138		10.23	10.21	33.748 C	25.938	208.6	0.386	3.23	51.0	21.9	1.69	20.6	0.00	0.02	0.06	139
	150	ISL	10.01	9.99	33.803	26.019	201.2	0.411	3.07	48.2	23.7	1.77	21.8	0.00	0.02	0.05	151
1	168		9.79	9.77	33.873 C	26.111	192.8	0.446	2.84	44.4	26.4	1.88	23.3	0.00	0.01	0.05	169
1	196		9.45	9.43	34.016 C	26.279	177.3	0.498	2.21	34.3	32.7	2.11	26.4	0.00	0.01	0.07	197
	200	ISL	9.40	9.38	34.032	26.300	175.4	0.505	2.12	32.9	33.6	2.15	26.8	0.00			201
1	226		9.05	9.03	34.109 C	26.417	164.7	0.549	1.61	24.8	39.5	2.37	29.3	0.00			227
	250	ISL	8.67	8.64	34.132	26.495	157.6	0.588	1.36	20.8	44.4	2.50	31.0	0.00			251
1	264		8.45	8.42	34.135	26.531	154.3	0.610	1.28	19.4	47.0	2.55	31.8	0.00			266
	300	ISL	8.07	8.04	34.148	26.599	148.3	0.664	1.15	17.3	51.6	2.65	32.8	0.00			302
1	315		7.92	7.89	34.151	26.624	146.2	0.686	1.12	16.8	53.3	2.68	33.0	0.00			317
1	373		7.14	7.10	34.170	26.751	134.6	0.768	0.97	14.3	63.1	2.84	34.9	0.00			375
	400	ISL	6.88	6.84	34.177	26.792	130.9	0.804	0.88	12.9	66.3	2.90	35.4	0.00			403
1	432		6.66	6.62	34.186	26.829	127.6	0.845	0.73	10.6	71.0	2.98	36.0	0.00			435
	500	ISL	6.44	6.39	34.217	26.883	123.3	0.930	0.17	2.5	92.0	3.33	30.6	0.00			503
1	502		6.44	6.39	34.218	26.884	123.3	0.933	0.15	2.2	92.8	3.34	30.4	0.00			505
1	522		6.41	6.36	34.221	26.891	122.9	0.957	0.08	1.2	101.5	3.44	25.1	0.00			526
1	543		6.39	6.34	34.220	26.893	123.0	0.983	0.16	2.3	98.1	3.38	27.0	0.00			547
1	553		6.30	6.25	34.219	26.904	122.0	0.996	0.27	3.9	90.2	3.28	32.1	0.00			557
1	563		6.26	6.21	34.222	26.911	121.4	1.008	0.28	4.0	88.5	3.22	33.0	0.01			567
1	568		6.26	6.21	34.219	26.909	121.7	1.014	0.28	4.0	88.1	3.23	33.0	0.02			572
1	573		6.26	6.21	34.218	26.908	121.8	1.020	0.27	3.9	88.2	3.20	33.0	0.02			577

A) SANTA BARBARA BASIN STATION.
B) MEAN VALUE OF 13.88 AND 13.96 DEGREES CELSIUS.
C) THE SALINITY SAMPLES FROM 118 TO 226 METERS APPEAR TO HAVE BEEN ANALYZED IN REVERSE ORDER. THEY ARE ASSUMED TO NOW BE IN THE CORRECT ORDER.

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 83 40.6

LATITUDE	LONGITUDE	DAY/HO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEA	BAROMETER	DRY	NET	SECCBI/FOREL	CLD AKT TYPE
34 13.5 N	119 24.7 N	23/01/93	0223 UTC	35 •	120 02 kn			1017.2 Mb	16.1 C	14.9 C		

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.91	14.91	32.547	24.102	380.3	0.000	5.95	102.9	6.2	0.59	1.4	0.16	1.75	0.47	0
1	1	14.91	14.91	32.547	24.102	380.4	0.004	5.95	102.9	6.2	0.59	1.4	0.16	1.75	0.47	1
1	6	14.84	14.84	32.677	24.217	369.5	0.023	5.85	101.1	5.6	0.57	1.2	0.15	1.62	0.45	6
	10 ISL	14.78	14.78	32.790	24.317	360.1	0.037	5.83	100.7	4.9	0.51	0.9	0.14	1.37	0.43	10
1	16	14.72	14.72	32.937	24.443	348.2	0.058	5.79	99.9	4.2	0.46	0.6	0.13	0.89	0.40	16
	20 ISL	14.71	14.71	32.992	24.488	344.1	0.072	5.68	98.1	4.3	0.52	0.6	0.15	0.58	0.31	20
1	21	14.71	14.71	33.009	24.501	342.9	0.076	5.65	97.5	4.3	0.53	0.6	0.16	0.51	0.29	21
1	26	14.74	14.74	33.193	24.637	330.1	0.093	5.55	96.0	3.8	0.50	0.4	0.28	0.19	0.22	26

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
34 10.7 N	119 30.5 W	23/01/93	0025 UTC	139 •	270 12 kn	260 08 05	0	1017.5 Mb	16.6 C	14.8 C	05B 05	0/8

CAST	DEPTH M	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.97	14.97	32.762	24.254	365.8	0.000	5.98	103.6	5.2	0.50	1.1	0.10	1.56	0.43	0
1	1	14.97	14.97	32.762	24.254	365.8	0.004	5.98	103.6	5.2	0.50	1.1	0.10	1.56	0.43	1
	10 ISL	14.86	14.86	32.874	24.365	355.6	0.036	5.98	103.5	4.9	0.46	0.7	0.07	1.72	0.53	10
1	11	14.84	14.84	32.897	24.387	353.5	0.040	5.98	103.4	4.8	0.45	0.6	0.07	1.74	0.55	11
	20 ISL	14.49	14.49	33.194	24.690	324.8	0.070	5.85	100.7	4.1	0.43	0.6	0.05	1.52	0.64	20
1	21	14.45	14.45	33.224	24.722	321.8	0.073	5.83	100.3	4.1	0.43	0.6	0.05	1.47	0.64	21
	30 ISL	14.30	14.30	33.226	24.755	318.9	0.102	5.70	97.7	4.5	0.47	1.1	0.14	0.84	0.45	30
1	31	14.29	14.29	33.227	24.758	318.7	0.105	5.69	97.5	4.6	0.48	1.2	0.15	0.77	0.42	31
1	41	14.01	14.00	33.236	24.824	312.7	0.137	5.57	94.9	5.0	0.54	1.8	0.24	0.58	0.35	41
	50 ISL	13.88	13.87	33.262	24.871	308.4	0.165	5.45	92.6	5.4	0.58	2.4	0.26	0.44	0.32	50
1	51	13.86	13.85	33.266	24.878	307.8	0.168	5.43	92.3	5.5	0.59	2.5	0.26	0.42	0.32	51
1	61	13.53	13.52	33.308	24.979	298.5	0.198	5.17	87.3	6.6	0.70	4.1	0.26	0.24	0.25	61
1	72	12.94	12.93	33.369	25.144	283.0	0.230	4.77	79.6	6.6	0.70	4.1	0.26	0.16	0.20	72
	75 ISL	12.81	12.80	33.382	25.180	279.7	0.239	4.67	77.7	7.5	0.77	5.2	0.22	0.14	0.19	75
1	86	12.31	12.30	33.427	25.311	267.4	0.269	4.36	71.8	11.3	1.09	10.2	0.06	0.08	0.15	86
	100 ISL	11.47	11.46	33.491	25.518	247.9	0.305	4.03	65.2	13.8	1.27	13.7	0.02	0.03	0.09	100
1	101	11.41	11.40	33.496	25.533	246.5	0.307	4.01	64.8	14.0	1.28	13.9	0.02	0.03	0.09	101

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 52.8 N	120 8.1 W	22/01/93	1718 UTC	98 M	320 26 k.n	310 02 03	1	1023.0 Mb	15.1 C	14.1 C		3/8 ST

CAST	DEPTH M	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.20	14.20	33.253	24.796	314.2	0.000	5.61	96.0	4.7	0.52	1.4	0.09	0.77	0.36	0
1	1	14.20	14.20	33.253	24.796	314.2	0.003	5.61	96.0	4.7	0.52	1.4	0.09	0.77	0.36	1
	10 ISL	14.17	14.17	33.257	24.806	313.5	0.031	5.58	95.4	4.7	0.54	1.5	0.10	0.73	0.35	10
1	12	14.16	14.16	33.258	24.809	313.3	0.038	5.57	95.2	4.7	0.54	1.6	0.10	0.72	0.35	12
	20 ISL	14.12	14.12	33.260	24.819	312.6	0.063	5.52	94.3	5.0	0.55	1.8	0.12	0.75	0.40	20
1	22	14.11	14.11	33.260	24.821	312.4	0.069	5.51	94.1	5.1	0.55	1.9	0.12	0.75	0.41	22
	30 ISL	14.09	14.09	33.262	24.827	312.1	0.094	5.50	93.9	5.2	0.56	2.0	0.12	0.68	0.34	30
1	32	14.09	14.09	33.263	24.828	312.0	0.100	5.50	93.9	5.2	0.56	2.0	0.12	0.66	0.32	32
1	41	14.08	14.07	33.263	24.830	312.1	0.128	5.49	93.7	5.1	0.57	2.1	0.12	0.70	0.34	41
	50 ISL	13.83	13.82	33.279	24.895	306.2	0.156	5.34	90.7	5.3	0.62	2.8	0.14	0.45	0.27	50
1	51	13.78	13.77	33.283	24.908	305.0	0.159	5.31	90.1	5.3	0.63	2.9	0.14	0.42	0.26	51
1	61	12.94	12.93	33.348	25.127	284.3	0.189	4.69	78.2	8.5	0.91	7.2	0.11	0.19	0.19	61
1	73	12.88	12.87	33.355	25.145	282.9	0.223	4.66	77.6	9.0	0.93	7.6	0.10	0.18	0.19	73
	75 ISL	12.81	12.80	33.360	25.162	281.3	0.228	4.62	76.9	9.2	0.95	7.9	0.10	0.17	0.18	75
1	82	12.55	12.54	33.380	25.229	275.1	0.248	4.50	74.5	9.7	1.01	8.9	0.08	0.12	0.16	82

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 83 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 44.8 N	120 24.6 N	22/01/93	1356 UTC	998 M	330 17 k.n			1023.0 Mb	15.1 C	14.8 C		

CAST	DEPTH M	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.30	14.30	33.217	24.748	318.8	0.000	5.90	101.2	2.9	0.37	0.1	0.01	0.53	0.20	0
1	1	14.30	14.30	33.217	24.748	318.8	0.003	5.90	101.1	2.9	0.37	0.1	0.01	0.53	0.20	1
1	10	14.29	14.29	33.214	24.748	319.1	0.032	5.91	101.3	2.9	0.38	0.1	0.01	0.50	0.22	10
1	20	14.27	14.27	33.215	24.753	318.9	0.064	5.91	101.3	2.9	0.37	0.1	0.01	0.48	0.19	20
	30 ISL	14.30	14.30	33.214	24.746	319.8	0.096	5.92	101.5	2.8	0.37	0.1	0.01	0.50	0.20	30
1	31	14.30	14.30	33.215	24.747	319.7	0.099	5.92	101.5	2.8	0.37	0.1	0.01	0.50	0.20	31
1	40	14.32	14.31	33.236	24.759	318.8	0.128	5.90	101.2	2.8	0.37	0.1	0.01	0.50	0.20	40
1	49	14.26	14.25	33.266	24.795	315.7	0.156	5.85	100.2	2.9	0.39	0.3	0.02	0.48	0.24	49
	50 ISL	14.21	14.20	33.268	24.807	314.6	0.159	5.82	99.6	3.1	0.41	0.5	0.03	0.46	0.24	50
1	59	13.67	13.66	33.282	24.930	303.1	0.187	5.50	93.1	4.8	0.58	2.6	0.17	0.31	0.22	59
1	70	13.00	12.99	33.280	25.063	290.6	0.220	5.25	87.6	6.6	0.74	5.0	0.17	0.26	0.23	70
	75 ISL	12.12	12.11	33.244	25.205	277.1	0.234	5.07	83.1	8.5	0.90	7.7	0.12	0.21	0.21	75
1	83	10.69	10.68	33.223	25.449	253.9	0.255	4.74	75.3	12.0	1.18	12.3	0.03	0.14	0.16	83
1	99	9.97	9.96	33.419	25.725	227.9	0.294	4.10	64.2	17.0	1.46	17.4	0.02	0.07	0.11	99
	100 ISL	9.94	9.93	33.427	25.736	226.9	0.296	4.08	63.8	17.2	1.47	17.6	0.02	0.07	0.11	100
1	118	9.58	9.57	33.553	25.894	212.2	0.336	3.74	58.1	20.5	1.62	20.3	0.01	0.03	0.08	119
	125 ISL	9.48	9.47	33.606	25.952	206.8	0.350	3.61	56.0	21.7	1.67	21.1	0.01	0.02	0.07	126
1	142	9.27	9.25	33.733	26.086	194.4	0.384	3.32	51.3	24.6	1.77	23.0	0.00	0.01	0.04	143
	150 ISL	9.12	9.10	33.793	26.157	187.8	0.400	3.20	49.3	26.3	1.82	23.9	0.00	0.01	0.04	151
1	173	8.72	8.70	33.934	26.331	171.7	0.441	2.89	44.1	31.1	1.96	26.3	0.00	0.01	0.03	174
	200 ISL	8.48	8.46	34.003	26.422	163.4	0.486	2.65	40.3	34.9	2.05	28.0	0.00	0.01	0.03	201
1	202	8.47	8.45	34.006	26.426	163.1	0.489	2.63	40.0	35.1	2.06	28.1	0.00	0.01	0.03	203
1	232	8.30	8.28	34.055	26.491	157.5	0.538	2.38	36.0	38.3	2.17	29.3	0.00			233
	250 ISL	8.13	8.10	34.074	26.531	153.9	0.566	2.25	33.9	40.7	2.24	30.2	0.00			251
1	271	7.89	7.86	34.093	26.582	149.3	0.597	2.08	31.2	44.0	2.32	31.5	0.00			273
	300 ISL	7.53	7.50	34.122	26.657	142.5	0.640	1.74	25.9	49.9	2.47	33.5	0.00			302
1	326	7.21	7.18	34.144	26.720	136.8	0.676	1.43	21.1	55.3	2.61	35.3	0.00			328
1	387	6.62	6.58	34.158	26.812	128.6	0.757	1.04	15.1	64.2	2.80	38.2	0.00			389
	400 ISL	6.55	6.51	34.168	26.829	127.1	0.774	0.96	14.0	65.7	2.84	38.6	0.00			403
1	452	6.35	6.31	34.215	26.893	121.6	0.838	0.69	10.0	70.9	2.96	40.0	0.00			455
	500 ISL	6.15	6.11	34.242	26.941	117.6	0.896	0.53	7.6	75.0	3.05	41.0	0.00			503
1	522	6.06	6.01	34.255	26.962	115.8	0.921	0.46	6.6	76.9	3.09	41.4	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 83 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	SEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 34.7 N	120 45.4 W	22/01/93	1023 UTC	1383 m	310 14 kn			1024.0 mb	14.2 C	13.8 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
1	0	14.20	14.20	33.301	24.833	310.6	0.000	5.95	101.9	3.6	0.41	0.3	0.02	0.75	0.26	0
	10 ISL	14.21	14.21	33.300	24.831	311.1	0.031	5.96	102.0	3.5	0.42	0.3	0.02	0.78	0.25	10
1	15	14.21	14.21	33.299	24.830	311.4	0.047	5.96	102.0	3.5	0.42	0.3	0.02	0.79	0.24	15
	20 ISL	14.19	14.19	33.299	24.835	311.1	0.062	5.94	101.7	3.5	0.42	0.3	0.02	0.76	0.25	20
1	30	14.16	14.16	33.298	24.840	310.8	0.093	5.90	100.9	3.5	0.42	0.4	0.03	0.70	0.27	30
1	40	14.01	14.00	33.315	24.885	306.8	0.124	5.70	97.2	4.3	0.49	1.2	0.09	0.49	0.24	40
1	50	13.60	13.59	33.330	24.981	298.0	0.154	5.47	92.5	5.8	0.62	2.9	0.18	0.41	0.23	50
1	59	12.31	12.30	33.344	25.246	272.8	0.180	5.41	89.0	9.8	0.98	8.5	0.14	0.29	0.25	59
1	70	11.46	11.45	33.346	25.407	257.7	0.209	4.55	73.5	12.2	1.18	11.7	0.07	0.22	0.23	70
	75 ISL	10.99	10.98	33.366	25.507	248.3	0.222	4.36	69.8	13.7	1.28	13.5	0.05	0.18	0.20	75
1	79	10.64	10.63	33.393	25.590	240.4	0.232	4.24	67.3	15.0	1.36	15.0	0.04	0.14	0.17	79
1	93	10.01	10.00	33.556	25.825	218.3	0.264	3.69	57.9	19.6	1.61	19.3	0.02	0.07	0.12	93
	100 ISL	9.58	9.57	33.585	25.919	209.5	0.279	3.69	57.3	21.1	1.66	20.4	0.01	0.04	0.09	100
1	108	9.18	9.17	33.621	26.012	200.7	0.295	3.68	56.7	22.6	1.70	21.4	0.01	0.02	0.06	109
1	123	9.12	9.11	33.813	26.172	185.8	0.324	3.19	49.1	26.4	1.84	24.0	0.01	0.01	0.04	124
	125 ISL	9.10	9.09	33.828	26.187	184.4	0.328	3.16	48.6	26.7	1.85	24.2	0.01	0.01	0.04	126
1	148	8.84	8.82	33.935	26.312	173.0	0.369	2.91	44.6	30.4	1.96	25.9	0.01	0.01	0.03	149
	150 ISL	8.81	8.79	33.944	26.324	171.9	0.372	2.88	44.1	30.8	1.97	26.1	0.01	0.01	0.03	1S1
1	173	8.45	8.43	34.032	26.449	160.4	0.411	2.49	37.8	36.2	2.13	28.5	0.00	0.01	0.03	174
	200 ISL	8.14	8.12	34.094	26.545	151.7	0.453	2.13	32.1	41.5	2.29	30.6	0.00	0.00	0.02	201
1	204	8.10	8.08	34.100	26.555	150.7	0.459	2.09	31.5	42.1	2.31	30.8	0.00	0.00	0.02	205
1	232	7.85	7.83	34.112	26.602	146.7	0.500	1.95	29.2	45.1	2.39	31.8	0.00			233
	250 ISL	7.71	7.69	34.134	26.640	143.3	0.527	1.74	26.0	47.8	2.47	32.8	0.00			251
1	272	7.54	7.51	34.165	26.689	139.0	0.558	1.45	21.6	51.5	2.59	34.2	0.00			274
	300 ISL	7.28	7.25	34.197	26.751	133.4	0.596	1.13	16.7	56.7	2.73	35.8	0.00			302
1	328	7.04	7.01	34.221	26.804	128.7	0.632	0.88	13.0	61.3	2.84	37.2	0.00			330
1	389	6.75	6.71	34.239	26.858	124.3	0.710	0.71	10.4	66.3	2.93	38.6	0.00			392
	400 ISL	6.68	6.64	34.243	26.871	123.3	0.723	0.68	9.9	67.5	2.95	38.9	0.00			403
1	454	6.32	6.28	34.266	26.937	117.5	0.788	0.51	7.4	73.4	3.04	40.4	0.00			457
	500 ISL	6.09	6.05	34.286	26.983	113.6	0.841	0.40	5.8	77.3	3.11	41.3	0.00			503
1	523	5.97	5.92	34.296	27.006	111.6	0.867	0.35	5.0	79.3	3.14	41.8	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	SEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 14.7 N	121 26.6 W	22/01/93	0452 UTC	3769 m	310 13 kn			1026.0 mb	14.5 C	14.2 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
	0 ISL	14.35	14.35	33.041	24.601	332.7	0.000	6.03	103.4	2.8	0.36	0.1	0.00	0.31	0.11	0
1	1	14.35	14.35	33.041	24.601	332.7	0.003	6.03	103.4	2.8	0.36	0.1	0.00	0.31	0.11	1
	10 ISL	14.28	14.28	33.039	24.615	331.7	0.033	5.97	102.2	2.8	0.36	0.1	0.00	0.27	0.10	10
1	16	14.19	14.19	33.033	24.629	330.5	0.053	5.92	101.1	2.8	0.36	0.1	0.00	0.25	0.10	16
	20 ISL	14.10	14.10	33.021	24.639	329.7	0.066	5.92	100.9	2.8	0.36	0.1	0.00	0.26	0.11	20
	30 ISL	13.89	13.89	32.996	24.663	327.7	0.099	5.94	100.8	2.9	0.38	0.2	0.01	0.30	0.15	30
1	35	13.79	13.79	32.987	24.677	326.5	0.116	5.95	100.8	2.9	0.39	0.2	0.02	0.32	0.17	35
	50 ISL	13.75	13.74	33.021	24.712	323.6	0.164	5.88	99.5	3.2	0.42	0.5	0.05	0.28	0.15	50
1	55	13.74	13.73	33.050	24.736	321.4	0.180	5.86	99.2	3.3	0.43	0.6	0.07	0.25	0.14	55
1	69	13.00	12.99	33.077	24.906	305.5	0.224	5.59	93.2	5.1	0.63	2.9	0.12	0.19	0.16	69
	75 ISL	12.31	12.30	33.089	25.049	292.0	0.242	5.40	88.7	6.4	0.75	4.8	0.07	0.17	0.17	75
1	79	11.82	11.81	33.103	25.152	282.2	0.254	5.26	85.5	7.4	0.85	6.4	0.03	0.16	0.17	79
1	89	10.89	10.88	33.171	25.373	261.3	0.281	4.84	77.2	11.0	1.13	11.2	0.02	0.11	0.12	89
1	98	10.48	10.47	33.232	25.492	250.1	0.304	4.57	72.3	13.3	1.30	14.0	0.01	0.08	0.09	98
	100 ISL	10.39	10.38	33.239	25.513	248.1	0.309	4.54	71.6	13.7	1.32	14.4	0.01	0.07	0.08	100
1	109	10.03	10.02	33.269	25.598	240.2	0.331	4.43	69.4	15.0	1.39	15.7	0.01	0.05	0.06	110
1	124	9.60	9.59	33.374	25.751	225.9	0.366	4.25	66.0	17.2	1.49	17.8	0.00	0.02	0.04	125
	125 ISL	9.57	9.56	33.380	25.761	224.9	0.368	4.27	66.2	17.2	1.48	17.8	0.00	0.02	0.04	126
1	138	9.16	9.15	33.460	25.890	212.9	0.397	4.49	69.0	17.4	1.42	17.3	0.00	0.01	0.02	139
	150 ISL	8.81	8.79	33.540	26.007	201.8	0.421	4.32	65.9	19.9	1.52	19.2	0.00	0.00	0.02	151
1	159	8.60	8.58	33.601	26.088	194.3	0.439	4.11	62.5	22.3	1.62	21.0	0.00	0.00	0.02	160
1	178	8.45	8.43	33.727	26.210	183.1	0.475	3.83	58.1	25.5	1.72	22.8	0.00	0.00	0.02	179
	200 ISL	8.13	8.11	33.854	26.358	169.3	0.514	3.40	51.2	30.9	1.88	25.7	0.00	0.00	0.02	201
1	203	8.08	8.06	33.869	26.377	167.6	0.519	3.35	50.4	31.6	1.90	26.1	0.00	0.00	0.02	204
1	233	7.83	7.81	33.967	26.491	157.2	0.568	3.09	46.2	36.4	1.99	28.0	0.00			234
	250 ISL	7.63	7.61	33.989	26.537	153.0	0.594	3.06	45.6	38.6	2.03	28.6	0.00			251
1	273	7.33	7.30				0.629	3.00	44.4	41.9	2.09	29.6	0.00			275
	300 ISL	6.98	6.95	34.022	26.655	142.3	0.668	2.63	38.6	47.5	2.25	31.9	0.00			302
1	327	6.64	6.61	34.022	26.701	138.1	0.706	2.16	31.5	53.8	2.43	34.6	0.00			329
1	387	6.06	6.03	34.084	26.826	126.7	0.785	1.32	19.0	67.1	2.79	39.2	0.00			389
	400 ISL	6.01	5.98	34.097	26.842	125.3	0.801	1.20	17.2	68.8	2.84	39.8	0.00			403
1	453	5.88	5.84	34.151	26.902	120.3	0.866	0.81	11.6	74.4	2.98	41.4	0.00			456
	500 ISL	5.66	5.62	34.204	26.971	114.1	0.922	0.55	7.8	80.3	3.09	42.6	0.00			503
1	521	5.56	5.52	34.227	27.002	111.4	0.945	0.44	6.3	83.0	3.14	43.2	0.00			525

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 54.8 N	122 7.8 W	21/01/93	2336 UTC	4181 -	290 11 kn	290 03 07	1	1024.6 Mb	16.5 C	15.9 C	32B 01	7/8	CI

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PBAEO ug/1	PRESS db
	0 ISL	15.41	15.41	33.092	24.413	350.7	0.000	5.77	101.1	2.5	0.34	0.1	0.00	0.12	0.04	0
1	1	15.41	15.41	33.092	24.413	350.7	0.004	5.77	101.1	2.5	0.34	0.1	0.00	0.12	0.04	1
	10 ISL	15.04	15.04	33.033	24.448	347.6	0.035	5.81	101.0	2.5	0.34	0.1	0.00	0.13	0.05	10
1	15	14.74	14.74	32.984	24.475	345.2	0.052	5.84	100.9	2.5	0.34	0.1	0.00	0.14	0.06	15
	20 ISL	14.57	14.57	32.940	24.478	345.1	0.070	5.87	101.0	2.5	0.34	0.1	0.00	0.16	0.10	20
	30 ISL	14.28	14.28	32.882	24.494	343.8	0.104	5.90	100.9	2.4	0.35	0.1	0.00	0.19	0.16	30
1	34	14.19	14.19	32.869	24.503	343.1	0.118	5.91	100.9	2.4	0.36	0.1	0.00	0.20	0.19	34
	50 ISL	13.82	13.81	32.966	24.655	329.0	0.171	5.86	99.3	2.8	0.42	0.4	0.14	0.23	0.17	50
1	53	13.78	13.77	33.003	24.692	325.6	0.181	5.85	99.1	2.9	0.43	0.5	0.16	0.23	0.17	53
1	69	14.01	14.00	33.286	24.863	309.7	0.232	5.66	96.5	3.6	0.48	1.2	0.13	0.17	0.13	69
	75 ISL	14.64	14.63	33.642	25.006	296.5	0.250	5.47	94.7	3.6	0.40	1.2	0.06	0.15	0.14	75
1	77	14.77	14.76	33.738	25.052	292.1	0.256	5.41	93.9	3.6	0.39	1.2	0.04	0.14	0.14	77
1	86	13.49	13.48	33.540	25.167	281.3	0.282	5.28	89.2	5.5	0.61	3.8	0.02	0.09	0.10	86
1	96	11.36	11.35	33.254	25.354	263.4	0.309	5.10	82.2	8.6	0.95	8.4	0.01	0.06	0.08	96
	100 ISL	11.24	11.23	33.309	25.418	257.3	0.320	5.06	81.4	9.1	0.95	9.0	0.01	0.05	0.07	100
1	107	11.04	11.03	33.386	25.515	248.3	0.337	5.01	80.3	9.6	0.96	9.4	0.01	0.04	0.06	107
1	122	10.23	10.22	33.375	25.647	235.9	0.374	4.85	76.3	12.1	1.14	12.3	0.01	0.03	0.05	123
	125 ISL	9.98	9.97	33.369	25.685	232.3	0.381	4.78	74.8	13.1	1.20	13.4	0.01	0.03	0.04	126
1	137	9.08	9.07	33.373	25.834	218.1	0.408	4.47	68.6	17.4	1.45	17.6	0.00	0.01	0.02	138
	150 ISL	8.73	8.71	33.475	25.969	205.5	0.435	4.25	64.7	20.2	1.56	19.9	0.00	0.00	0.02	151
1	156	8.68	8.66	33.535	26.024	200.4	0.447	4.17	63.5	21.2	1.59	20.5	0.00	0.00	0.02	157
1	178	8.53	8.51	33.707	26.182	185.8	0.490	3.91	59.4	24.7	1.67	22.1	0.00	0.00	0.01	179
	200 ISL	8.44	8.42	33.857	26.314	173.7	0.529	3.37	51.1	29.2	1.83	25.0	0.00	0.00	0.02	201
1	201	8.44	8.42	33.863	26.318	173.2	0.531	3.35	50.8	29.4	1.84	25.1	0.00	0.00	0.02	202
1	231	8.12	8.10	33.954	26.438	162.3	0.581	3.14	47.3	33.8	1.93	27.0	0.00			232
	250 ISL	7.78	7.76	33.979	26.508	155.8	0.612	3.05	45.6	37.4	2.01	28.2	0.00			251
1	271	7.41	7.38	33.993	26.572	149.9	0.644	2.94	43.6	41.6	2.10	29.6	0.00			273
	300 ISL	7.12	7.09	34.010	26.626	145.1	0.687	2.65	39.0	46.2	2.23	31.5	0.00			302
1	327	6.90	6.87	34.021	26.666	141.7	0.725	2.33	34.1	50.5	2.35	33.3	0.00			329
1	386	6.28	6.25	34.054	26.774	131.8	0.806	1.60	23.1	62.7	2.67	37.7	0.00			388
	400 ISL	6.13	6.09	34.065	26.802	129.2	0.824	1.43	20.6	65.8	2.74	38.7	0.00			403
1	450	5.67	5.63	34.115	26.899	120.3	0.887	0.92	13.1	75.8	2.95	41.8	0.00			453
	500 ISL	5.49	5.45	34.177	26.970	114.0	0.945	0.61	8.7	82.1	3.08	43.1	0.00			503
1	518	5.42	5.38	34.200	26.997	111.6	0.965	0.50	7.1	84.4	3.12	43.5	0.00			521

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 83 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 34.8 N	122 48.6 W	21/01/93	1646 UTC	4265 -	300 12 kn	290 06 06	1	1026.9 Bb	16.4 C	15.8 C		7/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.50	14.50	32.914	24.472	345.1	0.000	5.86	100.7	2.0	0.35	0.1	0.00	0.22	0.09	0
1	2	14.50	14.50	32.914	24.472	345.1	0.007	5.86	100.7	2.0	0.35	0.1	0.00	0.22	0.09	2
	10 ISL	14.44	14.44	32.918	24.488	343.8	0.034	5.86	100.6	2.0	0.35	0.1	0.00	0.22	0.09	10
1	17	14.37	14.37	32.923	24.507	342.2	0.058	5.85	100.2	2.0	0.35	0.1	0.00	0.22	0.10	17
	20 ISL	14.37	14.37	32.923	24.507	342.3	0.069	5.85	100.2	2.0	0.35	0.1	0.00	0.22	0.10	20
	30 ISL	14.36	14.36	32.922	24.508	342.4	0.103	5.85	100.2	1.9	0.35	0.1	0.00	0.24	0.11	30
1	36	14.35	14.34	32.921	24.510	342.5	0.124	5.85	100.2	1.8	0.35	0.1	0.00	0.25	0.11	36
	50 ISL	14.34	14.33	32.920	24.512	342.7	0.171	5.84	100.0	1.8	0.35	0.1	0.00	0.29	0.13	50
1	57	14.34	14.33	32.92	24.512	342.9	0.195	5.84	100.0	1.8	0.35	0.1	0.00	0.30	0.14	57
1	71	14.33	14.32	32.918	24.513	343.2	0.244	5.83	99.8	1.8	0.35	0.1	0.01	0.25	0.13	71
	75 ISL	14.31	14.30	32.924	24.522	342.5	0.257	5.82	99.6	1.8	0.35	0.1	0.02	0.22	0.12	75
1	79	14.25	14.24	32.932	24.540	340.8	0.271	5.81	99.3	1.7	0.36	0.2	0.03	0.20	0.12	79
1	90	13.82	13.81	32.971	24.660	329.7	0.308	5.80	98.3	2.4	0.41	0.5	0.11	0.17	0.13	90
1	100	13.33	13.32	32.992	24 776	318.8	0.340	5.83	97.8	3.0	0.47	1.0	0.16	0.17	0.14	100
1	109	12.57	12.56	33.047	24 *67	300.7	0.368	5.70	94.1	4.2	0.59	2.6	0.11	0.10	0.10	109
1	125	11.64	11.62	33.131	25.208	278.0	0.414	5.34	86.5	6.1	0.76	5.2	0.02	0.06	0.06	126
1	140	9.97	9.95	33.159	25.523	248.0	0.454	4.96	77.5	11.9	1.18	12.6	0.01	0.03	0.04	141
	150 ISL	9.44	9.42	33.206	25.646	236.3	0.478	4.80	74.2	14.2	1.31	15.0	0.01	0.02	0.03	151
1	159	9.18	9.16	33.271	25.739	227.6	0.499	4.63	71.1	16.0	1.40	16.6	0.01	0.01	0.03	160
1	178	8.81	8.79	33.514	25.988	204.3	0.540	3.85	58.8	22.1	1.71	21.9	0.01	0.00	0.02	179
	200 ISL	8.68	8.66	33.743	26.188	185.7	0.583	3.31	50.4	27.0	1.87	24.8	0.01	0.00	0.02	201
1	204	8.66	8.64	33.776	26.217	183.0	0.590	3.25	49.5	27.7	1.88	25.1	0.01	0.00	0.02	205
1	233	8.04	8.02	33.924	26.427	163.4	0.640	3.18	47.8	33.1	1.93	27.0	0.01			234
	250 ISL	7.80	7.78	33.967	26.496	157.0	0.668	3.08	46.1	36.1	1.98	28.0	0.01			251
1	273	7.52	7.49	33.995	26.558	151.3	0.703	2.89	43.0	40.3	2.07	29.4	0.01			274
	300 ISL	7.14	7.11	34.010	26.624	145.3	0.743	2.59	38.2	45.8	2.22	31.6	0.01			302
1	327	6.78	6.75	34.013	26.675	140.6	0.782	2.28	33.3	51.4	2.37	33.8	0.00			329
1	388	6.15	6.12	34.029	26.771	132.0	0.865	1.77	25.5	62.5	2.62	37.3	0.00			390
	400 ISL	6.05	6.02	34.036	26.789	130.3	0.881	1.65	23.7	64.7	2.67	38.0	0.00			402
1	454	5.65	5.61	34.079	26.873	122.7	0.949	1.13	16.1	74.0	2.88	41.1	0.00			457
	500 ISL	5.41	5.37	34.126	26.939	116.8	1.004	0.81	11.5	80.8	3.00	42.7	0.00			503
1	524	5.28	5.24	34.151	26.975	113.6	1.032	0.64	9.0	84.4	3.07	43.6	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 83 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
32 14.7 N	123 29.5 H	21/01/93	1117 UTC	4168 -	230 08 kn			1026.2 ab	16.9 C	16.1 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN *1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CBL-A ug/1	PHAEO ug/1	PRESS db
1	0	16.31	16.31	33.358	24.415	350.5	0.000	S.63	100.6	2.1	0.32	0.1	0.00	0.12	0.05	0
	10 ISL	16.28	16.28	33.354	24.419	350.4	0.035	5.62	100.3	2.1	0.31	0.1	0.00	0.13	0.06	1C
1	15	16.27	16.27	33.352	24.420	350.5	0.053	5.62	100.3	2.1	0.31	0.1	0.00	0.14	0.06	15
	20 ISL	16.26	16.26	33.352	24.423	350.4	0.070	5.62	100.3	2.1	0.31	0.1	0.00	0.14	0.06	20
	30 ISL	16.25	16.25	33.352	24.425	350.5	0.105	5.63	100.5	2.1	0.30	0.1	0.00	0.13	0.07	30
1	35	16.25	16.24	33.353	24.426	350.5	0.123	5.63	100.4	2.1	0.30	0.1	0.00	0.13	0.07	35
	50 ISL	16.26	16.25	33.354	24.425	351.1	0.175	5.61	100.1	2.1	0.31	0.1	0.00	0.14	0.07	50
1	54	16.26	16.25	33.354	24.426	351.2	0.189	5.61	100.1	2.1	0.31	0.1	0.00	0.15	0.07	54
1	68	16.27	16.26	33.353	24.423	351.9	0.239	5.62	100.3	2.1	0.30	0.1	0.00	0.16	0.07	68
	75 ISL	16.25	16.24	33.354	24.429	351.6	0.263	5.62	100.3	2.1	0.30	0.1	0.00	0.16	0.06	75
1	77	16.25	16.24	33.354	24.429	351.6	0.270	5.62	100.3	2.1	0.30	0.1	0.00	0.16	0.06	77
1	86	16.26	16.25	33.354	24.427	352.1	0.302	5.62	100.3	2.1	0.31	0.1	0.00	0.16	0.07	86
1	95	16.26	16.24	33.350	24.424	352.7	0.334	5.61	100.1	2.1	0.31	0.1	0.00	0.17	0.08	95
	100 ISL	16.26	16.24	33.352	24.426	352.7	0.351	5.61	100.1	2.1	0.31	0.1	0.00	0.16	0.08	100
1	105	16.25	16.23	33.354	24.430	352.5	0.369	5.62	100.2	2.0	0.31	0.1	0.00	0.15	0.07	105
1	120	14.12	14.10	33.275	24.834	314.0	0.419	5.64	96.3	3.2	0.45	0.5	0.16	0.20	0.18	120
	125 ISL	13.62	13.60	33.256	24.922	305.7	0.434	5.57	94.2	3.7	0.51	1.2	0.13	0.19	0.17	126
1	135	12.78	12.76	33.237	25.075	291.2	0.464	5.40	89.7	4.8	0.65	3.2	0.03	0.14	0.16	136
	150 ISL	11.69	11.67	33.289	25.322	267.8	0.506	5.17	83.9	7.1	0.84	6.9	0.02	0.08	0.10	151
1	155	11.35	11.33	33.317	25.406	259.8	0.519	5.08	81.9	8.1	0.91	8.3	0.01	0.06	0.08	156
1	177	9.69	9.67	33.438	25.788	223.6	0.572	4.57	71.1	14.7	1.30	15.3	0.00	0.02	0.03	178
	200 ISL	9.13	9.11	33.612	26.014	202.3	0.621	4.08	62.8	20.1	1.53	19.5	0.00	0.00	0.02	201
1	201	9.12	9.10	33.620	26.022	201.6	0.623	4.06	62.4	20.3	1.54	19.6	0.00	0.00	0.02	202
1	232	8.90	8.88	33.859	26.245	181.0	0.683	3.30	50.6	27.2	1.80	24.1	0.00			233
	250 ISL	8.69	8.66	33.934	26.336	172.6	0.715	3.14	47.9	30.0	1.87	25.4	0.00			251
1	272	8.40	8.37	33.990	26.425	164.5	0.752	3.02	45.8	33.3	1.94	26.7	0.00			273
	300 ISL	8.01	7.98	34.036	26.520	155.7	0.796	2.66	40.0	38.9	2.10	29.1	0.00			302
1	328	7.62	7.59	34.064	26.599	148.5	0.839	2.24	33.4	44.9	2.29	31.7	0.00			330
1	389	6.94	6.90	34.126	26.744	135.3	0.926	1.37	20.1	57.9	2.67	36.6	0.00			391
	400 ISL	6.80	6.76	34.128	26.764	133.4	0.940	1.28	18.7	60.0	2.72	37.3	0.00			402
1	453	6.18	6.14	34.137	26.853	125.2	1.009	0.96	13.8	69.4	2.89	40.2	0.00			456
	500 ISL	5.78	5.74	34.181	26.938	117.4	1.066	0.67	9.6	77.5	3.03	42.2	0.00			503
1	520	5.61	5.57	34.200	26.974	114.0	1.089	0.55	7.8	81.0	3.09	43.0	0.00			523

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 83 110

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
31 54.7 N	124 10.1 W	21/01/93	0522 UTC	4208 *m*	240 06 k.n			1027.7 mb	16.8 C	16.1 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL-A Ug/1	PHAEO ug/1	PRESS db
	0 ISL	16.59	16.59	33.360	24.352	356.4	0.000	5.61	100.8	2.6	0.32	0.1	0.00	0.11	0.05	0
1	2	16.59	16.59	33.360	24.352	356.5	0.007	5.61	100.8	2.6	0.32	0.1	0.00	0.11	0.05	2
	10 ISL	16.60	16.60	33.360	24.350	356.9	0.036	5.60	100.6	2.5	0.32	0.1	0.00	0.12	0.05	10
1	16	16.60	16.60	33.360	24.351	357.1	0.057	5.60	100.6	2.5	0.32	0.1	0.00	0.12	0.05	16
	20 ISL	16.58	16.58	33.357	24.353	357.0	0.071	5.61	100.8	2.5	0.32	0.1	0.00	0.12	0.05	20
	30 ISL	16.52	16.52	33.349	24.361	356.6	0.107	5.63	101.0	2.5	0.32	0.1	0.00	0.11	0.05	30
1	36	16.48	16.47	33.343	24.366	356.3	0.128	5.64	101.1	2.5	0.32	0.1	0.00	0.11	0.05	36
	50 ISL	16.47	16.46	33.338	24.365	356.9	0.178	5.62	100.7	2.5	0.32	0.1	0.00	0.12	0.06	50
1	56	16.47	16.46	33.335	24.363	357.3	0.200	5.61	100.5	2.5	0.32	0.1	0.00	0.12	0.06	56
1	70	16.39	16.38	33.311	24.363	357.7	0.250	5.63	100.7	2.5	0.33	0.1	0.00	0.14	0.06	70
	75 ISL	16.36	16.35	33.307	24.367	357.4	0.268	5.63	100.6	2.5	0.33	0.1	0.00	0.14	0.07	75
1	80	16.32	16.31	33.300	24.371	357.2	0.286	5.63	100.5	2.5	0.33	0.1	0.00	0.15	0.08	80
1	88	16.19	16.18	33.268	24.377	357.0	0.314	5.63	100.3	2.4	0.34	0.1	0.00	0.17	0.08	88
1	98	16.17	16.15	33.265	24.379	357.0	0.350	5.65	100.6	2.4	0.34	0.1	0.00	0.17	0.08	98
	100 ISL	16.04	16.02	33.286	24.425	352.7	0.357	5.67	100.7	2.4	0.34	0.1	0.02	0.18	0.10	100
1	109	15.24	15.22	33.392	24.685	328.1	0.388	5.71	99.8	2.7	0.36	0.2	0.13	0.22	0.21	109
1	123	13.90	13.88	33.423	24.994	298.9	0.431	5.47	93.1	3.8	0.50	1.7	0.05	0.15	0.16	124
	125 ISL	13.75	13.73	33.424	25.025	295.9	0.437	5.45	92.5	3.9	0.52	1.9	0.04	0.14	0.15	126
1	139	12.76	12.74	33.410	25.213	278.2	0.478	5.29	87.9	5.4	0.66	4.2	0.01	0.10	0.12	140
	150 ISL	11.74	11.72	33.387	25.389	261.4	0.507	5.14	83.6	7.6	0.84	7.2	0.00	0.07	0.09	151
1	159	10.89	10.87	33.378	25.536	247.5	0.530	5.00	79.8	9.8	1.00	10.0	0.00	0.04	0.06	160
1	177	9.58	9.56	33.416	25.788	223.4	0.573	4.72	73.2	14.5	1.27	14.8	0.00	0.01	0.03	178
	200 ISL	8.83	8.81	33.574	26.032	200.5	0.621	4.04	61.7	21.5	1.61	20.8	0.00	0.00	0.02	201
1	202	8.80	8.78	33.590	26.049	198.9	0.625	3.98	60.8	22.1	1.64	21.2	0.00	0.00	0.02	203
1	232	8.52	8.50	33.823	26.275	177.9	0.682	3.44	52.3	28.0	1.82	24.7	0.00			233
	250 ISL	8.28	8.25	33.909	26.379	168.3	0.713	3.25	49.1	31.4	1.90	26.2	0.00			251
1	272	7.97	7.94	33.976	26.478	159.2	0.749	3.06	45.9	35.6	1.98	27.8	0.00			273
	300 ISL	7.61	7.58	34.014	26.561	151.6	0.793	2.75	41.0	41.0	2.13	30.0	0.00			302
1	327	7.27	7.24	34.023	26.616	146.6	0.833	2.46	36.4	46.1	2.27	32.0	0.00			329
1	387	6.51	6.47	34.028	26.724	136.8	0.918	1.95	28.3	56.8	2.51	35.9	0.00			389
	400 ISL	6.38	6.34	34.037	26.748	134.6	0.935	1.80	26.1	59.4	2.57	36.8	0.00			402
1	453	5.98	5.94	34.089	26.840	126.2	1.005	1.18	16.9	69.2	2.82	40.0	0.00			456
	500 ISL	5.79	5.75	34.140	26.905	120.5	1.062	0.84	12.0	75.1	2.95	41.6	0.00			503
1	523	5.70	5.66	34.165	26.936	117.8	1.090	0.67	9.5	78.0	3.02	42.4	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 33

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 53.4 N	118 29.5 W	18/01/93	2214 UTC	56 -	080 08 kn	240 03 07	2	1007.9 mb	14.6 C	12.8 C	05B 06	8/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.76	14.76	31.328	23.194	466.9	0.000			10.6	0.97	4.0	0.37	1.21	0.36	0
1	1	14.76	14.76	31.328 A	23.195	466.9	0.005			10.6 A	0.97 A	4.0 A	0.37 A	1.21	0.36	1
1	7	14.86	14.86	31.766 A	23.511	436.9	0.032	5.77	99.2	8.7 A	0.85 A	2.9 A	0.28 A	0.99	0.33	7
	10 ISL	15.00	15.00	32.302	23.894	400.5	0.044	5.77	99.8	6.2	0.68	1.7	0.17	0.77	0.32	10
1	11	15.04	15.04	32.481	24.023	388.1	0.048	5.77	100.0	5.4	0.62	1.3	0.14	0.70	0.32	11
	20 ISL	14.98	14.98	32.797	24.280	363.9	0.082	5.67	98.3	4.7	0.61	0.9	0.16	0.38	0.22	20
1	21	14.97	14.97	32.832	24.309	361.2	0.086	5.66	98.1	4.6	0.61	0.9	0.16	0.37	0.21	21
	30 ISL	14.88	14.88	32.905	24.385	354.2	0.118	5.66	98.0	4.4	0.59	0.9	0.16	0.30	0.17	30
1	31	14.87	14.87	32.906	24.388	354.0	0.121	5.66	98.0	4.4	0.59	0.9	0.16	0.30	0.17	31
1	42	14.61	14.60	32.988	24.507	343.0	0.160	5.56	95.8	4.5	0.66	1.1	0.18	0.18	0.12	42
	50 ISL	14.62	14.61	33.107	24.597	334.6	0.187	5.38	92.8	5.1	0.77	1.1	0.20	0.16	0.59	50
1	52	14.62	14.61	33.137	24.620	332.5	0.194	5.33	91.9	5.2	0.80	1.1	0.21	0.15	0.71	52

A) ELEVATED SURFACE NUTRIENTS AND LOW SALINITIES APPARENTLY DUE TO COASTAL

RUNOFF FROM HEAVY RAINFALL; THE WATER SURROUNDING THE SHIP WAS VERY MUDDY.

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 50.0 N	118 38.4 N	18/01/93	1945 UTC	654 -	070 30 kn	060 07 08	8	1008.0 «b	12.7 C	12.2 C		8/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.17	15.17	33.156	24.514	341.0	0.000	5.76	100.5	2.8	0.37	0.0	0.01	0.70	0.32	0
1	1	15.17	15.17	33.156	24.514	341.0	0.003	5.76	100.5	2.8	0.37	0.0	0.01	0.70	0.32	1
	10 ISL	15.15	15.15	33.157	24.520	340.8	0.034	5.76	100.4	2.8	0.38	0.0	0.02	0.68	0.32	10
1	11	15.15	15.15	33.157	24.520	340.8	0.037	5.76	100.4	2.8	0.38	0.0	0.02	0.68	0.32	11
1	20	15.14	15.14	33.165	24.529	340.3	0.068	5.75	100.2	2.8	0.37	0.0	0.02	0.69	0.32	20
1	30	15.28	15.28	33.233	24.551	338.5	0.102	5.71	99.9	2.6	0.36	0.0	0.02	0.43	0.22	30
1	39	15.17	15.16	33.248	24.587	335.3	0.132	5.68	99.1	2.7	0.38	0.1	0.08	0.34	0.24	39
1	49	15.02	15.01	33.251	24.622	332.2	0.166	5.65	98.3	3.0	0.40	0.2	0.16	0.27	0.20	49
	50 ISL	14.97	14.96	33.249	24.631	331.4	0.169	5.65	98.2	3.0	0.41	0.3	0.17	0.27	0.20	50
1	59	14.53	14.52	33.241	24.719	323.2	0.199	5.55	95.6	3.5	0.48	1.2	0.24	0.22	0.21	59
1	69	14.25	14.24	33.303	24.827	313.3	0.230	5.22	89.4	4.9	0.62	3.3	0.12	0.14	0.16	69
	75 ISL	14.18	14.17	33.315	24.851	311.1	0.249	5.15	88.1	5.2	0.65	3.8	0.09	0.13	0.16	75
1	83	14.06	14.05	33.321	24.880	308.5	0.274	5.08	86.7	5.6	0.69	4.4	0.06	0.12	0.15	83
1	97	13.45	13.44	33.355	25.032	294.4	0.316	4.72	79.6	7.4	0.87	7.1	0.02	0.10	0.14	97
	100 ISL	13.24	13.23	33.362	25.080	289.9	0.325	4.65	78.0	7.9	0.91	7.8	0.02	0.09	0.13	100
1	117	12.06	12.04	33.420	25.354	264.0	0.372	4.27	69.9	11.1	1.14	11.9 '	0.01	0.05	0.08	118
	125 ISL	11.75	11.73	33.453	25.438	256.2	0.393	4.14	67.4	12.1	1.21	13.1	0.01	0.04	0.07	126
1	141	11.24	11.22	33.540	25.599	241.2	0.433	3.87	62.3	14.5	1.36	15.5	0.01	0.02	0.05	142
	150 ISL	10.79	10.77	33.629	25.749	227.0	0.454	3.59	57.3	17.4	1.50	17.7	0.01	0.02	0.05	151
1	171	9.85	9.83	33.838	26.073	196.4	0.498	2.98	46.6	24.4	1.81	22.6	0.01	0.01	0.04	172
1	200	9.41	9.39	33.957	26.240	181.1	0.553	2.69	41.7	28.6	1.94	24.9	0.00	0.01	0.03	201
1	229	8.97	8.95	34.050	26.383	167.9	0.603	2.39	36.7	33.7	2.10	27.1	0.00			230
	250 ISL	8.76	8.73	34.106	26.460	160.9	0.638	2.12	32.4	37.3	2.22	28.4	0.00			251
1	269	8.59	8.56	34.145	26.518	155.8	0.668	1.89	28.8	40.5	2.32	29.4	0.00			271
	300 ISL	8.19	8.16	34.168	26.597	148.6	0.715	1.65	24.9	45.2	2.45	31.0	0.00			302
1	324	7.88	7.85	34.172	26.646	144.2	0.750	1.51	22.7	48.7	2.53	32.1	0.00			326
1	383	7.33	7.29	34.198	26.746	135.3	0.833	1.09	16.1	56.9	2.74	34.6	0.00			385
	400 ISL	7.18	7.14	34.208	26.775	132.7	0.856	0.98	14.5	59.3	2.79	35.3	0.00			403
1	448	6.79	6.75	34.238	26.853	125.8	0.918	0.69	10.1	66.2	2.93	37.0	0.00			451
	500 ISL	6.40	6.35	34.271	26.931	118.8	0.981	0.48	7.0	73.7	3.05	38.4	0.01			503
1	517	6.27	6.22	34.282	26.957	116.5	1.001	0.41	5.9	76.1	3.09	38.8	0.01			520

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 40

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 39.3 N	118 58.6 W	19/01/93	0155 UTC	705 n	060 11 kn	240 03 06	1	1008.9 Bb	13.3 C	11.9 C		4/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.20	14.20	33.180	24.740	319.5	0.000	5.88	100.6	3.2	0.41	0.5	0.04	0.73	0.34	0
1	1	14.20	14.20	33.180	24.740	319.5	0.003	5.88	100.6	3.2	0.41	0.5	0.04	0.73	0.34	1
	10 ISL	14.20	14.20	33.193	24.750	318.8	0.032	5.87	100.4	3.2	0.42	0.5	0.04	0.78	0.37	10
1	11	14.20	14.20	33.196	24.753	318.6	0.035	5.87	100.4	3.2	0.42	0.5	0.04	0.79	0.37	11
1	20	14.20	14.20	33.215	24.768	317.5	0.064	5.84	99.9	3.2	0.41	0.5	0.04	0.76	0.39	20
	30 ISL	14.20	14.20	33.225	24.776	317.0	0.095	5.83	99.7	3.2	0.41	0.5	0.04	0.80	0.46	30
1	31	14.20	14.20	33.225	24.776	317.0	0.099	5.83	99.7	3.2	0.41	0.5	0.04	0.80	0.47	31
1	40	14.21	14.20	33.229	24.777	317.2	0.127	5.81	99.4	3.2	0.42	0.6	0.05	0.69	0.42	40
	50 ISL	13.89	13.88	33.249	24.859	309.6	0.159	5.75	97.8	3.7	0.47	1.1	0.08	0.43	0.43	50
1	51	13.84	13.83	33.253	24.872	308.3	0.162	5.74	97.5	3.7	0.47	1.2	0.09	0.40	0.43	51
1	60	13.29	13.28	33.315	25.032	293.3	0.189	5.30	89.0	5.9	0.67	4.3	0.19	0.20	0.30	60
1	69	12.88	12.87	33.329	25.125	284.7	0.215	5.01	83.4	7.2	0.81	6.6	0.18	0.18	0.27	69
	75 ISL	12.35	12.34	33.377	25.265	271.5	0.231	4.66	76.8	9.5	0.98	9.4	0.12	0.14	0.23	75
1	83	11.66	11.65	33.451	25.452	253.8	0.252	4.21	68.4	12.8	1.19	13.1	0.03	0.09	0.17	83
1	99	11.25	11.24	33.505	25.569	243.0	0.292	3.98	64.1	14.9	1.32	15.1	0.02	0.06	0.15	99
	100 ISL	11.23	11.22	33.508	25.575	242.4	0.295	3.97	63.9	15.0	1.33	15.2	0.02	0.06	0.15	100
1	119	10.78	10.77	33.577	25.709	230.0	0.339	3.75	59.8	17.1	1.45	17.1	0.02	0.03	0.11	120
	125 ISL	10.62	10.61	33.615	25.767	224.7	0.353	3.64	57.9	18.1	1.50	17.9	0.02	0.02	0.10	126
1	143	10.16	10.14	33.739	25.943	208.2	0.392	3.29	51.8	21.5	1.66	20.5	0.01	0.01	0.09	144
	150 ISL	10.01	9.99	33.779	26.000	203.0	0.406	3.18	49.9	22.7	1.71	21.3	0.01	0.01	0.08	151
1	173	9.56	9.54	33.901	26.171	187.1	0.451	2.84	44.2	27.1	1.87	23.8	0.00	0.01	0.06	174
	200 ISL	8.98	8.96	34.042	26.375	168.1	0.499	2.36	36.3	34.4	2.10	26.9	0.01	0.01	0.05	201
1	202	8.94	8.92	34.050	26.388	167.0	0.503	2.33	35.8	34.9	2.11	27.1	0.01	0.01	0.05	203
1	232	8.80	8.78	34.100	26.449	161.6	0.552	2.09	32.0	37.6	2.20	28.3	0.01			233
	250 ISL	8.61	8.58	34.111	26.488	158.3	0.581	2.08	31.7	39.0	2.23	28.8	0.01			251
1	272	8.34	8.31	34.120	26.536	153.9	0.615	2.06	31.2	41.1	2.27	29.5	0.00			274
	300 ISL	8.09	8.06	34.151	26.599	148.4	0.657	1.78	26.8	45.3	2.40	31.0	0.00			302
1	327	7.84	7.81	34.179	26.658	143.1	0.697	1.45	21.7	49.9	2.55	32.5	0.00			329
1	387	7.11	7.07	34.198	26.777	132.3	0.779	1.02	15.0	59.9	2.78	35.4	0.00			389
	400 ISL	7.00	6.96	34.205	26.798	130.4	0.796	0.95	14.0	61.6	2.82	35.9	0.00			403
1	452	6.63	6.59	34.240	26.876	123.5	0.862	0.68	9.9	68.3	2.95	37.6	0.00			455
	500 ISL	6.27	6.23	34.282	26.957	116.2	0.920	0.44	6.4	76.3	3.07	38.8	0.00			503
1	522	6.11	6.06	34.302	26.993	112.9	0.945	0.33	4.8	80.0	3.13	39.3	0.00			526

RV DAVID STARK JORDAN CALCOFI CRUISE 9301 STATION 87 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 29.4 N	119 19.2 W	19/01/93	0527 UTC	1639 -	010 08 Jtn			1013.3 mb	13.8 C	12.3 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.21	14.21	33.215	24.765	317.1	0.000	5.91	101.1	3.1	0.40	0.2	0.03	0.83	0.46	0
1	2	14.21	14.21	33.215	24.765	317.2	0.006	5.91	101.1	3.1	0.40	0.2	0.03	0.83	0.46	2
	10 ISL	14.20	14.20	33.213	24.766	317.3	0.032	5.90	100.9	3.1	0.40	0.2	0.02	0.85	0.48	10
1	12	14.20	14.20	33.213	24.766	317.4	0.038	5.90	100.9	3.1	0.40	0.2	0.02	0.85	0.49	12
	20 ISL	14.15	14.15	33.226	24.786	315.7	0.063	5.85	100.0	3.2	0.42	0.4	0.04	0.80	0.47	20
1	21	14.14	14.14	33.231	24.792	315.1	0.067	5.84	99.8	3.2	0.42	0.4	0.05	0.79	0.47	21
	30 ISL	13.78	13.78	33.279	24.904	304.7	0.094	5.56	94.3	4.4	0.55	1.8	0.16	0.48	0.34	30
1	31	13.74	13.74	33.284	24.916	303.6	0.097	5.53	93.8	4.5	0.56	2.0	0.17	0.44	0.33	31
1	41	13.60	13.59	33.290	24.950	300.7	0.128	5.43	91.8	5.0	0.61	2.6	0.20	0.34	0.33	41
1	50	13.39	13.38	33.298	24.999	296.3	0.155	5.32	89.5	5.7	0.67	3.6	0.19	0.25	0.30	50
1	60	12.81	12.80	33.326	25.136	283.4	0.184	4.98	82.8	7.7	0.84	6.2	0.16	0.17	0.23	60
1	69	12.13	12.12	33.363	25.296	268.4	0.208	4.61	75.6	10.3	1.04	9.7	0.08	0.13	0.18	69
	75 ISL	11.79	11.78	33.372	25.366	261.7	0.224	4.51	73.4	11.4	1.11	11.0	0.07	0.12	0.16	75
1	83	11.35	11.34	33.400	25.469	252.1	0.245	4.39	70.8	13.1	1.21	12.7	0.06	0.11	0.14	83
1	98	10.32	10.31	33.594	25.802	220.7	0.280	3.70	58.4	19.2	1.55	18.3	0.03	0.04	0.10	98
	100 ISL	10.29	10.28	33.615	25.824	218.7	0.285	3.66	57.8	19.6	1.56	18.5	0.03	0.04	0.10	100
1	117	10.08	10.07	33.679	25.910	210.8	0.321	3.48	54.7	21.6	1.64	19.9	0.02	0.03	0.09	118
	125 ISL	10.00	9.99	33.695	25.936	208.5	0.338	3.43	53.8	22.1	1.67	20.3	0.02	0.03	0.08	126
1	142	9.87	9.85	33.732	25.987	204.0	0.373	3.31	51.8	23.2	1.72	21.2	0.02	0.02	0.06	143
	150 ISL	9.82	9.80	33.771	26.026	200.5	0.389	3.19	49.9	24.0	1.76	21.8	0.01	0.02	0.06	151
1	171	9.68	9.66	33.882	26.136	190.4	0.430	2.86	44.6	26.6	1.88	23.7	0.00	0.01	0.05	172
	200 ISL	9.28	9.26	33.978	26.277	177.5	0.484	2.50	38.7	31.3	2.03	26.0	0.01	0.01	0.05	201
1	202	9.25	9.23	33.984	26.286	176.6	0.487	2.48	38.3	31.7	2.04	26.2	0.01	0.01	0.05	203
1	232	8.88	8.86	34.087	26.427	163.8	0.538	2.10	32.2	37.0	2.22	28.6	0.00			233
	250 ISL	8.71	8.68	34.128	26.485	158.5	0.567	1.94	29.7	39.4	2.29	29.5	0.00			251
1	271	8.53	8.50	34.162	26.540	153.7	0.600	1.79	27.3	41.9	2.36	30.4	0.00			273
	300 ISL	8.23	8.20	34.185	26.604	148.0	0.644	1.54	23.3	46.2	2.47	31.9	0.00			302
1	328	7.94	7.91	34.197	26.657	143.3	0.685	1.31	19.7	50.5	2.58	33.3	0.00			330
1	387	7.37	7.33	34.233	26.768	133.4	0.766	0.90	13.3	59.0	2.80	35.9	0.00			389
	400 ISL	7.25	7.21	34.238	26.789	131.5	0.783	0.83	12.3	60.8	2.84	36.4	0.00			403
1	453	6.79	6.75	34.261	26.871	124.2	0.851	0.59	8.6	68.4	2.97	38.3	0.00			456
	500 ISL	6.42	6.37	34.286	26.941	117.9	0.908	0.43	6.2	75.2	3.07	39.5	0.00			503
1	522	6.25	6.20	34.299	26.973	115.0	0.934	0.36	5.2	78.4	3.11	40.0	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 19.4 N	119 39.8 N	19/01/93	0900 UTC	78 -	310 26 kn			1016.8 mb	14.2 C	12.1 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
1	0	14.35	14.35	33.242	24.756	317.9	0.000	5.79	99.4	3.3	0.44	0.6	0.04	0.58	0.31	0
1	10	14.32	14.32	33.243	24.764	317.5	0.032	5.79	99.3	3.2	0.43	0.6	0.04	0.59	0.31	10
	20 ISL	13.84	13.84	33.283	24.895	305.3	0.063	5.49	93.3	5.1	0.59	2.3	0.12	0.38	0.30	20
1	21	13.79	13.79	33.288	24.909	304.0	0.066	5.46	92.7	5.3	0.61	2.5	0.13	0.36	0.30	21
1	30	13.67	13.67	33.319	24.958	299.6	0.093	5.45	92.3	5.3	0.62	2.7	0.17	0.28	0.27	30
1	40	13.23	13.22	33.339	25.062	289.9	0.123	5.28	88.6	6.4	0.70	4.0	0.21	0.22	0.27	40
1	50	12.63	12.62	33.408	25.234	273.8	0.151	4.78	79.2	9.7	0.93	7.8	0.19	0.14	0.25	50
1	61	12.53	12.52	33.413	25.258	271.8	0.181	4.72	78.1	10.2	0.97	8.3	0.18	0.13	0.21	61

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 9.4 N	120 0.5 W	19/01/93	1235 UTC	1197 m	310 22 kn			1018.9 mb	13.6 C	11.7 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.36	14.36	33.265	24.772	316.5	0.000	5.74	98.6	3.5	0.44	0.7	0.03	0.53	0.25	0
1	1	14.36	14.36	33.265	24.772	316.5	0.003	5.74	98.6	3.5	0.44	0.7	0.03	0.53	0.25	1
	10 ISL	14.37	14.37	33.264	24.769	317.0	0.032	5.75	98.7	3.5	0.45	0.7	0.03	0.51	0.23	10
1	15	14.37	14.37	33.264	24.770	317.1	0.048	5.76	98.9	3.5	0.45	0.7	0.03	0.49	0.22	15
	20 ISL	14.37	14.37	33.264	24.770	317.3	0.063	5.76	98.9	3.5	0.44	0.7	0.03	0.49	0.22	20
1	30	14.36	14.36	33.265	24.773	317.2	0.095	5.76	98.9	3.5	0.43	0.7	0.03	0.51	0.22	30
1	39	14.36	14.35	33.268	24.776	317.3	0.124	5.75	98.7	3.4	0.45	0.6	0.04	0.51	0.23	39
1	49	14.23	14.22	33.281	24.813	314.0	0.155	5.64	96.6	3.9	0.49	1.3	0.07	0.38	0.19	49
	50 ISL	14.16	14.15	33.282	24.829	312.5	0.158	5.62	96.1	4.0	0.50	1.5	0.08	0.36	0.19	50
1	59	13.35	13.34	33.290	25.001	296.3	0.186	5.35	90.0	5.9	0.67	3.8	0.16	0.24	0.18	59
1	74	11.72	11.71	33.312	25.333	264.9	0.228	4.72	76.7	10.4	1.06	10.1	0.06	0.15	0.16	74
	75 ISL	11.61	11.60	33.314	25.355	262.8	0.230	4.68	75.9	10.7	1.08	10.5	0.06	0.14	0.17	75
1	87	10.48	10.47	33.375	25.604	239.3	0.261	4.29	67.9	14.8	1.35	15.2	0.03	0.05	0.21	87
	100 ISL	9.79	9.78	33.513	25.828	218.1	0.290	3.89	60.7	18.9	1.55	18.8	0.01	0.03	0.09	100
1	102	9.73	9.72	33.533	25.854	215.7	0.295	3.84	59.8	19.4	1.57	19.2	0.01	0.03	0.07	102
1	117	9.61	9.60	33.578	25.909	210.8	0.327	3.71	57.7	20.5	1.62	20.1	0.01	0.03	0.06	118
	125 ISL	9.59	9.58	33.591	25.923	209.6	0.343	3.67	57.0	20.8	1.63	20.3	0.01	0.03	0.06	126
1	137	9.55	9.53	33.618	25.950	207.2	0.368	3.61	56.1	21.5	1.66	20.8	0.01	0.02	0.06	138
	150 ISL	9.37	9.35	33.684	26.032	199.8	0.395	3.46	53.5	23.3	1.73	22.0	0.01	0.01	0.05	151
1	157	9.24	9.22	33.727	26.086	194.7	0.409	3.36	51.8	24.5	1.77	22.8	0.01	0.01	0.04	158
1	182	8.63	8.61	33.888	26.308	173.9	0.455	3.03	46.2	30.2	1.93	25.8	0.01	0.00	0.03	183
	200 ISL	8.47	8.45	33.964	26.393	166.2	0.485	2.85	43.3	33.0	2.00	27.0	0.01	0.00	0.03	201
1	216	8.39	8.37	34.012	26.443	161.7	0.512	2.69	40.8	35.3	2.06	27.8	0.01	0.00	0.03	217
	250 ISL	8.06	8.03	34.080	26.547	152.4	0.565	2.22	33.4	41.5	2.25	30.3	0.00			251
1	251	8.05	8.02	34.082	26.549	152.1	0.567	2.21	33.3	41.7	2.26	30.4	0.00			252
1	292	7.62	7.59	34.136	26.655	142.6	0.627	1.67	24.9	49.6	2.50	33.1	0.00			294
	300 ISL	7.57	7.54	34.146	26.670	141.3	0.638	1.58	23.5	50.8	2.54	33.5	0.00			302
1	346	7.27	7.24	34.194	26.751	134.2	0.702	1.17	17.3	57.0	2.71	35.5	0.00			348
	400 ISL	6.74	6.70	34.210	26.837	126.5	0.772	0.86	12.6	65.1	2.87	37.9	0.00			403
1	412	6.62	6.58	34.212	26.855	124.9	0.787	0.81	11.8	66.8	2.90	38.4	0.00			415
1	481	6.27	6.23	34.244	26.926	118.8	0.871	0.60	8.7	73.7	3.02	40.0	0.00			484
	500 ISL	6.14	6.10	34.253	26.950	116.7	0.894	0.55	7.9	76.1	3.05	40.5	0.00			503
1	561	5.71	5.66	34.282	27.028	109.7	0.963	0.41	5.8	83.6	3.13	42.0	0.00			565

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 59.4 N	120 21.0 N	19/01/93	1626 UTC	692 •	330 16 kn	280 08 08	1	1022.0 *mto*	14.7 C	12.1 C		5/8	CU

CAST	DEPTH •		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CBL-A ug/1	PHAEO ug/1	PRESS <U>
	0	ISL	14.45	14.45	33.260	24.749	318.6	0.000	5.79	99.6	3.0	0.41	0.4	0.02	0.41	0.20	0
1	1		14.45	14.45	33.260	24.749	318.7	0.003	5.79	99.6	3.0	0.41	0.4	0.02	0.41	0.20	1
	10	ISL	14.45	14.45	33.259	24.749	319.0	0.032	5.78	99.4	2.9	0.40	0.4	0.03	0.42	0.20	10
1	17		14.45	14.45	33.259	24.749	319.1	0.054	5.78	99.4	2.9	0.40	0.4	0.03	0.43	0.20	17
	20	ISL	14.45	14.45	33.260	24.750	319.2	0.064	5.78	99.4	2.9	0.40	0.4	0.03	0.42	0.19	20
	30	ISL	14.44	14.44	33.261	24.753	319.1	0.096	5.78	99.4	2.9	0.40	0.4	0.03	0.40	0.17	30
1	31		14.44	14.44	33.261	24.753	319.2	0.099	5.78	99.4	2.9	0.40	0.4	0.03	0.40	0.17	31
1	42		14.45	14.44	33.260	24.750	319.8	0.134	5.78	99.4	3.0	0.40	0.4	0.03	0.40	0.18	42
	50	ISL	14.45	14.44	33.261	24.752	319.9	0.160	5.78	99.4	2.9	0.40	0.4	0.02	0.39	0.19	50
1	52		14.45	14.44	33.261	24.752	319.9	0.166	5.78	99.4	2.9	0.40	0.4	0.02	0.39	0.19	52
1	62		14.12	14.11	33.276	24.833	312.5	0.198	5.67	96.9	3.4	0.47	1.0	0.07	0.31	0.20	62
1	75		11.72	11.71	33.254	25.288	269.2	0.235	4.82	78.3	9.9	1.03	9.7	0.07	0.19	0.20	75
1	89		10.48	10.47	33.375	25.604	239.3	0.271	4.24	67.1	14.8	1.35	15.4	0.02	0.09	0.13	89
	100	ISL	9.92	9.91	33.484	25.784	222.3	0.296	3.96	61.9	17.8	1.51	18.3	0.01	0.04	0.07	100
1	105		9.73	9.72	33.536	25.856	215.6	0.307	3.86	60.1	19.2	1.57	19.4	0.01	0.03	0.05	105
1	120		9.16	9.15	33.699	26.076	194.8	0.338	3.54	54.5	24.1	1.74	22.8	0.01	0.01	0.04	121
	125	ISL	9.06	9.05	33.753	26.135	189.4	0.348	3.41	52.4	25.6	1.78	23.6	0.01	0.01	0.04	126
1	140		8.90	8.89	33.875	26.256	178.2	0.375	3.09	47.4	28.8	1.88	25.1	0.00	0.00	0.04	141
	150	ISL	8.85	8.83	33.890	26.275	176.5	0.393	3.04	46.6	29.3	1.91	25.4	0.00	0.00	0.03	151
1	159		8.81	8.79	33.892	26.283	175.9	0.409	3.02	46.2	29.6	1.93	25.6	0.00	0.00	0.02	160
1	185		8.50	8.48	34.002	26.418	163.5	0.453	2.64	40.1	34.5	2.08	28.1	0.00	0.00	0.03	186
	200	ISL	8.36	8.34	34.038	26.468	159.0	0.477	2.46	37.3	37.2	2.15	29.1	0.00	0.00	0.03	201
1	218		8.21	8.19	34.068	26.514	154.9	0.506	2.27	34.3	40.2	2.23	30.1	0.00	0.00	0.02	219
	250	ISL	7.96	7.93	34.109	26.584	148.8	0.554	2.01	30.2	44.3	2.34	31.5	0.00			251
1	254		7.93	7.90	34.113	26.592	148.1	0.560	1.98	29.7	44.8	2.35	31.7	0.00			255
1	294		7.59	7.56	34.143	26.665	141.7	0.618	1.60	23.8	50.6	2.52	33.7	0.00			296
	300	ISL	7.53	7.50	34.148	26.678	140.5	0.626	1.54	22.9	51.6	2.55	34.0	0.00			302
1	348		7.05	7.02	34.194	26.782	131.2	0.692	1.06	15.6	60.2	2.77	36.7	0.00			350
	400	ISL	6.65	6.61	34.241	26.873	123.0	0.758	0.70	10.2	68.3	2.94	38.8	0.00			403
1	413		6.57	6.53	34.250	26.891	121.4	0.774	0.64	9.3	70.0	2.97	39.2	0.00			416
1	483		6.20	6.16	34.267	26.954	116.2	0.857	0.52	7.s	76.1	3.06	40.6	0.00			486
	500	ISL	6.09	6.05	34.273	26.973	114.5	0.876	0.49	7.1	77.9	3.09	41.0	0.00			503
1	564		5.69	5.64	34.299	27.044	108.2	0.948	0.38	5.4	84.9	3.18	42.5	0.00			568

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 39.3 N	121 2.1 W	20/01/93	0006 UTC	3792 •	290 08 kn	290 03 08	1	1024.0 mb	14.1 C	11.2 C	29B 01	7/8	SC

CAST	DEPTH •		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL-A uq/1	PHAEO ug/1	PRESS db
	0	ISL	14.55	14.55	32.988	24.518	340.6	0.000	5.87	101.0	2.2	0.36	0.1	0.00	0.20	0.07	0
1	1		14.55	14.55	32.988	24.518	340.7	0.003	s.87	101.0	2.2	0.36	0.1	0.00	0.20	0.07	1
	10	ISL	14.52	14.52	32.991	24.527	340.1	0.034	5.87	100.9	2.2	0.36	0.1	0.00	0.19	0.08	10
1	15		14.51	14.51	32.992	24.530	339.9	0.051	5.87	100.9	2.2	0.36	0.1	0.00	0.19	0.09	15
	20	ISL	14.42	14.42	32.994	24.551	338.1	0.068	5.88	100.9	2.2	0.36	0.1	0.00	0.21	0.10	20
	30	ISL	14.24	14.24	33.002	24.595	334.1	0.102	5.90	100.9	2.2	0.36	0.1	0.01	0.25	0.11	30
1	31		14.22	14.22	33.003	24.600	333.7	0.105	5.90	100.8	2.2	0.36	0.1	0.01	0.25	0.11	31
1	40		14.16	14.15	33.018	24.625	331.6	0.135	5.90	100.7	2.3	0.36	0.1	0.02	0.28	0.12	40
1	50		13.96	13.95	33.041	24.684	326.3	0.168	5.88	100.0	2.5	0.40	0.3	0.06	0.28	0.14	50
1	60		13.31	13.30	33.115	24.874	308.4	0.200	5.55	93.2	3.8	0.56	2.0	0.15	0.19	0.14	60
1	69		12.54	12.53	33.180	25.075	289.4	0.226	5.38	88.9	5.4	0.69	4.0	0.04	0.22	0.21	69
	75	ISL	12.34	12.33	33.292	25.201	277.6	0.243	4.91	80.8	8.0	0.89	7.3	0.05	0.15	0.18	75
1	79		12.22	12.21	33.365	25.280	270.1	0.254	4.58	75.2	9.9	1.03	9.6	0.06	0.10	0.15	79
1	93		11.16	11.15	33.408	25.510	248.5	0.291	4.19	67.3	13.4	1.29	13.9	0.02	0.08	0.12	93
	100	ISL	11.03	11.02	33.486	25.594	240.6	0.308	3.93	63.0	15.0	1.38	15.3	0.02	0.06	0.11	100
1	107		10.97	10.96	33.557	25.660	234.5	0.324	3.73	59.7	16.3	1.44	16.3	0.02	0.05	0.11	107
1	123		10.43	10.42	33.538	25.740	227.1	0.361	3.81	60.3	17.7	1.49	17.6	0.01	0.04	0.10	124
	125	ISL	10.30	10.29	33.536	25.761	225.2	0.366	3.81	60.1	18.0	1.50	17.9	0.01	0.04	0.09	126
1	147		9.00	8.98	33.598	26.023	200.4	0.413	3.77	57.8	22.8	1.71	21.7	0.01	0.01	0.04	148
	150	ISL	9.01	8.99	33.641	26.055	197.4	0.419	3.65	56.0	23.6	1.74	22.2	0.01	0.01	0.04	151
1	171		9.09	9.07	33.898	26.244	180.0	0.458	2.79	43.0	29.2	1.94	25.5	0.00	0.01	0.04	172
1	200		8.70	8.68	34.013	26.396	166.0	0.508	2.51	38.3	34.1	2.08	27.8	0.01	0.01	0.04	201
1	228		7.93	7.91	34.000	26.502	156.1	0.554	2.90	43.5	37.8	2.05	28.5	0.00			229
	250	ISL	7.51	7.49	34.004	26.567	150.2	0.587	2.74	40.7	41.8	2.12	29.9	0.00			251
1	266		7.27	7.24	34.013	26.608	146.4	0.611	2.63	38.9	45.1	2.21	31.1	0.00			268
	300	ISL	6.88	6.85	34.043	26.685	139.4	0.660	2.09	30.6	52.5	2.43	34.0	0.00			302
1	320		6.73	6.70	34.069	26.726	135.7	0.687	1.72	25.1	56.9	2.57	35.7	0.00			322
1	378		6.53	6.50	34.195	26.853	124.5	0.762	0.84	12.2	67.6	2.91	38.8	0.00			380
	400	ISL	6.43	6.39	34.220	26.886	121.6	0.790	0.69	10.0	70.6	2.98	39.5	0.00			403
1	444		6.19	6.15	34.247	26.939	117.0	0.842	0.54	7.8	75.6	3.06	40.5	0.00			447
	500	ISL	5.86	5.82	34.255	26.987	112.9	0.906	0.45	6.4	80.6	3.11	41.8	0.00			503
1	516		5.77	5.73	34.258	27.001	111.7	0.924	0.42	6.0	82.0	3.12	42.2	0.00			520

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 19.2 N	121 43.2 N	20/01/93	0605 UTC	4010 m	260 10 kn			1026.5 mb	15.0 C	12.0 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
1	0	15.73	15.73	33.175	24.406	351.4	0.000	5.69	100.4	2.6	0.33	0.1	0.00	0.13	0.06	3
	10 ISL	15.73	15.73	33.176	24.407	351.6	0.035	5.70	100.6	2.5	0.33	0.1	0.00	0.12	0.06	10
1	14	15.73	15.73	33.176	24.407	351.7	0.049	5.70	100.6	2.5	0.33	0.1	0.00	0.12	0.06	14
	20 ISL	15.73	15.73	33.176	24.407	351.9	0.070	5.71	100.7	2.5	0.33	0.1	0.00	0.12	0.06	20
1	29	15.72	15.72	33.176	24.410	351.9	0.102	5.71	100.7	2.4	0.33	0.1	0.00	0.12	0.06	2»
	30 ISL	15.72	15.72	33.176	24.410	351.9	0.106	5.71	100.7	2.4	0.33	0.1	0.00	0.12	0.06	30
1	39	15.75	15.74	33.177	24.404	352.8	0.137	5.70	100.6	2.2	0.33	0.1	0.00	0.12	0.06	39
1	49	15.76	15.75	33.178	24.403	353.2	0.173	5.70	100.6	2.2	0.33	0.1	0.00	0.12	0.06	49
	50 ISL	15.75	15.74	33.178	24.405	353.0	0.176	5.70	100.6	2.2	0.33	0.1	0.00	0.12	0.06	50
1	58	15.72	15.71	33.179	24.413	352.5	0.204	5.70	100.5	2.2	0.33	0.1	0.00	0.13	0.06	58
1	67	15.75	15.74	33.180	24.407	353.3	0.236	5.70	100.6	2.1	0.33	0.1	0.00	0.12	0.06	67
	75 ISL	15.76	15.75	33.182	24.407	353.6	0.264	5.70	100.6	2.1	0.33	0.1	0.00	0.14	0.07	75
1	77	15.76	15.75	33.183	24.408	353.6	0.271	5.70	100.6	2.1	0.33	0.1	0.00	0.15	0.07	77
1	92	15.38	15.37	33.197	24.503	344.9	0.324	5.74	100.5	2.2	0.35	0.1	0.02	0.17	0.11	92
	100 ISL	14.60	14.59	33.205	24.678	328.4	0.351	5.70	98.3	2.8	0.41	0.3	0.07	0.18	0.11	100
1	107	13.81	13.79	33.214	24.850	312.0	0.373	5.66	96.0	3.5	0.49	0.9	0.11	0.18	0.11	107
1	122	12.50	12.48	33.218	25.114	287.1	0.418	5.37	88.7	5.5	0.70	3.9	0.02	0.12	0.14	123
	125 ISL	12.19	12.17	33.218	25.173	281.5	0.427	5.31	87.1	6.2	0.76	4.9	0.02	0.11	0.13	126
1	146	10.23	10.21	33.271	25.566	244.0	0.482	4.82	75.8	12.0	1.21	12.6	0.01	0.04	0.06	147
	150 ISL	9.98	9.96	33.299	25.630	238.0	0.491	4.71	73.7	13.3	1.28	13.9	0.01	0.03	0.05	151
1	172	9.08	9.06	33.486	25.923	210.3	0.541	4.11	63.1	19.8	1.58	19.6	0.00	0.01	0.03	173
	200 ISL	8.91	8.89	33.734	26.145	189.9	0.597	3.43	52.5	25.4	1.80	23.5	0.00	0.00	0.02	201
1	203	8.89	8.87	33.752	26.162	188.3	0.602	3.37	51.6	25.9	1.81	23.7	0.00	0.00	0.02	204
1	233	8.48	8.46	33.890	26.334	172.4	0.656	3.21	48.7	30.3	1.89	25.6	0.00			234
	250 ISL	8.26	8.23	33.953	26.417	164.7	0.685	3.07	46.4	33.4	1.95	26.8	0.00			251
1	274	7.95	7.92	34.017	26.514	155.9	0.724	2.85	42.8	38.0	2.06	28.5	0.00			275
	300 ISL	7.54	7.51	34.033	26.586	149.2	0.763	2.60	38.7	43.2	2.19	30.6	0.00			30;*
1	329	7.10	7.07	34.028	26.644	143.9	0.806	2.33	34.3	48.9	2.34	32.8	0.00			331
1	390	6.50	6.46	34.048	26.741	135.2	0.891	1.79	26.0	58.7	2.58	36.5	0.00			39:*
	400 ISL	6.42	6.38	34.059	26.760	133.4	0.904	1.66	24.1	60.7	2.63	37.2	0.00			40:*
1	454	6.06	6.02	34.129	26.862	124.2	0.974	0.97	13.9	71.0	2.89	40.5	0.00			457
	500 ISL	5.77	5.73	34.172	26.933	117.9	1.030	0.69	9.9	77.7	3.01	42.3	0.00			503
1	519	5.65	5.61	34.190	26.962	115.3	1.052	0.57	8.1	80.5	3.06	43.0	0.00			52:*

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 59.3 N	122 23.6 W	20/01/93	1127 UTC	4112 m	250 16 kn			1026.0 mb	16.8 C	13.5 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/l	PO4 UM/l	NO3 uM/l	NO2 UM/l	CHL-A ug/l	PHAEO ug/l	PRESi. db
1	0	16.08	16.08	33.263	24.395	352.4	0.000	5.64	100.2	2.5	0.34	0.1	0.00	0.15	0.07	0
	10 ISL	16.09	16.09	33.263	24.393	352.9	0.035	5.64	100.3	2.4	0.34	0.1	0.00	0.15	0.06	10
1	15	16.09	16.09	33.263	24.393	353.1	0.053	5.64	100.3	2.4	0.34	0.1	0.00	0.15	0.06	IS
	20 ISL	16.09	16.09	33.264	24.394	353.1	0.071	5.64	100.3	2.4	0.34	0.1	0.00	0.15	0.06	20
	30 ISL	16.08	16.08	33.265	24.397	353.1	0.106	5.64	100.2	2.4	0.34	0.1	0.00	0.15	0.06	30
1	35	16.08	16.07	33.265	24.397	353.3	0.124	5.64	100.2	2.4	0.34	0.1	0.00	0.15	0.06	35
	50 ISL	16.09	16.08	33.262	24.393	354.1	0.177	5.64	100.3	2.3	0.35	0.1	0.00	0.15	0.06	50
1	55	16.09	16.08	33.261	24.393	354.3	0.194	5.64	100.2	2.3	0.35	0.1	0.00	0.15	0.06	5!>
1	69	16.09	16.08	33.259	24.392	354.9	0.244	5.64	100.2	2.3	0.34	0.1	0.00	0.14	0.06	6!»
	75 ISL	16.08	16.07	33.264	24.398	354.5	0.265	5.63	100.0	2.3	0.34	0.1	0.00	0.15	0.06	7'i
1	78	16.08	16.07	33.267	24.400	354.3	0.276	5.63	100.0	2.3	0.34	0.1	0.00	0.15	0.06	78
1	88	16.09	16.08	33.262	24.395	355.2	0.311	5.63	100.1	2.3	0.34	0.1	0.00	0.15	0.06	88
1	97	15.42	15.41	33.215	24.508	344.6	0.343	5.67	99.4	2.4	0.38	0.1	0.07	0.17	0.11	97
	100 ISL	14.99	14.98	33.198	24.589	336.9	0.353	5.67	98.5	2.6	0.41	0.2	0.10	0.18	0.14	100
1	107	13.94	13.92	33.175	24.793	317.5	0.376	5.68	96.6	3.1	0.48	0.5	0.15	0.19	0.19	107
1	123	12.71	12.69	33.214	25.070	291.3	0.425	5.37	89.0	5.1	0.69	3.6	0.02	0.14	0.15	124
	125 ISL	12.56	12.54	33.221	25.105	288.1	0.430	5.33	88.1	5.4	0.72	4.1	0.02	0.13	0.14	1215
1	137	11.70	11.68	33.264	25.301	269.5	0.464	5.12	83.1	7.6	0.87	7.3	0.01	0.09	0.11	138
	150 ISL	10.89	10.87	33.297	25.473	253.2	0.498	4.97	79.3	9.8	1.03	10.2	0.00	0.05	0.08	151
1	157	10.51	10.49	33.326	25.562	244.8	0.515	4.87	77.1	11.1	1.12	11.7	0.00	0.04	0.06	158
1	178	9.57	9.55	33.533	25.881	214.6	0.564	4.28	66.4	17.0	1.42	17.2	0.00	0.01	0.03	17!»
	200 ISL	9.05	9.03	33.660	26.065	197.5	0.609	3.95	60.7	21.5	1.59	20.5	0.00	0.00	0.02	201
1	203	9.01	8.99	33.675	26.083	195.8	0.615	3.91	60.0	22.0	1.61	20.8	0.00	0.00	0.02	204
1	232	8.72	8.70	33.870	26.281	177.5	0.669	3.44	52.5	27.3	1.79	23.9	0.00			233
	250 ISL	8.45	8.42	33.941	26.379	168.5	0.700	3.26	49.5	30.9	1.88	25.6	0.00			251
1	272	8.11	8.08	33.996	26.473	159.7	0.736	3.05	45.9	35.3	1.99	27.5	0.00			273
	300 ISL	7.78	7.75	34.037	26.554	152.3	0.780	2.65	39.6	40.7	2.16	30.1	0.00			30:<!
1	327	7.50	7.47	34.057	26.611	147.3	0.820	2.24	33.3	45.8	2.33	32.4	0.00			32!»
1	387	6.84	6.80	34.090	26.729	136.6	0.905	1.58	23.1	56.8	2.61	36.4	0.00			38!)
	400 ISL	6.74	6.70	34.101	26.751	134.6	0.923	1.44	21.0	59.0	2.67	37.2	0.00			40:2
1	453	6.37	6.33	34.148	26.837	126.9	0.992	0.96	13.9	67.5	2.87	39.9	0.00			451)
	500 ISL	5.98	5.94	34.181	26.914	119.9	1.050	0.70	10.0	74.8	3.00	41.8	0.00			503
1	524	5.78	5.73	34.198	26.952	116.4	1.079	0.57	8.1	78.6	3.06	42.7	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	WEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT	TYPE
31 39.3 N	123 4.2 W	20/01/93	1658 UTC	4112 •	290 08 kn	300 02 05	1	1028.0 Mb	16.1 C	14.9 C		7/8	NS

CAST	DEPTH •		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	15.77	15.77	33.189	24.407	351.2	0.000	5.69	100.5	2.0	0.33	0.0	0.00	0.15	0.06	0
1	2		15.77	15.77	33.189	24.408	351.3	0.007	5.69	100.5	2.0	0.33	0.0	0.00	0.15	0.06	2
	10	ISL	15.78	15.78	33.190	24.406	351.6	0.035	5.69	100.5	2.0	0.33	0.0	0.00	0.15	0.06	10
1	18		15.79	15.79	33.192	24.406	351.9	0.063	5.69	100.5	2.0	0.34	0.0	0.00	0.15	0.06	18
	20	ISL	15.79	15.79	33.192	24.406	352.0	0.070	5.69	100.5	2.0	0.34	0.0	0.00	0.15	0.06	20
	30	ISL	15.78	15.78	33.194	24.410	351.9	0.106	5.68	100.3	2.0	0.34	0.0	0.00	0.15	0.06	30
1	36		15.77	15.76	33.194	24.413	351.8	0.127	5.68	100.3	2.0	0.34	0.0	0.00	0.15	0.06	36
	50	ISL	15.78	15.77	33.193	24.410	352.5	0.176	5.68	100.3	1.9	0.33	0.0	0.00	0.16	0.07	50
1	57		15.78	15.77	33.193	24.410	352.7	0.201	5.68	100.3	1.9	0.33	0.0	0.00	0.17	0.07	57
1	72		15.79	15.78	33.193	24.409	353.3	0.254	5.68	100.3	1.9	0.34	0.0	0.00	0.16	0.07	72
	75	ISL	15.77	15.76	33.192	24.412	353.1	0.264	5.68	100.3	1.9	0.34	0.0	0.00	0.16	0.08	75
1	80		15.74	15.73	33.190	24.418	352.7	0.282	5.67	100.0	1.9	0.34	0.0	0.00	0.16	0.09	80
1	91		15.36	15.35	33.162	24.481	347.0	0.320	5.69	99.6	1.9	0.36	0.0	0.01	0.18	0.09	91
1	100		15.11	15.09	33.152	24.528	342.8	0.351	5.71	99.4	1.9	0.37	0.1	0.04	0.14	0.09	100
1	110		14.99	14.97	33.145	24.549	341.0	0.386	5.71	99.2	2.0	0.39	0.1	0.05	0.13	0.08	110
1	125		14.12	14.10	33.147	24.735	323.6	0.435	5.67	96.8	2.6	0.48	0.6	0.14	0.12	0.10	126
1	140		12.37	12.35	33.152	25.088	289.9	0.481	5.34	87.9	5.3	0.75	4.5	0.02	0.09	0.10	141
	150	ISL	11.23	11.21	33.189	25.328	267.1	0.509	5.01	80.5	8.6	1.00	8.9	0.01	0.07	0.08	151
1	159		10.40	10.38	33.236	25.510	249.7	0.532	4.72	74.5	11.6	1.21	12.8	0.01	0.05	0.06	160
1	181		9.86	9.84	33.330	25.675	234.3	0.586	4.40	68.7	14.8	1.40	16.1	0.01	0.03	0.05	182
	200	ISL	9.16	9.14	33.562	25.971	206.5	0.628	3.91	60.2	20.5	1.63	20.4	0.00	0.01	0.03	201
1	205		8.99	8.97	33.629	26.050	198.9	0.638	3.77	57.8	22.1	1.69	21.5	0.00	0.00	0.02	206
1	235		8.64	8.62	33.873	26.296	176.1	0.694	3.15	48.0	28.9	1.91	25.5	0.00			236
	250	ISL	8.48	8.45	33.932	26.367	169.6	0.720	3.03	46.0	31.2	1.96	26.5	0.00			251
1	275		8.23	8.20	33.983	26.445	162.5	0.761	2.93	44.3	34.4	2.01	27.6	0.00			276
	300	ISL	7.95	7.92	34.013	26.511	156.6	0.801	2.77	41.6	37.7	2.09	29.0	0.00			302
1	331		7.59	7.S6	34.032	26.578	150.5	0.849	2.52	37.5	42.4	2.22	30.9	0.00			333
1	389		6.83	6.79	34.066	26.711	138.3	0.933	1.77	25.9	54.9	2.57	35.7	0.00			391
	400	ISL	6.71	6.67	34.075	26.735	136.1	0.948	1.63	23.8	57.3	2.63	36.6	0.00			402
1	454		6.19	6.15	34.123	26.841	126.4	1.019	1.03	14.8	68.2	2.89	40.1	0.00			457
	500	ISL	5.92	s.88	34.165	26.909	120.3	1.075	0.74	10.6	74.5	3.02	41.7	0.00			503
1	523		5.78	5.73	34.186	26.943	117.2	1.103	0.60	8.6	77.6	3.08	42.5	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 87 110

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 19.4 N	123 44.7 H	20/01/93	2339 UTC	3909 •	280 12 kn	300 02 07	1	1027.0 mb	16.4 C	14.9 C	33B 01	6/8	SC

CAST	DEPTH •		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	16.61	16.61	33.313	24.312	360.3	0.000	5.62	101.0	2.3	0.33	0.1	0.00	0.11	0.04	0
1	1		16.61	16.61	33.313	24.312	360.3	0.004	5.62	101.0	2.3	0.33	0.1	0.00	0.11	0.04	1
	10	ISL	16.44	16.44	33.293	24.336	358.3	0.036	5.62	100.6	2.3	0.33	0.1	0.00	0.11	0.04	10
1	16		16.29	16.29	33.274	24.356	356.6	0.057	5.63	100.5	2.3	0.33	0.1	0.00	0.11	0.04	16
	20	ISL	16.25	16.25	33.268	24.360	356.3	0.072	5.63	100.4	2.3	0.33	0.1	0.00	0.11	0.04	20
	30	ISL	16.17	16.17	33.257	24.371	355.6	0.107	5.64	100.4	2.2	0.33	0.1	0.00	0.12	0.04	30
1	36		16.15	16.14	33.253	24.372	355.7	0.129	5.65	100.5	2.2	0.33	0.1	0.00	0.12	0.04	36
	50	ISL	16.09	16.08	33.243	24.379	355.5	0.178	5.66	100.6	2.2	0.34	0.1	0.00	0.13	0.05	50
1	54		16.08	16.07	33.241	24.380	355.6	0.193	5.66	100.6	2.2	0.34	0.1	0.00	0.14	0.05	54
1	69		16.06	16.05	33.236	24.381	355.9	0.246	5.66	100.5	2.2	0.33	0.1	0.00	0.17	0.06	69
	75	ISL	16.03	16.02	33.235	24.387	355.5	0.267	5.65	100.3	2.0	0.33	0.1	0.00	0.18	0.07	75
1	79		16.01	16.00	33.234	24.391	355.3	0.282	5.65	100.2	2.0	0.33	0.1	0.00	0.19	0.07	79
1	88		14.86	14.85	33.250	24.657	330.1	0.312	5.71	99.0	2.4	0.38	0.0	0.13	0.24	0.20	88
1	98		13.92	13.91	33.260	24.863	310.6	0.344	5.61	95.4	3.0	0.45	0.7	0.12	0.20	0.19	98
	100	ISL	13.79	13.78	33.259	24.889	308.2	0.351	5.59	94.8	3.1	0.47	0.9	0.10	0.19	0.19	100
1	109		13.22	13.21	33.246	24.994	298.3	0.378	5.47	91.7	4.0	0.57	2.1	0.03	0.15	0.16	109
1	123		12.00	11.98	33.213	25.205	278.3	0.418	5.23	85.4	6.4	0.80	5.8	0.01	0.08	0.11	124
	125	ISL	11.86	11.84	33.208	25.227	276.2	0.424	5.19	84.5	6.7	0.83	6.3	0.01	0.08	0.11	126
1	138		11.03	11.01	33.208	25.378	262.0	0.459	5.01	80.1	9.0	1.01	9.4	0.01	0.06	0.09	139
	150	ISL	10.34	10.32	33.313	25.581	242.8	0.489	4.99	78.7	12.0	1.19	12.8	0.00	0.04	0.07	151
1	158		9.95	9.93	33.399	25.714	230.2	0.508	4.97	77.7	14.1	1.30	15.0	0.00	0.02	0.05	159
1	177		9.38	9.36	33.526	25.907	212.1	0.550	4.38	67.7	17.8	1.46	18.1	0.00	0.01	0.04	178
	200	ISL	9.05	9.03	33.695	26.092	194.9	0.597	3.74	57.4	22.7	1.65	21.5	0.00	0.00	0.02	201
1	203		9.02	9.00	33.719	26.116	192.7	0.603	3.66	56.2	23.4	1.68	22.0	0.00	0.00	0.02	204
1	231		8.75	8.73	33.976	26.360	170.0	0.653	2.79	42.6	31.5	1.97	26.7	0.00			232
	250	ISL	8.37	8.34	34.030	26.461	160.7	0.685	2.56	38.8	35.9	2.08	28.6	0.00			251
1	271		7.92	7.89	34.040	26.536	153.7	0.718	2.44	36.6	40.3	2.18	30.1	0.00			272
	300	ISL	7.47	7.44	34.064	26.620	145.9	0.761	2.15	31.9	46.4	2.33	32.4	0.00			302
1	327		7.13	7.10	34.079	26.680	140.5	0.800	1.87	27.6	51.7	2.47	34.4	0.00			329
1	387		6.61	6.57	34.120	26.783	131.3	0.8B1	1.24	18.1	62.4	2.75	38.0	0.00			389
	400	ISL	6.51	6.47	34.125	26.800	129.7	0.898	1.14	16.6	64.2	2.79	38.6	0.00			402
1	452		6.15	6.11	34.150	26.867	123.8	0.964	0.86	12.4	70.7	2.94	40.6	0.00			455
	500	ISL	5.88	5.84	34.194	26.936	117.7	1.022	0.73	10.5	77.1	3.05	42.1	0.00			503
1	524		5.75	5.70	34.216	26.970	114.7	1.050	0.67	9.6	80.3	3.11	42.8	0.00			527

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 29.2 N	117 46.1 W	18/01/93	1302 UTC	56 B	10D 10 kn			1008.0 Bb	13.8 C	12.4 C		

	CAST DEPTH ▪	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.12	15.12	30.698	22.633	520.6	0.000	5.70	97.8	19.5	1.28	10.1	0.22	0.49	0.20	0
1	1	15.12	15.12	30.698 A	22.633	520.6	0.005	5.70	97.8	19.5 A	1.28 A	10.1 A	0.22 A	0.49	0.20	1
1	6	15.15	15.15	30.915 A	22.794	505.4	0.031	5.69	97.9	17.9 A	1.22 A	9.2 A	0.22 A	0.48	0.23	6
	10 ISL	15.15	15.15	31.459	23.213	465.5	0.050	5.70	98.4	15.1	1.05	6.6	0.20	0.52	0.23	10
1	11	15.15	15.15	31.619	23.336	453.7	0.055	5.70	98.4	14.2	1.00	5.9	0.19	0.53	0.23	11
	20 ISL	15.19	15.19	32.916	24.326	359.6	0.091	5.69	99.1	5.0	0.58	0.9	0.10	0.42	0.22	20
1	21	15.20	15.20	33.026	24.408	351.7	0.095	5.69	99.2	4.1	0.54	0.5	0.09	0.40	0.22	21
	30 ISL	15.21	15.21	33.045	24.421	350.8	0.127	5.71	99.6	3.7	0.51	0.4	0.08	0.39	0.21	30
1	31	15.21	15.21	33.047	24.423	350.7	0.130	5.71	99.6	3.6	0.51	0.4	0.08	0.39	0.21	31
1	41	15.20	15.19	33.127	24.487	344.9	0.165	5.74	100.2	2.9	0.45	0.0	0.05	0.37	0.21	41
	50 ISL	15.19	15.18	33.130	24.492	344.7	0.196	5.73	100.0	2.8	0.46	0.0	0.07	0.37	0.19	50
1	53	15.19	15.18	33.130	24.492	344.8	0.206	5.73	100.0	2.8	0.46	0.0	0.07	0.37	0.19	53
1	59	15.17	15.16	33.138	24.503	J43.9	0.227	5.70	99.4	3.1	0.51	0.1	0.09	0.36	0.21	59

A) ELEVATED SURFACE NUTRIENTS AND LOW SALINITIES APPARENTLY DUE TO COASTAL

RUNOFF FROM HEAVY RAINFALL, THE WATER SURROUNDING THE SHIP WAS VERY MUDDY.

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 90 30

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 25.1 N	117 54.3 W	18/01/93	1018 UTC	618 B	170 11 kn			1008.2 *mb*	14.4 C	13.1 C		

	CAST DEPTH B	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.15	15.15	33.178	24.536	339.0	0.000	5.77	100.6	2.6	0.37	0.0	0.00	0.45	0.22	0
1	1	15.15	15.15	33.178	24.536	339.0	0.003	5.77	100.6	2.6	0.37	0.0	0.00	0.45	0.22	1
	10 ISL	15.14	15.14	33.178	24.538	339.0	0.034	5.78	100.8	2.6	0.36	0.0	0.00	0.46	0.22	10
1	11	15.14	15.14	33.178	24.538	339.0	0.037	5.78	100.8	2.6	0.36	0.0	0.00	0.46	0.22	11
	20 ISL	15.14	15.14	33.182	24.542	339.0	0.068	5.77	100.6	2.6	0.36	0.0	0.00	0.46	0.21	20
1	21	15.14	15.14	33.182	24.542	339.0	0.071	5.77	100.6	2.6	0.36	0.0	0.00	0.46	0.21	21
	30 ISL	15.15	15.15	33.177	24.536	339.9	0.102	5.77	100.6	2.6	0.36	0.0	0.00	0.47	0.21	30
1	31	15.15	15.15	33.177	24.536	339.9	0.105	5.77	100.6	2.6	0.36	0.0	0.00	0.47	0.21	31
1	41	15.17	15.16	33.237	24.578	336.2	0.139	5.71	99.6	2.6	0.37	0.1	0.04	0.38	0.21	41
	50 ISL	15.07	15.06	33.295	24.645	330.1	0.169	5.70	99.3	2.7	0.40	0.2	0.07	0.37	0.26	50
1	51	15.05	15.04	33.300	24.653	329.3	0.172	5.70	99.3	2.7	0.40	0.2	0.07	0.37	0.26	51
1	61	14.61	14.60	33.282	24.734	321.9	0.205	5.65	97.5	3.0	0.45	0.8	0.14	0.31	0.23	61
1	71	13.56	13.55	33.204	24.892	307.0	0.236	5.46	92.2	4.6	0.61	3.0	0.15	0.23	0.31	71
	75 ISL	13.32	13.31	33.191	24.931	303.4	0.248	5.42	91.0	5.0	0.64	3.6	0.13	0.21	0.30	75
1	85	12.80	12.79	33.178	25.024	294.7	0.278	5.30	88.0	5.9	0.73	5.3	0.07	0.18	0.22	85
1	100	11.52	11.51	33.197	25.281	270.5	0.321	4.97	80.4	8.8	0.98	9.5	0.02	0.11	0.14	100
1	122	10.91	10.90	33.539	25.657	235.1	0.376	3.91	62.5	15.3	1.38	16.1	0.01	0.02	0.06	123
	125 ISL	10.81	10.79	33.567	25.697	231.4	0.383	3.82	61.0	16.1	1.42	16.8	0.01	0.02	0.05	126
1	147	10.09	10.07	33.723	25.943	208.3	0.432	3.38	53.1	21.1	1.64	20.5	0.01	0.01	0.03	148
	150 ISL	10.02	10.00	33.745	25.972	205.6	0.438	3.32	52.1	21.7	1.67	20.9	0.01	0.01	0.03	151
1	176	9.54	9.52	33.912	26.183	186.0	0.489	2.90	45.1	26.8	1.87	23.9	0.01	0.00	0.03	177
	200 ISL	9.09	9.07	34.004	26.328	172.7	0.532	2.64	40.7	31.3	2.00	26.1	0.01	0.00	0.03	201
1	206	8.99	8.97	34.021	26.357	169.9	0.542	2.58	39.7	32.4	2.03	26.5	0.01	0.00	0.03	207
1	236	8.70	8.67	34.090	26.457	160.9	0.592	2.30	35.1	36.8	2.15	28.0	0.01			237
	250 ISL	8.54	8.51	34.109	26.497	157.4	0.614	2.19	33.3	38.8	2.20	28.7	0.01			251
1	276	8.24	8.21	34.134	26.562	151.5	0.654	1.98	29.9	42.6	2.31	30.0	0.00			278
	300 ISL	8.00	7.97	34.156	26.616	146.7	0.690	1.73	26.0	46.3	2.42	31.3	0.00			302
1	331	7.70	7.67	34.181	26.680	141.0	0.735	1.41	21.1	51.4	2.57	32.9	0.00			333
1	390	7.06	7.02	34.213	26.796	130.5	0.815	0.94	13.8	61.5	2.81	35.7	0.00			392
	400 ISL	6.97	6.93	34.217	26.812	129.1	0.828	0.89	13.1	62.8	2.84	36.1	0.00			403
1	455	6.58	6.54	34.239	26.882	123.0	0.897	0.64	9.3	69.4	2.98	37.7	0.00			458
	500 ISL	6.34	6.29	34.273	26.941	117.9	0.951	0.45	6.5	75.2	3.09	38.6	0.00			503
1	523	6.22	6.17	34.291	26.971	115.2	0.978	0.36	5.2	78.1	3.14	39.0	0.00			527

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 15.0 N	118 14.9 W	18/01/93	0647 UTC	379 a	190 17 kn			1009.9 Bb	14.4 C	13.1 C		

	CAST DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.95	14.95	33.179	24.580	334.8	0.000	5.78	100.4	3.1	0.37	0.0	0.02	0.58	0.30	0
1	2	14.95	14.95	33.179	24.580	334.8	0.007	5.78	100.4	3.1	0.37	0.0	0.02	0.58	0.30	2
	10 ISL	14.97	14.97	33.182	24.578	335.2	0.033	5.80	100.8	3.0	0.37	0.0	0.02	0.58	0.30	10
1	12	14.97	14.97	33.183	24.579	335.2	0.040	5.80	100.8	3.0	0.37	0.0	0.02	0.58	0.30	12
	20 ISL	14.96	14.96	33.242	24.627	330.9	0.067	5.77	100.3	2.9	0.36	0.0	0.03	0.58	0.33	20
1	21	14.96	14.96	33.250	24.633	330.3	0.070	5.76	100.1	2.9	0.36	0.0	0.03	0.58	0.33	21
	30 ISL	14.94	14.94	33.282	24.662	327.8	0.100	5.71	99.2	2.9	0.37	0.0	0.09	0.50	0.37	30
1	32	14.93	14.93	33.286	24.668	327.4	0.106	5.70	99.0	2.9	0.38	0.0	0.11	0.48	0.37	32
1	42	14.88	14.87	33.294	24.685	326.0	0.139	5.65	98.0	2.9	0.40	0.3	0.19	0.34	0.28	42
1	50	13.88	13.87	33.295	24.897	306.0	0.164	5.11	86.9	4.9	0.69	4.3	0.08	0.18	0.20	50
1	61	13.00	12.99	33.222	25.018	294.7	0.197	5.18	86.4	5.4	0.75	5.2	0.05	0.17	0.20	61
1	71	12.31	12.30	33.320	25.228	274.9	0.226	4.67	76.9	8.0	0.98	9.1	0.02	0.07	0.10	71
	75 ISL	12.03	12.02	33.326	25.286	269.4	0.237	4.60	75.3	8.7	1.04	10.1	0.02	0.08	0.10	75
1	85	11.47	11.46	33.343	25.403	258.5	0.263	4.48	72.4	10.2	1.15	12.0	0.01	0.13	0.13	85
1	99	11.20	11.19	33.496	25.571	242.8	0.298	4.01	64.5	13.3	1.33	14.9	0.01	0.03	0.06	99
	100 ISL	11.19	11.18	33.504	25.579	242.0	0.301	3.99	64.2	13.4	1.34	15.0	0.01	0.03	0.06	100
1	120	10.84	10.83	33.609	25.724	228.7	0.348	3.66	58.5	16.1	1.47	17.3	0.00	0.01	0.04	121
	125 ISL	10.59	10.58	33.621	25.777	223.7	0.359	3.64	57.8	17.1	1.51	18.0	0.00	0.01	0.04	126
1	145	9.57	9.55	33.673	25.990	203.6	0.402	3.57	55.5	21.1	1.65	20.8	0.00	0.01	0.03	146
	150 ISL	9.46	9.44	33.697	26.027	200.2	0.412	3.52	54.6	21.9	1.68	21.3	0.00	0.01	0.03	151
1	174	9.17	9.15	33.838	26.185	185.7	0.458	3.14	48.4	26.0	1.83	23.7	0.00	0.00	0.02	175
	200 ISL	8.93	8.91	34.029	26.373	168.3	0.504	2.55	39.1	32.5	2.05	26.5	0.01	0.00	0.03	201
1	204	8.90	8.88	34.054	26.397	166.1	0.511	2.47	37.9	33.4	2.08	26.9	0.01	0.00	0.03	205
1	233	8.74	8.72	34.106	26.463	160.3	0.558	2.23	34.1	36.8	2.19	28.1	0.00			234
	250 ISL	8.66	8.63	34.122	26.488	158.2	0.585	2.11	32.2	38.3	2.24	28.7	0.00			251
1	269	8.52	8.49	34.135	26.521	155.4	0.615	1.97	30.0	40.3	2.31	29.4	0.01			271
	300 ISL	8.05	8.02	34.158	26.610	147.3	0.662	1.67	25.1	46.6	2.45	31.4	0.00			302
1	313	7.83	7.80	34.168	26.650	143.6	0.681	1.53	22.9	49.6	2.52	32.3	0.00			315
1	359	7.25	7.22	34.203	26.761	133.4	0.745	1.04	15.4	59.3	2.75	34.9	0.00			361

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 90 37

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	NAVES	NEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT TYPE
33 11.1 N	118 23.2 W	18/01/93	0427 UTC	1175 B	200 18 kn			1009.8 Mb	15.7 C	14.2 C		

CAST	DEPTH -	TEMP DEC C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/X	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A uq/1	PHAEO uq/1	PRESS db
	0 ISL	15.02	15.02	33.181	24.566	336.0	0.000	5.81	101.1	2.8	0.36	0.0	0.00	0.39	0.18	0
1	1	15.02	15.02	33.181	24.566	336.1	0.003	5.81	101.1	2.8	0.36	0.0	0.00	0.39	0.18	1
	10 ISL	15.00	15.00	33.181	24.571	335.9	0.034	5.80	100.8	2.9	0.36	0.0	0.00	0.40	0.20	10
1	11	15.00	15.00	33.181	24.571	335.9	0.037	5.80	100.8	2.9	0.36	0.0	0.00	0.40	0.20	11
	20 ISL	14.98	14.98	33.187	24.580	335.3	0.067	5.80	100.8	2.9	0.35	0.0	0.00	0.40	0.18	20
1	21	14.98	14.98	33.188	24.581	335.3	0.071	5.80	100.8	2.9	0.35	0.0	0.00	0.40	0.18	21
	30 ISL	15.03	15.03	33.198	24.578	335.8	0.101	5.80	100.9	2.8	0.35	0.0	0.01	0.39	0.19	30
1	31	15.03	15.03	33.199	24.579	335.8	0.104	5.80	100.9	2.8	0.35	0.0	0.01	0.39	0.19	31
1	40	14.75	14.74	33.281	24.703	324.2	0.134	5.70	98.6	2.9	0.40	0.4	0.05	0.36	0.23	40
1	49	14.44	14.43	33.315	24.795	315.7	0.163	5.39	92.7	4.1	0.53	2.1	0.08	0.29	0.23	49
	50 ISL	14.38	14.37	33.321	24.813	314.1	0.166	5.32	91.4	4.4	0.56	2.5	0.08	0.28	0.23	50
1	60	13.78	13.77	33.373	24.978	298.6	0.196	4.69	79.6	7.1	0.83	6.5	0.08	0.23	0.23	60
1	69	13.35	13.34	33.387	25.076	289.4	0.223	4.47	75.2	8.2	0.93	8.0	0.04	0.21	0.18	69
	75 ISL	13.05	13.04	33.418	25.160	281.5	0.240	4.29	71.7	9.2	1.02	9.3	0.02	0.15	0.16	75
1	84	12.61	12.60	33.465	25.283	270.0	0.265	4.06	67.3	10.8	1.14	11.3	0.01	0.06	0.14	84
1	97	12.00	11.99	33.482	25.413	257.9	0.299	4.00	65.5	12.3	1.23	13.0	0.01	0.04	0.08	97
	100 ISL	11.89	11.88	33.495	25.444	255.0	0.307	3.95	64.5	12.8	1.26	13.5	0.01	0.03	0.08	100
1	118	11.31	11.30	33.594	25.628	237.9	0.351	3.62	58.4	15.9	1.44	16.5	0.01	0.01	0.06	119
	125 ISL	11.05	11.03	33.629	25.702	230.9	0.368	3.55	57.0	17.0	1.49	17.4	0.01	0.01	0.05	126
1	142	10.45	10.43	33.717	25.876	214.6	0.405	3.40	53.9	19.8	1.61	19.5	0.01	0.01	0.04	143
	150 ISL	10.24	10.22	33.768	25.953	207.5	0.422	3.26	51.4	21.5	1.68	20.6	0.01	0.01	0.04	151
1	173	9.76	9.74	33.899	26.136	190.5	0.468	2.86	44.7	26.0	1.86	23.4	0.01	0.00	0.03	174
	200 ISL	9.36	9.34	33.973	26.260	179.2	0.518	2.70	41.8	29.2	1.96	25.1	0.01	0.00	0.03	201
1	203	9.32	9.30	33.979	26.271	178.1	0.523	2.69	41.6	29.6	1.97	25.3	0.01	0.00	0.03	204
1	232	8.76	8.74	34.072	26.433	163.1	0.573	2.35	35.9	35.8	2.14	27.8	0.00			233
	250 ISL	8.59	8.56	34.117	26.495	157.5	0.602	2.10	32.0	38.8	2.24	28.9	0.00			251
1	273	8.43	8.40	34.157	26.552	152.5	0.637	1.81	27.5	42.3	2.36	30.1	0.00			275
	300 ISL	8.10	8.07	34.171	26.613	147.1	0.678	1.61	24.3	46.3	2.48	31.4	0.00			302
1	328	7.72	7.69	34.176	26.673	141.6	0.718	1.44	21.5	50.8	2.59	32.8	0.00			330
1	387	7.04	7.00	34.221	26.805	129.6	0.798	0.87	12.8	62.4	2.86	36.0	0.00			389
	400 ISL	6.91	6.87	34.227	26.828	127.6	0.815	0.80	11.7	64.3	2.90	36.5	0.00			403
1	453	6.47	6.43	34.250	26.905	120.7	0.881	0.58	8.4	71.0	3.02	38.3	0.00			456
	500 ISL	6.19	6.15	34.279	26.965	115.4	0.936	0.42	6.1	76.4	3.10	39.3	0.00			503
1	522	6.06	6.01	34.293	26.993	112.9	0.961	0.35	5.0	78.9	3.14	39.7	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 90 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
32 55.1 N	118 55.9 W	17/01/93	2347 UTC	1687 -	200 20 kn	190 03 05	1	1019.5 ab	16.3 C	15.5 C	19* 03	5/8 SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PHAEO uq/1	PRESS db
1	0	15.10	15.10	33.169	24.540	338.6	0.000	5.88	102.4	3.2	0.36	0.0	0.00	0.34	0.14	0
1	10	15.08	15.08	33.180	24.553	337.6	0.034	5.84	101.7	3.1	0.36	0.0	0.00	0.35	0.14	10
1	20	14.94	14.94	33.270	24.653	328.4	0.067	5.77	100.2	3.0	0.36	0.0	0.01	0.53	0.28	20
1	30	14.90	14.90	33.271	24.663	327.8	0.100	5.79	100.5	3.0	0.37	0.1	0.02	0.45	0.24	30
1	40	14.73	14.72	33.268	24.697	324.8	0.133	5.70	98.6	3.2	0.41	0.5	0.06	0.29	0.21	40
1	49	14.25	14.24	33.231	24.770	318.0	0.161	5.57	95.4	3.7	0.51	1.7	0.12	0.30	0.27	49
	50 ISL	14.10	14.09	33.237	24.806	314.6	0.165	5.49	93.7	4.1	0.55	2.3	0.11	0.28	0.26	50
1	59	12.74	12.73	33.308	25.135	283.4	0.192	4.79	79.5	7.7	0.90	7.9	0.03	0.14	0.16	59
1	69	12.34	12.33	33.285	25.195	278.0	0.220	4.77	78.5	8.4	0.96	8.9	0.02	0.12	0.15	69
	75 ISL	11.95	11.94	33.322	25.298	268.3	0.236	4.61	75.3	9.7	1.06	10.6	0.01	0.09	0.13	75
1	82	11.49	11.48	33.389	25.435	255.4	0.254	4.36	70.5	11.6	1.19	12.8	0.01	0.06	0.10	82
1	97	10.92	10.91	33.537	25.653	234.9	0.291	3.88	62.1	15.2	1.40	16.2	0.01	0.02	0.06	97
	100 ISL	10.87	10.86	33.553	25.675	232.9	0.298	3.83	61.2	15.6	1.42	16.5	0.01	0.02	0.06	100
1	118	10.62	10.61	33.623	25.773	223.9	0.339	3.63	57.7	17.6	1.51	18.0	0.01	0.01	0.04	119
	125 ISL	10.41	10.40	33.666	25.843	217.4	0.355	3.52	55.7	19.0	1.57	19.0	0.01	0.01	0.04	126
1	142	9.93	9.91	33.773	26.009	202.0	0.390	3.26	51.1	22.3	1.71	21.4	0.00	0.01	0.04	143
	150 ISL	9.85	9.83	33.806	26.048	198.4	0.406	3.17	49.6	23.2	1.75	21.9	0.00	0.01	0.04	151
1	173	9.70	9.68	33.885	26.135	190.6	0.451	2.95	46.0	25.5	1.83	23.1	0.01	0.00	0.03	174
	200 ISL	9.22	9.20	33.997	26.302	175.2	0.500	2.63	40.6	30.5	1.99	25.6	0.01	0.00	0.02	201
1	203	9.16	9.14	34.008	26.320	173.5	0.506	2.60	40.1	31.1	2.01	25.9	0.01	0.00	0.02	204
1	232	8.51	8.49	34.062	26.464	160.1	0.554	2.41	36.7	37.0	2.15	28.0	0.01			233
	250 ISL	8.31	8.28	34.099	26.524	154.7	0.582	2.18	33.0	40.1	2.25	29.2	0.01			251
1	273	8.13	8.10	34.139	26.583	149.4	0.617	1.86	28.1	43.8	2.38	30.5	0.00			275
	300 ISL	7.83	7.80	34.159	26.643	144.0	0.657	1.63	24.4	48.1	2.50	31.9	0.00			302
1	329	7.51	7.48	34.168	26.697	139.2	0.698	1.44	21.4	52.5	2.61	33.2	0.00			331
1	390	7.00	6.96	34.197	26.791	130.9	0.780	1.01	14.8	60.7	2.83	35.7	0.00			392
	400 ISL	6.93	6.89	34.203	26.806	129.6	0.793	0.95	13.9	62.0	2.86	36.1	0.00			403
1	454	6.57	6.53	34.237	26.881	123.0	0.862	0.66	9.6	68.9	2.99	37.8	0.00			457
	500 ISL	6.30	6.25	34.263	26.938	118.1	0.917	0.50	7.2	74.2	3.07	38.8	0.00			503
1	523	6.17	6.12	34.277	26.966	115.6	0.944	0.42	6.1	76.9	3.11	39.3	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 90 53

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 39.1 N	119 28.9 W	17/01/93	1858 UTC	1318 -	200 23 kn	220 03 04	2	1012.0 Mb	16.6 C	15.5 C		7/8	AS

CAST	DEPTH -		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS i\b
	0	ISL	15.12	15.12	33.162	24.530	339.5	0.000	5.80	101.1	2.6	0.35	0.0	0.00	0.27	0.09	0
1	1		15.12	15.12	33.162	24.530	339.5	0.003	5.80	101.1	2.6	0.35	0.0	0.00	0.27	0.09	1
	10	ISL	15.08	15.08	33.160	24.537	339.1	0.034	5.80	101.0	2.6	0.35	0.0	0.00	0.26	0.09	10
1	11		15.07	15.07	33.161	24.540	338.9	0.037	5.80	101.0	2.6	0.35	0.0	0.00	0.26	0.09	11
	20	ISL	15.06	15.06	33.194	24.568	336.5	0.068	5.79	100.8	2.5	0.35	0.0	0.00	0.29	0.10	20
1	21		15.06	15.06	33.198	24.571	336.2	0.071	5.79	100.8	2.5	0.35	0.0	0.00	0.30	0.10	21
	30	ISL	15.10	15.10	33.234	24.591	334.6	0.101	5.78	100.7	2.5	0.35	0.0	0.00	0.36	0.13	30
1	31		15.10	15.10	33.238	24.594	334.4	0.105	5.78	100.7	2.5	0.35	0.0	0.00	0.37	0.14	31
1	40		14.98	14.97	33.257	24.635	330.7	0.135	5.75	100.0	2.5	0.37	0.0	0.01	0.48	0.22	40
1	50		14.38	14.37	33.265	24.770	318.2	0.167	5.61	96.3	3.2	0.48	1.3	0.10	0.39	0.23	50
1	60		13.33	13.32	33.224	24.954	300.8	0.198	5.39	90.6	5.1	0.66	3.9	0.11	0.35	0.29	60
1	70		11.69	11.68	33.227	25.272	270.6	0.227	4.92	79.9	8.8	0.99	9.6	0.03	0.20	0.20	70
	75	ISL	11.26	11.25	33.252	25.370	261.3	0.240	4.74	76.2	10.3	1.10	11.5	0.02	0.15	0.17	75
1	84		10.81	10.80	33.311	25.496	249.5	0.263	4.47	71.2	12.6	1.25	13.9	0.01	0.10	0.13	84
1	99		10.34	10.33	33.419	25.662	233.9	0.299	4.16	65.7	15.5	1.40	16.4	0.01	0.06	0.10	99
	100	ISL	10.31	10.30	33.426	25.673	233.0	0.301	4.14	65.3	15.7	1.41	16.6	0.01	0.06	0.10	100
1	119		9.69	9.68	33.567	25.887	212.9	0.344	3.76	58.5	19.7	1.60	19.8	0.01	0.02	0.05	120
	125	ISL	9.51	9.50	33.616	25.955	206.5	0.356	3.64	56.5	21.2	1.65	20.8	0.01	0.02	0.04	126
1	144		9.04	9.02	33.765	26.148	188.5	0.394	3.28	50.4	25.9	1.81	23.4	0.00	0.01	0.03	145
	150	ISL	8.97	8.95	33.807	26.192	184.5	0.405	3.17	48.6	27.1	1.85	24.0	0.00	0.01	0.03	151
1	173		8.80	8.78	33.943	26.325	172.2	0.446	2.78	42.5	31.3	1.99	25.9	0.00	0.00	0.03	174
	200	ISL	8.45	8.43	34.056	26.468	159.1	0.491	2.36	35.8	37.4	2.18	28.3	0.00	0.00	0.04	201
1	203		8.41	8.39	34.065	26.481	157.9	0.496	2.32	35.2	38.0	2.20	28.5	0.00	0.00	0.04	204
1	231		8.23	8.21	34.102	26.538	152.9	0.539	2.06	31.1	41.6	2.31	29.6	0.00			232
	250	ISL	8.03	8.00	34.114	26.578	149.4	0.568	1.94	29.2	44.0	2.37	30.5	0.00			251
1	273		7.75	7.72	34.122	26.625	145.2	0.602	1.81	27.1	47.2	2.45	31.6	0.00			275
	300	ISL	7.43	7.40	34.132	26.679	140.3	0.640	1.59	23.6	51.7	2.56	33.1	0.00			302
1	328		7.14	7.11	34.149	26.734	135.4	0.679	1.34	19.8	56.4	2.68	34.5	0.00			330
1	387		6.81	6.77	34.221	26.836	126.5	0.756	0.80	11.7	64.5	2.91	36.6	0.00			389
	400	ISL	6.72	6.68	34.228	26.854	124.9	0.772	0.73	10.7	66.1	2.94	37.0	0.00			403
1	454		6.33	6.29	34.247	26.921	119.0	0.838	0.55	8.0	72.4	3.05	38.5	0.00			457
	500	ISL	6.10	6.06	34.274	26.972	114.6	0.892	0.43	6.2	77.0	3.11	39.4	0.00			503
1	525		5.97	5.92	34.289	27.000	112.1	0.920	0.37	5.3	79.5	3.14	39.9	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 90 61)

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 25.1 N	119 57.6 W	17/01/93	1337 UTC	856 -	230 12 kn			1011.0 mb	16.2 C	14.8 C			

CAST	DEPTH -		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	15.19	15.19	33.216	24.556	337.0	0.000	5.80	101.2	2.8	0.35	0.0	0.00	0.27	0.09	0
1	1		15.19	15.19	33.216	24.556	337.0	0.003	5.80	101.2	2.8	0.35	0.0	0.00	0.27	0.09	1
	10	ISL	15.16	15.16	33.215	24.562	336.7	0.034	5.80	101.2	2.8	0.35	0.0	0.00	0.27	0.09	10
1	11		15.15	15.15	33.215	24.565	336.5	0.037	5.80	101.2	2.8	0.35	0.0	0.00	0.27	0.09	11
	20	ISL	15.13	15.13	33.214	24.568	336.5	0.067	5.80	101.1	2.7	0.35	0.0	0.00	0.25	0.09	20
1	21		15.13	15.13	33.215	24.569	336.4	0.071	5.80	101.1	2.7	0.35	0.0	0.00	0.25	0.09	21
	30	ISL	15.16	15.16	33.238	24.581	335.6	0.101	5.81	101.4	2.7	0.35	0.0	0.00	0.30	0.21	30
1	31		15.16	15.16	33.241	24.583	335.4	0.104	5.81	101.4	2.7	0.35	0.0	0.00	0.31	0.22	31
1	41		14.75	14.74	33.275	24.698	324.7	0.137	5.67	98.1	3.2	0.43	0.9	0.04	0.44	0.25	41
	50	ISL	14.41	14.40	33.279	24.774	317.8	0.166	5.60	96.2	3.8	0.49	1.6	0.08	0.45	0.30	50
1	51		14.35	14.34	33.278	24.786	316.6	0.169	5.59	96.0	3.9	0.50	1.8	0.08	0.45	0.30	51
1	60		13.12	13.11	33.264	25.027	293.9	0.197	5.25	87.8	6.4	0.75	5.5	0.12	0.42	0.32	60
1	70		12.79	12.78	33.261	25.090	288.1	0.226	5.14	85.4	7.2	0.83	6.7	0.11	0.36	0.32	70
	75	ISL	12.32	12.31	33.245	25.168	280.7	0.240	5.05	83.1	7.9	0.91	8.0	0.08	0.31	0.31	75
1	84		11.31	11.30	33.254	25.363	262.2	0.265	4.78	77.0	10.2	1.09	11.2	0.03	0.20	0.28	84
1	99		9.88	9.87	33.485	25.791	221.6	0.301	3.97	62.0	17.6	1.51	18.3	0.01	0.05	0.07	99
	100	ISL	9.86	9.85	33.500	25.807	220.2	0.303	3.94	61.6	17.9	1.52	18.5	0.01	0.05	0.07	100
1	119		9.47	9.46	33.638	25.979	204.2	0.343	3.66	56.7	21.9	1.67	21.2	0.00	0.01	0.03	120
	125	ISL	9.41	9.40	33.678	26.020	200.4	0.356	3.57	55.3	22.8	1.71	21.7	0.00	0.01	0.03	126
1	144		9.27	9.25	33.791	26.131	190.2	0.393	3.31	51.1	25.2	1.80	23.1	0.00	0.01	0.03	145
	150	ISL	9.19	9.17	33.820	26.167	186.9	0.404	3.23	49.8	26.1	1.83	23.6	0.00	0.01	0.03	151
1	174		8.85	8.83	33.928	26.306	174.1	0.447	2.91	44.6	30.3	1.94	25.5	0.00	0.00	0.02	175
	200	ISL	8.52	8.50	34.048	26.451	160.7	0.491	2.45	37.3	36.5	2.14	28.0	0.00	0.00	0.03	201
1	204		8.48	8.46	34.063	26.469	159.1	0.497	2.39	36.3	37.4	2.17	28.3	0.00	0.00	0.03	205
1	233		8.31	8.29	34.090	26.517	155.0	0.543	2.24	33.9	40.0	2.24	29.2	0.00			234
	250	ISL	8.19	8.16	34.106	26.547	152.4	0.569	2.11	31.9	41.8	2.30	29.8	0.00			251
1	273		7.99	7.96	34.127	26.594	148.3	0.603	1.91	28.7	44.8	2.39	30.8	0.00			275
	300	ISL	7.70	7.67	34.156	26.660	142.4	0.643	1.60	23.9	49.6	2.52	32.3	0.00			302
1	328		7.39	7.36	34.183	26.726	136.4	0.682	1.29	19.1	54.9	2.66	33.9	0.00			330
1	388		6.83	6.79	34.214	26.828	127.3	0.761	0.87	12.7	64.2	2.86	36.5	0.00			390
	400	ISL	6.73	6.69	34.220	26.846	125.6	0.776	0.81	11.8	65.9	2.89	37.0	0.00			403
1	454		6.34	6.30	34.250	26.922	118.9	0.842	0.58	8.4	72.8	3.02	38.7	0.00			457
	500	ISL	6.15	6.11	34.273	26.965	115.3	0.896	0.47	6.8	76.8	3.09	39.5	0.00			503
1	524		6.05	6.00	34.285	26.987	113.5	0.923	0.42	6.0	78.9	3.13	39.9	0.00			528

RV DAVID STARK JORDAN CALCOFI CRUISE 9301 STATION 90 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 5.1 N	120 38.3 W	17/01/93	0810 UTC	3813 -	230 19 k.n			1011.5 ab	15.5 C	15.3 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A uq/1	PHAEO uq/1	PRESS db
	0 ISL	14.69	14.69	33.022	24.515	341.0	0.000	5.88	101.5	2.8	0.36	0.0	0.00	0.31	0.11	0
1	1	14.69	14.69	33.022	24.515	341.0	0.003	5.88	101.5	2.8	0.36	0.0	0.00	0.31	0.11	1
1	10	14.68	14.68	33.026	24.520	340.7	0.034	5.85	100.9	2.8	0.35	0.0	0.00	0.31	0.11	10
1	20	14.70	14.70	33.081	24.559	337.4	0.068	5.75	99.3	2.7	0.35	0.0	0.00	0.31	0.12	20
1	30	14.15	14.15	33.247	24.803	314.4	0.101	5.87	100.3	2.9	0.41	0.4	0.03	0.57	0.29	30
1	40	13.93	13.92	33.247	24.849	310.3	0.132	5.86	99.7	2.9	0.43	0.6	0.07	0.50	0.29	40
1	50	13.68	13.67	33.224	24.883	307.3	0.163	5.74	97.2	3.2	0.49	1.4	0.11	0.36	0.24	50
1	60	13.17	13.16	33.228	24.989	297.4	0.193	5.51	92.3	4.6	0.62	3.4	0.12	0.24	0.21	60
1	69	12.89	12.88	33.316	25.113	285.9	0.219	5.17	86.1	6.7	0.78	6.0	0.20	0.17	0.23	69
	75 ISL	12.00	11.99	33.335	25.298	268.3	0.236	4.79	78.3	9.9	1.01	9.9	0.13	0.14	0.20	75
1	83	10.72	10.71	33.358	25.549	244.5	0.256	4.33	68.9	14.1	1.30	14.9	0.02	0.10	0.15	83
1	98	10.02	10.01	33.403	25.704	229.9	0.292	4.19	65.7	16.6	1.43	17.2	0.02	0.06	0.12	98
	100 ISL	9.91	9.90	33.408	25.726	227.8	0.296	4.17	65.2	17.0	1.45	17.6	0.02	0.06	0.11	100
1	118	8.99	8.98	33.479	25.931	208.5	0.336	3.99	61.1	21.1	1.65	20.8	0.01	0.02	0.06	119
	125 ISL	8.78	8.77	33.536	26.009	201.3	0.350	3.89	59.3	22.7	1.70	21.7	0.01	0.02	0.06	126
1	143	8.45	8.44	33.700	26.188	184.5	0.385	3.62	54.9	26.6	1.79	23.7	0.00	0.01	0.05	144
	150 ISL	8.40	8.38	33.760	26.243	179.4	0.398	3.50	53.0	27.9	1.82	24.3	0.00	0.01	0.04	151
1	173	8.32	8.30	33.918	26.379	166.9	0.437	3.14	47.5	32.0	1.92	26.0	0.00	0.00	0.02	174
	200 ISL	8.06	8.04	33.993	26.477	158.0	0.481	2.87	43.2	36.6	2.03	27.7	0.00	0.00	0.02	201
1	202	8.04	8.02	33.996	26.483	157.5	0.484	2.85	42.9	36.9	2.04	27.8	0.00	0.00	0.02	203
1	231	7.64	7.62	34.028	26.567	149.9	0.529	2.56	38.2	42.3	2.19	29.8	0.00			232
	250 ISL	7.38	7.36	34.041	26.614	145.6	0.557	2.33	34.5	46.2	2.29	31.1	0.00			251
1	271	7.11	7.08	34.053	26.661	141.3	0.587	2.08	30.6	50.4	2.40	32.5	0.00			273
	300 ISL	6.80	6.77	34.063	26.712	136.8	0.627	1.78	26.0	55.3	2.53	34.3	0.00			302
1	326	6.59	6.56	34.080	26.754	133.1	0.663	1.51	22.0	59.3	2.64	35.7	0.00			328
1	385	6.44	6.41	34.188	26.859	123.9	0.738	0.83	12.0	68.3	2.90	37.7	0.00			387
	400 ISL	6.35	6.31	34.202	26.882	121.9	0.757	0.73	10.6	70.5	2.94	38.2	0.00			403
1	450	6.00	5.96	34.234	26.953	115.6	0.816	0.51	7.3	77.3	3.05	39.8	0.00			453
	500 ISL	5.74	5.70	34.269	27.013	110.3	0.873	0.39	5.6	82.8	3.13	40.7	0.00			503
1	521	5.63	5.59	34.284	27.038	108.0	0.896	0.34	4.8	85.1	3.16	41.1	0.00			525

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 90 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 45.1 N	121 18.9 W	17/01/93	0228 UTC	3661 -	140 16 kn			1010.3 mb	16.2 C	15.2 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
1	0	15.68	15.68	33.064	24.331	358.4	0.000	5.71	100.6	2.3	0.33	0.0	0.00	0.15	0.05	0
	10 ISL	15.78	15.78	33.194	24.409	351.3	0.035	5.69	100.5	2.3	0.33	0.0	0.00	0.14	0.06	10
1	11	15.79	15.79	33.207	24.417	350.6	0.039	5.69	100.5	2.3	0.33	0.0	0.00	0.14	0.06	11
1	20	15.76	15.76	33.203	24.421	350.5	0.071	5.70	100.6	2.2	0.33	0.0	0.00	0.14	0.06	20
1	29	15.76	15.76	33.202	24.421	350.8	0.102	5.71	100.8	2.2	0.33	0.0	0.00	0.17	0.07	29
	30 ISL	15.76	15.76	33.201	24.420	350.9	0.106	5.71	100.8	2.2	0.33	0.0	0.00	0.17	0.07	30
1	38	15.74	15.73	33.195	24.420	351.2	0.134	5.70	100.6	2.1	0.33	0.0	0.00	0.17	0.07	38
1	49	15.41	15.40	33.123	24.438	349.8	0.172	5.74	100.6	2.1	0.33	0.0	0.00	0.19	0.08	49
	50 ISL	15.41	15.40	33.123	24.438	349.8	0.176	5.74	100.6	2.1	0.33	0.0	0.00	0.19	0.08	50
1	58	15.32	15.31	33.122	24.457	348.2	0.204	5.74	100.4	1.9	0.34	0.0	0.00	0.19	0.10	58
1	67	14.74	14.73	33.054	24.531	341.4	0.235	5.82	100.6	1.9	0.36	0.0	0.01	0.20	0.12	67
	75 ISL	14.41	14.40	33.011	24.568	338.1	0.262	5.84	100.2	2.0	0.36	0.0	0.02	0.20	0.13	75
1	81	14.27	14.26	33.012	24.598	335.3	0.282	5.86	100.3	2.0	0.36	0.0	0.02	0.20	0.14	81
1	96	14.21	14.20	33.219	24.771	319.3	0.331	5.74	98.2	2.7	0.43	0.6	0.11	0.20	0.17	96
	100 ISL	14.02	14.01	33.254	24.838	313.1	0.344	5.69	97.0	2.8	0.45	1.0	0.10	0.19	0.17	100
1	116	12.78	12.76	33.332	25.148	283.8	0.392	5.35	88.9	4.5	0.65	4.6	0.03	0.14	0.16	116
	125 ISL	11.64	11.62	33.328	25.361	263.5	0.416	4.98	80.8	8.0	0.93	9.2	0.02	0.10	0.13	126
1	140	9.84	9.82	33.352	25.695	231.6	0.453	4.34	67.7	14.5	1.40	16.9	0.01	0.03	0.07	141
	150 ISL	9.59	9.57	33.468	25.827	219.2	0.476	4.10	63.7	17.2	1.54	19.2	0.01	0.02	0.05	151
1	171	9.06	9.04	33.602	26.017	201.4	0.520	3.74	57.4	21.5	1.68	21.6	0.00	0.01	0.03	172
	200 ISL	8.72	8.70	33.825	26.245	180.2	0.575	3.22	49.1	27.5	1.85	24.7	0.00	0.00	0.02	201
1	202	8.70	8.68	33.838	26.259	179.0	0.579	3.19	48.7	27.9	1.86	24.8	0.00	0.00	0.02	203
1	232	8.42	8.40	33.918	26.365	169.4	0.631	3.20	4s.5	30.9	1.88	25.5	0.00			233
	250 ISL	8.22	8.19	33.960	26.428	163.6	0.661	3.08	46.5	33.5	1.93	26.4	0.00			251
1	273	7.95	7.92	34.003	26.503	156.9	0.698	2.87	43.1	37.2	2.03	27.9	0.00			274
	300 ISL	7.59	7.56	34.024	26.572	150.6	0.740	2.64	39.3	41.9	2.15	29.5	0.00			302
1	330	7.21	7.18	34.039	26.637	144.6	0.784	2.33	34.4	47.5	2.31	31.3	0.00			332
1	390	6.67	6.63	34.103	26.762	133.4	0.867	1.44	21.0	59.7	2.67	35.7	0.00			392
	400 ISL	6.59	6.55	34.113	26.780	131.7	0.880	1.32	19.2	61.6	2.72	36.3	0.00			402
1	455	6.14	6.10	34.163	26.879	122.8	0.950	0.82	11.8	71.6	2.95	38.9	0.00			458
	500 ISL	5.79	5.75	34.186	26.941	117.1	1.004	0.63	9.0	78.6	3.05	40.2	0.00			503
1	521	5.63	5.59	34.198	26.970	114.4	1.029	0.54	7.7	81.8	3.09	40.8	0.00			524

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 25.1 N	121 59.5 W	16/01/93	2047 UTC	3843 -	100 03 k.n	310 03 05	6	1013.5 mb	14.9 C	14.9 C		8/8	NS

CAST	DEPTH -		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	16.16	16.16	32.951	24.137	377.0	0.000	5.65	100.4	2.5	0.33	0.0	0.00	0.13	0.04	0
1	1		16.16	16.16	32.951	24.137	377.0	0.004	5.65	100.4	2.5	0.33	0.0	0.00	0.13	0.04	1
	10	ISL	16.15	16.15	33.114	24.265	365.1	0.037	5.65	100.5	2.5	0.33	0.0	0.00	0.13	0.04	10
1	16		16.13	16.13	33.250	24.374	354.9	0.059	5.65	100.5	2.5	0.33	0.0	0.00	0.13	0.05	16
	20	ISL	16.11	16.11	33.252	24.380	354.5	0.073	5.65	100.5	2.5	0.33	0.0	0.00	0.14	0.05	20
	30	ISL	16.07	16.07	33.257	24.393	353.5	0.108	5.65	100.4	2.4	0.33	0.0	0.00	0.16	0.06	30
1	31		16.07	16.07	33.258	24.394	353.4	0.112	5.65	100.4	2.4	0.33	0.0	0.00	0.16	0.06	31
1	41		15.86	15.85	33.246	24.433	350.1	0.147	5.67	100.3	2.3	0.33	0.0	0.00	0.18	0.08	41
1	50		15.82	15.81	33.238	24.436	350.1	0.179	5.68	100.4	2.3	0.34	0.0	0.00	0.18	0.08	50
1	60		15.78	15.77	33.239	24.446	349.4	0.214	5.67	100.1	2.2	0.34	0.0	0.00	0.17	0.08	60
1	70		15.75	15.74	33.235	24.450	349.4	0.248	5.69	100.4	2.2	0.34	0.0	0.00	0.18	0.11	70
	75	ISL	15.60	15.59	33.217	24.469	347.6	0.266	5.74	101.0	2.2	0.34	0.0	0.00	0.18	0.11	75
1	79		15.45	15.44	33.201	24.490	345.7	0.280	5.78	101.4	2.2	0.35	0.0	0.00	0.17	0.10	79
1	95		14.73	14.72	33.160	24.616	334.2	0.334	5.76	99.6	2.3	0.39	0.1	0.05	0.17	0.12	95
	100	ISL	14.23	14.22	33.168	24.728	323.6	0.351	5.70	97.5	2.6	0.45	0.8	0.05	0.17	0.14	100
1	110		13.04	13.03	33.191	24.987	298.9	0.382	5.52	92.2	3.8	0.60	2.9	0.06	0.15	0.17	110
1	125		11.12	11.10	33.187	25.346	264.8	0.424	5.06	81.1					0.08	0.10	126
1	150		9.23	9.21	33.369	25.807	220.9	0.485	4.41	67.9	16.6	1.48	18.3	0.00	0.02	0.03	151
1	174		9.04	9.02	33.648	26.057	197.8	0.535	3.74	57.4	22.6	1.72	22.3	0.00	0.01	0.03	175
	200	ISL	8.76	8.74	33.823	26.238	181.0	0.584	3.28	50.1	27.0	1.84	24.6	0.00	0.00	0.02	201
1	204		8.71	8.69	33.842	26.260	178.9	0.591	3.23	49.3	27.7	1.85	24.8	0.00	0.00	0.02	205
1	233		8.18	8.16	33.980	26.450	161.3	0.641	2.98	45.0	34.2	1.98	27.0	0.00			234
	250	ISL	8.08	8.05	34.028	26.503	156.6	0.668	2.74	41.3	36.9	2.07	28.1	0.00			251
1	273		8.01	7.98	34.069	26.546	152.9	0.703	2.38	35.8	40.1	2.20	29.4	0.00			274
	300	ISL	7.74	7.71	34.099	26.609	147.2	0.744	2.03	30.3	44.9	2.33	31.1	0.00			302
1	329		7.42	7.39	34.122	26.673	141.4	0.786	1.70	25.2	50.2	2.47	32.8	0.00			331
1	388		6.97	6.93	34.180	26.782	131.7	0.866	1.09	16.0	59.7	2.73	35.7	0.00			390
	400	ISL	6.89	6.85	34.189	26.800	130.1	0.882	1.00	14.7	61.4	2.77	36.2	0.00			402
1	453		6.48	6.44	34.218	26.878	123.2	0.949	0.72	10.5	68.9	2.92	38.0	0.00			456
	500	ISL	6.00	5.96	34.217	26.940	117.5	1.006	0.57	8.2	76.0	3.03	39.8	0.00			503
1	523		5.76	5.72	34.218	26.970	114.6	1.032	0.49	7.0	79.4	3.08	40.7	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 90 1CO

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 5.2 N	122 39.7 W	16/01/93	1356 UTC	4006 -	110 06 k.n			1014.0 mb	IS.6 C	15.6 C			

CAST	DEPTH -		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	16.03	16.03	33.186	24.347	357.0	0.000	5.66	100.5	2.9	0.34	0.0	0.00	0.14	0.06	0
1	1		16.03	16.03	33.186	24.347	357.0	0.004	5.66	100.5	2.9	0.34	0.0	0.00	0.14	0.06	1
	10	ISL	16.07	16.07	33.218	24.363	355.8	0.036	5.66	100.6	2.8	0.34	0.0	0.00	0.14	0.07	10
1	16		16.08	16.08	33.242	24.379	354.4	0.057	5.66	100.6	2.7	0.34	0.0	0.00	0.14	0.07	16
	20	ISL	16.07	16.07	33.245	24.384	354.1	0.071	5.67	100.7	2.7	0.34	0.0	0.00	0.14	0.07	20
	30	ISL	15.95	15.95	33.234	24.403	352.6	0.106	5.68	100.7	2.7	0.33	0.0	0.00	0.15	0.06	30
1	31		15.93	15.93	33.232	24.406	352.3	0.110	5.68	100.6	2.7	0.33	0.0	0.00	0.15	0.06	31
1	41		15.64	15.63	33.204	24.449	348.5	0.145	5.73	100.9	2.6	0.33	0.0	0.00	0.17	0.08	41
	50	ISL	15.53	15.52	33.200	24.471	346.7	0.176	5.74	100.9	2.6	0.34	0.0	0.00	0.19	0.07	50
1	51		15.52	15.51	33.200	24.473	346.5	0.180	5.74	100.8	2.6	0.34	0.0	0.00	0.19	0.07	51
1	61		15.42	15.41	33.202	24.497	344.5	0.214	5.74	100.6	2.5	0.35	0.0	0.00	0.22	0.10	61
1	70		15.08	15.07	33.201	24.571	337.7	0.245	5.77	100.5	2.6	0.36	0.0	0.00	0.24	0.12	70
	75	ISL	14.88	14.87	33.213	24.624	332.8	0.262	5.75	99.7	2.8	0.38	0.2	0.05	0.24	0.14	75
1	80		14.62	14.61	33.220	24.685	327.1	0.278	5.71	98.5	3.1	0.42	0.5	0.11	0.23	0.16	80
1	94		13.29	13.28	33.151	24.906	306.2	0.323	5.58	93.6	4.2	0.56	2.4	0.12	0.20	0.16	94
	100	ISL	12.68	12.67	33.142	25.020	295.5	0.341	5.47	90.6	5.1	0.66	4.0	0.08	0.18	0.16	100
1	110		11.71	11.70	33.146	25.206	277.8	0.369	5.26	85.4	6.9	0.84	7.1	0.02	0.14	0.15	110
1	124		10.69	10.68	33.171	25.409	258.6	0.407	5.02	79.7	9.9	1.06	11.1	0.02	0.09	0.13	125
	125	ISL	10.64	10.63	33.177	25.422	257.4	0.409	4.99	79.1	10.1	1.08	11.4	0.02	0.09	0.13	126
1	149		9.73	9.71	33.363	25.722	229.2	0.468	4.30	66.9	16.2	1.44	17.5	0.01	0.03	0.05	150
	150	ISL	9.70	9.68	33.372	25.734	228.1	0.470	4.27	66.4	16.4	1.45	17.7	0.01	0.03	0.05	151
1	173		9.22	9.20	33.575	25.971	205.9	0.520	3.75	57.8	21.6	1.66	21.1	0.01	0.01	0.04	174
	200	ISL	9.02	9.00	33.778	26.162	188.3	0.573	3.26	50.1	26.2	1.81	23.5	0.01	0.00	0.02	201
1	204		9.01	8.99	33.804	26.184	186.3	0 581	3.19	49.0	26.8	1.83	23.8	0.01	0.00	0.02	205
1	233		8.91	8.88	33.961	26.323	173.6	0.633	2.66	40.8	31.7	2.01	26.1	0.00			234
	250	ISL	8.71	8.68	34.009	26.392	167.3	0.662	2.55	38.9	34.2	2.07	27.0	0.00			251
1	272		8.37	8.34	34.042	26.470	160.2	0.698	2.49	37.7	37.4	2.13	28.1	0.00			273
	300	ISL	7.92	7.89	34.058	26.551	152.8	0.742	2.39	35.9	41.7	2.21	29.6	0.00			302
1	328		7.46	7.43	34.058	26.617	146.7	0.784	2.24	33.3	46.5	2.31	31.3	0.00			330
1	387		6.56	6.52	34.064	26.746	134.7	0.867	1.63	23.7	59.2	2.62	35.4	0.00			389
	400	ISL	6.46	6.42	34.082	26.773	132.3	0.884	1.46	21.2	61.9	2.69	36.2	0.00			402
1	453		6.20	6.16	34.164	26.872	123.5	0.952	0.82	11.8	71.4	2.94	38.8	0.00			456
	500	ISL	5.98	5.94	34.206	26.933	118.1	1.009	0.61	8.8	76.4	3.04	39.8	0.00			503
1	524		5.87	5.82	34.227	26.964	115.4	1.037	0.50	7.2	78.9	3.09	40.3	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 90 110

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
30 45.1 N	123 19.9 N	16/01/93	0819 UTC	4018 m	200 11 kn			1016.5 mb	17.4 C	16.2 C			

CAST	DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
	0	ISL	16.13	16.13	33.215	24.346	357.0	0.000	5.66	100.7	2.4	0.34	0.0	0.00	0.12	0.04	0
1	1		16.13	16.13	33.215	24.346	357.0	0.004	5.66	100.7	2.4	0.34	0.0	0.00	0.12	0.04	1
	10	ISL	16.11	16.11	33.216	24.352	356.8	0.036	5.67	100.8	2.4	0.34	0.0	0.00	0.12	0.04	10
1	16		16.09	16.09	33.216	24.357	356.5	0.057	5.68	100.9	2.4	0.34	0.0	0.00	0.12	0.05	16
	20	ISL	16.02	16.02	33.207	24.366	355.8	0.071	5.69	101.0	2.3	0.34	0.0	0.00	0.13	0.05	20
	30	ISL	15.85	15.85	33.190	24.391	353.7	0.107	5.70	100.8	2.2	0.34	0.0	0.00	0.15	0.06	30
1	31		15.84	15.84	33.188	24.392	353.6	0.110	5.70	100.8	2.2	0.34	0.0	0.00	0.15	0.06	31
1	42		15.88	15.87	33.198	24.391	354.1	0.149	5.69	100.7	2.2	0.34	0.0	0.00	0.17	0.07	42
	50	ISL	15.81	15.80	33.193	24.403	353.2	0.178	5.70	100.7	2.1	0.34	0.0	0.00	0.19	0.09	50
1	52		15.78	15.77	33.191	24.409	352.7	0.185	5.70	100.7	2.1	0.34	0.0	0.00	0.19	0.09	52
1	62		15.68	15.67	33.184	24.426	351.4	0.220	5.70	100.4	2.1	0.34	0.0	0.00	0.20	0.09	62
1	72		15.65	15.64	33.183	24.432	351.1	0.255	5.70	100.4	2.1	0.34	0.0	0.01	0.20	0.10	72
	75	ISL	15.52	15.51	33.177	24.456	348.9	0.265	5.71	100.3	2.1	0.35	0.0	0.01	0.19	0.10	75
1	80		15.26	15.25	33.168	24.507	344.2	0.283	5.73	100.1	2.0	0.36	0.0	0.02	0.18	0.10	80
1	95		14.55	14.54	33.207	24.690	327.1	0.333	5.71	98.4	2.4	0.44	0.5	0.14	0.17	0.13	95
	100	ISL	14.09	14.08	33.184	24.769	319.6	0.349	5.67	96.7	2.8	0.48	1.0	0.13	0.17	0.15	100
1	111		12.97	12.95	33.133	24.956	301.9	0.383	5.53	92.2	4.1	0.62	3.1	0.10	0.16	0.17	111
	125	ISL	11.71	11.69	33.146	25.207	278.1	0.424	5.22	84.7	6.9	0.90	7.7	0.03	0.11	0.12	126
1	126		11.62	11.60	33.149	25.226	276.3	0.427	5.19	84.1	7.1	0.92	8.1	0.02	0.11	0.12	127
	150	ISL	9.76	9.74	33.309	25.675	233.7	0.488	4.55	70.8	14.3	1.35	15.7	0.01	0.03	0.05	151
1	151		9.71	9.69	33.319	25.691	232.2	0.490	4.52	70.3	14.6	1.37	16.0	0.01	0.03	0.05	152
1	175		9.67	9.65	33.626	25.938	209.3	0.543	3.59	55.9	20.8	1.67	20.4	0.00	0.01	0.04	176
	200	ISL	8.93	8.91	33.759	26.161	188.3	0.593	3.42	52.4	25.5	1.81	23.2	0.00	0.00	0.02	201
1	205		8.77	8.75	33.775	26.199	184.8	0.602	3.39	51.8	26.3	1.82	23.6	0.00	0.00	0.02	206
1	234		8.42	8.40	33.910	26.359	170.0	0.654	3.16	47.9	30.8	1.92	25.5	0.00			235
	250	ISL	8.28	8.25	33.961	26.420	164.4	0.681	3.08	46.6	33.0	1.95	26.1	0.00			251
1	275		8.09	8.06	34.020	26.495	157.7	0.721	2.90	43.7	36.5	2.02	27.1	0.00			276
	300	ISL	7.92	7.89	34.071	26.561	151.8	0.760	2.44	36.6	41.2	2.19	28.9	0.00			302
1	329		7.70	7.67	34.111	26.625	146.2	0.803	1.88	28.1	46.9	2.41	31.2	0.00			331
1	387		7.01	6.97	34.126	26.734	136.2	0.885	1.40	20.6	56.7	2.64	34.5	0.00			389
	400	ISL	6.90	6.86	34.134	26.755	134.3	0.902	1.29	18.9	58.8	2.69	35.1	0.00			402
1	452		6.49	6.45	34.167	26.837	127.1	0.970	0.91	13.2	67.1	2.89	37.4	0.00			455
	500	ISL	6.04	6.00	34.193	26.916	119.8	1.029	0.66	9.5	75.0	3.02	39.3	0.00			503
1	521		5.85	5.80	34.206	26.950	116.7	1.054	0.55	7.9	78.4	3.08	40.2	0.00			524

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 90 120

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
30 25.1 N	123 59.9 W	16/01/93	0236 UTC	4229 m	200 17 kn			1015.2 mb	16.2 C	16.2 C			

CAST	DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
	0	ISL	16.94	16.94	33.359	24.270	364.3	0.000	5.57	100.7	2.9	0.33	0.0	0.00	0.11	0.05	0
1	1		16.94	16.94	33.359	24.270	364.3	0.004	5.57	100.7	2.9	0.33	0.0	0.00	0.11	0.05	1
	10	ISL	16.94	16.94	33.356	24.268	364.8	0.036	5.56	100.6	2.9	0.33	0.0	0.00	0.12	0.05	10
1	16		16.95	16.95	33.355	24.265	365.3	0.058	5.56	100.6	2.9	0.32	0.0	0.00	0.12	0.05	16
	20	ISL	16.95	16.95	33.356	24.266	365.3	0.073	5.56	100.6	2.9	0.32	0.0	0.00	0.12	0.05	20
1	30		16.96	16.96	33.362	24.269	365.4	0.110	5.56	100.6	2.8	0.31	0.0	0.00	0.11	0.05	30
1	40		16.94	16.93	33.358	24.271	365.5	0.146	5.56	100.6	2.8	0.32	0.0	0.00	0.13	0.06	40
1	48		16.90	16.89	33.347	24.272	365.7	0.175	5.56	100.5	2.7	0.32	0.0	0.00	0.14	0.06	48
	50	ISL	16.88	16.87	33.344	24.275	365.5	0.183	5.56	100.4	2.7	0.32	0.0	0.00	0.14	0.07	50
1	59		16.80	16.79	33.332	24.284	364.9	0.215	5.56	100.3	2.7	0.33	0.0	0.00	0.16	0.10	59
1	69		16.76	16.75	33.319	24.284	365.2	0.252	5.55	100.0	2.5	0.34	0.0	0.00	0.17	0.08	69
	75	ISL	16.70	16.69	33.309	24.291	364.8	0.274	5.56	100.0	2.4	0.33	0.0	0.00	0.18	0.09	75
1	77		16.68	16.67	33.306	24.293	364.6	0.281	5.56	100.0	2.4	0.33	0.0	0.00	0.18	0.09	77
1	91		15.65	15.64	33.214	24.457	349.3	0.331	5.68	100.0	2.4	0.35	0.0	0.00	0.17	0.11	91
	100	ISL	15.34	15.32	33.366	24.642	331.9	0.362	5.66	99.2	2.6	0.36	0.3	0.10	0.16	0.17	100
1	107		15.00	14.98	33.466	24.794	317.7	0.385	5.64	98.2	2.7	0.36	0.6	0.17	0.15	0.20	107
1	122		13.08	13.06	33.248	25.024	295.8	0.431	5.45	91.1	4.1	0.58	3.1	0.03	0.12	0.15	122
	125	ISL	12.83	12.81	33.241	25.068	291.6	0.439	5.41	90.0	4.5	0.62	3.7	0.03	0.11	0.14	125
1	147		11.41	11.39	33.311	25.391	261.1	0.500	5.10	82.3	7.9	0.90	8.9	0.01	0.05	0.09	148
	150	ISL	11.20	11.18	33.322	25.437	256.7	0.508	5.05	81.1	8.6	0.94	9.7	0.01	0.04	0.08	151
1	172		9.89	9.87	33.430	25.748	227.3	0.561	4.69	73.3	13.6	1.22	14.8	0.00	0.01	0.03	173
	200	ISL	9.26	9.24	33.639	26.015	202.3	0.621	4.21	64.9	18.7	1.44	18.7	0.00	0.00	0.02	201
1	202		9.24	9.22	33.655	26.031	200.8	0.625	4.17	64.3	19.1	1.45	18.9	0.00	0.00	0.02	203
1	231		8.80	8.78	33.894	26.288	176.9	0.680	3.45	52.8	27.1	1.74	23.3	0.00			232
	250	ISL	8.46	8.43	33.977	26.406	165.9	0.713	3.05	46.3	32.4	1.92	25.9	0.00			251
1	272		8.08	8.05	34.030	26.505	156.8	0.748	2.67	40.2	37.9	2.09	28.4	0.00			273
	300	ISL	7.79	7.76	34.062	26.573	150.6	0.791	2.40	35.9	42.0	2.21	30.2	0.00			302
1	328		7.56	7.53	34.069	26.612	147.3	0.833	2.21	32.9	45.4	2.29	31.4	0.00			330
1	388		6.86	6.82	34.092	26.728	136.7	0.918	1.68	24.6	56.0	2.55	34.7	0.00			390
	400	ISL	6.73	6.69	34.097	26.749	134.8	0.934	1.57	22.9	58.2	2.60	35.4	0.00			402
1	453		6.20	6.16	34.125	26.841	126.4	1.004	1.12	16.1	67.6	2.81	38.1	0.00			456
	500	ISL	5.84	5.80	34.166	26.919	119.2	1.061	0.80	11.4	75.0	2.95	39.9	0.00			503
1	520		5.68	5.64	34.184	26.953	116.1	1.085	0.66	9.4	78.2	3.01	40.7	0.00			523

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CID AMT TYPE
32 57.5 N	117 18.3 W	12/01/93	2043 UTC	64 •	070 13 kn	250 02 05	2	1015.0 Bb	13.2 C	10.6 C	10B 05	8/8 AS

CAST	DEPTH B	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 UM/1	CHL-A ug/1	PHAEO uq/1	PRESS dil
1	0	14.79	14.79	33.086	24.543	338.3	0.000	5.76	99.7	5.1	0.43	0.7	0.08	1.13	0.51	0
1	10	14.80	14.80	33.097	24.549	338.0	0.034	5.74	99.3	5.0	0.43	0.8	0.09	0.96	0.45	!LD
1	20	14.84	14.84	33.120	24.559	337.4	0.068	5.70	98.7	4.5	0.44	0.7	0.08	0.74	0.39	U0
1	30	15.03	15.03	33.226	24.600	333.8	0.101	5.56	96.7	4.0	0.48	0.5	0.09	0.26	0.26	»0
1	41	14.99	14.98	33.252	24.629	331.3	0.138	5.58	97.0	3.5	0.50	0.4	0.11	0.19	0.20	II
	50 ISL	14.90	14.89	33.265	24.659	328.8	0.167	5.54	96.2	3.3	0.50	0.7	0.13	0.17	0.19	50
1	51	14.89	14.88	33.266	24.661	328.5	0.171	5.53	96.0	3.3	0.50	0.7	0.13	0.17	0.19	51

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 28

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CID AMT TirPE
32 55.0 N	117 23.4 W	13/01/93	0058 UTC	628 n	140 25 kn	140 04 03	1	1012.2 Bb	14.1 C	12.6 C	14a 03	7/8 IIS

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL-A uq/1	PHAEO ug/1	PRIESS Jb
1	0	15.37	15.37	33.216	24.517	340.8	0.000	5.74	100.6	2.9	0.37	0.1	0.01	0.35	0.14	0
1	10	15.39	15.39	33.215	24.512	341.5	0.034	5.73	100.4	2.8	0.38	0.1	0.01	0.34	0.13	10
1	20	15.38	15.38	33.215	24.515	341.6	0.068	5.74	100.6	2.7	0.38	0.1	0.01	0.34	0.12	20
1	30	15.39	15.39	33.217	24.514	341.9	0.102	5.74	100.6	2.6	0.37	0.1	0.01	0.34	0.12	30
1	39	15.39	15.38	33.222	24.518	341.8	0.133	5.73	100.4	2.5	0.38	0.1	0.01	0.38	0.15	39
1	49	15.19	15.18	33.256	24.589	335.4	0.167	5.70	99.5	2.7	0.38	0.2	0.03	0.53	0.26	49
	50 ISL	15.17	15.16	33.257	24.594	334.9	0.170	5.69	99.3	2.8	0.39	0.2	0.04	0.51	0.25	50
1	59	14.89	14.88	33.254	24.653	329.6	0.200	5.56	96.5	3.5	0.48	0.9	0.12	0.27	0.19	59
1	72	13.76	13.75	33.260	24.895	306.8	0.242	5.20	88.2	5.4	0.69	4.1	0.17	0.26	0.25	72
	75 ISL	13.52	13.51	33.269	24.951	301.5	0.251	5.10	86.1	6.0	0.74	5.0	0.15	0.24	0.24	75
1	87	12.70	12.69	33.326	25.158	282.0	0.286	4.68	77.7	8.3	0.95	8.6	0.07	0.13	0.16	87
	100 ISL	12.26	12.25	33.410	25.308	268.0	0.322	4.31	70.9	10.1	1.11	11.4	0.04	0.07	0.10	100
1	107	12.11	12.10	33.451	25.369	262.4	0.340	4.16	68.2	10.9	1.17	12.5	0.03	0.05	0.08	107
	125 ISL	11.68	11.66	33.485	25.476	252.6	0.387	4.04	65.7	12.4	1.25	13.9	0.03	0.04	0.07	126
1	127	11.62	11.60	33.489	25.490	251.3	0.392	4.03	65.4	12.6	1.26	14.1	0.03	0.04	0.07	128
	150 ISL	10.38	10.36	33.647	25.834	218.8	0.446	3.56	56.3	18.0	1.55	19.1	0.02	0.01	0.03	151
1	151	10.33	10.31	33.656	25.850	217.3	0.448	3.54	55.9	18.3	1.56	19.3	0.02	0.01	0.03	152
1	180	9.95	9.93	33.887	26.095	194.6	0.508	2.86	44.9	24.2	1.84	23.0	0.01	0.00	0.03	181
	200 ISL	9.64	9.62	34.013	26.246	180.6	0.545	2.48	38.7	28.4	2.00	25.1	0.01	0.00	0.02	201
1	213	9.42	9.40	34.072	26.328	173.0	0.568	2.30	35.7	31.0	2.08	26.2	0.01	0.00	0.02	214
1	247	8.77	8.74	34.108	26.460	160.9	0.625	2.18	33.4	36.2	2.19	28.0	0.01			248
	250 ISL	8.73	8.70	34.112	26.470	160.0	0.630	2.15	32.9	36.7	2.21	28.2	0.01			251
1	286	8.31	8.28	34.151	26.565	151.4	0.686	1.75	26.5	42.9	2.39	30.2	0.00			288
	300 ISL	8.11	8.08	34.156	26.599	148.3	0.707	1.65	24.9	45.0	2.43	30.9	0.00			302
1	340	7.56	7.53	34.166	26.688	140.3	0.764	1.39	20.7	51.1	2.55	32.7	0.00			342
	400 ISL	6.92	6.88	34.202	26.807	129.6	0.845	0.89	13.1	62.0	2.81	35.5	0.01			402
1	404	6.88	6.84	34.205	26.814	128.9	0.850	0.86	12.6	62.7	2.83	35.7	0.01			407
1	473	6.38	6.34	34.249	26.916	119.8	0.936	0.51	7.4	72.1	3.02	37.7	0.01			476
	500 ISL	6.24	6.20	34.261	26.944	117.4	0.968	0.45	6.5	74.9	3.06	38.1	0.01			503
1	555	5.95	5.90	34.288	27.003	112.3	1.031	0.34	4.9	80.7	3.13	38.8	0.01			559

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 :iO

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
32 50.9 N	117 31.6 W	13/01/93	0416 UTC	830 B	170 20 k.n			1012.9 mb	16.0 C	15.9 C		

CAST	DEPTH B	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO uq/1	PRESS db
1	0	14.97	14.97	33.269	24.645	328.6	0.000	5.73	99.6	4.1	0.39	0.2	0.06	0.43	0.28	0
	10 ISL	14.97	14.97	33.269	24.645	328.8	0.033	5.74	99.8	3.8	0.38	0.2	0.06	0.53	0.32	10
1	11	14.97	14.97	33.269	24.645	328.8	0.036	5.74	99.8	3.8	0.38	0.2	0.06	0.54	0.32	11
1	20	14.95	14.95	33.268	24.649	328.8	0.066	5.75	99.9	3.6	0.38	0.2	0.07	0.57	0.32	20
	30 ISL	14.95	14.95	33.269	24.650	329.0	0.099	5.74	99.7	3.3	0.38	0.3	0.07	0.56	0.30	30
1	32	14.95	14.95	33.269	24.650	329.0	0.105	5.74	99.7	3.3	0.38	0.3	0.07	0.55	0.30	32
1	41	14.96	14.95	33.275	24.653	329.0	0.135	5.73	99.6	3.2	0.39	0.3	0.08	0.54	0.30	41
	50 ISL	14.86	14.85	33.284	24.682	326.6	0.164	5.67	98.3	3.2	0.42	0.7	0.14	0.49	0.28	50
1	52	14.84	14.83	33.286	24.688	326.1	0.171	5.66	98.1	3.2	0.43	0.8	0.15	0.48	0.27	52
1	62	14.17	14.16	33.337	24.869	309.0	0.203	5.04	86.2	5.7	0.73	4.7	0.06	0.19	0.20	62
	75 ISL	12.68	12.67	33.205	25.068	290.3	0.242	5.12	84.9	6.2	0.83	6.4	0.05	0.20	0.22	75
1	76	12.57	12.56	33.195	25.081	289.0	0.244	5.13	84.8	6.2	0.83	6.5	0.05	0.20	0.22	76
1	90	11.95	11.94	33.261	25.251	273.2	0.284	4.81	78.5	8.0	1.00	9.4	0.03	0.12	0.17	90
	100 ISL	11.62	11.61	33.355	25.385	260.5	0.310	4.47	72.5	10.2	1.16	11.9	0.02	0.07	0.12	100
1	112	11.26	11.25	33.468	25.539	246.2	0.341	4.08	65.7	12.9	1.34	14.8	0.02	0.03	0.07	113
	125 ISL	10.77	10.75	33.528	25.673	233.6	0.372	3.91	62.3	14.8	1.44	16.7	0.01	0.01	0.05	126
1	132	10.53	10.51	33.558	25.739	227.5	0.388	3.84	60.9	15.8	1.49	17.5	0.01	0.01	0.05	133
	150 ISL	10.26	10.24	33.701	25.897	212.8	0.428	3.39	53.5	19.1	1.66	20.0	0.01	0.01	0.04	151
1	157	10.17	10.15	33.756	25.955	207.4	0.443	3.22	50.7	20.4	1.73	20.9	0.01	0.01	0.04	158
1	188	9.30	9.28	33.877	26.194	185.1	0.503	2.96	45.8	26.2	1.92	24.1	0.00	0.00	0.02	189
	200 ISL	9.27	9.25	33.952	26.258	179.3	0.525	2.78	43.0	27.9	1.98	25.0	0.00	0.00	0.02	201
1	223	9.21	9.19	34.067	26.358	170.3	0.565	2.41	37.2	31.2	2.09	26.5	0.00	0.00	0.0:!i	224
	250 ISL	8.82	8.79	34.129	26.469	160.2	0.610	2.07	31.7	36.5	2.24	28.2	0.00			251
1	258	8.69	8.66	34.139	26.497	157.6	0.623	1.98	30.3	38.2	2.29	28.7	0.00			259
1	299	8.21	8.18	34.182	26.605	147.9	0.685	1.56	23.6	45.3	2.49	31.1	0.00			301
	300 ISL	8.20	8.17	34.182	26.606	147.7	0.687	1.55	23.4	45.4	2.49	31.1	0.00			302
1	355	7.60	7.56	34.185	26.698	139.7	0.766	1.26	18.8	52.8	2.65	33.2	0.00			357
	400 ISL	7.13	7.09	34.188	26.767	133.5	0.827	1.03	15.2	58.9	2.78	35.0	0.00			403
1	421	6.93	6.89	34.193	26.798	130.7	0.855	0.92	13.5	61.8	2.84	35.8	0.00			424
1	493	6.36	6.32	34.247	26.917	119.9	0.945	0.52	7.5	73.1	3.06	38.2	0.00			496
	500 ISL	6.31	6.26	34.252	26.928	119.0	0.954	0.50	7.2	74.0	3.07	38.4	0.00			503
1	575	5.78	5.73	34.303	27.036	109.2	1.039	0.31	4.4	83.4	3.20	40.0	0.00			579

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	HEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT	TYPE
32 40.8 N	117 52.4 N	13/01/93	0838 UTC	620 -	220 09 k.n			1014.4 Mb	1S.0 C	16.0 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA TBETA	SVA	DYN HT	OXYGEN mX/X	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PBAEO ug/1	PRESS db
1	0	15.59	15.59	33.254	24.498	342.6	0.000	5.71	100.5	3.6	0.37	0.1	0.00	0.24	0.11	0
	10 ISL	15.57	15.57	33.255	24.503	342.4	0.034	5.71	100.5	3.4	0.37	0.1	0.00	0.25	0.11	10
1	16	15.56	15.56	33.255	24.505	342.3	0.055	5.71	100.4	3.3	0.37	0.1	0.00	0.25	0.11	16
	20 ISL	15.56	15.56	33.255	24.506	342.5	0.068	5.72	100.6	3.2	0.37	0.1	0.00	0.25	0.11	20
1	30	15.55	15.55	33.256	24.509	342.5	0.103	5.74	100.9	3.0	0.37	0.1	0.01	0.25	0.11	30
1	41	15.54	15.53	33.258	24.513	342.4	0.140	5.72	100.6	2.9	0.37	0.1	0.00	0.25	0.10	41
1	50	15.54	15.53	33.256	24.512	342.8	0.171	5.73	100.7	2.6	0.35	0.1	0.00	0.25	0.10	50
1	61	15.S0	15.49	33.261	24.525	341.9	0.209	5.71	100.3	2.4	0.36	0.1	0.00	0.24	0.10	61
1	71	15.49	15.48	33.261	24.528	342.0	0.243	5.84 U	102.6 «	2.3	0.34	0.0	0.01	0.27	0.12	71
	75 ISL	14.98	14.97	33.274	24.649	330.4	0.257	5.45	94.7	3.2	0.44	1.2	0.09	0.27	0.17	75
1	79	14.34	14.33	33.284	24.793	316.7	0.269	5.36	92.0	4.2	0.56	2.6	0.16	0.26	0.22	79
1	94	12.15	12.14	33.164	25.138	284.0	0.315	5.21	85.4	6.6	0.84	7.0	0.03	0.12	0.22	94
	100 ISL	11.75	11.74	33.180	25.225	275.8	0.331	5.13	83.3	7.3	0.90	8.2	0.03	0.09	0.20	100
1	110	11.24	11.23	33.229	25.356	263.4	0.358	4.96	79.7	8.8	1.00	10.2	0.03	0.07	0.16	110
1	123	10.14	10.13	33.273	25.583	242.0	0.391	4.69	73.6	12.2	1.25	14.4	0.02	0.05	0.08	124
	125 ISL	10.04	10.03	33.286	25.610	239.4	0.396	4.65	72.8	12.7	1.28	14.9	0.02	0.05	0.07	126
1	148	9.39	9.37	33.474	25.864	215.6	0.448	4.10	63.4	17.9	1.53	19.1	0.01	0.01	0.03	149
	150 ISL	9.37	9.35	33.493	25.882	213.9	0.453	4.04	62.4	18.3	1.55	19.4	0.01	0.01	0.03	151
1	173	9.24	9.22	33.703	26.068	196.7	0.500	3.42	52.8	22.6	1.74	22.3	0.00	0.00	0.03	174
	200 ISL	9.04	9.02	33.894	26.250	180.0	0.551	2.94	45.2:	27.2	1.88	24.5	0.00	0.00	0.02	201
1	204	9.00	8.98	33.916	26.273	177.8	0.558	2.89	44.4	27.9	1.90	24.8	0.00	0.00	0.02	205
1	233	8.55	8.53	34.024	26.428	163.5	0.607	2.58	39.3	33.7	2.07	27.1	0.01			234
	2S0 ISL	8.22	8.19	34.062	26.508	156.1	0.634	2.36	35.7	38.0	2.19	28.6	0.01			251
1	273	7.79	7.76	34.097	26.600	147.6	0.669	2.05	30.7	43.9	2.34	30.5	0.00			275
	300 ISL	7.48	7.45	34.127	26.668	141.4	0.708	1.72	25.6	49.2	2.48	32.2	0.00			302
1	328	7.25	7.22	34.149	26.718	137.0	0.747	1.42	21.0	53.9	2.60	33.6	0.00			330
1	387	6.84	6.80	34.194	26.811	128.9	0.826	0.97	14.2	62.0	2.82	35.6	0.01			389
	400 ISL	6.77	6.73	34.201	26.826	127.6	0.842	0.90	13.2	63.4	2.86	36.0	0.01			402
1	453	6.50	6.46	34.227	26.883	122.7	0.909	0.68	9.9	69.1	2.98	37.3	0.00			456
	500 ISL	6.19	6.15	34.258	26.948	117.0	0.965	0.51	7.4	75.1	3.06	38.5	0.01			503
1	522	6.05	6.00	34.273	26.978	114.3	0.991	0.43	6.2	77.9	3.10	39.0	0.01			525

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 30.9 N	118 13.0 W	13/01/93	1245 UTC	1554 -	200 16 kB			1014.0 Bb	15.9 C	15.9 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.14	15.14	33.223	24.573	335.5	0.000	5.76	100.4	3.7	0.38	0.2	0.00	0.22	0.08	0
1	1	15.14	15.14	33.223	24.573	335.5	0.003	5.76	100.4	3.7	0.38	0.2	0.00	0.22	0.08	1
	10 ISL	15.15	15.15	33.221	24.569	336.1	0.034	5.77	100.6	3.6	0.38	0.2	0.01	0.23	0.07	10
1	16	15.15	15.15	33.22	24.569	336.3	0.054	5.78	100.8	3.5	0.38	0.2	0.01	0.24	0.07	16
	20 ISL	15.14	15.14	33.221	24.572	336.2	0.067	5.78	100.8	3.5	0.38	0.2	0.01	0.24	0.08	20
	30 ISL	15.11	15.11	33.226	24.582	335.4	0.101	5.77	100.6	3.3	0.37	0.2	0.01	0.25	0.10	30
1	31	15.11	15.11	33.226	24.582	335.5	0.104	5.77	100.6	3.3	0.37	0.2	0.01	0.25	0.10	31
1	41	15.12	15.11	33.228	24.582	335.8	0.138	5.79	100.9	3.0	0.38	0.2	0.01	0.25	0.10	41
1	50	15.04	15.03	33.328	24.677	327.1	0.168	5.75	100.1	2.9	0.40	0.2	0.04	0.43 A	0.28 A	50
1	60	13.33	13.32	33.195	24.931	302.9	0.199	5.49	92.2	5.0	0.62	3.6	0.13	0.27	0.28	60
1	71	12.17	12.16	33.160	25.130	284.1	0.231	5.21	85.4	7.1	0.85	7.2	0.08	0.24	0.31	71
	75 ISL	11.95	11.94	33.159	25.171	280.3	0.243	5.16	84.2	7.4	0.89	7.9	0.07	0.23	0.29	75
1	80	11.73	11.72	33.165	25.217	276.1	0.257	5.09	82.7	7.8	0.94	8.6	0.05	0.21	0.26	80
1	94	10.94	10.93	33.224	25.406	258.3	0.294	4.75	75.9	10.7	1.15	12.4	0.03	0.14	0.21	94
	100 ISL	10.70	10.69	33.283	25.494	250.0	0.309	4.58	72.8	11.9	1.23	13.8	0.02	0.10	0.17	100
1	109	10.41	10.40	33.378	25.618	238.4	0.331	4.31	68.1	13.6	1.35	15.8	0.02	0.06	0.11	109
1	124	10.07	10.06	33.483	25.759	225.3	0.366	3.91	61.4	16.8	1.50	18.5	0.02	0.05	0.09	12s
	125 ISL	10.05	10.04	33.491	25.768	224.4	0.368	3.88	60.9	17.0	1.51	18.6	0.02	0.05	0.09	126
1	149	9.66	9.64	33.669	25.973	205.4	0.420	3.37	52.5	21.1	1.73	21.7	0.01	0.01	0.04	150
	150 ISL	9.63	9.61	33.677	25.984	204.4	0.422	3.35	52.1	21.3	1.74	21.8	0.01	0.01	0.04	151
1	173	9.04	9.02	33.852	26.216	182.6	0.466	3.04	46.7	26.3	1.89	24.5	0.01	0.00	0.02	174
	200 ISL	8.57	8.55	33.985	26.394	166.1	0.513	2.77	42.2	31.9	2.04	26.6	0.01	0.00	0.02	201
1	203	8.53	8.51	33.995	26.408	164.8	0.518	2.75	41.8	32.4	2.05	26.8	0.01	0.00	0.02	204
1	232	8.30	8.28	34.034	26.474	159.0	0.565	2.62	39.7	35.1	2.12	28.0	0.02			233
	250 ISL	8.14	8.11	34.062	26.520	154.9	0.594	2.42	36.5	37.9	2.20	28.9	0.02			251
1	272	7.91	7.88	34.094	26.580	149.5	0.627	2.13	32.0	41.9	2.32	30.1	0.01			274
	300 ISL	7.54	7.51	34.124	26.657	142.5	0.668	1.76	26.2	47.8	2.48	32.0	0.01			302
1	327	7.20	7.17	34.148	26.724	136.3	0.706	1.42	21.0	53.4	2.63	33.7	0.01			329
1	387	6.74	6.70	34.193	26.823	127.6	0.785	0.94	13.7	62.3	2.84	36.0	0.01			389
	400 ISL	6.69	6.65	34.205	26.840	126.2	0.801	0.85	12.4	63.7	2.87	36.4	0.01			403
1	4S2	6.50	6.46	34.251	26.902	121.0	0.865	0.57	8.3	69.0	2.99	37.7	0.01			455
	500 ISL	6.16	6.12	34.276	26.966	115.2	0.922	0.45	6.5	74.6	3.09	38.7	0.01			503
1	522	6.01	5.96	34.288	26.995	112.7	0.947	0.39	5.6	77.1	3.13	39.2	0.01			526

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

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 20.8 N	118 33.2 W	13/01/93	1634 UTC	1343 *m*	200 16 kn	180 03 05	4	1016.0 Bb	16.0 C	16.0 C		7/8	CID

CAST	DEPTH ▪	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PHAEO uq/1	PRESS db
1	0	14.54	14.54	33.328	24.782	315.5	0.000	5.78	99.6	3.2	0.41	0.3	0.03			0
	10 ISL	14.54	14.54	33.328	24.783	315.7	0.032	5.77	99.5	3.1	0.40	0.3	0.03			10
1	16	14.54	14.54	33.328	24.783	315.9	0.051	5.77	99.5	3.0	0.40	0.3	0.03			16
	20 ISL	14.53	14.53	33.328	24.785	315.8	0.063	5.76	99.3	3.0	0.40	0.3	0.03			20
	30 ISL	14.50	14.50	33.328	24.792	315.4	0.095	5.75	99.0	2.9	0.41	0.4	0.03			30
1	31	14.50	14.50	33.328	24.792	315.5	0.098	5.75	99.0	2.9	0.41	0.4	0.03	0.62	0.30	31
1	39	13.18	13.17	33.340	25.073	288.9	0.122	5.09	85.3	6.9	0.79	5.8	0.14	0.31	0.28	39
	50 ISL	11.14	11.13	33.391	25.499	248.4	0.152	4.27	68.6	13.3	1.28	13.8	0.05	0.15	0.23	50
1	51	10.99	10.98	33.397	25.531	245.5	0.154	4.21	67.4	13.8	1.31	14.4	0.04	0.15	0.22	51
1	61	10.71	10.70	33.431	25.607	238.4	0.178	4.05	64.4	15.0	1.39	15.7	0.03	0.13.	0.17	61
1	70	10.47	10.46	33.447	25.661	233.4	0.199	4.00	63.3	15.6	1.43	16.4	0.02	0.10	0.15	70
	75 ISL	10.06	10.05	33.491	25.765	223.6	0.211	3.88	60.9	17.2	1.51	18.0	0.01	0.05	0.07	75
1	77	9.90	9.89	33.511	25.808	219.6	0.215	3.83	59.9	17.9	1.55	18.6	0.01	0.03	0.04	77
1	93	9.74	9.73	33.576	25.886	212.5	0.250	3.65	56.9	19.3	1.61	19.7	0.01	0.04	0.06	93
	100 ISL	9.65	9.64	33.659	25.965	205.1	0.265	3.41	53.1	21.2	1.70	21.1	0.01	0.03	0.05	100
1	109	9.48	9.47	33.758	26.071	195.2	0.283	3.14	48.7	23.6	1.80	22.8	0.01	0.01	0.03	110
1	124	9.03	9.02	33.776	26.157	187.2	0.311	3.26	50.1	25.2	1.83	23.3	0.01	0.00	0.02	125
	125 ISL	9.03	9.02	33.778	26.159	187.1	0.313	3.25	49.9	25.2	1.83	23.3	0.01	0.00	0.02	126
1	149	8.98	8.96	33.830	26.208	182.9	0.357	3.12	47.9	26.5	1.86	24.2	0.01	0.00	0.02	150
	150 ISL	8.97	8.95	33.837	26.215	182.2	0.359	3.10	47.6	26.7	1.87	24.3	0.01	0.00	0.02	151
1	174	8.75	8.73	34.000	26.378	167.3	0.401	2.60	39.7	32.1	2.05	26.7	0.00	0.00	0.02	175
	200 ISL	8.31	8.29	34.054	26.488	157.1	0.443	2.47	37.4	36.7	2.14	28.3	0.00	0.00	0.02	201
1	204	8.25	8.23	34.056	26.498	156.2	0.450	2.45	37.0	37.2	2.15	28.5	0.00	0.00	0.02	205
1	233	8.07	8.05	34.063	26.531	153.5	0.495	2.39	36.0	38.9	2.18	29.1	0.00			234
	250 ISL	7.86	7.84	34.081	26.577	149.4	0.520	2.19	32.8	42.2	2.28	30.2	0.00			251
1	273	7.56	7.53	34.110	26.643	143.3	0.554	1.86	27.7	47.5	2.43	32.0	0.00			275
	300 ISL	7.32	7.29	34.139	26.700	138.2	0.592	1.54	22.8	52.0	2.55	33.5	0.00			302
1	327	7.14	7.11	34.164	26.745	134.3	0.629	1.27	18.7	55.7	2.65	34.7	0.00			329
1	387	6.79	6.75	34.202	26.824	127.6	0.707	0.90	13.2	62.7	2.83	36.6	0.00			389
	400 ISL	6.72	6.68	34.213	26.842	126.0	0.724	0.83	12.1	64.2	2.86	37.0	0.00			403
1	452	6.43	6.39	34.256	26.915	119.7	0.788	0.60	8.7	70.3	2.98	38.5	0.00			455
	500 ISL	6.11	6.07	34.278	26.974	114.4	0.844	0.45	6.5	76.4	3.07	39.8	0.00			503
1	523	5.96	5.91	34.289	27.002	112.0	0.870	0.38	5.5	79.3	3.11	40.4	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 10.8 N	118 53.5 W	13/01/93	2212 UTC	1466 *m*	190 17 kn	190 03 09	2	1014.5 mb	17.0 C	16.7 C	15» 03	8/8	ST

CAST	DEPTH ▪	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.73	14.73	33.290	24.713	322.1	0.000	5.82	100.7	3.9	0.43	0.4	0.02	0.70	0.23	0
1	1	14.73	14.73	33.290	24.713	322.1	0.003	5.82	100.7	3.9	0.43	0.4	0.02	0.70	0.23	1
	10 ISL	14.66	14.66	33.292	24.730	320.8	0.032	5.83	100.7	3.9	0.43	0.4	0.02	0.68	0.24	10
1	16	14.60	14.60	33.294	24.744	319.6	0.051	5.83	100.6	3.8	0.43	0.4	0.02	0.67	0.26	16
	20 ISL	14.59	14.59	33.294	24.746	319.5	0.064	5.82	100.4	3.7	0.42	0.4	0.02	0.68	0.28	20
	30 ISL	14.54	14.54	33.294	24.757	318.8	0.096	5.80	100.0	3.5	0.41	0.4	0.02	0.72	0.31	30
1	31	14.54	14.54	33.294	24.757	318.8	0.099	5.80	100.0	3.5	0.41	0.4	0.02	0.72	0.31	31
1	40	14.44	14.43	33.294	24.779	317.0	0.128	5.73	98.6	3.4	0.46	0.8	0.05	0.55	0.28	40
	50 ISL	11.83	11.82	33.326	25.323	265.3	0.157	4.63	75.4	11.2	1.14	11.3	0.06	0.23	0.25	50
1	51	11.55	11.54	33.335	25.381	259.7	0.160	4.51	73.0	12.0	1.21	12.4	0.06	0.20	0.25	51
1	60	10.83	10.82	33.376	25.543	244.5	0.182	4.28	68.3	14.3	1.35	14.8	0.03	0.12	0.18	60
1	70	10.29	10.28	33.444	25.690	230.7	0.206	4.05	63.9	16.3	1.48	17.1	0.02	0.07	0.10	70
	75 ISL	9.97	9.96	33.469	25.763	223.8	0.217	4.06	63.6	17.0	1.49	17.8	0.01	0.04	0.06	75
1	79	9.73	9.72	33.487	25.817	218.7	0.226	4.06	63.3	17.6	1.50	18.3	0.01	0.02	0.03	79
1	94	9.44	9.43	33.563	25.924	208.8	0.258	3.83	59.3	20.2	1.62	20.2	0.01	0.01	0.04	94
	100 ISL	9.35	9.34	33.571	25.945	206.9	0.271	3.79	58.6	20.6	1.64	20.5	0.01	0.01	0.04	100
1	109	9.26	9.25	33.600	25.983	203.5	0.289	3.74	57.7	21.3	1.67	21.1	0.01	0.01	0.03	110
1	124	9.25	9.24	33.784	26.129	190.0	0.319	3.13	48.3	25.4	1.84	23.7	0.01	0.00	0.03	125
	125 ISL	9.25	9.24	33.791	26.134	189.5	0.321	3.11	48.0	25.6	1.85	23.8	0.01	0.00	0.03	126
1	149	9.10	9.08	33.896	26.241	179.8	0.365	2.89	44.S	28.4	1.94	25.0	0.00	0.00	0.0s	150
	150 ISL	9.09	9.07	33.900	26.245	179.4	0.367	2.88	44.3	28.5	1.94	25.1	0.00	0.00	0.0:i	151
1	172	8.90	8.88	33.985	26.342	170.6	0.405	2.64	40.5	31.7	2.04	26.4	0.00	0.00	0.0:i:	173
	200 ISL	8.51	8.49	34.064	26.465	159.3	0.451	2.32	35.3	36.8	2.20	28.4	0.00	0.00	0.0:i!	201
1	202	8.48	8.46	34.068	26.473	158.6	0.455	2.30	35.0	37.2	2.21	28.5	0.00	0.00	0.011	203
1	231	8.05	8.03	34.092	26.557	151.0	0.500	2.12	31.9	42.0	2.31	30.0	0.00			232
	250 ISL	7.92	7.89	34.113	26.593	147.9	0.528	1.96	29.4	44.2	2.38	30.8	0.00			251
1	272	7.78	7.75	34.136	26.632	144.5	0.560	1.75	26.2	46.8	2.46	31.7	0.00			274
	300 ISL	7.39	7.36	34.149	26.698	138.5	0.600	1.48	22.0	52.4	2.60	33.5	0.00			302
1	327	7.01	6.98	34.163	26.762	132.6	0.636	1.22	17.9	58.2	2.74	35.2	0.00			329
1	387	6.62	6.58	34.238	26.875	122.6	0.713	0.67	9.8	67.6	2.98	37.4	0.00			389
	400 ISL	6.54	6.50	34.246	26.892	121.1	0.729	0.60	8.7	69.2	3.01	37.8	0.00			403
1	452	6.24	6.20	34.271	26.951	116.0	0.790	0.44	6.4	75.0	3.10	39.0	0.00			455
	500 ISL	5.98	5.94	34.297	27.005	111.3	0.845	0.34	4.9	80.3	3.15	39.8	0.00			503
1	522	5.86	5.81	34.309	27.030	109.1	0.869	0.30	4.3	82.8	3.18	40.1	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 0.8 N	119 14.0 W	14/01/93	0221 UTC	1582 m	170 10 kn			1014.0 mb	15.9 C	15.2 C			

CAST	DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN BT	OXYGEN ml/l	OXY PCT	SIO3 UM/l	PO4 uM/l	NO3 UM/l	NO2 uM/l	CHL-A ug/l	PHAEO ug/l	PRESS db
	0	ISL	15.02	15.02	33.265	24.631	329.9	0.000	5.83	101.5	2.7	0.37	0.1	0.02	0.46	0.15	0
1	1		15.02	15.02	33.265	24.631	329.9	0.003	5.83	101.5	2.7	0.37	0.1	0.02	0.46	0.15	1
	10	ISL	15.00	15.00	33.269	24.639	329.5	0.033	5.83	101.4	2.7	0.36	0.1	0.02	0.47	0.16	10
1	15		14.99	14.99	33.271	24.643	329.2	0.049	5.83	101.4	2.7	0.36	0.1	0.02	0.47	0.16	15
	20	ISL	14.94	14.94	33.286	24.665	327.2	0.066	5.83	101.3	2.7	0.36	0.1	0.02	0.56	0.19	20
1	30		14.81	14.81	33.315	24.716	322.7	0.098	5.82	100.9	2.6	0.37	0.2	0.02	0.70	0.25	30
1	39		14.71	14.70	33.323	24.744	320.3	0.127	5.79	100.1	2.7	0.39	0.4	0.03	0.58	0.26	39
1	50		12.61	12.60	33.341	25.186	278.4	0.160	4.87	80.7	8.9	0.94	6.9	0.11	0.39	0.36	50
1	59		11.08	11.07	33.399	25.516	247.0	0.184	4.25	68.2	13.7	1.30	13.3	0.04	0.22	0.26	59
1	69		10.07	10.06	33.420	25.708	228.9	0.208	4.17	65.4	15.9	1.42	16.0	0.02	0.08	0.10	69
	75	ISL	9.78	9.77	33.488	25.810	219.3	0.221	3.99	62.2	17.8	1.51	17.8	0.01	0.04	0.06	75
1	78		9.71	9.70	33.526	25.851	215.4	0.228	3.89	60.6	18.8	1.56	18.6	0.01	0.03	0.05	78
1	93		9.76	9.75	33.646	25.937	207.6	0.259	3.42	53.4	21.4	1.70	21.0	0.01	0.04	0.07	93
	100	ISL	9.70	9.69	33.685	25.978	203.9	0.274	3.31	51.6	22.4	1.75		0.01	0.03	0.06	100
1	108		9.59	9.58	33.732	26.032	198.9	0.290	3.21	49.9	23.7	1.80	22.8 U	0.01	0.02	0.04	109
1	123		9.30	9.29	33.864	26.183	184.8	0.319	2.88	44.5	27.0	1.91	2S.1 U	0.01	0.01	0.02	124
	125	ISL	9.27	9.26	33.879	26.200	183.3	0.322	2.84	43.9	27.5	1.92		0.01	0.01	0.02	126
1	148		8.98	8.96	34.006	26.346	169.8	0.363	2.49	38.3	32.1	2.06	27.8 U	0.01	0.00	0.02	149
	150	ISL	8.96	8.94	34.012	26.354	169.1	0.366	2.47	37.9	32.4	2.07		0.01	0.00	0.02	151
1	173		8.75	8.73	34.064	26.428	162.5	0.404	2.28	34.9	35.4	2.17	29.0 U	0.00	0.01	0.05	174
	200	ISL	8.34	8.32	34.106	26.524	153.7	0.447	2.08	31.5	40.2	2.27		0.01	0.00	0.01	201
1	202		8.31	8.29	34.108	26.530	153.2	0.450	2.07	31.4	40.5	2.28	31.0 U	0.01	0.00	0.01	203
1	233		7.76	7.74	34.085	26.594	147.4	0.497	2.15	32.2	44.1	2.32	32.3 U	0.00			234
	250	ISL	7.58	7.56	34.098	26.631	144.2	0.522	1.98	29.5	47.0	2.41		0.00			251
1	273		7.38	7.35	34.126	26.681	139.7	0.554	1.66	24.6	51.2	2.56	35.1 U	0.00			275
	300	ISL	7.11	7.08	34.144	26.733	135.0	0.591	1.38	20.3	55.9	2.68		0.00			302
1	330		6.84	6.81	34.163	26.786	130.4	0.631	1.12	16.4	60.7	2.78	38.7 U	0.00			332
1	390		6.50	6.46	34.217	26.874	122.6	0.707	0.71	10.3	68.5	2.96	40.8 U	0.00			393
	400	ISL	6.45	6.41	34.224	26.886	121.6	0.719	0.67	9.7	69.5	2.98		0.00			403
1	454		6.19	6.15	34.255	26.945	116.6	0.783	0.50	7.2	74.8	3.05	42.4 U	0.00			457
	500	ISL	5.95	5.91	34.279	26.995	112.3	0.836	0.39	5.6	79.5	3.11		0.00			503
1	523		5.83	5.78	34.292	27.020	110.0	0.862	0.34	4.9	81.9	3.14	44.0 U	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 50.8 N	119 34.2 W	14/01/93	0632 UTC	1797 m	190 12 >tn			1014.8 ab	15.9 C	15.3 C			

CAST	DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/l	OXY PCT	SIO3 uM/l	(K>4 uM/l	NO3 uM/l	NO2 uM/l	CHL-A uq/l	PHAEO ug/l	PRESS db
	0	ISL	14.64	14.64	33.188	24.653	327.8	0.000	5.85	101.0	3.4	0.39	0.0	0.00	0.33	0.15	0
1	1		14.64	14.64	33.188	24.653	327.8	0.003	5.85	101.0	3.4	0.39	0.0	0.00	0.33	0.15	1
	10	ISL	14.65	14.65	33.206	24.665	326.9	0.033	5.86	101.2	3.3	0.38	0.0	0.00	0.34	0.14	10
1	16		14.66	14.66	33.225	24.678	325.9	0.052	5.86	101.2	3.2	0.38	0.0	0.00	0.35	0.14	16
	20	ISL	14.68	14.68	33.243	24.688	325.1	0.065	5.86	101.3	3.2	0.38	0.0	0.00	0.40	0.16	20
	30	ISL	14.72	14.72	33.280	24.708	323.4	0.098	5.83	100.8	3.1	0.38	0.0	0.01	0.48	0.21	30
1	31		14.72	14.72	33.283	24.710	323.3	0.101	5.83	100.8	3.1	0.38	0.0	0.01	0.49	0.22	31
1	40		14.67	14.66	33.280	24.719	322.7	0.130	5.80	100.2	3.1	0.40	0.2	0.02	0.43	0.22	40
1	50		14.51	14.50	33.265	24.742	320.8	0.162	5.77	99.4	3.3	0.43	0.6	0.04	0.39	0.25	50
1	60		12.54	12.53	33.131	25.037	292.8	0.193	5.40	89.2	5.8	0.75	4.9	0.07	0.31	0.32	60
1	70		12.06	12.05	33.155	25.147	282.5	0.222	5.24	85.7	7.0	0.87	6.7	0.04	0.25	0.31	70
	75	ISL	11.59	11.58	33.170	25.246	273.1	0.236	5.10	82.6	8.4	0.97	8.6	0.03	0.21	0.2S	75
1	78		11.28	11.27	33.180	25.311	267.0	0.244	5.01	80.6	9.4	1.04	9.8	0.03	0.18	0.21	78
1	94		10.13	10.12	33.220	25.543	245.2	0.285	4.75	74.5	13.0	1.25	14.0	0.01	0.08	0.12	94
	100	ISL	9.83	9.82	33.262	25.626	237.3	0.299	4.64	72.3	14.2	1.32	15.2	0.01	0.06	0.09	100
1	107		9.56	9.55	33.321	25.716	228.8	0.315	4.50	69.8	15.6	1.39	16.5	0.01	0.04	0.06	107
1	123		9.15	9.14	33.460	25.891	212.5	0.351	4.18	64.3	19.3	1.56	19.3	0.01	0.01	0.03	124
	125	ISL	9.14	9.13	33.493	25.918	209.9	0.355	4.09	62.9	20.0	1.59	19.7	0.01	0.01	0.03	126
1	148		9.03	9.01	33.831	26.201	183.6	0.400	3.09	47.5	27.5	1.89	24.2	0.00	0.01	0.03	149
	150	ISL	9.02	9.00	33.845	26.214	182.4	0.404	3.04	46.7	27.8	1.91	24.4	0.00	0.01	0.03	151
1	173		8.84	8.82	33.936	26.313	173.3	0.445	2.73	41.8	31.0	2.03	26.1	0.00	0.01	0.02	174
	200	ISL	8.42	8.40	34.018	26.443	161.4	0.490	2.57	39.0	35.9	2.12	27.7	0.00	0.00	0.02	201
1	202		8.38	8.36	34.022	26.452	160.6	0.493	2.56	38.8	36.2	2.12	27.8	0.00	0.00	0.02	203
1	231		7.70	7.68	33.996	26.533	153.1	0.539	2.86	42.7	39.1	2.08	28.3	0.00			232
	250	ISL	7.63	7.61	34.053	26.588	148.2	0.567	2.44	36.4	43.6	2.23	29.9	0.00			251
1	271		7.56	7.53	34.111	26.644	143.2	0.598	1.84	27.4	49.0	2.43	31.9	0.00			273
	300	ISL	7.22	7.19	34.123	26.702	138.1	0.639	1.59	23.5	53.7	2.54	33.4	0.00			302
1	325		6.90	6.87	34.118	26.742	134.4	0.673	1.50	22.0	57.0	2.60	34.3	0.00			327
1	385		6.54	6.50	34.160	26.824	127.3	0.751	1.03	15.0	64.9	2.81	36.6	0.00			387
	400	ISL	6.49	6.45	34.182	26.848	125.2	0.770	0.90	13.1	66.8	2.87	37.1	0.00			403
1	451		6.31	6.27	34.255	26.930	118.1	0.832	0.51	7.4	73.2	3.03	38.4	0.00			454
	500	ISL	6.00	5.96	34.283	26.992	112.6	0.889	0.38	5.5	78.9	3.11	39.6	0.00			503
1	521		5.86	5.81	34.296	27.020	110.1	0.912	0.32	4.6	81.4	3.14	40.1	0.00			525

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
31 30.8 N	120 14.8 W	14/01/93	1243 UTC	3932 •	260 15 k.D			1015.5 ab	18.8 C	16.8 C		

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN al/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PBAEO ug/1	PRESS d!b
	0 ISL	15.80	15.80	33.229	24.432	348.9	0.000	5.70	100.7	2.8	0.34	0.1	0.00	0.11	0.04	0
1	1	15.80	15.80	33.229	24.432	348.9	0.003	5.70	100.7	2.8	0.34	0.1	0.00	0.11	0.04	1
	10 ISL	15.78	15.78	33.229	24.436	348.8	0.035	5.70	100.7	2.8	0.34	0.1	0.00	0.12	0.05	10
1	15	15.76	15.76	33.229	24.441	348.5	0.052	5.70	100.6	2.8	0.34	0.1	0.00	0.12	0.05	15
	20 ISL	15.73	15.73	33.226	24.446	348.2	0.070	5.70	100.6	2.7	0.34	0.1	0.00	0.12	0.05	20
1	30	15.68	15.68	33.219	24.452	347.9	0.105	5.71	100.7	2.6	0.34	0.1	0.00	0.13	0.05	30
1	39	15.64	15.63	33.219	24.461	347.3	0.136	5.72	100.7	2.6	0.34	0.1	0.00	0.14	0.06	39
1	49	15.59	15.58	33.211	24.466	347.1	0.171	5.72	100.6	2.5	0.34	0.1	0.00	0.16	0.07	49
	50 ISL	15.57	15.56	33.208	24.468	347.0	0.174	5.72	100.6	2.5	0.34	0.1	0.00	0.16	0.07	50
1	59	15.29	15.28	33.182	24.510	343.2	0.205	5.75	100.5	2.5	0.35	0.1	0.00	0.21	0.10	59
1	68	14.79	14.78	33.186	24.622	332.8	0.235	5.80	100.4	2.6	0.37	0.1	0.02	0.29	0.15	68
	75 ISL	14.08	14.07	33.169	24.759	319.9	0.258	5.70	97.2	3.2	0.46	1.3	0.11	0.26	0.17	75
1	77	13.85	13.84	33.163	24.802	315.8	0.265	5.66	96.1	3.5	0.49	1.8	0.13	0.25	0.17	77
1	92	12.18	12.17	33.135	25.110	286.6	0.310	5.30	86.9	6.4	0.78	6.2	0.04	0.18	0.20	92
	100 ISL	11.12	11.11	33.159	25.323	266.3	0.332	5.07	81.2	9.2	1.00	10.0	0.02	0.12	0.15	100
1	106	10.43	10.42	33.201	25.477	251.7	0.348	4.88	77.1	11.3	1.15	12.8	0.01	0.07	0.11	106
1	121	9.92	9.91	33.374	25.698	230.9	0.384	4.42	69.1	14.9	1.35	16.3	0.01	0.03	0.07	122
	125 ISL	9.82	9.81	33.413	25.746	226.5	0.393	4.33	67.6	15.7	1.38	16.9	0.01	0.02	0.06	126
1	147	9.43	9.41	33.606	25.961	206.4	0.440	3.85	59.6	20.1	1.55	19.9	0.00	0.01	0.03	148
	150 ISL	9.39	9.37	33.632	25.988	203.9	0.447	3.76	58.2	20.9	1.59	20.4	0.00	0.01	0.03	151
1	170	9.15	9.13	33.790	26.150	188.9	0.486	3.16	48.7	26.0	1.82	23.8	0.00	0.00	0.03	171
	200 ISL	8.70	8.68	33.946	26.344	171.0	0.540	2.73	41.7	32.2	1.99	26.8	0.00	0.00	0.02	201
1	201	8.68	8.66	33.950	26.350	170.4	0.542	2.72	41.5	32.4	1.99	26.9	0.00	0.00	0.02	202
1	229	8.30	8.28	34.023	26.466	159.8	0.588	2.48	37.5	37.3	2.13	28.5	0.00			230
	250 ISL	7.92	7.89	34.041	26.536	153.3	0.621	2.42	36.3	40.9	2.21	29.6	0.00			251
1	269	7.58	7.55	34.048	26.591	148.2	0.649	2.37	35.3	44.2	2.27	30.6	0.00			270
	300 ISL	7.26	7.23	34.073	26.657	142.3	0.694	2.07	30.6	49.4	2.41	32.4	0.00			302
1	324	7.07	7.04	34.091	26.698	138.7	0.728	1.79	26.3	53.4	2.53	33.8	0.00			326
1	384	6.53	6.50	34.129	26.801	129.5	0.809	1.15	16.7	63.6	2.77	36.6	0.00			386
	400 ISL	6.41	6.37	34.137	26.823	127.5	0.829	1.05	15.2	65.8	2.81	37.1	0.00			402
1	451	6.10	6.06	34.168	26.888	121.8	0.893	0.79	11.4	72.2	2.93	38.6	0.00			454
	500 ISL	5.87	5.83	34.220	26.958	115.6	0.951	0.54	7.7	78.2	3.03	39.8	0.00			503
1	522	5.76	5.72	34.243	26.990	112.8	0.976	0.43	6.1	80.9	3.08	40.3	0.00			525

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
31 11.2 N	120 55.0 W	14/01/93	1951 UTC	3869 a	150 04 kn	300 08 07	8	1018.9 ab	16.2 C	16.2 C		8/8 AS

CAST	DEPTH a	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN al/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.46	15.46	33.189	24.476	344.6	0.000	5.77	101.3	2.5	0.36	0.1	0.00	0.15	0.05	0
1	1	15.46	15.46	33.189	24.476	344.7	0.003	5.77	101.3	2.5	0.36	0.1	0.00	0.15	0.05	1
	10 ISL	15.41	15.41	33.191	24.489	343.7	0.034	5.76	101.0	2.5	0.36	0.1	0.00	0.14	0.06	10
1	15	15.37	15.37	33.193	24.500	342.8	0.052	5.76	100.9	2.5	0.36	0.1	0.00	0.14	0.06	15
	20 ISL	15.36	15.36	33.193	24.502	342.8	0.069	5.77	101.0	2.5	0.36	0.1	0.00	0.14	0.06	20
1	29	15.35	15.35	33.193	24.505	342.8	0.100	5.78	101.2	2.5	0.35	0.1	0.00	0.15	0.05	29
	30 ISL	15.35	15.35	33.193	24.505	342.9	0.103	5.78	101.2	2.5	0.35	0.1	0.00	0.15	0.05	30
1	39	15.32	15.31	33.195	24.513	342.3	0.134	5.78	101.1	2.4	0.35	0.1	0.00	0.20	0.08	39
1	49	15.09	15.08	33.203	24.570	337.2	0.168	5.78	100.7	2.4	0.35	0.1	0.00	0.30	0.15	49
	50 ISL	15.04	15.03	33.205	24.582	336.1	0.171	5.78	100.6	2.4	0.35	0.1	0.01	0.31	0.17	50
1	58	14.46	14.45	33.207	24.708	324.3	0.198	5.76	99.0	2.9	0.40	0.5	0.06	0.39	0.31	58
1	68	13.48	13.47	33.150	24.867	309.3	0.229	5.55	93.5	4.3	0.56	2.7	0.09	0.29	0.24	68
	75 ISL	12.80	12.79	33.130	24.986	298.0	0.251	5.48	91.0	5.0	0.65	4.0	0.06	0.26	0.25	75
1	77	12.61	12.60	33.128	25.022	294.7	0.256	5.46	90.3	5.2	0.68	4.4	0.05	0.25	0.26	77
1	90	11.49	11.48	33.173	25.267	271.5	0.293	4.99	80.6	8.8	0.98	9.6	0.02	0.15	0.18	90
	100 ISL	10.79	10.78	33.181	25.399	259.1	0.320	4.92	78.3	10.4	1.09	11.7	0.02	0.10	0.14	100
1	106	10.44	10.43	33.195	25.471	252.3	0.335	4.89	77.2	11.3	1.14	12.7	0.02	0.08	0.12	106
1	120	9.77	9.76	33.331	25.690	231.7	0.369	4.44	69.2	15.4	1.38	16.6	0.01	0.04	0.07	121
	125 ISL	9.72	9.71	33.386	25.741	226.9	0.380	4.33	67.4	16.2	1.42	17.3	0.01	0.03	0.06	126
1	145	9.53	9.51	33.556	25.905	211.7	0.424	4.00	62.1	18.9	1.51	19.2	0.00	0.01	0.05	146
	150 ISL	9.45	9.43	33.602	25.954	207.1	0.435	3.90	60.4	19.9	1.55	19.8	0.00	0.01	0.04	151
1	170	9.12	9.10	33.769	26.138	190.0	0.475	3.52	54.2	24.1	1.71	22.3	0.00	0.00	0.02	171
1	198	8.85	8.83	33.906	26.289	176.2	0.526	3.09	47.3	29.3	1.88	25.0	0.00	0.00	0.02	199
	200 ISL	8.82	8.80	33.914	26.300	175.2	0.529	3.05	46.7	29.7	1.89	25.2	0.00			201
1	227	8.44	8.42	33.992	26.420	164.1	0.575	2.61	39.6	35.0	2.07	27.8	0.00			228
	250 ISL	8.18	8.15	34.032	26.491	157.7	0.612	2.42	36.5	38.6	2.15	29.0	0.00			251
1	266	8.00	7.97	34.050	26.532	154.0	0.637	2.33	35.0	40.9	2.20	29.7	0.00			267
	300 ISL	7.49	7.46	34.067	26.620	146.0	0.688	2.14	31.8	46.7	2.33	31.4	0.00			302
1	320	7.19	7.16	34.074	26.667	141.6	0.717	2.00	29.5	50.4	2.42	32.4	0.00			322
1	379	6.61	6.58	34.126	26.788	130.7	0.797	1.27	18.5	61.9	2.73	36.0	0.00			381
	400 ISL	6.45	6.41	34.142	26.822	127.7	0.824	1.08	15.7	65.3	2.81	37.0	0.00			402
1	444	6.16	6.12	34.175	26.886	122.0	0.879	0.78	11.2	71.8	2.95	38.6	0.00			447
	500 ISL	5.86	5.82	34.222	26.961	115.3	0.946	0.53	7.6	78.9	3.06	39.9	0.00			503
1	514	5.78	5.74	34.234	26.981	113.6	0.962	0.47	6.7	80.7	3.09	40.2	0.00			517

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
30 50.8 N	121 35.5 W	15/01/93	0205 UTC	4121 m	190 10 kn	260 08 07		1016.1 mb	17.2 C	17.0 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
1	0	15.78	15.78	33.192	24.407	351.2	0.000	5.73	101.2	2.7	0.36	0.1	0.00	0.10	0.04	0
	10 ISL	15.73	15.73	33.193	24.420	350.3	0.035	5.73	101.1	2.6	0.36	0.1	0.00	0.10	0.04	10
1	14	15.71	15.71	33.193	24.424	350.0	0.049	5.73	101.1	2.6	0.36	0.1	0.00	0.10	0.04	14
	20 ISL	15.62	15.62	33.192	24.444	348.4	0.070	5.74	101.0	2.6	0.36	0.1	0.00	0.11	0.04	20
1	30	15.45	15.45	33.192	24.482	345.0	0.105	5.76	101.0	2.6	0.36	0.1	0.00	0.13	0.05	30
1	40	15.31	15.30	33.197	24.517	342.0	0.139	5.78	101.1	2.6	0.36	0.1	0.00	0.17	0.06	40
1	50	15.21	15.20	33.207	24.547	339.5	0.173	5.80	101.3	2.5	0.36	0.1	0.00	0.20	0.08	50
1	59	14.86	14.85	33.206	24.622	332.5	0.203	5.82	100.9	2.6	0.39	0.1	0.01	0.31	0.19	59
1	68	14.15	14.14	33.188	24.759	319.7	0.233	5.70	97.4	3.3	0.50	1.3	0.14	0.35	0.29	68
	75 ISL	13.71	13.70	33.165	24.832	312.9	0.255	5.61	95.0	3.8	0.56	2.3	0.12	0.30	0.36	75
1	78	13.51	13.50	33.155	24.865	309.8	0.264	5.57	93.9	4.1	0.58	2.8	0.11	0.27	0.38	78
1	92	12.17	12.16	33.157	25.129	284.8	0.306	5.35	87.7	5.9	0.76	5.8	0.02	0.15	0.20	92
	100 ISL	11.52	11.51	33.175	25.264	272.1	0.328	5.16	83.4	7.6	0.91	8.5	0.01	0.11	0.15	100
1	107	11.00	10.99	33.200	25.377	261.4	0.347	4.98	79.6	9.3	1.04	10.9	0.01	0.09	0.12	107
1	123	9.96	9.95	33.288	25.625	237.9	0.387	4.65	72.7	13.5	1.29	15.2	0.01	0.04	0.11	124
	125 ISL	9.86	9.85	33.305	25.655	235.1	0.391	4.61	71.9	14.0	1.32	15.6	0.01	0.04	0.10	126
1	147	9.12	9.10	33.518	25.942	208.1	0.440	4.09	62.9	19.6	1.57	19.8	0.00	0.01	0.03	148
	150 ISL	9.12	9.10	33.556	25.971	205.4	0.446	3.98	61.2	20.4	1.61	20.3	0.00	0.01	0.03	151
1	172	9.09	9.07	33.783	26.154	188.5	0.490	3.26	50.2	25.8	1.82	23.6	0.00	0.00	0.02	173
	200 ISL	8.79	8.77	33.917	26.307	174.5	0.541	3.09	47.3	29.3	1.87	24.9	0.00	0.00	0.02	201
1	201	8.78	8.76	33.920	26.311	174.1	0.542	3.09	47.2	29.4	1.87	24.9	0.00	0.00	0.02	202
1	230	8.27	8.25	34.025	26.472	159.2	0.591	2.57	38.9	36.7	2.12	28.2	0.00			231
	250 ISL	7.96	7.93	34.059	26.545	152.5	0.622	2.34	35.1	41.0	2.23	29.7	0.00			251
1	269	7.68	7.65	34.074	26.598	147.7	0.650	2.15	32.1	44.7	2.31	30.9	0.00			270
	300 ISL	7.24	7.21	34.079	26.664	141.6	0.695	1.79	26.4	51.1	2.47	33.2	0.00			302
1	325	6.93	6.90	34.077	26.706	137.9	0.730	1.53	22.4	55.7	2.59	34.8	0.00			327
1	384	6.50	6.47	34.100	26.782	131.2	0.809	1.19	17.3	63.1	2.74	37.0	0.00			386
	400 ISL	6.40	6.36	34.111	26.804	129.3	0.830	1.11	16.1	65.1	2.78	37.4	0.00			402
1	449	6.11	6.07	34.151	26.873	123.2	0.892	0.87	12.5	71.4	2.89	38.4	0.00			452
	500 ISL	5.79	5.75	34.197	26.950	116.3	0.953	0.62	8.9	78.1	3.02	39.7	0.00			503
1	519	5.67	5.63	34.214	26.978	113.7	0.975	0.52	7.4	80.6	3.07	40.2	0.00			522

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
30 30.8 N	122 15.4 W	15/01/93	0807 UTC	4158 m	160 17 kn			1016.0 mb	17.8 C	17.6 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
1	0	15.67	15.67	33.170	24.415	350.5	0.000	5.71	100.6	2.7	0.34	0.1	0.00	0.13	0.04	0
	10 ISL	15.66	15.66	33.171	24.418	350.5	0.035	5.72	100.8	2.6	0.34	0.1	0.00	0.13	0.05	10
1	16	15.65	15.65	33.171	24.421	350.4	0.056	5.72	100.7	2.6	0.34	0.1	0.00	0.13	0.05	16
	20 ISL	15.65	15.65	33.172	24.422	350.5	0.070	5.72	100.7	2.6	0.34	0.1	0.00	0.13	0.05	20
1	29	15.64	15.64	33.176	24.427	350.2	0.102	5.72	100.7	2.6	0.34	0.1	0.00	0.14	0.06	29
	30 ISL	15.64	15.64	33.177	24.428	350.1	0.105	5.72	100.7	2.6	0.34	0.1	0.00	0.14	0.06	30
1	40	15.63	15.62	33.181	24.434	349.9	0.140	5.72	100.7	2.5	0.34	0.1	0.00	0.15	0.06	40
1	49	15.59	15.58	33.181	24.443	349.3	0.172	5.73	100.8	2.5	0.34	0.1	0.00	0.17	0.08	49
	50 ISL	15.58	15.57	33.181	24.445	349.1	0.175	5.73	100.8	2.5	0.34	0.1	0.00	0.17	0.08	50
1	59	15.53	15.52	33.177	24.453	348.6	0.206	5.73	100.7	2.4	0.34	0.1	0.00	0.17	0.08	59
1	69	15.20	15.19	33.156	24.510	343.5	0.241	5.76	100.5	2.5	0.36	0.1	0.01	0.24	0.12	69
	75 ISL	15.00	14.99	33.183	24.575	337.5	0.262	5.77	100.3	2.6	0.38	0.2	0.03	0.26	0.15	75
1	78	14.89	14.88	33.199	24.611	334.1	0.272	5.77	100.1	2.7	0.39	0.2	0.04	0.26	0.17	78
1	93	14.04	14.03	33.189	24.783	318.1	0.321	5.69	97.0	3.3	0.47	1.2	0.16	0.24	0.20	93
	100 ISL	13.09	13.08	33.167	24.959	301.4	0.342	5.50	91.9	4.8	0.63	3.8	0.10	0.19	0.19	100
1	108	11.95	11.94	33.158	25.171	281.1	0.365	5.25	85.6	6.9	0.84	7.2	0.02	0.12	0.16	108
1	123	10.74	10.73	33.200	25.423	257.3	0.406	4.94	78.5	10.3	1.08	11.6	0.01	0.07	0.10	124
	125 ISL	10.60	10.59	33.205	25.451	254.6	0.411	4.91	77.8	10.7	1.11	12.1	0.01	0.06	0.09	126
1	147	9.52	9.50	33.332	25.732	228.1	0.464	4.46	69.1	15.9	1.39	16.9	0.01	0.02	0.05	148
	150 ISL	9.46	9.44	33.376	25.776	224.0	0.471	4.33	67.0	16.9	1.44	17.6	0.01	0.02	0.05	151
1	172	9.23	9.21	33.708	26.073	196.2	0.517	3.43	52.9	23.6	1.73	22.3	0.00	0.00	0.03	173
	200 ISL	8.87	8.85	33.892	26.275	177.5	0.569	3.11	47.6	28.5	1.87	24.6	0.00	0.00	0.02	201
1	204	8.82	8.80	33.905	26.293	175.9	0.576	3.10	47.4	29.0	1.88	24.8	0.00	0.00	0.02	205
1	232	8.47	8.45	34.000	26.422	164.1	0.624	2.85	43.3	33.8	2.00	26.7	0.00			233
	250 ISL	8.24	8.21	34.027	26.478	159.0	0.653	2.77	41.9	36.2	2.05	27.5	0.00			251
1	273	7.95	7.92	34.043	26.534	153.9	0.689	2.67	40.1	39.1	2.11	28.5	0.00			274
	300 ISL	7.62	7.59	34.059	26.595	148.4	0.730	2.41	35.9	43.6	2.23	30.2	0.00			302
1	329	7.29	7.26	34.071	26.651	143.3	0.772	2.10	31.1	48.7	2.37	32.1	0.00			331
1	388	6.69	6.65	34.095	26.753	134.2	0.854	1.57	22.9	58.4	2.62	35.1	0.00			390
	400 ISL	6.58	6.54	34.102	26.773	132.4	0.870	1.46	21.2	60.3	2.67	35.7	0.00			402
1	454	6.15	6.11	34.140	26.859	124.6	0.940	0.99	14.3	69.0	2.86	38.2	0.00			457
	500 ISL	5.82	5.78	34.185	26.937	117.6	0.995	0.69	9.9	76.5	2.99	39.9	0.00			503
1	522	5.66	5.62	34.207	26.974	114.2	1.021	0.54	7.7	80.1	3.05	40.7	0.00			525

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 IIO

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
30 10.8 N	122 55.4 W	15/01/93	1409 UTC	3656 •	220 18 kn			1014.3 mb	17.9 C	17.8 C		

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PHAEO uq/1	PRESS dll)
	0 ISL	15.95	15.95	33.193	24.370	354.8	0.000	5.68	100.7	2.9	0.35	0.1	0.00	0.11	0.04	0
1	1	15.95	15.95	33.193	24.370	354.8	0.004	5.68	100.7	2.9	0.35	0.1	0.00	0.11	0.04	1
	10 ISL	15.95	15.95	33.193	24.370	355.0	0.035	5.69	100.8	2.9	0.34	0.1	0.00	0.11	0.04	10
1	15	15.95	15.95	33.193	24.371	355.2	0.053	5.70	101.0	2.9	0.34	0.1	0.00	0.11	0.04	15
	20 ISL	15.93	15.93	33.192	24.375	355.0	0.071	5.70	101.0	2.9	0.34	0.1	0.00	0.12	0.04	20
	30 ISL	15.86	15.86	33.188	24.387	354.0	0.106	5.70	100.8	2.8	0.34	0.1	0.00	0.13	0.05	30
1	31	15.85	15.85	33.187	24.389	353.9	0.110	5.70	100.8	2.8	0.34	0.1	0.00	0.13	0.05	31
1	41	15.71	15.70	33.175	24.411	352.1	0.145	5.72	100.9	2.8	0.34	0.1	0.00	0.14	0.05	41
1	50	15.61	15.60	33.183	24.440	349.6	0.177	5.72	100.7	2.7	0.34	0.1	0.00	0.16	0.07	50
1	61	15.50	15.49	33.204	24.481	346.0	0.215	5.73	100.6	2.7	0.35	0.1	0.00	0.19	0.09	61
1	69	15.32	15.31	33.203	24.520	342.6	0.243	5.75	100.6	2.6	0.35	0.1	0.00	0.22	0.11	69
	75 ISL	15.02	15.01	33.188	24.574	337.6	0.263	5.76	100.2	2.7	0.37	0.2	0.02	0.25	0.14	75
1	78	14.83	14.82	33.178	24.608	334.4	0.273	5.76	99.8	2.7	0.39	0.2	0.04	0.26	0.15	78
L	94	13.35	13.34	33.129	24.877	309.0	0.325	5.61	94.2	4.2	0.57	2.5	0.09	0.21	0.19	94
	100 ISL	12.91	12.90	33.197	25.017	295.8	0.343	5.47	91.1	4.9	0.64	4.0	0.07	0.15	0.18	100
1	109	12.25	12.24	33.303	25.227	275.9	0.368	5.23	85.9	6.3	0.76	6.5	0.02	0.07	0.15	109
1	124	10.90	10.89	33.308	25.479	252.1	0.408	4.95	79.0	10.0	1.03	11.1	0.01	0.05	0.07	125
	125 ISL	10.82	10.80	33.313	25.497	250.4	0.411	4.92	78.4	10.4	1.05	11.5	0.01	0.05	0.07	126
1	149	9.36	9.34	33.509	25.896	212.5	0.466	4.14	64.0	18.9	1.51	19.0	0.01	0.01	0.03	150
	150 ISL	9.33	9.31	33.520	25.910	211.3	0.468	4.11	63.5	19.2	1.52	19.2	0.01	0.01	0.03	151
1	174	8.89	8.87	33.760	26.168	187.2	0.516	3.62	55.4	24.5	1.70	22.5	0.00	0.00	0.02	175
	200 ISL	8.72	8.70	33.902	26.306	174.5	0.563	3.34	51.0	28.2	1.80	24.3	0.00	0.00	0.03	201
1	204	8.70	8.68	33.916	26.320	173.3	0.570	3.30	50.4	28.7	1.81	24.5	0.00	0.00	0.03	205
1	231	8.39	8.37	34.005	26.438	162.5	0.615	2.84	43.1	34.3	2.01	27.1	0.00			232
	250 ISL	8.19	8.16	34.034	26.491	157.7	0.646	2.61	39.4	37.5	2.10	28.4	0.00			251
1	271	7.96	7.93	34.051	26.539	153.4	0.678	2.39	35.9	40.8	2.19	29.6	0.00			272
	300 ISL	7.57	7.54	34.072	26.612	146.7	0.722	2.09	31.1	46.1	2.34	31.5	0.00			302
1	327	7.19	7.16	34.087	26.678	140.7	0.761	1.83	27.0	51.4	2.48	33.2	0.00			329
1	387	6.43	6.40	34.112	26.801	129.5	0.842	1.23	17.8	63.9	2.76	37.0	0.00			389
	400 ISL	6.34	6.30	34.130	26.826	127.1	0.859	1.10	15.9	66.1	2.82	37.6	0.00			402
1	452	6.06	6.02	34.199	26.917	119.0	0.923	0.67	9.6	74.0	3.00	39.6	0.00			455
	500 ISL	5.68	5.64	34.215	26.977	113.6	0.978	0.53	7.6	80.2	3.08	40.9	0.00			503
1	522	5.50	5.46	34.223	27.006	111.0	1.003	0.46	6.5	83.1	3.12	41.5	0.00			525

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 12(1

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
29 50.8 N	123 35.2 W	15/01/93	2053 UTC	4064 a	270 18 kn	270 04 05	5	1015.9 mb	16.5 C	16.5 C		8/8 SC

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A uq/1	PHAEO uq/1	IPRESS <U>
1	0	16.47	16.47	33.214	24.268	364.5	0.000	5.61	100.5	2.8	0.35	0.1	0.00	0.11	0.04	0
	10 ISL	16.48	16.48	33.217	24.268	364.8	0.036	5.62	100.6	2.8	0.36	0.1	0.00	0.11	0.04	10
1	15	16.48	16.48	33.219	24.270	364.8	0.055	5.62	100.6	2.8	0.36	0.1	0.00	0.11	0.04	15
	20 ISL	16.46	16.46	33.221	24.276	364.3	0.073	5.62	100.6	2.8	0.36	0.1	0.00	0.12	0.05	20
1	29	16.41	16.41	33.224	24.290	363.3	0.106	S.62	100.5	2.7	0.35	0.1	0.00	0.14	0.06	29
	30 ISL	16.40	16.40	33.224	24.293	363.1	0.109	5.62	100.5	2.7	0.35	0.1	0.00	0.14	0.06	30
1	40	16.33	16.32	33.229	24.313	361.5	0.146	5.62	100.4	2.6	0.36	0.1	0.00	0.16	0.06	40
1	50	16.31	16.30	33.232	24.320	361.1	0.182	5.62	100.3	2.6	0.35	0.1	0.00	0.19	0.09	50
1	59	16.23	16.22	33.236	24.342	359.3	0.214	5.62	100.2	2.5	0.35	0.1	0.00	0.20	0.09	59
1	69	16.05	16.04	33.232	24.380	356.0	0.250	5.64	100.1	2.5	0.34	0.1	0.00	0.20	0.11	69
	75 ISL	15.95	15.94	33.228	24.400	354.3	0.271	5.66	100.3	2.4	0.34	0.1	0.00	0.20	0.11	75
1	78	15.88	15.87	33.225	24.413	353.1	0.282	5.67	100.3	2.4	0.34	0.1	0.00	0.20	0.11	78
1	93	15.13	15.12	33.178	24.543	341.1	0.334	5.73	99.9	2.5	0.39	0.3	0.08	0.19	0.19	93
	100 ISL	14.38	14.37	33.169	24.697	326.5	0.357	5.68	97.5	3.0	0.45	0.8	0.08	0.18	0.19	100
1	107	13.51	13.50	33.166	24.874	309.7	0.379	5.59	94.2	3.9	0.53	1.9	0.07	0.17	0.19	107
1	122	11.71	11.69	33.154	25.213	277.5	0.424	5.26	85.4	6.9	0.82	6.9	0.01	0.09	0.13	122
	125 ISL	11.44	11.42	33.161	25.268	272.3	0.432	5.20	83.9	7.5	0.88	7.9	0.01	0.08	0.12	125
1	147	10.10	10.08	33.271	25.589	241.9	0.488	4.74	74.3	12.5	1.24	14.0	0.01	0.03	0.06	148
	150 ISL	10.00	9.98	33.296	25.625	238.5	0.496	4.65	72.8	13.3	1.28	14.7	0.01	0.03	0.06	151
1	172	9.58	9.56	33.500	25.854	217.1	0.546	3.98	61.8	18.9	1.55	18.9	0.00	0.01	0.05	173
	200 ISL	9.31	9.29	33.766	26.106	193.7	0.603	3.21	49.6	24.9	1.78	22.9	0.00	0.00	0.03	201
1	202	9.29	9.27	33.783	26.123	192.2	0.607	3.17	49.0	25.3	1.79	23.1	0.00	0.00	0.03	203
1	230	8.69	8.67	33.917	26.323	173.5	0.658	3.01	45.9	30.2	1.92	25.5	0.00			231
	250 ISL	8.42	8.39	33.983	26.416	164.9	0.692	2.84	43.1	33.6	2.00	26.8	0.00			251
1	270	8.21	8.18	34.029	26.484	158.7	0.724	2.67	40.3	37.0	2.07	28.0	0.00			271
	300 ISL	7.84	7.81	34.057	26.561	151.7	0.771	2.48	37.1	41.5	2.18	29.5	0.00			302
1	328	7.49	7.46	34.065	26.619	146.6	0.813	2.27	33.7	46.1	2.29	31.0	0.00			330
1	387	6.69	6.65	34.097	26.754	134.0	0.896	1.51	22.0	58.9	2.62	35.5	0.00			389
	400 ISL	6.57	6.53	34.107	26.778	131.9	0.913	1.38	20.1	61.2	2.68	36.2	0.00			402
1	452	6.18	6.14	34.151	26.864	124.1	0.979	0.93	13.4	69.6	2.88	38.5	0.00			455
	500 ISL	5.83	5.79	34.196	26.944	116.9	1.037	0.64	9.2	76.8	3.03	40.2	0.00			503
1	521	5.68	5.64	34.216	26.979	113.7	1.061	0.52	7.4	80.0	3.10	41.0	0.00			524

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 77 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL THILIGHT	INTEGRATED VALUE
34 23.5 N	122 15.4 N	25/ 1/93	1907 UTC	19 .	03	1221 - 1756 PST	1221 PST	1756 PST	325.9 ag C/B2

DEPTH a	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 Bl/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 UM/1	NO2 UM/1	CBL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (ag C/B>3) 1	2	MEAN	DARK
2	13.96	33.208	24.812	6.00	102.1	3.4	0.39	0.1	0.01	0.63	0.25	85. A	8.5	8.8	8.7	0.08
14	13.81	33.209	24.844	6.00	101.8	3.4	0.38	0.1	0.01	0.52	0.25	32.	9.8	9.4	9.6	0.10
23	13.80	33.205	24.843	6.00	101.8	3.4	0.38	0.1	0.01	0.51	0.28	16.	7.1	7.7	7.4	0.10
40	13.80	33.205	24.843	5.98	101.5	3.3	0.38	0.1	0.01	0.51	0.31	3.9	2.8	2.5	2.6	0.05
47	13.80	33.208	24.846	5.97	101.3	3.3	0.38	0.1	0.01	0.51	0.29	2.2	1.1	1.6	1.4	0.05
63	13.69	33.227	24.883	5.84	98.9	3.8	0.45	0.9	0.08	0.33	0.25					
79	12.19	33.191	25.151	5.18	85.0	7.3	0.83	6.9	0.09	0.19	0.20	0.17	0.05	0.05	0.05	0.02

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 9.7 N	121 11.0 W	23/ 1/93	1933 UTC	17 .	03	1217 - 1756 PST	1217 PST	1756 PST	240.6 mg C/B2

DEPTH B	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 al/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/a3) 1	2	MEAN	DARK
1	14.23	33.236	24.777	5.89	100.8	3.2	0.40	0.2	0.02	0.48	0.20	91. A	2.3	2.0	2.1	0.05
12	14.23	33.238	24.779	5.90	101.0	3.2	0.41	0.2	0.02	0.50	0.20	34.	7.6	7.8	7.7	0.06
19	14.20	33.236	24.784	5.89	100.8	3.1	0.40	0.2	0.02	0.49	0.20	18.	7.0	7.4	7.2	0.07
34	14.20	33.239	24.787	5.88	100.6	3.1	0.39	0.2	0.02	0.51	0.22	4.6	3.6	4.1	3.8	0.05
42	14.20	33.240	24.787	5.88	100.6	3.2	0.39	0.2	0.02	0.49	0.21	2.3	1.6	1.9	1.8	0.04
56	12.99	33.274	25.060	5.34	89.1	6.0	0.70	4.9	0.17	0.31	0.22					
71	11.34	33.238	25.345	4.79	77.2	10.6	1.07	11.1	0.05	0.19	0.23	0.16	0.10	0.10	0.10	0.01

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 80 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 50.1 N	123 54.4 W	24/ 1/93	1922 UTC	34 m	01	1228 - 1806 PST	1228 PST	1806 PST	13 5.1 ag C/m2

DEPTH B	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 al/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 UM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (ag C/B3) 1	2	MEAN	DARK
2	15.26	33.093	24.446	5.76	100.6	2.4	0.34	0.0	0.00	0.17	0.07	91. A	0.57	1.5	1.0	0.03
22	15.20	33.093	24.460	5.77	100.7	2.4	0.34	0.0	0.00	0.17	0.06	37.	2.0	2.0	2.0	0.02
40	15.19	33.092	24.462	5.76	100.5	2.4	0.34	0.0	0.00	0.17	0.07	16.	1.9	1.9	1.9	0.02
71	15.20	33.094	24.463	5.76	100.5	2.3	0.34	0.0	0.00	0.17	0.07	4.1	0.85	0.71	0.78	0.02
85	14.52	33.353	24.809	5.60	96.5	3.3	0.42	1.1	0.12	0.17	0.15	2.2	0.63	0.57	0.60	0.01
113	11.92	33.218	25.223	5.24	85.5	6.9	0.82	7.1	0.02	0.07	0.09					
140	10.27	33.393	25.655	4.90	77.2	11.4	1.08	12.4	0.01	0.03	0.04	0.18	0.01	0.01	0.01	0.00

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 52.8 N	120 8.0 W	22/ 1/93	1855 UTC	11 a	04	1225 - 1747 PST	1212 PST	1746 PST	280.3 ag C/a2

DEPTH B	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 al/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (ag C/B3) 1	2	MEAN	DARK
4	14.35	33.252	24.764	5.68	97.5	4.3	0.50	1.2	0.10	0.83	0.32	57. A	6.8	7.1	6.9	0.06
7	14.34	33.247	24.763	5.67	97.3	4.5	0.51	1.2	0.10	0.83	0.33	38.	17.3	17.7	17.5	0.07
13	14.33	33.248	24.766	5.66	97.1	4.2	0.50	1.2	0.10	0.85	0.35	16.	15.2	15.0	15.1	0.09
23	14.18	33.263	24.809	5.53	94.6	4.5	0.54	1.6	0.13	0.59	0.31	4.0	2.9	2.5	2.7	0.03
28	14.20	33.259	24.802	5.42	92.7	4.4	0.53	1.6	0.12	0.67	0.33	2.0	1.8	2.0	1.9	0.04
36	13.82	33.284	24.900	5.30	90.0	5.5	0.65	3.0	0.15	0.42	0.28					
46	13.55	33.304	24.971	5.07	85.6	6.6	0.76	4.6	0.13	0.38	0.26	0.16	0.08	0.09	0.08	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 83 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 34.7 N	122 48.4 W	21/1/93	1902 UTC	32 a	01	1221 - 1756 PST	1222 PST	1756 PST	178.5 ag C/a2

DEPTH B	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 al/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 UM/1	NO2 UM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (ag C/B3) 1	2	MEAN	DARK
2	14.56	32.920	24.464	5.87	101.0	2.2	0.35	0.1	0.00	0.21	0.07	91. A	1.3	1.2	1.3	0.02
22	14.34	32.920	24.511	5.86	100.4	2.2	0.38	0.1	0.00	0.23	0.10	35.	2.4	2.5	2.4	0.05
37	14.33	32.919	24.512	5.85	100.2	2.2	0.36	0.1	0.00	0.27	0.12	17.	2.9	2.9	2.9	0.03
66	14.31	32.917	24.516	5.83	99.8	2.2	0.36	0.1	0.01	0.25	0.13	4.2	1.6	1.6	1.6	0.01
80	14.23	32.938	24.549	5.80	99.1	2.1	0.37	0.2	0.04	0.20	0.12	2.2	0.72	0.63	0.68	0.01
106	12.59	33.048	24.964	5.71	94.4	4.4	0.60	2.5	0.14	0.10	0.12					
132	10.45	33.112	25.405	5.10	80.5	10.3	1.04	9.9	0.01	0.04	0.05	0.18	0.02	0.01	0.01	0.01

A) INCUBATION LIGHT INTENSITIES WERE 94, 36, 17, 4.1, 2.2 AND 0.17 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 49.6 N	118 37.9 W	18/ 1/93	1902 UTC	14 m	04	1204 - 1739 PST	1205 PST	1739 PST	298.0 mg C/m2

DEPTH ▪	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 UM/1	NO2 UM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.13	33.104	24.483	5.78	100.7	2.6	0.38	0.0	0.02	0.75	0.33	80. A	15.2	15.4	15.3	0.05
9	15.13	33.139	24.510	5.79	100.9	2.6	0.38	0.0	0.02	0.73	0.32	37.	12.6	13.2	12.9	0.09
16	15.18	33.169	24.523	5.76	100.5	2.6	0.37	0.0	0.01	0.65	0.31	17.	8.6	9.3	9.0	0.04
30	15.24	33.195	24.530	5.73	100.1	2.6	0.38	0.0	0.03	0.58	0.30	3.7	2.5	2.2	2.3	0.03
34	15.23	33.237	24.565	5.70	99.6	2.5	0.37	0.0	0.04	0.41	0.21	2.4	0.66	0.57	0.61	0.02
47	15.12	33.252	24.601	5.68	99.0	2.7	0.39	0.1	0.11	0.31	0.21					
56	14.90	33.260	24.655	5.61	97.4	3.0	0.43	0.5	0.19	0.26	0.23	0.22	0.04	0.04	0.04	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 87 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 59.3 N	120 20.8 W	19/ 1/93	1857 UTC	21 m	02	1210 - 1752 PST	1212 PST	1752 PST	213.6 mg C/n,l

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 UM/1	NO2 UM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	14.47	33.259	24.744	5.86	100.8	2.9	0.41	0.4	0.03	0.39	0.19	93. A	2.8	4.2	3.5	0.C6
14	14.46	33.259	24.747	5.86	100.8	2.8	0.40	0.4	0.03	0.41	0.19	36.	6.0	6.0	6.0	0.C3
25	14.46	33.257	24.745	5.85	100.6	2.8	0.40	0.4	0.03	0.43	0.20	16.	5.1	4.9	5.0	0.C3
45	14.42	33.262	24.759	5.81	99.9	2.9	0.42	0.5	0.04	0.38	0.19	3.7	1.8	1.9	1.8	0.02
52	13.26	33.272	25.005	5.35	89.8	5.7	0.69	4.0	0.15	0.24	0.20	2.2	0.61	0.64	0.63	0.(11
69	11.46	33.269	25.347	4.71	76.1	10.6	1.11	10.8	0.07	0.15	0.21					
87	10.38	33.376	25.622	4.22	66.6	15.4	1.39	15.8	0.04	0.08	0.12	0.17	0.02	0.02	0.02	0.01

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 87 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 39.3 N	123 4.3 W	20/ 1/93	1859 UTC	40 m	01	1224 - 1805 PST	1223 PST	1805 PST	125.8 mg C/n2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 UM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	15.80	33.195	24.406	5.68	100.4	2.4	0.34	0.1	0.00	0.15	0.06	93. A	0.31	0.27	0.29	0 04
27	15.79	33.196	24.409	5.68	100.3	2.4	0.34	0.1	0.00	0.15	0.07	35.	1.5	1.7	1.6	0 06
46	15.79	33.196	24.410	5.68	100.3	2.4	0.34	0.1	0.00	0.13	0.12	17.	1.5	1.6	1.6	0.04
82	15.73	33.189	24.419	5.68	100.2	2.4	0.34	0.1	0.00	0.19	0.09	4.3	1.0	0.91	0.95	0.01
99	15.08	33.146	24.530	5.71	99.4	2.2	0.37	0.1	0.03	0.14	0.10	2.2	0.40	0.40	0.40	0 01
132	12.19	33.154	25.124	5.31	87.1	6.2	0.77	4.9	0.02	0.09	0.12					
165	10.16	33.268	25.576	4.60	72.2	13.4	1.29	14.2	0.01	0.04	0.07	0.18	0.02	0.02	0.02	0.00

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 90 S3

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 39.2 N	119 28.8 W	17/ 1/93	1818 UTC	20 m	02	1205 - 1740 PST	1208 PST	1740 PST	166.6 mg <:/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3 I 1	2	MEAN	DARK
2	15.07	33.166	24.544	5.80	101.0	2.9	0.36	0.0	0.00	0.26	0.09	86. A	2.8	2.7	2.8	0.06
14	15.08	33.178	24.552	5.79	100.8	2.9	0.35	0.0	0.00	0.27	0.10	34.	3.9	4.1	4.0	0.06
23	15.10	33.238	24.594	5.78	100.7	2.8	0.35	0.0	0.02	0.35	0.12	17.	3.9	3.9	3.9	0.03
43	14.92	33.268	24.656	5.73	99.5	2.8	0.38	0.1	0.08	0.47	0.24	3.7	2.2	2.2	2.2	0.02
49	14.55	33.266	24.734	5.63	97.0	3.4	0.46	1.2	0.04	0.39	0.27	2.3	0.82	0.87	0.85	0.01
67	11.78	33.228	25.256	4.93	80.2	8.7	0.97	9.4	0.02	0.22	0.21					
83	10.98	33.284	25.445	4.57	73.1	12.0	1.19	12.9	0.01	0.12	0.15	0.17	0.00	0.00	0.00	0.04

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 9301 — STATION 90 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 24.2 N	122 1.3 W	16/ 1/93	1956 UTC	30 m	01	1220 - 1751 PST	1218 PST	1752 PST	99.2 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 UM/1	NO2 UM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/»3) 1	2	MEAN	DARK
2	16.13	33.148	24.295	5.64	100.3	3.0	0.34	0.0	0.00	0.15	0.06	90. A	1.7	1.7	1.7	0.02
20	16.08	33.247	24.383	5.64	100.2	2.9	0.34	0.0	0.00	0.13	0.05	36.	1.7	1.8	1.7	0.03
35	15.92	33.249	24.421	5.65	100.1	2.8	0.34	0.0	0.00	0.16	0.07	17.	1.5	1.6	1.6	0.02
62	15.87	33.245	24.430	5.72	101.2	2.7	0.34	0.0	0.00	0.18	0.09	4.2	0.66	0.52	0.59	0.02
75	15.69	33.221	24.453	5.67	100.0	2.7	0.35	0.0	0.00	0.18	0.09	2.2	0.20	0.21	0.21	0.01
99	14.32	33.189	24.725	5.78	99.1	2.8	0.41	0.3	0.06	0.20	0.14					
124	11.08	33.197	25.361	5.02	80.4	8.9	1.00	10.2	0.02	0.07	0.11	0.18	0.02	0.01	0.02	0.00

A) INCUBATION LIGHT INTENSITIES WERE 94, 36, 17, 4.1, 2.2 AND 0.17 PERCENT RESPECTIVELY.

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 19.7 N	118 33.6 W	13/ 1/93	1905 UTC	16 ▪	03	1202 - 1741 PST	1203 PST	1741 PST	219.2 *mq C/m2*

DEPTH ▪ '	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 «1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE («g C/M3) 1	2	MEAN	DARK
3	14.68	33.333	24.757	5.80	100.3	3.7	0.40	0.2	0.03	0.57	0.26	75. A	6.2	6.3	6.2	0.11
12	14.64	33.332	24.765	5.80	100.2	3.6	0.40	0.2	0.03	0.57	0.25	32.	7.8	8.3	8.0	0.08
18	14.63	33.332	24.767	5.79	100.0	3.5	0.40	0.2	0.03	0.58	0.26	18.	6.6	6.6	6.6	0.07
33	14.60	33.328	24.771	5.77	99.6	3.4	0.40	0.3	0.03	0.61	0.29	4.2	2.0	2.3	2.2	0.04
39	14.58	33.329	24.776	5.77	99.5	3.3	0.40	0.3	0.02	0.48	0.23	2.4	1.1	1.2	1.2	0.04
54	11.76	33.377	25.375	4.46	72.6	12.2	1.16	11.9	0.07	0.24	0.30					
66	10.79	33.437	25.598	4.05	64.6	15.7	1.38	15.7	0.03	0.13	0.20	0.18	0.04	0.04	0.04	0.01

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 10.9 N	120 55.1 W	14/ 1/93	1916 UTC	31 ▪	01	1212 - 1746 PST	1213 PST	1746 PST	111.1 *mq C/»2*

DEPTH n	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (*mq* C/»3) 1	2	MEAN	DARK
1	15.41	33.192	24.490	5.76	101.0	2.7	0.36	0.1	0.01	0.14	0.05	95. A	1.7	2.0	1.9	0.03
20	15.37	33.192	24.499	5.76	100.9	2.7	0.36	0.1	0.01	0.14	0.05	37.	1.8	1.8	1.8	0.04
35	15.35	33.195	24.506	5.76	100.8	2.6	0.36	0.1	0.01	0.14	0.05	18.	1.4	1.5	1.4	0.03
65	14.09	33.198	24.779	5.63	96.1	3.8	0.50	1.8	0.16	0.35	0.28	4.0	0.87	0.79	0.83	0.01
77	12.70	33.131	25.007	5.49	91.0	5.1	0.65	3.8	0.06	0.25	0.24	2.2	0.35	0.37	0.36	0.01
102	10.83	33.183	25.393	4.91	78.2	10.4	1.08	11.6	0.02	0.10	0.15					
128	9.66	33.458	25.807	4.05	63.0	18.4	1.51	18.7	0.01	0.02	0.05	0.18	0.01	0.00	0.01	0.00

RV DAVID STARR JORDAN CALCOFI CRUISE 9301 STATION 93 120

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
29 51.8 N	123 33.3 W	15/ 1/93	1958 UTC	36 ▪	01	1230 - 1803 PST	1223 PST	1804 PST	74.7 *mq C/«2*

DEPTH ▪	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 UM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (ag C/m3) 1	2	MEAN	DARK
2 B	16.54	33.228	24.263	5.61	100.6	3.1	0.35	0.0	0.00	0.11	0.04	92. A	1.4	1.3	1.4	0.05
25	16.52	33.237	24.275	5.61	100.6	3.1	0.35	0.0	0.00	0.11	0.05	34.	1.1	1.1	1.1	0.04
40	16.44	33.235	24.292	5.61	100.4	3.0	0.35	0.0	0.00	0.15	0.07	18.	0.89	0.93	0.91	0.02
89	15.65	33.206	24.450	5.68	100.0	3.0	0.36	0.0	0.01	0.18	0.12	2.2	0.11	0.09	0.10	0.01
119	12.19	33.147	25.118	5.32	87.2	6.6	0.77	5.9	0.01	0.10	0.14					
149	10.00	33.278	25.611	4.69	73.4	13.5	1.26	14.5	0.01	0.03	0.06	0.17	0.01	0.01	0.01	0.00

A) INCUBATION LIGHT INTENSITIES WERE 94, 36, 17, 4.1, 2.2 AND 0.17 PERCENT RESPECTIVELY.
B) SAMPLE FROM 4.1% LIGHT LEVEL LOST DUE TO ROSETTE SAMPLER FAILURE.

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505 mm

Line	Sta.	Position		Date Mo/Day	Time(PST) Start	End	Water Volume Strained (m)	Max. Tow Depth (m)	Volume per 1000 m Total (cm)	Strained Small (cm)
77	49	35 05.3N	120 47.4W	01/26	0647	0654	146	62	62	62
77	51	35 01.5N	120 56.3W	01/26	0406	0428	440	213	200	102
77	55	34 54.3N	121 12.7W	01/26	0026	0048	439	215	125	125
77	60	34 43.2N	121 33.5W	01/25	2007	2029	431	216	107	107
77	70	34 23. IN	122 16.6W	01/25	1221	1243	443	216	68	54
77	80	34 03.7N	122 56.4W	01/25	0517	0539	445	209	112	45
77	90	34 43.4N	123 38.3W	01/24	2334	2356	448	211	234	234
77	100	33 23.5N	124 19.7W	01/24	1752	1814	425	214	212	212
80	51	34 27.4N	120 32.1W	01/23	0314	0321	146	64	55	55
80	55	34 19.5N	120 49.3W	01/23	0637	0659	462	210	394	394
80	60	34 09.4N	121 10.2W	01/23	1035	1057	450	210	78	51
80	70	33 49.0N	121 51.7W	01/23	1755	1817	431	212	84	58
80	80	33 29.3N	122 32.9W	01/23	2316	2338	443	215	221	221
80	90	33 08.9N	123 13.4W	01/24	0448	0510	426	220	493	493
80	100	32 49.6N	123 54.5W	01/24	1022	1044	446	214	25	25
82	47	34 16.8N	120 02.2W	01/22	2323	2345	440	210	61	61
83	40.6	34 13.5N	119 25.1W	01/22	1851	1854	69	28	29	29
83	42	34 10.6N	119 31.1W	01/22	1700	1713	285	133	21	21
83	51	33 53.1N	120 09.5W	01/22	0959	1008	197	88	15	15
83	55	33 45.3N	120 25.2W	01/22	0649	0711	446	203	43	43
83	60	33 35.1N	120 46.0W	01/22	0305	0327	450	217	82	71
83	70	33 14.7N	121 26.9W	01/21	2135	2157	434	216	83	62
83	80	32 55.3N	122 07.8W	01/21	1620	1642	442	215	11	11
83	90	32 34.6N	122 49.0W	01/21	0920	0942	464	216	302	302
83	100	32 14.4N	123 29.6W	01/21	0358	0420	456	212	35	24
83	110	31 55.0N	124 10.0W	01/20	2203	2225	452	214	31	IS
87	33	33 53.6N	118 29.7W	01/18	1430	1435	102	40	20	20
87	35	33 50.3N	118 39.4W	01/18	1231	1253	480	208	23	12
87	40	33 39.3N	118 59.3W	01/18	1840	1902	444	212	47	47
87	45	33 29. IN	119 19.8W	01/18	2205	2227	436	211	60	60
87	50	33 19.8N	119 40.1W	01/19	0136	0144	166	69	54	54
87	55	33 09.4N	120 01.4W	01/19	0530	0552	447	216	45	45
87	60	33 00.0N	120 21.6W	01/19	0913	0935	452	220	33	33
87	70	32 38.3N	121 02.4W	01/19	1652	1714	467	209	34	34
87	80	32 18.8N	121 43.7W	01/19	2240	2302	431	215	26	26
87	90	31 58.8N	122 23.5W	01/20	0410	0432	433	215	30	30
87	100	31 38.7N	123 03.9W	01/20	0941	1003	439	213	11	11
87	110	31 19.6N	123 44.3W	01/20	1618	1640	433	215	7	7
90	28	33 30.0N	117 46.3W	01/18	0546	0551	103	44	29	29
90	30	33 25.3N	117 55.6W	01/18	0313	0335	443	215	120	41
90	35	33 14.4N	118 14.6W	01/17	2327	2349	460	214	28	15
90	37	33 10.7N	118 22.9W	01/17	2109	2131	439	216	43	43
90	45	32 55.2N	118 55.3W	01/17	1638	1700	424	217	9	9
90	53	32 39.0N	119 28.7W	01/17	1147	1209	429	224	23	23
90	60	32 25.0N	119 57.8W	01/17	0632	0654	441	219	54	43
90	70	32 04.8N	120 37.7W	01/17	0100	0122	441	220	111	111
90	80	31 44.6N	121 18.7W	01/16	1919	1941	430	217	23	23
90	90	31 25.2N	122 00.4W	01/16	1325	1347	460	205	28	17
90	100	31 05.7N	122 40.3W	01/16	0641	0703	453	210	44	18
90	110	30 44.6N	123 20.3W	01/16	0058	0120	458	211	33	33
90	120	30 24.2N	123 59.6W	01/15	1921	1943	480	208	17	17
93	26.7	32 57.5N	117 17.6W	01/12	1324	1328	75	25	40	40
93	28	32 55.6N	117 22.6W	01/12	1755	1817	455	212	378	359
93	30	32 50.6N	117 31.2W	01/12	2107	2129	445	215	29	29
93	35	32 40.5N	117 52.2W	01/13	0135	0157	461	205	48	35
93	40	32 31.0N	118 13.2W	01/13	0541	0603	438	219	48	48
93	45	32 20.4N	118 33.3W	01/13	0922	0944	431	215	32	32
93	50	32 10.4N	118 53.0W	01/13	1500	1522	482	198	69	46
93	55	32 00.5N	119 13.2W	01/13	1910	1932	457	216	50	50
93	60	31 50.1N	119 33.8W	01/13	2317	2339	454	216	90	66
93	70	31 31.0N	120 14.7W	01/14	0543	0605	394	218	74	28
93	80	31 11.8N	120 55.2W	01/14	1230	1252	420	219	26	26
93	90	30 51.1N	121 34.9W	01/14	1852	1914	426	219	33	33
93	100	30 30.5N	122 15.1W	01/15	0045	0107	444	222	29	29
93	110	30 10.5N	122 55.1W	01/15	0651	0713	463	217	11	11
93	120	29 50.8N	123 35.5W	01/15	1331	1353	431	220	19	19

FIGURES

Cruise 9304

1. CalCOFI Cruise 9304, track and station positions.

2. Horizontal distribution of dynamic height anomaly (0 over 500 m). 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.

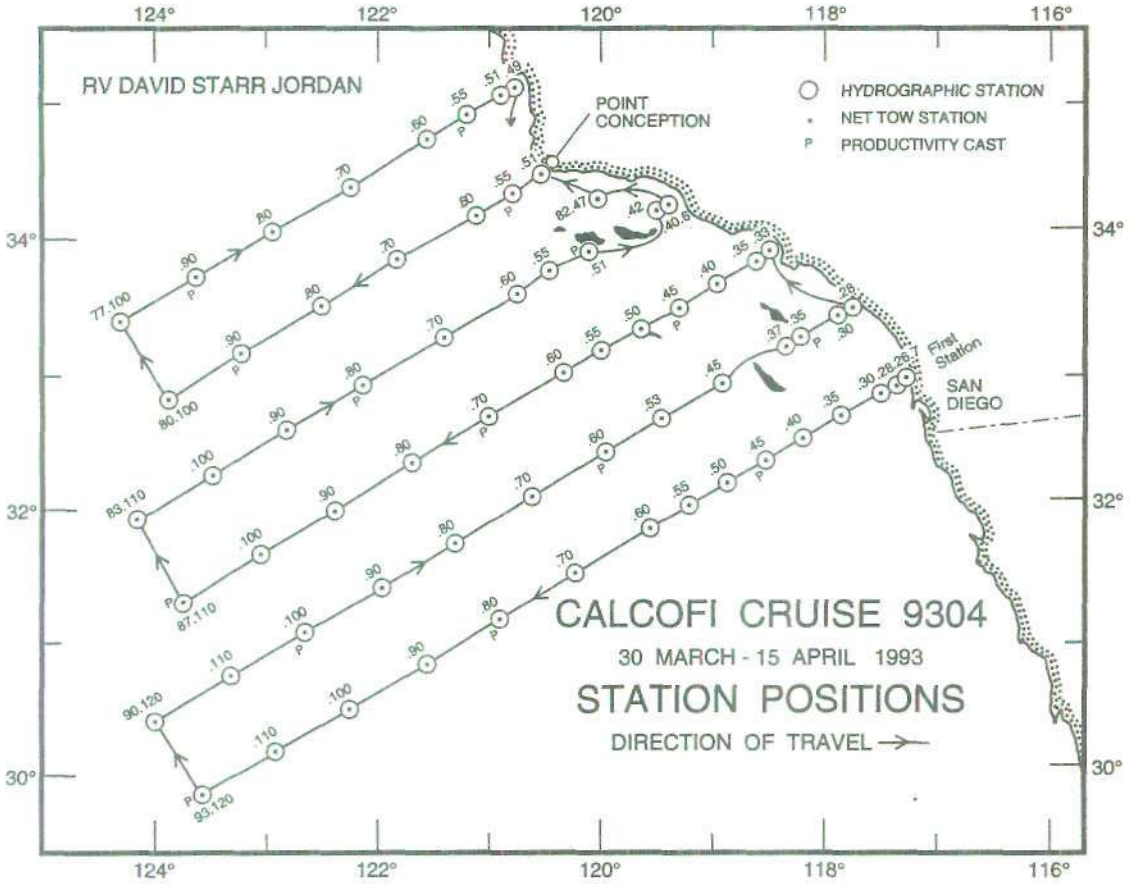

FIGURE 1

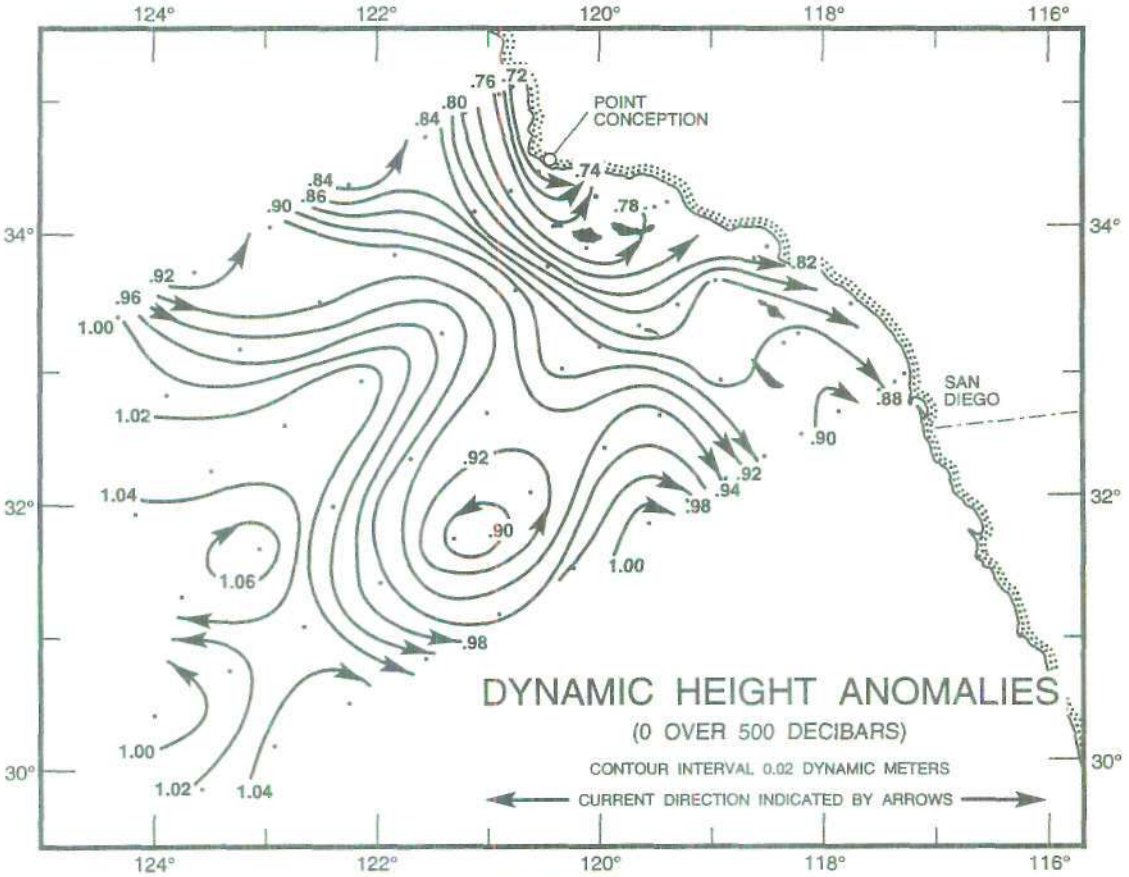

FIGURE 2

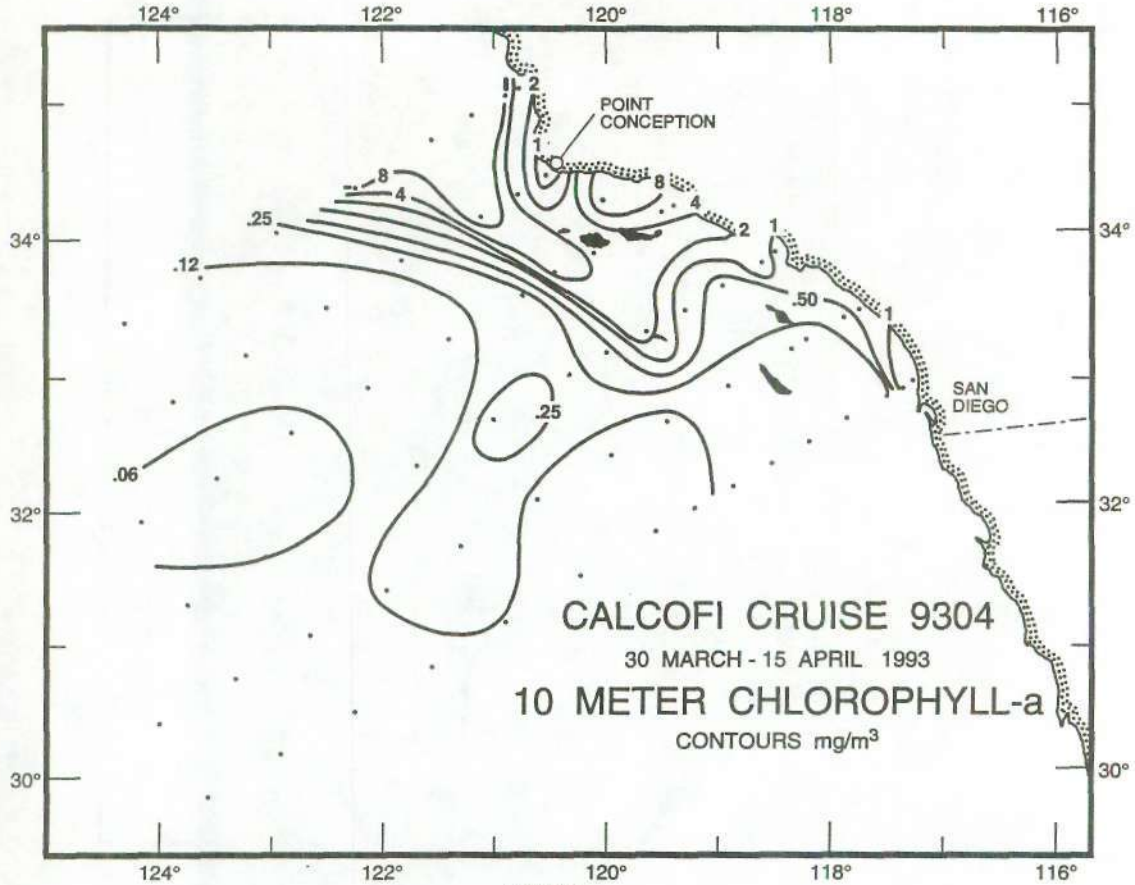

FIGURE 3A

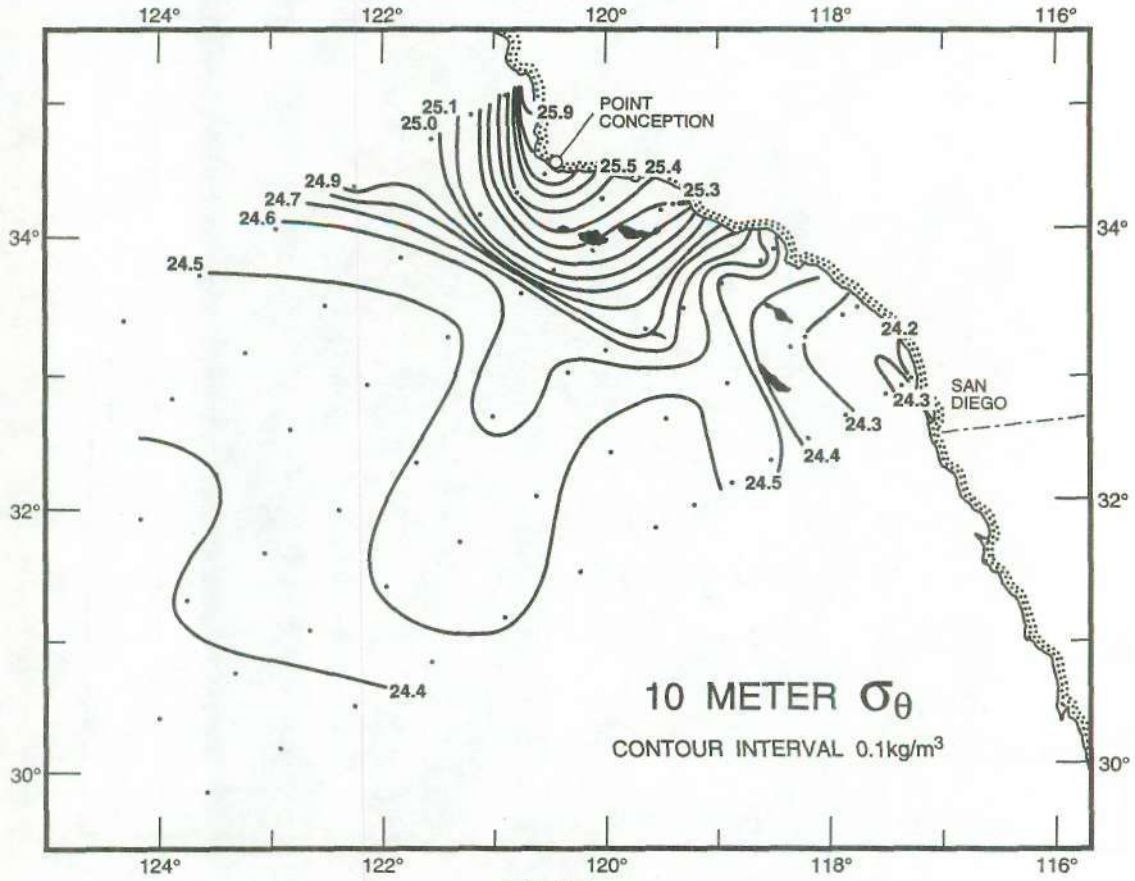

FIGURE 3B

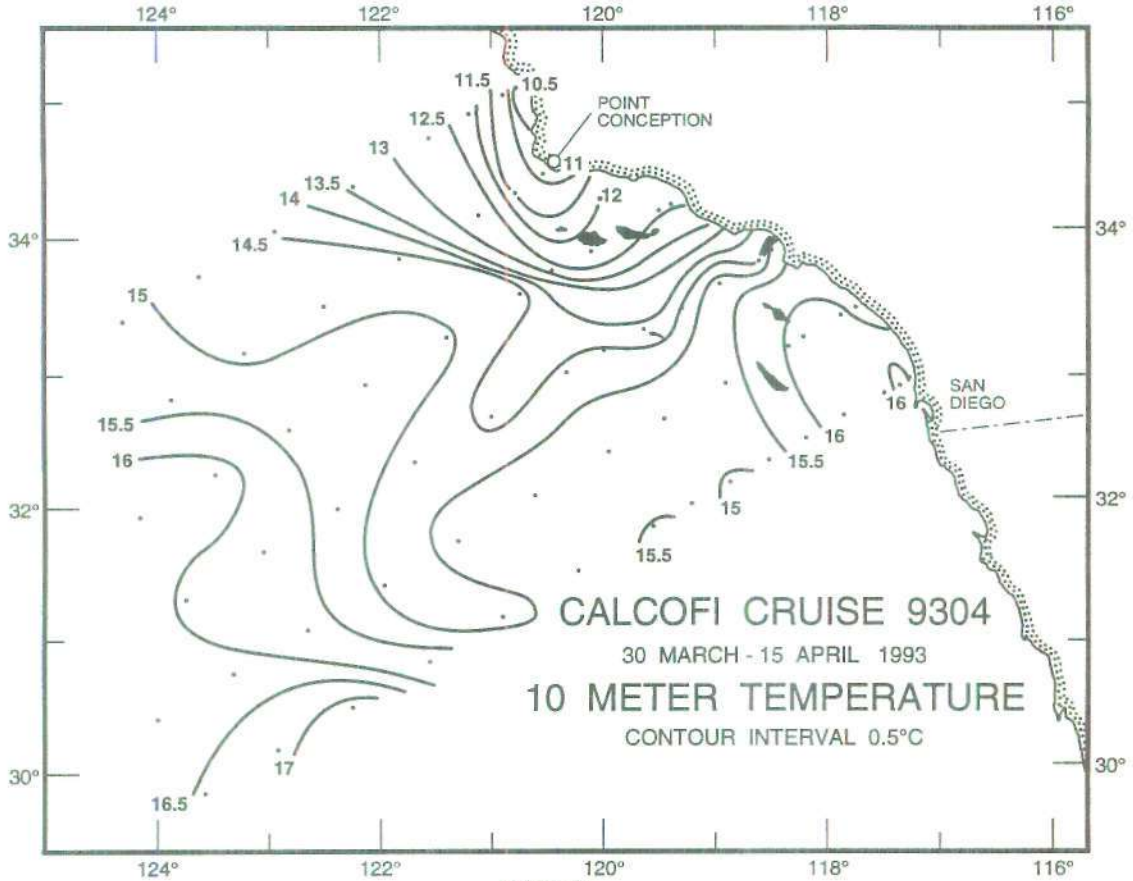

FIGURE 3C

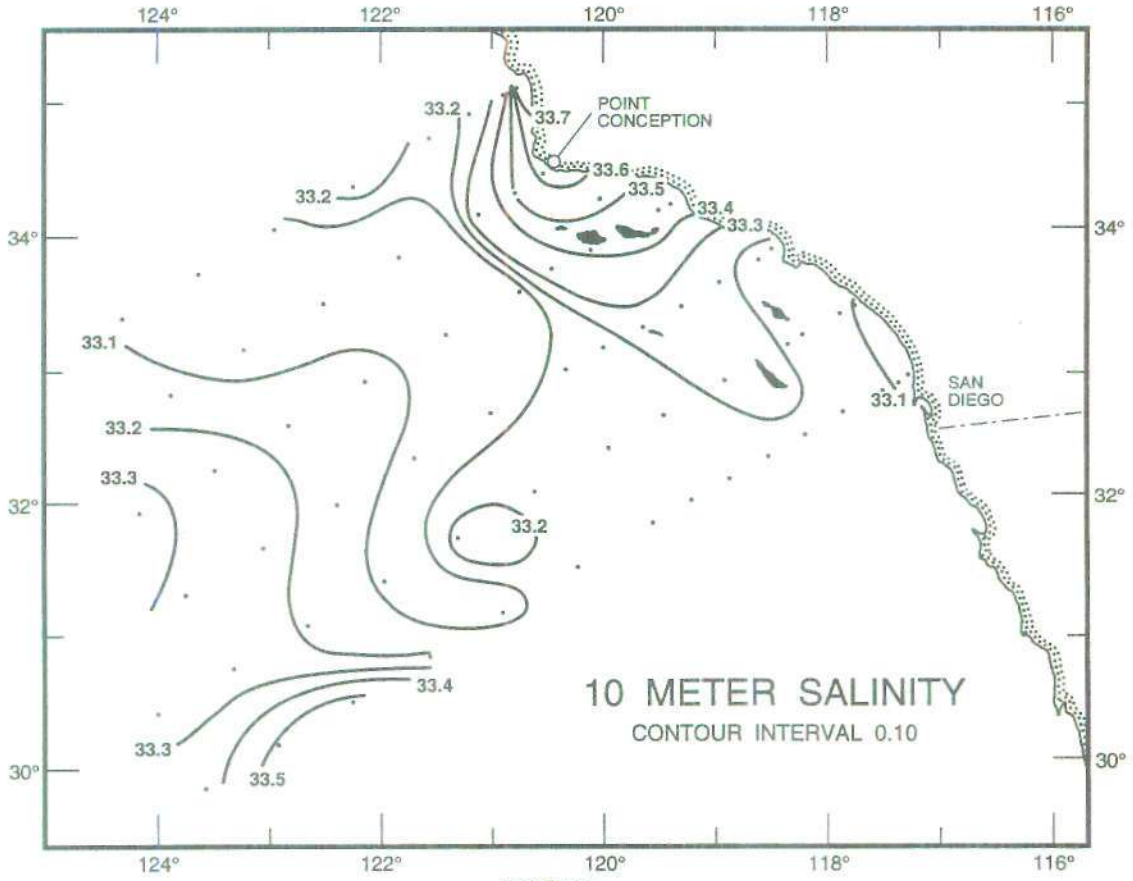

FIGURE 3D

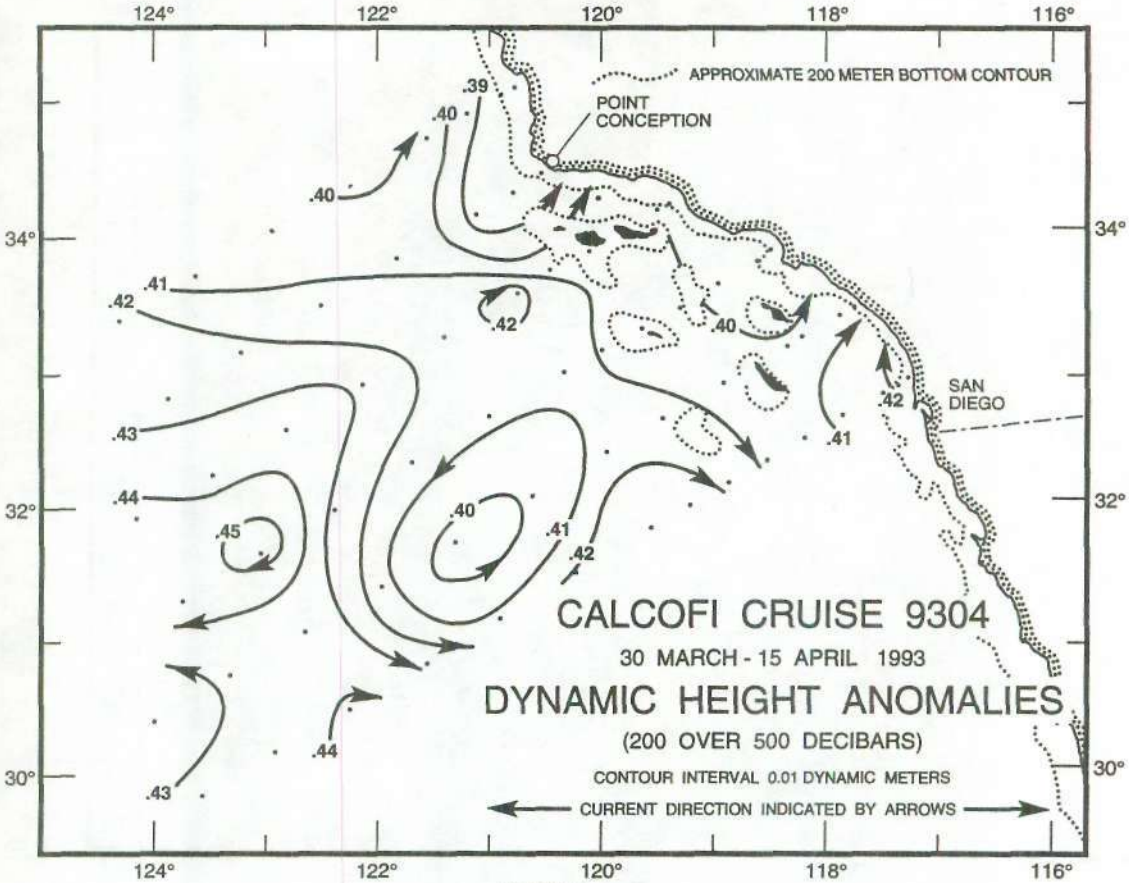

FIGURE 4A

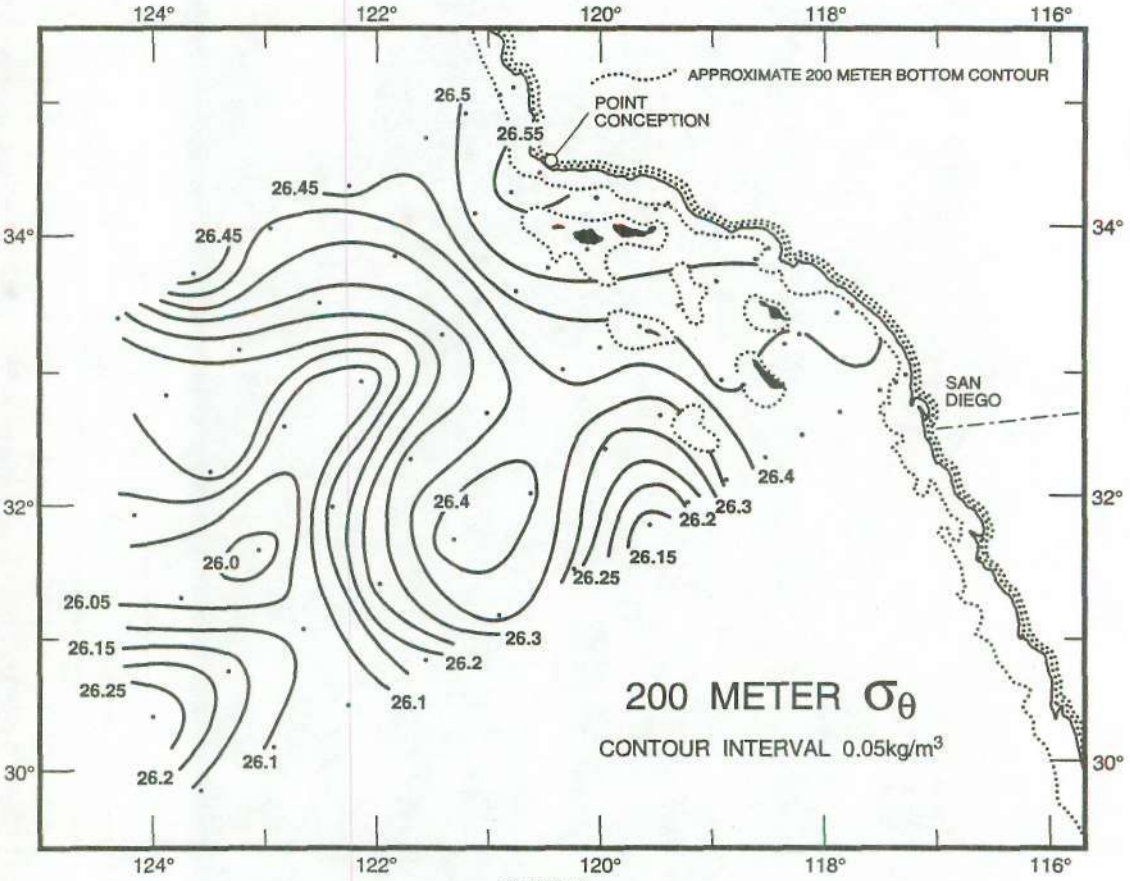

FIGURE 4B

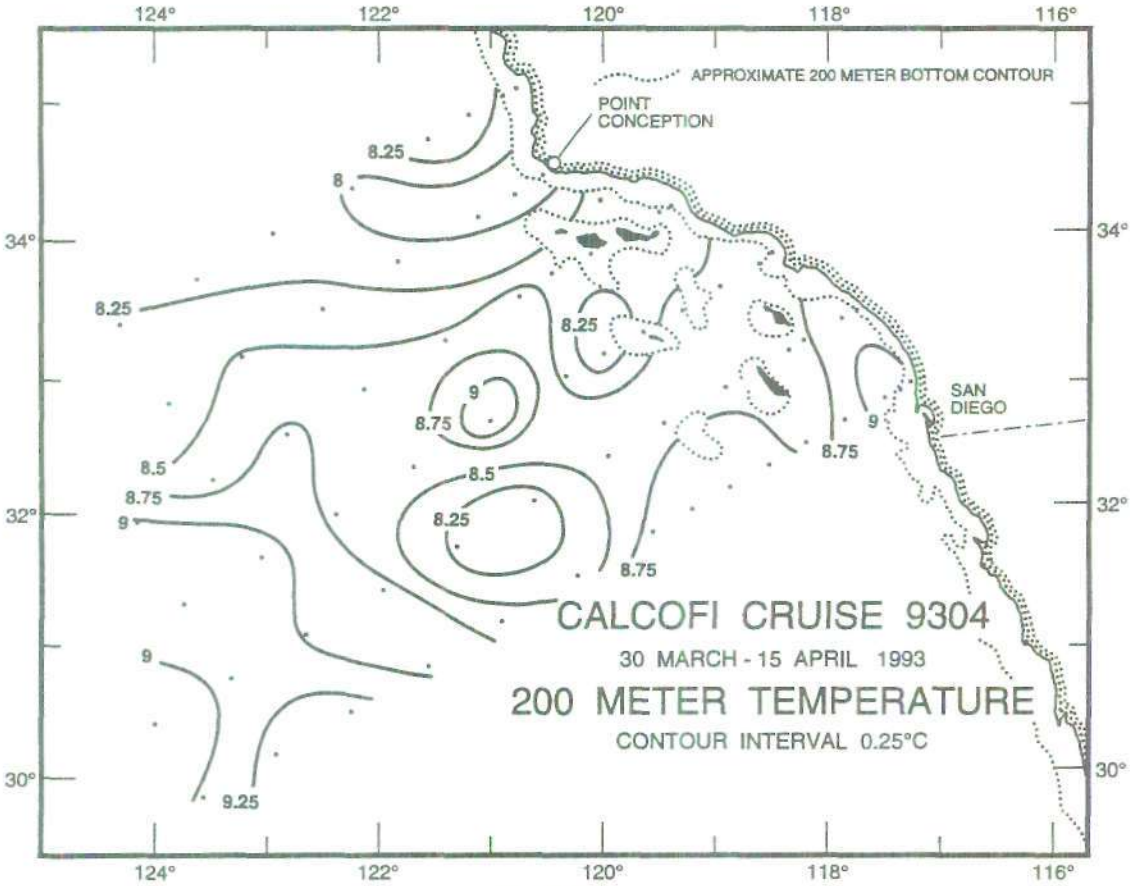

FIGURE 4C

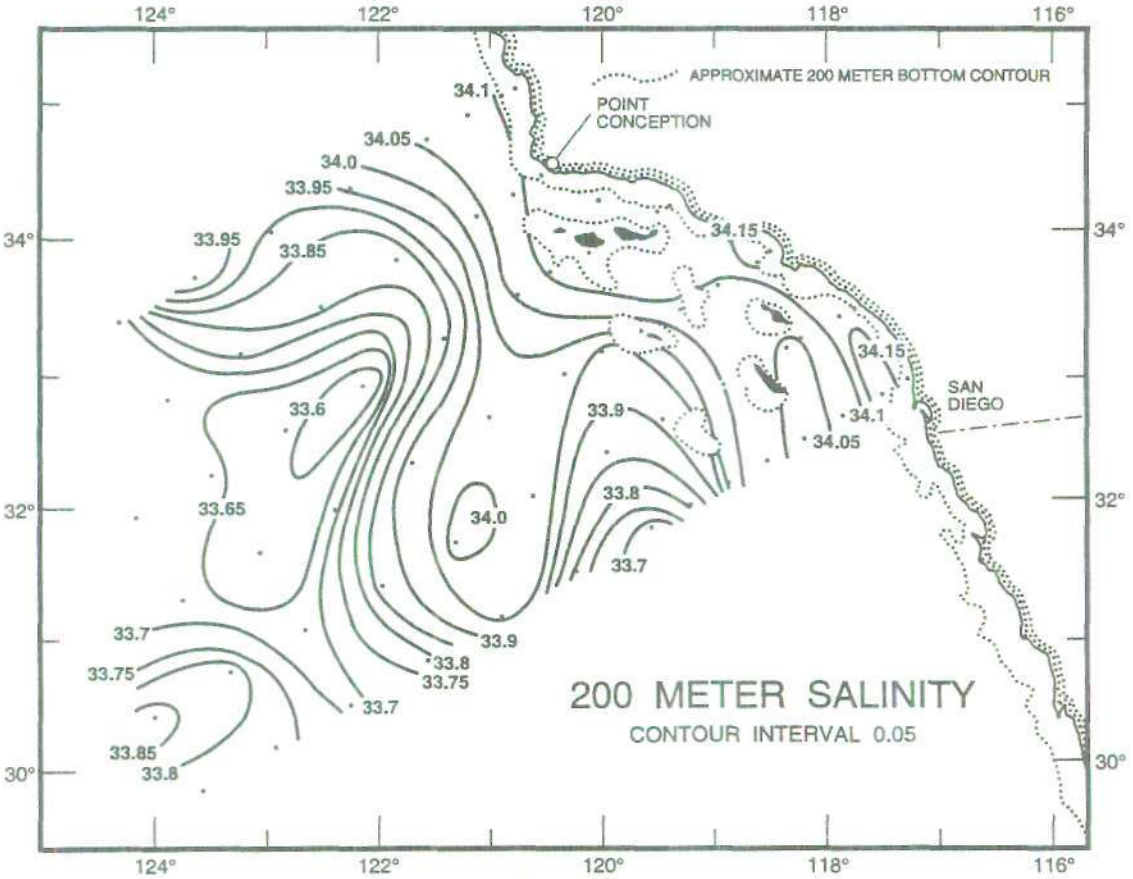

FIGURE 4D

CALCOFI CRUISE 9304

3 - 6 APRIL 1993

POTENTIAL DENSITY (σ_θ) ALONG CALCOFI LINE 90

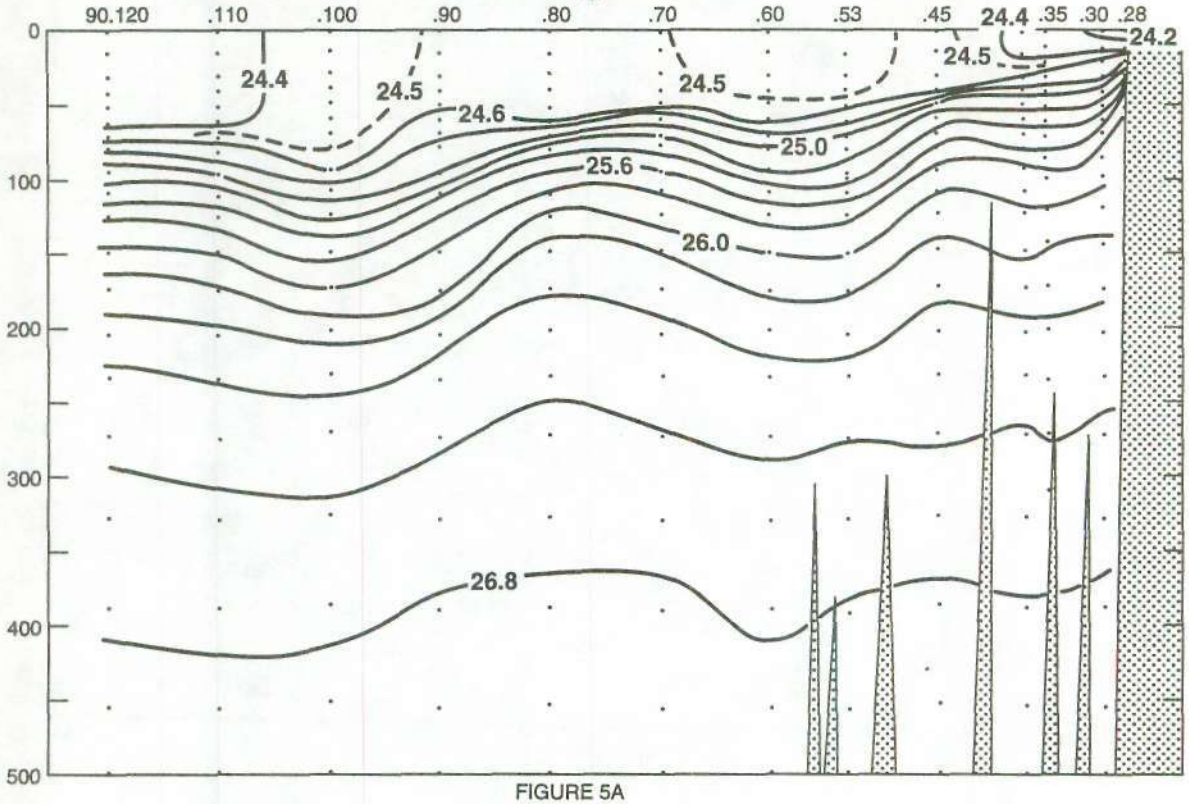

FIGURE 5A

DEPTH (m)

TEMPERATURE (°C) ALONG CALCOFI LINE 90

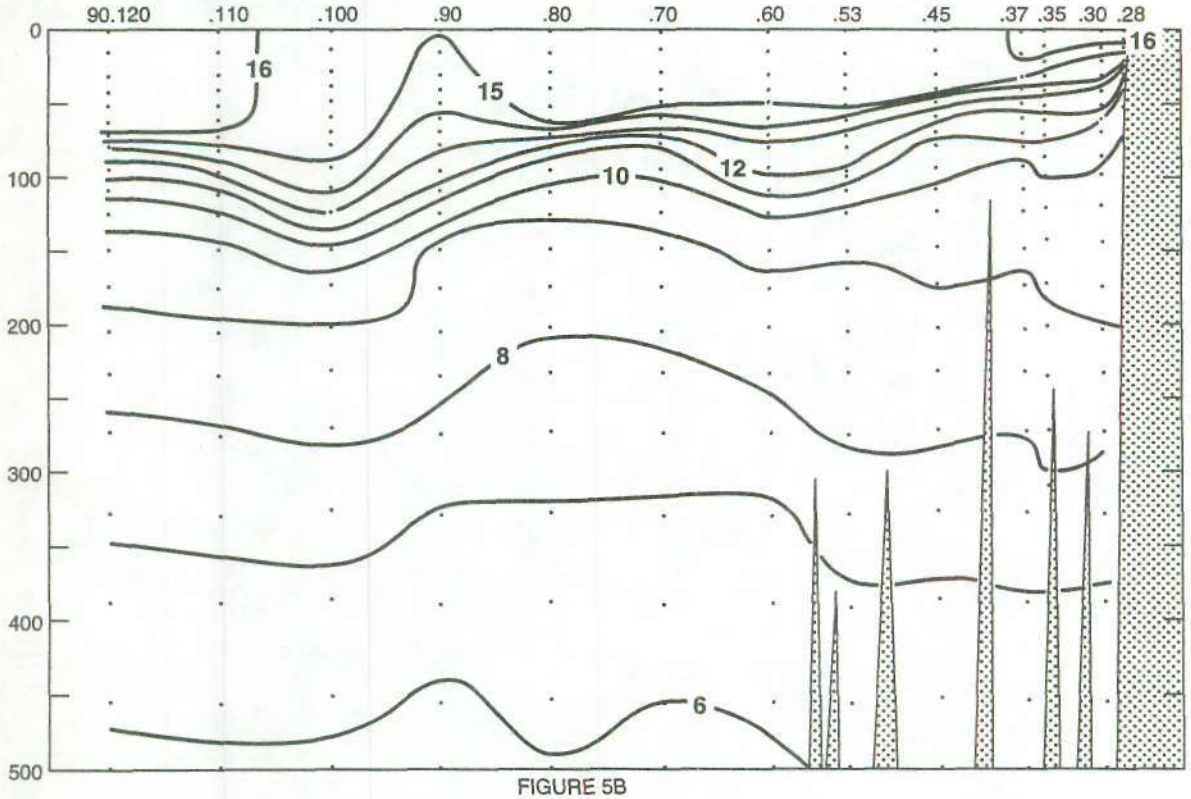

FIGURE 5B

CALCOFI CRUISE 9304

3 - 6 APRIL 1993

SALINITY ALONG CALCOFI LINE 90

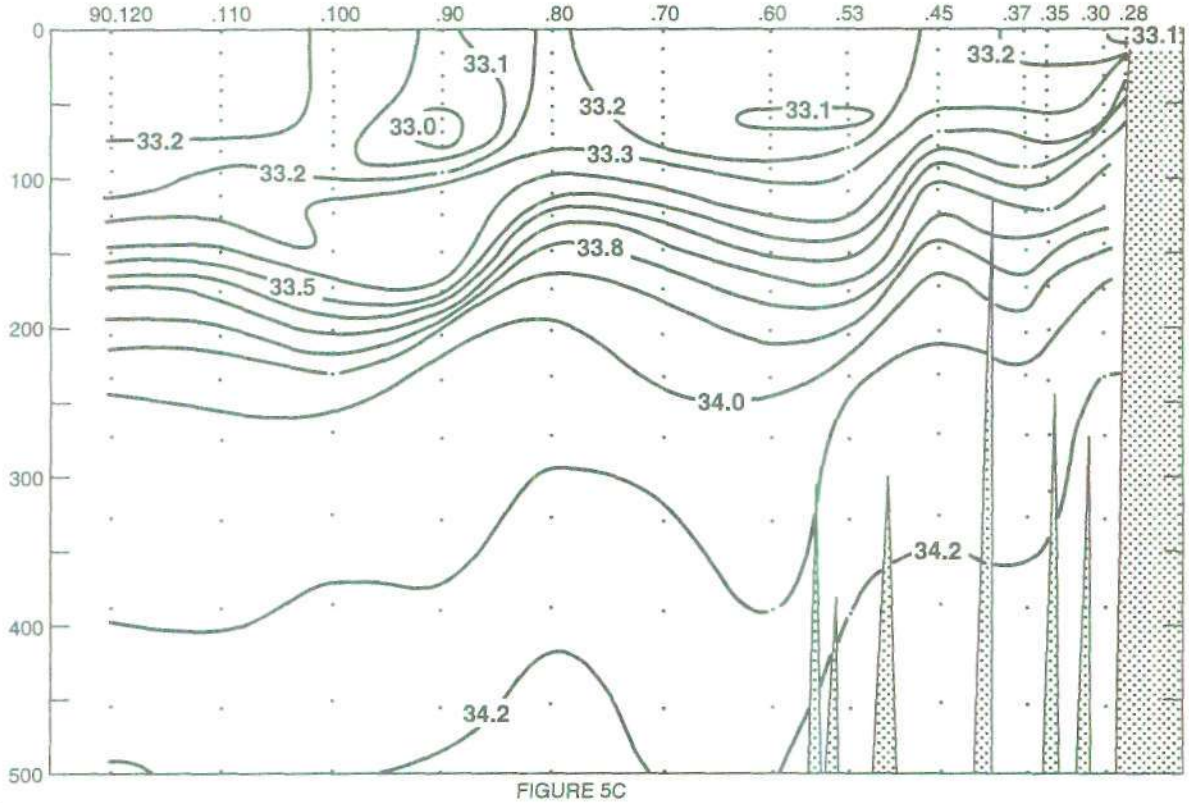

FIGURE 5C

DEPTH (m)

SILICATE (μM/l) ALONG CALCOFI LINE 90

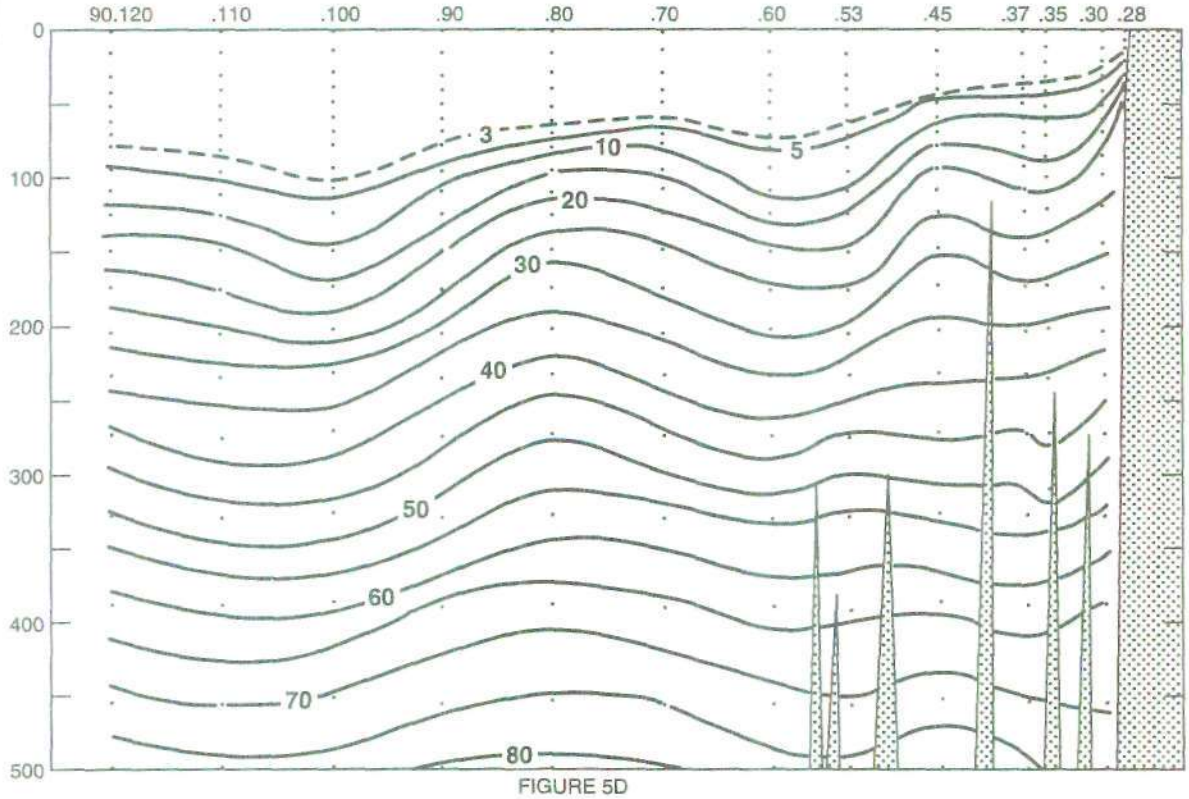

FIGURE 5D

CALCOFI CRUISE 9304

3 - 6 APRIL 1993

NITRATE (µM/l) ALONG CALCOFI LINE 90

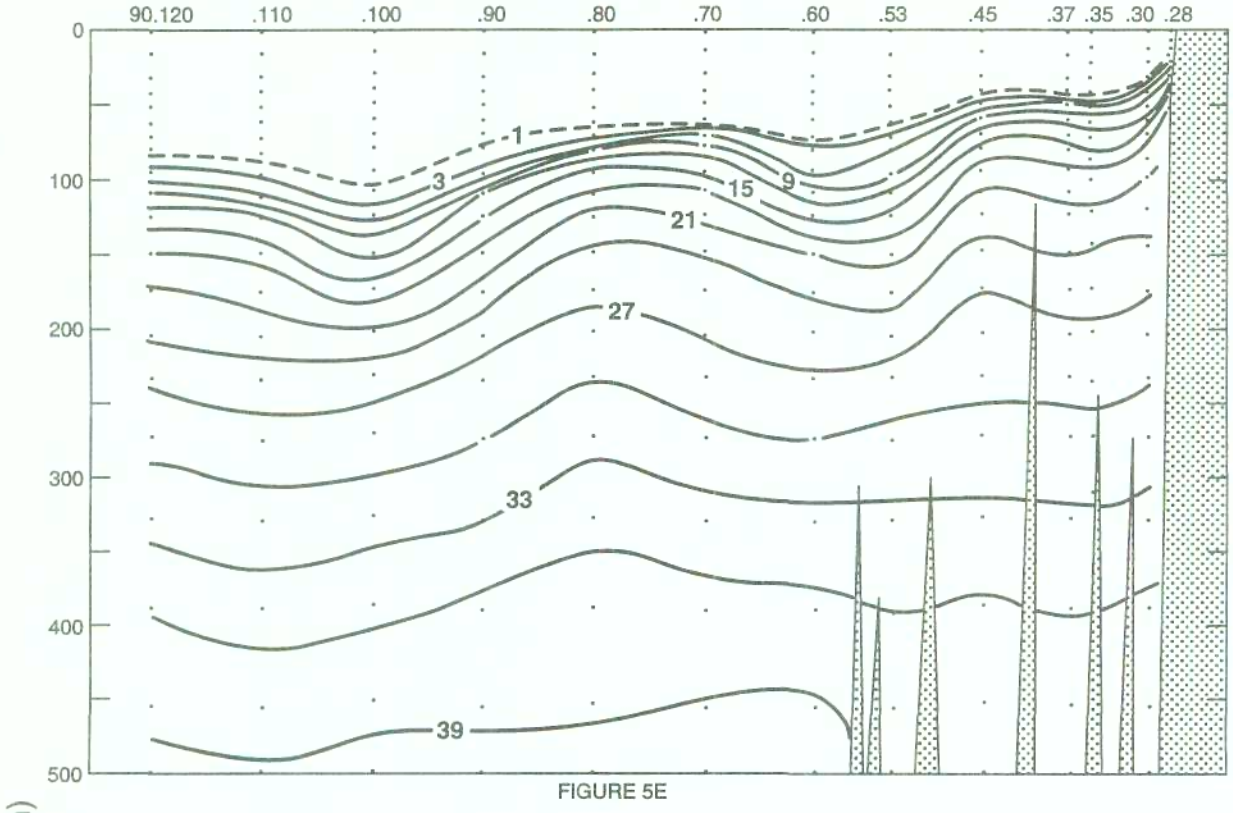

FIGURE 5E

PHOSPHATE (µM/l) ALONG CALCOFI LINE 90

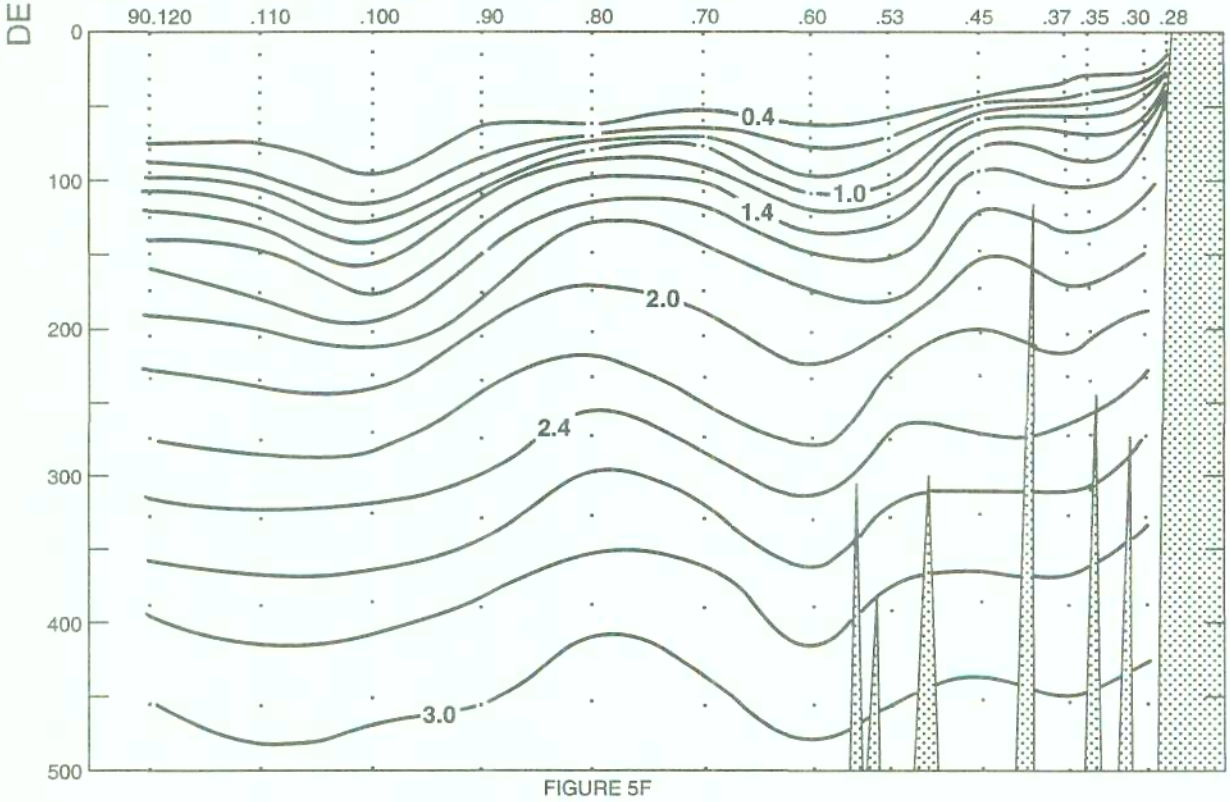

FIGURE 5F

CALCOFI CRUISE 9304

3 - 6 APRIL 1993

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

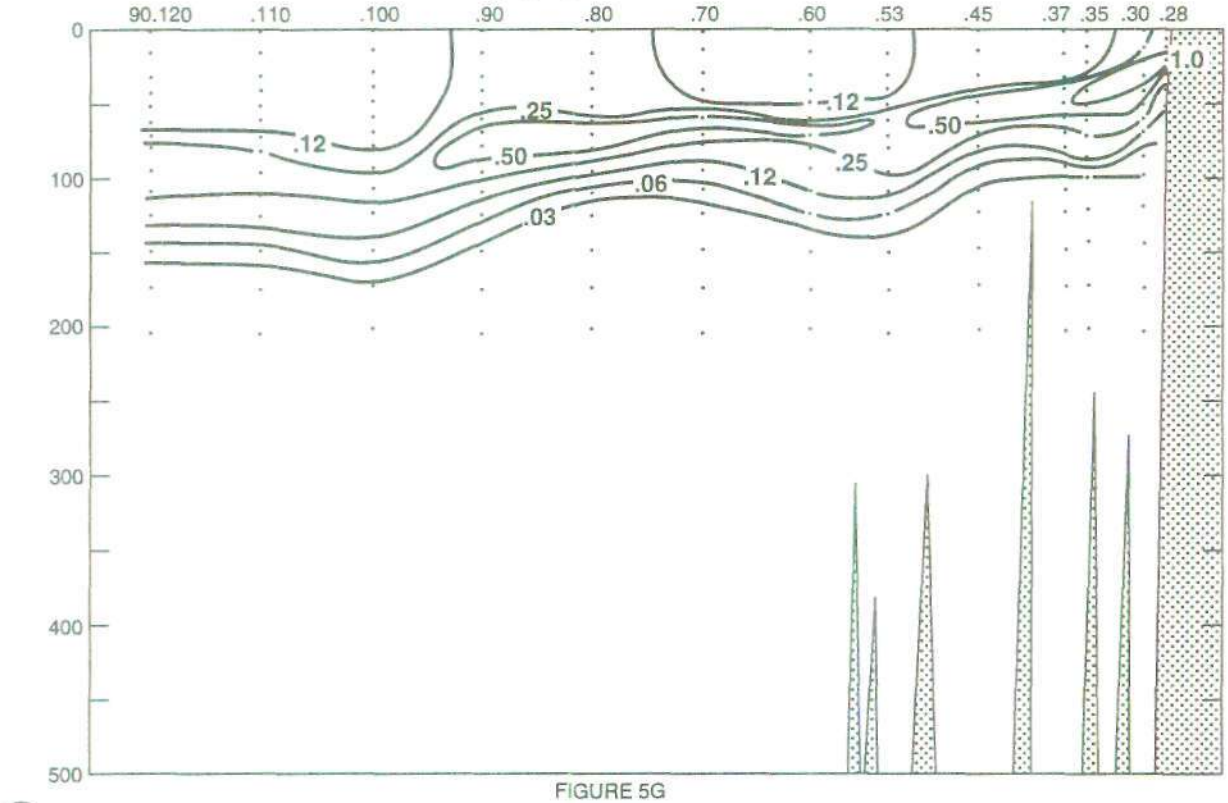

FIGURE 5G

OXYGEN SATURATION (%) ALONG CALCOFI LINE 90

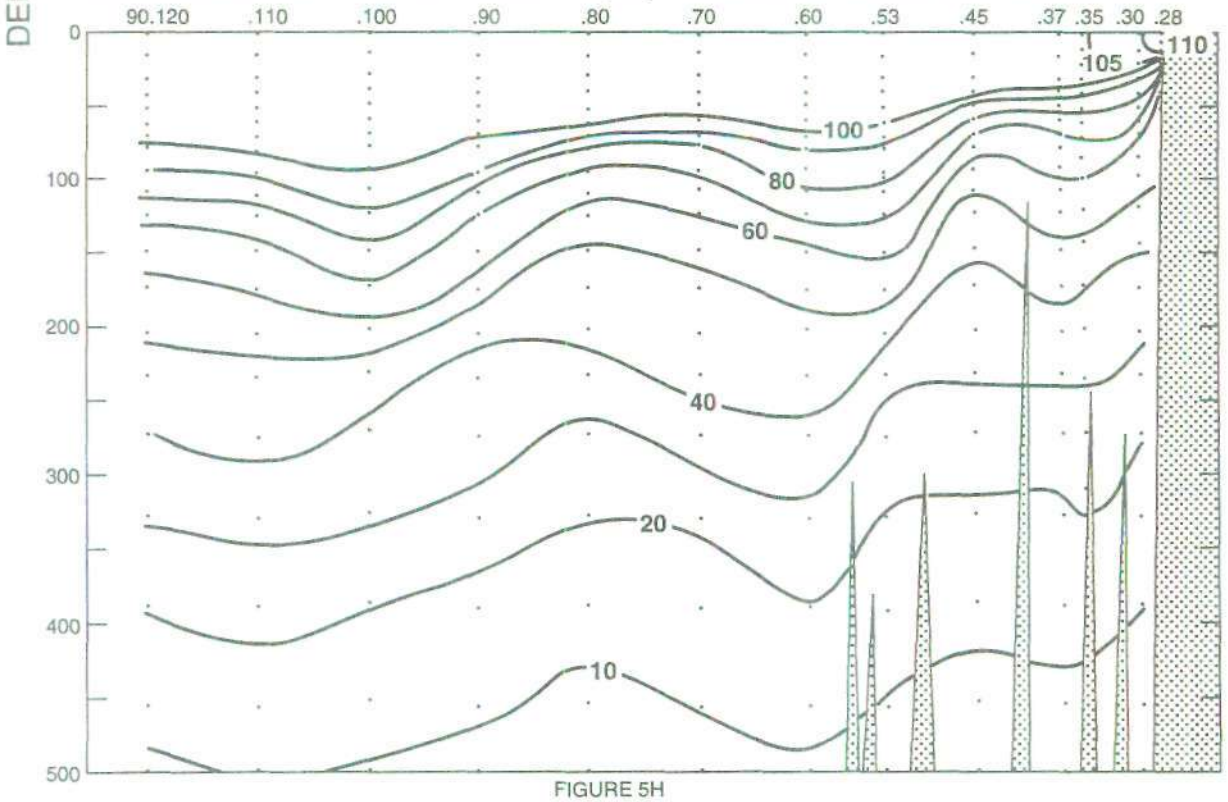

FIGURE 5H

CALCOFI CRUISE 9304

3 - 6 APRIL 1993

OXYGEN (ml/l) ALONG CALCOFI LINE 90

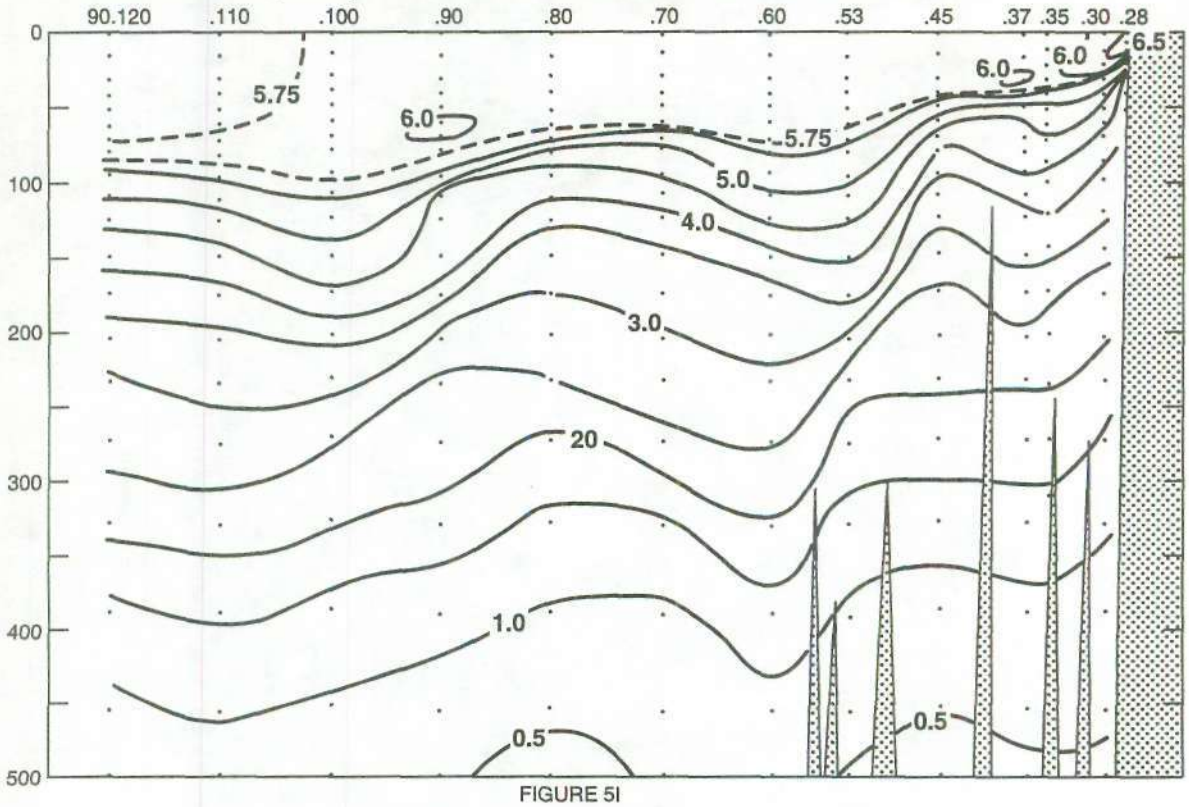

FIGURE 5I

DEPTH (m)

NITRITE (µM/l) ALONG CALCOFI LINE 90

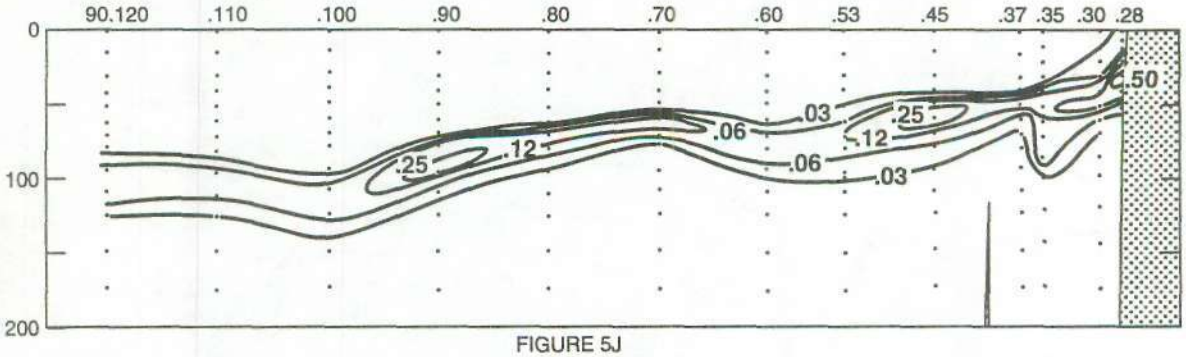

FIGURE 5J

PHAEOPIGMENTS (µg/l) ALONG CALCOFI LINE 90

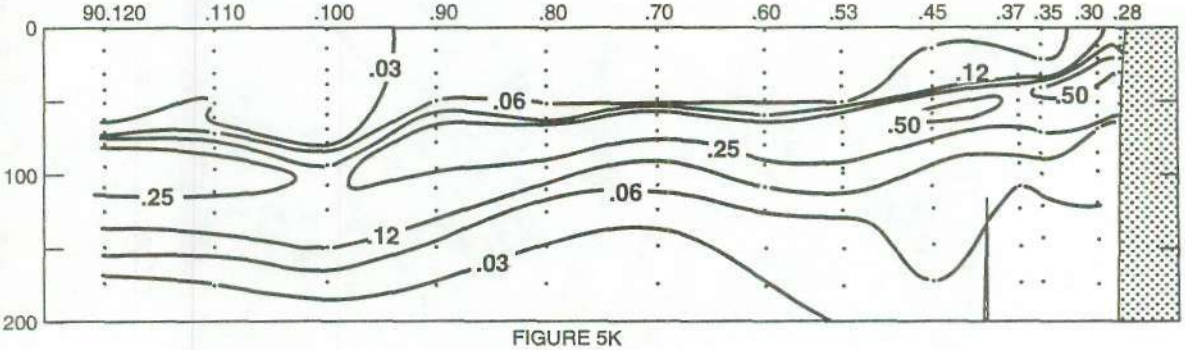

FIGURE 5K

PERSONNEL

CalCOFI Cruise 9304

SHIP'S CAPTAIN

Gary Petrae, RV *David Starr Jordan*

PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

Manion, Susan M. (in charge)	Fishery Biologist, NMFS
Abramenkoff, Dimitry N.	Fishery Biologist, NMFS
Bos, David L.	Staff Research Associate, SIO
Brody, Eric A.	Programmer/Analyst, SIO
Dotson, Ronald C.	Fishery Biologist, NMFS
Griffith, David A.	Fishery Biologist, NMFS
Gripp, Sherry L.	Staff Research Associate, SIO
Gruber, Dennis W.	Marine Technician, SIO
Mitchell, B. Greg	Asst Research Biologist, SIO
Mullin, Michael M.	Director of MLRG, Professor, SIO
Renger, Edward H.	Staff Research Associate, SIO
Veit, Richard R.	Research Associate, University of Washington
Wilkinson, James R.	Staff Research Associate, SIO

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 77 49

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
35 5.3 N	120 46.7 W	15/04/93	0050 UTC	70 n	310 32 kn	310 04 05	1	1015.1 mb	11.9 C	11.0 C	07m 04	3/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 xiM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
1	0	10.26	10.26	33.743	25.927	206.6	0.000	4.39	69.3	23.7	1.72	19.9	0.10	2.64	0.51	0
1	6	10.24	10.24	33.743	25.930	206.5	0.012	4.36	68.8	24.0	1.73	20.1	0.10	2.50	0.56	6
1	10	10.20	10.20	33.747	25.940	205.6	0.021	4.28	67.5	24.1	1.73	20.1	0.10	2.55	0.53	10
1	20	10.16	10.16	33.752	25.951	204.7	0.041	4.20	66.2	24.4	1.74	20.5	0.10	2.33	0.57	20
1	30	10.00	10.00	33.771	25.993	201.0	0.061	3.96	62.2	25.2	1.79	21.2	0.10	2.05	0.52	30
1	40	9.59	9.59	33.816	26.097	191.3	0.081	3.27	50.9	27.3	1.90	23.0	0.07	0.84	0.38	40
1	50	9.41	9.40	33.835	26.141	187.3	0.100	2.95	45.7	28.1	1.94	23.8	0.05	0.39	0.35	50
1	61	9.21	9.20	33.890	26.217	180.3	0.120	2.67	41.2	31.0	2.06	25.0	0.07	0.15	0.34	61

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 77 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
35 1.2 N	120 54.8 W	14/04/93	2200 UTC	238 m	310 26 kn	330 04 06	1	1016.4 mb	13.1 C	12.0 C	05« 08	5/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	11.25	11.25	33.373	25.464	250.6	0.000	6.28	101.1	8.1	0.87	7.2	0.14	15.25	0.84	0
1	2	11.25	11.25	33.373	25.464	250.6	0.005	6.28	101.1	8.1	0.87	7.2	0.14	15.25	0.84	2
	10 ISL	11.23	11.23	33.373	25.468	250.5	0.025	6.27	100.9	8.1	0.87	7.2	0.13	14.47	2.46	10
1	12	11.22	11.22	33.373	25.470	250.3	0.030	6.27	100.9	8.1	0.87	7.2	0.13	14.27	2.88	12
	20 ISL	10.88	10.88	33.435	25.579	240.1	0.050	5.56	88.8	11.4	1.10	11.0	0.14	10.70	2.26	20
1	21	10.83	10.83	33.445	25.596	238.6	0.052	5.46	87.1	11.9	1.13	11.5	0.14	10.22	2.12	21
	30 ISL	10.66	10.66	33.504	25.672	231.5	0.073	5.00	79.5	14.7	1.28	14.1	0.13	7.97	1.59	30
1	32	10.64	10.64	33.518	25.686	230.2	0.078	4.93	78.4	15.3	1.31	14.5	0.13	7.58	1.49	32
1	41	10.47	10.47	33.603	25.782	221.3	0.098	4.62	73.2	18.2	1.45	16.8	0.10	5.31	1.05	41
	50 ISL	10.43	10.42	33.625	25.806	219.2	0.118	4.65	73.6	18.9	1.47	17.0	0.10	5.28	0.99	50
1	52	10.42	10.41	33.626	25.809	219.0	0.122	4.66	73.8	19.0	1.48	17.1	0.10	5.27	0.98	52
1	61	10.18	10.17	33.659	25.876	212.8	0.142	3.90	61.4	21.2	1.64	19.4	0.06	2.20	0.65	61
1	71	9.73	9.72	33.738	26.013	199.9	0.162	3.10	48.4	24.2	1.82	22.2	0.01	0.16	0.29	71
	75 ISL	9.59	9.58	33.764	26.057	195.8	0.170	3.05	47.5	25.1	1.86	22.8	0.01	0.14	0.30	75
1	85	9.31	9.30	33.829	26.153	186.9	0.189	2.91	45.0	27.4	1.93	24.0	0.01	0.09	0.34	85
1	99	9.02	9.01	33.936	26.284	174.7	0.215	2.60	40.0	31.5	2.05	25.9	0.01	0.04	0.20	100
	100 ISL	9.01	9.00	33.941	26.289	174.2	0.217	2.59	39.8	31.7	2.06	26.0	0.01	0.04	0.20	101
1	119	8.80	8.79	34.009	26.376	166.3	0.249	2.36	36.1	34.8	2.16	27.4	0.00	0.02	0.21	120
	125 ISL	8.68	8.67	34.033	26.414	162.9	0.259	2.25	34.4	36.7	2.21	27.9	0.01	0.02	0.18	126
1	138	8.44	8.43	34.077	26.485	156.3	0.280	2.04	31.0	40.6	2.32	29.0	0.02	0.01	0.12	139
	150 ISL	8.38	8.36	34.086	26.501	154.9	0.298	1.95	29.6	42.3	2.37	29.5	0.03	0.01	0.14	151
1	168	8.30	8.28	34.099	26.524	153.1	0.326	1.89	28.6	43.3	2.40	29.8	0.03	0.01	0.16	169
1	198	8.25	8.23	34.106	26.538	152.4	0.372	1.85	28.0	44.0	2.41	29.9	0.04	0.01	0.17	199
	200 ISL	8.25	8.23	34.107	26.538	152.3	0.375	1.84	27.8	44.1	2.41	29.9	0.04			201
1	217	8.21	8.19	34.113	26.549	151.6	0.401	1.79	27.1	45.1	2.45	30.0	0.04			218

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 77 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 53.3 N	121 11.9 W	14/04/93	1702 UTC	561 m	330 18 kn	320 04 07	2	1017.0 mb	12.4 C	11.8 C		8/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	12.25	12.25	33.219	25.159	279.6	0.000	6.27	103.0	2.8	0.63	2.3	0.08	11.96	2.54	0
1	1	12.25	12.25	33.219	25.159	279.6	0.003	6.27	103.0	2.8	0.63	2.3	0.08	11.96	2.54	1
	10 ISL	12.18	12.18	33.223	25.176	278.2	0.028	6.12	100.4	3.0	0.65	2.7	0.08	11.85	2.30	10
1	11	12.17	12.17	33.223	25.178	278.1	0.031	6.10	100.0	3.0	0.65	2.7	0.08	11.84	2.27	11
	20 ISL	11.59	11.59	33.283	25.333	263.6	0.055	5.38	87.2	7.8	0.97	7.9	0.11	7.78	2.40	20
1	21	11.51	11.51	33.291	25.354	261.6	0.058	5.29	85.6	8.4	1.01	8.6	0.11	7.22	2.41	21
	30 ISL	10.84	10.84	33.347	25.518	246.2	0.081	4.66	74.3	13.0	1.29	13.5	0.09	3.13	0.93	30
1	31	10.77	10.77	33.352	25.534	244.7	0.083	4.60	73.3	13.4	1.31	13.9	0.09	2.74	0.76	31
1	39	10.41	10.41	33.357	25.601	238.5	0.102	4.29	67.8	15.2	1.43	15.8	0.06	0.89	0.49	39
1	50	9.51	9.50	33.400	25.785	221.1	0.128	4.07	63.1	18.5	1.60	19.0	0.03	0.13	0.31	50
1	60	9.39	9.38	33.459	25.851	215.1	0.149	3.93	60.8	20.0	1.66	20.0	0.03	0.08	0.25	60
1	70	9.20	9.19	33.515	25.925	208.2	0.171	3.81	58.7	21.4	1.71	20.9	0.03	0.08	0.20	70
	75 ISL	9.20	9.19	33.567	25.966	204.4	0.181	3.71	57.2	22.3	1.74	21.4	0.03	0.07	0.18	75
1	84	9.19	9.18	33.659	26.040	197.6	0.199	3.45	53.2	24.1	1.81	22.3	0.02	0.05	0.17	84
1	98	9.40	9.39	33.813	26.127	189.7	0.226	2.90	44.9	27.3	1.93	23.9	0.02	0.04	0.17	99
	100 ISL	9.39	9.38	33.831	26.142	188.2	0.230	2.84	44.0	27.8	1.95	24.2	0.02	0.04	0.17	101
1	117	9.17	9.16	33.938	26.262	177.2	0.261	2.49	38.4	31.8	2.08	26.1	0.02	0.02	0.14	118
	125 ISL	9.13	9.12	33.955	26.281	175.5	0.275	2.42	37.3	32.6	2.10	26.4	0.02	0.02	0.18	126
1	142	9.05	9.03	33.968	26.305	173.6	0.305	2.35	36.2	33.6	2.13	26.8	0.02	0.02	0.25	143
	150 ISL	8.99	8.97	33.984	26.327	171.6	0.319	2.28	35.0	34.6	2.16	27.1	0.02	0.02	0.23	151
1	172	8.76	8.74	34.031	26.400	165.1	0.356	2.09	32.0	37.6	2.25	28.1	0.01	0.02	0.13	173
	200 ISL	8.36	8.34	34.089	26.508	155.3	0.400	2.03	30.8	40.9	2.33	29.4	0.01	0.01	0.09	201
1	201	8.34	8.32	34.091	26.512	154.8	0.402	2.03	30.8	41.0	2.33	29.5	0.01	0.01	0.09	202
1	230	7.98	7.96	34.121	26.590	147.9	0.446	1.81	27.2	45.7	2.44	31.0	0.00			231
	250 ISL	7.71	7.69	34.138	26.643	143.0	0.475	1.63	24.4	49.5	2.54	32.1	0.00			252
1	270	7.45	7.42	34.152	26.692	138.6	0.503	1.46	21.7	53.3	2.64	33.2	0.00			272
	300 ISL	7.18	7.15	34.169	26.743	134.1	0.544	1.24	18.3	57.7	2.74	34.4	0.00			302
1	325	6.99	6.96	34.182	26.780	130.9	0.577	1.08	15.9	61.0	2.80	35.3	0.00			327
1	384	6.57	6.53	34.211	26.860	123.9	0.652	0.79	11.5	68.5	2.95	37.0	0.00			387
	400 ISL	6.51	6.47	34.217	26.873	122.9	0.672	0.74	10.8	69.7	2.97	37.3	0.01			403
1	451	6.34	6.30	34.232	26.908	120.2	0.734	0.63	9.1	73.2	3.03	38.1	0.02			454
	500 ISL	6.07	6.03	34.250	26.957	116.0	0.792	0.52	7.5	78.0	3.09	38.9	0.01			504
1	523	5.95	5.90	34.259	26.979	114.1	0.818	0.47	6.7	80.3	3.12	39.3	0.00			527

RV DAVID STARR JORDAN CALCOFI CRDISE 9304 STATION 77 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	HEA	BAROMETER	DRY	HET	SECCHI/FOREL	CLD AMT TYPE
34 43.4 N	121 32.9 H	14/04/93	1305 UTC	928 -	320 18 kn			1015.9 *mto*	13.8 C	12.9 C		

CAST	DEPTH B	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN BT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PBAEO ug/1	PRESS db
	0 ISL	12.76	12.76	33.107	24.974	297.2	0.000	6.32	104.9	1.5	0.46	0.3	0.01	8.92	1.60	0
1	1	12.76	12.76	33.107	24.974	297.2	0.003	6.32	104.9	1.5	0.46	0.3	0.01	8.92	1.60	1
	10 ISL	12.77	12.77	33.109	24.974	297.5	0.030	6.33	105.1	1.1	0.45	0.2	0.01	8.66	1.93	10
1	11	12.77	12.77	33.109	24.974	297.5	0.033	6.33	105.1	1.4	0.45	0.2	0.01	8.64	1.99	11
1	20	12.76	12.76	33.109	24.977	297.5	0.059	6.32	104.9	1.3	0.46	0.3	0.01	9.00	2.45	20
	30 ISL	12.70	12.70	33.123	24.999	295.6	0.089	6.34	105.1	1.3	0.45	0.6	0.02	10.21	2.05	30
1	31	12.69	12.69	33.125	25.003	295.3	0.092	6.34	105.1	1.3	0.45	0.7	0.02	10.34	2.00	31
1	41	12.51	12.50	33.168	25.071	289.1	0.121	6.16	101.7	2.4	0.57	1.5	0.04	11.03	2.20	41
1	49	12.03	12.02	33.234	25.214	275.6	0.144	5.41	88.5	6.6	0.87	6.0	0.09	6.12	1.79	49
	50 ISL	11.97	11.96	33.238	25.228	274.3	0.147	5.33	87.0	7.1	0.90	6.6	0.09	5.56	1.69	50
1	60	11.22	11.21	33.257	25.381	259.9	0.173	4.65	74.7	11.6	1.19	12.0	0.07	1.32	0.69	60
1	70	9.98	9.97	33.293	25.624	236.9	0.198	4.32	67.6	15.8	1.48	16.8	0.03	0.13	0.27	70
	75 ISL	9.65	9.64	33.327	25.706	229.2	0.210	4.23	65.7	17.2	1.55	18.1	0.03	0.11	0.24	75
1	84	9.32	9.31	33.396	25.813	219.1	0.230	4.11	63.4	19.0	1.63	19.4	0.02	0.06	0.19	84
1	98	9.02	9.01	33.492	25.936	207.6	0.260	3.90	59.8	21.5	1.74	21.2	0.01	0.03	0.10	99
	100 ISL	9.03	9.02	33.512	25.950	206.4	0.264	3.86	59.2	21.8	1.75	21.3	0.01	0.03	0.10	101
1	118	9.12	9.11	33.678	26.066	195.7	0.300	3.48	53.5	24.2	1.82	22.5	0.01	0.01	0.08	119
	125 ISL	9.12	9.11	33.737	26.113	191.5	0.314	3.28	50.5	25.6	1.87	23.2	0.01	0.01	0.09	126
1	142	9.11	9.09	33.868	26.217	182.0	0.346	2.81	43.3	29.3	2.01	25.0	0.01	0.02	0.14	143
	150 ISL	9.08	9.06	33.905	26.251	178.9	0.360	2.67	41.1	30.7	2.06	25.6	0.01	0.02	0.15	151
1	173	8.89	8.87	33.980	26.340	170.8	0.400	2.38	36.5	34.3	2.16	27.2	0.01	0.03	0.16	174
	200 ISL	8.49	8.47	34.060	26.465	159.4	0.445	2.14	32.5	39.0	2.26	28.9	0.01	0.01	0.12	201
1	202	8.46	8.44	34.065	26.474	158.6	0.448	2.13	32.4	39.3	2.27	29.0	0.01	0.01	0.12	203
1	231	8.24	8.22	34.097	26.533	153.5	0.493	2.01	30.4	42.3	2.36	29.9	0.01			232
	250 ISL	8.11	8.08	34.111	26.563	150.8	0.522	1.90	28.6	44.2	2.42	30.4	0.01			252
1	271	7.96	7.93	34.124	26.596	148.0	0.553	1.77	26.6	46.6	2.48	31.1	0.00			273
	300 ISL	7.70	7.67	34.145	26.651	143.2	0.596	1.55	23.2	50.7	2.58	32.3	0.00			302
1	327	7.42	7.39	34.161	26.704	138.5	0.634	1.35	20.0	54.9	2.68	33.6	0.01			329
1	388	6.73	6.69	34.178	26.813	128.6	0.715	0.99	14.5	64.8	2.88	36.3	0.00			391
	400 ISL	6.64	6.60	34.185	26.831	127.0	0.731	0.93	13.6	66.5	2.91	36.7	0.00			403
1	454	6.33	6.29	34.219	26.899	121.1	0.797	0.68	9.8	72.9	3.03	38.0	0.00			457
	500 ISL	6.14	6.10	34.242	26.942	117.5	0.852	0.57	8.2	76.7	3.09	38.7	0.00			504
1	525	6.04	5.99	34.255	26.965	115.5	0.881	0.51	7.3	78.7	3.12	39.1	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 77 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	WEA	BAROMETER	DRY	HET	SECCHI/FOREL	CLD AMT TYPE
34 23.3 N	122 14.8 H	14/04/93	0622 UTC	4022 >	320 27 *D			1017.3 Mb	13.3 C	12.2 C		

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	13.19	13.19	33.248	24.999	294.9	0.000	6.50	108.9	0.8	0.40	0.2	0.02	8.92	2.92	0
1	1	13.19	13.19	33.248	24.999	294.9	0.003	6.50	108.9	0.8	0.40	0.2	0.02	8.92	2.92	1
	10 ISL	13.18	13.18	33.243	24.997	295.3	0.030	6.51	109.1	0.8	0.40	0.2	0.02	8.36	2.56	10
1	16	13.17	13.17	33.238	24.995	295.6	0.047	6.52	109.2	0.8	0.40	0.2	0.02	7.99	2.31	16
	20 ISL	13.16	13.16	33.238	24.998	295.5	0.059	6.52	109.2	0.8	0.40	0.2	0.02	8.18	2.40	20
	30 ISL	13.13	13.13	33.234	25.001	295.5	0.089	6.52	109.1	0.8	0.41	0.2	0.02	8.77	2.64	30
1	31	13.13	13.13	33.233	25.000	295.6	0.092	6.52	109.1	0.8	0.41	0.2	0.02	8.84	2.67	31
1	40	13.07	13.06	33.230	25.010	294.9	0.118	6.47	108.1	0.8	0.39	0.1	0.02	8.84	2.51	40
	50 ISL	11.62	11.61	33.285	25.330	264.6	0.146	4.86	78.8	9.8	1.12	10.6	0.18	1.67	0.86	50
1	51	11.47	11.46	33.296	25.366	261.2	0.149	4.68	75.6	10.8	1.20	11.7	0.20	0.98	0.72	5)
1	60	11.26	11.25	33.436	25.513	247.4	0.172	4.10	66.0	12.9	1.38	14.7	0.20	1.97	1.25	60
1	69	10.89	10.88	33.504	25.632	236.2	0.193	3.73	59.6	15.3	1.50	16.6	0.11	1.68	1.12	6!>
	75 ISL	10.56	10.55	33.534	25.714	228.6	0.207	3.71	58.9	17.6	1.57	17.8	0.09	0.99	1.04	75
1	79	10.36	10.35	33.554	25.764	223.9	0.216	3.69	58.3	19.1	1.61	18.5	0.09	0.51	0.96	7!»
1	94	10.13	10.12	33.671	25.895	211.8	0.249	3.27	51.5	22.0	1.73	20.6	0.03	0.08	0.26	94
	100 ISL	9.95	9.94	33.706	25.952	206.4	0.262	3.21	50.3	23.1	1.78	21.5	0.03	0.06	0.21	101
1	109	9.59	9.58	33.734	26.034	198.7	0.280	3.13	48.7	24.6	1.84	22.6	0.03	0.04	0.13	110
1	124	8.71	8.70	33.693	26.142	188.5	0.309	3.46	52.8	25.8	1.86	23.4	0.02	0.02	0.13	125
	125 ISL	8.70	8.69	33.700	26.149	187.9	0.311	3.46	52.7	26.0	1.86	23.5	0.02	0.02	0.13	126
1	149	8.47	8.45	33.850	26.303	173.7	0.354	3.15	47.8	30.1	1.96	25.5	0.01	0.01	0.04	150
	150 ISL	8.46	8.44	33.854	26.307	173.3	0.356	3.14	47.6	30.2	1.96	25.5	0.01	0.01	0.04	15L
1	173	8.27	8.25	33.929	26.395	165.4	0.395	3.03	45.8	32.9	2.01	26.4	0.01	0.00	0.04	171
	200 ISL	7.95	7.93	33.980	26.483	157.4	0.438	2.95	44.3	36.3	2.08	27.5	0.01	0.01	0.03	201
1	204	7.90	7.88	33.984	26.494	156.4	0.445	2.94	44.1	36.8	2.09	27.6	0.01	0.01	0.03	205
1	232	7.51	7.49	33.991	26.556	150.8	0.488	2.94	43.7	40.3	2.15	28.4	0.01			233
	250 ISL	7.29	7.27	33.995	26.590	147.8	0.515	2.84	42.0	43.0	2.20	29.3	0.01			252
1	272	7.07	7.04	34.006	26.630	144.3	0.547	2.61	38.4	46.6	2.29	30.7	0.01			274
	300 ISL	6.96	6.93	34.053	26.682	139.7	0.586	2.09	30.7	51.6	2.47	32.5	0.01			302
1	328	6.88	6.85	34.104	26.734	135.2	0.625	1.55	22.7	56.7	2.66	34.3	0.01			330
1	387	6.41	6.38	34.156	26.838	125.9	0.702	0.98	14.2	66.8	2.90	37.2	0.01			390
	400 ISL	6.32	6.28	34.168	26.859	124.0	0.718	0.89	12.9	68.8	2.94	37.6	0.01			403
1	453	5.99	5.95	34.214	26.938	117.0	0.782	0.60	8.6	76.3	3.06	39.0	0.01			456
	500 ISL	5.71	5.67	34.241	26.995	112.0	0.836	0.47	6.7	82.0	3.14	40.1	0.01			504
1	524	5.57	5.53	34.255	27.023	109.5	0.863	0.40	5.7	84.9	3.18	40.7	0.01			528

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 77 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 3.0 N	122 56.7 W	14/04/93	0000 UTC	4243 -	330 26 k.c	330 06 08	1	1018.0 mb	15.4 C	12.9 C	25m 02	3/8	SC

CAST	DEPTH -	TEMP DEC C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.49	14.49	33.062	24.588	334.0	0.000	5.96	102.5	2.4	0.41	0.2	0.01	0.17	0.05	0
1	2	14.49	14.49	33.062	24.588	334.0	0.007	5.96	102.5	2.4	0.41	0.2	0.01	0.17	0.05	2
	10 ISL	14.50	14.50	33.061	24.585	334.5	0.033	5.96	102.5	2.4	0.41	0.2	0.01	0.17	0.05	10
X	17	14.50	14.50	33.062	24.586	334.6	0.057	5.96	102.5	2.4	0.40	0.2	0.01	0.17	0.05	17
	20 ISL	14.49	14.49	33.061	24.588	334.6	0.067	5.96	102.5	2.4	0.40	0.2	0.01	0.17	0.05	20
	30 ISL	14.45	14.45	33.059	24.595	334.2	0.100	5.96	102.4	2.4	0.40	0.2	0.01	0.17	0.05	30
I	32	14.44	14.44	33.058	24.596	334.1	0.107	5.96	102.4	2.4	0.40	0.2	0.01	0.17	0.05	32
L	41	14.45	14.44	33.058	24.595	334.6	0.137	5.96	102.4	2.4	0.40	0.1	0.01	0.17	0.05	41
	50 ISL	14.42	14.41	33.055	24.599	334.4	0.167	5.96	102.3	2.4	0.40	0.1	0.01	0.19	0.06	50
1	51	14.41	14.40	33.054	24.600	334.3	0.171	5.96	102.3	2.4	0.40	0.1	0.01	0.20	0.06	51
1	61	14.27	14.26	33.056	24.631	331.6	0.204	5.98	102.3	2.4	0.40	0.1	0.01	0.31	0.13	61
1	71	13.43	13.42	33.102	24.840	312.0	0.236	5.83	98.1	3.1	0.53	0.9	0.13	0.77	0.80	71
	75 ISL	13.10	13.09	33.096	24.901	306.2	0.248	5.71	95.4	3.8	0.59	2.1	0.13	0.68	0.65	75
1	79	12.77	12.76	33.087	24.959	300.7	0.261	5.57	92.4	4.7	0.66	3.6	0.12	0.53	0.42	79
1	95	11.56	11.55	33.128	25.220	276.1	0.307	5.15	83.3	8.2	0.96	8.6	0.03	0.26	0.28	95
	100 ISL	11.21	11.20	33.176	25.321	266.6	0.320	4.93	79.2	9.8	1.08	10.6	0.03	0.20	0.23	100
1	110	10.52	10.51	33.284	25.526	247.1	0.346	4.51	71.4	13.3	1.32	14.4	0.02	0.12	0.14	111
1	124	9.56	9.55	33.396	25.775	223.6	0.379	4.19	65.0	17.9	1.52	18.4	0.01	0.03	0.05	125
	125 ISL	9.51	9.50	33.402	25.788	222.4	0.381	4.17	64.6	18.2	1.53	18.6	0.01	0.03	0.05	126
1	148	8.66	8.64	33.540	26.031	199.6	0.430	3.86	58.7	23.6	1.79	22.3	0.01	0.00	0.02	149
	150 ISL	8.62	8.60	33.557	26.050	197.7	0.434	3.82	58.1	24.1	1.80	22.6	0.01	0.00	0.02	151
1	173	8.31	8.29	33.751	26.250	179.1	0.477	3.39	51.2	29.1	1.92	25.2	0.01	0.00	0.02	174
	200 ISL	8.12	8.10	33.896	26.392	166.1	0.524	3.00	45.2	33.6	2.04	27.1	0.00	0.00	0.02	201
1	203	8.10	8.08	33.907	26.404	165.0	0.529	2.97	44.7	34.0	2.05	27.3	0.00	0.00	0.02	204
1	231	7.81	7.79	33.968	26.495	156.8	0.574	2.78	41.6	38.0	2.14	28.6	0.00			232
	250 ISL	7.54	7.52	33.988	26.550	151.8	0.603	2.69	40.0	41.3	2.20	29.5	0.00			251
1	271	7.22	7.19	34.001	26.605	146.7	0.634	2.58	38.1	45.2	2.27	30.6	0.00			273
	300 ISL	6.86	6.83	34.018	26.668	141.0	0.676	2.26	33.1	51.0	2.40	32.5	0.00			302
1	327	6.57	6.54	34.033	26.719	136.4	0.713	1.91	27.8	56.6	2.54	34.3	0.00			329
1	386	6.08	6.05	34.085	26.824	126.9	0.791	1.21	17.4	68.0	2.83	37.8	0.00			388
	400 ISL	5.95	5.92	34.089	26.844	125.1	0.809	1.12	16.1	70.3	2.87	38.4	0.00			403
1	452	5.55	5.51	34.113	26.912	118.9	0.872	0.85	12.1	78.1	2.99	39.9	0.02			455
	500 ISL	5.38	5.34	34.187	26.991	111.9	0.928	0.56	7.9	85.0	3.12	41.0	0.01			503
1	524	5.30	5.26	34.224	27.030	108.4	0.954	0.42	5.9	88.4	3.18	41.5	0.01			528

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 77 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 43.3 N	123 38.0 W	13/04/93	1417 UTC		340 27 kn	320 06 08	1	1018.9 «b	13.3 C	11.3 C		2/8	CS

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CHL-A uq/1	PHAEO ug/1	PRESS db
	0 ISL	14.72	14.72	33.007	24.497	342.7	0.000	5.93	102.4	2.3	0.41	0.0	0.00	0.11	0.03	0
1	1	14.72	14.72	33.007	24.497	342.7	0.003	5.93	102.4	2.3	0.41	0.0	0.00	0.11	0.03	1
	10 ISL	14.72	14.72	33.008	24.498	342.9	0.034	5.92	102.2	2.2	0.40	0.0	0.00	0.11	0.03	10
1	16	14.72	14.72	33.008	24.498	343.0	0.055	5.92	102.2	2.2	0.40	0.0	0.00	0.11	0.03	16
	20 ISL	14.72	14.72	33.008	24.498	343.1	0.069	5.92	102.2	2.2	0.40	0.0	0.00	0.11	0.03	20
	30 ISL	14.71	14.71	33.007	24.500	343.3	0.103	5.93	102.4	2.2	0.40	0.0	0.00	0.12	0.03	30
1	36	14.71	14.70	33.006	24.499	343.5	0.124	5.93	102.4	2.2	0.40	0.0	0.00	0.12	0.03	36
	50 ISL	14.70	14.69	33.006	24.502	343.7	0.172	5.93	102.3	2.3	0.40	0.0	0.00	0.12	0.03	50
1	55	14.70	14.69	33.006	24.502	343.8	0.189	5.93	102.3	2.3	0.40	0.0	0.00	0.12	0.03	55
1	70	12.94	12.93	32.999	24.857	310.2	0.238	6.08	101.2	3.0	0.60	0.3	0.03	0.45	0.24	70
	75 ISL	12.55	12.54	33.016	24.946	301.8	0.253	5.88	97.1	4.0	0.66	2.2	0.09	0.50	0.32	75
1	79	12.27	12.26	33.035	25.015	295.3	0.265	5.67	93.1	5.0	0.72	4.0	0.13	0.52	0.37	79
1	88	11.56	11.55	33.095	25.194	278.4	0.291	5.25	84.9	7.5	0.96	8.1	0.07	0.44	0.39	88
1	98	10.55	10.54	33.188	25.446	254.5	0.318	4.74	75.0	11.9	1.27	13.4	0.02	0.24	0.25	98
	100 ISL	10.38	10.37	33.198	25.483	251.0	0.323	4.70	74.1	12.4	1.30	13.9	0.02	0.22	0.22	100
1	108	9.73	9.72	33.244	25.628	237.3	0.342	4.58	71.2	14.4	1.40	15.7	0.01	0.14	0.13	108
1	122	8.64	8.63	33.455	25.967	205.1	0.373	4.21	64.0	21.0	1.68	20.7	0.00	0.01	0.03	123
	125 ISL	8.60	8.59	33.479	25.992	202.8	0.379	4.19	63.6	21.5	1.70	21.0	0.00	0.01	0.03	126
1	137	8.43	8.42	33.517	26.047	197.7	0.403	4.11	62.2	23.0	1.74	21.7	0.00	0.01	0.02	138
	150 ISL	8.33	8.31	33.665	26.179	185.4	0.428	3.69	5S.8	26.5	1.86	23.7	0.00	0.00	0.02	151
1	156	8.32	8.30	33.741	26.240	179.8	0.439	3.45	52.1	28.3	1.93	24.7	0.00	0.00	0.02	157
1	176	8.48	8.46	33.916	26.354	169.5	0.474	2.78	42.2	32.7	2.10	27.1	0.00	0.00	0.02	177
1	200	8.21	8.19	33.990	26.453	160.4	0.514	2.62	39.6	36.1	2.17	28.1	0.00	0.00	0.02	201
1	229	8.03	8.01	34.038	26.518	154.7	0.559	2.39	36.0	39.6	2.26	29.4	0.00			230
	250 ISL	7.79	7.77	34.058	26.569	150.1	0.591	2.22	33.2	42.8	2.34	30.4	0.00			251
1	268	7.55	7.52	34.069	26.612	146.2	0.618	2.07	30.8	45.9	2.41	31.3	0.00			270
	300 ISL	7.16	7.13	34.081	26.677	140.4	0.664	1.79	26.4	51.6	2.55	33.1	0.00			302
1	322	6.90	6.87	34.087	26.718	136.7	0.694	1.60	23.5	55.6	2.64	34.3	0.00			324
1	382	6.33	6.30	34.116	26.817	127.8	0.774	1.14	16.5	65.7	2.87	37.0	0.00			384
	400 ISL	6.21	6.17	34.125	26.839	125.8	0.796	1.03	14.9	68.0	2.92	37.6	0.00			403
1	450	5.92	5.88	34.151	26.897	120.8	0.858	0.77	11.0	74.3	3.03	38.9	0.01			453
	500 ISL	5.54	5.50	34.177	26.964	114.6	0.917	0.58	8.2	82.0	3.12	40.3	0.00			503
1	523	5.37	5.33	34.190	26.995	111.8	0.943	0.49	6.9	85.6	3.16	40.9	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 77 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 23.1 N	124 19.4 W	13/04/93	0807 UTC	4561 -	350 24 kn			1019.4 Mb	13.3 C	11.3 C		

CAST	DEPTH -		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	15.22	15.22	33.083	24.447	347.4	0.000	5.86	102.3	2.5	0.39	0.0	0.01	0.07	0.02	0
1	2		15.22	15.22	33.083	24.447	347.4	0.007	5.86	102.3	2.5	0.39	0.0	0.01	0.07	0.02	2
	10	ISL	15.23	15.23	33.082	24.445	347.9	0.035	5.86	102.3	2.4	0.39	0.0	0.01	0.07	0.02	10
1	17		15.23	15.23	33.082	24.445	348.1	0.059	5.85	102.1	2.3	0.39	0.0	0.01	0.07	0.02	17
	20	ISL	15.23	15.23	33.082	24.445	348.2	0.070	5.85	102.1	2.3	0.39	0.0	0.01	0.07	0.02	20
	30	ISL	15.22	15.22	33.081	24.447	348.3	0.104	5.85	102.1	2.3	0.38	0.0	0.01	0.07	0.01	30
1	37		15.21	15.20	33.082	24.450	348.3	0.129	5.85	102.1	2.3	0.38	0.0	0.01	0.07	0.01	37
	50	ISL	15.22	15.21	33.087	24.452	348.5	0.174	5.85	102.1	2.3	0.38	0.0	0.01	0.07	0.02	50
1	57		15.23	15.22	33.090	24.453	348.6	0.198	5.85	102.1	2.3	0.38	0.0	0.01	0.07	0.02	57
1	71		15.22	15.21	33.226	24.560	338.8	0.247	5.84	102.0	2.2	0.36	0.0	0.01	0.11	0.04	71
	75	ISL	14.88	14.87	33.193	24.608	334.3	0.260	5.86	101.6	2.2	0.37	0.0	0.01	0.14	0.07	75
1	80		14.52	14.51	33.168	24.666	328.9	0.277	5.87	101.0	2.2	0.38	0.0	0.01	0.18	0.11	80
1	90		14.90	14.89	33.355	24.729	323.3	0.309	5.75	99.8	2.3	0.38	0.0	0.00	0.28	0.21	90
1	100		14.89	14.88	33.530	24.867	310.5	0.341	5.56	96.6	2.9	0.42	0.5	0.04	0.39	0.35	100
1	109		14.53	14.51	33.540	24.952	302.6	0.369	5.50	94.9	3.3	0.46	1.2	0.07	0.36	0.32	109
1	125		11.87	11.85	33.295	25.293	270.0	0.414	5.17	84.3	7.2	0.89	7.5	0.03	0.20	0.24	126
1	140		10.76	10.74	33.344	25.532	247.4	0.453	4.96	79.0	10.2	1.09	11.2	0.01	0.10	0.10	141
	150	ISL	9.93	9.91	33.343	25.673	233.9	0.477	4.88	76.3	12.7	1.23	13.6	0.00	0.05	0.05	151
1	160		9.21	9.19	33.357	25.802	221.7	0.500	4.74	72.9	15.7	1.39	16.1	0.00	0.02	0.03	161
1	179		8.59	8.57	33.515	26.022	200.9	0.540	4.07	61.8	22.4	1.72	21.2	0.00	0.00	0.01	180
	200	ISL	8.26	8.24	33.683	26.204	183.9	0.581	3.86	58.2	26.2	1.81	23.0	0.00	0.00	0.01	201
1	204		8.23	8.21	33.713	26.232	181.3	0.588	3.84	57.9	26.8	1.81	23.2	0.00	0.00	0.01	205
1	233		8.03	8.01	33.885	26.397	166.1	0.638	3.13	47.0	33.3	2.03	26.7	0.00			234
	250	ISL	7.82	7.80	33.943	26.474	159.1	0.666	3.00	44.9	36.6	2.09	27.6	0.00			251
1	273		7.51	7.48	33.989	26.555	151.7	0.702	2.91	43.2	40.8	2.15	28.5	0.00			275
	300	ISL	7.19	7.16	34.011	26.618	146.0	0.742	2.62	38.6	45.9	2.28	30.2	0.00			302
1	328		6.88	6.85	34.017	26.665	141.7	0.782	2.27	33.2	51.1	2.43	32.2	0.00			330
1	388		6.35	6.32	34.052	26.763	132.9	0.864	1.55	22.4	61.8	2.74	35.9	0.00			390
	400	ISL	6.24	6.20	34.061	26.785	130.9	0.880	1.42	20.5	64.1	2.79	36.5	0.00			402
1	455		5.77	5.73	34.106	26.880	122.3	0.950	0.94	13.4	74.2	2.97	38.9	0.01			458
	500	ISL	5.48	5.44	34.145	26.946	116.3	1.004	0.70	9.9	81.6	3.08	40.3	0.00			503
1	527		5.30	5.26	34.168	26.986	112.6	1.034	0.55	7.8	86.1	3.15	41.1	0.00			531

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 80 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
34 27.0 N	120 31.5 W	11/04/93	1206 UTC	74 -	310 19 k.n			1015.4 inb	12.1 C	10.7 C		

CAST	DEPTH n		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS <U>
	0	ISL	10.72	10.72	33.644	25.770	221.6	0.000	4.11	65.5	20.6	1.63	18.6	0.16	0.91	0.33	0
1	1		10.72	10.72	33.644	25.770	221.6	0.002	4.11	65.5	20.6	1.63	18.6	0.16	0.91	0.33	1
	10	ISL	10.70	10.70	33.644	25.773	221.4	0.022	4.09	65.2	20.7	1.64	18.6	0.16	0.94	0.33	10
1	11		10.70	10.70	33.644	25.773	221.4	0.024	4.09	65.2	20.7	1.64	18.6	0.16	0.94	0.33	11
	20	ISL	10.70	10.70	33.646	25.775	221.5	0.044	4.10	65.3	20.9	1.64	18.7	0.16	0.91	0.31	20
1	21		10.70	10.70	33.646	25.775	221.5	0.047	4.10	65.3	20.9	1.64	18.7	0.16	0.91	0.31	21
1	30		10.56	10.56	33.658	25.809	218.5	0.066	3.88	61.6	21.2	1.66	19.0	0.15	0.77	0.31	30
1	40		10.16	10.16	33.712	25.920	208.1	0.088	3.16	49.8	23.0	1.78	20.8	0.11	0.29	0.28	40
1	50		9.97	9.96	33.750	25.982	202.4	0.108	3.05	47.9	24.7	1.83	21.8	0.11	0.18	0.25	50
1	61		9.92	9.91	33.770	26.006	200.4	0.130	2.99	46.9	25.3	1.86	22.2	0.10	0.16	0.22	61

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
34 19.0 N	120 48.2 W	11/04/93	1515 UTC	832 M	320 29 kn	320 06 05	0	1016.9 Mb	13.1 C	11.1 C		0/8

CAST	DEPTH M		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	11.45	11.45	33.507	25.532	244.1	0.000	5.11	82.7	15.0	1.26	13.0	0.16	4.00	1.13	0
1	1		11.45	11.45	33.507	25.532	244.1	0.002	5.11	82.7	15.0	1.26	13.0	0.16	4.00	1.13	1
1	10		11.44	11.44	33.507	25.534	244.2	0.024	5.09	82.3	14.7	1.26	13.0	0.17	3.77	0.87	10
1	20		11.26	11.26	33.553	25.603	237.9	0.049	4.89	78.8	17.1	1.38	14.9	0.16	2.91	0.62	20
1	30		11.25	11.25	33.560	25.610	237.4	0.072	4.85	78.2	17.4	1.40	15.1	0.17	2.70	0.74	30
1	40		11.18	11.18	33.562	25.625	236.3	0.096	4.71	75.8	17.7	1.41	15.5	0.16	2.55	0.67	40
1	49		11.11	11.10	33.561	25.637	235.3	0.117	4.62	74.2	17.9	1.42	15.6	0.15	2.28	0.45	49
	50	ISL	11.08	11.07	33.560	25.641	234.9	0.120	4.53	72.7	17.9	1.43	15.8	0.13	2.07	0.44	50
1	59		10.66	10.65	33.567	25.721	227.5	0.140	3.65	58.1	17.8	1.56	18.0	0.00	0.20	0.35	59
1	69		10.00	9.99	33.623	25.878	212.7	0.162	3.46	54.3	21.9	1.71	20.0	0.07	0.07	0.22	69
	75	ISL	9.40	9.39	33.628	25.982	203.0	0.175	3.55	55.0	23.9	1.77	21.3	0.07	0.05	0.19	75
1	83		8.70	8.69	33.635	26.098	192.0	0.191	3.69	56.2	25.7	1.83	22.9	0.07	0.03	0.18	83
1	97		8.52	8.51	33.703	26.179	184.5	0.217	3.51	53.3	26.1	1.88	24.1	0.00	0.02	0.11	98
	100	ISL	8.53	8.52	33.719	26.190	183.5	0.222	3.46	52.6	26.3	1.89	24.3	0.00	0.02	0.11	101
1	117		8.59	8.58	33.815	26.256	177.6	0.253	3.14	47.8	28.7	1.97	25.5	0.00	0.01	0.12	118
	125	ISL	8.47	8.46	33.867	26.316	172.1	0.267	3.00	45.5	30.6	2.03	26.3	0.00	0.01	0.11	126
1	140		8.21	8.20	33.958	26.427	161.8	0.292	2.77	41.8	34.5	2.13	27.7	0.00	0.02	0.10	1*1
	150	ISL	8.14	8.12	33.996	26.467	158.1	0.308	2.63	39.7	36.4	2.18	28.4	0.00	0.02	0.10	151
1	169		8.06	8.04	34.042	26.516	153.8	0.338	2.41	36.3	39.5	2.25	29.3	0.00	0.02	0.09	170
1	199		7.84	7.82	34.081	26.579	148.3	0.383	2.16	32.4	43.2	2.35	30.5	0.00	0.02	0.06	200
	200	ISL	7.83	7.81	34.082	26.581	148.1	0.385	2.15	32.2	43.4	2.36	30.6	0.00			201
1	227		7.47	7.45	34.108	26.654	141.5	0.424	1.82	27.0	49.1	2.51	32.3	0.00			228
	250	ISL	7.21	7.19	34.117	26.698	137.6	0.456	1.62	23.9	53.2	2.61	33.6	0.00			2>2
1	266		7.06	7.03	34.120	26.721	135.6	0.478	1.50	22.1	55.7	2.67	34.4	0.00			258
	300	ISL	6.82	6.79	34.134	26.765	131.8	0.523	1.29	18.9	SO.L	2.77	35.5	0.00			3B2
1	320		6.69	6.66	34.141	26.788	129.8	0.549	1.18	17.2	62.4	2.82	36.1	0.00			322
1	381		6.23	6.20	34.154	26.859	123.6	0.627	0.92	13.3	70.3	2.96	38.2	0.00			3B4
	400	ISL	6.00	5.97	34.150	26.885	121.2	0.650	0.86	12.3	73.6	3.00	38.9	0.01			403
1	447		5.52	5.48	34.153	26.947	115.5	0.706	0.70	9.9	81.0	3.08	40.4	0.03			450
	500	ISL	5.51	5.47	34.215	26.998	111.4	0.766	0.48	6.8	84.5	3.18	40.8	0.02			504
1	520		5.50	5.46	34.239	27.018	109.8	0.788	0.40	5.7	85.8	3.22	41.0	0.02			524

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 80 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 8.8 N	121 9.0 W	11/04/93	2117 UTC	2151 •	320 30 kn	320 12 08	1	1017.1 *Mb*	14.5 C	12.2 C	07» 05	2/8	CI

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	12.86	12.86	33.349	25.142	281.2	0.000	6.26	104.3	4.1	0.59	2.5	0.08	9.81	2.14	0
1	1	12.86	12.86	33.349	25.142	281.2	0.003	6.26	104.3	4.1	0.59	2.5	0.08	9.81	2.14	1
	10 ISL	12.75	12.75	33.351	25.166	279.3	0.028	6.23	103.5	4.1	0.61	2.6	0.08	9.97	2.12	10
X	11	12.73	12.73	33.352	25.170	278.8	0.031	6.23	103.5	4.1	0.61	2.6	0.08	10.01	2.11	11
	20 ISL	12.51	12.51	33.379	25.234	273.0	0.056	6.03	99.7	5.2	0.72	4.3	0.10	10.50	2.03	20
L	21	12.48	12.48	33.383	25.243	272.2	0.058	6.00	99.1	5.4	0.74	4.5	0.10	10.54	2.02	21
	30 ISL	12.23	12.23	33.429	25.327	264.4	0.083	5.81	95.5	7.3	0.85	6.4	0.11	10.30	2.11	30
L	33	12.16	12.16	33.443	25.351	262.2	0.090	5.77	94.7	7.9	0.88	6.9	0.11	10.22	2.12	33
1	42	12.09	12.08	33.460	25.378	259.9	0.114	5.75	94.3	8.4	0.93	7.5	0.11	10.66	1.84	42
	50 ISL	12.01	12.00	33.471	25.401	257.8	0.135	5.74	94.0	8.7	0.92	7.8	0.11	10.72	1.90	50
1	52	11.99	11.98	33.473	25.407	257.4	0.140	5.74	93.9	8.8	0.91	7.9	0.11	10.74	1.93	52
1	62	12.01	12.00	33.475	25.405	257.8	0.166	5.75	94.1	8.8	0.92	7.9	0.11	10.78	1.94	62
1	73	11.99	11.98	33.477	25.411	257.5	0.194	5.76	94.2	8.9	0.93	7.8	0.12	11.31	1.97	73
	75 ISL	11.94	11.93	33.474	25.418	256.9	0.199	5.73	93.6	9.2	0.94	8.0	0.12	11.08	1.95	75
1	86	11.66	11.65	33.529	25.513	248.1	0.227	5.54	90.0	11.9	1.10	10.4	0.13	9.81	1.59	86
	100 ISL	9.39	9.38	33.412	25.815	219.3	0.260	4.46	68.9	17.9	1.52	18.1	0.03	1.47	0.40	101
1	102	9.05	9.04	33.402	25.861	214.9	0.264	4.30	65.9	18.8	1.58	19.2	0.02	0.27	0.24	103
1	122	8.54	8.53	33.600	26.096	192.9	0.305	3.74	56.8	24.7	1.81	23.0	0.01	0.10	0.12	123
	125 ISL	8.50	8.49	33.627	26.123	190.3	0.310	3.66	55.5	25.5	1.84	23.5	0.01	0.09	0.11	126
1	148	8.30	8.28	33.810	26.297	174.2	0.352	3.12	47.2	30.6	2.00	26.2	0.01	0.04	0.06	149
	150 ISL	8.30	8.28	33.823	26.307	173.3	0.356	3.09	46.7	30.9	2.01	26.3	0.01	0.04	0.06	151
1	178	8.27	8.25	33.965	26.424	162.8	0.403	2.69	40.7	35.2	2.13	27.7	0.01	0.02	0.03	179
	200 ISL	8.00	7.98	34.023	26.510	154.9	0.438	2.45	36.8	39.3	2.23	29.1	0.00	0.01	0.04	201
1	208	7.89	7.87	34.039	26.539	152.3	0.450	2.36	35.4	40.9	2.27	29.6	0.00	0.01	0.04	209
1	237	7.75	7.73	34.115	26.619	145.1	0.493	1.85	27.7	46.7	2.46	31.3	0.00			238
	250 ISL	7.65	7.63	34.139	26.653	142.1	0.512	1.64	24.5	49.5	2.54	32.1	0.00			252
1	277	7.41	7.38	34.175	26.716	136.5	0.549	1.28	19.0	54.9	2.69	33.7	0.00			279
	300 ISL	7.21	7.18	34.190	26.756	132.9	0.580	1.10	16.3	58.3	2.77	34.7	0.00			302
1	333	6.95	6.92	34.201	26.801	129.0	0.624	0.94	13.8	62.2	2.84	35.8	0.00			335
1	392	6.59	6.55	34.225	26.869	123.3	0.698	0.71	10.3	68.4	2.96	37.2	0.00			395
	400 ISL	6.54	6.50	34.229	26.879	122.4	0.708	0.68	9.9	69.3	2.97	37.4	0.00			403
1	459	6.22	6.18	34.257	26.943	116.9	0.779	0.50	7.2	75.3	3.06	38.5	0.01			462
	500 ISL	6.03	5.99	34.269	26.977	114.1	0.826	0.43	6.2	78.8	3.11	39.3	0.01			504
1	530	5.89	5.84	34.278	27.002	111.9	0.860	0.38	5.4	81.3	3.15	39.8	0.01			534

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 80 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT	TYPE
33 49.8 N	121 50.8 W	12/04/93	0356 UTC	3632 •	330 33 kn			1016.6 ab	13.5 C	11.5 C			

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.70	14.70	33.039	24.526	339.9	0.000	5.92	102.2	2.7	0.39	0.2	0.00	0.14	0.04	0
1	1	14.70	14.70	33.039	24.526	340.0	0.003	5.92	102.2	2.7	0.39	0.2	0.00	0.14	0.04	1
	10 ISL	14.73	14.73	33.039	24.520	340.8	0.034	5.93	102.4	2.7	0.39	0.2	0.00	0.14	0.04	10
1	11	14.73	14.73	33.039	24.520	340.8	0.037	5.93	102.4	2.7	0.39	0.2	0.00	0.14	0.04	11
1	20	14.72	14.72	33.039	24.522	340.9	0.068	5.92	102.2	2.5	0.39	0.1	0.00	0.12	0.03	20
1	30	14.75	14.75	33.040	24.517	341.7	0.102	5.93	102.5	2.4	0.39	0.1	0.00	0.13	0.03	30
1	39	14.76	14.75	33.041	24.516	342.0	0.133	5.93	102.5	2.4	0.38	0.1	0.00	0.13	0.05	39
1	49	14.72	14.71	33.041	24.525	341.5	0.167	5.93	102.4	2.4	0.38	0.1	0.00	0.12	0.03	49
	50 ISL	14.72	14.71	33.041	24.525	341.5	0.171	5.93	102.4	2.4	0.38	0.1	0.00	0.12	0.03	50
1	58	14.73	14.72	33.039	24.521	342.1	0.198	5.93	102.4	2.4	0.37	0.1	0.00	0.12	0.03	58
1	73	12.90	12.89	33.060	24.912	305.0	0.246	5.96	99.1	2.9	0.50	0.8	0.21	0.56	0.34	73
	75 ISL	12.76	12.75	33.064	24.943	302.1	0.253	5.90	97.9	3.3	0.54	1.4	0.19	0.54	0.33	75
1	87	12.07	12.06	33.099	25.102	287.2	0.288	5.42	88.6	6.6	0.80	6.0	0.03	0.31	0.27	87
	100 ISL	11.08	11.07	33.204	25.366	262.3	0.324	4.89	78.3	10.5	1.11	11.2	0.02	0.16	0.16	100
1	106	10.63	10.62	33.260	25.488	250.7	0.339	4.66	73.9	12.4	1.25	13.5	0.01	0.11	0.11	106
	125 ISL	9.61	9.60	33.378	25.753	225.7	0.384	4.15	64.4	17.7	1.57	18.5	0.00	0.04	0.05	126
1	126	9.56	9.55	33.384	25.766	224.5	0.387	4.13	64.0	18.0	1.58	18.7	0.00	0.04	0.05	127
1	150	8.54	8.52	33.543	26.051	197.6	0.437	3.96	60.1	23.5	1.76	22.1	0.00	0.01	0.02	151
1	180	8.28	8.26	33.742	26.247	179.5	0.494	3.39	51.2	29.1	1.94	25.2	0.00	0.01	0.02	181
	200 ISL	8.06	8.04	33.826	26.346	170.4	0.529	3.29	49.5	31.8	1.98	26.2	0.00	0.01	0.02	201
1	216	7.88	7.86	33.877	26.413	164.3	0.556	3.25	48.7	33.8	2.00	26.8	0.00	0.01	0.02	217
1	250	7.53	7.51	33.968	26.536	153.1	0.609	2.95	43.8	39.1	2.11	28.4	0.00			251
1	290	7.17	7.14	34.003	26.614	146.1	0.669	2.67	39.4	45.1	2.24	30.3	0.00			292
	300 ISL	7.03	7.00	34.006	26.636	144.1	0.684	2.55	37.5	47.3	2.29	31.0	0.00			302
1	344	6.39	6.36	34.022	26.734	135.0	0.745	1.96	28.4	57.6	2.54	34.5	0.00			346
	400 ISL	5.91	5.88	34.093	26.852	124.3	0.818	1.18	16.9	69.9	2.84	38.0	0.00			403
1	410	5.84	5.80	34.10S	26.870	122.6	0.830	1.06	15.2	71.9	2.89	38.5	0.00			413
1	482	5.19	5.15	34.122	26.962	114.2	0.915	0.75	10.6	84.2	3.04	40.8	0.02			485
	500 ISL	5.16	5.12	34.145	26.984	112.3	0.936	0.67	9.4	85.9	3.07	41.0	0.02			503
1	564	5.07	5.02	34.226	27.059	105.9	1.006	0.39	5.5	91.8	3.19	41.9	0.00			568

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 80 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 30.1 N	122 32.2 W	12/04/93	1150 UTC	3783 •	340 33 kn			1016.9 mb	12.9 C	11.9 C		

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO uq/1	PRESS db
	0 ISL	14.86	14.86	33.034	24.488	343.6	0.000	5.95	103.1	2.5	0.38	0.0	0.00	0.09	0.02	0
1	1	14.86	14.86	33.034	24.488	343.6	0.003	5.95	103.1	2.5	0.38	0.0	0.00	0.09	0.02	1
	10 ISL	14.86	14.86	33.033	24.487	343.9	0.034	5.94	102.9	2.4	0.38	0.0	0.00	0.09	0.03	10
1	16	14.86	14.86	33.033	24.487	344.1	0.055	5.93	102.7	2.3	0.38	0.0	0.00	0.09	0.03	16
	20 ISL	14.86	14.86	33.032	24.487	344.2	0.069	5.94	102.9	2.3	0.38	0.0	0.00	0.09	0.03	20
	30 ISL	14.85	14.85	33.030	24.487	344.4	0.103	5.95	103.0	2.3	0.37	0.0	0.00	0.09	0.02	30
1	31	14.85	14.85	33.029	24.487	344.6	0.107	5.95	103.0	2.3	0.37	0.0	0.00	0.09	0.02	31
1	40	14.68	14.67	33.017	24.514	342.2	0.138	5.99	103.4	2.3	0.38	0.0	0.00	0.10	0.03	40
1	50	13.69	13.68	32.987	24.698	324.9	0.171	6.07	102.6	2.4	0.39	0.0	0.00	0.17	0.10	50
1	61	13.25	13.24	32.922	24.736	321.5	0.206	6.07	101.6	2.5	0.43	0.1	0.03	0.29	0.19	61
1	75	12.93	12.92	33.059	24.906	305.7	0.250	5.77	96.0	3.6	0.55	2.0	0.13	0.32	0.32	75
1	90	11.32	11.31	33.153	25.283	270.0	0.294	5.15	82.9	8.0	0.98	8.9	0.03	0.23	0.27	90
	100 ISL	10.55	10.54	33.225	25.475	251.8	0.320	4.82	76.3	11.5	1.20	12.6	0.02	0.12	0.14	100
1	105	10.25	10.24	33.262	25.555	244.2	0.332	4.68	73.6	13.2	1.29	14.1	0.01	0.07	0.08	105
1	119	9.62	9.61	33.365	25.741	226.8	0.365	4.37	67.9	17.0	1.50	17.2	0.01	0.03	0.04	120
	125 ISL	9.52	9.51	33.423	25.803	221.0	0.378	4.18	64.8	18.3	1.57	18.3	0.01	0.02	0.04	126
1	139	9.37	9.35	33.544	25.922	209.9	0.409	3.83	59.2	20.6	1.68	20.3	0.01	0.01	0.03	140
	150 ISL	9.12	9.10	33.586	25.995	203.2	0.431	3.91	60.1	21.3	1.68	20.6	0.00	0.01	0.02	151
1	159	8.92	8.90	33.611	26.046	198.4	0.449	3.99	61.1	22.0	1.68	20.8	0.00	0.01	0.02	160
1	185	8.67	8.65	33.745	26.190	185.1	0.499	3.30	50.3	27.7	1.92	24.7	0.00	0.00	0.03	186
	200 ISL	8.38	8.36	33.815	26.290	175.9	0.526	3.12	47.2	30.9	2.00	26.1	0.00	0.00	0.03	201
1	218	8.01	7.99	33.888	26.402	165.4	0.557	3.02	45.4	34.4	2.06	27.2	0.00	0.00	0.02	219
	250 ISL	7.62	7.60	33.972	26.526	154.1	0.608	2.90	43.2	39.5	2.14	28.5	0.00			251
1	253	7.59	7.57	33.977	26.534	153.3	0.613	2.89	43.0	40.0	2.15	28.6	0.00			254
1	293	7.15	7.12	34.009	26.621	145.4	0.673	2.45	36.1	47.4	2.32	31.2	0.00			295
	300 ISL	7.07	7.04	34.013	26.636	144.2	0.683	2.37	34.9	48.7	2.36	31.6	0.00			302
1	348	6.56	6.53	34.041	26.727	135.9	0.750	1.80	26.2	57.5	2.60	34.6	0.00			350
	400 ISL	6.05	6.02	34.076	26.821	127.4	0.818	1.23	17.7	68.2	2.84	37.6	0.00			403
1	414	5.93	5.89	34.088	26.845	125.1	0.836	1.09	15.6	70.9	2.89	38.3	0.00			417
1	485	5.65	5.61	34.172	26.947	116.2	0.922	0.62	8.8	80.2	3.08	40.0	0.00			488
	500 ISL	5.55	5.51	34.180	26.966	114.5	0.939	0.58	8.2	82.2	3.10	40.3	0.00			503
1	567	5.12	5.07	34.215	27.044	107.4	1.013	0.40	5.6	91.2	3.20	41.7	0.00			571

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 9.0 N	123 13.2 W	12/04/93	1712 UTC	4215 n	340 26 *Xa*	350 10 08	0	1019.0 imb	15.4 C	13.8 C		0/8

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.93	14.93	33.029	24.469	345.3	0.000	5.89	102.2	2.4	0.37	0.0	0.01	0.09	0.02	0
1	2	14.93	14.93	33.029	24.469	345.4	0.007	5.89	102.2	2.4	0.37	0.0	0.01	0.09	0.02	2
	10 ISL	14.92	14.92	33.029	24.471	345.4	0.035	5.89	102.1	2.4	0.37	0.1	0.01	0.09	0.02	10
1	16	14.91	14.91	33.029	24.474	345.4	0.055	5.89	102.1	2.4	0.37	0.1	0.01	0.09	0.02	16
	20 ISL	14.90	14.90	33.029	24.476	345.3	0.069	5.89	102.1	2.4	0.37	0.1	0.01	0.09	0.02	2c
	30 ISL	14.88	14.88	33.028	24.480	345.2	0.104	5.90	102.2	2.4	0.37	0.1	0.01	0.09	0.02	30
1	31	14.88	14.88	33.028	24.480	345.2	0.107	5.90	102.2	2.4	0.37	0.1	0.01	0.09	0.02	31
1	42	14.88	14.87	33.028	24.480	345.5	0.145	5.91	102.4	2.4	0.37	0.1	0.01	0.09	0.02	42
	50 ISL	14.49	14.48	33.100	24.619	332.5	0.172	5.90	101.5	2.3	0.37	0.2	0.01	0.13	0.07	50
1	51	14.41	14.40	33.104	24.639	330.6	0.175	5.90	101.3	2.3	0.37	0.2	0.01	0.14	0.08	51
1	60	13.42	13.41	32.941	24.717	323.3	0.205	6.08	102.2	2.5	0.39	0.2	0.01	0.22	0.14	60
1	75	12.77	12.76	32.823	24.754	320.1	0.253	6.16	102.0	2.7	0.43	0.2	0.02	0.30	0.20	7?i
1	89	12.50	12.49	32.936	24.894	307.1	0.297	5.80	95.6	3.8	0.58	2.4	0.18	0.31	0.27	8<i
	100 ISL	11.66	11.65	33.112	25.189	279.2	0.329	5.30	85.9	7.1	0.88	7.3	0.08	0.21	0.21	100
1	104	11.33	11.32	33.174	25.297	268.9	0.340	5.13	82.6	8.3	0.98	9.1	0.03	0.17	0.18	10*1
1	119	10.80	10.79	33.221	25.429	256.7	0.380	5.01	79.8	9.8	1.09	11.0	0.03	0.13	0.14	120
	125 ISL	10.31	10.30	33.262	25.546	245.6	0.395	4.83	76.1	12.1	1.22	13.2	0.02	0.09	0.10	12IS
1	138	9.27	9.25	33.381	25.810	220.4	0.425	4.44	68.4	17.4	1.50	18.0	0.01	0.02	0.03	13'»
	150 ISL	8.93	8.91	33.502	25.959	206.5	0.451	4.34	66.4	19.6	1.54	19.1	0.01	0.01	0.02	151
1	159	8.85	8.83	33.584	26.036	199.4	0.469	4.26	65.1	20.4	1.57	19.9	0.01	0.01	0.01	160
1	184	8.73	8.71	33.715	26.158	188.3	0.517	4.38	66.8	21.4	1.52	19.6	0.01	0.00	0.02	IBS
	200 ISL	8.50	8.48	33.772	26.238	180.9	0.547	4.07	61.8	24.5	1.66	21.7	0.01	0.00	0.02	201
1	216	8.24	8.22	33.821	26.316	173.7	0.575	3.65	55.1	28.5	1.84	24.3	0.00	0.00	0.02	217
	250 ISL	7.80	7.78	33.943	26.477	158.8	0.632	2.92	43.7	36.5	2.10	28.1	0.00			251
1	252	7.78	7.76	33.949	26.485	158.1	0.635	2.88	43.0	37.0	2.11	28.3	0.00			253
1	292	7.23	7.20	34.003	26.606	147.0	0.696	2.51	37.1	45.4	2.30	31.0	0.00			294
	300 ISL	7.12	7.09	34.008	26.625	145.2	0.708	2.43	35.8	46.9	2.34	31.5	0.00			302
1	345	6.58	6.55	34.025	26.712	137.3	0.771	1.99	28.9	55.4	2.54	34.2	0.00			347
	400 ISL	6.08	6.05	34.065	26.808	128.6	0.844	1.37	19.7	66.2	2.80	37.4	0.00			402
1	410	6.01	5.97	34.073	26.824	127.2	0.857	1.26	18.1	68.0	2.84	37.9	0.00			413
1	482	5.55	5.51	34.117	26.915	119.0	0.946	0.83	11.8	78.1	3.02	40.1	0.01			485
	500 ISL	5.43	5.39	34.133	26.943	116.5	0.967	0.74	10.5	81.0	3.06	40.6	0.01			503
1	565	5.01	4.96	34.191	27.038	107.8	1.040	0.43	6.0	91.5	3.19	42.4	0.00			569

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 80 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AKT	TYPE
32 48.8 N	123 54.2 H	13/04/93	0051 UTC	4396 -	360 22 kn	350 08 06	1	1018.0 «b	15.0 C	12.9 C	31a 01	4/8	CI

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
1	0	15.44	15.44	33.137	24.441	348.0	0.000	5.84	102.4	2.3	0.38	0.1	0.00	0.06	0.02	0
	10 ISL	15.43	15.43	33.138	24.444	348.0	0.035	5.84	102.4	2.3	0.38	0.1	0.00	0.07	0.01	10
1	15	15.42	15.42	33.138	24.446	347.9	0.052	5.84	102.4	2.3	0.38	0.1	0.00	0.07	0.01	15
	20 ISL	15.41	15.41	33.137	24.448	348.0	0.070	5.84	102.3	2.3	0.38	0.1	0.00	0.07	0.01	20
I	30	15.40	15.40	33.136	24.450	348.1	0.104	5.84	102.3	2.3	0.38	0.1	0.00	0.07	0.01	30
1	40	15.43	15.42	33.143	24.449	348.5	0.139	5.85	102.6	2.3	0.38	0.0	0.00	0.07	0.01	40
	50 ISL	15.52	15.51	33.185	24.462	347.6	0.174	5.83	102.4	2.3	0.38	0.1	0.01	0.08	0.01	50
I	52	15.54	15.53	33.194	24.464	347.4	0.181	5.83	102.5	2.3	0.38	0.1	0.01	0.08	0.01	52
L	61	15.87	15.86	33.397	24.547	339.8	0.212	5.77	102.2	2.3	0.35	0.0	0.01	0.10	0.03	61
	75 ISL	15.95	15.94	33.482	24.595	335.7	0.259	5.74	101.9	2.3	0.32	0.1	0.01	0.14	0.04	75
1	76	15.96	15.95	33.486	24.596	335.7	0.263	5.74	101.9	2.3	0.32	0.1	0.01	0.14	0.04	76
1	90	15.71	15.70	33.490	24.655	330.4	0.309	5.71	100.9	2.3	0.35	0.0	0.01	0.21	0.11	90
	100 ISL	14.21	14.20	33.214	24.767	319.8	0.342	5.81	99.4	2.6	0.42	0.5	0.05	0.34	0.25	100
1	105	13.40	13.39	33.094	24.840	312.8	0.358	5.82	97.8	2.8	0.47	0.7	0.07	0.38	0.31	105
1	119	12.44	12.42	33.186	25.101	288.3	0.400	5.41	89.2	5.4	0.73	5.0	0.05	0.22	0.23	120
	125 ISL	11.88	11.86	33.204	25.220	276.9	0.417	5.27	85.9	6.8	0.85	6.9	0.04	0.17	0.19	126
1	139	10.60	10.58	33.244	25.482	252.0	0.454	5.00	79.3	10.3	1.11	11.2	0.01	0.09	0.09	140
	150 ISL	9.94	9.92	33.291	25.631	237.9	0.481	4.81	75.2	12.8	1.27	13.9	0.01	0.05	0.05	151
1	160	9.47	9.45	33.343	25.749	226.8	0.504	4.64	71.8	15.2	1.40	16.1	0.01	0.03	0.03	161
1	185	8.52	8.50	33.522	26.039	199.4	0.557	4.24	64.3	22.0	1.69	20.7	0.01	0.00	0.02	186
	200 ISL	8.29	8.27	33.651	26.175	186.7	0.586	4.11	62.0	25.5	1.79	22.6	0.01	0.00	0.02	201
1	218	8.16	8.14	33.793	26.306	174.6	0.619	4.00	60.3	28.9	1.88	24.1	0.01	0.00	0.02	219
	250 ISL	7.91	7.88	33.938	26.457	160.8	0.672	3.85	57.7	32.0	1.99	24.1	0.01			251
1	252	7.89	7.86	33.944	26.465	160.1	0.675	3.83	57.4	32.2	2.00	24.1	0.01			253
1	293	7.40	7.37	33.990	26.572	150.3	0.739	2.82	41.8	42.1	2.18	29.1	0.00			295
	300 ISL	7.32	7.29	33.995	26.587	149.0	0.749	2.71	40.1	43.5	2.22	29.7	0.00			302
1	347	6.78	6.75	34.019	26.680	140.5	0.817	2.15	31.4	52.7	2.49	32.9	0.00			349
	400 ISL	6.26	6.22	34.057	26.779	131.5	0.890	1.46	21.1	63.5	2.77	36.4	0.00			402
1	412	6.16	6.12	34.066	26.799	129.7	0.905	1.33	19.2	65.7	2.82	37.1	0.00			415
1	483	5.74	5.70	34.101	26.880	122.6	0.995	0.95	13.5	74.6	2.99	39.1	0.02			486
	500 ISL	5.62	5.58	34.112	26.903	120.5	1.015	0.87	12.4	77.2	3.03	39.6	0.02			503
1	567	5.16	5.11	34.158	26.995	112.1	1.093	0.57	8.0	87.5	3.17	41.4	0.00			571

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 82 47

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 16.6 N	120 1.6 W	11/04/93	0725 UTC	578 -	300 25 kn			1014.7 mb	13.6 C	11.0 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	12.18	12.18	33.531	25.415	255.3	0.000	5.94	97.6	9.6	0.88	6.3	0.13	12.93	1.51	0
1	1 A	12.18	12.18	33.531	25.415	255.3	0.003	5.94	97.6	9.6	0.88	6.3	0.13	12.93	1.51	1
	10 ISL	12.09	12.09	33.530	25.431	254.0	0.025	5.94	97.4	9.2	0.89	6.3	0.12	12.97	1.77	10
1	11	12.08	12.0B	33.530	25.433	253.8	0.028	5.94	97.4	9.1	0.89	6.3	0.12	12.97	1.80	11
	20 ISL	11.79	11.79	33.546	25.500	247.7	0.051	5.29	86.2	11.4	1.07	9.2	0.12	9.48	1.55	20
1	21	11.73	11.73	33.551	25.515	246.3	0.053	5.17	84.2	11.9	1.10	9.8	0.12	8.88	1.52	21
	30 ISL	10.61	10.61	33.650	25.794	219.9	0.074	3.52	56.0	19.6	1.61	18.5	0.08	1.22	0.40	30
1	31	10.48	10.48	33.663	25.827	216.8	0.076	3.35	53.1	20.5	1.66	19.4	0.08	0.47	0.28	31
1	41	10.12	10.12	33.743	25.951	205.2	0.097	3.12	49.1	23.1	1.78	21.2	0.05	0.30	0.19	41
	50 ISL	9.90	9.89	33.797	26.031	197.8	0.115	2.97	46.5	24.9	1.85	22.4	0.04	0,16	0.17	50
1	51	9.88	9.87	33.802	26.038	197.2	0.117	2.95	46.2	25.1	1.86	22.5	0.04	0.15	0.17	51
1	62	9.62	9.61	33.872	26.136	188.1	0.139	2.73	42.5	27.6	1.95	23.9	0.04	0.06	0.15	62
1	71	9.47	9.46	33.918	26.197	182.5	0.155	2.57	39.9	29.3	2.01	24.8	0.04	0.07	0.17	71
	75 ISL	9.38	9.37	33.944	26.232	179.2	0.163	2.47	38.3	30.5	2.05	25.4	0.04	0.06	0.17	75
1	85	9.19	9.18	34.000	26.307	172.3	0.180	2.24	34.6	33.4	2.16	26.7	0.03	0.04	0.17	85
1	100	9.13	9.12	34.028	26.338	169.6	0.206	2.10	32.4	34.6	2.21	27.4	0.03	0.04	0.13	101
1	120	9.00	8.99	34.050	26.377	166.3	0.239	2.00	30.8	36.3	2.26	28.0	0.03	0.03	0.11	121
	125 ISL	8.95	8.94	34.058	26.391	165.1	0.248	1.96	30.1	36.9	2.28	28.2	0.04	0.03	0.10	126
1	141	8.78	8.77	34.082	26.437	161.0	0.274	1.81	27.7	39.1	2.35	29.0	0.05	0.03	0.09	142
	150 ISL	8.71	8.69	34.094	26.457	159.2	0.288	1.72	26.3	40.4	2.39	29.5	0.04	0.03	0.09	151
1	169	8.60	8.58	34.113	26.489	156.5	0.318	1.57	23.9	42.8	2.46	30.3	0.02	0.02	0.09	170
1	199	8.42	8.40	34.121	26.524	153.8	0.365	1.56	23.7	44.6	2.49	30.7	0.02	0.02	0.12	200
	200 ISL	8.41	8.39	34.121	26.525	153.6	0.366	1.56	23.7	44.7	2.49	30.7	0.02			201
1	227	8.18	8.16	34.137	26.573	149.5	0.407	1.51	22.8	46.6	2.54	31.3	0.02			228
	250 ISL	7.94	7.91	34.147	26.617	145.7	0.441	1.46	21.9	49.0	2.58	31.9	0.03			252
1	266	7.78	7.75	34.152	26.644	143.3	0.464	1.41	21.1	50.9	2.61	32.4	0.04			268
	300 ISL	7.49	7.46	34.158	26.691	139.2	0.512	1.24	18.4	55.5	2.71	33.3	0.03			302
1	315	7.37	7.34	34.160	26.710	137.6	0.533	1.15	17.0	57.6	2.75	33.7	0.02			317
1	374	6.96	6.92	34.180	26.783	131.4	0.612	0.88	12.9	65.6	2.89	34.8	0.02			377
	400 ISL	6.76	6.72	34.190	26.819	128.3	0.646	0.68	9.9	71.6	3.01	34.4	0.02			403
1	433	6.54	6.50	34.201	26.857	124.9	0.688	0.42	6.1	79.9	3.16	34.0	0.02			436
	500 ISL	6.40	6.35	34.217	26.889	122.8	0.771	0.13	1.9	94.0	3.36	29.5	0.03			504
1	504	6.40	6.35	34.218	26.889	122.8	0.776	0.12	1.7	94.7	3.37	29.2	0.03			508
1	525	6.37	6.32	34.219	26.894	122.6	0.802	0.08	1.2	97.4	3.38	28.0	0.02			529
1	546	6.35	6.30	34.219	26.897	122.6	0.827	0.07	1.0	98.1	3.39	27.7	0.02			550
1	557	6.33	6.28	34.219	26.900	122.5	0.841	0.08	1.2	97.3	3.38	28.2	0.01			561
1	562	6.32	6.27	34.219	26.901	122.4	0.847	0.07	1.0	96.5	3.37	28.4	0.03			566
1	567	6.32	6.27	34.219	26.901	122.5	0.853	0.07	1.0	96.4	3.36	28.4	0.02			571
1	573	6.31	6.26	34.220	26.904	122.3	0.860	0.06	0.9	96.8	3.36	27.9	0.03			577

A) SANTA BARBARA BASIN STATION.

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 40.S

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 13.6 N	119 24.7 H	11/04/93	0231 UTC	34 >	250 18 kn	250 04 04	1	1013.6 mb	15.3 C	13.5 C		1/8	CI

CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	PO4	NO3	NO2	CHL-A	PHAEO	PRESS
	•	DEG C	DEG C	PSS 78	THETA			»1/1	PCT	uM/1	uM/1	uM/1	uM/1	ug/1	ug/1	db
	0 ISL	14.36	14.36	33.350	24.838	310.2	0.000	7.05	121.1	1.2	0.28	0.0	0.08	4.86	0.89	0
1	1	14.36	14.36	33.350	24.838	310.2	0.003	7.05	121.1	1.2	0.28	0.0	0.08	4.86	0.89	1
1	6	13.24	13.24	33.409	25.114	284.1	0.018	6.76	113.5	3.9	0.51	2.2	0.14	7.99	1.97	6
	10 ISL	12.13	12.13	33.452	25.363	260.5	0.029	5.80	95.2	9.0	0.90	7.5	0.15	7.12	1.85	10
1	11	11.88	11.88	33.462	25.418	255.2	0.031	5.54	90.4	10.3	1.00	8.9	0.15	6.65	1.82	11
	20 ISL	11.50	11.50	33.473	25.497	247.9	0.054	4.86	78.7	13.2	1.20	12.0	0.18	2.41	1.08	20
1	21	11.46	11.46	33.474	25.505	247.2	0.057	4.85	78.5	13.5	1.22	12.4	0.18	2.01	1.00	21
1	27	11.25	11.25	33.495	25.560	242.1	0.071	4.53	73.0	14.5	1.29	13.6	0.12	1.79	0.90	27

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 42

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
34 10.8 N	119 30.2 H	11/04/93	0016 UTC	113 •	260 13 kn	280 03 05	0	1014.0 ab	16.5 C	14.2 C	04B 05	0/8	

CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	PO4	NO3	NO2	CHL-A	PHAEO	PRESS
	•	DEG C	DEG C	PSS 78	THETA			»1/1	PCT	uM/1	uM/1	uM/1	uM/1	ug/1	ug/1	db
1	0	14.25	14.25	33.385	24.888	305.4	0.000	7.74	132.7	1.1	0.34	0.0	0.03	7.18	1.07	0
1	10	12.50	12.50	33.418	25.266	269.7	0.029	6.10	100.9	10.7	0.85	6.8	0.12	4.05	1.81	10
1	20	11.16	11.16	33.426	25.522	245.6	0.055	4.92	79.1	13.7	1.22	12.6	0.13	2.89	1.20	20
	30 ISL	10.75	10.75	33.491	25.646	234.0	0.078	4.24	67.6	16.2	1.41	15.7	0.14	1.28	0.65	30
1	31	10.74	10.74	33.500	25.655	233.2	0.081	4.19	66.8	16.4	1.42	15.9	0.14	1.13	0.61	31
1	40	10.64	10.64	33.598	25.749	224.5	0.101	3.63	57.7	18.7	1.57	18.1	0.09	0.42	0.41	40
1	50	10.11	10.10	33.687	25.909	209.4	0.123	3.24	51.0	22.1	1.74	20.8	0.04	0.13	0.22	50
1	61	10.06	10.05	33.713	25.938	206.9	0.146	3.14	49.3	22.9	1.78	21.3	0.03	0.07	0.24	61
1	71	9.96	9.95	33.744	25.980	203.1	0.167	3.10	48.6	23.5	1.81	21.7	0.03	0.05	0.19	71
	75 ISL	9.93	9.92	33.755	25.993	201.9	0.175	3.07	48.1	23.9	1.82	21.9	0.03	0.04	0.17	75
1	85	9.85	9.84	33.782	26.028	198.9	0.195	2.97	46.5	24.9	1.86	22.6	0.03	0.03	0.14	85
1	99	9.74	9.73	33.820	26.076	194.5	0.222	2.85	44.5	26.2	1.91	23.3	0.02	0.03	0.13	100

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	MEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 52.8 N	120 8.0 W	10/04/93	1535 UTC	95 B	310 30 kn	310 04 05	0	1012.7 nb	14.9 C	13.1 C		0/8	

CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	PO4 •	NO3	NO2	CHL-A	PHAEO	PRESS
	a	DEG C	DEG C	PSS 78	THETA			»1/1	PCT	UM/1	UM/1	UM/1	uM/1	ug/1	ug/1	db
	0 ISL	12.68	12.68	33.381	25.202	275.5	0.000	5.74	95.3	9.7	0.85	7.0	0.14	4.78	0.97	0
1	1	12.68	12.68	33.381	25.202	275.5	0.003	5.74	95.3	9.7	0.85	7.0	0.14	4.78	0.97	1
	10 ISL	12.36	12.36	33.403	25.281	268.2	0.027	5.34	88.0	11.3	1.01	9.3	0.15	3.69	0.79	10
1	11	12.31	12.31	33.407	25.294	267.0	0.030	5.28	87.0	11.6	1.03	9.6	0.15	3.52	0.76	11
1	20	11.95	11.95	33.442	25.390	258.2	0.054	4.97	81.2	13.3	1.13	11.1	0.14	2.70	0.72	20
1	30	11.60	11.60	33.493	25.495	248.5	0.079	4.62	75.0	15.4	1.24	12.9	0.14	1.95	0.68	30
1	40	10.87	10.87	33.610	25.718	227.4	0.103	3.91	62.5	20.1	1.50	16.8	0.11	0.75	0.58	40
1	50	10.14	10.13	33.715	25.926	207.8	0.124	3.32	52.3	23.4	1.72	20.4	0.07	0.17	0.30	50
1	60	10.06	10.05	33.741	25.960	204.8	0.145	3.22	50.6	24.3	1.75	21.0	0.07	0.13	0.29	60
1	72	9.84	9.83	33.807	26.049	196.6	0.169	3.02	47.3	27.1	1.85	22.3	0.07	0.11	0.32	72
	75 ISL	9.81	9.80	33.812	26.058	195.8	0.175	3.00	46.9	27.4	1.86	22.4	0.07	0.11	0.34	75
1	86	9.71	9.70	33.829	26.088	193.2	0.196	2.92	45.6	28.3	1.88	22.9	0.07	0.10	0.40	86

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	WEA	BAROMETER	DRY	HET	SECCHI/FOREL	CLD AMT	TYPE
33 44.7 N	120 29.5 H	10/04/93	1208 UTC	968 •	310 30 kn			1016.2 Mb	14.1 C	13.2 C			

CAST	DEPTH	TEMP	POT TEMP	SALINITY	SIGMA	SVA	DYN HT	OXYGEN	OXY	SIO3	PO4	NO3	NO2	CHL-A	PHAEO	PRESS
	•	DEG C	DEG C	PSS 78	THETA			•1/1	PCT	uM/1	uM/1	uM/1	uM/1	ug/1	ug/1	db
	0 ISL	12.56	12.56	33.329	25.185	277.1	0.000	5.82	96.3	8.0	0.81	5.9	0.14	5.31	1.16	0
1	1	12.56	12.56	33.329	25.185	277.1	0.003	5.82	96.3	8.0	0.81	5.9	0.14	5.31	1.16	1
	10 ISL	12.55	12.55	33.327	25.186	277.3	0.028	5.82	96.3	7.9	0.81	5.8	0.13	5.45	1.34	10
1	16	12.55	12.55	33.326	25.185	277.5	0.044	5.82	96.3	7.8	0.81	5.8	0.13	5.55	1.42	16
	20 ISL	12.51	12.51	33.340	25.204	275.9	0.055	5.75	95.0	8.6	0.86	6.5	0.14	4.95	1.28	20
	30 ISL	12.32	12.32	33.374	25.267	270.1	0.083	5.52	90.9	10.8	0.99	8.6	0.16	3.28	0.91	30
1	31	12.30	12.30	33.377	25.273	269.6	0.085	5.49	90.4	11.0	1.00	8.8	0.16	3.10	0.87	31
1	41	12.02	12.01	33.377	25.326	264.7	0.112	5.29	86.6	11.8	1.07	9.8	0.16	2.41	0.86	41
1	50	11.73	11.72	33.327	25.342	263.5	0.136	5.17	84.0	11.8	1.10	10.3	0.15	1.59	0.74	50
1	60	10.00	9.99	33.292	25.620	237.1	0.161	4.52	70.8	15.3	1.39	15.5	0.04	0.17	0.41	60
1	75	9.38	9.37	33.445	25.842	216.2	0.195	4.09	63.2	19.6	1.60	19.1	0.03	0.09	0.26	75
1	89	8.56	8.55	33.550	26.053	196.3	0.224	4.00	60.7	23.8	1.74	21.7	0.02	0.02	0.13	89
	100 ISL	8.40	8.39	33.610	26.124	189.7	0.245	3.90	59.0	25.4	1.79	22.7	0.03	0.01	0.11	101
1	103	8.36	8.35	33.621	26.139	188.4	0.251	3.87	58.5	25.9	1.81	22.9	0.03	0.01	0.10	104
1	118	8.93	8.92	33.914	26.281	175.3	0.278	2.78	42.7	30.7	2.02	25.4	0.02	0.03	0.13	119
	125 ISL	8.97	8.96	33.957	26.309	172.9	0.290	2.67	41.0	31.9	2.07	26.0	0.02	0.02	0.12	126
1	138	9.05	9.04	34.002	26.331	171.0	0.313	2.46	37.9	33.2	2.12	26.5	0.02	0.01	0.09	139
	150 ISL	9.00	8.98	34.024	26.357	168.8	0.333	2.38	36.6	34.2	2.16	26.9	0.01	0.01	0.07	151
1	159	8.92	8.90	34.035	26.378	167.0	0.348	2.34	35.9	35.0	2.18	27.2	0.01	0.01	0.06	160
1	183	8.59	8.57	34.078	26.464	159.2	0.387	2.11	32.2	39.5	2.28	28.7	0.01	0.01	0.06	18*
	200 ISL	8.40	8.38	34.107	26.516	154.5	0.414	1.94	29.4	42.3	2.36	29.6	0.01	0.01	0.07	201
1	217	8.25	8.23	34.131	26.558	150.8	0.440	1.80	27.2	44.6	2.43	30.4	0.01	0.01	0.07	21H
	250 ISL	8.02	7.99	34.150	26.607	146.6	0.489	1.66	25.0	47.4	2.49	31.4	0.01			25;>
1	252	8.01	7.98	34.150	26.609	146.5	0.492	1.65	24.8	47.6	2.49	31.4	0.01			254
1	292	7.71	7.68	34.170	26.669	141.3	0.549	1.42	21.2	52.0	2.62	32.6	0.01			294
	300 ISL	7.67	7.64	34.173	26.677	140.7	0.561	1.39	20.8	52.6	2.64	32.8	0.01			302
1	346	7.44	7.41	34.190	26.724	136.9	0.625	1.20	17.8	56.3	2.72	34.0	0.01			348
	400 ISL	7.01	6.97	34.209	26.800	130.3	0.697	0.94	13.8	63.3	2.87	35.8	0.01			403
1	412	6.91	6.87	34.214	26.818	128.7	0.712	0.88	12.9	65.0	2.90	36.2	0.01			415
1	482	6.34	6.30	34.248	26.921	119.5	0.799	0.56	8.1	74.0	3.05	38.3	0.02			485
	500 ISL	6.22	6.18	34.256	26.943	117.5	0.820	0.52	7.5	76.2	3.08	38.7	0.02			501
1	564	5.78	5.73	34.288	27.024	110.2	0.893	0.36	5.1	83.8	3.19	40.3	0.01			568

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY	NET	SECCBI/FOREL	CLD AMT	TYPE
33 34.7 N	120 45.2 N	10/04/93	0740 UTC	1362 -	330 30 kn			1018.2 mb	14.6 C	12.9 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA TBETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.49	14.49	33.086	24.607	332.2	0.000	5.95	102.3	3.1	0.40	0.2	0.00	0.18	0.06	0
1	3	14.49	14.49	33.086	24.607	332.3	0.010	5.95	102.3	3.1	0.40	0.2	0.00	0.18	0.06	3
	10 ISL	14.50	14.50	33.086	24.605	332.7	0.033	5.95	102.3	3.1	0.40	0.2	0.00	0.18	0.06	10
1	17	14.51	14.51	33.087	24.604	333.0	0.057	5.96	102.5	3.1	0.40	0.2	0.00	0.18	0.06	17
	20 ISL	14.50	14.50	33.088	24.607	332.8	0.067	5.96	102.5	3.1	0.40	0.2	0.00	0.19	0.06	20
	30 ISL	14.48	14.48	33.091	24.613	332.4	0.100	5.96	102.5	2.9	0.40	0.2	0.00	0.24	0.08	30
1	31	14.48	14.48	33.091	24.613	332.5	0.103	5.96	102.5	2.9	0.40	0.2	0.00	0.24	0.08	31
1	42	14.15	14.14	33.181	24.753	319.5	0.139	6.22	106.3	1.8	0.39	0.1	0.01	2.04	0.67	42
	50 ISL	13.98	13.97	33.200	24.803	315.0	0.164	6.18	105.2	1.7	0.40	0.1	0.01	2.38	0.74	50
1	52	13.95	13.94	33.201	24.810	314.4	0.171	6.17	105.0	1.7	0.40	0.1	0.01	2.45	0.77	52
1	61	13.83	13.82	33.199	24.833	312.4	0.199	6.15	104.4	1.7	0.40	0.1	0.01	3.52	1.37	61
1	75	11.62	11.61	33.117	25.200	277.6	0.240	5.26	85.2	7.9	0.93	7.9	0.06	0.38	0.30	75
1	89	10.75	10.74	33.258	25.466	252.5	0.277	4.63	73.7	12.7	1.27	13.4	0.03	0.15	0.17	89
	100 ISL	10.09	10.08	33.287	25.602	239.7	0.304	4.51	70.7	14.6	1.38	15.4	0.03	0.09	0.15	100
1	104	9.90	9.89	33.318	25.658	234.4	0.314	4.42	69.0	15.6	1.43	16.2	0.03	0.08	0.14	104
1	119	9.79	9.78	33.783	26.039	198.5	0.346	2.98	46.6	25.1	1.87	22.6	0.02	0.04	0.12	120
	125 ISL	9.68	9.67	33.857	26.116	191.4	0.358	2.86	44.6	27.2	1.95	23.8	0.02	0.03	0.11	126
1	139	9.37	9.35	33.927	26.221	181.5	0.384	2.58	40.0	30.4	2.04	25.3	0.01	0.02	0.08	140
	150 ISL	9.10	9.08	33.989	26.313	173.0	0.404	2.43	37.4	33.2	2.11	26.6	0.01	0.01	0.07	151
1	158	8.92	8.90	34.024	26.370	167.8	0.417	2.35	36.1	35.0	2.16	27.3	0.01	0.01	0.06	159
1	183	8.74	8.72	34.070	26.434	162.1	0.458	2.20	33.6	37.5	2.25	28.1	0.01	0.01	0.05	184
	200 ISL	8.63	8.61	34.091	26.468	159.1	0.486	2.11	32.2	39.1	2.30	28.7	0.01	0.01	0.05	201
1	217	8.51	8.49	34.107	26.499	156.5	0.513	2.01	30.6	40.8	2.34	29.3	0.01	0.01	0.05	218
	250 ISL	8.26	8.23	34.132	26.557	151.5	0.563	1.80	27.2	44.3	2.44	30.5	0.01			251
1	252	8.25	8.22	34.134	26.560	151.2	0.566	1.79	27.1	44.5	2.45	30.6	0.01			253
1	292	8.05	8.02	34.164	26.615	146.7	0.626	1.57	23.6	47.9	2.54	31.7	0.01			294
	300 ISL	8.01	7.98	34.166	26.622	146.1	0.638	1.54	23.2	48.5	2.55	31.9	0.01			302
1	346	7.73	7.70	34.173	26.669	142.3	0.704	1.41	21.1	52.4	2.64	32.9	0.01			348
	400 ISL	7.33	7.29	34.191	26.741	136.1	0.779	1.14	16.9	58.4	2.77	34.5	0.01			403
1	413	7.22	7.18	34.197	26.761	134.3	0.797	1.07	15.8	60.1	2.81	35.0	0.01			416
1	483	6.55	6.51	34.233	26.881	123.4	0.887	0.66	9.6	70.5	3.03	37.7	0.02			486
	500 ISL	6.46	6.41	34.240	26.899	121.9	0.908	0.61	8.9	72.1	3.05	38.1	0.02			503
1	567	6.12	6.07	34.270	26.967	116.1	0.988	0.43	6.2	78.2	3.14	39.5	0.01			571

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	MIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 14.6 N	121 26.3 W	10/04/93	0047 UTC	3802 -	320 28 kn	330 04 05	1	1019.5 ab	15.1 C	13.9 C	28B 01	1/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
1	0	15.18	15.18	33.084	24.457	346.5	0.000	5.86	102.2	2.6	0.39	0.2	0.02	0.07	0.02	0
	10 ISL	IS.08	15.08	33.078	24.474	345.1	0.035	5.88	102.3	2.4	0.40	0.2	0.02	0.07	0.02	10
1	15	15.03	15.03	33.075	24.483	344.4	0.052	5.89	102.4	2.3	0.40	0.2	0.02	0.07	0.02	15
	20 ISL	14.96	14.96	33.074	24.497	343.2	0.069	5.90	102.4	2.3	0.40	0.2	0.02	0.07	0.02	20
1	30	14.90	14.90	33.085	24.519	341.4	0.103	5.92	102.6	2.3	0.39	0.1	0.02	0.09	0.02	30
1	40	15.02	15.01	33.123	24.523	341.4	0.137	5.87	102.0	2.2	0.39	0.1	0.02	0.11	0.03	40
1	50	15.01	15.00	33.132	24.532	340.8	0.171	5.88	102.2	2.2	0.38	0.1	0.02	0.13	0.04	50
1	60	14.81	14.80	33.133	24.577	336.9	0.205	5.89	102.0	2.2	0.37	0.1	0.02	0.17	0.06	60
1	70	13.96	13.95	33.019	24.667	328.4	0.239	6.00	102.0	2.2	0.39	0.1	0.02	0.22	0.12	70
	75 ISL	13.92	13.91	33.078	24.722	323.4	0.255	5.94	100.9	2.5	0.40	0.2	0.03	0.34	0.22	75
1	79	13.89	13.88	33.125	24.764	319.5	0.268	5.87	99.7	2.7	0.42	0.3	0.04	0.43	0.30	79
1	94	13.35	13.34	33.142	24.887	308.1	0.315	5.74	96.4	3.4	0.52	1.6	0.10	0.41	0.35	94
	100 ISL	12.70	12.69	33.128	25.00S	296.9	0.333	5.57	92.3	4.9	0.65	3.7	0.08	0.32	0.30	100
1	109	11.70	11.69	33.128	25.194	278.9	0.359	5.30	86.0	7.5	0.87	7.1	0.05	0.18	0.21	109
1	123	10.95	10.94	33.228	25.408	258.8	0.397	5.02	80.2	9.9	1.06	10.4	0.04	0.12	0.13	124
	125 ISL	10.82	10.80	33.241	25.441	255.7	0.402	4.94	78.7	10.6	1.11	11.1	0.04	0.11	0.12	126
1	148	9.52	9.50	33.400	25.785	223.1	0.457	4.11	63.7	18.7	1.58	18.8	0.03	0.02	0.04	149
	150 ISL	9.45	9.43	33.414	25.807	221.0	0.461	4.11	63.6	19.0	1.58	19.0	0.03	0.02	0.04	151
1	173	8.90	8.88	33.583	26.028	200.4	0.510	4.08	62.4	21.5	1.62	20.3	0.03	0.01	0.02	174
	200 ISL	8.51	8.49	33.825	26.278	177.1	0.561	3.54	53.8	28.0	1.82	23.7	0.03	0.00	0.01	201
1	204	8.46	8.44	33.857	26.311	174.0	0.568	3.45	52.3	29.1	1.85	24.2	0.03	0.00	0.01	205
1	231	7.97	7.95	33.958	26.464	159.8	0.613	3.27	49.1	34.7	1.95	26.2	0.03			232
	250 ISL	7.70	7.68	33.980	26.520	154.6	0.643	3.17	47.3	37.7	2.01	27.2	0.03			251
1	271	7.44	7.41	33.984	26.561	151.0	0.675	3.04	45.1	40.8	2.08	28.3	0.03			273
	300 ISL	7.12	7.09	33.999	26.618	145.9	0.718	2.69	39.6	45.7	2.23	30.3	0.03			302
1	326	6.85	6.82	34.010	26.664	141.8	0.755	2.34	34.2	50.5	2.38	32.1	0.03			328
1	386	6.10	6.07	34.035	26.782	130.9	0.837	1.67	24.0	63.4	2.67	36.0	0.02			388
	400 ISL	5.99	5.96	34.047	26.805	128.8	0.855	1.51	21.7	66.0	2.73	36.7	0.02			402
1	453	5.66	5.62	34.103	26.891	121.1	0.921	0.97	13.8	75.3	2.95	39.0	0.04			456
	500 ISL	5.36	5.32	34.154	26.968	114.1	0.977	0.68	9.6	83.3	3.07	40.4	0.03			503
1	523	5.21	5.17	34.179	27.005	110.7	1.002	0.54	7.6	87.2	3.13	41.1	0.03			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 54.7 N	122 7.7 W	09/04/93	1732 UTC	4181 a	360 18 k.n	340 03 04	1	1021.7 lib	16.9 C	14.8 C		3/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 UM/1	CBL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.35	15.35	33.132	24.457	346.5	0.000	5.81	101.7	2.1	0.37	0.1	0.00	0.06	0.01	0
1	1	15.35	15.35	33.132	24.457	346.5	0.003	5.81	101.7	2.1	0.37	0.1	0.00	0.06	0.01	1
	10 ISL	15.33	15.33	33.131	24.461	346.4	0.035	5.81	101.6	2.0	0.37	0.1	0.00	0.06	0.01	10
1	16	15.30	15.30	33.131	24.467	346.0	0.055	5.81	101.6	2.0	0.37	0.1	0.00	0.06	0.01	16
	20 ISL	15.29	15.29	33.131	24.470	345.9	0.069	5.81	101.6	2.0	0.37	0.1	0.00	0.06	0.01	20
	30 ISL	15.25	15.25	33.130	24.478	345.4	0.104	5.81	101.5	2.0	0.37	0.1	0.00	0.06	0.01	30
1	31	15.25	15.25	33.130	24.478	345.4	0.107	5.81	101.5	2.0	0.37	0.1	0.00	0.06	0.01	31
1	41	15.21	15.20	33.130	24.487	344.8	0.142	5.82	101.6	2.0	0.36	0.1	0.00	0.07	0.02	41
	50 ISL	15.17	15.16	33.131	24.497	344.2	0.173	5.82	101.5	2.0	0.37	0.0	0.00	0.08	0.02	50
1	51	15.16	15.15	33.131	24.499	344.0	0.176	5.82	101.5	2.0	0.37	0.0	0.00	0.08	0.02	51
1	61	15.12	15.11	33.134	24.510	343.2	0.211	5.82	101.4	2.0	0.37	0.0	0.00	0.09	0.02	61
1	71	15.13	15.12	33.132	24.507	343.9	0.245	5.83	101.6	2.0	0.37	0.0	0.00	0.12	0.04	71
	75 ISL	14.75	14.74	33.106	24.569	338.0	0.259	5.86	101.3	2.0	0.37	0.0	0.00	0.15	0.08	75
1	79	14.32	14.31	33.076	24.637	331.6	0.272	5.89	100.9	2.0	0.38	0.0	0.00	0.19	0.12	79
1	94	13.87	13.86	32.983	24.659	329.9	0.322	5.94	100.8	1.9	0.39	0.0	0.00	0.30	0.26	94
	100 ISL	13.72	13.71	32.953	24.667	329.2	0.341	5.96	100.8	1.9	0.39	0.0	0.00	0.36	0.32	100
1	109	13.53	13.51	32.935	24.691	327.1	0.371	5.98	100.7	1.9	0.41	0.0	0.01	0.41	0.38	109
1	124	13.37	13.35	33.023	24.792	317.9	0.419	5.81	97.6	2.5	0.49	0.9	0.13	0.27	0.27	125
	125 ISL	13.30	13.28	33.030	24.812	316.1	0.422	5.78	96.9	2.7	0.51	1.2	0.13	0.26	0.26	126
1	149	11.21	11.19	33.204	25.343	265.6	0.492	5.01	80.5	8.7	1.05	10.2	0.02	0.10	0.10	150
	150 ISL	11.15	11.13	33.210	25.359	264.1	0.495	4.99	80.0	8.9	1.06	10.4	0.02	0.10	0.10	151
1	173	9.93	9.91	33.342	25.673	234.4	0.552	4.61	72.1	14.0	1.36	15.5	0.02	0.03	0.04	174
	200 ISL	8.63	8.61	33.576	26.064	197.4	0.611	3.74	56.9	24.1	1.83	23.3	0.01	0.00	0.02	201
1	203	8.52	8.50	33.605	26.104	193.6	0.616	3.65	55.4	25.2	1.88	24.1	0.01	0.00	0.02	204
1	232	8.07	8.05	33.887	26.393	166.5	0.669	3.34	50.2	31.9	1.99	26.4	0.01			233.
	250 ISL	7.89	7.87	33.948	26.468	159.7	0.698	3.28	49.2	34.3	2.01	27.0	0.01			251
1	272	7.71	7.68	33.969	26.511	155.9	0.733	3.20	47.8	37.0	2.05	27.8	0.01			273i
	300 ISL	7.42	7.39-	34.006	26.582	149.5	0.775	2.79	41.4	42.7	2.22	30.1	0.01			302
1	327	7.14	7.11	34.034	26.643	144.0	0.815	2.30	33.9	48.9	2.43	32.6	0.01			329
1	387	6.55	6.51	34.094	26.771	132.4	0.898	1.42	20.6	61.6	2.80	36.8	0.01			389
	400 ISL	6.43	6.39	34.104	26.794	130.2	0.915	1.29	18.7	64.0	2.86	37.5	0.01			402
1	454	6.01	5.97	34.144	26.880	122.5	0.983	0.86	12.3	73.0	3.06	40.0	0.03			457
	500 ISL	5.77	5.73	34.186	26.944	116.9	1.038	0.63	9.0	78.8	3.17	41.1	0.02			503
1	526	5.64	5.60	34.210	26.979	113.7	1.068	0.50	7.1	82.0	3.23	41.8	0.01			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 34.8 N	122 48.8 W	09/04/93	1127 UTC	4281 B	330 10 kn			1020.3 ab	16.3 C	14.8 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.29	15.29	33.098	24.444	347.7	0.000	5.85	102.2	2.4	0.39	0.2	0.00	0.07	0.01	0
1	1	15.29	15.29	33.098	24.444	347.8	0.003	5.85	102.2	2.4	0.39	0.2	0.00	0.07	0.01	1
	10 ISL	15.33	15.33	33.124	24.455	346.9	0.035	5.84	102.2	2.4	0.38	0.1	0.00	0.06	0.01	10
1	16	15.35	15.35	33.144	24.466	346.1	0.056	5.83	102.0	2.4	0.38	0.1	0.00	0.06	0.01	16
	20 ISL	15.33	15.33	33.145	24.472	345.7	0.069	5.83	102.0	2.4	0.38	0.1	0.00	0.06	0.01	20
	30 ISL	15.28	15.28	33.137	24.477	345.5	0.104	5.84	102.1	2.3	0.38	0.1	0.00	0.07	0.01	30
1	31	15.27	15.27	33.136	24.478	345.4	0.107	5.84	102.0	2.3	0.38	0.1	0.00	0.07	0.01	31
1	41	15.24	15.23	33.128	24.479	345.6	0.142	5.87	102.5	2.2	0.38	0.1	0.00	0.07	0.01	41
	50 ISL	15.23	15.22	33.130	24.483	345.5	0.173	5.84	102.0	2.1	0.37	0.1	0.00	0.08	0.02	!>0
1	51	15.23	15.22	33.131	24.484	345.5	0.176	5.84	102.0	2.1	0.37	0.1	0.00	0.08	0.02	51
1	61	15.26	15.25	33.160	24.500	344.2	0.211	5.82	101.7	2.0	0.38	0.1	0.01	0.10	0.03	61
1	71	15.33	15.32	33.208	24.522	342.5	0.245	5.80	101.5	1.9	0.37	0.1	0.00	0.11	0.04	71
	75 ISL	15.23	15.22	33.207	24.543	340.6	0.259	5.82	101.6	1.9	0.37	0.1	0.00	0.12	0.05	75
1	80	14.99	14.98	33.191	24.583	336.9	0.276	5.83	101.3	1.9	0.37	0.1	0.00	0.13	0.06	80
1	94	13.57	13.56	33.077	24.793	317.1	0.322	5.73	96.7	2.8	0.52	1.2	0.07	0.31	0.26	94
	100 ISL	13.23	13.22	33.101	24.880	308.9	0.340	5.66	94.8	3.3	0.58	2.1	0.06	0.30	0.25	100
1	109	12.91	12.90	33.171	24.997	297.9	0.368	5.53	92.1	4.1	0.65	3.5	0.04	0.28	0.24	109
1	124	12.65	12.63	33.279	25.132	285.4	0.412	5.34	88.5	5.0	0.74	5.1	0.04	0.21	0.21	125
	125 ISL	12.58	12.56	33.277	25.144	284.3	0.414	5.32	88.0	5.2	0.76	5.4	0.04	0.20	0.20	126
1	149	10.47	10.45	33.221	25.487	251.8	0.479	4.90	77.4	10.7	1.20	12.5	0.02	0.07	0.07	150
	150 ISL	10.40	10.38	33.225	25.502	250.3	0.481	4.88	77.0	11.0	1.22	12.8	0.02	0.07	0.07	151
1	174	9.16	9.14	33.376	25.825	219.8	0.538	4.43	68.1	17.1	1.54	18.3	0.01	0.01	0.04	175
	200 ISL	8.76	8.74	33.602	26.065	197.4	0.592	4.26	65.0	20.4	1.59	20.0	0.01	0.00	0.02	201
1	204	8.74	8.72	33.639	26.097	194.4	0.600	4.22	64.3	20.9	1.60	20.2	0.01	0.00	0.02	205
1	233	8.38	8.36	33.895	26.353	170.5	0.653	3.30	50.0	30.0	1.93	25.4	0.01			234
	250 ISL	8.24	8.21	33.965	26.429	163.6	0.681	3.07	46.4	33.0	2.02	26.8	0.01			251
1	273	8.06	8.03	34.009	26.491	158.0	0.718	2.90	43.6	36.2	2.10	27.9	0.01			274
	300 ISL	7.76	7.73	34.044	26.563	151.5	0.760	2.58	38.6	41.1	2.23	29.7	0.01			302
1	328	7.41	7.38	34.061	26.627	145.7	0.801	2.25	33.4	46.6	2.38	31.6	0.01			330
1	388	6.65	6.61	34.083	26.749	134.6	0.885	1.60	23.3	58.6	2.70	35.5	0.01			390
	400 ISL	6.56	6.52	34.092	26.768	132.8	0.902	1.48	21.5	60.5	2.75	36.1	0.01			402
1	454	6.20	6.16	34.137	26.851	125.5	0.971	1.00	14.4	68.7	2.95	38.5	0.02			457
	500 ISL	5.83	5.79	34.168	26.922	119.0	1.027	0.74	10.6	76.4	3.08	40.1	0.01			503
1	524	5.63	5.59	34.184	26.959	115.5	1.056	0.61	8.7	80.4	3.15	41.0	0.01			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	SEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 14.8 N	123 29.4 W	09/04/93	0558 UTC	4164 m	320 11 kn			1021.9 mb	16.8 C	15.0 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
	0 ISL	16.35	16.35	33.300	24.362	355.6	0.000	5.76	102.9	2.0	0.37	0.1	0.00	0.05	0.01	0
1	1	16.35	16.35	33.300	24.362	355.6	0.004	5.76	102.9	2.0	0.37	0.1	0.00	0.05	0.01	1
	10 ISL	16.17	16.17	33.296	24.400	352.2	0.035	5.76	102.6	2.0	0.36	0.1	0.00	0.05	0.01	10
1	16	16.01	16.01	33.292	24.433	349.2	0.056	5.76	102.2	2.0	0.36	0.1	0.00	0.05	0.01	16
	20 ISL	15.98	15.98	33.287	24.436	349.1	0.070	5.76	102.2	2.0	0.36	0.1	0.00	0.05	0.01	20
	30 ISL	15.92	15.92	33.282	24.446	348.4	0.105	5.77	102.2	1.9	0.37	0.1	0.00	0.06	0.01	30
1	35	15.91	15.90	33.284	24.450	348.2	0.123	5.77	102.2	1.9	0.37	0.1	0.00	0.06	0.01	35
	50 ISL	15.75	15.74	33.261	24.469	346.9	0.175	5.79	102.2	1.9	0.36	0.1	0.00	0.07	0.01	50
1	55	15.69	15.68	33.255	24.478	346.2	0.192	5.80	102.3	1.9	0.36	0.1	0.00	0.07	0.01	55
1	70	15.53	15.52	33.257	24.516	343.1	0.244	5.81	102.1	1.9	0.36	0.1	0.00	0.09	0.03	70
	75 ISL	15.52	15.51	33.284	24.539	341.0	0.261	5.79	101.8	1.9	0.36	0.1	0.00	0.09	0.03	75
1	78	15.52	15.51	33.301	24.552	339.8	0.271	5.78	101.6	1.9	0.36	0.1	0.00	0.10	0.03	78
1	88	15.20	15.19	33.245	24.579	337.5	0.305	5.80	101.3	1.8	0.37	0.1	0.00	0.15	0.07	88
1	98	14.89	14.88	33.245	24.647	331.3	0.338	5.80	100.6	1.8	0.38	0.1	0.00	0.25	0.19	98
	100 ISL	14.71	14.70	33.209	24.658	330.3	0.345	5.82	100.6	1.8	0.38	0.1	0.00	0.27	0.20	100
1	108	13.93	13.91	33.073	24.717	324.8	0.371	5.89	100.1	2.0	0.41	0.1	0.01	0.34	0.24	108
1	123	13.15	13.13	33.197	24.971	300.9	0.418	5.57	93.2	3.6	0.60	2.7	0.08	0.29	0.28	124
	125 ISL	12.94	12.92	33.200	25.015	296.7	0.424	5.51	91.8	4.1	0.65	3.4	0.08	0.27	0.27	126
1	137	11.60	11.58	33.208	25.276	271.9	0.458	5.18	83.9	7.2	0.94	8.3	0.03	0.16	0.16	138
	150 ISL	10.56	10.54	33.240	25.486	251.9	0.492	4.90	77.6	10.3	1.18	12.2	0.02	0.08	0.09	151
1	157	10.10	10.08	33.272	25.589	242.1	0.510	4.74	74.3	12.3	1.30	14.1	0.01	0.05	0.06	158
1	177	8.87	8.85	33.469	25.943	208.5	0.555	4.05	61.9	20.7	1.71	20.9	0.01	0.00	0.03	178
	200 ISL	8.52	8.50	33.664	26.150	189.2	0.600	3.74	56.8	24.9	1.82	23.2	0.00	0.00	0.02	201
1	202	8.49	8.47	33.679	26.166	187.7	0.604	3.73	56.6	25.1	1.83	23.2	0.00	0.00	0.02	203
1	231	8.35	8.33	33.845	26.318	173.7	0.657	3.76	56.9	27.2	1.79	23.2	0.00			232
	250 ISL	8.11	8.08	33.919	26.413	165.1	0.689	3.48	52.4	31.1	1.90	25.0	0.00			251
1	271	7.81	7.78	33.976	26.502	156.8	0.723	3.08	46.1	36.2	2.07	27.5	0.00			272
	300 ISL	7.48	7.45	34.015	26.580	149.7	0.767	2.69	39.9	41.8	2.24	29.7	0.00			302
1	326	7.18	7.15	34.027	26.632	145.0	0.805	2.40	35.4	46.7	2.37	31.4	0.00			328
1	386	6.37	6.34	34.041	26.752	133.9	0.889	1.82	26.3	59.2	2.65	35.3	0.00			388
	400 ISL	6.25	6.21	34.050	26.775	131.9	0.908	1.67	24.1	61.8	2.71	36.0	0.00			402
1	453	5.88	5.84	34.092	26.855	124.7	0.976	1.14	16.3	70.9	2.93	38.4	0.01			456
	500 ISL	5.58	5.54	34.136	26.927	118.2	1.033	0.82	11.7	78.3	3.07	40.1	0.01			503
1	524	5.43	5.39	34.159	26.964	114.9	1.061	0.66	9.3	82.1	3.14	40.9	0.01			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 83 110

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	SEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 54.7 N	124 10.3 W	09/04/93	0030 UTC	3879 m	350 07 kn	350 03 07	1	1021.6 mb	18.5 C	15.9 C	58a 01	2/8	CI

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS db
1	0	16.82	16.82	33.304	24.256	365.6	0.000	5.72	103.2	1.9	0.38	0.1	0.00	0.05	0.01	0
	10 ISL	16.49	16.49	33.301	24.331	358.8	0.036	5.72	102.5	2.0	0.39	0.1	0.00	0.05	0.01	10
1	16	16.30	16.30	33.299	24.373	355.0	0.058	5.72	102.1	2.0	0.39	0.1	0.00	0.05	0.01	16
	20 ISL	16.24	16.24	33.289	24.379	354.6	0.072	5.72	102.0	2.0	0.39	0.1	0.00	0.05	0.01	20
	30 ISL	16.15	16.15	33.283	24.395	353.3	0.107	5.73	102.0	2.0	0.38	0.1	0.00	0.06	0.01	30
1	35	16.14	16.13	33.289	24.402	352.8	0.125	5.74	102.2	2.0	0.38	0.1	0.00	0.06	0.01	35
	50 ISL	16.11	16.10	33.291	24.411	352.4	0.178	5.76	102.4	1.8	0.38	0.1	0.00	0.08	0.02	50
1	56	16.09	16.08	33.292	24.417	352.1	0.199	5.76	102.4	1.8	0.38	0.1	0.00	0.09	0.02	56
1	71	15.92	15.91	33.283	24.449	349.5	0.252	5.75	101.9	1.9	0.38	0.1	0.00	0.11	0.04	71
	75 ISL	15.81	15.80	33.264	24.459	348.7	0.265	5.75	101.6	1.8	0.38	0.1	0.00	0.12	0.05	75
1	80	15.74	15.73	33.267	24.477	347.1	0.283	5.75	101.5	1.7	0.38	0.1	0.00	0.14	0.06	80
1	89	16.18	16.17	33.450	24.519	343.4	0.314	5.67	101.1	1.7	0.35	0.1	0.00	0.18	0.07	89
1	98	15.23	15.22	33.377	24.675	328.7	0.344	5.65	98.8	2.3	0.43	0.3	0.02	0.34	0.24	98
	100 ISL	14.94	14.93	33.364	24.728	323.7	0.351	5.63	97.8	2.5	0.46	0.6	0.03	0.33	0.25	100
1	108	13.76	13.74	33.320	24.942	303.3	0.376	5.51	93.5	3.4	0.58	2.4	0.08	0.31	0.27	108
1	124	12.00	11.98	33.221	25.211	277.8	0.422	5.15	84.1	6.9	0.92	7.8	0.03	0.22	0.23	125
	125 ISL	11.93	11.91	33.220	25.224	276.6	0.425	5.14	83.8	7.0	0.93	8.0	0.03	0.21	0.23	126
1	138	11.26	11.24	33.234	25.357	264.0	0.460	5.02	80.7	8.5	1.05	10.0	0.02	0.15	0.17	139
	150 ISL	10.60	10.58	33.258	25.493	251.2	0.491	4.83	76.6	10.7	1.20	12.6	0.01	0.10	0.12	151
1	159	10.13	10.11	33.303	25.609	240.3	0.513	4.64	72.8	12.8	1.33	14.8	0.01	0.06	0.08	160
1	178	9.39	9.37	33.519	25.900	212.8	0.556	4.11	63.5	18.3	1.59	19.2	0.01	0.01	0.03	179
	200 ISL	9.03	9.01	33.662	26.069	197.0	0.601	3.75	57.6	22.4	1.73	21.6	0.01	0.00	0.02	201
1	203	9.00	8.98	33.676	26.085	195.6	0.607	3.72	57.1	22.8	1.74	21.8	0.01	0.00	0.02	204
1	233	8.68	8.66	33.838	26.263	179.2	0.663	3.43	52.3	27.4	1.86	23.9	0.01			234
	250 ISL	8.46	8.43	33.911	26.354	170.8	0.693	3.33	50.5	30.1	1.91	24.9	0.01			251
1	273	8.13	8.10	33.982	26.459	161.1	0.731	3.22	48.5	33.9	1.98	26.2	0.01			274
	300 ISL	7.70	7.67	33.997	26.535	154.2	0.774	3.14	46.9	38.0	2.06	27.6	0.01			302
1	330	7.24	7.21	33.989	26.594	148.8	0.819	2.96	43.7	43.0	2.18	29.3	0.00			332
1	389	6.58	6.54	34.036	26.721	137.1	0.904	1.95	28.4	56.7	2.58	34.3	0.00			391
	400 ISL	6.45	6.41	34.042	26.743	135.1	0.919	1.81	26.2	59.2	2.64	35.0	0.00			402
1	455	5.90	5.86	34.074	26.839	126.3	0.991	1.25	17.9	70.3	2.89	38.0	0.02			458
	500 ISL	5.66	5.62	34.113	26.899	120.9	1.046	0.94	13.4	76.7	3.02	39.5	0.01			503
1	525	5.52	5.48	34.135	26.934	117.8	1.076	0.77	10.9	80.2	3.09	40.4	0.01			528

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 33

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 53.4 N	118 29.5 W	06/04/93	0642 UTC	57 a	290 11 kn			1013.3 ab	14.7 C	13.3 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN BT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PBAEO ug/1	PRESS db
	0 ISL	15.64	15.64	33.145	24.403	351.7	0.000	6.21	109.3	1.8	0.29	0.1	0.02	0.88	0.22	0
1	2	15.64	15.64	33.145	24.403	351.7	0.007	6.21	109.3	1.8	0.29	0.1	0.02	0.88	0.22	2
1	7	15.64	15.64	33.146	24.404	351.8	0.025	6.20	109.2	1.8	0.29	0.1	0.02	0.91	0.24	7
	10 ISL	15.46	15.46	33.153	24.449	347.5	0.035	6.19	108.6	1.9	0.31	0.1	0.02	0.93	0.28	10
1	12	15.26	15.26	33.161	24.499	342.8	0.042	6.18	108.0	2.0	0.32	0.1	0.02	0.95	0.33	12
	20 ISL	13.56	13.56	33.249	24.926	302.4	0.068	5.26	88.8	5.13	0.76	4.9	0.35	1.99	0.88	20
1	22	13.12	13.12	33.278	25.036	291.9	0.074	4.97	83.2	7.0	0.89	6.4	0.45	2.19	0.99	22
	30 ISL	12.52	12.52	33.315	25.183	278.1	0.097	4.36	72.1	10.5	1.23	10.0	0.68	0.96	0.66	30
1	32	12.44	12.44	33.322	25.204	276.2	0.102	4.24	70.0	11.3	1.29	10.8	0.71	0.57	0.54	32
1	42	11.64	11.63	33.426	25.435	254.4	0.129	3.74	60.7	14.5	1.45	15.2	0.62	0.28	0.37	42
	50 ISL	10.48	10.47	33.619	25.793	220.5	0.148	3.30	52.3	20.5	1.70	19.3	0.24	0.15	0.30	50
1	52	10.19	10.18	33.669	25.882	212.0	0.152	3.19	50.3	22.0	1.76	20.3	0.14	0.12	0.28	52

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCBI/FOREL	CLD AMT TYPE
33 49.4 N	118 37.8 W	06/04/93	0850 UTC	672 -	310 15 kn			1014.0 nib	14.7 C	12.6 C		

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN al/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.50	14.50	33.190	24.685	324.8	0.000	5.84	100.5	3.5	0.49	1.3	0.12	1.63	0.56	0
1	3	14.50	14.50	33.190	24.685	324.9	0.010	5.84	100.5	3.5	0.49	1.3	0.12	1.63	0.56	3
	10 ISL	14.47	14.47	33.192	24.693	324.3	0.032	5.84	100.5	3.6	0.50	1.5	0.13	1.65	0.56	10
1	12	14.46	14.46	33.192	24.695	324.2	0.039	5.84	100.4	3.6	0.50	1.5	0.13	1.66	0.56	12
	20 ISL	13.90	13.90	33.236	24.846	310.0	0.064	5.57	94.7	5.1	0.62	3.3	0.14	1.72	0.72	20
1	23	13.56	13.56	33.262	24.936	301.5	0.073	5.34	90.2	5.7	0.72	4.8	0.14	1.74	0.74	23
	30 ISL	12.34	12.34	33.354	25.248	272.0	0.094	4.24	69.8	11,2	1.24	12.1	0.86	0.70	0.40	30
1	33	11.85	11.85	33.396	25.373	260.1	0.102	3.80	62.0	13.5	1.45	15.0	1.11	0.25	0.25	33
1	43	11.45	11.44	33.455	25.493	248.9	0.127	3.80	61.5	14.9	1.45	15.5	0.47	0.19	0.25	43
	50 ISL	11.25	11.24	33.484	25.552	243.5	0.144	3.73	60.1	15.6	1.48	16.3	0.20	0.15	0.21	50
1	53	11.16	11.15	33.497	25.578	241.0	0.151	3.70	59.5	15.9	1.50	16.7	0.13	0.13	0.19	53
1	63	10.66	10.65	33.567	25.722	227.6	0.175	3.65	58.1	17.4	1.55	17.9	0.03	0.08	0.14	63
1	73	10.22	10.21	33.584	25.811	219.2	0.197	3.69	58.1	18.5	1.59	18.7	0.02	0.05	0.11	73
	75 ISL	10.11	10.10	33.600	25.842	216.3	0.202	3.66	57.5	19.1	1.61	19.1	0.02	0.04	0.10	75
1	86	9.62	9.61	33.708	26.008	200.7	0.225	3.42	53.2	22.5	1.76	21.5	0.02	0.02	0.07	86
	100 ISL	9.48	9.47	33.803	26.106	191.7	0.252	3.16	49.1	25.1	1.85	23.1	0.01	0.01	0.06	101
1	101	9.48	9.47	33.809	26.110	191.3	0.254	3.14	48.7	25.3	1.85	23.2	0.01	0.01	0.06	102
1	121	9.14	9.13	33.933	26.263	177.2	0.291	2.81	43.3	29.5	1.98	25.2	0.01	0.01	0.05	122
	125 ISL	9.15	9.14	33.963	26.285	175.2	0.298	2.71	41.8	30.3	2.01	25.5	0.01	0.01	0.05	126
1	146	9.25	9.23	34.098	26.375	167.1	0.334	2.25	34.8	33.8	2.18	27.0	0.01	0.01	0.04	147
	150 ISL	9.22	9.20	34.110	26.389	165.8	0.340	2.20	34.0	34.3'	2.20	27.2	0.01	0.01	0.04	1S1
1	176	8.94	8.92	34.144	26.461	159.5	0.383	2.02	31.0	37.3	2.29	28.3	0.01	0.01	0.05	177
	200 ISL	8.70	8.68	34.151	26.504	155.8	0.421	1.98	30.3	39.5	2.33	29.0	0.01	0.00	0.04	201
1	206	8.64	8.62	34.150	26.513	155.0	0.430	1.98	30.2	40.0	2.34	29.1	0.01	0.00	0.04	207
1	235	8.34	8.32	34.150	26.559	151.1	0.474	1.88	28.5	42.7	2.41	30.0	0.01			236
	250 ISL	8.20	8.17	34.168	26.595	147.9	0.497	1.71	25.8	45.1	2.48	30.8	0.01			253
1	276	7.95	7.92	34.204	26.660	142.0	0.534	1.37	20.6	49.6	2.62	32.2	0.00			278
	300 ISL	7.72	7.69	34.216	26.704	138.2	0.568	1.19	17.8	53.0	2.71	33.2	0.00			302
1	331	7.41	7.38	34.223	26.754	133.8	0.610	1.02	15.1	57.3	2.80	34.3	0.00			333
1	391	6.75	6.71	34.246	26.864	123.8	0.687	0.71	10.4	67.4	2.99	36.9	0.00			394
	400 ISL	6.68	6.64	34.250	26.877	122.7	0.699	0.67	9.8	68.5	3.02	37.2	0.00			402>
1	458	6.31	6.27	34.273	26.944	116.9	0.768	0.46	6.7	74.5	3.15	38.6	0.03			461.
	500 ISL	6.15	6.11	34.287	26.976	114.3	0.817	0.40	5.8	77.6	3.17	39.1	0.02			504
1	528	6.04	5.99	34.296	26.997	112.6	0.848	0.36	5.2	79.7	3.19	39.4	0.01			532

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 40

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 39.4 N	118 58.6 W	06/04/93	1245 UTC	751 -	310 22 kn			1013.9 mb	14.7 C	13.0 C		

CAST	DEPTH a	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 UM/1	CHL-A uq/1	PHAEO ug/1	PRESS db
	0 ISL	15.41	15.41	33.204	24.499	342.5	0.000	5.91	103.6	2.6	0.38	0.2	0.01	0.48	0.16	0
1	1	15.41	15.41	33.204	24.499	342.5	0.003	5.91	103.6	2.6	0.38	0.2	0.01	0.48	0.16	1
1	10	15.44	15.44	33.204	24.493	343.4	0.034	5.91	103.7	2.4	0.37	0.1	0.01	0.47	0.16	10
1	20	15.41	15.41	33.203	24.499	343.1	0.069	5.90	103.4	2.4	0.38	0.1	0.01	0.47	0.14	20
1	30	15.40	15.40	33.203	24.501	343.2	0.103	5.91	103.6	2.3	0.37	0.1	0.01	0.51	0.18	30
1	41	14.98	14.97	33.178	24.574	336.6	0.140	6.00	104.3	2.3	0.38	0.1	0.02	0.83	0.38	41
1	50	13.75	13.74	33.235	24.877	307.9	0.169	5.84	99.0	3.8	0.51	1.3	0.06	1.18	0.63	50
1	60	12.14	12.13	33.298	25.243	273.2	0.198	4.83	79.2	9.3	0.98	9.1	0.19	0.62	0.53	60
1	71	11.21	11.20	33.390	25.486	250.2	0.227	4.31	69.3	13.1	1.26	13.4	0.05	0.25	0.28	71
	75 ISL	11.01	11.00	33.432	25.555	243.7	0.237	4.15	66.5	14.3	1.33	14.6	0.04	0.18	0.22	75
1	85	10.61	10.60	33.547	25.715	228.7	0.261	3.78	60.1	17.2	1.49	17.3	0.02	0.07	0.11	85
1	99	10.01	10.00	33.724	25.956	206.0	0.291	3.28	51.5	22.2	1.72	20.8	0.02	0.02	0.06	99
	100 ISL	9.98	9.97	33.733	25.968	204.9	0.293	3.25	51.0	22.5	1.73	21.0	0.02	0.02	0.06	100
1	119	9.59	9.58	33.861	26.134	189.5	0.331	2.89	45.0	26.7	1.89	23.4	0.02	0.01	0.05	120
	125 ISL	9.47	9.46	33.896	26.181	185.1	0.342	2.79	43.3	28.1	1.94	24.1	0.02	0.01	0.05	126
1	144	9.15	9.13	33.982	26.300	174.2	0.376	2.54	39.2	31.8	2.06	25.9	0.02	0.01	0.05	145
	150 ISL	9.07	9.05	33.998	26.325	171.8	0.386	2.51	38.7	32.4	2.08	26.2	0.02	0.01	0.05	151
1	174	8.81	8.79	34.044	26.403	164.9	0.427	2.43	37.2	34.4	2.13	27.0	0.02	0.00	0.04	175
	200 ISL	8.52	8.50	34.090	26.484	157.6	0.469	2.15	32.7	38.7	2.25	28.6	0.02	0.00	0.04	201
1	204	8.48	8.46	34.096	26.495	156.6	0.475	2.10	31.9	39.4	2.27	28.8	0.02	0.00	0.04	205
1	232	8.26	8.24	34.121	26.548	152.0	0.518	1.93	29.2	42.6	2.36	29.9	0.02			233
	250 ISL	7.99	7.96	34.141	26.605	146.8	0.545	1.72	25.9	46.4	2.46	31.1	0.02			251
1	273	7.63	7.60	34.166	26.677	140.2	0.578	1.44	21.5	51.5	2.60	32.6	0.01			275
	300 ISL	7.38	7.35	34.185	26.728	135.7	0.615	1.21	17.9	55.6	2.71	33.8	0.01			302
1	327	7.19	7.16	34.201	26.768	132.3	0.651	1.03	15.2	59.0	2.79	34.7	0.01			329
1	388	6.77	6.73	34.242	26.858	124.4	0.730	0.70	10.2	67.3	2.94	36.5	0.01			391
	400 ISL	6.66	6.62	34.250	26.879	122.5	0.745	0.64	9.3	69.2	2.98	36.9	0.01			403
1	453	6.20	6.16	34.286	26.968	114.4	0.807	0.40	5.8	77.3	3.12	38.4	0.01			456
	500 ISL	6.01	5.97	34.307	27.010	111.0	0.860	0.33	4.7	B1.9	3.17	38.7	0.01			503
1	523	5.92	5.87	34.317	27.029	109.4	0.886	0.29	4.2	84.1	3.19	38.9	0.01			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	WE A	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 29.4 N	119 19.1 H	06/04/93	1636 UTC	1637 •	300 14 kn	290 OS 06	1	1016.2 *mto*	1S.0 C	12.5 C		1/8	CI

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.68	14.68	33.249	24.692	324.1	0.000	5.73	99.0	3.7	0.46	1.3	0.05	0.75	0.27	0
1	1	14.68	14.68	33.249	24.692	324.1	0.003	5.73	99.0	3.7	0.46	1.3	0.05	0.75	0.27	1
	10 ISL	14.68	14.68	33.249	24.692	324.4	0.032	5.74	99.2	3.6	0.45	1.3	0.05	0.78	0.27	10
1	11	14.68	14.68	33.249	24.692	324.4	0.036	5.74	99.2	3.6	0.45	1.3	0.05	0.79	0.27	11
1	20	14.64	14.64	33.249	24.701	323.8	0.065	5.72	98.8	3.6	0.46	1.3	0.05	0.82	0.32	20
	30 ISL	14.60	14.60	33.251	24.711	323.1	0.097	5.70	98.3	3.6	0.46	1.5	0.05	0.81	0.31	30
1	31	14.60	14.60	33.251	24.711	323.1	0.100	5.70	98.3	3.6	0.46	1.5	0.05	0.81	0.31	31
1	40	13.83	13.82	33.274	24.891	306.3	0.129	5.34	90.7	5.6	0.66	4.2	0.14	0.85	0.50	40
1	49	11.52	11.51	33.411	25.446	253.5	0.154	4.30	69.6	12.8	1.20	12.8	0.06	0.39	0.34	49
	50 ISL	11.50	11.49	33.413	25.451	253.0	0.156	4.29	69.4	12.9	1.21	12.9	0.06	0.38	0.33	50
1	60	11.26	11.25	33.435	25.512	247.5	0.181	4.17	67.2	14.0	1.28	14.0	0.04	0.31	0.28	60
1	70	10.63	10.62	33.463	25.646	234.9	0.206	4.07	64.7	15.8	1.36	15.5	0.03	0.17	0.25	70
	75 ISL	10.46	10.45	33.506	25.709	229.0	0.217	3.95	62.5	17.1	1.43	16.6	0.02	0.12	0.21	75
1	83	10.30	10.29	33.586	25.799	220.6	0.235	3.73	58.9	19.2	1.55	18.4	0.01	0.07	0.15	83
1	99	10.02	10.01	33.712	25.945	207.1	0.269	3.30	51.8	22.2	1.69	20.5	0.01	0.03	0.09	99
	100 ISL	10.01	10.00	33.716	25.950	206.6	0.271	3.29	51.6	22.3	1.70	20.6	0.01	0.03	0.09	100
1	117	9.85	9.84	33.773	26.022	200.1	0.306	3.13	49.0	23.9	1.77	21.8	0.01	0.02	0.07	118
	125 ISL	9.74	9.73	33.815	26.073	195.4	0.322	3.02	47.2	25.3	1.82	22.6	0.01	0.02	0.07	126
1	142	9.47	9.45	33.908	26.190	184.6	0.354	2.77	43.0	28.6	1.94	24.3	0.00	0.01	0.06	143
	150 ISL	9.34	9.32	33.944	26.240	180.0	0.369	2.66	41.2	30.0	1.99	25.0	0.00	0.01	0.05	151
1	173	8.96	8.94	34.030	26.368	168.2	0.409	2.38	36.6	34.2	2.12	26.9	0.00	0.01	0.04	174
	200 ISL	8.58	8.56	34.096	26.479	158.0	0.453	2.08	31.7	39.4	2.27	28.8	0.00	0.00	0.04	201
1	202	8.55	8.53	34.100	26.487	157.3	0.456	2.06	31.4	39.8	2.28	28.9	0.00	0.00	0.04	203
1	231	8.22	8.20	34.122	26.555	151.3	0.501	1.99	30.1	42.9	2.34	29.9	0.00			232
	250 ISL	8.07	8.04	34.141	26.593	148.0	0.529	1.82	27.4	45.5	2.42	30.7	0.00			251
1	272	7.92	7.89	34.163	26.633	144.6	0.561	1.59	23.9	48.6	2.53	31.7	0.00			274
	300 ISL	7.72	7.69	34.179	26.675	140.9	0.601	1.38	20.6	52.1	2.62	32.7	0.00			302
1	327	7.52	7.49	34.192	26.714	137.6	0.639	1.20	17.9	55.5	2.70	33.6	0.00			329
1	387	6.93	6.89	34.230	26.827	127.4	0.718	0.79	11.6	65.1	2.92	36.0	0.00			390
	400 ISL	6.84	6.80	34.234	26.843	126.1	0.735	0.74	10.8	66.5	2.95	36.4	0.00			403
1	453	6.52	6.48	34.252	26.900	121.2	0.800	0.58	8.4	71.7	3.05	37.7	0.02			456
	500 ISL	6.22	6.18	34.285	26.965	115.4	0.856	0.43	6.2	77.9	3.15	38.4	0.01			503
1	524	6.06	6.01	34.302	27.000	112.3	0.883	0.35	5.0	81.1	3.20	38.8	0.01			528

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 19.3 N	119 39.4 H	07/04/93	0208 UTC	78 •	310 25 kn	320 05 05	1	1015.9 nb	14.2 C	12.8 C		3/8	CI

CAST	DEPTH a	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
1	0	14.01	14.01	33.268	24.847	309.3	0.000	6.04	103.0	2.4	0.47	0.8	0.04	2.87	1.07	0
1	10	14.01	14.01	33.269	24.849	309.5	0.031	6.03	102.8	2.4	0.48	0.9	0.04	2.98	0.88	10
1	20	12.85	12.85	33.265	25.080	287.7	0.061	5.47	91.0	5.6	0.74	5.0	0.08	1.90	0.95	20
1	30	12.50	12.50	33.264	25.147	281.5	0.089	5.29	87.4	6.8	0.83	6.4	0.08	1.36	0.72	30
1	40	11.92	11.91	33.312	25.295	267.7	0.117	4.89	79.8	9.9	1.02	9.5	0.11	0.74	0.60	40
1	50	11.39	11.38	33.372	25.439	254.2	0.143	4.57	73.8	12.7	1.19	12.1	0.12	0.30	0.38	50
1	61	11.07	11.06	33.399	25.518	246.9	0.170	4.43	71.0	14.2	1.27	13.5	0.10	0.28	0.32	61
	75 ISL	10.25	10.24	33.450	25.701	229.7	0.204	4.14	65.2	16.9	1.45	16.6	0.06	0.14	0.38	75
1	76	10.19	10.18	33.454	25.715	228.4	0.206	4.12	64.8	17.1	1.46	16.8	0.06	0.13	0.38	76

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 9.3 N	120 0.4 W	07/04/93	0608 UTC	1205 B	310 28 k.n			1017.4 Bb	14.4 C	13.2 C			

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO uq/1	PRESS db
	0 ISL	14.56	14.56	33.154	24.644	328.7	0.000	5.92	102.0	2.6	0.40	0.1	0.01	0.49	0.18	0
1	1	14.56	14.56	33.154	24.644	328.7	0.003	5.92	102.0	2.6	0.40	0.1	0.01	0.49	0.18	1
1	10	14.58	14.58	33.155	24.641	329.2	0.033	5.90	101.7	2.6	0.40	0.1	0.01	0.49	0.17	10
1	20	14.57	14.57	33.155	24.643	329.3	0.066	5.91	101.8	2.5	0.40	0.1	0.01	0.51	0.18	20
1	29	14.57	14.57	33.156	24.644	329.5	0.095	5.92	102.0	2.5	0.40	0.1	0.01	0.50	0.19	29
	30 ISL	14.57	14.57	33.156	24.644	329.5	0.099	5.92	102.0	2.5	0.40	0.1	0.01	0.50	0.19	30
1	39	14.57	14.56	33.156	24.645	329.7	0.128	5.91	101.8	2.5	0.41	0.1	0.01	0.52	0.19	39
1	50	14.50	14.49	33.153	24.658	328.8	0.165	5.89	101.3	2.5	0.41	0.1	0.01	0.50	0.19	50
1	58	12.72	12.71	33.135	25.005	295.8	0.190	5.48	90.9	5.0	0.69	4.1	0.10	0.48	0.35	58
1	68	12.20	12.19	33.184	25.143	282.8	0.219	5.29	86.8	6.4	0.81	6.3	0.06	0.39	0.30	68
	75 ISL	11.85	11.84	33.229	25.244	273.4	0.238	5.18	84.4	7.0	0.87	7.5	0.05	0.33	0.27	75
1	83	11.36	11.35	33.285	25.378	260.8	0.259	5.03	81.1	8.3	0.97	9.2	0.04	0.25	0.22	83
1	97	9.97	9.96	33.392	25.704	229.9	0.294	4.55	71.2	14.1	1.34	15.2	0.02	0.09	0.11	97
	100 ISL	9.83	9.82	33.409	25.740	226.4	0.301	4.47	69.8	15.0	1.39	16.0	0.02	0.08	0.10	100
1	116	9.42	9.41	33.498	25.877	213.7	0.336	4.09	63.3	18.8	1.57	18.9	0.02	0.04	0.05	117
	125 ISL	9.15	9.14	33.576	25.982	203.9	0.355	3.91	60.2	21.1	1.66	20.4	0.02	0.03	0.04	126
1	142	8.72	8.71	33.727	26.168	186.5	0.388	3.63	55.4	25.1	1.79	22.8	0.02	0.01	0.03	143
	150 ISL	8.62	8.60	33.782	26.226	181.1	0.402	3.53	53.7	26.6	1.83	23.5	0.02	0.01	0.03	151
1	170	8.48	8.46	33.884	26.328	171.8	0.438	3.32	50.4	29.6	1.90	24.7	0.02	0.00	0.02	171
1	200	8.24	8.22	33.948	26.415	164.0	0.488	3.11	47.0	33.1	1.99	26.1	0.02	0.00	0.02	201
1	229	8.16	8.14	34.008	26.475	158.8	0.535	2.73	41.2	36.9	2.12	27.6	0.01			230
	250 ISL	7.89	7.86	34.032	26.534	153.5	0.568	2.56	38.4	40.4	2.21	28.9	0.01			251
1	269	7.61	7.58	34.052	26.590	148.3	0.596	2.41	35.9	43.9	2.30	30.1	0.01			271
	300 ISL	7.41	7.38	34.103	26.659	142.2	0.641	1.92	28.5	49.6	2.48	31.9	0.01			302
1	324	7.31	7.28	34.143	26.705	138.2	0.675	1.52	22.5	53.8	2.62	33.2	0.01			326
1	384	6.95	6.91	34.210	26.808	129.1	0.755	0.95	14.0	62.5	2.85	35.7	0.01			386
	400 ISL	6.81	6.77	34.225	26.839	126.3	0.776	0.83	12.1	65.3	2.91	36.3	0.02			403
1	451	6.38	6.34	34.263	26.927	118.5	0.838	0.55	8.0	73.5	3.08	38.0	0.03			454
	500 ISL	6.16	6.12	34.280	26.969	114.9	0.895	0.48	6.9	77.5	3.13	38.7	0.02			503
1	523	6.05	6.00	34.288	26.990	113.2	0.922	0.44	6.3	79.4	3.15	39.1	0.01			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT TYPE
33 0.0 N	120 20.8 W	07/04/93	1025 OTC	716 •	320 25 kn			1016.8 *mto*	14.7 C	13.3 C		

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN BT	OXYGEN Ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CBL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.90	14.90	33.156	24.573	335.4	0.000	5.87	101.8	3.0	0.39	0.0	0.05	0.19	0.06	0
1	1	14.90	14.90	33.156	24.573	335.5	0.003	5.87	101.8	3.0	0.39	0.0	0.05	0.19	0.06	1
	10 ISL	14.90	14.90	33.155	24.573	335.8	0.034	5.86	101.7	2.9	0.39	0.0	0.05	0.20	0.06	10
1	15	14.89	14.89	33.15S	24.575	335.7	0.050	5.86	101.6	2.8	0.39	0.0	0.05	0.20	0.06	15
	20 ISL	14.88	14.88	33.157	24.579	335.5	0.067	5.86	101.6	2.8	0.39	0.0	0.05	0.20	0.06	20
1	29	14.87	14.87	33.159	24.583	335.4	0.097	5.87	101.8	2.7	0.39	0.0	0.05	0.19	0.06	29
	30 ISL	14.82	14.82	33.164	24.597	334.0	0.101	5.91	102.4	2.s	0.39	0.0	0.05	0.27	0.09	30
1	40	14.12	14.11	33.203	24.776	317.3	0.133	6.17	105.4	1.2	0.37	0.0	0.06	1.10	0.47	40
1	50	13.30	13.29	33.178	24.924	303.4	0.164	5.54	93.0	5.1	0.67	3.1	0.13	1.22	0.99	50
1	60	12.37	12.36	33.243	25.157	281.4	0.193	4.96	81.7	8.9	0.96	7.9	0.23	0.56	0.44	60
1	68	11.65	11.64	33.204	25.262	271.5	0.216	4.93	79.9	9.8	1.02	9.5	0.19	0.42	0.44	68
	75 ISL	11.31	11.30	33.281	25.384	260.0	0.234	4.61	74.2	12.0	1.17	12.0	0.14	0.29	0.38	75
1	78	11.20	11.19	33.329	25.441	254.6	0.242	4.44	71.4	13.1	1.24	13.2	0.12	0.24	0.35	78
1	92	10.45	10.44	33.528	25.728	227.6	0.276	3.77	59.7	18.3	1.52	17.8	0.04	0.16	0.40	92
	100 ISL	10.18	10.17	33.598	25.829	218.1	0.294	3.56	56.1	20.3	1.62	19.3	0.03	0.13	0.41	100
1	107	10.01	10.00	33.645	25.895	212.0	0.309	3.44	54.0	21.8	1.69	20.3	0.03	0.11	0.41	108
1	122	9.69	9.68	33.746	26.027	199.7	0.339	3.20	49.9	24.7	1.80	22.1	0.02	0.03	0.13	123
	125 ISL	9.63	9.62	33.755	26.044	198.1	0.345	3.20	49.8	25.0	1.81	22.3	0.02	0.03	0.13	126
1	147	9.16	9.14	33.793	26.151	188.4	0.388	3.19	49.2	27.0	1.87	23.5	0.02	0.03	0.12	148
	150 ISL	9.08	9.06	33.799	26.168	186.8	0.394	3.20	49.2	27.3	1.88	23.7	0.02	0.03	0.12	151
1	170	8.57	8.55	33.846	26.285	175.9	0.430	3.23	49.1	29.7	1.91	24.8	0.02	0.02	0.12	171
	200 ISL	8.26	8.24	33.954	26.417	163.8	0.481	3.03	45.8	34.0	2.00	26.2	0.01	0.02	0.10	201
1	201	8.25	8.23	33.958	26.422	163.4	0.482	3.02	45.6	34.2	2.00	26.3	0.01	0.02	0.10	202
1	230	8.07	8.05	34.031	26.506	155.8	0.529	2.52	37.9	39.4	2.19	28.4	0.01			231
	250 ISL	7.93	7.90	34.052	26.544	152.6	0.560	2.40	36.0	41.8	2.25	29.3	0.01			251
1	270	7.76	7.73	34.059	26.574	150.0	0.590	2.34	35.0	43.9	2.28	30.0	0.01			272
	300 ISL	7.42	7.39	34.059	26.623	145.6	0.634	2.20	32.6	47.6	2.37	31.3	0.01			302
1	325	7.13	7.10	34.063	26.667	141.7	0.670	2.03	29.9	51.2	2.46	32.4	0.01			327
1	384	6.74	6.70	34.136	26.779	131.8	0.751	1.26	18.4	61.8	2.76	35.6	0.01			386
	400 ISL	6.67	6.63	34.165	26.811	128.9	0.772	1.08	15.8	64.4	2.83	36.2	0.01			403
1	450	6.48	6.44	34.248	26.902	120.9	0.834	0.64	9.3	71.6	3.00	37.5	0.01			453
	500 ISL	6.17	6.13	34.270	26.960	115.8	0.893	0.50	7.2	77.2	3.08	38.7	0.01			503
1	522	6.04	5.99	34.280	26.985	113.6	0.918	0.44	6.3	79.6	3.11	39.2	0.01			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
32 39.4 N	121 2.1 W	07/04/93	1644 UTC	3793 •	330 25 kn	310 06 05	0	1018.2 nb	16.3 C	15.1 C	0/8	

CAST	DEPTH •	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIC>3 UM/1	PO4 uM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.34	14.34	33.065	24.622	330.8	0.000	5.99	102.7	2.2	0.39	0.0	0.00	0.34	0.11	0
1	2	14.34	14.34	33.065	24.622	330.8	0.007	5.99	102.7	2.2	0.39	0.0	0.00	0.34	0.11	2
	10 ISL	14.34	14.34	33.066	24.623	331.0	0.033	6.00	102.8	2.1	0.39	0.0	0.00	0.36	0.11	10
1	16	14.33	14.33	33.066	24.625	330.9	0.053	6.00	102.8	2.0	0.39	0.0	0.00	0.39	0.11	16
	20 ISL	14.32	14.32	33.067	24.628	330.7	0.066	6.00	102.8	2.0	0.39	0.0	0.00	0.39	0.12	20
	30 ISL	14.30	14.30	33.071	24.636	330.3	0.099	5.99	102.6	2.0	0.38	0.0	0.00	0.43	0.14	30
1	31	14.30	14.30	33.072	24.637	330.3	0.103	5.99	102.6	2.0	0.38	0.0	0.00	0.43	0.14	31
1	40	14.28	14.27	33.082	24.649	329.4	0.132	6.01	102.9	2.0	0.37	0.0	0.00	0.53	0.16	40
1	50	14.24	14.23	33.085	24.660	328.6	0.165	6.01	102.8	1.9	0.37	0.0	0.00	0.53	0.17	50
1	60	13.94	13.93	33.074	24.714	323.7	0.198	6.01	102.2	1.9	0.39	0.0	0.00	0.79	0.29	60
1	70			33.129			0.229	5.73	96.6	3.3	0.51	1.5	0.05	0.45	0.32	70
	75 ISL	13.23	13.22	33.112	24.887	307.6	0.245	5.66	94.8	3.7	0.56	2.2	0.06	0.37	0.33	75
1	79	13.00	12.99	33.129	24.946	302.0	0.257	5.62	93.7	4.0	0.60	2.8	0.07	0.33	0.33	79
1	94	11.99	11.98	33.194	25.191	278.9	0.301	5.28	86.2	6.5	0.83	6.8	0.03	0.21	0.21	94
	100 ISL	11.12	11.11	33.186	25.344	264.3	0.317	5.08	81.4	9.1	1.03	10.0	0.02	0.15	0.15	100
1	107	10.21	10.20	33.218	25.528	246.9	0.335	4.76	74.8	12.5	1.27	13.8	0.01	0.09	0.09	107
1	123	10.24	10.23	33.606	25.826	219.0	0.372	3.59	56.6	19.3	1.61	19.1	0.01	0.03	0.07	124
	125 ISL	10.21	10.20	33.630	25.849	216.7	0.377	3.55	55.9	19.8	1.63	19.5	0.01	0.03	0.07	126
1	148	9.76	9.74	33.767	26.032	199.7	0.424	3.14	49.0	24.2	1.81	22.2	0.01	0.02	0.06	149
	150 ISL	9.73	9.71	33.777	26.045	198.6	0.428	3.11	48.5	24.5	1.82	22.4	0.01	0.02	0.06	151
1	173	9.40	9.38	33.882	26.182	186.0	0.473	2.83	43.9	28.0	1.95	24.2	0.01	0.01	0.04	174
	200 ISL	9.11	9.09	33.983	26.308	174.5	0.521	2.54	39.1	31.8	2.07	25.9	0.01	0.01	0.05	201
1	203	9.07	9.05	33.992	26.321	173.3	0.527	2.52	38.8	32.2	2.08	26.1	0.01	0.01	0.05	204
1	231	8.43	8.41	34.039	26.458	160.5	0.573	2.43	36.9	37.0	2.19	28.1	0.01			232
	250 ISL	8.05	8.02	34.039	26.516	155.3	0.603	2.51	37.8	39.3	2.20	28.8	0.01			251
1	273	7.66	7.63	34.031	26.567	150.6	0.638	2.56	38.2	42.2	2.22	29.5	0.01			275
	300 ISL	7.31	7.28	34.054	26.635	144.4	0.678	2.23	33.0	47.7	2.37	31.2	0.01			302
1	327	7.02	6.99	34.083	26.698	138.7	0.716	1.80	26.5	53.6	2.55	33.1	0.01			329
1	388	6.47	6.43	34.124	26.805	129.1	0.798	1.18	17.1	64.4	2.82	36.5	0.01			390
	400 ISL	6.37	6.33	34.131	26.823	127.4	0.814	1.09	15.8	66.3	2.86	37.0	0.01			403
1	454	5.97	5.93	34.168	26.904	120.2	0.880	0.74	10.6	74.1	3.03	38.8	0.03			457
	500 ISL	5.74	5.70	34.220	26.974	114.0	0.934	0.52	7.4	80.2	3.13	39.9	0.02			503
1	524	5.62	5.58	34.247	27.010	110.7	0.961	0.40	5.7	83.4	3.18	40.5	0.01			528

RV DAVID STARR JORDAN CALCOFI CRUISE »304 STATION 87 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	HEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT TYPE
32 19.1 N	121 43.4 H	07/04/93	2359 UTC	4052 ▪	320 23 kn	320 05 06	0	1018.5 «b	16.9 C	15.0 C	34a 01	0/8

CAST	DEPTH ▪	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA TBETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.85	14.85	33.039	24.494	343.0	0.000	5.92	102.5	2.2	0.39	0.1	0.00	0.10	0.02	0
1	1	14.85	14.85	33.039	24.494	343.0	0.003	5.92	102.5	2.2	0.39	0.1	0.00	0.10	0.02	1
	10 ISL	14.81	14.81	33.037	24.501	342.6	0.034	5.92	102.4	2.1	0.39	0.1	0.00	0.11	0.03	10
1	15	14.77	14.77	33.036	24.509	342.0	0.051	5.92	102.3	2.1	0.39	0.1	0.00	0.11	0.03	15
	20 ISL	14.73	14.73	33.034	24.516	341.4	0.068	5.92	102.3	2.1	0.38	0.1	0.00	0.11	0.03	20
1	30	14.68	14.68	33.035	24.528	340.6	0.103	5.92	102.2	2.1	0.37	0.0	0.00	0.11	0.03	30
1	40	14.68	14.67	33.049	24.539	339.8	0.137	5.93	102.3	2.1	0.36	0.1	0.00	0.14	0.04	40
1	49	14.39	14.38	33.081	24.625	331.8	0.167	6.01	103.1	2.2	0.40	0.1	0.00	0.37	0.16	49
	50 ISL	14.36	14.35	33.087	24.636	330.8	0.170	6.00	102.9	2.3	0.41	0.1	0.00	0.40	0.17	50
1	59	14.10	14.09	33.141	24.733	321.9	0.200	5.92	101.0	2.8	0.48	0.5	0.04	0.61	0.32	59
1	69	13.90	13.89	33.154	24.784	317.3	0.231	5.86	99.6	2.9	0.51	0.8	0.06	0.55	0.51	69
	75 ISL	13.71	13.70	33.155	24.824	313.6	0.250	5.81	98.3	3.2	0.55	1.2	0.09	0.47	0.47	75
1	78	13.56	13.55	33.156	24.855	310.7	0.260	5.76	97.2	3.3	0.58	1.7	0.10	0.43	0.44	78
1	93	11.73	11.72	33.209	25.251	273.1	0.304	5.03	81.7	8.0	0.98	8.8	0.06	0.29	0.39	93
	100 ISL	11.24	11.23	33.245	25.369	262.0	0.322	4.85	78.0	9.5	1.09	10.8	0.05	0.25	0.33	100
1	108	10.77	10.76	33.296	25.492	250.4	0.343	4.66	74.2	11.5	1.21	12.9	0.04	0.20	0.26	108
1	122	9.76	9.75	33.439	25.776	223.5	0.376	4.13	64.4	17.2	1.53	18.0	0.02	0.07	0.19	123
	125 ISL	9.65	9.64	33.462	25.812	220.1	0.383	4.06	63.1	18.0	1.57	18.7	0.02	0.07	0.18	126
1	147	9.21	9.19	33.599	25.991	203.5	0.429	3.71	57.2	22.0	1.74	21.6	0.01	0.03	0.10	148
	150 ISL	9.13	9.11	33.620	26.020	200.8	0.435	3.67	56.5	22.6	1.76	21.9	0.01	0.03	0.09	151
1	172	8.66	8.64	33.771	26.212	182.8	0.477	3.43	52.3	27.0	1.87	24.0	0.01	0.01	0.05	173
	200 ISL	8.58	8.56	33.914	26.337	171.5	0.527	3.01	45.8	31.3	2.00	25.7	0.01	0.01	0.05	201
1	201	8.58	8.56	33.917	26.339	171.3	0.529	3.00	45.7	31.4	2.00	25.8	0.01	0.01	0.05	202
1	230	8.26	8.24	34.003	26.456	160.7	0.577	2.81	42.5	36.0	2.12	27.6	0.01			231
	250 ISL	8.17	8.14	34.053	26.509	156.0	0.609	2.49	37.6	39.1	2.23	28.8	0.01			251
1	270	8.03	8.00	34.083	26.554	152.1	0.639	2.18	32.8	42.4	2.33	29.9	0.01			272
	300 ISL	7.33	7.30	34.054	26.632	144.7	0.684	2.17	32.1	48.6	2.43	31.7	0.01			302
1	324	6.72	6.69	34.023	26.691	139.1	0.718	2.16	31.5	53.7	2.50	33.2	0.01			326
1	385	6.15	6.12	34.055	26.791	130.0	0.800	1.52	21.9	64.8	2.77	36.5	0.01			387
	400 ISL	6.05	6.02	34.072	26.818	127.7	0.819	1.35	19.4	67.6	2.84	37.3	0.01			402
1	450	5.79	5.75	34.136	26.901	120.2	0.881	0.84	12.0	75.8	3.04	39.4	0.01			453
	500 ISL	5.61	5.57	34.184	26.961	115.0	0.940	0.61	8.7	81.1	3.14	40.4	0.00			503
1	522	5.53	5.49	34.205	26.988	112.7	0.965	0.51	7.2	83.4	3.18	40.8	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
31 59.3 N	122 23.7 H	08/04/93	0528 UTC	4101 ▪	330 15 kn			1019.6 *mto*	15.0 C	13.5 C		

CAST	DEPTH ▪	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN *ml/1*	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.30	15.30	33.130	24.466	345.6	0.000	5.81	101.6	2.7	0.37	0.0	0.00	0.06	0.01	0
1	1	15.30	15.30	33.130	24.466	345.6	0.003	5.81	101.6	2.7	0.37	0.0	0.00	0.06	0.01	1
	10 ISL	15.31	15.31	33.129	24.463	346.2	0.035	5.81	101.6	2.6	0.36	0.0	0.00	0.06	0.02	10
1	16	15.32	15.32	33.130	24.462	346.5	0.055	5.81	101.6	2.5	0.36	0.0	0.00	0.06	0.02	16
	20 ISL	15.29	15.29	33.124	24.464	346.4	0.069	5.81	101.6	2.5	0.36	0.0	0.00	0.06	0.02	20
1	30	15.19	15.19	33.109	24.475	345.7	0.104	5.83	101.7	2.4	0.36	0.0	0.00	0.06	0.02	30
1	40	15.12	15.11	33.106	24.488	344.7	0.138	5.85	101.9	2.3	0.36	0.0	0.00	0.08	0.02	40
1	50	15.11	15.10	33.106	24.491	344.8	0.173	5.83	101.5	2.3	0.36	0.0	0.00	0.09	0.03	so
1	60	15.07	15.06	33.106	24.500	344.2	0.207	5.84	101.6	2.3	0.36	0.0	0.00	0.11 A	0.04 A	60
1	69	14.70	14.69	33.072	24.553	339.3	0.238	5.90	101.9	2.3	0.36	0.0	0.00	0.18	0.08	69
	75 ISL	14.21	14.20	33.015	24.613	333.8	0.258	5.95	101.7	2.2	0.37	0.0	0.00	0.21	0.12	75
1	78	13.97	13.96	32.988	24.642	331.1	0.268	5.97	101.5	2.2	0.37	0.0	0.00	0.22	0.14	78
1	93	13.56	13.55	32.976	24.717	324.3	0.317	5.96	100.5	2.5	0.41	0.0	0.02	0.41	0.35	93
	100 ISL	13.18	13.17	33.008	24.818	314.8	0.340	5.81	97.2	3.3	0.51	1.4	0.04	0.37	0.34	100
1	107	12.75	12.74	33.059	24.942	303.1	0.361	5.61	93.0	4.4	0.63	3.3	0.06	0.30	0.33	107
1	122	11.89	11.87	33.207	25.221	276.8	0.405	5.23	85.2	7.1	0.87	7.3	0.02	0.21	0.23	123
	125 ISL	11.66	11.64	33.218	25.272	271.9	0.413	5.17	83.8	7.8	0.92	8.2	0.02	0.19	0.21	126
1	147	10.06	10.04	33.286	25.607	240.2	0.469	4.76	74.6	12.9	1.26	14.0	0.02	0.05	0.06	148
	150 ISL	9.90	9.88	33.306	25.649	236.2	0.477	4.71	73.6	13.6	1.30	14.6	0.02	0.04	0.05	151
1	171	9.06	9.04	33.463	25.908	211.7	0.524	4.35	66.7	18.5	1.52	18.4	0.01	0.01	0.02	172
	200 ISL	8.53	8.51	33.669	26.153	188.9	0.582	3.84	58.3	24.8	1.75	22.4	0.01	0.00	0.02	201
1	201	8.52	8.50	33.676	26.160	188.3	0.584	3.82	58.0	25.0	1.76	22.5	0.01	0.00	0.02	202
1	230	8.32	8.30	33.902	26.368	169.1	0.635	3.02	45.7	32.5	2.01	26.3	0.01			231
	250 ISL	8.24	8.21	34.003	26.459	160.7	0.668	2.62	39.6	36.8	2.14	27.9	0.01			251
1	270	8.13	8.10	34.069	26.528	1S4.6	0.700	2.32	35.0	40.7	2.26	29.1	0.01			271
	300 ISL	7.77	7.74	34.108	26.612	146.9	0.745	1.98	29.6	46.3	2.42	31.0	0.01			302
1	325	7.44	7.41	34.114	26.664	142.2	0.781	1.77	26.3	50.5	2.53	32.4	0.01			327
1	385	6.90	6.86	34.131	26.753	134.3	0.864	1.35	19.8	59.1	2.73	34.9	0.01			387
	400 ISL	6.83	6.79	34.146	26.774	132.5	0.884	1.22	17.9	61.2	2.78	35.4	0.01			402
1	451	6.59	6.55	34.201	26.850	125.9	0.950	0.81	11.8	68.2	2.95	37.0	0.01			454
	500 ISL	6.18	6.14	34.223	26.922	119.4	1.010	0.61	8.8	74.5	3.06	38.6	0.00			503
1	522	6.00	5.95	34.234	26.953	116.5	1.036	0.52	7.5	77.4	3.11	39.3	0.00			525

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

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	KEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT	TYPE
31 39.5 N	123 4.2 N	08/04/93	1057 UTC	4311 -	320 15 kn			1019.2 *mfo*	14.5 C	13.1 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN BT	OXYGEN «1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CBL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.90	15.90	33.265	24.437	348.4	0.000	5.76	102.0	2.2	0.36	0.1	0.00	0.06	0.01	0
1	1	15.90	15.90	33.265	24.437	348.4	0.003	5.76	102.0	2.2	0.36	0.1	0.00	0.06	0.01	1
	10 ISL	15.91	15.91	33.264	24.434	349.0	0.035	5.75	101.9	2.1	0.36	0.1	0.00	0.06	0.01	10
1	16	15.91	15.91	33.262	24.433	349.3	0.056	5.74	101.7	2.0	0.36	0.1	0.00	0.06	0.01	16
	20 ISL	15.90	15.90	33.262	24.435	349.2	0.070	5.74	101.7	2.0	0.36	0.1	0.00	0.06	0.01	20
	30 ISL	15.89	15.89	33.262	24.438	349.2	0.105	5.75	101.8	2.0	0.36	0.1	0.00	0.06	0.01	30
1	31	15.89	15.89	33.262	24.438	349.3	0.108	5.75	101.8	2.0	0.36	0.1	0.00	0.06	0.01	31
1	40	15.75	15.74	33.244	24.456	347.9	0.140	5.78	102.0	2.0	0.36	0.1	0.00	0.05	0.01	40
1	50	15.73	15.72	33.246	24.462	347.6	0.174	5.77	101.8	2.0	0.36	0.1	0.00	0.06	0.02	50
1	60	15.69	15.68	33.248	24.473	346.8	0.209	5.75	101.4	2.0	0.36	0.1	0.00	0.06	0.02	60
1	70	15.73	15.72	33.251	24.466	347.8	0.244	5.75	101.5	2.0	0.36	0.0	0.00	0.07	0.02	70
	75 ISL	15.72	15.71	33.252	24.470	347.6	0.261	5.76	101.6	2.0	0.36	0.0	0.00	0.08	0.02	75
1	79	15.71	15.70	33.259	24.477	347.0	0.275	5.76	101.6	2.0	0.36	0.0	0.00	0.10	0.03	79
1	94	15.53	15.52	33.290	24.542	341.3	0.327	5.73	100.7	2.0	0.36	0.0	0.00	0.18	0.10	94
	100 ISL	15.36	15.34	33.285	24.576	338.3	0.347	5.72	100.2	2.2	0.38	0.2	0.00	0.25	0.16	100
1	109	14.87	14.85	33.269	24.670	329.4	0.377	5.67	98.3	2.4	0.42	0.4	0.02	0.33	0.25	109
1	123	13.31	13.29	33.262	24.989	299.2	0.421	5.46	91.7	4.1	0.64	3.2	0.08	0.26	0.28	124
	125 ISL	13.17	13.15	33.262	25.017	296.5	0.427	5.44	91.1	4.3	0.66	3.5	0.08	0.25	0.27	126
1	148	11.91	11.89	33.277	25.272	272.6	0.493	5.15	84.0	7.0	0.90	7.7	0.04	0.18	0.12	149
	150 ISL	11.78	11.76	33.280	25.299	270.0	0.498	5.12	83.3	7.3	0.93	8.1	0.04	0.17	0.11	151
1	173	10.35	10.33	33.360	25.616	240.0	0.557	4.73	74.6	12.0	1.23	13.4	0.02	0.06	0.08	174
	200 ISL	9.24	9.22	33.604	25.991	204.6	0.617	4.04	62.3	19.7	1.58	19.5	0.01	0.01	0.02	201
1	202	9.19	9.17	33.624	26.014	202.4	0.621	3.99	61.5	20.3	1.60	19.9	0.01	0.01	0.02	203
1	232	8.90	8.88	33.810	26.206	184.7	0.679	3.51	53.8	25.5	1.78	22.7	0.01			233
	250 ISL	8.66	8.63	33.903	26.317	174.4	0.711	3.27	49.9	29.1	1.89	24.4	0.01			251
1	271	8.35	8.32	33.986	26.430	164.0	0.747	3.04	46.0	33.3	2.01	26.2	0.01			272
	300 ISL	7.98	7.95	34.028	26.518	155.9	0.793	2.82	42.4	37.8	2.13	27.9	0.01			302
1	327	7.63	7.60	34.034	26.574	150.9	0.834	2.63	39.2	42.1	2.23	29.3	0.01			329
1	386	6.74	6.70	34.046	26.708	138.5	0.920	1.98	28.9	54.6	2.55	33.6	0.01			388
	400 ISL	6.60	6.56	34.057	26.735	136.0	0.939	1.80	26.2	57.4	2.63	34.5	0.01			402
1	454	6.19	6.15	34.110	26.831	127.4	1.010	1.17	16.9	67.3	2.89	37.3	0.02			457
	500 ISL	5.91	5.87	34.158	26.904	120.7	1.067	0.82	11.7	74.7	3.03	38.9	0.01			503
1	524	5.77	5.72	34.184	26.942	117.3	1.096	0.63	9.0	78.5	3.11	39.8	0.01			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 87 110

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 19.4 N	123 44.7 W	08/04/93	1628 UTC	4018 -	350 16 kn	330 04 05	1	1022.2 nb	16.3 C	15.2 C		6/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.78	15.78	33.206	24.418	350.2	0.000	5.78	102.1	2.3	0.36	0.0	0.00	0.06	0.01	0
1	1	15.78	15.78	33.206	24.418	350.2	0.004	5.78	102.1	2.3	0.36	0.0	0.00	0.06	0.01	1
	10 ISL	15.78	15.78	33.206	24.419	350.4	0.035	5.77	101.9	2.2	0.35	0.0	0.00	0.07	0.01	10
1	16	15.78	15.78	33.206	24.419	350.6	0.056	5.76	101.7	2.2	0.35	0.0	0.00	0.07	0.01	16
	20 ISL	15.78	15.78	33.206	24.419	350.7	0.070	5.76	101.7	2.2	0.35	0.0	0.00	0.07	0.01	20
1	30	15.77	15.77	33.209	24.424	350.6	0.105	5.77	101.9	2.2	0.35	0.0	0.00	0.06	0.02	30
1	40	15.79	15.78	33.215	24.424	350.9	0.140	5.77	101.9	2.2	0.35	0.0	0.00	0.07	0.02	40
1	49	15.77	15.76	33.219	24.432	350.4	0.172	5.77	101.9	2.2	0.36	0.0	0.00	0.08	0.02	49
	50 ISL	15.77	15.76	33.220	24.433	350.3	0.175	5.77	101.9	2.2	0.36	0.0	0.00	0.08	0.02	50
1	59	15.76	15.75	33.226	24.440	349.9	0.207	5.76	101.7	2.1	0.36	0.0	0.00	0.09	0.02	59
1	69	15.87	15.86	33.25	24.434	350.8	0.242	5.75	101.7	2.1	0.36	0.0	0.00	0.12	0.03	69
	75 ISL	15.88	15.87	33.264	24.443	350.2	0.263	5.73	101.4	2.1	0.36	0.0	0.00	0.13	0.04	75
1	78	15.88	15.87	33.281	24.456	349.0	0.273	5.73	101.4	2.1	0.36	0.0	0.00	0.14	0.05	78
1	92	14.44	14.43	33.070	24.608	334.8	0.321	5.87	100.8	2.1	0.38	0.0	0.00	0.25	0.15	92
	100 ISL	13.79	13.78	33.005	24.692	326.8	0.348	5.83	98.8	2.5	0.43	0.4	0.07	0.34	0.25	100
1	107	13.36	13.35	32.997	24.773	319.2	0.370	5.80	97.4	3.0	0.49	1.1	0.12	0.39	0.31	107
1	122	12.96	12.94	33.182	24.997	298.4	0.417	5.52	92.0	4.4	0.64	3.5	0.07	0.28	0.25	123
	125 ISL	12.78	12.76	33.203	25.048	293.5	0.425	5.46	90.7	4.8	0.68	4.2	0.06	0.26	0.24	126
1	146	11.30	11.28	33.295	25.398	260.4	0.484	5.00	80.5	8.6	1.02	10.0	0.02	0.14	0.15	147
	150 ISL	11.05	11.03	33.299	25.446	255.8	0.494	4.91	78.6	9.5	1.09	11.1	0.02	0.12	0.14	151
1	171	9.96	9.94	33.349	25.673	234.4	0.545	4.42	69.1	14.7	1.41	16.1	0.01	0.06	0.11	172
	200 ISL	9.24	9.22	33.660	26.034	200.4	0.608	3.76	58.0	21.7	1.69	21.0	0.00	0.00	0.03	201
1	201	9.23	9.21	33.672	26.046	199.4	0.610	3.74	57.7	21.9	1.70	21.1	0.00	0.00	0.03	203!
1	230	8.81	8.79	33.853	26.254	180.0	0.665	3.37	51.5	27.2	1.85	23.9	0.00			231
	250 ISL	8.56	8.53	33.945	26.365	169.8	0.700	2.99	45.5	31.6	2.00	26.0	0.00			251
1	270	8.33	8.30	34.012	26.453	161.7	0.734	2.61	39.5	36.1	2.16	28.0	0.00			271
	300 ISL	7.96	7.93	34.058	26.545	153.4	0.781	2.31	34.7	41.4	2.30	29.9	0.00			302
1	326	7.63	7.60	34.070	26.602	148.2	0.820	2.12	31.6	45.7	2.40	31.2	0.00			328
1	386	6.84	6.80	34.081	26.722	137.2	0.906	1.60	23.4	56.9	2.66	34.8	0.00			388
	400 ISL	6.66	6.62	34.088	26.751	134.5	0.925	1.46	21.3	59.9	2.73	35.7	0.00			402
1	453	6.09	6.05	34.124	26.854	125.0	0.994	0.95	13.7	70.5	2.97	38.5	0.01			456
	500 ISL	5.86	5.82	34.166	26.917	119.5	1.051	0.70	10.0	76.3	3.08	39.8	0.00			503
1	523	5.74	5.70	34.187	26.948	116.7	1.078	0.58	8.3	79.1	3.14	40.4	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 28

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 29.3 N	117 45.9 N	06/04/93	0005 UTC	54 -	150 05 ko	270 02 05	1	1012.0 Mb	18.1 C	14.8 C	11a 04	1/8	CU

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	16.77	16.77	33.068	24.087	381.8	0.000	6.33	113.9	1.5	0.28	0.2	0.03	0.68	0.17	0
1	1	16.77	16.77	33.068	24.087	381.8	0.004	6.33	113.9	1.5	0.28	0.2	0.03	0.68	0.17	1
1	7	16.12	16.12	33.072	24.239	367.5	0.026	6.59	117.1	1.1	0.26	0.1	0.03	0.92	0.21	7
	10 ISL	15.99	15.99	33.098	24.288	362.8	0.037	6.41	113.6	1.4	0.28	0.1	0.03	0.72	0.19	10
1	11	15.94	15.94	33.109	24.308	361.0	0.041	6.33	112.1	1.6	0.29	0.1	0.03	0.65	0.19	11
	20 ISL	13.96	13.96	33.236	24.834	311.2	0.071	5.51	93.8	5.3	0.60	3.2	0.23	1.13	0.59	20
1	22	13.41	13.41	33.269	24.972	298.1	0.077	5.27	88.7	6.6	0.72	4.5	0.29	1.24	0.67	22
	30 ISL	11.87	11.87	33.332	25.319	265.1	0.100	4.05	66.0	14.4	1.43	12.6	0.52	0.48	0.43	30
1	31	11.71	11.71	33.340	25.355	261.7	0.102	3.92	63.7	15.4	1.52	13.6	0.54	0.37	0.39	31
1	41	10.60	10.60	33.489	25.671	231.9	0.127	3.66	58.1	19.0	1.77	18.3	0.29	0.17	0.24	41
	50 ISL	10.31	10.30	33.555	25.772	222.4	0.147	3.61	57.0	20.8	1.66	18.5	0.13	0.15	0.27	50
1	52	10.25	10.24	33.570	25.794	220.4	0.152	3.60	56.8	21.2	1.64	18.6	0.10	0.14	0.28	52

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 30

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 25.2 N	117 54.4 W	05/04/93	2058 UTC	608 -	220 10 kn	270 02 06	1	1013.3 mb	16.9 C	14.5 C	15* 03	7/8	SC

CAST	DEPTH B	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	16.60	16.60	33.125	24.170	373.9	0.000	6.07	108.9	1.8	0.32	0.2	0.03	0.39	0.09	0
1	1	16.60	16.60	33.125	24.170	373.9	0.004	6.07	108.9	1.8	0.32	0.2	0.03	0.39	0.09	1
	10 ISL	16.06	16.06	33.122	24.291	362.6	0.037	6.10	108.3	1.8	0.32	0.1	0.03	0.41	0.12	10
1	11	15.96	15.96	33.124	24.315	360.3	0.040	6.10	108.1	1.8	0.32	0.1	0.03	0.41	0.12	11
	20 ISL	14.88	14.88	33.191	24.605	333.0	0.072	6.27	108.7	2.1	0.36	0.1	0.03	1.18	0.37	20
1	21	14.76	14.76	33.199	24.637	330.0	0.075	6.29	108.8	2.1	0.37	0.1	0.03	1.27	0.41	21
	30 ISL	14.17	14.17	33.217	24.776	317.0	0.104	5.59	95.6	3.5	0.50	0.2	0.05	1.39	0.81	30
1	31	14.10	14.10	33.219	24.792	315.5	0.107	5.49	93.7	3.8	0.52	0.2	0.05	1.40	0.84	31
1	41	12.86	12.85	33.300	25.105	285.8	0.137	4.86	80.9	8.2	0.90	7.3	0.20	0.67	0.50	41
	50 ISL	12.13	12.12	33.337	25.275	269.8	0.162	4.49	73.6	10.6	1.11	10.8	0.25	0.47	0.40	50
1	51	12.05	12.04	33.339	25.292	268.3	0.165	4.46	73.0	10.8	1.13	11.1	0.25	0.46	0.40	51
1	60	11.00	10.99	33.353	25.495	249.1	0.188	4.44	71.1	13.1	1.26	13.7	0.06	0.25	0.39	60
1	69	10.74	10.73	33.535	25.683	231.4	0.210	3.78	60.2	17.0	1.48	17.1	0.03	0.12	0.12	69
	75 ISL	10.47	10.46	33.589	25.772	223.0	0.224	3.68	58.3	18.7	1.56	18.4	0.03	0.08	0.11	75
1	84	10.09	10.08	33.633	25.871	213.7	0.243	3.54	55.6	20.4	1.64	19.7	0.02	0.05	0.09	84
1	98	9.92	9.91	33.725	25.972	204.4	0.273	3.30	51.7	22.7	1.74	21.2	0.02	0.03	0.07	98
	100 ISL	9.89	9.88	33.732	25.983	203.5	0.277	3.29	51.5	22.9	1.75	21.3	0.02	0.03	0.07	100
1	119	9.62	9.61	33.799	26.080	194.6	0.314	3.15	49.0	25.2	1.82	22.6	0.01	0.01	0.06	120
	125 ISL	9.62	9.61	33.846	26.117	191.2	0.326	3.03	47.2	26.1	1.86	23.1	0.01	0.01	0.06	126
1	144	9.62	9.60	33.995	26.234	180.6	0.361	2.64	41.2	29.2	1.99	24.7	0.01	0.01 A	0.05 A	145
	150 ISL	9.57	9.55	34.025	26.266	177.7	0.372	2.55	39.7	30.1	2.03	25.2	0.01	0.01	0.05	151
1	174	9.28	9.26	34.105	26.376	167.6	0.413	2.29	35.5	33.8	2.15	26.8	0.01	0.01	0.03	175
	200 ISL	8.97	8.95	34.149	26.460	160.0	0.456	2.08	32.0	37.5	2.26	28.2	0.01	0.00	0.03	201
1	203	8.94	8.92	34.153	26.468	159.3	0.461	2.05	31.5	37.9	2.27	28.3	0.01	0.00	0.03	204
1	232	8.66	8.64	34.200	26.549	152.1	0.506	1.70	26.0	42.4	2.43	29.8	0.01			233
	250 ISL	8.44	8.41	34.214	26.594	148.1	0.533	1.53	23.3	45.1	2.51	30.7	0.01			251
1	272	8.17	8.14	34.223	26.643	143.8	0.565	1.35	20.4	48.4	2.60	31.8	0.01			274
	300 ISL	7.85	7.82	34.226	26.693	139.3	0.605	1.20	18.0	52.4	2.69	32.9	0.01			302
1	328	7.55	7.52	34.226	26.737	135.5	0.643	1.07	15.9	56.3	2.77	34.0	0.01			330
1	386	6.93	6.89	34.249	26.842	126.0	0.719	0.71	10.4	65.0	2.95	36.6	0.01			389
	400 ISL	6.87	6.83	34.251	26.852	125.2	0.737	0.67	9.8	65.9	2.97	36.9	0.01			403
1	454	6.66	6.62	34.258	26.886	122.6	0.804	0.58	8.5	69.4	3.04	37.6	0.01			457
	500 ISL	6.24	6.20	34.285	26.963	115.6	0.858	0.42	6.1	76.4	3.14	39.0	0.00			503
1	525	6.01	5.96	34.300	27.004	111.8	0.887	0.33	4.7	80.2	3.19	39.7	0.00			529

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

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
33 15.2 N	118 15.0 W	05/04/93	1604 UTC	316 -	290 12 kn	280 02 05	1	1012.9 mb	16.5 C	14.0 C	20M 02	7/8	SC

CAST	DEPTH M	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	16.39	16.39	33.186	24.265	364.8	0.000	5.87	104.9	2.4	0.33	0.2	0.02	0.19	0.04	0
1	1	16.39	16.39	33.186	24.265	364.8	0.004	5.87	104.9	2.4	0.33	0.2	0.02	0.19	0.04	1
	10 ISL	16.37	16.37	33.185	24.269	364.7	0.036	5.86	104.7	2.4	0.33	0.1	0.02	0.19	0.03	10
1	11	16.37	16.37	33.185	24.269	364.7	0.040	5.86	104.7	2.4	0.33	0.1	0.02	0.19	0.03	11
	20 ISL	15.74	15.74	33.190	24.416	351.0	0.072	5.91	104.3	2.4	0.35	0.1	0.02	0.22	0.06	20
1	21	15.65	15.65	33.191	24.436	349.1	0.076	5.92	104.3	2.4	0.35	0.1	0.02	0.22	0.06	21
	30 ISL	14.73	14.73	33.215	24.656	328.4	0.106	5.96	103.1	2.8	0.40	0.1	0.02	0.26	0.09	30
1	31	14.62	14.62	33.218	24.682	326.0	0.110	5.96	102.8	2.8	0.41	0.1	0.02	0.26	0.09	31
1	41	13.46	13.45	33.258	24.953	300.3	0.141	5.31	89.5	4.9	0.62	0.7	0.10	1.55	0.62	41
	50 ISL	12.69	12.68	33.264	25.111	285.5	0.167	5.01	83.1	6.9	0.86	6.0	0.23	0.87	0.49	50
1	51	12.61	12.60	33.264	25.126	284.1	0.170	4.98	82.4	7.1	0.89	6.7	0.24	0.75	0.47	51
1	61	11.61	11.60	33.305	25.347	263.2	0.197	4.61	74.7	10.2	1.12	11.2	0.09	0.38	0.35	61
1	71	11.20	11.19	33.355	25.461	252.6	0.223	4.41	70.9	11.8	1.24	13.1	0.06	0.25	0.25	71
	75 ISL	11.03	11.02	33.377	25.508	248.1	0.233	4.34	69.5	12.6	1.28	13.9	0.06	0.21	0.22	75
1	85	10.59	10.58	33.446	25.640	235.8	0.257	4.13	65.5	14.9	1.40	15.9	0.07	0.13	0.15	85
1	99	10.00	9.99	33.590	25.853	215.8	0.289	3.71	58.2	19.1	1.59	19.1	0.03	0.03	0.08	99
	100 ISL	9.97	9.96	33.595	25.862	214.9	0.291	3.70	58.0	19.3	1.60	19.2	0.03	0.03	0.08	100
1	119	9.54	9.53	33.676	25.997	202.4	0.331	3.51	54.5	21.9	1.72	21.1	0.02	0.02	0.05	120
	125 ISL	9.42	9.41	33.717	26.049	197.6	0.343	3.41	52.8	23.1	1.76	21.9	0.02	0.02	0.05	126
1	143	9.15	9.13	33.849	26.196	184.0	0.377	3.09	47.6	26.9	1.89	24.0	0.01	0.01	0.05	144
	150 ISL	9.15	9.13	33.897	26.234	180.6	0.390	2.97	45.8	28.0	1.93	24.5	0.01	0.01	0.05	151
1	172	9.13	9.11	34.015	26.329	171.9	0.429	2.63	40.6	31.1	2.05	25.8	0.01	0.00	0.05	173
	200 ISL	8.75	8.73	34.086	26.445	161.3	0.475	2.35	35.9	35.7	2.19	27.5	0.02	0.00	0.04	201
1	201	8.73	8.71	34.087	26.449	161.0	0.477	2.34	35.8	35.9	2.19	27.6	0.02	0.00	0.04	202
1	235	8.42	8.40	34.132	26.533	153.6	0.531	2.02	30.7	40.4	2.34	29.3	0.01			236
	250 ISL	8.33	8.30	34.147	26.559	151.4	0.553	1.90	28.8	42.0	2.39	29.8	0.01			251
1	272	8.20	8.17	34.165	26.593	148.5	0.586	1.73	26.1	44.4	2.47	30.6	0.01			274
	300 ISL	7.97	7.94	34.185	26.643	144.1	0.627	1.50	22.6	47.9	2.58	31.8	0.01			302
1	309	7.89	7.86	34.192	26.660	142.6	0.640	1.43	21.5	49.0	2.61	32.2	0.01			311

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 37

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
33 11.2 N	118 23.2 W	05/04/93	1301 UTC	1176 a	290 17 kn			1012.1 ab	14.8 C	13.1 C		

CAST	DEPTH •		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN al/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	16.05	16.05	33.193	24.348	356.9	0.000	5.83	103.5	2.6	0.34	0.2	0.00	0.18	0.04	0
1	1		16.05	16.05	33.193	24.348	356.9	0.004	5.83	103.5	2.6	0.34	0.2	0.00	0.18	0.04	1
	10	ISL	16.05	16.05	33.193	24.348	357.2	0.036	5.83	103.5	2.5	0.34	0.2	0.00	0.18	0.05	10
1	16		16.05	16.05	33.193	24.348	357.4	0.057	5.83	103.5	2.5	0.34	0.2	0.00	0.18	0.06	16
	20	ISL	15.83	15.83	33.196	24.400	352.5	0.071	5.91	104.5	2.6	0.34	0.2	0.00	0.19	0.07	20
1	30		15.01	15.01	33.208	24.590	334.7	0.106	6.01	104.5	2.8	0.38	0.1	0.00	0.21	0.09	30
1	40		13.97	13.96	33.232	24.829	312.2	0.138	5.74	97.7	3.7	0.47	0.1	0.01	0.81	0.46	40
1	49		12.73	12.72	33.269	25.107	285.9	0.165	4.99	82.8	7.1	0.86	6.9	0.18	0.73	0.47	49
	50	ISL	12.60	12.59	33.276	25.138	283.0	0.168	4.93	81.6	7.5	0.90	7.5	0.17	0.69	0.45	50
1	59		11.65	11.64	33.339	25.366	261.4	0.192	4.50	73.0	10.7	1.14	11.6	0.04	0.31	0.29	59
1	69		11.27	11.26	33.380	25.468	251.9	0.218	4.32	69.6	12.1	1.24	13.3	0.03	0.19	0.22	69
	75	ISL	11.03	11.02	33.419	25.541	245.0	0.233	4.20	67.3	13.3	1.31	14.5	0.02	0.15	0.19	75
1	78		10.89	10.88	33.438	25.581	241.3	0.240	4.14	66.1	13.9	1.35	15.1	0.02	0.13	0.18	78
1	93		9.80	9.79	33.480	25.801	220.6	0.275	4.01	62.6	17.7	1.54	18.4	0.01	0.04	0.09	93
	100	ISL	9.73	9.72	33.554	25.870	214.1	0.290	3.85	60.0	19.0	1.59	19.4	0.01	0.03	0.07	1.00
1	108		9.66	9.65	33.618	25.932	208.4	0.307	3.64	56.7	20.4	1.64	20.3	0.01	0.02	0.06	1.09
1	123		9.58	9.57	33.725	26.029	199.5	0.338	3.37	52.4	22.9	1.75	21.8	0.01	0.01	0.05	1.24
	125	ISL	9.55	9.54	33.734	26.041	198.4	0.341	3.35	52.1	23.2	1.76	22.0	0.01	0.01	0.05	1.26
1	148		9.19	9.17	33.817	26.164	187.1	0.386	3.14	48.4	26.3	1.86	23.8	0.00	0.00	0.04	1.49
	150	ISL	9.16	9.14	33.828	26.178	185.8	0.390	3.11	47.9	26.7	1.87	24.0	0.00	0.00	0.04	1.51
1	173		8.84	8.82	33.958	26.331	171.7	0.431	2.77	42.4	31.2	2.01	26.0	0.00	0.00	0.04	1.74
	200	ISL	8.6S	8.63	34.041	26.426	163.2	0.476	2.45	37.4	35.1	2.14	27.5	0.00	0.00	0.03	201
1	203		8.63	8.61	34.048	26.434	162.4	0.481	2.42	36.9	35.5	2.15	27.6	0.00	0.00	0.03	1104
1	231		8.43	8.41	34.122	26.523	154.4	0.525	2.06	31.3	40.0	2.31	29.3	0.00			i!32
	250	ISL	8.24	8.21	34.138	26.565	150.7	0.554	1.91	28.9	42.6	2.38	30.2	0.00			I!51
1	271		8.02	7.99	34.144	26.603	147.4	0.585	1.78	26.8	45.3	2.45	31.0	0.00			273
	300	ISL	7.71	7.68	34.165	26.665	141.8	0.627	1.50	22.4	49.7	2.58	32.4	0.00			-102
1	327		7.44	7.41	34.185	26.720	136.9	0.665	1.25	18.6	53.8	2.70	33.6	0.00			)129
1	388		6.95	6.91	34.217	26.814	128.7	0.746	0.87	12.8	62.0	2.88	35.9	0.00			190
	400	ISL	6.86	6.82	34.223	26.831	127.2	0.761	0.81	11.9	63.5	2.91	36.3	0.00			1103
1	453		6.49	6.45	34.251	26.903	120.8	0.827	0.57	8.3	70.1	3.03	37.8	0.02			1156
	500	ISL	6.21	6.17	34.275	26.959	116.0	0.883	0.45	6.5	75.4	3.10	38.8	0.01			503
1	522		6.08	6.03	34.286	26.984	113.7	0.908	0.39	5.6	77.9	3.13	39.3	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	NAVES	WEA	BAROMETER	DRY*	WET	SECCHI/FOREL	CLD AMT TYPE
32 55.1 N	118 56.0 W	05/04/93	0715 UTC	1700 a	290 25 Hn			1014.5 mb	14.4 C	12.4 C		

CAST	DEPTH a		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO uq/1	PRICSS lib
	0	ISL	15.34	15.34	33.224	24.530	339.6	0.000	5.90	103.3	2.1	0.39	0.1	0.02	0.20	0.06	0
1	1		15.34	15.34	33.224	24.530	339.6	0.003	5.90	103.3	2.1	0.39	0.1	0.02	0.20	0.06	1
	10	ISL	15.33	15.33	33.224	24.532	339.6	0.034	5.90	103.3	2.0	0.39	0.1	0.02	0.19	0.06	10
1	15		15.32	15.32	33.224	24.535	339.5	0.051	5.90	103.3	1.9	0.39	0.1	0.02	0.19	0.06	15
	20	ISL	15.31	15.31	33.224	24.537	339.5	0.068	5.90	103.2	1.9	0.39	0.1	0.02	0.20	0.07	20
	30	ISL	15.28	IS.28	33.224	24.544	339.1	0.102	5.90	103.2	1.8	0.38	0.1	0.02	0.21	0.08	30
1	31		15.28	15.28	33.224	24.544	339.1	0.105	5.90	103.2	1.8	0.38	0.1	0.02	0.21	0.08	31
1	40		15.16	15.15	33.226	24.572	336.8	0.136	5.94	103.6	1.7	0.37	0.1	0.01	0.25	0.09	40
1	49		13.19	13.18	33.282	25.026	293.6	0.164	5.29	88.7	6.3	0.74	4.8	0.20	0.92	0.60	49
	50	ISL	13.06	13.05	33.287	25.056	290.8	0.167	5.23	87.4	6.7	0.77	5.3	0.21	0.89	0.60	50
1	59		12.16	12.15	33.327	25.262	271.4	0.192	4.76	78.1	9.5	1.01	9.2	0.29	0.66	0.55	59
1	69		11.21	11.20	33.394	25.489	249.8	0.218	4.33	69.6	13.0	1.25	13.4	0.11	0.28	0.34	69
	75	ISL	10.89	10.88	33.438	25.581	241.3	0.233	4.13	66.0	14.7	1.35	15.1	0.06	0.18	0.26	75
1	79		10.73	10.72	33.470	25.634	236.3	0.243	4.01	63.9	15.7	1.41	16.1	0.05	0.15	0.22	79
1	94		10.13	10.12	33.629	25.862	214.9	0.276	3.53	55.5	20.3	1.63	19.5	0.03	0.05	0.12	94
	100	ISL	10.02	10.01	33.688	25.927	208.8	0.289	3.37	52.9	21.6	1.69	20.5	0.02	0.03	0.10	L00
1	108		9.90	9.89	33.751	25.996	202.4	0.306	3.20	50.1	23.1	1.76	21.5	0.02	0.02	0.09	109
1	123		9.50	9.49	33.788	26.091	193.6	0.335	3.14	48.8	25.0	1.82	22.6	0.02	0.01	0.07	124
	125	ISL	9.47	9.46	33.801	26.106	192.2	0.339	3.10	48.1	25.4	1.83	22.8	0.02	0.01	0.07	126
1	147		9.29	9.27	33.949	26.252	178.8	0.380	2.66	41.2	29.4	1.99	25.1	0.01	0.01	0.07	148
	150	ISL	9.26	9.24	33.962	26.267	177.4	0.385	2.63	40.7	29.8	2.00	25.3	0.01	0.01	0.07	151
1	172		9.01	8.99	34.032	26.362	168.8	0.423	2.48	38.1	32.7	2.09	26.7	0.01	0.01	0.06	173
	200	ISL	8.72	8.70	34.089	26.453	160.7	0.469	2.26	34.5	36.5	2.20	28.1	0.00	0.01	0.05	201
1	202		8.70	8.68	34.092	26.458	160.2	0.473	2.24	34.2	36.8	2.21	28.2	0.00	0.01	0.05	203
1	231		8.49	8.47	34.113	26.507	155.9	0.519	2.06	31.3	39.5	2.29	29.2	0.01			232
	250	ISL	8.31	8.28	34.125	26.544	152.7	0.548	1.96	29.7	41.7	2.34	29.9	0.01			251
1	271		8.09	8.06	34.138	26.588	148.9	0.580	1.83	27.6	44.5	2.41	30.7	0.01			273
	300	ISL	7.77	7.74	34.166	26.657	142.6	0.622	1.51	22.6	49.5	2.55	32.2	0.01			302
1	326		7.47	7.44	34.190	26.720	137.0	0.658	1.21	18.0	54.4	2.69	33.7	0.01			328
1	385		6.84	6.80	34.216	26.828	127.2	0.736	0.82	12.0	64.2	2.90	36.4	0.01			387
	400	ISL	6.74	6.70	34.228	26.851	125.2	0.755	0.74	10.8	66.5	2.94	36.8	0.01			403
1	452		6.45	6.41	34.269	26.923	119.0	0.818	0.51	7.4	73.5	3.07	37.9	0.01			455
	500	ISL	6.17	6.13	34.290	26.976	114.3	0.874	0.40	5.8	78.6	3.13	38.6	0.01			503
1	523		6.04	5.99	34.301	27.001	112.1	0.901	0.34	4.9	81.0	3.16	39.0	0.01			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 53

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 39.0 N	119 28.6 W	05/04/93	0121 UTC	1317 -	310 24 kn	320 10 13	1	1014.9 «b	16.0 C	14.8 C	26a 01	3/8	CI

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PBAEO uq/1	PRESS db
1	0	15.31	15.31	33.130	24.464	345.8	0.000	5.83	102.0	2.3	0.36	0.2	0.02	0.09	0.02	0
	10 ISL	15.29	15.29	33.130	24.469	345.7	0.035	5.82	101.7	2.3	0.36	0.1	0.02	0.08	0.03	10
1	16	15.27	15.27	33.130	24.473	345.4	0.055	5.82	101.7	2.3	0.36	0.1	0.02	0.08	0.03	16
	20 ISL	15.26	15.26	33.129	24.475	345.4	0.069	5.82	101.7	2.3	0.36	0.1	0.02	0.08	0.03	20
1	30	15.24	15.24	33.128	24.479	345.3	0.104	5.82	101.6	2.3	0.36	0.0	0.02	0.09	0.03	30
1	40	15.21	15.20	33.129	24.486	344.9	0.138	5.83	101.7	2.3	0.36	0.0	0.02	0.10	0.03	40
1	50	15.08	15.07	33.122	24.510	343.0	0.173	5.86	102.0	2.3	0.36	0.0	0.03	0.14	0.05	50
1	60	13.92	13.91	33.059	24.707	324.4	0.206	5.99	101.8	2.5	0.41	0.0	0.04	0.46	0.34	60
1	71	12.87	12.86	33.159	24.995	297.1	0.240	5.54	92.2	4.8	0.63	3.6	0.12	0.35	0.34	71
	75 ISL	12.60	12.59	33.179	25.063	290.7	0.252	5.44	90.0	5.4	0.69	4.7	0.10	0.33	0.31	75
1	79	12.39	12.38	33.196	25.117	285.7	0.263	5.36	88.3	6.0	0.75	5.6	0.07	0.31	0.27	79
1	95	11.97	11.96	33.297	25.275	271.0	0.308	5.15	84.1	7.4	0.87	7.8	0.04	0.28	0.23	95
	100 ISL	11.56	11.55	33.301	25.354	263.5	0.321	5.03	81.4	8.7	0.96	9.3	0.03	0.23	0.20	100
1	109	10.74	10.73	33.309	25.507	249.0	0.344	4.80	76.4	11.4	1.14	12.3	0.02	0.13	0.13	109
1	124	9.75	9.74	33.383	25.734	227.6	0.380	4.55	70.9	15.3	1.36	15.9	0.01	0.06	0.07	125
	125 ISL	9.71	9.70	33.390	25.746	226.4	0.382	4.53	70.5	15.5	1.37	16.1	0.01	0.06	0.07	126
1	149	9.10	9.08	33.562	25.979	204.6	0.434	4.08	62.7	20.7	1.59	20.0	0.00	0.01	0.03	150
	150 ISL	9.08	9.06	33.568	25.987	203.9	0.436	4.07	62.5	20.9	1.60	20.1	0.00	0.01	0.03	151
1	175	8.74	8.72	33.720	26.160	187.9	0.485	3.66	55.8	25.2	1.75	22.7	0.00	0.00	0.03	176
	200 ISL	8.71	8.69	33.912	26.315	173.6	0.530	2.93	44.7	31.5	1.97	25.7	0.01	0.00	0.03	201
1	204	8.71	8.69	33.938	26.336	171.8	0.537	2.81	42.9	32.5	2.01	26.2	0.01	0.00	0.03	205
1	232	8.69	8.67	34.066	26.440	162.5	0.584	2.20	33.6	37.5	2.22	28.3	0.01			233
	250 ISL	8.48	8.45	34.114	26.510	156.1	0.613	1.95	29.6	41.0	2.33	29.5	0.01			251
1	274	8.11	8.08	34.150	26.594	148.4	0.649	1.71	25.8	45.8	2.46	31.0	0.00			276
	300 ISL	7.71	7.68	34.162	26.663	142.1	0.687	1.50	22.4	51.1	2.57	32.5	0.00			302
1	327	7.33	7.30	34.165	26.720	136.9	0.725	1.33	19.7	56.1	2.66	33.9	0.00			329
1	388	6.88	6.84	34.200	26.810	129.0	0.806	0.95	13.9	63.5	2.85	36.0	0.00			390
	400 ISL	6.82	6.78	34.208	26.825	127.7	0.821	0.89	13.0	64.7	2.88	36.3	0.00			403
1	454	6.59	6.55	34.244	26.884	122.7	0.889	0.64	9.3	70.1	3.00	37.3	0.02			457
	500 ISL	6.31	6.26	34.274	26.945	117.4	0.944	0.47	6.8	75.8	3.09	38.3	0.01			503
1	525	6.16	6.11	34.290	26.977	114.5	0.973	0.38	5.5	78.9	3.14	38.8	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 25.1 N	119 57.5 W	04/04/93	1951 UTC	854 -	310 22 kn	320 10 06	1	1018.0 mb	16.8 C	15.0 C		1/8	CS

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.44	15.44	33.154	24.454	346.8	0.000	5.81	101.9	2.2	0.36	0.0	0.00	0.08	0.02	0
1	1	15.44	15.44	33.154	24.454	346.8	0.003	5.81	101.9	2.2	0.36	0.0	0.00	0.08	0.02	1
	10 ISL	15.43	15.43	33.153	24.456	346.9	0.035	5.81	101.9	2.1	0.36	0.0	0.00	0.08	0.01	10
1	16	15.41	15.41	33.152	24.459	346.7	0.055	5.81	101.8	2.1	0.36	0.0	0.00	0.08	0.01	16
	20 ISL	15.40	15.40	33.152	24.462	346.6	0.069	5.81	101.8	2.1	0.36	0.0	0.00	0.08	0.01	20
	30 ISL	15.37	15.37	33.153	24.469	346.2	0.104	5.81	101.7	2.1	0.36	0.0	0.00	0.08	0.02	30
1	31	15.37	15.37	33.153	24.469	346.2	0.107	5.81	101.7	2.1	0.36	0.0	0.00	0.08	0.02	31
1	41	15.35	15.34	33.153	24.474	346.1	0.142	5.80	101.5	2.1	0.37	0.0	0.00	0.09	0.02	41
1	49	15.03	15.02	33.108	24.509	342.9	0.170	5.85	101.7	2.1	0.37	0.0	0.00	0.12	0.04	49
	50 ISL	15.01	15.00	33.105	24.512	342.8	0.173	5.85	101.7	2.1	0.37	0.0	0.00	0.12	0.04	50
1	60	14.67	14.66	33.093	24.576	336.9	0.207	5.88	101.5	2.2	0.37	0.0	0.00	0.24	0.12	60
1	70	13.72	13.71	33.104	24.782	317.4	0.240	5.87	99.4	2.7	0.46	0.2	0.05	0.58	0.39	70
	75 ISL	13.10	13.09	33.074	24.884	307.8	0.255	5.72	95.6	3.7	0.56	1.7	0.08	0.49	0.36	75
1	79	12.65	12.64	33.059	24.961	300.6	0.268	5.57	92.2	4.5	0.65	3.1	0.09	0.38	0.31	79
1	94	12.29	12.28	33.239	25.170	281.0	0.311	5.26	86.5	6.2	0.79	5.8	0.05	0.21	0.22	94
	100 ISL	11.84	11.83	33.288	25.292	269.4	0.328	5.14	83.7	7.3	0.87	7.4	0.04	0.17	0.18	100
1	109	11.06	11.05	33.341	25.476	252.0	0.351	4.95	79.3	9.4	1.02	10.1	0.02	0.12	0.12	109
1	124	10.08	10.07	33.366	25.665	234.1	0.388	4.61	72.3	13.6	1.28	14.3	0.02	0.06	0.07	125
	125 ISL	10.03	10.02	33.373	25.679	232.8	0.390	4.58	71.8	13.9	1.30	14.6	0.02	0.06	0.07	126
1	149	9.16	9.14	33.587	25.989	203.7	0.442	3.78	58.2	21.7	1.68	21.0	0.01	0.01	0.04	150
	150 ISL	9.14	9.12	33.595	25.999	202.8	0.444	3.76	57.8	21.9	1.69	21.1	0.01	0.01	0.04	151
1	174	8.92	8.90	33.752	26.157	188.2	0.491	3.35	51.3	25.9	1.83	23.4	0.01	0.00	0.03	175
	200 ISL	8.57	8.55	33.859	26.295	175.5	0.539	3.24	49.3	29.2	1.90	25.0	0.01	0.00	0.02	201
1	202	8.54	8.52	33.866	26.305	174.5	0.542	3.23	49.1	29.5	1.90	25.1	0.01	0.00	0.02	203
1	233	8.22	8.20	33.985	26.448	161.5	0.594	2.86	43.2	35.4	2.04	27.2	0.01			234
	250 ISL	8.01	7.98	34.013	26.501	156.6	0.621	2.73	41.0	38.3	2.10	28.4	0.01			251
1	273	7.70	7.67	34.030	26.560	151.3	0.657	2.57	38.4	42.2	2.19	30.0	0.00			275
	300 ISL	7.26	7.23	34.041	26.631	144.7	0.697	2.30	34.0	48.1	2.33	32.1	0.00			302
1	328	6.86	6.83	34.051	26.695	138.9	0.736	1.99	29.1	54.1	2.48	34.1	0.00			330
1	388	6.55	6.51	34.099	26.774	132.0	0.818	1.37	19.9	62.3	2.72	36.8	0.00			390
	400 ISL	6.48	6.44	34.109	26.792	130.5	0.833	1.26	18.3	64.0	2.76	37.3	0.00			402
1	454	6.14	6.10	34.154	26.872	123.4	0.902	0.86	12.4	71.8	2.94	39.2	0.00			457
	500 ISL	5.84	5.80	34.196	26.943	117.0	0.957	0.62	8.9	78.4	3.06	40.5	0.00			503
1	524	5.69	5.65	34.218	26.979	113.8	0.985	0.50	7.1	81.9	3.12	41.2	0.00			528

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
32 5.X N	120 38.3 W	04/04/93	1303 UTC	3788 m	330 27 kn			1016.9 mb	14.8 C	13.7 C		

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS lib
1	0	15.22	15.22	33.156	24.503	342.0	0.000	5.84	102.0	2.4	0.38	0.1	0.01	0.10	0.03	0
	10 ISL	15.21	15.21	33.156	24.506	342.1	0.034	5.83	101.8	2.4	0.38	0.1	0.01	0.09	0.03	10
1	15	15.20	15.20	33.156	24.508	342.0	0.051	5.83	101.7	2.4	0.38	0.1	0.01	0.09	0.03	15
	20 ISL	15.20	15.20	33.156	24.509	342.2	0.068	5.83	101.7	2.4	0.38	0.1	0.01	0.09	0.03	20
1	30	15.19	15.19	33.155	24.510	342.3	0.103	5.82	101.5	2.3	0.37	0.0	0.01	0.10	0.03	30
1	41	15.22	15.21	33.155	24.504	343.2	0.140	5.83	101.8	2.3	0.37	0.0	0.01	0.10	0.03	41
1	50	15.10	15.09	33.128	24.510	342.9	0.171	5.88	102.4	2.3	0.37	0.0	0.00	0.13	0.05	50
1	60	13.58	13.57	33.147	24.844	311.3	0.204	5.78	97.6	3.3	0.50	0.8	0.14	0.51	0.41	60
1	70	12.34	12.33	33.178	25.112	285.9	0.234	5.19	85.4	6.5	0.83	6.2	0.07	0.36	0.31	70
	75 ISL	11.59	11.58	33.181	25.255	272.3	0.248	5.03	81.4	8.5	0.99	8.9	0.04	0.24	0.24	75
1	78	11.17	11.16	33.186	25.335	264.7	0.256	4.95	79.4	9.6	1.08	10.4	0.02	0.17	0.20	78
1	94	10.31	10.30	33.316	25.587	241.0	0.296	4.58	72.2	13.6	1.31	14.6	0.02	0.08	0.09	94
	100 ISL	10.01	10.00	33.356	25.669	233.3	0.310	4.38	68.6	15.3	1.41	16.2	0.02	0.06	0.08	100
1	108	9.68	9.67	33.410	25.766	224.1	0.329	4.14	64.4	17.4	1.53	18.0	0.01	0.05	0.07	108
1	124	9.34	9.33	33.541	25.924	209.4	0.363	3.90	60.2	20.6	1.66	20.3	0.01	0.01	0.04	125
	125 ISL	9.31	9.30	33.550	25.936	208.3	0.366	3.88	59.9	20.9	1.67	20.5	0.01	0.01	0.04	126
1	149	8.68	8.66	33.752	26.194	184.1	0.413	3.41	52.0	26.8	1.87	23.9	0.01	0.00	0.02	150
	150 ISL	8.67	8.65	33.758	26.200	183.6	0.414	3.40	51.8	26.9	1.87	24.0	0.01	0.00	0.02	151
1	174	8.48	8.46	33.861	26.310	173.5	0.457	3.20	48.6	29.9	1.94	25.3	0.01	0.00	0.02	175
	200 ISL	8.21	8.19	33.957	26.427	162.9	0.501	2.96	44.7	33.9	2.04	26.7	0.01	0.00	0.02	201
1	204	8.16	8.14	33.968	26.443	161.4	0.508	2.93	44.2	34.6	2.06	26.9	0.01	0.00	0.02	205
1	232	7.73	7.71	33.991	26.525	153.9	0.552	2.92	43.6	39.0	2.11	28.1	0.01			233
	250 ISL	7.57	7.55	34.010	26.563	150.6	0.579	2.72	40.5	41.8	2.19	29.2	0.01			251
1	273	7.41	7.38	34.037	26.607	146.7	0.613	2.37	35.1	45.6	2.33	30.7	0.00			275
	300 ISL	7.17	7.14	34.073	26.669	141.1	0.652	1.91	28.2	51.4	2.51	32.7	0.00			:I02
1	329	6.91	6.88	34.112	26.736	135.1	0.692	1.44	21.1	57.6	2.70	34.7	0.00			331
1	389	6.51	6.47	34.168	26.834	126.4	0.771	0.94	13.7	66.7	2.92	37.1	0.00			391
	400 ISL	6.42	6.38	34.170	26.848	125.2	0.784	0.89	12.9	68.1	2.95	37.5	0.00			403
1	455	5.98	5.94	34.173	26.907	120.0	0.852	0.72	10.3	75.1	3.05	39.2	0.00			458
	500 ISL	S.66	5.62	34.197	26.966	114.7	0.905	0.56	8.0	81.1	3.15	40.3	0.00			503
1	526	5.48	5.44	34.212	27.000	111.6	0.934	0.46	6.5	84.6	3.20	41.0	0.00			530

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	HET	SECCHI/FOREL	CLD AMT TlfPE
31 45.1 N	121 18.8 W	04/04/93	0634 UTC	3677 m	330 23 kn			1018.7 mb	14.7 C	13.8 C		

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS lib
	0 ISL	15.24	15.24	33.215	24.545	338.1	0.000	5.84	102.0	2.4	0.39	0.1	0.00	0.14	0.04	0
1	2	15.24	15.24	33.215	24.545	338.2	0.007	5.84	102.0	2.4	0.39	0.1	0.00	0.14	0.04	2
	10 ISL	15.25	15.25	33.214	24.542	338.7	0.034	5.84	102.1	2.4	0.39	0.1	0.00	0.13	0.04	10
1	17	15.25	15.25	33.214	24.542	338.9	0.058	5.84	102.1	2.3	0.39	0.1	0.00	0.13	0.04	17
	20 ISL	15.25	15.25	33.214	24.542	339.0	0.068	5.84	102.1	2.3	0.39	0.1	0.00	0.13	0.04	20
	30 ISL	15.23	15.23	33.216	24.549	338.6	0.102	5.85	102.2	2.3	0.39	0.1	0.00	0.14	0.04	30
1	32	15.23	15.23	33.216	24.549	338.7	0.108	5.85	102.2	2.3	0.39	0.1	0.00	0.14	0.04	32
1	41	15.23	15.22	33.218	24.550	338.8	0.139	5.85	102.2	2.2	0.39	0.1	0.00	0.14	0.05	41
	50 ISL	15.18	15.17	33.222	24.565	337.7	0.169	5.85	102.1	2.2	0.39	0.1	0.00	0.17	0.06	50
1	52	15.16	15.15	33.223	24.570	337.3	0.176	5.85	102.0	2.2	0.39	0.1	0.00	0.18	0.06	52
1	61	15.10	15.09	33.227	24.586	336.0	0.206	5.85	101.9	2.2	0.40	0.1	0.00	0.28	0.09	61
1	71	13.37	13.36	33.234	24.954	301.1	0.238	5.56	93.5	4.6	0.61	2.4	0.16	0.74	0.39	71
	75 ISL	12.66	12.65	33.253	25.109	286.4	0.250	5.22	86.5	6.7	0.81	5.7	0.14	0.68	0.40	75
1	80	11.84	11.83	33.284	25.289	269.2	0.264	4.78	77.9	9.4	1.06	10.0	0.08	0.52	0.42	80
1	94	10.50	10.49	33.365	25.593	240.5	0.300	4.29	67.9	14.5	1.39	15.4	0.03	0.19	0.21	94
	100 ISL	10.10	10.09	33.404	25.691	231.2	0.314	4.18	65.6	16.1	1.48	16.9	0.03	0.11	0.14	100
1	110	9.58	9.57	33.476	25.834	217.7	0.336	4.03	62.6	18.6	1.59	18.9	0.02	0.04	0.07	110
1	124	9.04	9.03	33.604	26.021	200.1	0.365	3.69	56.6	22.9	1.77	21.8	0.01	0.01	0.04	125
	125 ISL	9.01	9.00	33.614	26.034	198.9	0.367	3.67	56.3	23.2	1.78	22.0	0.01	0.01	0.04	126
1	149	8.60	8.58	33.833	26.270	176.9	0.412	3.22	49.0	29.1	1.93	24.9	0.01	0.00	0.03	150
	150 ISL	8.59	8.57	33.839	26.276	176.4	0.414	3.21	48.9	29.3	1.93	25.0	0.01	0.00	0.03	151
1	174	8.35	8.33	33.937	26.390	166.0	0.455	3.00	45.4	32.7	2.02	26.4	0.01	0.00	0.02	175
	200 ISL	8.08	8.06	34.004	26.483	157.5	0.497	2.81	42.3	37.1	2.12	27.8	0.00	0.00	0.02	201
1	202	8.06	8.04	34.008	26.489	156.9	0.501	2.80	42.1	37.4	2.13	27.9	0.00	0.00	0.02	203
1	231	7.72	7.70	34.037	26.562	150.4	0.545	2.50	37.3	42.3	2.28	29.6	0.00			232
	250 ISL	7.53	7.51	34.057	26.605	146.5	0.573	2.25	33.5	45.9	2.39	30.9	0.00			251
1	271	7.35	7.32	34.079	26.648	142.7	0.604	1.97	29.2	49.7	2.50	32.3	0.00			273
	300 ISL	7.15	7.12	34.106	26.698	138.4	0.644	1.65	24.3	53.8	2.63	33.6	0.00			302
1	326	6.97	6.94	34.125	26.738	134.9	0.680	1.41	20.7	57.5	2.73	34.7	0.00			328
1	385	6.34	6.31	34.148	26.840	125.6	0.757	0.98	14.2	68.3	2.95	37.5	0.00			387
	400 ISL	6.30	6.26	34.171	26.864	123.5	0.775	0.86	12.4	70.1	3.00	37.9	0.00			403
1	451	6.23	6.19	34.252	26.938	117.3	0.837	0.53	7.7	75.3	3.13	38.7	0.00			454
	500 ISL	5.96	5.92	34.279	26.994	112.4	0.893	0.42	6.0	80.5	3.20	39.7	0.00			503
1	524	5.83	5.78	34.292	27.020	110.1	0.920	0.36	5.2	83.0	3.24	40.2	0.00			528

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 90

LATITUDE	LONGITUDE	DAY/NO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 24.6 N	121 59.6 N	04/04/93	0022 UTC	3914 -	320 18 kn	330 10 10	1	1019.1 *ub*	15.8 C	14.5 C	23B 01	7/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.01	15.01	33.098	24.505	341.9	0.000	5.90	102.5	2.2	0.40	0.1	0.01	0.14	0.04	0
1	1	15.01	15.01	33.098	24.505	342.0	0.003	5.90	102.5	2.2	0.40	0.1	0.01	0.14	0.04	1
	10 ISL	14.98	14.98	33.098	24.511	341.6	0.034	5.90	102.5	2.1	0.39	0.1	0.01	0.13	0.04	10
1	16	14.95	14.95	33.098	24.518	341.1	0.055	5.90	102.4	2.1	0.38	0.1	0.01	0.13	0.04	16
	20 ISL	14.94	14.94	33.097	24.520	341.1	0.068	5.90	102.4	2.1	0.38	0.1	0.01	0.13	0.04	20
	30 ISL	14.93	14.93	33.093	24.519	341.4	0.102	5.90	102.4	2.1	0.38	0.1	0.01	0.14	0.04	30
1	31	14.93	14.93	33.093	24.519	341.5	0.106	5.90	102.4	2.1	0.38	0.1	0.01	0.14	0.04	31
1	41	14.84	14.83	33.086	24.533	340.4	0.140	5.90	102.2	2.1	0.39	0.0	0.01	0.15	0.05	41
1	50	14.82	14.81	33.083	24.536	340.5	0.171	5.90	102.1	2.1	0.38	0.0	0.01	0.17	0.06	50
1	60	13.71	13.70	32.966	24.677	327.1	0.204	6.06	102.5	2.2	0.39	0.0	0.00	0.32	0.17	60
1	70	13.44	13.43	32.963	24.730	322.4	0.236	6.03	101.4	2.5	0.42	0.1	0.02	0.58	0.40	70
	75 ISL	13.25	13.24	32.978	24.780	317.7	0.252	5.94	99.5	2.8	0.47	0.6	0.09	0.61	0.42	75
1	79	13.10	13.09	33.000	24.827	313.4	0.265	5.85	97.7	3.2	0.51	1.2	0.15	0.63	0.43	79
1	95	12.94	12.93	33.164	24.986	298.7	0.314	5.45	90.8	5.4	0.70	4.1	0.31	0.38	0.29	95
	100 ISL	12.45	12.44	33.230	25.132	284.8	0.329	5.08	83.8	7.6	0.88	7.0	0.22	0.29	0.25	100
1	109	11.47	11.46	33.332	25.395	259.8	0.353	4.47	72.3	11.7	1.20	12.1	0.03	0.14	0.19	109
1	124	10.52	10.51	33.331	25.563	244.0	0.391	4.42	70.0	14.0	1.34	14.6	0.02	0.08	0.15	125
	125 ISL	10.44	10.43	33.330	25.576	242.7	0.393	4.42	69.9	14.2	1.35	14.8	0.02	0.08	0.15	126
1	149	8.82	8.80	33.333	25.844	217.3	0.449	4.35	66.3	19.6	1.60	19.2	0.01	0.01	0.05	150
	150 ISL	8.81	8.79	33.336	25.848	217.0	0.451	4.34	66.2	19.8	1.61	19.3	0.01	0.01	0.05	151
1	174	8.56	8.54	33.408	25.943	208.3	0.502	3.84	58.2	24.3	1.74	21.9	0.01	0.00	0.03	175
	200 ISL	8.76	8.74	33.885	26.286	176.4	0.552	2.83	43.2	31.3	2.01	25.5	0.01	0.00	0.04	201
1	204	8.79	8.77	33.960	26.341	171.4	0.559	2.68	41.0	32.4	2.05	26.0	0.01	0.00	0.04	205
1	234	8.35	8.33	34.047	26.477	158.8	0.608	2.42	36.7	37.9	2.19	28.0	0.00			235
	250 ISL	8.08	8.05	34.059	26.527	154.3	0.633	2.36	35.5	40.4	2.24	28.8	0.00			251
1	272	7.71	7.68	34.060	26.582	149.2	0.667	2.28	34.0	43.7	2.31	29.9	0.00			273
	300 ISL	7.32	7.29	34.061	26.639	144.0	0.708	2.09	30.9	48.3	2.41	31.4	0.00			302
1	328	6.97	6.94	34.065	26.691	139.3	0.747	1.84	27.0	53.4	2.53	33.0	0.00			330
1	388	6.31	6.28	34.112	26.816	127.9	0.828	1.16	16.8	65.9	2.83	36.6	0.00			390
	400 ISL	6.22	6.18	34.120	26.834	126.3	0.843	1.07	15.4	67.7	2.87	37.1	0.00			402
1	454	5.91	5.87	34.160	26.905	120.0	0.909	0.77	11.0	74.5	3.00	38.6	0.00			457
	500 ISL	5.72	5.68	34.218	26.975	113.9	0.963	0.53	7.6	80.3	3.11	39.6	0.00			503
1	524	5.62	5.58	34.248	27.011	110.7	0.990	0.41	5.8	83.3	3.17	40.1	0.00			527

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 5.1 N	122 39.7 N	03/04/93	1543 UTC	3990 -	340 21 kn	340 12 6	1	1019.9 *Mb*	15.5 C	14.9 C		7/8	ST

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.57	15.57	33.191	24.453	346.8	0.000	5.77	101.5	2.2	0.36	0.0	0.00	0.07	0.02	0
1	1	15.57	15.57	33.191	24.453	346.8	0.003	5.77	101.5	2.2	0.36	0.0	0.00	0.07	0.02	1
	10 ISL	15.57	15.57	33.190	24.453	347.2	0.035	5.77	101.5	2.2	0.36	0.0	0.00	0.07	0.02	10
1	15	15.57	15.57	33.190	24.453	347.3	0.052	5.77	101.5	2.2	0.36	0.0	0.00	0.07	0.02	15
	20 ISL	15.56	15.56	33.190	24.456	347.2	0.069	5.77	101.4	2.2	0.36	0.0	0.00	0.07	0.02	20
1	30	15.55	15.55	33.190	24.458	347.3	0.104	5.77	101.4	2.2	0.36	0.0	0.00	0.07	0.02	30
1	39	15.57	15.56	33.192	24.456	347.8	0.135	5.78	101.6	2.2	0.36	0.0	0.00	0.07	0.02	39
1	49	15.57	15.56	33.190	24.454	348.2	0.170	5.78	101.6	2.2	0.36	0.0	0.00	0.07	0.01	49
	50 ISL	15.57	15.56	33.190	24.454	348.3	0.174	5.78	101.6	2.2	0.36	0.0	0.00	0.07	0.01	50
1	59	15.55	15.54	33.191	24.460	348.0	0.205	5.77	101.4	2.2	0.36	0.0	0.00	0.07	0.02	59
1	70	15.56	15.55	33.190	24.457	348.6	0.243	5.77	101.4	2.1	0.36	0.0	0.00	0.07	0.02	70
	75 ISL	15.53	15.52	33.189	24.463	348.2	0.261	5.77	101.4	2.1	0.36	0.0	0.00	0.08	0.02	75
1	78	15.49	15.48	33.186	24.470	347.6	0.271	5.77	101.3	2.1	0.36	0.0	0.00	0.09	0.02	78
1	93	14.84	14.83	33.119	24.560	339.4	0.323	5.85	101.3	2.1	0.37	0.0	0.00	0.20 A	0.10 A	93
	100 ISL	14.51	14.50	33.181	24.679	328.3	0.346	5.74	98.8	2.7	0.43	0.4	0.03	0.24	0.17	100
1	107	14.13	14.11	33.260	24.820	315.0	0.369	5.59	95.5	3.4	0.50	1.2	0.06	0.26	0.22	107
1	123	13.02	13.00	33.358	25.121	286.6	0.417	5.30	88.5	5.3	0.70	4.6	0.07	0.21	0.20	124
	125 ISL	12.85	12.83	33.355	25.152	283.6	0.422	5.27	87.7	5.7	0.73	5.2	0.07	0.20	0.20	126
1	147	11.00	10.98	33.307	25.461	254.3	0.482	4.90	78.4	10.1	1.09	11.3	0.01	0.11	0.13	148
	ISO ISL	10.81	10.79	33.312	25.498	250.8	0.489	4.85	77.3	10.7	1.13	12.0	0.01	0.10	0.12	151
1	172	9.72	9.70	33.413	25.763	225.8	0.542	4.47	69.6	15.1	1.39	16.2	0.00	0.03	0.04	173
	200 ISL	8.99	8.97	33.678	26.088	195.2	0.601	3.82	58.6	22.6	1.69	21.2	0.00	0.00	0.02	201
1	201	8.97	8.95	33.688	26.099	194.2	0.603	3.79	58.1	22.9	1.70	21.4	0.00	0.00	0.02	202
1	230	8.52	8.50	33.900	26.335	172.2	0.656	3.11	47.3	30.8	1.95	25.5	0.00			231
	250 ISL	8.29	8.26	33.982	26.435	163.0	0.689	2.80	42.4	34.9	2.07	27.3	0.00			251
1	269	8.10	8.07	34.029	26.501	157.1	0.720	2.58	38.9	38.2	2.17	28.5	0.00			270
	300 ISL	7.81	7.78	34.069	26.575	150.4	0.767	2.30	34.4	43.1	2.31	30.3	0.00			302
1	324	7.58	7.55	34.080	26.617	146.7	0.803	2.10	31.3	47.0	2.42	31.6	0.00			326
1	384	6.81	6.77	34.108	26.747	134.8	0.887	1.40	20.5	59.0	2.72	35.4	0.00			386
	400 ISL	6.63	6.59	34.115	26.777	132.1	0.909	1.27	18.5	62.1	2.79	36.2	0.00			402
1	449	6.15	6.11	34.140	26.859	124.5	0.972	0.95	13.7	70.9	2.96	38.4	0.00			452
	500 ISL	5.87	5.83	34.186	26.931	118.1	1.033	0.67	9.6	77.6	3.09	39.7	0.00			503
1	521	5.76	5.72	34.205	26.960	115.6	1.058	0.55	7.9	80.3	3.14	40.3	0.00			524

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

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 110

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
30 45.1 N	123 19.9 N	03/04/93	0941 UTC	4020 B	340 28 kn			1020.1 mb	15.2 C	14.7 C		

CAST	DEPTH ▪	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PBAEO ug/1	PRESS db
	0 ISL	16.30	16.30	33.289	24.365	355.3	0.000	5.70	101.8	2.4	0.38	0.1	0.01	0.07	0.02	0
1	1	16.30	16.30	33.289	24.365	355.3	0.004	5.70	101.8	2.4	0.38	0.1	0.01	0.07	0.02	1
	10 ISL	16.30	16.30	33.289	24.365	355.6	0.036	5.69	101.6	2.4	0.38	0.1	0.01	0.07	0.03	10
1	17	16.30	16.30	33.289	24.365	355.8	0.060	5.69	101.6	2.4	0.38	0.1	0.01	0.07	0.03	17
	20 ISL	16.29	16.29	33.289	24.368	355.6	0.071	5.69	101.6	2.4	0.38	0.1	0.01	0.07	0.03	20
	30 ISL	16.28	16.28	33.288	24.369	355.8	0.107	5.69	101.5	2.4	0.37	0.1	0.01	0.07	0.01	30
1	32	16.28	16.27	33.288	24.370	355.8	0.114	5.69	101.5	2.4	0.37	0.1	0.01	0.07	0.01	32
1	42	16.31	16.30	33.289	24.364	356.7	0.149	5.69	101.6	2.4	0.37	0.1	0.01	0.07	0.02	42
	50 ISL	16.32	16.31	33.288	24.361	357.2	0.178	5.70	101.8	2.4	0.36	0.1	0.01	0.07	0.03	50
1	52	16.32	16.31	33.288	24.361	357.3	0.185	5.70	101.8	2.4	0.36	0.1	0.01	0.07	0.03	52
1	62	16.27	16.26	33.288	24.373	356.5	0.221	5.71	101.9	2.3	0.36	0.1	0.01	0.07	0.02	62
1	72	15.50	15.49	33.239	24.508	343.8	0.256	5.78	101.5	2.3	0.38	0.1	0.00	0.16	0.07	72
	75 ISL	15.21	15.20	33.217	24.555	339.4	0.266	5.81	101.4	2.4	0.40	0.1	0.00	0.18	0.10	75
1	81	14.62	14.61	33.184	24.657	329.8	0.286	5.85	100.9	2.7	0.44	0.1	0.00	0.22	0.16	81
1	96	13.40	13.39	33.237	24.951	302.1	0.334	5.53	93.0	4.3	0.60	2.4	0.07	0.36	0.32	96
	100 ISL	12.90	12.89	33.239	25.052	292.5	0.345	5.42	90.3	5.2	0.69	3.9	0.07	0.34	0.31	100
1	111	11.61	11.60	33.251	25.306	268.3	0.376	5.12	83.0	7.7	0.95	8.3	0.06	0.25	0.29	111
	125 ISL	10.95	10.93	33.282	25.450	254.8	0.413	4.87	77.8	10.1	1.13	11.4	0.03	0.17	0.21	126
1	126	10.92	10.90	33.285	25.458	254.1	0.415	4.85	77.4	10.3	1.14	11.6	0.03	0.16	0.20	127
1	150	9.66	9.64	33.429	25.785	223.2	0.473	4.30	66.8	16.7	1.48	17.4	0.01	0.04	0.07	151
1	175	9.45	9.43	33.673	26.010	202.3	0.526	3.91	60.6	20.0	1.58	19.5	0.01	0.01	0.03	176
	200 ISL	9.04	9.02	33.821	26.192	185.4	0.574	3.49	53.6	25.4	1.79	22.7	0.01	0.00	0.02	201
1	205	8.94	8.92	33.843	26.225	182.3	0.584	3.41	52.3	26.6	1.83	23.3	0.01	0.00	0.02	206
1	234	8.43	8.41	33.963	26.399	166.2	0.634	3.16	47.9	32.2	1.97	25.5	0.01			235
	250 ISL	8.22	8.19	33.996	26.457	161.0	0.660	3.02	45.6	34.8	2.04	26.5	0.01			251
1	274	7.95	7.92	34.023	26.518	155.4	0.698	2.81	42.2	38.5	2.14	27.9	0.01			275
	300 ISL	7.63	7.60	34.042	26.580	149.8	0.738	2.55	38.0	43.1	2.28	29.5	0.01			302
1	329	7.28	7.25	34.055	26.640	144.4	0.781	2.24	33.1	48.4	2.43	31.4	0.01			331
1	389	6.66	6.62	34.089	26.752	134.3	0.864	1.58	23.0	59.7	2.70	35.1	0.00			391
	400 ISL	6.57	6.53	34.095	26.769	132.8	0.879	1.48	21.5	61.5	2.74	35.6	0.00			402
1	456	6.16	6.12	34.132	26.852	125.3	0.951	1.06	15.3	70.0	2.93	37.7	0.00			459
	500 ISL	5.87	5.83	34.175	26.923	119.0	1.005	0.75	10.7	76.8	3.06	39.3	0.00			503
1	528	5.68	5.63	34.203	26.968	114.8	1.038	0.56	8.0	81.2	3.15	40.3	0.00			531

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 90 120

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
30 25.1 N	123 59.9 W	03/04/93	0317 UTC	3831 ▪	340 23 *n			1020.8 mb	15.7 C	13.9 C		

CAST	DEPTH ▪	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 UM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	16.30	16.30	33.276	24.355	356.2	0.000	5.70	101.8	2.2	0.38	0.1	0.00	0.07	0.02	0
1	1	16.30	16.30	33.276	24.355	356.3	0.004	5.70	101.8	2.2	0.38	0.1	0.00	0.07	0.02	1
	10 ISL	16.30	16.30	33.276	24.355	356.5	0.036	5.70	101.8	2.2	0.38	0.1	0.00	0.07	0.02	10
1	17	16.29	16.29	33.276	24.357	356.5	0.061	5.70	101.7	2.2	0.38	0.1	0.00	0.07	0.02	17
	20 ISL	16.28	16.28	33.276	24.360	356.4	0.071	5.70	101.7	2.2	0.38	0.1	0.00	0.07	0.02	20
	30 ISL	16.26	16.26	33.276	24.365	356.2	0.107	5.69	101.5	2.2	0.37	0.0	0.00	0.07	0.01	30
1	33	16.26	16.25	33.276	24.365	356.3	0.118	5.69	101.5	2.2	0.37	0.0	0.00	0.07	0.01	33
1	43	16.26	16.25	33.277	24.366	356.5	0.153	5.70	101.7	2.2	0.37	0.0	0.00	0.07	0.01	43
	50 ISL	16.25	16.24	33.277	24.369	356.5	0.178	5.70	101.6	2.2	0.37	0.0	0.00	0.08	0.02	50
1	53	16.25	16.24	33.277	24.369	356.6	0.189	5.70	101.6	2.2	0.37	0.0	0.00	0.08	0.02	S3
1	63	16.20	16.19	33.278	24.381	355.7	0.225	5.70	101.5	2.2	0.36	0.0	0.00	0.08	0.02	63
1	72	15.82	15.81	33.242	24.440	350.4	0.256	5.75	101.6	2.2	0.38	0.0	0.00	0.13	0.05	72
	75 ISL	15.17	15.16	33.206	24.556	339.4	0.267	5.79	101.0	2.5	0.41	0.0	0.00	0.21	0.12	75
1	80	13.99	13.98	33.158	24.769	319.0	0.283	5.83	99.3	3.2	0.47	0.0	0.01	0.36	0.24	80
1	95	12.57	12.56	33.164	25.058	291.7	0.329	5.43	89.8	5.6	0.74	4.4	0.08	0.45	0.37	95
	100 ISL	12.15	12.14	33.168	25.141	283.9	0.343	5.30	86.8	6.5	0.83	6.0	0.08	0.41	0.36	100
1	110	11.38	11.37	33.189	25.300	268.8	0.371	5.04	81.2	8.5	1.01	9.2	0.09	0.28	0.29	110
1	125	10.34	10.33	33.271	25.547	245.4	0.409	4.68	73.8	12.3	1.27	13.7	0.03	0.14	0.17	126
1	150	9.60	9.58	33.453	25.813	220.5	0.468	4.15	64.4	17.7	1.54	18.2	0.01	0.04	0.07	151
1	174	9.15	9.13	33.704	26.083	195.3	0.518	3.65	56.2	23.0	1.73	21.6	0.01	0.00	0.02	175
	200 ISL	8.81	8.79	33.859	26.258	179.1	0.566	3.39	51.8	27.6	1.84	23.6	0.01	0.00	0.02	201
1	204	8.76	8.74	33.875	26.279	177.2	0.573	3.36	51.3	28.3	1.86	23.8	0.01	0.00	0.02	205
1	233	8.35	8.33	33.987	26.430	163.2	0.623	2.95	44.7	34.3	2.04	26.6	0.01			234
	250 ISL	8.09	8.06	34.015	26.491	157.7	0.650	2.81	42.3	37.4	2.11	27.7	0.01			251
1	273	7.75	7.72	34.031	26.554	151.9	0.686	2.66	39.8	41.4	2.20	28.9	0.00			274
	300 ISL	7.41	7.38	34.048	26.616	146.3	0.726	2.40	35.6	46.2	2.33	30.6	0.00			302
1	328	7.10	7.07	34.061	26.670	141.4	0.766	2.09	30.8	51.1	2.47	32.3	0.01			330
1	388	6.53	6.49	34.095	26.774	132.0	0.848	1.41	20.5	61.9	2.77	35.8	0.01			390
	400 ISL	6.44	6.40	34.105	26.794	130.3	0.864	1.29	18.7	63.8	2.82	36.3	0.01			402
1	454	6.10	6.06	34.158	26.880	122.6	0.932	0.84	12.1	71.9	3.01	38.4	0.01			457
	500 ISL	5.86	5.82	34.204	26.947	116.7	0.987	0.59	8.4	78.2	3.12	39.7	0.00			503
1	526	5.73	5.68	34.231	26.984	113.3	1.017	0.45	6.4	81.7	3.18	40.4	0.00			529

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 93 26.7

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	NINO SPEED	NAVES	HEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT	TYPE
32 57.4 N	117 18.3 N	30/03/93	2049 UTC	62 -	280 09 kn	280 01 07	1	1019.9 ab	18.5 C	15.7 C	06B 05	2/8	CI

CAST	DEPTH -	TEMP DEC C	POT TEMP DEC C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/1	OXY PCT	SIO3 uM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PBAEO ug/1	PRESS db
	0 ISL	16.99	16.99	32.840	23.860	403.3	0.000	6.03	108.8	5.7	0.33	0.5	0.04	1.75	0.29	0
1	1	16.99	16.99	32.840	23.860	403.4	0.004	6.03	108.8	5.7	0.33	0.5	0.04	1.75	0.29	1
1	7	16.48	16.48	32.995	24.098	380.9	0.028	6.05	108.2	3.4	0.30	0.2	0.03	1.12	0.24	7
	10 ISL	16.26	16.26	33.032	24.177	373.5	0.039	6.06	107.9	3.1	0.31	0.1	0.03	1.24	0.33	10
1	12	16.09	16.09	33.050	24.229	368.6	0.046	6.07	107.8	2.9	0.31	0.1	0.03	1.37	0.40	12
	20 ISL	14.83	14.83	33.166	24.596	333.8	0.074	5.47	94.8	4.1	0.48	1.2	0.15	1.29	0.54	20
1	22	14.42	14.42	33.199	24.709	323.1	0.081	5.25	90.2	4.4	0.56	1.5	0.20	1.27	0.55	22
	30 ISL	12.49	12.49	33.326	25.197	276.8	0.105	4.33	71.5	9.9	1.08	10.3	0.44	0.77	0.47	30
1	31	12.28	12.28	33.341	25.249	271.9	0.108	4.23	69.6	10.6	1.14	11.4	0.46	0.71	0.46	31
1	42	11.94	11.93	33.394	25.355	262.1	0.137	3.98	65.0	12.3	1.27	13.2	0.36	0.53	0.41	42
	50 ISL	11.26	11.25	33.480	25.547	243.9	0.157	3.76	60.6	15.4	1.41	15.6	0.26	0.23	0.32	50
1	52	11.09	11.08	33.502	25.595	239.4	0.162	3.71	59.6	16.2	1.45	16.2	0.23	0.16	0.30	52

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 93 28

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	HEA	BAROMETER	DRY	NET	SECCHI/FOREL	CLD AMT	TYPE
32 54.7 N	117 24.2 H	30/03/93	2310 UTC	637 -	280 10 kn	280 01 05	1	1019.0 Bb	17.9 C	15.0 C	10B 04	1/8	CI

CAST	DEPTH a	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/1	OXY PCT	SIO3 uM/l	PO4 uM/1	NO3 UM/1	NO2 uM/l	CHL-A ug/1	PHAEO ug/1	PRESS db
1	0	16.05	16.05	33.091	24.269	364.4	0.000	6.08	107.9	2.7	0.35	0.1	0.03	0.57	0.15	0
	10 ISL	15.59	15.59	33.095	24.375	354.5	0.036	6.14	108.0	2.8	0.32	0.0	0.02	1.09	0.29	10
1	11	15.54	15.54	33.095	24.387	353.5	0.039	6.15	108.0	2.8	0.32	0.0	0.02	1.14	0.30	11
	20 ISL	13.04	13.04	33.269	25.045	291.0	0.068	4.52	75.5	8.2	1.02	8.7	0.91	1.40	0.56	20
1	21	12.76	12.76	33.294	25.120	283.9	0.071	4.33	71.9	8.9	1.10	9.7	1.00	1.41	0.58	21
1	30	12.13	12.13	33.359	25.291	267.8	0.096	4.10	67.2	11.3	1.24	12.9	0.61	1.18	0.52	30
1	41	11.58	11.57	33.419	25.441	253.8	0.125	4.09	66.3	12.4	1.27	13.6	0.09	0.46	0.34	41
	50 ISL	11.32	11.31	33.451	25.513	247.1	0.147	3.98	64.2	13.5	1.34	14.6	0.06	0.34	0.28	50
1	51	11.29	11.28	33.454	25.521	246.4	0.150	3.97	64.0	13.6	1.35	14.7	0.06	0.34	0.27	51
1	61	10.94	10.93	33.495	25.616	237.6	0.174	3.88	62.1	15.0	1.41	15.9	0.05	0.14	0.17	61
1	70	10.70	10.69	33.529	25.685	231.2	0.195	3.79	60.3	16.0	1.47	16.8	0.04	0.09	0.14	70
	75 ISL	10.44	10.43	33.544	25.742	225.9	0.207	3.77	59.7	16.9	1.51	17.6	0.04	0.06	0.12	75
1	84	10.02	10.01	33.582	25.843	216.4	0.227	3.72	58.4	18.7	1.59	19.0	0.04	0.03	0.08	84
1	99	9.96	9.95	33.699	25.945	207.0	0.258	3.38	53.0	21.2	1.71	20.5	0.05	0.02	0.07	99
	100 ISL	9.94	9.93	33.702	25.951	206.5	0.260	3.37	52.8	21.3	1.72	20.6	0.05	0.02	0.07	101
1	117	9.58	9.57	33.748	26.047	197.7	0.295	3.28	51.0	23.4	1.80	21.9	0.03	0.01	0.05	118
	125 ISL	9.52	9.51	33.798	26.096	193.2	0.310	3.15	48.9	24.7	1.85	22.6 '	0.03	0.01	0.05	126
1	142	9.46	9.44	33.913	26.196	184.1	0.342	2.83	43.9	27.5	1.95	24.0	0.03	0.01	0.05	143
	150 ISL	9.42	9.40	33.951	26.232	180.8	0.357	2.72	42.2	28.6	1.99	24.5	0.03	0.01	0.05	151
1	172	9.29	9.27	34.032	26.317	173.2	0.396	2.47	38.2	31.5	2.08	25.8	0.02	0.01	0.05	173
	200 ISL	9.05	9.03	34.102	26.411	164.8	0.443	2.22	34.2	35.2	2.17	27.1	0.02	0.01	0.04	201
1	202	9.03	9.01	34.106	26.417	164.2	0.447	2.21	34.0	35.4	2.18	27.2	0.02	0.01	0.04	203
1	231	8.73	8.71	34.138	26.490	157.7	0.493	2.07	31.7	38.5	2.29	28.3	0.02			232
	250 ISL	8.67	8.64	34.167	26.522	155.0	0.523	1.89	28.9	40.3	2.36	28.9	0.02			251
2	274	8.63	8.60	34.201	26.556	152.3	0.560	1.65	25.2	42.5	2.45	29.7	0.01			276
	300 ISL	8.45	8.42	34.216	26.595	149.0	0.599	1.49	22.7	44.9	2.52	30.5	0.01			302
2	329	8.19	8.16	34.223	26.641	145.0	0.642	1.34	20.3	47.9	2.60	31.4	0.02			331
2	389	7.51	7.47	34.234	26.750	135.3	0.726	0.95	14.1	57.1	2.84	34.0	0.02			392
	400 ISL	7.37	7.33	34.237	26.772	133.3	0.740	0.88	13.1	59.0	2.88	34.5	0.02			403
2	456	6.69	6.65	34.261	26.885	122.8	0.812	0.58	8.5	69.2	3.06	37.2	0.02			459
	500 ISL	6.21	6.17	34.289	26.970	114.9	0.864	0.43	6.2	77.3	3.17	38.8	0.01			503
2	527	5.91	5.86	34.307	27.022	110.0	0.895	0.33	4.7	82.2	3.24	39.8	0.01			531

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 93 30

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	HIND SPEED	HAVES	HEA	BAROMETER	DRY	HET	SECCHI/FOREL	CLD AMT	TYPE
32 50.7 N	117 31.9 H	31/03/93	0436 UTC	857 B	290 07 kn			1018.9 Bb	15.4 C	14.0 C			

CAST	DEPTH B	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/1	OXY PCT	SIO3 uM/l	PO4 UM/1	NO3 uM/l	NO2 uM/l	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	16.46	16.46	33.149	24.220	369.0	0.000	5.81	104.0	2.4	0.37	0.0	0.02	0.15	0.04	0
1	1	16.46	16.46	33.149	24.220	369.0	0.004	5.81	104.0	2.4	0.37	0.0	0.02	0.15	0.04	1
1	10	16.38	16.38	33.150	24.240	367.5	0.037	5.82	104.0	2.4	0.34	0.1	0.02	0.15	0.04	10
1	20	16.18	16.18	33.160	24.293	362.7	0.073	5.83	103.8	2.4	0.35	0.1	0.01	0.16	0.04	20
1	30	16.07	16.07	33.164	24.322	360.3	0.109	5.92	105.1	2.6	0.35	0.1	0.01	0.34	0.12	30
1	40	13.41	13.40	33.254	24.960	299.6	0.142	4.94	83.2	7.0	0.91	6.0	0.79	1.32	0.46	40
1	50	12.13	12.12	33.366	25.297	267.7	0.171	4.08	66.9	11.2	1.23	13.0	0.45	0.61	0.37	50
1	59	11.42	11.41	33.449	25.494	249.2	0.194	3.98	64.3	13.5	1.36	14.9	0.06	0.27	0.22	59
1	69	10.97	10.96	33.497	25.613	238.1	0.218	3.87	62.0	15.0	1.41	16.1	0.03	0.16	0.16	69
	75 ISL	10.80	10.79	33.519	25.660	233.7	0.233	3.81	60.8	15.8	1.45	16.7	0.03	0.12	0.14	75
1	83	10.60	10.59	33.551	25.720	228.2	0.251	3.73	59.3	17.0	1.52	17.6	0.03	0.08	0.12	83
1	98	10.02	10.01	33.655	25.901	211.2	0.284	3.48	54.6	20.5	1.66	20.1	0.03	0.04	0.08	98
	100 ISL	9.97	9.96	33.668	25.919	209.5	0.288	3.45	54.1	20.8	1.67	20.3	0.03	0.04	0.08	100
1	118	9.72	9.71	33.784	26.052	197.3	0.325	3.16	49.3	23.8	1.80	22.2	0.03	0.02	0.07	119
	125 ISL	9.65	9.64	33.842	26.109	192.0	0.339	3.01	46.9	25.3	1.86	23.0	0.03	0.02	0.06	126
1	143	9.53	9.51	33.979	26.236	180.3	0.372	2.64	41.1	29.1	2.00	24.9	0.02	0.01	0.04	144
	150 ISL	9.49	9.47	34.012	26.269	177.3	0.385	2.55	39.6	30.0	2.03	25.3	0.02	0.01	0.04	151
1	172	9.38	9.36	34.085	26.344	170.6	0.423	2.34	36.3	32.4	2.12	26.2	0.01	0.00	0.04	173
	200 ISL	9.17	9.15	34.164	26.440	162.0	0.469	2.02	31.2	36.3	2.26	27.7	0.01	0.00	0.04	201
1	202	9.15	9.13	34.168	26.447	161.5	0.473	2.00	30.9	36.6	2.27	27.8	0.01	0.00	0.04	203
1	232	8.77	8.75	34.186	26.521	154.8	0.520	1.83	28.0	40.1	2.36	28.9	0.01			233
	250 ISL	8.73	8.70	34.221	26.555	152.0	0.548	1.58	24.2	42.2	2.45	29.7	0.01			251
1	272	8.69	8.66	34.259	26.592	148.9	0.581	1.27	19.4	44.7	2.56	30.6	0.01			274
	300 ISL	8.32	8.29	34.247	26.639	144.7	0.622	1.23	18.6	48.1	2.63	31.7	0.01			302
1	327	7.91	7.88	34.224	26.683	140.8	0.660	1.19	17.9	51.3	2.68	32.6	0.01			329
1	387	7.47	7.43	34.253	26.770	133.3	0.743	0.87	12.9	58.1	2.85	34.4	0.01			389
	400 ISL	7.35	7.31	34.256	26.789	131.6	0.760	0.81	12.0	59.8	2.88	34.9	0.01			403
1	455	6.82	6.78	34.266	26.871	124.2	0.830	0.59	8.6	66.9	3.01	36.8	0.01			458
	500 ISL	6.48	6.43	34.279	26.927	119.3	0.885	0.49	7.1	72.0	3.08	37.9	0.01			503
1	526	6.29	6.24	34.287	26.958	116.5	0.916	0.43	6.2	75.0	3.12	38.5	0.01			530

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	HAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
32 40.8 N	117 52.5 W	31/03/93	0831 UTC	608 -	330 08 kt>			1018.9 ab	15.4 C	14.0 C		

CAST	DEPTH -		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PBAEO ug/1	PRESS db
	0	ISL	16.26	16.26	33.174	24.285	362.8	0.000	5.79	103.2	2.7	0.38	0.2	0.00	0.16	0.04	0
1	1		16.26	16.26	33.174	24.285	362.9	0.004	5.79	103.2	2.7	0.38	0.2	0.00	0.16	0.04	1
1	10		16.17	16.17	33.176	24.308	361.0	0.036	5.79	103.0	2.6	0.37	0.2	0.00	0.16	0.04	10
	20	ISL	15.72	15.72	33.193	24.422	350.4	0.072	5.81	102.5	2.6	0.39	0.2	0.00	0.12	0.05	20
1	21		15.68	15.68	33.195	24.433	349.4	0.075	5.81	102.4	2.6	0.39	0.2	0.00	0.12	0.05	21
1	30		15.59	15.59	33.198	24.456	347.5	0.107	5.83	102.6	2.6	0.39	0.3	0.01	0.21	0.09	30
1	41		14.40	14.39	33.216	24.727	321.9	0.143	5.96	102.4	2.8	0.44	0.1	0.01	0.33	0.19	41
	50	ISL	13.48	13.47	33.193	24.899	305.7	0.172	5.68	95.7	4.3	0.57	1.8	0.10	0.52	0.34	50
1	51		13.38	13.37	33.191	24.918	304.0	0.175	5.63	94.7	4.5	0.59	2.1	0.11	0.54	0.36	51
1	60		12.66	12.65	33.224	25.086	288.2	0.201	5.19	86.0	6.8	0.85	6.0	0.21	0.45	0.42	60
1	71		12.06	12.05	33.311	25.268	271.0	0.232	4.61	75.5	9.8	1.11	10.4	0.08	0.30	0.28	71
	75	ISL	11.80	11.79	33.346	25.344	263.9	0.243	4.42	72.0	11.0	1.20	11.9	0.06	0.25	0.24	75
1	84		11.22	11.21	33.418	25.507	248.6	0.266	4.09	65.8	13.7	1.37	14.8	0.03	0.16	0.18	84
1	100		10.45	10.44	33.488	25.697	230.7	0.304	3.94	62.4	16.7	1.52	17.3	0.02	0.07	0.10	100
1	120		9.93	9.92	33.649	25.911	210.7	0.348	3.53	55.3	20.9	1.69	20.2	0.02	0.03	0.07	121
	125	ISL	9.77	9.76	33.669	25.954	206.7	0.359	3.49	54.5	21.8	1.72	20.8	0.02	0.02	0.06	126
1	144		9.26	9.24	33.745	26.097	193.4	0.397	3.33	51.4	25.0	1.83	22.8	0.01	0.00	0.04	145
	150	ISL	9.26	9.24	33.797	26.138	189.7	0.408	3.19	49.3	26.1	1.87	23.3	0.01	0.00	0.04	151
1	174		9.27	9.25	33.985	26.284	176.4	0.452	2.63	40.7	30.6	2.00	25.2	0.01	0.00	0.03	175
	200	ISL	8.90	8.88	34.077	26.415	164.3	0.497	2.37	36.4	35.3	2.13	27.2	0.00	0.00	0.03	201
1	203		8.85	8.83	34.083	26.427	163.1	0.501	2.35	36.0	35.8	2.14	27.4	0.00	0.00	0.03	204
1	233		8.47	8.45	34.110	26.508	155.9	0.549	2.18	33.1	39.7	2.24	28.8	0.01			234
	250	ISL	8.27	8.24	34.135	26.558	151.4	0.575	1.96	29.7	42.8	2.34	29.9	0.01			251
1	272		8.03	8.00	34.164	26.617	146.1	0.608	1.67	25.1	46.9	2.46	31.2	0.01			274
	300	ISL	7.79	7.76	34.167	26.655	142.9	0.649	1.53	22.9	50.0	2.53	32.3	0.01			302
1	328		7.57	7.54	34.167	26.687	140.2	0.688	1.43	21.3	52.9	2.59	33.3	0.01			330
1	387		7.09	7.05	34.232	26.807	129.5	0.768	0.83	12.2	62.7	2.87	35.8	0.01			389
	400	ISL	6.99	6.95	34.237	26.824	127.9	0.785	0.77	11.3	64.2	2.90	36.2	0.01			403
1	454		6.63	6.59	34.252	26.885	122.7	0.852	0.60	8.7	69.5	2.99	37.6	0.00			457
	500	ISL	6.38	6.33	34.281	26.942	117.8	0.907	0.47	6.8	74.2	3.07	38.6	0.00			503
1	526		6.24	6.19	34.298	26.974	115.0	0.938	0.39	5.6	76.9	3.11	39.2	0.00			530

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 40

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT TYPE
32 30.8 N	118 12.9 W	31/03/93	1220 UTC	1655 *m*	260 06 kn			1018.0 mb	14.9 C	13.5 C		

CAST	DEPTH -		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN nl/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 UM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	15.87	15.87	33.189	24.385	353.3	0.000	5.80	102.6	2.2	0.37	0.0	0.01	0.16	0.04	0
1	1		15.87	15.87	33.189	24.385	353.3	0.004	5.80	102.6	2.2	0.37	0.0	0.01	0.16	0.04	1
	10	ISL	15.89	15.89	33.185	24.378	354.3	0.035	5.78	102.3	2.2	0.37	0.0	0.01	0.15	0.04	10
1	11		15.89	15.89	33.185	24.378	354.4	0.039	5.78	102.3	2.2	0.37	0.0	0.01	0.15	0.04	11
	20	ISL	15.71	15.71	33.186	24.419	350.7	0.071	5.81	102.5	2.2	0.38	0.0	0.01	0.20	0.06	20
1	21		15.68	15.68	33.186	24.426	350.1	0.074	5.81	102.4	2.2	0.38	0.0	0.01	0.21	0.06	21
	30	ISL	15.41	15.41	33.185	24.485	344.7	0.105	5.84	102.4	2.2	0.39	0.0	0.01	0.20	0.08	30
1	31		15.37	15.37	33.185	24.494	343.9	0.109	5.85	102.5	2.2	0.39	0.0	0.01	0.20	0.08	31
1	41		14.68	14.67	33.200	24.655	328.8	0.142	5.94	102.6	2.3	0.40	0.0	0.01	0.29	0.16	41
1	50		13.45	13.44	33.202	24.912	304.5	0.171	5.54	93.3	4.3	0.60	2.1	0.25	0.73	0.52	50
1	61		12.05	12.04	33.209	25.191	278.1	0.203	5.07	82.9	7.7	0.91	7.6	0.14	0.34	0.33	61
1	71		11.34	11.33	33.242	25.348	263.4	0.230	4.81	77.5	10.2	1.08	10.7	0.06	0.22	0.25	71
	75	ISL	11.00	10.99	33.264	25.426	256.0	0.240	4.71	75.3	11.3	1.15	12.0	0.04	0.18	0.22	75
1	84		10.32	10.31	33.321	25.589	240.6	0.263	4.51	71.1	13.6	1.30	14.5	0.02	0.12	0.15	84
1	98		9.98	9.97	33.391	25.701	230.1	0.296	4.27	66.8	16.0	1.43	16.5	0.02	0.07	0.10	98
	100	ISL	9.93	9.92	33.410	25.725	228.0	0.300	4.21	65.8	16.5	1.45	16.9	0.02	0.06	0.09	100
1	119		9.52	9.51	33.594	25.936	208.2	0.342	3.65	56.6	21.3	1.66	20.6	0.01	0.02	0.05	120
	125	ISL	9.45	9.44	33.630	25.976	204.5	0.354	3.55	55.0	22.2	1.70	21.2	0.01	0.02	0.05	126
1	143		9.28	9.26	33.716	26.071	195.9	0.390	3.33	51.4	24.5	1.79	22.6	0.01	0.01	0.05	144
	150	ISL	9.20	9.18	33.755	26.115	191.8	0.404	3.24	50.0	25.5	1.82	23.1	0.01	0.01	0.05	151
1	174		8.93	8.91	33.889	26.262	178.2	0.448	2.94	45.1	29.5	1.94	25.0	0.01	0.00	0.03	175
	200	ISL	8.62	8.60	34.017	26.411	164.5	0.493	2.56	39.0	34.8	2.09	27.2	0.01	0.00	0.02	201
1	203		8.59	8.57	34.029	26.426	163.2	0.498	2.52	38.4	35.4	2.11	27.4	0.01	0.00	0.02	204
1	232		8.30	8.28	34.081	26.511	155.5	0.544	2.24	33.9	40.0	2.24	28.9	0.01			233
	250	ISL	8.11	8.08	34.107	26.560	151.1	0.571	2.04	30.8	43.2	2.34	29.9	0.01			251
1	272		7.87	7.84	34.133	26.616	146.1	0.604	1.79	26.8	47.0	2.45	31.1	0.01			274
	300	ISL	7.59	7.56	34.151	26.672	141.2	0.644	1.54	22.9	51.2	2.56	32.5	0.01			302
1	328		7.33	7.30	34.165	26.720	136.9	0.683	1.32	19.6	55.1	2.66	33.8	0.00			330
1	389		6.86	6.82	34.212	26.822	127.8	0.764	0.86	12.6	64.1	2.87	36.1	0.00			391
	400	ISL	6.77	6.73	34.219	26.840	126.2	0.778	0.80	11.7	65.7	2.90	36.5	0.00			403
1	455		6.36	6.32	34.248	26.918	119.4	0.846	0.56	8.1	72.9	3.02	38.2	0.00			458
	500	ISL	6.11	6.07	34.272	26.969	114.9	0.898	0.43	6.2	77.6	3.09	39.2	0.00			503
1	525		5.97	5.92	34.286	26.998	112.3	0.927	0.36	5.2	80.2	3.13	39.7	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 21.1 N	118 33.3 N	31/03/93	1725 UTC	1323 m	340 09 kn	280 03 10	2	1019.9 ab	15.0 C	13.0 C	18B 02	8/8	ST

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/l	OXY PCT	SIO3 uM/l	PO4 uM/l	NO3 uM/l	NO2 UM/l	CHL-A ug/l	PHAEO ug/l	PRESS <U>
	0 ISL	15.14	15.14	33.192	24.549	337.7	0.000	5.95	103.7	1.5	0.41	0.1	0.02	0.21	0.06	0
1	1	15.14	15.14	33.192	24.549	337.8	0.003	5.95	103.7	1.5	0.41	0.1	0.02	0.21	0.06	1
	10 ISL	15.11	15.11	33.195	24.558	337.2	0.034	5.93	103.3	1.5	0.39	0.1	0.01	0.22	0.07	10
1	11	15.11	15.11	33.195	24.558	337.2	0.037	5.93	103.3	1.5	0.39	0.1	0.01	0.22	0.07	11
	20 ISL	15.07	15.07	33.197	24.568	336.5	0.067	5.94	103.4	1.3	0.40	0.1	0.01	0.25	0.08	20
1	21	15.07	15.07	33.197	24.569	336.5	0.071	5.94	103.4	1.3	0.40	0.1	0.01	0.26	0.08	21
1	30	14.79	14.79	33.198	24.630	330.9	0.101	5.94	102.8	1.8	0.41	0.1	0.01	0.34	0.15	30
1	40	14.37	14.36	33.215	24.733	321.4	0.133	5.85	100.4	2.3	0.43	0.3	0.02	1.12	0.46	40
1	50	13.63	13.62	33.203	24.877	307.9	0.165	5.67	95.9	3.8	0.55	2.0	0.08	1.03	0.60	50
1	60	12.66	12.65	33.233	25.093	287.5	0.195	5.24	86.8	6.6	0.77	5.8	0.22	0.59	0.44	60
1	70	11.65	11.64	33.296	25.333	264.8	0.222	4.81	78.0	10.3	1.02	10.1	0.12	0.30	0.28	70
	75 ISL	11.42	11.41	33.308	25.385	260.0	0.235	4.70	75.9	11.1	1.09	11.2	0.08	0.23	0.24	75
1	84	11.11	11.10	33.335	25.462	252.8	0.258	4.52	72.5	12.3	1.19	12.8	0.04	0.17	0.20	84
1	97	10.21	10.20	33.464	25.719	228.5	0.290	4.08	64.2	16.9	1.44	16.9	0.02	0.06	0.13	97
	100 ISL	10.18	10.17	33.495	25.749	225.7	0.297	4.01	63.1	17.5	1.47	17.4	0.02	0.06	0.12	100
1	118	10.02	10.01	33.584	25.846	216.9	0.336	3.71	58.2	19.7	1.57	19.0	0.02	0.03	0.07	119
	125 ISL	9.96	9.95	33.630	25.892	212.7	0.351	3.58	56.1	20.7	1.62	19.8	0.02	0.02	0.06	126
1	143	9.76	9.74	33.752	26.021	200.8	0.389	3.24	50.6	23.7	1.75	21.8	0.01	0.01	0.05	144
	150 ISL	9.64	9.62	33.799	26.077	195.5	0.403	3.12	48.6	25.2	1.80	22.6	0.01	0.01	0.05	151
1	172	9.22	9.20	33.938	26.255	179.0	0.444	2.74	42.3	30.2	1.97	25.1	0.01	0.00	0.04	173
	200 ISL	8.80	8.78	34.075	26.429	162.9	0.492	2.24	34.3	36.8	2.19	27.9	0.01	0.00	0.05	201
1	203	8.76	8.74	34.085	26.443	161.6	0.496	2.20	33.7	37.4	2.21	28.1	0.01	0.00	0.05	204
1	231	8.47	8.45	34.116	26.513	155.4	0.541	2.03	30.9	40.6	2.30	29.2	0.01			232
	250 ISL	8.29	8.26	34.130	26.551	152.1	0.570	1.94	29.4	42.6	2.35	29.9	0.01			251
1	272	8.07	8.04	34.141	26.593	148.4	0.603	1.82	27.4	45.2	2.41	30.7	0.01			274
	300 ISL	7.70	7.67	34.155	26.659	142.4	0.644	1.59	23.8	49.9	2.53	32.2	0.01			302
1	327	7.34	7.31	34.169	26.722	136.7	0.682	1.36	20.1	54.8	2.66	33.7	0.01			329
1	386	6.86	6.82	34.202	26.814	128.5	0.760	0.95	13.9	63.7	2.87	36.1	0.01			388
	400 ISL	6.75	6.71	34.211	26.836	126.6	0.778	0.86	12.6	65.8	2.91	36.6	0.01			403
1	454	6.36	6.32	34.249	26.919	119.3	0.844	0.56	8.1	73.1	3.05	38.2	0.01			457
	500 ISL	6.13	6.09	34.279	26.972	114.6	0.898	0.44	6.3	78.1	3.13	38.9	0.00			503
1	525	6.00	5.95	34.295	27.002	112.1	0.926	0.37	5.3	80.8	3.18	39.3	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 50

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 10.8 N	118 53.6 W	31/03/93	2215 UTC	1476 m	320 16 kn	300 03 10	1	1018.3 *mb*	17.0 C	14.9 C	32B 01	3/8	SC

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Bl/l	OXY PCT	SIO3 UM/l	PO4 UM/l	NO3 UM/l	NO2 uM/l	CHL-A ug/l	PHAEO uq/l	PRESS db
	0 ISL	15.18	15.18	33.139	24.499	342.4	0.000	5.87	102.4	2.6	0.38	0.1	0.01	0.12	0.03	0
1	1	15.18	15.18	33.139	24.499	342.5	0.003	5.87	102.4	2.6	0.38	0.1	0.01	0.12	0.03	1
1	10	14.98	14.98	33.134	24.539	339.0	0.034	5.86	101.8	2.5	0.38	0.1	0.01	0.14	0.04	10
	20 ISL	14.95	14.95	33.134	24.546	338.6	0.068	5.86	101.7	2.4	0.38	0.1	0.01	0.16	0.04	20
1	21	14.95	14.95	33.134	24.546	338.6	0.071	5.86	101.7	2.4	0.38	0.1	0.01	0.16	0.04	21
1	29	14.95	14.95	33.136	24.548	338.7	0.098	5.86	101.7	2.4	0.38	0.1	0.01	0.17	0.05	29
	30 ISL	14.95	14.95	33.136	24.548	338.7	0.102	5.86	101.7	2.4	0.38	0.1	0.01	0.19	0.06	30
1	39	14.84	14.83	33.142	24.576	336.3	0.132	5.88	101.9	2.4	0.39	0.1	0.01	0.42	0.15	39
1	50	14.46	14.45	33.176	24.684	326.3	0.169	5.85	100.6	2.5	0.44	0.6	0.04	0.75	0.39	50
1	58	13.87	13.86	33.194	24.821	313.5	0.194	5.66	96.2	3.7	0.55	2.0	0.11	0.62	0.34	58
1	69	13.32	13.31	33.209	24.945	301.9	0.228	5.45	91.5	5.1	0.66	3.8	0.23	0.46	0.32	69
	75 ISL	12.63	12.62	33.237	25.102	287.0	0.246	5.19	85.9	7.2	0.82	6.4	0.19	0.33	0.26	75
1	83	11.73	11.72	33.286	25.311	267.2	0.268	4.85	78.8	10.1	1.04	10.0	0.10	0.18	0.19	83
1	97	11.24	11.23	33.334	25.438	255.4	0.305	4.61	74.2	12.2	1.17	12.2	0.06	0.15	0.17	97
	100 ISL	11.15	11.14	33.342	25.460	253.3	0.312	4.57	73.4	12.6	1.19	12.6	0.06	0.14	0.17	100
1	117	10.65	10.64	33.405	25.598	240.5	0.354	4.33	68.8	14.9	1.32	14.8	0.04	0.10	0.15	118
	125 ISL	10.40	10.39	33.468	25.691	231.9	0.373	4.10	64.8	16.7	1.42	16.4	0.03	0.07	0.12	126
1	141	9.94	9.92	33.615	25.884	213.8	0.409	3.61	56.5	20.7	1.64	19.8	0.01	0.03	0.06	142
	150 ISL	9.74	9.72	33.692	25.977	205.0	0.428	3.39	52.9	22.8	1.73	21.2	0.01	0.02	0.06	151
1	172	9.35	9.33	33.865	26.177	186.5	0.471	2.91	45.1	28.1	1.92	24.1	0.01	0.01	0.05	173
	200 ISL	8.95	8.93	34.042	26.380	167.6	0.520	2.34	35.9	34.9	2.14	27.2	0.01	0.01	0.05	201
1	201	8.94	8.92	34.047	26.385	167.1	0.522	2.32	35.6	35.1	2.15	27.3	0.01	0.01	0.05	202
1	230	8.70	8.68	34.093	26.459	160.6	0.569	2.11	32.2	38.3	2.25	28.6	0.00			231
	250 ISL	8.39	8.36	34.117	26.526	154.5	0.601	1.92	29.1	42.1	2.35	29.8	0.00			251
1	271	8.06	8.03	34.138	26.592	148.4	0.633	1.72	25.9	46.2	2.45	31.0	0.01			273
	300 ISL	7.84	7.81	34.160	26.642	144.1	0.675	1.54	23.1	49.4	2.54	32.1	0.01			302
1	326	7.68	7.65	34.174	26.677	141.2	0.712	1.39	20.8	51.9	2.61	33.0	0.01			328
1	386	7.04	7.00	34.210	26.796	130.4	0.794	0.93	13.7	61.8	2.84	35.7	0.01			388
	400 ISL	6.91	6.87	34.218	26.820	128.2	0.812	0.84	12.3	64.0	2.88	36.2	0.01			402
1	452	6.55	6.51	34.246	26.891	122.0	0.877	0.60	8.7	70.6	3.01	37.8	0.01			455
	500 ISL	6.41	6.36	34.262	26.923	119.6	0.935	0.52	7.5	73.4	3.06	38.2	0.01			503
1	522	6.34	6.29	34.269	26.938	118.4	0.961	0.48	6.9	74.7	3.08	38.4	0.01			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 5!i

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
32 0.8 N	119 14.1 W	01/04/93	0217 UTC	1583 m	290 18 kn			1017.1 Mb	15.0 C	13.0 C			

CAST	DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN mt/l	OXY PCT	SIO3 UM/l	PO4 UM/l	NO3 uM/l	NO2 UM/l	CHL-A ug/l	PHAEO ug/l	PRESS db
	0	ISL	15.40	15.40	33.145	24.456	346.6	0.000	5.77	101.1	2.2	0.39	0.1	0.00	0.10	0.02	0
1	1		15.40	15.40	33.145	24.456	346.6	0.003	5.77	101.1	2.2	0.39	0.1	0.00	0.10	0.02	1
	10	ISL	15.41	15.41	33.145	24.454	347.1	0.035	5.79	101.5	2.1	0.38	0.1	0.00	0.10	0.03	10
1	11		15.41	15.41	33.145	24.454	347.1	0.038	5.79	101.5	2.1	0.38	0.1	0.00	0.10	0.03	11
1	20		15.39	15.39	33.144	24.458	347.0	0.069	5.78	101.3	2.1	0.36	0.1	0.00	0.10	0.03	20
1	30		15.40	15.40	33.144	24.456	347.5	0.104	5.79	101.4	2.1	0.36	0.1	0.00	0.10	0.03	30
1	40		15.39	15.38	33.145	24.459	347.5	0.139	5.80	101.6	2.1	0.37	0.0	0.00	0.10	0.03	40
	50	ISL	15.36	15.35	33.151	24.471	346.7	0.174	5.78	101.2	2.1	0.36	0.0	0.00	0.11	0.04	50
1	51		15.35	15.34	33.151	24.473	346.5	0.177	5.78	101.2	2.1	0.36	0.0	0.00	0.11	0.04	51
1	59		15.25	15.24	33.131	24.480	346.1	0.205	5.82	101.6	2.1	0.38	0.0	0.00	0.25	0.08	59
1	69		14.44	14.43	33.096	24.627	332.3	0.239	5.86	100.7	2.3	0.41	0.1	0.01	0.46	0.21	69
	75	ISL	13.86	13.85	33.135	24.778	318.0	0.258	5.73	97.3	3.2	0.50	1.3	0.04	0.43	0.26	75
1	83		13.16	13.15	33.207	24.975	299.4	0.283	5.50	92.1	4.7	0.64	3.3	0.08	0.38	0.29	83
1	98		12.57	12.56	33.248	25.123	285.6	0.327	5.28	87.3	6.0	0.77	5.6	0.08	0.32	0.25	98
	100	ISL	12.42	12.41	33.250	25.153	282.7	0.332	5.23	86.2	6.4	0.80	6.2	0.07	0.31	0.24	100
1	118		11.01	11.00	33.276	25.434	256.2	0.381	4.79	76.6	11.0	1.14	11.7	0.02	0.17	0.15	119
	125	ISL	10.55	10.54	33.301	25.535	246.7	0.399	4.65	73.7	12.7	1.25	13.4	0.02	0.13	0.12	126
1	142		9.67	9.65	33.392	25.754	226.0	0.439	4.33	67.3	16.7	1.46	17.0	0.01	0.05	0.08	143
	150	ISL	9.47	9.45	33.454	25.836	218.4	0.456	4.15	64.3	18.4	1.54	18.3	0.01	0.03	0.07	151
1	172		9.19	9.17	33.632	26.020	201.2	0.503	3.68	56.7	22.5	1.72	21.2	0.00	0.01	0.05	173
	200	ISL	8.87	8.85	33.810	26.210	183.6	0.557	3.31	50.7	27.0	1.85	23.7	0.00	0.00	0.03	201
1	202		8.85	8.83	33.821	26.222	182.5	0.560	3.29	50.3	27.3	1.86	23.9	0.00	0.00	0.03	203
1	230		8.44	8.42	33.973	26.405	165.6	0.609	2.92	44.3	33.0	2.02	26.3	0.00			231
	250	ISL	8.46	8.43	34.065	26.474	159.4	0.641	2.42	36.8	37.1	2.20	28.0	0.00			251
1	270		8.47	8.44	34.126	26.521	155.4	0.673	1.93	29.3	40.9	2.37	29.6	0.00			271
	300	ISL	8.21	8.18	34.156	26.584	149.8	0.719	1.68	25.4	45.0	2.48	31.0	0.00			302
1	326		7.89	7.86	34.157	26.633	145.5	0.757	1.60	24.0	48.1	2.54	31.9	0.00			328
1	384		7.24	7.20	34.178	26.743	135.5	0.839	1.21	17.9	56.8	2.74	34.4	0.00			386
	400	ISL	7.11	7.07	34.191	26.772	133.0	0.860	1.09	16.1	59.0	2.80	35.0	0.00			402
1	449		6.76	6.72	34.231	26.852	125.9	0.923	0.74	10.8	65.6	2.96	36.7	0.00			452
	500	ISL	6.38	6.33	34.258	26.924	119.5	0.986	0.53	7.7	72.1	3.06	38.2	0.00			503
1	518		6.25	6.20	34.268	26.948	117.2	1.007	0.46	6.6	74.4	3.10	38.7	0.00			521

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 50.5 N	119 34.5 W	01/04/93	0625 UTC	2306 m	310 19 kn			1017.8 Mb	15.3 C	12.6 C			

CAST	DEPTH m		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN Ml/l	OXY PCT	SIO3 UM/l	PO4 UM/l	NO3 UM/l	NO2 UM/l	CHL-A uq/l	PHAEO ug/l	PRESS db
	0	ISL	15.55	15.55	33.189	24.456	346.5	0.000	5.78	101.6	2.2	0.37	0.0	0.00	0.08	0.02	0
1	1		15.55	15.55	33.189	24.456	346.6	0.003	5.78	101.6	2.2	0.37	0.0	0.00	0.08	0.02	1
	10	ISL	15.55	15.55	33.189	24.457	346.8	0.035	5.77	101.4	2.2	0.37	0.0	0.00	0.07	0.02	10
1	16		15.55	15.55	33.188	24.456	347.1	0.055	5.77	101.4	2.2	0.37	0.0	0.00	0.07	0.02	16
	20	ISL	15.55	15.55	33.187	24.455	347.2	0.069	5.77	101.4	2.2	0.37	0.0	0.00	0.07	0.02	20
	30	ISL	15.54	15.54	33.186	24.457	347.4	0.104	5.77	101.4	2.2	0.37	0.0	0.00	0.07	0.02	30
1	31		15.54	15.54	33.186	24.457	347.4	0.108	5.77	101.4	2.2	0.37	0.0	0.00	0.07	0.02	31
1	40		15.55	15.54	33.182	24.452	348.2	0.139	5.77	101.4	2.0	0.37	0.0	0.00	0.08	0.02	40
1	50		15.48	15.47	33.174	24.462	347.5	0.174	5.79	101.6	2.2	0.38	0.0	0.00	0.09	0.03	50
1	60		15.41	15.40	33.166	24.472	346.9	0.208	5.79	101.5	2.2	0.36	0.1	0.00	0.10	0.03	60
1	70		15.33	15.32	33.156	24.482	346.3	0.243	5.80	101.5	2.2	0.37	0.1	0.00	0.15	0.05	70
	75	ISL	15.21	15.20	33.141	24.497	345.0	0.260	5.82	101.6	2.2	0.37	0.1	0.00	0.17	0.07	75
1	79		15.07	15.06	33.127	24.516	343.2	0.274	5.83	101.4	2.2	0.38	0.1	0.00	0.20	0.10	79
1	94		14.01	14.00	33.082	24.707	325.3	0.324	5.80	98.7	2.9	0.45	0.6	0.03	0.40	0.26	94
	100	ISL	13.80	13.79	33.100	24.764	320.0	0.344	5.75	97.5	3.2	0.49	1.0	0.06	0.38	0.25	100
1	109		13.46	13.44	33.143	24.866	310.5	0.372	5.63	94.8	3.9	0.56	2.2	0.09	0.36	0.24	109
1	124		12.29	12.27	33.223	25.158	282.9	0.416	5.29	87.0	6.3	0.78	6.1	0.05	0.24	0.19	125
	125	ISL	12.19	12.17	33.229	25.182	280.6	0.419	5.25	86.1	6.7	0.81	6.5	0.05	0.23	0.19	126
1	149		10.09	10.07	33.400	25.691	232.3	0.481	4.29	67.3	15.9	1.41	16.3	0.00	0.07	0.08	150
	150	ISL	10.05	10.03	33.406	25.702	231.2	0.483	4.27	66.9	16.1	1.42	16.5	0.00	0.07	0.08	151
1	174		9.47	9.45	33.532	25.897	213.1	0.536	3.94	61.0	19.9	1.60	19.6	0.00	0.02	0.05	175
	200	ISL	8.87	8.85	33.697	26.122	192.0	0.589	3.70	56.6	23.9	1.72	22.1	0.00	0.00	0.03	201
1	204		8.79	8.77	33.725	26.156	188.8	0.597	3.66	55.9	24.7	1.74	22.5	0.00	0.00	0.03	205
1	233		8.32	8.30	33.956	26.410	165.1	0.648	3.05	46.2	33.1	1.96	26.1	0.00			234
	250	ISL	8.11	8.08	34.002	26.478	158.9	0.676	2.88	43.4	36.1	2.04	27.3	0.00			251
1	273		7.86	7.83	34.019	26.528	154.4	0.712	2.71	40.6	39.3	2.12	28.4	0.00			274
	300	ISL	7.58	7.55	34.044	26.589	149.0	0.753	2.43	36.2	43.9	2.25	30.1	0.00			302
1	328		7.29	7.26	34.064	26.646	143.8	0.794	2.10	31.1	48.9	2.40	31.9	0.00			330
1	388		6.67	6.63	34.115	26.771	132.4	0.876	1.34	19.5	60.6	2.72	35.8	0.00			390
	400	ISL	6.55	6.51	34.124	26.794	130.3	0.892	1.23	17.9	62.8	2.77	36.4	0.00			402
1	454		6.08	6.04	34.165	26.888	121.8	0.960	0.83	11.9	72.1	2.96	38.6	0.00			457
	500	ISL	5.79	5.75	34.210	26.960	115.3	1.015	0.59	8.4	78.8	3.08	40.0	0.00			503
1	525		5.64	5.60	34.235	26.999	111.9	1.043	0.46	6.5	82.5	3.14	40.7	0.00			528

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 30.8 N	120 14.8 N	01/04/93	1231 UTC	3935 -	310 18 kn			1017.2 *t>	15.4 C	14.3 C			

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	15.57	15.57	33.183	24.447	347.4	0.000	5.81	102.2	2.6	0.38	0.2	0.00	0.08	0.02	0
1	1	15.57	15.57	33.183	24.447	347.4	0.003	5.81	102.2	2.6	0.38	0.2	0.00	0.08	0.02	1
	10 ISL	15.53	15.53	33.164	24.442	348.2	0.035	5.81	102.1	2.5	0.38	0.2	0.00	0.08	0.02	10
1	16	15.51	15.51	33.119 U			0.056	5.82	102.2	2.4	0.37	0.2	0.00	0.08	0.02	16
	20 ISL	15.42	15.42	33.147	24.453	347.4	0.070	5.83	102.2	2.4	0.36	0.2	0.00	0.08	0.02	20
1	30	15.24	15.24	33.133	24.482	344.9	0.104	5.84	102.0	2.3	0.35	0.2	0.00	0.09	0.02	30
1	41	15.36	15.35	33.155	24.474	346.2	0.142	5.82	101.9	2.3	0.35	0.2	0.00	0.10	0.03	41
1	50	15.32	15.31	33.149	24.478	346.0	0.173	5.85	102.3	2.3	0.35	0.2	0.00	0.12	0.03	50
1	60	15.05	15.04	33.123	24.517	342.6	0.208	5.84	101.6	2.3	0.35	0.2	0.00	0.16	0.06	60
1	71	14.54	14.53	33.084	24.597	335.3	0.245	5.87	101.0	2.4	0.39	0.2	0.00	0.34	0.20	71
	75 ISL	14.45	14.44	33.090	24.620	333.1	0.258	5.86	100.7	2.5	0.40	0.3	0.01	0.37	0.24	75
1	80	14.26	14.25	33.101	24.669	328.6	0.275	5.85	100.1	2.7	0.41	0.4	0.02	0.39	0.28	80
1	94	12.59	12.58	33.099	25.004	296.9	0.319	5.50	90.9	5.1	0.67	4.1	0.07	0.33	0.31	94
	100 ISL	12.45	12.44	33.173	25.088	289.0	0.336	5.38	88.7	5.6	0.73	5.0	0.06	0.28	0.28	100
1	109	12.33	12.32	33.282	25.196	278.9	0.362	5.21	85.7	6.5	0.80	6.4	0.05	0.21	0.22	109
1	124	11.13	11.11	33.297	25.429	256.8	0.402	4.94	79.2	9.5	1.03	10.4	0.02	0.13	0.14	125
	125 ISL	11.05	11.03	33.302	25.448	255.1	0.405	4.92	78.8	9.8	1.05	10.7	0.02	0.12	0.13	126
1	149	9.51	9.49	33.459	25.833	218.6	0.461	4.40	68.2	16.7	1.41	17.1	0.00	0.02	0.04	150
	150 ISL	9.47	9.45	33.466	25.845	217.5	0.464	4.38	67.8	16.9	1.42	17.3	0.00	0.02	0.04	151
1	174	8.81	8.79	33.624	26.074	196.0	0.513	4.05	61.9	21.8	1.62	20.6	0.00	0.00	0.03	175
	200 ISL	8.39	8.37	33.785	26.265	178.3	0.562	3.76	56.9	26.8	1.76	23.1	0.00	0.00	0.02	201
1	203	8.36	8.34	33.802	26.283	176.6	0.567	3.72	56.3	27.4	1.77	23.3	0.00	0.00	0.02	204
1	233	8.06	8.04	33.944	26.439	162.2	0.618	3.18	47.8	33.6	1.95	26.3	0.00			234
	250 ISL	7.87	7.85	33.983	26.498	156.8	0.645	3.01	45.1	36.9	2.03	27.5	0.00			251
1	273	7.63	7.60	34.014	26.558	151.5	0.681	2.81	41.9	41.2	2.14	28.8	0.00			274
	300 ISL	7.43	7.40	34.051	26.616	146.3	0.721	2.39	35.5	46.0	2.30	30.7	0.00			302
1	328	7.22	7.19	34.078	26.667	141.8	0.761	1.95	28.8	51.0	2.46	32.6	0.00			330
1	387	6.50	6.46	34.094	26.777	131.7	0.842	1.43	20.8	62.2	2.69	35.8	0.00			389
	400 ISL	6.39	6.35	34.102	26.798	129.8	0.859	1.31	19.0	64.3	2.74	36.4	0.00			402
1	453	6.02	5.98	34.142	26.877	122.7	0.926	0.87	12.5	72.3	2.93	38.7	0.00			456
	500 ISL	5.77	5.73	34.187	26.944	116.8	0.982	0.62	8.9	78.7	3.05	40.0	0.00			503
1	523	5.65	5.61	34.209	26.977	113.9	1.009	0.50	7.1	81.9	3.11	40.6	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
31 10.6 N	120 54.9 W	01/04/93	1937 UTC	3833 -	330 17 kn	310 05 07	1	1019.2 mb	17.3 C	14.9 C		4/8	SC

CAST	DEPTH -	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 UM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0 ISL	14.89	14.89	33.070	24.509	341.5	0.000	5.88	101.9	2.3	0.35	0.1	0.00	0.13	0.03	0
1	1	14.89	14.89	33.070	24.509	341.5	0.003	5.88	101.9	2.3	0.35	0.1	0.00	0.13	0.03	1
	10 ISL	14.87	14.87	33.069	24.513	341.5	0.034	5.89	102.1	2.3	0.35	0.1	0.00	0.12	0.03	10
1	16	14.85	14.85	33.068	24.516	341.3	0.055	5.89	102.0	2.3	0.35	0.1	0.00	0.12	0.03	16
	20 ISL	14.82	14.82	33.068	24.523	340.8	0.068	5.89	102.0	2.3	0.35	0.1	0.00	0.12	0.03	20
	30 ISL	14.77	14.77	33.068	24.534	340.0	0.102	5.89	101.8	2.3	0.35	0.1	0.00	0.13	0.03	30
1	31	14.76	14.76	33.068	24.536	339.8	0.106	5.89	101.8	2.3	0.35	0.1	0.00	0.13	0.03	31
1	41	14.74	14.73	33.068	24.541	339.7	0.140	5.90	102.0	2.1	0.35	0.1	0.00	0.15	0.04	41
1	50	14.61	14.60	33.054	24.558	338.3	0.170	5.92	102.0	2.1	0.36	0.1	0.00	0.18	0.05	50
1	60	14.46	14.45	33.109	24.632	331.5	0.204	5.95	102.3	2.1	0.37	0.1	0.00	0.26	0.11	60
1	70	14.46	14.45	33.136	24.654	329.8	0.237	5.94	102.1	2.1	0.38	0.1	0.00	0.33	0.17	70
	75 ISL	14.43	14.42	33.143	24.666	328.8	0.253	5.92	101.7	2.2	0.40	0.2	0.06	0.47	0.24	75
1	79	14.41	14.40	33.162	24.684	327.1	0.266	5.90	101.3	4.3 U	0.62 U	3.2 U	0.21 U	0.58	0.30	79
1	94	12.68	12.67	33.029	24.932	303.7	0.314	5.65	93.5	4.3	0.63	3.2	0.21	0.41	0.44	94
	100 ISL	12.06	12.05	33.063	25.077	290.0	0.331	5.44	88.9	5.8	0.76	5.4	0.14	0.29	0.34	100
1	108	11.29	11.28	33.138	25.277	271.0	0.354	5.15	82.8	8.0	0.94	8.7	0.03	0.15	0.17	108
1	123	10.05	10.04	33.235	25.568	243.3	0.392	4.80	75.2	12.4	1.22	13.6	0.01	0.08	0.07	124
	125 ISL	10.02	10.01	33.271	25.601	240.2	0.397	4.70	73.6	13.1	1.26	14.2	0.01	0.07	0.07	126
1	148	9.69	9.67	33.606	25.918	210.6	0.449	3.56	55.4	20.9	1.65	20.5	0.00	0.03	0.06	149
	150 ISL	9.65	9.63	33.628	25.942	208.3	0.453	3.50	54.5	21.4	1.67	20.9	0.00	0.03	0.06	151
1	173	9.13	9.11	33.828	26.183	185.8	0.499	3.05	47.0	26.9	1.86	24.0	0.00	0.00	0.03	174
	200 ISL	8.65	8.63	33.954	26.357	169.6	0.547	2.79	42.5	32.0	1.99	26.3	0.00	0.00	0.03	201
1	203	8.60	8.58	33.962	26.371	168.3	0.552	2.78	42.3	32.5	2.00	26.5	0.00	0.00	0.03	204
1	232	8.02	8.00	33.983	26.476	158.7	0.599	2.99	45.0	35.6	2.00	27.0	0.00			233
	250 ISL	7.67	7.65	33.990	26.533	153.4	0.627	2.92	43.5	38.7	2.05	27.9	0.00			251
1	272	7.30	7.27	33.998	26.592	148.0	0.660	2.83	41.8	43.0	2.14	29.3	0.00			273
	300 ISL	6.98	6.95	34.008	26.644	143.3	0.701	2.55	37.4	47.9	2.27	31.0	0.00			302
1	327	6.75	6.72	34.021	26.686	139.6	0.739	2.21	32.3	52.6	2.41	32.7	0.00			329
1	385	6.36	6.33	34.083	26.787	130.7	0.818	1.39	20.1	63.1	2.71	36.3	0.00			387
	400 ISL	6.28	6.24	34.101	26.811	128.5	0.837	1.22	17.6	65.5	2.78	37.0	0.00			402
1	453	6.00	5.96	34.163	26.896	120.9	0.903	0.74	10.6	73.2	2.97	38.8	0.00			456
	500 ISL	5.76	5.72	34.204	26.959	115.4	0.959	0.53	7.6	79.6	3.08	40.0	0.00			503
1	523	5.64	5.60	34.225	26.991	112.6	0.985	0.42	6.0	82.7	3.13	40.6	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
30 50.7 N	121 35.1 N	02/04/93	0216 UTC	4086 -	340 24 kn	340 05 05	1	1018.9 Bb	14.8 C	12.1 C		4/8	SC

CAST	DEPTH -		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN »1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A uq/1	PHAEO uq/1	PRESS db
	0	ISL	15.67	15.67	33.207	24.444	347.7	0.000	5.78	101.9	2.2	0.35	0.1	0.01	0.07	0.01	0
1	1		15.67	15.67	33.207	24.444	347.8	0.003	5.78	101.9	2.2	0.35	0.1	0.01	0.07	0.01	1
	10	ISL	15.68	15.68	33.206	24.441	348.3	0.035	5.78	101.9	2.1	0.35	0.1	0.01	0.07	0.02	10
1	16		15.68	15.68	33.206	24.441	348.5	0.056	5.78	101.9	2.1	0.35	0.1	0.01	0.07	0.02	16
	20	ISL	15.72	15.72	33.222	24.445	348.3	0.070	5.77	101.8	2.1	0.35	0.1	0.01	0.07	0.02	20
	30	ISL	15.82	15.82	33.259	24.451	348.0	0.104	5.75	101.7	2.1	0.35	0.1	0.01	0.08	0.02	30
1	31		15.83	15.83	33.263	24.452	347.9	0.108	5.75	101.7	2.1	0.35	0.1	0.01	0.08	0.02	31
1	41		15.82	15.81	33.263	24.455	348.0	0.143	5.76	101.8	2.1	0.35	0.1	0.01	0.08	0.02	41
	50	ISL	15.82	15.81	33.263	24.455	348.2	0.174	5.75	101.7	2.1	0.35	0.1	0.00	0.10	0.03	50
1	51		15.82	15.81	33.263	24.455	348.3	0.178	5.75	101.7	2.1	0.35	0.1	0.00	0.10	0.03	51
1	60		15.80	15.79	33.275	24.469	347.2	0.209	5.74	101.4	2.1	0.35	0.1	0.00	0.13	0.05	60
1	70		15.66	15.65	33.294	24.515	343.1	0.243	5.73	101.0	2.1	0.36	0.1	0.00	0.17	0.08	70
	75	ISL	15.25	15.24	33.202	24.535	341.3	0.260	5.79	101.2	2.1	0.37	0.1	0.01	0.20	0.12	75
1	80		14.77	14.76	33.118	24.574	337.7	0.277	5.84	101.0	2.1	0.38	0.1	0.01	0.22	0.17	80
1	94		13.73	13.72	33.290	24.925	304.6	0.322	5.53	93.7	4.0	0.57	2.3	0.08	0.25	0.25	94
	100	ISL	13.33	13.32	33.316	25.026	295.0	0.340	5.45	91.6	4.5	0.63	3.2	0.08	0.24	0.24	100
1	109		12.73	12.72	33.321	25.149	283.5	0.366	5.33	88.5	5.4	0.72	4.8	0.07	0.22	0.23	109
1	124		11.58	11.56	33.296	25.347	264.7	0.408	5.07	82.1	8.0	0.96	8.8	0.03	0.17	0.18	125
	125	ISL	11.50	11.48	33.299	25.364	263.1	0.410	5.04	81.5	8.3	0.98	9.1	0.03	0.16	0.17	126
1	149		9.90	9.88	33.442	25.755	226.1	0.469	4.42	69.1	14.9	1.40	16.2	0.02	0.04	0.06	150
	150	ISL	9.86	9.84	33.447	25.766	225.1	0.471	4.41	68.9	15.1	1.41	16.4	0.02	0.04	0.06	151
1	174		9.20	9.18	33.581	25.979	205.2	0.523	4.08	62.8	19.6	1.59	20.1	0.01	0.01	0.02	175
	200	ISL	8.95	8.93	33.794	26.185	186.0	0.574	3.50	53.7	25.2	1.80	23.0	0.00	0.00	0.01	201
1	203		8.94	8.92	33.817	26.205	184.2	0.579	3.43	52.6	25.8	1.82	23.3	0.00	0.00	0.01	204
1	232		8.62	8.60	33.927	26.342	171.7	0.631	3.09	47.1	30.2	1.98	25.4	0.00			233
	250	ISL	8.32	8.29	33.980	26.429	163.6	0.661	2.88	43.6	34.1	2.08	27.0	0.00			251
1	272		7.95	7.92	34.031	26.525	154.8	0.696	2.60	39.0	39.2	2.21	29.0	0.00			273
	300	ISL	7.72	7.69	34.078	26.595	148.4	0.738	2.19	32.7	44.2	2.38	30.8	0.00			302
1	327		7.53	7.50	34.104	26.643	144.3	0.778	1.82	27.1	48.7	2.53	32.3	0.00			329
1	386		6.76	6.72	34.115	26.759	133.6	0.860	1.37	20.0	59.2	2.76	35.4	0.00			388
	400	ISL	6.62	6.58	34.121	26.783	131.5	0.878	1.26	18.3	61.7	2.82	36.1	0.00			402
1	452		6.18	6.14	34.152	26.865	124.1	0.945	0.86	12.4	70.6	3.01	38.6	0.00			455
	500	ISL	5.83	5.79	34.196	26.944	116.9	1.003	0.60	8.6	77.6	3.14	40.0	0.00			503
1	523		5.66	5.62	34.217	26.982	113.4	1.029	0.48	6.8	80.9	3.20	40.7	0.00			526

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	WEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
30 30.8 N	122 15.5 W	02/04/93	0824 UTC	4156 B	340 27 kn			1020.7 *mb*	15.0 C	12.3 C			

CAST	DEPTH *m*		TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	SIGMA THETA	SVA	DYN HT	OXYGEN «1/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL-A ug/1	PHAEO ug/1	PRESS db
	0	ISL	17.11	17.11	33.540	24.369	354.9	0.000	5.62	102.1	2.5	0.35	0.0	0.01	0.07	0.02	0
1	2		17.11	17.11	33.540	24.369	354.9	0.007	5.62	102.1	2.5	0.35	0.0	0.01	0.07	0.02	2
	10	ISL	17.12	17.12	33.541	24.368	355.3	0.036	5.61	101.9	2.5	0.35	0.0	0.01	0.07	0.02	10
1	17		17.13	17.13	33.541	24.366	355.8	0.060	5.60	101.8	2.5	0.35	0.0	0.01	0.07	0.02	17
	20	ISL	17.12	17.12	33.540	24.367	355.7	0.071	5.60	101.8	2.5	0.35	0.0	0.01	0.07	0.02	20
	30	ISL	17.11	17.11	33.538	24.369	355.9	0.107	5.59	101.5	2.5	0.35	0.0	0.01	0.06	0.02	30
1	31		17.11	17.10	33.538	24.369	355.9	0.110	5.59	101.5	2.5	0.35	0.0	0.01	0.06	0.02	31
1	42		17.14	17.13	33.540	24.363	356.8	0.149	5.59	101.6	2.3	0.36	0.0	0.01	0.07	0.02	42
	50	ISL	17.15	17.14	33.543	24.364	357.0	0.178	5.59	101.6	2.3	0.35	0.0	0.00	0.07	0.02	50
1	52		17.15	17.14	33.544	24.365	357.0	0.185	5.59	101.6	2.3	0.35	0.0	0.00	0.07	0.02	52
1	62		17.12	17.11	33.543	24.371	356.7	0.221	5.58	101.4	2.3	0.38	0.1	0.00	0.07	0.02	62
1	71		17.15	17.14	33.539	24.362	358.0	0.253	5.59	101.6	2.3	0.35	0.1	0.00	0.07	0.02	71
	75	ISL	17.14	17.13	33.542	24.366	357.6	0.267	5.59	101.6	2.3	0.35	0.0	0.00	0.07	0.02	75
1	79		17.13	17.12	33.544	24.370	357.4	0.282	5.59	101.6	2.3	0.35	0.0	0.00	0.07	0.02	79
1	95		16.68	16.66	33.528	24.464	348.9	0.338	5.62	101.2	2.4	0.36	0.1	0.01	0.17	0.10	95
	100	ISL	16.11	16.09	33.534	24.600	336.1	0.355	5.58	99.4	2.7	0.39	0.3	0.03	0.22	0.18	100
1	110		14.75	14.73	33.546	24.909	306.7	0.387	5.44	94.3	3.6	0.50	1.4	0.06	0.28	0.32	110
1	125		13.01	12.99	33.502	25.234	275.8	0.431	5.11	85.4	6.2	0.82	6.3	0.05	0.17	0.24	126
1	150		11.74	11.72	33.552	25.517	249.3	0.497	4.91	79.9	8.7	0.98	9.3	0.01	0.10	0.13	151
1	175		9.86	9.84	33.545	25.843	218.3	0.555	4.27	66.7	16.7	1.43	16.9	0.01	0.02	0.03	176
	200	ISL	9.29	9.27	33.692	26.052	198.8	0.607	3.84	59.3	21.6	1.64	20.3	0.01	0.00	0.02	201
1	205		9.26	9.24	33.727	26.084	195.9	0.617	3.77	58.2	22.4	1.67	20.7	0.01	0.00	0.02	206
1	234		8.82	8.80	33.883	26.276	178.1	0.671	3.29	50.3	28.3	1.87	24.1	0.01			235
	250	ISL	8.56	8.53	33.952	26.370	169.3	0.699	3.07	46.7	31.9	1.96	25.6	0.01			251
1	274		8.18	8.15	34.028	26.488	158.4	0.738	2.80	42.3	37.1	2.08	27.5	0.00			275
	300	ISL	7.87	7.84	34.054	26.555	152.4	0.779	2.58	38.7	41.3	2.19	29.0	0.00			302
1	330		7.54	7.51	34.058	26.606	147.8	0.824	2.33	34.7	45.9	2.32	30.6	0.00			332
1	390		6.75	6.71	34.100	26.749	134.7	0.909	1.54	22.5	58.6	2.67	34.6	0.00			392
	400	ISL	6.65	6.61	34.105	26.766	133.1	0.922	1.44	21.0	60.3	2.71	35.2	0.00			402
1	456		6.19	6.15	34.138	26.853	125.3	0.994	1.01	14.6	69.0	2.89	37.8	0.00			459
	500	ISL	5.90	5.86	34.175	26.919	119.3	1.048	0.74	10.6	75.8	3.03	39.0	0.00			503
1	526		5.73	5.68	34.198	26.958	115.8	1.079	0.58	8.3	79.8	3.11	39.7	0.00			529

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 110

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
30 10.9 N	122 55.5 W	02/04/93	1413 UTC	3761 m	330 26 kn	340 10 6	0	1020.1 mb	14.9 C	13.0 C			

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS DB
1	0	16.97	16.97	33.514	24.382	353.6	0.000	5.61	101.6	2.2	0.34	0.1	0.00	0.07	0.01	0
	10 ISL	16.99	16.99	33.516	24.379	354.2	0.035	5.60	101.5	2.2	0.33	0.1	0.00	0.07	0.02	10
1	15	17.00	17.00	33.517	24.378	354.5	0.053	5.60	101.5	2.2	0.33	0.1	0.00	0.07	0.02	15
	20 ISL	17.00	17.00	33.516	24.377	354.7	0.071	5.60	101.5	2.2	0.33	0.1	0.00	0.07	0.02	20
	30 ISL	16.98	16.98	33.515	24.381	354.7	0.106	5.60	101.5	2.2	0.33	0.1	0.00	0.07	0.02	30
1	37	16.97	16.96	33.513	24.383	354.8	0.131	5.60	101.4	2.2	0.33	0.1	0.00	0.07	0.02	37
	50 ISL	16.98	16.97	33.513	24.381	355.4	0.177	5.60	101.4	2.2	0.34	0.0	0.00	0.07	0.02	50
1	57	16.98	16.97	33.513	24.381	355.6	0.202	5.61	101.6	2.2	0.34	0.0	0.00	0.07	0.02	57
1	72	16.86	16.85	33.458	24.368	357.4	0.256	5.63	101.7	2.2	0.34	0.1	0.00	0.08	0.02	72
	75 ISL	16.67	16.66	33.408	24.373	356.9	0.266	5.65	101.7	2.2	0.34	0.1	0.00	0.09	0.03	75
1	81	16.35	16.34	33.341	24.396	354.9	0.288	5.68	101.5	2.2	0.35	0.1	0.00	0.11	0.04	81
1	91	16.57	16.56	33.511	24.476	347.6	0.323	5.62	101.0	2.2	0.32	0.1	0.00	0.12	0.04	91
	100 ISL	16.30	16.28	33.539	24.560	339.9	0.354	5.60	100.1	2.4	0.33	0.0	0.00	0.18	0.10	100
1	101	16.27	16.25	33.543	24.570	339.0	0.357	5.60	100.0	2.4	0.33	0.0	0.00	0.19	0.11	101
1	111	15.09	15.07	33.352	24.687	328.0	0.391	5.66	98.7	2.8	0.40	0.2	0.01	0.31	0.21	111
1	125	12.75	12.73	33.228	25.073	291.1	0.434	5.36	89.0	5.4	0.71	4.6	0.09	0.32	0.28	125
1	140	12.13	12.11	33.344	25.282	271.4	0.476	5.16	84.6	6.7	0.81	7.1	0.04	0.22	0.21	141
	150 ISL	11.19	11.17	33.335	25.449	255.6	0.502	4.98	80.0	9.2	0.99	10.2	0.03	0.14	0.15	151
1	161	10.16	10.14	33.344	25.635	237.8	0.530	4.75	74.6	12.5	1.21	13.7	0.02	0.07	0.09	162
1	181	9.48	9.46	33.582	25.935	209.6	0.574	4.30	66.6	17.8	1.44	17.6	0.02	0.01	0.03	182
	200 ISL	9.32	9.30	33.757	26.098	194.5	0.613	4.32	66.8	18.6	1.40	17.7	0.01	0.00	0.02	201
1	205	9.30	9.28	33.794	26.130	191.6	0.622	4.33	66.9	18.9	1.40	17.8	0.01	0.00	0.02	206
1	234	8.68	8.66	33.948	26.349	171.1	0.675	3.05	46.5	30.7	1.93	25.2	0.01			235
	250 ISL	8.40	8.37	33.983	26.419	164.6	0.702	3.09	46.9	33.3	1.95	25.6	0.01			251
1	274	8.04	8.01	34.007	26.492	157.9	0.740	3.16	47.5	35.7	1.98	26.3	0.01			275
	300 ISL	7.71	7.68	34.031	26.560	151.8	0.781	2.84	42.4	40.7	2.12	28.2	0.01			302
1	328	7.41	7.38	34.055	26.622	146.2	0.822	2.35	34.8	46.6	2.32	30.7	0.01			330
1	387	6.91	6.87	34.128	26.749	134.7	0.905	1.36	19.9	58.2	2.69	34.9	0.01			389
	400 ISL	6.74	6.70	34.128	26.772	132.6	0.923	1.25	18.3	60.7	2.75	35.7	0.01			402
1	454	6.08	6.04	34.124	26.856	124.9	0.992	0.98	14.1	70.6	2.93	38.2	0.00			457
	500 ISL	5.78	5.74	34.170	26.930	118.2	1.048	0.74	10.6	78.0	3.06	39.6	0.00			503
1	522	5.63	5.59	34.193	26.966	114.8	1.074	0.63	9.0	81.5	3.12	40.2	0.00			525

RV DAVID STARR JORDAN CALCOFI CRUISE 9304 STATION 93 120

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	BOTTOM	WIND SPEED	WAVES	HEA	BAROMETER	DRY	WET	SECCHI/FOREL	CLD AMT	TYPE
29 50.7 N	123 35.4 W	02/04/93	2042 UTC	4036 m	340 22 kn	340 12 07	1	1022.1 mb	17.5 C	15.5 C		1/8	CI

CAST	DEPTH m	TEMP DEG C	POT TEMP DEG C	SALINITY PSS 78	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	PRESS DB
	0 ISL	16.59	16.59	33.392	24.377	354.1	0.000	5.67	101.9	2.3	0.35	0.1	0.01	0.06	0.01	0
1	2	16.59	16.59	33.392	24.377	354.2	0.007	5.67	101.9	2.3	0.35	0.1	0.01	0.06	0.01	2
	10 ISL	16.59	16.59	33.393	24.378	354.3	0.035	5.67	101.9	2.3	0.35	0.1	0.01	0.06	0.01	10
1	18	16.59	16.59	33.394	24.379	354.5	0.064	5.66	101.7	2.3	0.34	0.1	0.01	0.06	0.02	18
	20 ISL	16.59	16.59	33.394	24.379	354.5	0.071	5.66	101.7	2.3	0.34	0.1	0.01	0.06	0.02	20
	30 ISL	16.57	16.57	33.396	24.386	354.2	0.106	5.66	101.7	2.2	0.34	0.1	0.01	0.06	0.01	30
1	38	16.55	16.54	33.397	24.391	354.0	0.135	5.66	101.6	2.2	0.34	0.1	0.01	0.06	0.01	38
	50 ISL	16.54	16.53	33.400	24.396	353.9	0.177	5.66	101.6	2.2	0.34	0.1	0.02	0.07	0.02	50
1	56	16.54	16.53	33.401	24.397	354.0	0.198	5.66	101.6	2.2	0.34	0.1	0.02	0.07	0.02	56
1	71	15.90	15.89	33.263	24.438	350.6	0.251	5.75	101.8	2.2	0.35	0.1	0.02	0.15	0.06	71
	75 ISL	15.83	15.82	33.279	24.466	348.0	0.265	5.74	101.5	2.2	0.35	0.1	0.02	0.16	0.07	75
1	81	15.58	15.57	33.296	24.535	341.6	0.286	5.73	100.8	2.2	0.35	0.1	0.01	0.17	0.08	81
1	90	14.42	14.41	33.207	24.717	324.3	0.316	5.78	99.3	2.9	0.43	0.1	0.02	0.33	0.25	90
1	100	13.53	13.52	33.213	24.906	306.5	0.347	5.56	93.8	4.1	0.57	2.1	0.07	0.32	0.37	100
1	111	13.04	13.02	33.340	25.103	288.0	0.380	5.33	89.1	5.2	0.67	4.4	0.08	0.29	0.28	111
	125 ISL	12.36	12.34	33.500	25.359	263.8	0.419	5.12	84.4	6.9	0.78	7.0	0.05	0.20	0.22	126
1	126	12.30	12.28	33.507	25.376	262.2	0.421	5.11	84.2	7.0	0.79	7.2	0.05	0.19	0.22	127
1	141	10.96	10.94	33.406	25.545	246.2	0.459	4.92	78.7	10.1	1.03	10.9	0.02	0.11	0.13	142
	150 ISL	10.37	10.35	33.380	25.628	238.4	0.481	4.77	75.3	12.2	1.17	13.1	0.02	0.08	0.10	151
1	160	9.87	9.85	33.387	25.718	229.9	0.505	4.56	71.2	14.7	1.32	15.4	0.02	0.05	0.07	161
1	180	9.22	9.20	33.530	25.936	209.4	0.549	4.01	61.8	20.3	1.59	19.9	0.02	0.02	0.03	181
	200 ISL	9.03	9.01	33.752	26.140	190.4	0.589	3.48	53.5	25.1	1.77	22.9	0.01	0.00	0.02	201
1	206	9.01	8.99	33.815	26.193	185.5	0.600	3.35	51.4	26.4	1.81	23.5	0.01	0.00	0.02	207
1	235	8.58	8.56	33.941	26.359	170.1	0.651	3.09	47.0	31.3	1.93	25.6	0.01			236
	250 ISL	8.37	8.34	33.980	26.422	164.4	0.676	2.96	44.9	33.8	2.00	26.5	0.01			251
1	275	8.04	8.01	34.023	26.505	156.7	0.717	2.71	40.8	38.1	2.12	28.1	0.01			276
	300 ISL	7.72	7.69	34.050	26.573	150.5	0.755	2.40	35.8	43.4	2.27	30.0	0.01			302
1	329	7.38	7.35	34.071	26.639	144.6	0.798	2.03	30.1	49.5	2.44	32.2	0.01			331
1	390	6.84	6.80	34.120	26.752	134.4	0.883	1.36	19.9	59.5	2.73	35.4	0.01			392
	400 ISL	6.78	6.74	34.129	26.768	133.1	0.896	1.27	18.6	60.9	2.77	35.8	0.01			402
1	456	6.42	6.38	34.173	26.851	125.7	0.969	0.85	12.3	68.9	2.95	37.9	0.01			459
	500 ISL	5.99	5.95	34.195	26.923	119.0	1.023	0.63	9.0	76.4	3.06	39.6	0.01			503
1	527	5.72	5.67	34.210	26.969	114.8	1.054	0.50	7.1	81.0	3.13	40.6	0.01			530

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 77 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 53.2 N	121 11.9 W	14/ 4/93	1921 UTC	7 m	07	1203 - 1900 PST	1205 PST	1901 PST	1621.7 mg C/mJ.

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK:
1	11.84	33.266	25.273	6.02	98.1	6.6	0.83	5.6	0.13	9.65	2.25	80. A	51.0	53.3	52.2	0.30
6	11.74	33.271	25.296	5.98	97.2	6.9	0.86	5.9	0.13	9.16	2.07	27.	101.6	103.3	102.4	0.31
9	11.74	33.271	25.296	5.96	96.9	6.8	0.87	6.0	0.13	9.12	2.28	14.	113.4	121.0	117.2	0.33
12	11.72	33.273	25.301	5.94	96.5	6.8	0.85	6.1	0.13	9.36	2.09	7.2	91.6	89.3	90.4	0.26
20	11.66	33.286	25.322	5.83	94.6	7.1	0.88	6.7	0.13	9.61	2.12	1.2	21.2	23.6	22.4	0.2SI
27	11.63	33.294	25.334	5.83	94.6	7.2	0.89	6.9	0.13	9.65	2.25	0.27	2.9	4.2	3.6	0.1S

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 77 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 43.4 N	123 38.1 W	13/ 4/93	1832 UTC	26 m	01	1213 - 1905 PST	1215 PST	1907 PST	207.5 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	14.73	33.008	24.495	5.93	102.4	2.5	0.39	0.1	0.00	0.12	0.03	94. A	0.49	0.49	0.49	0.06
19	14.71	33.008	24.500	5.92	102.2	2.5	0.40	0.0	0.00	0.12	0.03	33.	3.2	3.0	3.1	0.06
30	14.70	33.007	24.502	5.93	102.4	2.3	0.39	0.0	0.00	0.12	0.03	17.	3.1	3.2	3.1	0.09
41	14.69	33.007	24.504	5.93	102.3	2.5	0.40	0.0	0.00	0.12	0.03	8.9	2.3	2.2	2.3	0.07
70	12.24	33.041	25.025	5.63	92.4	5.3	0.73	4.1	0.14	0.58	0.45	1.6	2.5	2.8	2.7	0.05.
96	10.66	33.179	25.420	4.78	75.9	11.6	1.25	12.8	0.03	0.27	0.28	0.35	0.22	0.28	0.25	0.04

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 80 55

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
34 18.8 N	120 48.1 W	11/ 4/93	1833 UTC	8 D	05	1208 - 1901 PST	1206 PST	1901 PST	1235.5 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	11.40	33.583	25.600	5.39	87.2	18.2	1.41	15.1	0.16	2.82	0.54	68. A	47.1	53.4	50.2	0.21
8	11.38	33.584	25.605	5.37	86.8	18.2	1.41	15.1	0.16	2.87	0.64	22.	82.3	81.8	82.0	0.25
11	11.39	33.586	25.605	5.34	86.3	18.4	1.42	15.2	0.17	2.84	0.57	12.	75.3	74.3	74.8	0.24
14	11.34	33.593	25.619	5.23	84.5	18.8	1.45	15.6	0.17	2.47	0.48	6.8	51.9	56.5	54.2	0.24
23	11.23	33.597	25.643	5.08	81.8	19.1	1.47	16.0	0.16	2.52	0.52	1.2	7.0	7.4	7.2	0.13
32	10.97	33.569	25.668	4.41	70.6	18.7	1.51	16.6	0.14	1.65	0.46	0.22	0.28	0.23	0.25	0.07

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 80 90

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 9.9 N	123 13.5 W	12/ 4/93	1903 UTC	31 m	01	1208 - 1907 PST	1214 PST	1909 PST	186.3 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
3	14.96	33.028	24.462	5.92	102.7	2.5	0.37	0.0	0.00	0.09	0.05	86. A	1.2	0.98	1.1	0.09
23	14.92	33.027	24.470	5.92	102.7	2.5	0.37	0.0	0.00	0.09	0.02	32.	2.8	2.3	2.5	0.08
37	14.93	33.028	24.469	5.91	102.5	2.5	0.36	0.1	0.00	0.09	0.02	16.	3.1	3.0	3.0	0.08
50	14.76	33.158	24.606	5.89	101.9	2.4	0.35	0.1	0.00	0.13	0.05	8.4	1.8	1.9	1.9	0.10
84	12.49	32.857	24.835	6.02	99.2	3.4	0.50	1.1	0.14	0.36	0.28	1.6	1.3	1.4	1.3	0.07
116	10.82	33.182	25.395	5.01	79.8	9.8	1.08	10.8	0.02	0.12	0.16	0.32	0.08	0.09	0.09	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 83 51

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 52.9 N	120 8.0 W	10/ 4/93	1839 UTC	6m	06	1159 - 1852 PST	1201 PST	1852 PST	1275.1 mg C/m2

DEPTH m	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 ml/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
1	12.69	33.385	25.203	5.76	95.6	10.2	0.88	7.0	0.14	4.52	0.90	77. A	68.6	73.8	71.2	0.30
5	12.68	33.385	25.205	5.75	95.4	10.2	0.89	7.0	0.14	4.61	0.98	28.	107.2	106.5	106.8	0.45
8	12.64	33.386	25.214	5.77	95.7	10.4	0.90	7.1	0.14	4.38	0.95	13.	97.9	96.9	97.4	0.70
10	12.61	33.387	25.221	5.75	95.3	10.4	0.89	7.1	0.14	4.86	1.17	7.7	79.2	82.3	80.8	0.41
17	12.28			5.44	89.5	11.2	0.97	8.5	0.14	3.97	1.00	1.3	11.1	13.0	12.1	0.21
23	12.01	33.439	25.376	5.55	90.8	13.1	1.12	10.6	0.14	3.28	0.97	0.28	0.51	0.81	0.66	0.13

A) INCUBATION LIGHT INTENSITIES WERE 97, 35, 18, 9.2, 1.7 AND 0.34 PERCENT RESPECTIVELY.

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 83 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 54.9 N	122 8.6 W	9/ 4/93	1924 UTC	40 m	01	1208 - 1856 PST	1210 PST	1856 PST	185.7 *g C/m2

DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SIO3	PO4	NO3	NO2	CHL	PHAEO	LIGHT	UPTAKE (mg C/B3)			
-	DEG C	PSS 78	THETA	ml/1	PCT	UM/1	UM/1	uM/1	uM/1	ug/1	ug/1	PCT	1	2	MEAN	DARK
2	15.40	33.132	24.446	5.84	102.3	2.3	0.37	0.1	0.00	0.06	0.01	93. A	0.48	0.50	0.49	0.05
29	15.25	33.132	24.479	5.83	101.8	2.3	0.37	0.1	0.00	0.06	0.01	33.	1.4	1.3	1.3	0.07
46	15.20	33.132	24.491	5.84	101.9	2.1	0.38	0.1	0.00	0.07	0.02	17.	1.2	1.2	1.2	0.09
63	15.12	33.130	24.507	5.84	101.7	2.1	0.36	0.1	0.00	0.09	0.03	8.9	1.4	1.3	1.4	0.10
107	13.61	32.958	24.693	5.95	100.4	2.2	0.41	0.1	0.03	0.39	0.35	1.6	2.0	2.0	2.0	0.05
148	11.01	33.211	25.384	4.98	79.6	9.7	1.09	10.9	0.02	0.08	0.08	0.34	0.06	0.08	0.07	0.02

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 87 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 29.0 N	119 20.8 W	6/ 4/93	1858 UTC	16 m	04	1157 - 1845 PST	1159 PST	1847 PST	757.8 mg C/m2

DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SIO3	PO4	NO3	NO2	CHL	PHAEO	LIGHT	UPTAKE (mg C/m3)			
m	DEG C	PSS 78	THETA	ml/1	PCT	uM/1	UM/1	UM/1	uM/1	ug/1	ug/1	PCT	1	2	MEAN	DARK
0	14.87	33.247	24.650	5.79	100.4	3.5	0.43	0.9	0.05	0.90	0.25	100. A	14.2	15.9	15.1	0.11
11	14.84	33.248	24.657	5.78	100.2	3.5	0.42	0.9	0.05	0.92	0.30	35.	23.4	24.0	23.7	0.12
18	14.82	33.248	24.662	5.80	100.5	3.5	0.42	0.8	0.05	1.01	0.30	18.	23.6	23.1	23.3	0.12
25	14.78	33.249	24.671	5.76	99.7	3.3	0.42	0.9	0.05	1.12	0.30	9.1	19.6	20.6	20.1	0.10
43	12.18	33.348	25.274	4.69	77.0	9.9	0.98	9.2	0.16	0.77	0.68	1.6	2.6	2.9	2.7	0.07
59	11.03	33.504	25.607	3.96	63.5	15.8	1.36	15.6	0.04	0.22	0.26	0.35	0.14	0.16	0.15	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 87 70

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 40.0 N	121 4.4 W	7/ 4/93	1907 UTC	21 m	02	1204 - 1857 PST	1206 PST	1857 PST	219.6 mg C/m2

DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SIO3	PO4	NO3	NO2	CHL	PHAEO	LIGHT	UPTAKE (mg C/*3)			
n	DEG C	PSS 78	THETA	ml/1	PCT	uM/1	uM/1	uM/1	UM/1	ug/1	ug/1	PCT	1	2	MEAN	DARK
1	14.48	33.049	24.580	5.96	102.4	2.5	0.40	0.0	0.00	0.20	0.05	93. A	1.7	1.6	1.7	0.08
16	14.40	33.051	24.599	5.96	102.3	2.5	0.40	0.0	0.00	0.21	0.06	31.	4.4	4.4	4.4	0.09
25	14.39	33.054	24.604	5.98	102.6	2.4	0.40	0.0	0.00	0.22	0.07	16.	4.5	4.6	4.5	0.19
34	14.31	33.069	24.632	6.00	102.8	2.3	0.40	0.0	0.00	0.33	0.11	8.3	5.6	5.4	5.5	0.10
57	14.18	33.076	24.666	5.97	102.0	2.2	0.39	0.1	0.00	0.38	0.14	1.6	0.95	1.0	1.0	0.08
78	13.35	33.015	24.789	5.93	99.5	3.0	0.47	0.7	0.05	0.51	0.29	0.33	0.16	0.21	0.18	0.06

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 87 110

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 20.4 N	123 46.1 W	8/ 4/93	1853 UTC	37 m	01	1210 - 1904 PST	1217 PST	1904 PST	161.8 mg C/m2

DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SIO3	PO4	NO3	NO2	CHL	PHAEO	LIGHT	UPTAKE (mg C/m3)			
m	DEG C	PSS 78	THETA	ml/1	PCT	UM/1	uM/1	UM/1	UM/1	ug/1	ug/1	PCT	1	2	MEAN	DARK
2	15.52	33.118	24.408	5.83	102.4	2.5	0.38	0.1	0.00	0.07	0.02	92. A	0.99	0.83	0.91	0.04
27	15.51	33.138	24.427	5.82	102.2	2.5	0.37	0.0	0.00	0.08	0.02	33.	1.8	1.9	1.9	0.06
42	15.43	33.135	24.443	5.85	102.5	2.5	0.37	0.0	0.01	0.08	0.02	18.	1.5	1.5	1.5	0.06
58	15.31	33.117	24.456	5.84	102.1	2.3	0.38	0.0	0.01	0.10	0.03	9.0	1.6	1.6	1.6	0.06
100	13.93	33.016	24.672	5.90	100.2	2.7	0.43	0.2	0.02	0.39	0.34	1.6	0.98	1.0	1.0	0.04
138	11.41	33.297	25.379	5.06	81.7	8.8	1.00	9.5	0.03	0.15	0.17	0.33	0.04	0.06	0.05	0.01

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 90 35

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
33 15.1 N	118 15.0 W	5/ 4/93	1827 UTC	21 m	02	1150 - 1843 PST	1156 PST	1843 PST	388.3 mg C/m2

DEPTH	TEMP	SALINITY	SIGMA	DISS O2	OXY	SIO3	PO4	NO3	NO2	CHL	PHAEO	LIGHT	UPTAKE (mg C/m3)			
m	DEG C	PSS 78	THETA	ml/1	PCT	uM/1	UM/1	uM/1	uM/1	ug/1	ug/1	PCT	1	2	MEAN	DARK
0	16.45	33.188	24.253	5.84	104.5	2.5	0.33	0.1	0.02	0.20	0.04	100. A	5.3	5.9	5.6	0.10
15	16.38	33.188	24.269	5.84	104.4	2.5	0.33	0.1	0.02	0.20	0.04	33.	5.9	5.9	5.9	0.13
24	14.89	33.214	24.621	5.96	103.4	2.9	0.40	0.1	0.02	0.28	0.09	17.	5.5	5.5	5.5	0.12
33	13.81	33.241	24.869	5.69	96.6	4.0	0.52	0.1	0.02	0.92 B	0.53 B	9.0	12.3	12.9	12.6	0.16
56	11.83	33.296	25.300	4.67	76.1	9.4	1.08	10.3	0.12	0.48	0.41	1.7	1.2	1.1	1.1	0.04
77	10.57	33.433	25.633	4.16	66.0	14.7	1.38	15.7	0.05	0.13	0.17	0.36	0.02	0.02	0.02	0.03

A) INCUBATION LIGHT INTENSITIES WERE 97, 35, 18, 9.2, 1.7 AND 0.34 PERCENT RESPECTIVELY.
B) SECOND FLUOROMETER READING NOT RECORDED, CHLOROPHYLL AND PHAEOPIGMENT
CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS.

PRIMARY PRODUCTIVITY CASTS

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 90 60

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 25.1 N	119 57.6 W	4/ 4/93	1902 UTC	30 •	01	1202 - 1844 PST	1203 PST	184 5 PST	122.2 Bg C/B2

DEPTH •	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 Bl/1	OXY PCT	SIO3 UM/1	PO4 uM/1	NO3 uM/1	NO2 UM/1	CHL ug/1	PHAEO uq/1	LIGHT PCT	UPTAKE (Bg C/B3) 1	2	MEAN	DARK:
2	15.43	33.150	24.453	5.82	102.0	2.5	0.37	0.0	0.00	0.08	0.02	90. A	0.46	0.56	0.51	0.07
22	15.37	33.157	24.472	5.83	102.1	2.5	0.37	0.0	0.00	0.08	0.02	32.	1.2	1.3	1.3	0.0ti
35	15.36	33.153	24.472	5.81	101.7	2.4	0.37	0.0	0.00	0.08	0.03	17.	1.3	1.3	1.3	0.07
48	15.23	33.145	24.495	5.85	102.1	2.4	0.37	0.0	0.00	0.11	0.03	8.6	1.5	1.4	1.4	0.0C1
81	12.52	33.062	24.988	5.56	91.8	5.0	0.69	3.3	0.09	0.34	0.31	1.6	1.4	1.4	1.4	0.0;i
112	11.02	33.367	25.503	4.96	79.4	10.0	1.04	10.1	0.02	0.11	0.12	0.32	0.04	0.07	0.05	0.01!

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 90 100

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
31 5.9 N	122 42.0 W	3/ 4/93	1830 UTC	32 n	01	1210 - 1852 PST	1214 PST	1852 PST	68.1 ag C/Bi!

DEPTH B	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 Bl/1	OXY PCT	SIO3 UM/1	PO4 UM/1	NO3 UM/1	NO2 UM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/B3) 1	2	MEAN	DARK
1	15.64	33.207	24.450	5.77	101.6	2.6	0.38	0.1	0.00	0.07	0.02	95. A	0.26	0.28	0.27	0.06
22	15.62	33.209	24.457	5.78	101.8	2.4	0.37	0.1	0.00	0.07	0.02	35.	0.99	0.98	0.99	0.06
36	15.63	33.208	24.454	5.77	101.6	2.3	0.38	0.1	0.00	0.07	0.02	18.	0.83	0.87	0.85	0.07
50	15.59	33.199	24.457	5.78	101.7	2.2	0.37	0.1	0.00	0.08	0.02	9.1	0.84	0.80	0.82	0.07 B
84	15.36	33.227	24.530	5.79	101.4	2.2	0.37	0.0	0.00	0.17	0.08	1.8	0.39	0.43	0.41	0.06
117	13.82	33.266	24.889	5.59	94.9	3.8	0.54	1.7	0.10	0.26	0.26	0.37	0.11	0.17	0.14	0.01

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 93 45

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
32 21.7 N	118 34.3 W	31/ 3/93	1917 DTC	18 B	02	1158 - 1839 PST	1158 PST	1840 PST	182.1 mg C/m2

DEPTH B	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 Bl/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/B3) 1	2	MEAN	DARK
1	15.06	33.195	24.568	5.94	103.4	1.4	0.40	0.1	0.01	0.25	0.05	92. A	3.1	2.8	3.0	0.19
13	14.93	33.189	24.592	5.96	103.5	1.2	0.39	0.1	0.01	0.26	0.07	33.	3.7	4.1	3.9	0.23
21	14.87	33.192	24.608	5.98	103.7	1.3	0.41	0.1	0.01	0.28	0.08	17.	3.5	3.4	3.5	0.24
29	14.84	33.187	24.611	5.96	103.3	1.3	0.40	0.1	0.01	0.33	0.12	8.4	3.4	3.3	3.3	0.24
49	13.84	33.197	24.829	5.68	96.4	3.3	0.56	1.8	0.06	0.70	0.41	1.5	2.4	2.4	2.4	0.04
68	11.96	33.298	25.277	4.84	79.0	9.6	1.03	9.5	0.20	0.43	0.51	0.30	0.10	0.15	0.12	0.03

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 93 80

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALIUE
31 10.8 N	120 55.0 W	1/ 4/93	1912 UTC	24 B	01	1207 - 1851 PST	1208 PST	1851 PST	120.4 ag C/B2

DEPTH B	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 Bl/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/B3) 1	2	MEAN	DARK
1	14.89	33.068	24.507	5.90	102.3	2.5	0.37	0.2	0.00	0.12	0.03	94. A	1.0	0.94	0.98	0.06
18	14.81	33.067	24.524	5.90	102.1	2.5	0.39	0.2	0.00	0.12	0.03	32.	1.9	2.0	1.9	0.08
28	14.76	33.067	24.535	5.90	102.0	2.4	0.36	0.2	0.00	0.14	0.04	17.	1.9	1.9	1.9	0.09
38	14.68	33.066	24.552	5.91	102.0	2.4	0.37	0.2	0.00	0.16	0.05	8.8	1.8	1.8	1.8	0.10
65	14.46	33.122	24.643	5.98	102.8	2.2	0.44	0.1	0.00	0.29	0.13	1.6	1.1	1.1	1.1	0.09
89	12.74	33.017	24.911	5.71	94.6	4.3	0.59	2.8	0.20	0.50	0.42	0.34	0.35	0.50	0.42	0.02

RV DAVID STARR JORDAN — CALCOFI CRUISE 9304 — STATION 93 120

LATITUDE	LONGITUDE	DAY/MO/YR	MESSENGER	SECCHI	FOREL	INCUBATION TIME	LAN	CIVIL TWILIGHT	INTEGRATED VALUE
29 50.7 N	123 35.4 W	2/ 4/93	1954 UTC	30 B	01	1216 - 1859 PST	1218 PST	1859 PST	49.2 mg C/m2

DEPTH B	TEMP DEG C	SALINITY PSS 78	SIGMA THETA	DISS O2 Bl/1	OXY PCT	SIO3 uM/1	PO4 uM/1	NO3 uM/1	NO2 uM/1	CHL ug/1	PHAEO ug/1	LIGHT PCT	UPTAKE (mg C/m3) 1	2	MEAN	DARK
2	16.60	33.396	24.378	5.67	101.9	2.4	0.36	0.0	0.01	0.06	0.01	90. A	0.43	0.42	0.43	0.05
23	16.57	33.397	24.386	5.67	101.8	2.4	0.34	0.0	0.01	0.06	0.01	31.	0.83	0.86	0.84	0.06
36	16.55	33.399	24.393	5.67	101.8	2.3	0.35	0.0	0.01	0.06	0.02	16.	0.73	0.69	0.71	0.07
49	16.54	33.402	24.398	5.66	101.6	2.3	0.34	0.0	0.01	0.07	0.01	8.1	0.61	0.62	0.61	0.06
81	15.91	33.278	24.447	5.74	101.7	2.3	0.36	0.0	0.01	0.14	0.06	1.6	0.17	0.20	0.18	0.08
112	13.32	33.324	25.035	5.44	91.4	4.8	0.62	3.5	0.07	0.32	0.30	0.32	0.06	0.05	0.06	0.03

A) INCUBATION LIGHT INTENSITIES WERE 97, 35, 18, 9.2, 1.7 AND 0.34 PERCENT RESPECTIVELY.
B) DARK VALUE ASSUMED, ORIGINAL SAMPLE LOST.

MACROZOOPLANKTON BIOMASS
Net Mesh Size: 0.505 mm

Line	Su.	Position		Date Mo/Day	Time(PST) Start	End	Water Volume Strained (m)	Max. Tow Depth (m)	Volume per 1000 m Strained Total (cm)	Small (cm)
77	49	35 05. IN	120 47.1W	04/14	1721	1728	129	62	39	39
77	51	35 01.0N	120 55.3W	04/14	1436	1458	442	193	52	52
77	55	34 53.0N	121 12.5W	04/14	0952	1014	433	201	78	78
77	60	34 43.0N	121 34.2W	04/14	0557	0619	417	197	84	84
77	70	34 23.0N	122 15.3W	04/13	2324	2346	420	203	148	148
77	80	34 03. IN	122 57.4W	04/13	1640	1702	435	204	23	23
77	90	33 43.4N	123 38.9W	04/13	0700	0722	440	209	18	18
77	100	33 23.0N	124 19.8W	04/13	0047	0109	448	209	16	16
80	51	34 27.0N	120 32.1W	04/11	0447	0455	163	67	123	43
80	55	34 18.7N	120 49.5W	04/11	0820	0842	451	206	62	24
80	60	34 07.3N	121 10.3W	04/11	1440	1503	520	196	23	23
80	70	33 48.9N	121 51JW	04/11	2100	2121	444	206	27	27
80	80	33 29.3N	122 32.1W	04/12	0258	0320	436	226	21	21
80	90	33 09.3N	123 13.1W	04/12	0956	1018	464	215	17	17
80	100	32 48.9N	123 54.6W	04/12	1731	1753	431	209	14	14
82	47	34 16.7N	120 02.3W	04/11	0023	0045	432	223	60	60
83	40.6	34 13.1N	119 25.0W	04/10	1910	1914	67	28	60	60
83	42	34 10.4N	119 30.2W	04/10	1650	1707	326	165	28	28
83	51	33 52.9N	120 07.7W	04/10	0812	0820	153	70	117	117
83	55	33 44.0N	120 25.0W	04/10	0458	0521	432	212	90	56
83	60	33 34.2N	120 46.3W	04/10	0028	0051	496	201	32	32
83	70	33 13.9N	121 26.5W	04/09	1742	1804	408	217	12	12
83	80	32 54.8N	122 07.9W	04/09	1012	1034	440	213	16	16
83	90	32 34.9N	122 49.2W	04/09	0415	0437	409	213	17	17
83	100	32 15. IN	123 29.5W	04/08	2241	2303	411	209	15	15
83	110	31 54.8N	124 10.8W	04/08	1711	1733	426	220	14	14
87	33	33 53.2N	118 30.2W	04/05	2314	2320	102	48	59	59
87	35	33 49. IN	118 38.7W	04/06	0136	0158	408	209	56	56
87	40	33 39.5N	119 00.0W	04/06	0531	0553	431	204	35	35
87	45	33 29.2N	119 19.6W	04/06	0928	0950	406	210	44	44
87	50	33 18.9N	119 39.8W	04/06	1900	1907	126	54	293	253
87	55	33 09.2N	120 00.7W	04/06	2258	2320	404	212	30	30
87	60	32 59.8N	120 20.6W	04/07	0324	0346	409	212	105	61
87	70	32 39.6N	121 03.1W	04/07	0938	1000	405	208	22	22
87	80	32 18.9N	121 44.4W	04/07	1645	1707	422	210	36	36
87	90	31 59.5N	122 24.5W	04/07	2214	2236	425	210	26	26
87	100	31 39.4N	123 04.6W	04/08	0343	0405	418	213	14	14
87	110	31 19.8N	123 45.3W	04/08	0913	0935	419	209	12	12
90	28	33 28.8N	117 45.8W	04/05	1637	1644	118	57	85	85
90	30	33 24.8N	117 54.5W	04/05	1345	1407	405	216	32	32
90	35	33 14.9N	118 15.5W	04/05	0848	0910	429	207	33	33
90	37	33 11.3N	118 23.7W	04/05	0552	0614	427	209	33	33
90	45	32 54.0N	118 56.5W	04/05	0017	0039	447	212	56	56
90	53	32 38.8N	119 28.8W	04/04	1810	1832	420	219	10	10
90	60	32 24.7N	119 57.9W	04/04	1235	1258	466	205	6	6
90	70	32 05.3N	120 38.8W	04/04	0600	0623	451	222	22	22
90	80	31 44.9N	121 19.7W	04/03	2322	2344	419	217	36	36
90	90	31 24.3N	122 00.2W	04/03	1705	1727	423	217	28	28
90	100	31 05.3N	122 40.4W	04/03	0827	0849	444	210	9	9
90	110	30 45.6N	123 20.0W	04/03	0224	0247	448	218	13	13
90	120	30 25.3N	124 00.7W	04/02	2007	2030	461	213	9	9
93	26.7	32 57.5N	117 18.8W	03/30	1323	1332	157	77	153	153
93	28	32 53.7N	117 25.5W	03/30	1858	1920	415	211	51	51
93	30	32 50.4N	117 32.5W	03/30	2133	2155	396	214	53	53
93	35	32 41.2N	117 53.0W	03/31	0120	0142	390	216	49	49
93	40	32 30.6N	118 13.6W	03/31	0506	0528	410	211	41	41
93	45	32 21.3N	118 33.4W	03/31	1019	1042	403	210	62	62
93	50	32 10.5N	118 54.1W	03/31	1505	1527	409	218	20	20
93	55	32 00. IN	119 14.7W	03/31	1913	1935	421	210	24	24
93	60	31 50.3N	119 35.2W	03/31	2319	2341	418	215	14	14
93	70	31 31.2N	120 15.6W	04/01	0531	0553	426	211	14	14
93	80	31 10.9N	120 54.6W	04/01	1220	1242	431	232	32	32
93	90	30 50.8N	121 35.4W	04/01	1902	1925	445	223	11	11
93	100	30 30.9N	122 15.8W	04/02	0108	0131	458	222	13	13
93	110	3011.1N	122 56.6W	04/02	0659	0722	478	209	4	4
93	120	29 50.9N	123 35.6W	04/02	1323	1346	457	223	7	7